

KIC 006381306

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})
006381306-01	OBS	No	0.528730	131.727439	17.2	1.844	8.1	7.2	3.25	8283	1.57	175176.55
006381306-02	OBS	No	0.528730	131.917470	31.2	1.800	11.9	10.6	3.25	8283	2.11	175176.60
006381306-03	OBS	No	87.531602	141.502800	600.9	2.274	10.2	9.1	3.25	8283	9.25	192.71
006381306-04	OBS	No	26.880126	145.501778	418.7	4.846	8.7	8.6	3.25	8283	12.56	930.14
006381306-05	OBS	No	54.916165	134.528631	540.0	4.496	8.9	8.4	3.25	8283	9.45	358.80
006381306-06	OBS	No	47.476210	131.745980	23.4	5.000	7.7	-1.0	3.25	8283	1.59	435.67

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
006381306-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—CENT_SATURATED
006381306-02	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—SAME_NTL_PERIOD—CENT_SATURATED
006381306-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—CENT_SATURATED
006381306-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_ALT—CENT_SATURATED
006381306-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_POS_ALT—CENT_SATURATED
006381306-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED

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

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

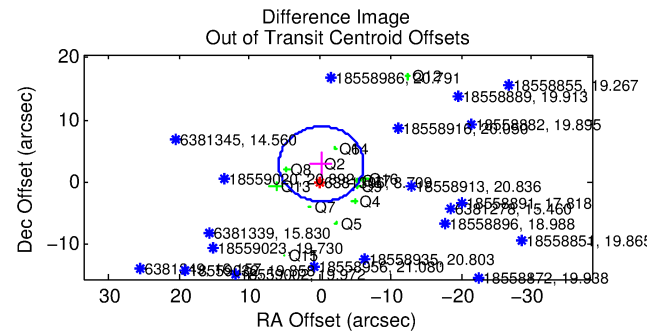
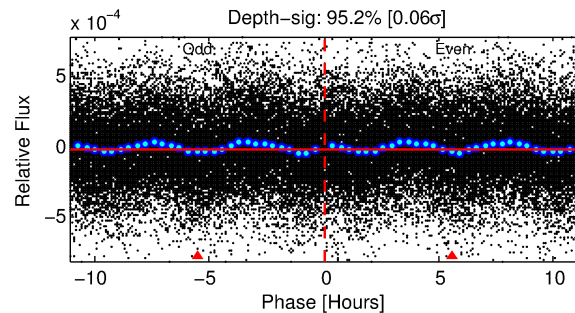
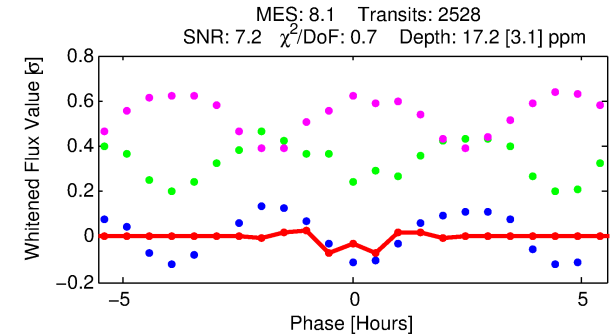
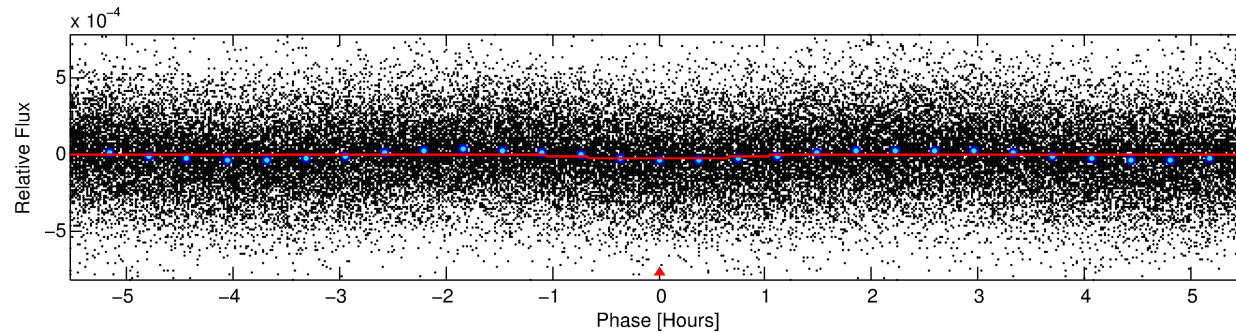
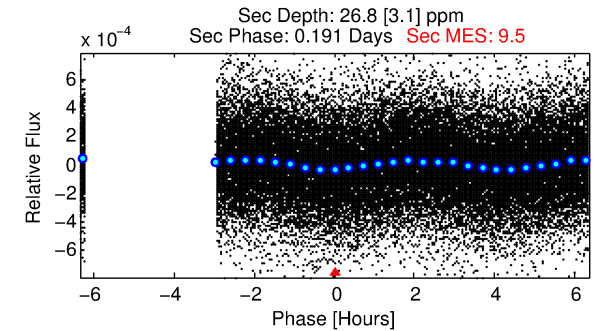
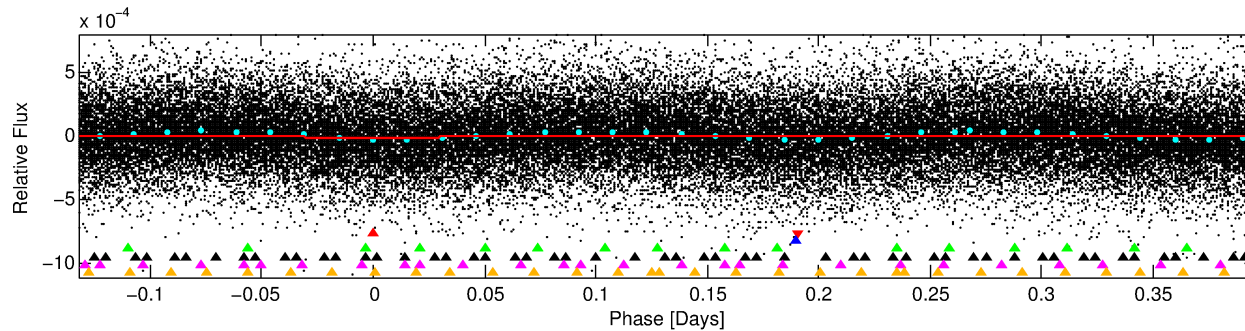
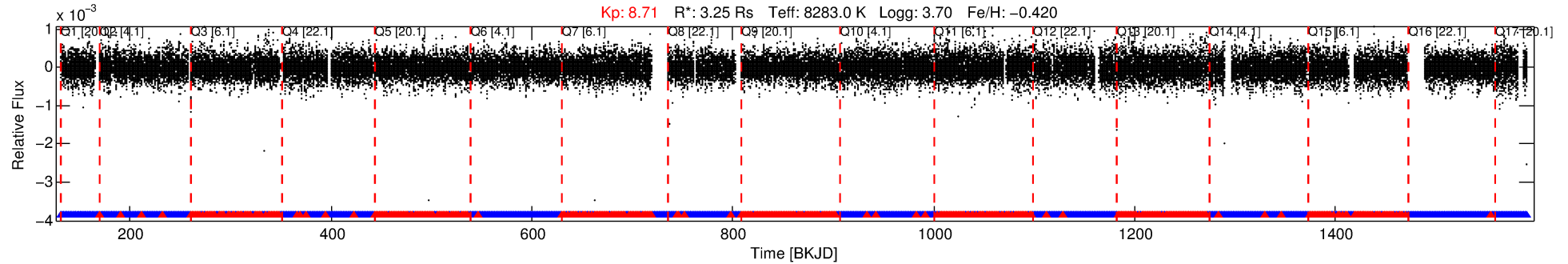
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 006381306-01

No Significant Match Found

DV One-Page Summary

KIC: 6381306 Candidate: 1 of 6 Period: 0.529 d



DV Fit Results:

Period = 0.52873 [0.00001] d
Epoch = 131.7274 [0.0012] BKJD
Rp/R* = 0.0044 [0.0006]
a/R* = 1.35 [0.38]
b = 0.90 [0.13]
Seff = 175176.55 [147609.66]
Teq = 5217 [1099] K
Rp = 1.57 [0.82] Re
a = 0.0159 [0.0081] AU
Ag = 1.51 [1.32] [0.39σ]
Teffp = 8943 [722] K [2.83σ]

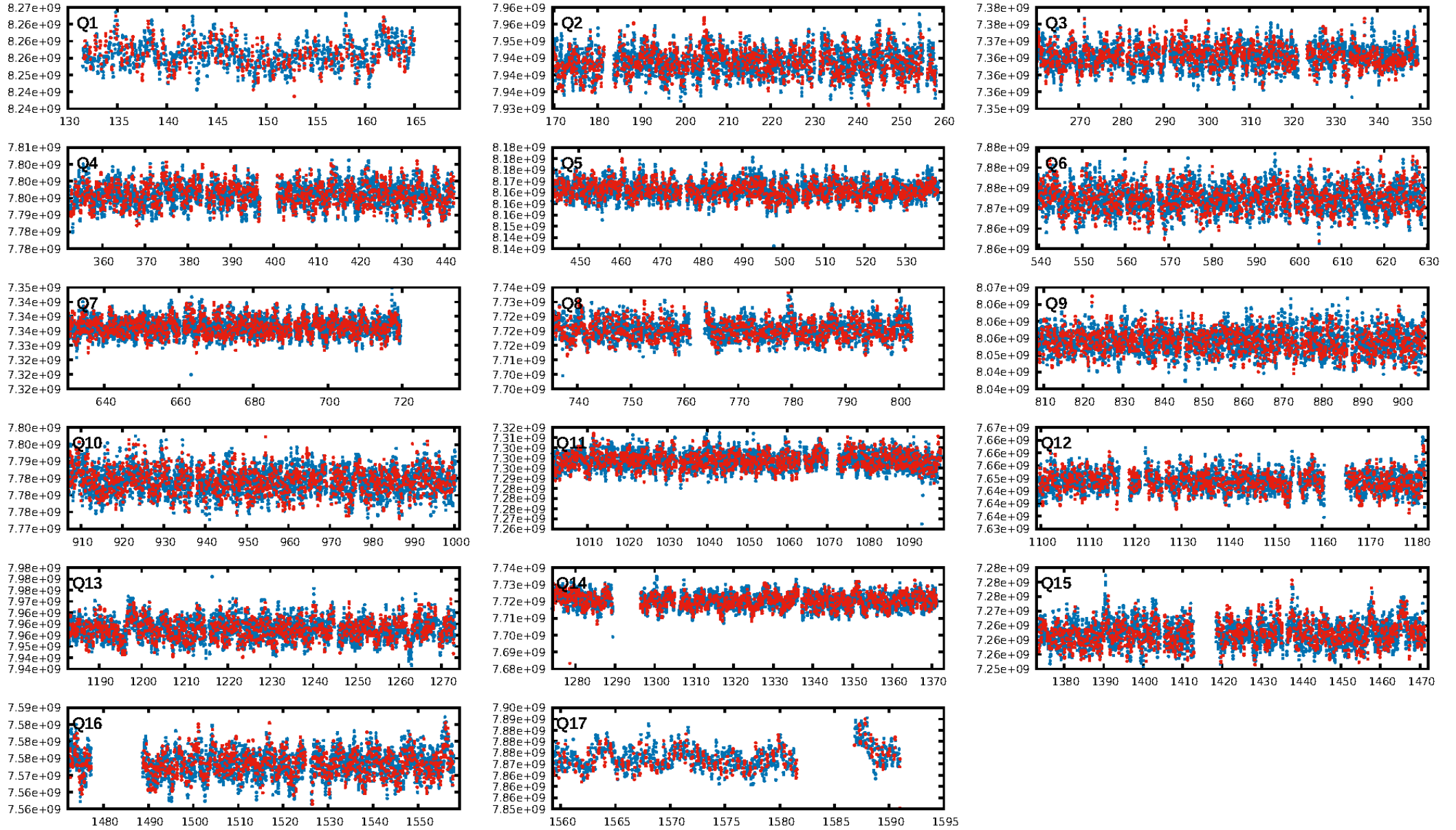
DV Diagnostic Results:

ShortPeriod-sig: 0.0% [0.00σ]
LongPeriod-sig: 100.0% [121.99σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: N/A
RollingBand-fgt: 0.74 [1775/2413]
GhostDiagnostic-chr: N/A
Centroid-sig: N/A
Centroid-so: 1.272 arcsec [1.15σ]
OotOffset-rm: 2.925 arcsec [1.46σ]
OotOffset-st: 3/3/4/4 [14]
KicOffset-rm: 7.530 arcsec [3.08σ]
KicOffset-st: 3/3/4/4 [14]
DiffImageQuality-fgm: 0.00 [0/14]
DiffImageOverlap-fno: 0.00 [0/17]

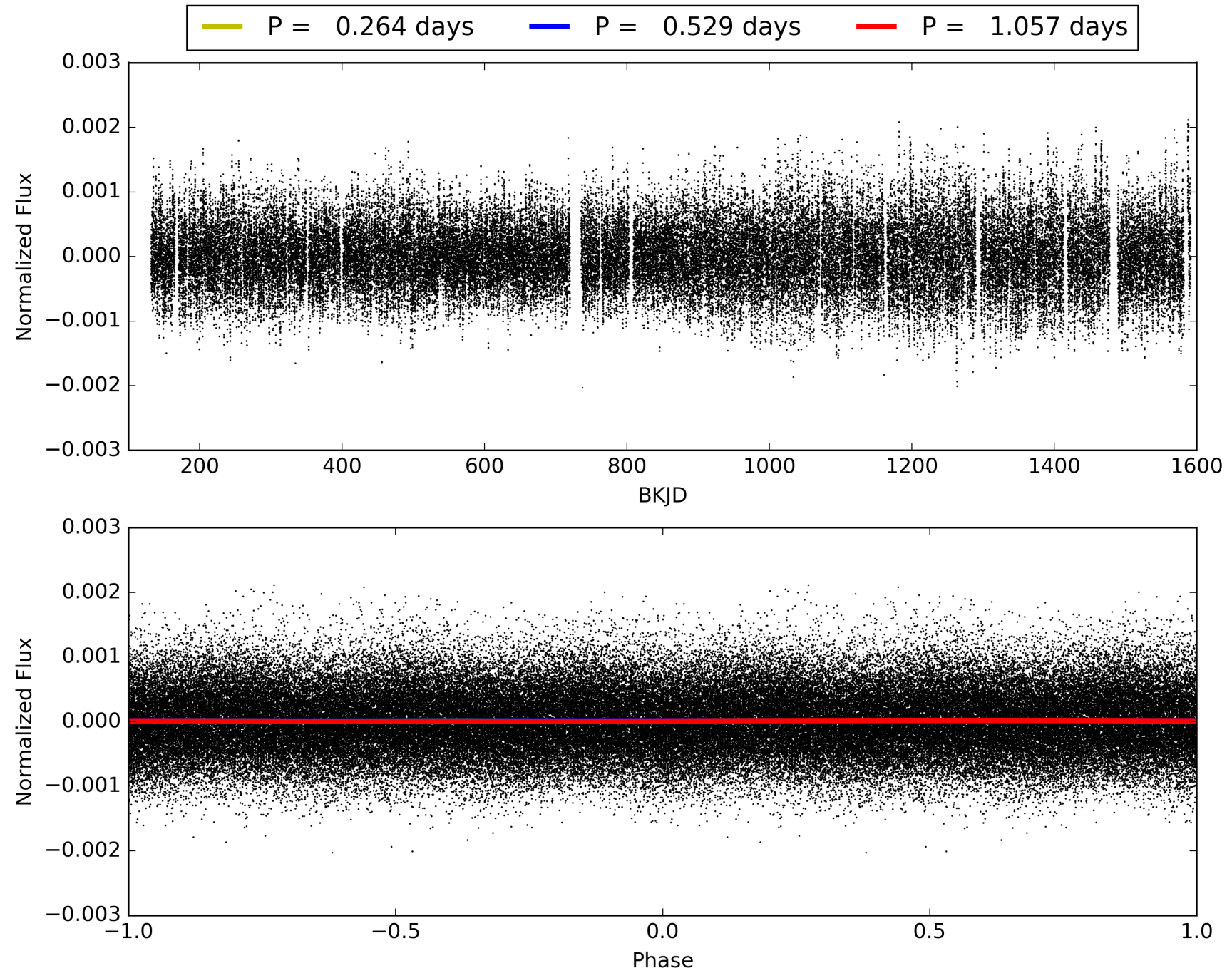
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 03-Feb-2016 08:25:31 Z

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

TCE 006381306-01, PDC Light Curves

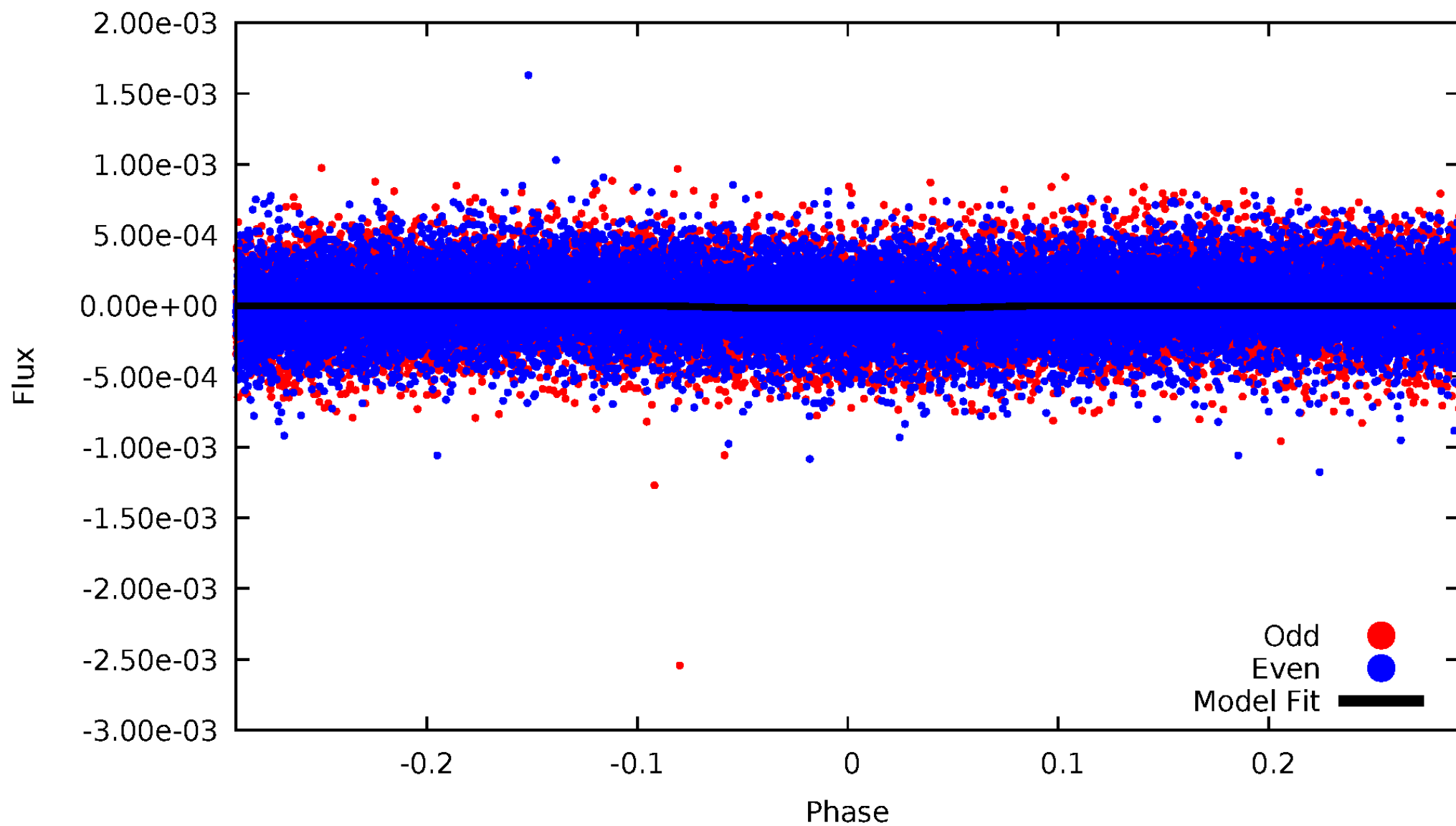


TCE 006381306-01



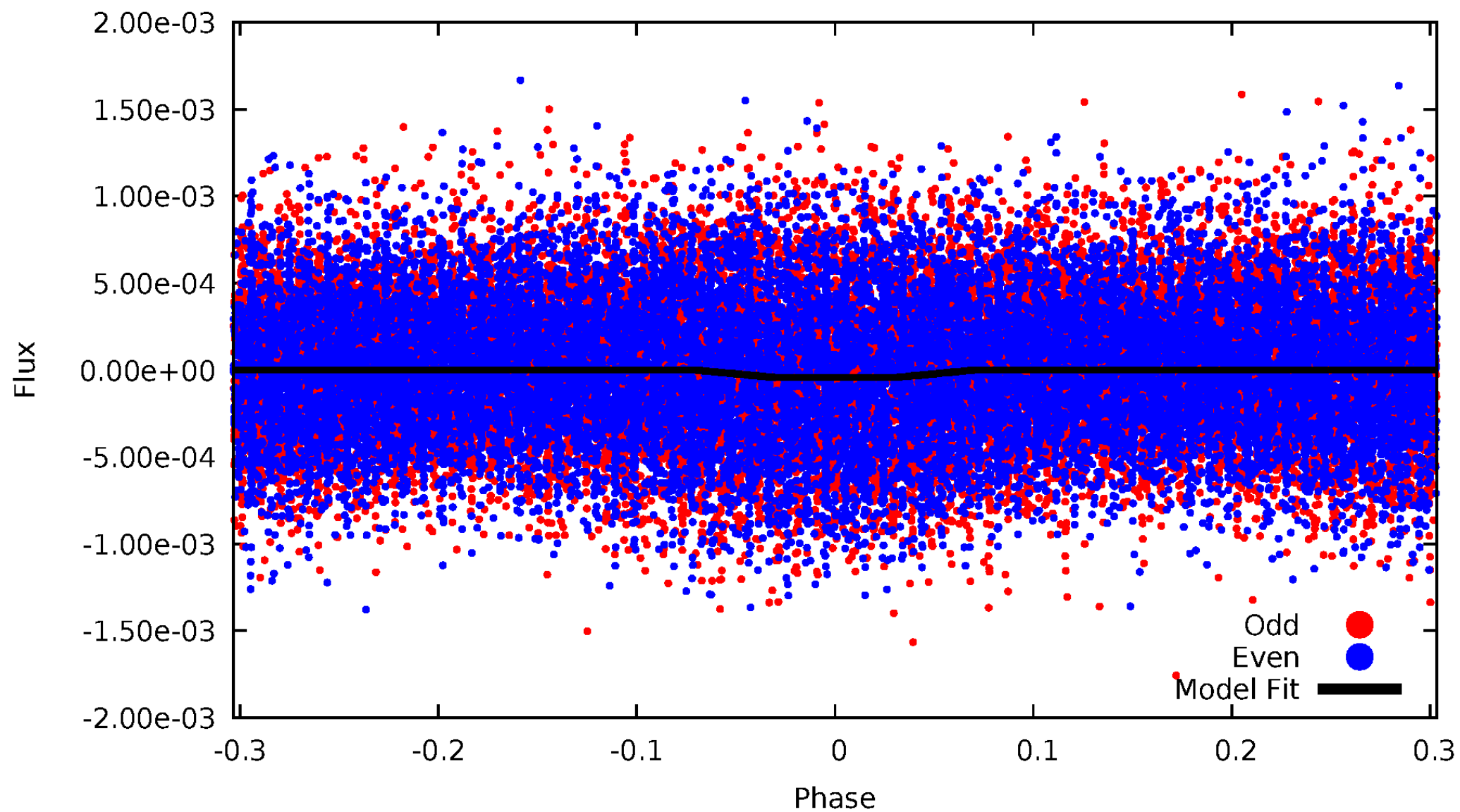
DV Odd/Even

TCE 006381306-01



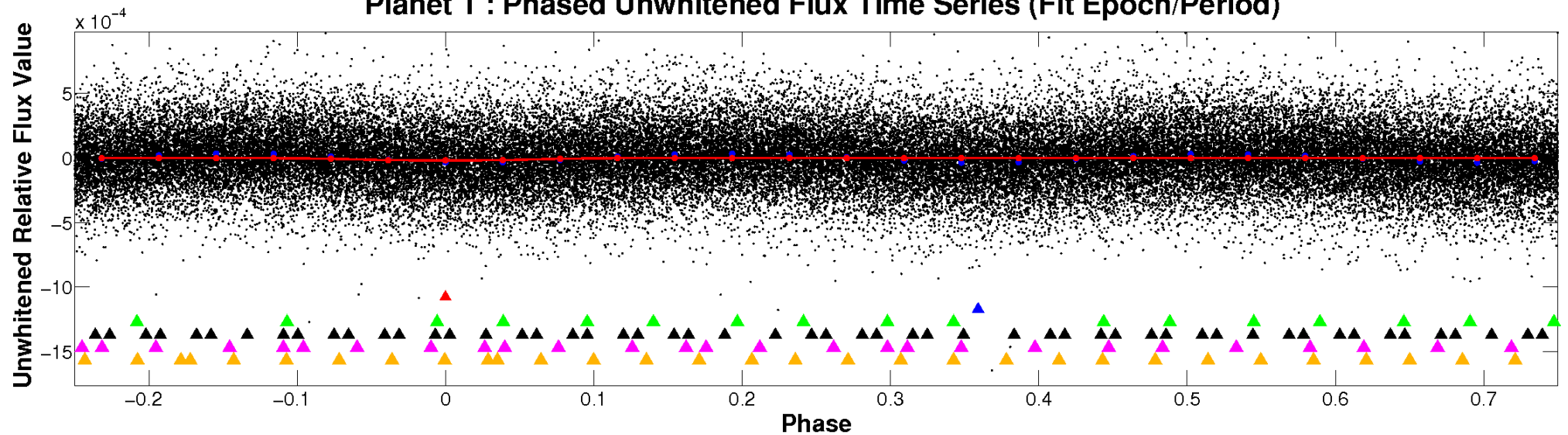
ALT Odd/Even

TCE 006381306-01

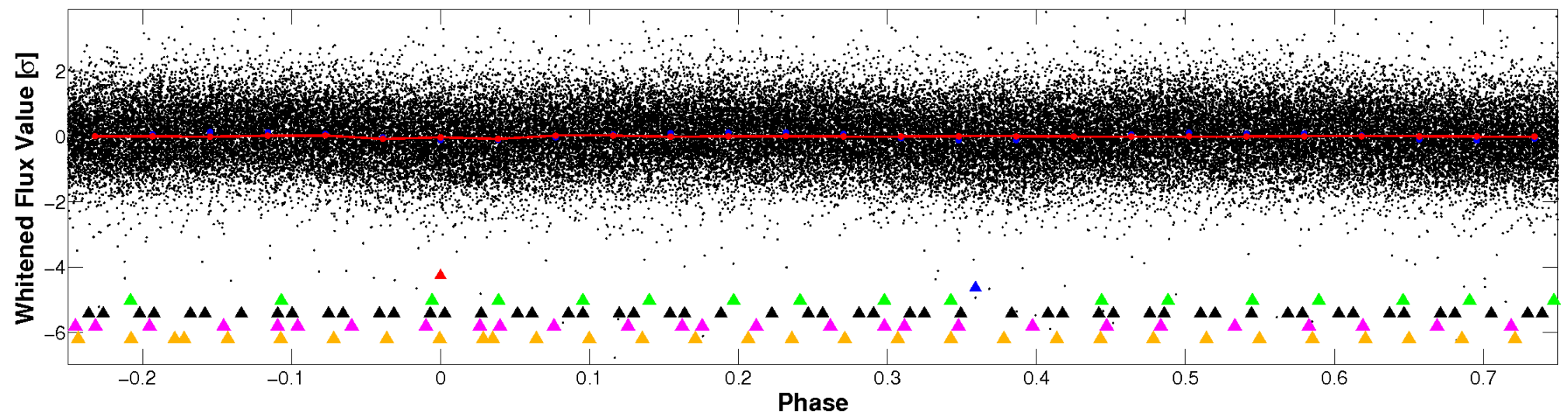


Non-Whitened Vs. Whitened Light Curve

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

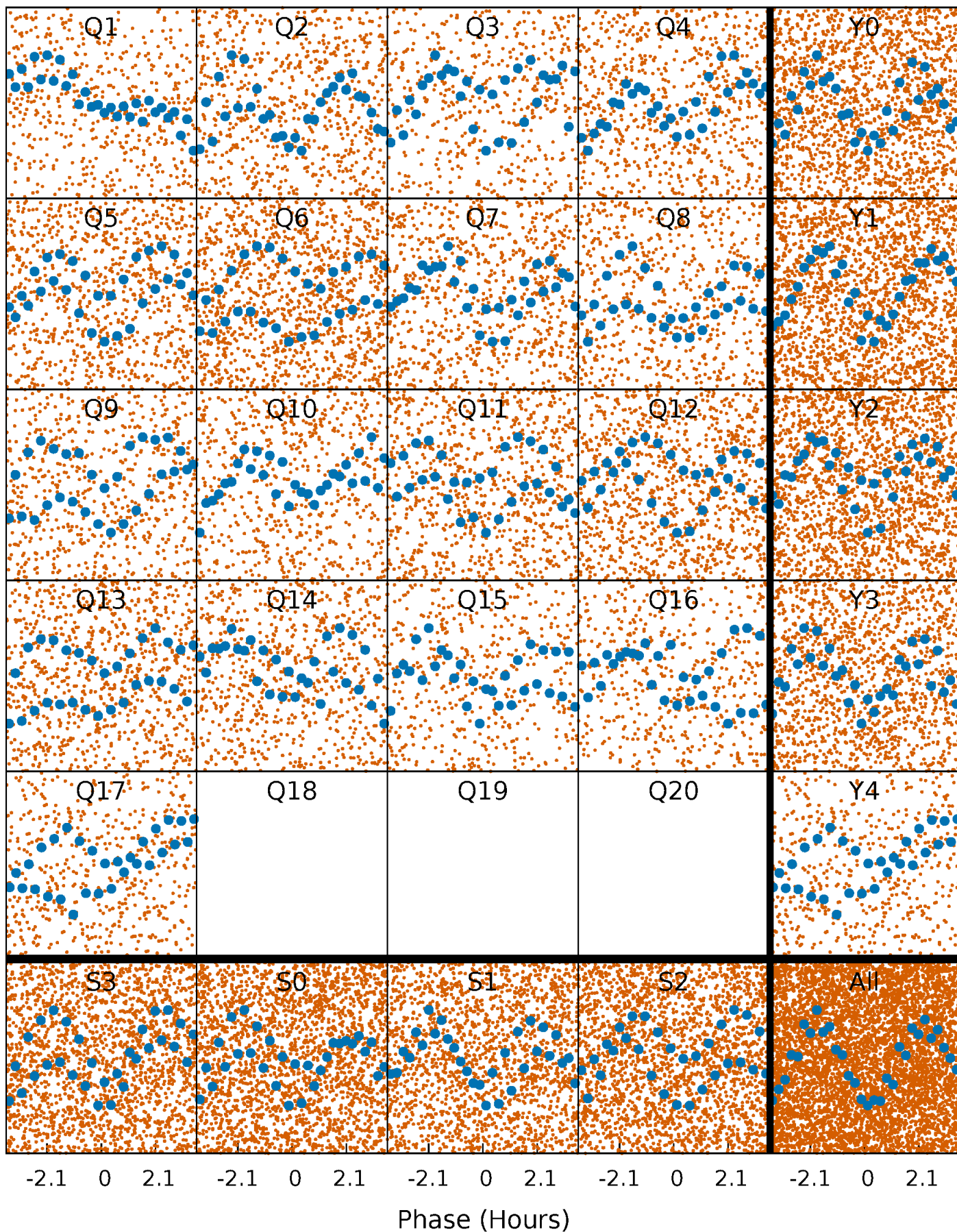


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



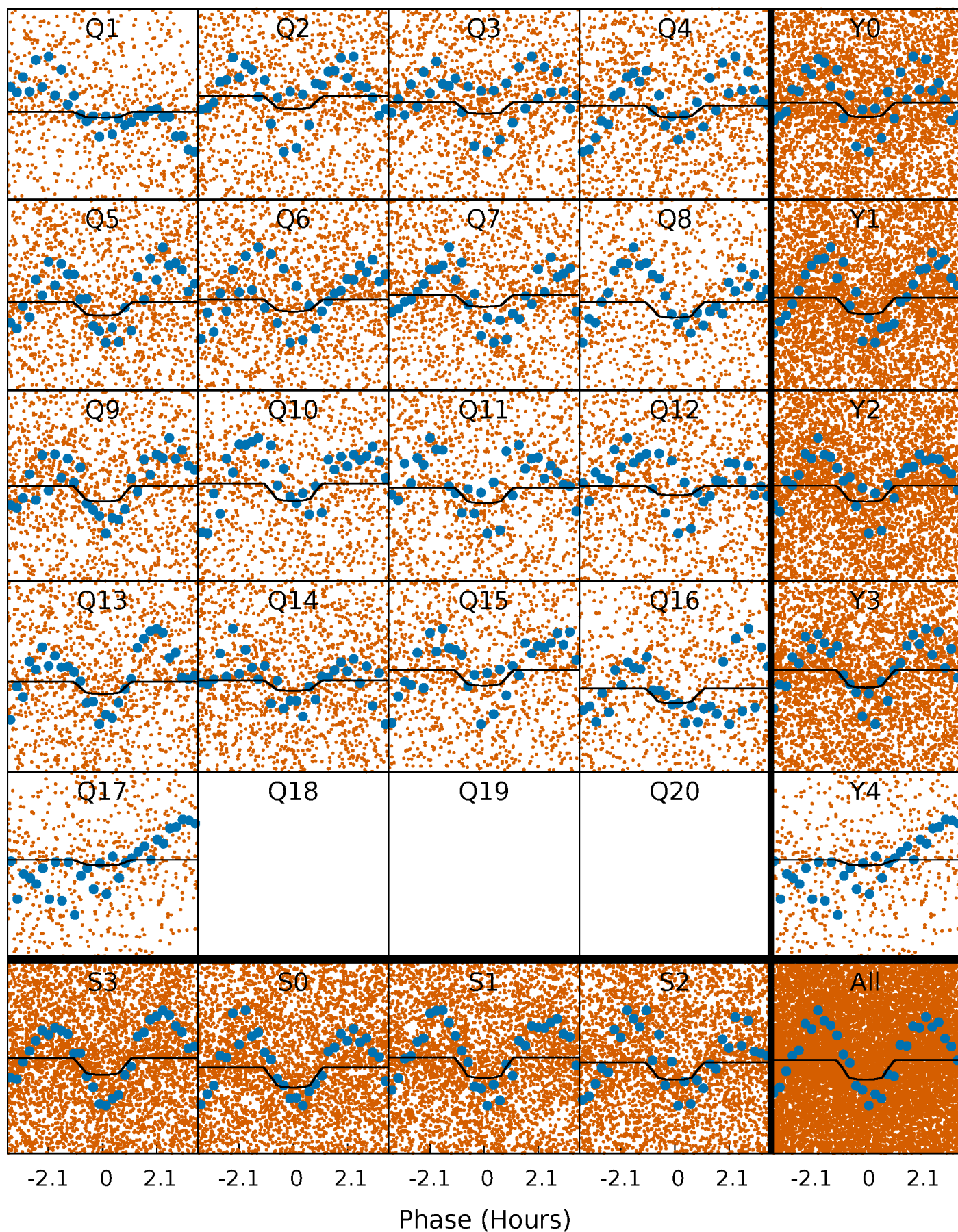
PDC Quarter-Phased Transit Curves

TCE 006381306-01 P= 0.528730 Days $T_0=131.727439$ (BKJD)



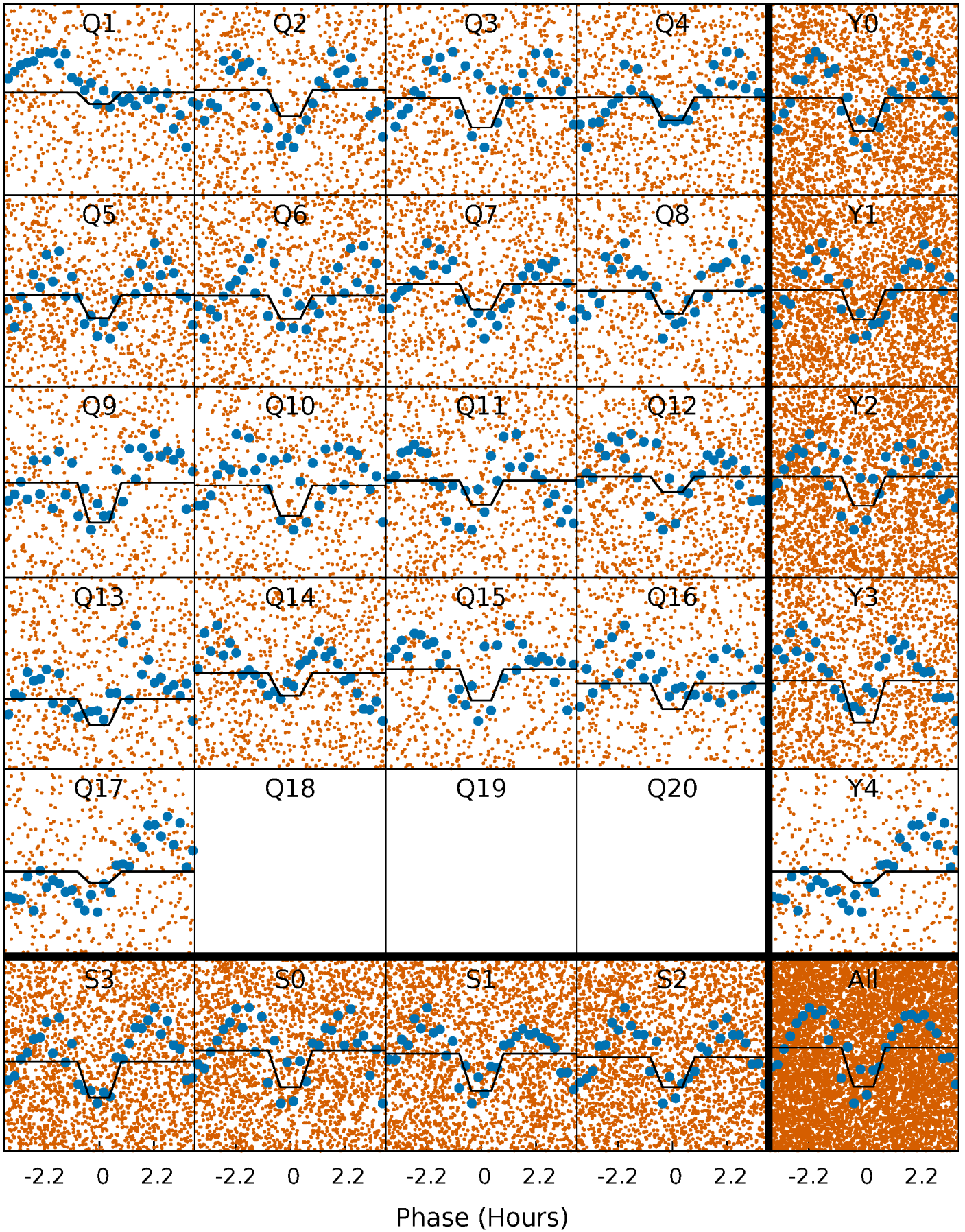
DV Quarter-Phased Transit Curves

TCE 006381306-01 P= 0.528730 Days $T_0=131.727439$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

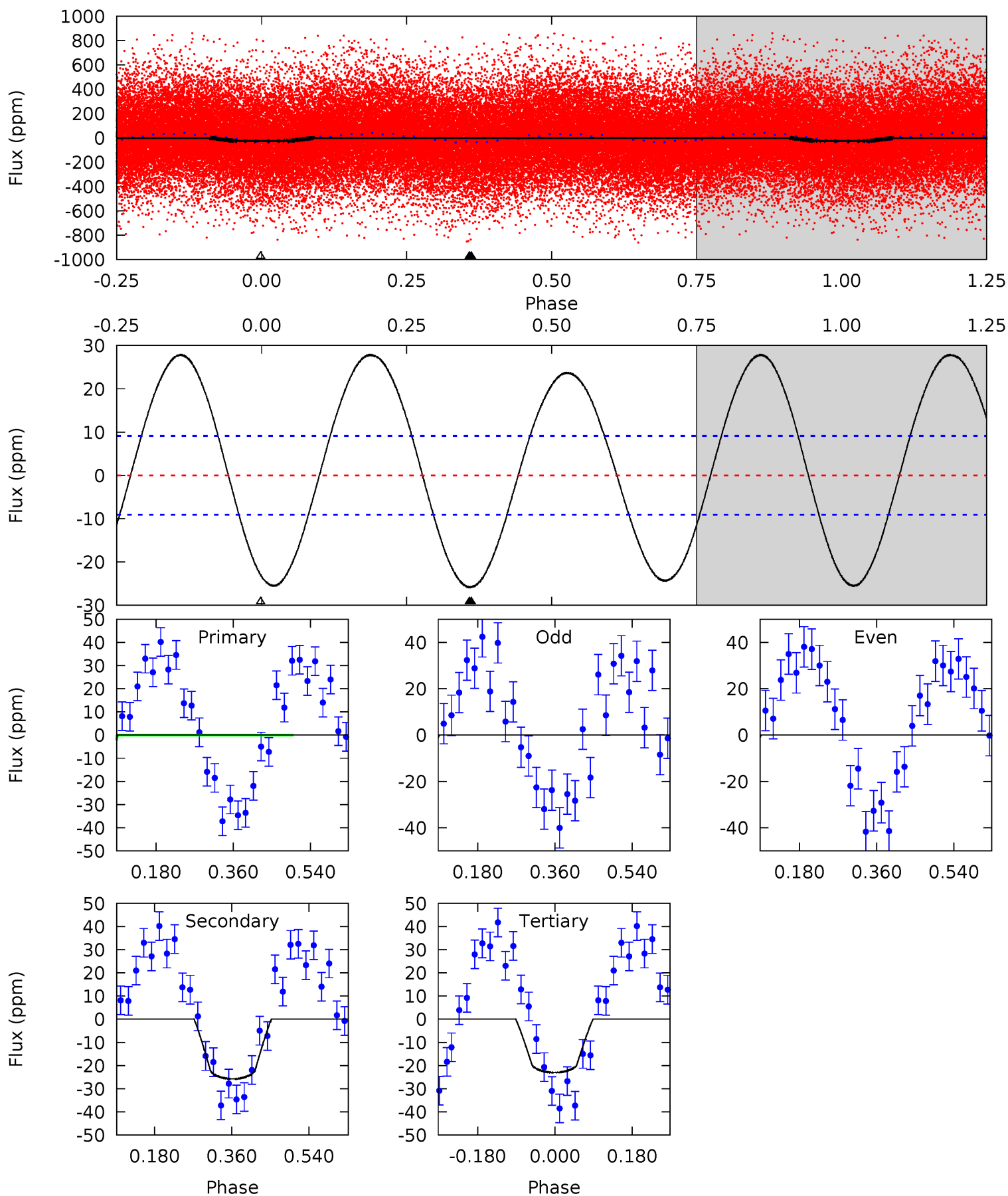
TCE 006381306-01 P= 0.528741 Days $T_0=131.726683$ (BKJD)



DV Model-Shift Uniqueness Test

006381306-01, P = 0.528730 Days, E = 131.198709 Days

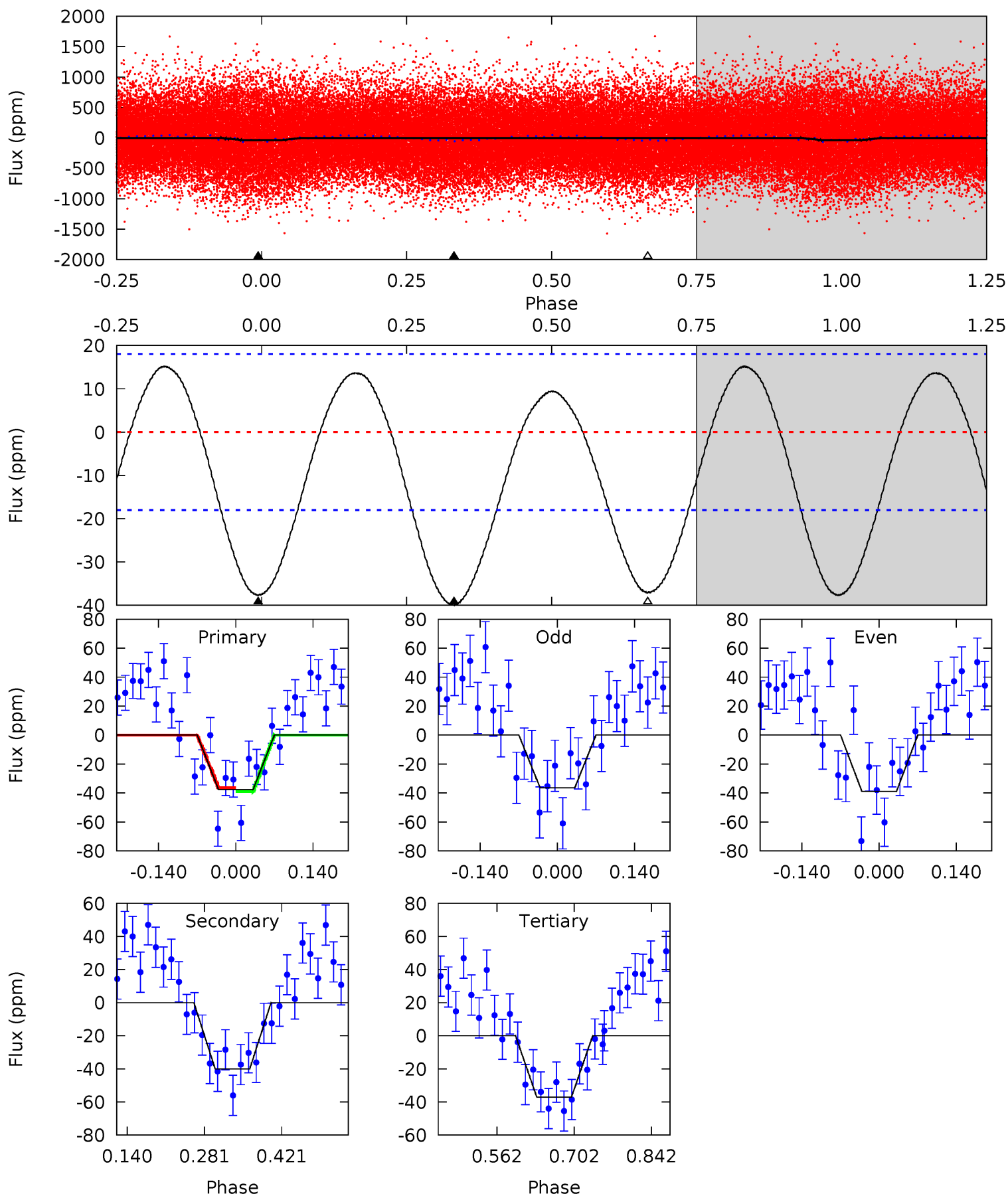
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
12.6	12.6	11.2	0	4.44	1.34	8.78	1.37	12.6	1.34	12.6	0.95	1.10	0.52	5.03



Alt Model-Shift Uniqueness Test

006381306-01, P = 0.528741 Days, E = 131.197942 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
9.39	9.98	9.26	0	4.49	1.47	4.56	0.13	9.39	0.72	9.98	0.31	1.09	0.27	0.32



Stellar Parameters For KIC 006381306

	$T_{\text{eff}} (K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	8283^{+236}_{-324}	$3.700^{+0.493}_{-0.087}$	$-0.420^{+0.200}_{-0.300}$	$3.245^{+0.545}_{-1.635}$	$1.927^{+0.206}_{-0.471}$	$0.079^{+0.406}_{-0.027}$
	+3%/-4%	+13%/-2%	+48%/-71%	+17%/-50%	+11%/-24%	+511%/-34%
Source	KIC0	KIC0	KIC0	DSEP		

KIC = Kepler Input Catalog; PHO = Photometry; SPE = Spectroscopy; AST = Asteroseismology
 TRA = Transits; DESP = Dartmouth Models; MULT = Multiple Models

Secondary Eclipse Parameters for KIC 006381306-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-26 ± 2	$1.46^{+0.33}_{-0.39}$	7040^{+539}_{-941}	8408^{+1100}_{-814}	$1.703^{+1.305}_{-0.561}$
Alt.	-40 ± 4	$2.09^{+0.44}_{-0.55}$	7000^{+553}_{-920}	7480^{+745}_{-639}	$1.270^{+0.956}_{-0.377}$

T_{max} = Theoretical Maximum Planetary Temperature

T_{obs} = Observed Planetary Temperature (Assuming A=0.3)

A_{obs} = Observed Albedo (Assuming T=0)

If a secondary eclipse is present, the system is likely an EB if $T_{obs} \gg T_{max}$ AND $A_{obs} \gg 1.0$

DV Centroid Data

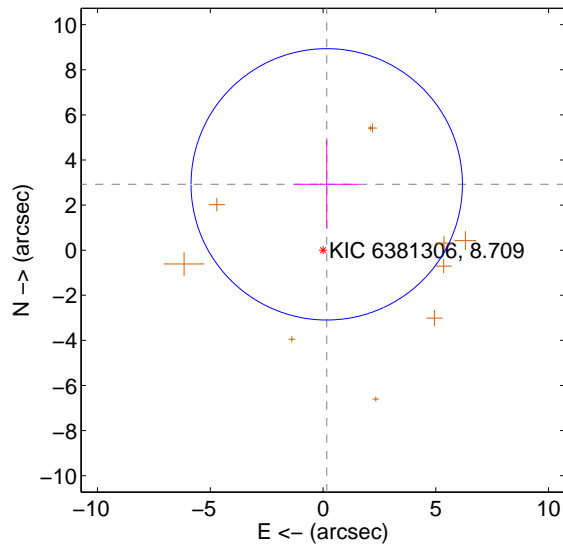
Supplemental centroid analysis for 006381306-01. **Kepler magnitude: 8.71.** Transit SNR 7.19

There are 0 quarters with good PRF difference image offsets

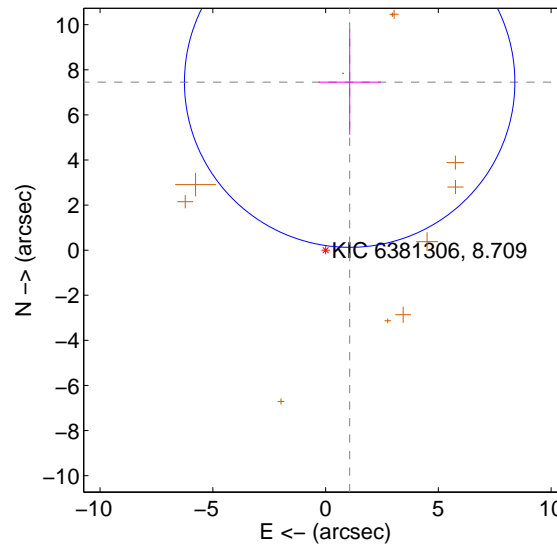
The OOT PRF centroid is offset from the target star catalog position by about 3.59 arcsec so the offset from difference PRF-fit to OOT-fit may be invalid.

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	2.925 ± 2.006	1.46	-0.163 ± 1.421	2.920 ± 1.961
PRF-fit source offset from KIC position	7.530 ± 2.442	3.08	-1.068 ± 1.387	7.454 ± 2.330
photometric centroid source offset	1.27 ± 1.11	1.15	1.04 ± 0.94	0.73 ± 1.40

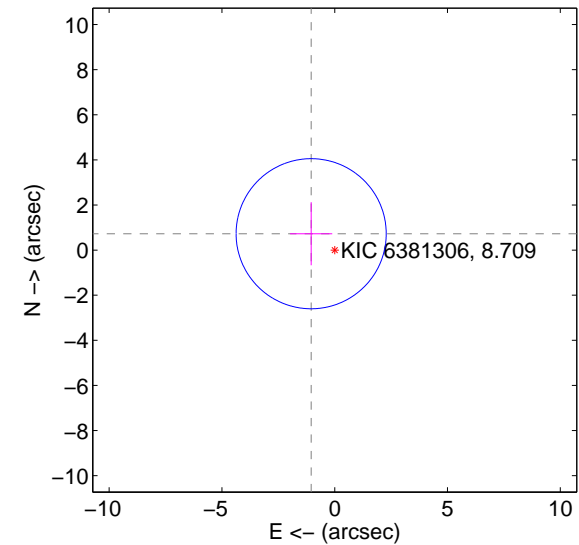
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

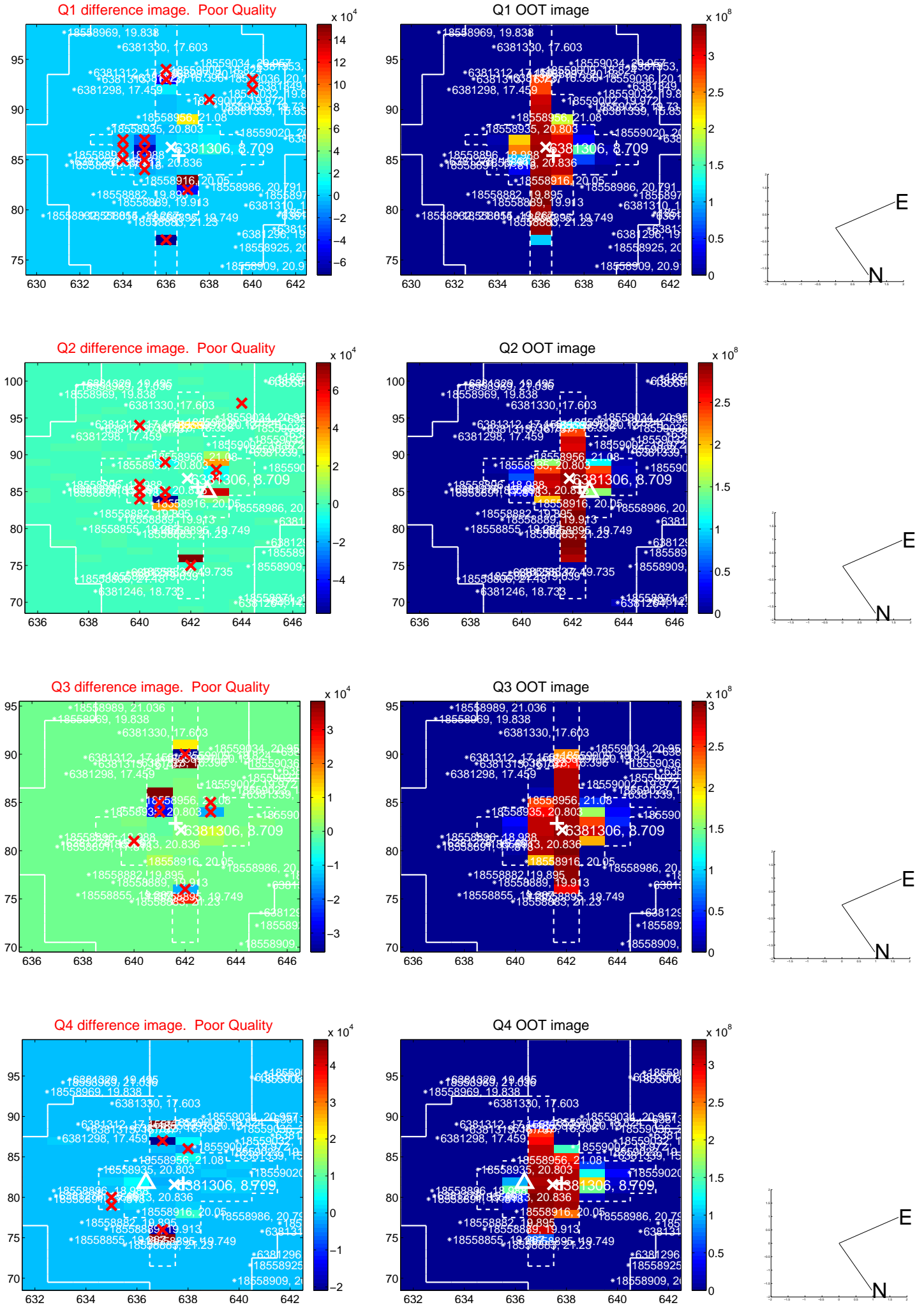


offset from photometric centroids

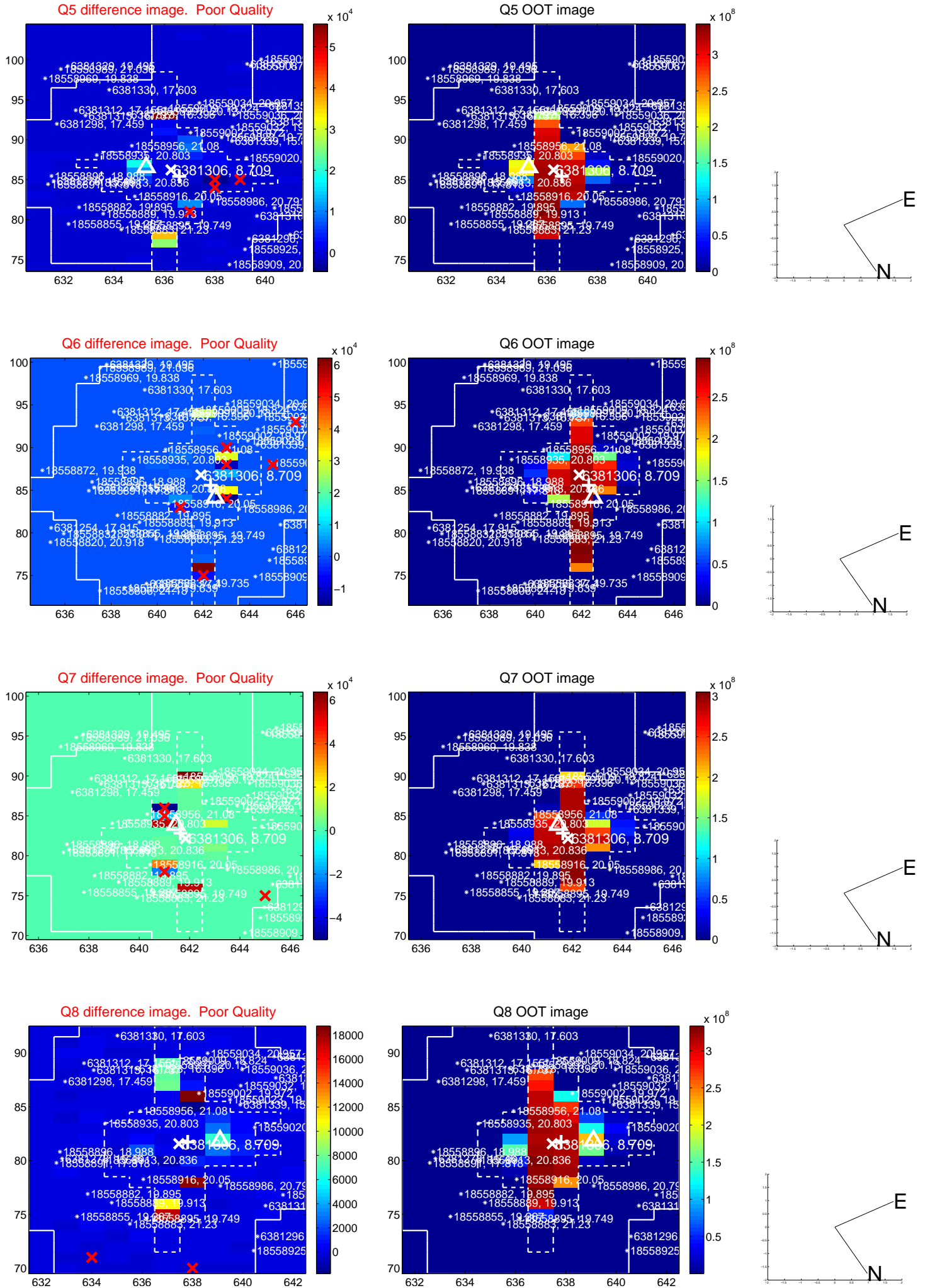


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

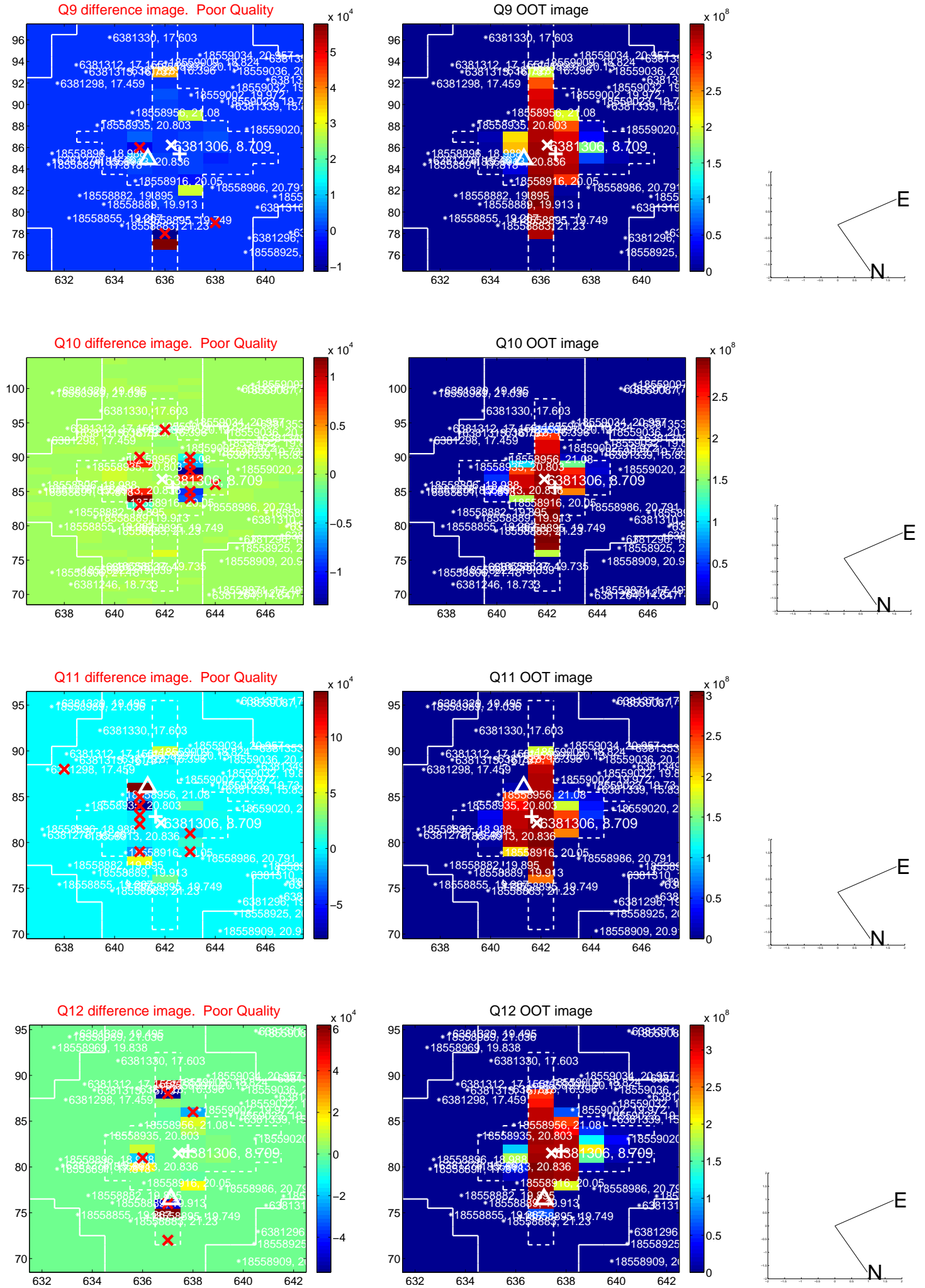
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



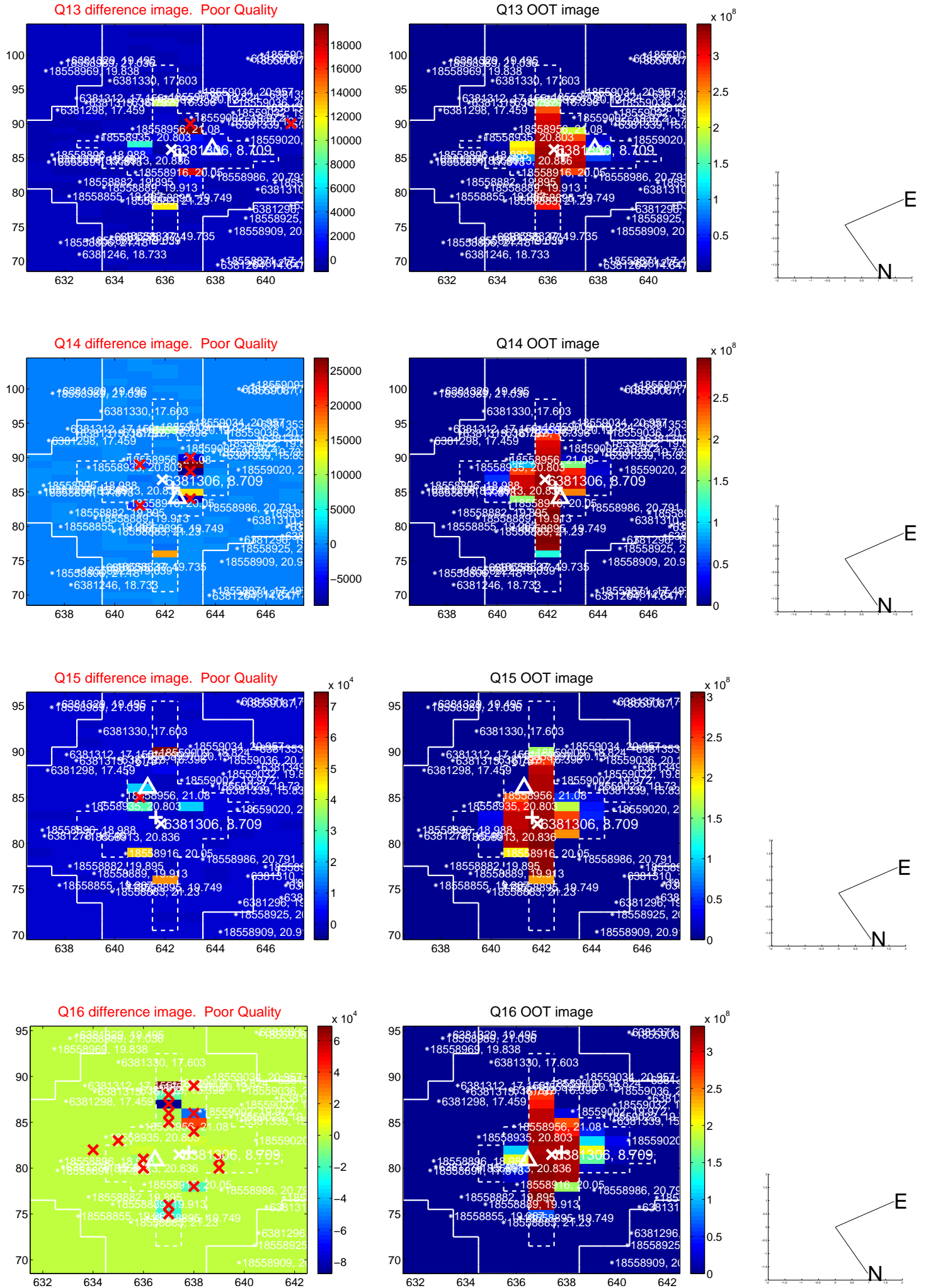
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



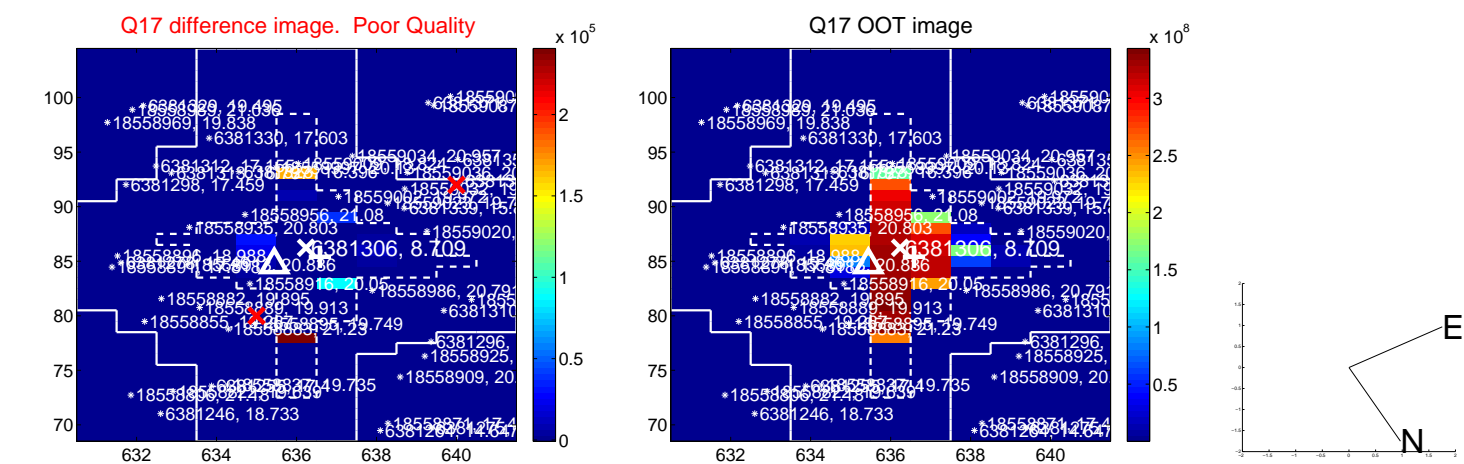
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



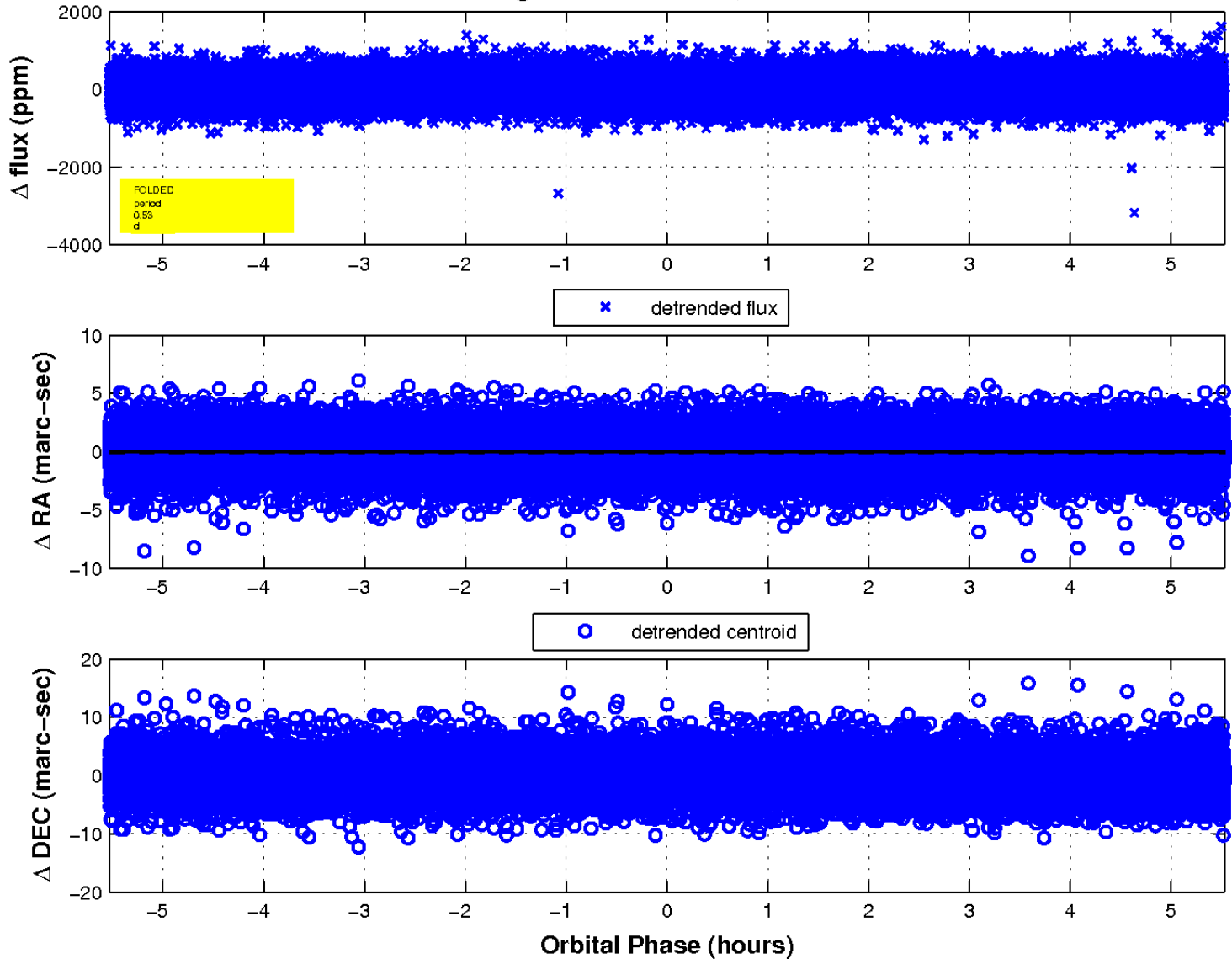
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



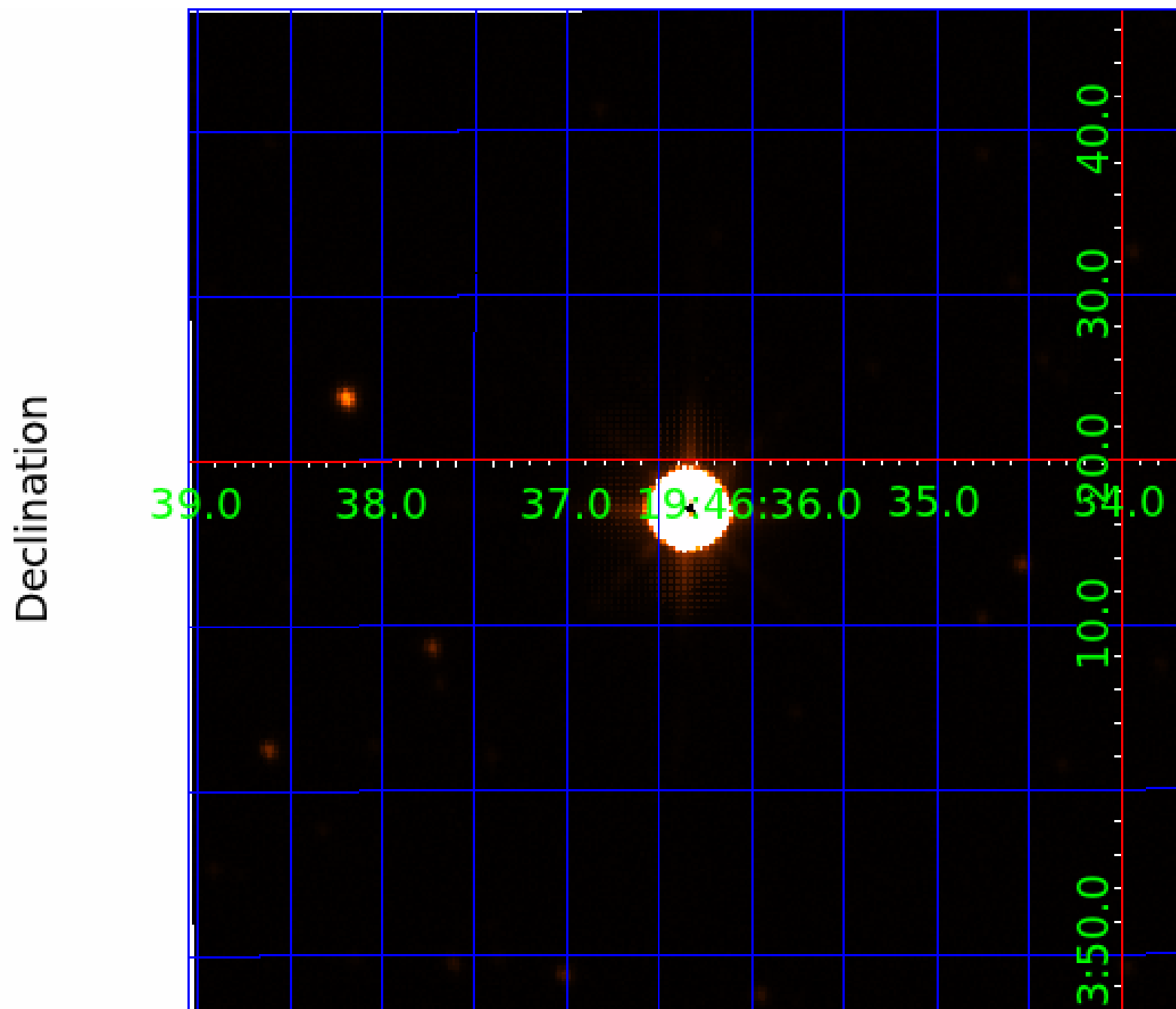
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



fluxWeightedCentroids, Planet 1 of 6



UKIRT Image



KIC 006381306

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})
006381306-01	OBS	No	0.528730	131.727439	17.2	1.844	8.1	7.2	3.25	8283	1.57	175176.55
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Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
006381306-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—CENT_SATURATED
006381306-02	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—SAME_NTL_PERIOD—CENT_SATURATED
006381306-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—CENT_SATURATED
006381306-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_ALT—CENT_SATURATED
006381306-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_POS_ALT—CENT_SATURATED
006381306-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED

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

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

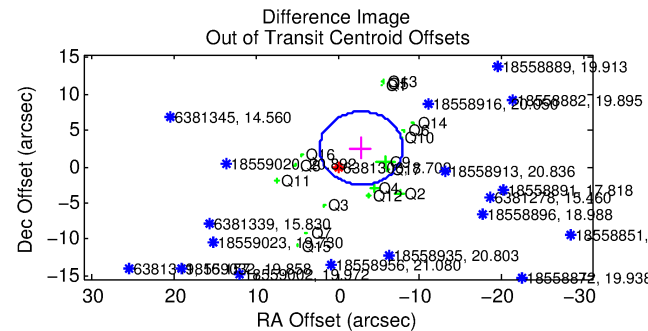
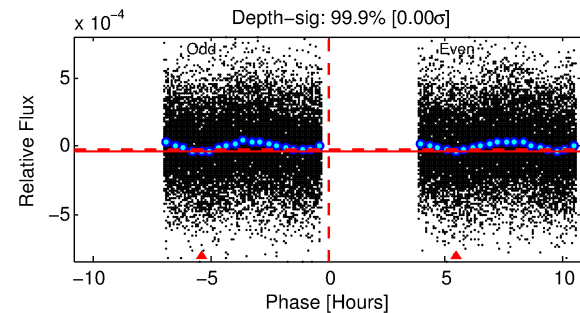
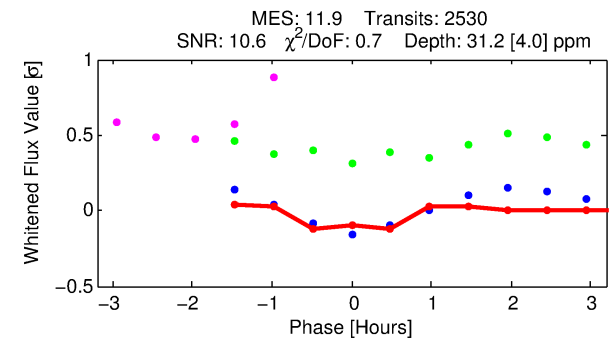
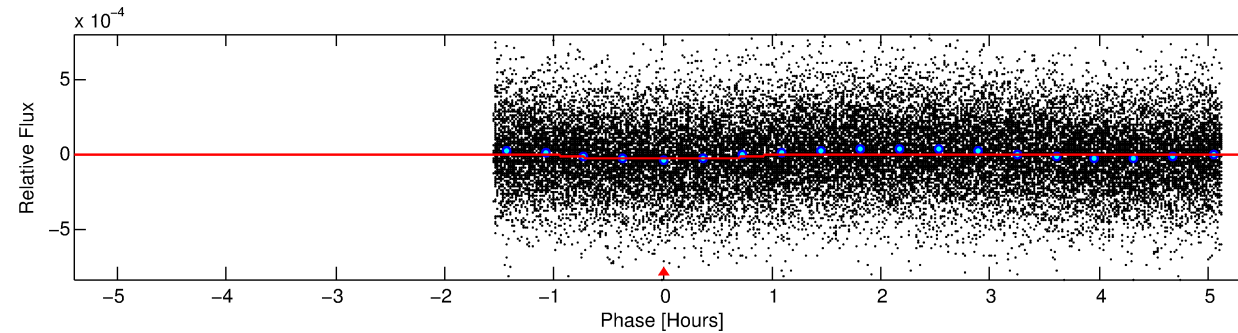
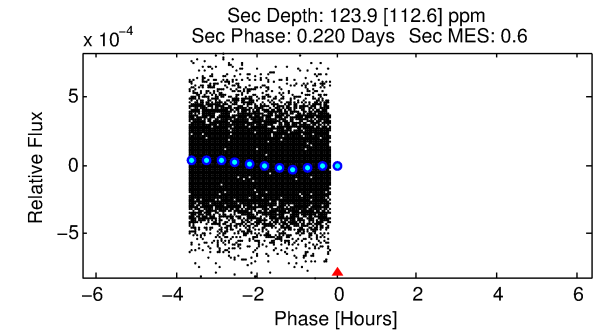
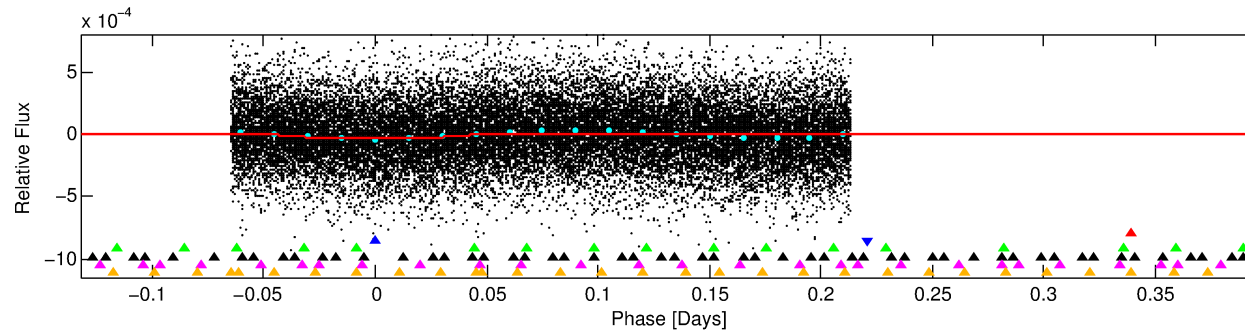
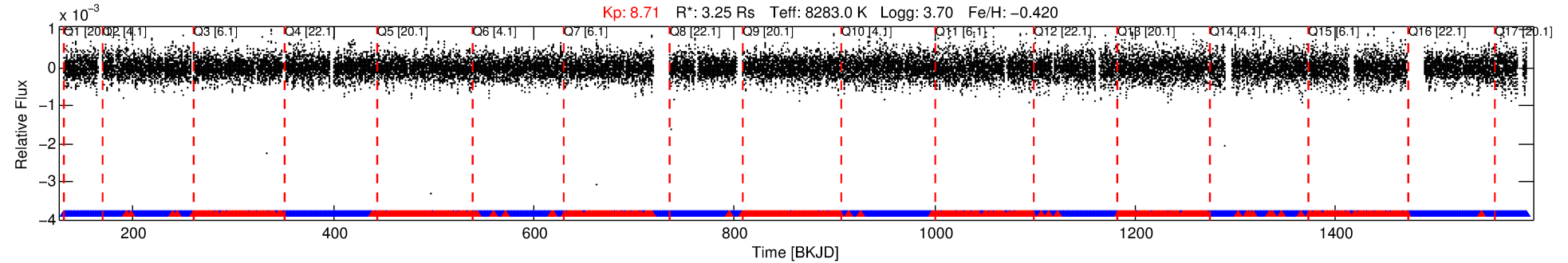
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 006381306-02

No Significant Match Found

DV One-Page Summary

KIC: 6381306 Candidate: 2 of 6 Period: 0.529 d



DV Fit Results:

Period = 0.52873 [0.00001] d
Epoch = 131.9175 [0.0011] BKJD
Rp/R* = 0.0060 [0.0010]
a/R* = 1.38 [0.69]
b = 0.90 [0.23]
Seff = 175176.60 [147609.70]
Teq = 5217 [1099] K
Rp = 2.11 [1.13] Re
a = 0.0159 [0.0081] AU
Ag = 3.88 [4.96] [0.58σ]
Teffp = 11319 [2791] K [2.03σ]

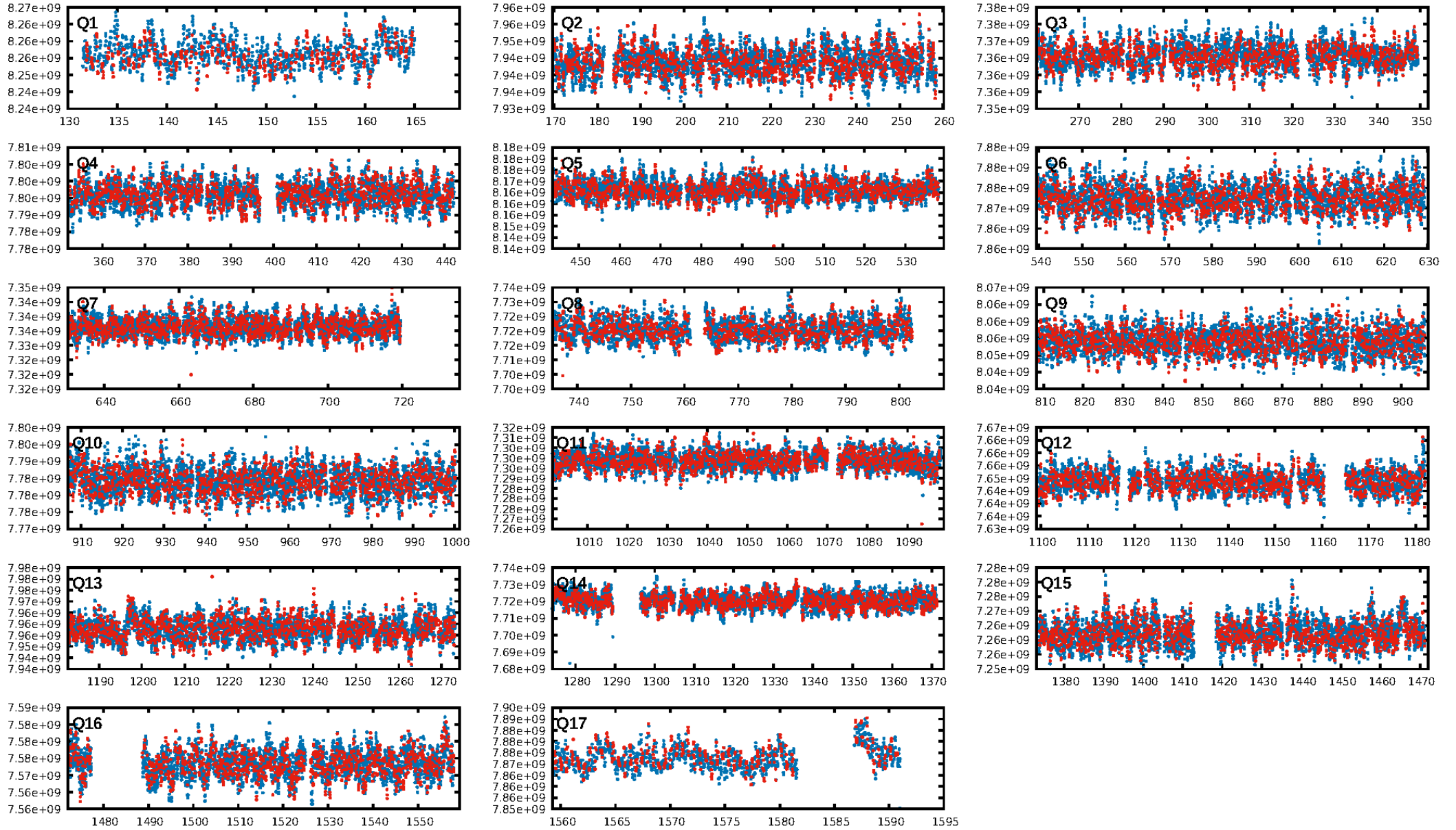
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 0.0% [0.00σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: N/A
RollingBand-figt: 0.72 [1752/2417]
GhostDiagnostic-chr: N/A
Centroid-sig: N/A
Centroid-so: 2.794 arcsec [4.04σ]
OotOffset-rm: 3.811 arcsec [2.26σ]
KicOffset-rm: 10.592 arcsec [4.23σ]
OotOffset-st: 4/4/4/5 [17]
KicOffset-st: 4/4/4/5 [17]
DiffImageQuality-fgm: 0.00 [0/17]
DiffImageOverlap-fno: 0.00 [0/17]

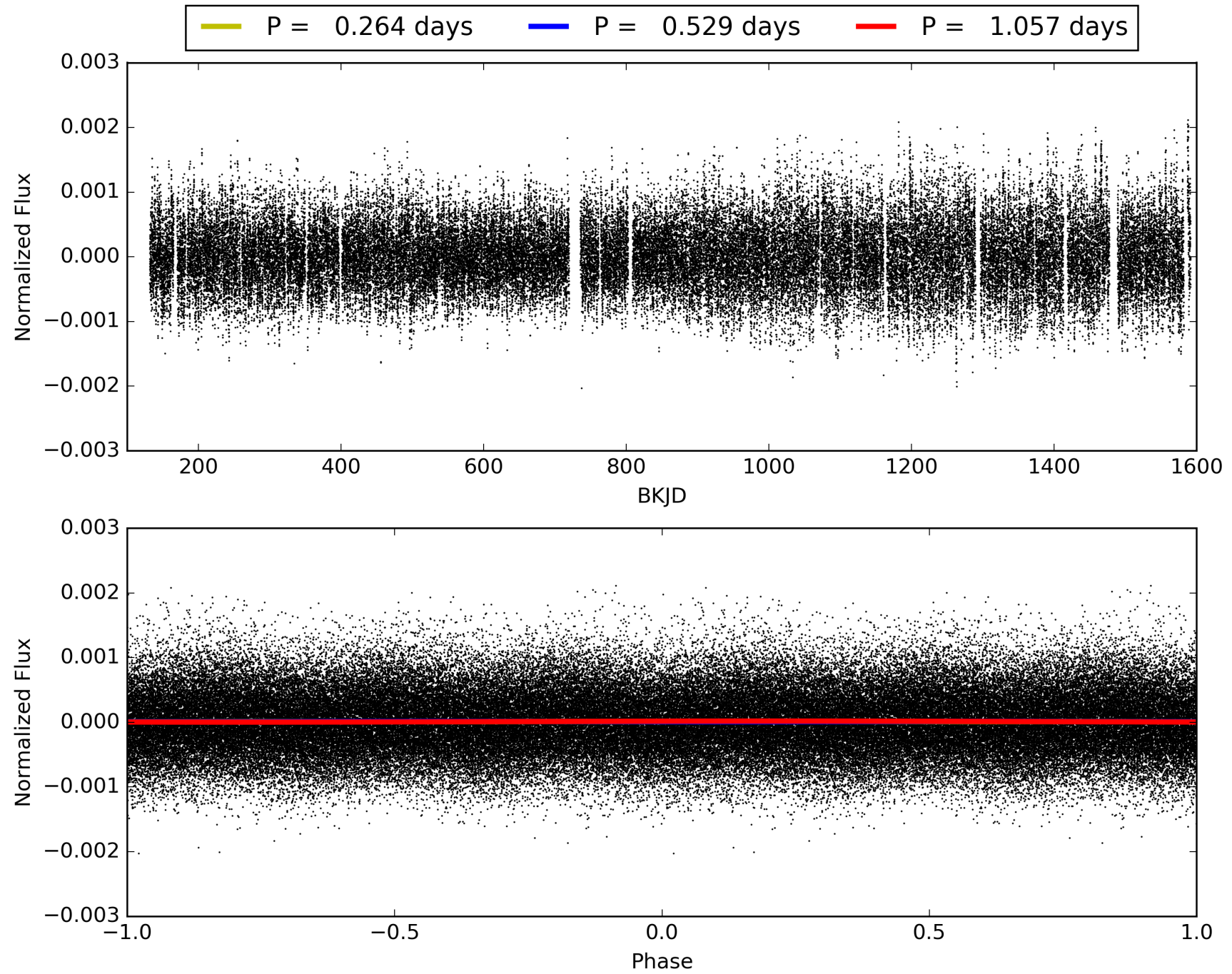
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 03-Feb-2016 08:25:43 Z

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

TCE 006381306-02, PDC Light Curves

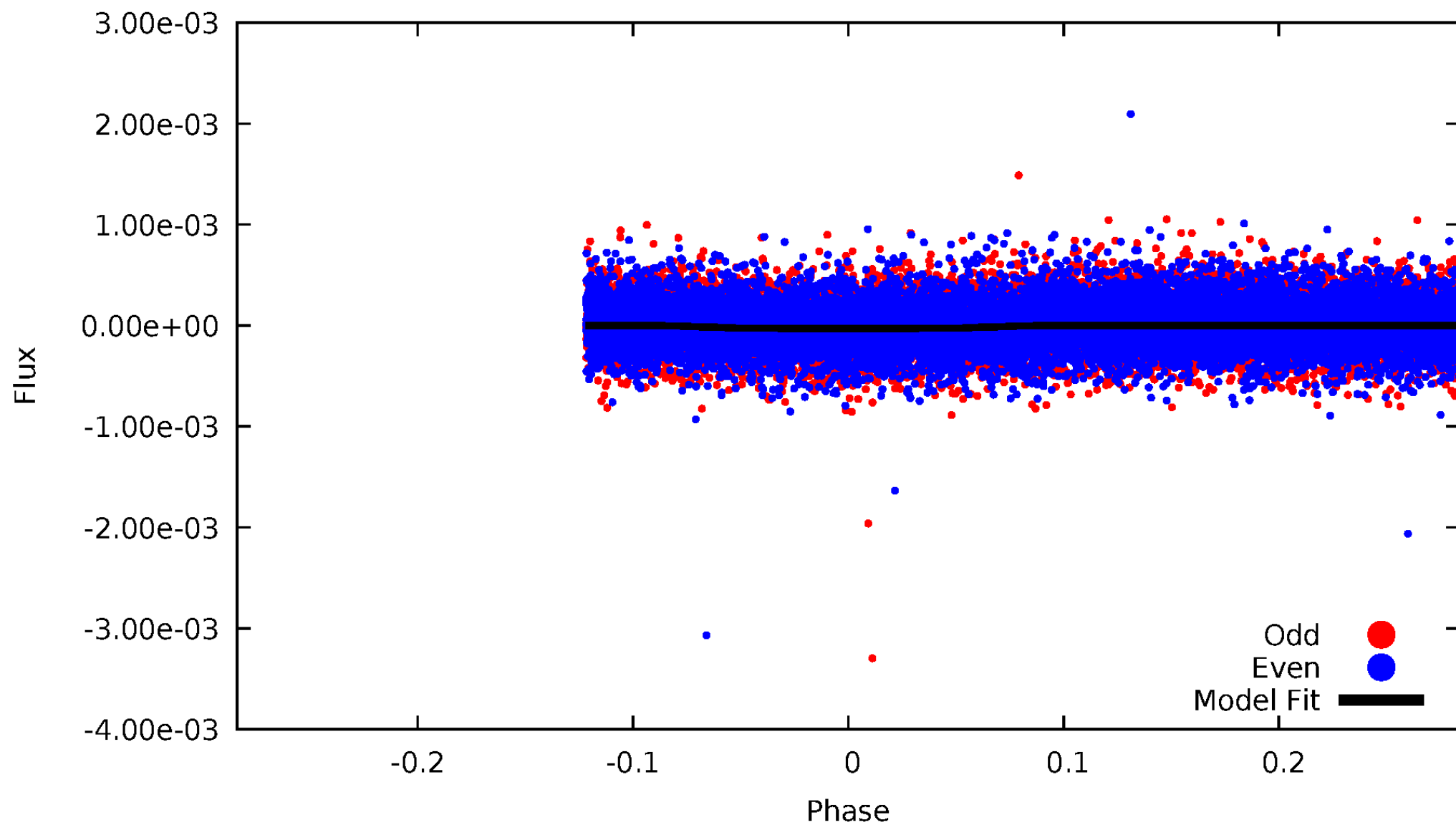


TCE 006381306-02



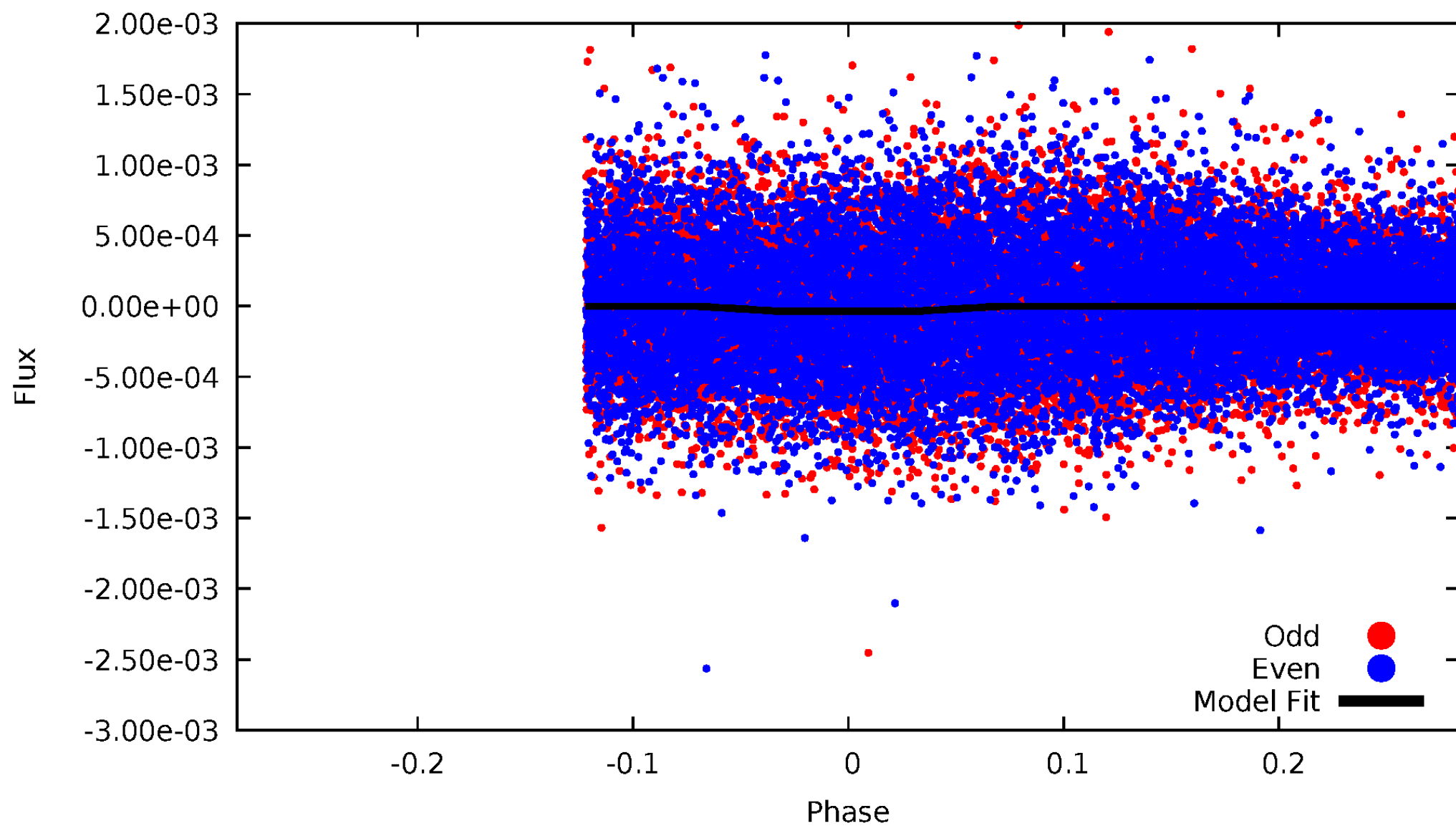
DV Odd/Even

TCE 006381306-02



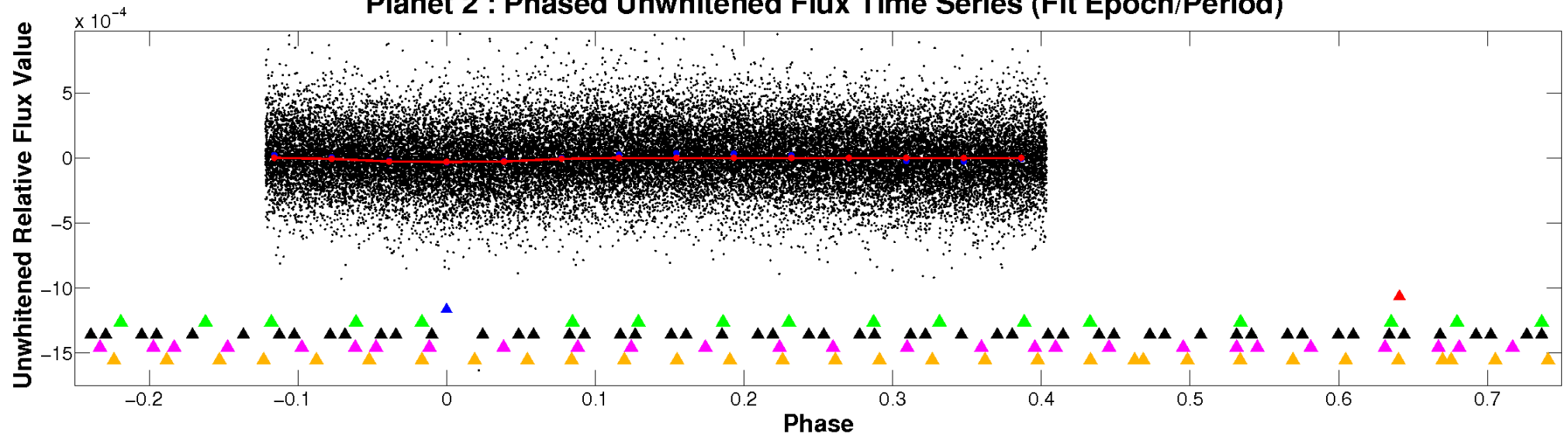
ALT Odd/Even

TCE 006381306-02

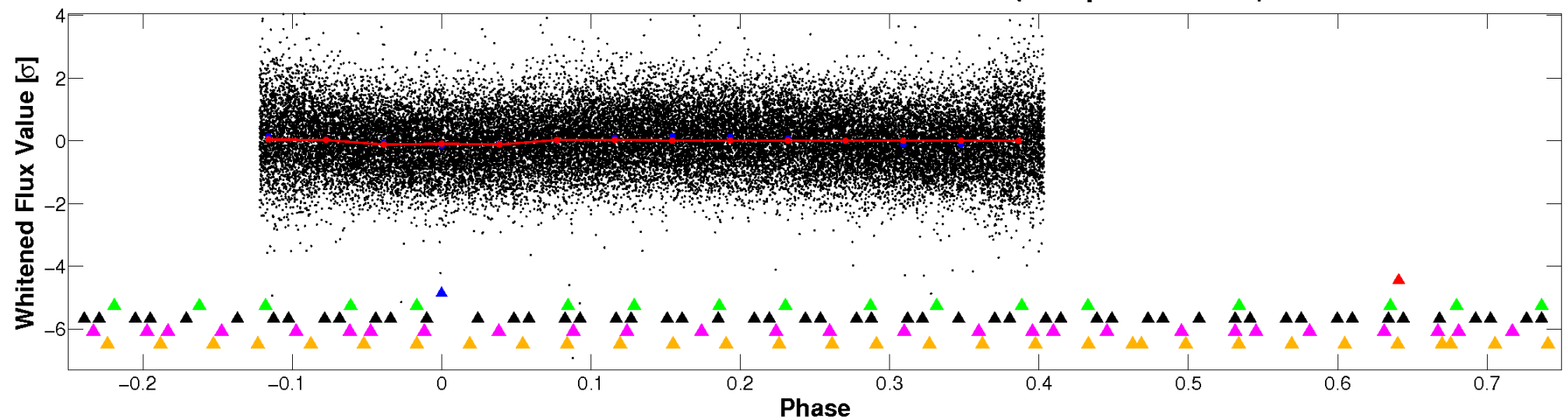


Non-Whitened Vs. Whitened Light Curve

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

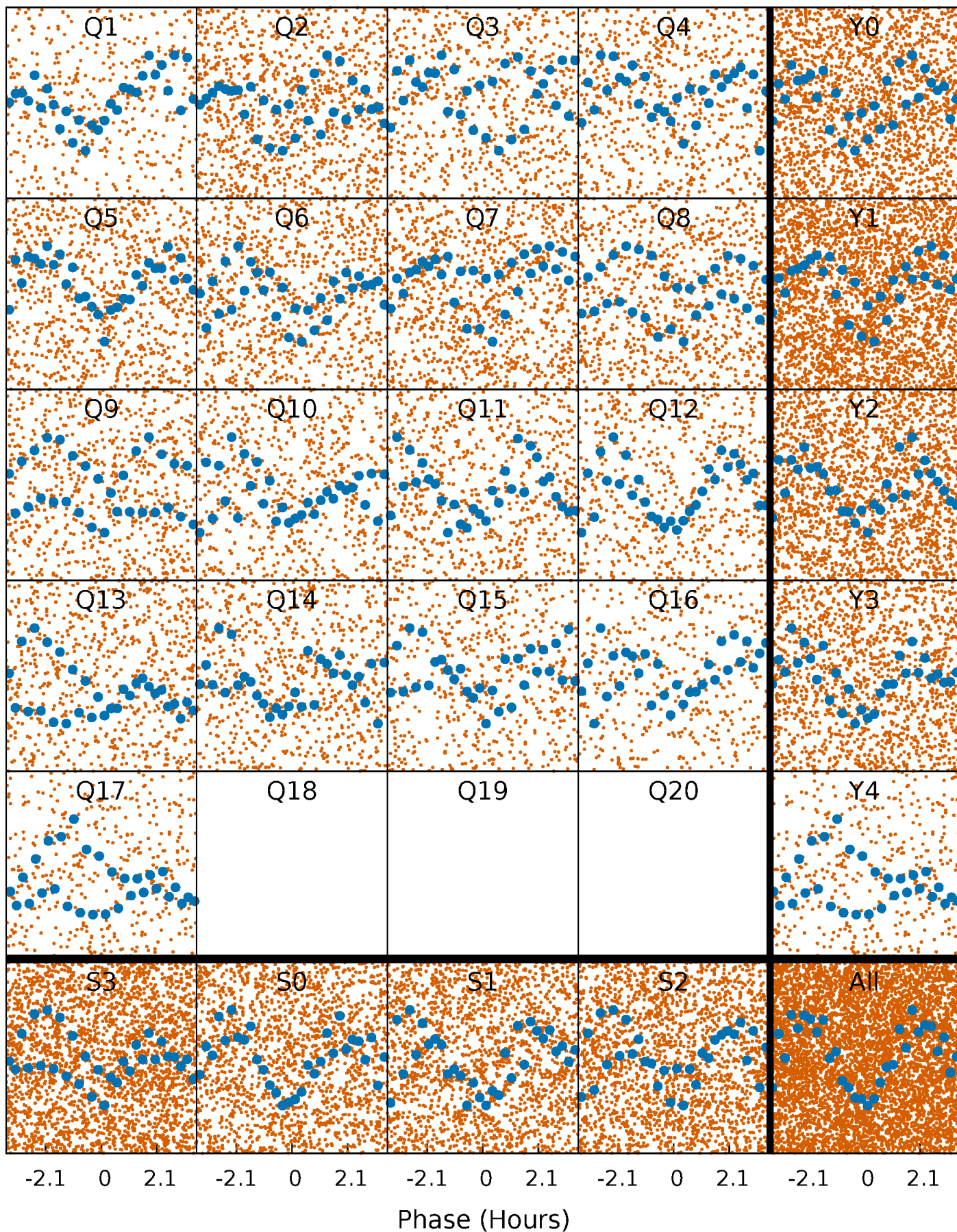


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



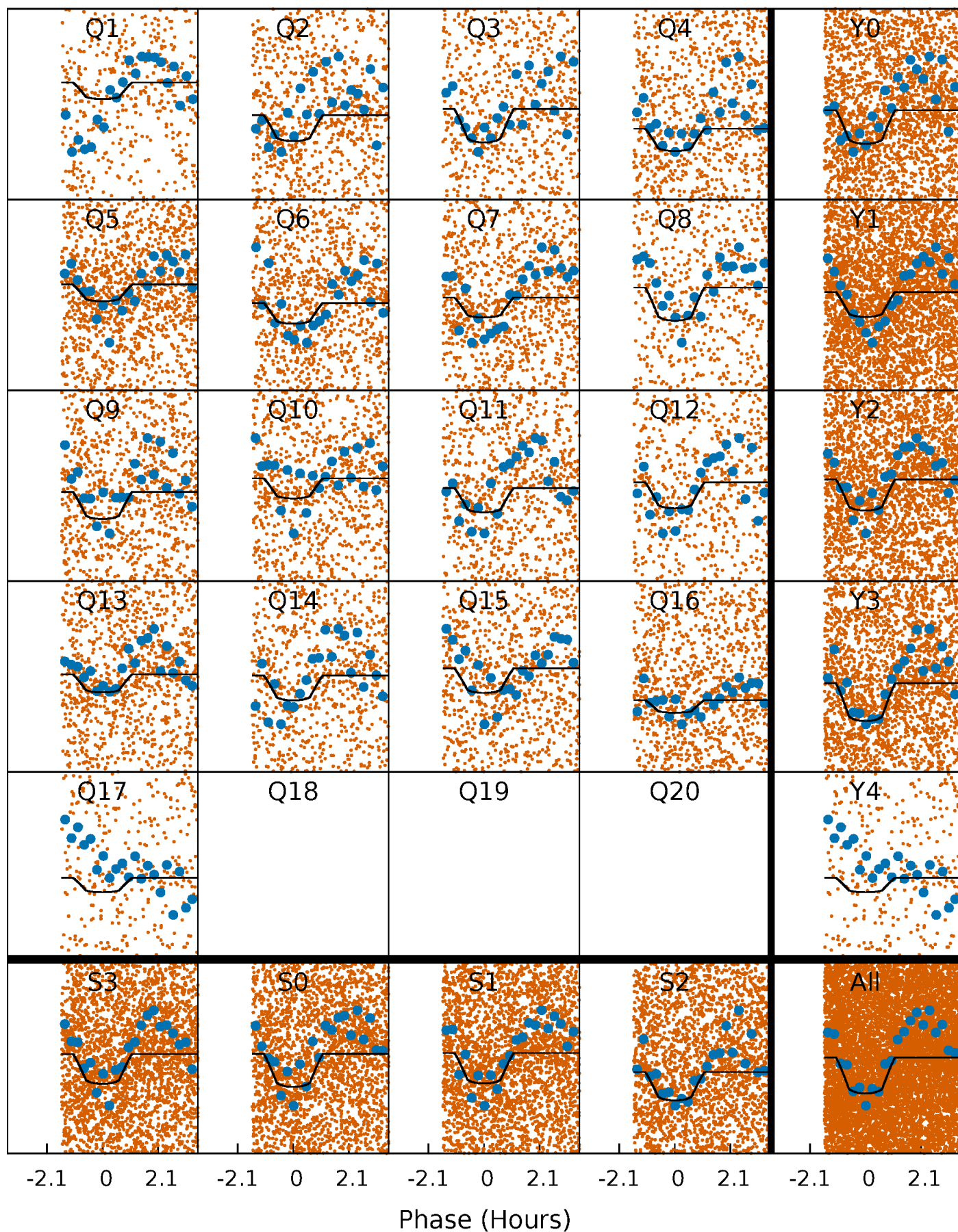
PDC Quarter-Phased Transit Curves

TCE 006381306-02 P= 0.528730 Days $T_0=131.917470$ (BKJD)



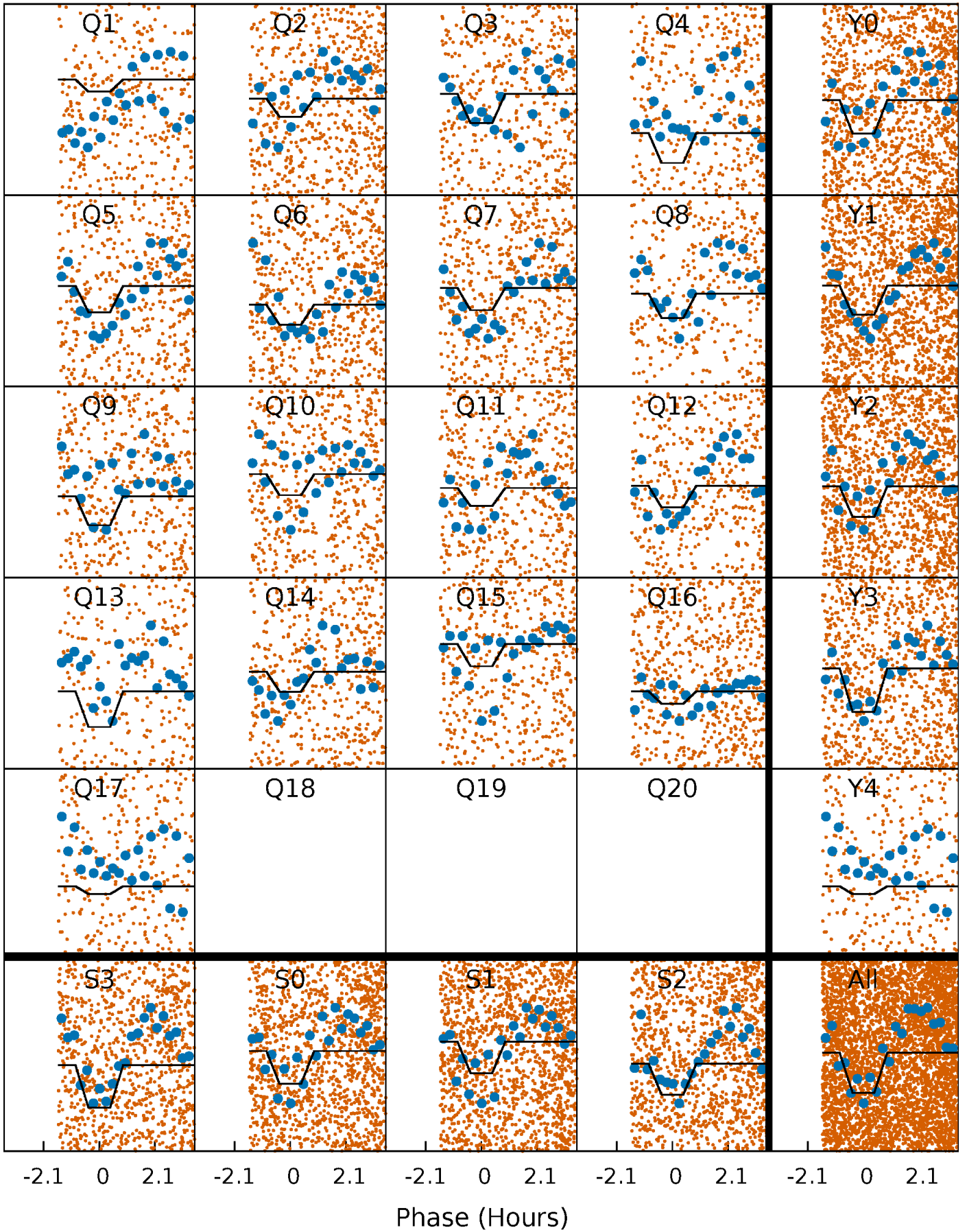
DV Quarter-Phased Transit Curves

TCE 006381306-02 P= 0.528730 Days $T_0=131.917470$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

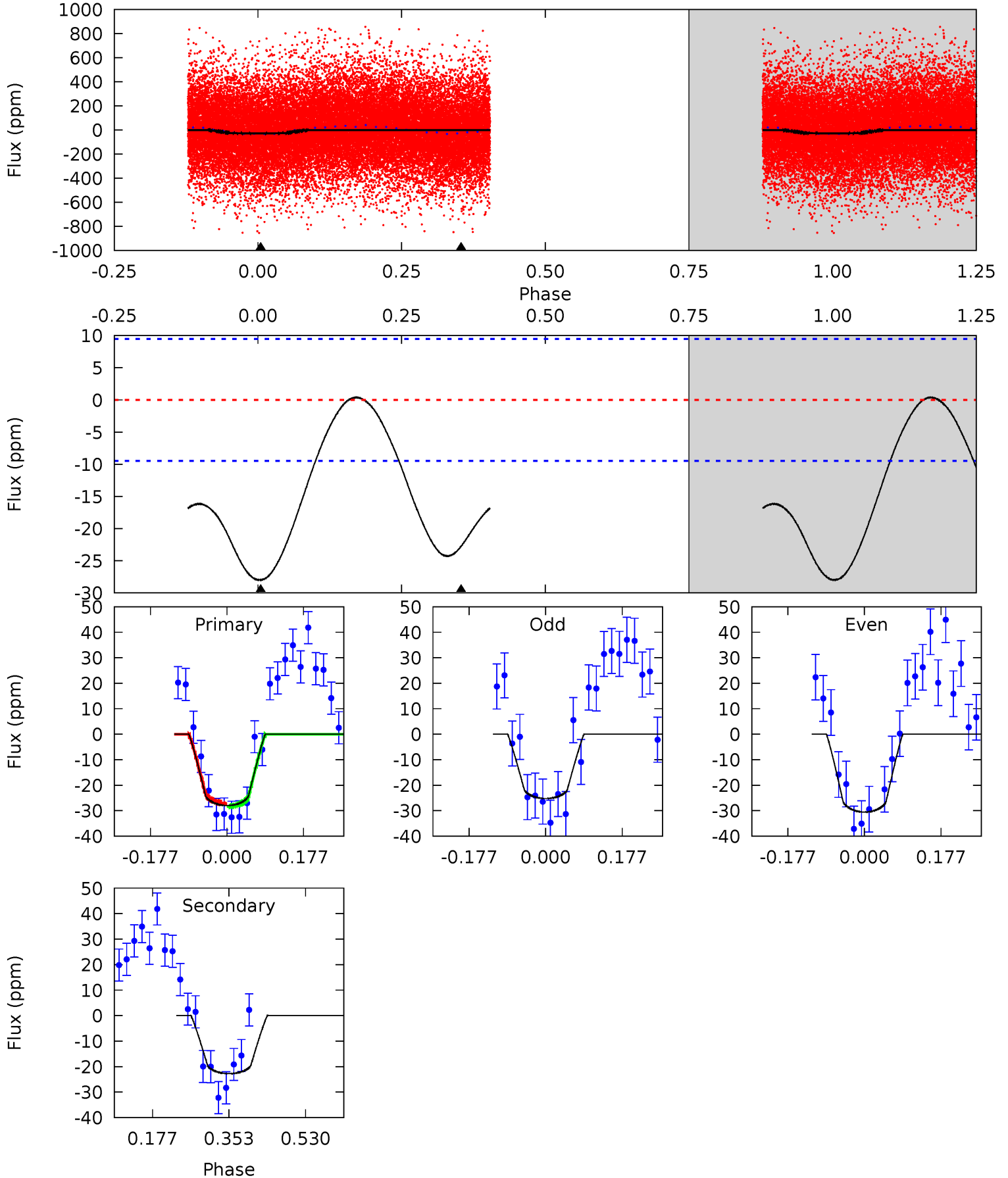
TCE 006381306-02 P= 0.528730 Days $T_0=131.917470$ (BKJD)



DV Model-Shift Uniqueness Test

006381306-02, P = 0.528730 Days, E = 131.388740 Days

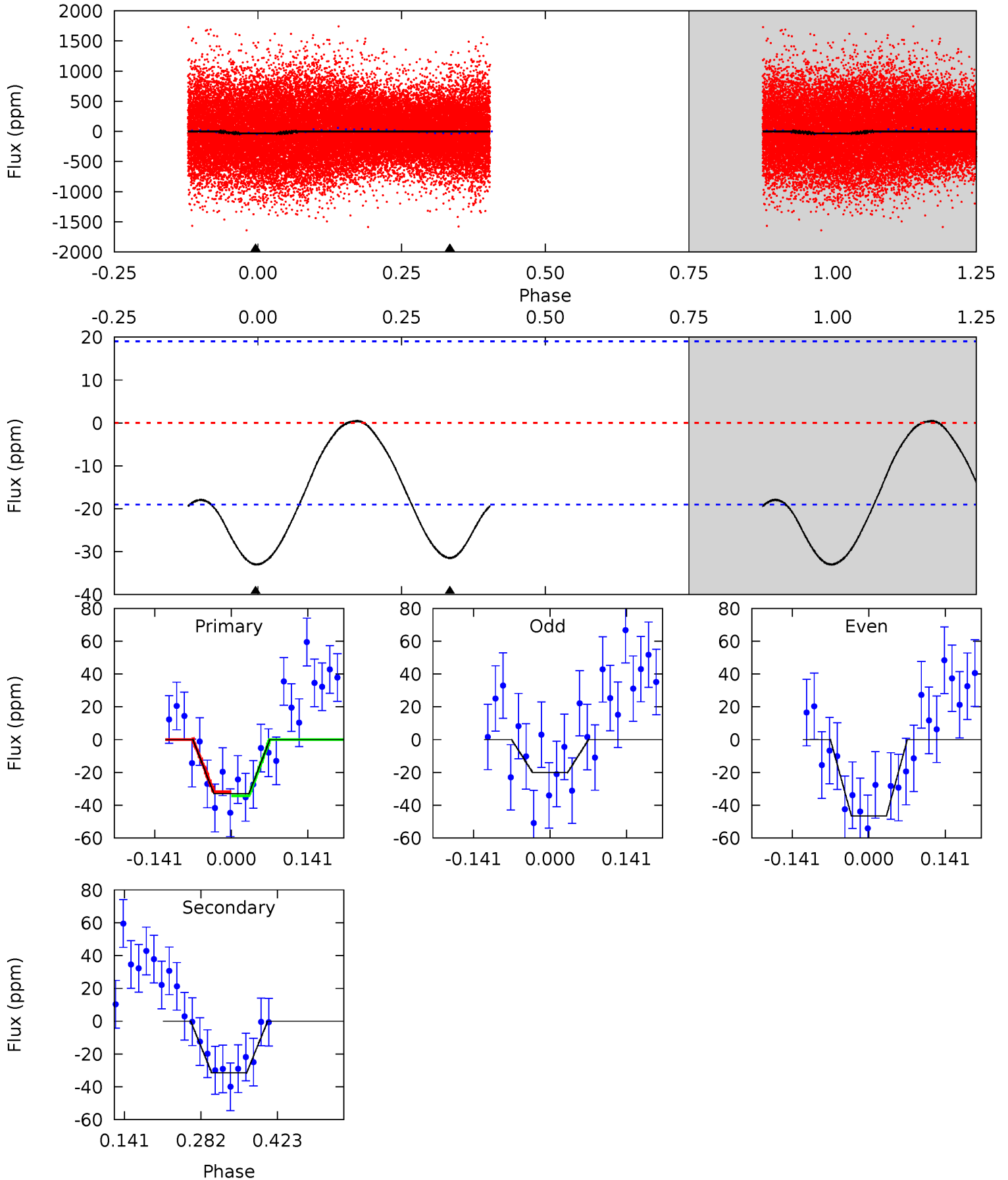
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
13.1	10.7	0	0	4.44	1.35	0.30	13.1	13.1	10.7	10.7	1.25	1.09	0.01	0.27



Alt Model-Shift Uniqueness Test

006381306-02, P = 0.528730 Days, E = 131.388740 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
7.80	7.44	0	0	4.49	1.47	0.14	7.80	7.80	7.44	7.44	3.12	0.67	0.01	0.27



Stellar Parameters For KIC 006381306

	$T_{\text{eff}} (K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	8283^{+236}_{-324}	$3.700^{+0.493}_{-0.087}$	$-0.420^{+0.200}_{-0.300}$	$3.245^{+0.545}_{-1.635}$	$1.927^{+0.206}_{-0.471}$	$0.079^{+0.406}_{-0.027}$
	+3%/-4%	+13%/-2%	+48%/-71%	+17%/-50%	+11%/-24%	+511%/-34%
Source	KIC0	KIC0	KIC0	DSEP		

KIC = Kepler Input Catalog; PHO = Photometry; SPE = Spectroscopy; AST = Asteroseismology
 TRA = Transits; DESP = Dartmouth Models; MULT = Multiple Models

Secondary Eclipse Parameters for KIC 006381306-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-23 ± 2	$1.89^{+0.52}_{-0.51}$	6973^{+581}_{-878}	6447^{+977}_{-967}	$0.887^{+0.743}_{-0.333}$
Alt.	-31 ± 4	$1.94^{+0.50}_{-0.60}$	7039^{+487}_{-854}	7245^{+1217}_{-1016}	$1.174^{+1.072}_{-0.463}$

T_{max} = Theoretical Maximum Planetary Temperature

T_{obs} = Observed Planetary Temperature (Assuming $A=0.3$)

A_{obs} = Observed Albedo (Assuming $T=0$)

If a secondary eclipse is present, the system is likely an EB if $T_{obs} \gg T_{max}$ AND $A_{obs} \gg 1.0$

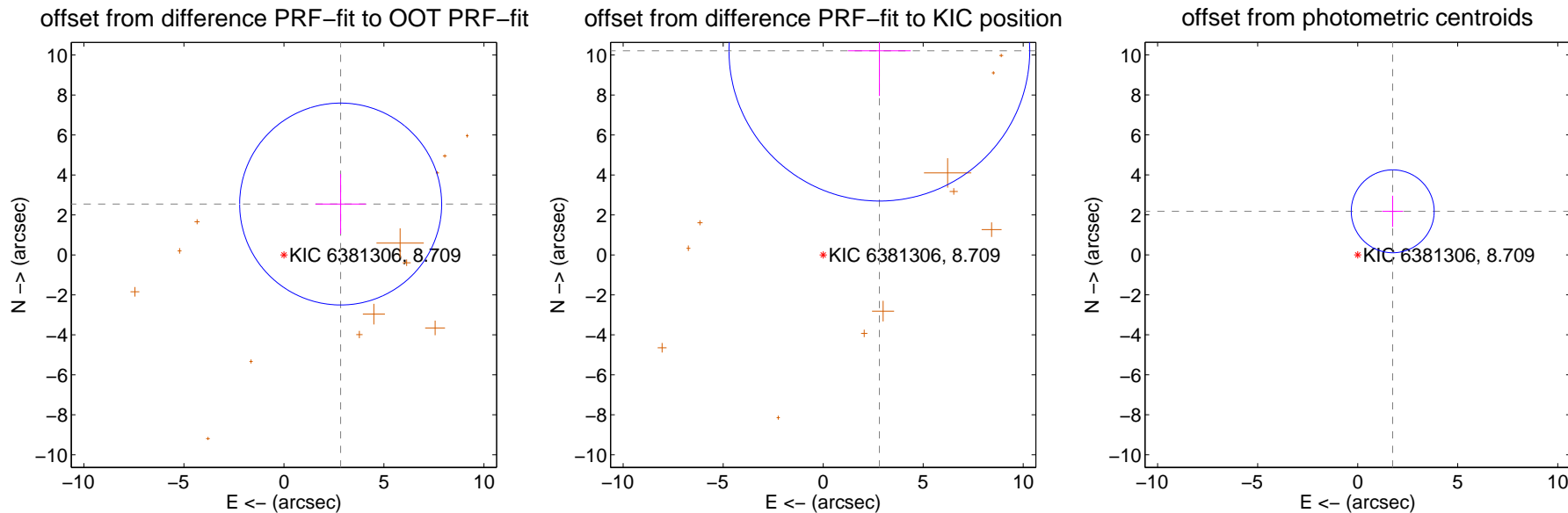
DV Centroid Data

Supplemental centroid analysis for 006381306-02. **Kepler magnitude: 8.71.** Transit SNR 10.61

There are 0 quarters with good PRF difference image offsets

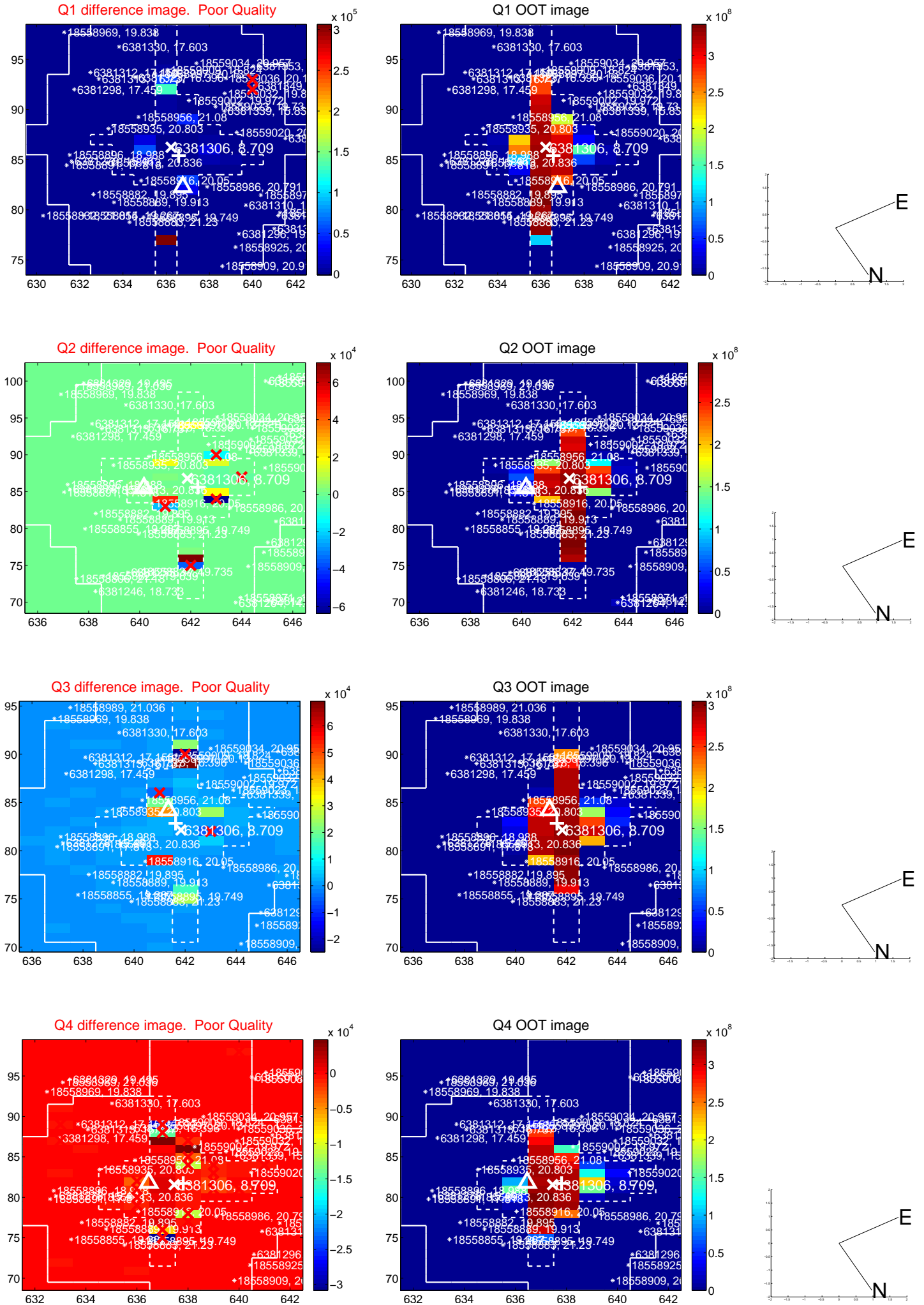
The OOT PRF centroid is offset from the target star catalog position by about 3.59 arcsec so the offset from difference PRF-fit to OOT-fit may be invalid.

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	3.811 ± 1.683	2.26	-2.836 ± 1.262	2.545 ± 1.497
PRF-fit source offset from KIC position	10.592 ± 2.506	4.23	-2.809 ± 1.571	10.213 ± 2.258
photometric centroid source offset	2.79 ± 0.69	4.04	-1.75 ± 0.52	2.18 ± 0.78

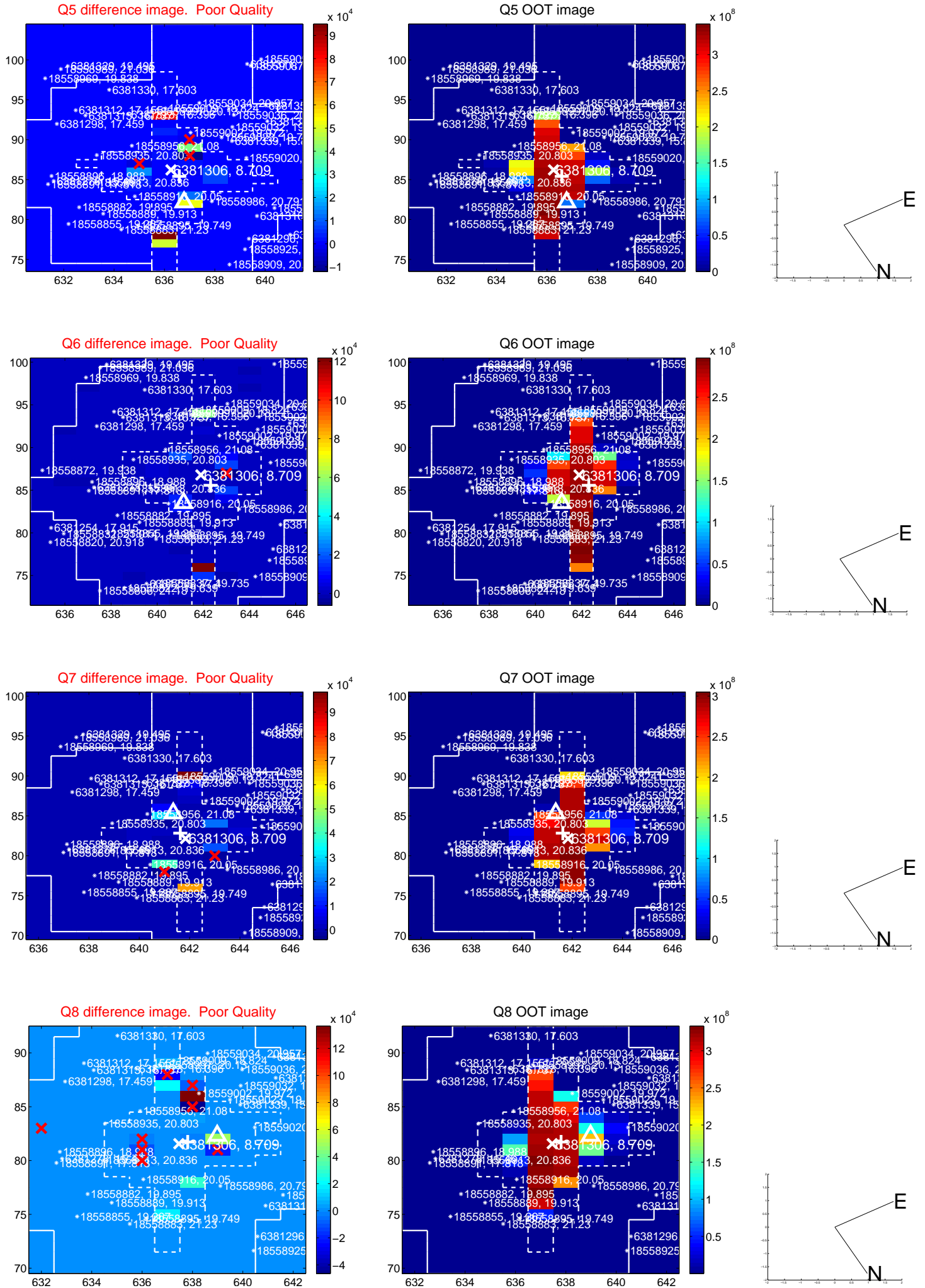


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

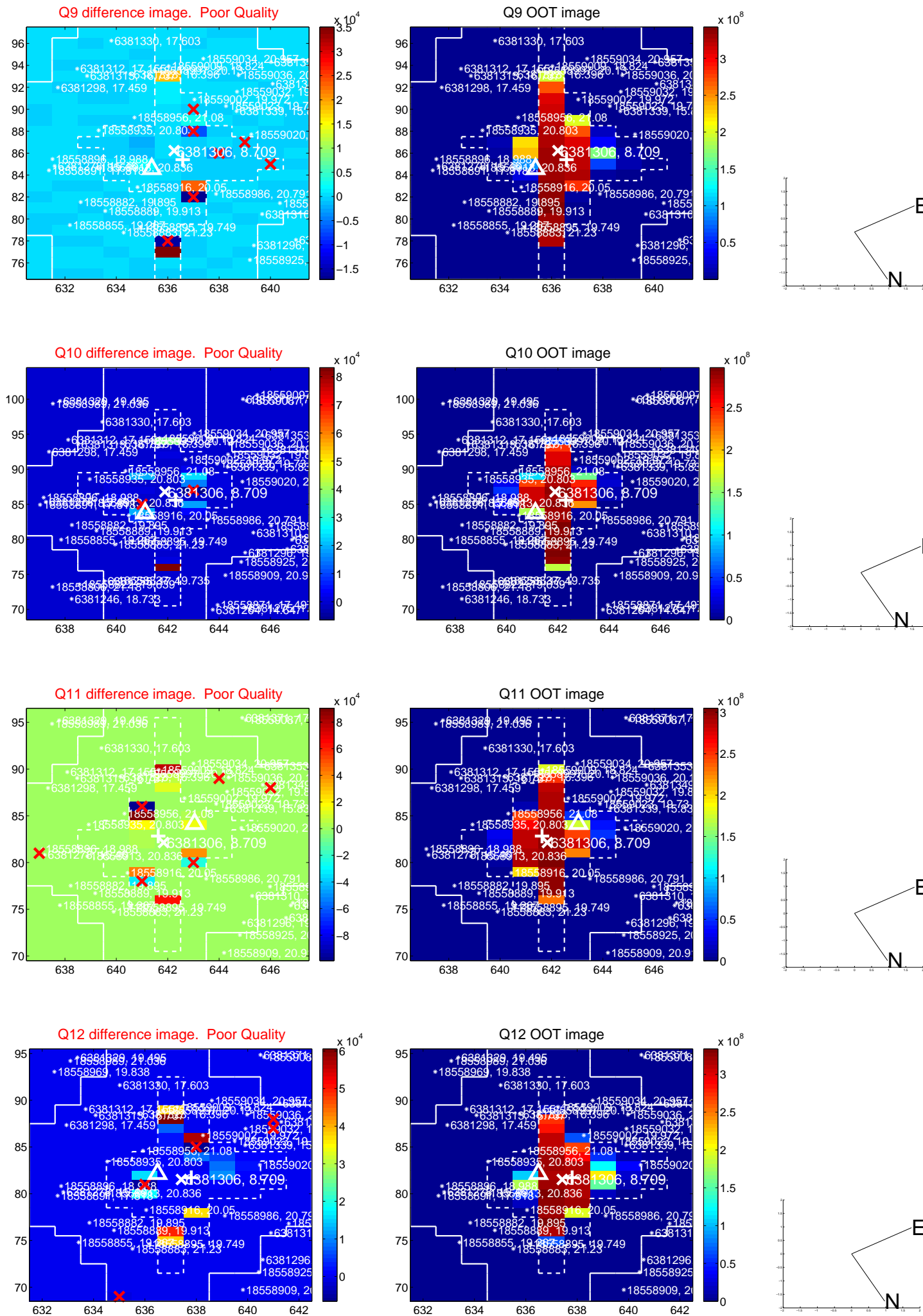
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



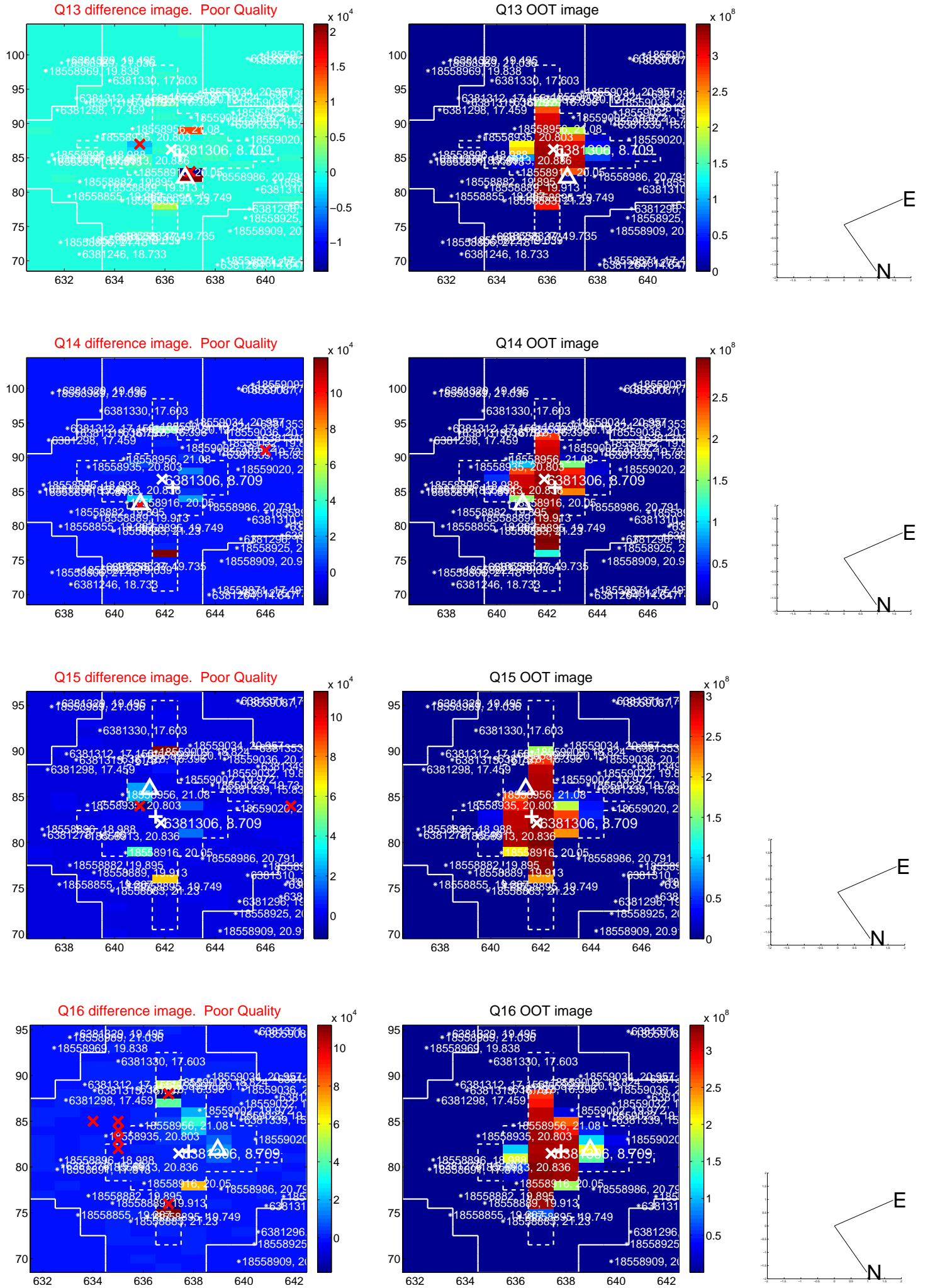
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



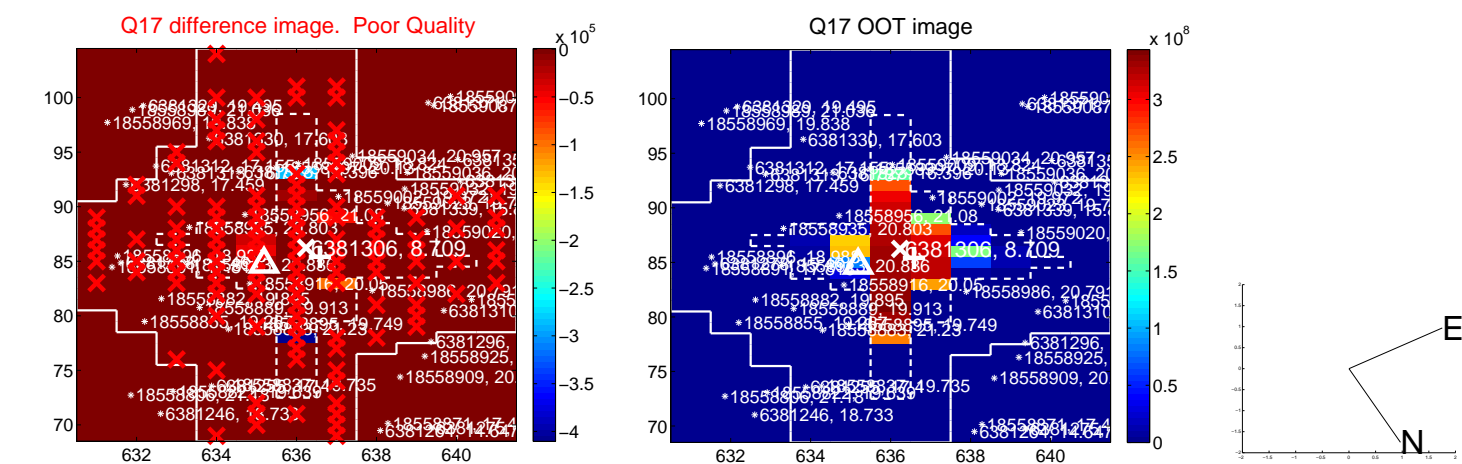
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



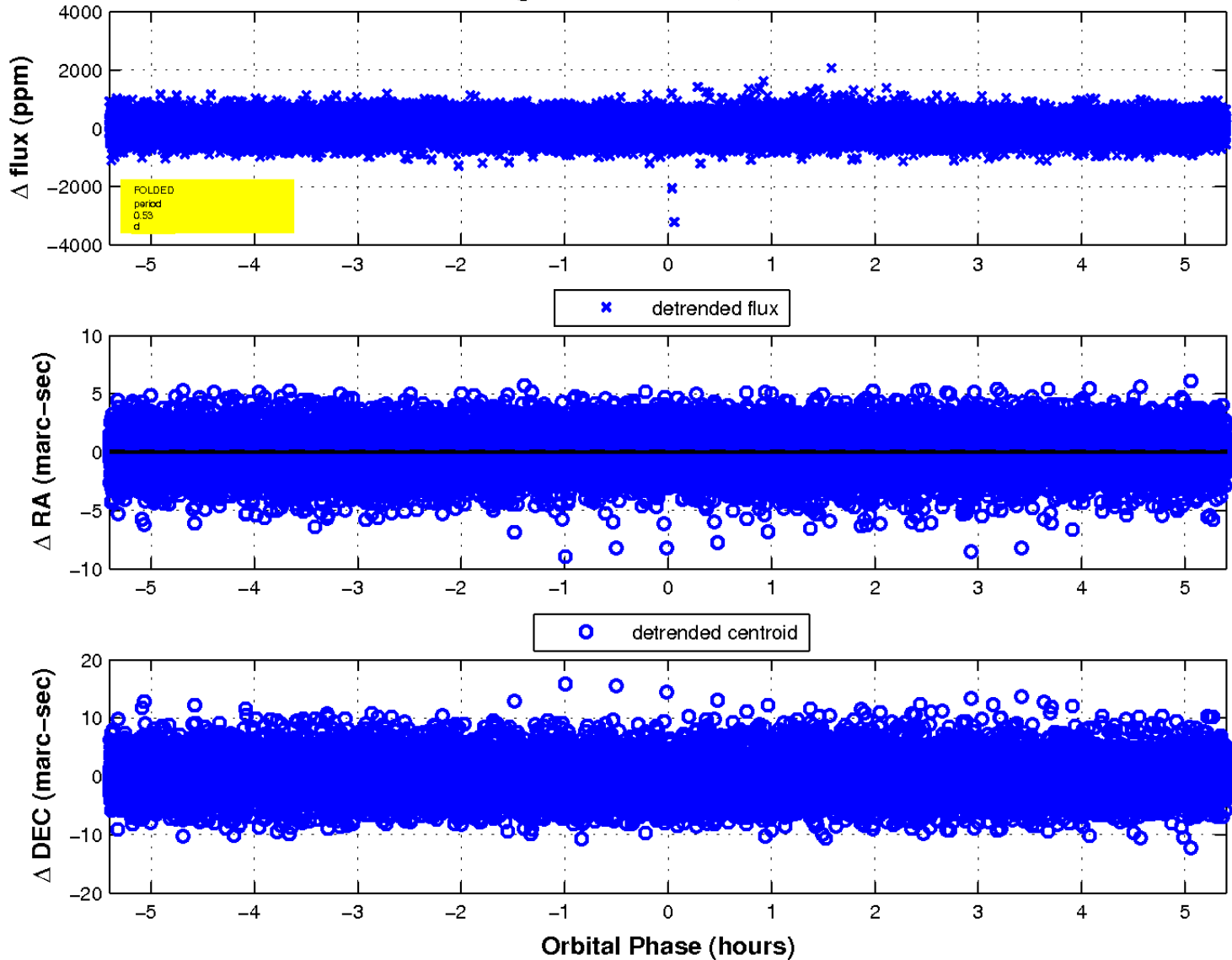
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



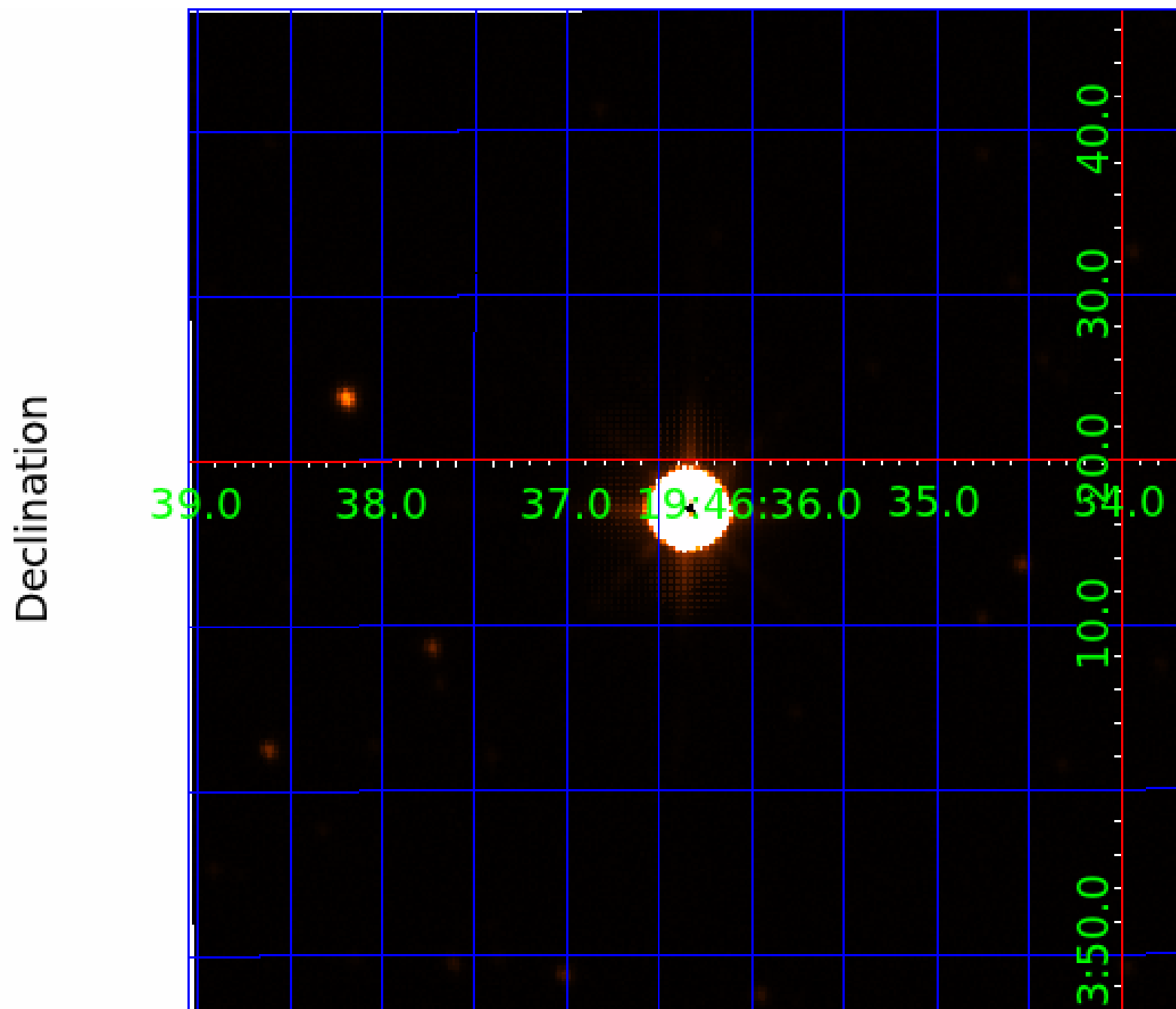
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



fluxWeightedCentroids, Planet 2 of 6



UKIRT Image



KIC 006381306

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})
006381306-01	OBS	No	0.528730	131.727439	17.2	1.844	8.1	7.2	3.25	8283	1.57	175176.55
006381306-02	OBS	No	0.528730	131.917470	31.2	1.800	11.9	10.6	3.25	8283	2.11	175176.60
006381306-03	OBS	No	87.531602	141.502800	600.9	2.274	10.2	9.1	3.25	8283	9.25	192.71
006381306-04	OBS	No	26.880126	145.501778	418.7	4.846	8.7	8.6	3.25	8283	12.56	930.14
006381306-05	OBS	No	54.916165	134.528631	540.0	4.496	8.9	8.4	3.25	8283	9.45	358.80
006381306-06	OBS	No	47.476210	131.745980	23.4	5.000	7.7	-1.0	3.25	8283	1.59	435.67

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
006381306-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—CENT_SATURATED
006381306-02	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—SAME_NTL_PERIOD—CENT_SATURATED
006381306-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—CENT_SATURATED
006381306-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_ALT—CENT_SATURATED
006381306-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_POS_ALT—CENT_SATURATED
006381306-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED

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

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

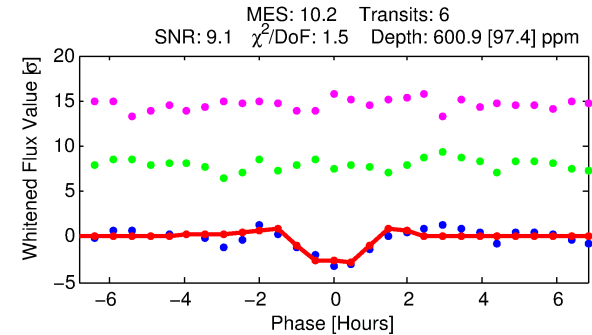
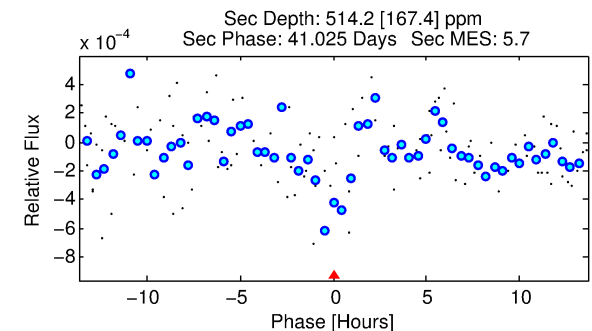
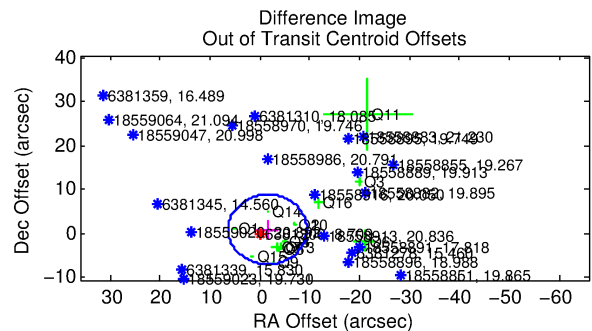
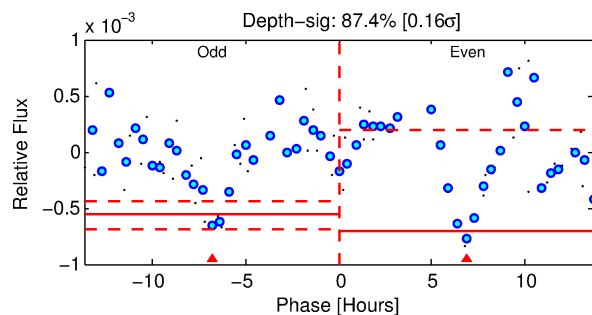
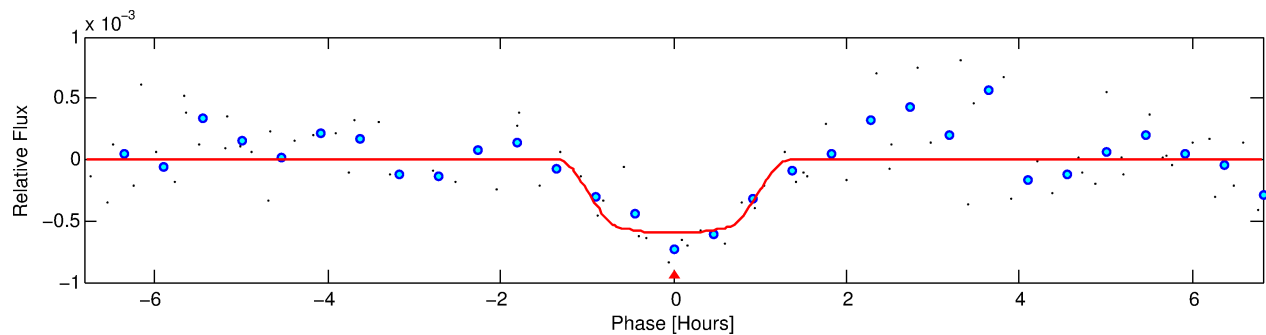
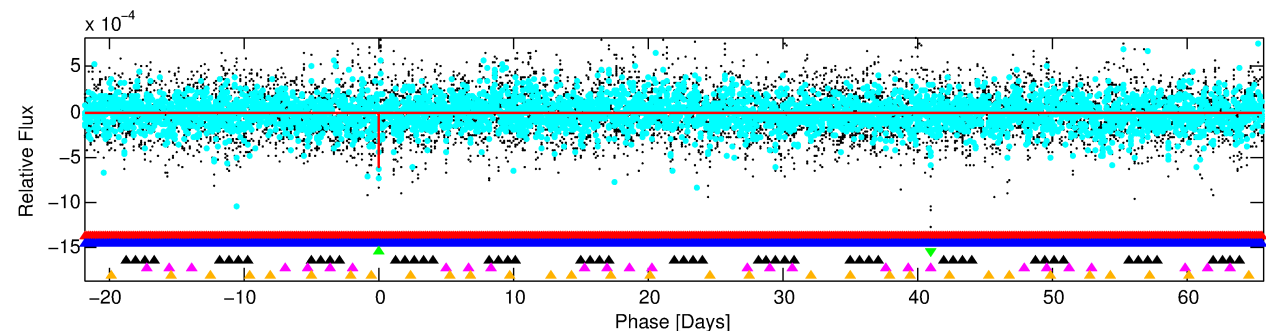
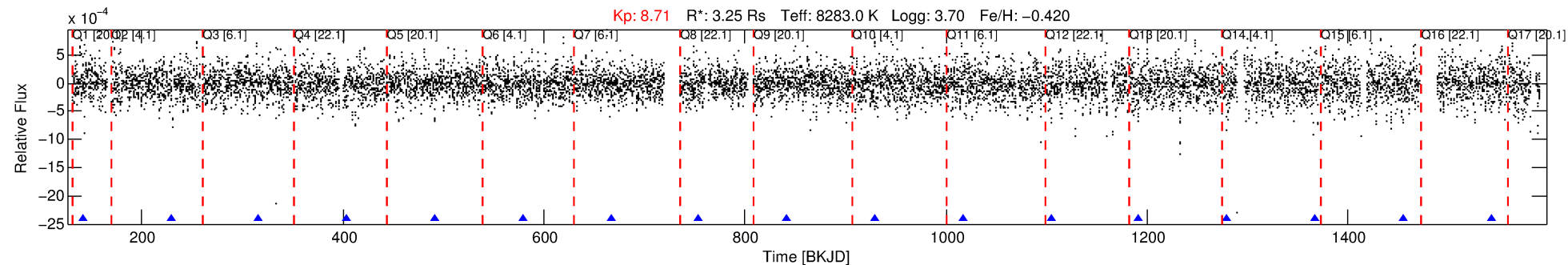
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 006381306-03

No Significant Match Found

DV One-Page Summary

KIC: 6381306 Candidate: 3 of 6 Period: 87.532 d



DV Fit Results:

Period = 87.53160 [0.00076] d
Epoch = 141.5028 [0.0069] BKJD
Rp/R* = 0.0261 [0.0100]
a/R* = 146.28 [325.92]
b = 0.90 [0.48]
Seff = 192.71 [162.38]
Teff = 950 [200] K
Rp = 9.25 [5.86] Re
a = 0.4800 [0.2429] AU
Ag = 762.09 [895.36] [0.85 σ]
Teffp = 7718 [1636] K [4.11 σ]

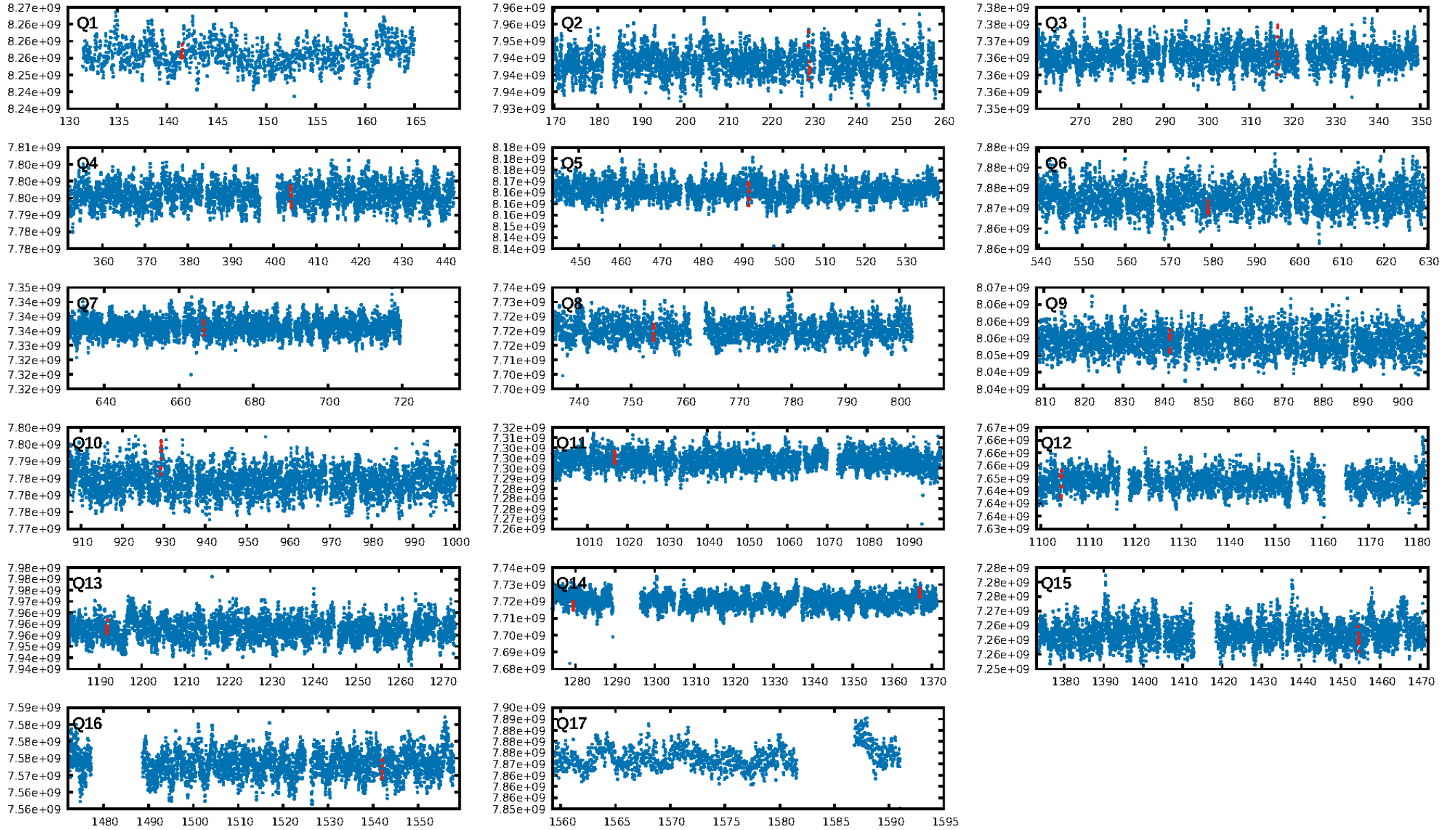
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [155.36 σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 33.8%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [6/6]
GhostDiagnostic-chr: N/A
Centroid-sig: N/A
Centroid-so: 1.828 arcsec [3.76 σ]
OotOffset-rm: 1.818 arcsec [0.69 σ]
KicOffset-rm: 6.190 arcsec [2.59 σ]
OotOffset-st: 4/4/3/4 [15]
KicOffset-st: 4/4/3/4 [15]
DiffImageQuality-fgm: 0.00 [0/15]
DiffImageOverlap-fno: 0.00 [0/15]

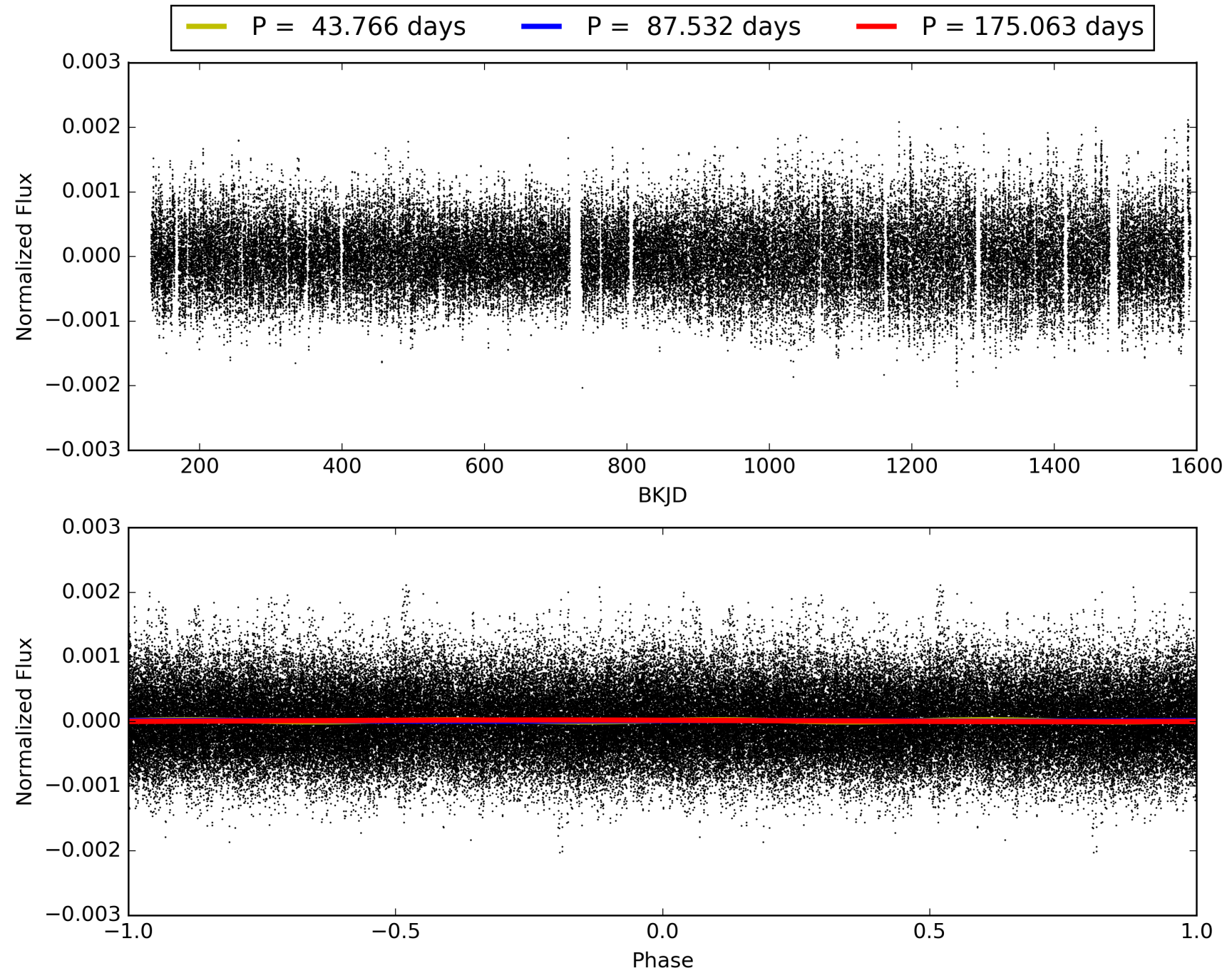
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 03-Feb-2016 08:25:50 Z

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

TCE 006381306-03, PDC Light Curves

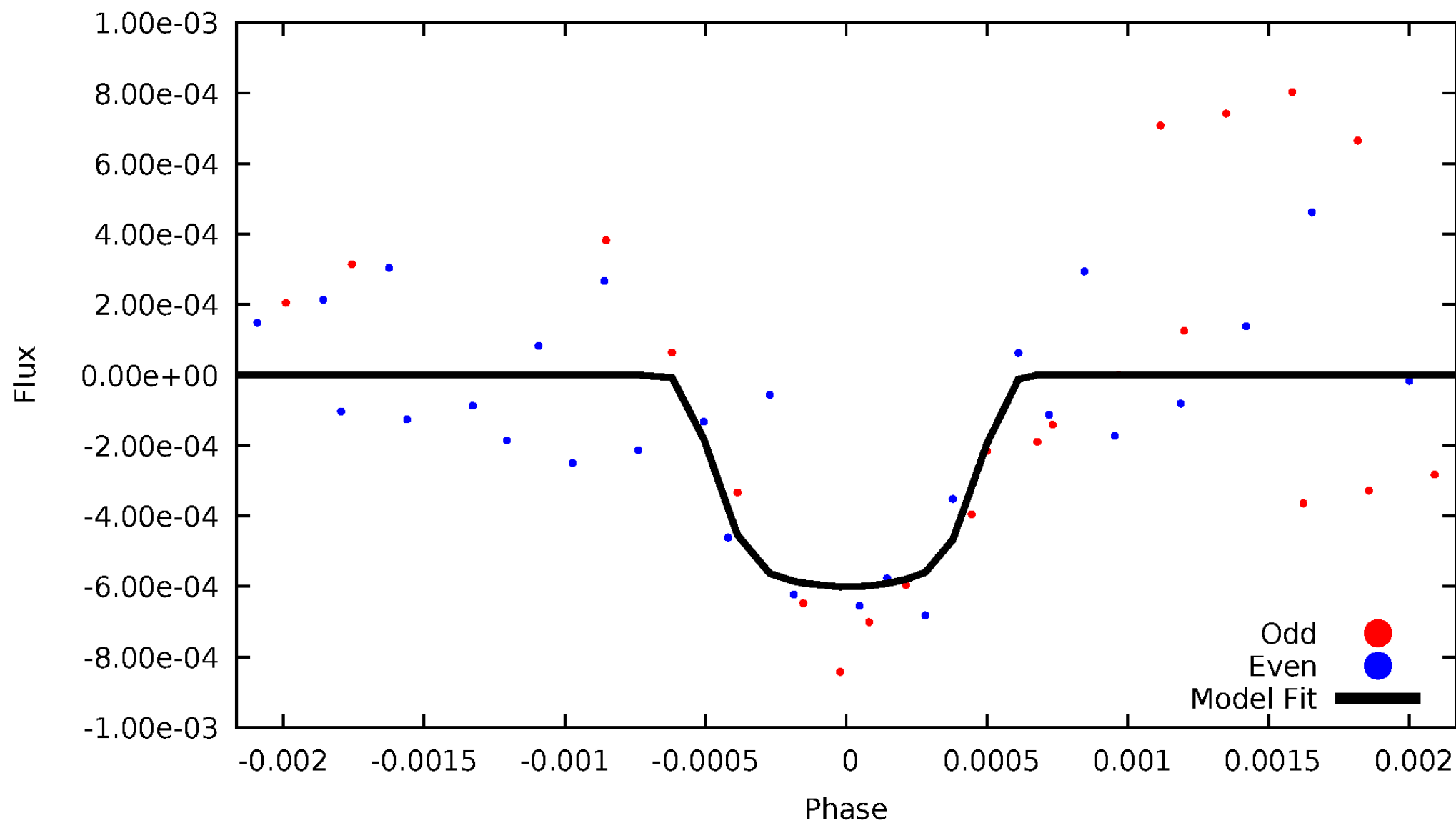


TCE 006381306-03



DV Odd/Even

TCE 006381306-03

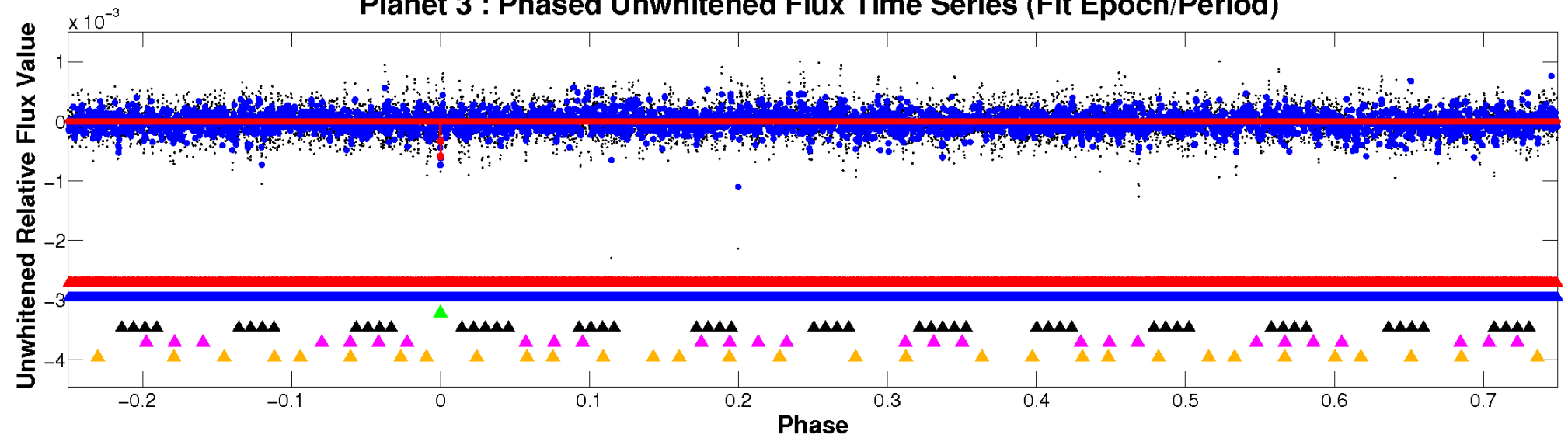


ALT Odd/Even

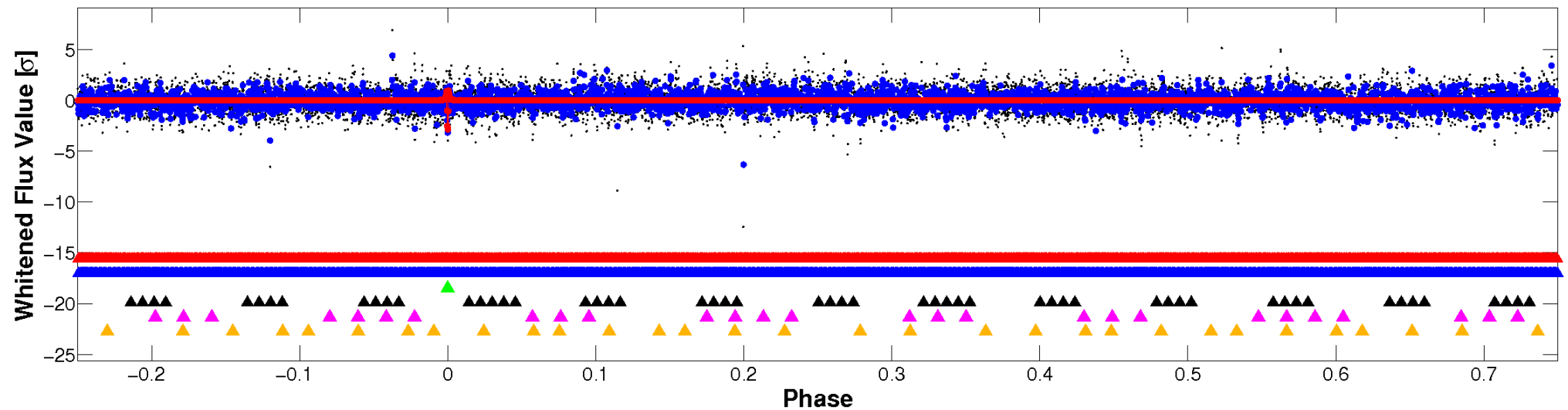
This plot does not exist for this TCE.

Non-Whitened Vs. Whitened Light Curve

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

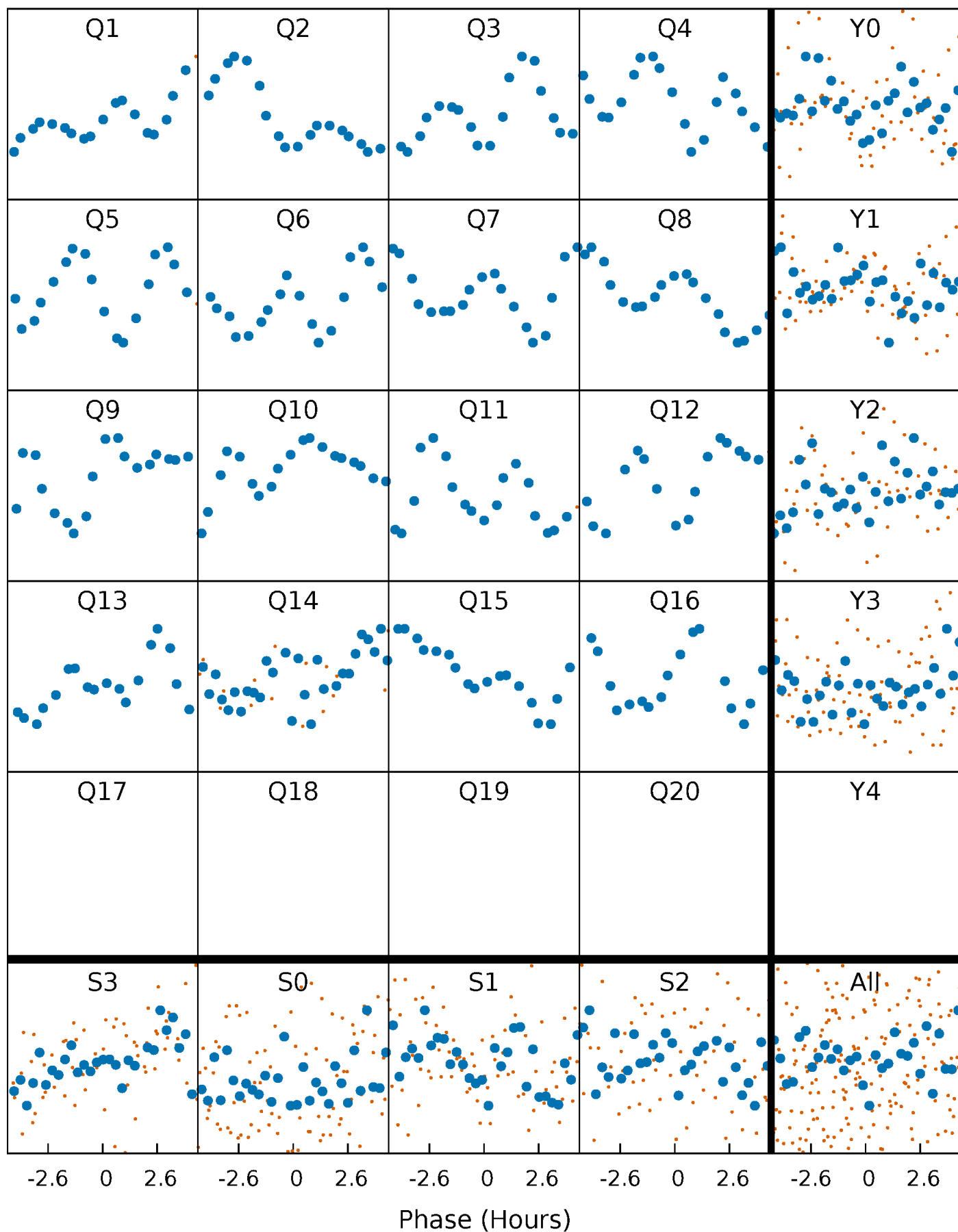


Planet 3 : Phased Whitened Flux Time Series (Fit Epoch/Period)



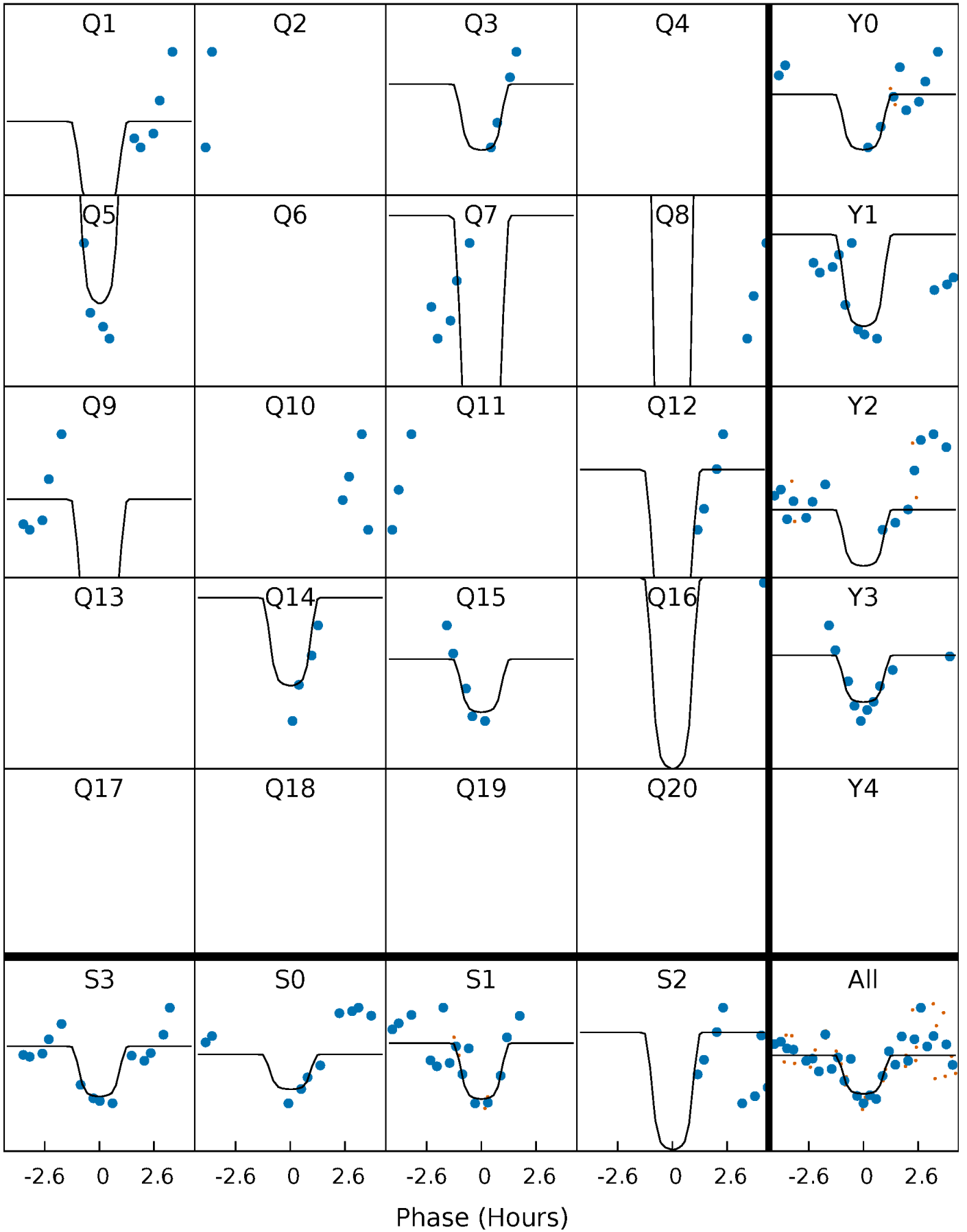
PDC Quarter-Phased Transit Curves

TCE 006381306-03 P= 87.531602 Days $T_0=141.502800$ (BKJD)



DV Quarter-Phased Transit Curves

TCE 006381306-03 P= 87.531602 Days $T_0=141.502800$ (BKJD)

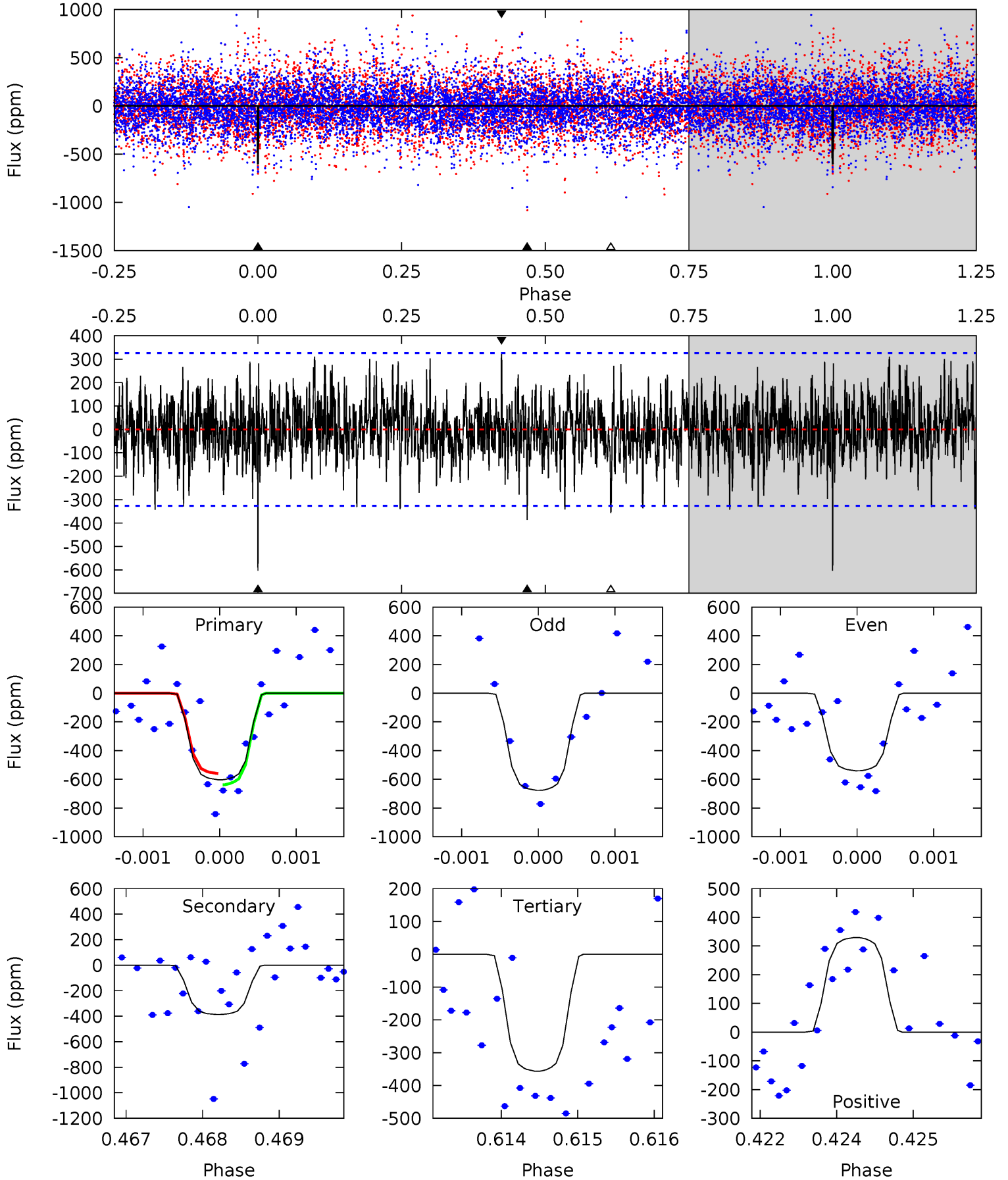


This plot does not exist for this TCE.

DV Model-Shift Uniqueness Test

006381306-03, P = 87.531602 Days, E = 53.971198 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
10.1	6.44	5.94	5.49	5.43	3.26	1.68	4.11	4.56	0.50	0.95	1.13	0.85	0.35	0.66



Alt Model-Shift Uniqueness Test

This plot does not exist for this TCE.

Stellar Parameters For KIC 006381306

	$T_{\text{eff}} (K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	8283^{+236}_{-324}	$3.700^{+0.493}_{-0.087}$	$-0.420^{+0.200}_{-0.300}$	$3.245^{+0.545}_{-1.635}$	$1.927^{+0.206}_{-0.471}$	$0.079^{+0.406}_{-0.027}$
	+3%/-4%	+13%/-2%	+48%/-71%	+17%/-50%	+11%/-24%	+511%/-34%
Source	KIC0	KIC0	KIC0	DSEP		

KIC = Kepler Input Catalog; PHO = Photometry; SPE = Spectroscopy; AST = Asteroseismology
 TRA = Transits; DESP = Dartmouth Models; MULT = Multiple Models

Secondary Eclipse Parameters for KIC 006381306-03 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-387 ± 60	$8.04^{+4.30}_{-3.64}$	1283^{+92}_{-176}	6994^{+2498}_{-1196}	736^{+1668}_{-412}
Alt.	N/A	N/A	N/A	N/A	N/A

T_{max} = Theoretical Maximum Planetary Temperature

T_{obs} = Observed Planetary Temperature (Assuming A=0.3)

A_{obs} = Observed Albedo (Assuming T=0)

If a secondary eclipse is present, the system is likely an EB if $T_{obs} \gg T_{max}$ AND $A_{obs} \gg 1.0$

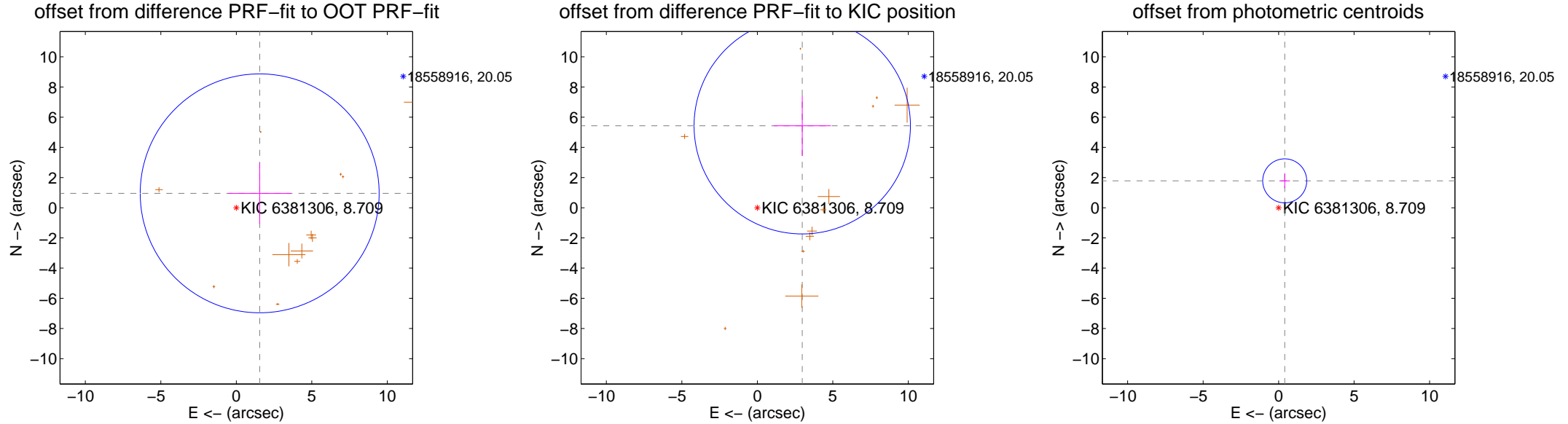
DV Centroid Data

Supplemental centroid analysis for 006381306-03. **Kepler magnitude: 8.71.** Transit SNR 9.11

There are 0 quarters with good PRF difference image offsets

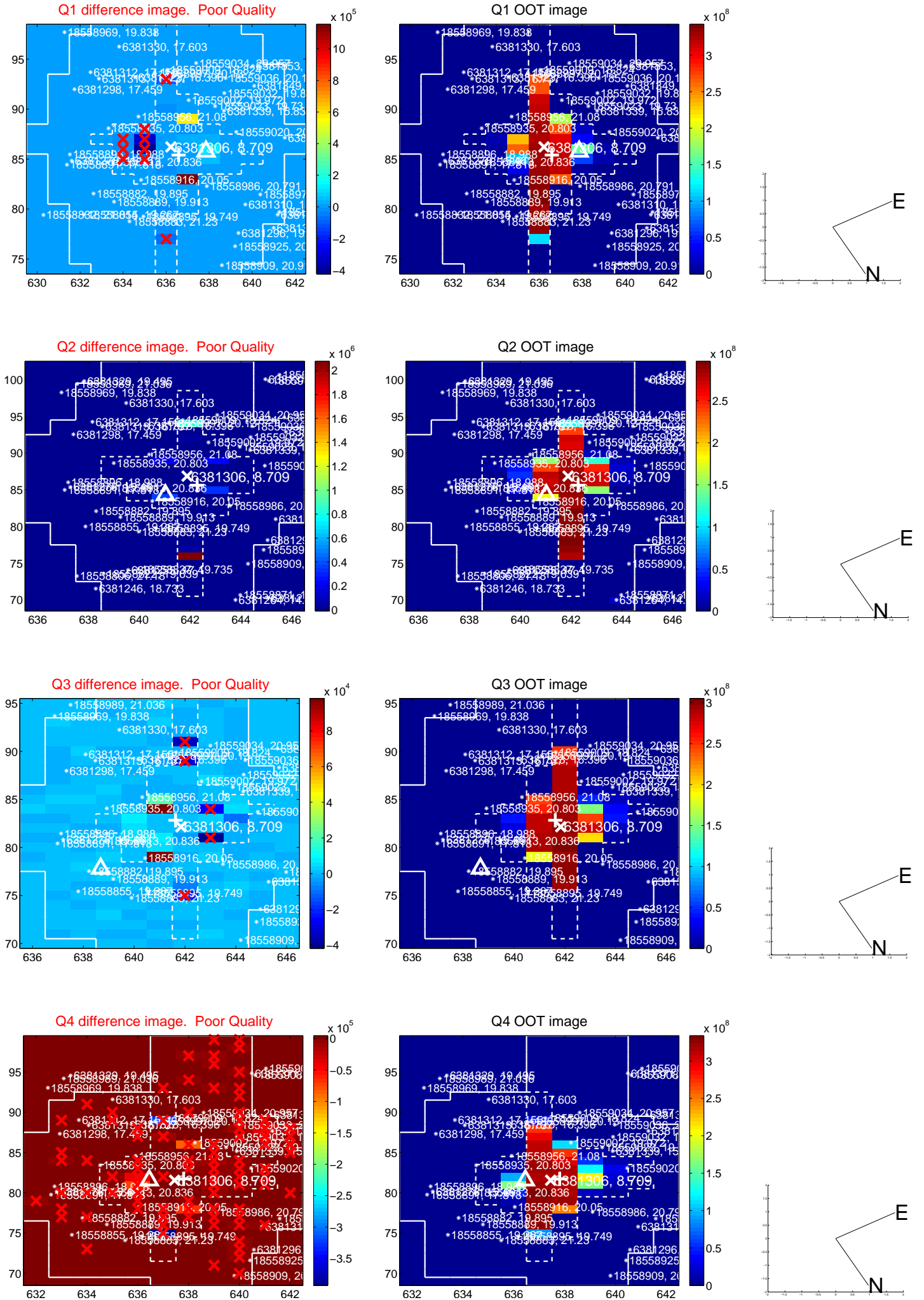
The OOT PRF centroid is offset from the target star catalog position by about 2.02 arcsec so the offset from difference PRF-fit to OOT-fit may be invalid.

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	1.818 ± 2.637	0.69	-1.547 ± 2.088	0.955 ± 2.025
PRF-fit source offset from KIC position	6.190 ± 2.388	2.59	-2.974 ± 1.887	5.429 ± 1.988
photometric centroid source offset	1.83 ± 0.49	3.76	-0.40 ± 0.35	1.78 ± 0.49

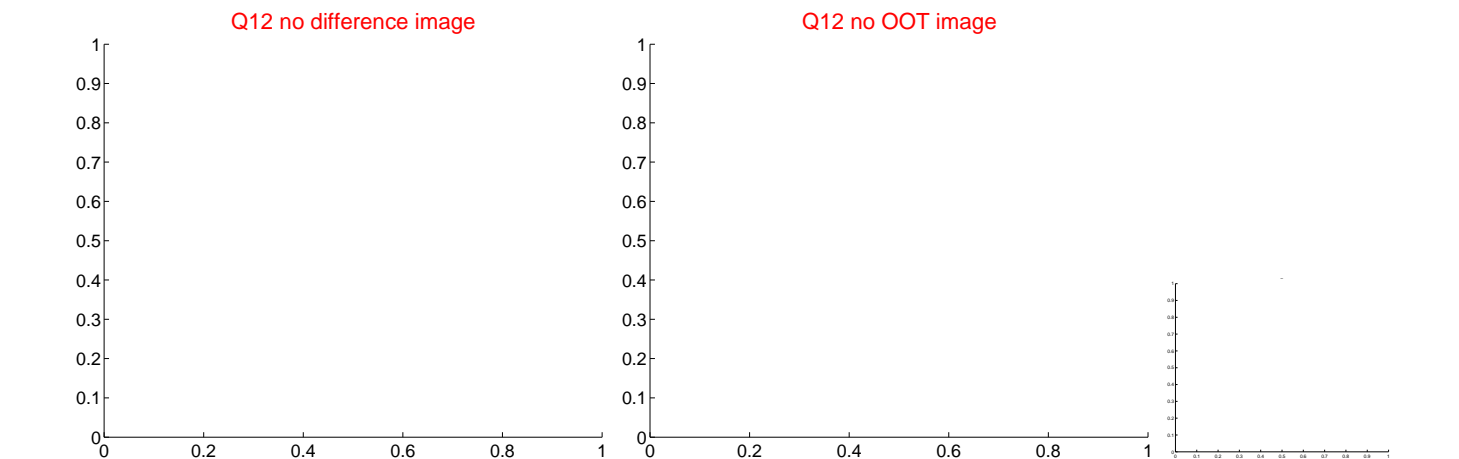
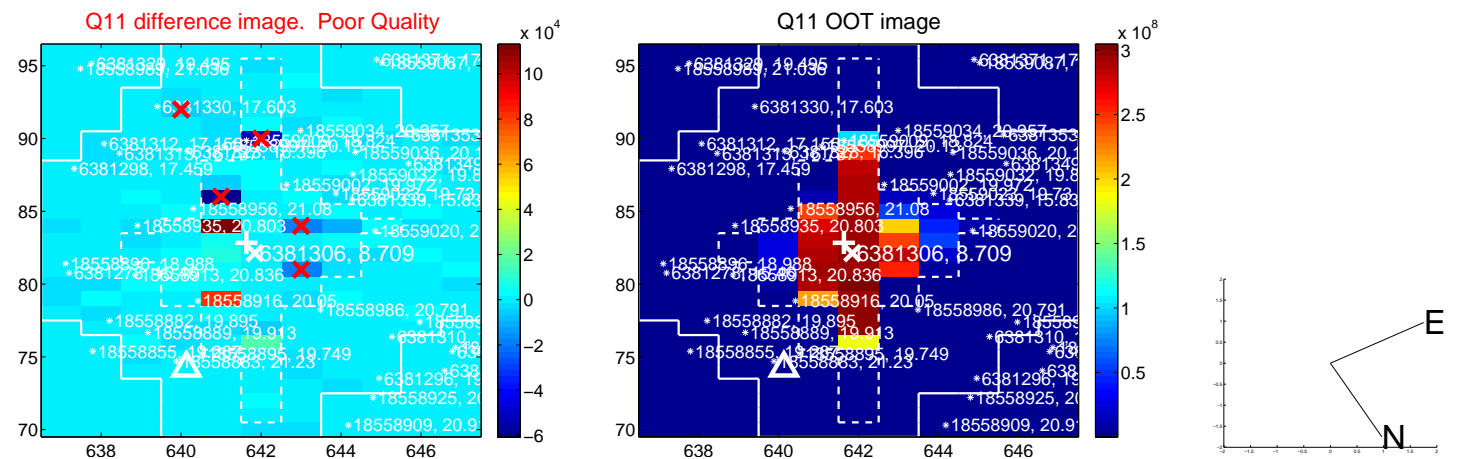
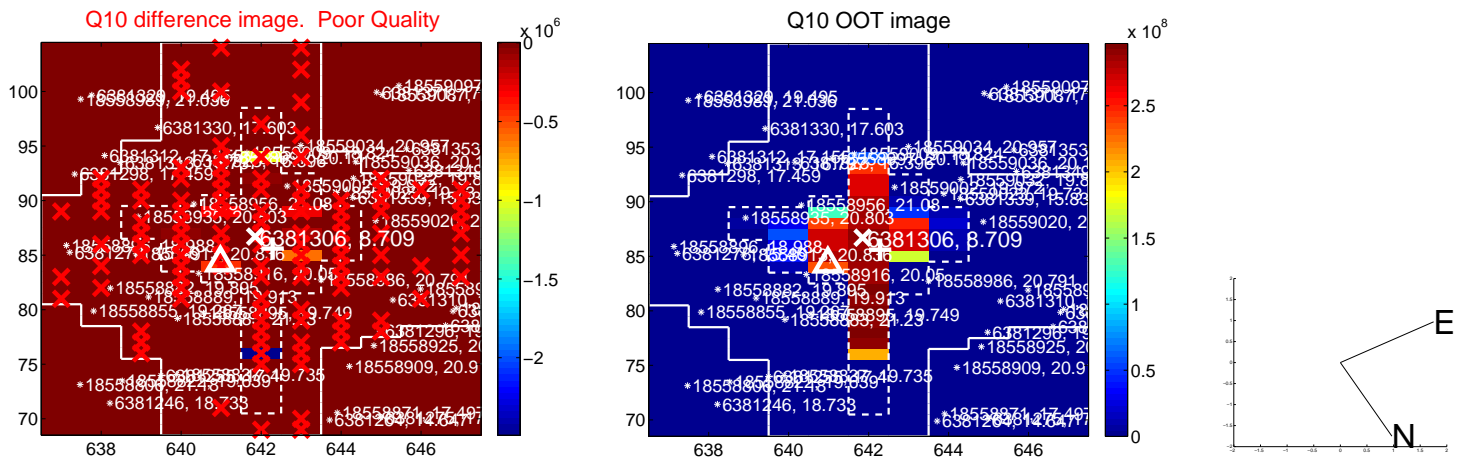
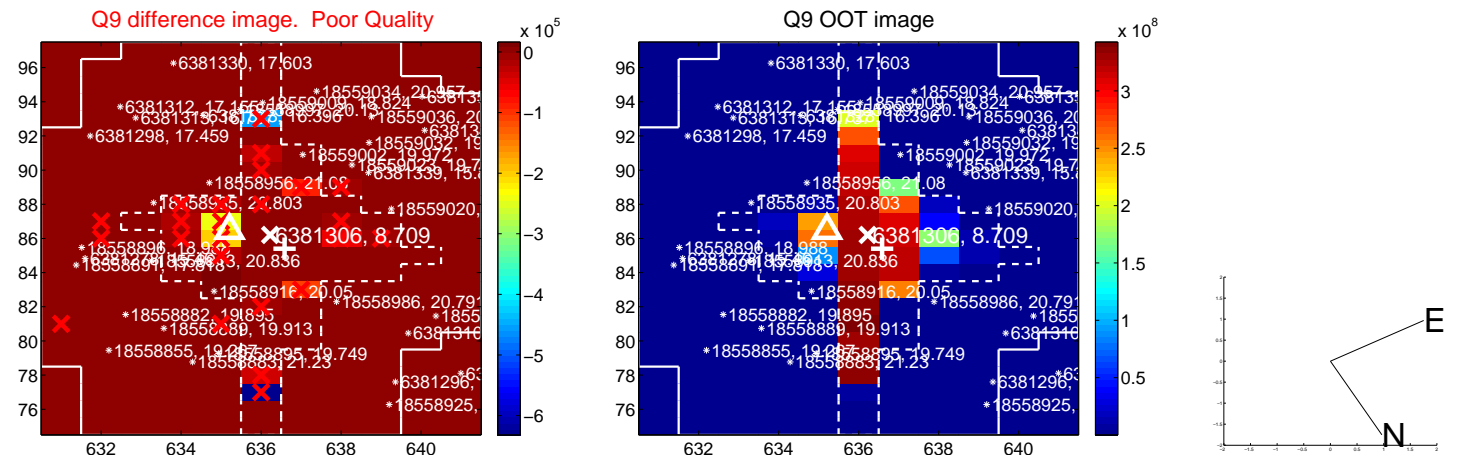


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

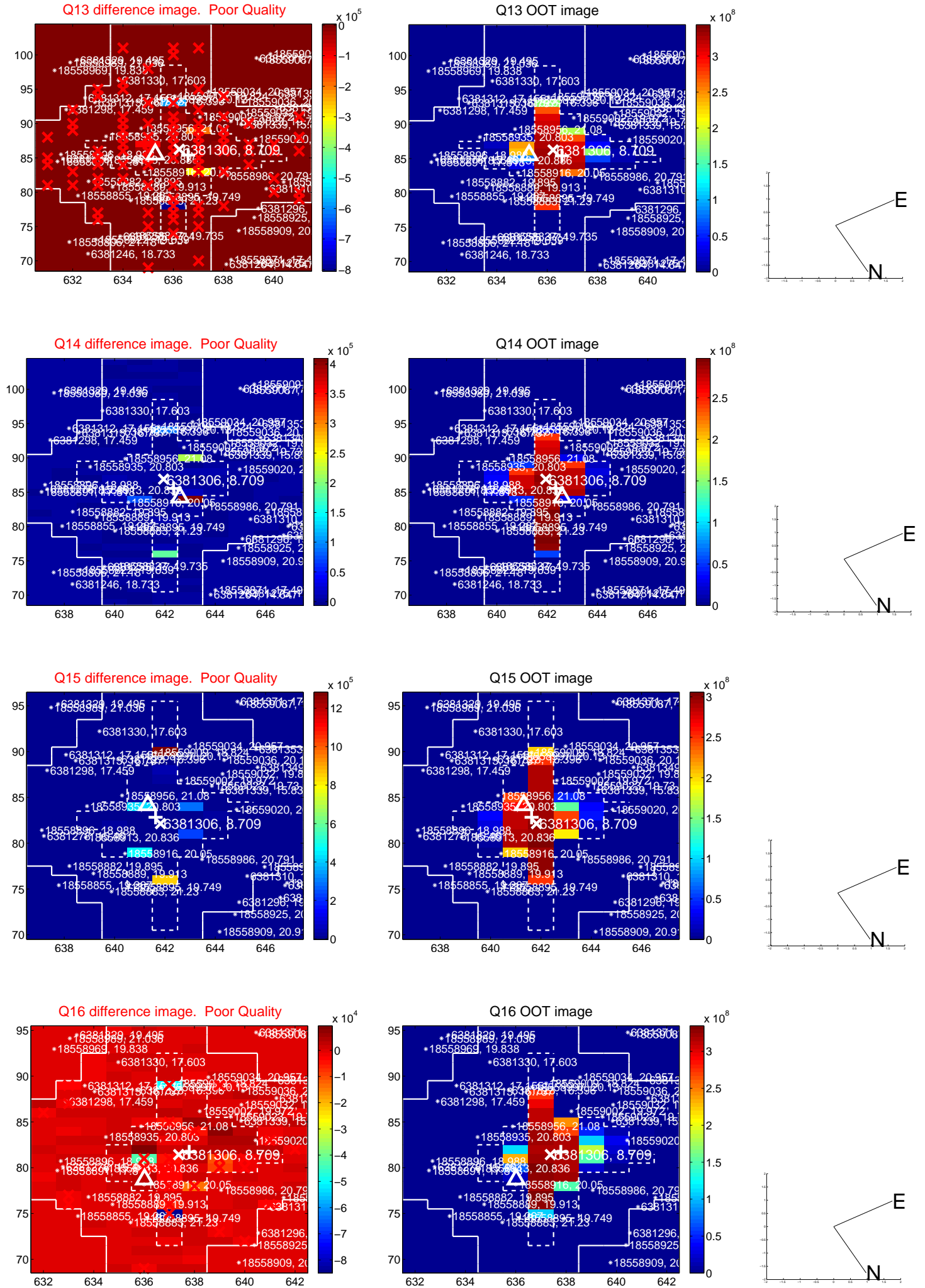
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



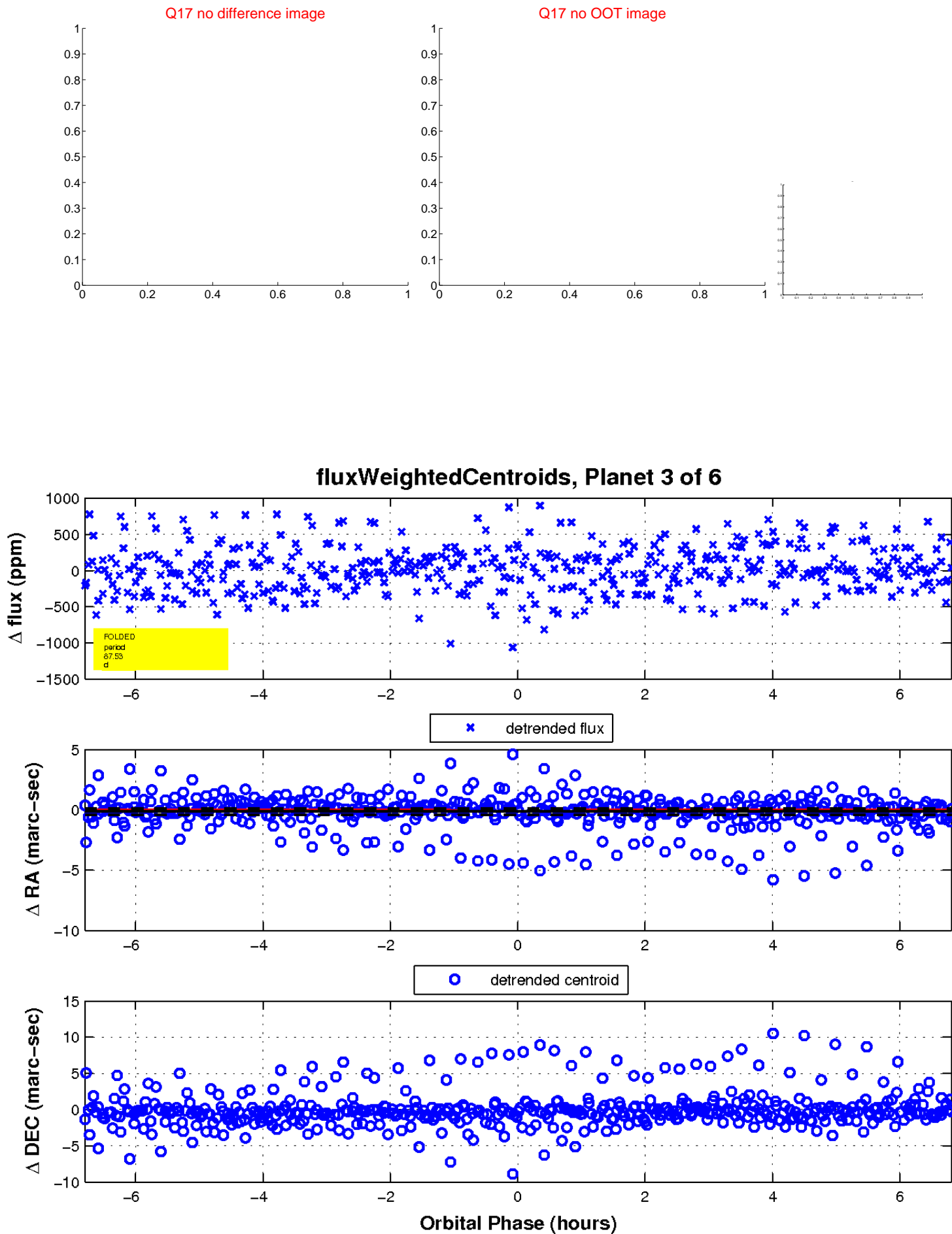
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



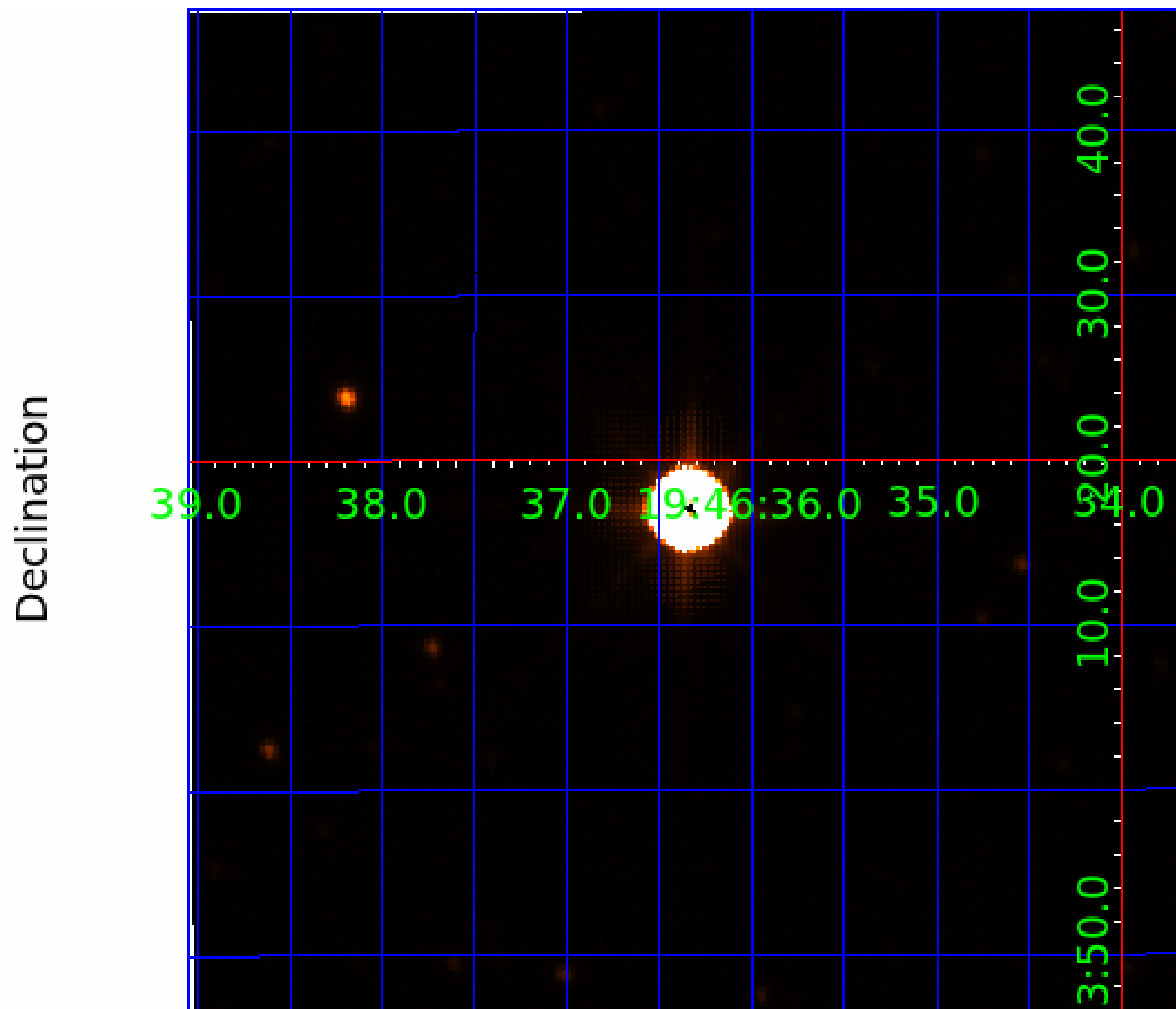
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



UKIRT Image



KIC 006381306

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})
006381306-01	OBS	No	0.528730	131.727439	17.2	1.844	8.1	7.2	3.25	8283	1.57	175176.55
006381306-02	OBS	No	0.528730	131.917470	31.2	1.800	11.9	10.6	3.25	8283	2.11	175176.60
006381306-03	OBS	No	87.531602	141.502800	600.9	2.274	10.2	9.1	3.25	8283	9.25	192.71
006381306-04	OBS	No	26.880126	145.501778	418.7	4.846	8.7	8.6	3.25	8283	12.56	930.14
006381306-05	OBS	No	54.916165	134.528631	540.0	4.496	8.9	8.4	3.25	8283	9.45	358.80
006381306-06	OBS	No	47.476210	131.745980	23.4	5.000	7.7	-1.0	3.25	8283	1.59	435.67

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
006381306-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—CENT_SATURATED
006381306-02	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—SAME_NTL_PERIOD—CENT_SATURATED
006381306-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—CENT_SATURATED
006381306-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_ALT—CENT_SATURATED
006381306-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_POS_ALT—CENT_SATURATED
006381306-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED

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

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

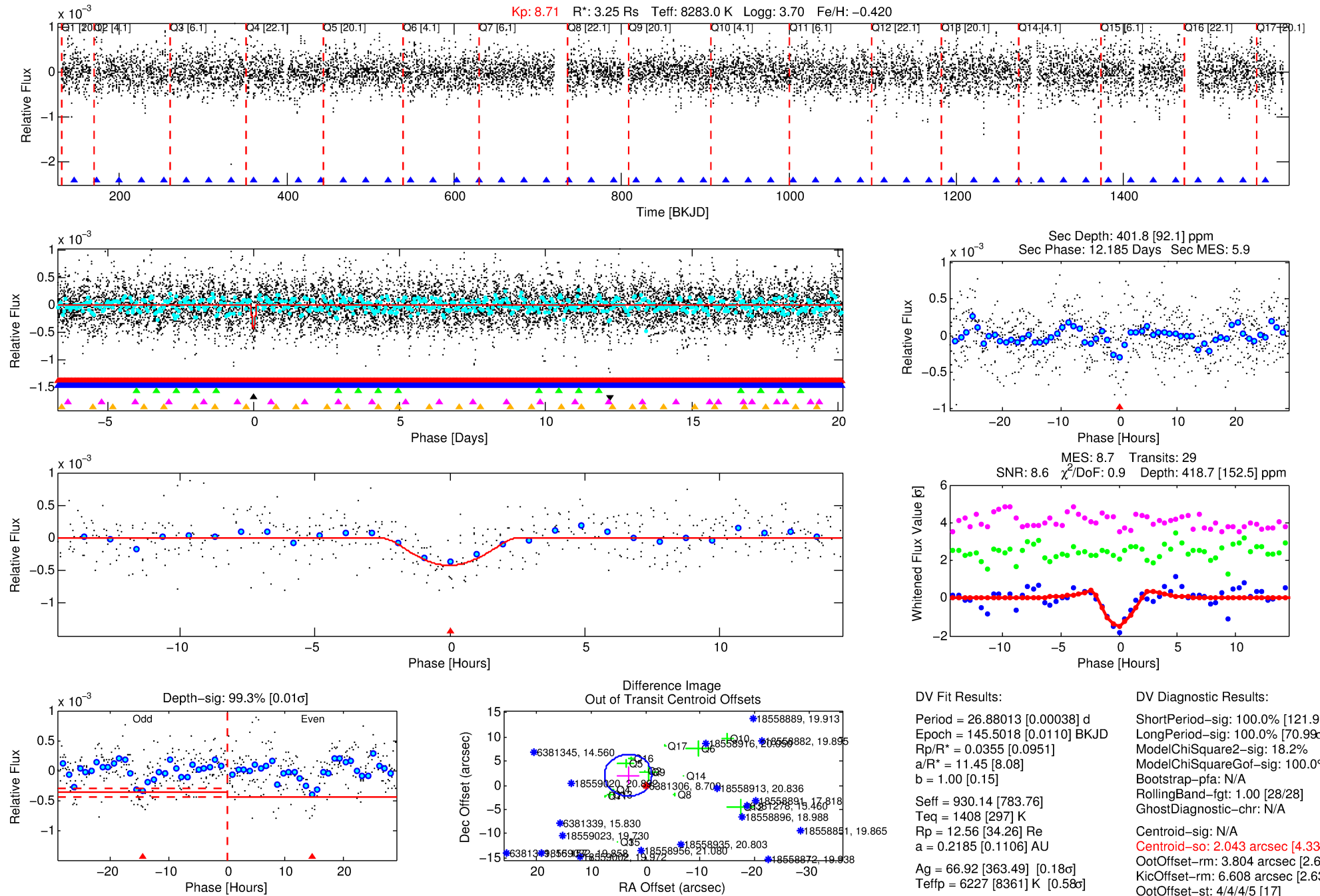
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 006381306-04

No Significant Match Found

DV One-Page Summary

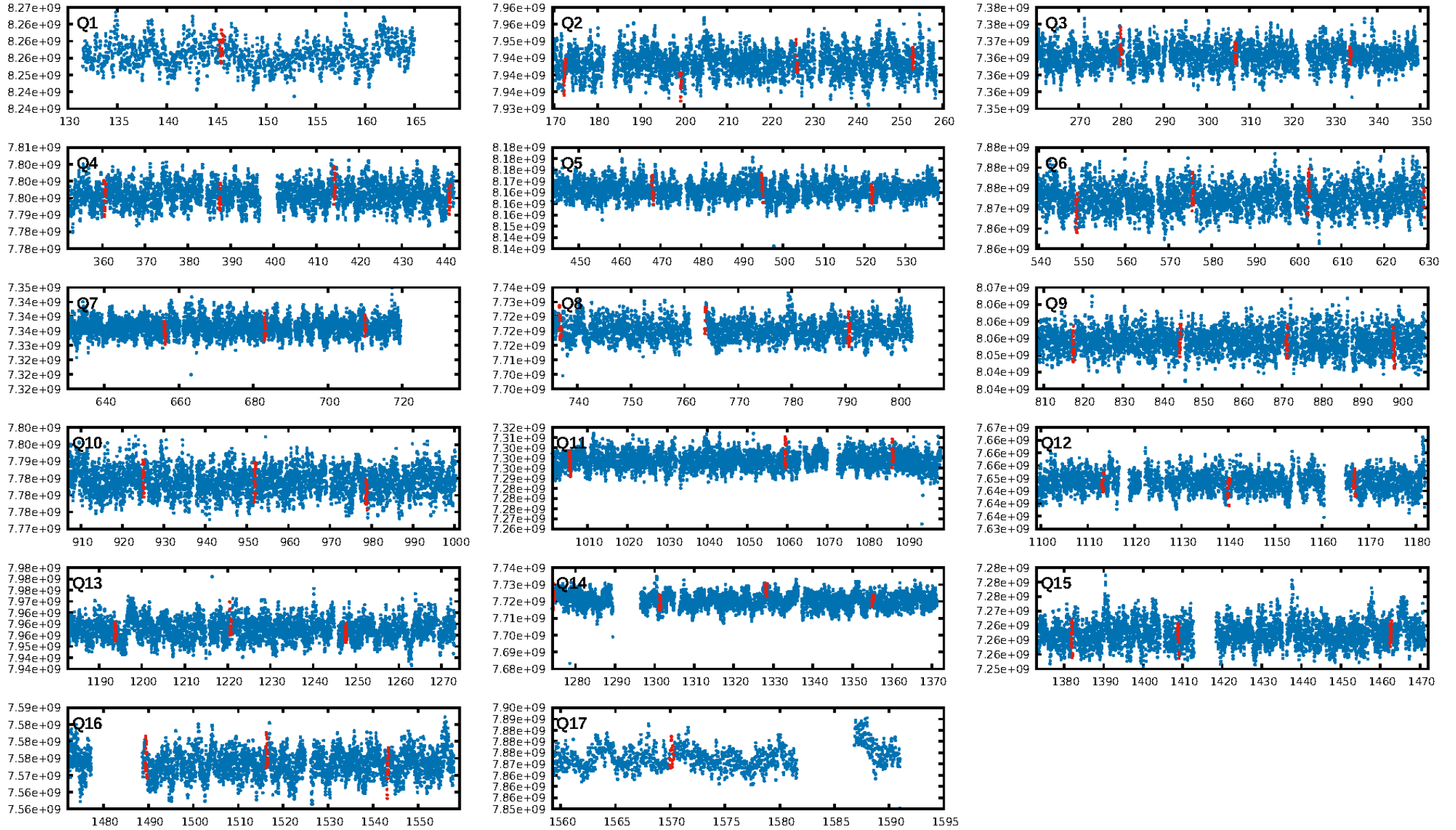
KIC: 6381306 Candidate: 4 of 6 Period: 26.880 d



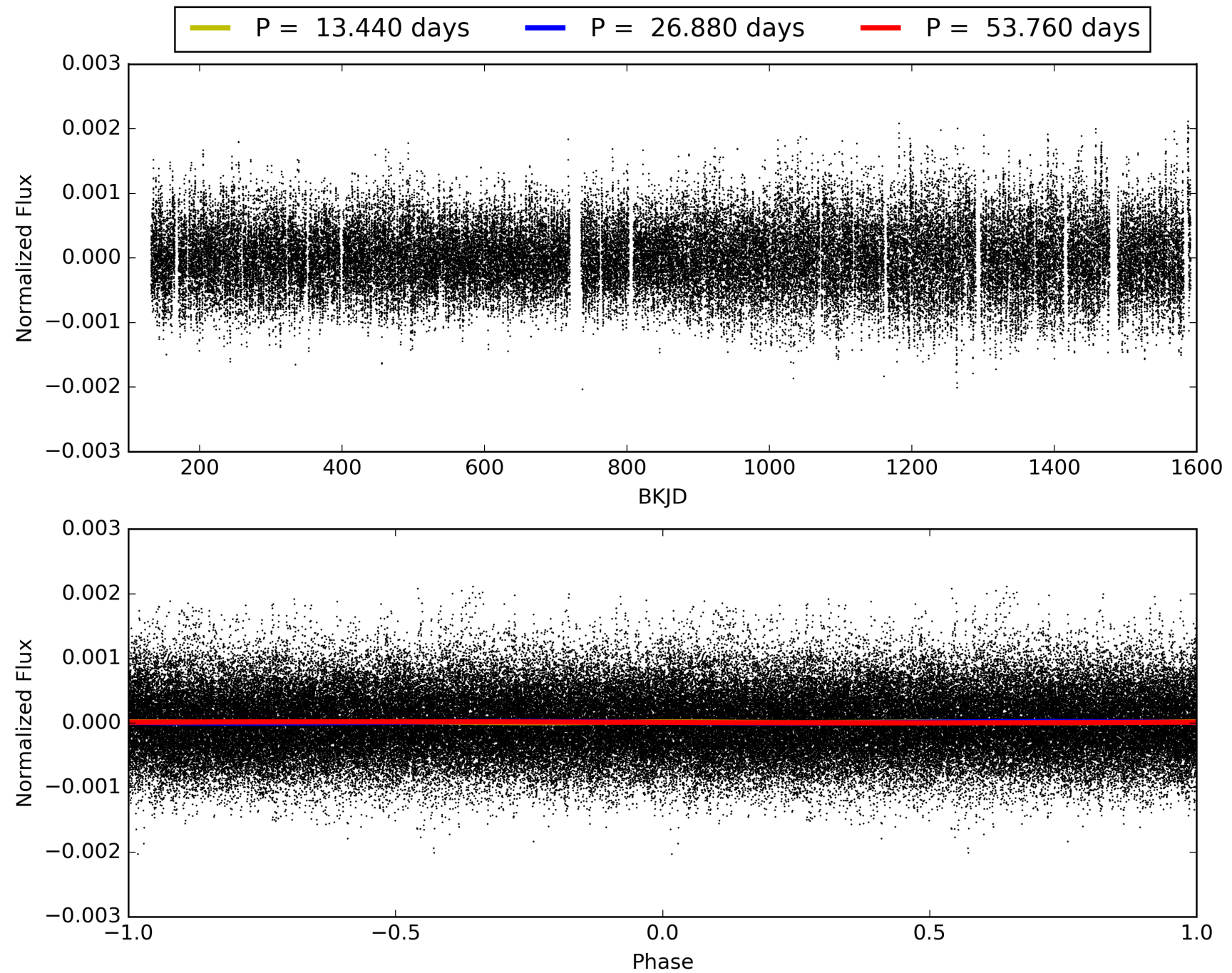
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 03-Feb-2016 08:25:54 Z

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

TCE 006381306-04, PDC Light Curves

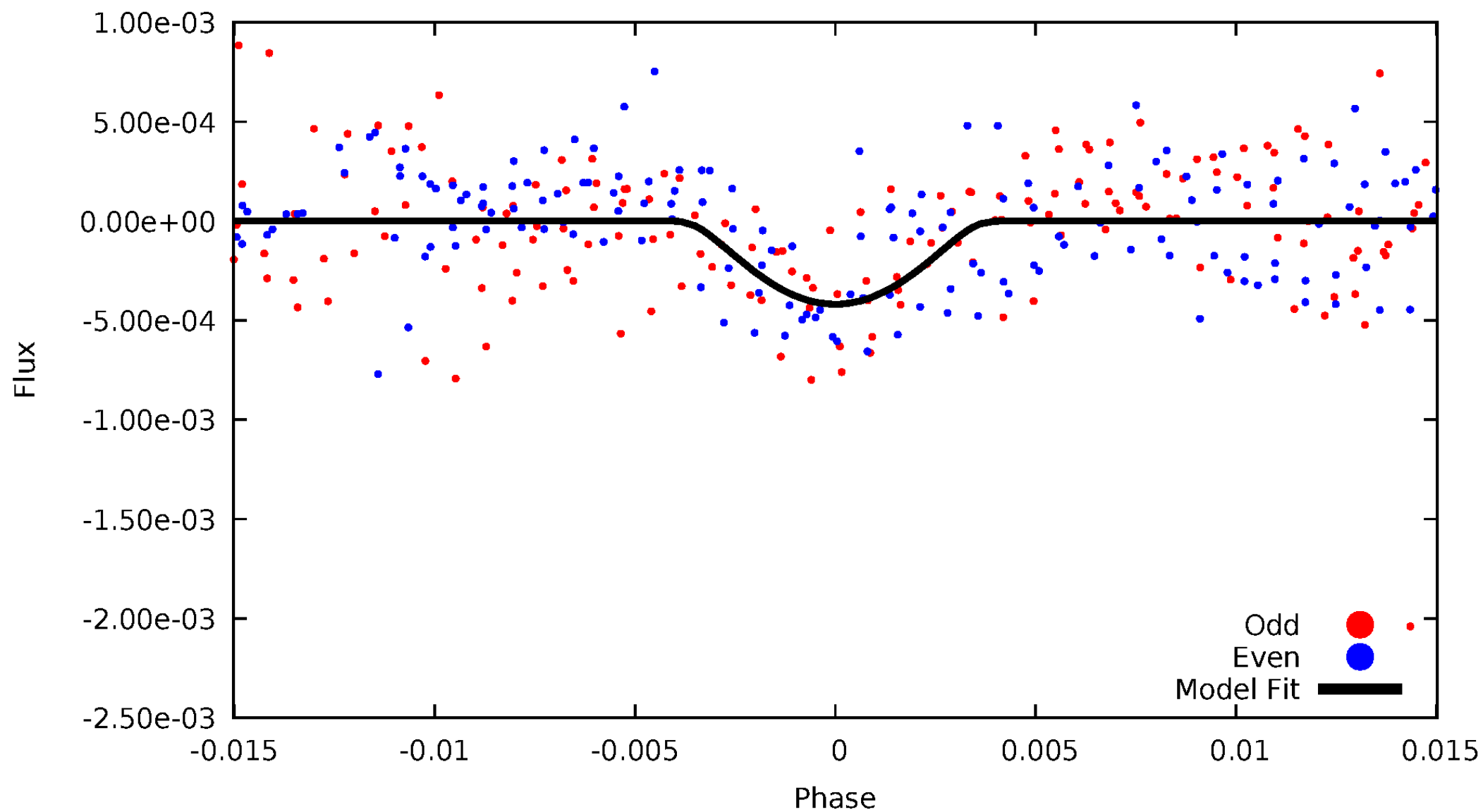


TCE 006381306-04



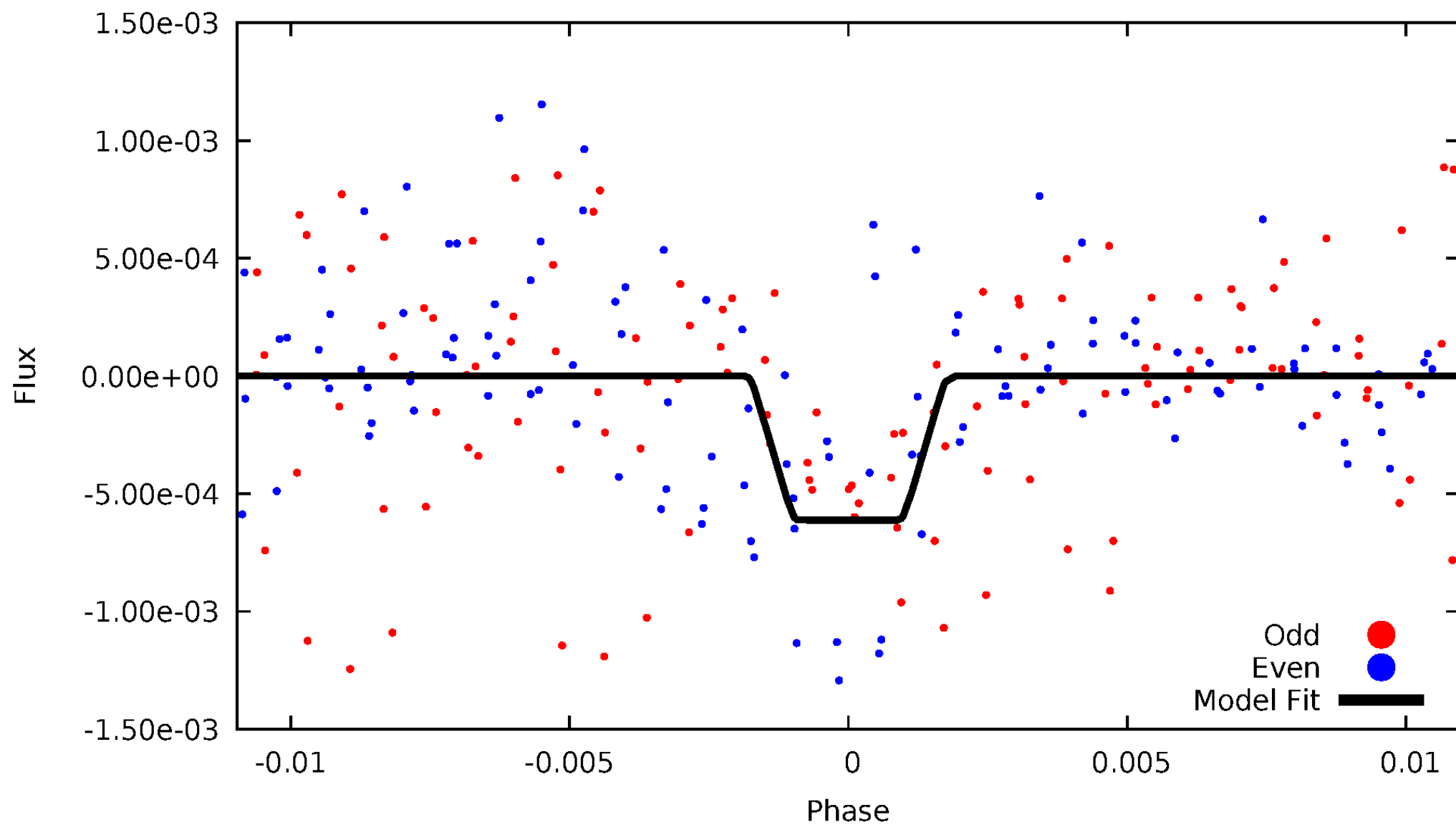
DV Odd/Even

TCE 006381306-04



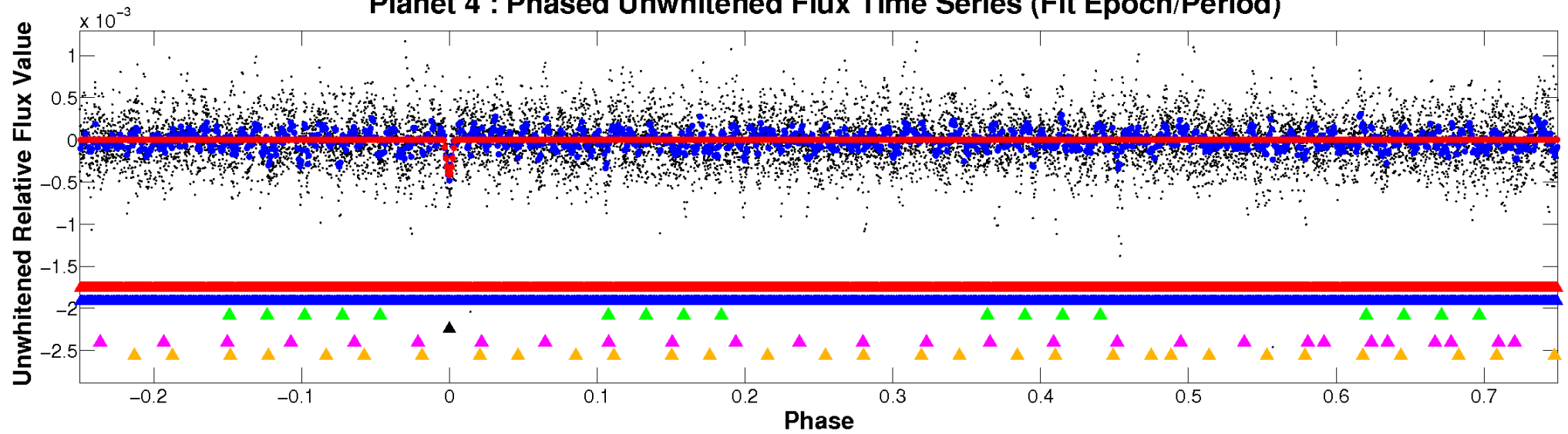
ALT Odd/Even

TCE 006381306-04

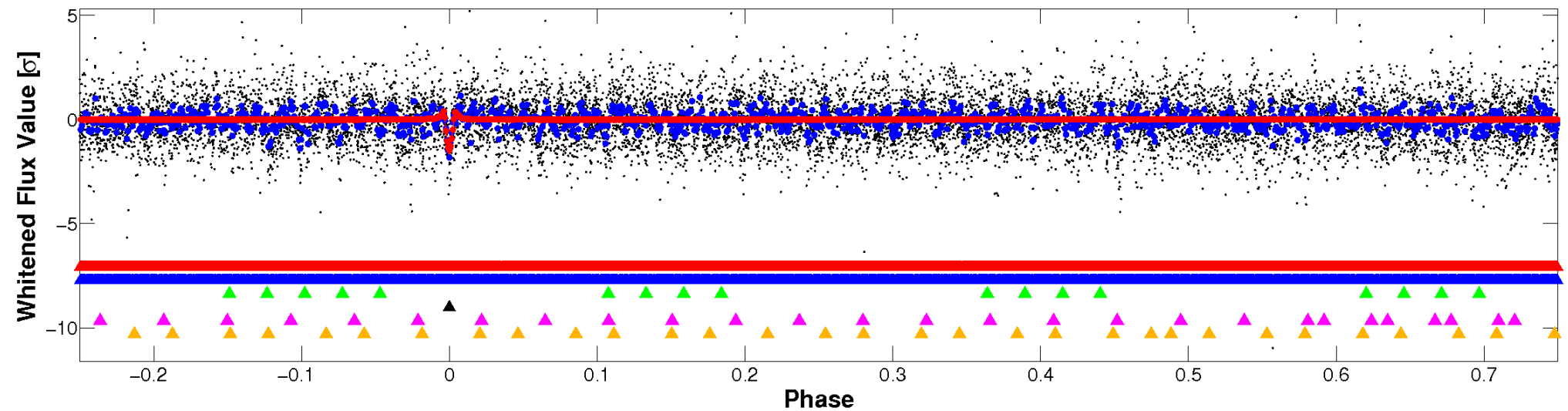


Non-Whitened Vs. Whitened Light Curve

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

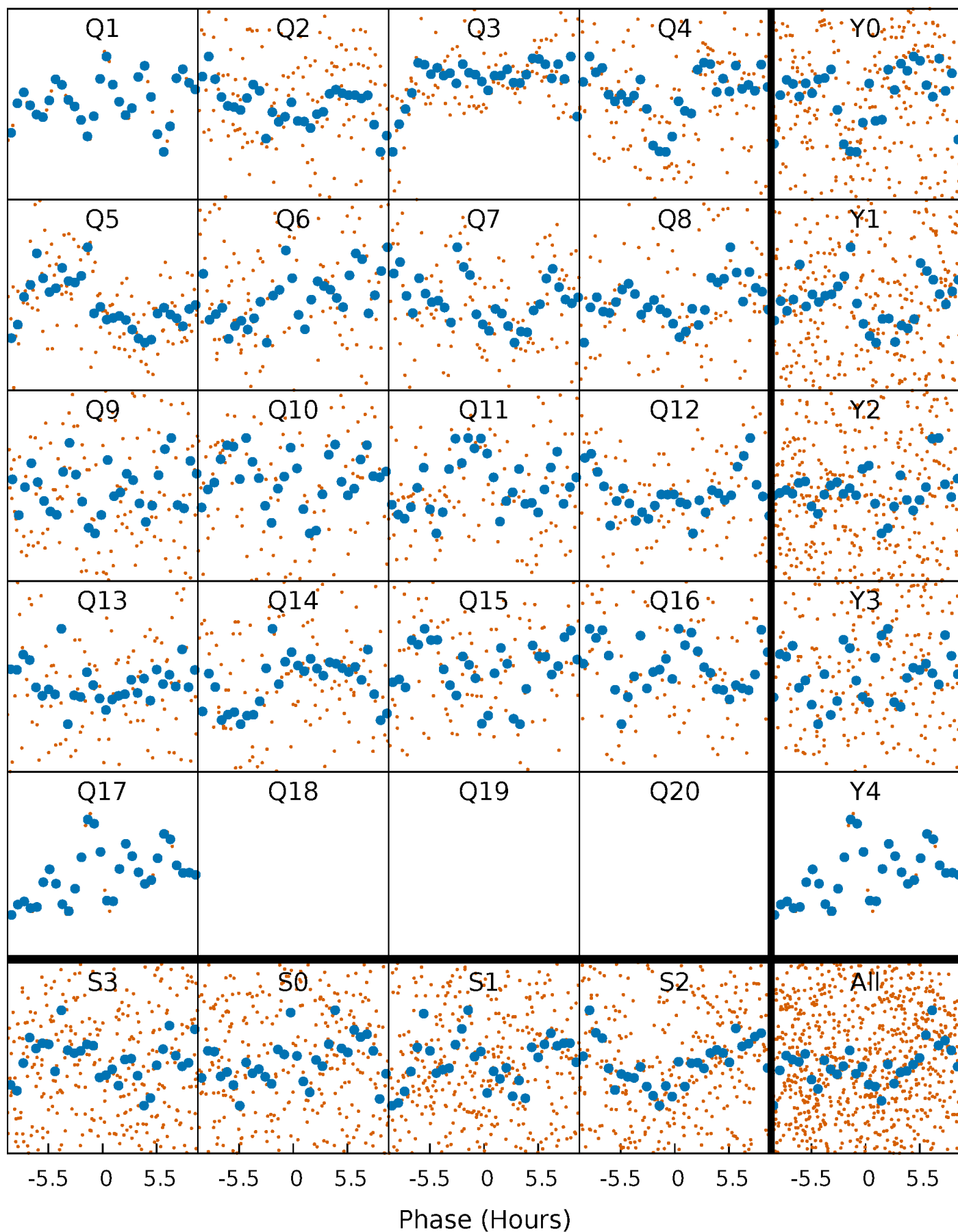


Planet 4 : Phased Whitened Flux Time Series (Fit Epoch/Period)



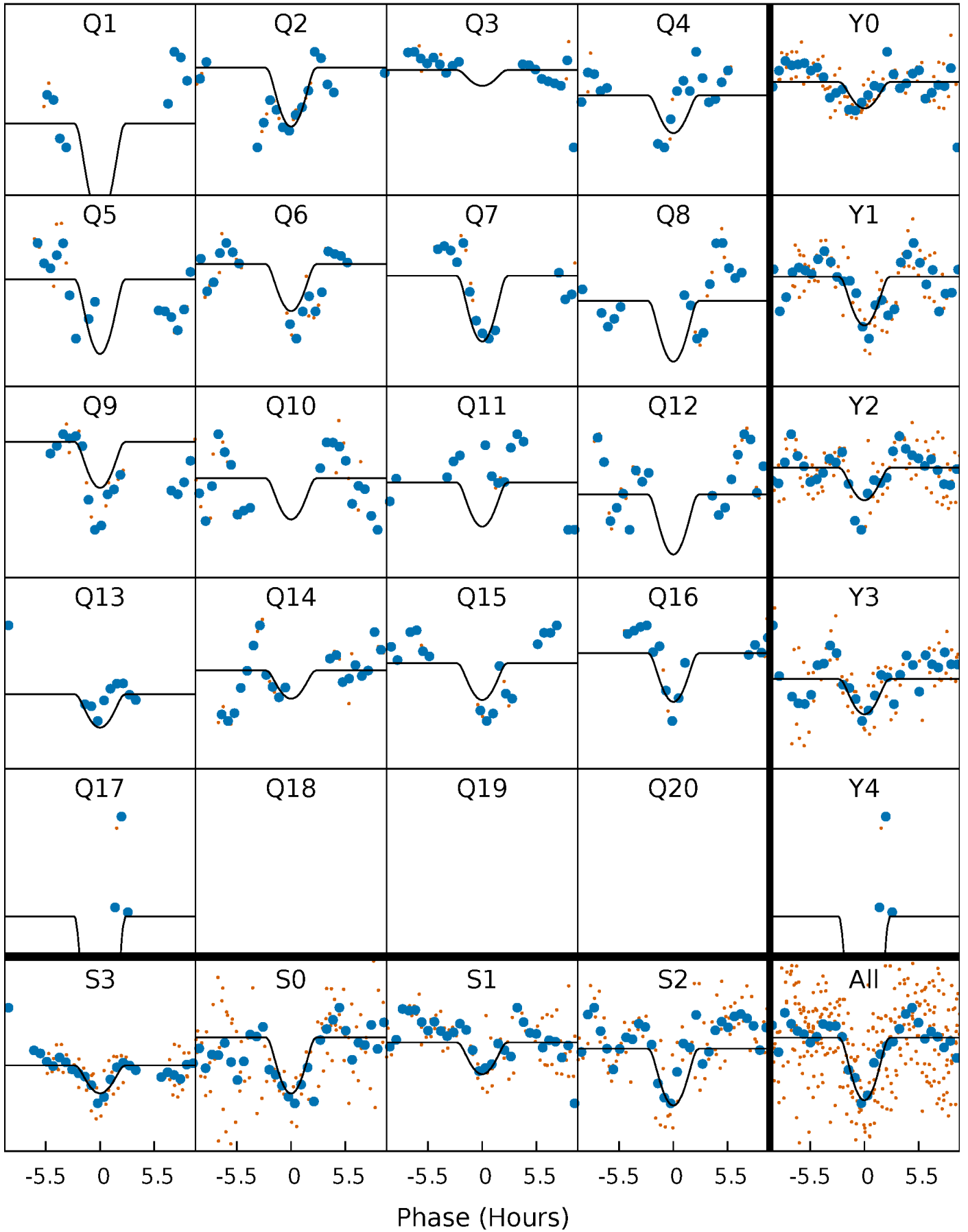
PDC Quarter-Phased Transit Curves

TCE 006381306-04 P= 26.880126 Days $T_0=145.501778$ (BKJD)



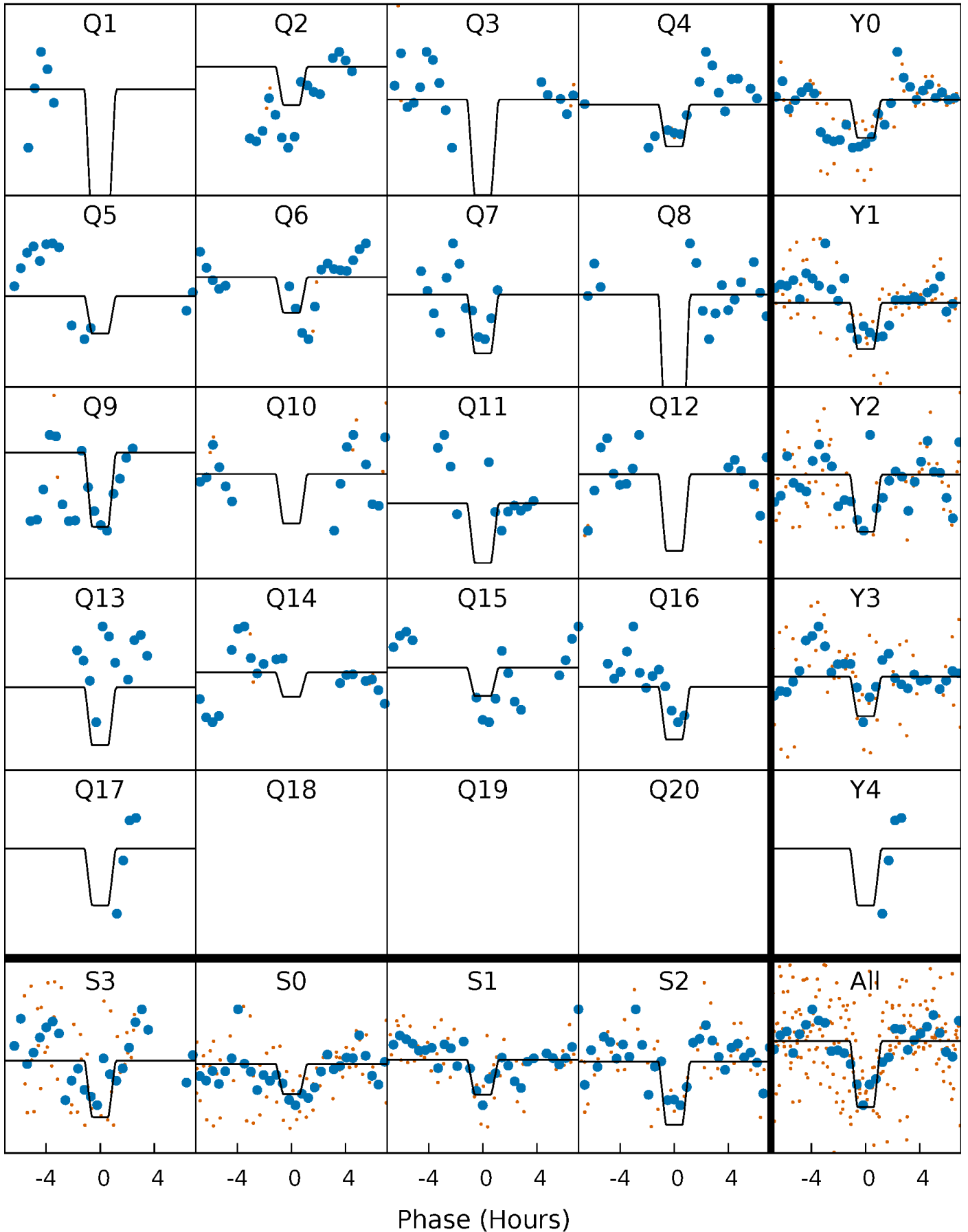
DV Quarter-Phased Transit Curves

TCE 006381306-04 P= 26.880126 Days $T_0=145.501778$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

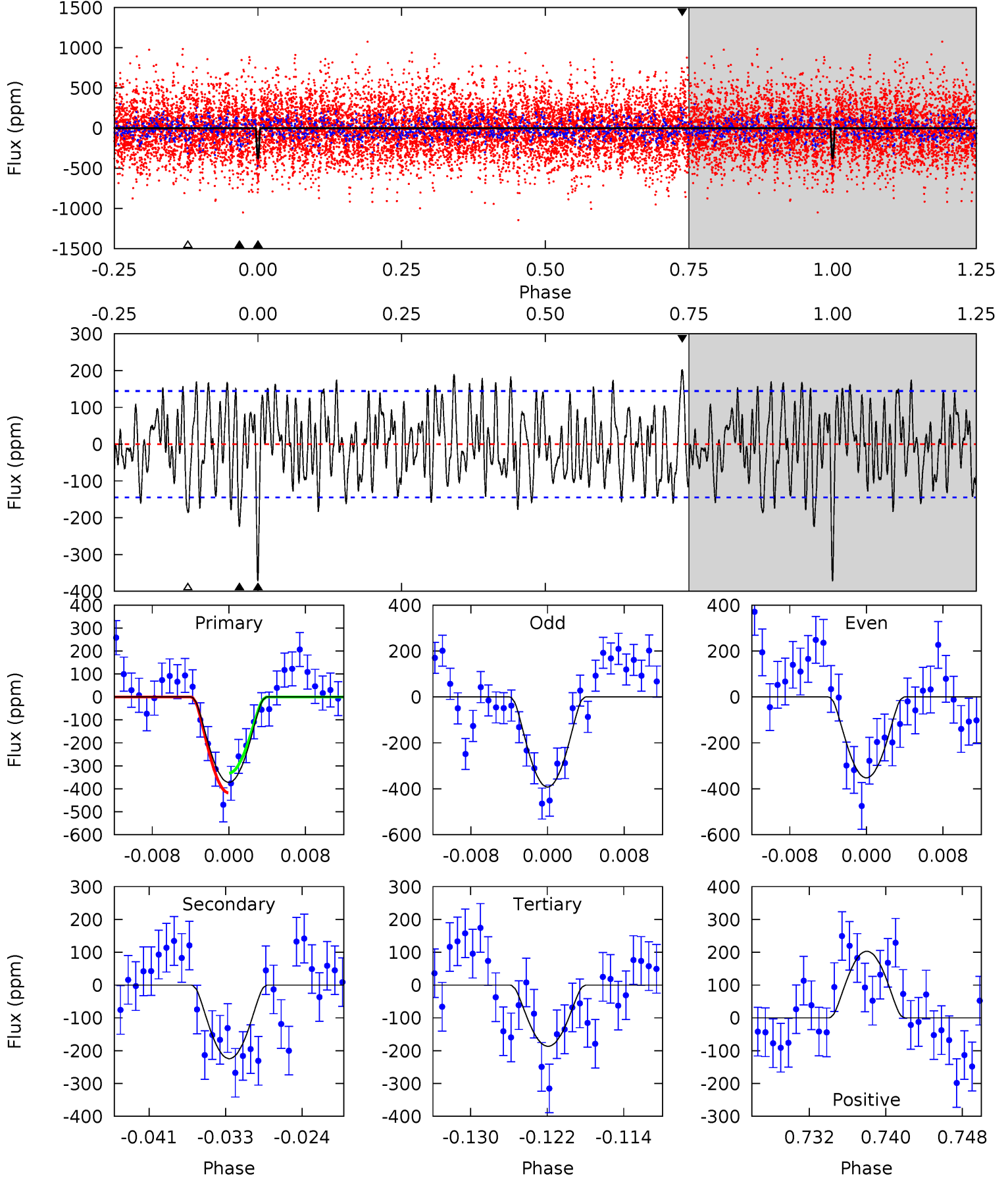
TCE 006381306-04 $P = 26.880408$ Days $T_0 = 145.495481$ (BKJD)



DV Model-Shift Uniqueness Test

006381306-04, P = 26.880126 Days, E = 118.621652 Days

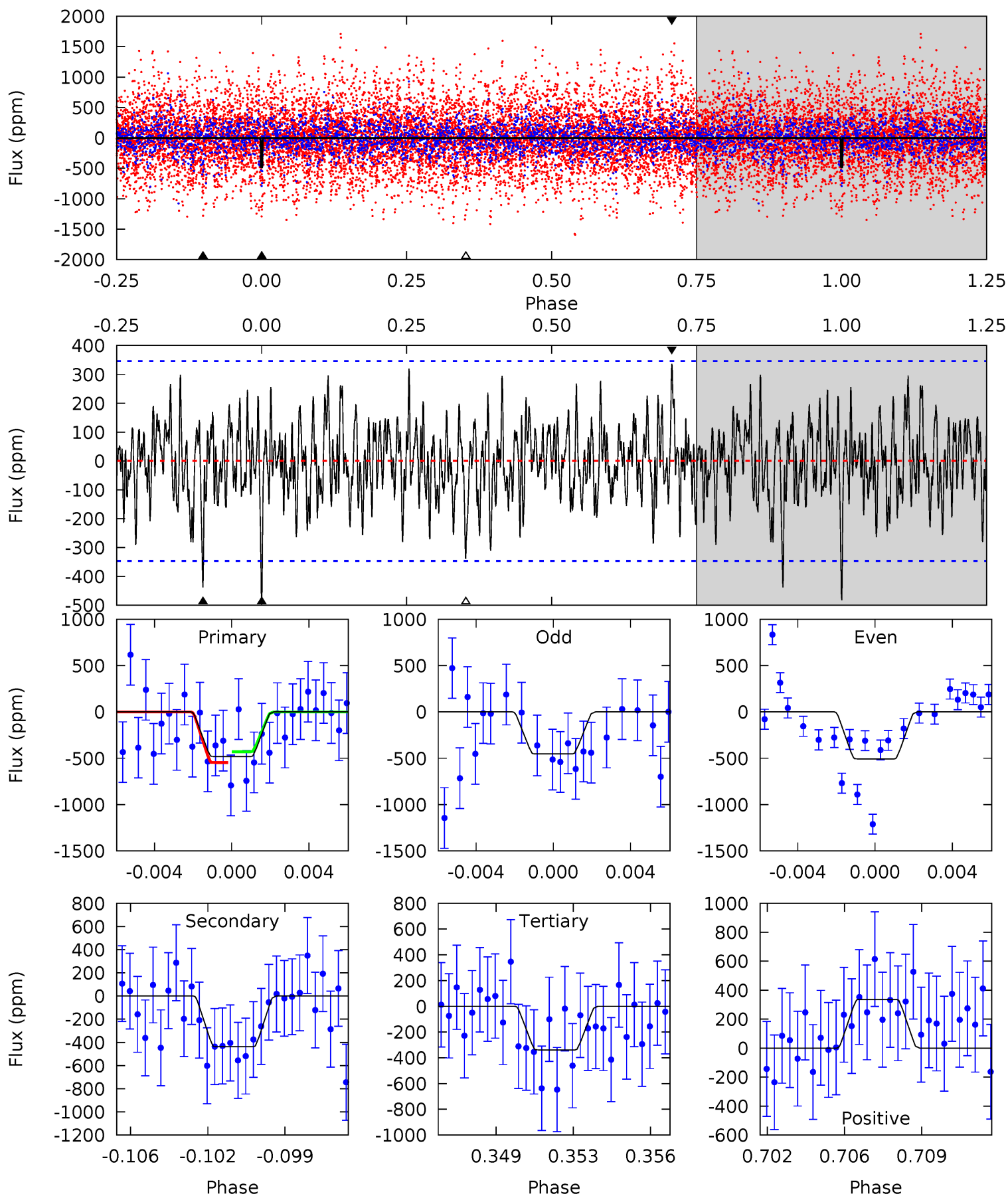
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
13.0	7.86	6.54	7.11	5.07	2.65	2.81	6.50	5.93	1.32	0.75	0.70	0.42	0.35	1.51



Alt Model-Shift Uniqueness Test

006381306-04, P = 26.880408 Days, E = 118.615073 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
7.27	6.60	5.11	5.07	5.22	2.92	1.67	2.16	2.20	1.49	1.53	0.42	1.02	0.41	0.88



Stellar Parameters For KIC 006381306

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	8283^{+236}_{-324}	$3.700^{+0.493}_{-0.087}$	$-0.420^{+0.200}_{-0.300}$	$3.245^{+0.545}_{-1.635}$	$1.927^{+0.206}_{-0.471}$	$0.079^{+0.406}_{-0.027}$
	+3%/-4%	+13%/-2%	+48%/-71%	+17%/-50%	+11%/-24%	+511%/-34%
Source	KIC0	KIC0	KIC0	DSEP		

KIC = Kepler Input Catalog; PHO = Photometry; SPE = Spectroscopy; AST = Asteroseismology
 TRA = Transits; DESP = Dartmouth Models; MULT = Multiple Models

Secondary Eclipse Parameters for KIC 006381306-04 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-224 ± 29	$22.42^{+25.95}_{-15.24}$	1903^{+136}_{-257}	3932^{+2321}_{-868}	11^{+103}_{-9}
Alt.	-438 ± 66	$22.82^{+24.12}_{-15.60}$	1904^{+134}_{-238}	4374^{+3324}_{-936}	22^{+190}_{-17}

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

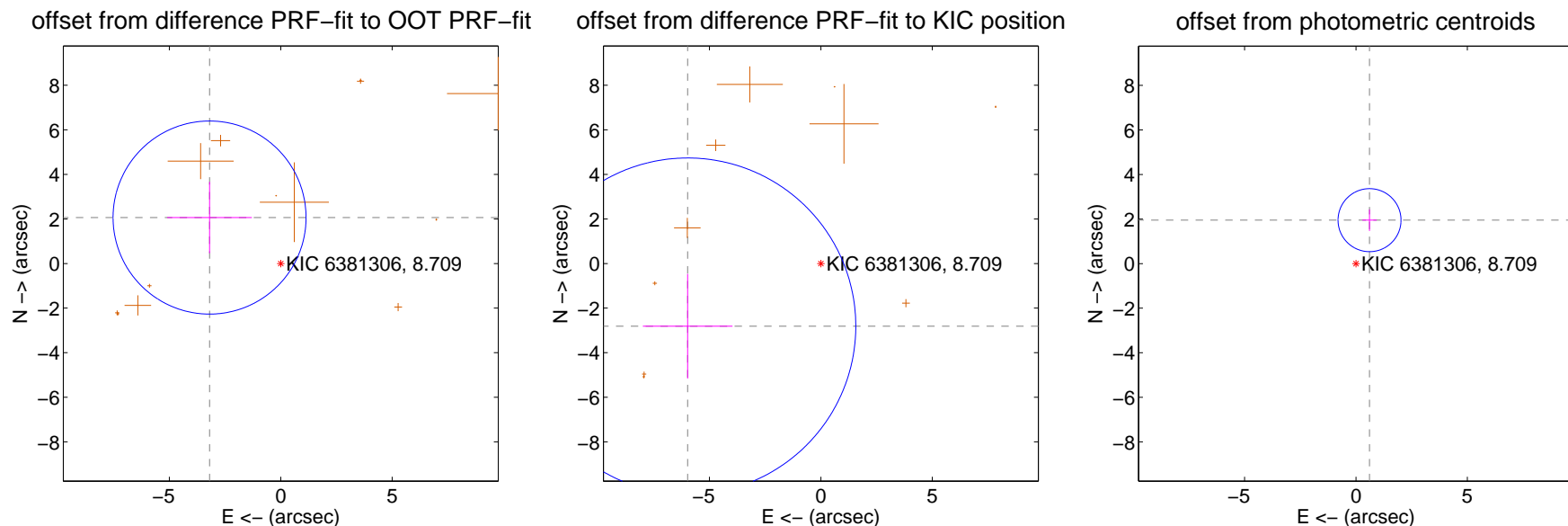
DV Centroid Data

Supplemental centroid analysis for 006381306-04. **Kepler magnitude: 8.71.** Transit SNR 8.63

There are 0 quarters with good PRF difference image offsets

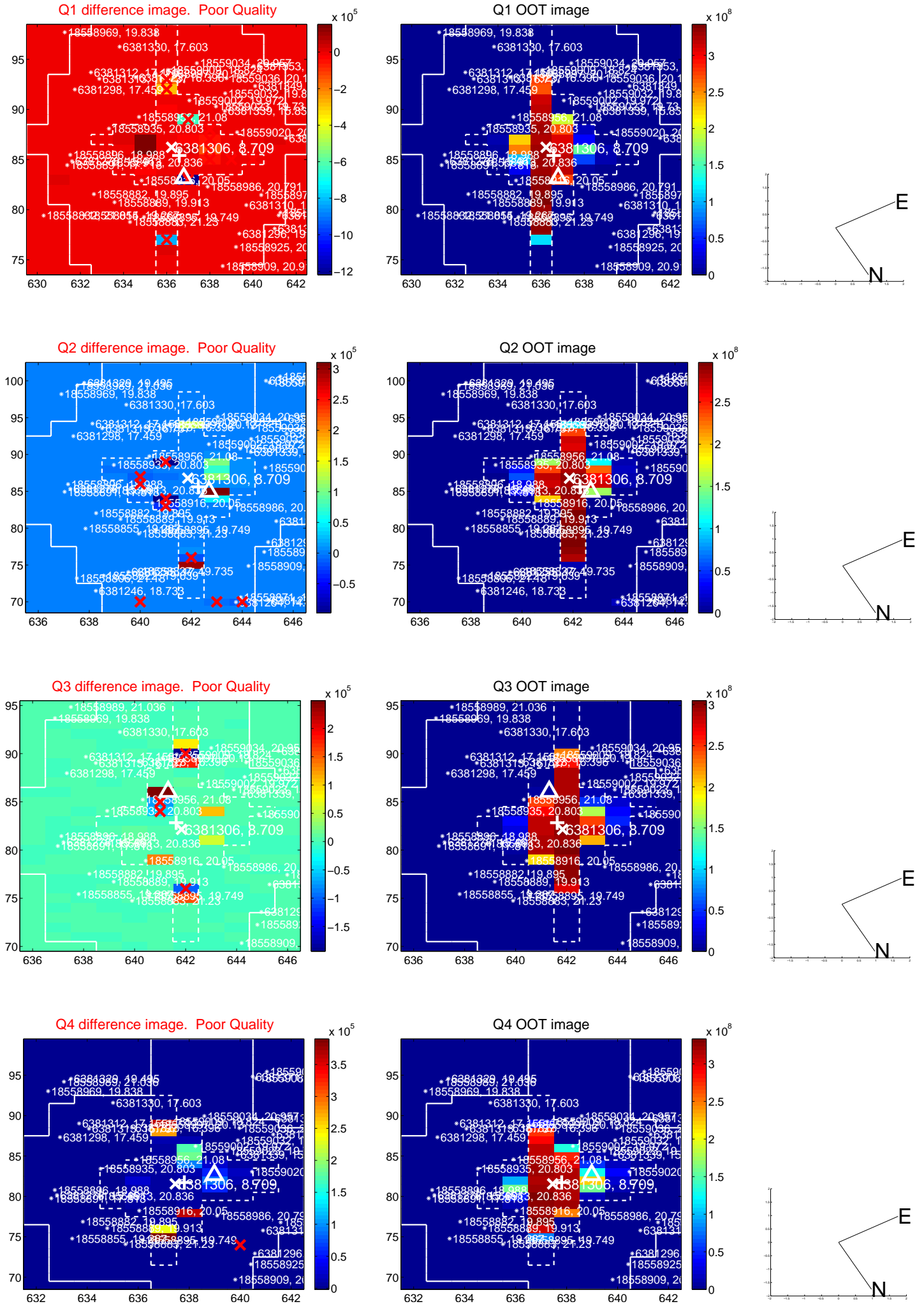
The OOT PRF centroid is offset from the target star catalog position by about 3.60 arcsec so the offset from difference PRF-fit to OOT-fit may be invalid.

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	3.804 ± 1.444	2.63	3.196 ± 1.902	2.063 ± 1.600
PRF-fit source offset from KIC position	6.608 ± 2.516	2.63	5.980 ± 2.013	-2.812 ± 2.347
photometric centroid source offset	2.04 ± 0.47	4.33	-0.61 ± 0.32	1.95 ± 0.48

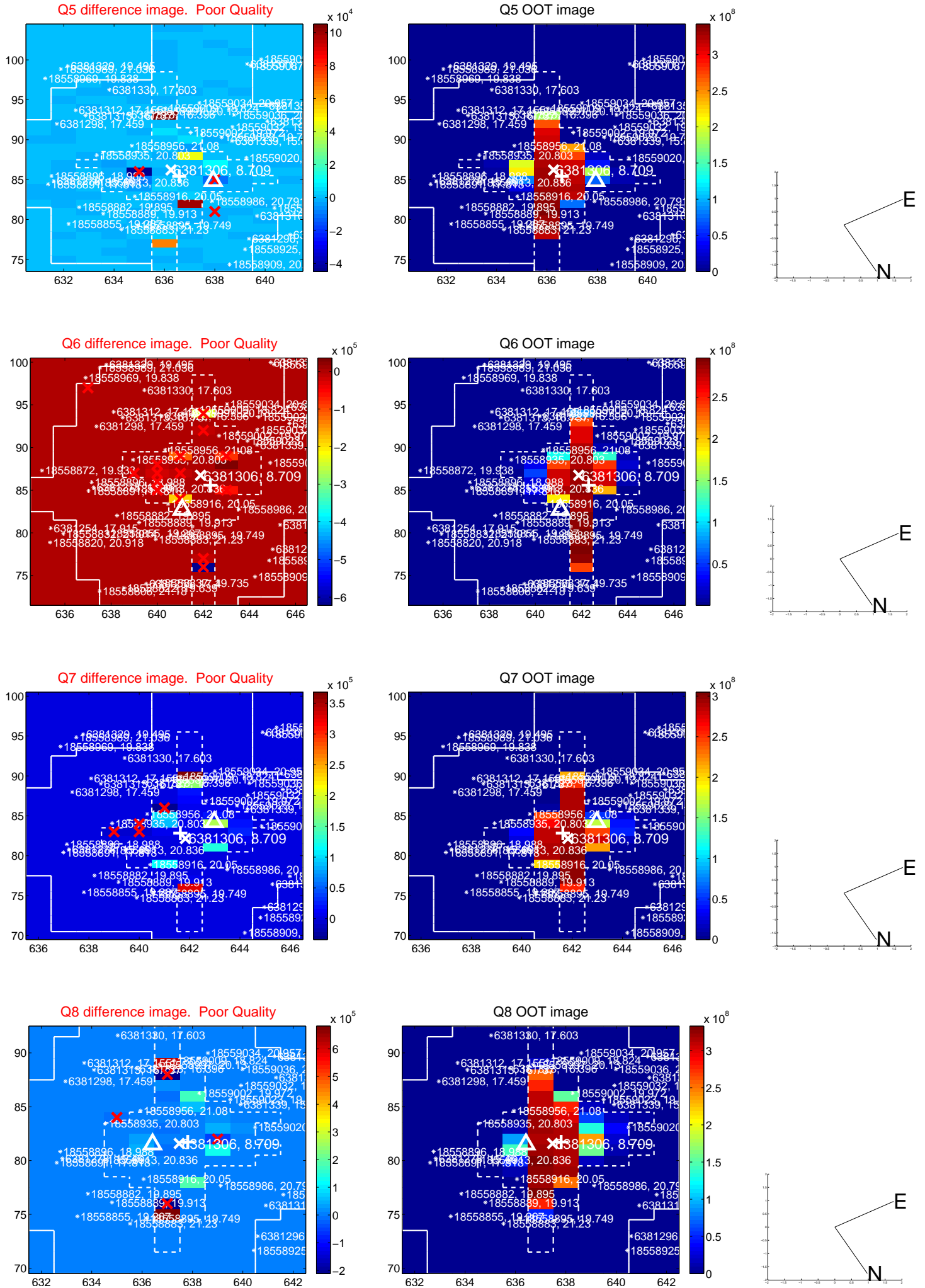


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

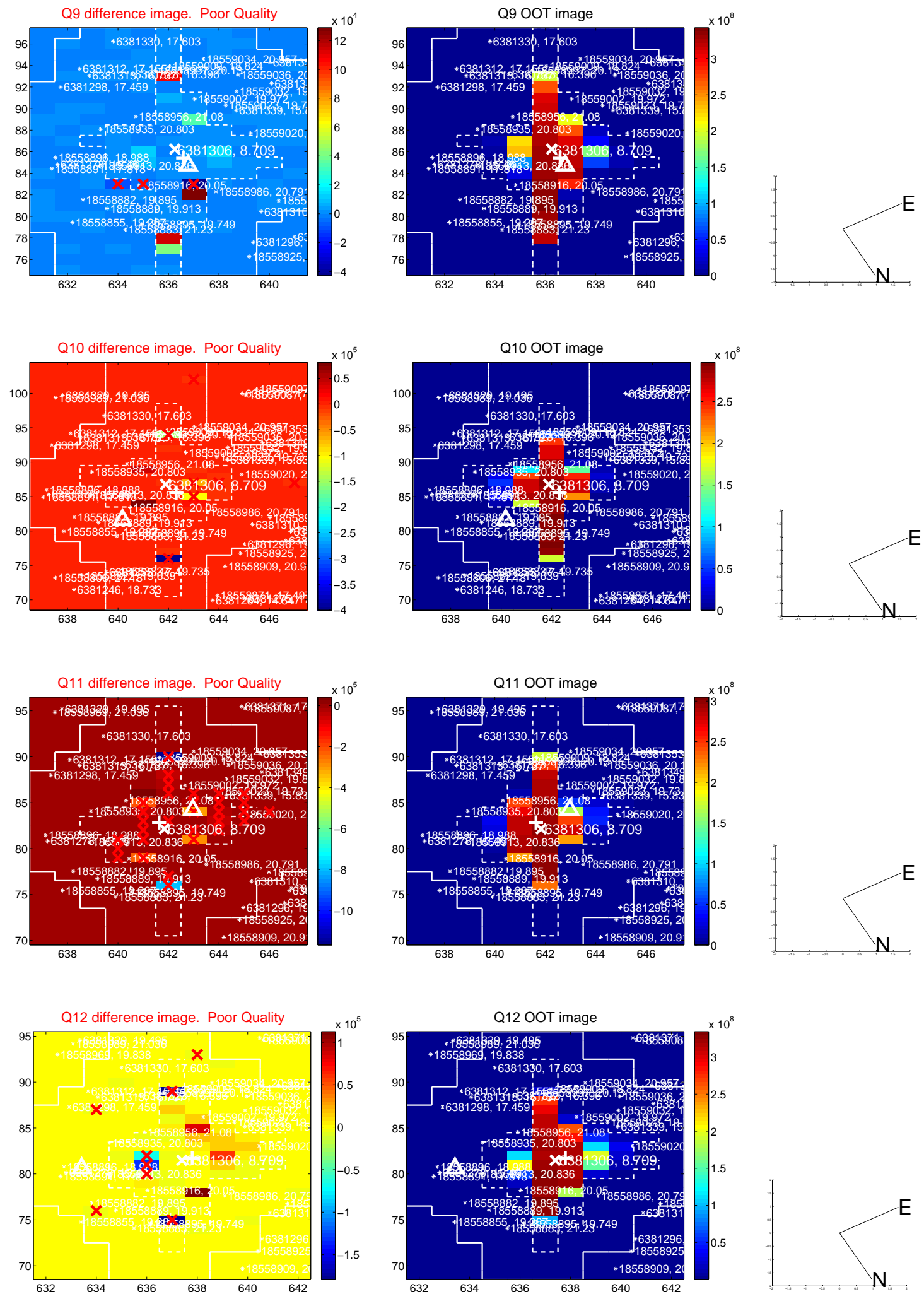
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



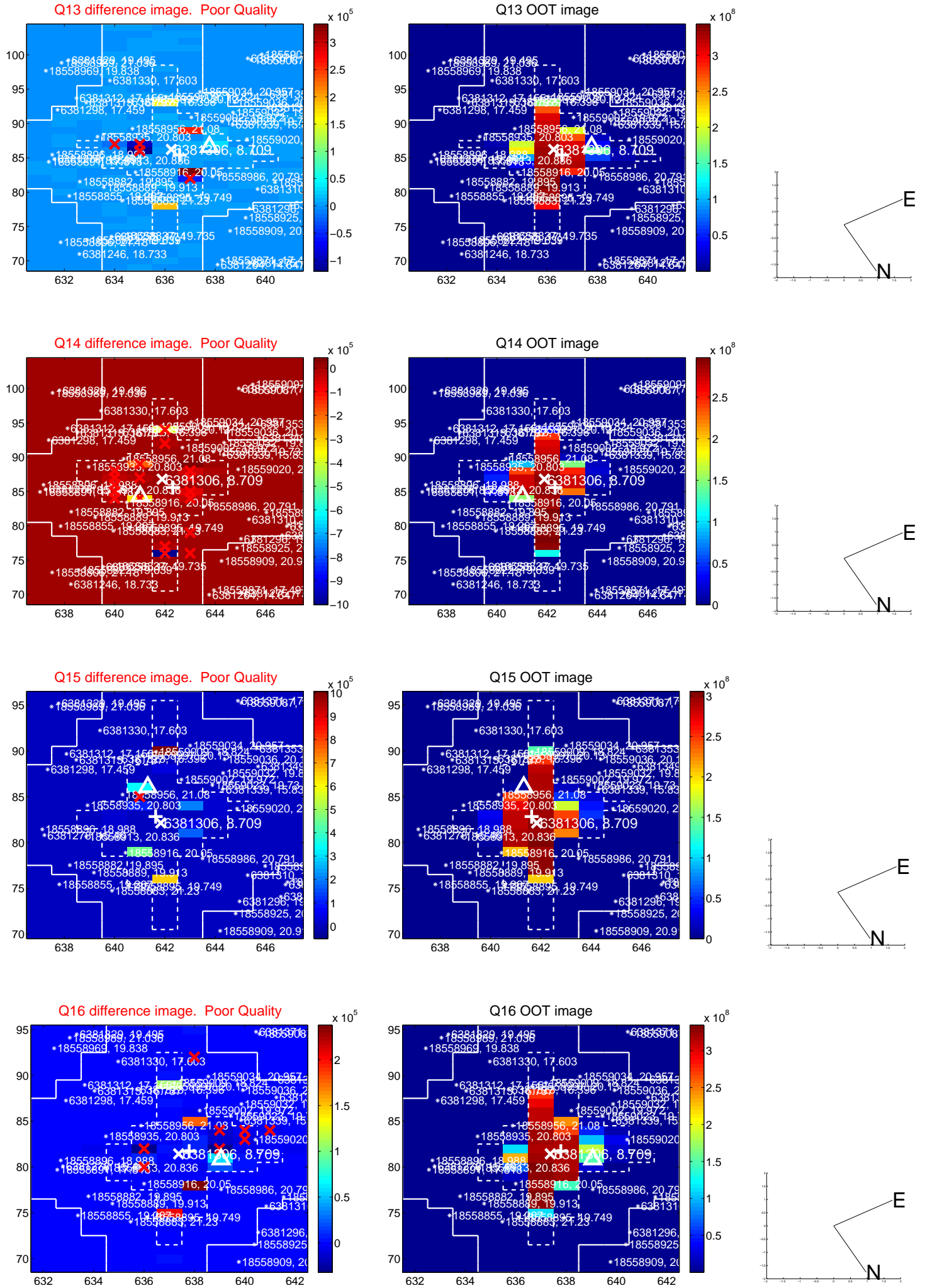
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



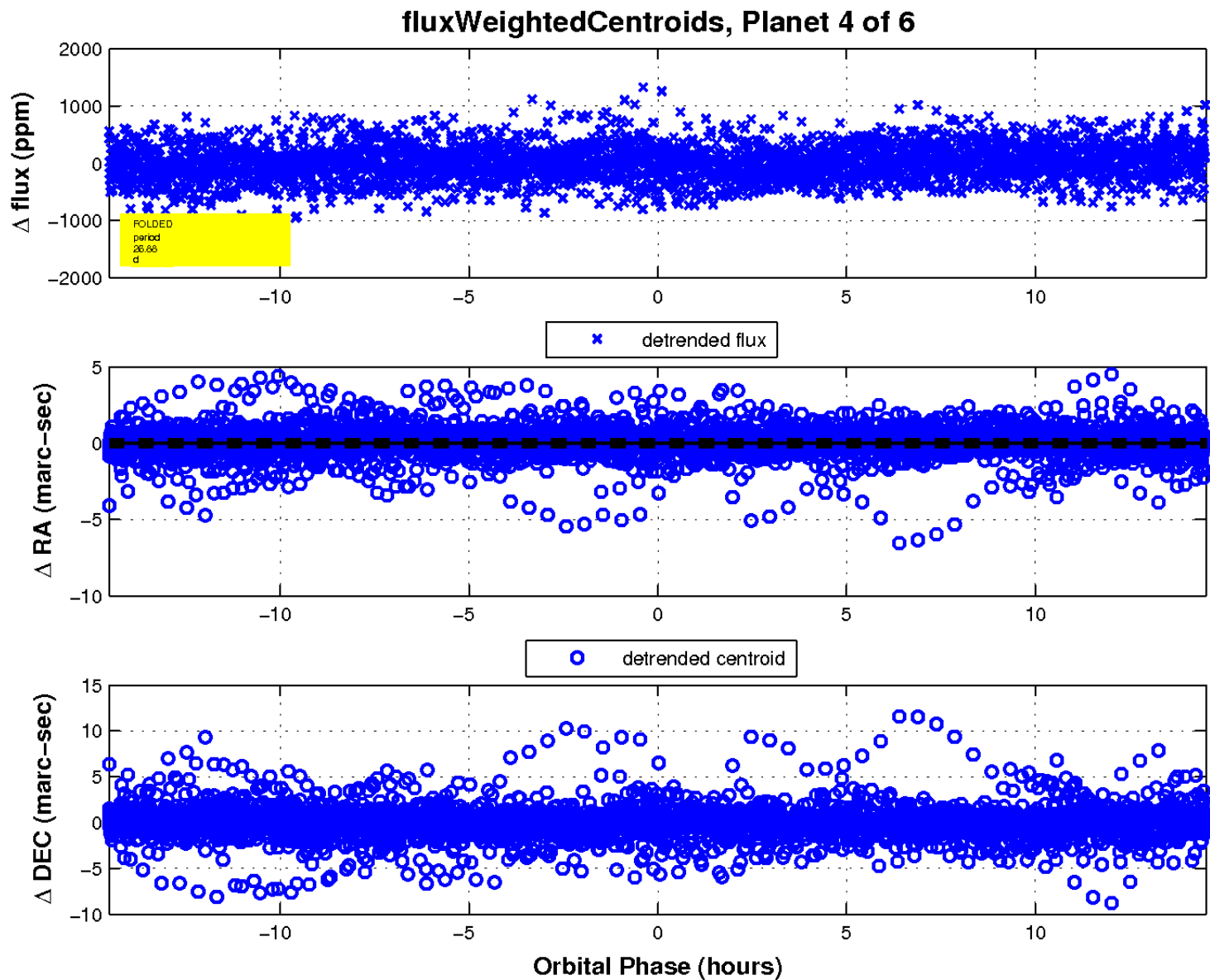
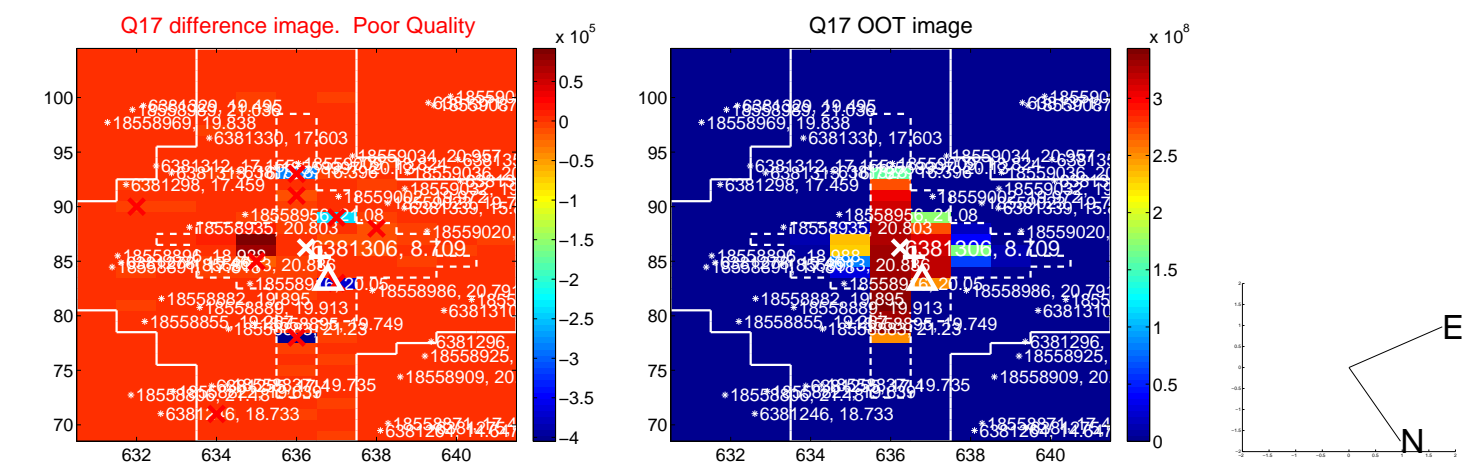
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



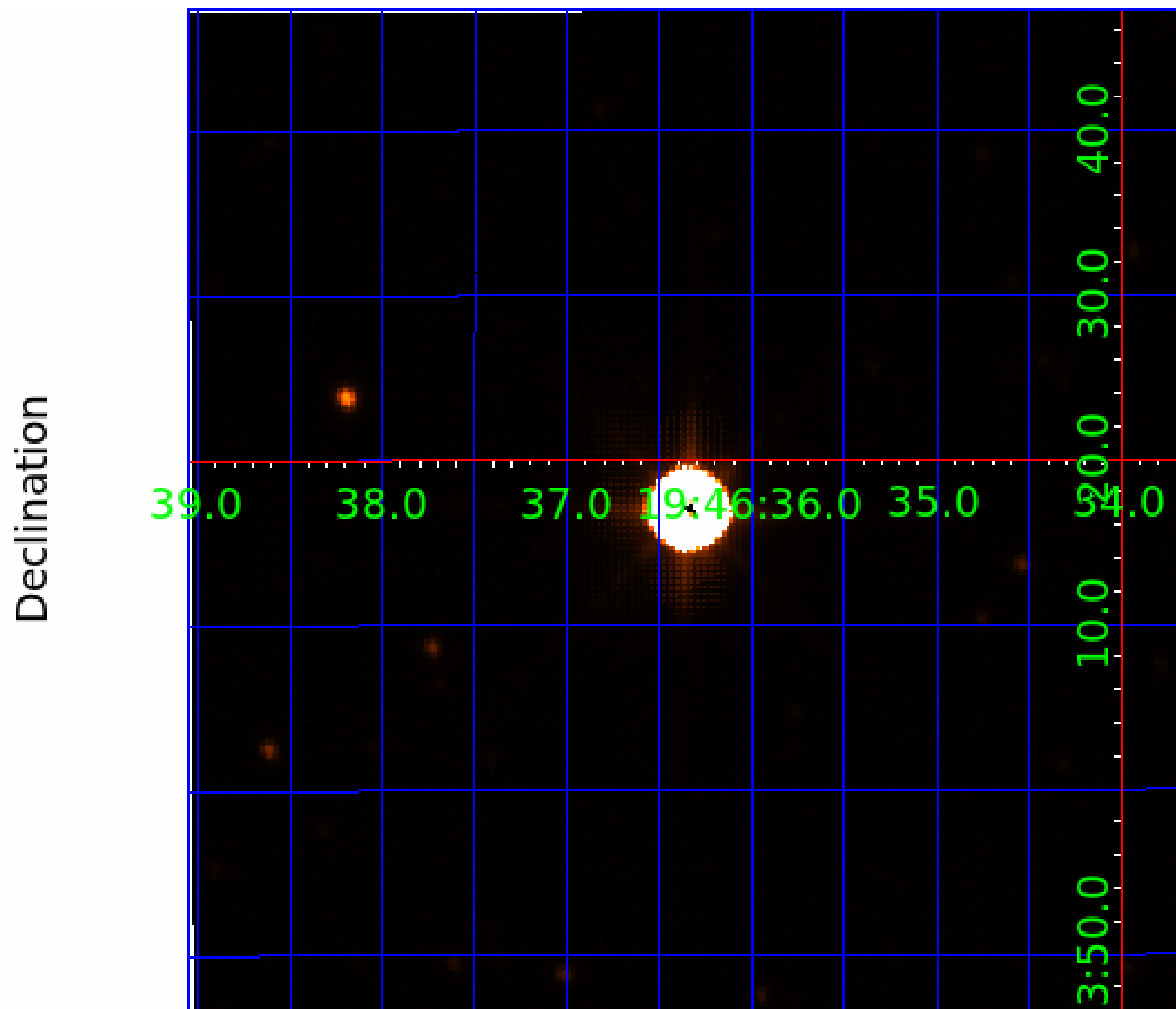
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



UKIRT Image



KIC 006381306

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})
006381306-01	OBS	No	0.528730	131.727439	17.2	1.844	8.1	7.2	3.25	8283	1.57	175176.55
006381306-02	OBS	No	0.528730	131.917470	31.2	1.800	11.9	10.6	3.25	8283	2.11	175176.60
006381306-03	OBS	No	87.531602	141.502800	600.9	2.274	10.2	9.1	3.25	8283	9.25	192.71
006381306-04	OBS	No	26.880126	145.501778	418.7	4.846	8.7	8.6	3.25	8283	12.56	930.14
006381306-05	OBS	No	54.916165	134.528631	540.0	4.496	8.9	8.4	3.25	8283	9.45	358.80
006381306-06	OBS	No	47.476210	131.745980	23.4	5.000	7.7	-1.0	3.25	8283	1.59	435.67

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
006381306-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—CENT_SATURATED
006381306-02	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—SAME_NTL_PERIOD—CENT_SATURATED
006381306-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—CENT_SATURATED
006381306-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_ALT—CENT_SATURATED
006381306-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_POS_ALT—CENT_SATURATED
006381306-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED

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

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

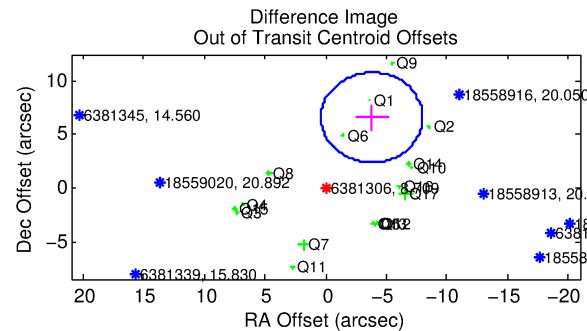
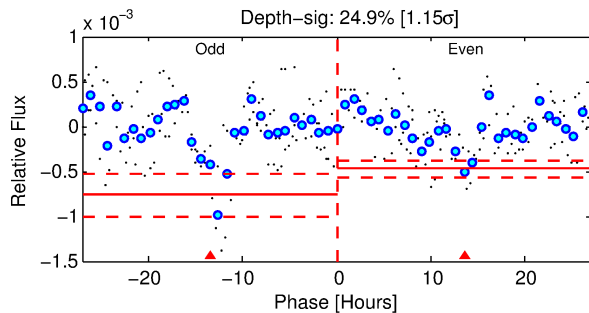
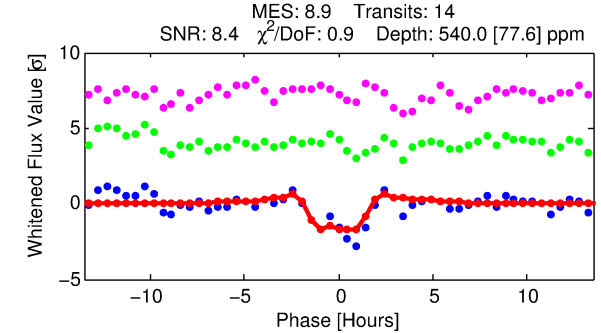
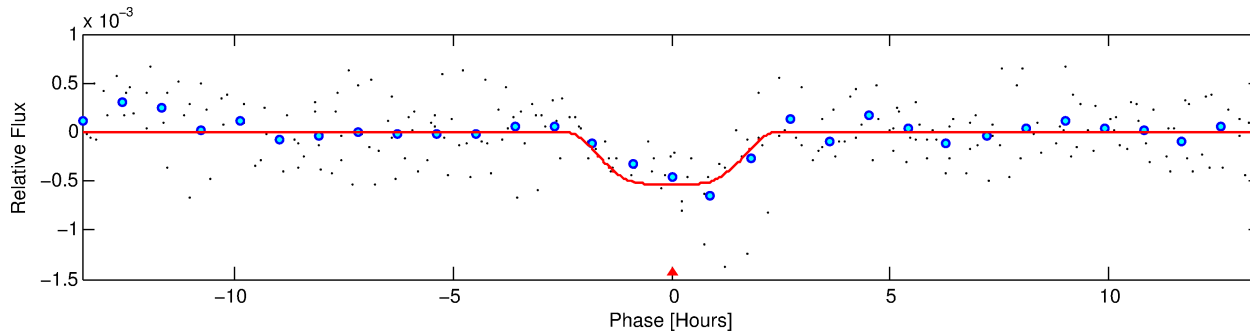
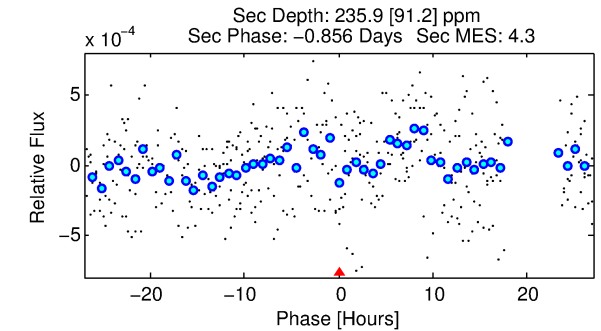
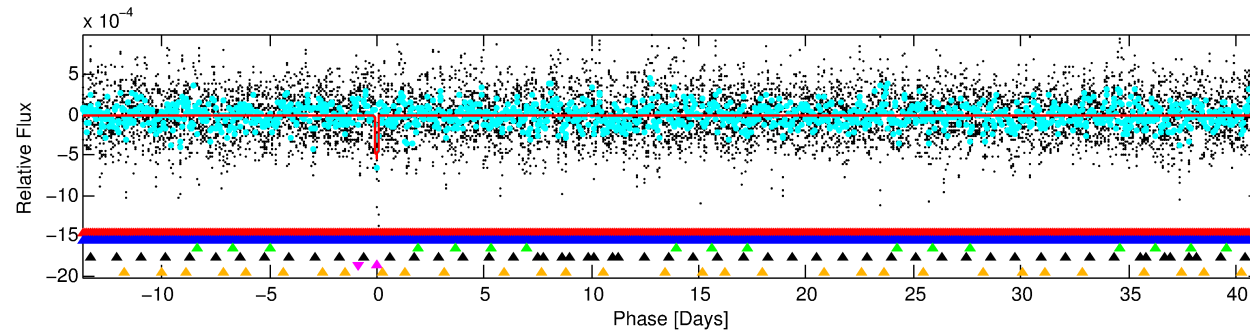
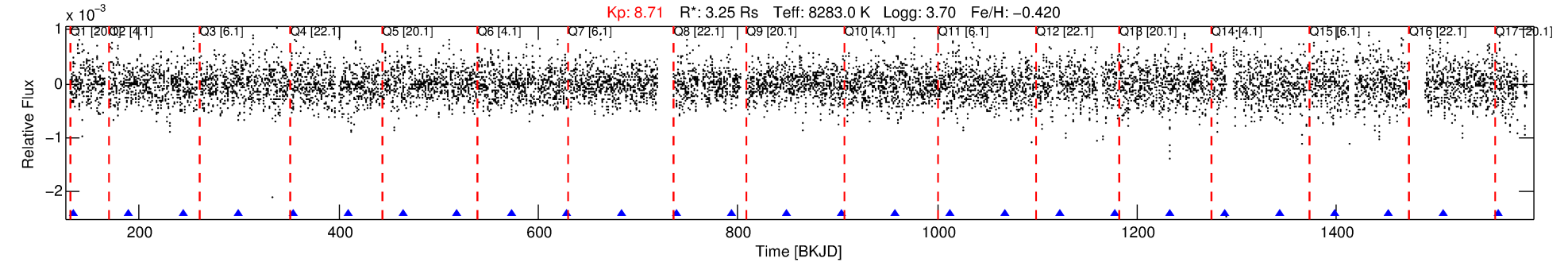
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 006381306-05

No Significant Match Found

DV One-Page Summary

KIC: 6381306 Candidate: 5 of 6 Period: 54.916 d



DV Fit Results:

Period = 54.91616 [0.00070] d
Epoch = 134.5286 [0.0100] BKJD
Rp/R* = 0.0267 [0.0023]
a/R* = 33.14 [6.36]
b = 0.96 [0.02]
Seff = 358.80 [302.34]
Teq = 1110 [234] K
Rp = 9.45 [4.83] Re
a = 0.3518 [0.1780] AU
Ag = 179.99 [167.42] [1.07σ]
Teffp = 6285 [710] K [6.93σ]

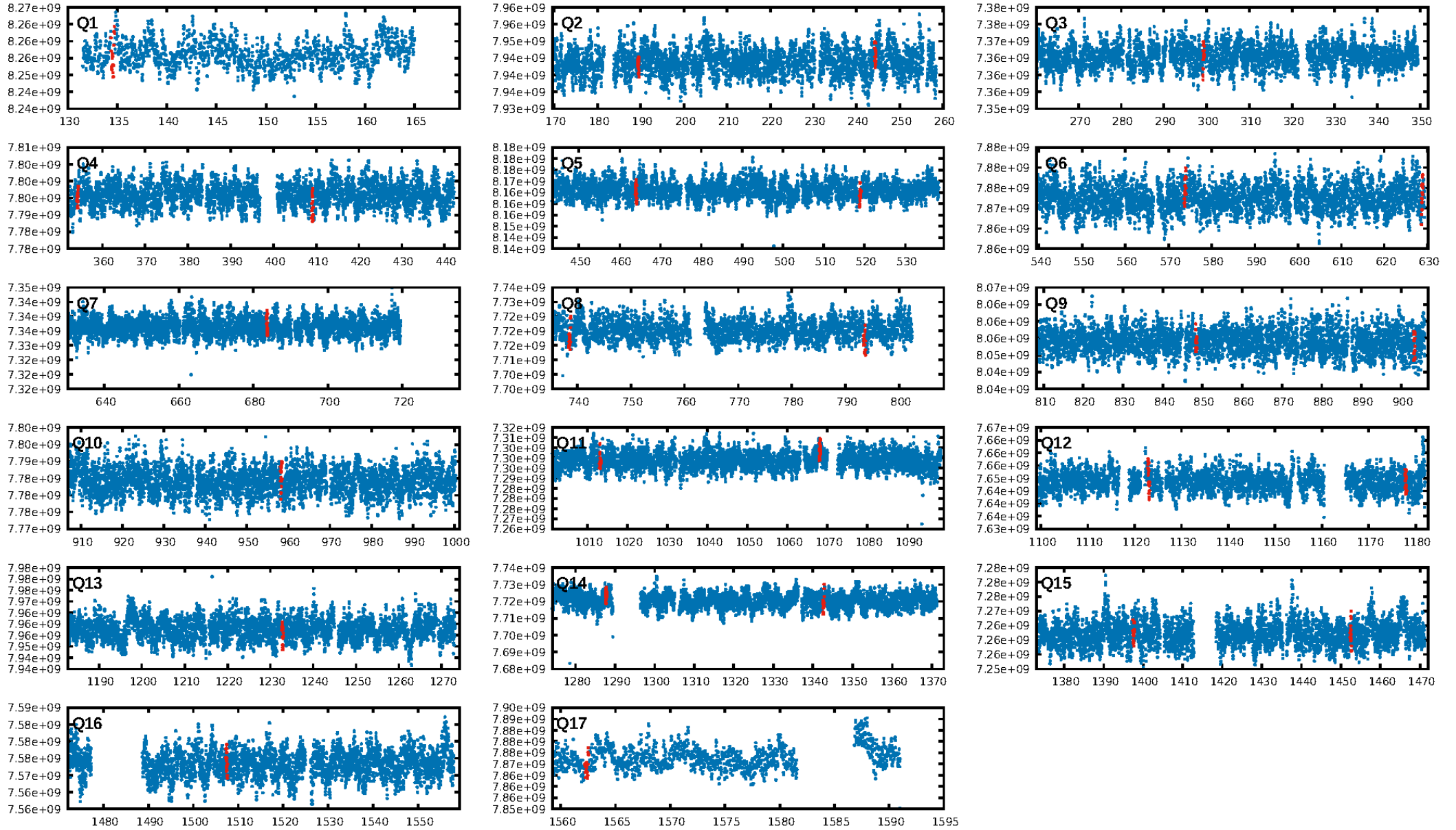
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [26.56σ]
LongPeriod-sig: 100.0% [155.36σ]
ModelChiSquare2-sig: 46.0%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [13/13]
GhostDiagnostic-chr: N/A
Centroid-sig: N/A
Centroid-so: 1.620 arcsec [3.52σ]
OotOffset-rm: 7.611 arcsec [5.44σ]
KicOffset-rm: 11.094 arcsec [5.58σ]
OotOffset-st: 4/4/4/5 [17]
KicOffset-st: 4/4/4/5 [17]
DiffImageQuality-fgm: 0.00 [0/17]
DiffImageOverlap-fno: 0.00 [0/17]

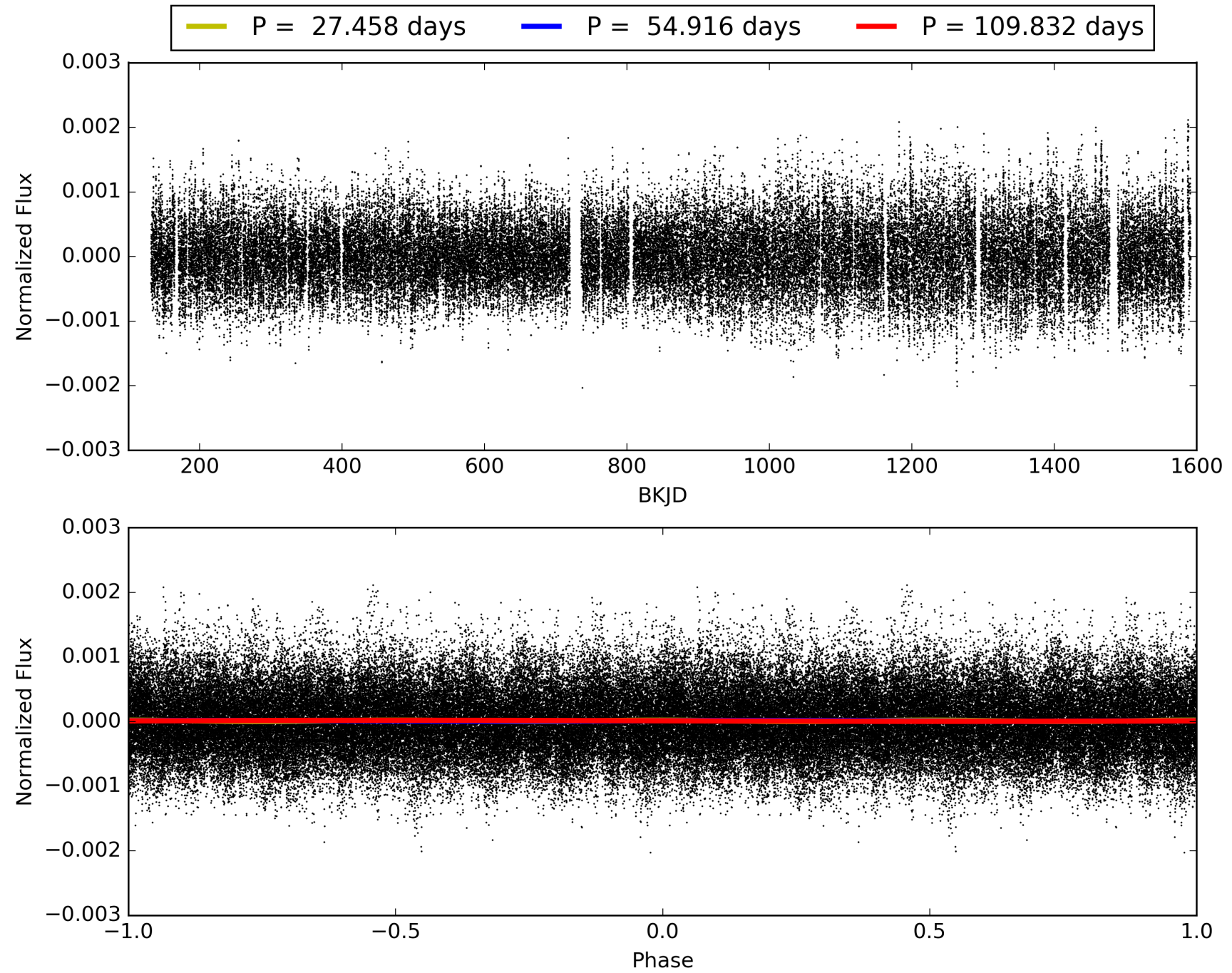
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 03-Feb-2016 08:25:58 Z

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

TCE 006381306-05, PDC Light Curves

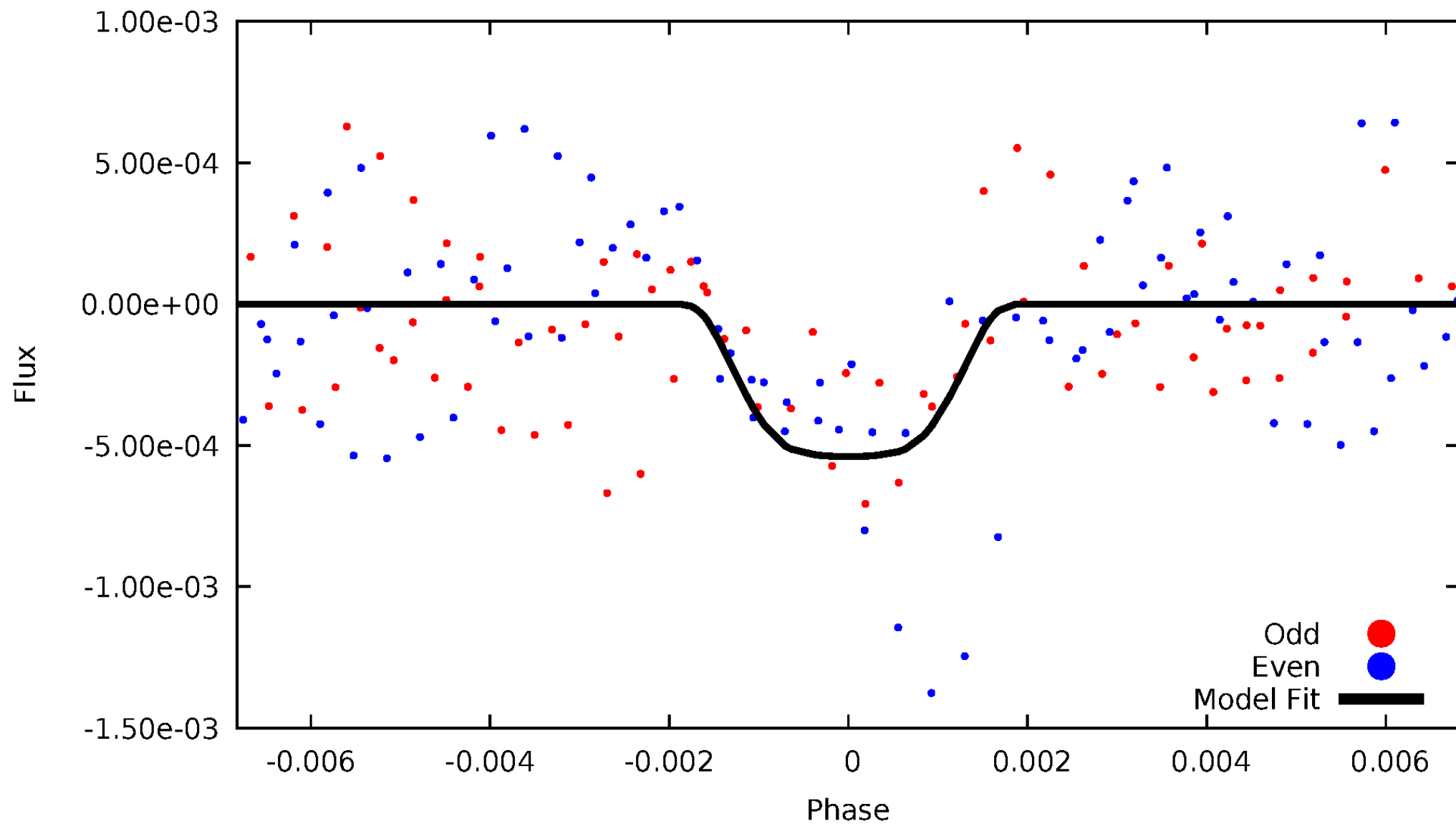


TCE 006381306-05



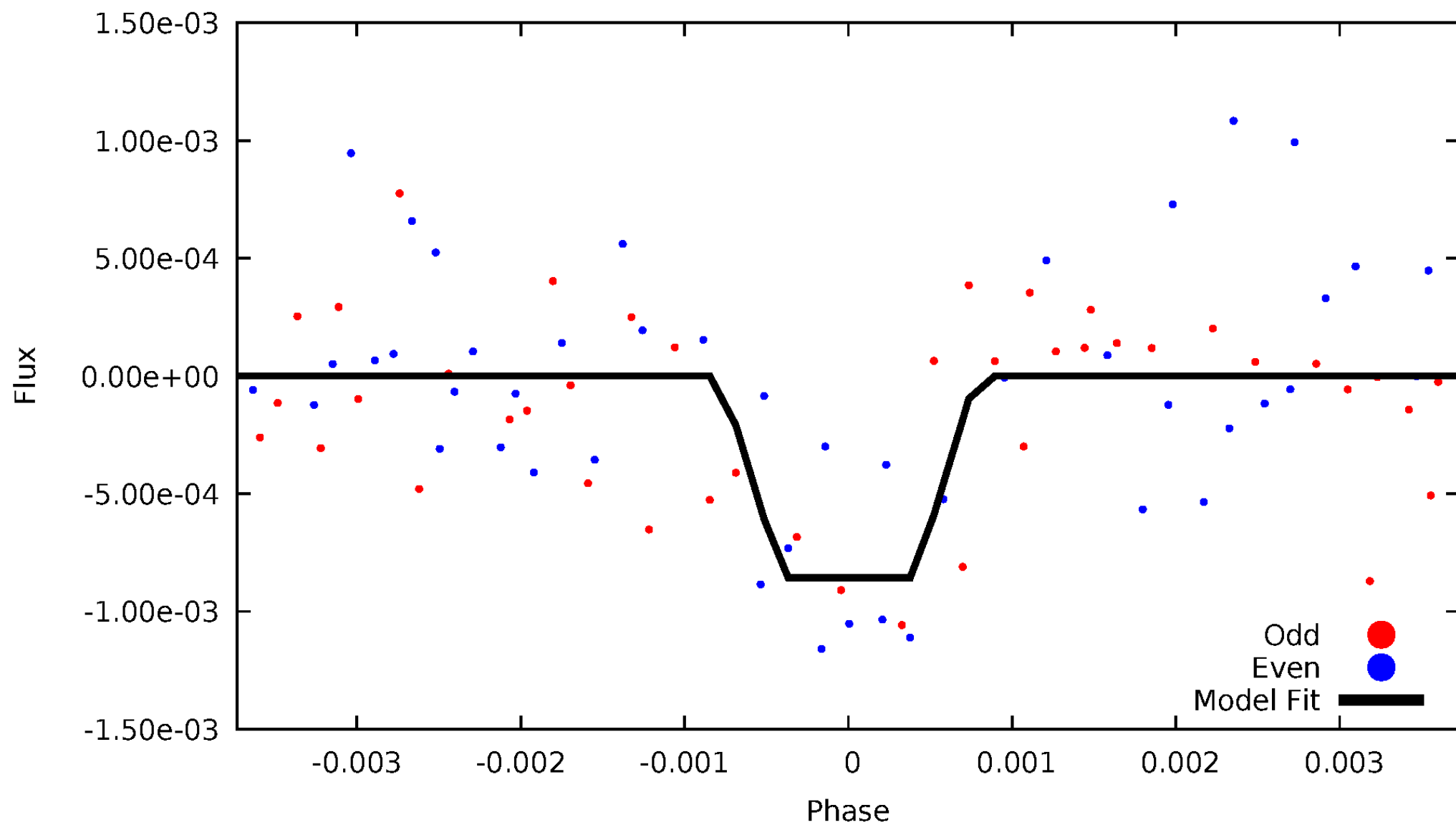
DV Odd/Even

TCE 006381306-05



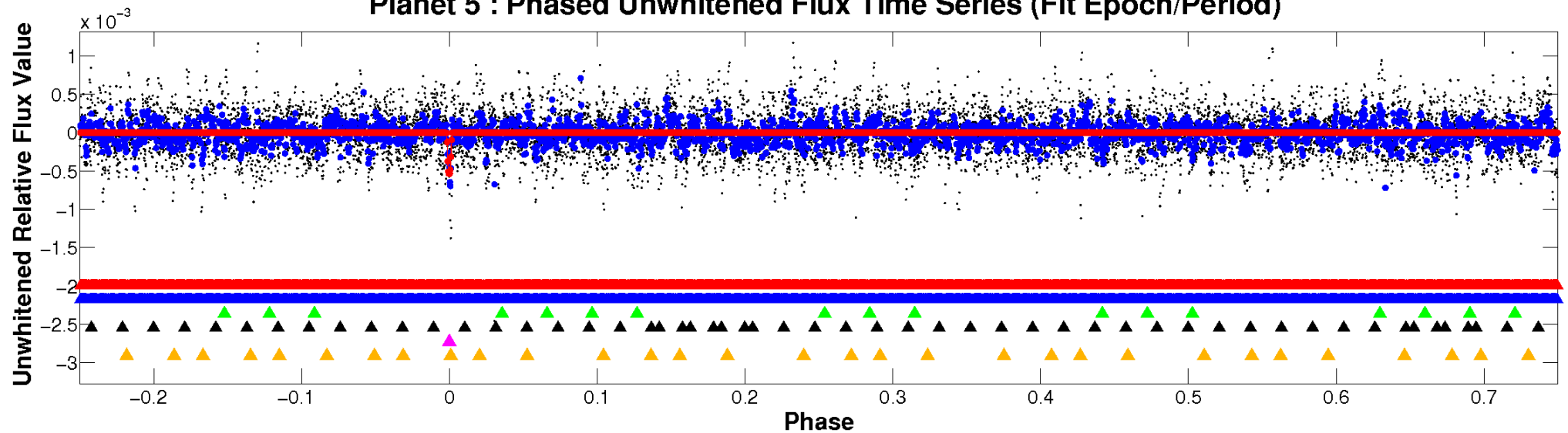
ALT Odd/Even

TCE 006381306-05

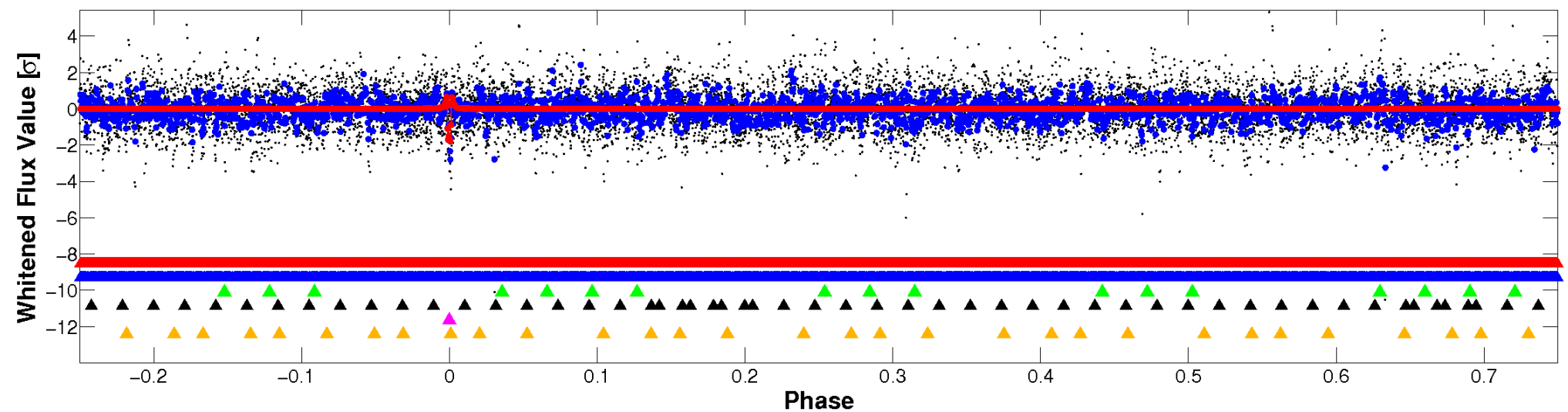


Non-Whitened Vs. Whitened Light Curve

Planet 5 : Phased Unwhitened Flux Time Series (Fit Epoch/Period)

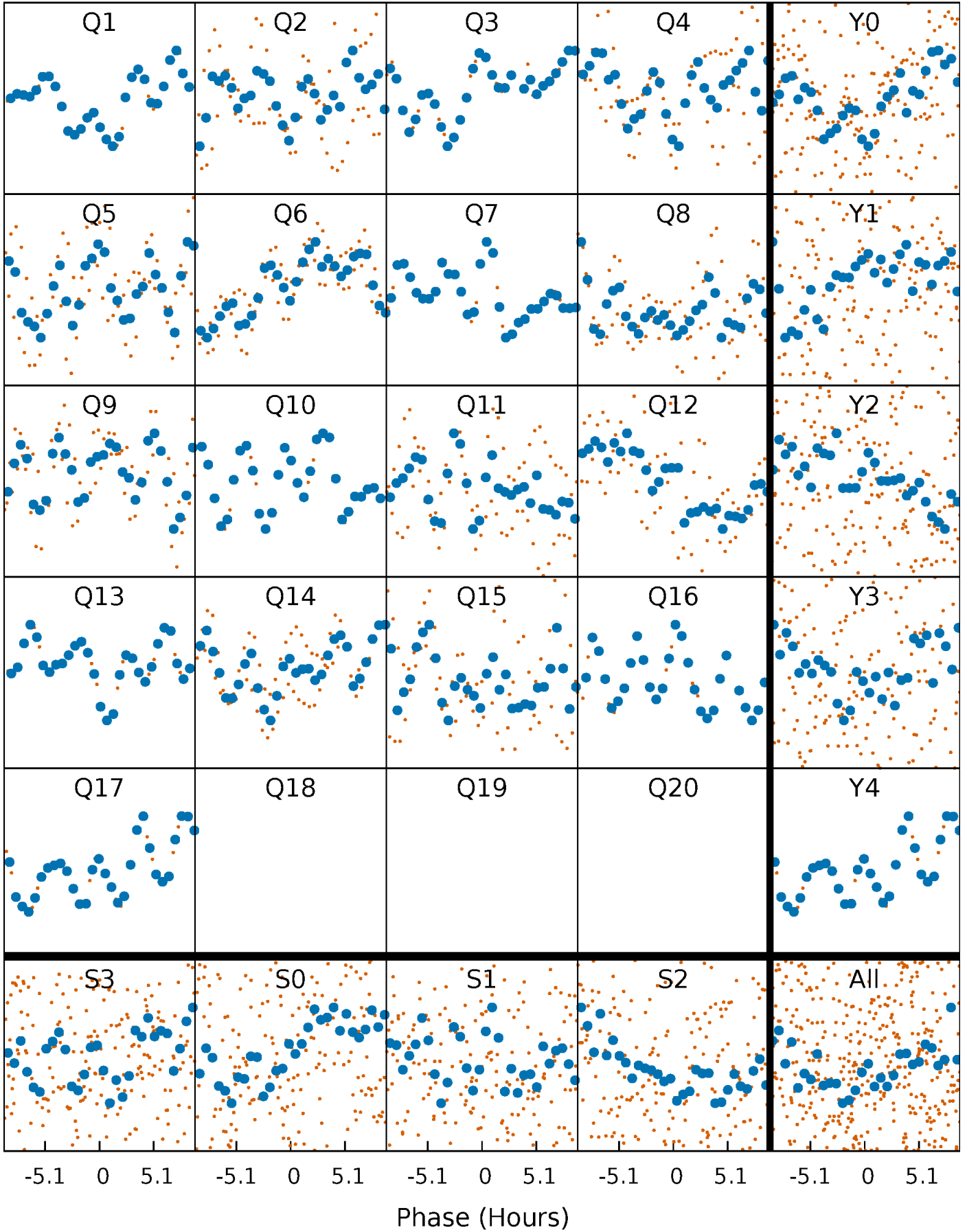


Planet 5 : Phased Whitened Flux Time Series (Fit Epoch/Period)



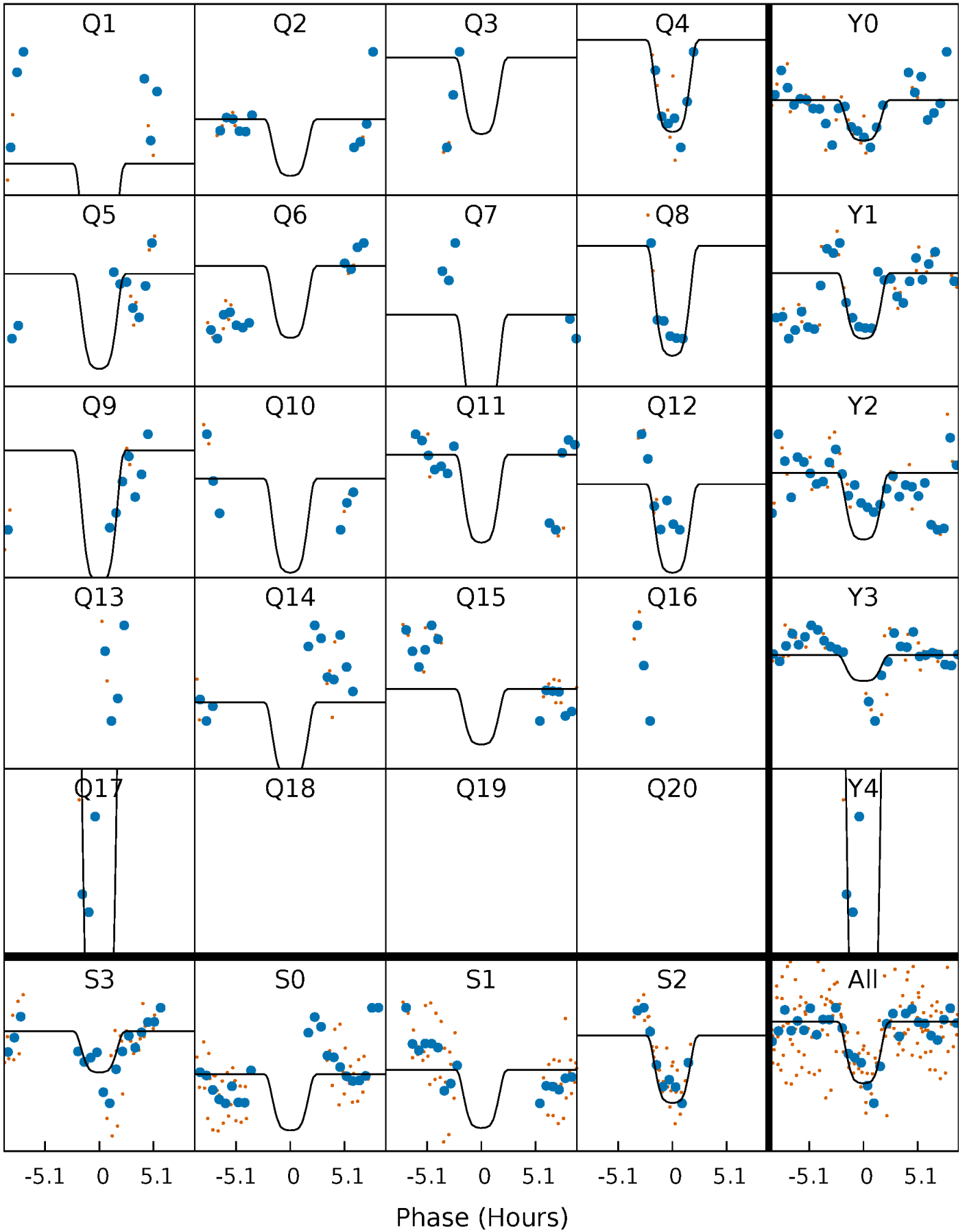
PDC Quarter-Phased Transit Curves

TCE 006381306-05 P= 54.916165 Days $T_0=134.528631$ (BKJD)



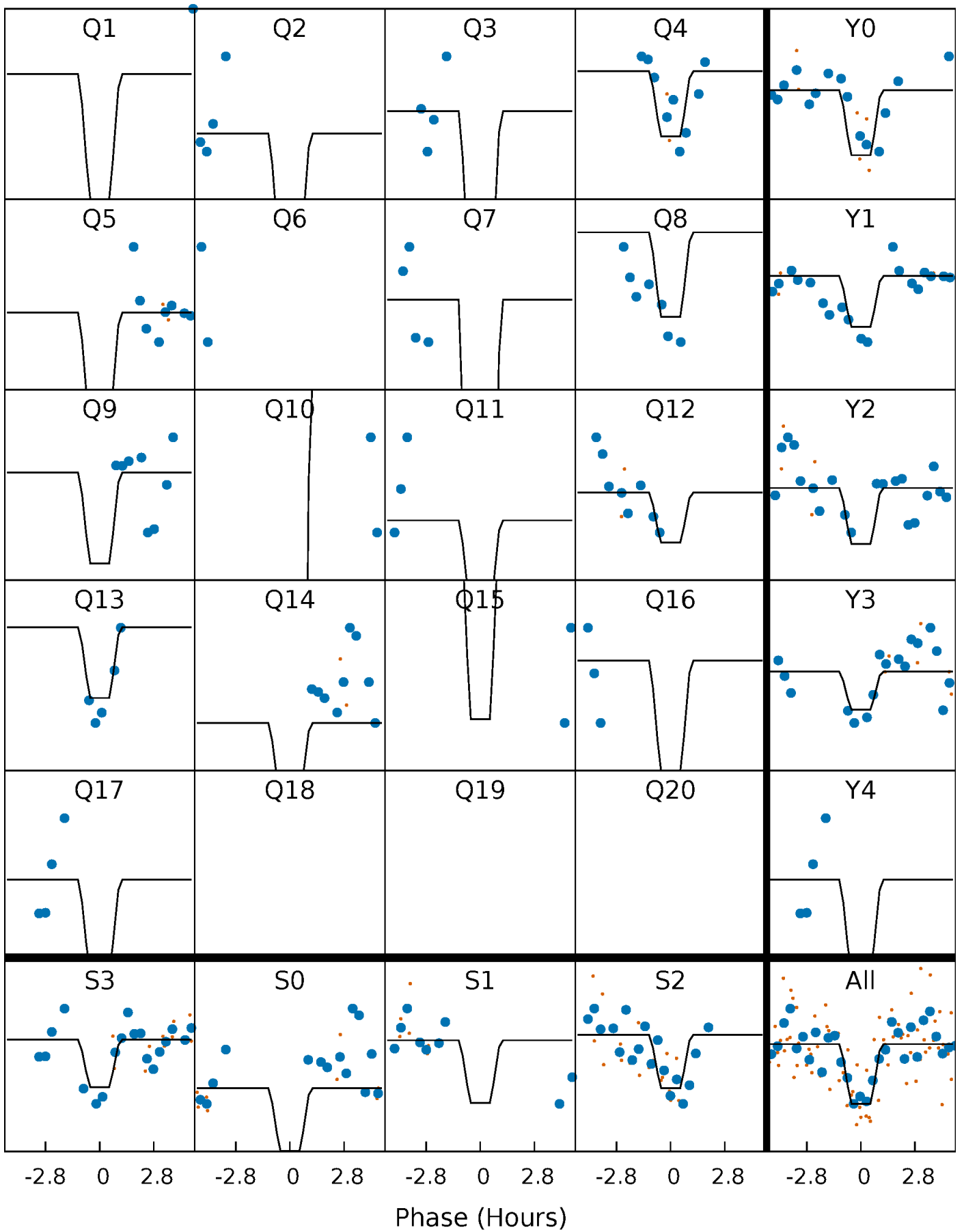
DV Quarter-Phased Transit Curves

TCE 006381306-05 $P = 54.916165$ Days $T_0 = 134.528631$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

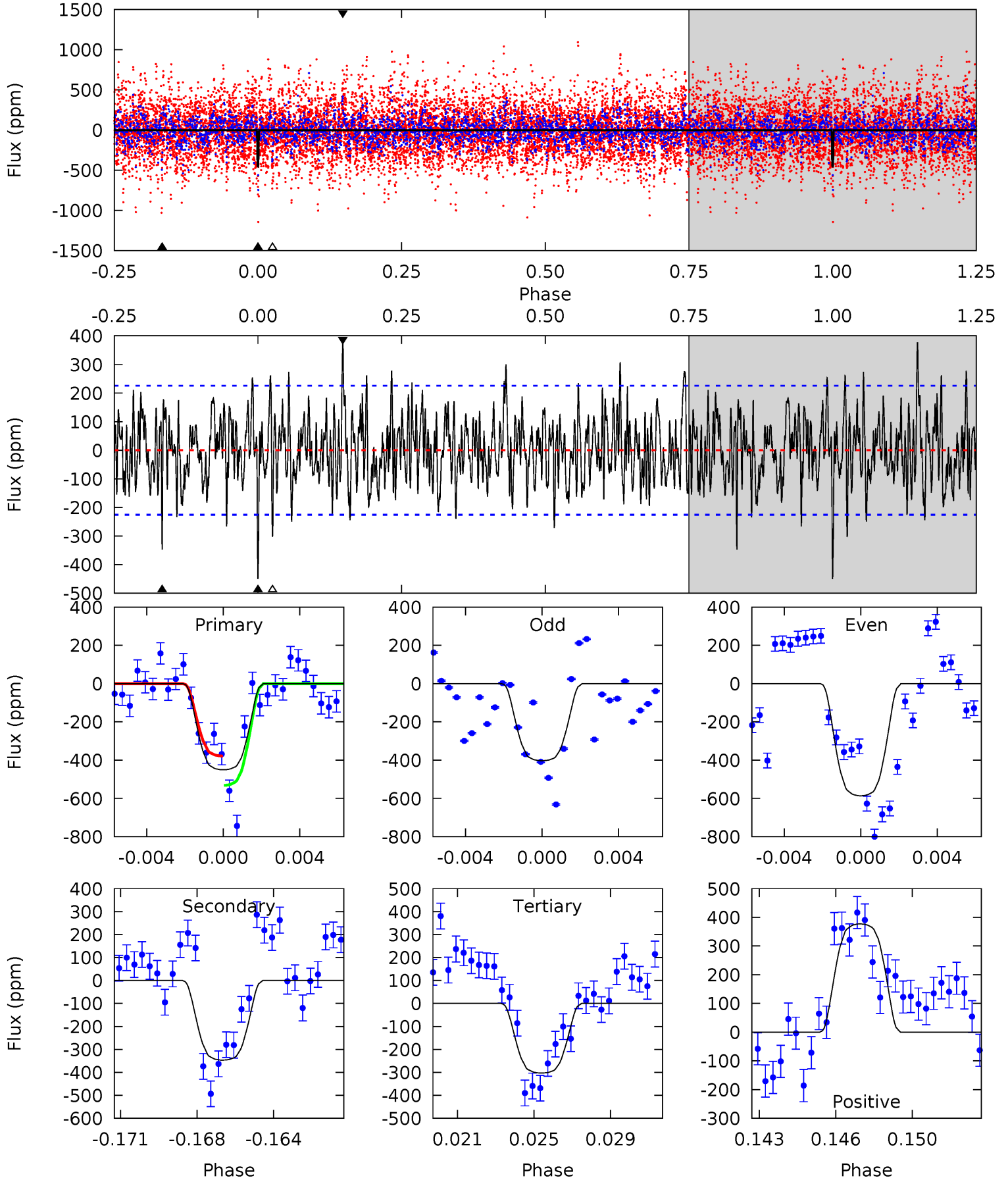
TCE 006381306-05 $P = 54.919302$ Days $T_0 = 134.505375$ (BKJD)



DV Model-Shift Uniqueness Test

006381306-05, P = 54.916165 Days, E = 79.612466 Days

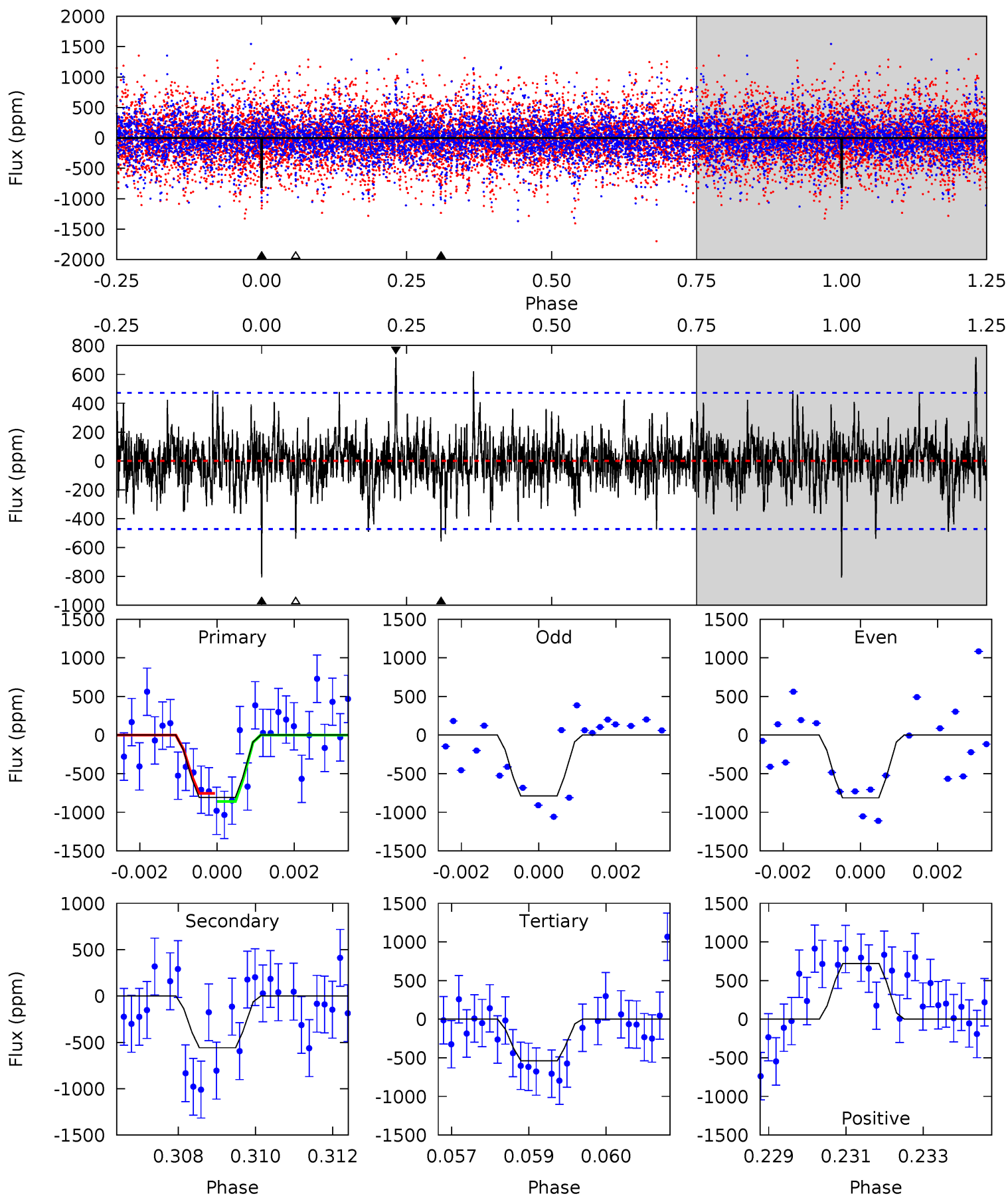
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
10.4	8.03	7.01	8.73	5.22	2.91	2.32	3.42	1.70	1.02	-0.70	2.17	1.12	0.46	1.78



Alt Model-Shift Uniqueness Test

006381306-05, P = 54.919302 Days, E = 79.586073 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
9.17	6.35	6.13	8.18	5.37	3.16	1.50	3.04	0.99	0.22	-1.83	0.13	0.86	0.47	0.59



Stellar Parameters For KIC 006381306

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	8283^{+236}_{-324}	$3.700^{+0.493}_{-0.087}$	$-0.420^{+0.200}_{-0.300}$	$3.245^{+0.545}_{-1.635}$	$1.927^{+0.206}_{-0.471}$	$0.079^{+0.406}_{-0.027}$
	+3%/-4%	+13%/-2%	+48%/-71%	+17%/-50%	+11%/-24%	+511%/-34%
Source	KIC0	KIC0	KIC0	DSEP		

KIC = Kepler Input Catalog; PHO = Photometry; SPE = Spectroscopy; AST = Asteroseismology
 TRA = Transits; DESP = Dartmouth Models; MULT = Multiple Models

Secondary Eclipse Parameters for KIC 006381306-05 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-347 ± 43	$8.78^{+1.65}_{-2.54}$	1488^{+113}_{-201}	6690^{+462}_{-407}	309^{+243}_{-90}
Alt.	-558 ± 88	$9.66^{+1.74}_{-2.20}$	1504^{+104}_{-188}	7277^{+550}_{-509}	419^{+279}_{-130}

T_{max} = Theoretical Maximum Planetary Temperature

T_{obs} = Observed Planetary Temperature (Assuming $A=0.3$)

A_{obs} = Observed Albedo (Assuming $T=0$)

If a secondary eclipse is present, the system is likely an EB if $T_{obs} \gg T_{max}$ AND $A_{obs} \gg 1.0$

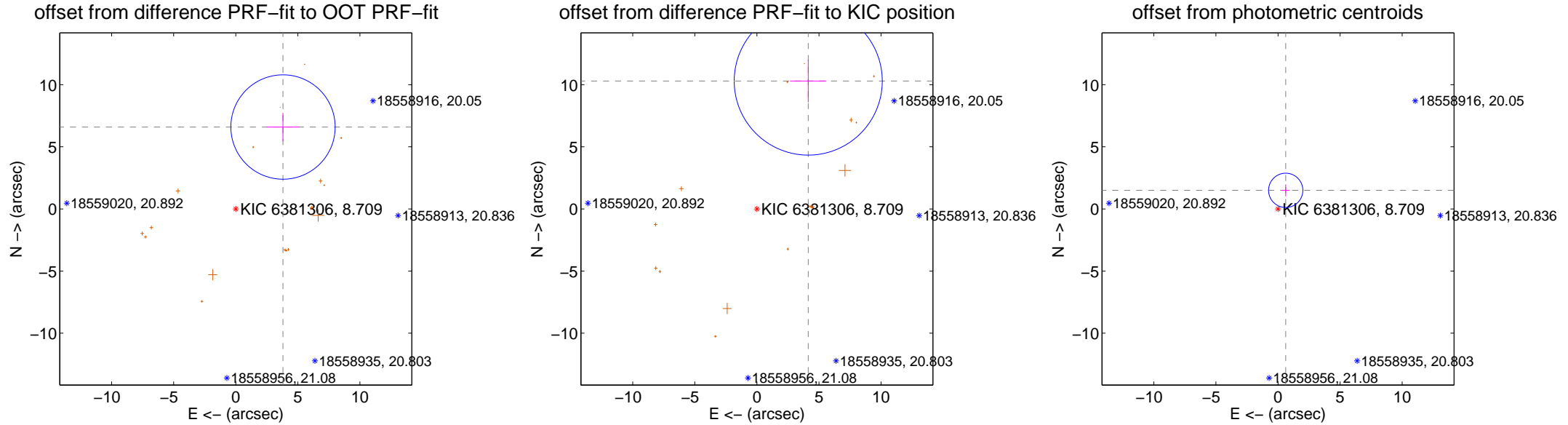
DV Centroid Data

Supplemental centroid analysis for 006381306-05. **Kepler magnitude: 8.71.** Transit SNR 8.38

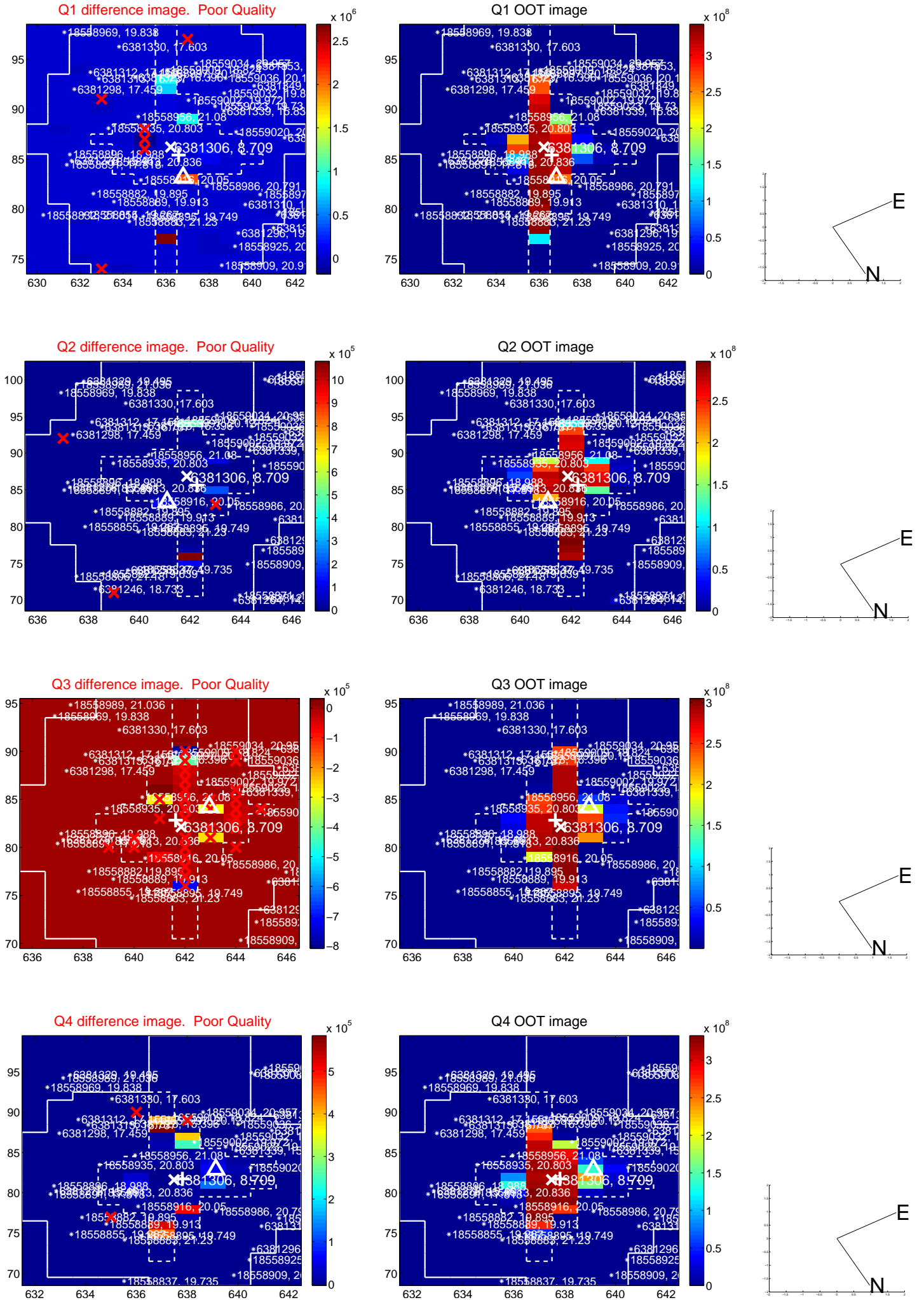
There are 0 quarters with good PRF difference image offsets

The OOT PRF centroid is offset from the target star catalog position by about 3.65 arcsec so the offset from difference PRF-fit to OOT-fit may be invalid.

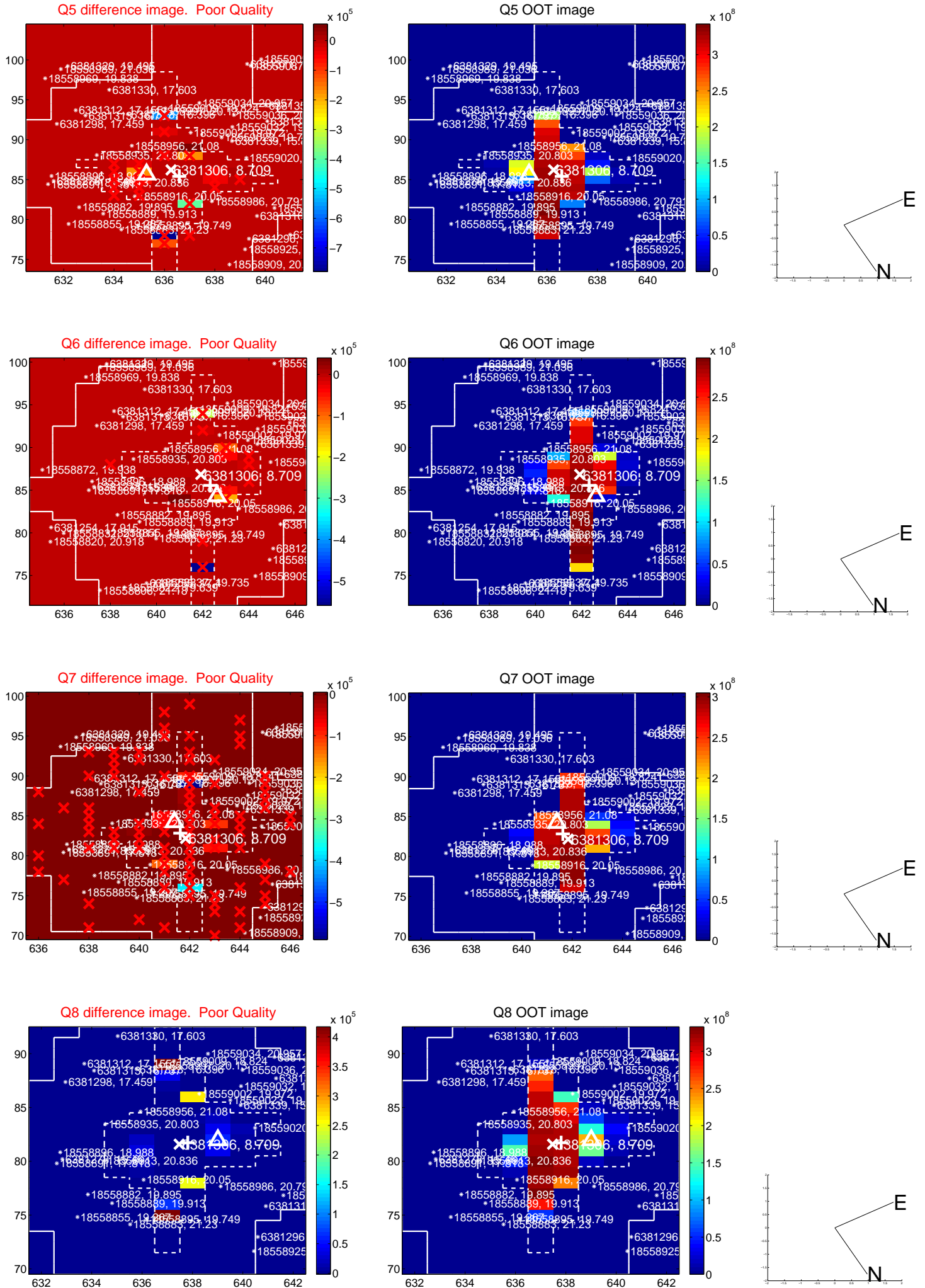
	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	7.611 ± 1.400	5.44	-3.803 ± 1.315	6.593 ± 1.129
PRF-fit source offset from KIC position	11.094 ± 1.987	5.58	-4.135 ± 1.462	10.294 ± 1.709
photometric centroid source offset	1.62 ± 0.46	3.52	-0.62 ± 0.32	1.50 ± 0.48



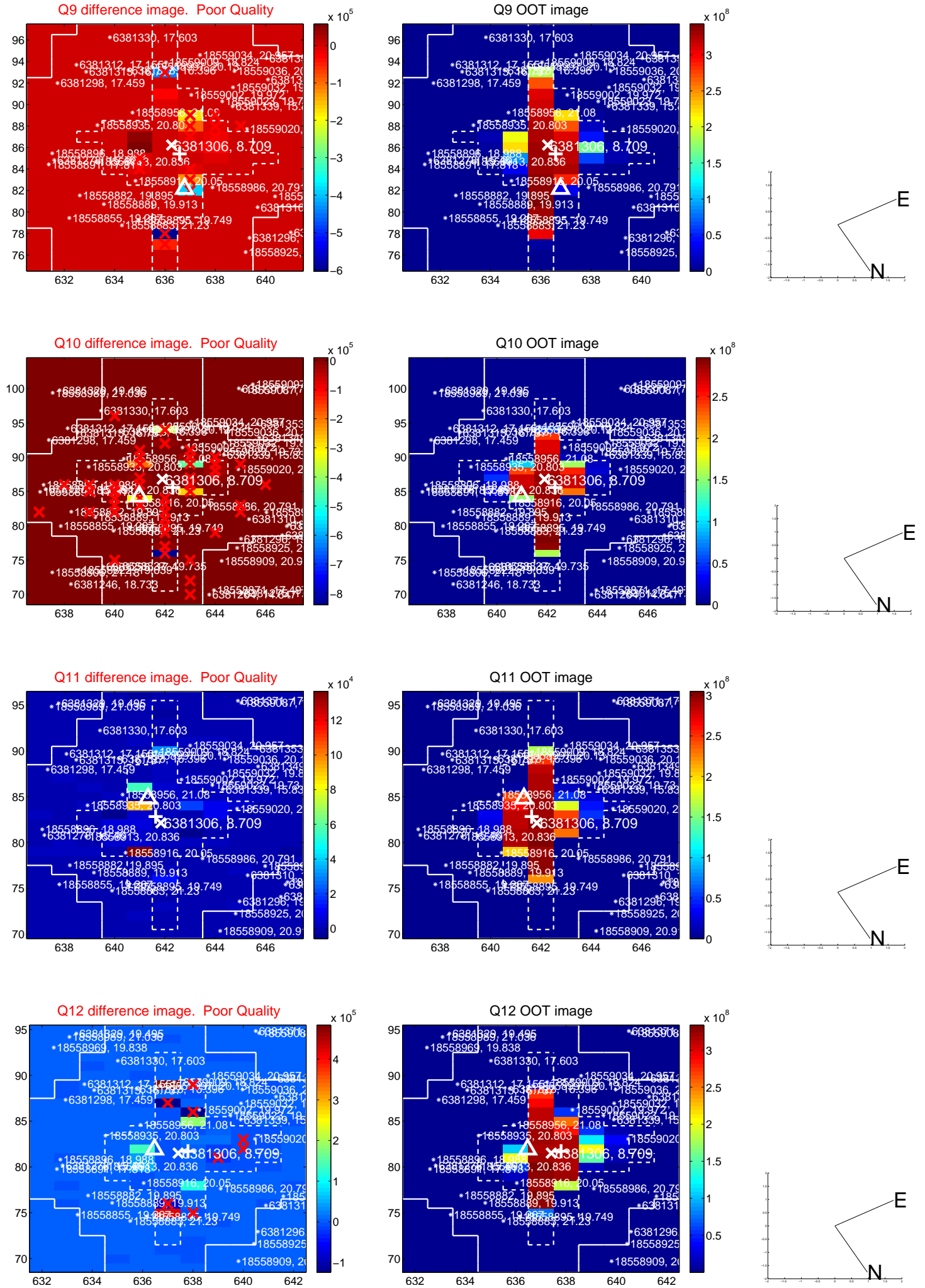
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



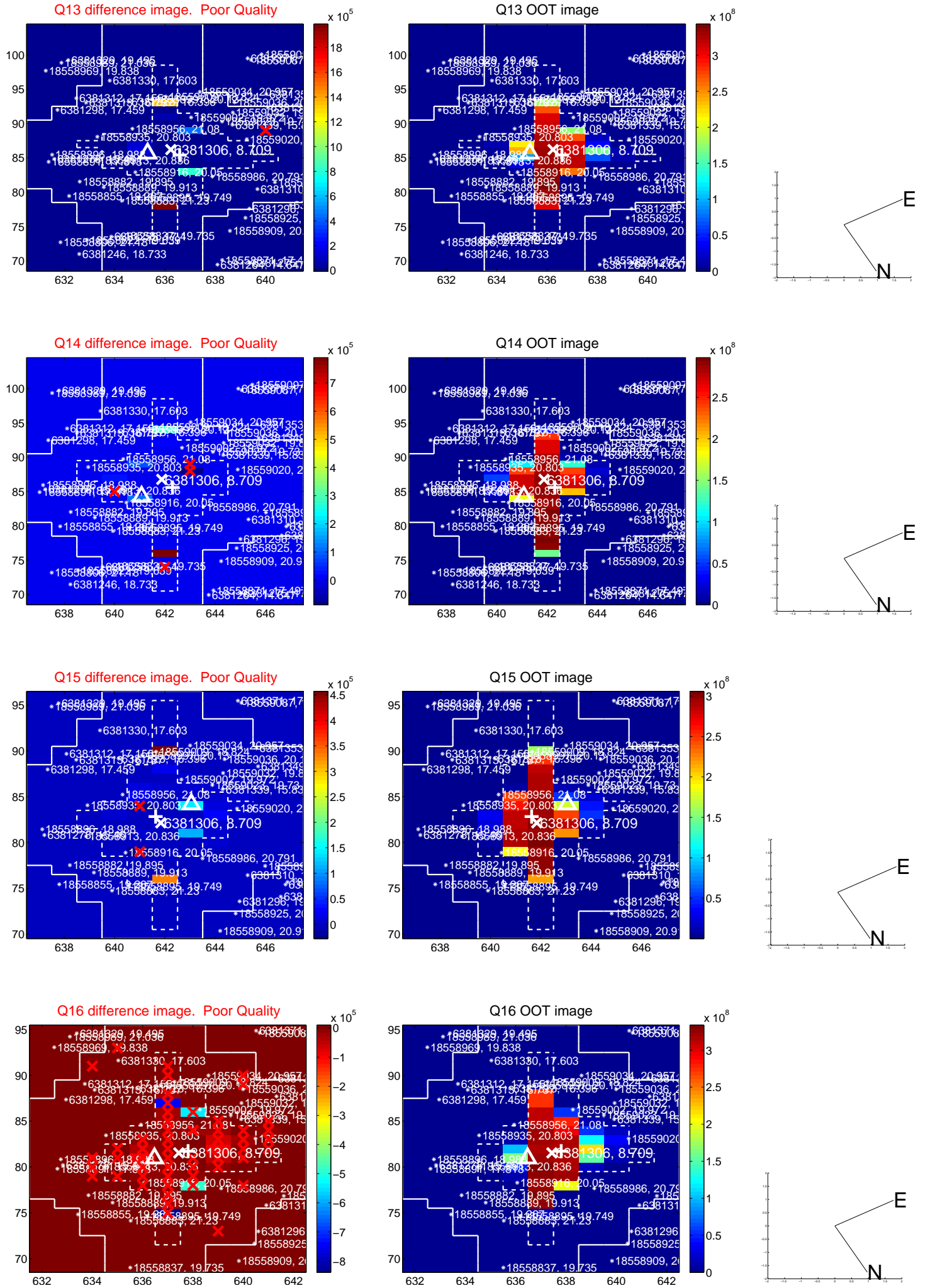
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



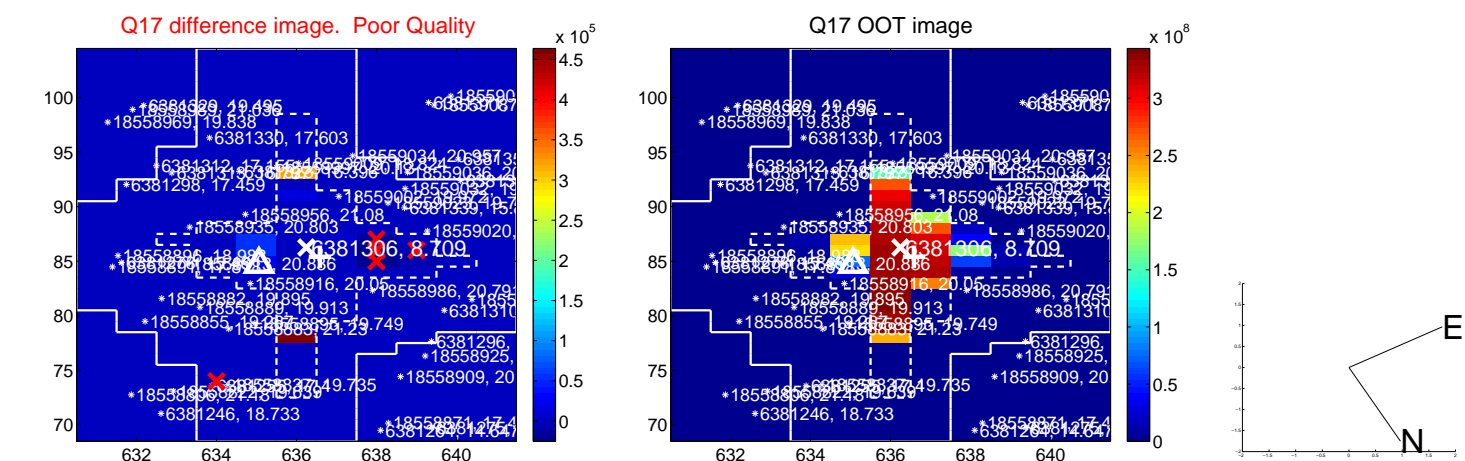
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



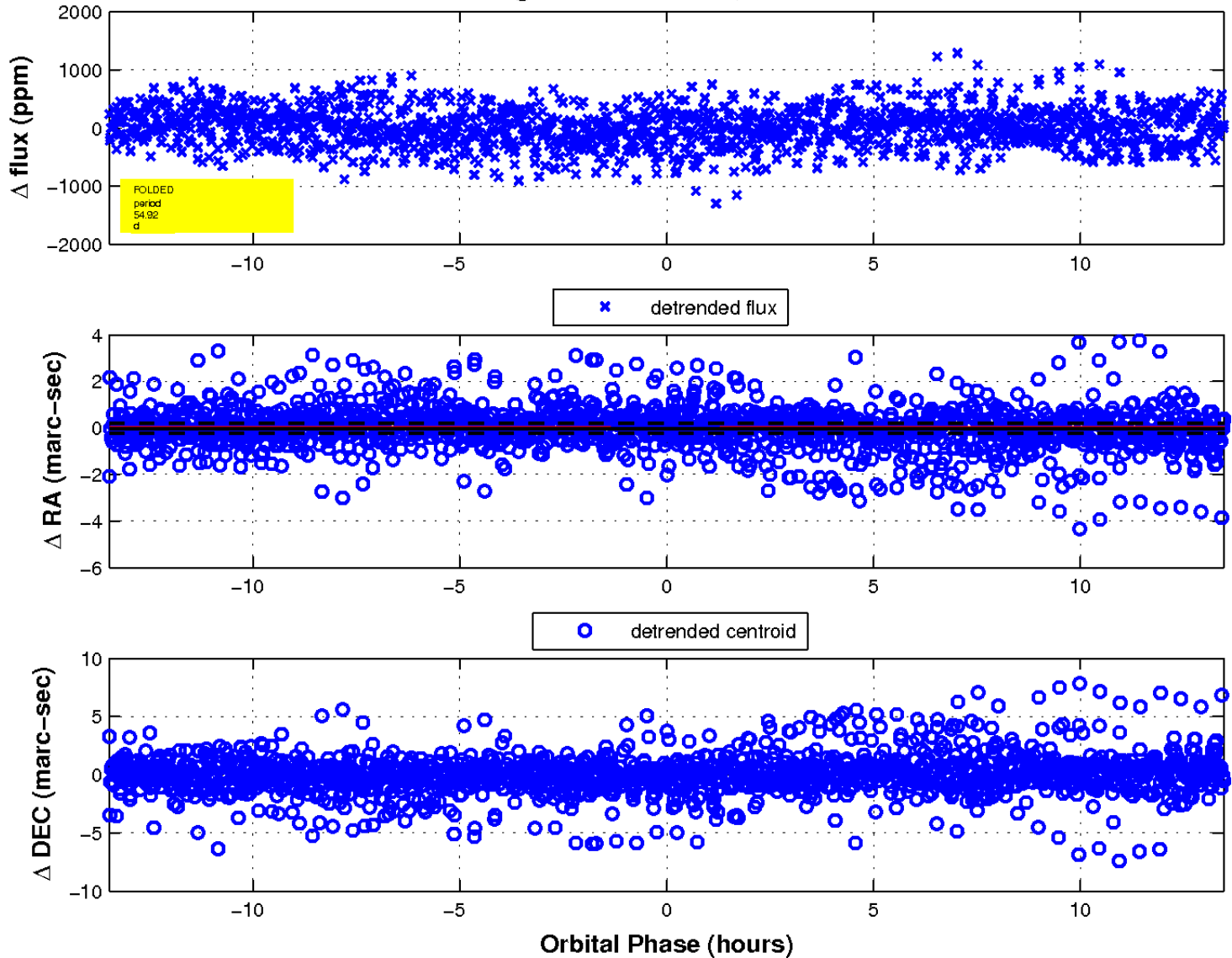
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



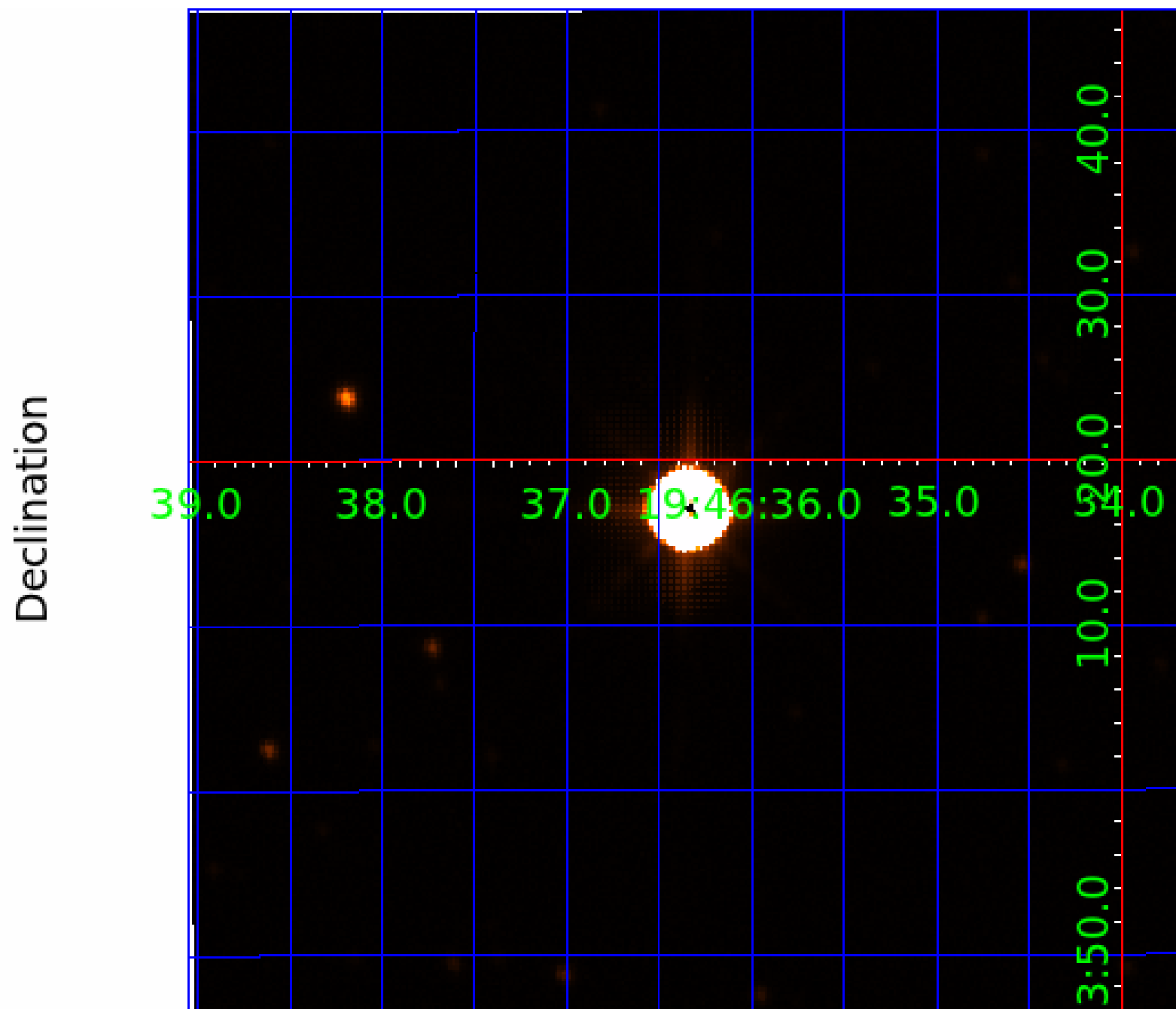
white \times : KIC target position; $+$: OOT centroid; Δ : difference centroid. red \times : large negative pixel value.



fluxWeightedCentroids, Planet 5 of 6



UKIRT Image



KIC 006381306

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})
006381306-01	OBS	No	0.528730	131.727439	17.2	1.844	8.1	7.2	3.25	8283	1.57	175176.55
006381306-02	OBS	No	0.528730	131.917470	31.2	1.800	11.9	10.6	3.25	8283	2.11	175176.60
006381306-03	OBS	No	87.531602	141.502800	600.9	2.274	10.2	9.1	3.25	8283	9.25	192.71
006381306-04	OBS	No	26.880126	145.501778	418.7	4.846	8.7	8.6	3.25	8283	12.56	930.14
006381306-05	OBS	No	54.916165	134.528631	540.0	4.496	8.9	8.4	3.25	8283	9.45	358.80
006381306-06	OBS	No	47.476210	131.745980	23.4	5.000	7.7	-1.0	3.25	8283	1.59	435.67

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
006381306-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—CENT_SATURATED
006381306-02	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—SAME_NTL_PERIOD—CENT_SATURATED
006381306-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—CENT_SATURATED
006381306-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_ALT—CENT_SATURATED
006381306-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_POS_ALT—CENT_SATURATED
006381306-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED

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

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

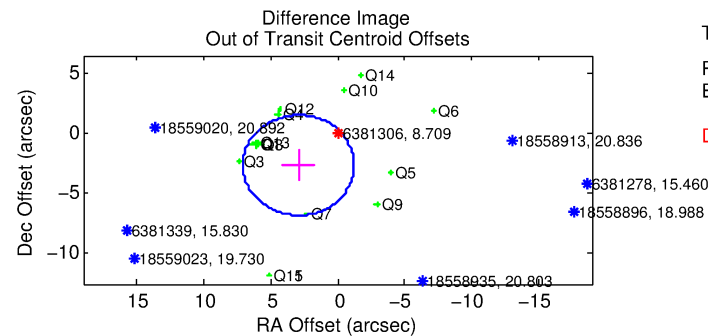
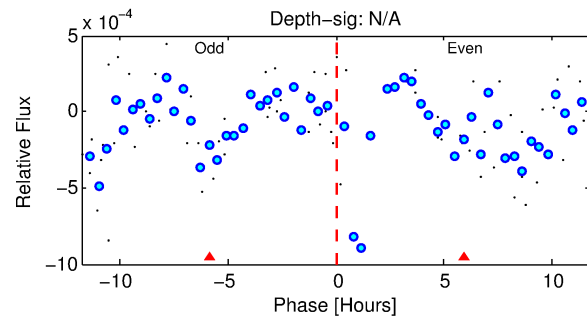
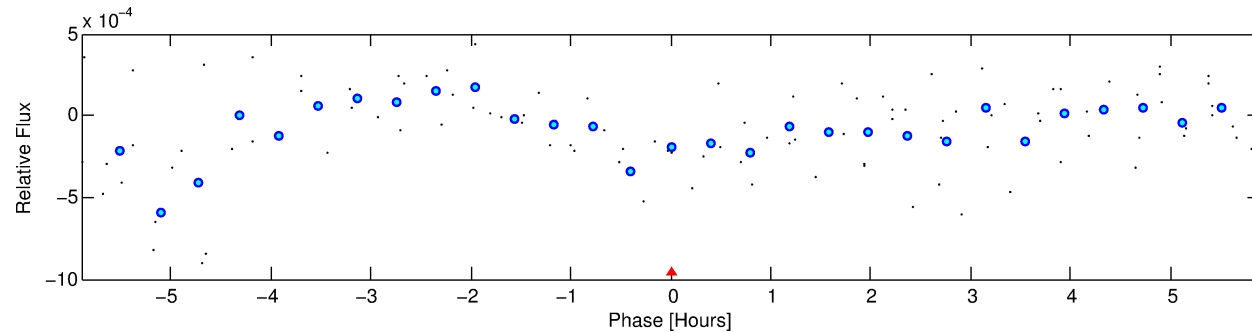
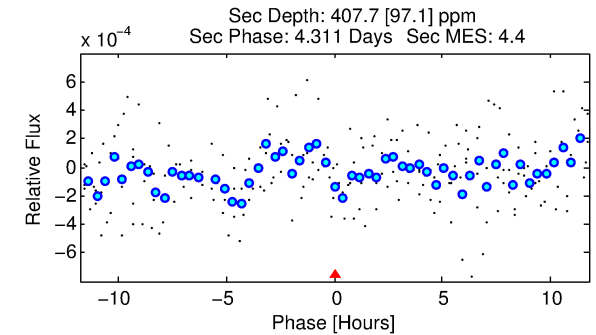
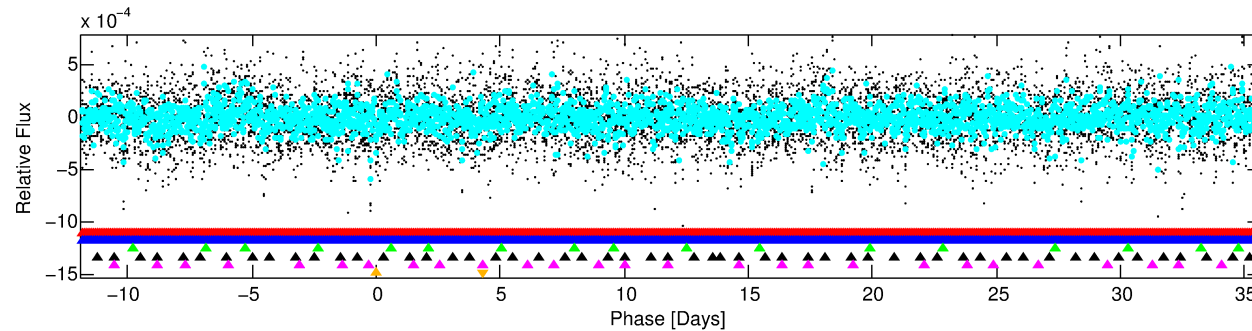
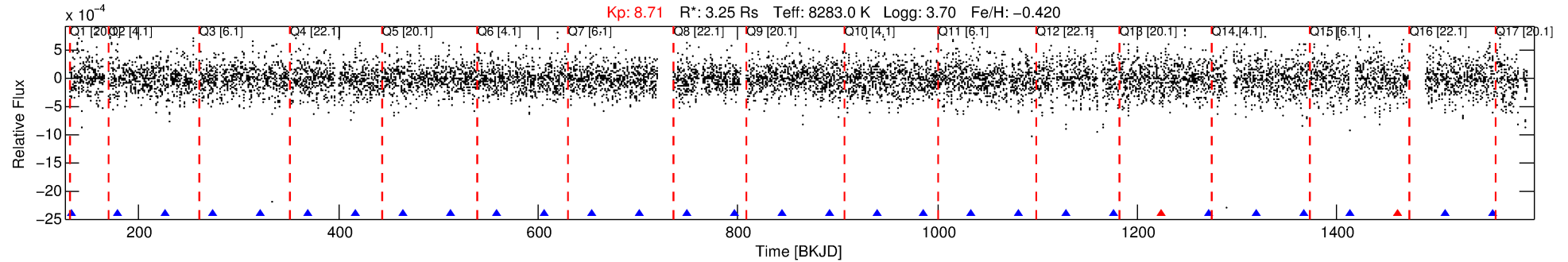
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 006381306-06

No Significant Match Found

DV One-Page Summary

KIC: 6381306 Candidate: 6 of 6 Period: 47.476 d



TPS TCE Results:

Period = 47.47621 d
Epoch = 131.7460 BKJD

DV fit results are unavailable

DV Diagnostic Results:

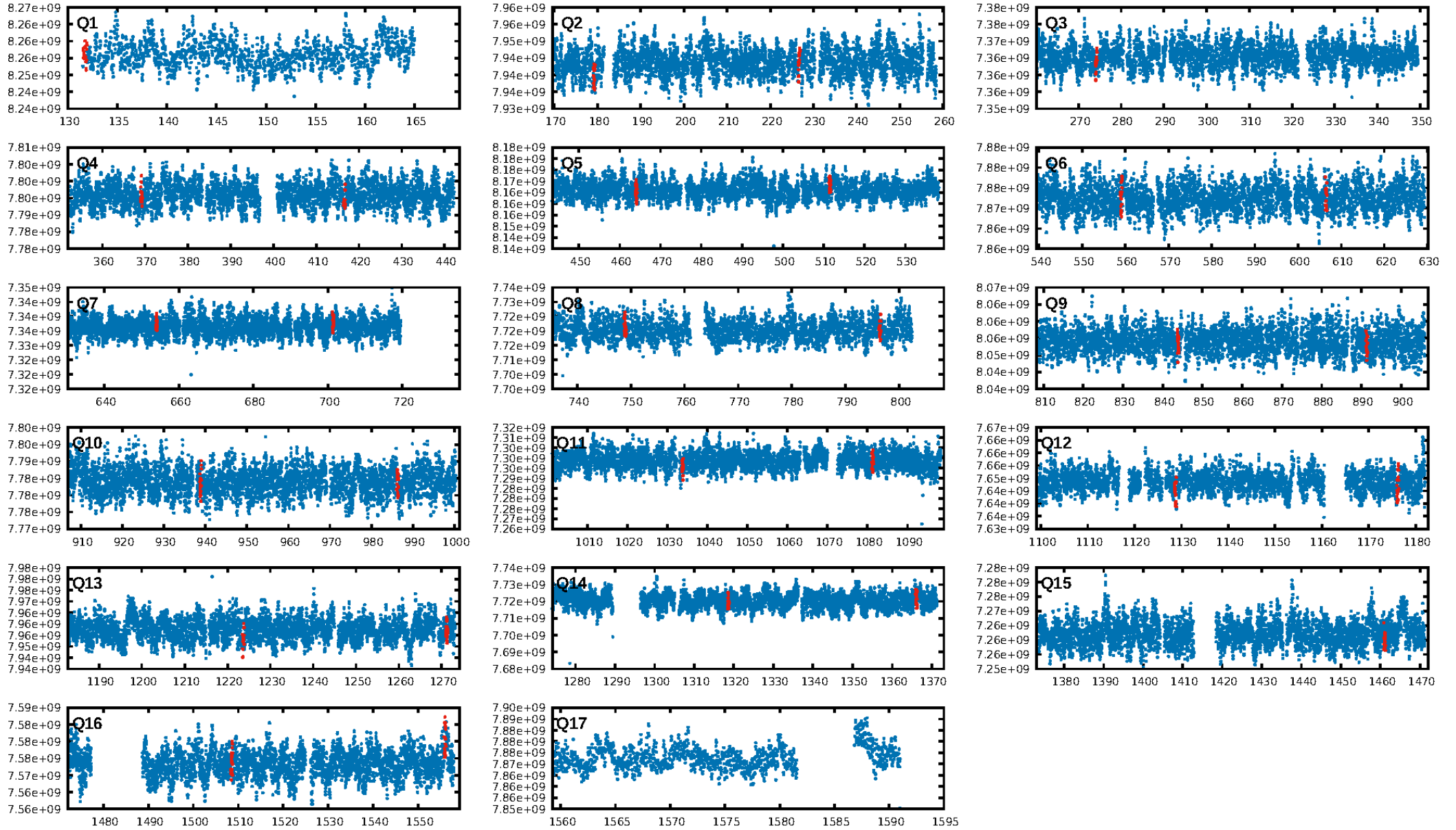
ShortPeriod-sig: 100.0% [70.99σ]
LongPeriod-sig: 100.0% [26.56σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: N/A
RollingBand-fgt: 0.75 [6/8]
GhostDiagnostic-chr: N/A

Centroid-sig: N/A
Centroid-so: 1.860 arcsec [3.37σ]
OotOffset-rm: 3.930 arcsec [2.83σ]
KicOffset-rm: 3.332 arcsec [2.61σ]
OotOffset-st: 3/4/3/4 [14]
KicOffset-st: 3/4/3/4 [14]
DiffImageQuality-fgm: 0.00 [0/14]
DiffImageOverlap-fno: 0.00 [0/16]

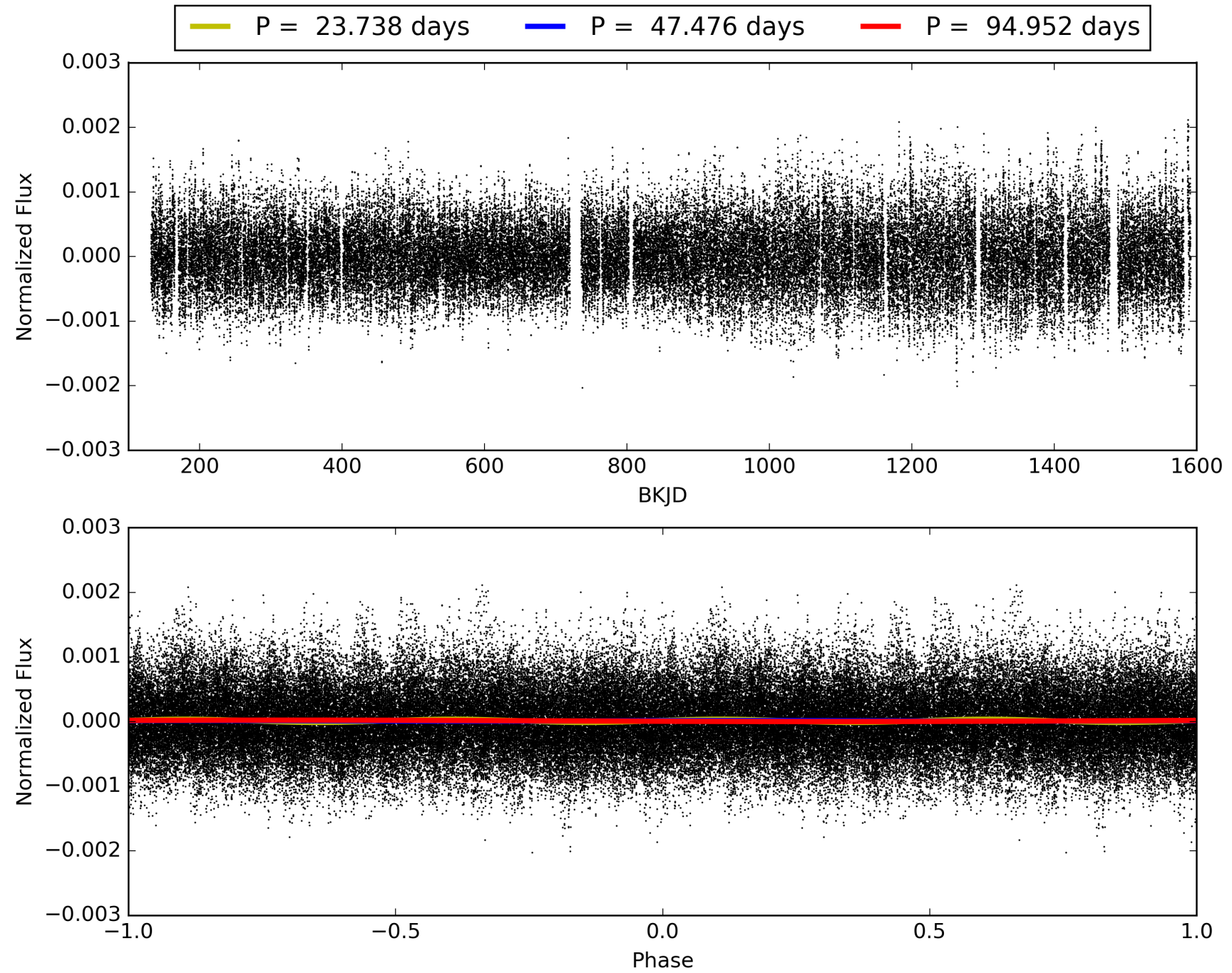
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 03-Feb-2016 08:26:01 Z

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

TCE 006381306-06, PDC Light Curves

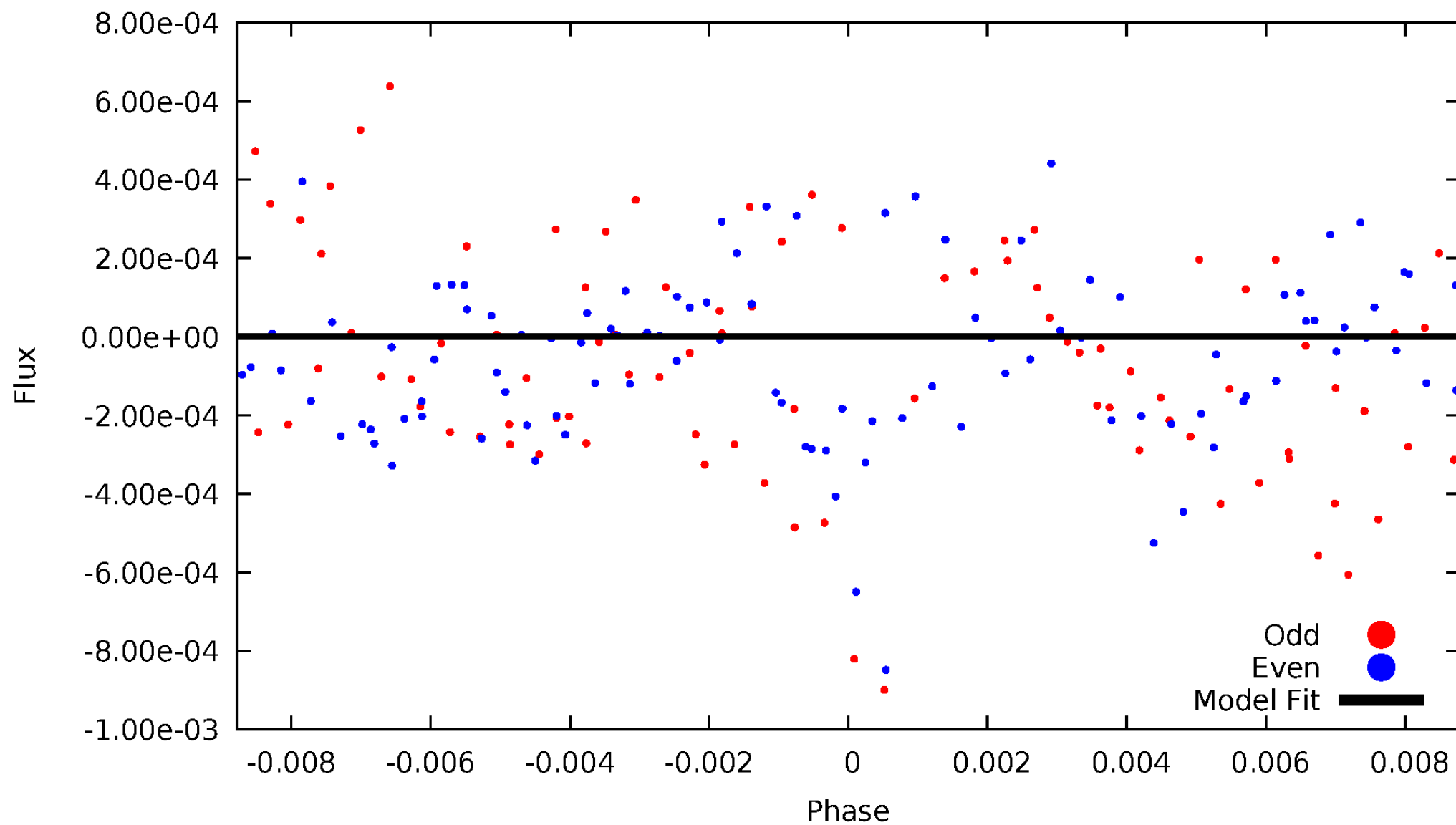


TCE 006381306-06



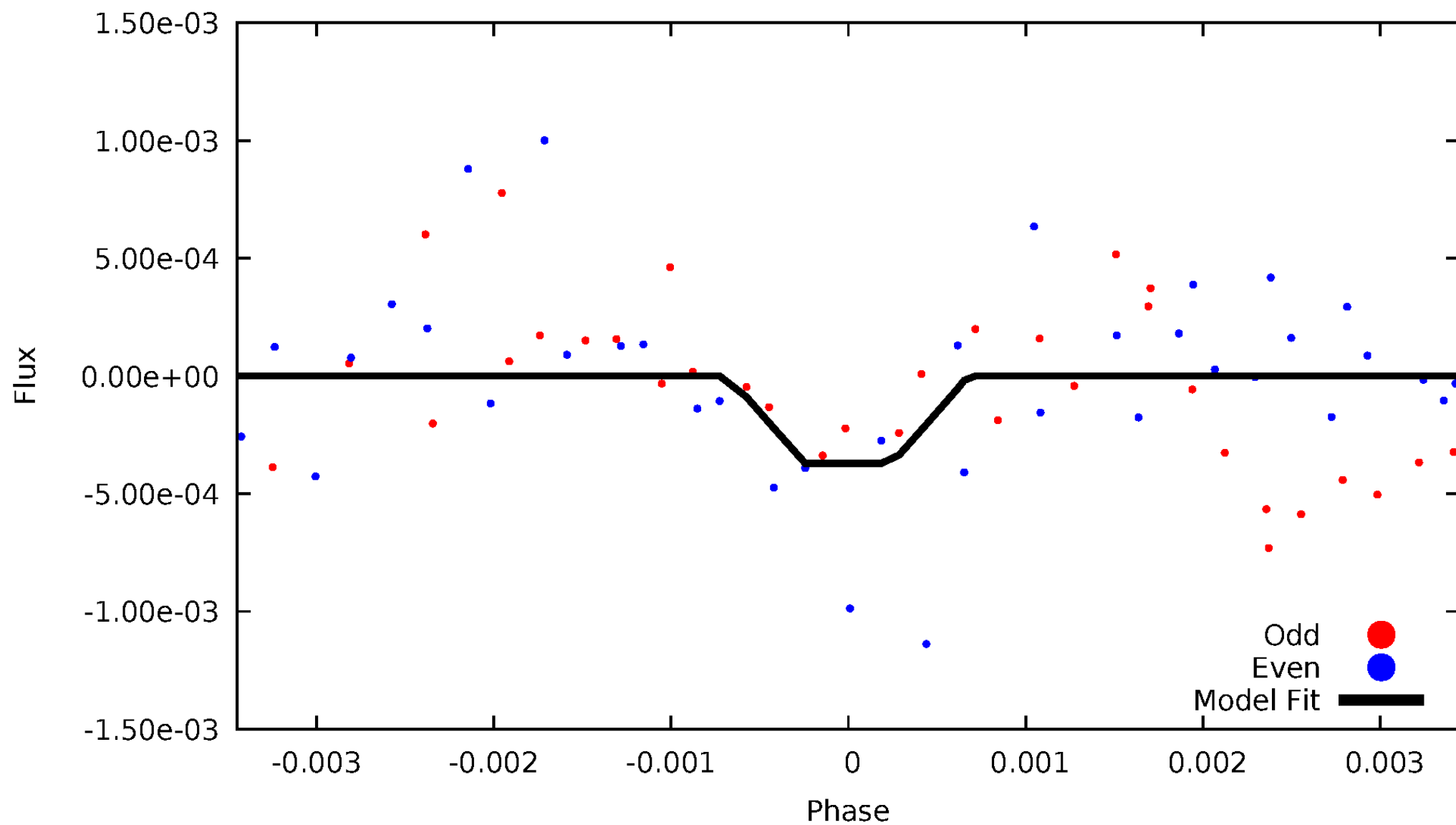
DV Odd/Even

TCE 006381306-06



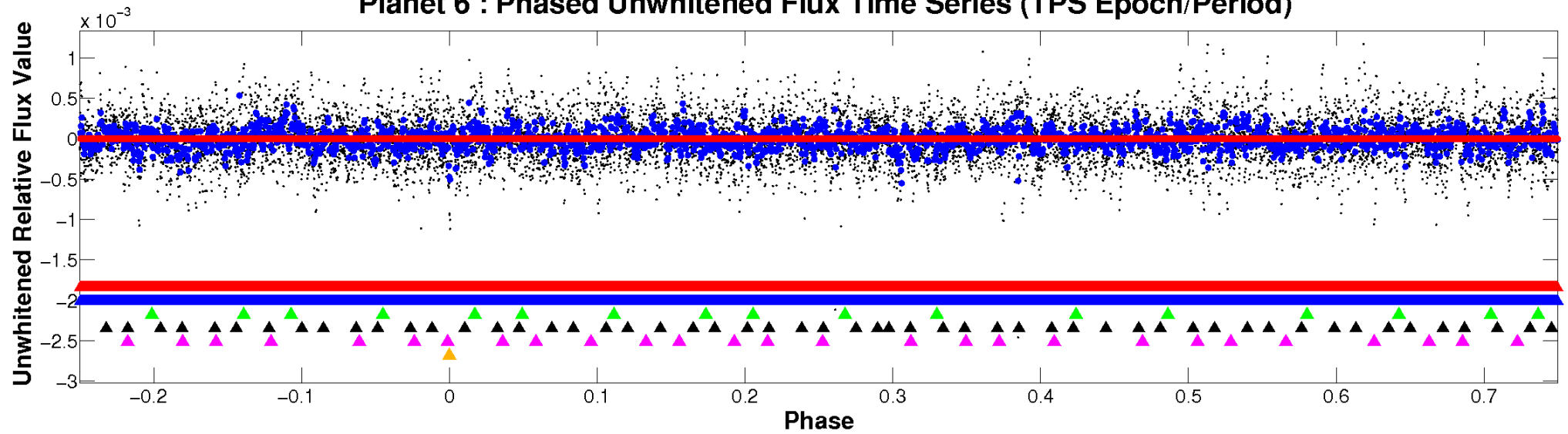
ALT Odd/Even

TCE 006381306-06

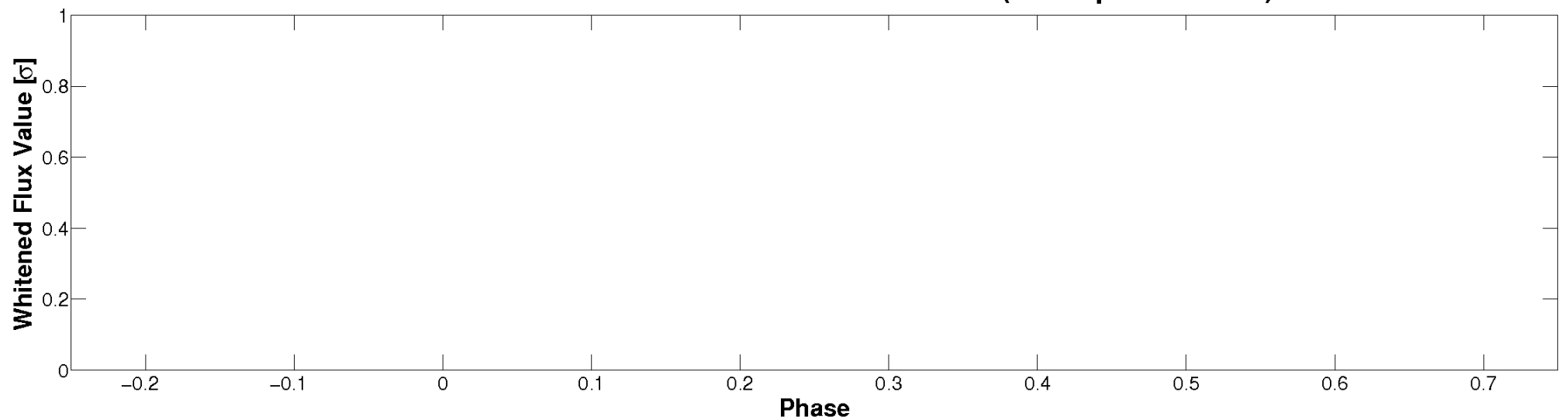


Non-Whitened Vs. Whitened Light Curve

Planet 6 : Phased Unwhitened Flux Time Series (TPS Epoch/Period)

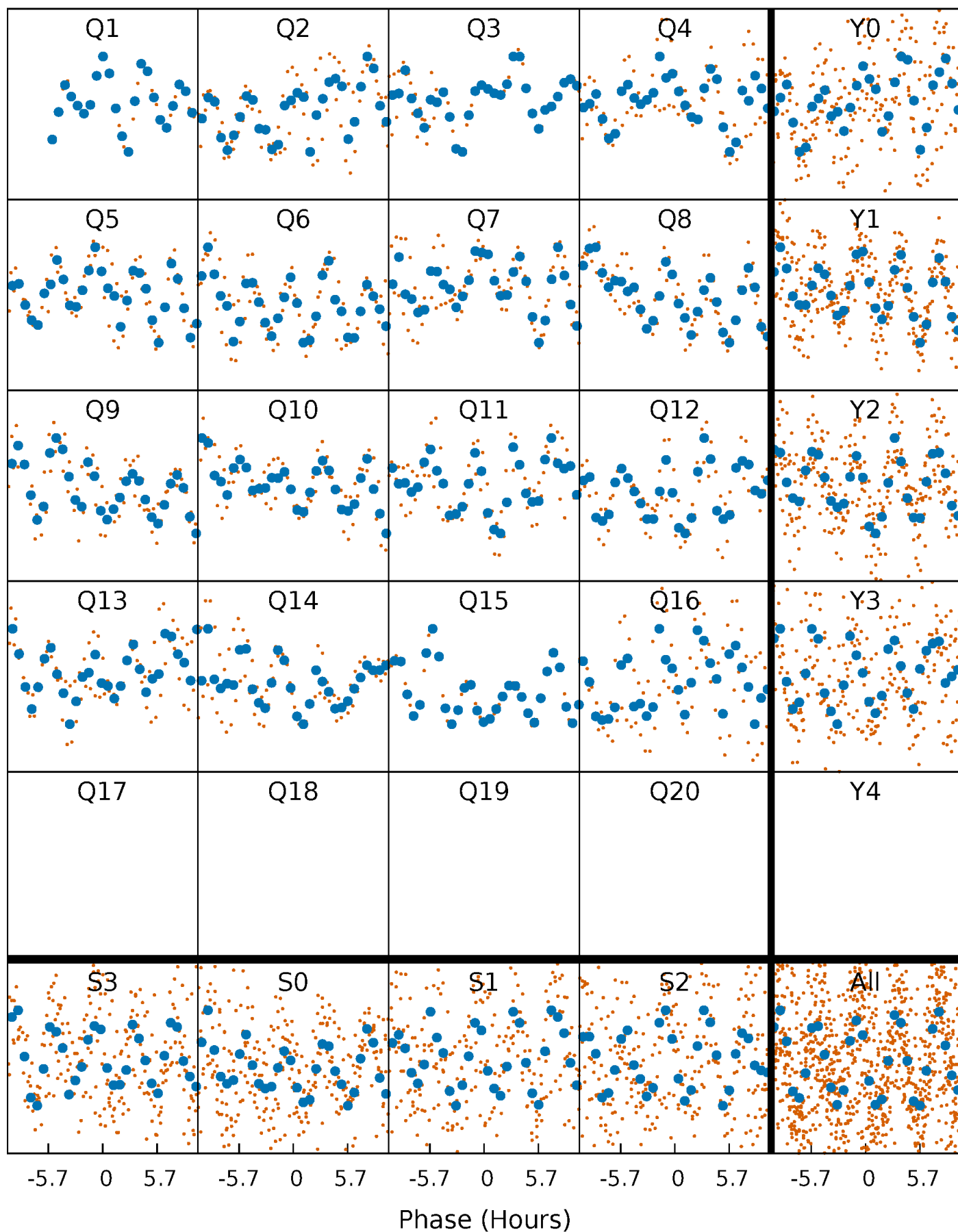


Planet 6 : Phased Whitened Flux Time Series (TPS Epoch/Period)



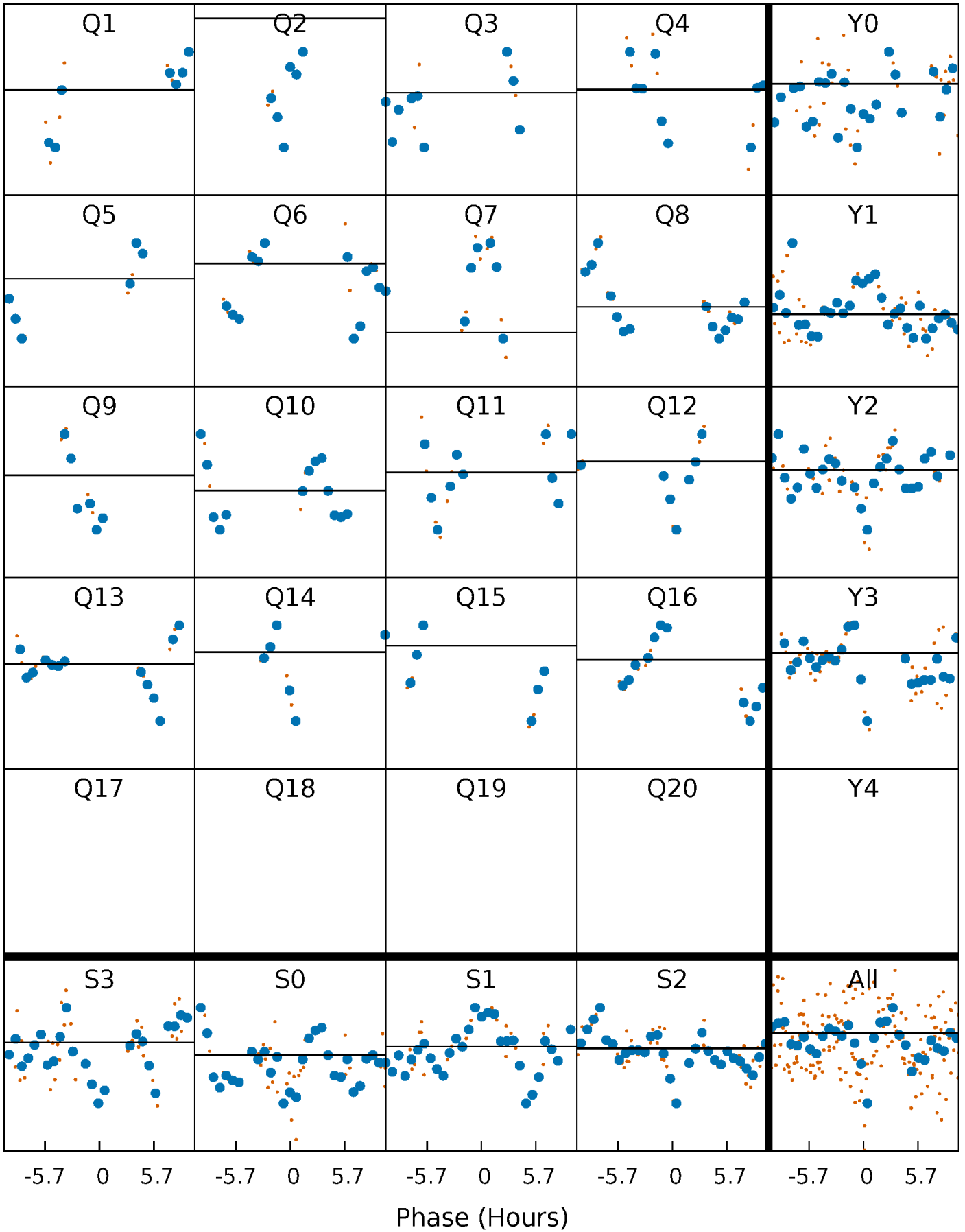
PDC Quarter-Phased Transit Curves

TCE 006381306-06 $P = 47.476210$ Days $T_0 = 131.745980$ (BKJD)



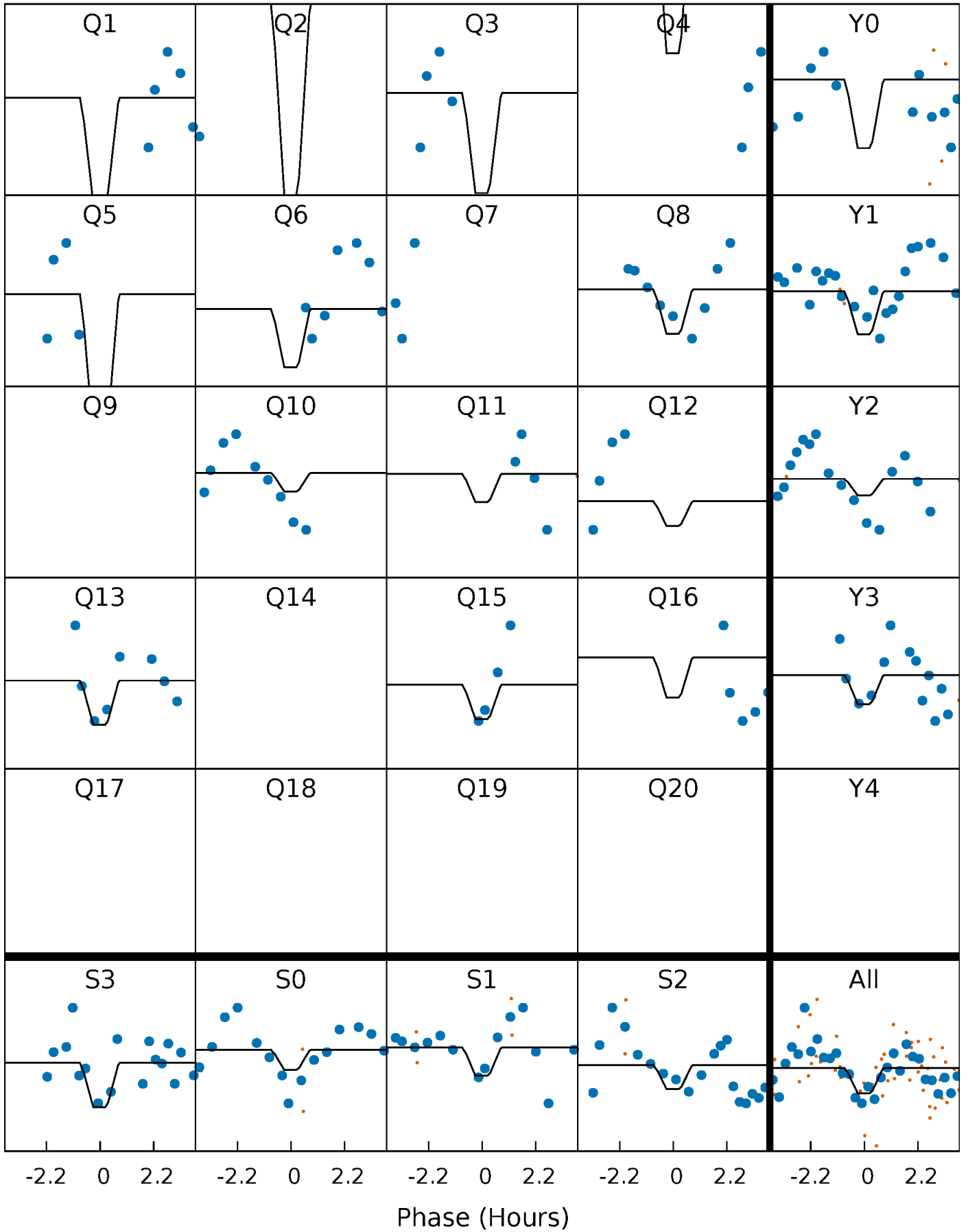
DV Quarter-Phased Transit Curves

TCE 006381306-06 $P = 47.476210$ Days $T_0 = 131.745980$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

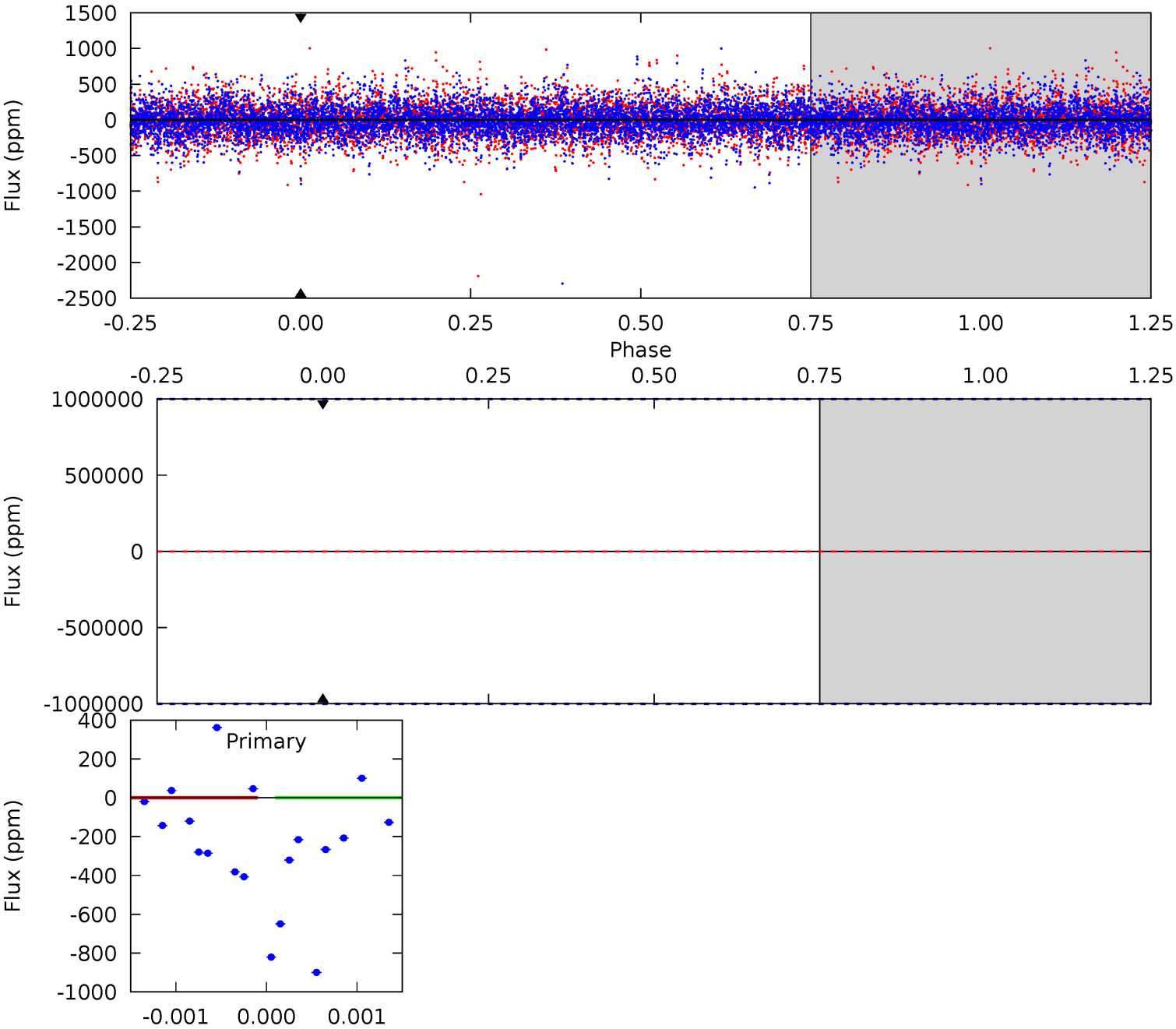
TCE 006381306-06 P= 47.476210 Days $T_0=131.965682$ (BKJD)



DV Model-Shift Uniqueness Test

006381306-06, P = 47.476210 Days, E = 84.269770 Days

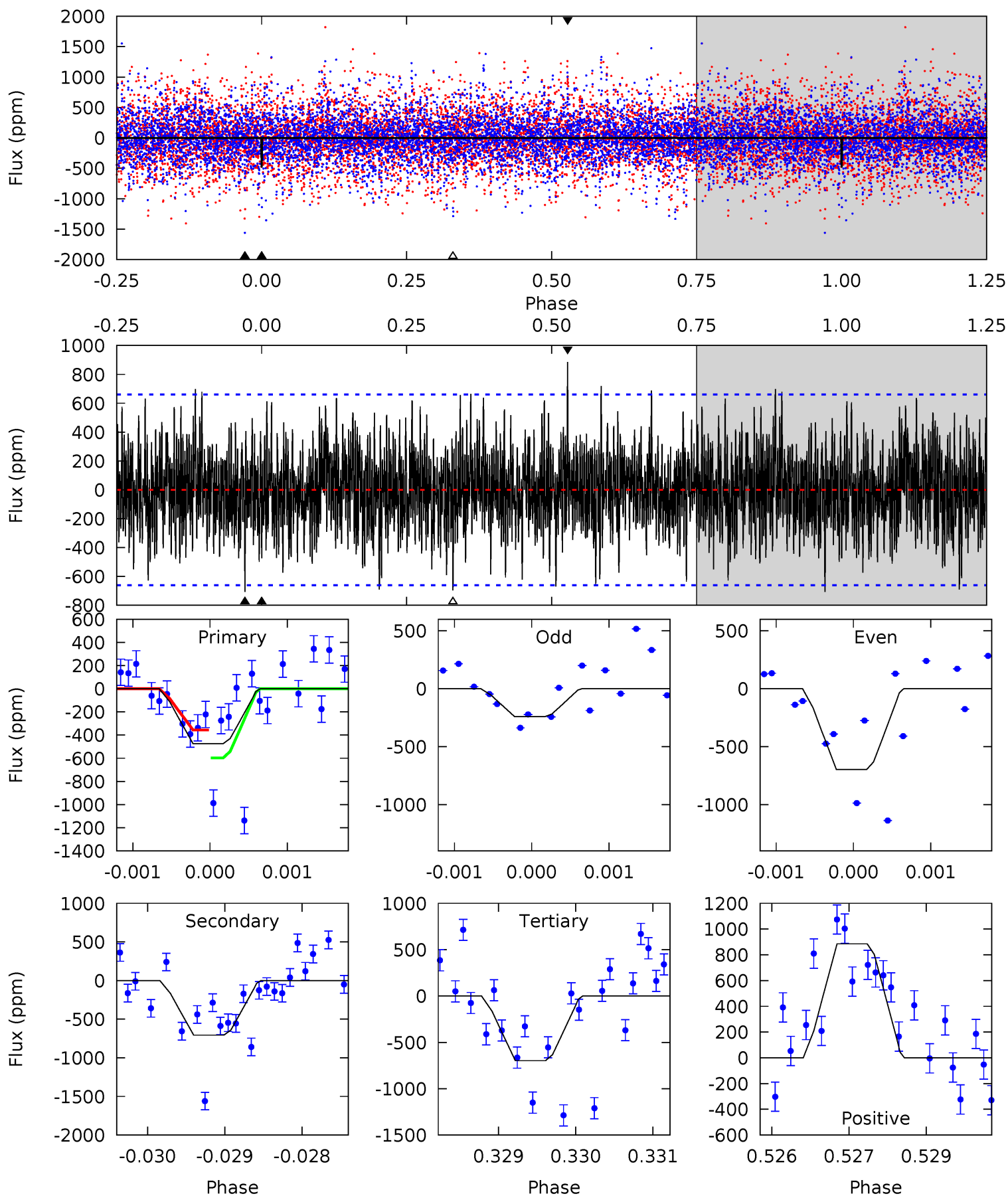
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
0	0	0	0	1.00	1.00	1.00	0	0	0	0	0	0	0	0



Alt Model-Shift Uniqueness Test

006381306-06, P = 47.476210 Days, E = 84.489472 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
3.90	5.81	5.73	7.28	5.43	3.26	1.95	-1.84	-3.38	0.08	-1.47	1.83	1.60	0.56	0.97



Stellar Parameters For KIC 006381306

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	M (M_{\odot})	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	8283^{+236}_{-324}	$3.700^{+0.493}_{-0.087}$	$-0.420^{+0.200}_{-0.300}$	$3.245^{+0.545}_{-1.635}$	$1.927^{+0.206}_{-0.471}$	$0.079^{+0.406}_{-0.027}$
	+3%/-4%	+13%/-2%	+48%/-71%	+17%/-50%	+11%/-24%	+511%/-34%
Source	KIC0	KIC0	KIC0	DSEP		

KIC = Kepler Input Catalog; PHO = Photometry; SPE = Spectroscopy; AST = Asteroseismology
 TRA = Transits; DESP = Dartmouth Models; MULT = Multiple Models

Secondary Eclipse Parameters for KIC 006381306-06 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	0 ± 1000000	$22.08^{+27.58}_{-16.04}$	1567^{+117}_{-192}	-7989^{+53707}_{-53744}	$-493.499^{+18992.502}_{-25665.652}$
Alt.	-706 ± 122	$23.03^{+25.69}_{-15.02}$	1557^{+131}_{-210}	4854^{+3497}_{-1173}	74^{+577}_{-58}

T_{max} = Theoretical Maximum Planetary Temperature

T_{obs} = Observed Planetary Temperature (Assuming $A=0.3$)

A_{obs} = Observed Albedo (Assuming $T=0$)

If a secondary eclipse is present, the system is likely an EB if $T_{obs} \gg T_{max}$ AND $A_{obs} \gg 1.0$

DV Centroid Data

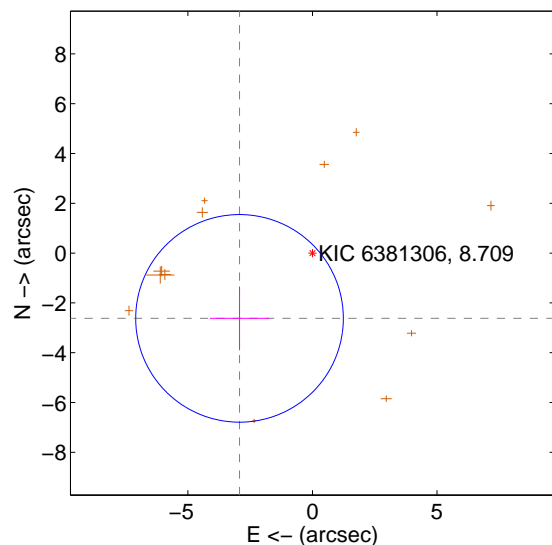
Supplemental centroid analysis for 006381306-06. **Kepler magnitude: 8.71.** Transit SNR -1.00

There are 0 quarters with good PRF difference image offsets

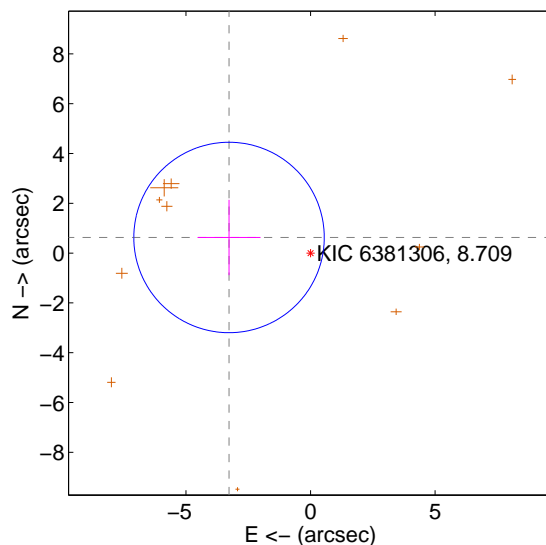
The OOT PRF centroid is offset from the target star catalog position by about 2.88 arcsec so the offset from difference PRF-fit to OOT-fit may be invalid.

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	3.930 ± 1.389	2.83	2.928 ± 1.188	-2.621 ± 1.283
PRF-fit source offset from KIC position	3.332 ± 1.275	2.61	3.272 ± 1.265	0.628 ± 1.512
photometric centroid source offset	1.86 ± 0.55	3.37	-0.70 ± 0.41	1.72 ± 0.57

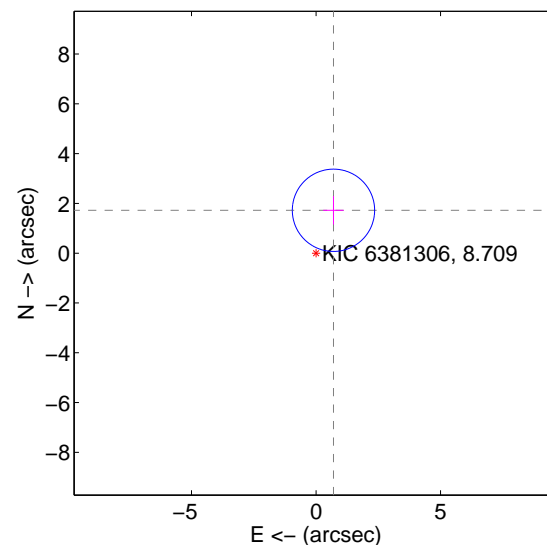
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

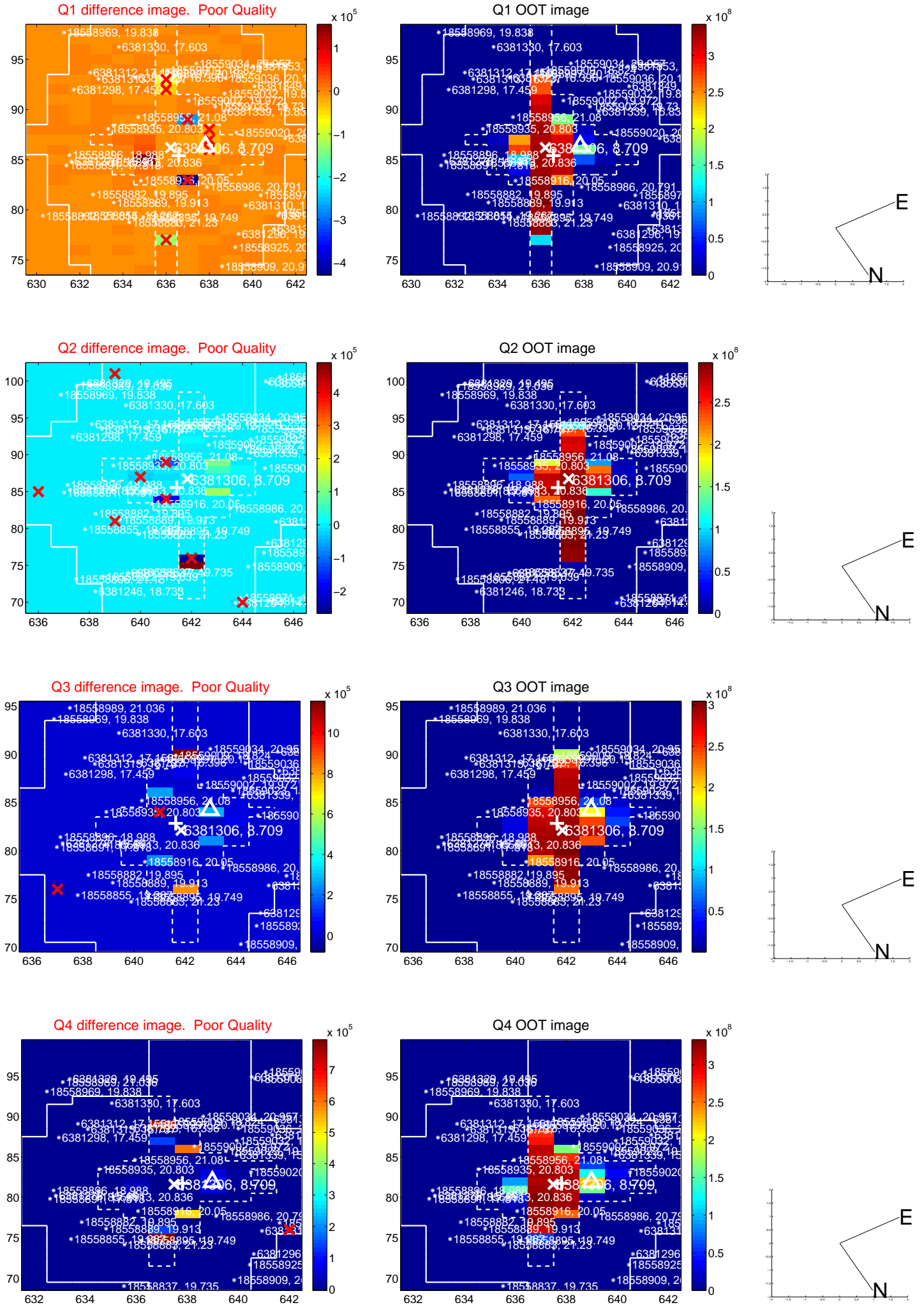


offset from photometric centroids

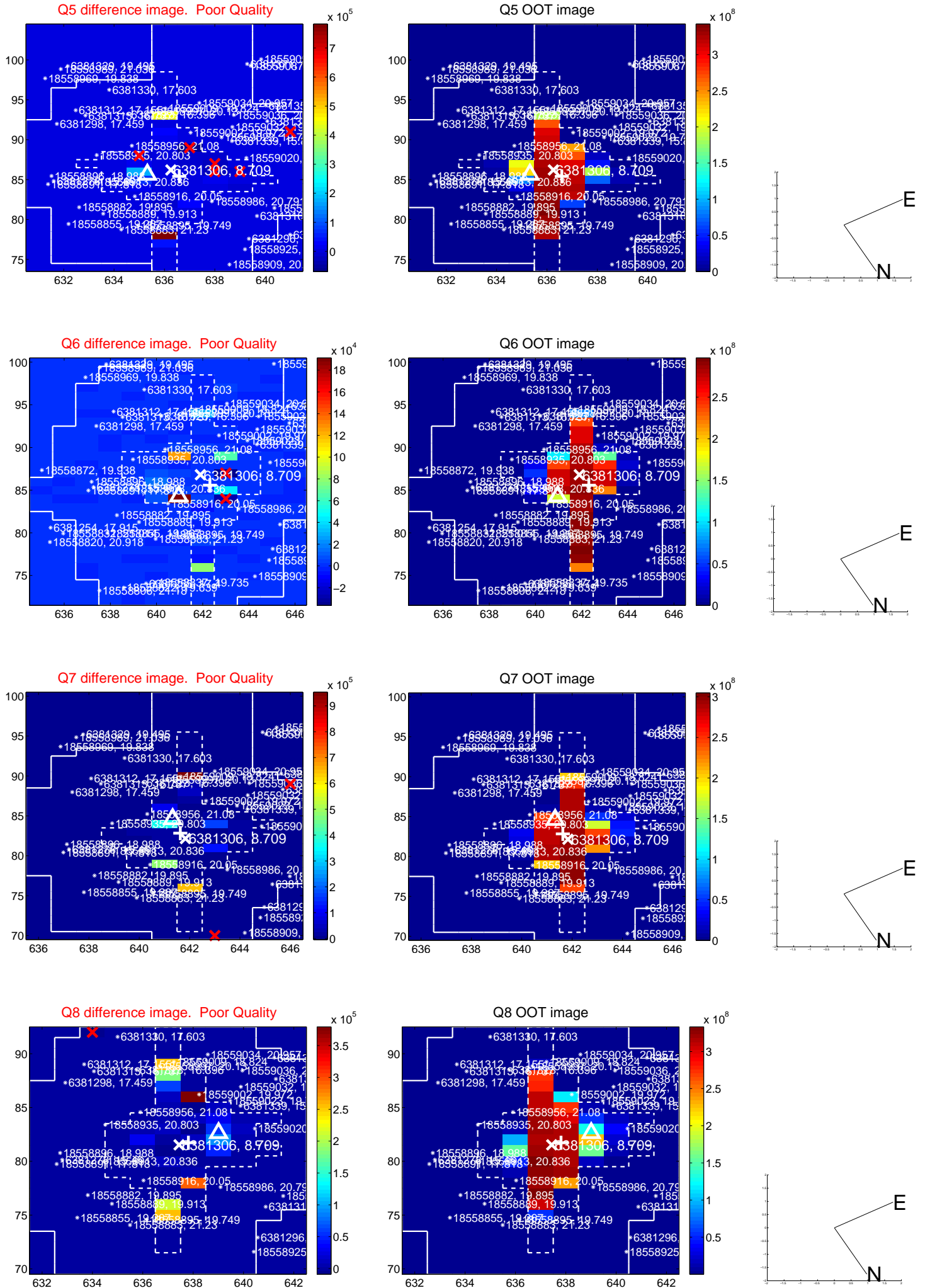


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

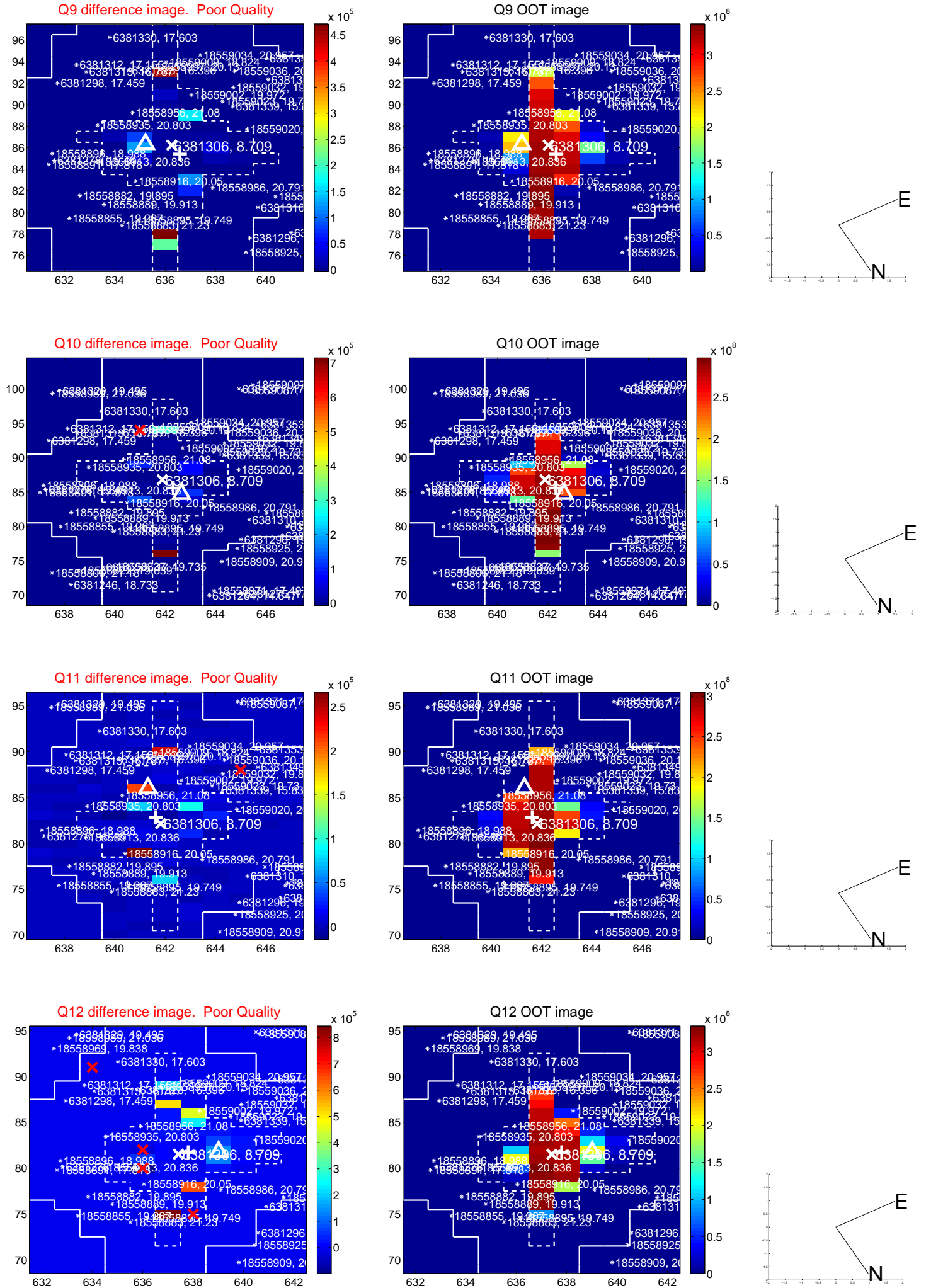
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



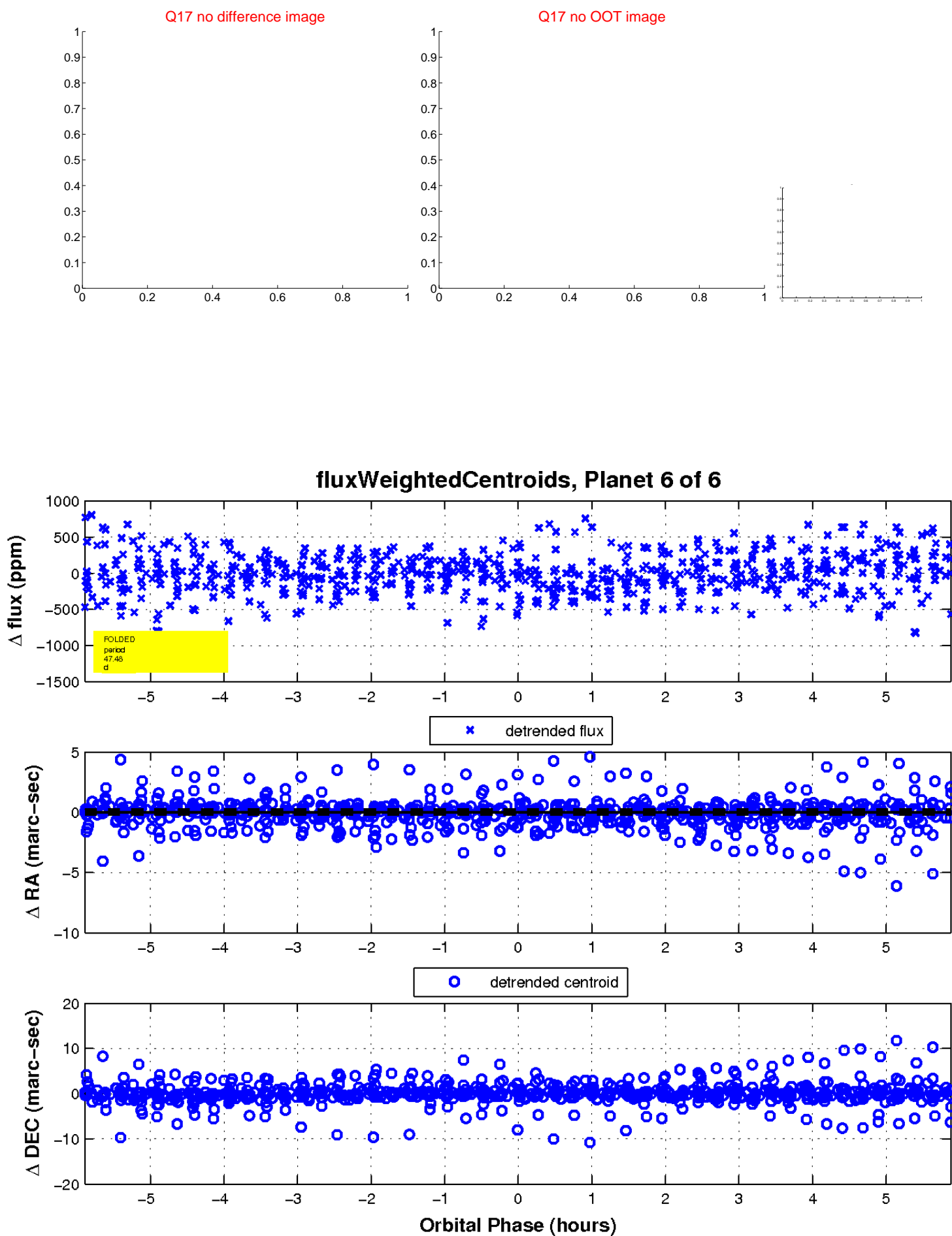
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



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



UKIRT Image

