

KIC 006147122

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})
006147122-01	OBS	1062.01	15.451603	142.211709	91.1	3.639	19.2	19.4	2.07	7839	3.86	645.38
006147122-02	OBS	No	15.451677	134.162650	58.3	5.885	11.3	13.4	2.07	7839	2.69	645.37
006147122-03	OBS	No	1.044638	132.183706	8.1	5.632	9.5	9.4	2.07	7839	0.64	23432.73
006147122-04	OBS	No	28.090411	140.111338	51.3	3.308	7.4	7.4	2.07	7839	1.72	290.87

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
006147122-01	OBS	FP	0.00	0	1	1	0	MOD_SEC_DV—MOD_SEC_ALT—HAS_SEC_TCE—CENT_RESOLVED_OFFSET
006147122-02	OBS	FP	0.00	1	1	1	0	IS_SEC_TCE—CENT_RESOLVED_OFFSET—HALO_GHOST
006147122-03	OBS	FP	0.00	1	0	0	0	LPP_DV—MOD_NONUNIQ_ALT
006147122-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_ALT

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 006147122-01

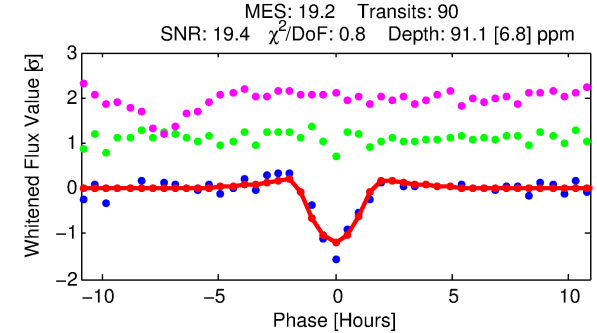
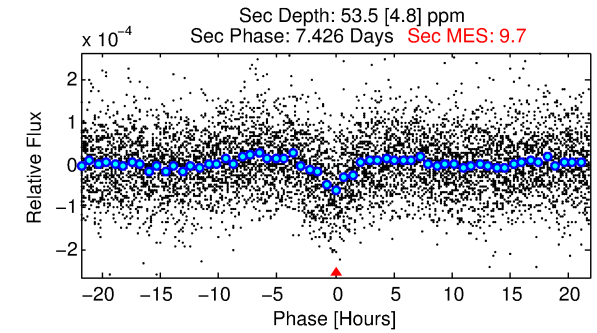
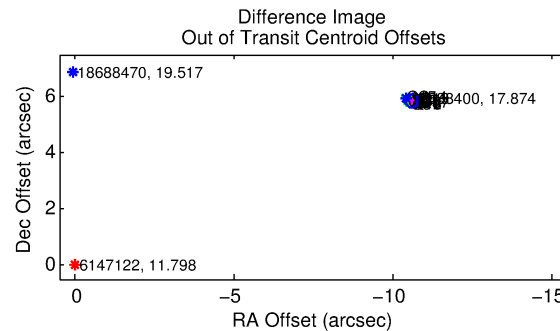
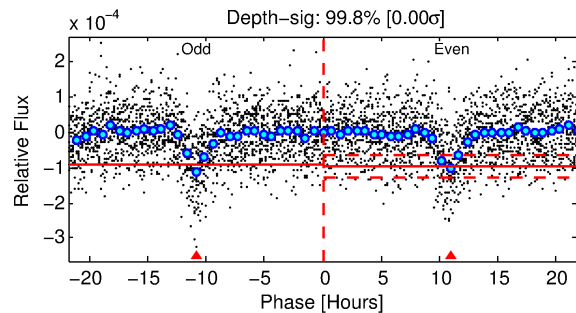
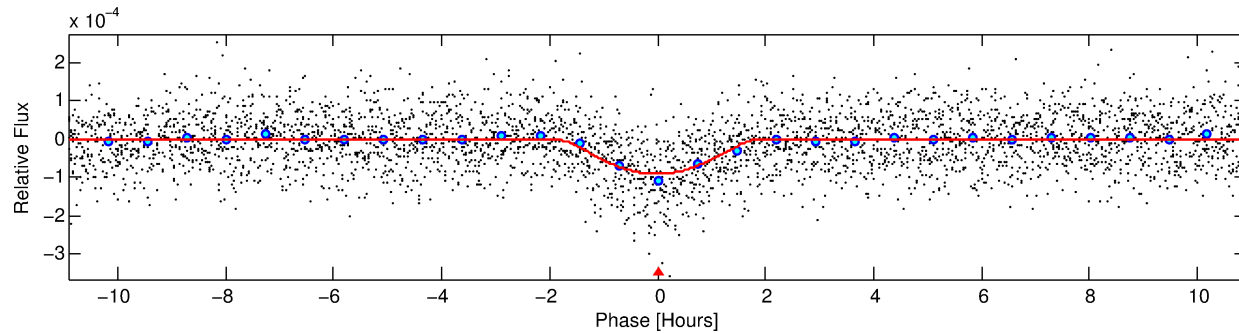
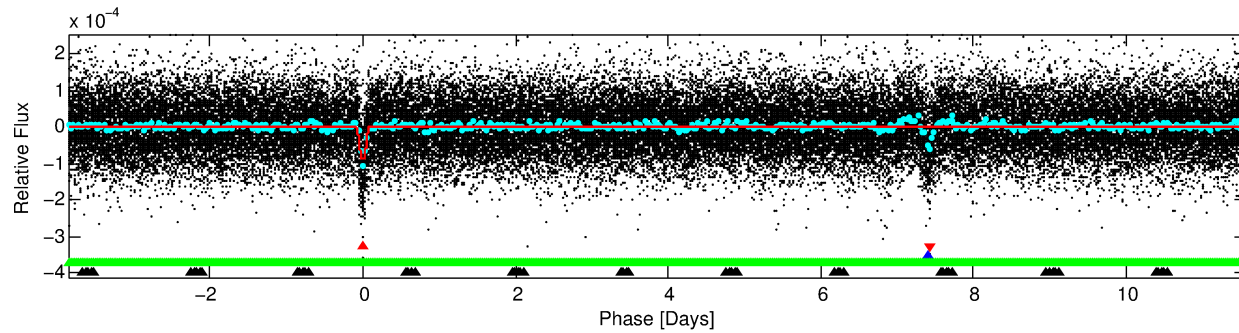
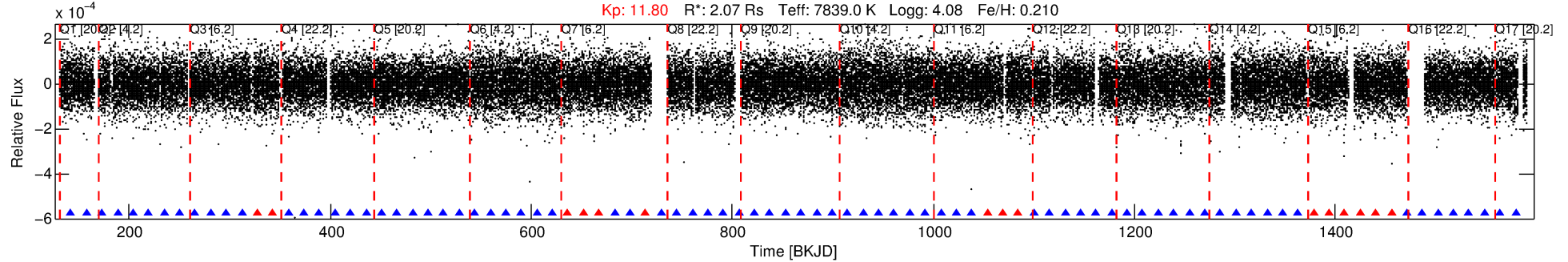
No Significant Match Found

DV One-Page Summary

KIC: 6147122 Candidate: 1 of 4 Period: 15.452 d

KOI: K01062.01 Corr: 0.871

Kp: 11.80 R*: 2.07 Rs Teff: 7839.0 K Logg: 4.08 Fe/H: 0.210



DV Fit Results:

Period = 15.45160 [0.00007] d
Epoch = 142.2117 [0.0038] BKJD
Rp/R* = 0.0171 [0.0273]
a/R* = 6.16 [2.74]
b = 1.00 [0.04]
Seff = 645.38 [217.31]
Teq = 1285 [108] K
Rp = 3.86 [6.25] Re
a = 0.1498 [0.0305] AU
Ag = 44.36 [142.58] [0.30σ]
Teffp = 5128 [4109] K [0.93σ]

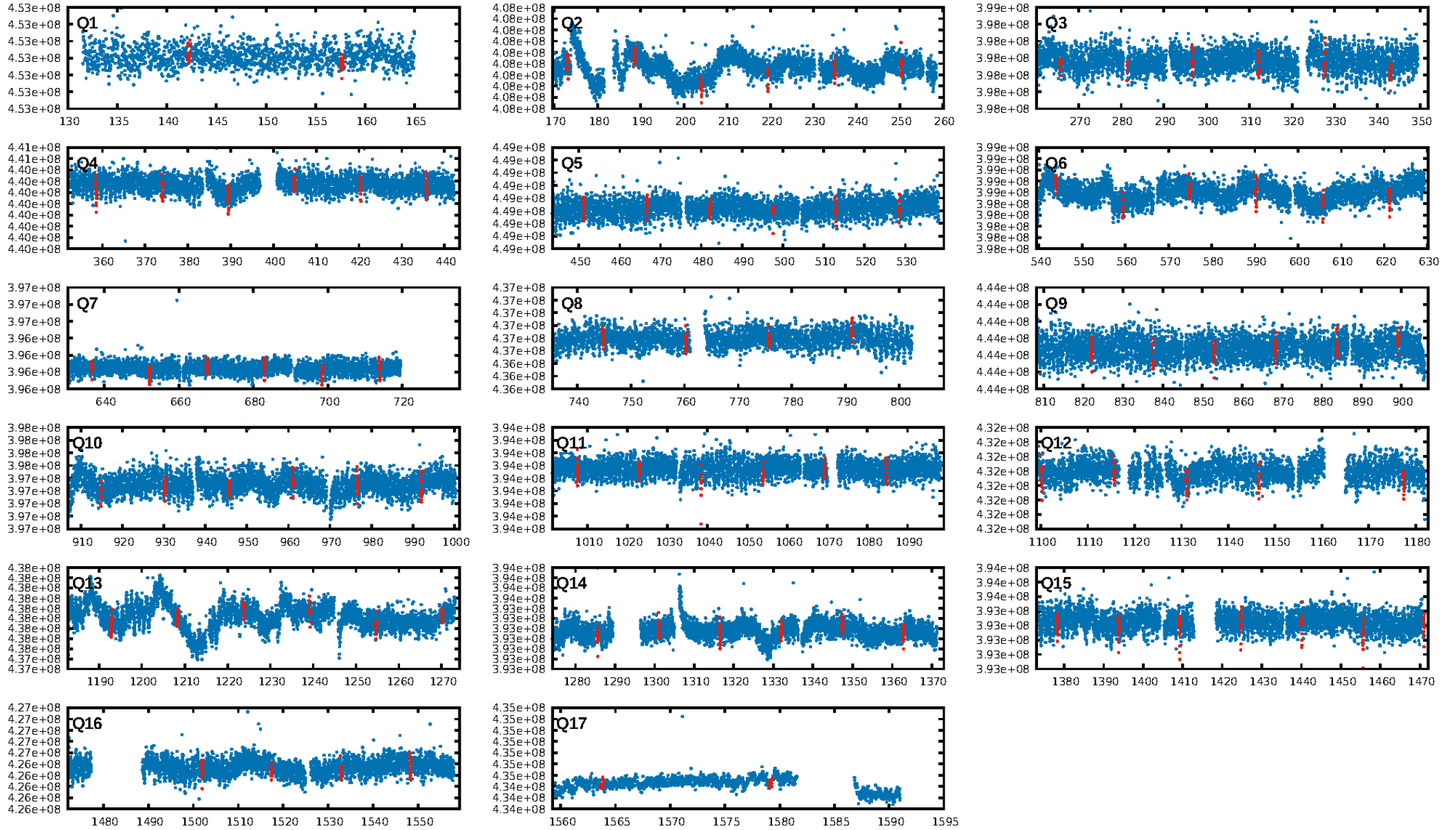
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [51.57σ]
LongPeriod-sig: 0.0% [0.00σ]
ModelChiSquare2-sig: 1.9%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 6.52e-53
RollingBand-fgt: 0.83 [71/86]
GhostDiagnostic-chr: -0.3321
Centroid-sig: 0.0%
Centroid-so: 57.966 arcsec [93.35σ]
OotOffset-rm: 12.070 arcsec [160.36σ]
KicOffset-rm: 12.036 arcsec [162.13σ]
OotOffset-st: 4/4/4/5 [17]
KicOffset-st: 4/4/4/5 [17]
DiffImageQuality-fgm: 1.00 [17/17]
DiffImageOverlap-fno: 0.41 [7/17]

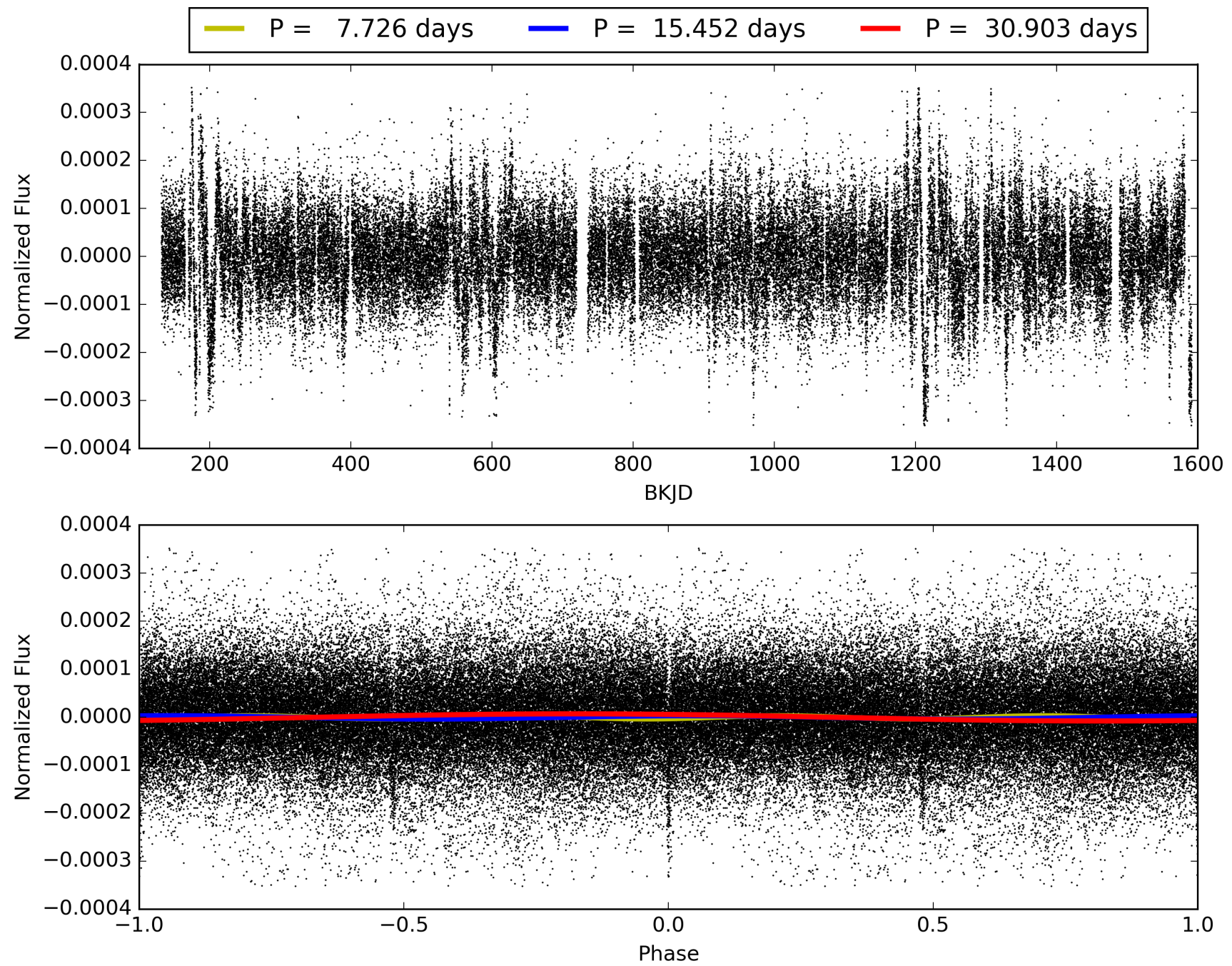
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 14:40:01 Z

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

TCE 006147122-01, PDC Light Curves

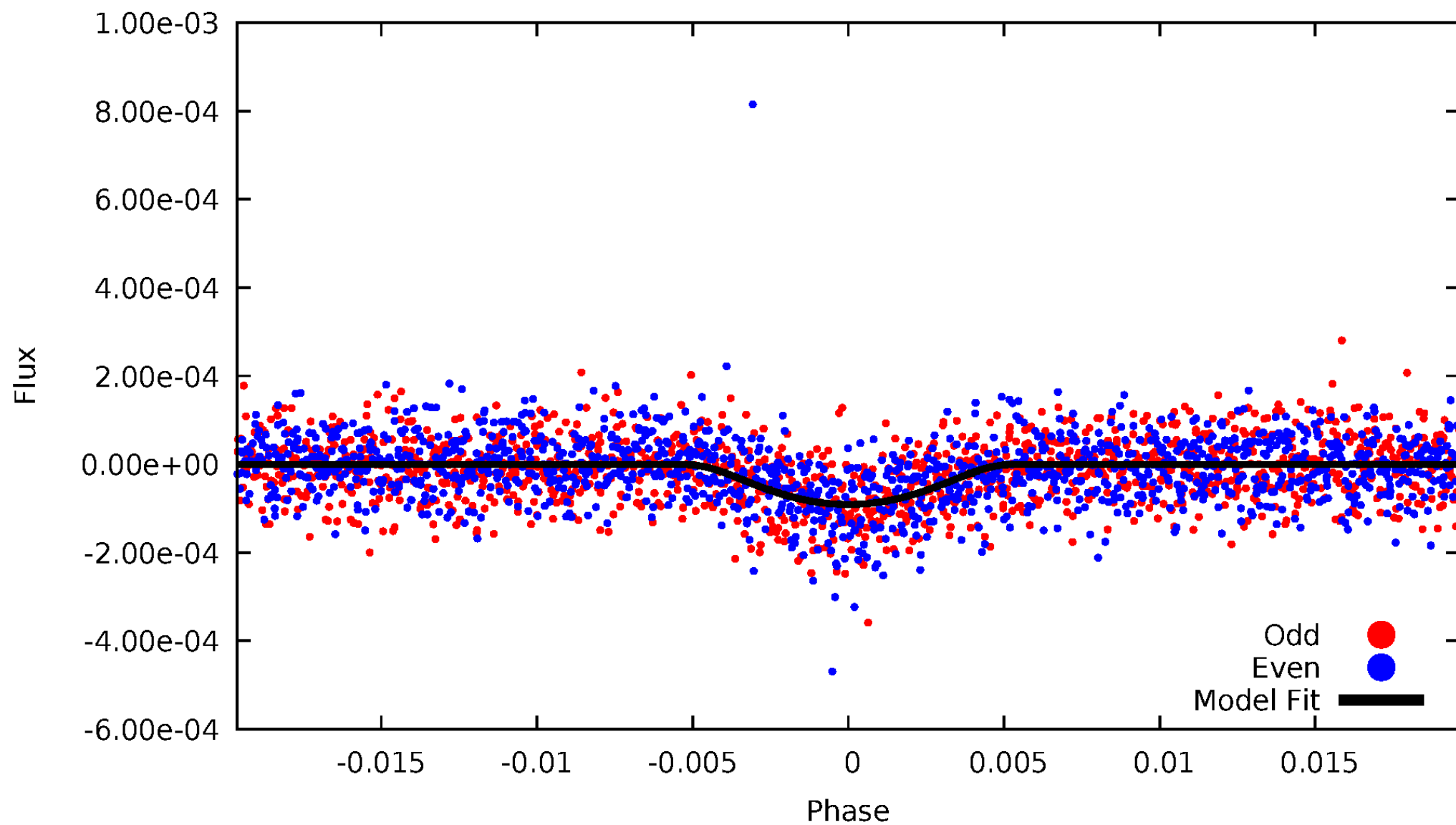


TCE 006147122-01



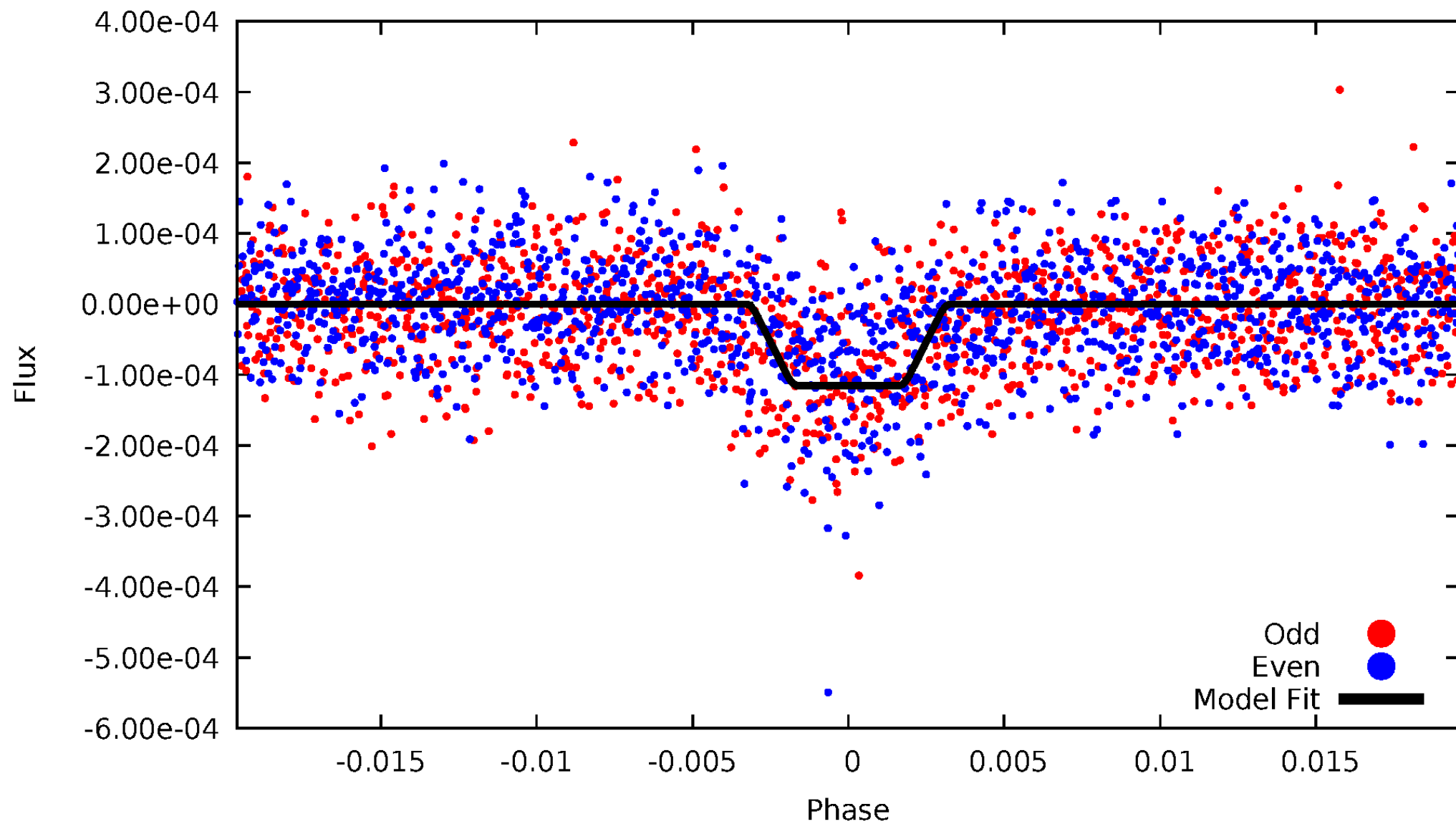
DV Odd/Even

TCE 006147122-01

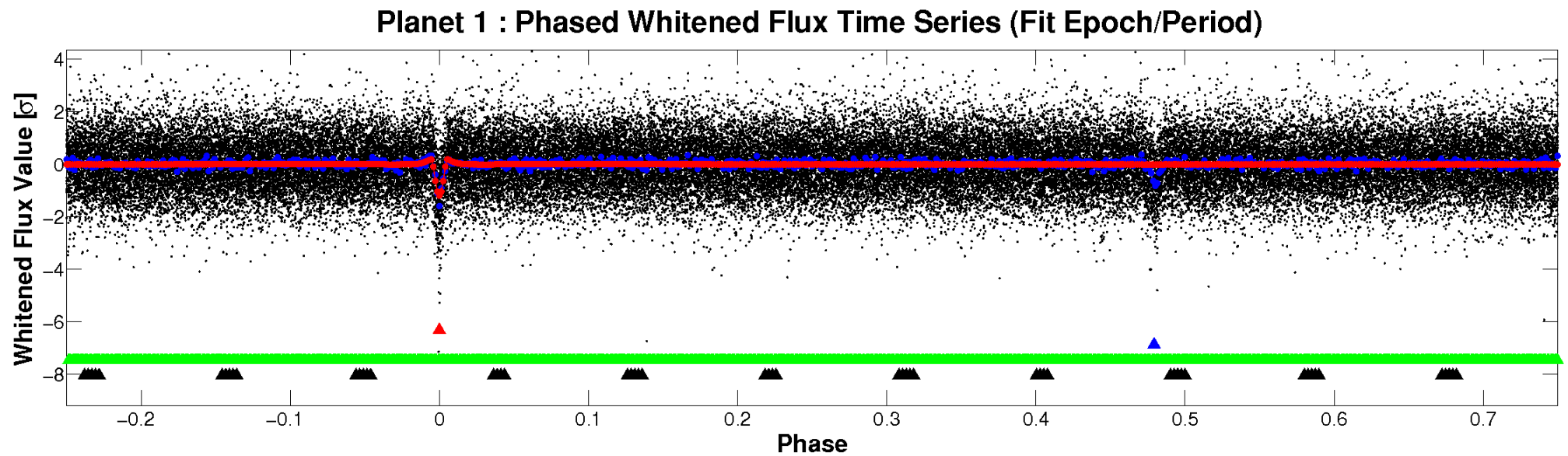
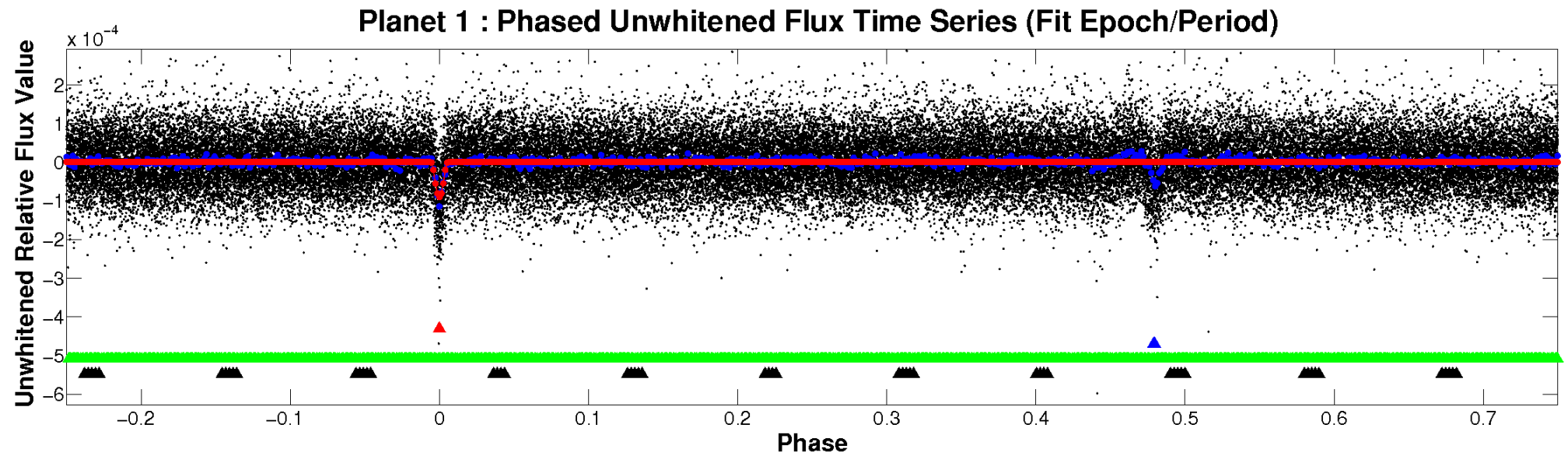


ALT Odd/Even

TCE 006147122-01

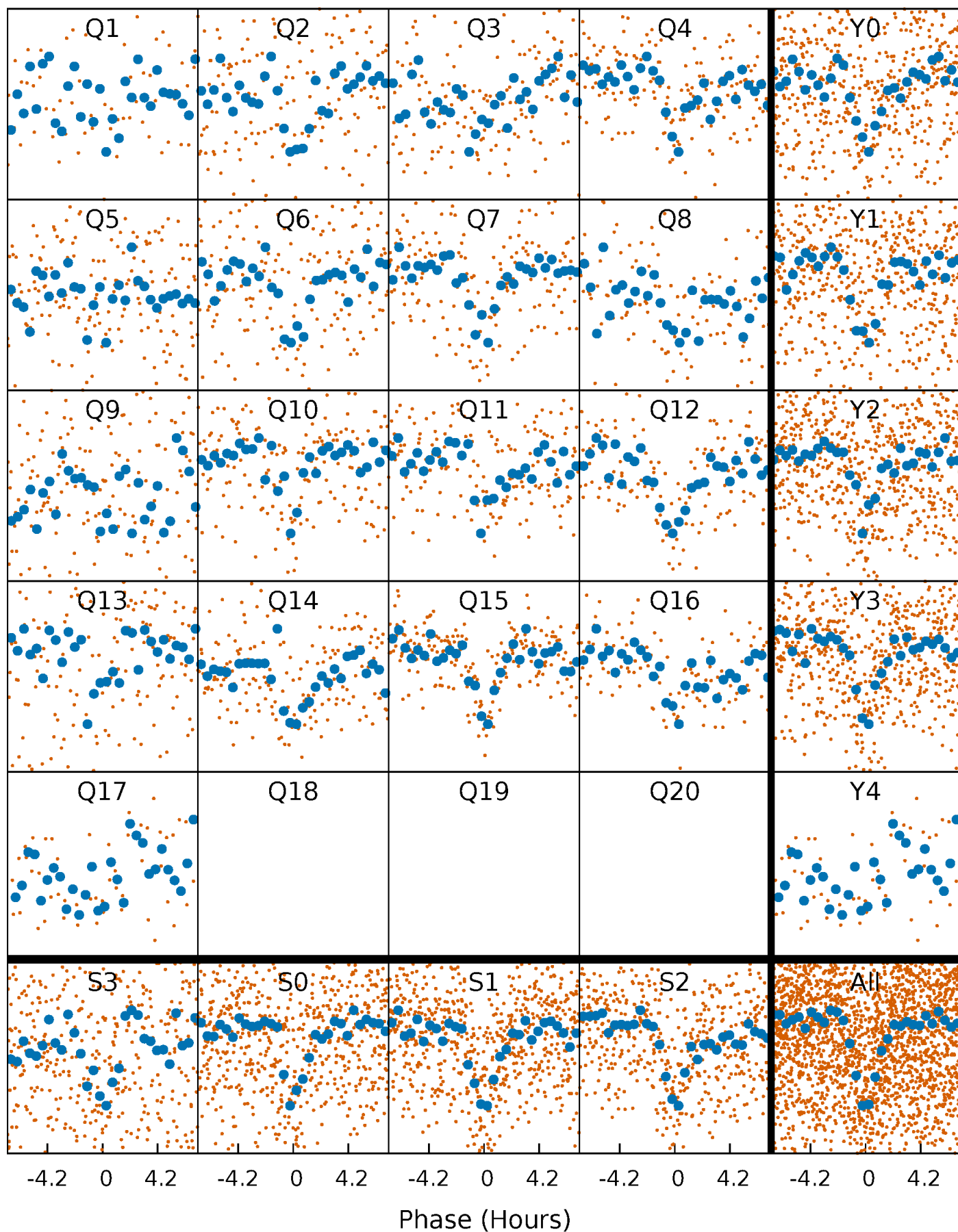


Non-Whitened Vs. Whitened Light Curve



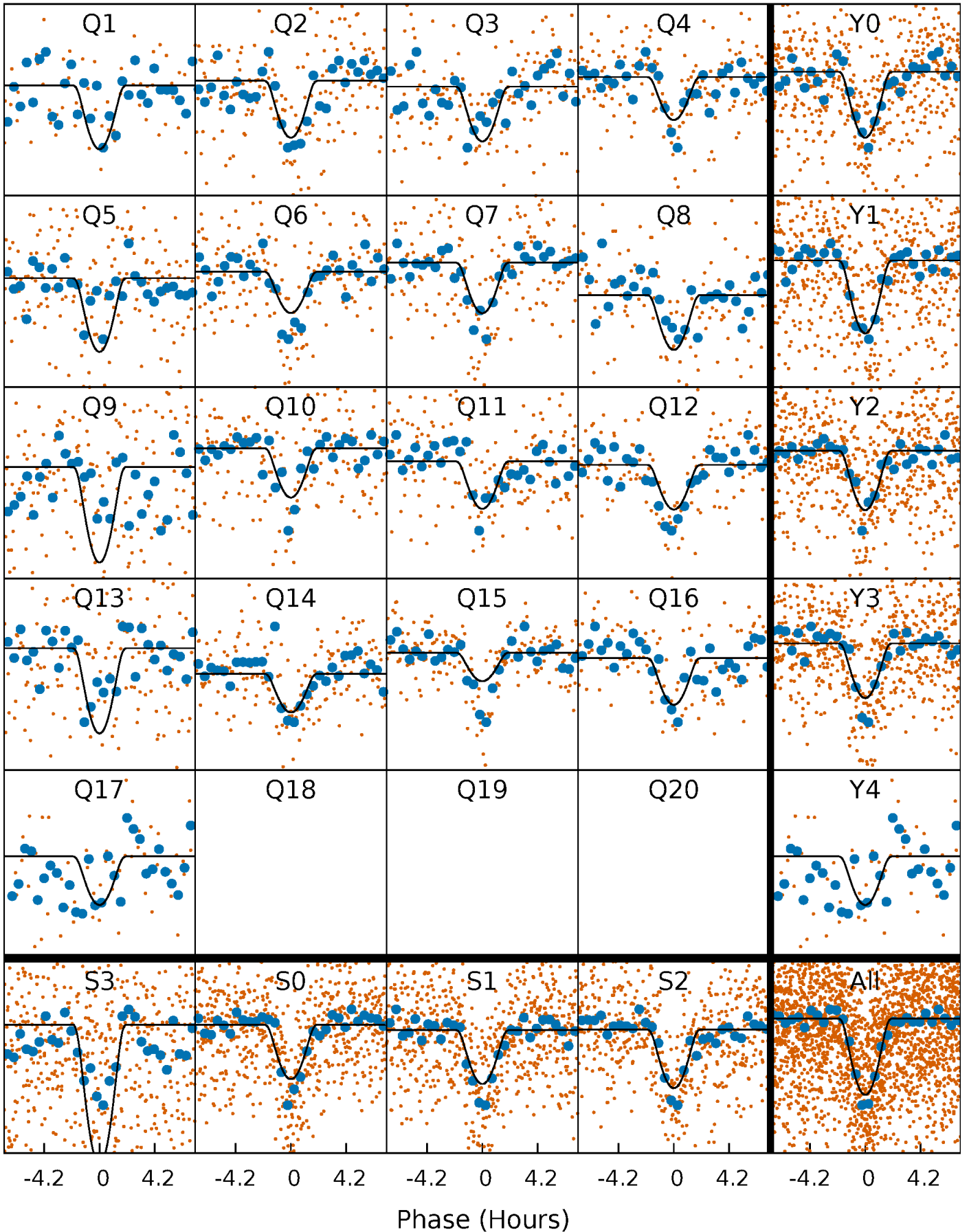
PDC Quarter-Phased Transit Curves

TCE 006147122-01 P= 15.451603 Days $T_0=142.211709$ (BKJD)



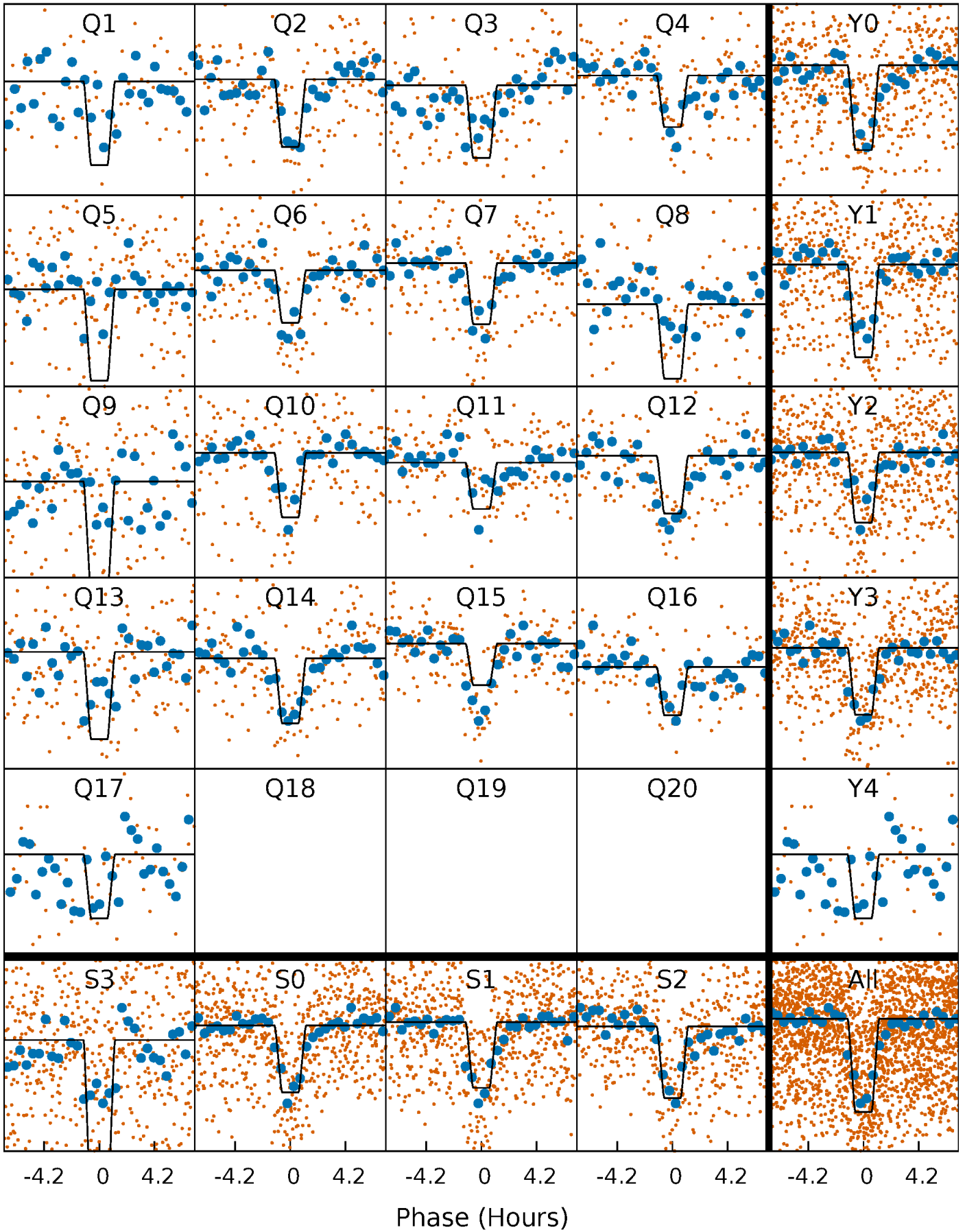
DV Quarter-Phased Transit Curves

TCE 006147122-01 P= 15.451603 Days $T_0=142.211709$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

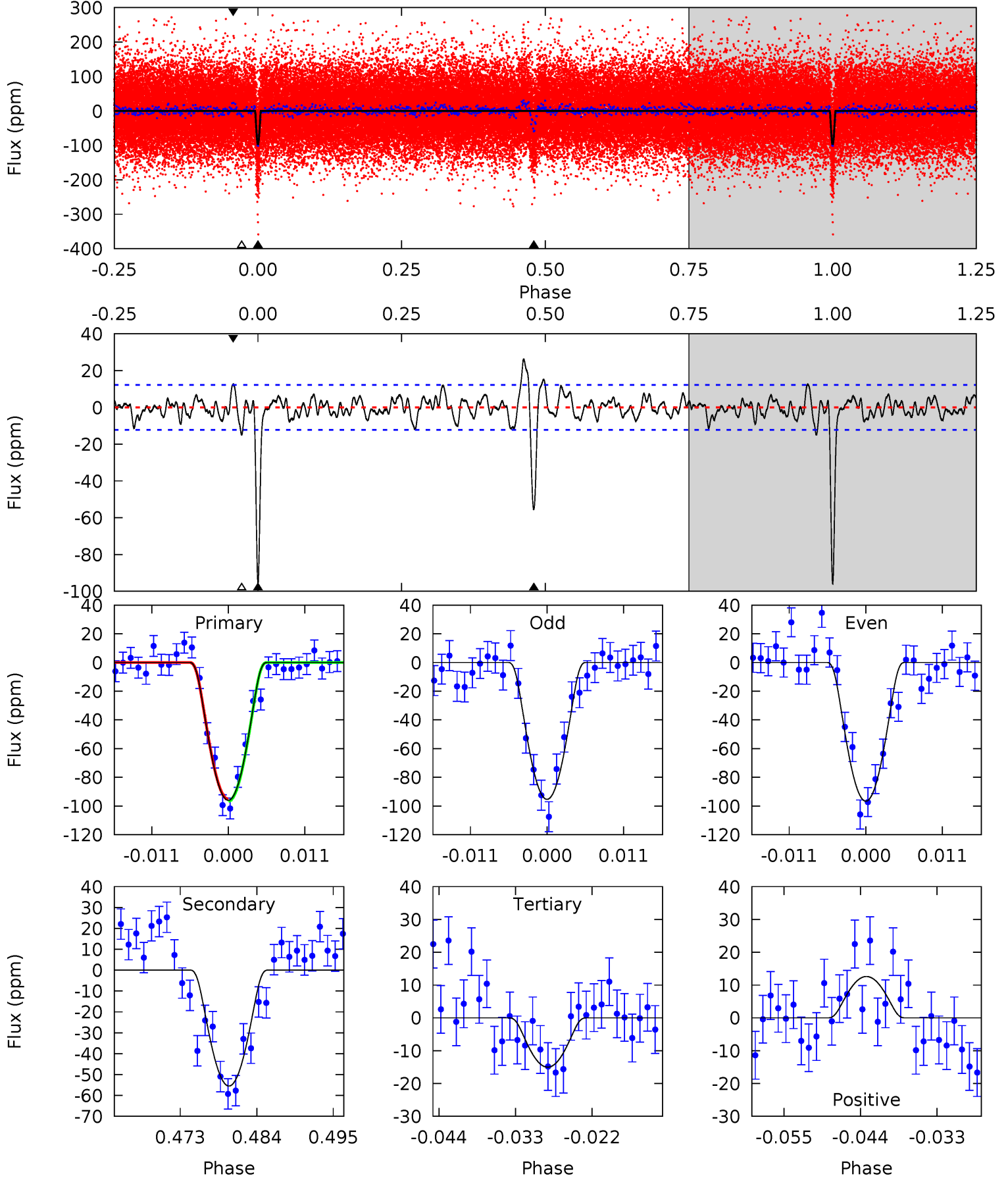
TCE 006147122-01 P= 15.451696 Days $T_0=142.208425$ (BKJD)



DV Model-Shift Uniqueness Test

006147122-01, P = 15.451603 Days, E = 126.760106 Days

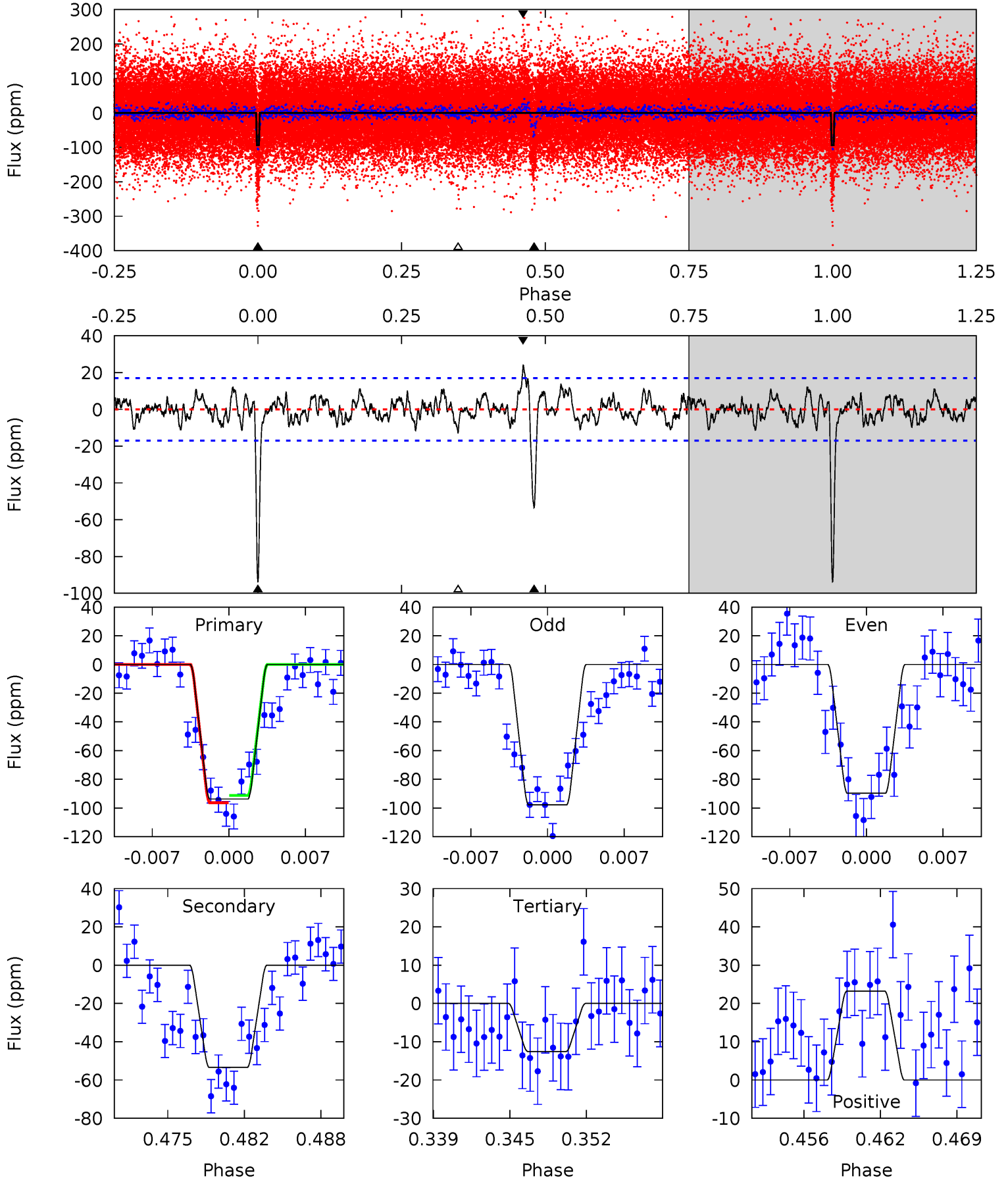
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
39.3	22.7	6.15	5.16	5.01	2.54	2.13	33.1	34.1	16.6	17.6	0.26	1.02	0.22	0.25



Alt Model-Shift Uniqueness Test

006147122-01, P = 15.451696 Days, E = 126.756729 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
28.2	16.1	3.78	6.98	5.11	2.72	1.61	24.4	21.2	12.3	9.08	1.21	1.08	0.20	0.77



Stellar Parameters For KIC 006147122

	$T_{\text{eff}} (K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	7839^{+216}_{-324}	$4.080^{+0.130}_{-0.159}$	$0.210^{+0.150}_{-0.450}$	$2.069^{+0.505}_{-0.413}$	$1.878^{+0.172}_{-0.344}$	$0.298^{+0.193}_{-0.137}$
	+3%/-4%	+3%/-4%	+71%/-214%	+24%/-20%	+9%/-18%	+65%/-46%
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 006147122-01 / KOI 1062.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-56 ± 2	$6.08^{+5.25}_{-4.06}$	1800^{+122}_{-109}	4252^{+2821}_{-860}	18^{+141}_{-13}
Alt.	-53 ± 3	$5.13^{+5.09}_{-3.55}$	1799^{+116}_{-110}	4506^{+3379}_{-939}	24^{+233}_{-18}

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

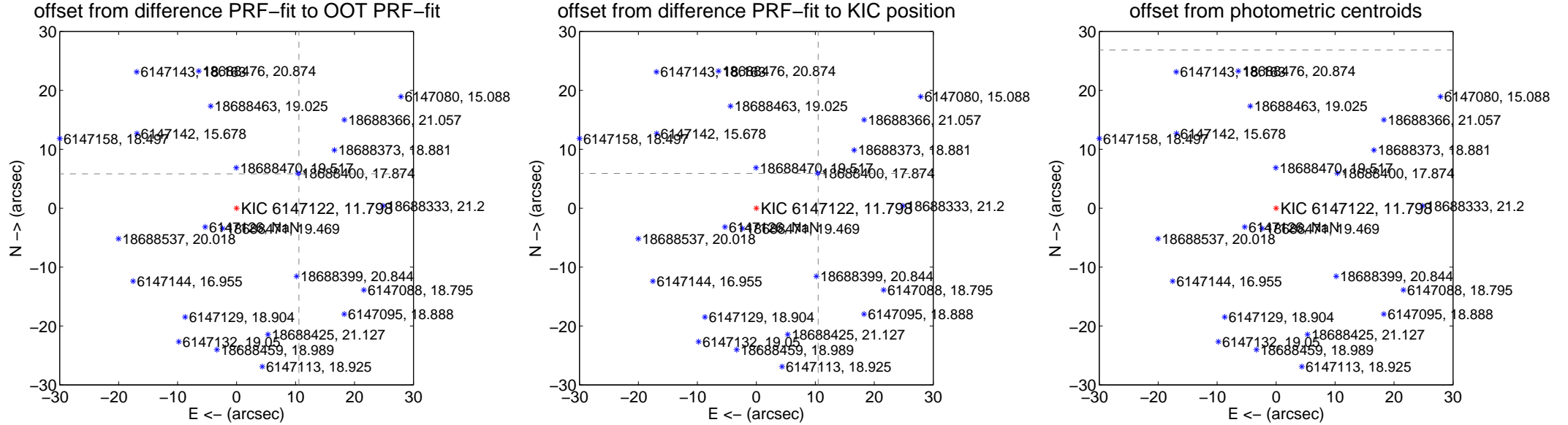
DV Centroid Data

Supplemental centroid analysis for 006147122-01. **Kepler magnitude: 11.80.** Transit SNR 19.41

There are 17 quarters with good PRF difference image offsets

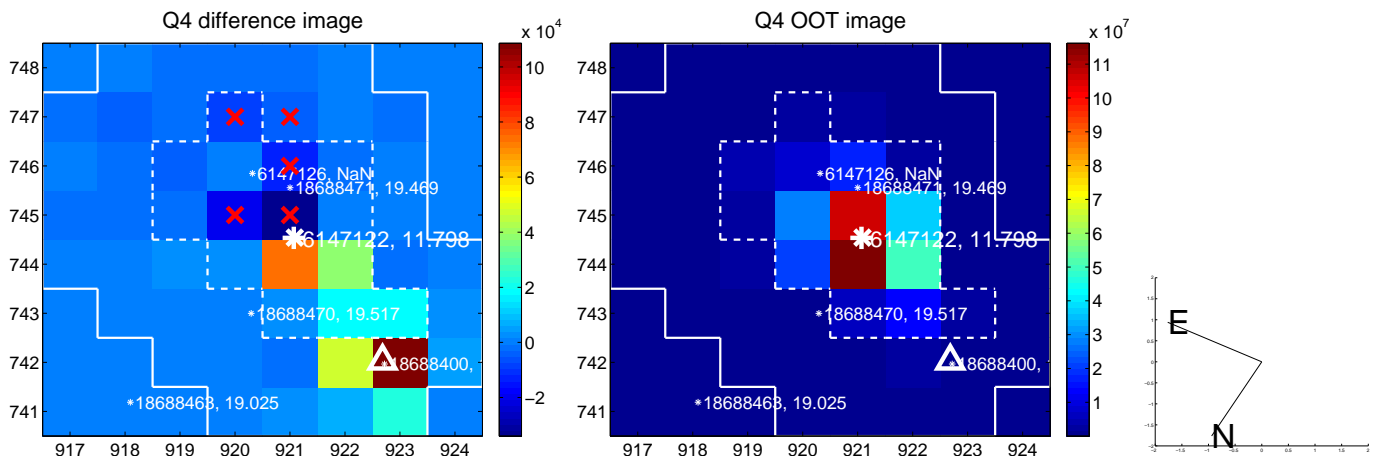
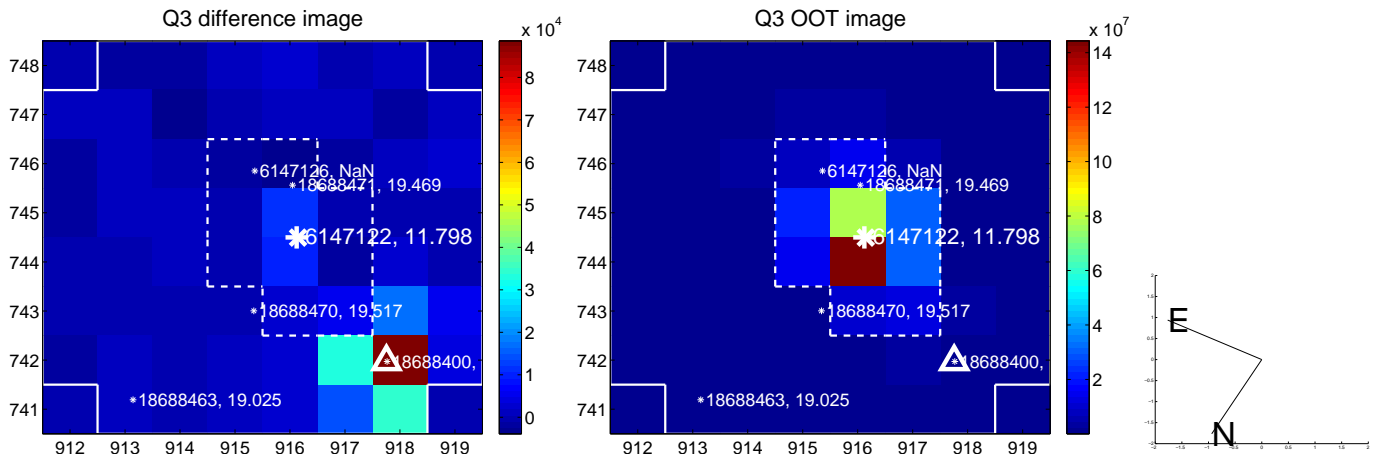
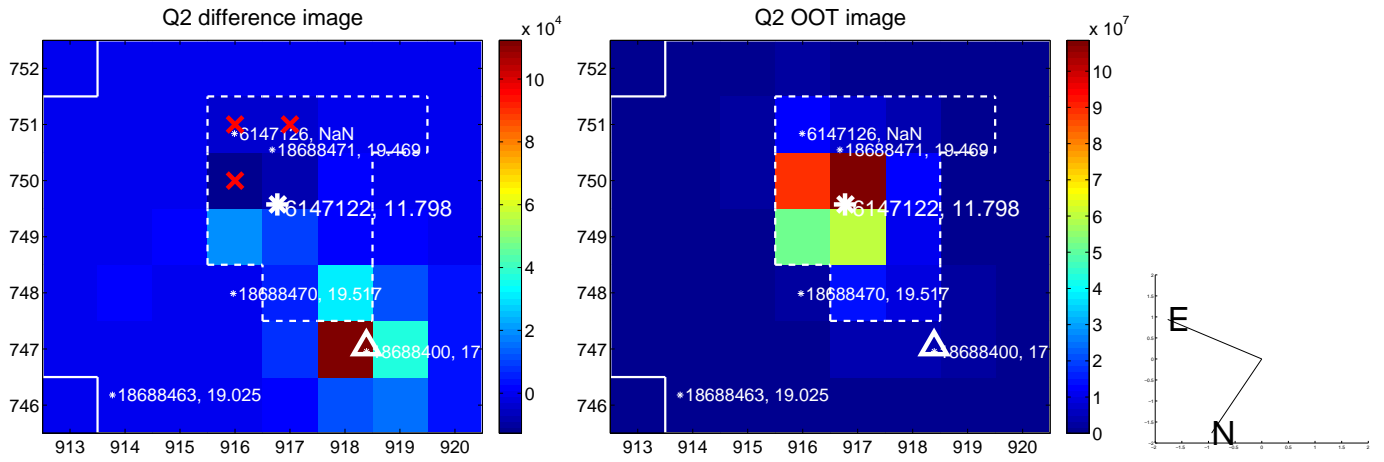
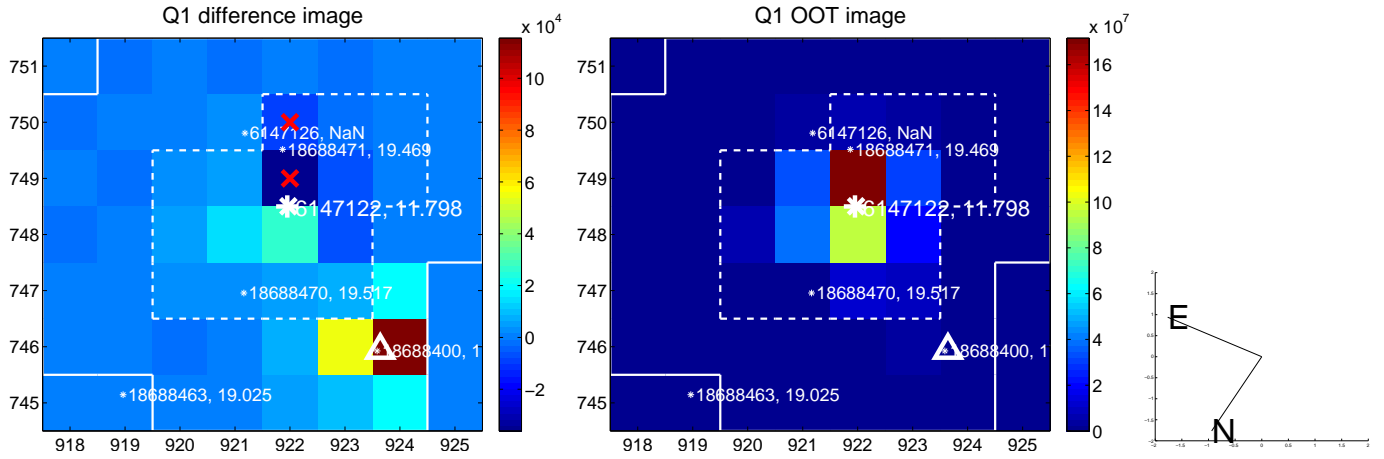
The direct PRF centroid is offset from the target star catalog position by about 0.11 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	12.070 \pm 0.075	160.36	-10.567 \pm 0.077	5.833 \pm 0.069
PRF-fit source offset from KIC position	12.036 \pm 0.074	162.13	-10.489 \pm 0.076	5.902 \pm 0.068
photometric centroid source offset	57.96 \pm 0.62	93.35	-51.37 \pm 0.63	26.85 \pm 0.58

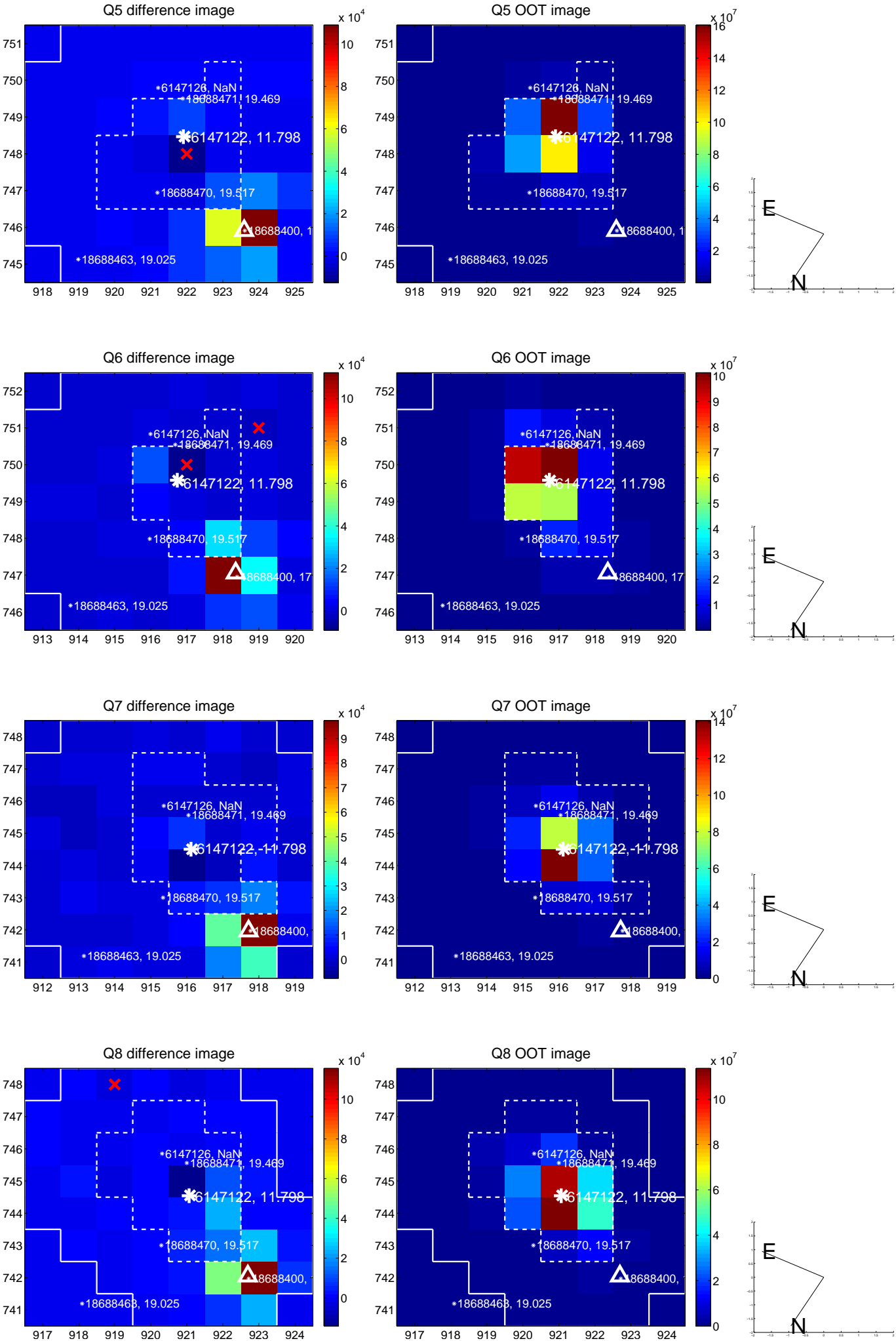


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

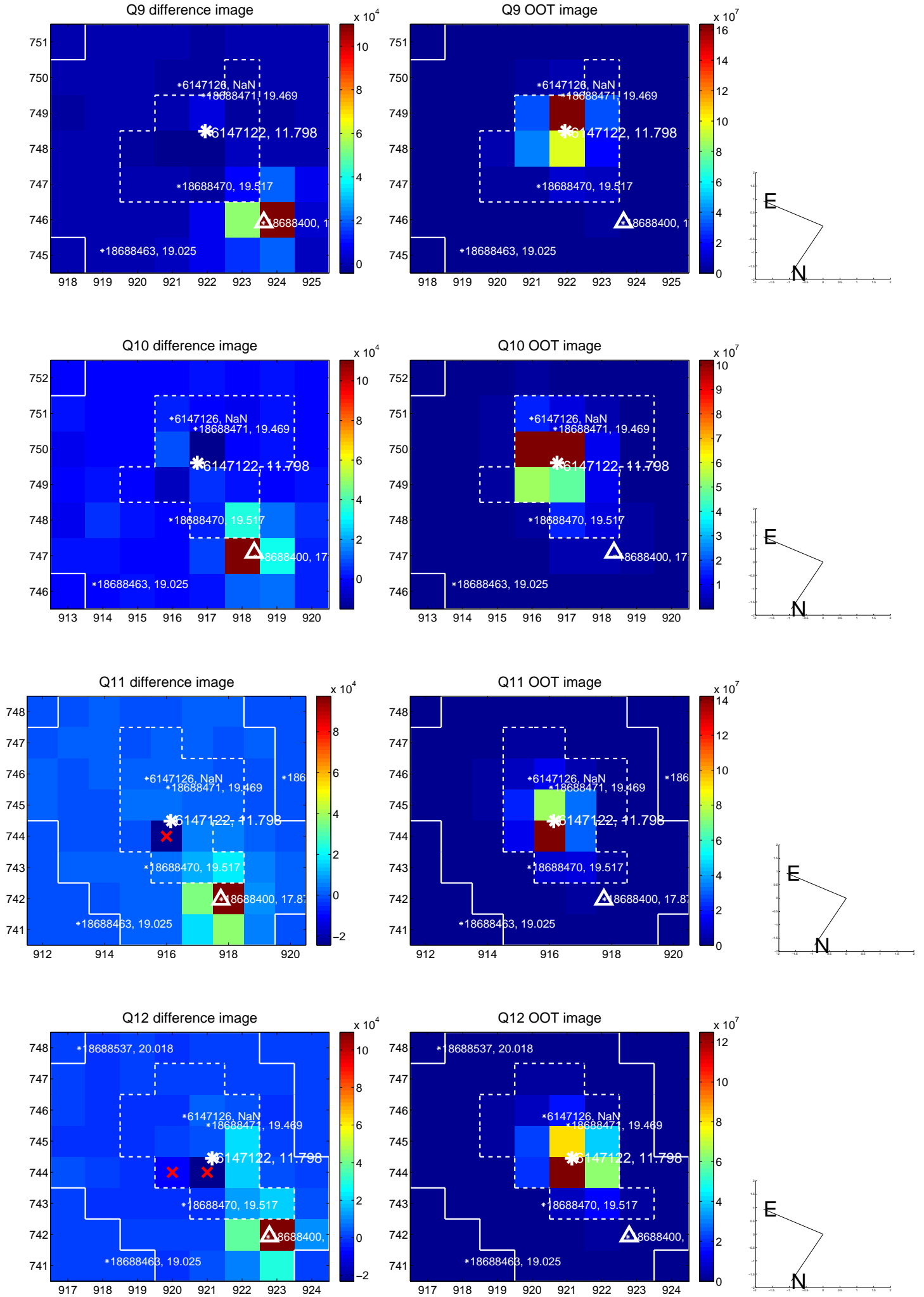
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



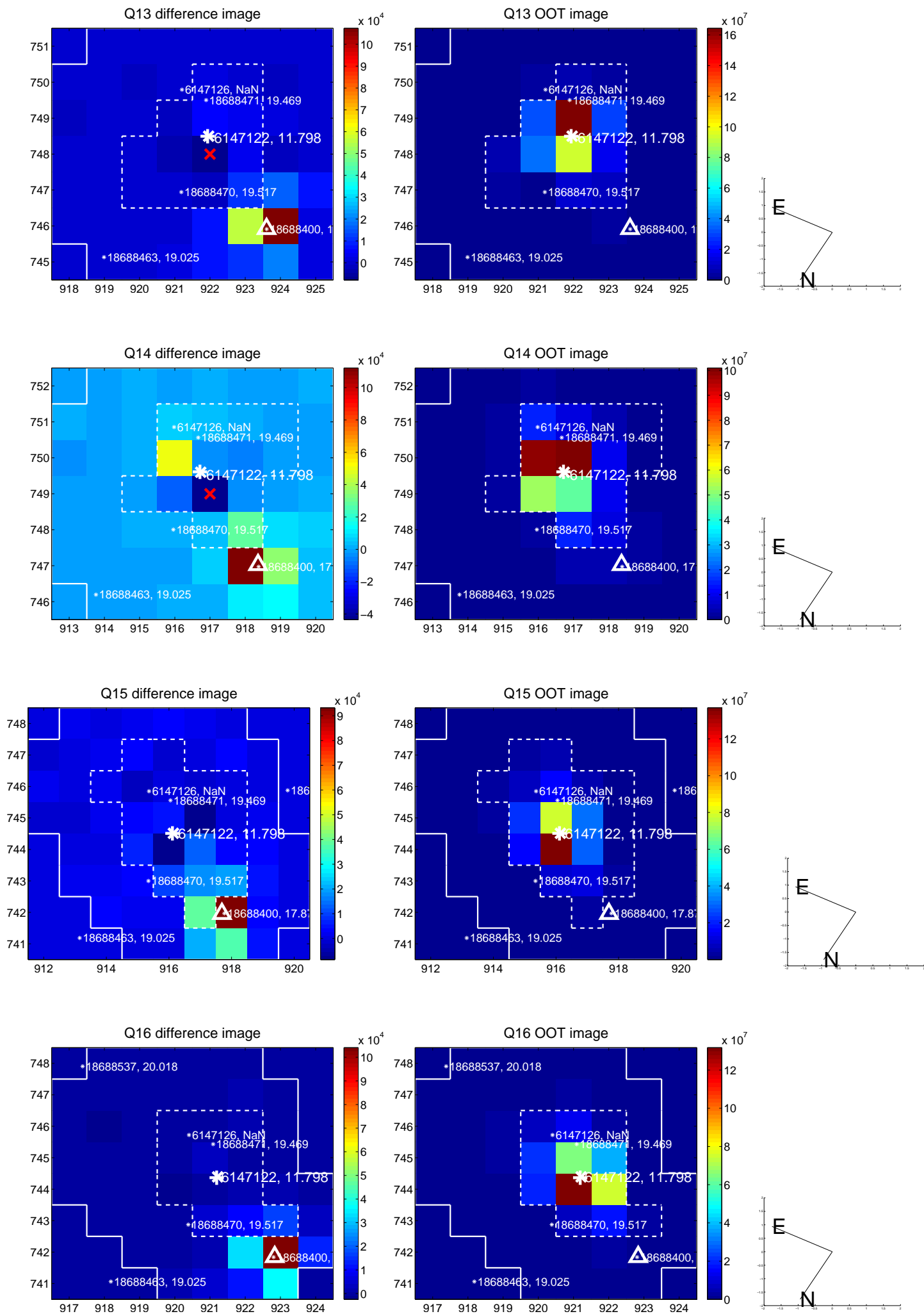
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



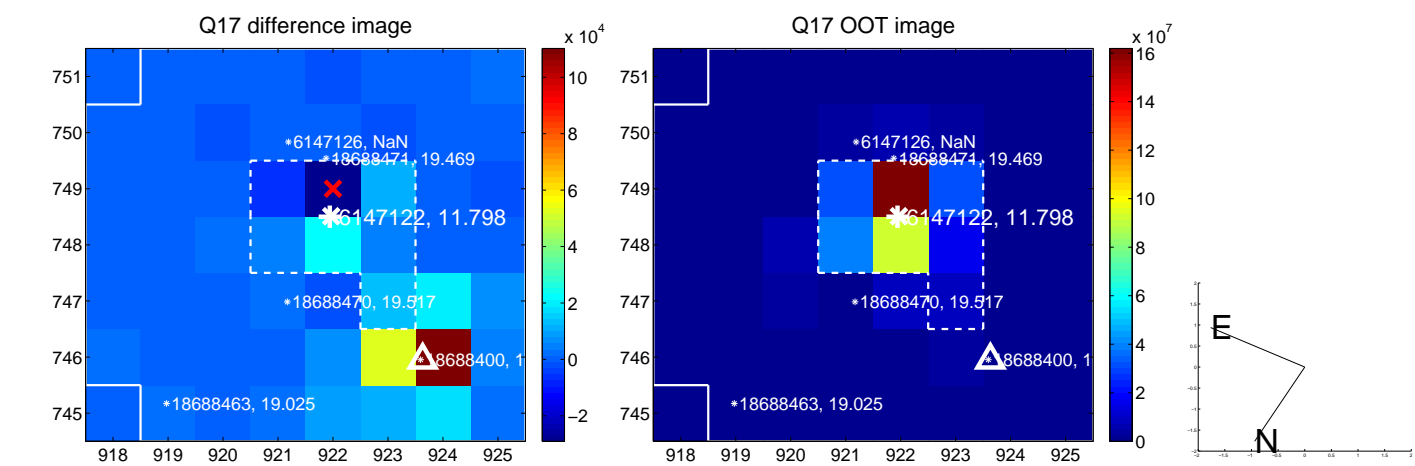
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



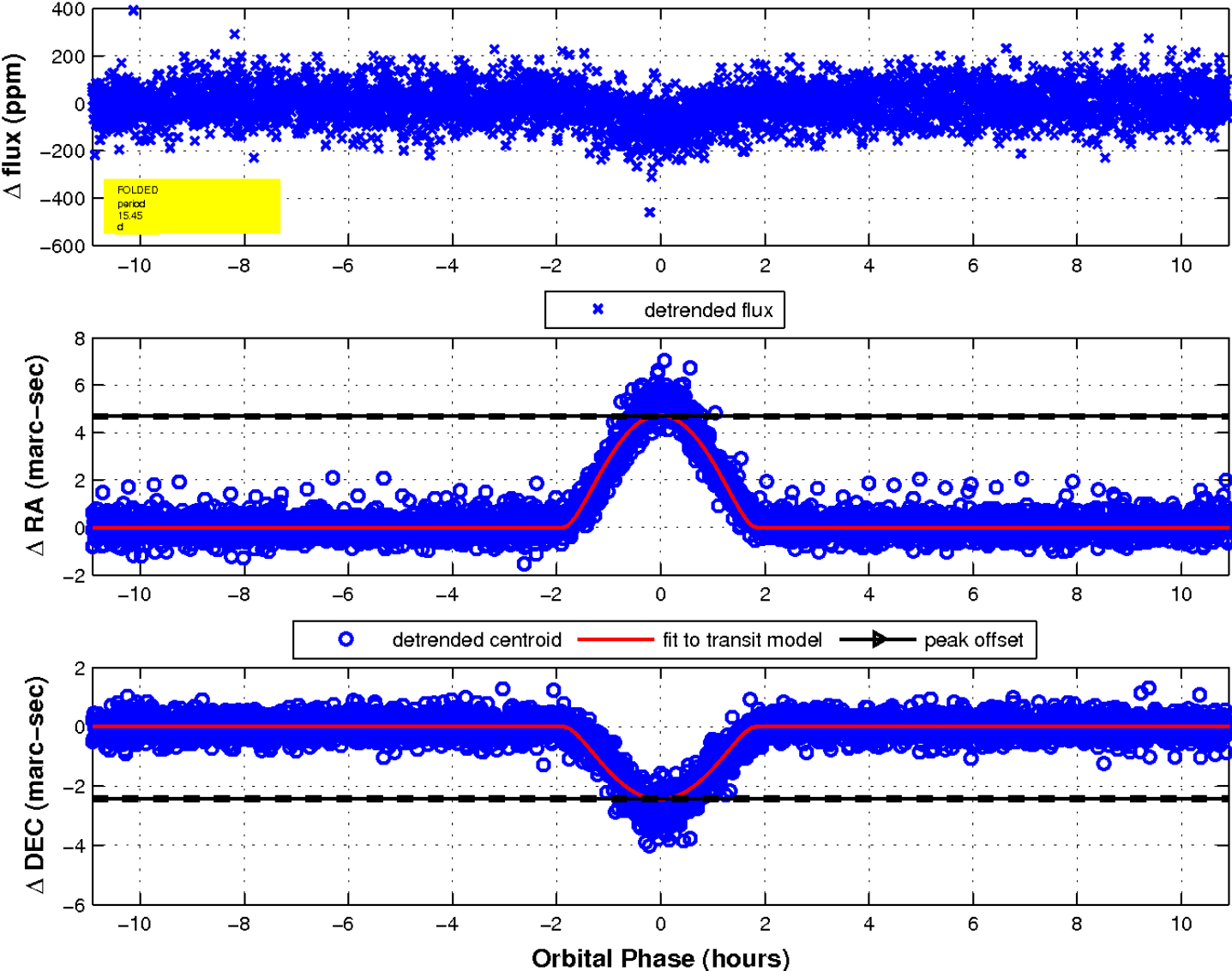
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

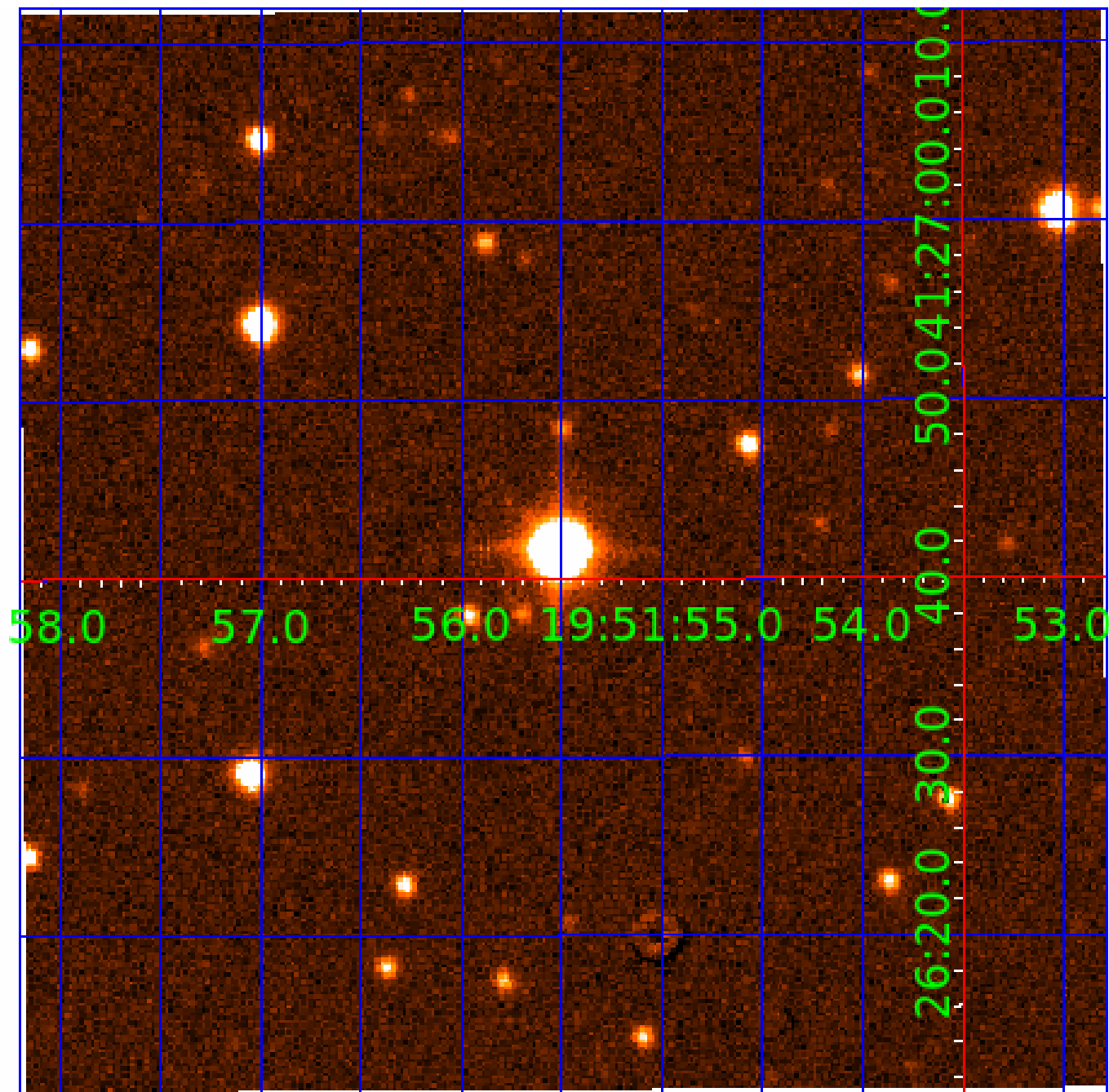


fluxWeightedCentroids, Planet 1 of 4



UKIRT Image

Declination



KIC 006147122

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})
006147122-01	OBS	1062.01	15.451603	142.211709	91.1	3.639	19.2	19.4	2.07	7839	3.86	645.38
006147122-02	OBS	No	15.451677	134.162650	58.3	5.885	11.3	13.4	2.07	7839	2.69	645.37
006147122-03	OBS	No	1.044638	132.183706	8.1	5.632	9.5	9.4	2.07	7839	0.64	23432.73
006147122-04	OBS	No	28.090411	140.111338	51.3	3.308	7.4	7.4	2.07	7839	1.72	290.87

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
006147122-01	OBS	FP	0.00	0	1	1	0	MOD_SEC_DV—MOD_SEC_ALT—HAS_SEC_TCE—CENT_RESOLVED_OFFSET
006147122-02	OBS	FP	0.00	1	1	1	0	IS_SEC_TCE—CENT_RESOLVED_OFFSET—HALO_GHOST
006147122-03	OBS	FP	0.00	1	0	0	0	LPP_DV—MOD_NONUNIQ_ALT
006147122-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_ALT

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.

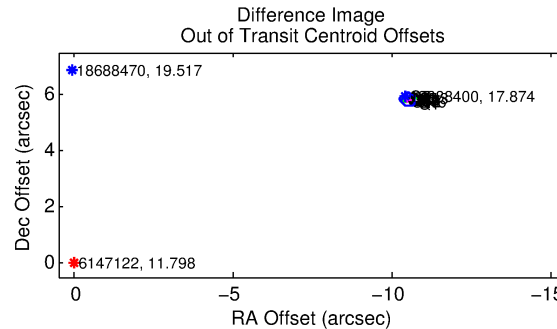
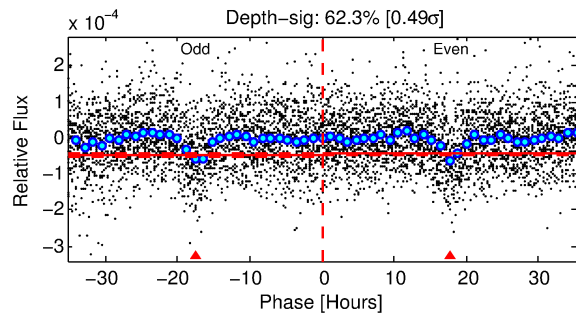
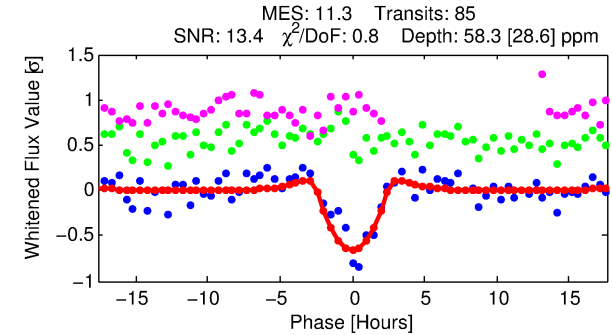
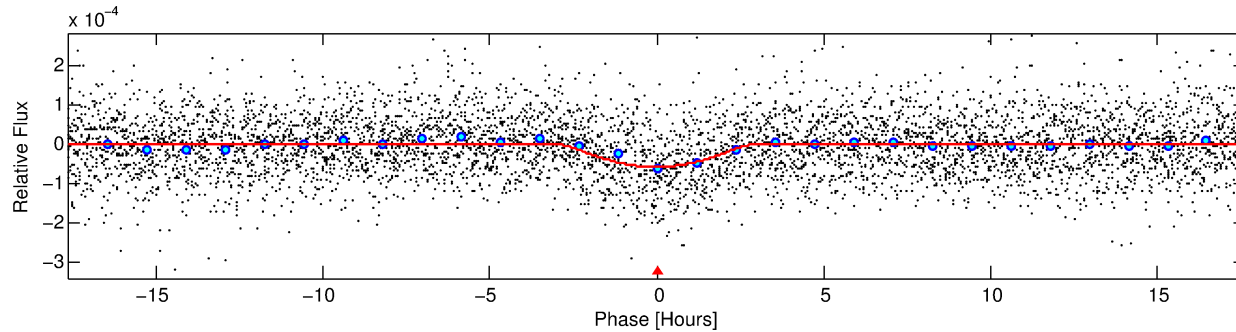
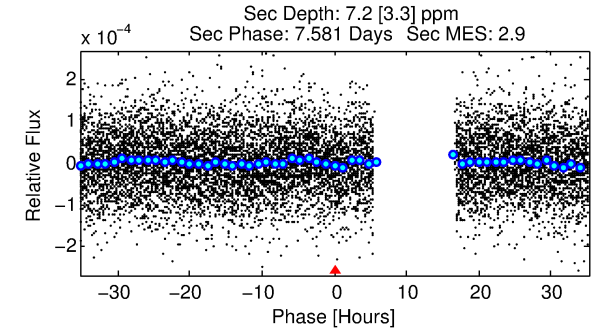
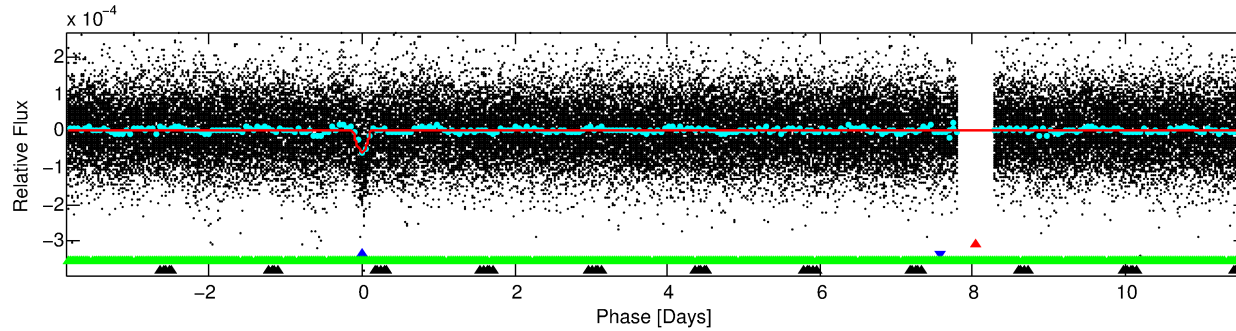
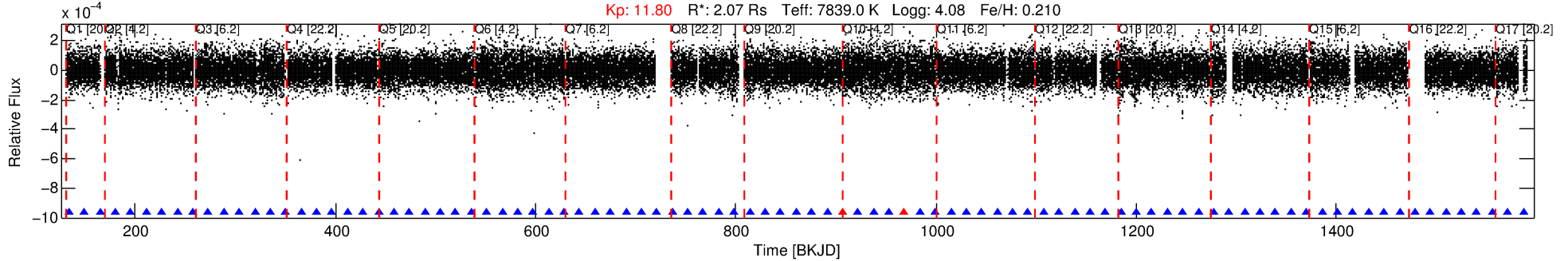
Ephemeris Match Information For 006147122-02

No Significant Match Found

DV One-Page Summary

KIC: 6147122 Candidate: 2 of 4 Period: 15.452 d
KOI: K01062 Corr: No Ephemeris Match

Kp: 11.80 R*: 2.07 Rs Teff: 7839.0 K Logg: 4.08 Fe/H: 0.210



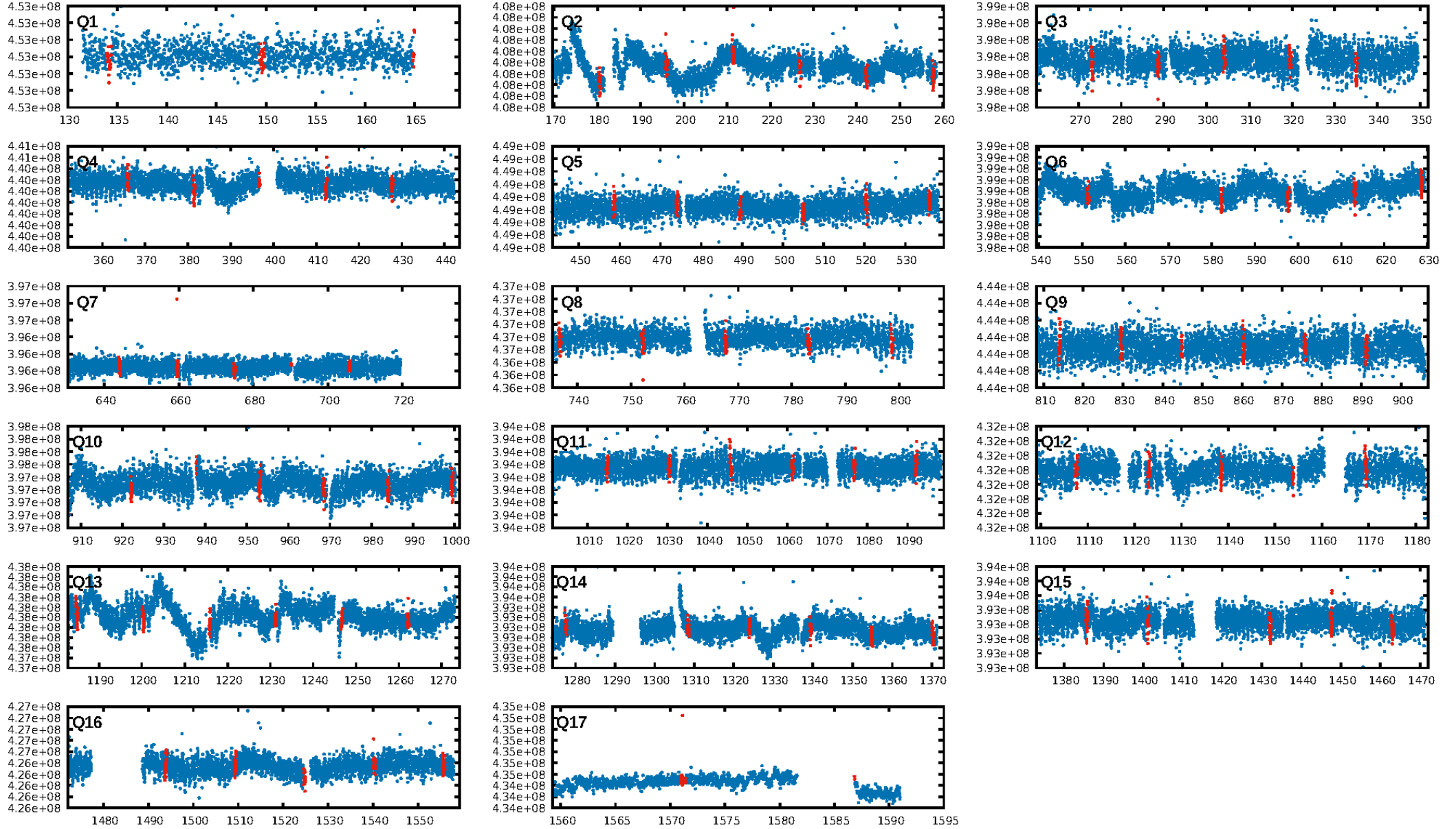
DV Fit Results:

Period = 15.45168 [0.00016] d
Epoch = 134.1626 [0.0084] BKJD
Rp/R* = 0.0119 [0.0118]
a/R* = 3.65 [1.23]
b = 1.00 [0.02]
Seff = 645.37 [217.31]
Teff = 1285 [108] K
Rp = 2.69 [2.75] Re
a = 0.1498 [0.0305] AU
Ag = 12.25 [25.24] [0.45σ]
Teffp = 3718 [1901] K [1.28σ]

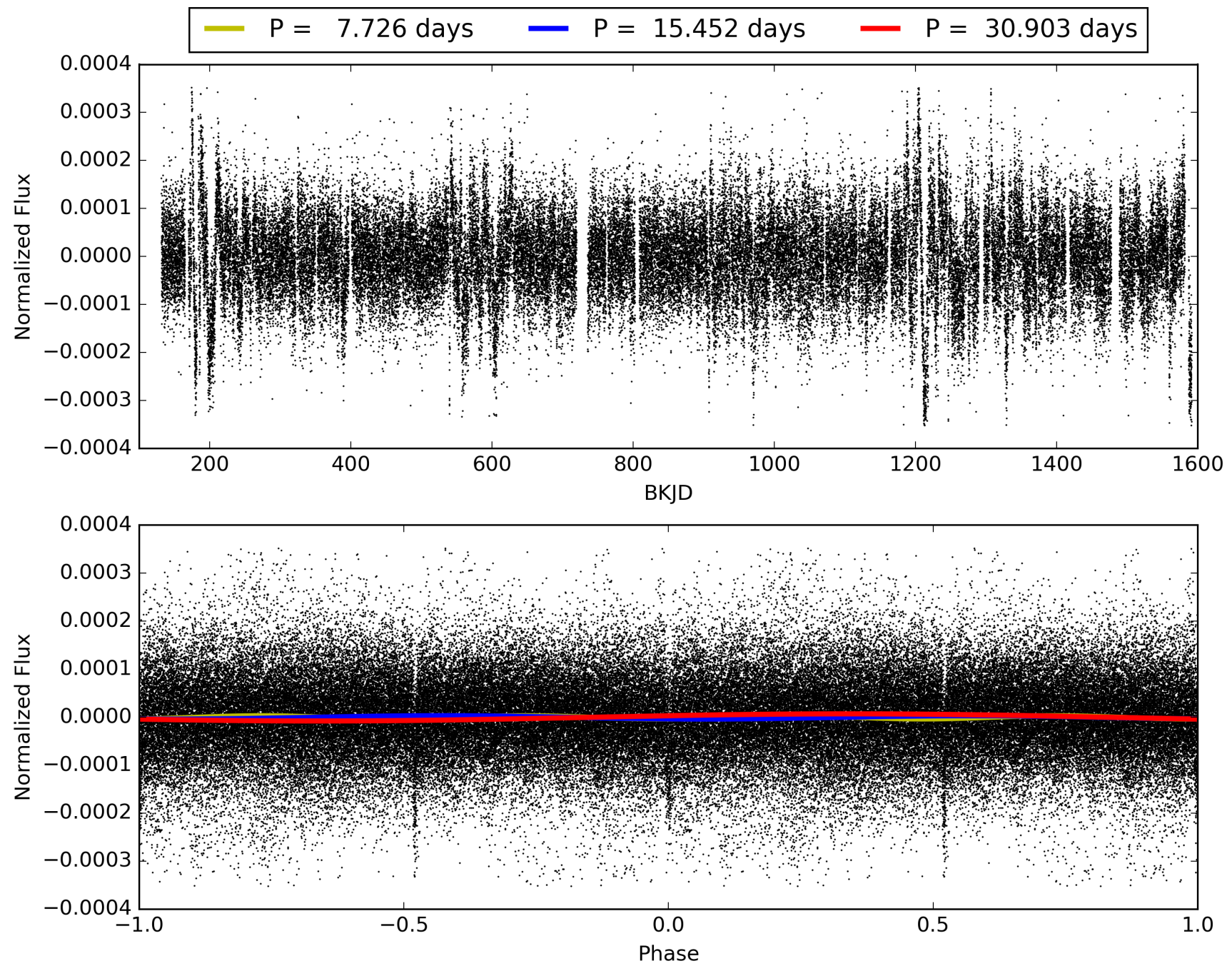
DV Diagnostic Results:

ShortPeriod-sig: 0.0% [0.00σ]
LongPeriod-sig: 100.0% [44.93σ]
ModelChiSquare2-sig: 0.9%
ModelChiSquareGoF-sig: 100.0%
Bootstrap-pfa: 1.79e-19
RollingBand-fgt: 0.98 [79/81]
GhostDiagnostic-chr: -0.2218
Centroid-sig: 0.0%
Centroid-so: 57.943 arcsec [68.16σ]
OotOffset-rm: 11.988 arcsec [158.86σ]
KicOffset-rm: 11.954 arcsec [157.05σ]
OotOffset-st: 4/4/4/4 [16]
KicOffset-st: 4/4/4/4 [16]
DiffImageQuality-fgm: 0.94 [15/16]
DiffImageOverlap-fno: 0.00 [0/17]

TCE 006147122-02, PDC Light Curves

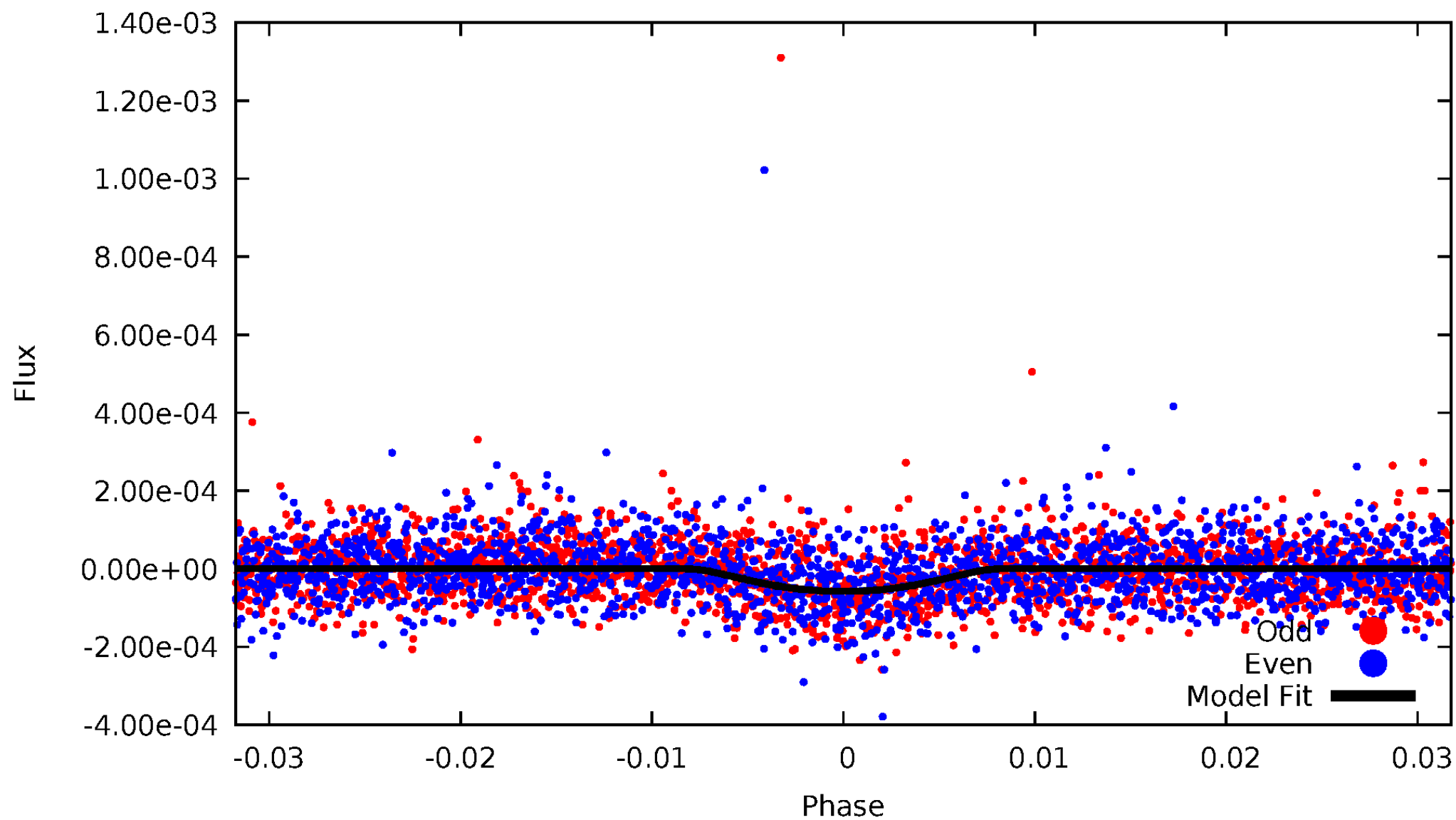


TCE 006147122-02



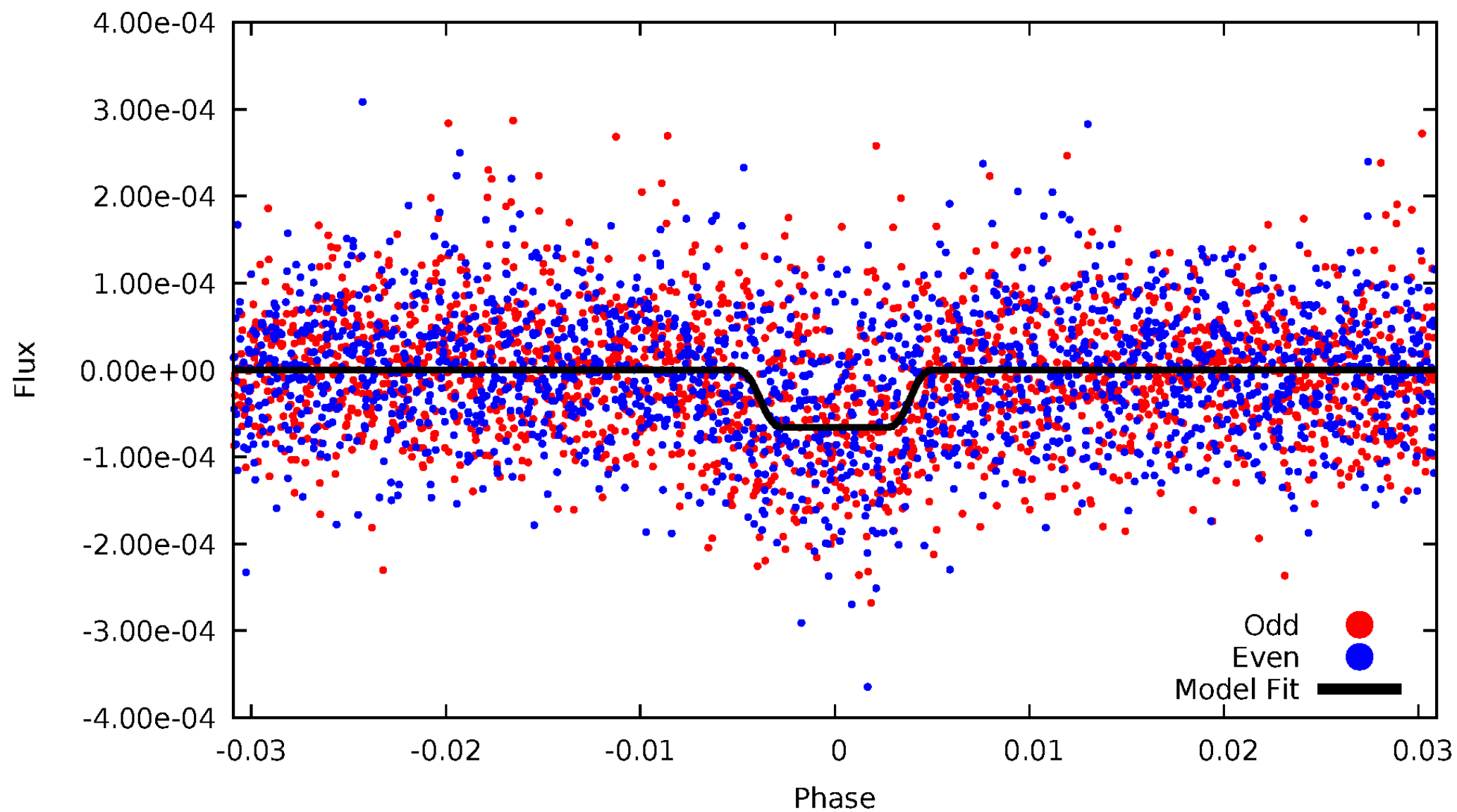
DV Odd/Even

TCE 006147122-02



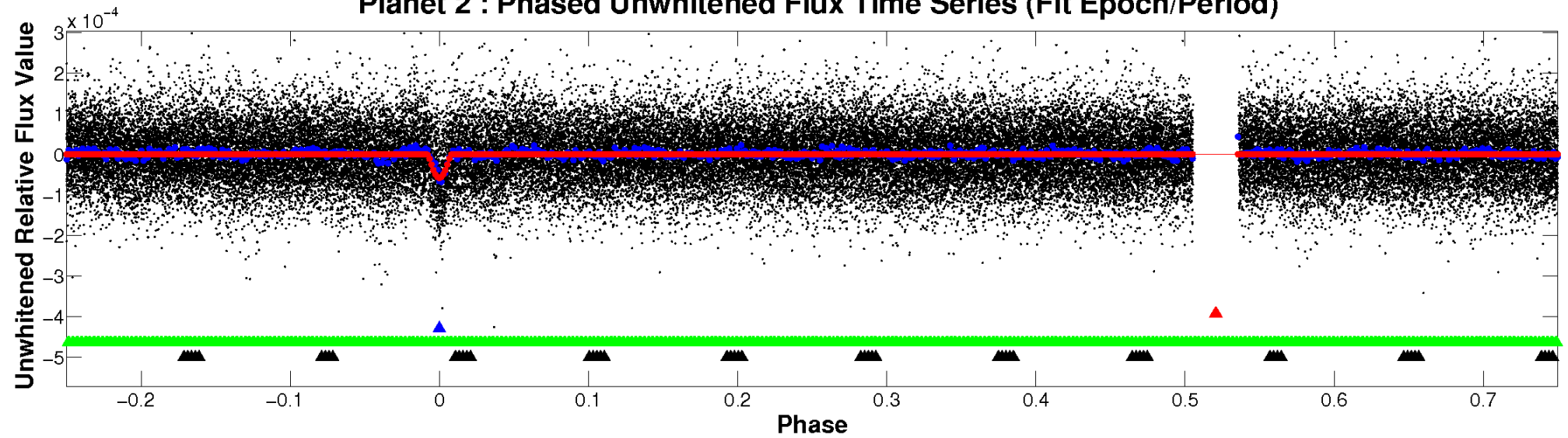
ALT Odd/Even

TCE 006147122-02

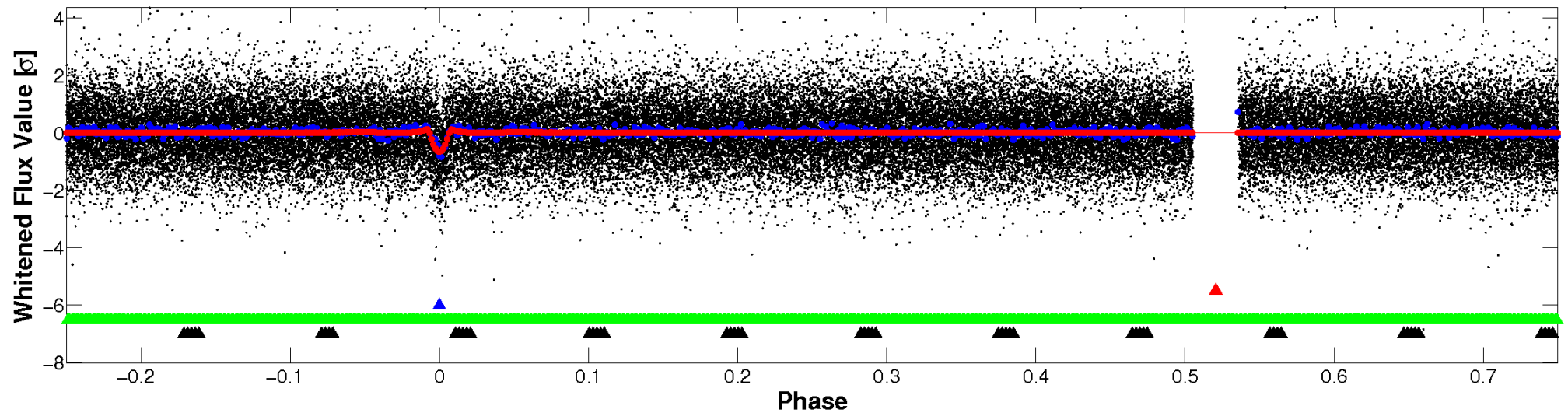


Non-Whitened Vs. Whitened Light Curve

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

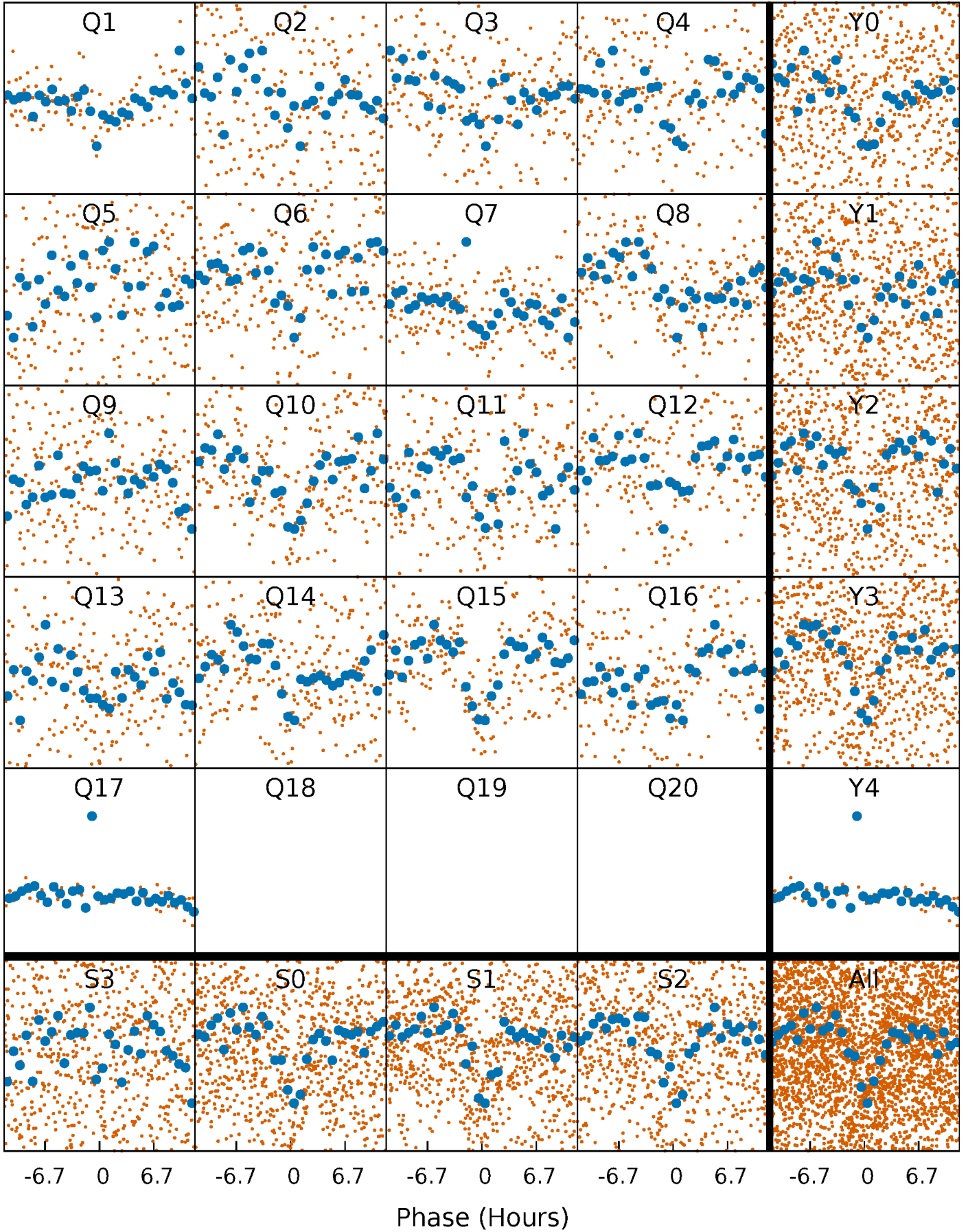


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



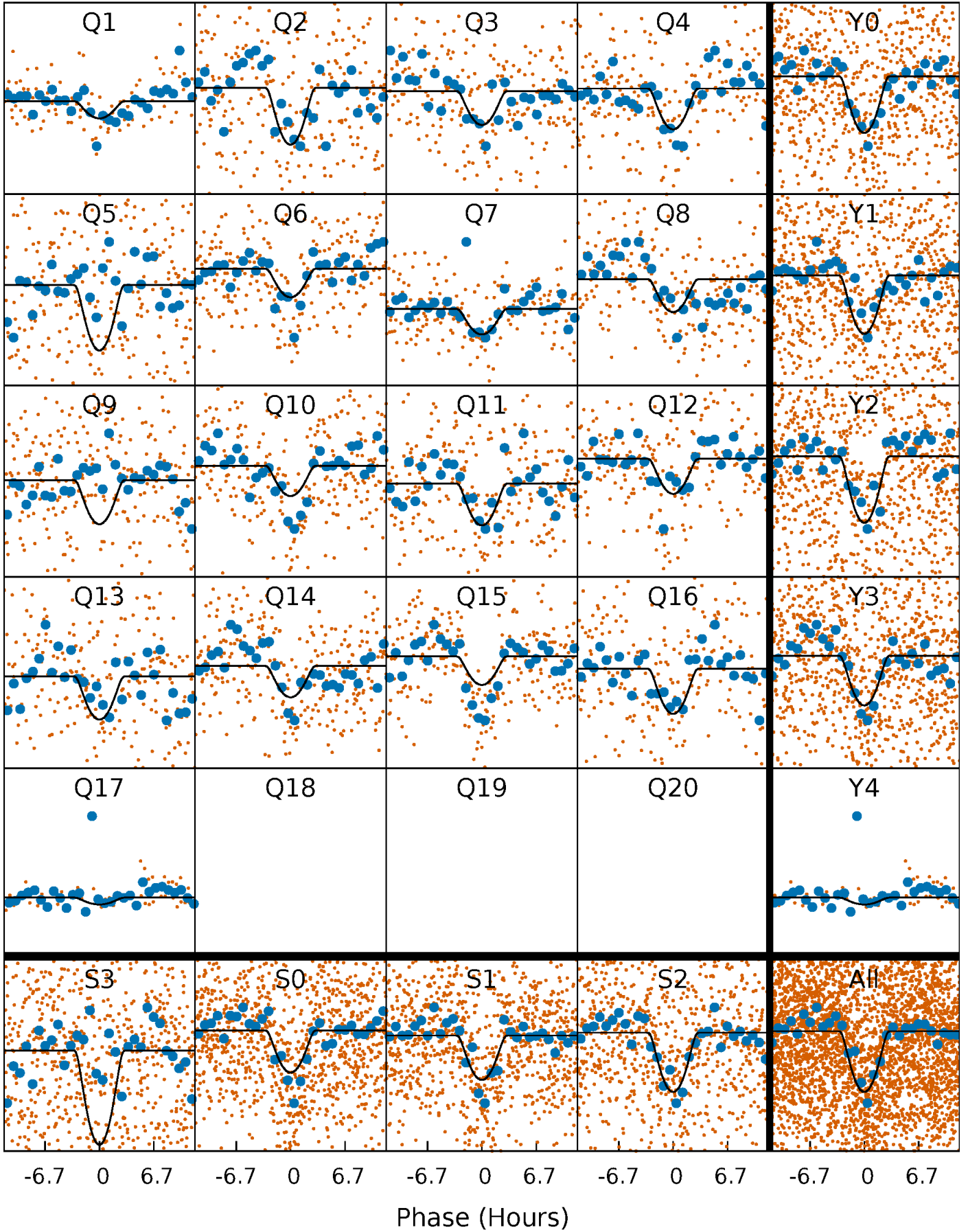
PDC Quarter-Phased Transit Curves

TCE 006147122-02 P= 15.451677 Days $T_0=134.162650$ (BKJD)



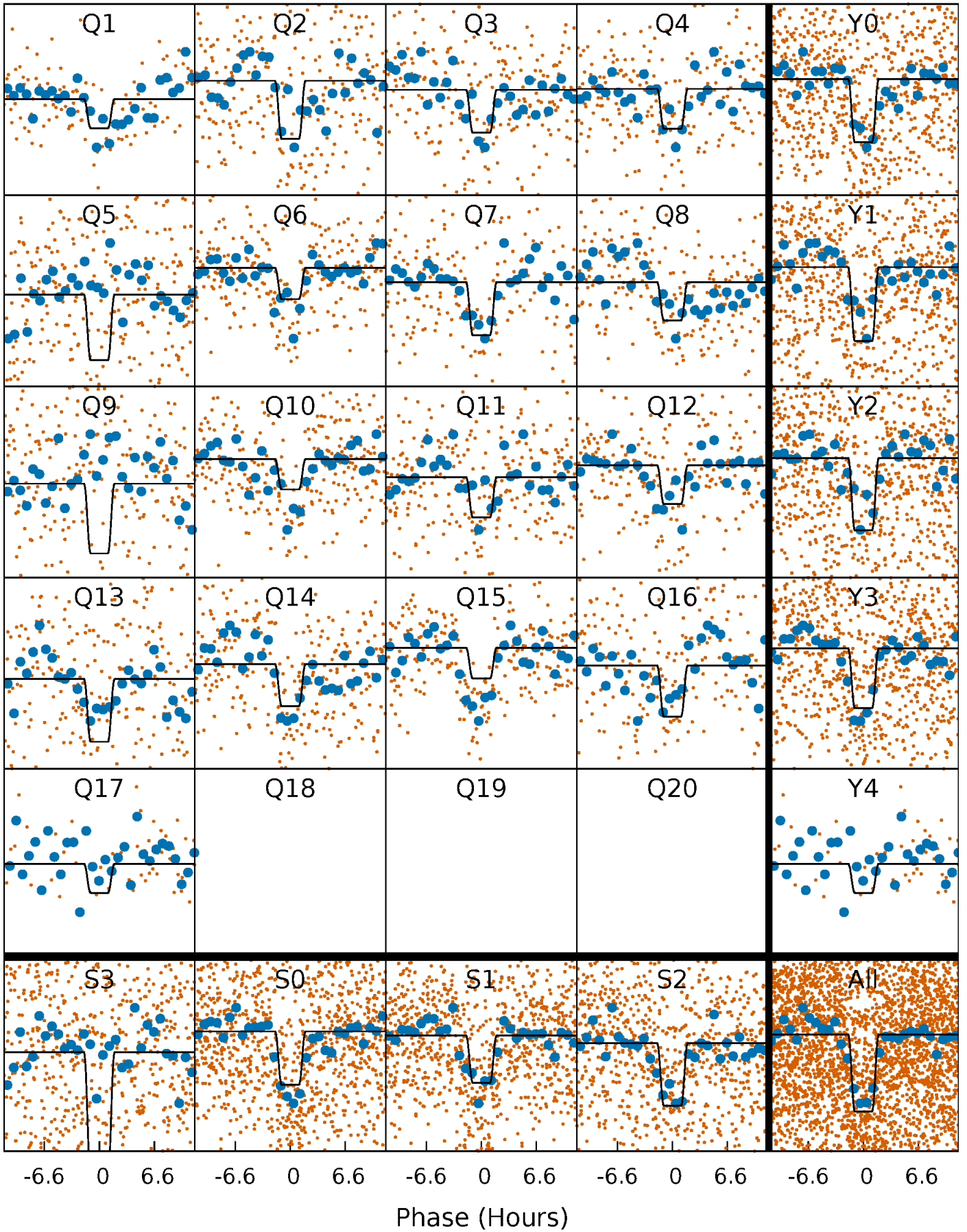
DV Quarter-Phased Transit Curves

TCE 006147122-02 P= 15.451677 Days $T_0=134.162650$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

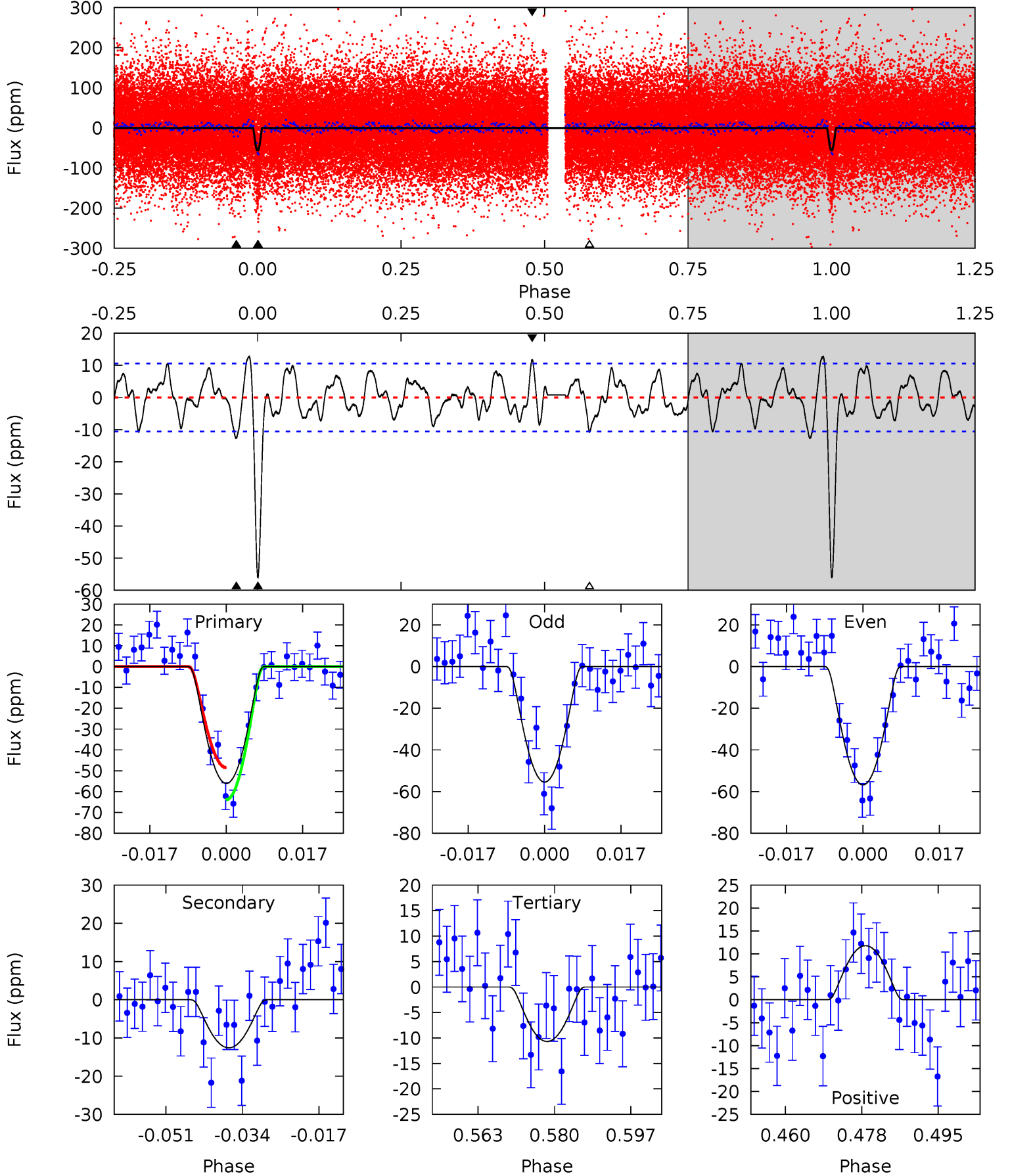
TCE 006147122-02 P= 15.452044 Days $T_0=134.153646$ (BKJD)



DV Model-Shift Uniqueness Test

006147122-02, $P = 15.451677$ Days, $E = 118.710973$ Days

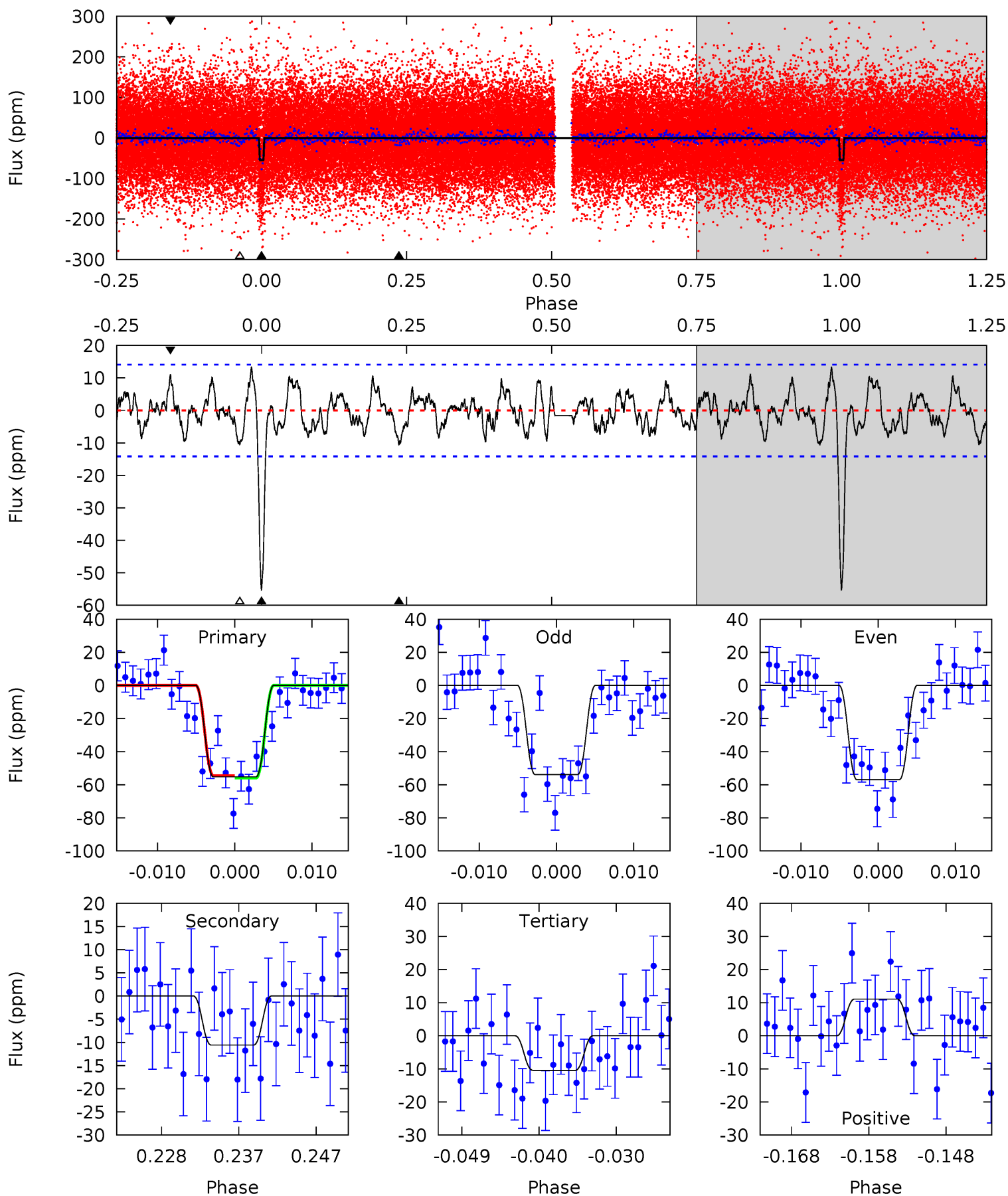
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
26.1	5.84	4.97	5.48	4.92	2.39	2.20	21.1	20.6	0.88	0.36	0.31	0.82	0.19	3.56



Alt Model-Shift Uniqueness Test

006147122-02, $P = 15.452044$ Days, $E = 118.701602$ Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
19.7	3.76	3.72	3.94	5.03	2.58	1.59	15.9	15.7	0.05	-0.18	0.55	1.06	0.19	0.23



Stellar Parameters For KIC 006147122

	$T_{\text{eff}} (K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (g \cdot \text{cm}^{-3})$
	7839^{+216}_{-324}	$4.080^{+0.130}_{-0.159}$	$0.210^{+0.150}_{-0.450}$	$2.069^{+0.505}_{-0.413}$	$1.878^{+0.172}_{-0.344}$	$0.298^{+0.193}_{-0.137}$
	+3%/-4%	+3%/-4%	+71%/-214%	+24%/-20%	+9%/-18%	+65%/-46%
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 006147122-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-13 ± 2	$3.16^{+2.58}_{-1.93}$	1811^{+117}_{-116}	4087^{+1959}_{-744}	14^{+81}_{-10}
Alt.	-11 ± 3	$2.80^{+2.14}_{-1.85}$	1795^{+120}_{-111}	4196^{+2460}_{-841}	16^{+123}_{-12}

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

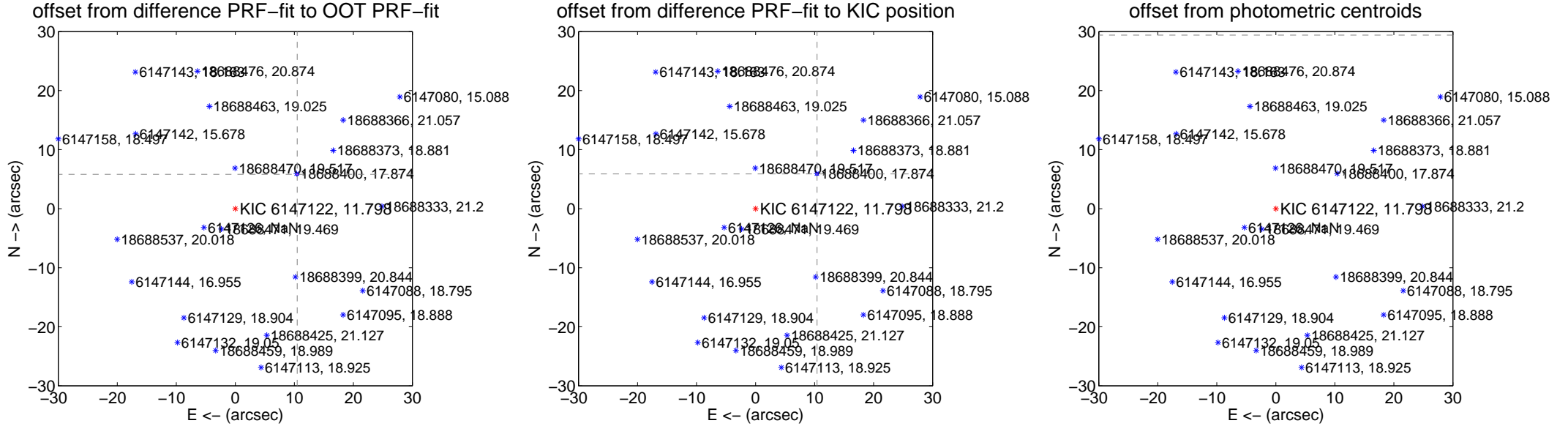
DV Centroid Data

Supplemental centroid analysis for 006147122-02. **Kepler magnitude: 11.80.** Transit SNR 13.40

There are 15 quarters with good PRF difference image offsets

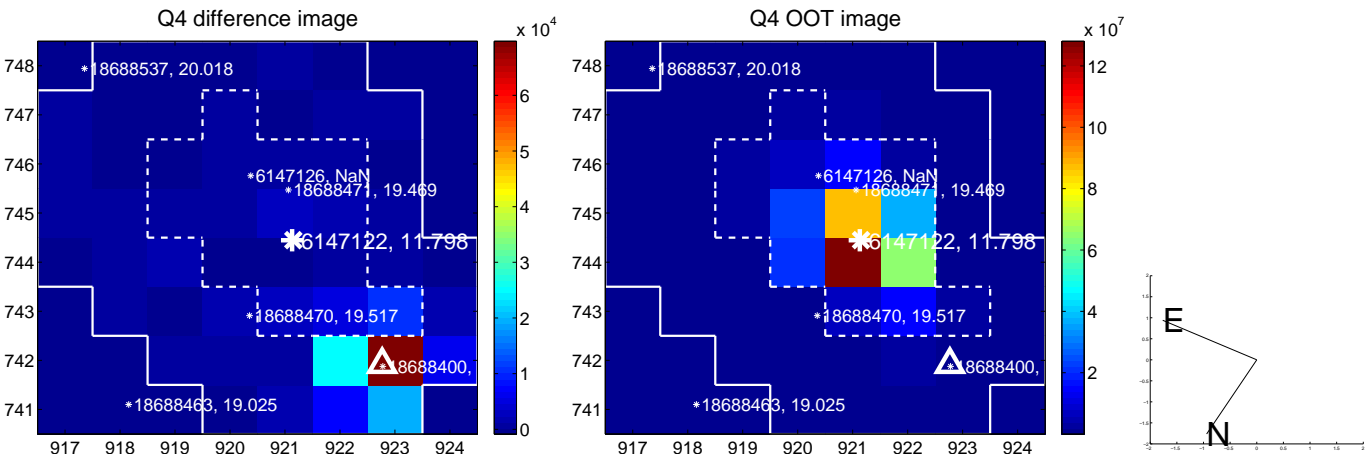
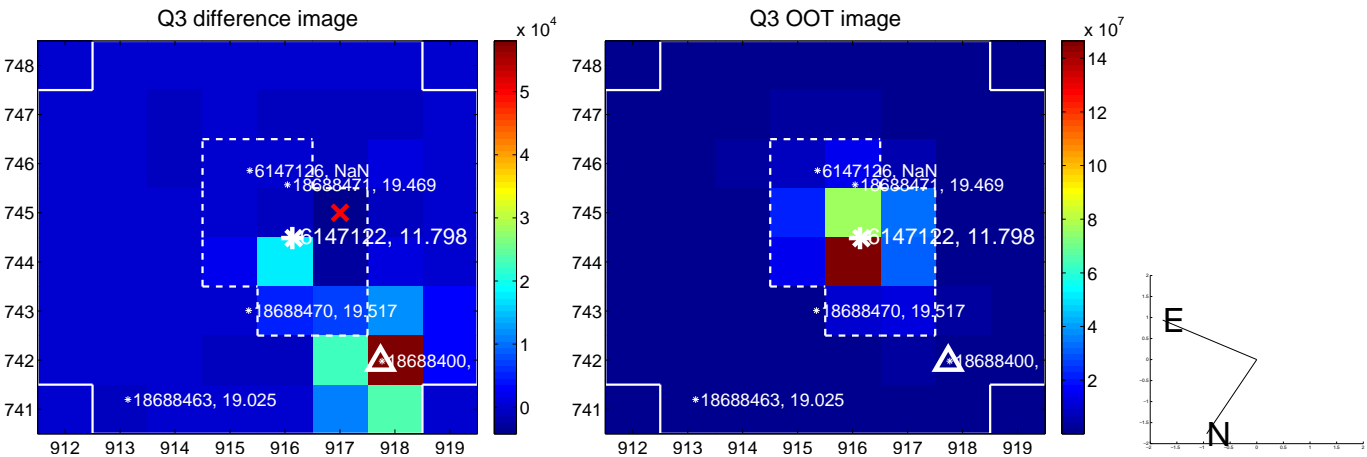
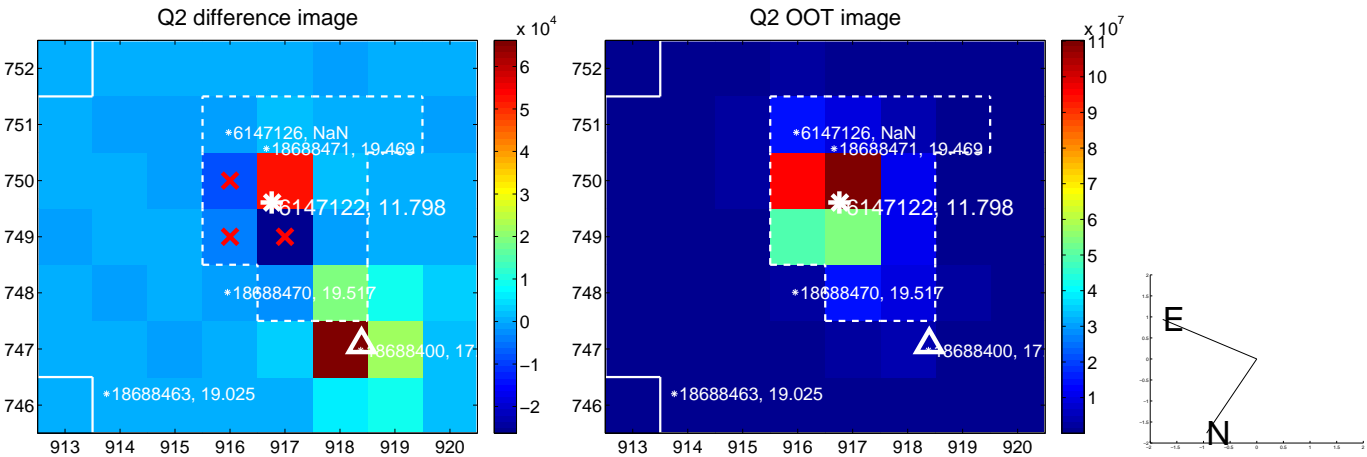
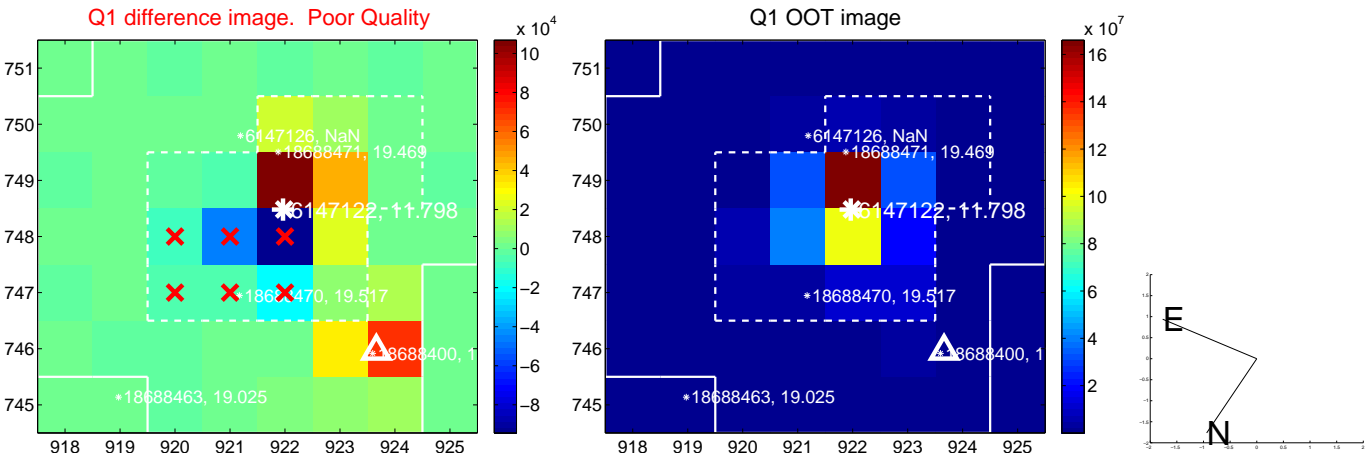
The direct PRF centroid is offset from the target star catalog position by about 0.15 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	11.988 \pm 0.075	158.86	-10.483 \pm 0.077	5.814 \pm 0.069
PRF-fit source offset from KIC position	11.954 \pm 0.076	157.05	-10.409 \pm 0.078	5.878 \pm 0.069
photometric centroid source offset	57.94 \pm 0.85	68.17	-49.93 \pm 0.87	29.39 \pm 0.79

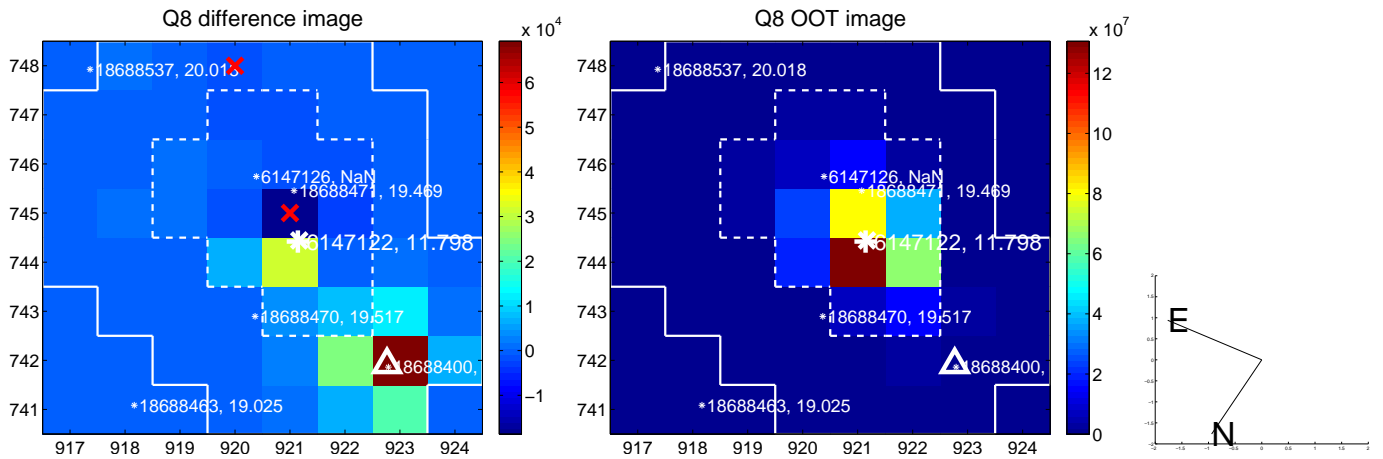
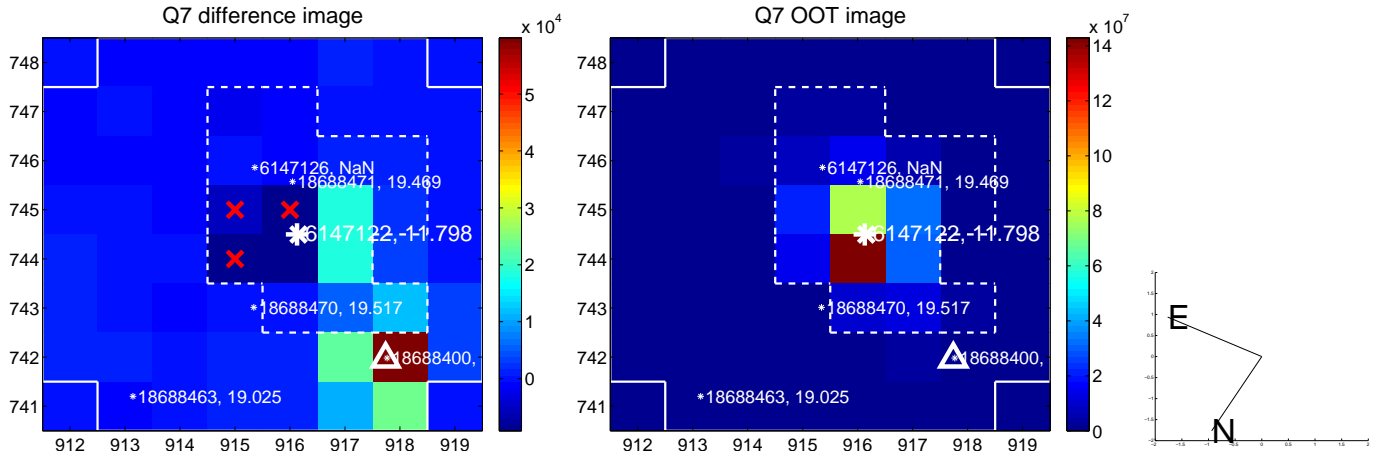
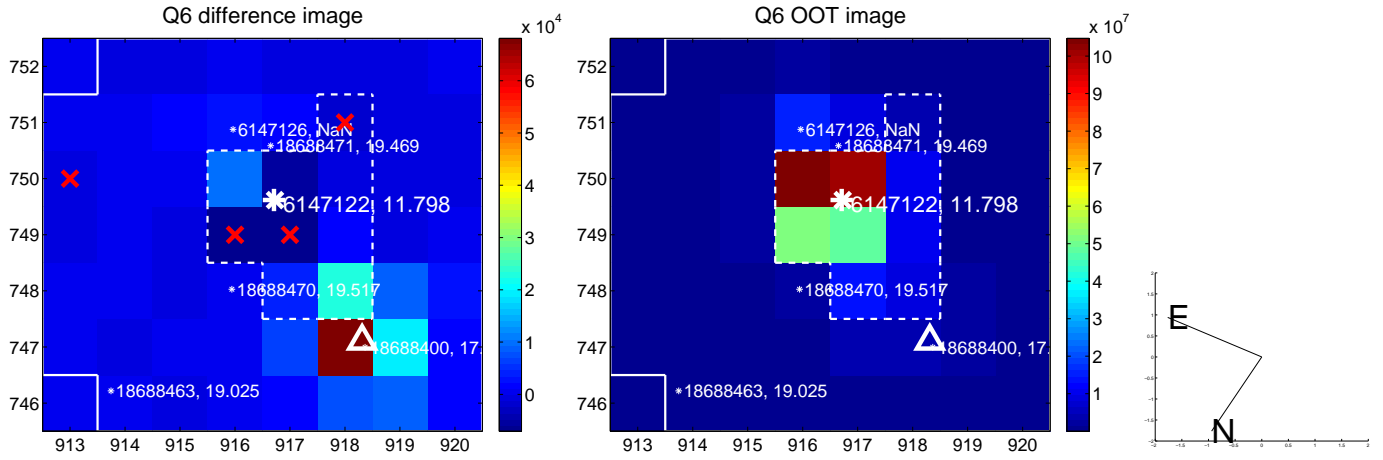
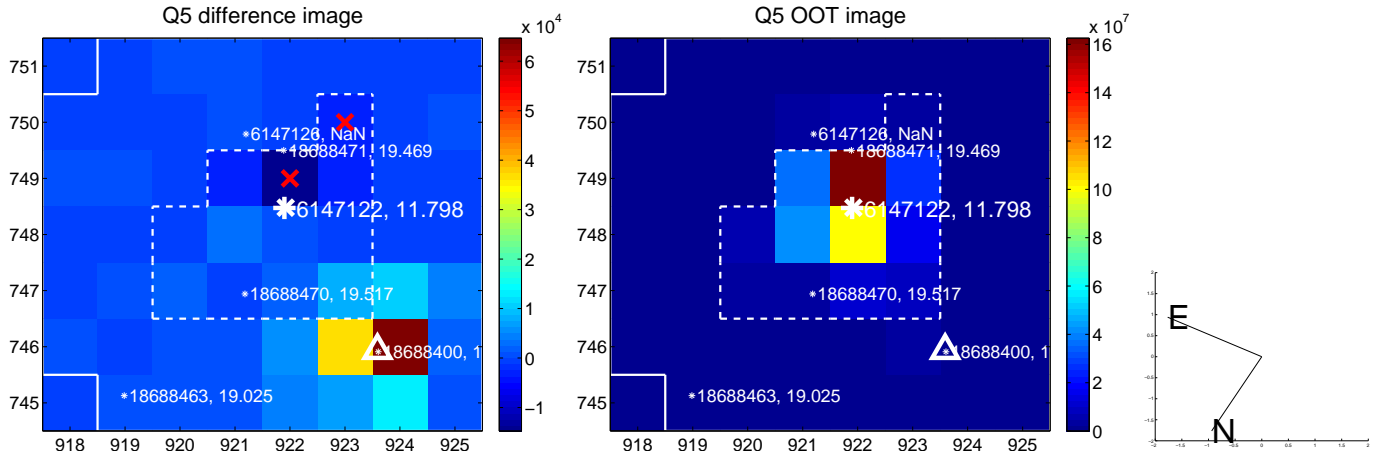


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

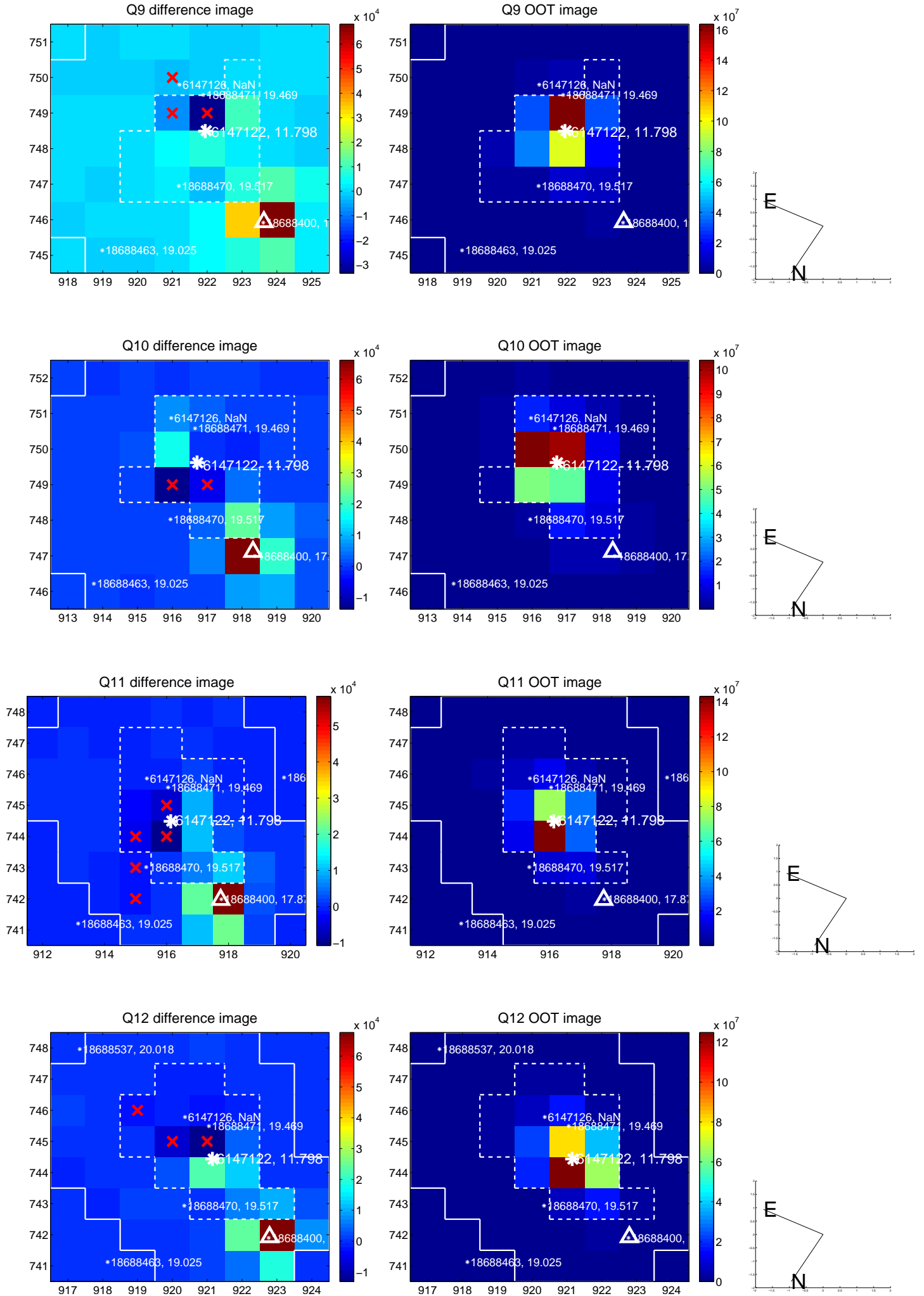
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



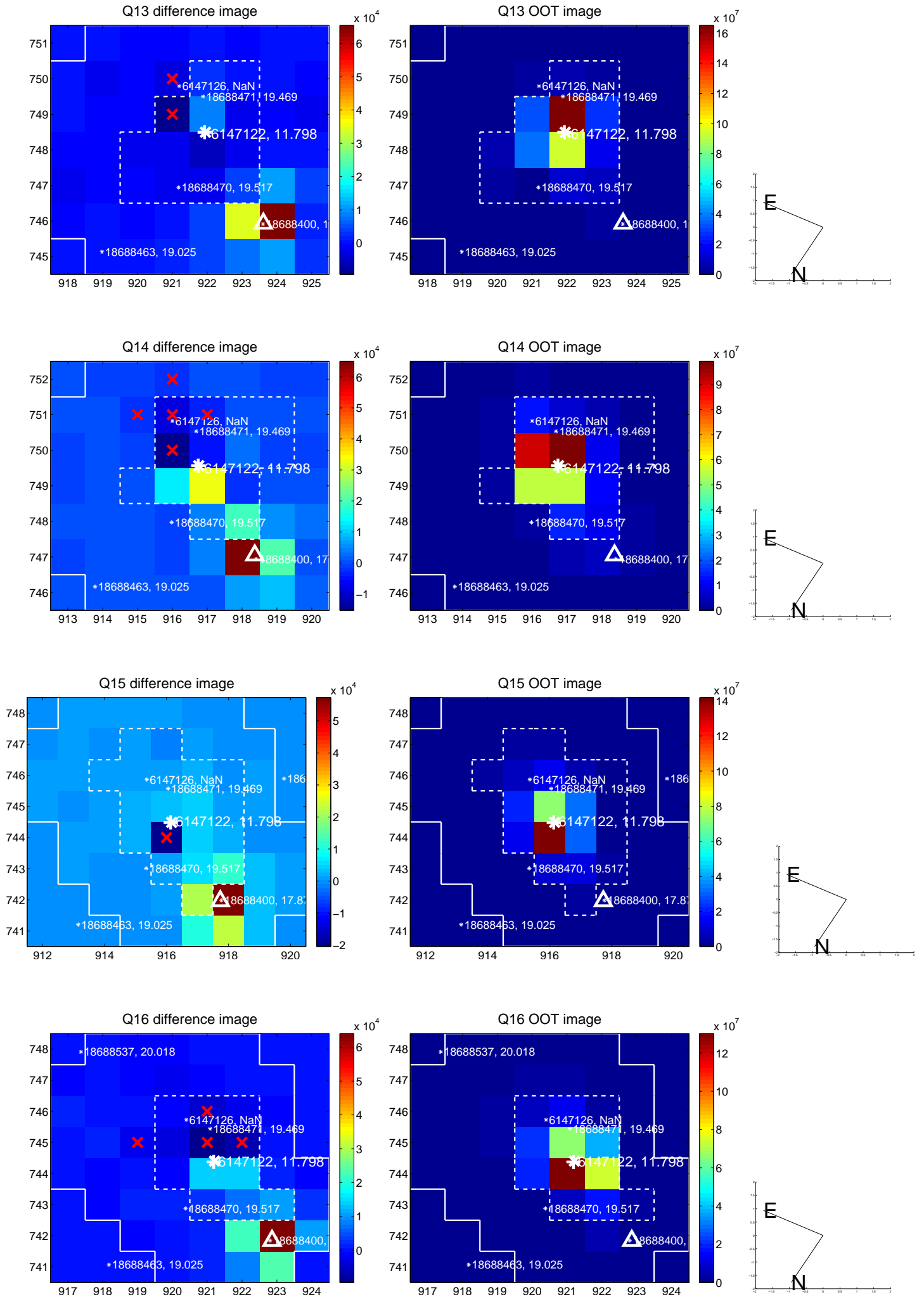
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



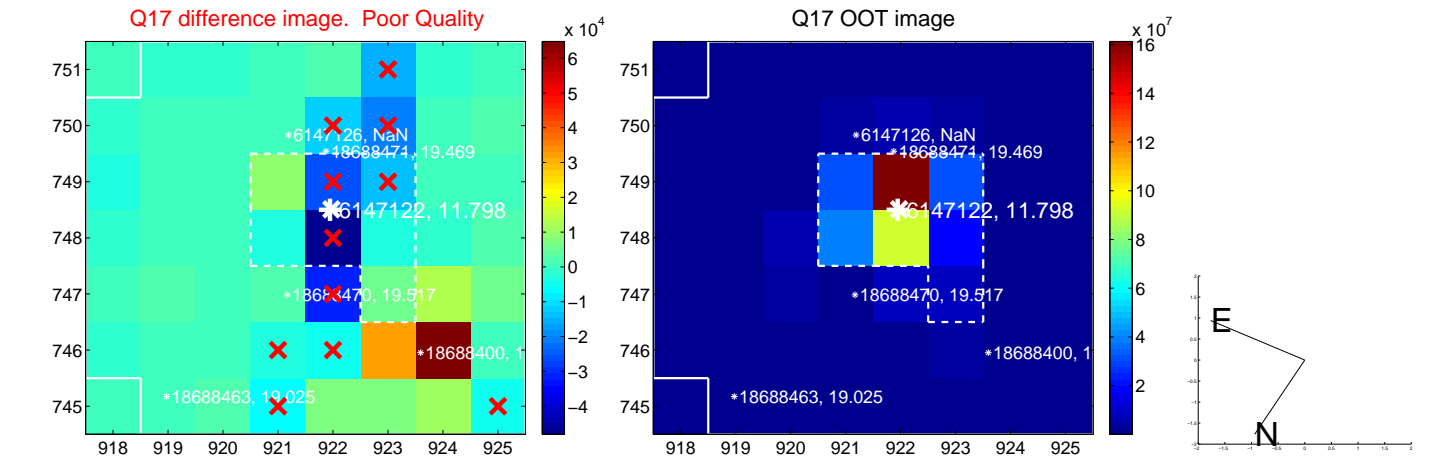
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



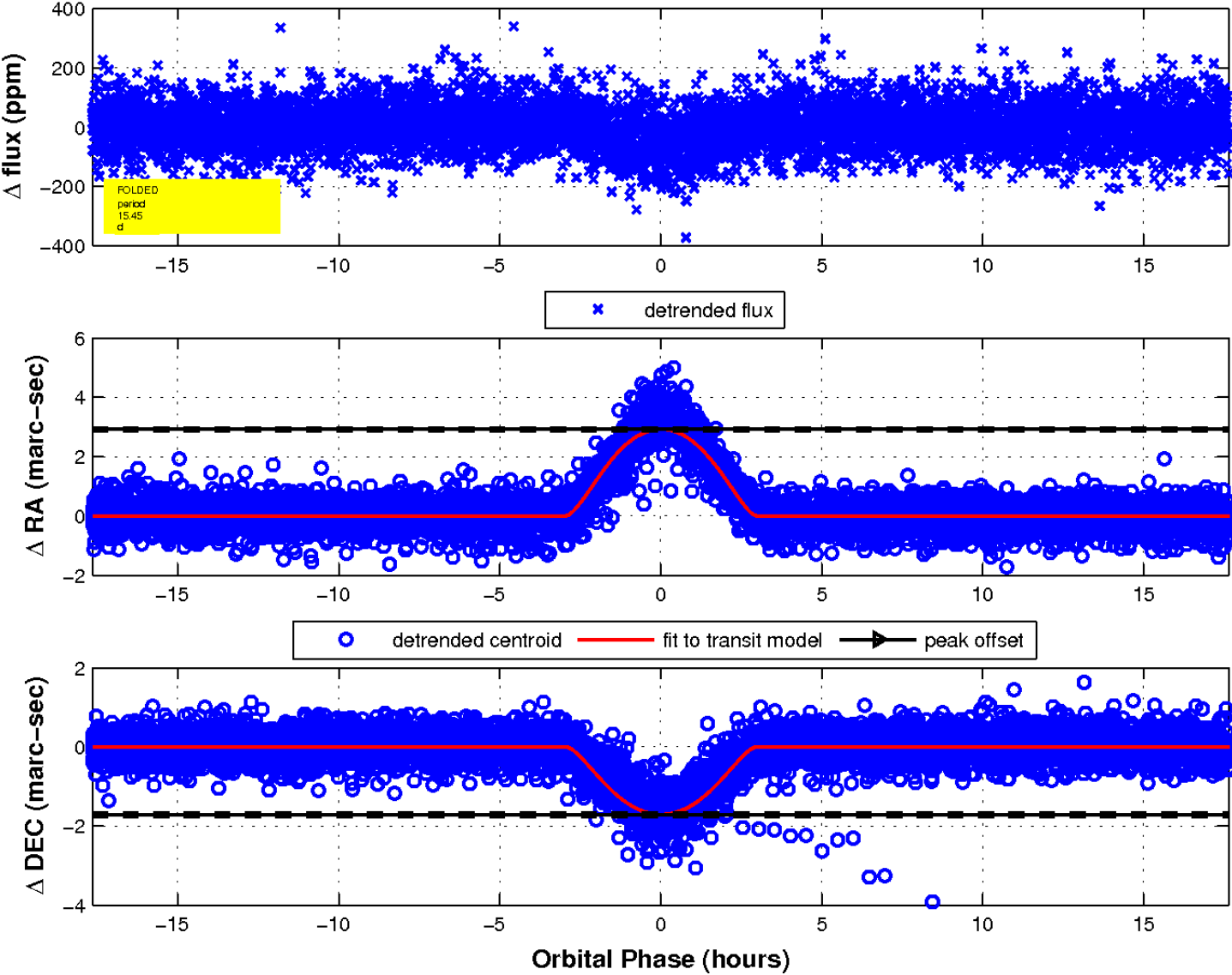
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

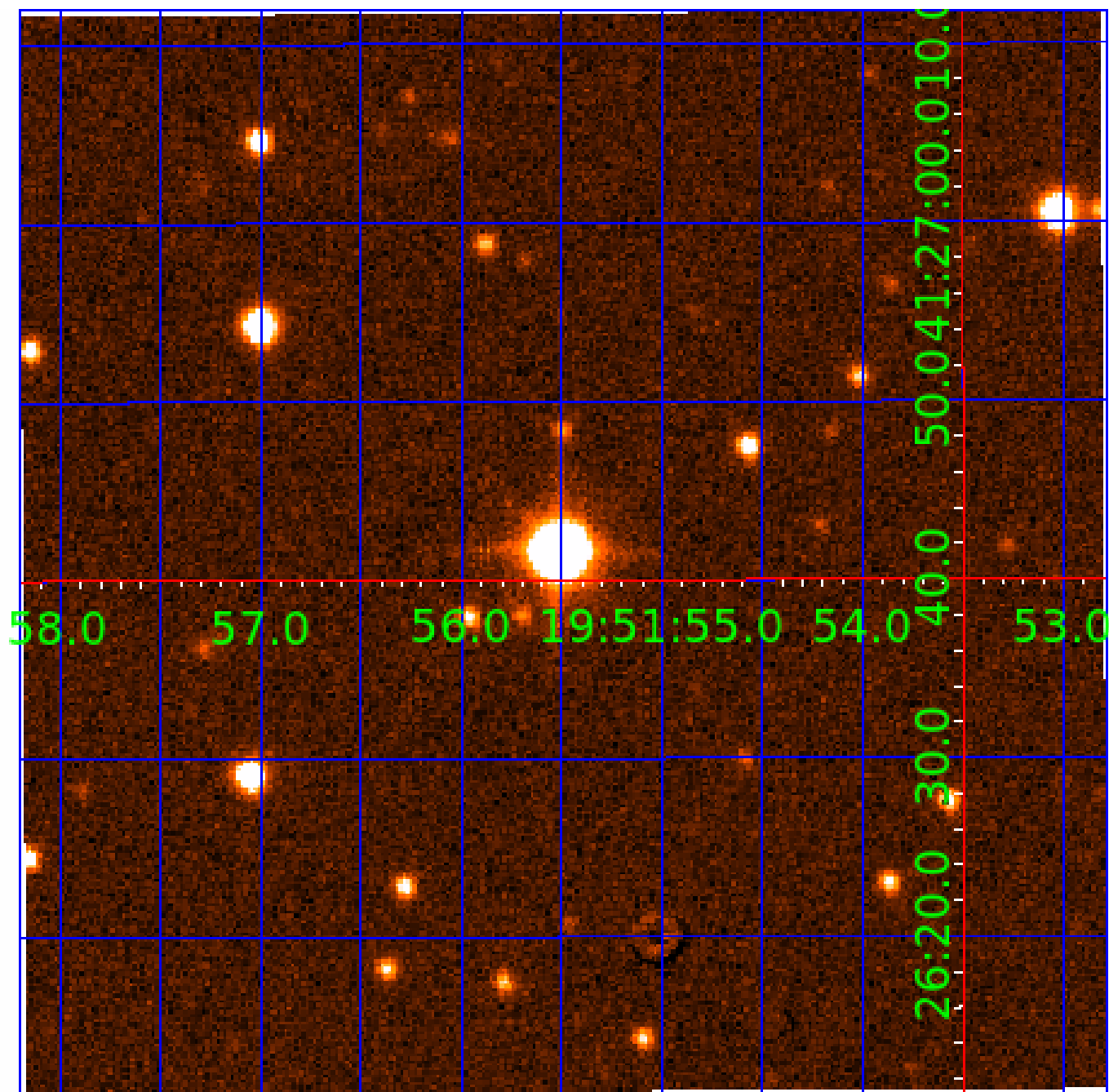


fluxWeightedCentroids, Planet 2 of 4



UKIRT Image

Declination



KIC 006147122

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})
006147122-01	OBS	1062.01	15.451603	142.211709	91.1	3.639	19.2	19.4	2.07	7839	3.86	645.38
006147122-02	OBS	No	15.451677	134.162650	58.3	5.885	11.3	13.4	2.07	7839	2.69	645.37
006147122-03	OBS	No	1.044638	132.183706	8.1	5.632	9.5	9.4	2.07	7839	0.64	23432.73
006147122-04	OBS	No	28.090411	140.111338	51.3	3.308	7.4	7.4	2.07	7839	1.72	290.87

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
006147122-01	OBS	FP	0.00	0	1	1	0	MOD_SEC_DV—MOD_SEC_ALT—HAS_SEC_TCE—CENT_RESOLVED_OFFSET
006147122-02	OBS	FP	0.00	1	1	1	0	IS_SEC_TCE—CENT_RESOLVED_OFFSET—HALO_GHOST
006147122-03	OBS	FP	0.00	1	0	0	0	LPP_DV—MOD_NONUNIQ_ALT
006147122-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_ALT

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 006147122-03

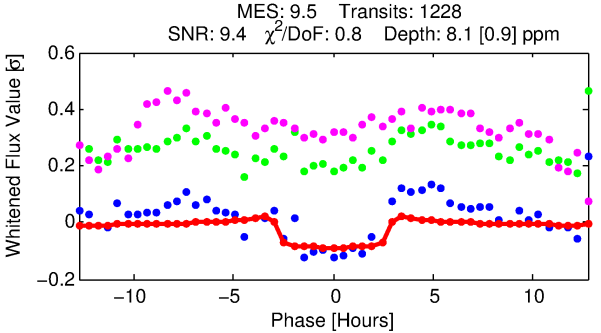
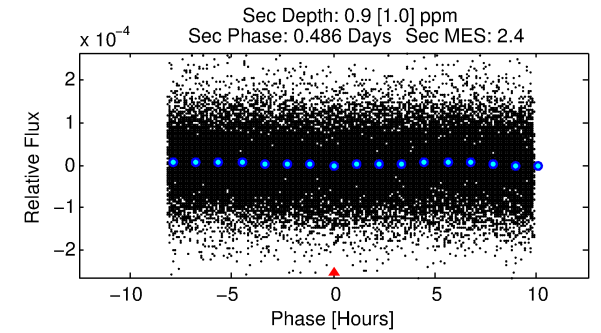
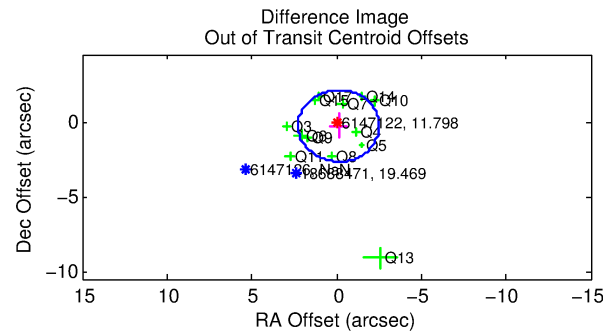
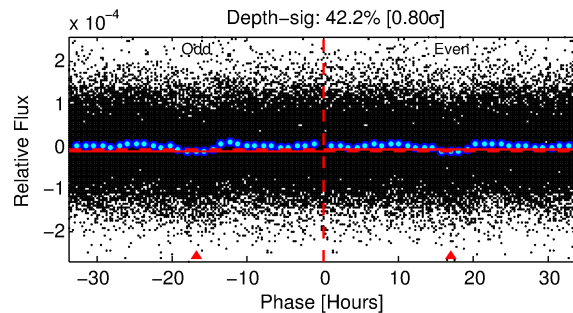
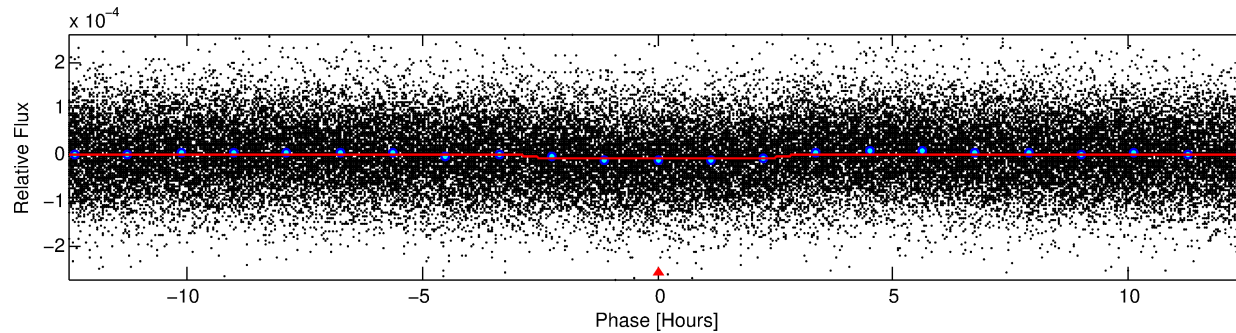
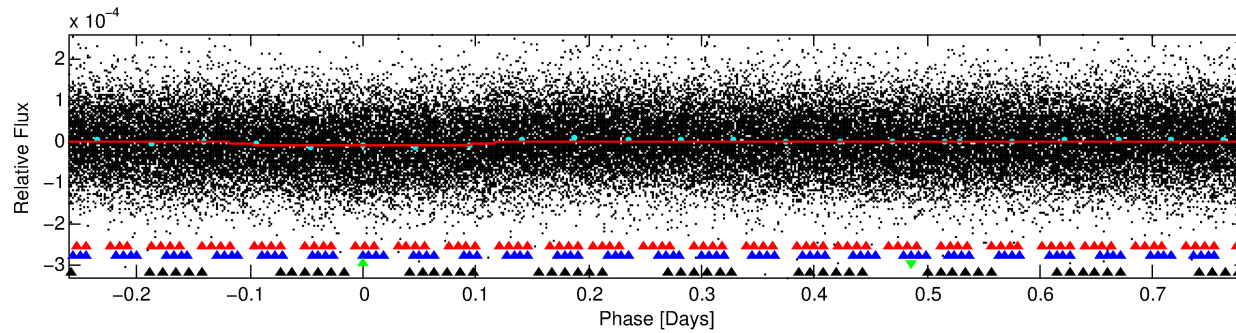
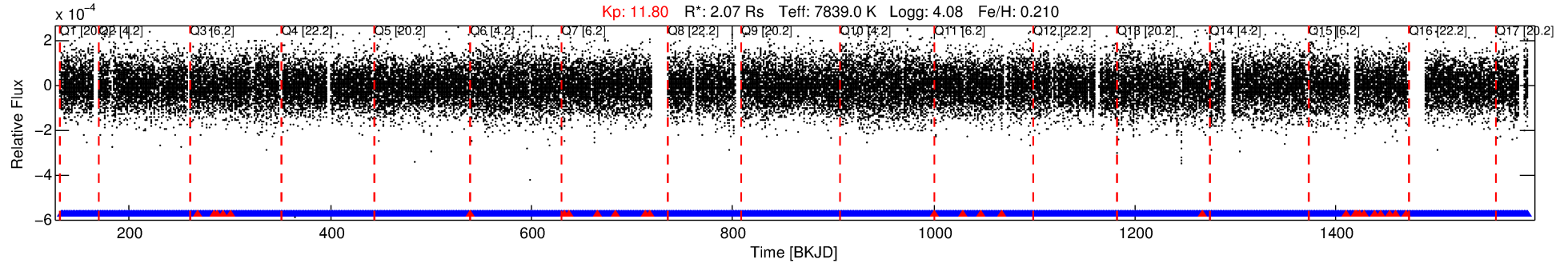
No Significant Match Found

DV One-Page Summary

KIC: 6147122 Candidate: 3 of 4 Period: 1.045 d

KOI: K01062 Corr: No Ephemeris Match

Kp: 11.80 R*: 2.07 Rs Teff: 7839.0 K Logg: 4.08 Fe/H: 0.210



DV Fit Results:

Period = 1.04464 [0.00001] d
Epoch = 132.1837 [0.0049] BKJD
Rp/R* = 0.0029 [0.0008]
a/R* = 1.25 [0.72]
b = 0.78 [0.82]
Seff = 23432.73 [7890.36]
Teq = 3155 [266] K
Rp = 0.64 [0.23] Re
a = 0.0249 [0.0051] AU
Ag = 0.77 [0.95] [-0.24σ]
Teffp = 4576 [1378] K [1.01σ]

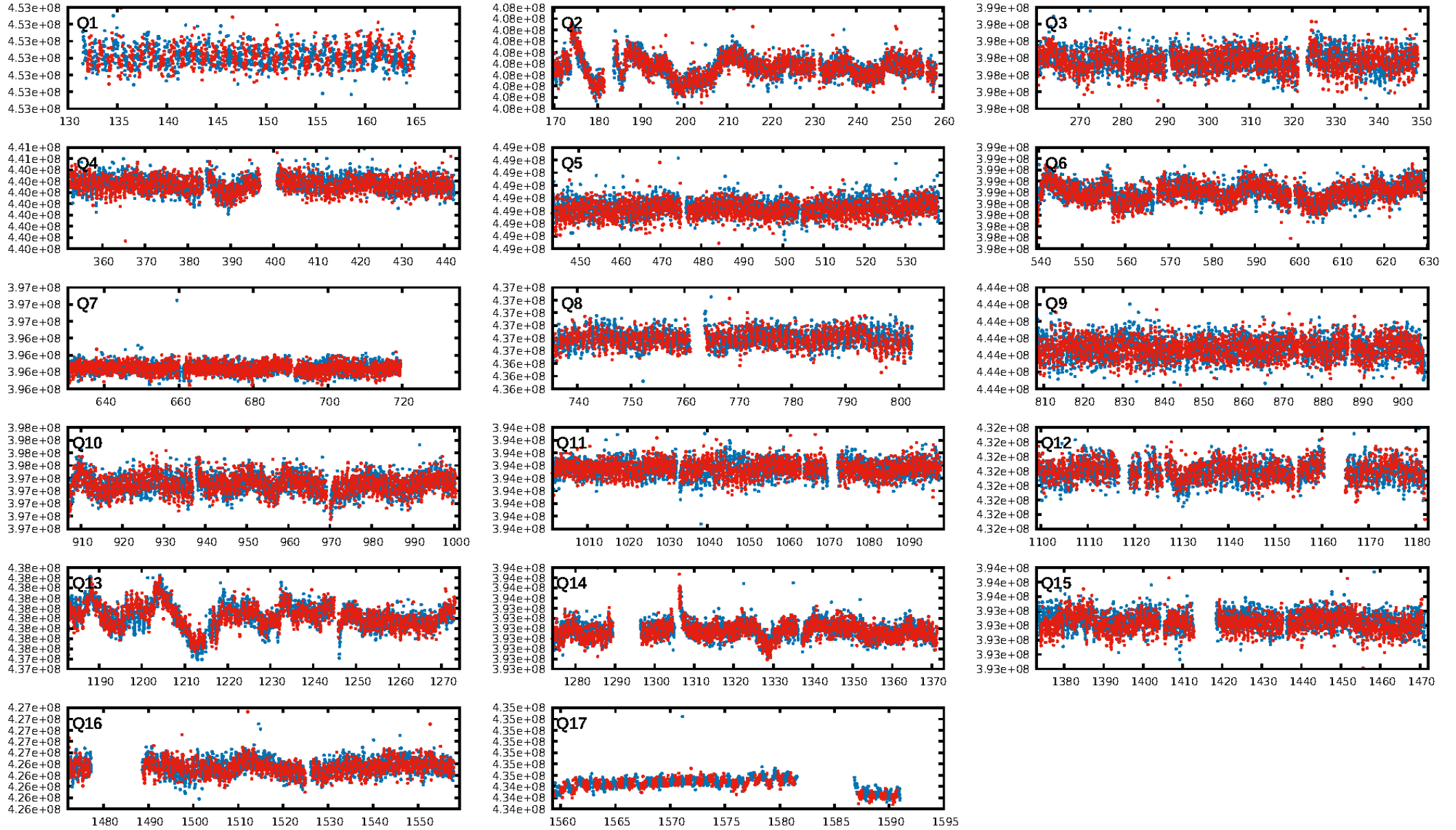
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [51.57σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 4.23e-17
RollingBand-fgt: 0.98 [1144/1171]
GhostDiagnostic-chr: 2.648
Centroid-sig: 9.4%
Centroid-so: 2.053 arcsec [1.72σ]
OotOffset-rm: 0.302 arcsec [0.38σ]
OotOffset-st: 3/4/2/4 [13]
KicOffset-rm: 0.220 arcsec [0.29σ]
KicOffset-st: 3/4/2/4 [13]
DiffImageQuality-fgm: 0.85 [11/13]
DiffImageOverlap-fno: 1.00 [17/17]

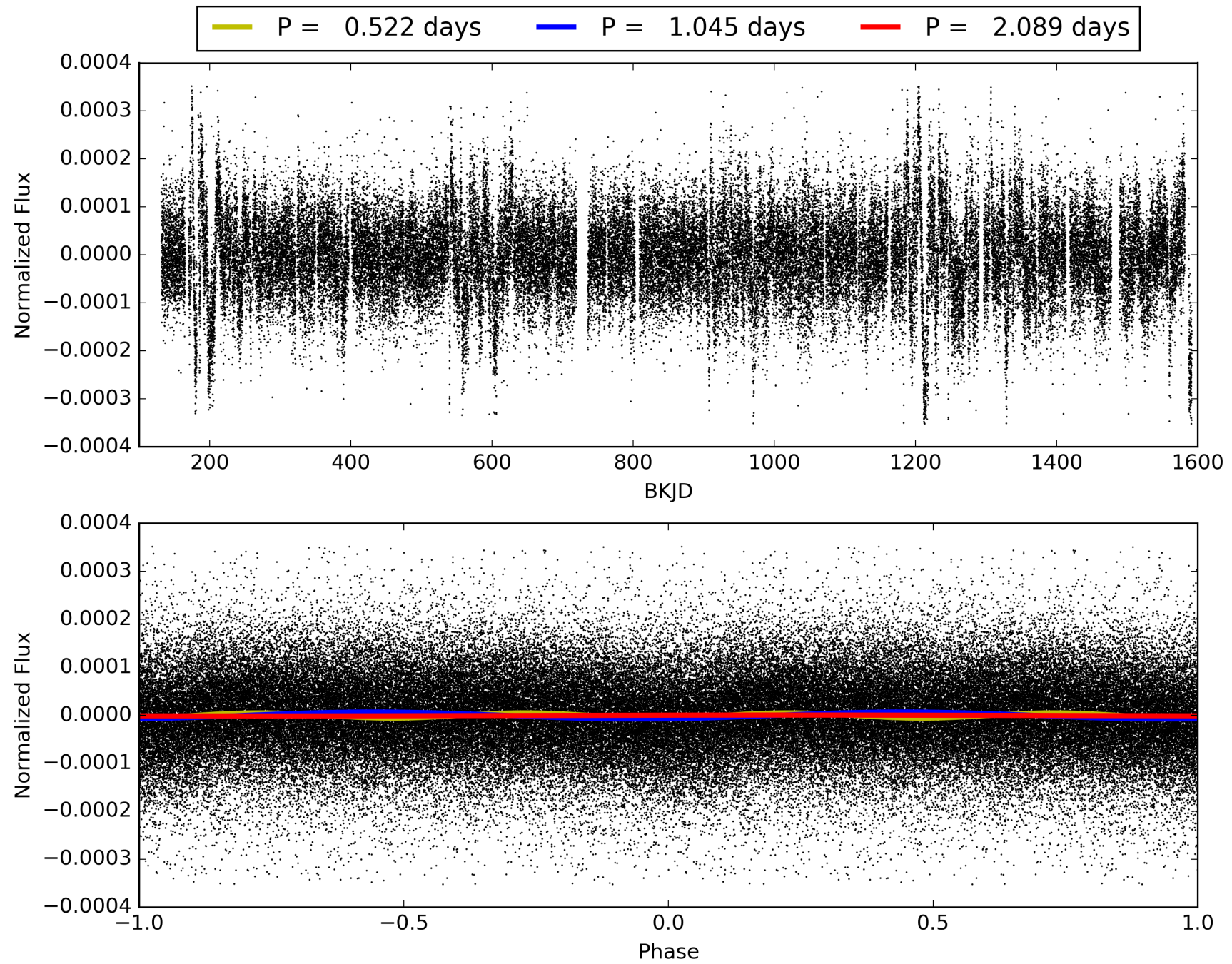
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 14:40:18 Z

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

TCE 006147122-03, PDC Light Curves

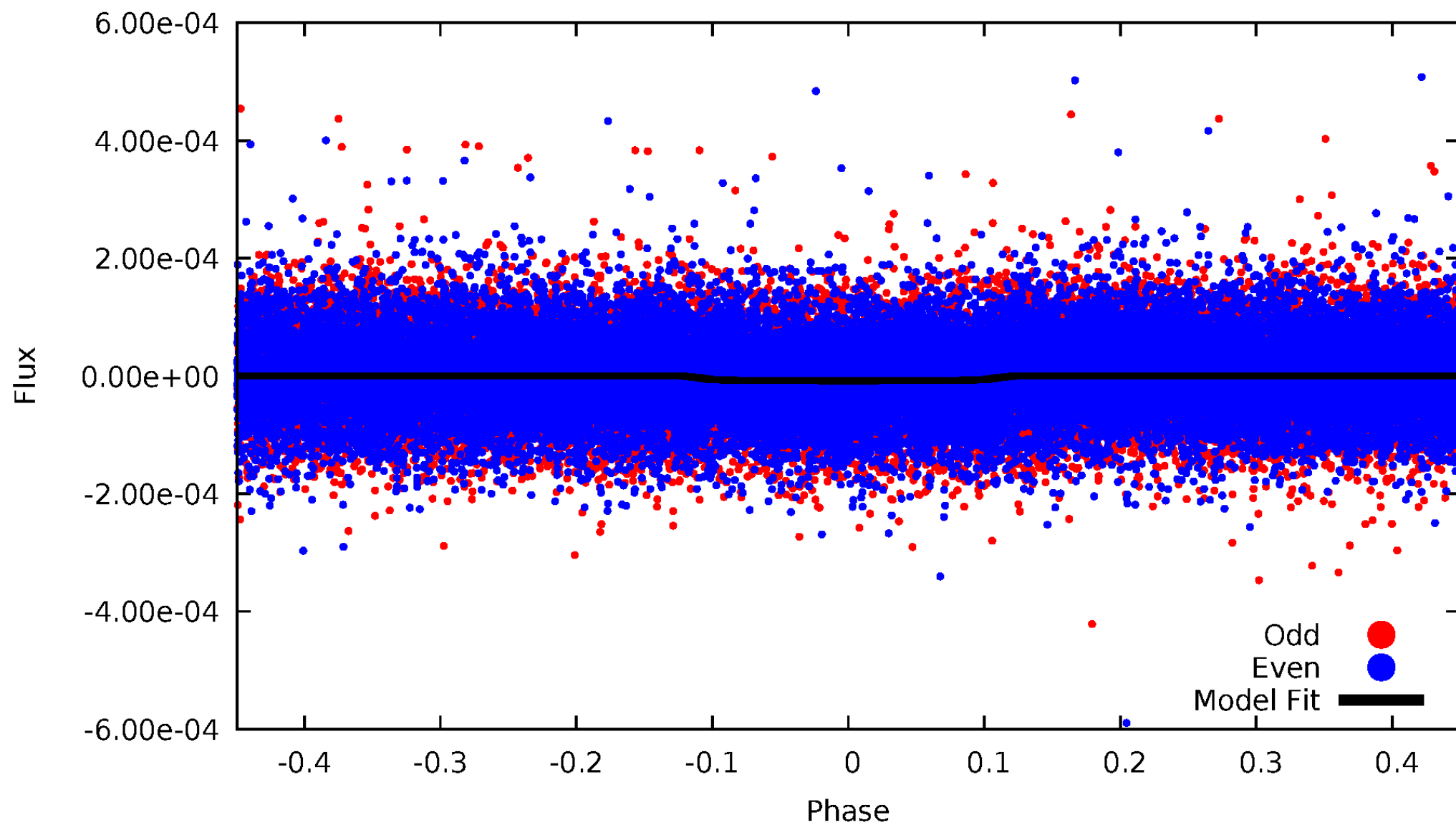


TCE 006147122-03



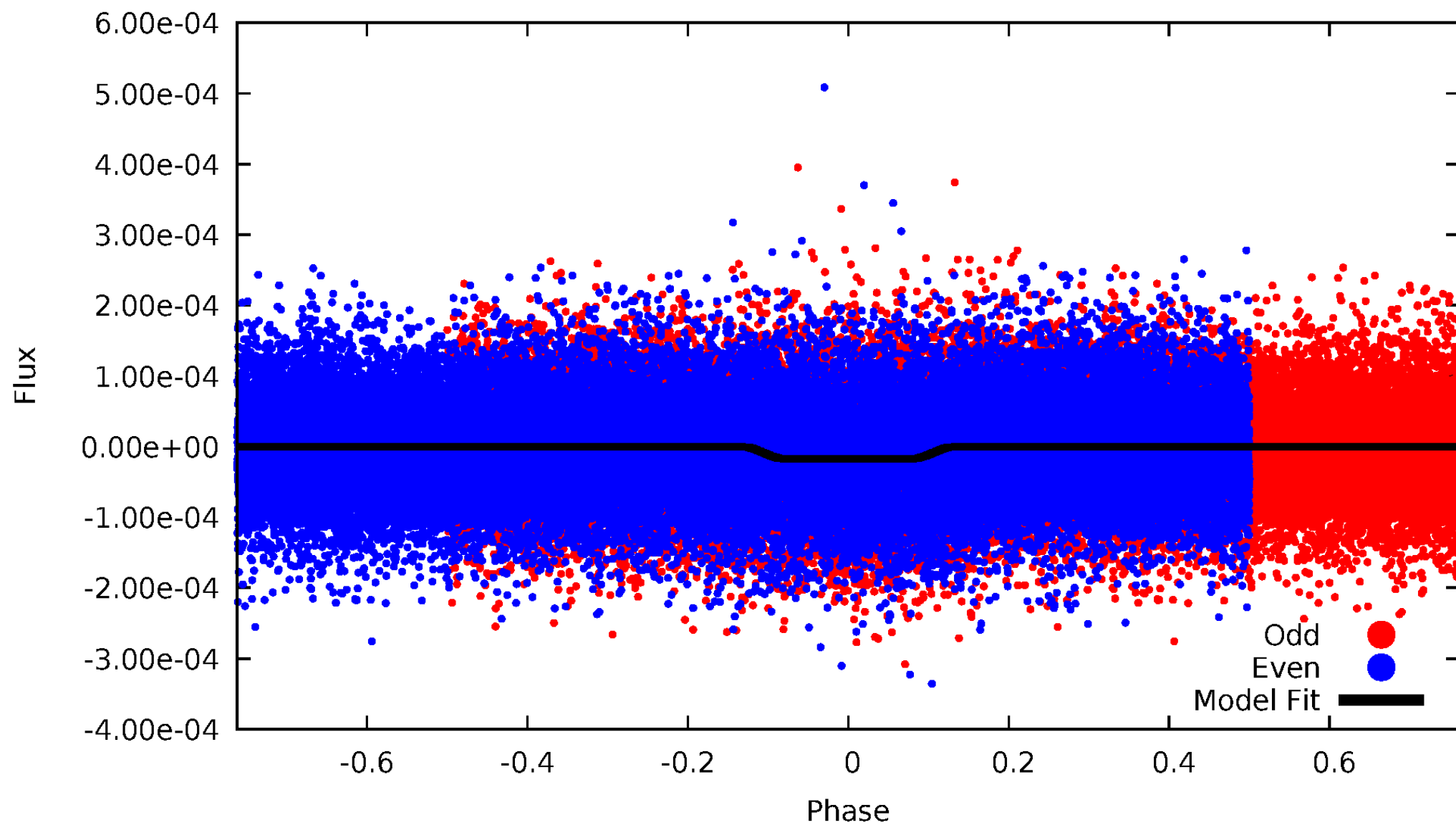
DV Odd/Even

TCE 006147122-03



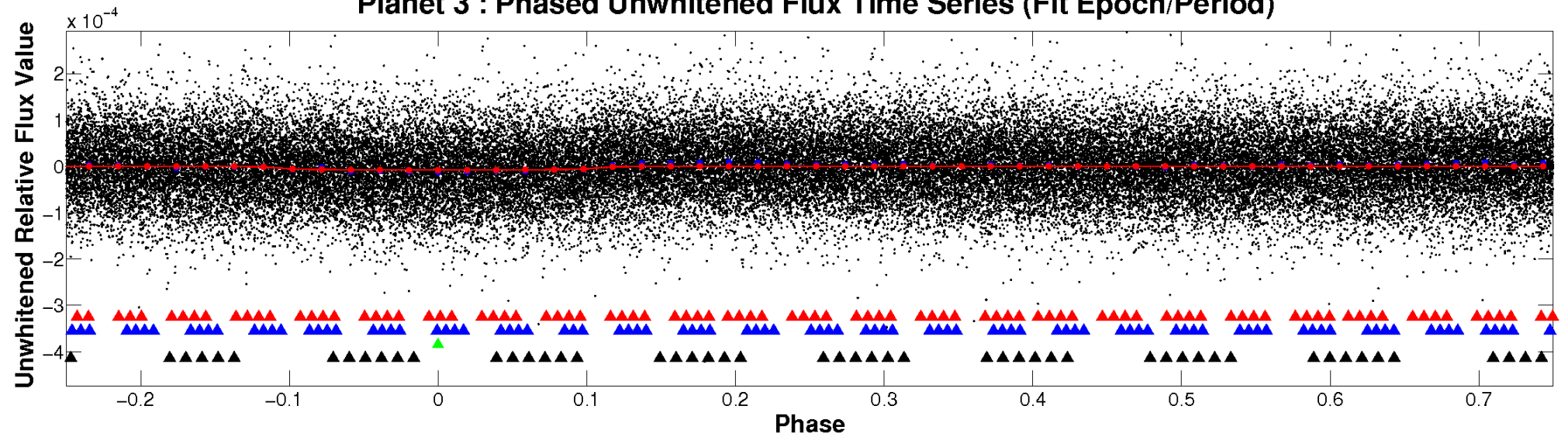
ALT Odd/Even

TCE 006147122-03

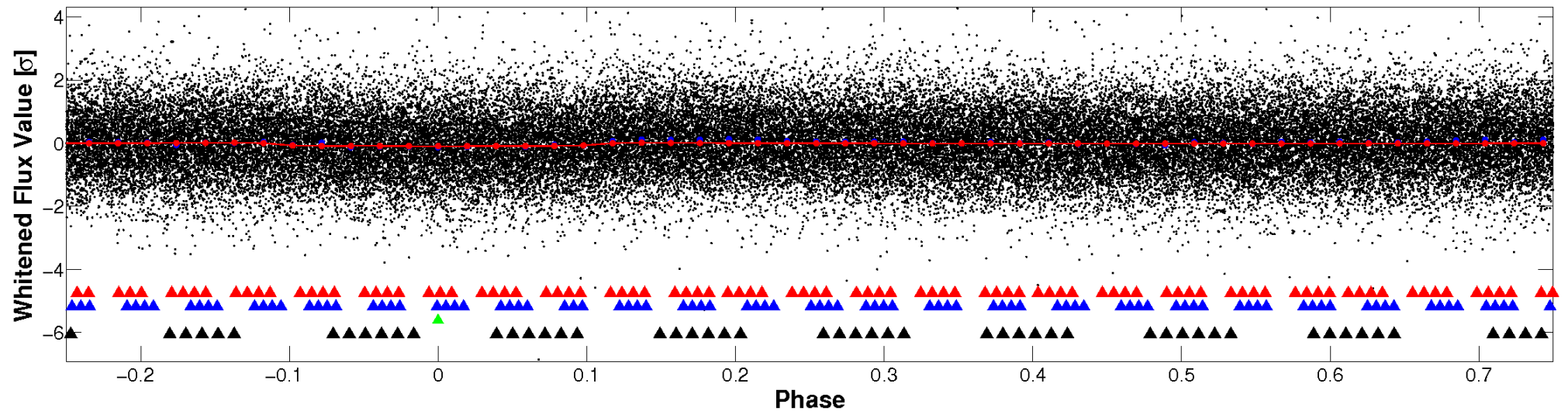


Non-Whitened Vs. Whitened Light Curve

Planet 3 : Phased Unwhitened Flux Time Series (Fit Epoch/Period)

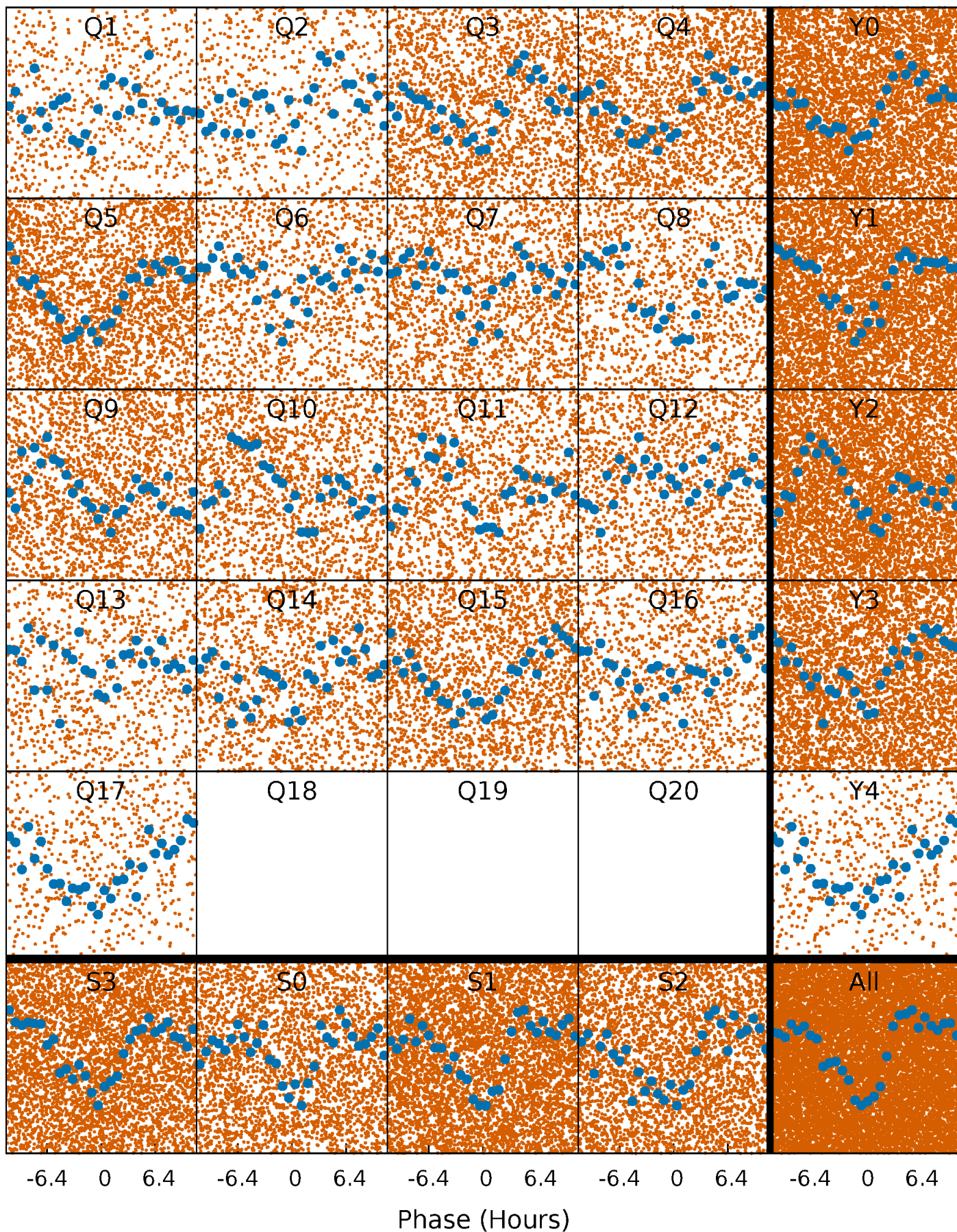


Planet 3 : Phased Whitened Flux Time Series (Fit Epoch/Period)



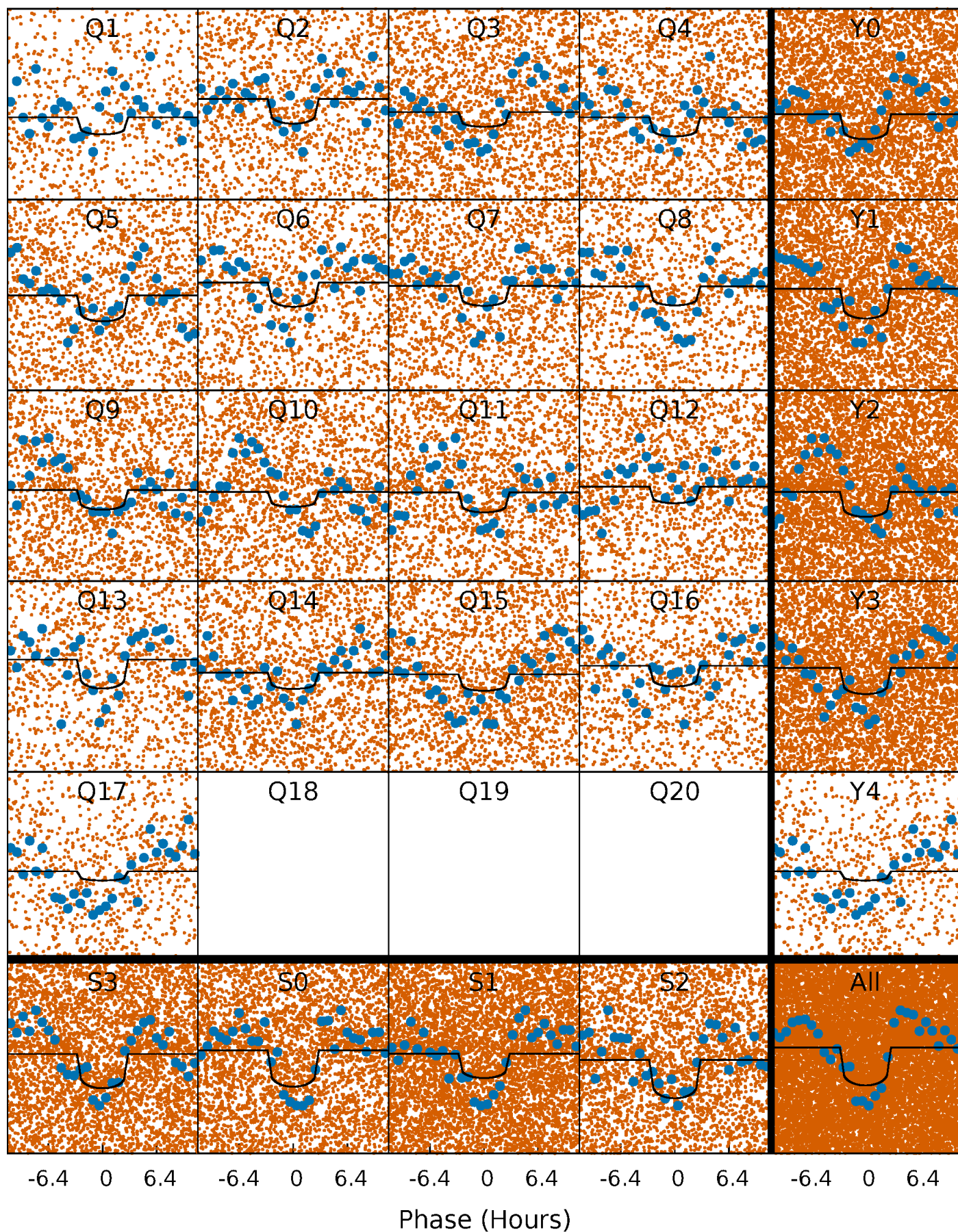
PDC Quarter-Phased Transit Curves

TCE 006147122-03 P= 1.044638 Days $T_0=132.183706$ (BKJD)



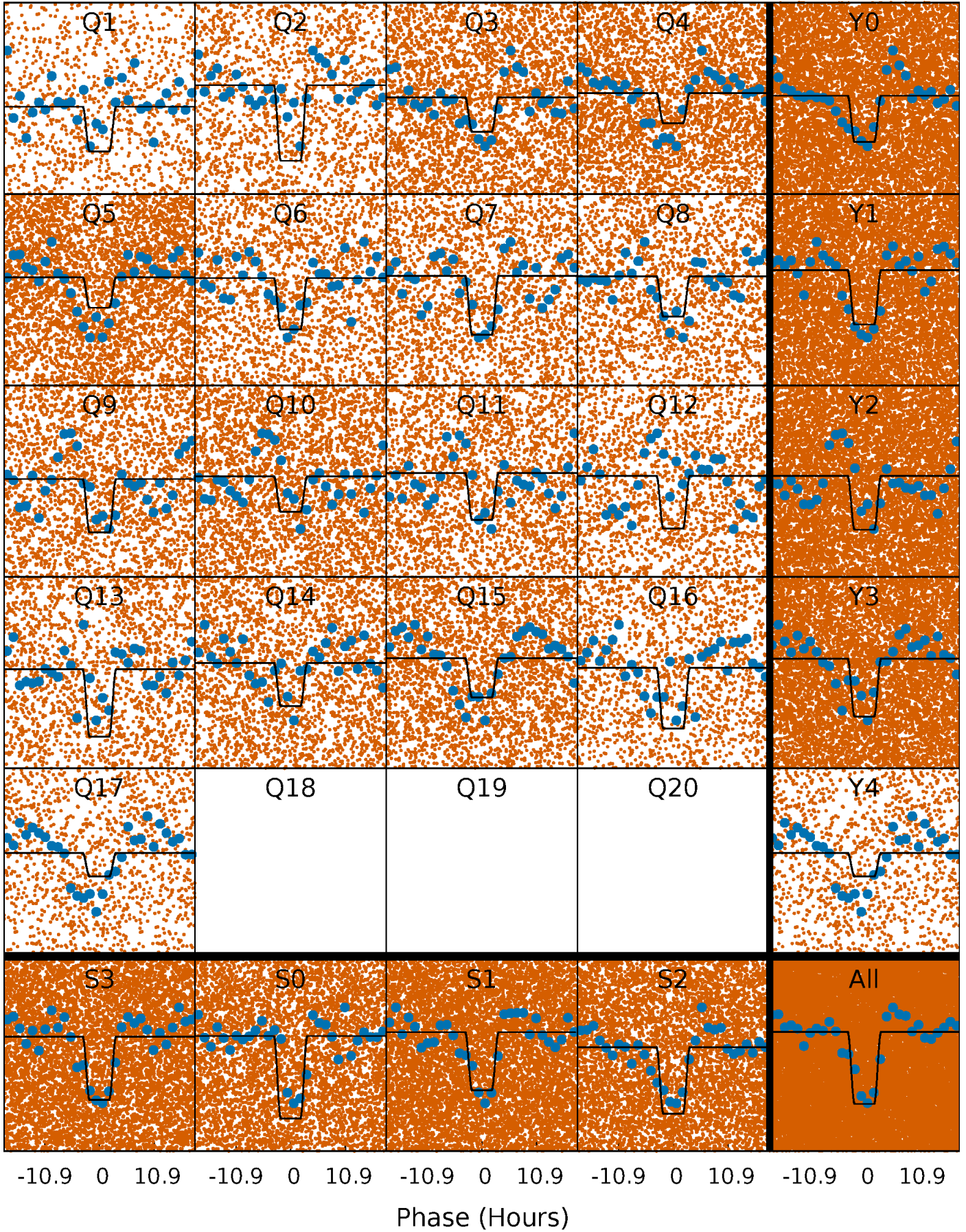
DV Quarter-Phased Transit Curves

TCE 006147122-03 P= 1.044638 Days $T_0=132.183706$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

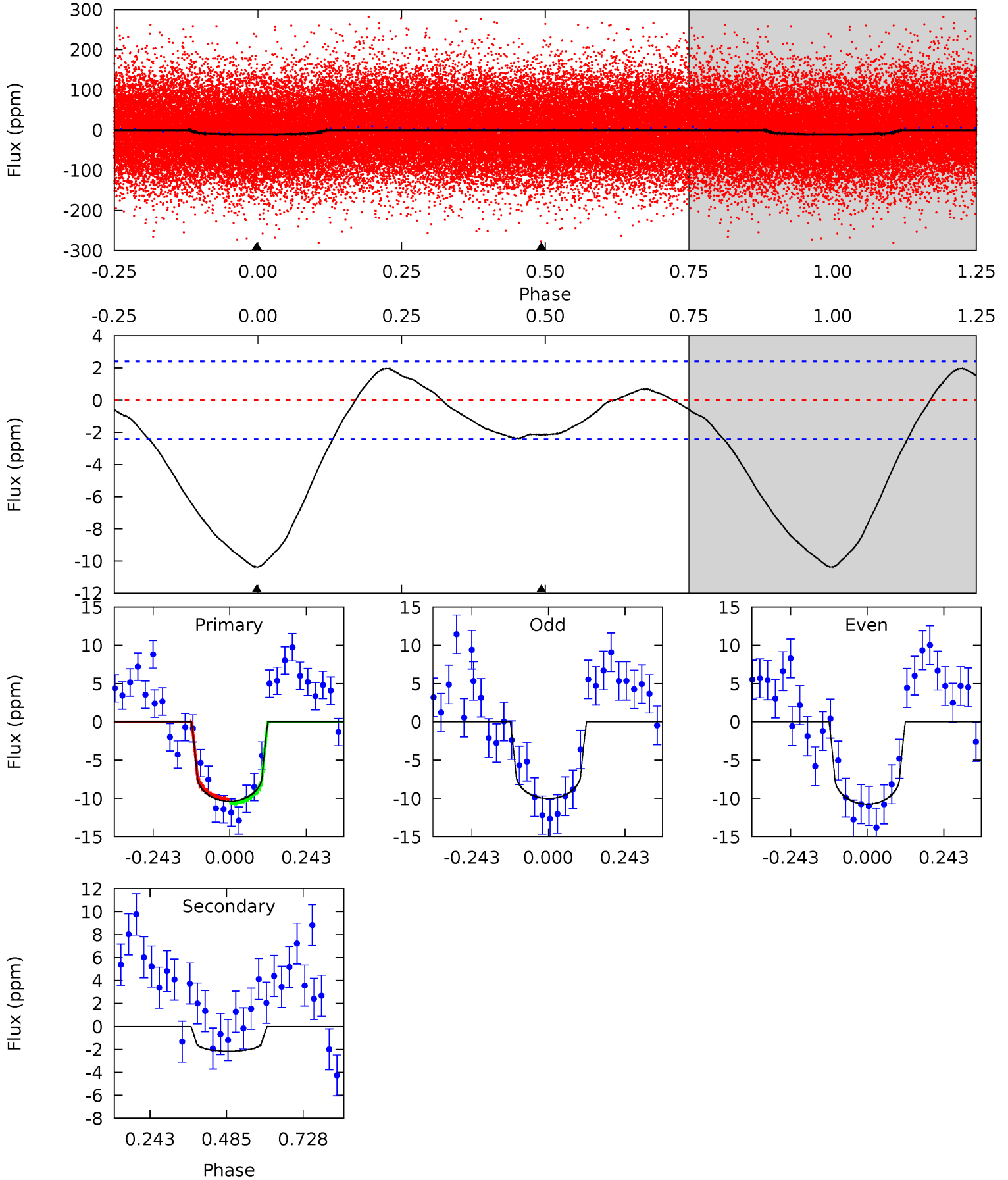
TCE 006147122-03 P= 1.044683 Days $T_0=132.130183$ (BKJD)



DV Model-Shift Uniqueness Test

006147122-03, P = 1.044638 Days, E = 131.139068 Days

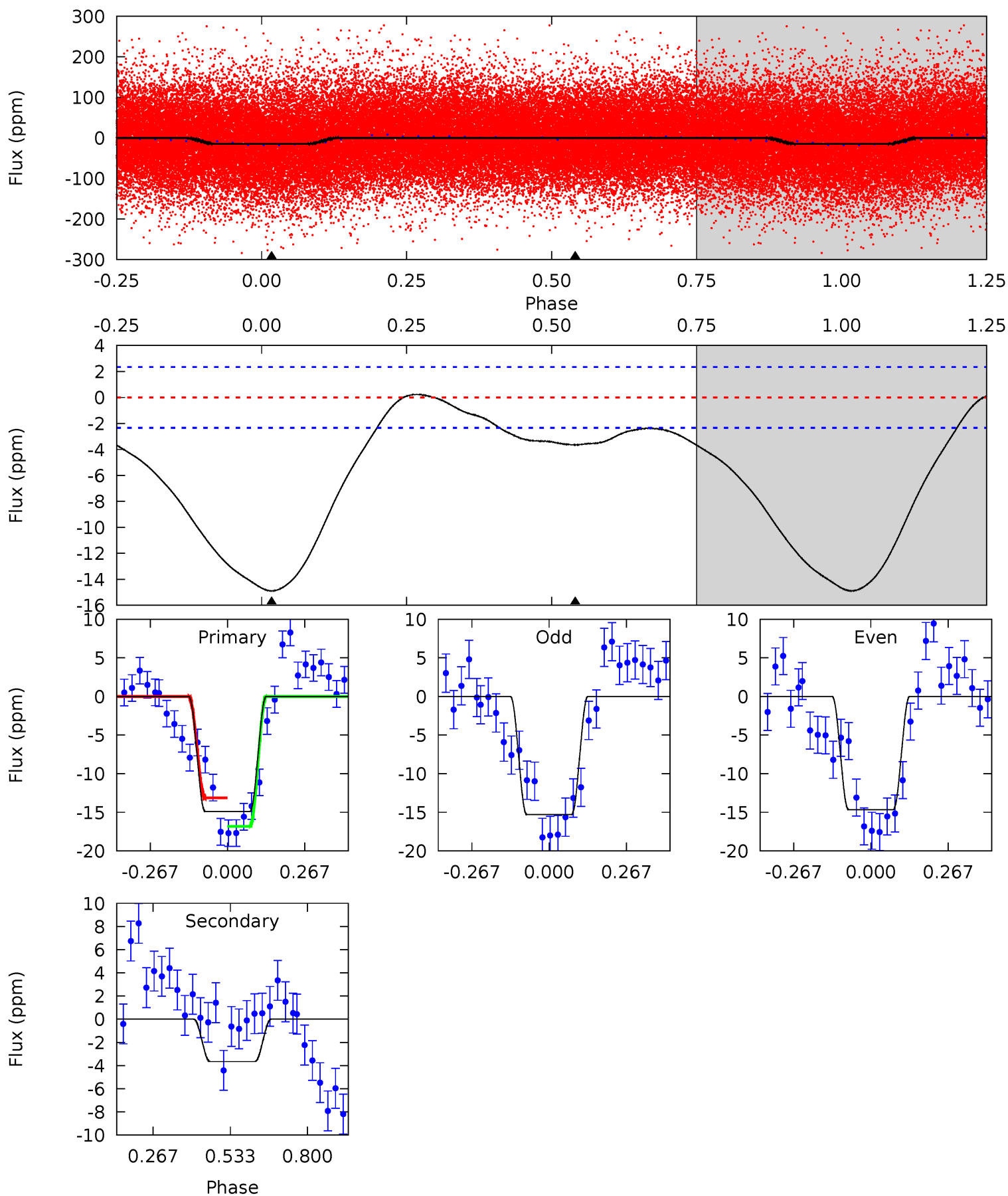
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
18.7	3.90	0	0	4.38	1.17	1.98	18.7	18.7	3.90	3.90	0.65	1.02	0.16	0.52



Alt Model-Shift Uniqueness Test

006147122-03, P = 1.044683 Days, E = 131.085500 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
27.7	6.80	0	0	4.35	1.11	3.80	27.7	27.7	6.80	6.80	0.60	0.93	0.02	3.22



Stellar Parameters For KIC 006147122

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	7839^{+216}_{-324}	$4.080^{+0.130}_{-0.159}$	$0.210^{+0.150}_{-0.450}$	$2.069^{+0.505}_{-0.413}$	$1.878^{+0.172}_{-0.344}$	$0.298^{+0.193}_{-0.137}$
	+3%/-4%	+3%/-4%	+71%/-214%	+24%/-20%	+9%/-18%	+65%/-46%
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 006147122-03 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-2 ± 1	$0.64^{+0.18}_{-0.19}$	4429^{+293}_{-299}	5316^{+938}_{-784}	$1.803^{+1.493}_{-0.852}$
Alt.	-4 ± 1	$0.93^{+0.23}_{-0.20}$	4395^{+318}_{-264}	4937^{+632}_{-472}	$1.382^{+0.881}_{-0.510}$

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

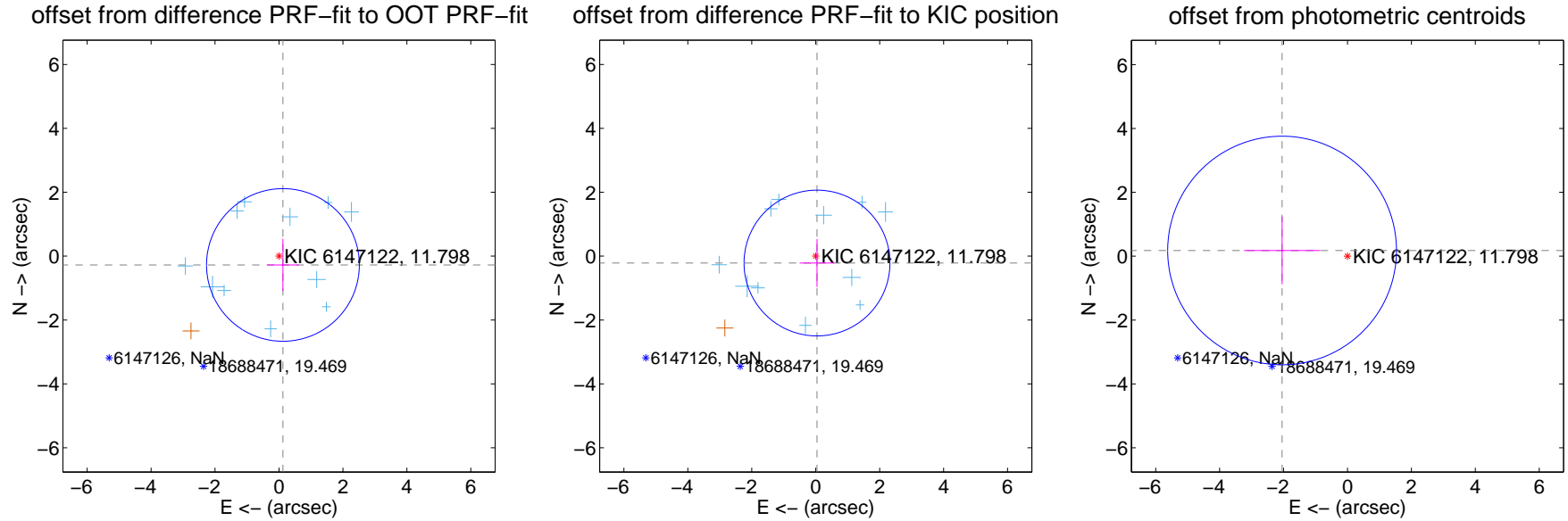
DV Centroid Data

Supplemental centroid analysis for 006147122-03. **Kepler magnitude: 11.80.** Transit SNR 9.39

There are 11 quarters with good PRF difference image offsets

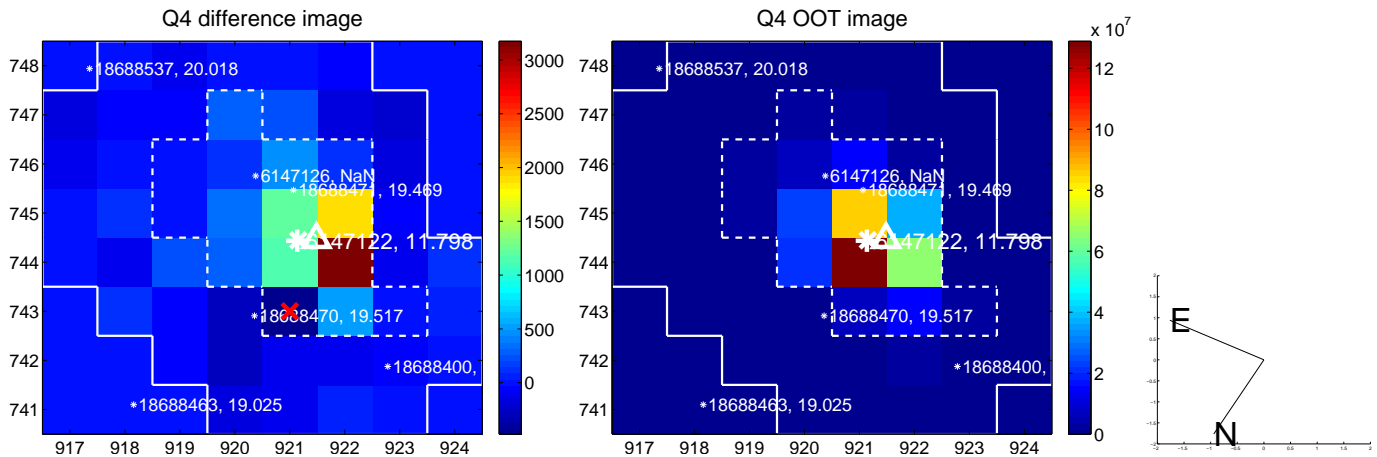
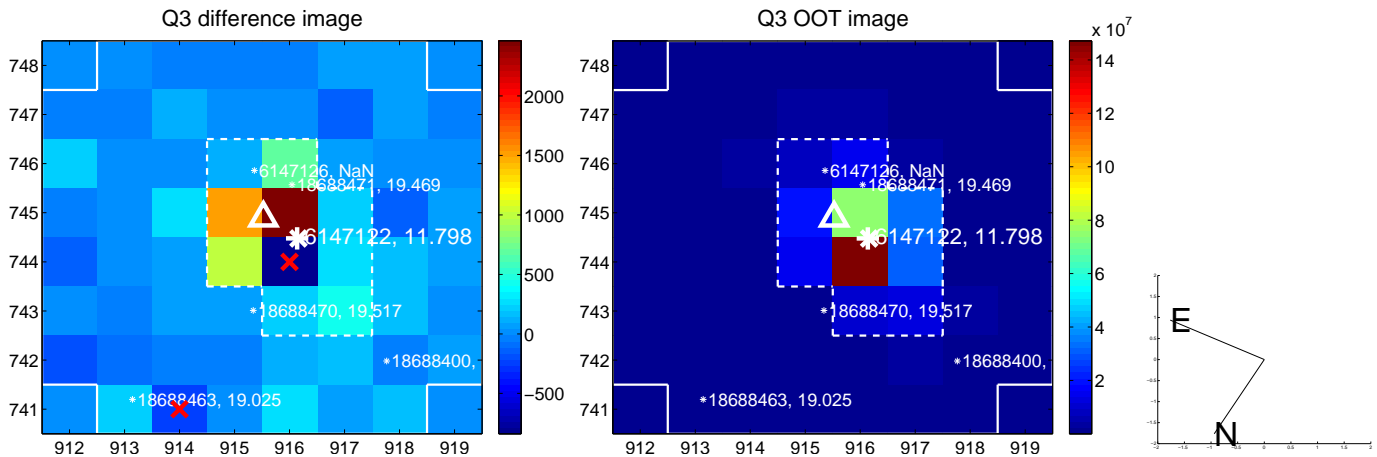
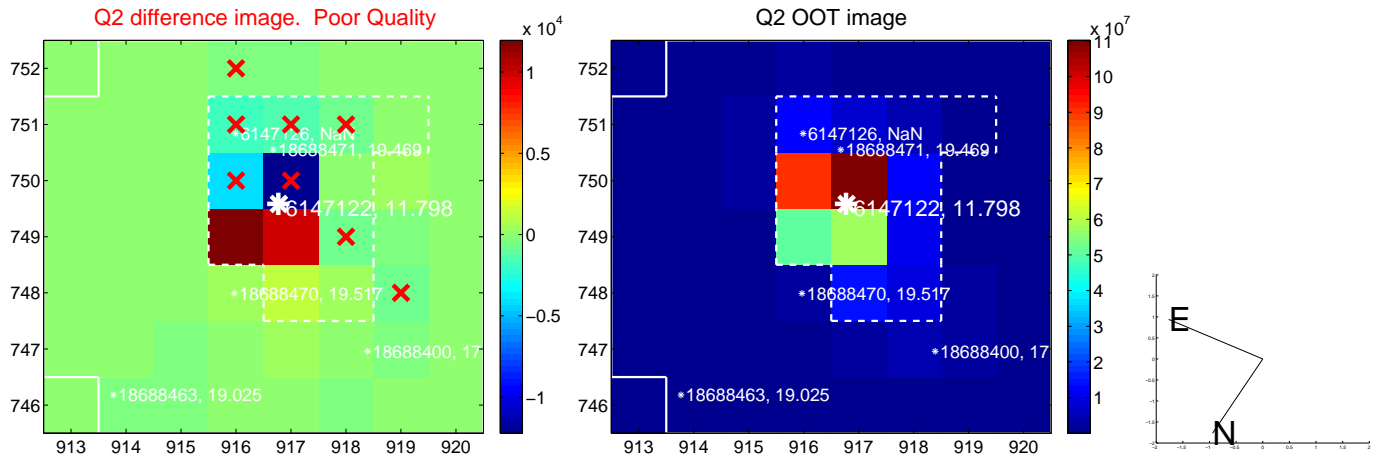
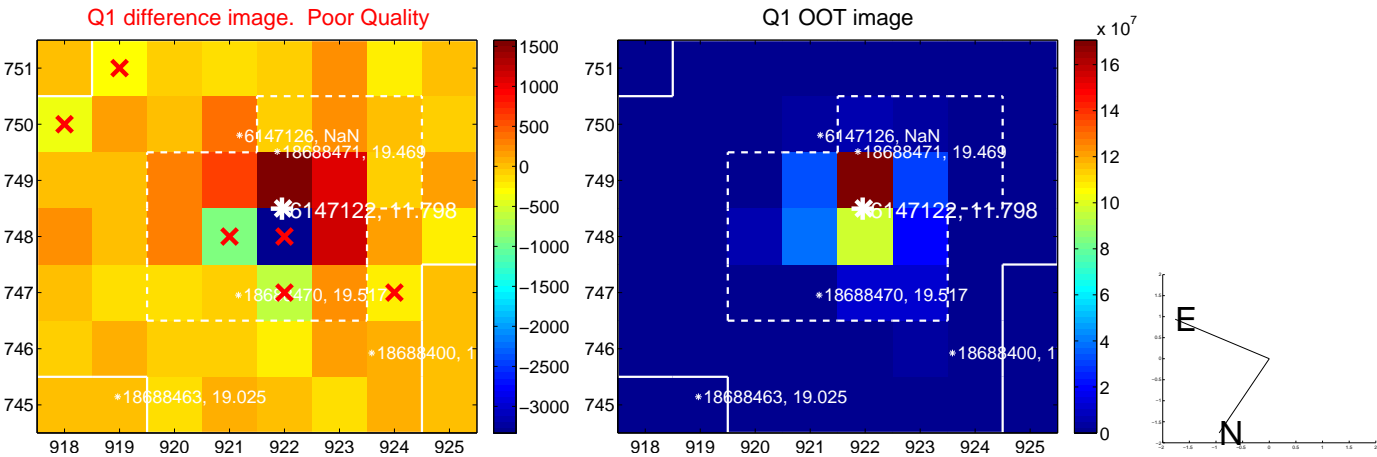
The direct PRF centroid is offset from the target star catalog position by about 0.11 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.302 ± 0.796	0.38	-0.123 ± 0.500	-0.276 ± 0.818
PRF-fit source offset from KIC position	0.220 ± 0.761	0.29	-0.040 ± 0.544	-0.216 ± 0.750
photometric centroid source offset	2.05 ± 1.19	1.72	2.05 ± 1.19	0.18 ± 1.06

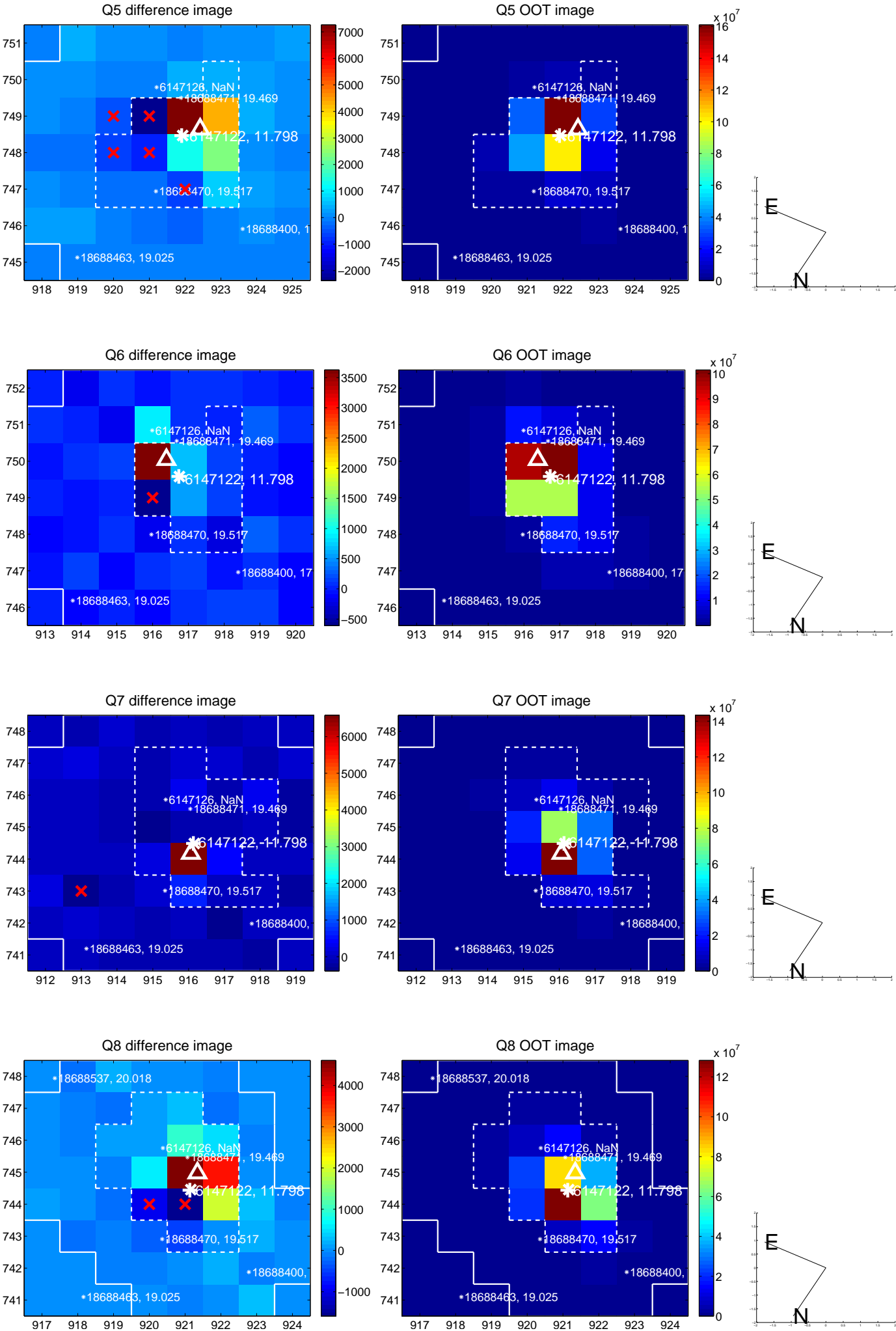


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

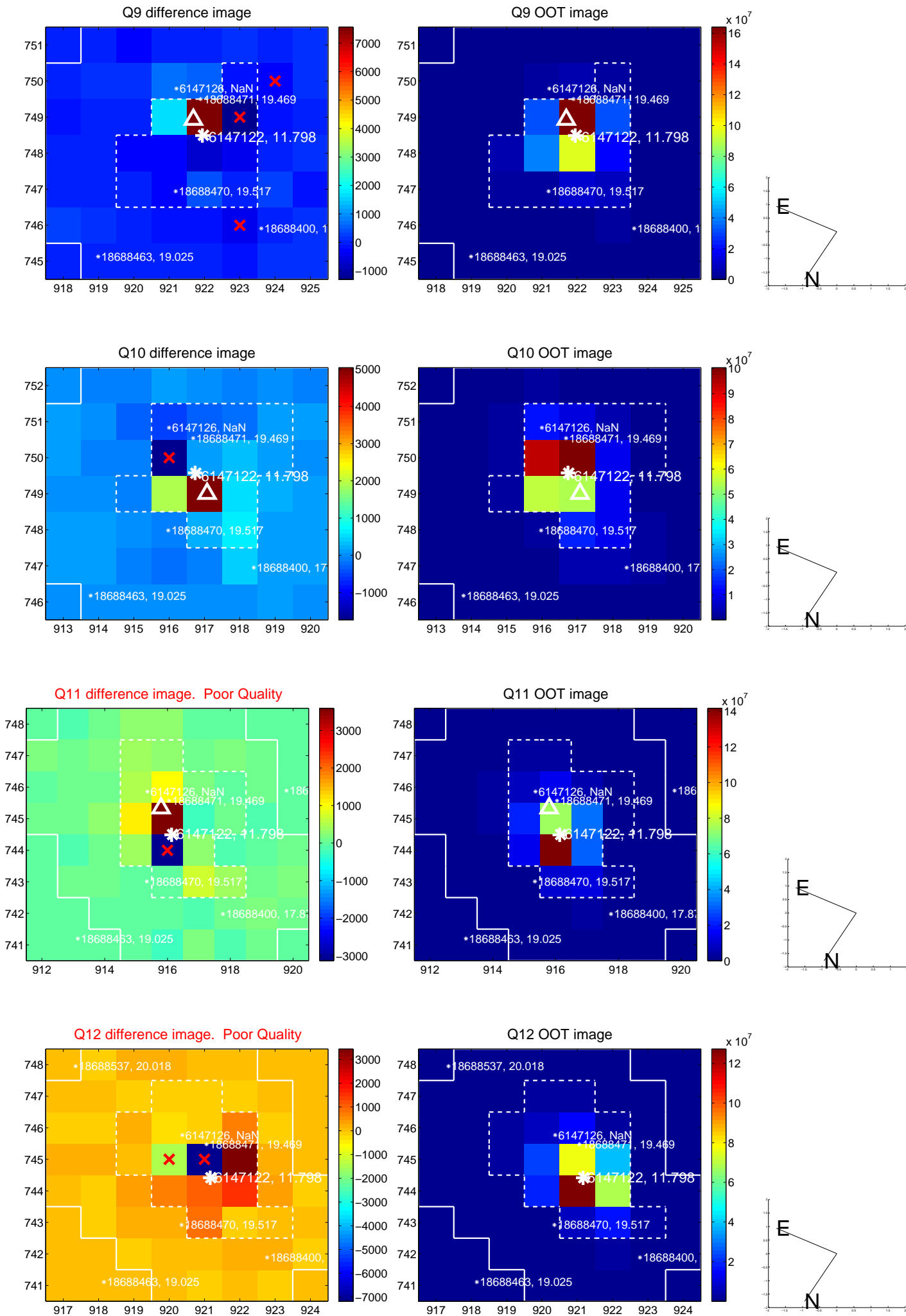
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



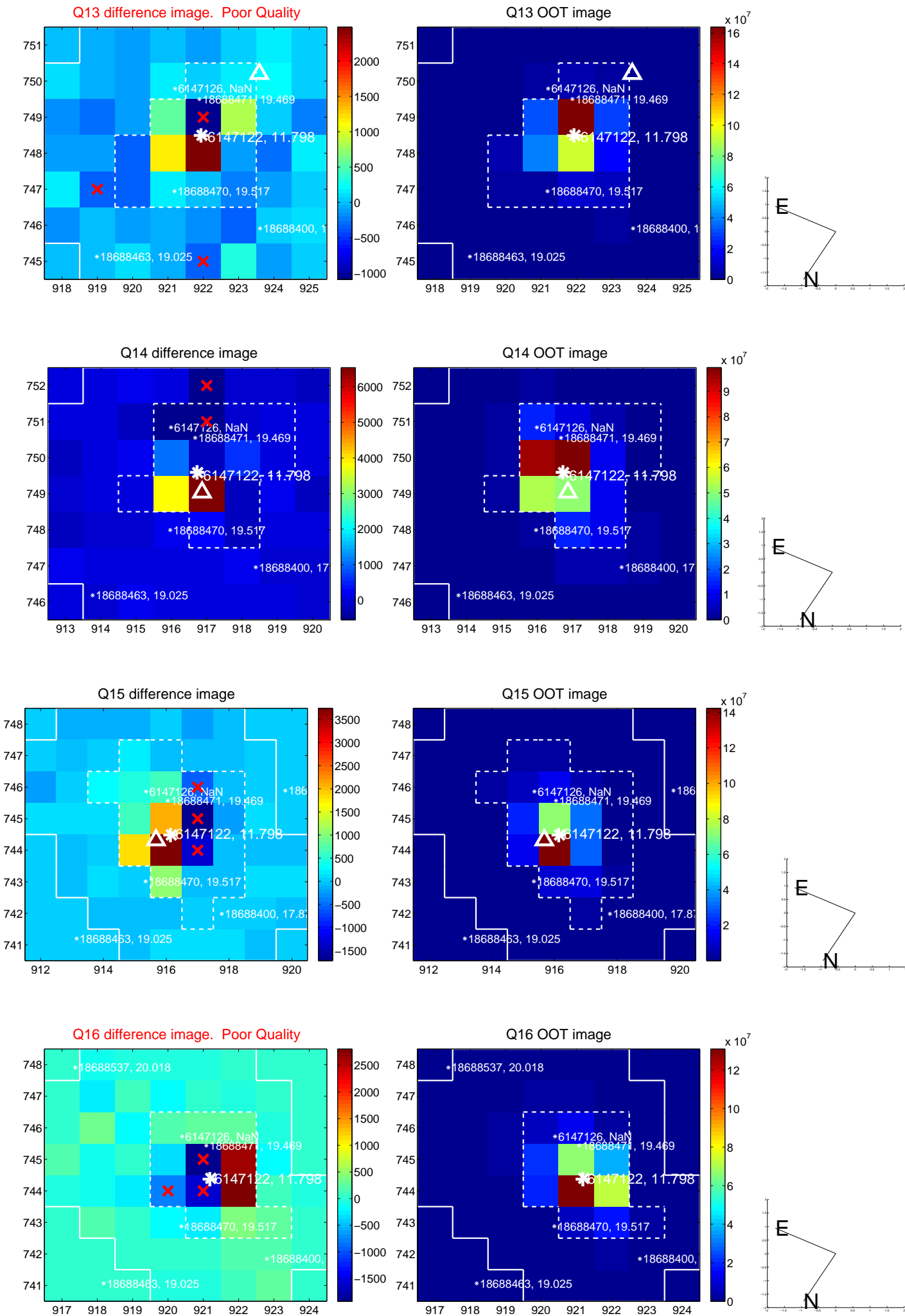
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



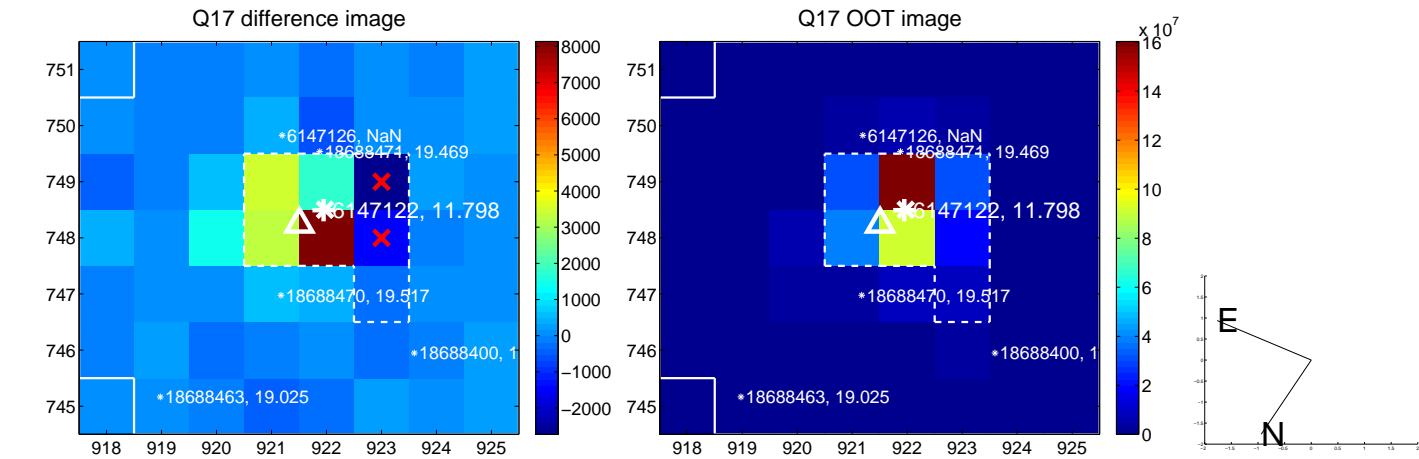
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



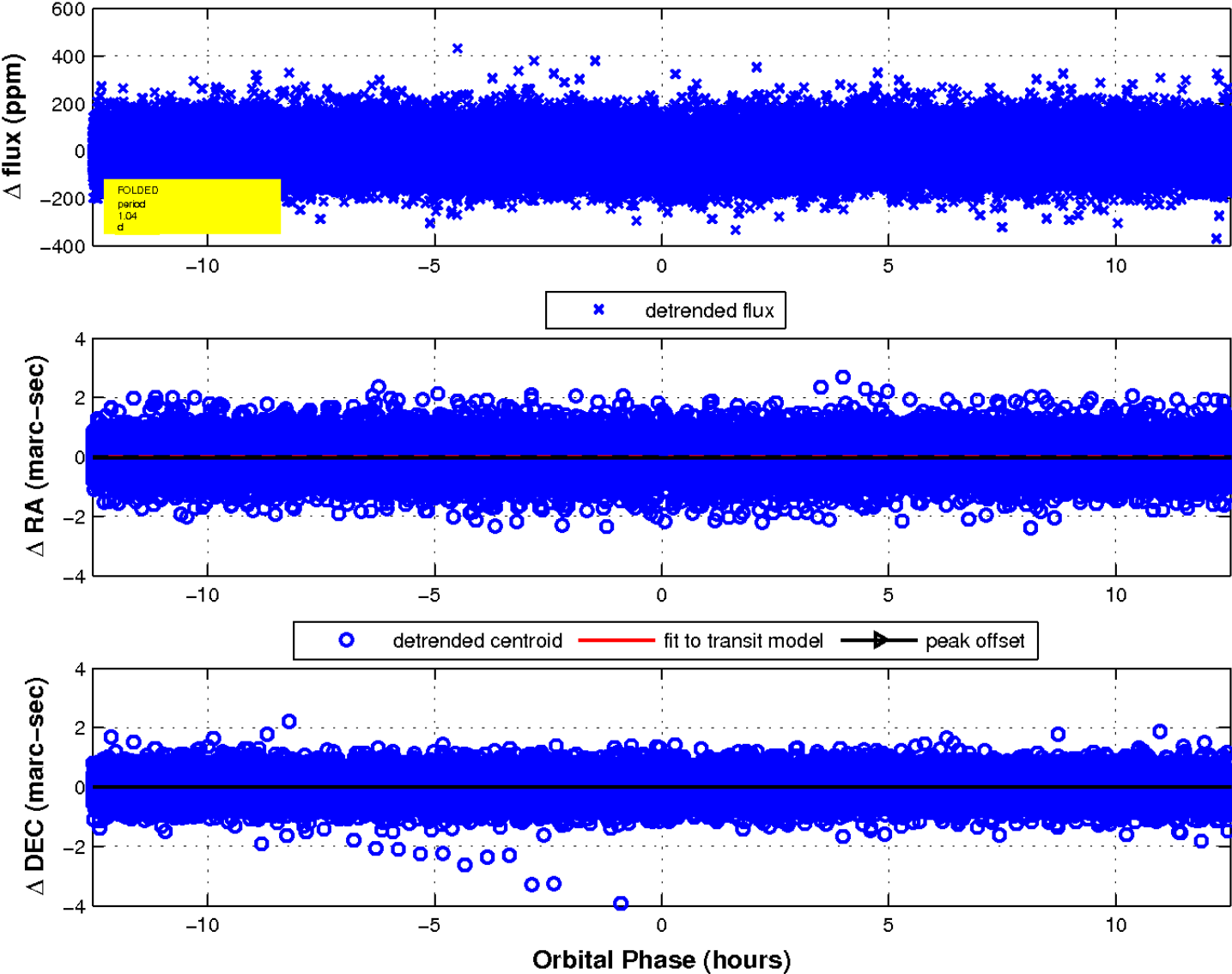
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

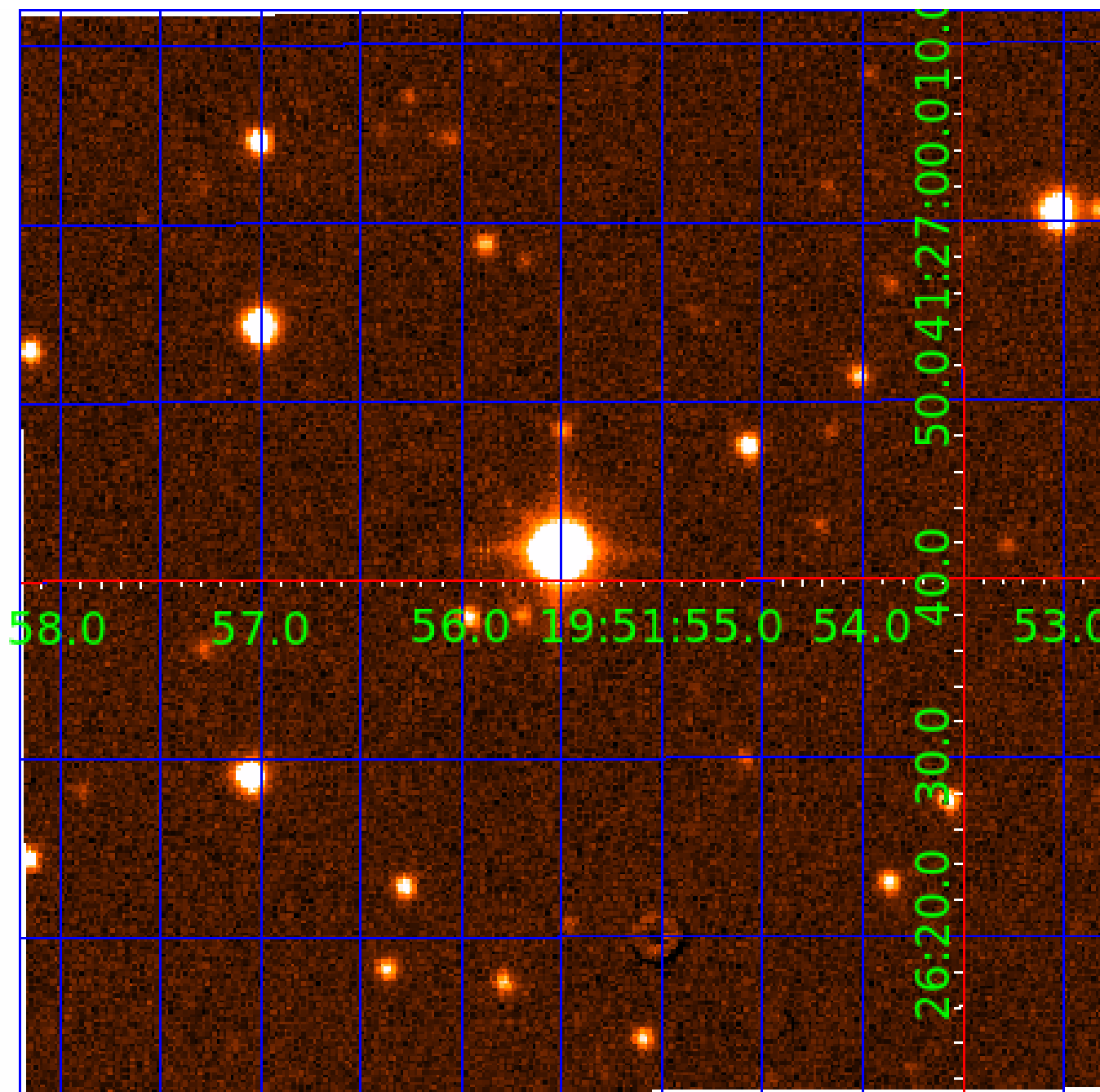


fluxWeightedCentroids, Planet 3 of 4



UKIRT Image

Declination



KIC 006147122

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})
006147122-01	OBS	1062.01	15.451603	142.211709	91.1	3.639	19.2	19.4	2.07	7839	3.86	645.38
006147122-02	OBS	No	15.451677	134.162650	58.3	5.885	11.3	13.4	2.07	7839	2.69	645.37
006147122-03	OBS	No	1.044638	132.183706	8.1	5.632	9.5	9.4	2.07	7839	0.64	23432.73
006147122-04	OBS	No	28.090411	140.111338	51.3	3.308	7.4	7.4	2.07	7839	1.72	290.87

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
006147122-01	OBS	FP	0.00	0	1	1	0	MOD_SEC_DV—MOD_SEC_ALT—HAS_SEC_TCE—CENT_RESOLVED_OFFSET
006147122-02	OBS	FP	0.00	1	1	1	0	IS_SEC_TCE—CENT_RESOLVED_OFFSET—HALO_GHOST
006147122-03	OBS	FP	0.00	1	0	0	0	LPP_DV—MOD_NONUNIQ_ALT
006147122-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_ALT

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.

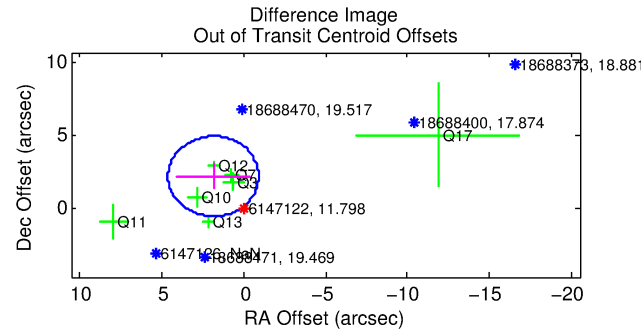
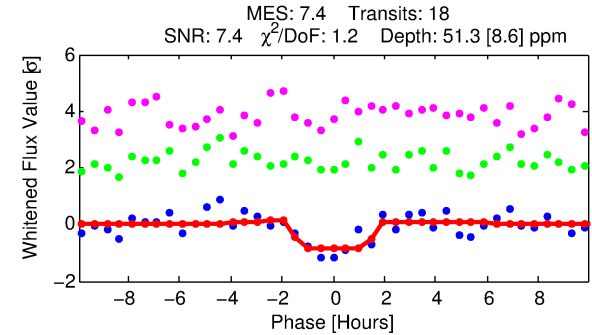
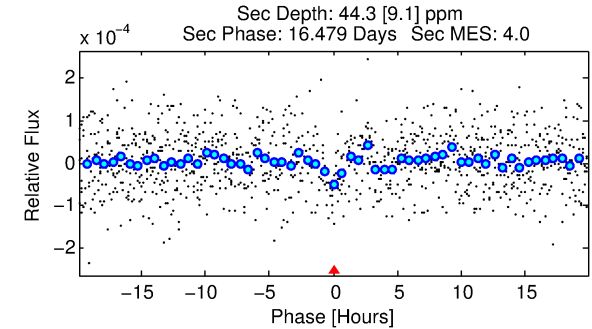
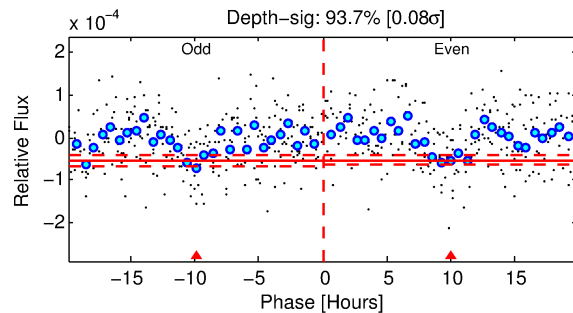
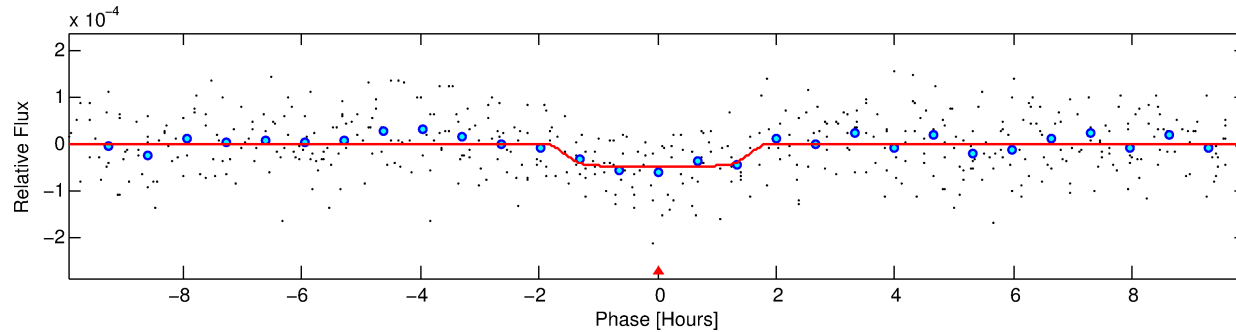
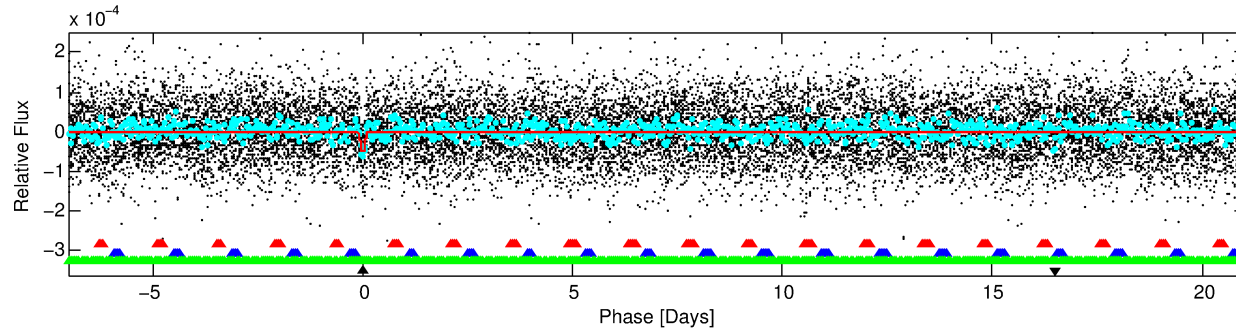
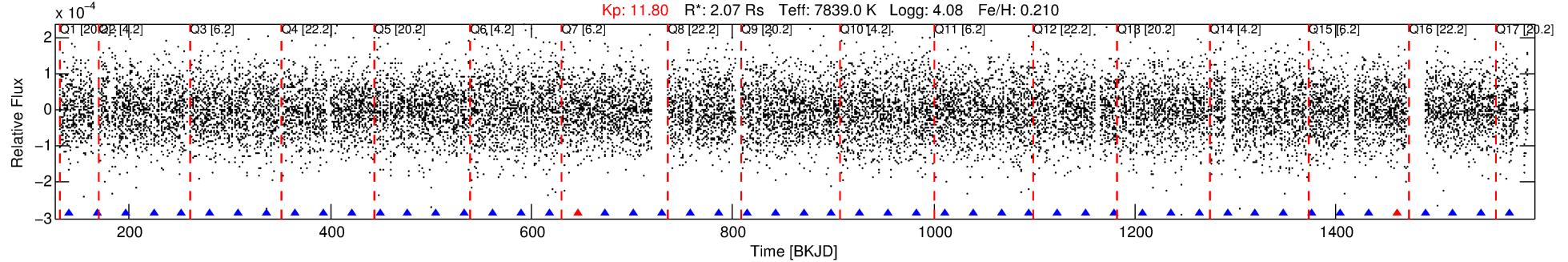
Ephemeris Match Information For 006147122-04

No Significant Match Found

DV One-Page Summary

KIC: 6147122 Candidate: 4 of 4 Period: 28.090 d
KOI: K01062 Corr: No Ephemeris Match

Kp: 11.80 R*: 2.07 Rs Teff: 7839.0 K Logg: 4.08 Fe/H: 0.210



DV Fit Results:

Period = 28.09041 [0.00040] d
Epoch = 140.1113 [0.0114] BKJD
Rp/R* = 0.0076 [0.0044]
a/R* = 29.44 [108.74]
b = 0.90 [0.79]
Seff = 290.87 [97.94]
Teq = 1053 [89] K
Rp = 1.72 [1.07] Re
a = 0.2231 [0.0454] AU
Ag = 411.33 [496.23] [0.83σ]
Teffp = 7332 [2166] K [2.90σ]

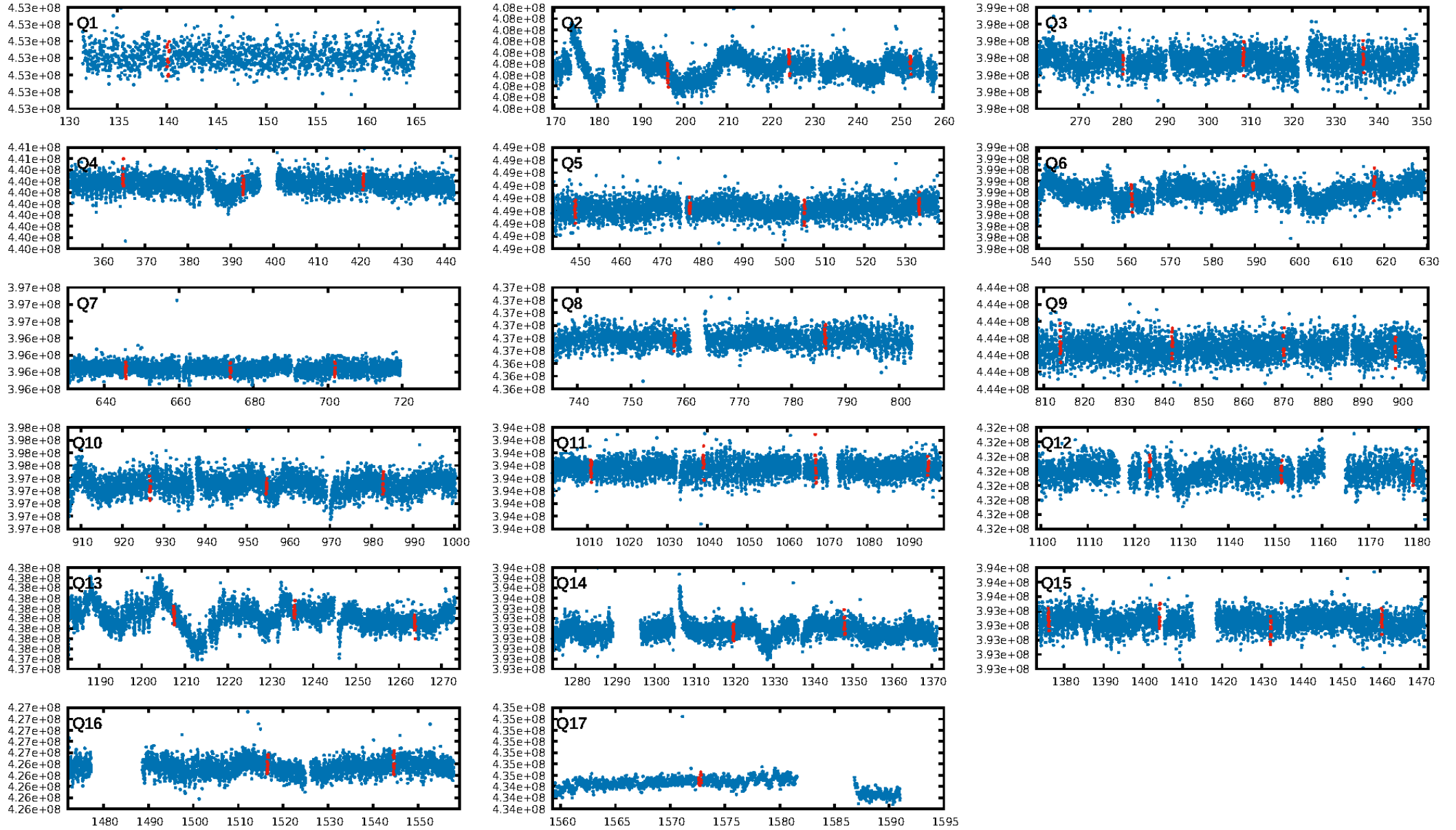
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [44.93σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 69.2%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 8.75e-10
RollingBand-fgt: 0.88 [15/17]
GhostDiagnostic-chr: -26.04
Centroid-sig: 0.1%
Centroid-so: 2.642 arcsec [2.25σ]
OotOffset-rm: 2.864 arcsec [3.11σ]
OotOffset-st: 1/3/1/2 [7]
KicOffset-rm: 2.931 arcsec [2.75σ]
KicOffset-st: 1/3/1/2 [7]
DiffImageQuality-fgm: 0.43 [3/7]
DiffImageOverlap-fno: 0.24 [4/17]

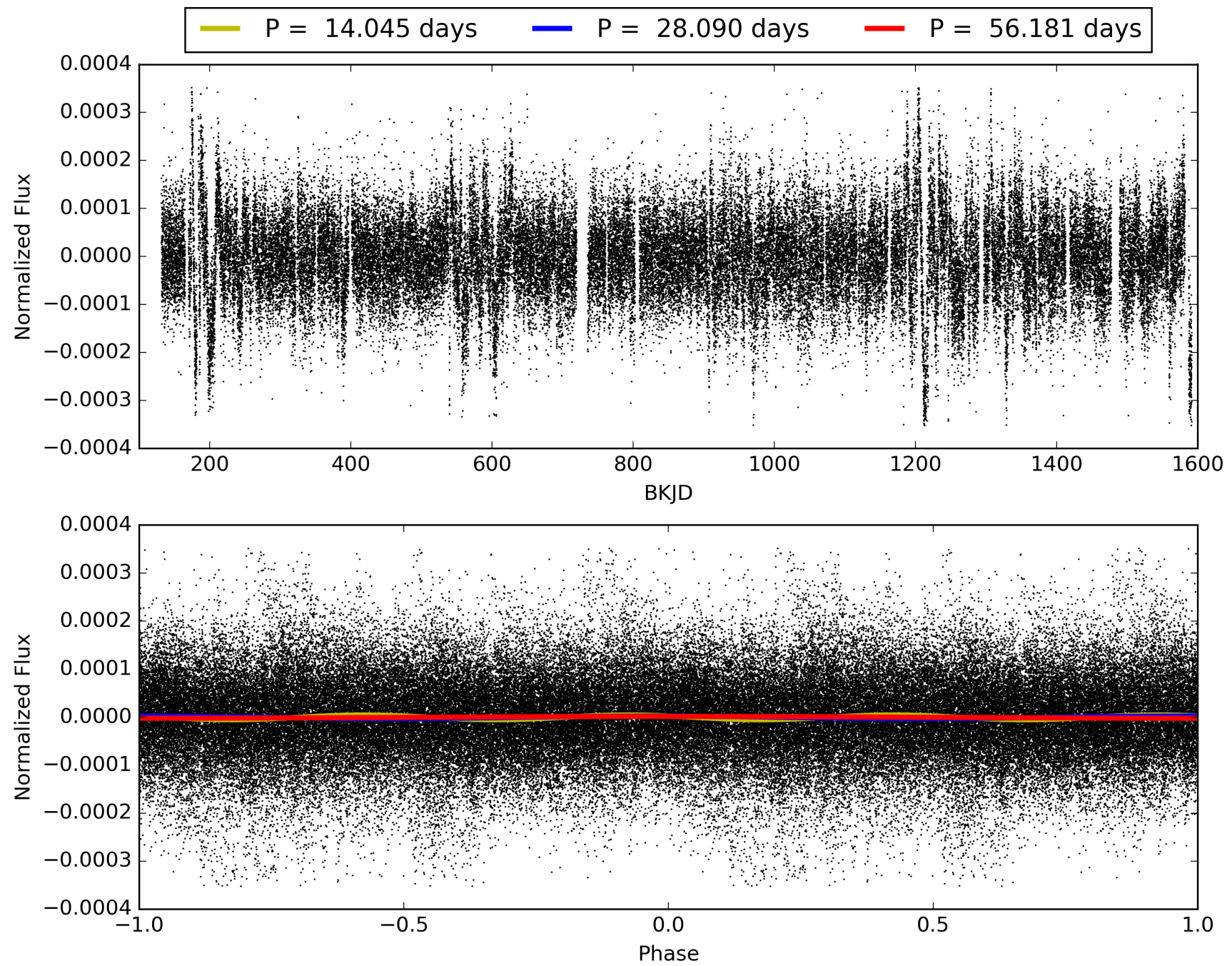
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 14:40:28 Z

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

TCE 006147122-04, PDC Light Curves

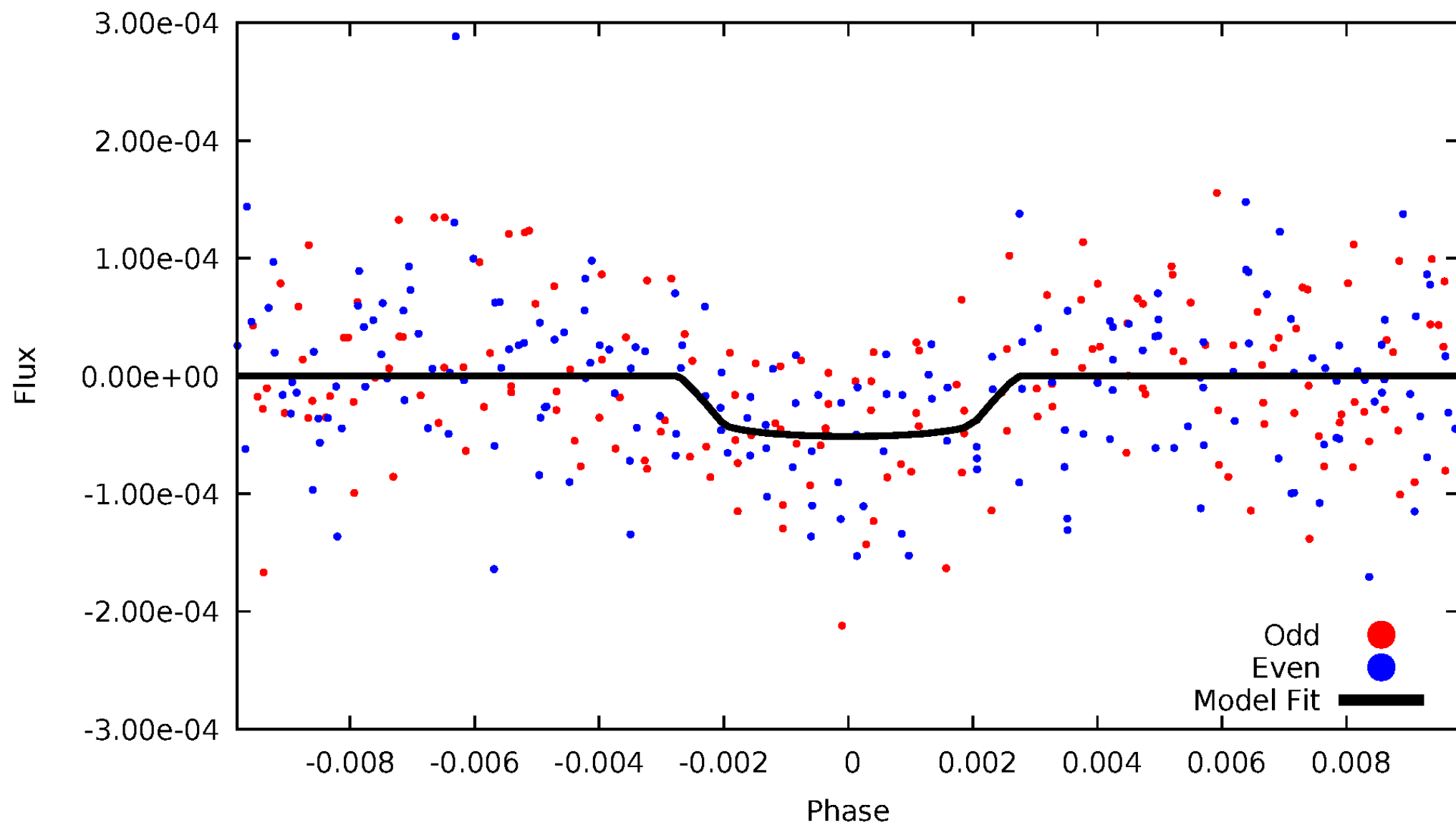


TCE 006147122-04



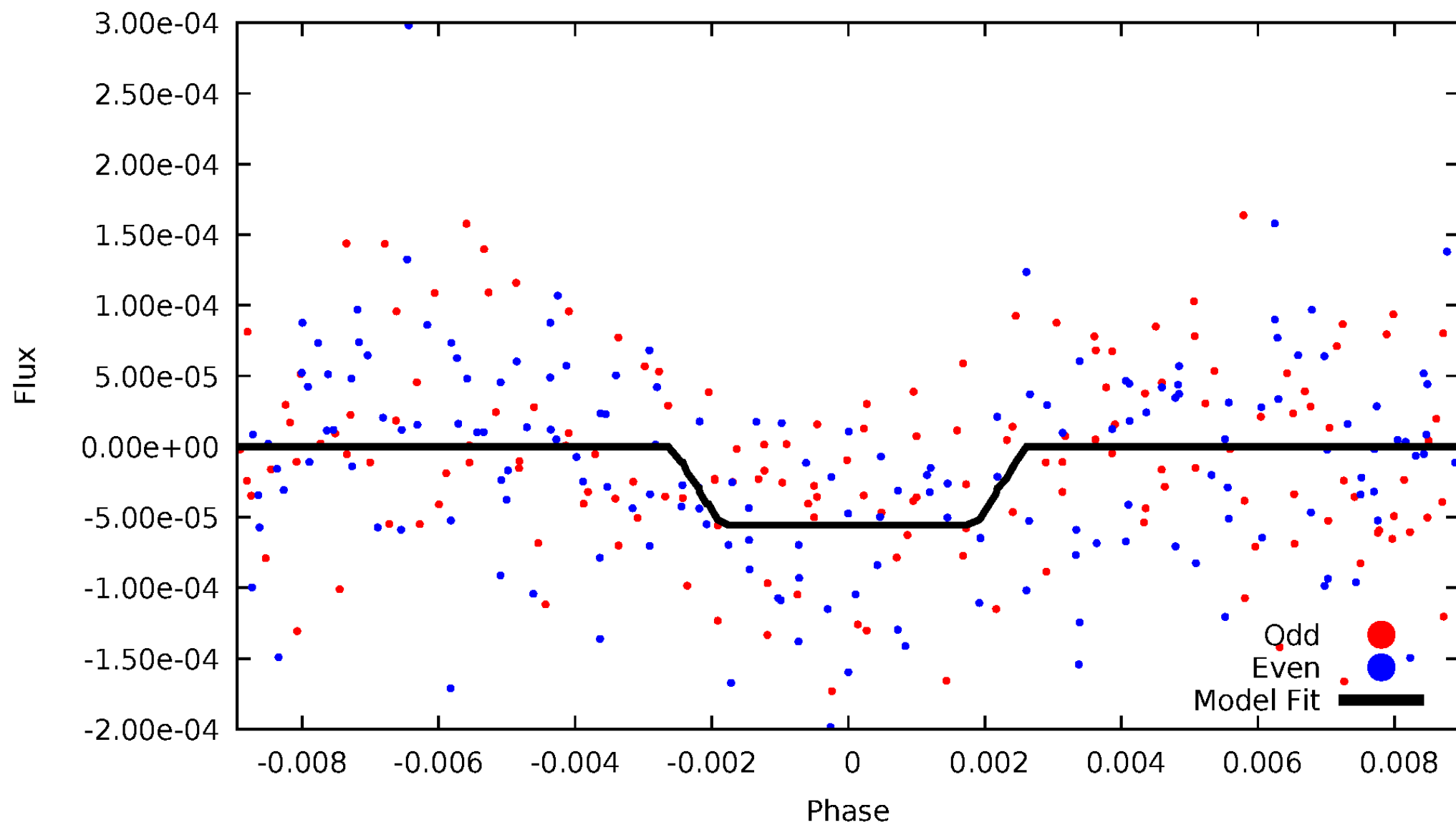
DV Odd/Even

TCE 006147122-04



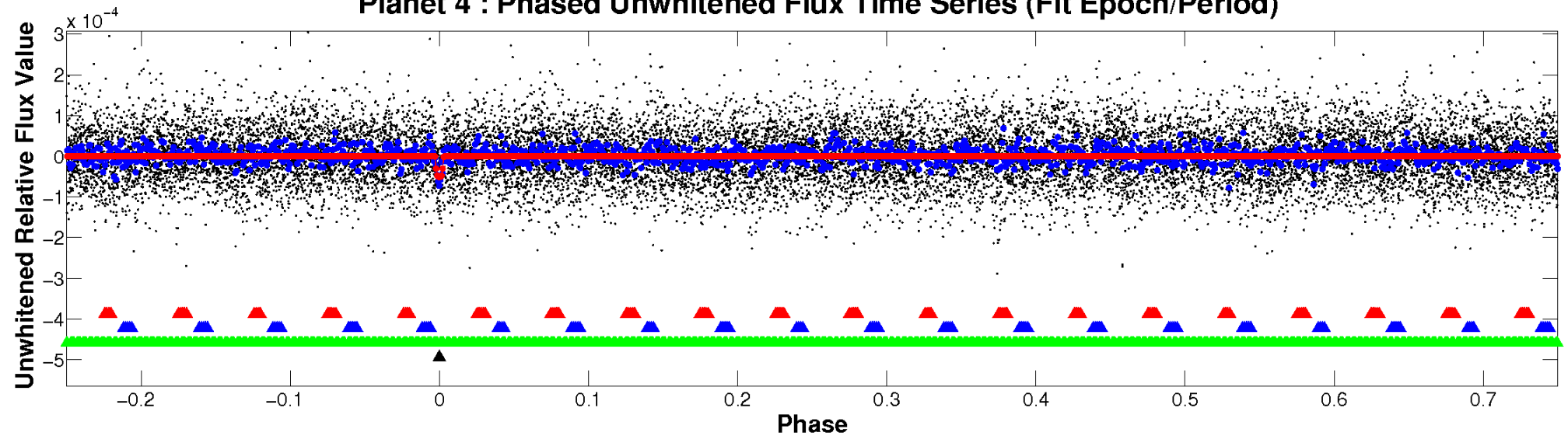
ALT Odd/Even

TCE 006147122-04

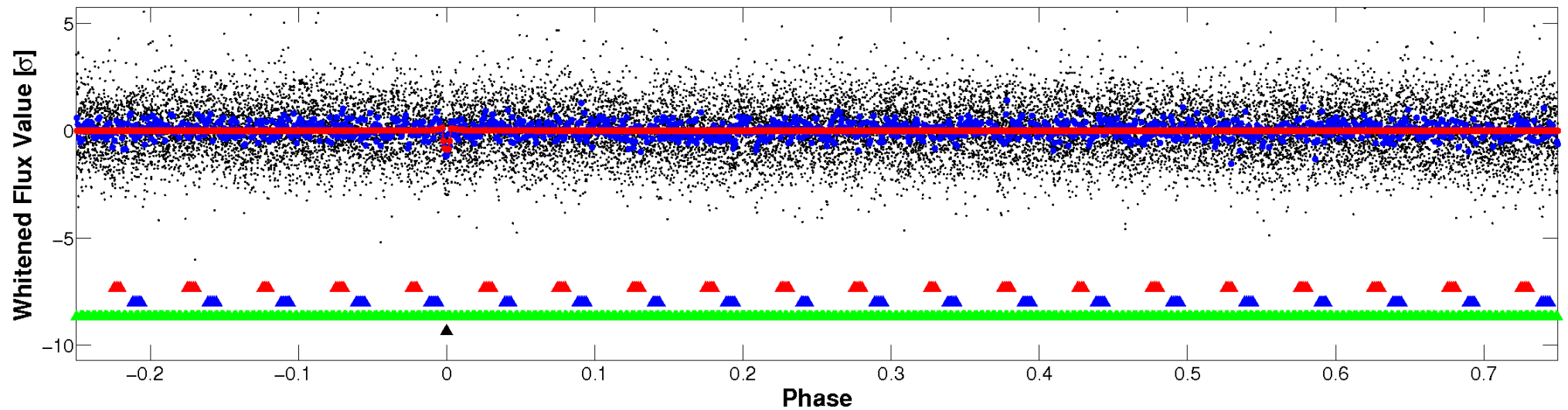


Non-Whitened Vs. Whitened Light Curve

Planet 4 : Phased Unwhitened Flux Time Series (Fit Epoch/Period)

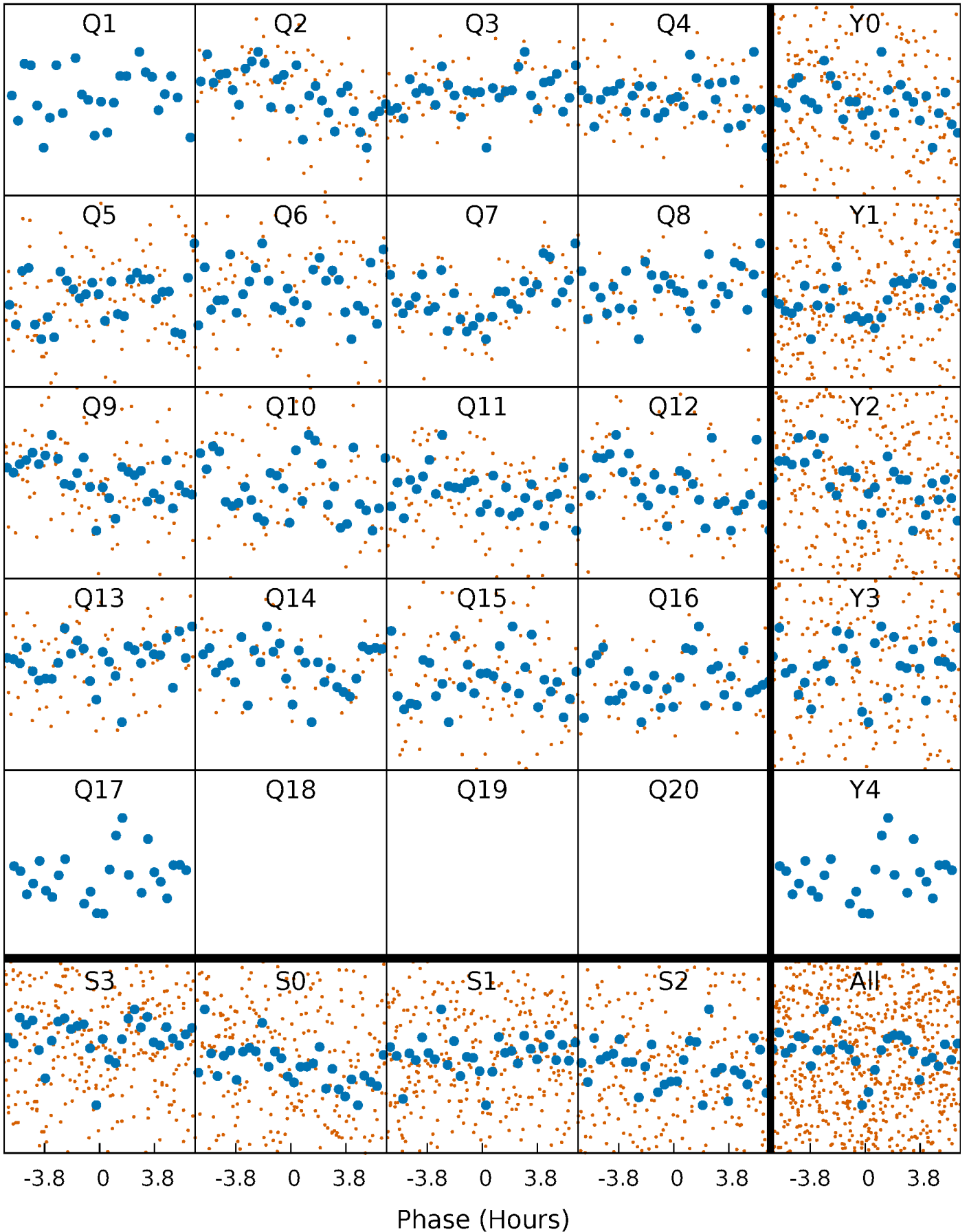


Planet 4 : Phased Whitened Flux Time Series (Fit Epoch/Period)



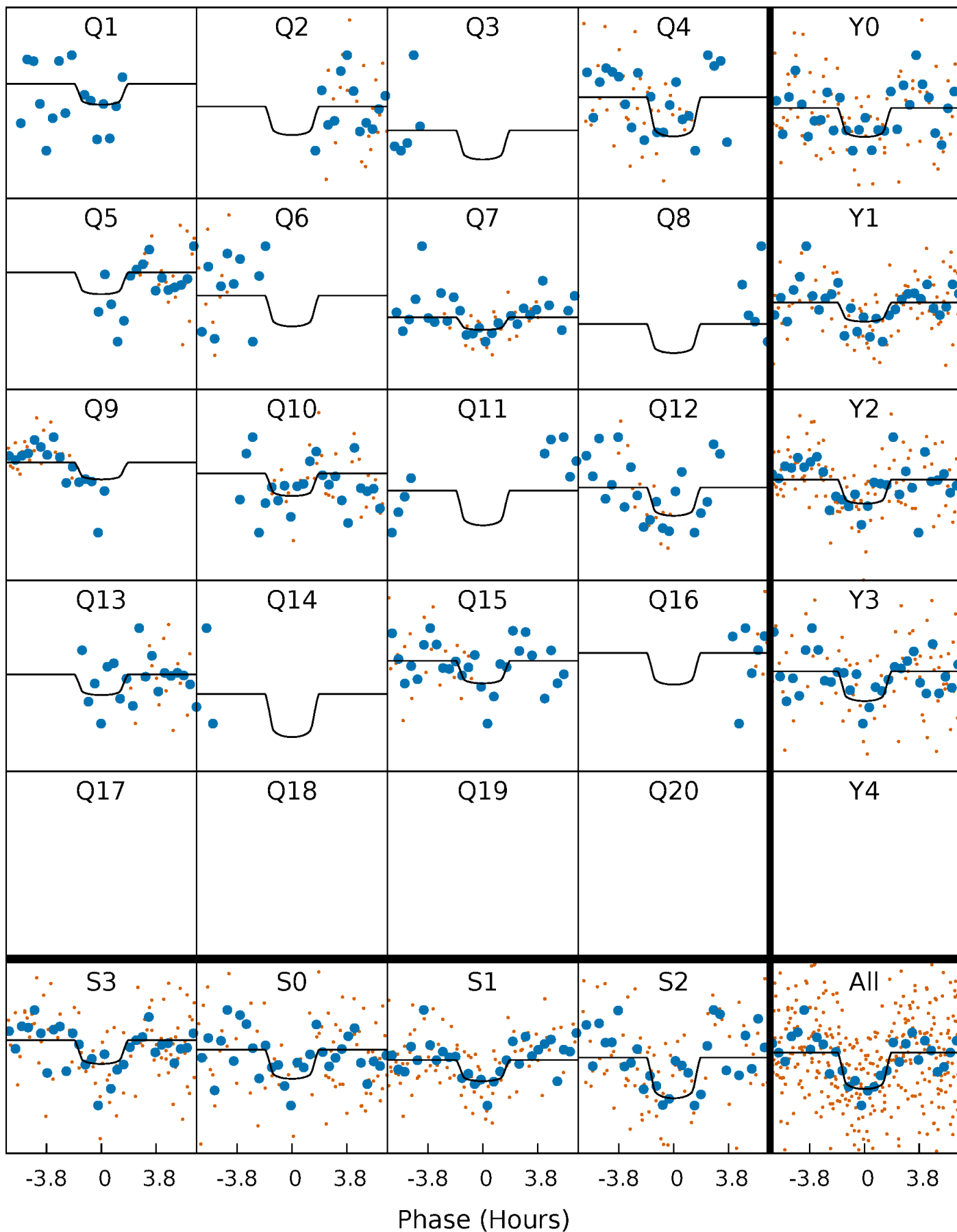
PDC Quarter-Phased Transit Curves

TCE 006147122-04 P= 28.090411 Days $T_0=140.111338$ (BKJD)



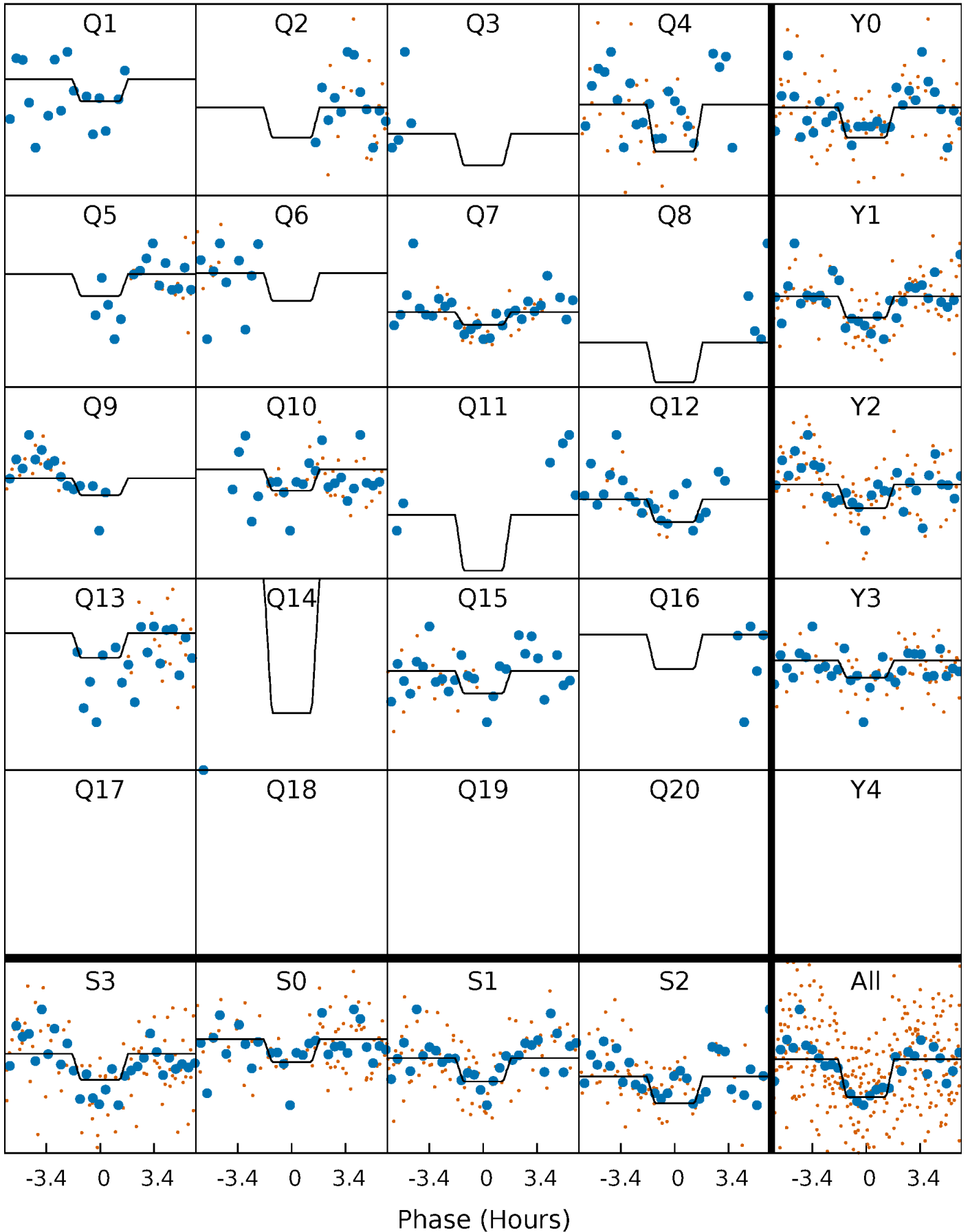
DV Quarter-Phased Transit Curves

TCE 006147122-04 P= 28.090411 Days $T_0=140.111338$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

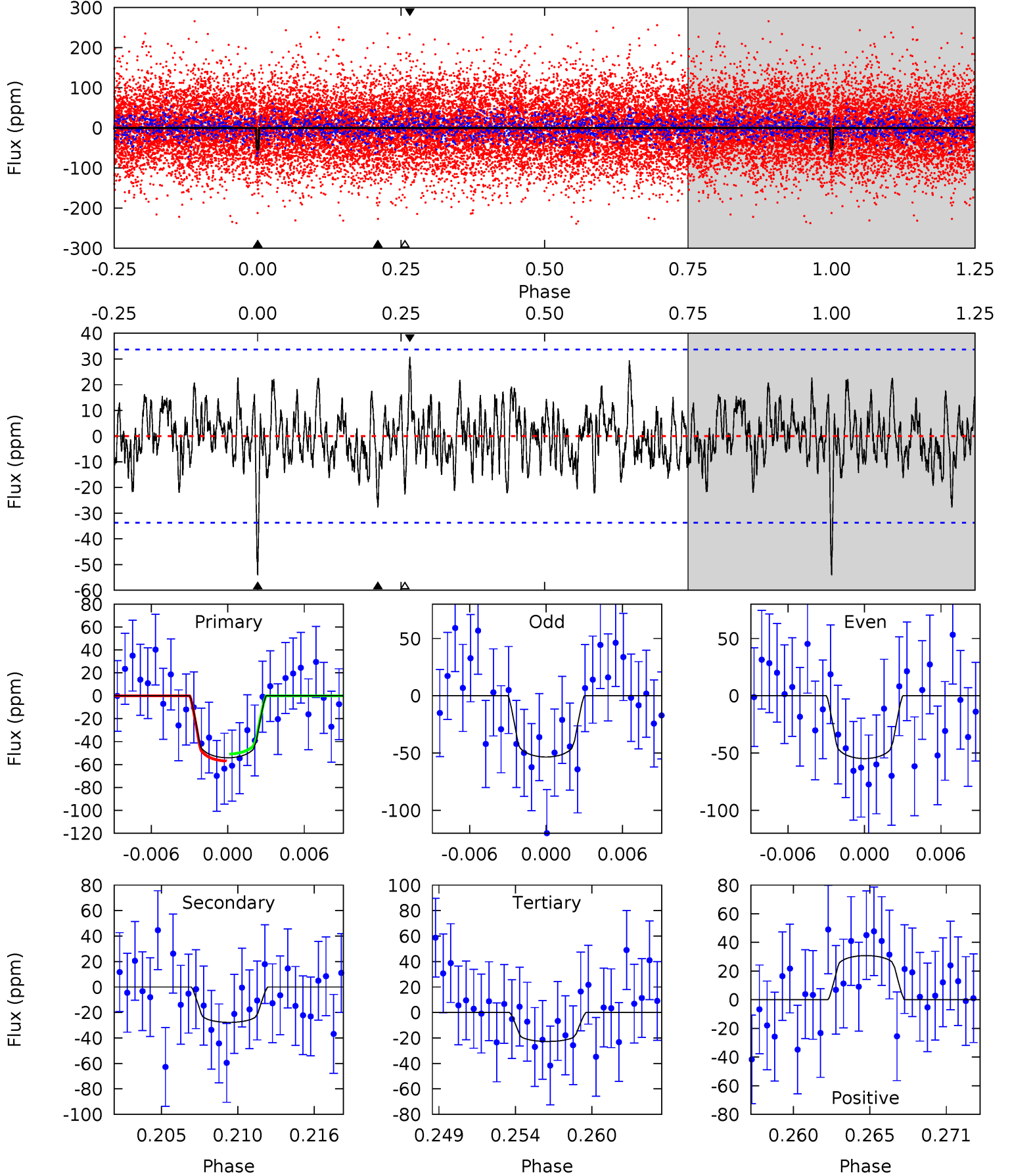
TCE 006147122-04 P= 28.090418 Days $T_0=140.115044$ (BKJD)



DV Model-Shift Uniqueness Test

006147122-04, P = 28.090411 Days, E = 112.020927 Days

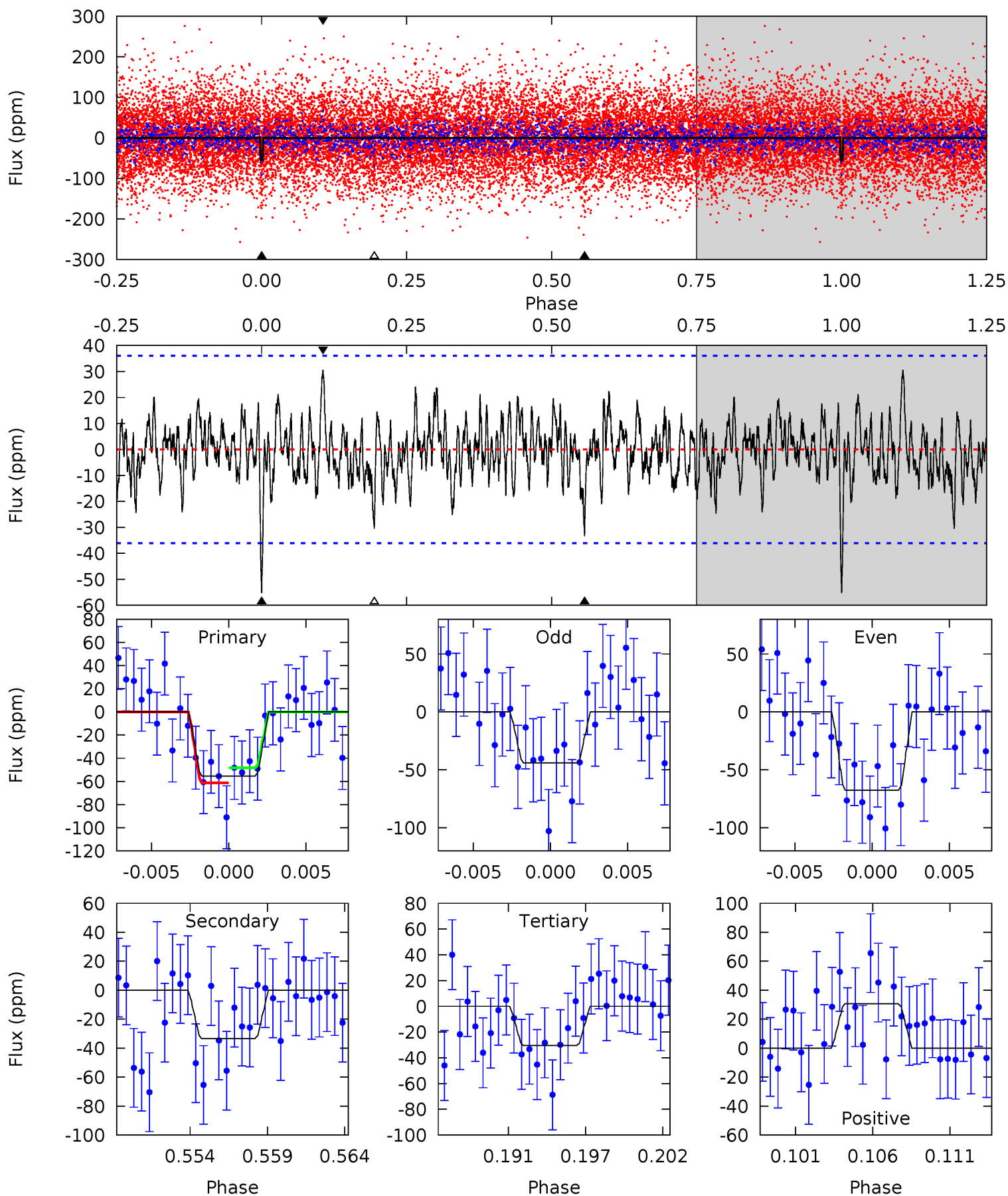
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
8.25	4.23	3.46	4.70	5.14	2.77	1.36	4.78	3.55	0.77	-0.47	0.11	0.95	0.36	0.46



Alt Model-Shift Uniqueness Test

006147122-04, P = 28.090418 Days, E = 112.024626 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
7.91	4.78	4.36	4.37	5.16	2.80	1.32	3.55	3.54	0.42	0.41	1.69	0.88	0.36	0.93



Stellar Parameters For KIC 006147122

	$T_{\text{eff}} (K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (g \cdot \text{cm}^{-3})$
	7839^{+216}_{-324}	$4.080^{+0.130}_{-0.159}$	$0.210^{+0.150}_{-0.450}$	$2.069^{+0.505}_{-0.413}$	$1.878^{+0.172}_{-0.344}$	$0.298^{+0.193}_{-0.137}$
	+3%/-4%	+3%/-4%	+71%/-214%	+24%/-20%	+9%/-18%	+65%/-46%
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 006147122-04 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-28 ± 7	$1.80^{+1.04}_{-0.95}$	1478^{+103}_{-99}	6234^{+3168}_{-1207}	230^{+757}_{-141}
Alt.	-33 ± 7	$1.77^{+1.05}_{-0.94}$	1476^{+101}_{-94}	6450^{+3895}_{-1216}	266^{+988}_{-158}

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

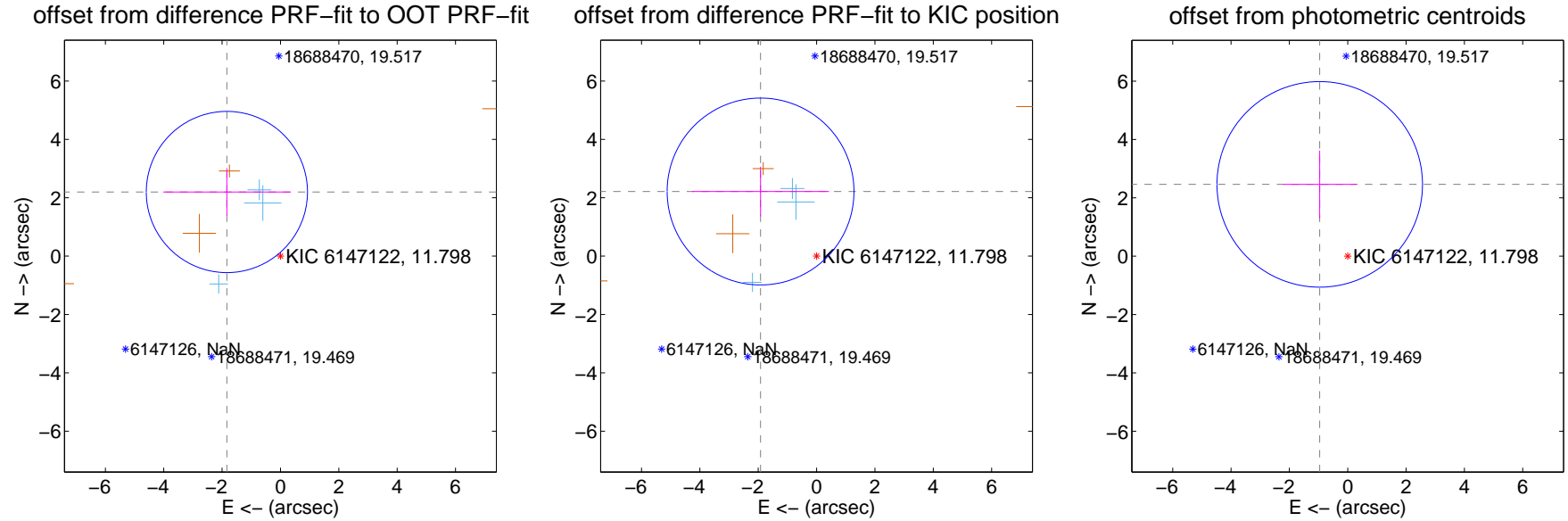
DV Centroid Data

Supplemental centroid analysis for 006147122-04. **Kepler magnitude: 11.80.** Transit SNR 7.41

There are 3 quarters with good PRF difference image offsets

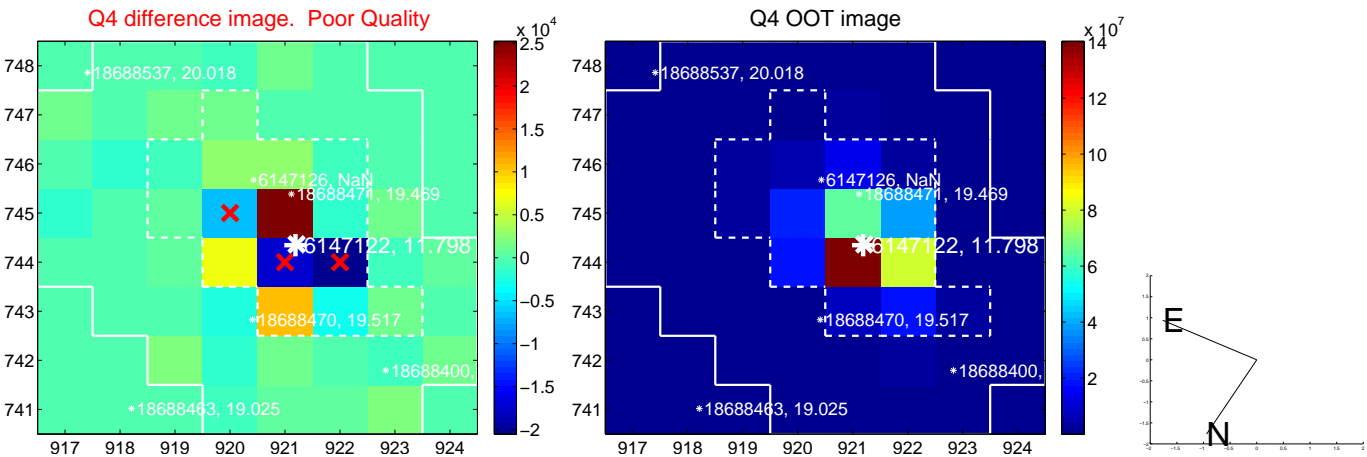
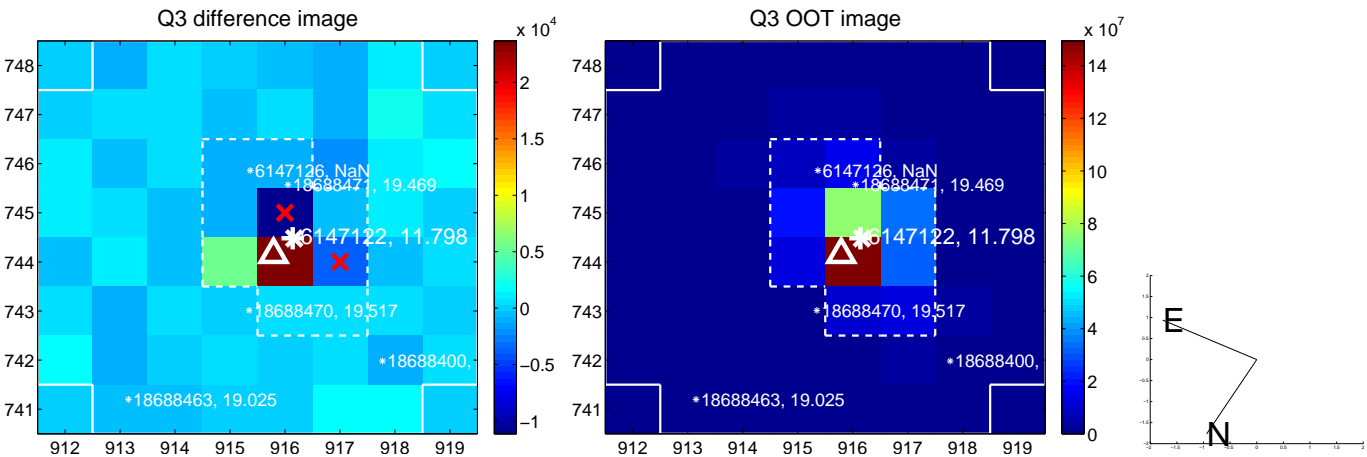
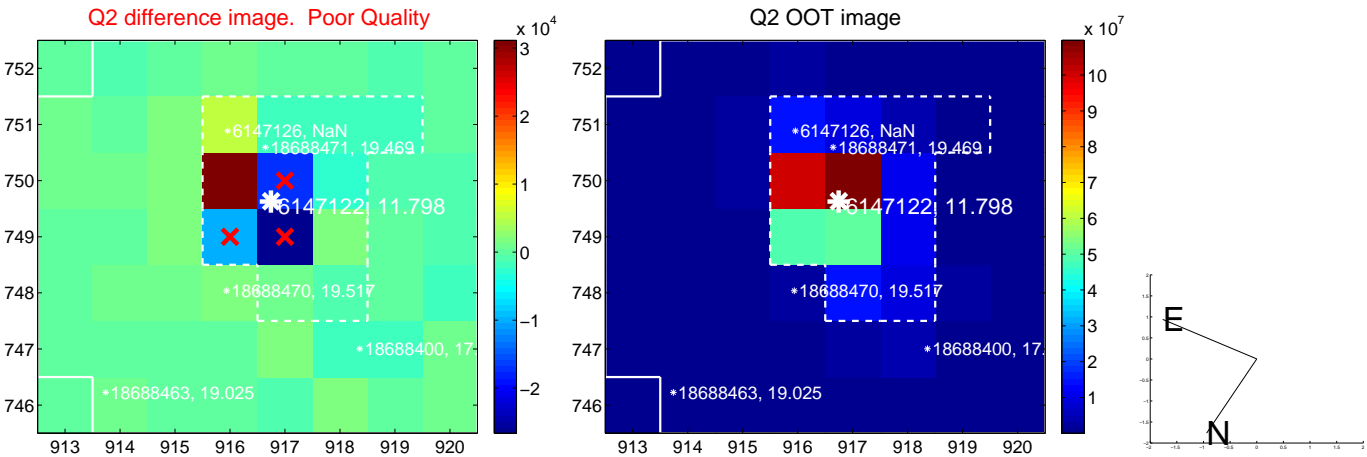
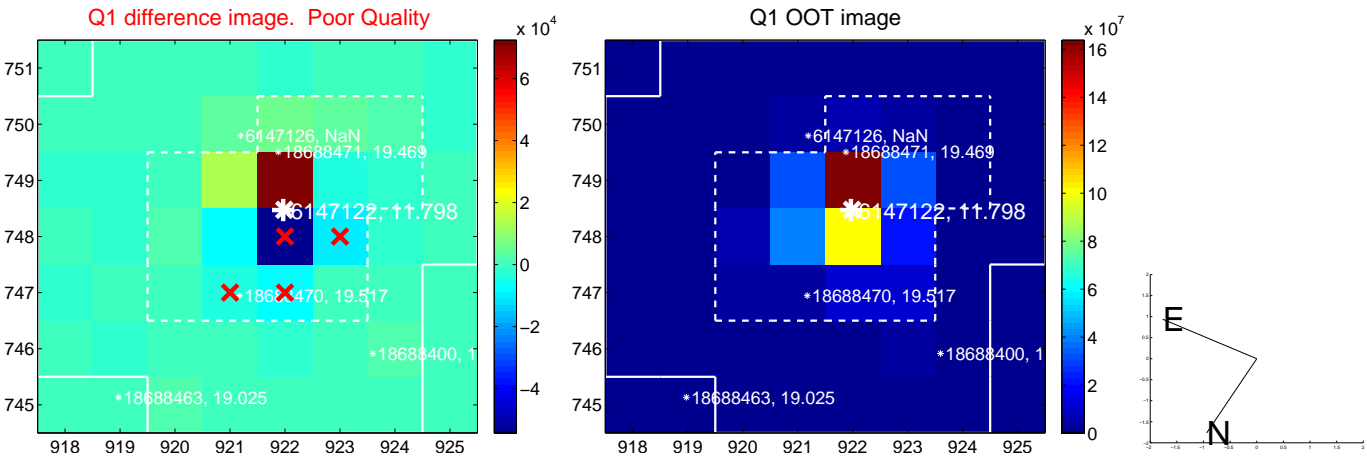
The direct PRF centroid is offset from the target star catalog position by about 0.11 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	2.864 ± 0.921	3.11	1.836 ± 2.184	2.198 ± 0.814
PRF-fit source offset from KIC position	2.931 ± 1.067	2.75	1.920 ± 2.351	2.215 ± 0.851
photometric centroid source offset	2.64 ± 1.17	2.25	0.96 ± 1.26	2.46 ± 1.16

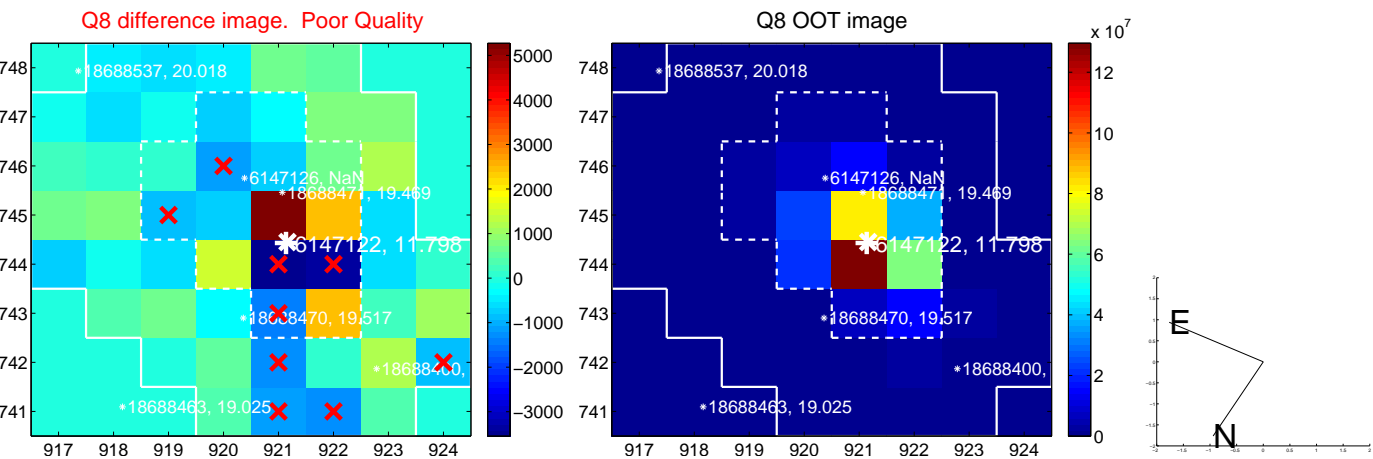
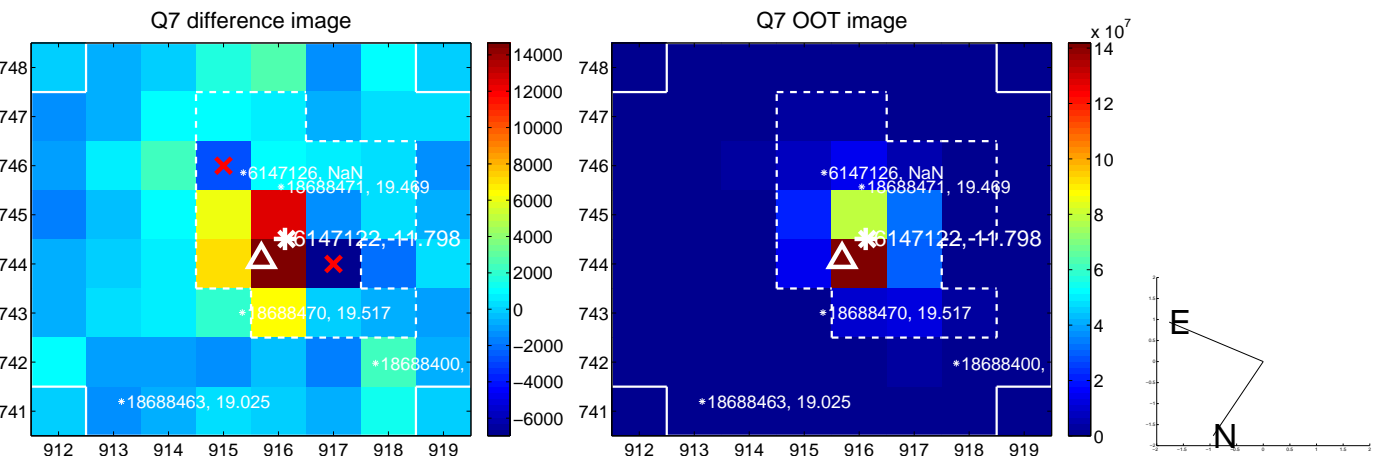
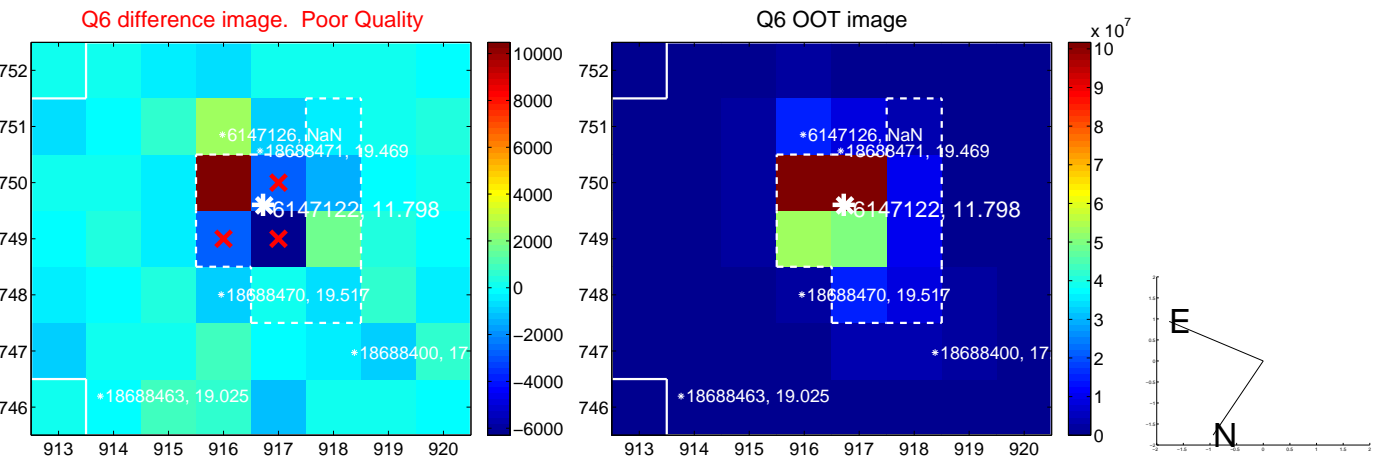
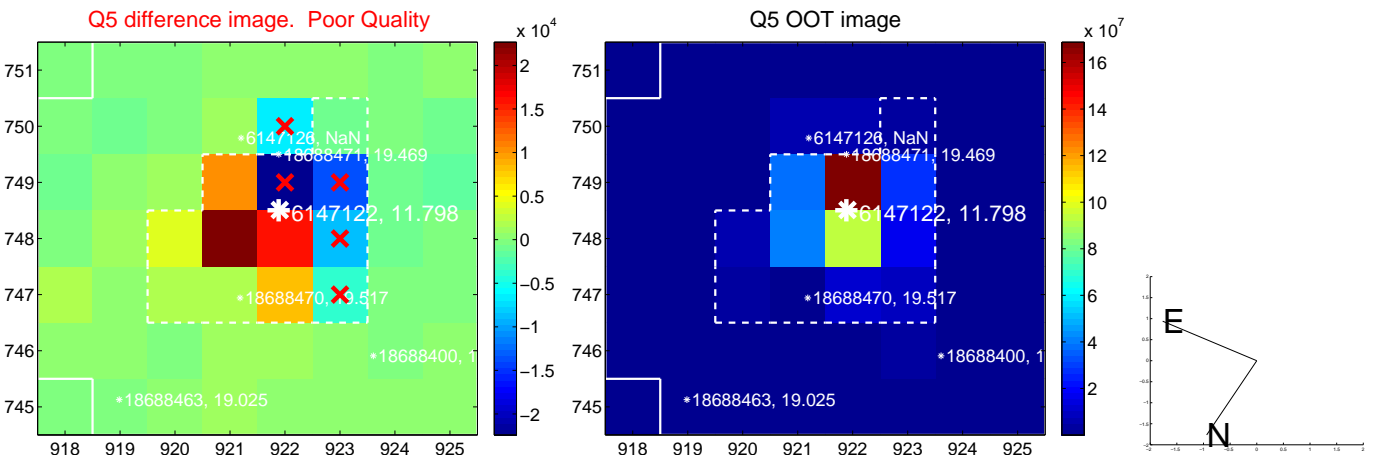


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

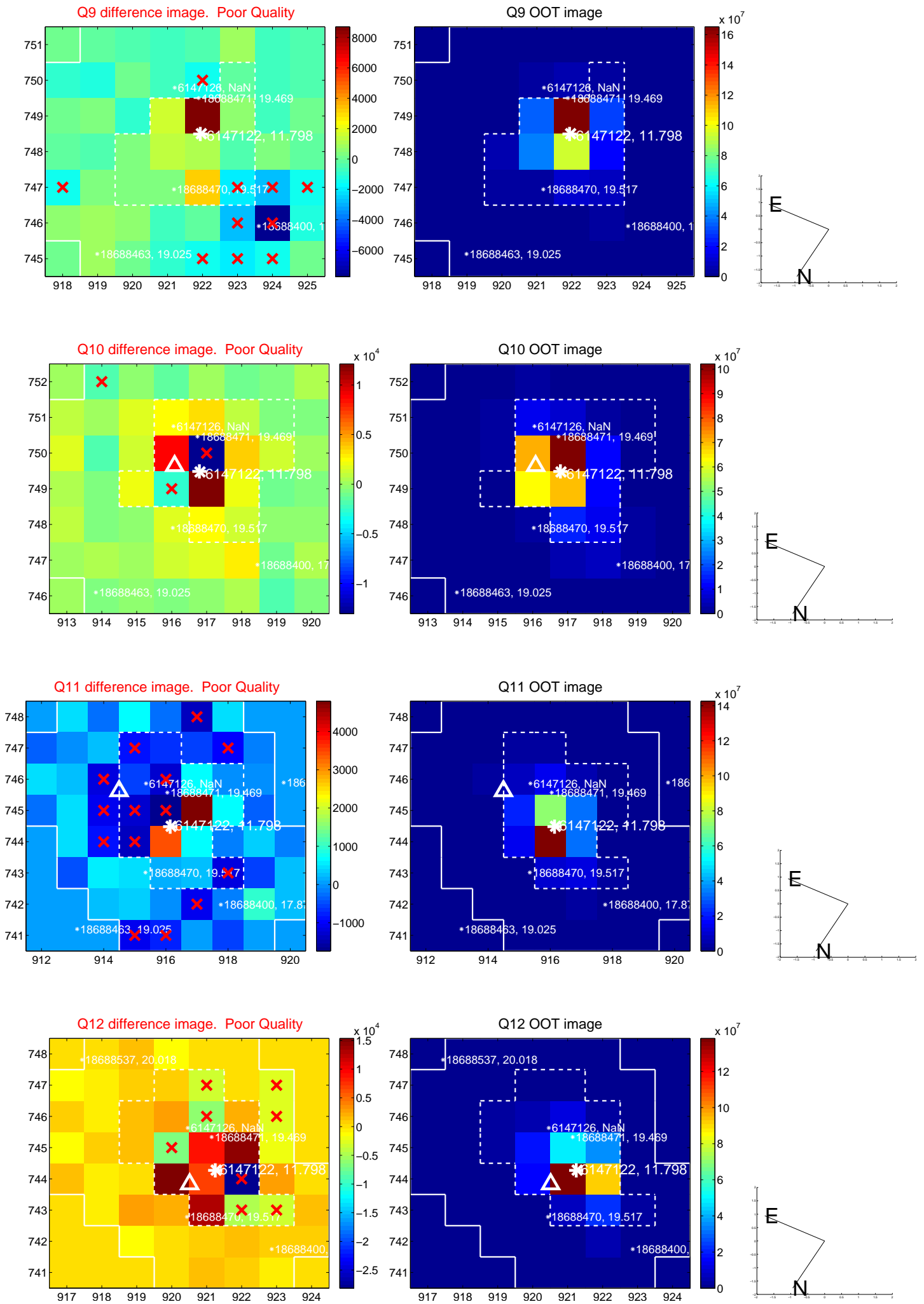
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



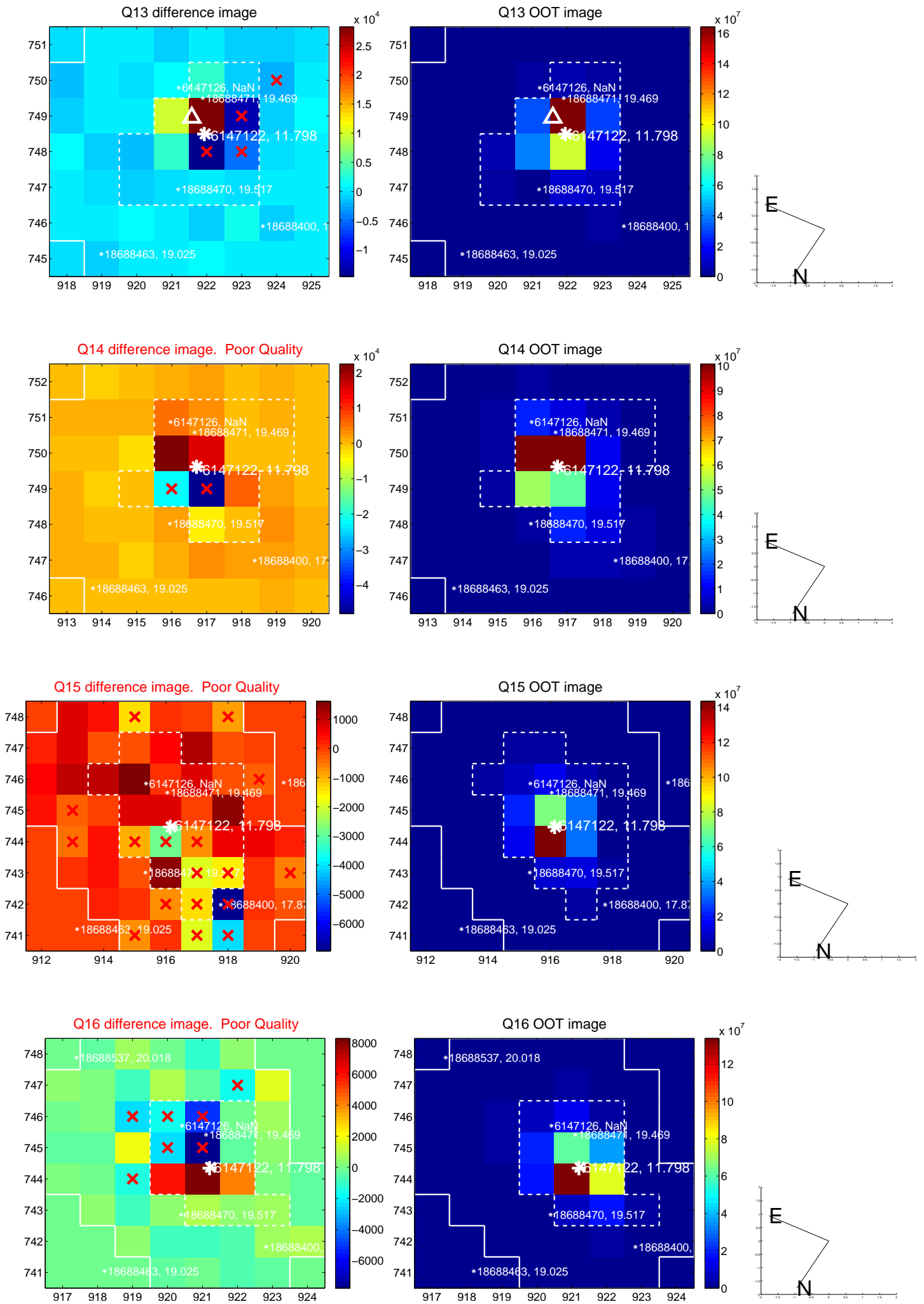
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



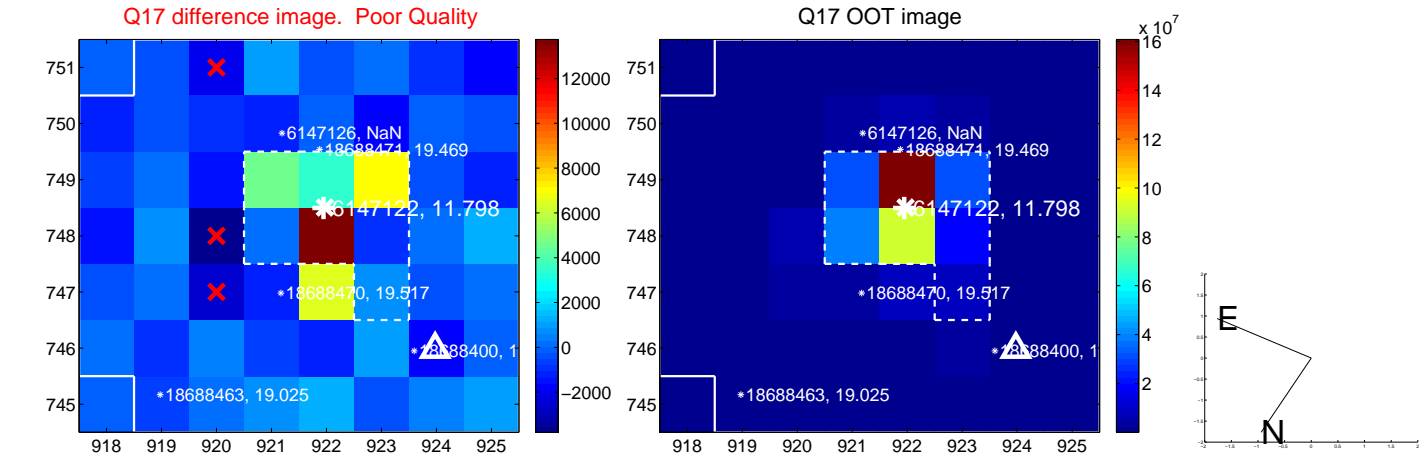
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



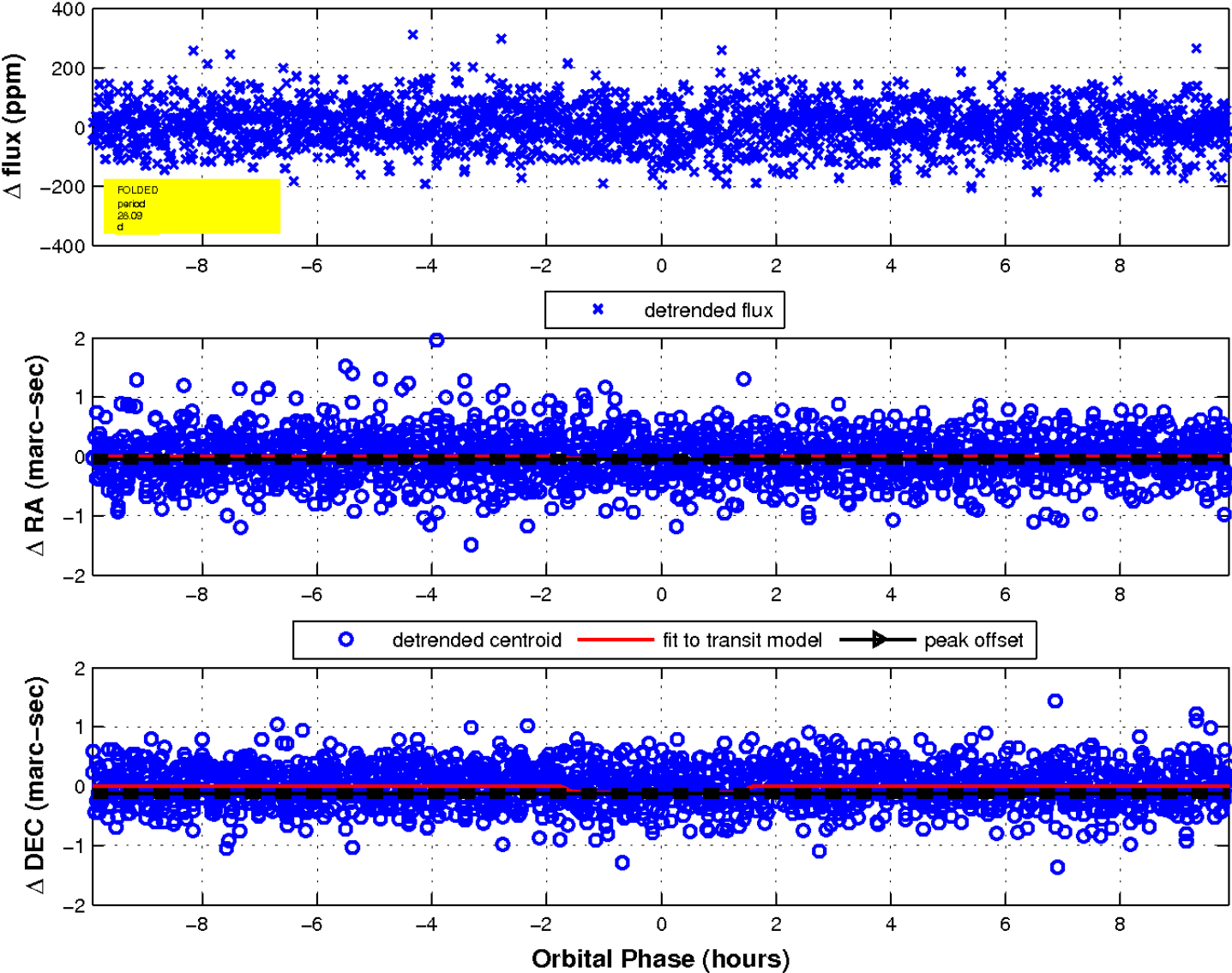
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



fluxWeightedCentroids, Planet 4 of 4



UKIRT Image

Declination

