

KIC 009710475

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})
009710475-01	OBS	No	0.815768	131.751161	18.2	5.011	10.2	3.9	2.66	9191	1.17	87222.12
009710475-02	OBS	No	210.070028	205.139547	991.1	2.097	10.0	10.3	2.66	9191	9.27	53.24
009710475-03	OBS	No	53.498735	141.253821	620.9	3.347	8.9	9.3	2.66	9191	7.13	329.81
009710475-04	OBS	No	14.557474	136.571193	351.5	2.690	8.8	8.9	2.66	9191	5.60	1870.40
009710475-05	OBS	No	105.762566	191.928121	676.6	4.355	8.7	8.7	2.66	9191	7.53	132.93
009710475-06	OBS	No	43.281749	152.778024	585.9	3.664	8.7	8.2	2.66	9191	11.24	437.50
009710475-07	OBS	No	50.033795	132.680564	505.3	1.762	8.4	7.7	2.66	9191	6.74	360.60
009710475-08	OBS	No	79.498344	136.881615	107.6	5.000	7.1	-1.0	2.66	9191	2.82	194.49

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009710475-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT
009710475-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL—TRANS_GAPPED—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
009710475-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE—TRANS_GAPPED—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
009710475-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE—TRANS_GAPPED—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
009710475-05	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—HALO_GHOST
009710475-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
009710475-07	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
009710475-08	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_NOFITS

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

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

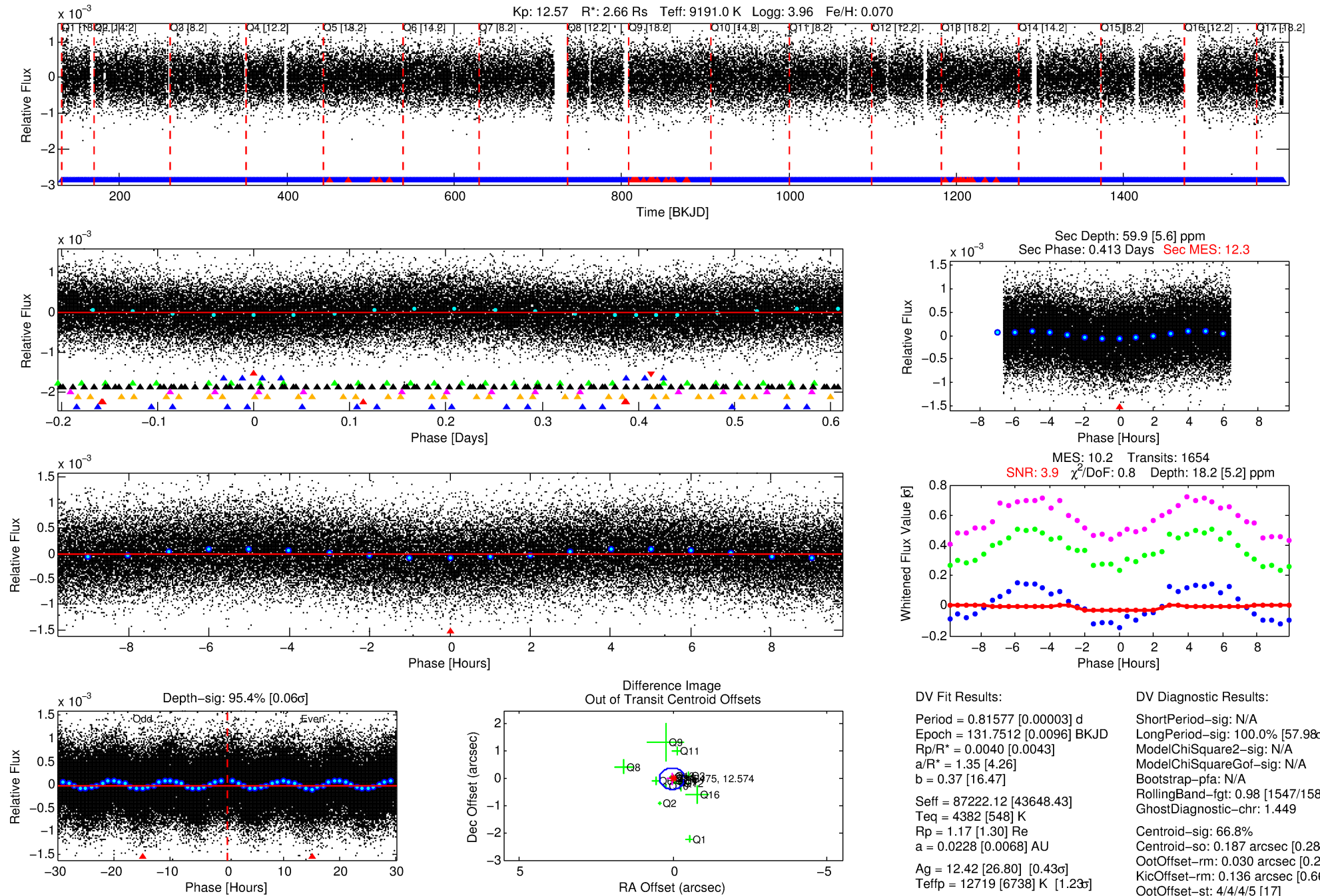
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 009710475-01

No Significant Match Found

DV One-Page Summary

KIC: 9710475 Candidate: 1 of 8 Period: 0.816 d



DV Fit Results:

Period = 0.81577 [0.00003] d
Epoch = 131.7512 [0.0096] BKJD
Rp/R* = 0.0040 [0.0043]
a/R* = 1.35 [4.26]
b = 0.37 [16.47]
Seff = 87222.12 [43648.43]
Teff = 4382 [548] K
Rp = 1.17 [1.30] Re
a = 0.0228 [0.0068] AU
Ag = 12.42 [26.80] [0.43 σ]
Teffp = 12719 [6738] K [1.23 σ]

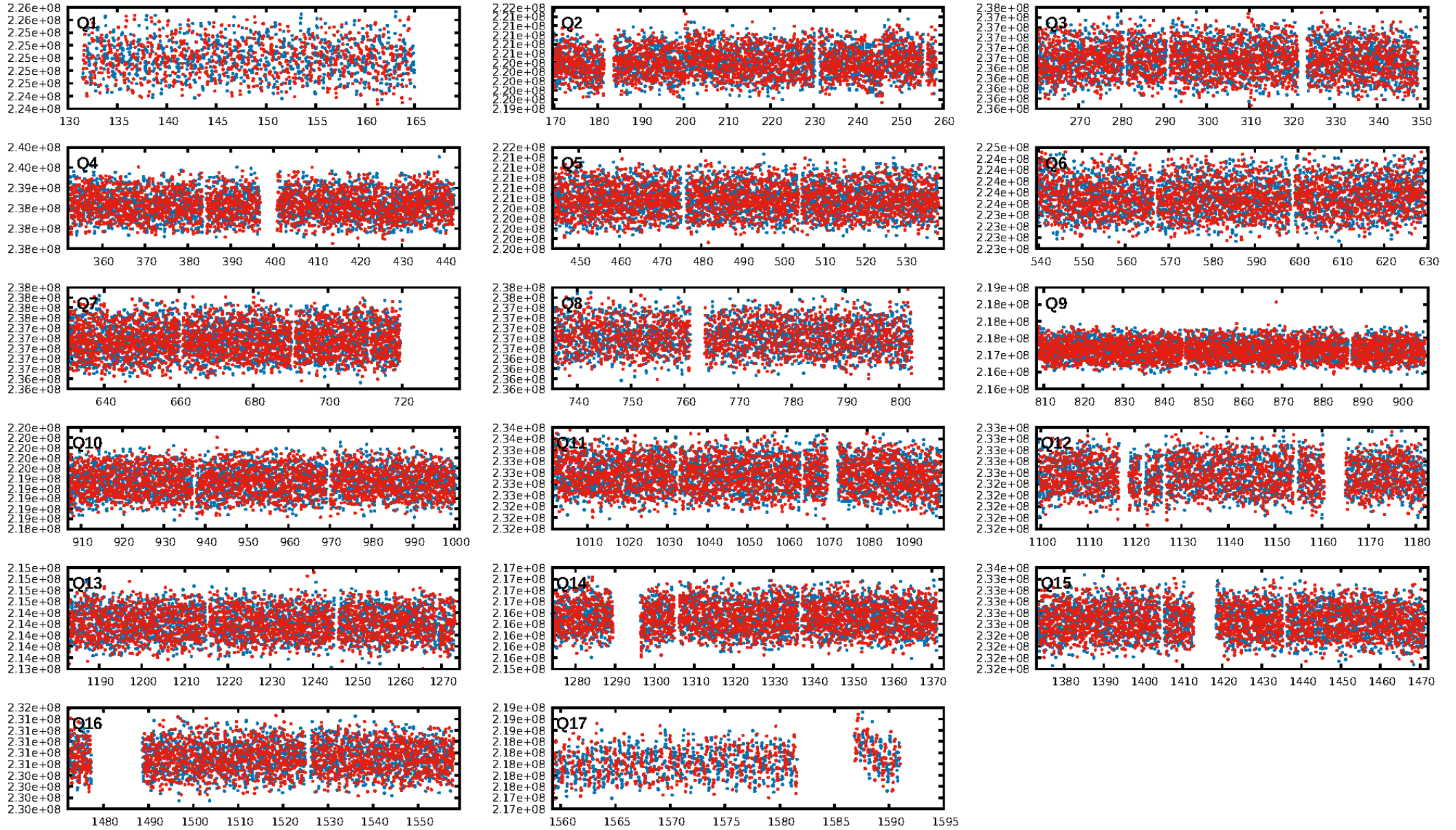
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [57.98 σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: N/A
RollingBand-fgt: 0.98 [1547/1580]
GhostDiagnostic-chr: 1.449
Centroid-sig: 66.8%
Centroid-so: 0.187 arcsec [0.28 σ]
OotOffset-rm: 0.030 arcsec [0.23 σ]
KicOffset-rm: 0.136 arcsec [0.66 σ]
OotOffset-st: 4/4/4/5 [17]
KicOffset-st: 4/4/4/5 [17]
DiffImageQuality-fgm: 0.94 [16/17]
DiffImageOverlap-fno: 1.00 [17/17]

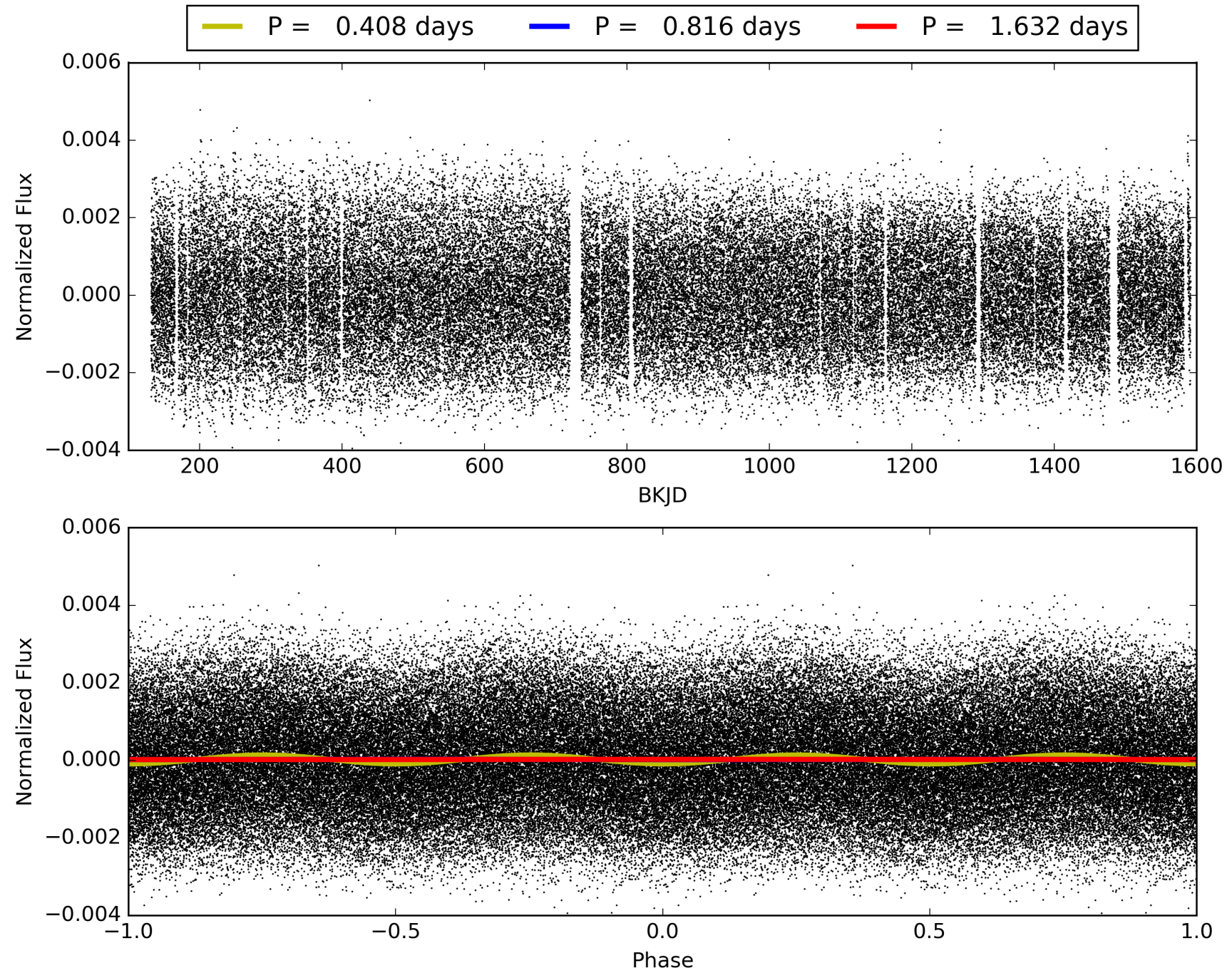
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This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

TCE 009710475-01, PDC Light Curves

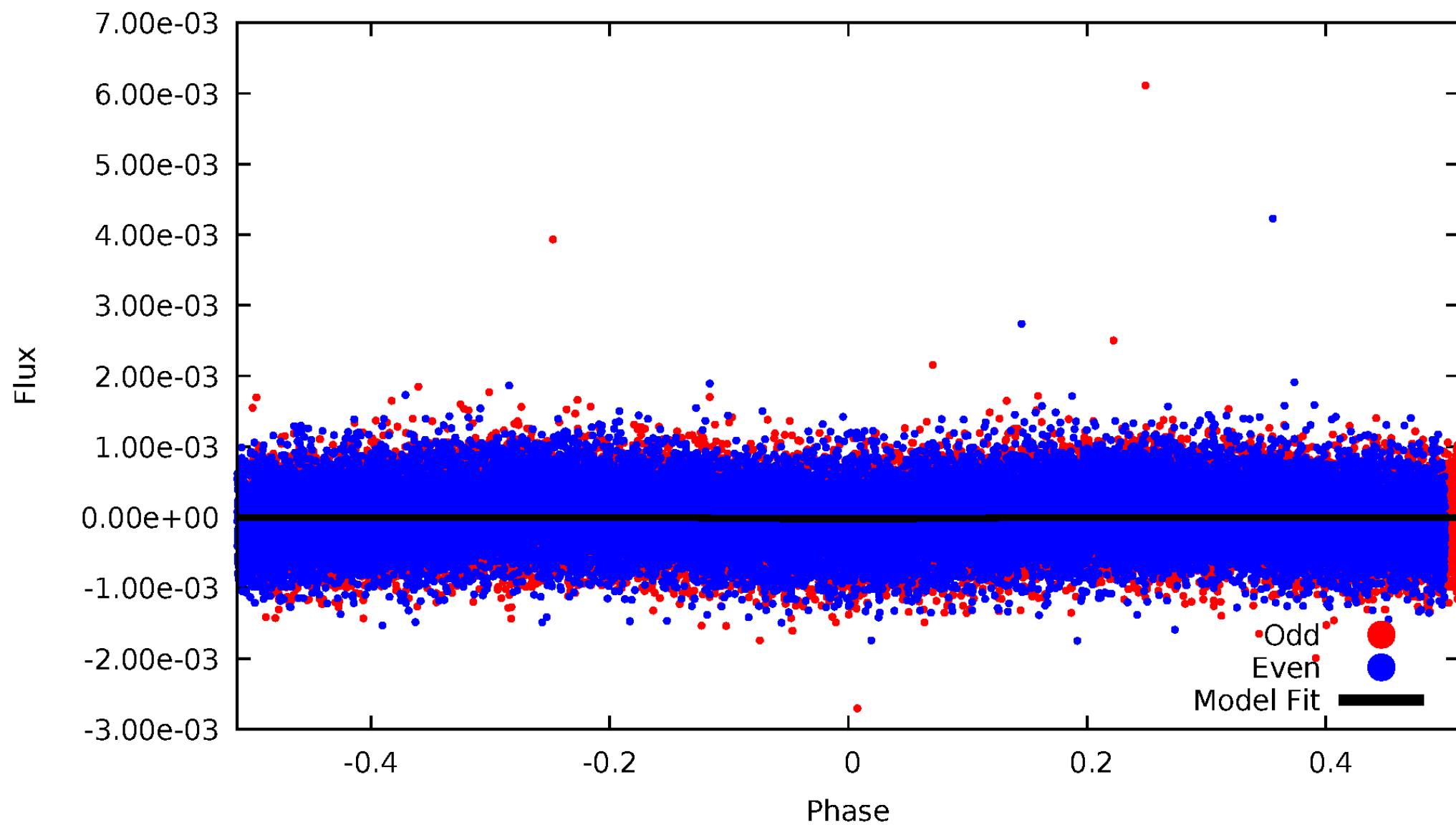


TCE 009710475-01



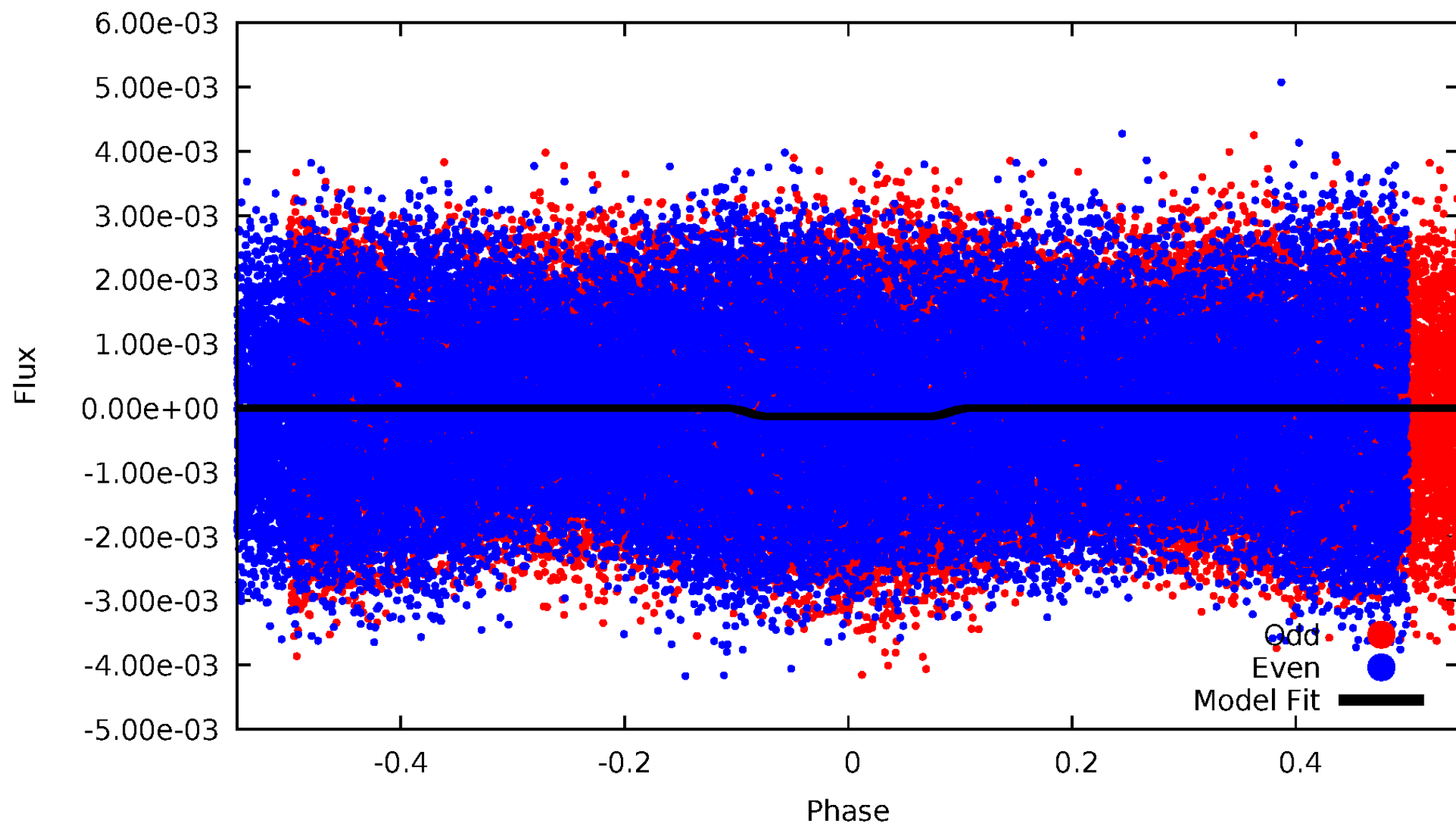
DV Odd/Even

TCE 009710475-01

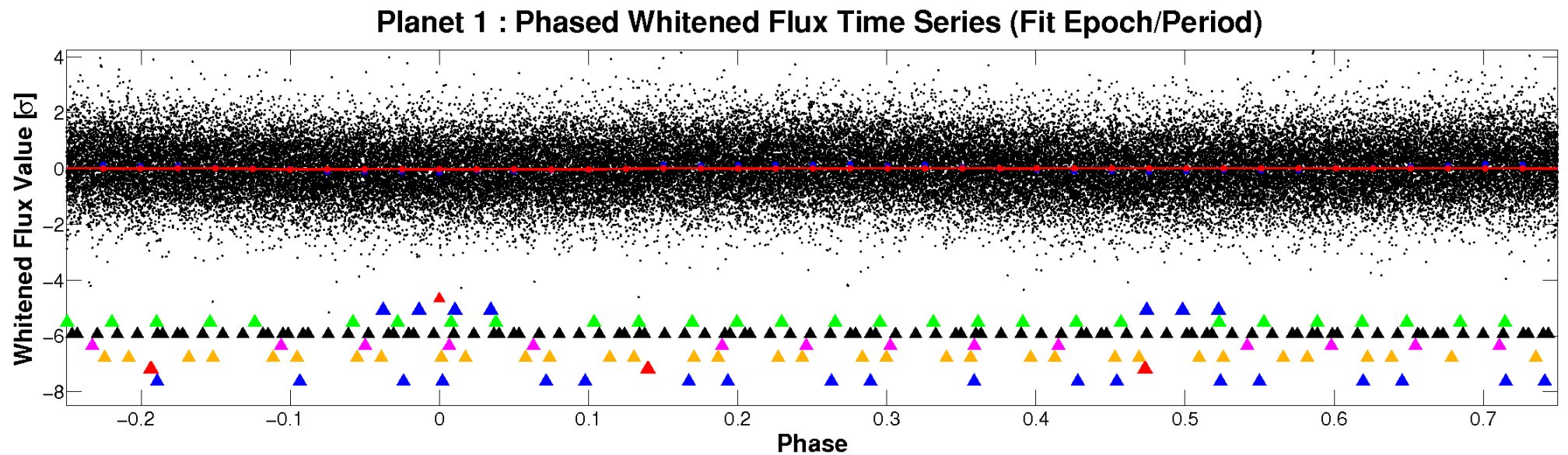
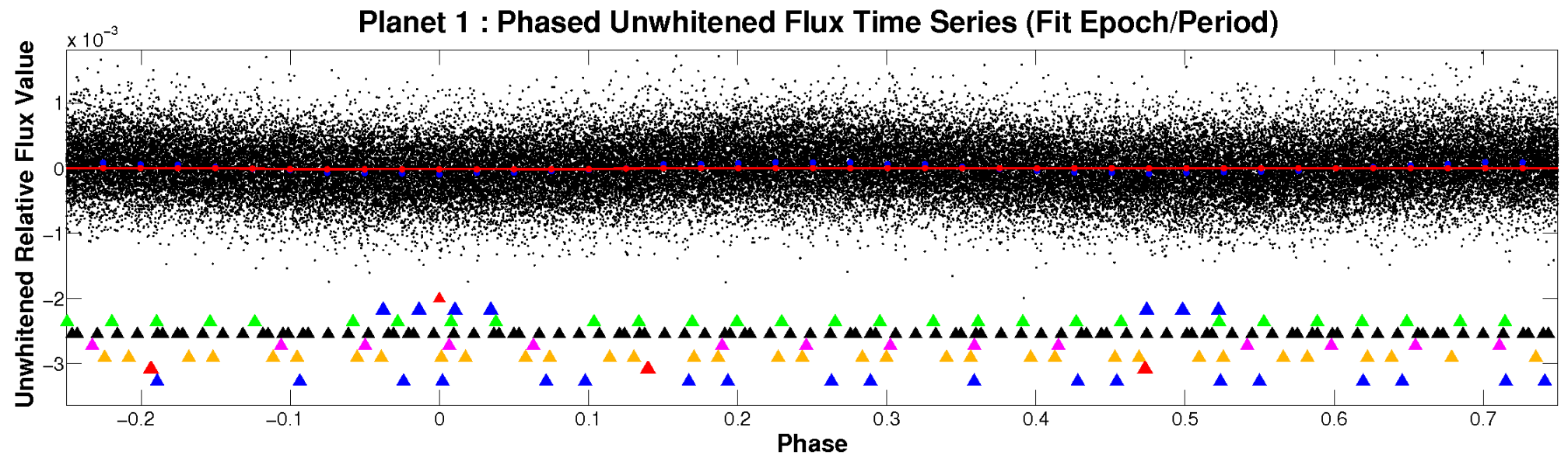


ALT Odd/Even

TCE 009710475-01

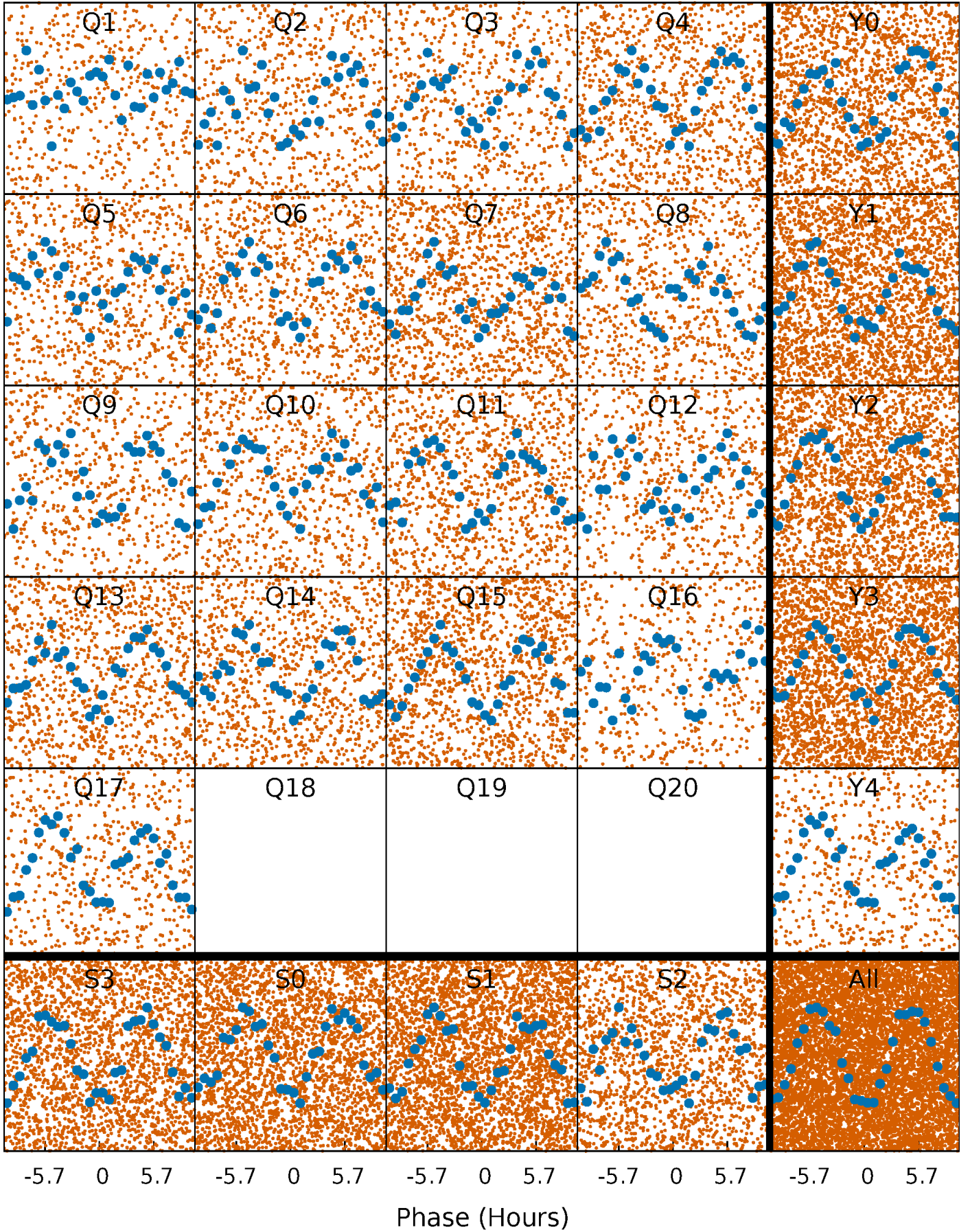


Non-Whitened Vs. Whitened Light Curve



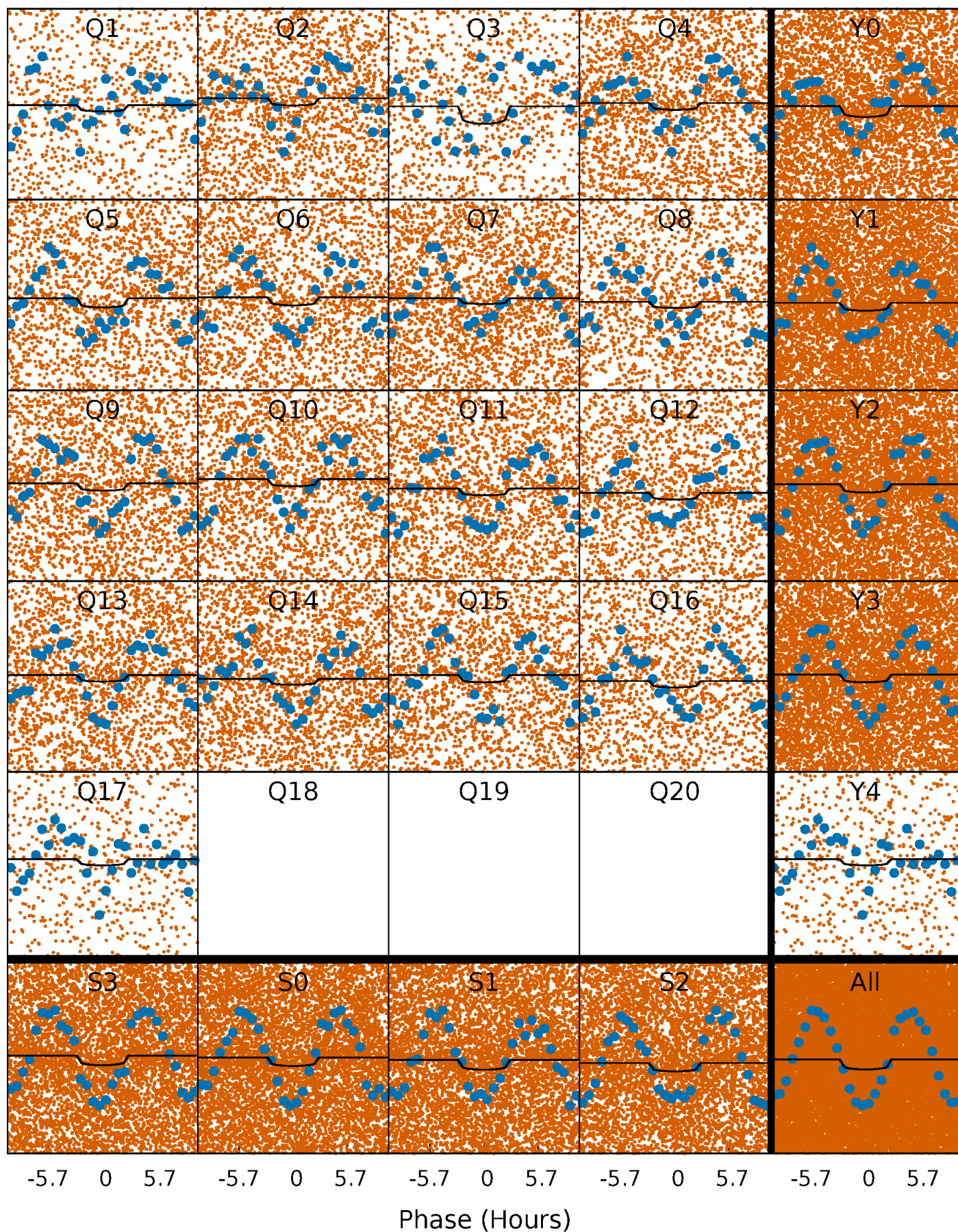
PDC Quarter-Phased Transit Curves

TCE 009710475-01 P= 0.815768 Days $T_0=131.751161$ (BKJD)



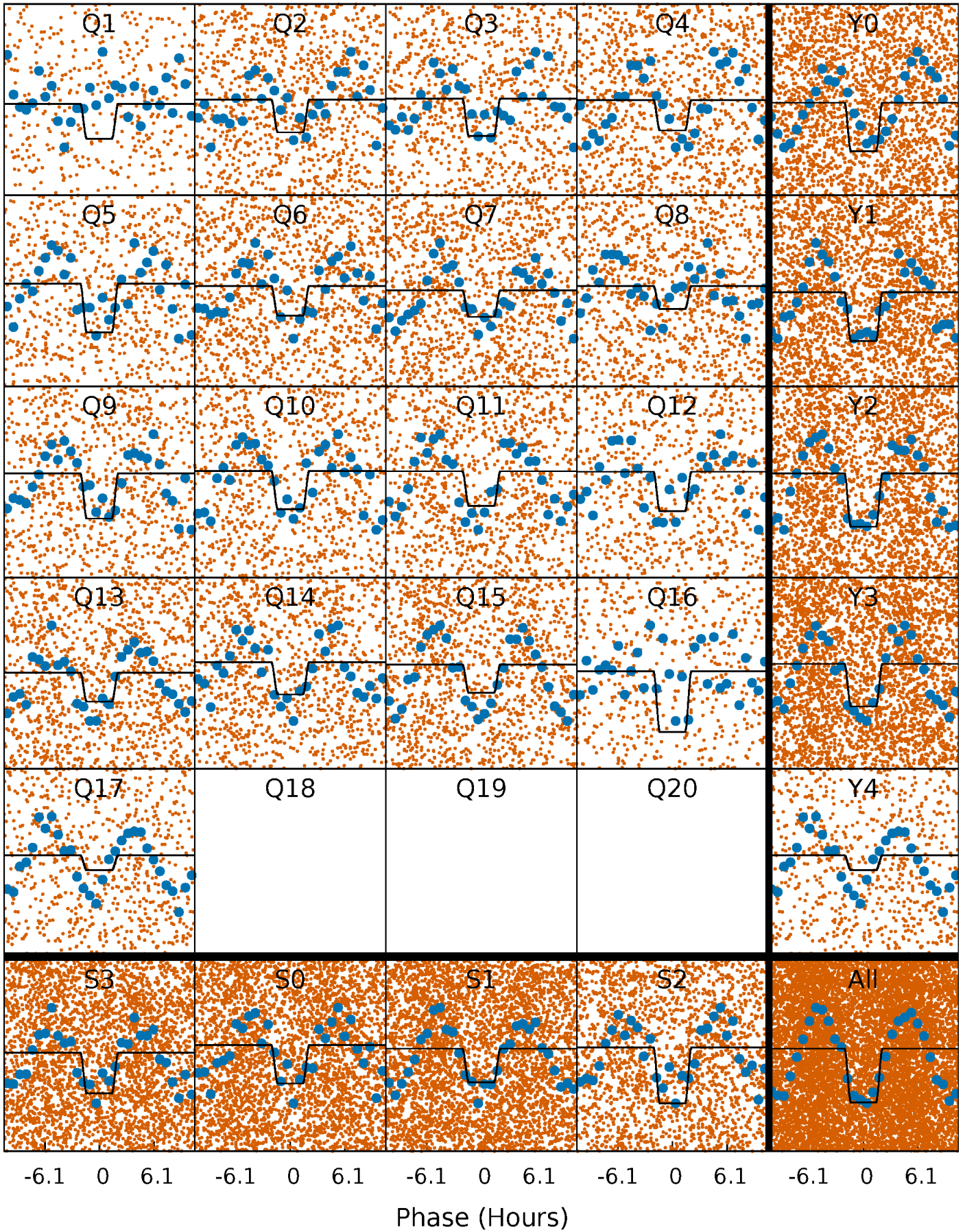
DV Quarter-Phased Transit Curves

TCE 009710475-01 P= 0.815768 Days $T_0=131.751161$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

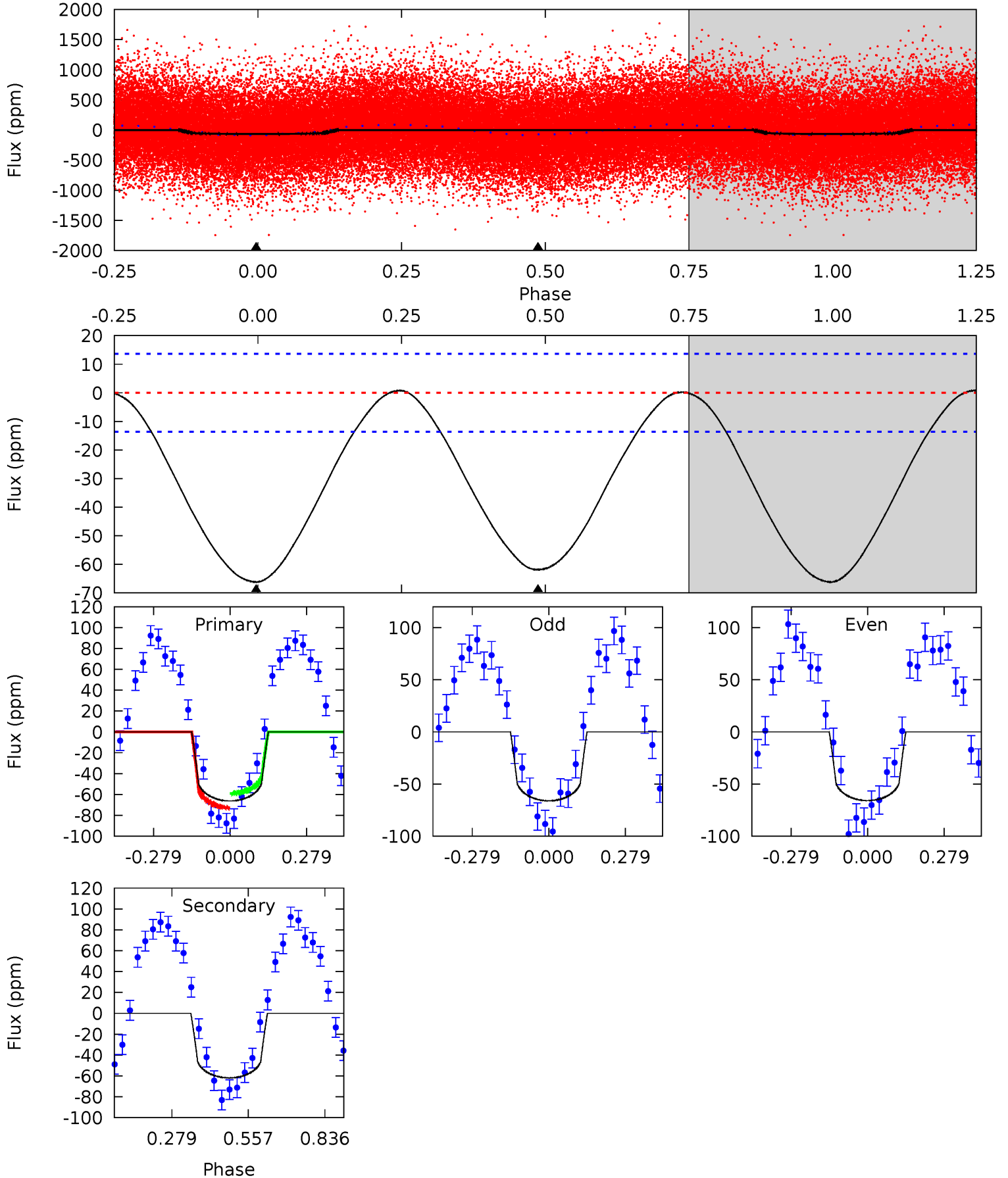
TCE 009710475-01 P= 0.815813 Days $T_0=131.708548$ (BKJD)



DV Model-Shift Uniqueness Test

009710475-01, P = 0.815768 Days, E = 130.935393 Days

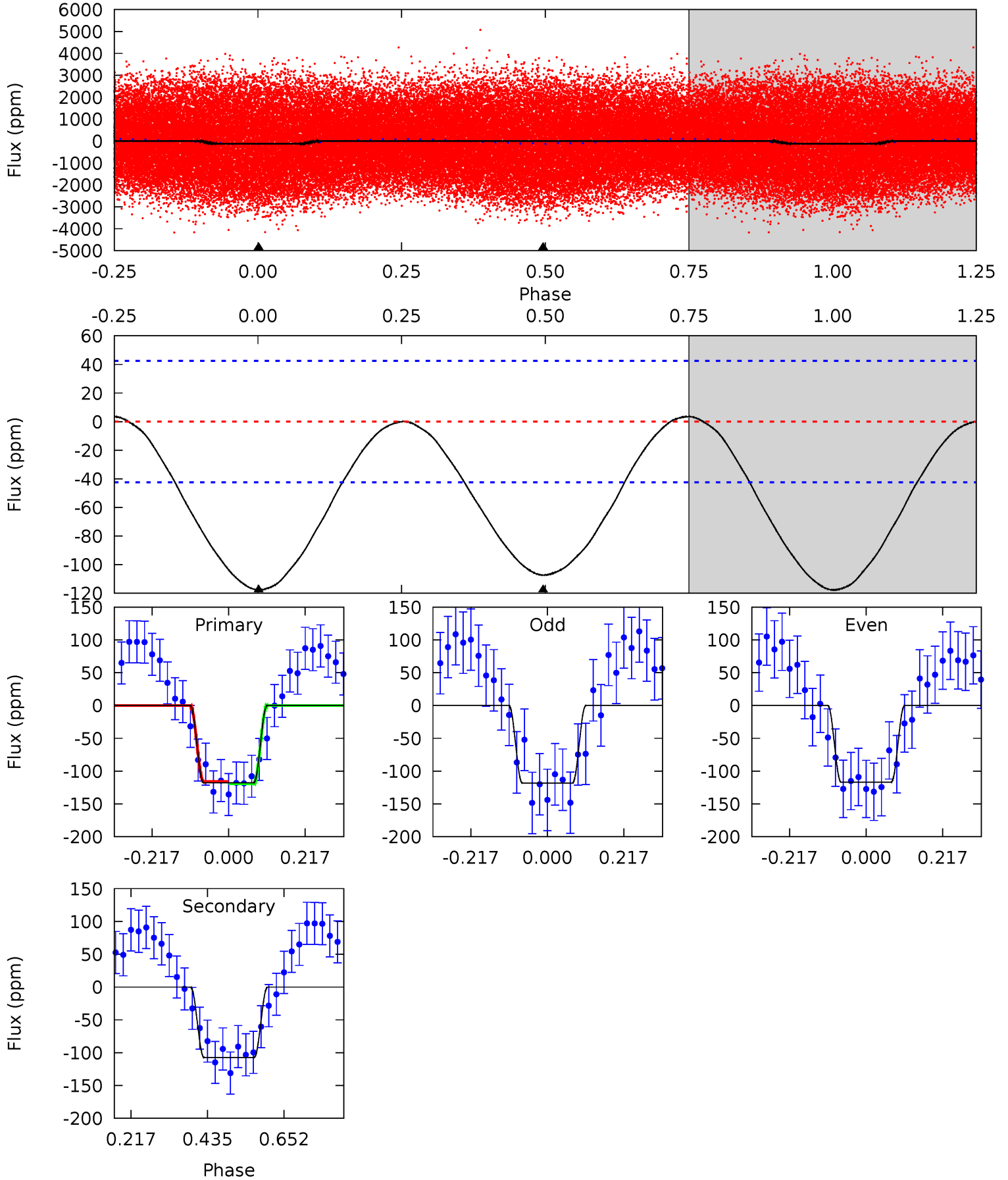
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
21.1	19.7	0	0	4.34	1.08	0.25	21.1	21.1	19.7	19.7	0.04	1.06	0.01	2.29



Alt Model-Shift Uniqueness Test

009710475-01, P = 0.815813 Days, E = 130.892735 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
12.2	11.1	0	0	4.40	1.23	0.22	12.2	12.2	11.1	11.1	0.07	1.01	0.03	0.17



Stellar Parameters For KIC 009710475

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	9191^{+255}_{-475}	$3.962^{+0.258}_{-0.172}$	$0.070^{+0.150}_{-0.650}$	$2.658^{+0.810}_{-0.899}$	$2.363^{+0.323}_{-0.753}$	$0.177^{+0.320}_{-0.089}$
	+3%/-5%	+7%/-4%	+214%/-929%	+30%/-34%	+14%/-32%	+181%/-50%
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 009710475-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-62 ± 3	$1.38^{+1.07}_{-0.86}$	5998^{+528}_{-558}	12491^{+24888}_{-4290}	$8.726^{+55.247}_{-5.893}$
Alt.	-107 ± 10	$3.20^{+1.41}_{-1.31}$	6060^{+522}_{-644}	8127^{+3484}_{-1559}	$2.894^{+5.066}_{-1.465}$

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

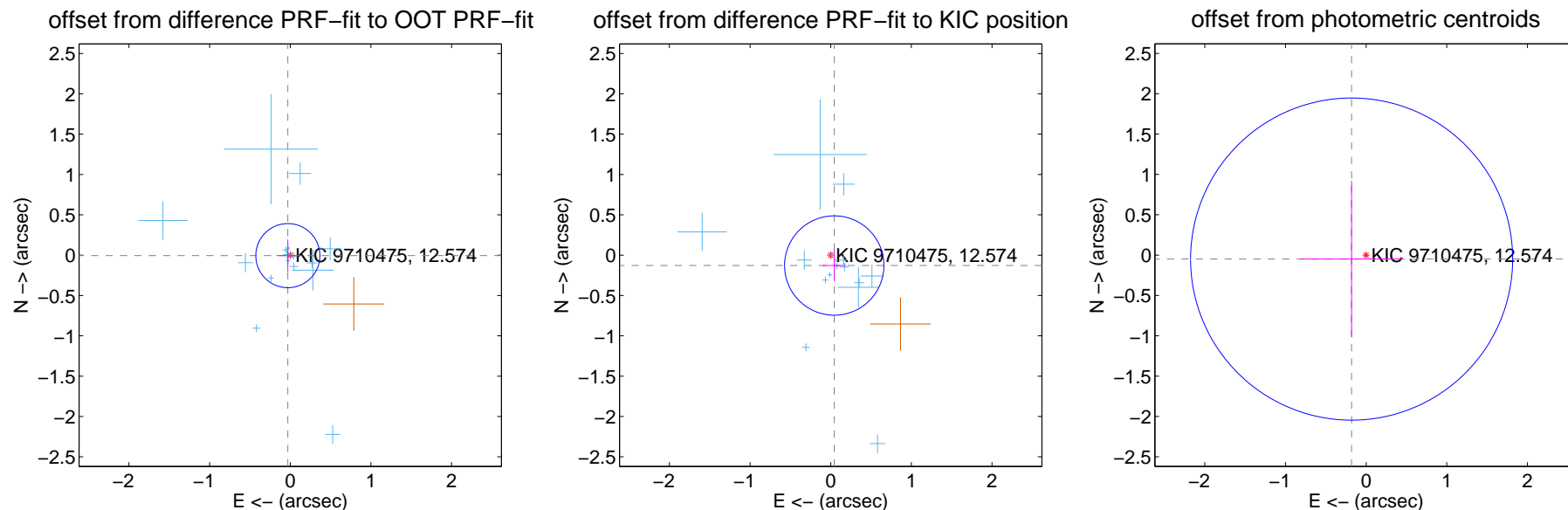
DV Centroid Data

Supplemental centroid analysis for 009710475-01. Kepler magnitude: 12.57. Transit SNR 3.92

There are 16 quarters with good PRF difference image offsets

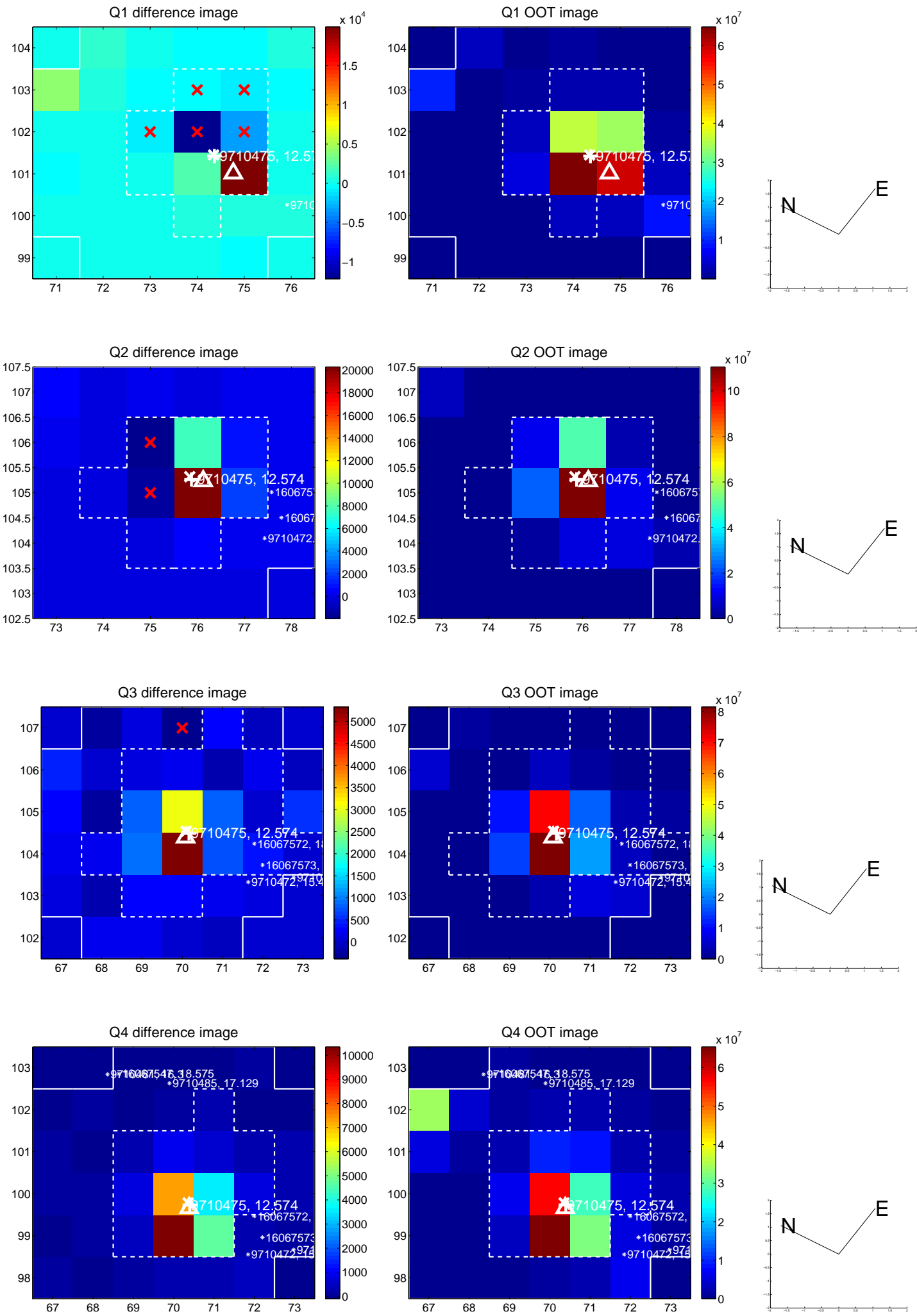
The direct PRF centroid is offset from the target star catalog position by about 0.13 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.030 ± 0.132	0.23	0.030 ± 0.141	-0.006 ± 0.200
PRF-fit source offset from KIC position	0.136 ± 0.205	0.66	-0.044 ± 0.145	-0.128 ± 0.196
photometric centroid source offset	0.19 ± 0.67	0.28	0.18 ± 0.64	-0.05 ± 0.97

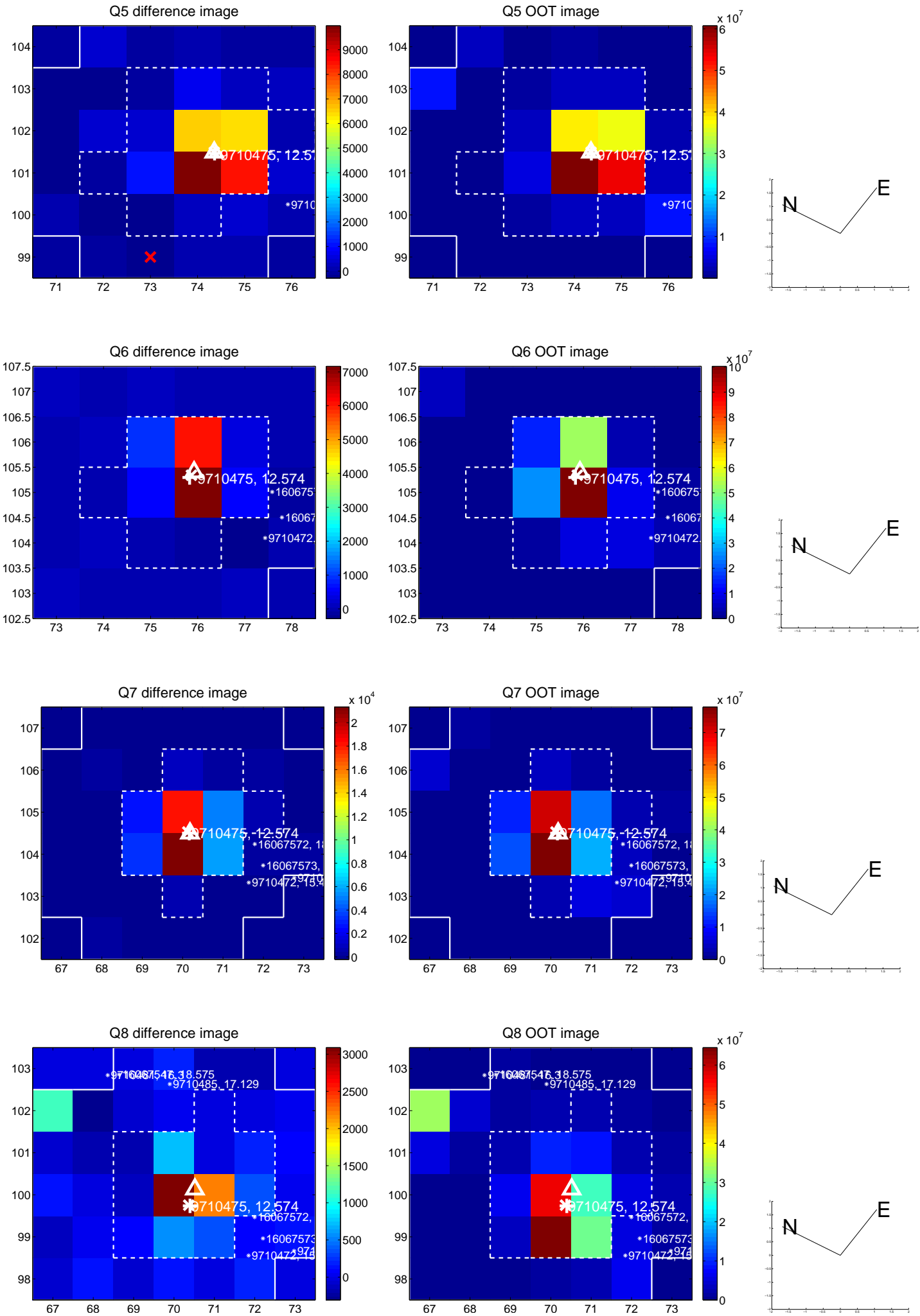


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets**; **Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

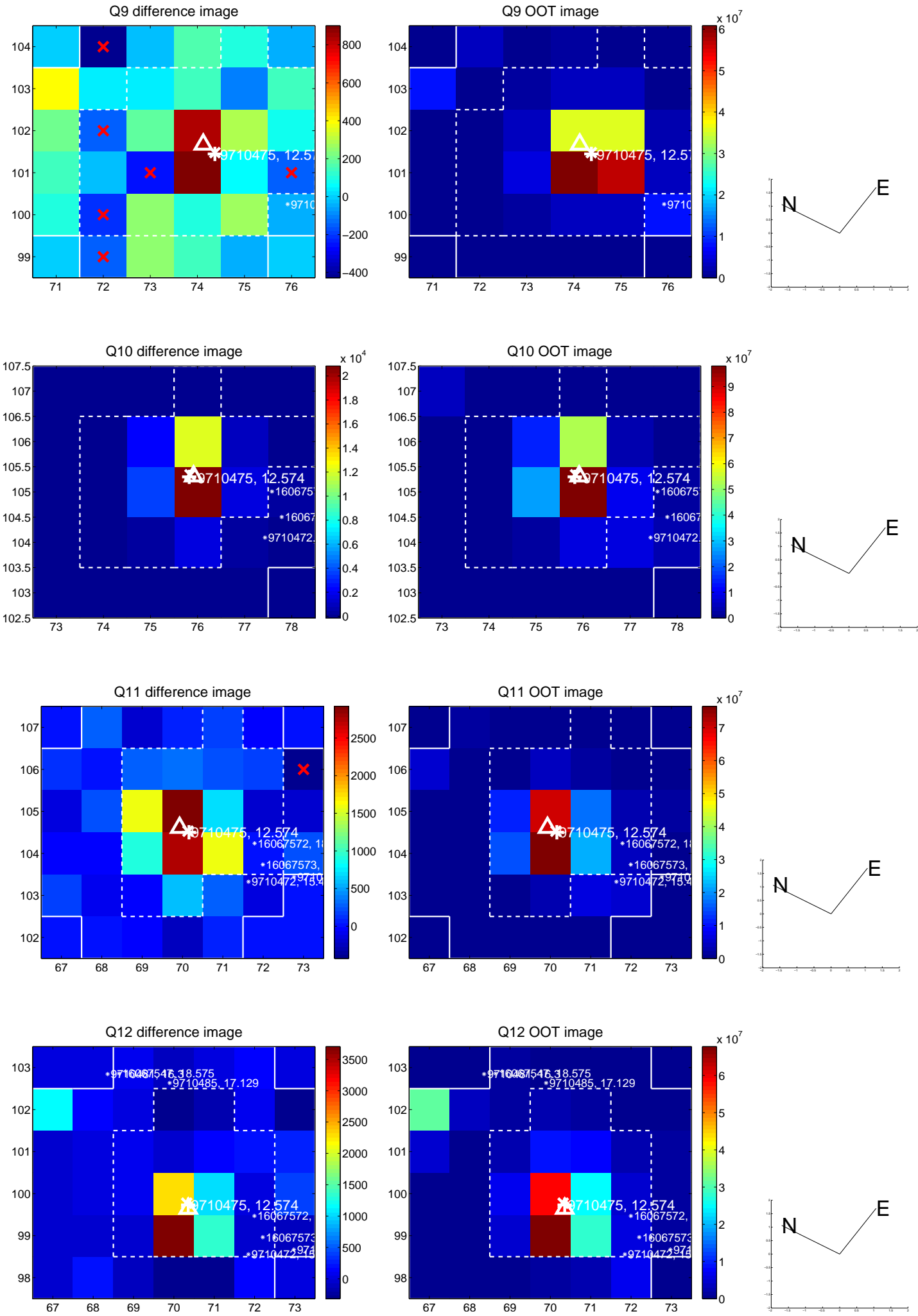
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



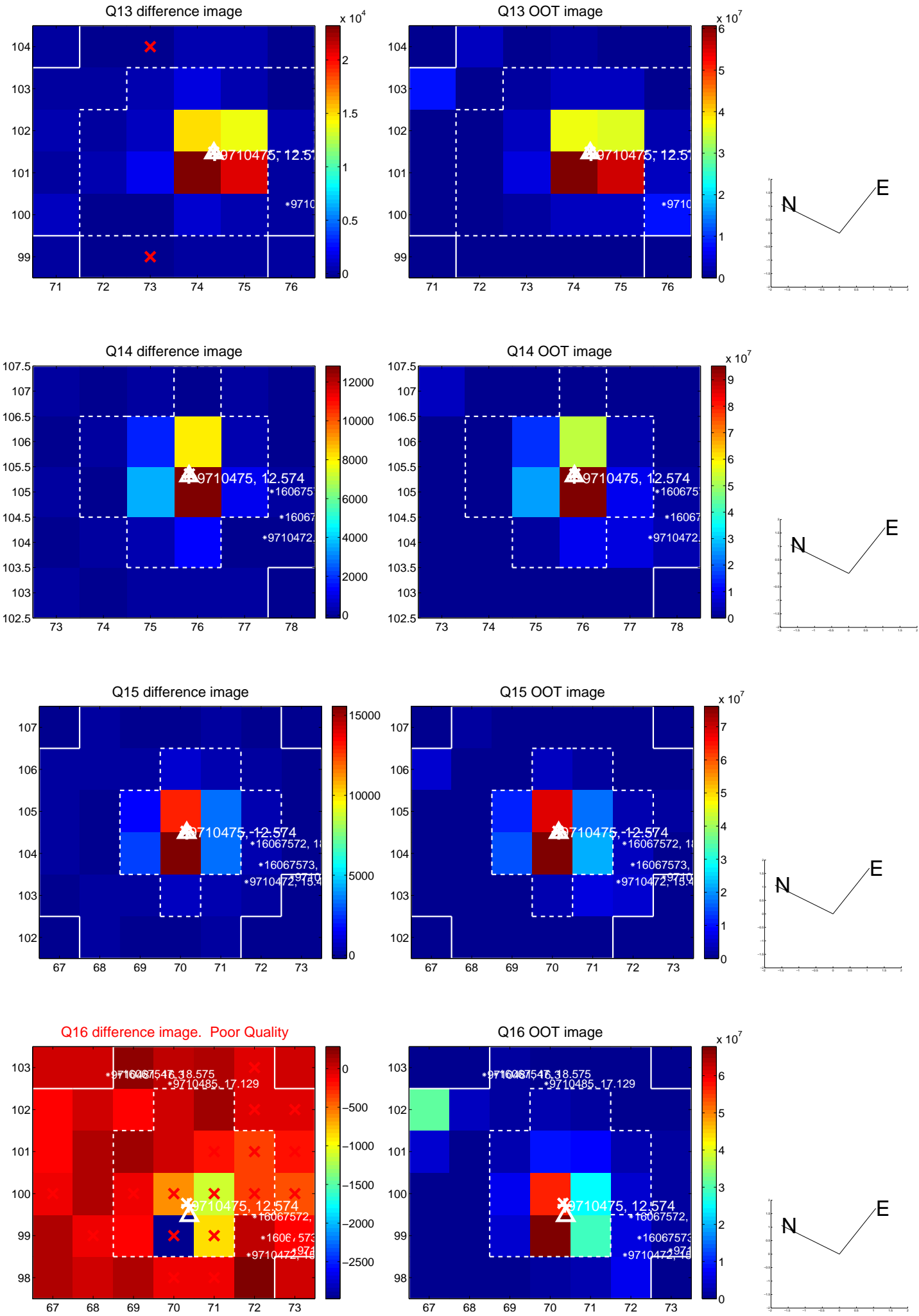
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



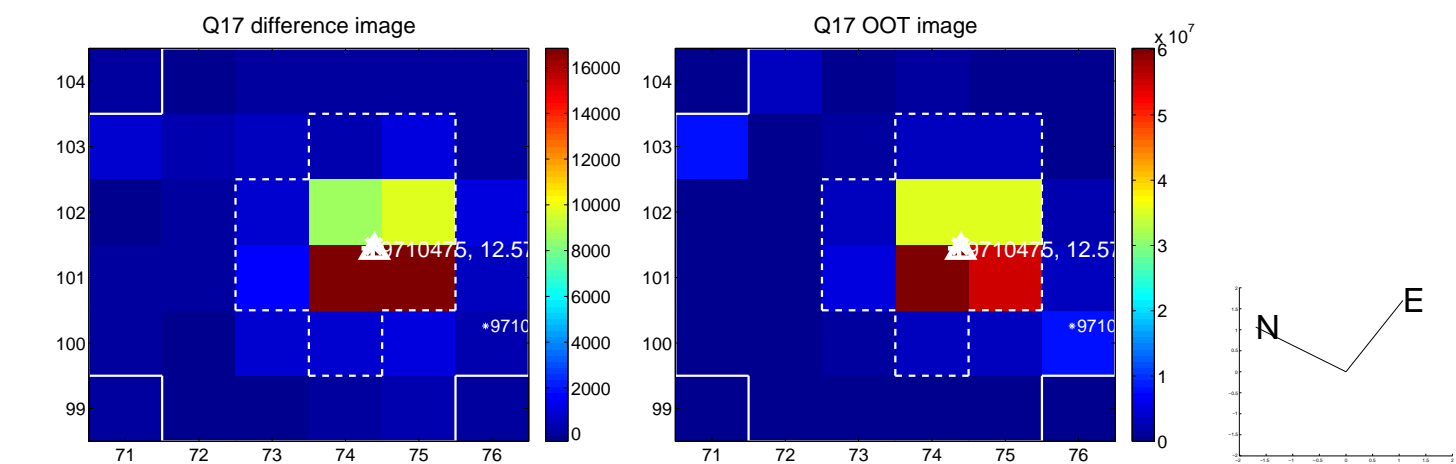
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



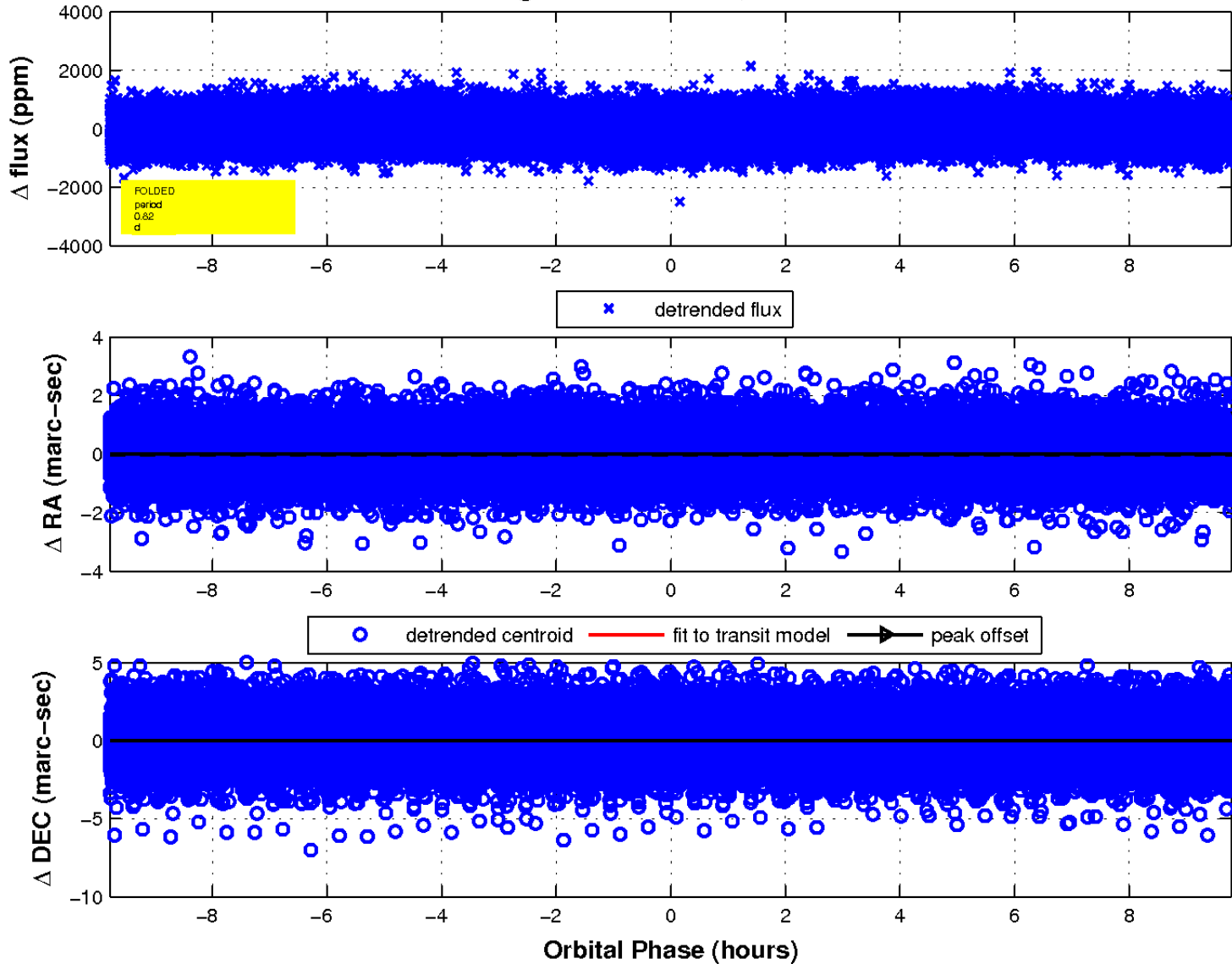
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

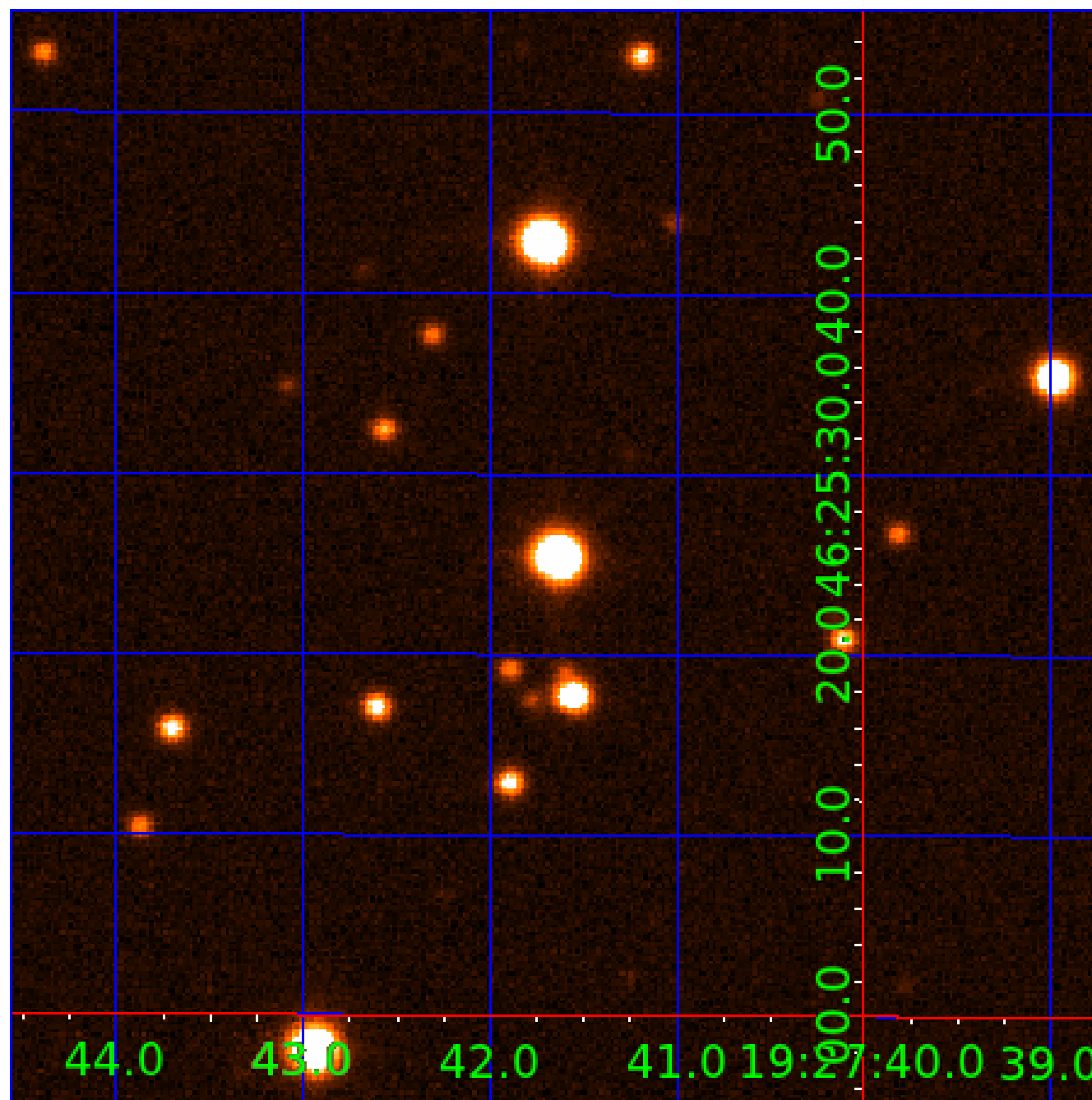


fluxWeightedCentroids, Planet 1 of 8



UKIRT Image

Declination



KIC 009710475

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})
009710475-01	OBS	No	0.815768	131.751161	18.2	5.011	10.2	3.9	2.66	9191	1.17	87222.12
009710475-02	OBS	No	210.070028	205.139547	991.1	2.097	10.0	10.3	2.66	9191	9.27	53.24
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Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009710475-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT
009710475-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL—TRANS_GAPPED—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
009710475-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE—TRANS_GAPPED—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
009710475-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE—TRANS_GAPPED—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
009710475-05	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—HALO_GHOST
009710475-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
009710475-07	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
009710475-08	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_NOFITS

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

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

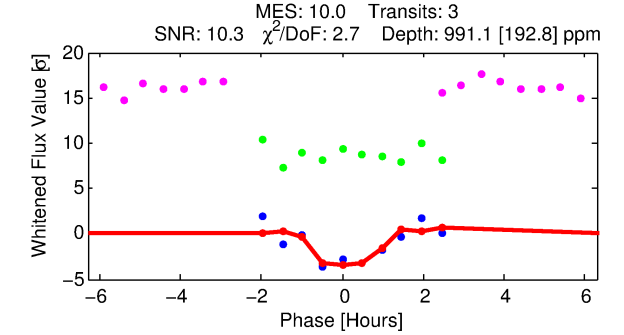
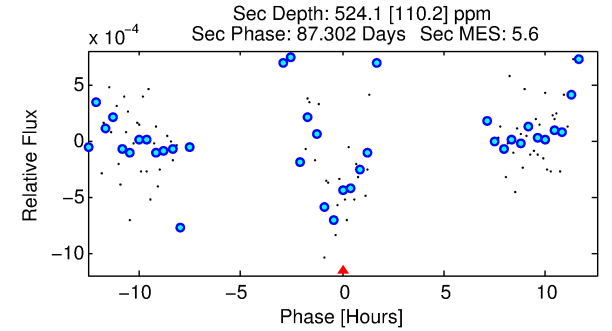
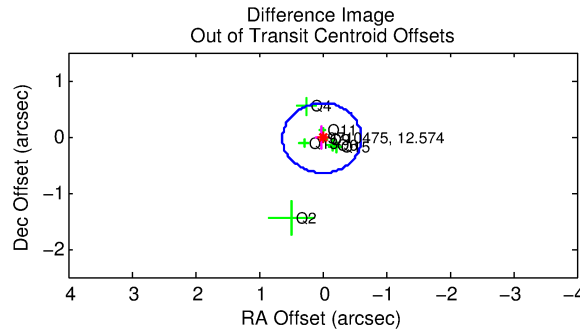
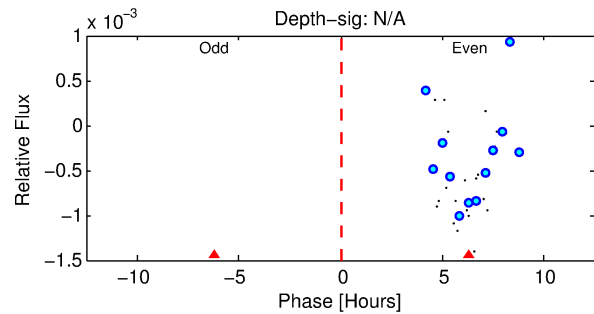
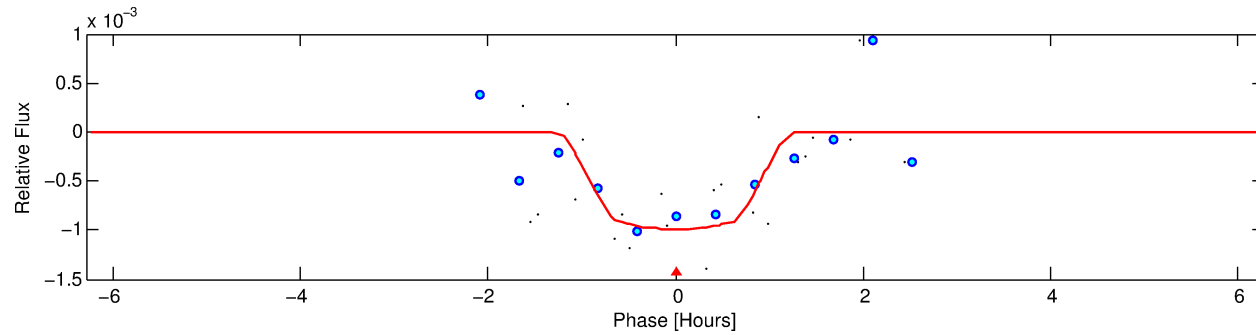
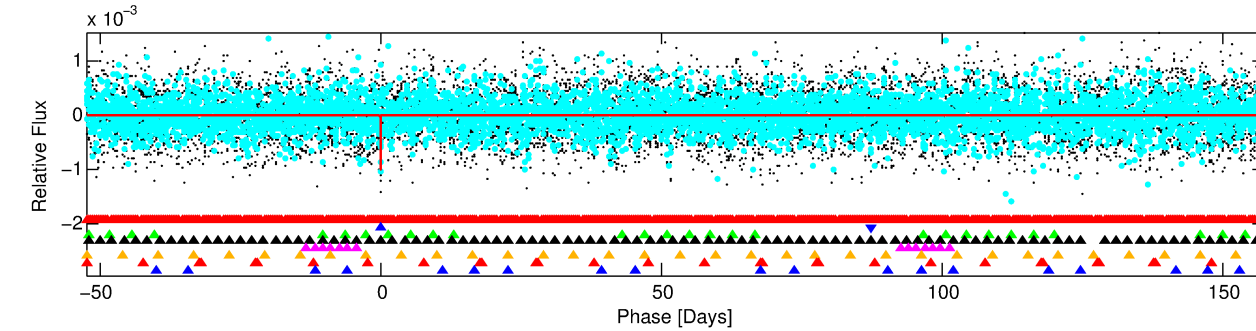
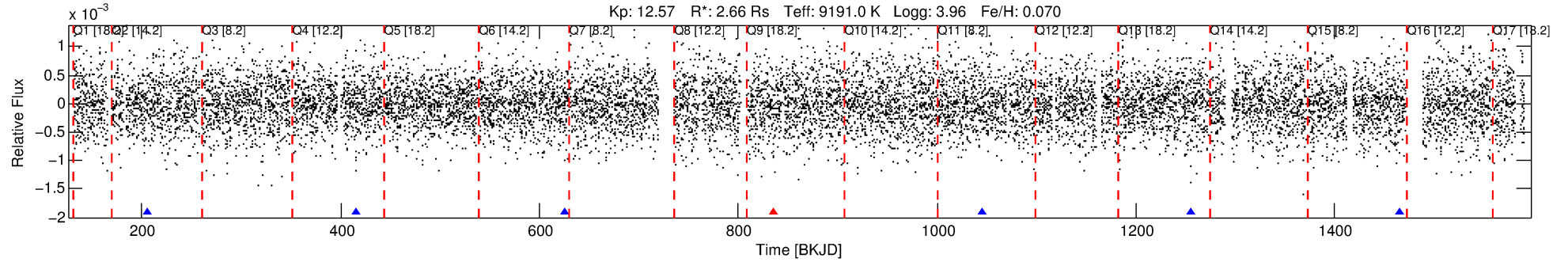
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 009710475-02

No Significant Match Found

DV One-Page Summary

KIC: 9710475 Candidate: 2 of 8 Period: 210.070 d



DV Fit Results:

Period = 210.07003 [0.00229] d
Epoch = 205.1395 [0.0090] BKJD
Rp/R* = 0.0320 [0.0511]
a/R* = 487.20 [5305.15]
b = 0.81 [4.63]
Seff = 53.24 [26.64]
Teff = 689 [86] K
Rp = 9.27 [15.14] Re
a = 0.9211 [0.2764] AU
Ag = 2847.57 [9211.80] [0.31] σ
Teffp = 7779 [6242] K [1.14] σ

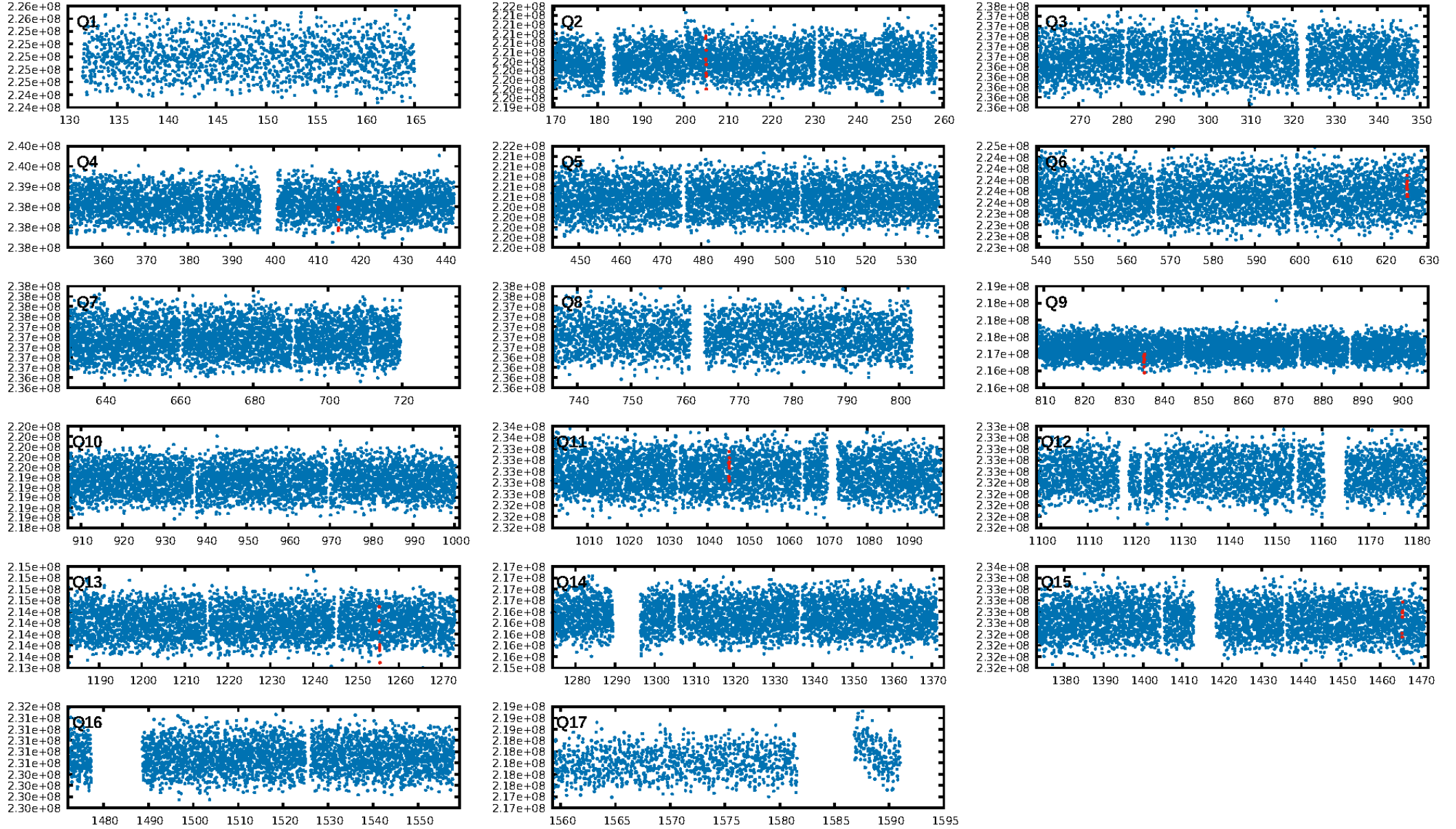
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [517.96] σ
LongPeriod-sig: N/A
ModelChiSquare2-sig: 34.5%
ModelChiSquareGof-sig: 11.5%
Bootstrap-pfa: N/A
RollingBand-fgt: 0.67 [2/3]
GhostDiagnostic-chr: -1.424
Centroid-sig: 17.0%
Centroid-so: 0.686 arcsec [2.04] σ
OotOffset-rm: 0.027 arcsec [0.13] σ
KicOffset-rm: 0.140 arcsec [0.76] σ
OotOffset-st: 2/2/1/2 [7]
KicOffset-st: 2/2/1/2 [7]
DiffImageQuality-fgm: 0.43 [3/7]
DiffImageOverlap-fno: 0.29 [2/7]

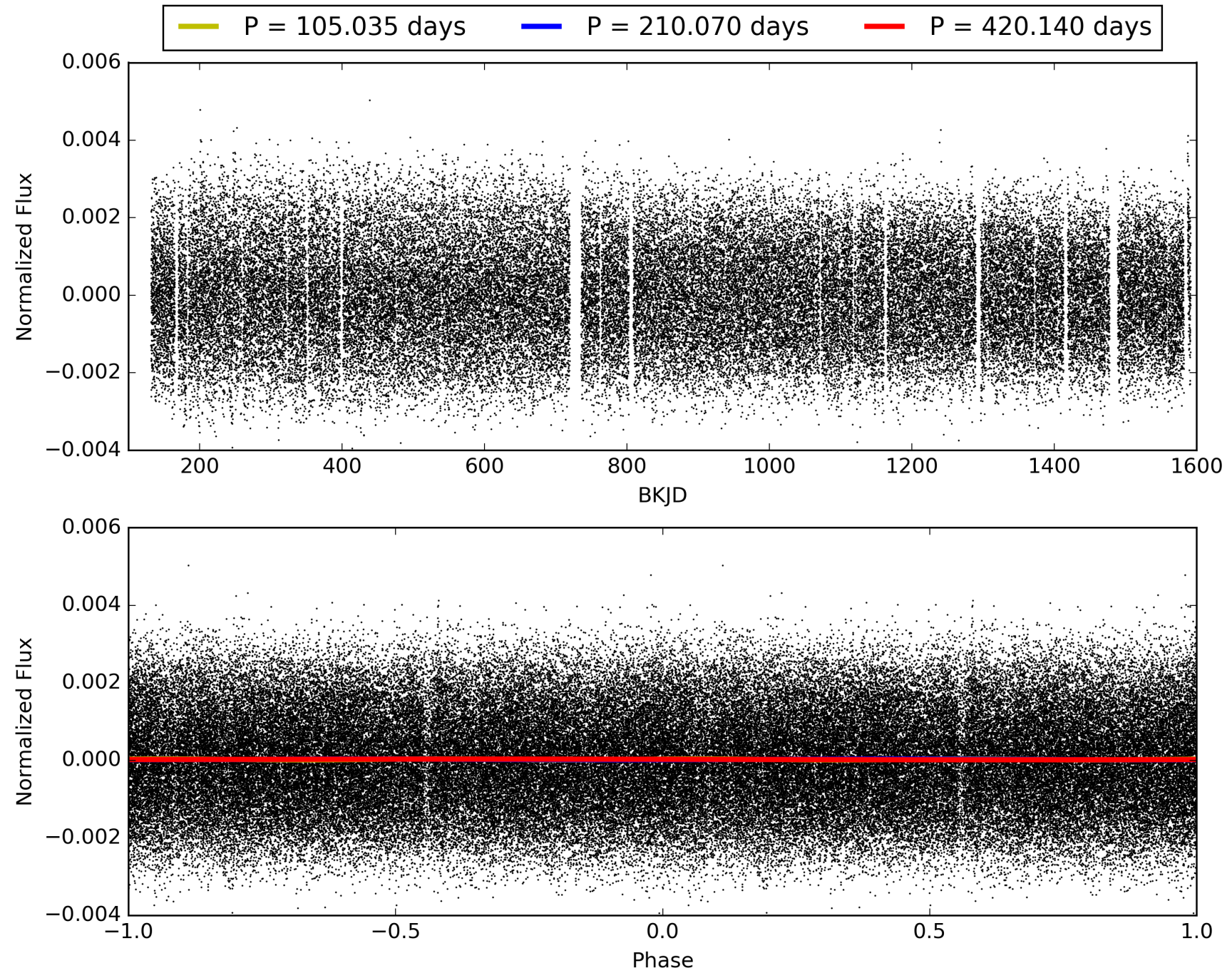
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This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

TCE 009710475-02, PDC Light Curves

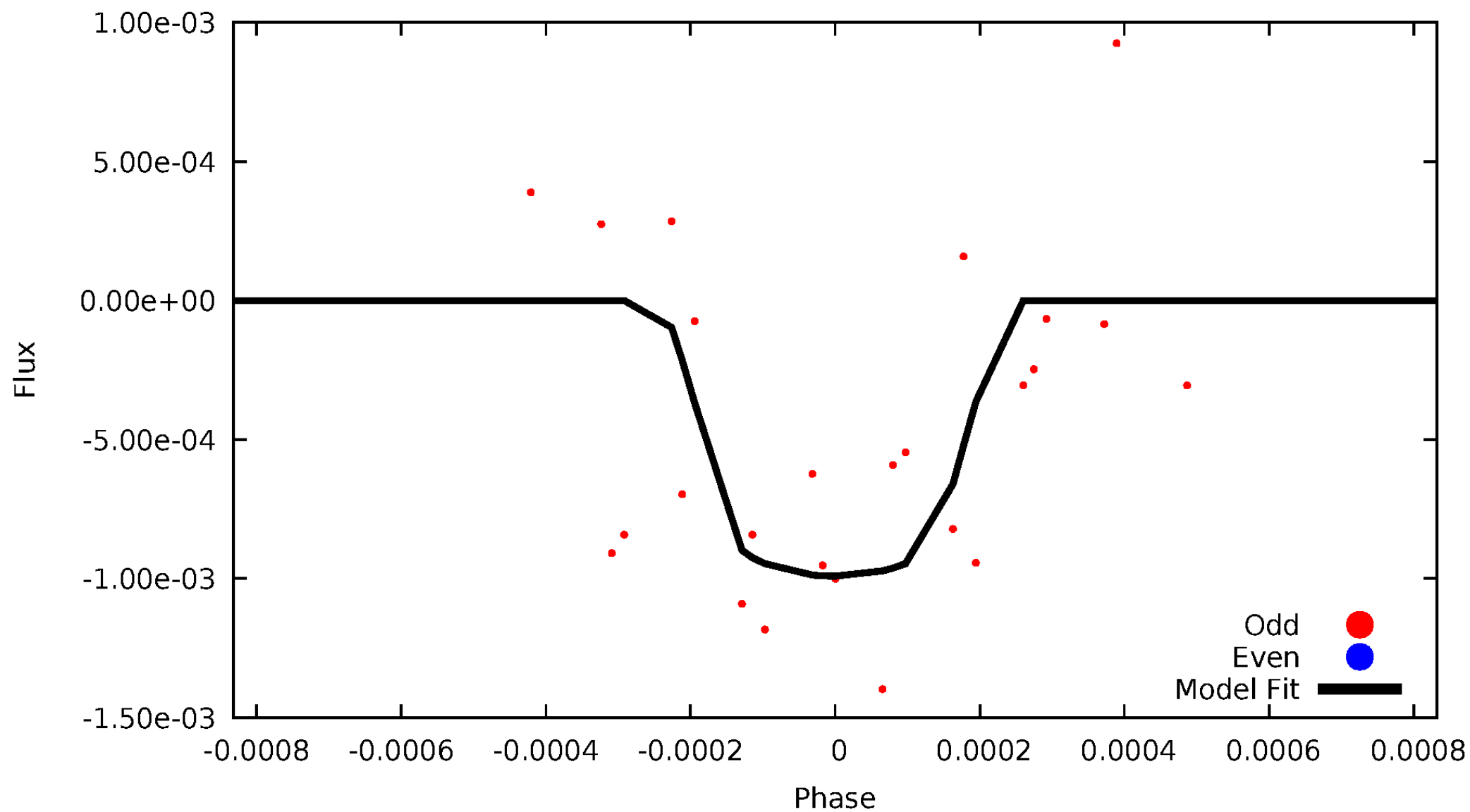


TCE 009710475-02



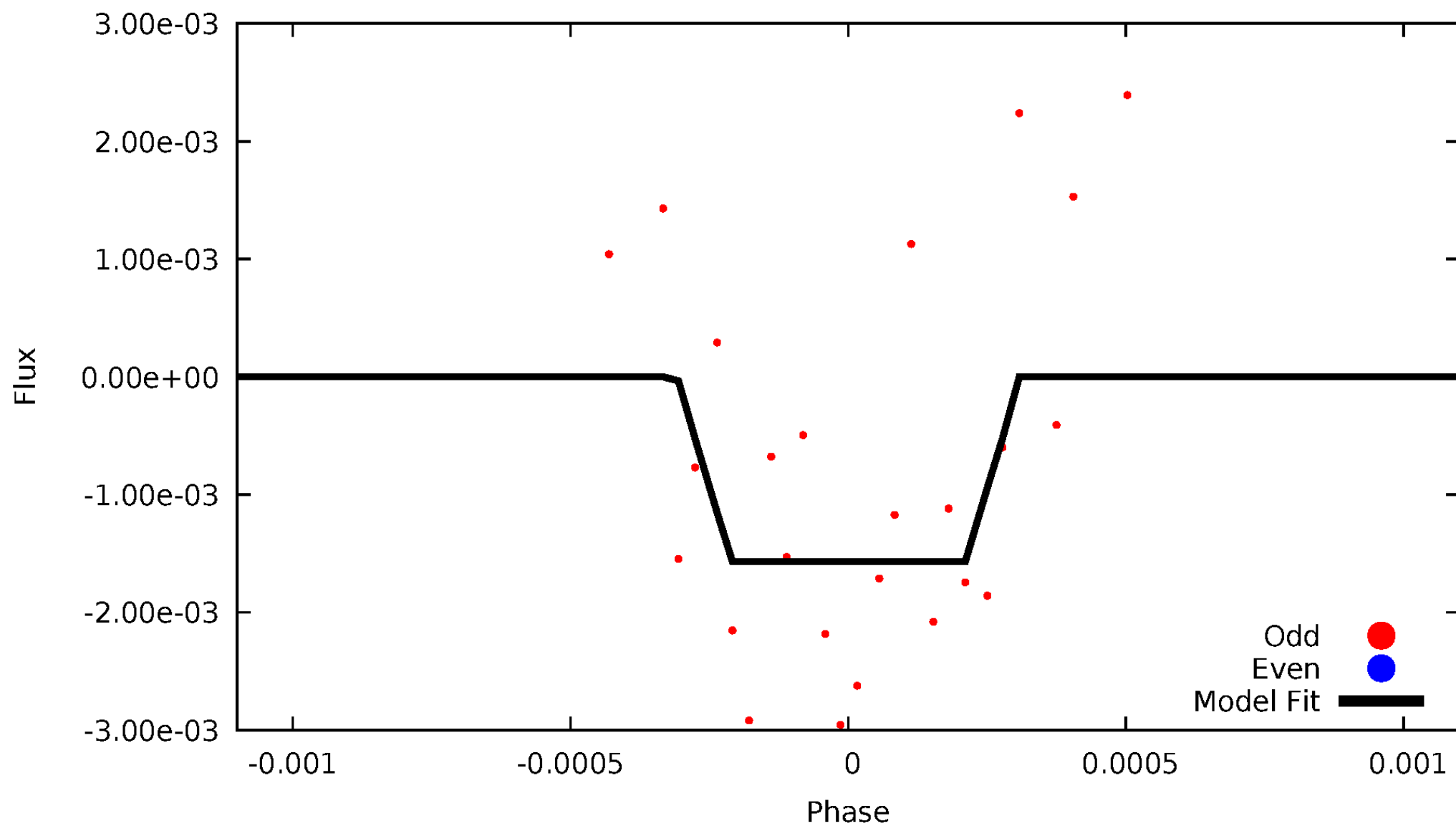
DV Odd/Even

TCE 009710475-02



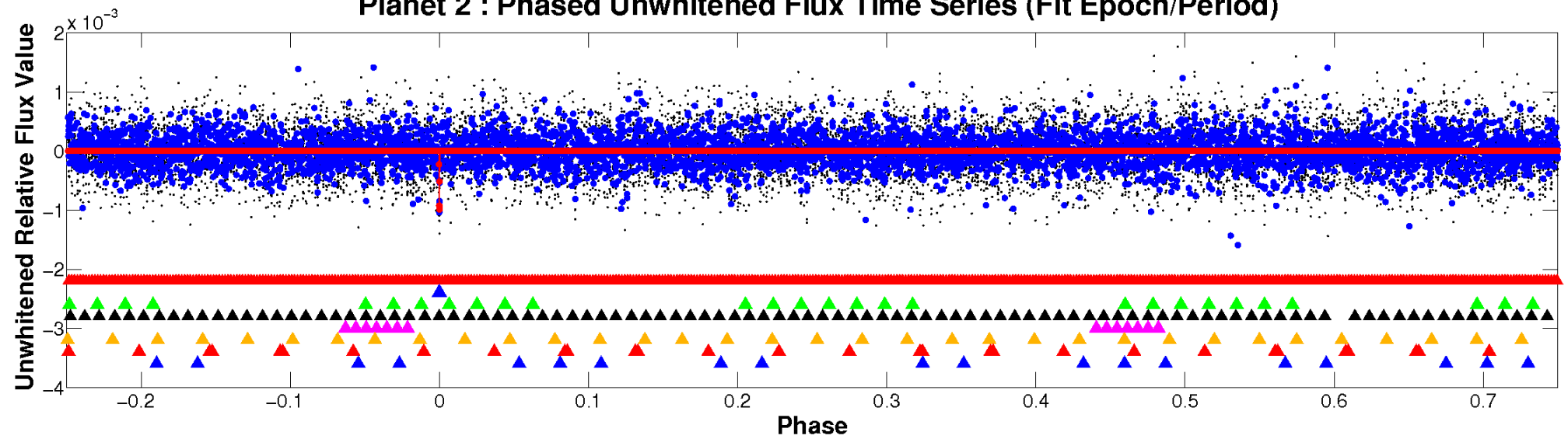
ALT Odd/Even

TCE 009710475-02

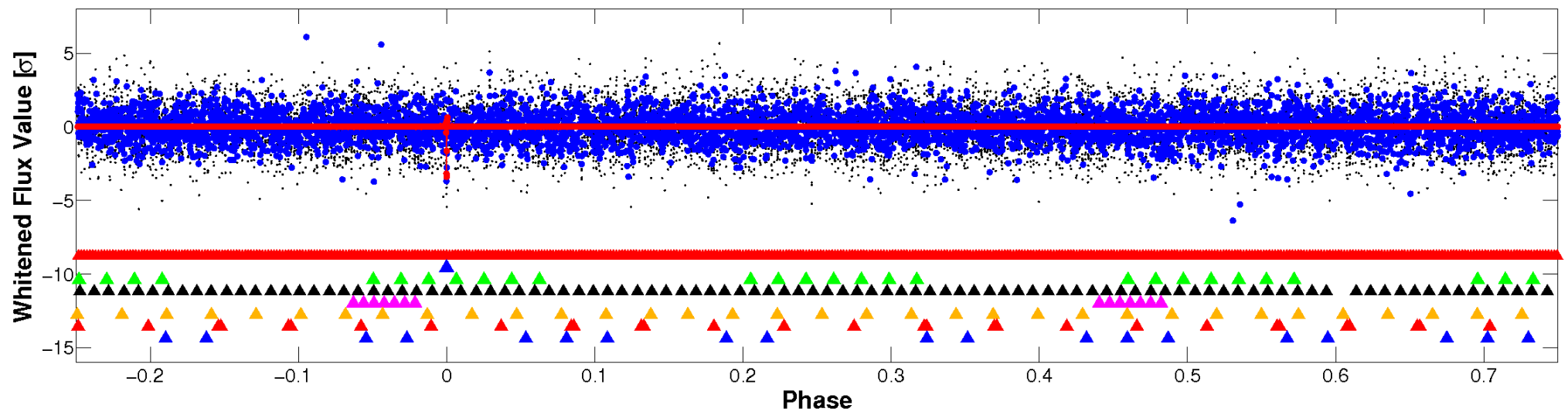


Non-Whitened Vs. Whitened Light Curve

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

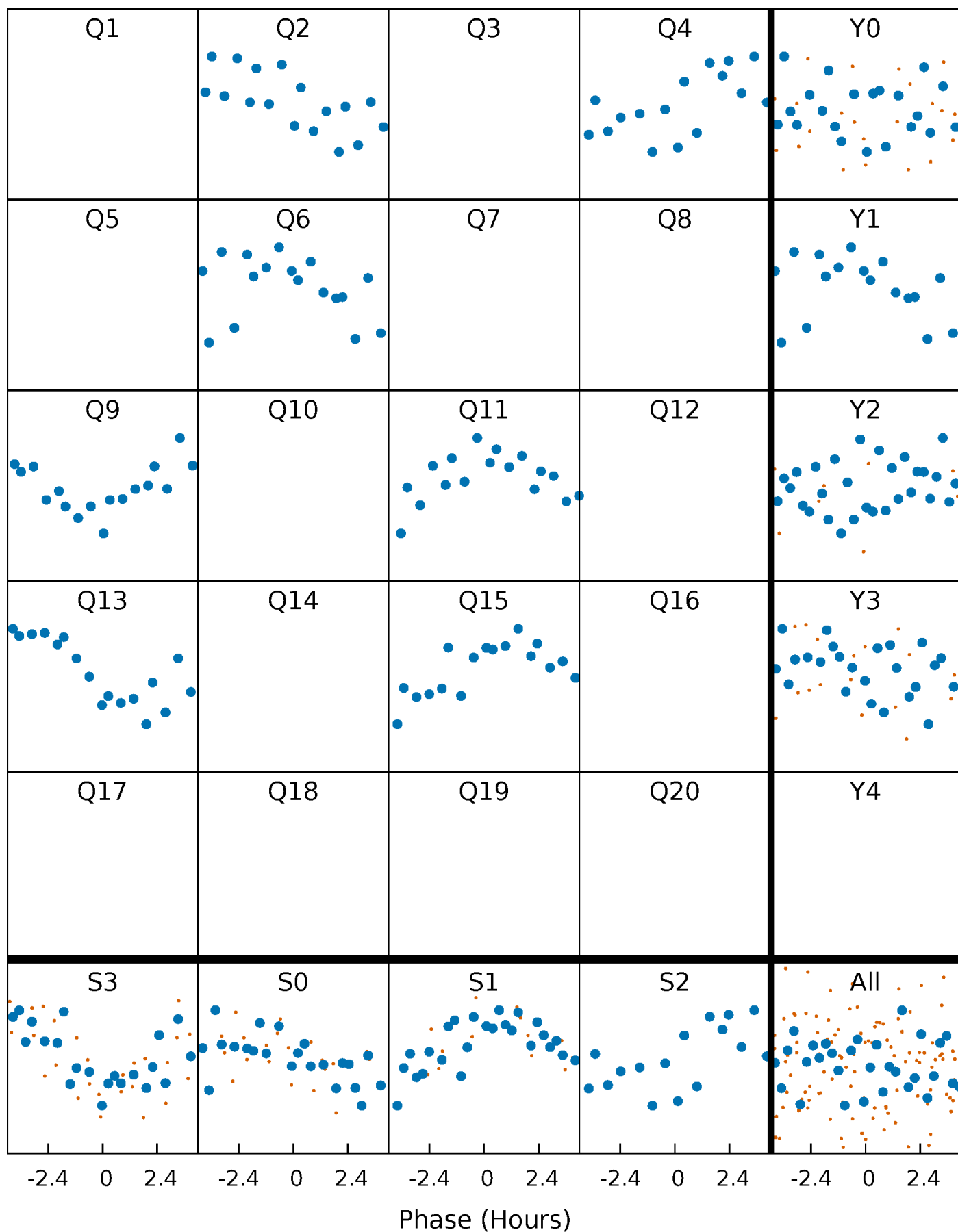


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



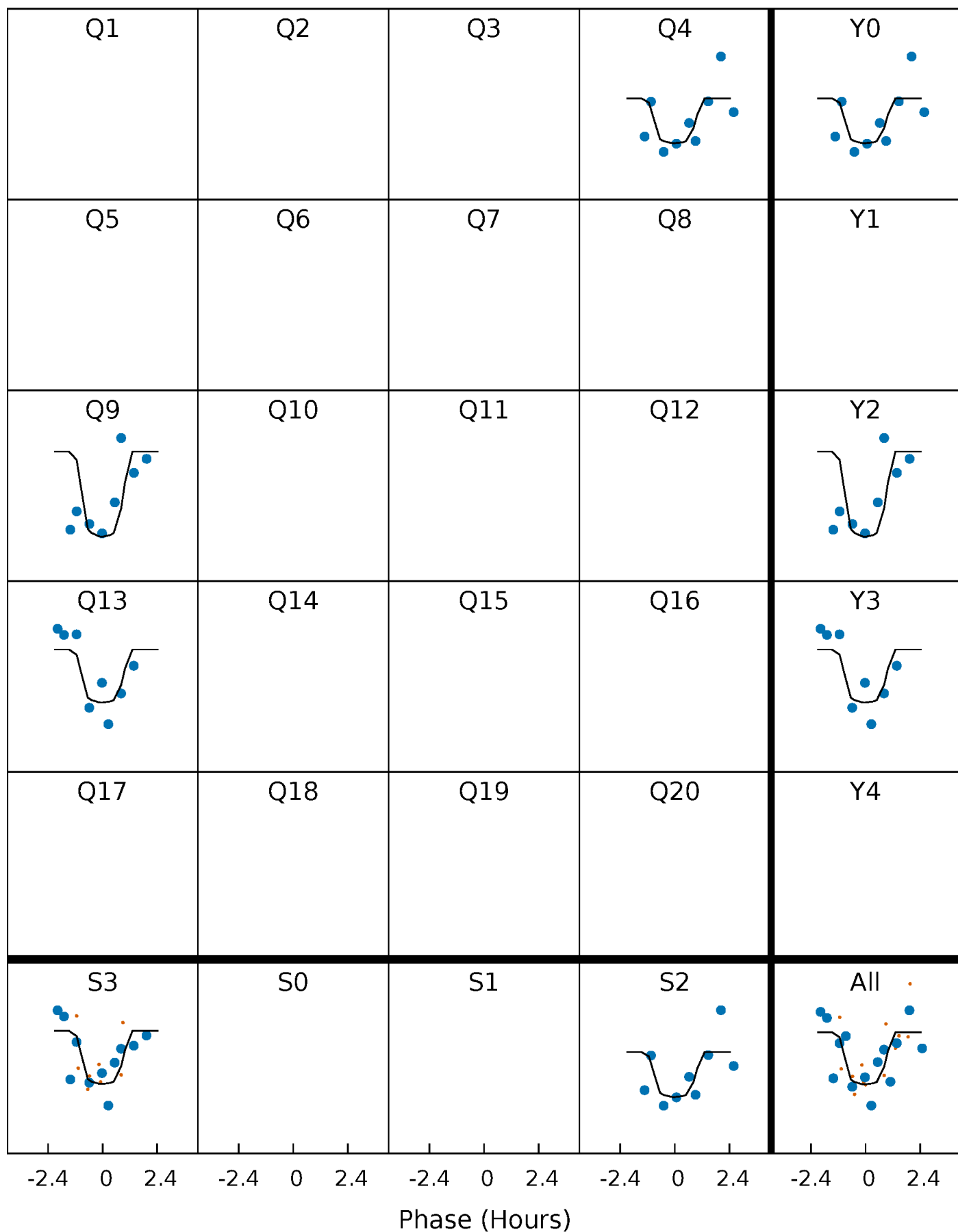
PDC Quarter-Phased Transit Curves

TCE 009710475-02 P=210.070028 Days $T_0=205.139547$ (BKJD)



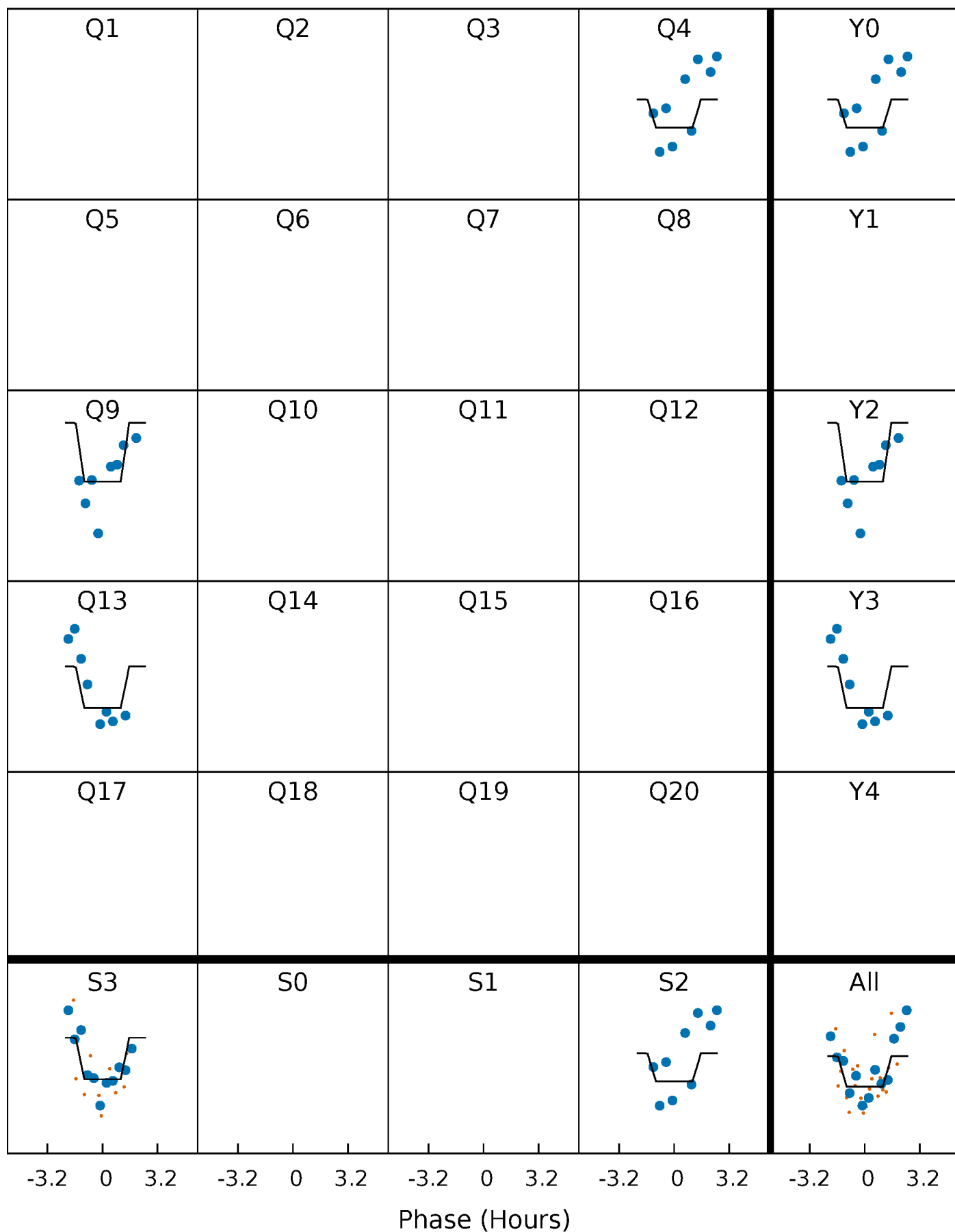
DV Quarter-Phased Transit Curves

TCE 009710475-02 P=210.070028 Days $T_0=205.139547$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

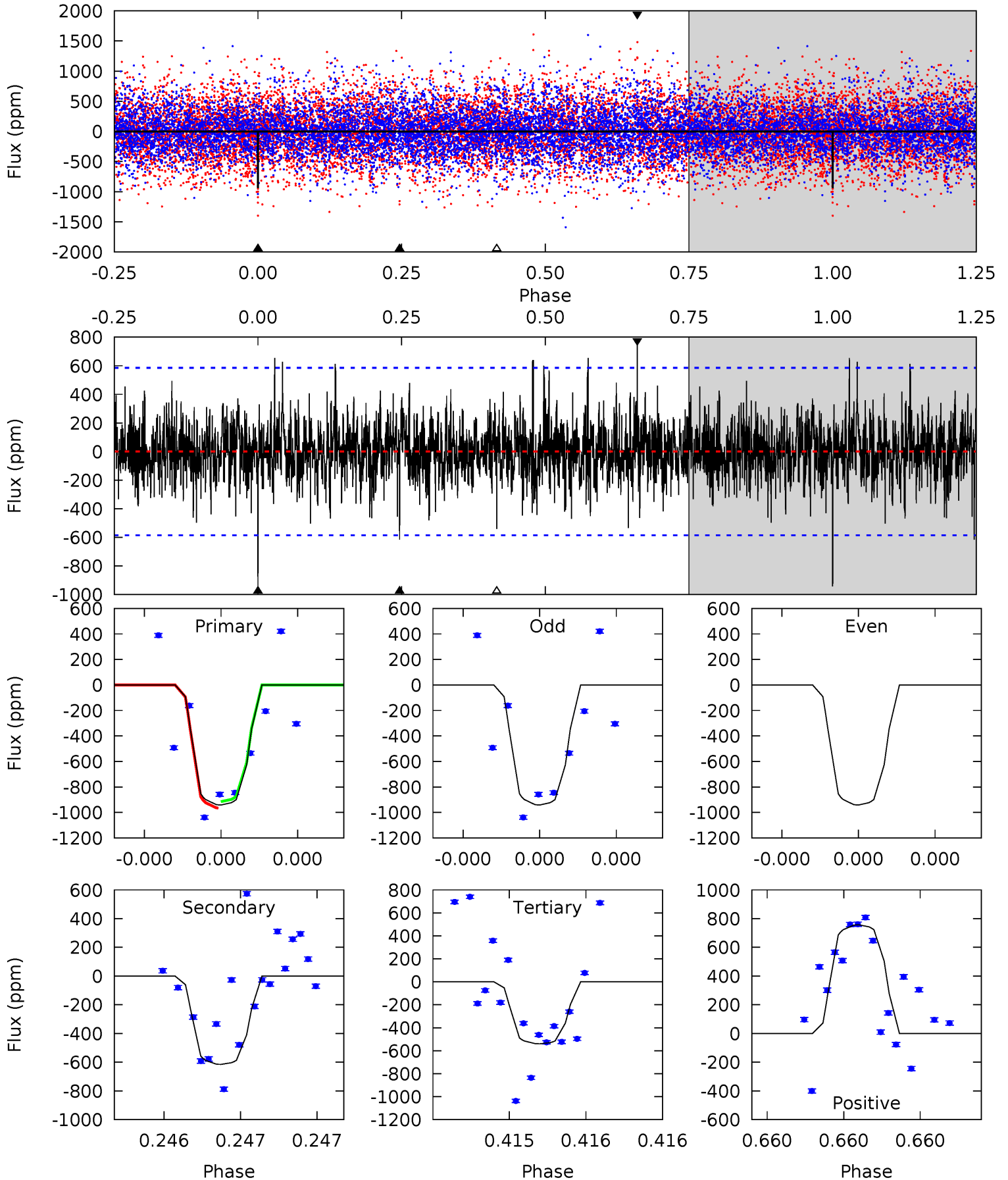
TCE 009710475-02 P=210.071384 Days $T_0=205.134860$ (BKJD)



DV Model-Shift Uniqueness Test

009710475-02, P = 210.070028 Days, E = 205.139547 Days

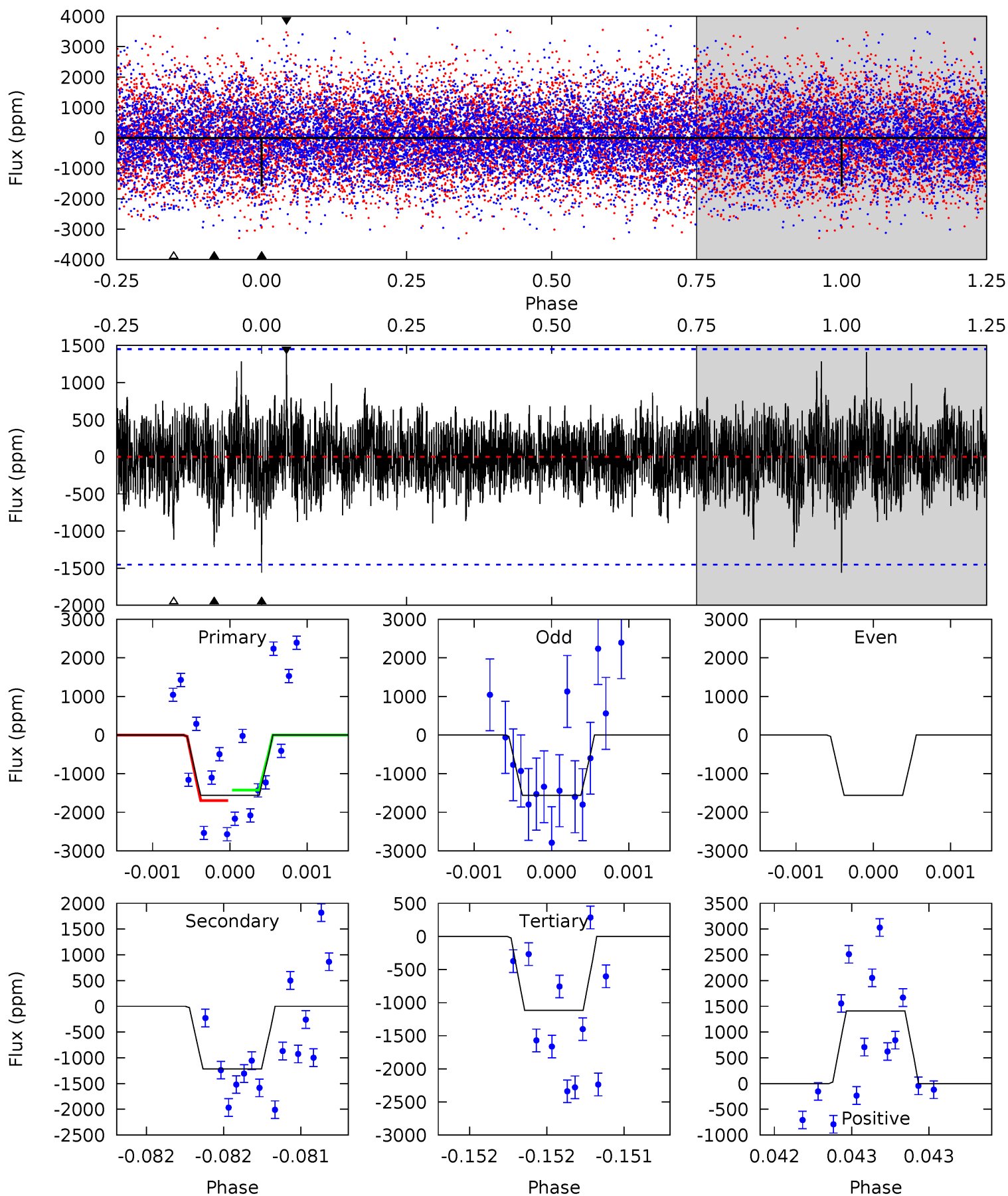
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
8.97	5.86	5.14	7.22	5.58	3.49	1.57	3.83	1.75	0.72	-1.35	0	0.96	0.45	0.24



Alt Model-Shift Uniqueness Test

009710475-02, P = 210.071384 Days, E = 205.134860 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
5.98	4.65	4.27	5.40	5.56	3.45	1.23	1.71	0.58	0.39	-0.75	0	1.01	0.47	0.52



Stellar Parameters For KIC 009710475

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$\rho_{\star} (\text{g}\cdot\text{cm}^{-3})$
	9191^{+255}_{-475}	$3.962^{+0.258}_{-0.172}$	$0.070^{+0.150}_{-0.650}$	$2.658^{+0.810}_{-0.899}$	$2.363^{+0.323}_{-0.753}$	$0.177^{+0.320}_{-0.089}$
	+3%/-5%	+7%/-4%	+214%/-929%	+30%/-34%	+14%/-32%	+181%/-50%
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 009710475-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-615 ± 105	$13.36^{+12.72}_{-8.85}$	942^{+81}_{-84}	6219^{+6451}_{-1644}	1607^{+11500}_{-1207}
Alt.	-1216 ± 261	$14.94^{+13.12}_{-9.33}$	945^{+81}_{-87}	6937^{+6528}_{-1790}	2330^{+15095}_{-1639}

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 $A_{obs} \gg 1.0$

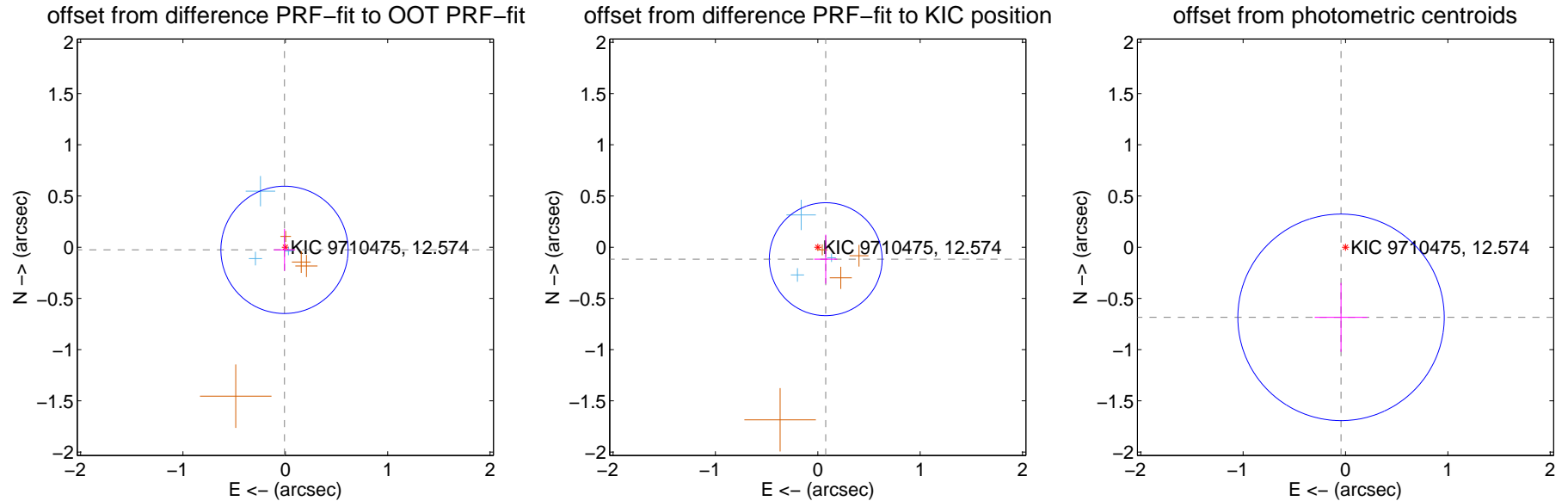
DV Centroid Data

Supplemental centroid analysis for 009710475-02. Kepler magnitude: 12.57. Transit SNR 10.31

There are 3 quarters with good PRF difference image offsets

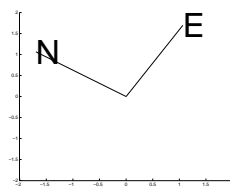
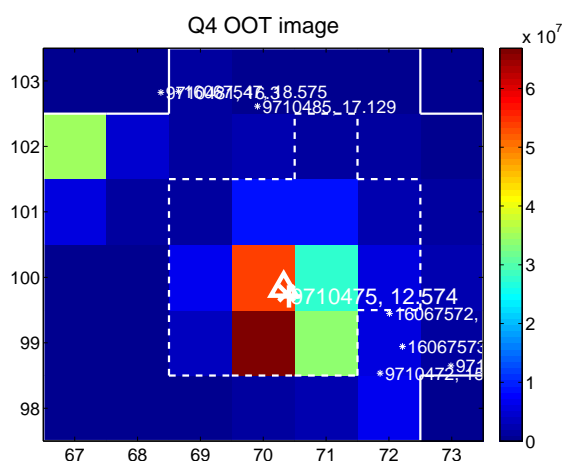
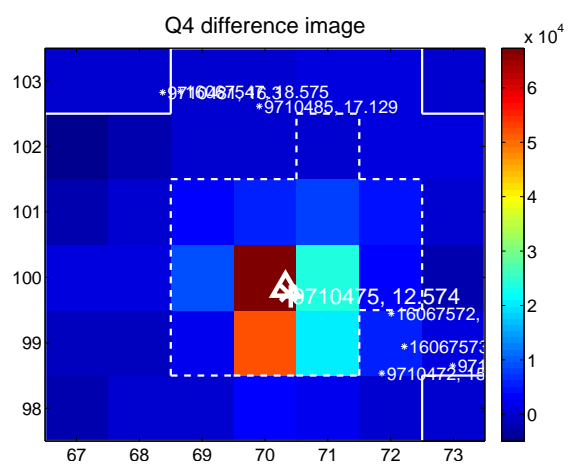
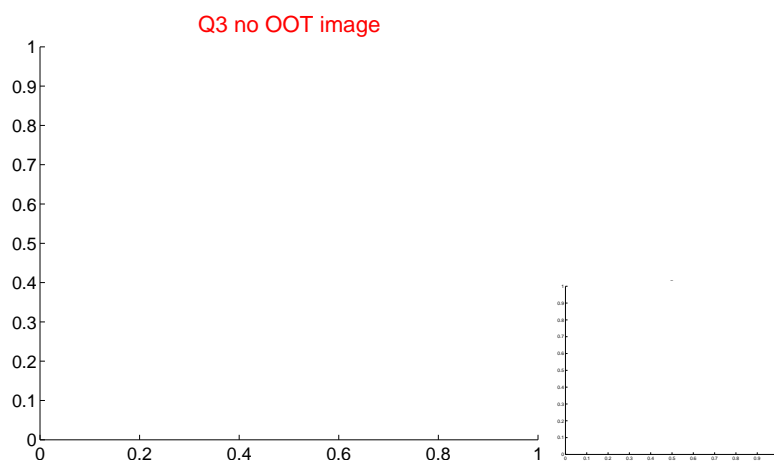
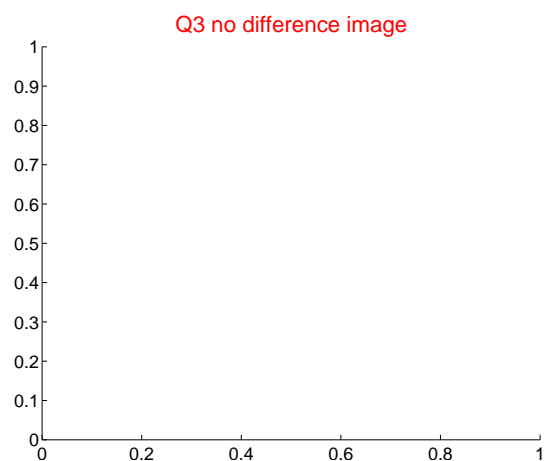
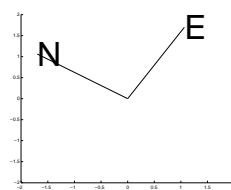
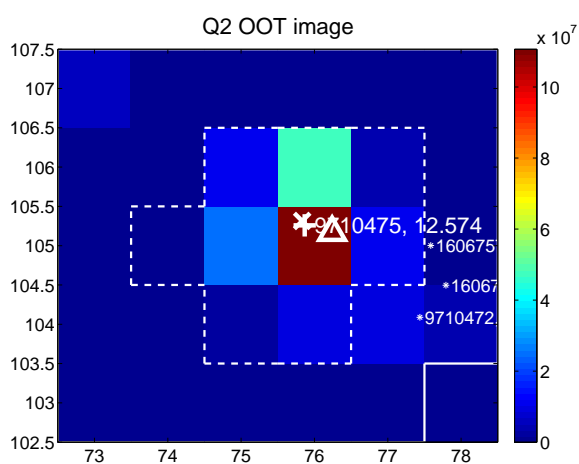
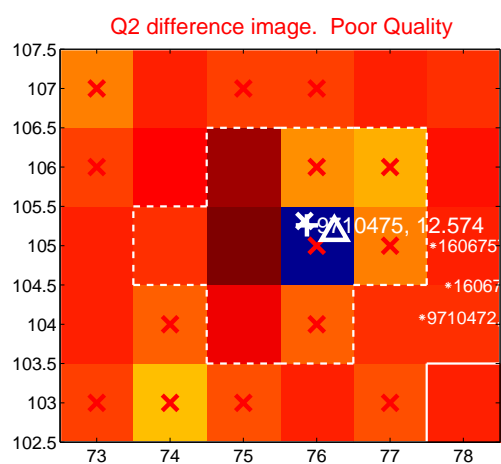
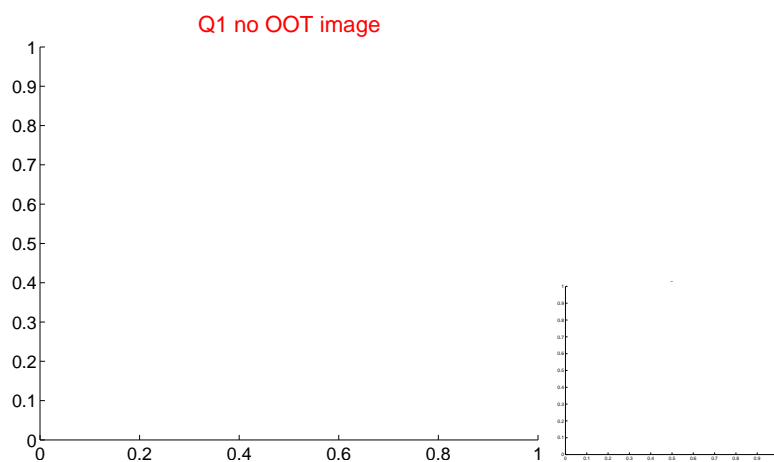
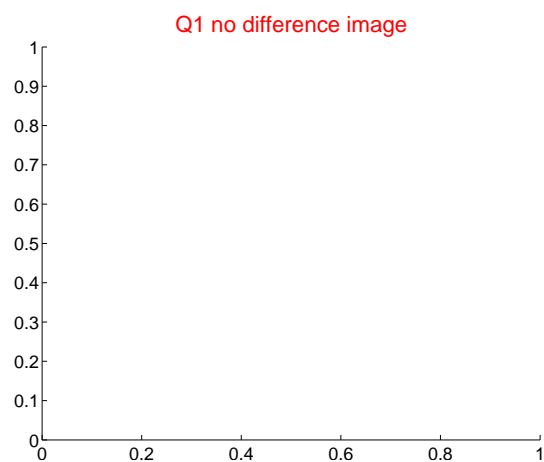
The direct PRF centroid is offset from the target star catalog position by about 0.12 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.027 ± 0.207	0.13	0.008 ± 0.104	-0.026 ± 0.205
PRF-fit source offset from KIC position	0.140 ± 0.184	0.76	-0.077 ± 0.112	-0.117 ± 0.240
photometric centroid source offset	0.69 ± 0.34	2.04	0.04 ± 0.26	-0.68 ± 0.34



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.

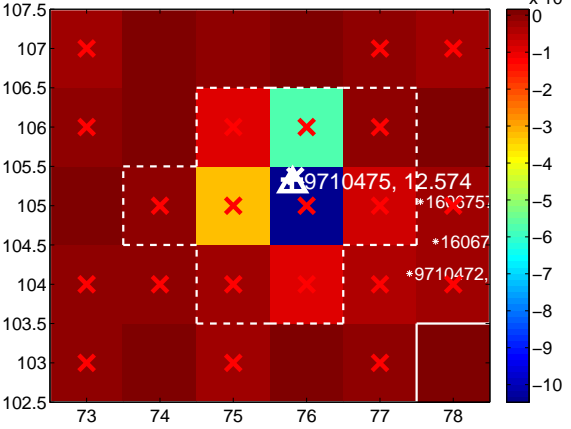
Q5 no difference image



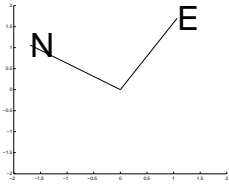
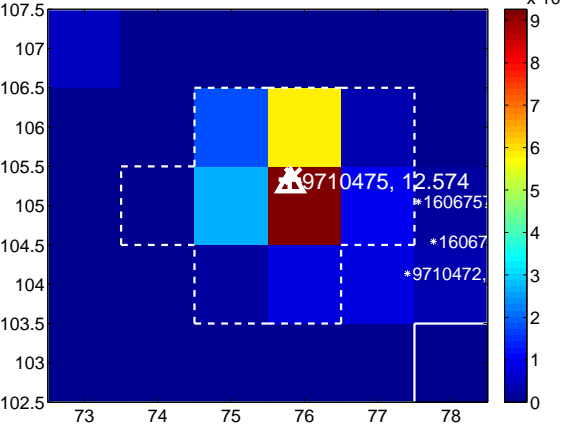
Q5 no OOT image



Q6 difference image. Poor Quality



Q6 OOT image



Q7 no difference image



Q7 no OOT image



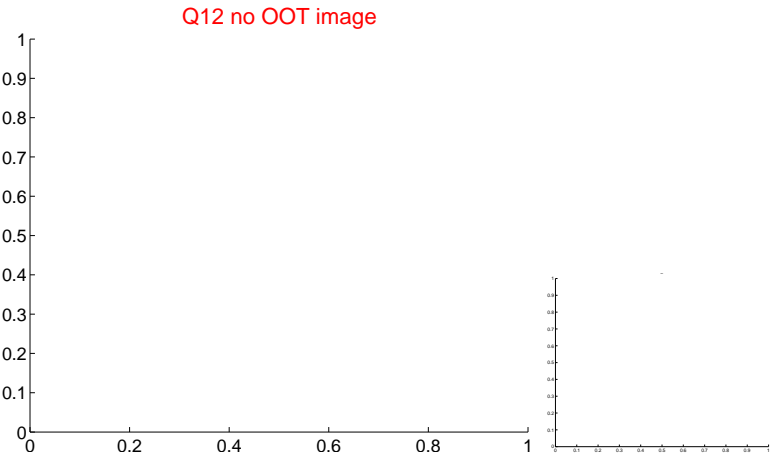
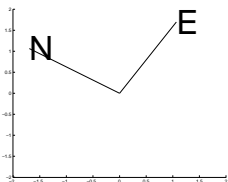
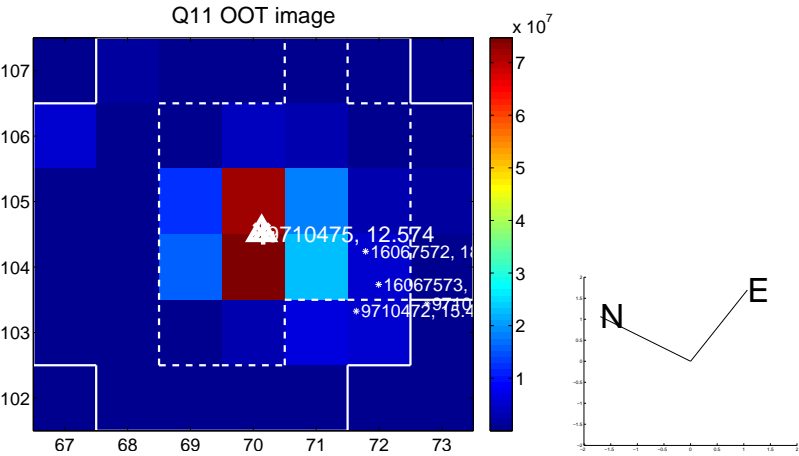
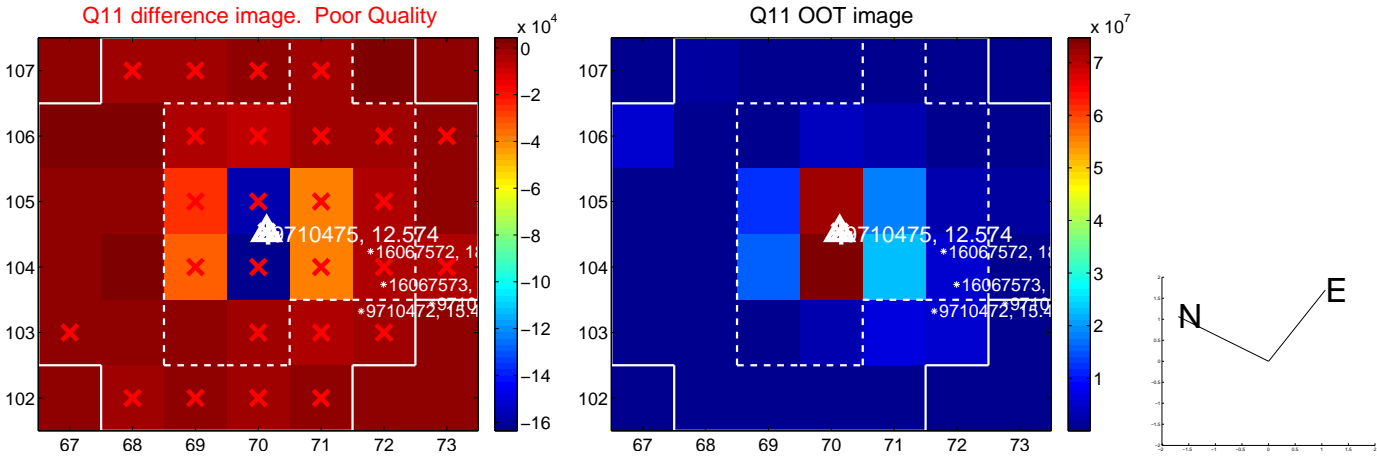
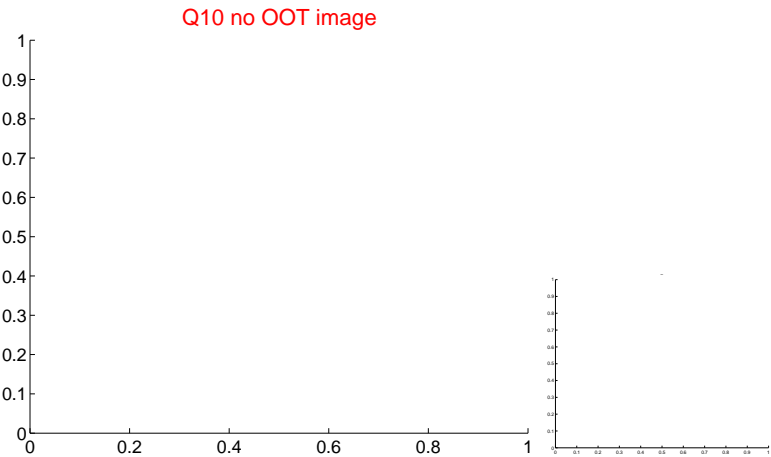
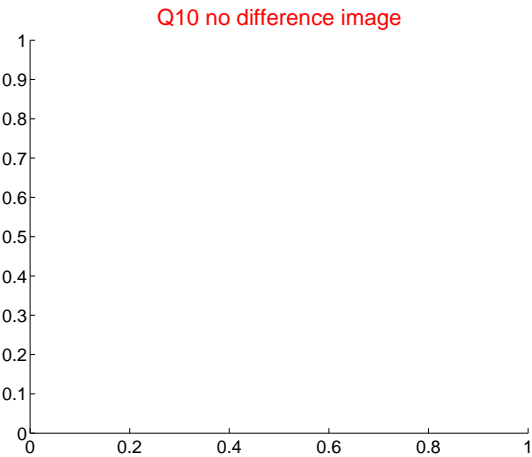
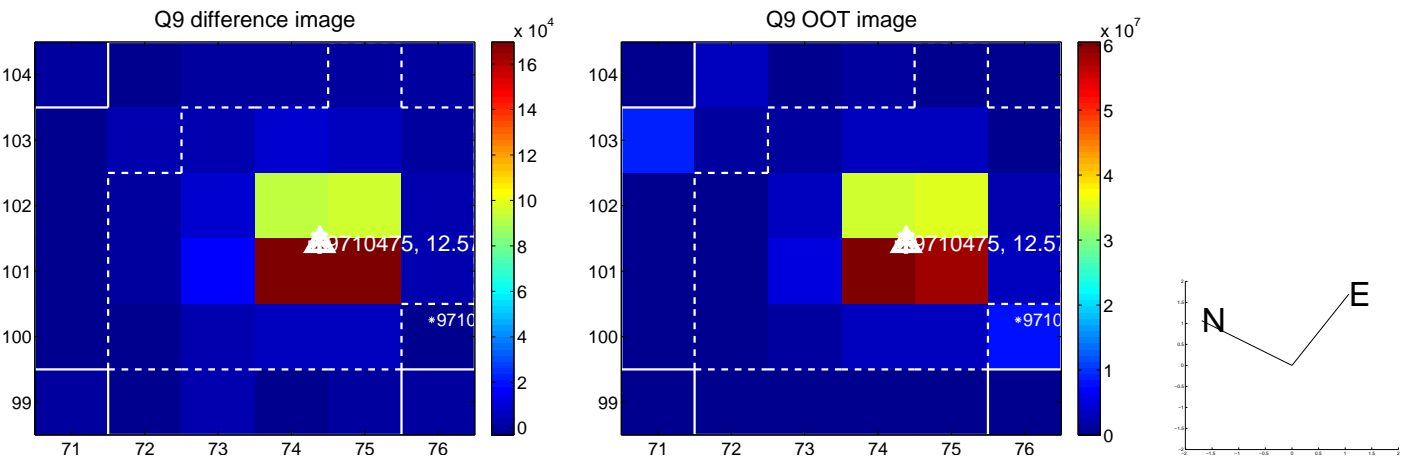
Q8 no difference image



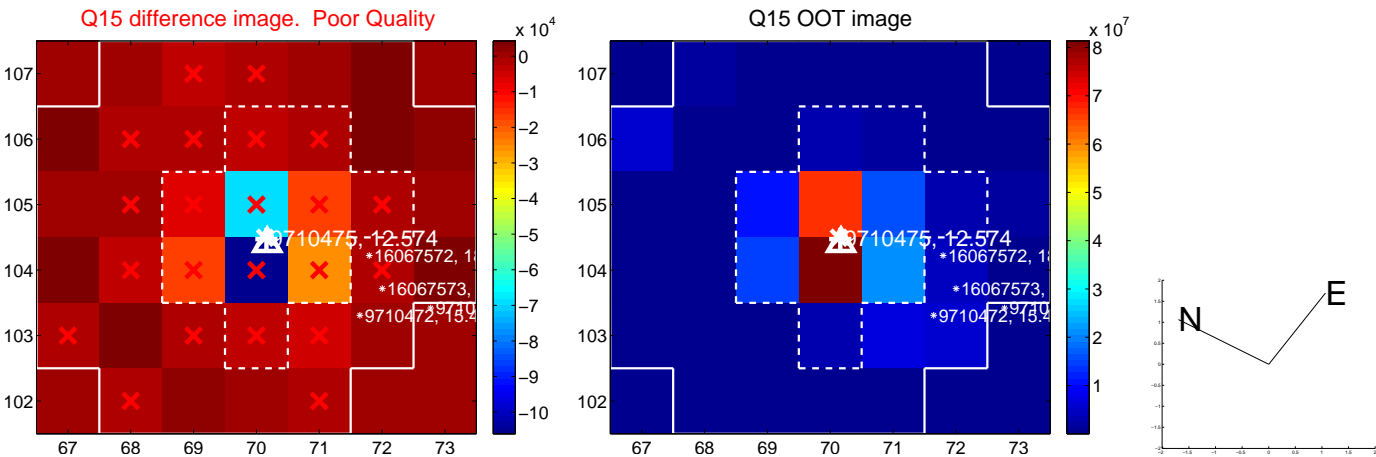
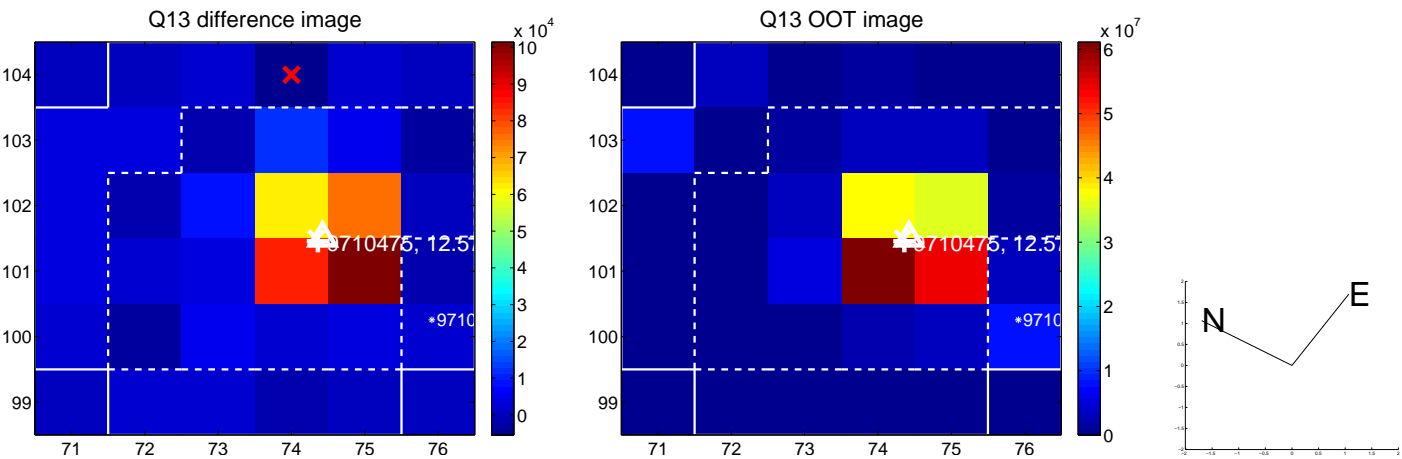
Q8 no OOT image



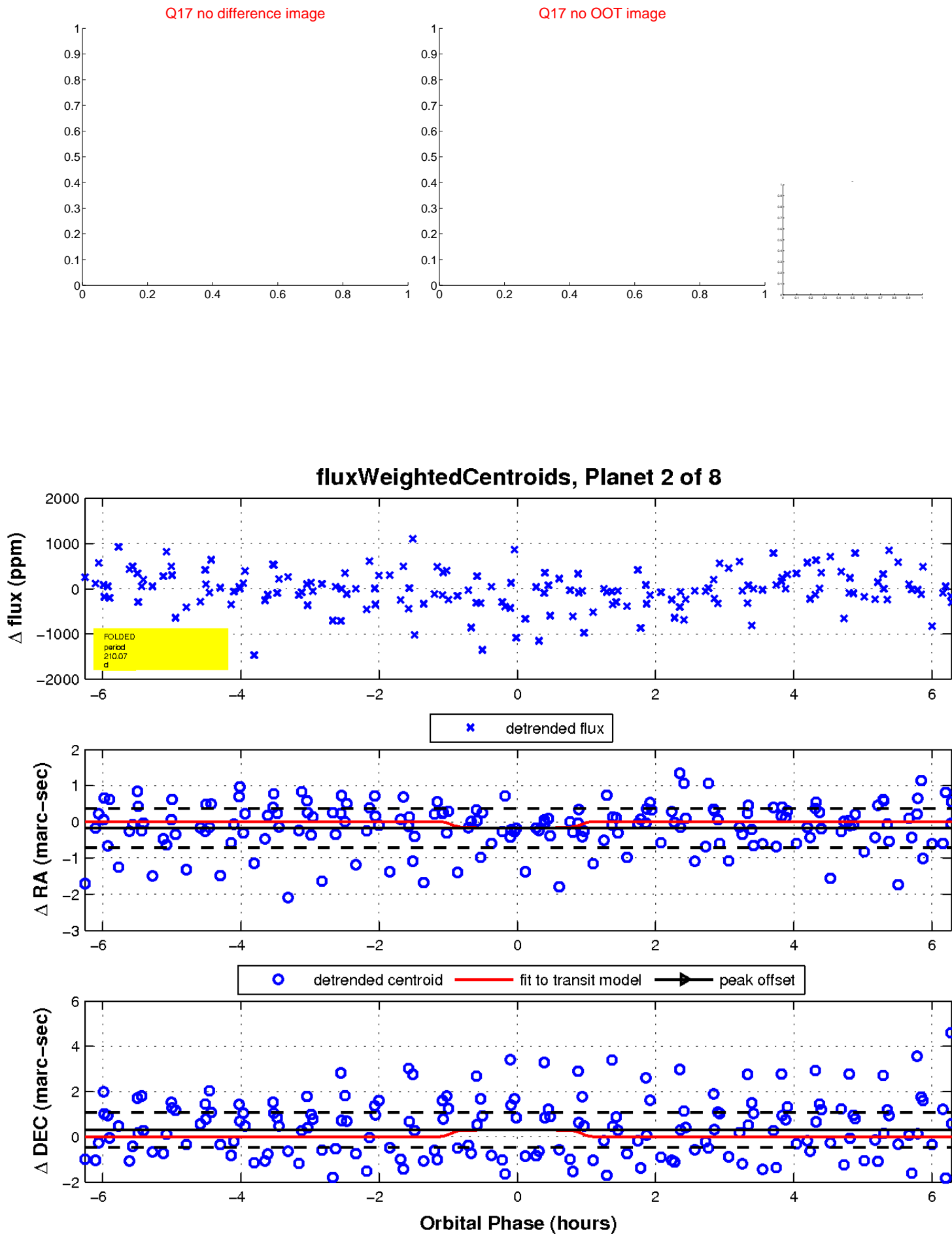
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

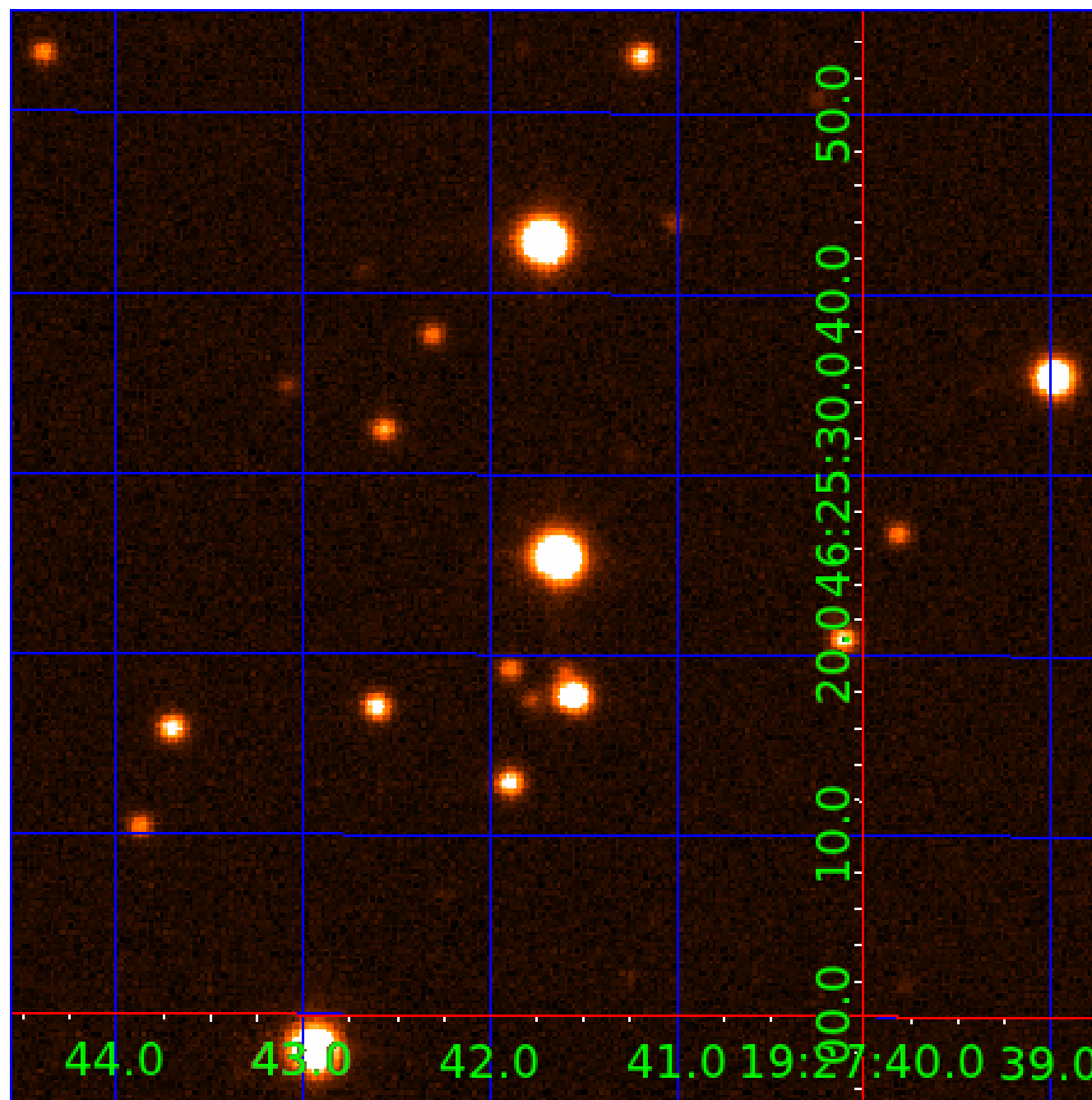


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 009710475

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})
009710475-01	OBS	No	0.815768	131.751161	18.2	5.011	10.2	3.9	2.66	9191	1.17	87222.12
009710475-02	OBS	No	210.070028	205.139547	991.1	2.097	10.0	10.3	2.66	9191	9.27	53.24
009710475-03	OBS	No	53.498735	141.253821	620.9	3.347	8.9	9.3	2.66	9191	7.13	329.81
009710475-04	OBS	No	14.557474	136.571193	351.5	2.690	8.8	8.9	2.66	9191	5.60	1870.40
009710475-05	OBS	No	105.762566	191.928121	676.6	4.355	8.7	8.7	2.66	9191	7.53	132.93
009710475-06	OBS	No	43.281749	152.778024	585.9	3.664	8.7	8.2	2.66	9191	11.24	437.50
009710475-07	OBS	No	50.033795	132.680564	505.3	1.762	8.4	7.7	2.66	9191	6.74	360.60
009710475-08	OBS	No	79.498344	136.881615	107.6	5.000	7.1	-1.0	2.66	9191	2.82	194.49

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009710475-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT
009710475-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL—TRANS_GAPPED—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
009710475-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE—TRANS_GAPPED—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
009710475-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE—TRANS_GAPPED—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
009710475-05	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—HALO_GHOST
009710475-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
009710475-07	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
009710475-08	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_NOFITS

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

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

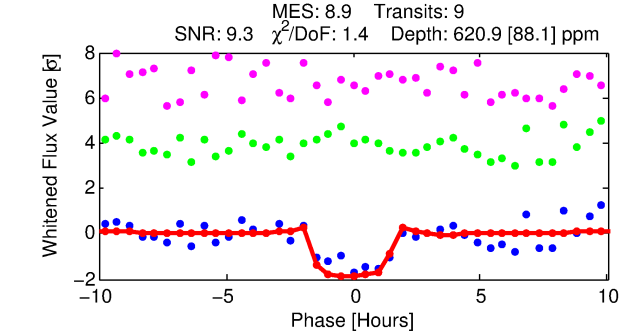
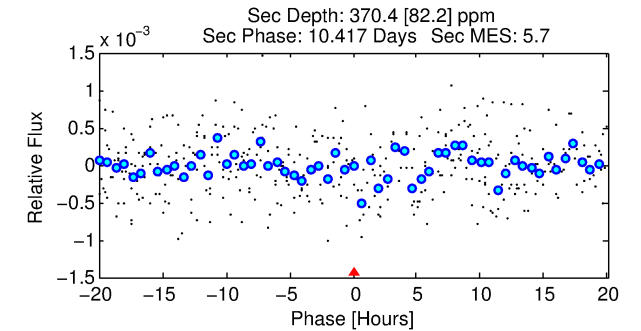
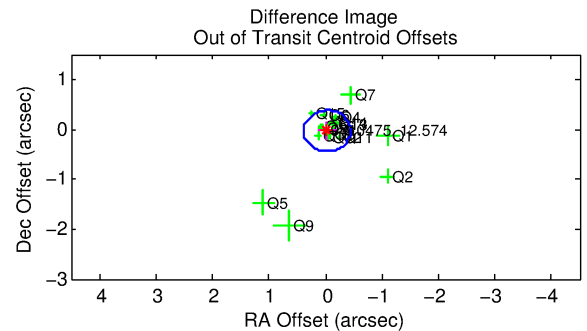
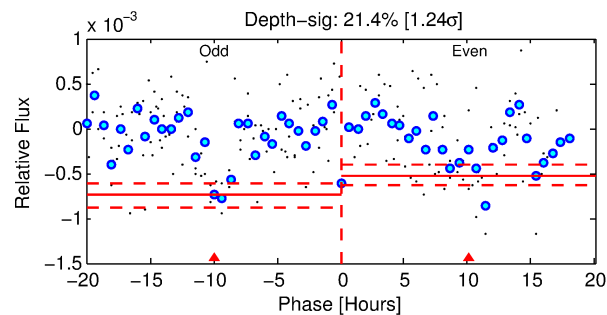
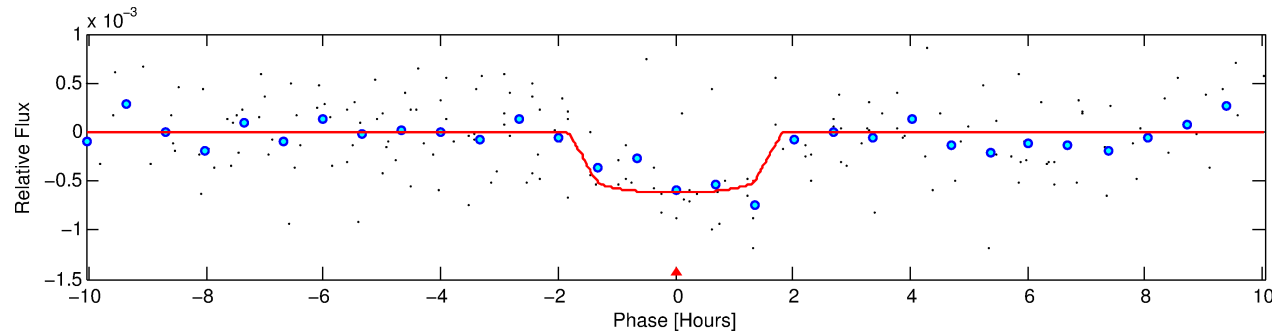
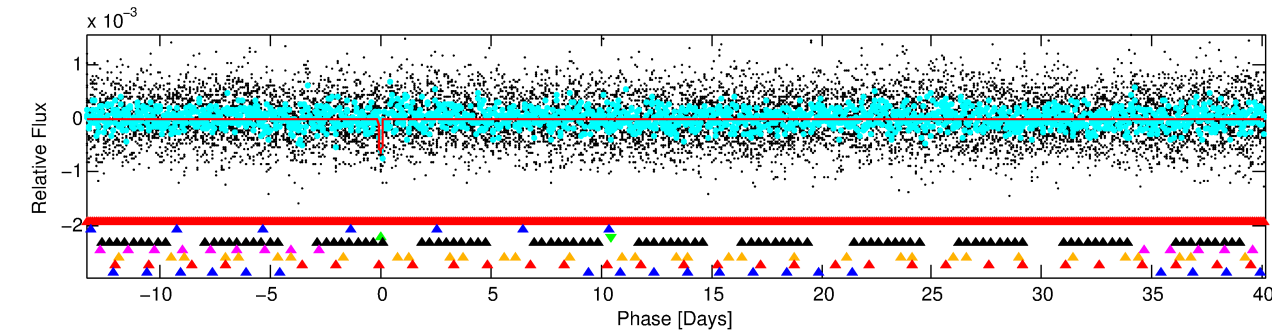
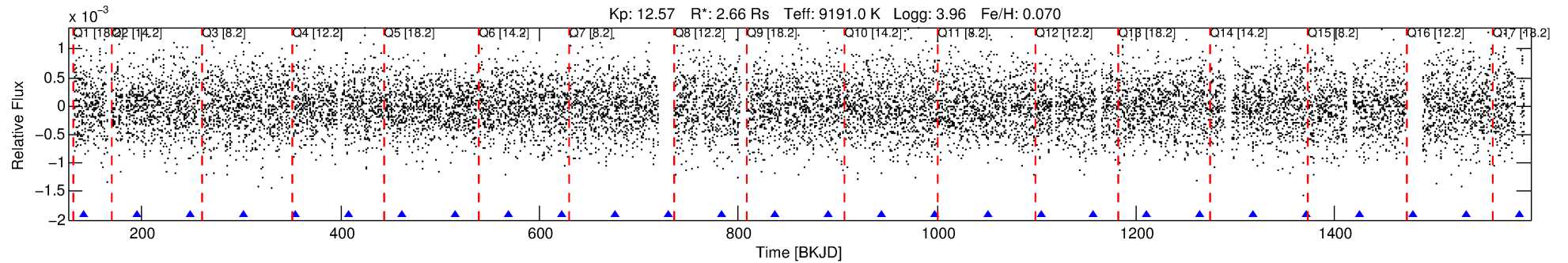
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 009710475-03

No Significant Match Found

DV One-Page Summary

KIC: 9710475 Candidate: 3 of 8 Period: 53.499 d



DV Fit Results:

Period = 53.49873 [0.00066] d
Epoch = 141.2538 [0.0104] BKJD
Rp/R* = 0.0246 [0.0141]
a/R* = 90.30 [340.35]
b = 0.71 [2.67]
Seff = 329.81 [165.04]
Teff = 1087 [136] K
Rp = 7.13 [4.74] Re
a = 0.3701 [0.1111] AU
Ag = 549.13 [687.17] [0.80 σ]
Teffp = 8133 [2407] K [2.92 σ]

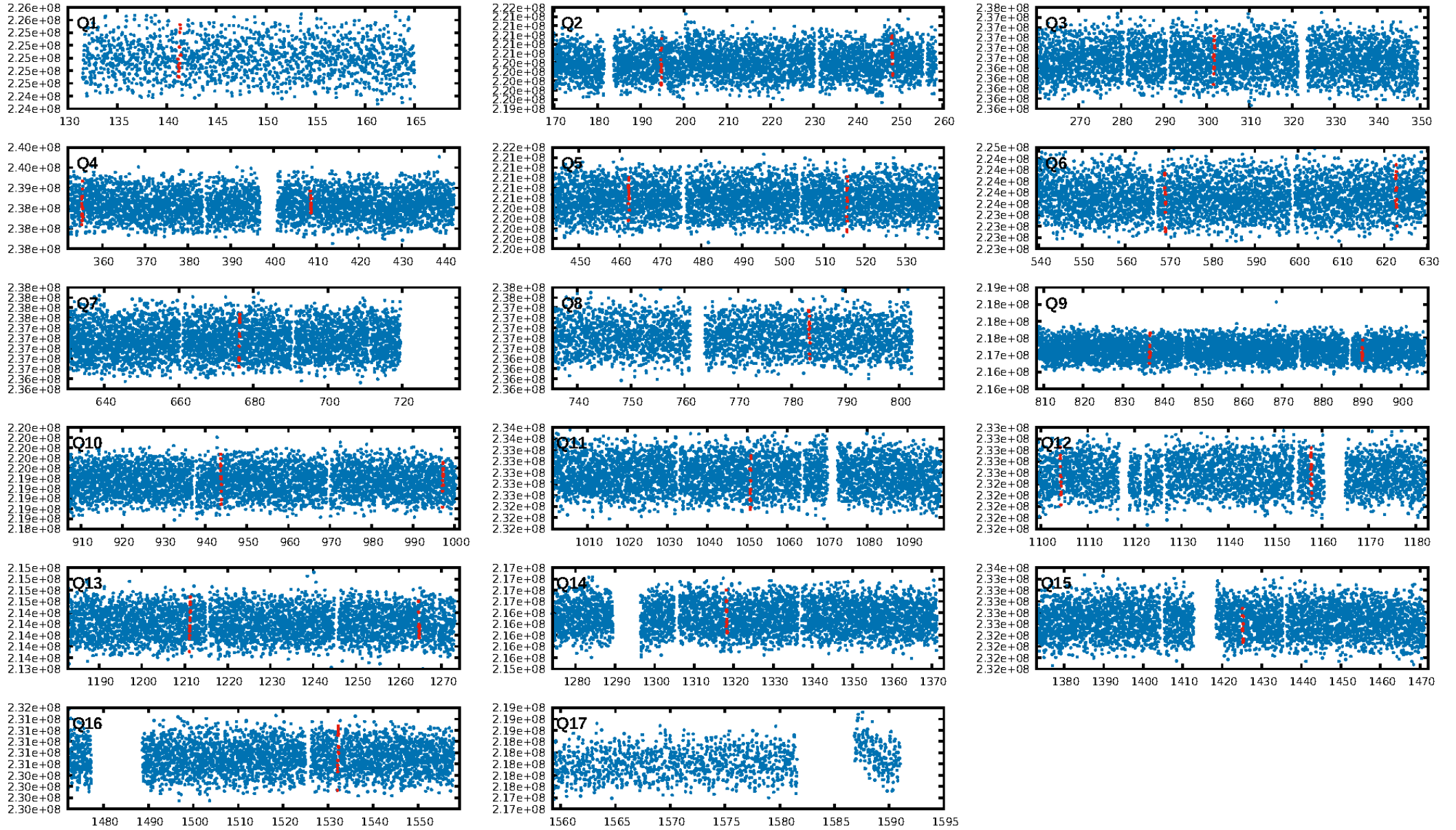
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [21.98 σ]
LongPeriod-sig: 100.0% [103.71 σ]
ModelChiSquare2-sig: 33.0%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [8/8]
GhostDiagnostic-chr: 1.291
Centroid-sig: 1.2%
Centroid-so: 0.735 arcsec [3.37 σ]
OotOffset-rm: 0.043 arcsec [0.31 σ]
KicOffset-rm: 0.237 arcsec [1.55 σ]
OotOffset-st: 4/4/4/4 [16]
KicOffset-st: 4/4/4/4 [16]
DiffImageQuality-fgm: 0.38 [6/16]
DiffImageOverlap-fno: 0.00 [0/16]

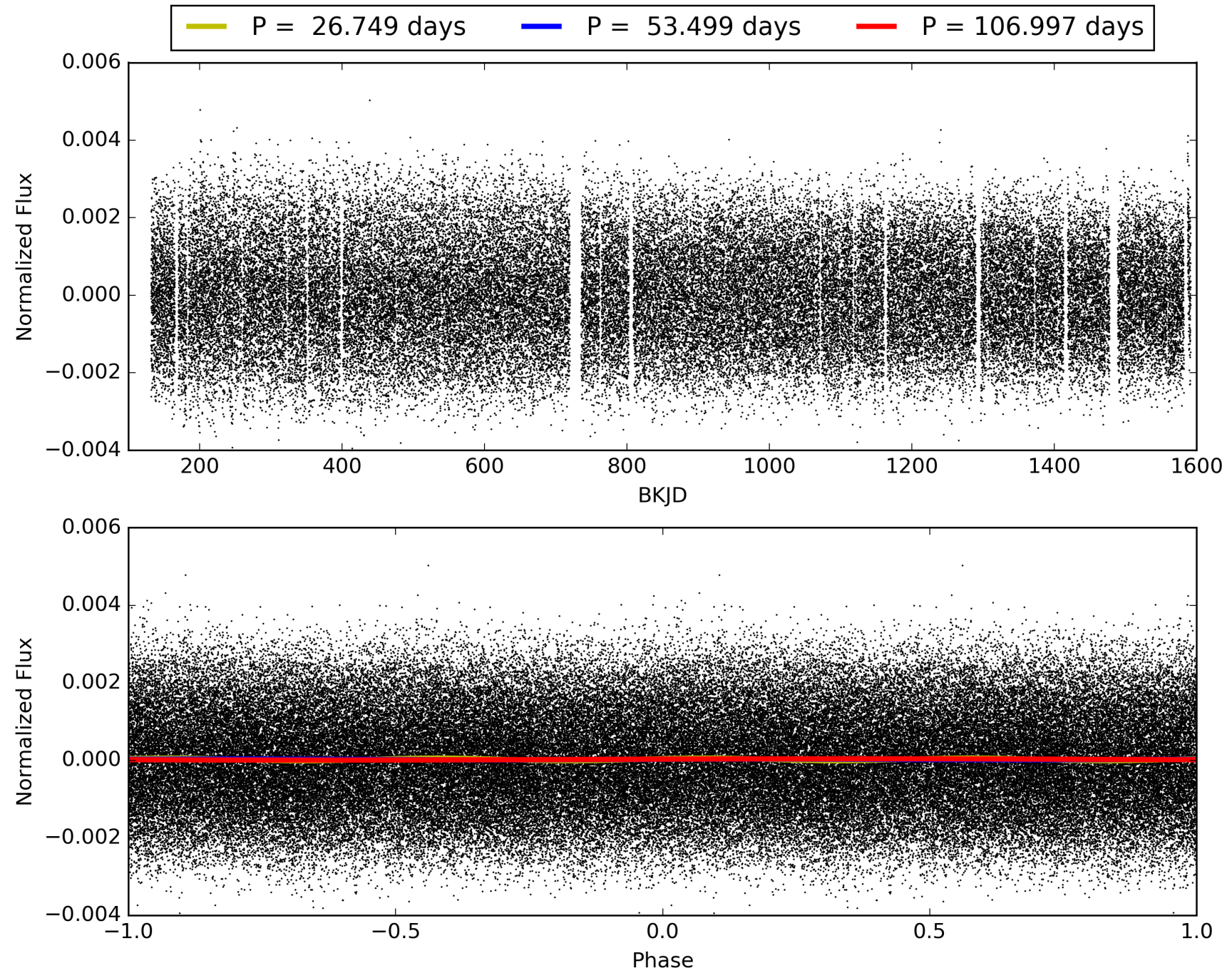
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 22:12:49 Z

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

TCE 009710475-03, PDC Light Curves

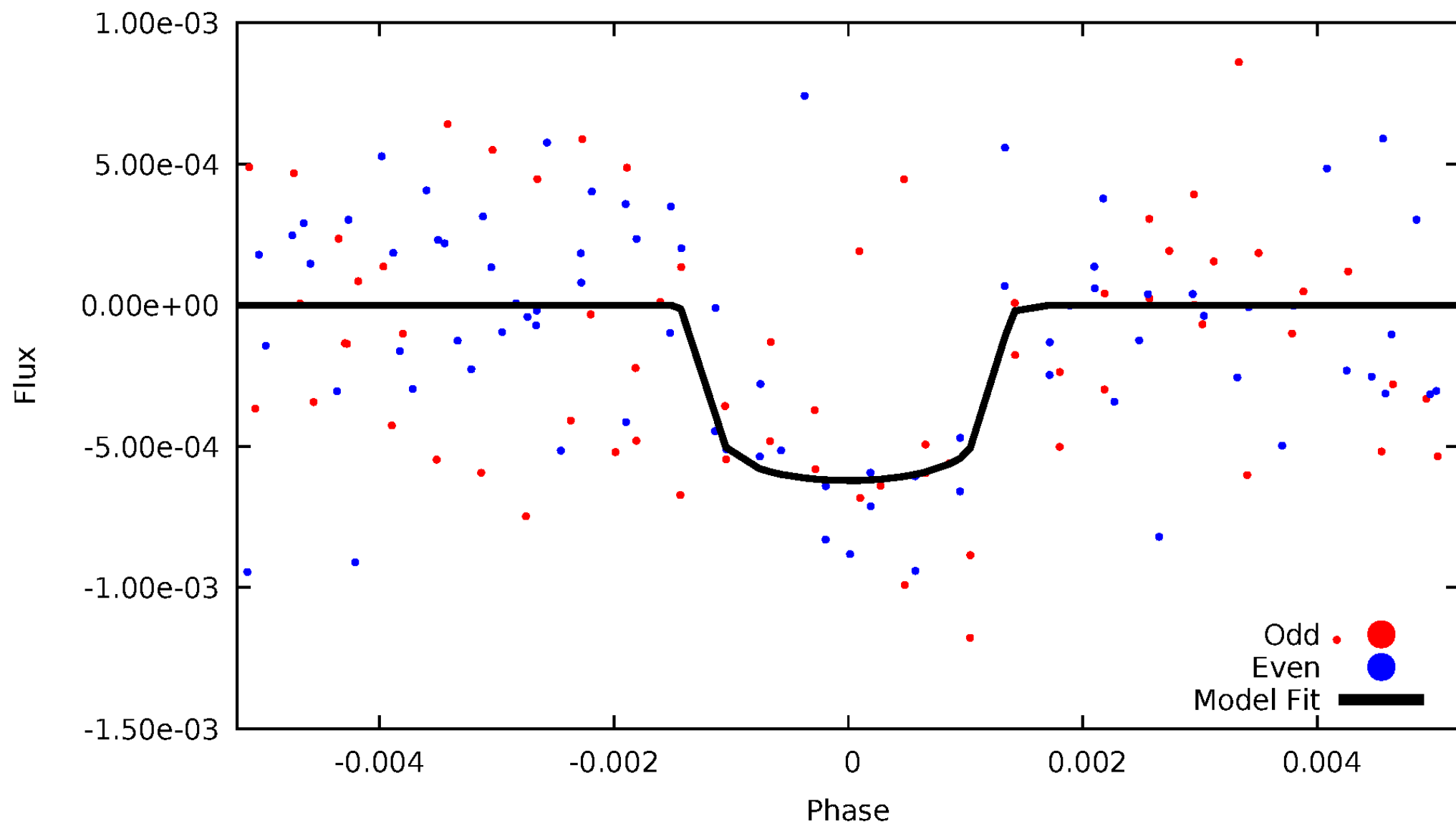


TCE 009710475-03



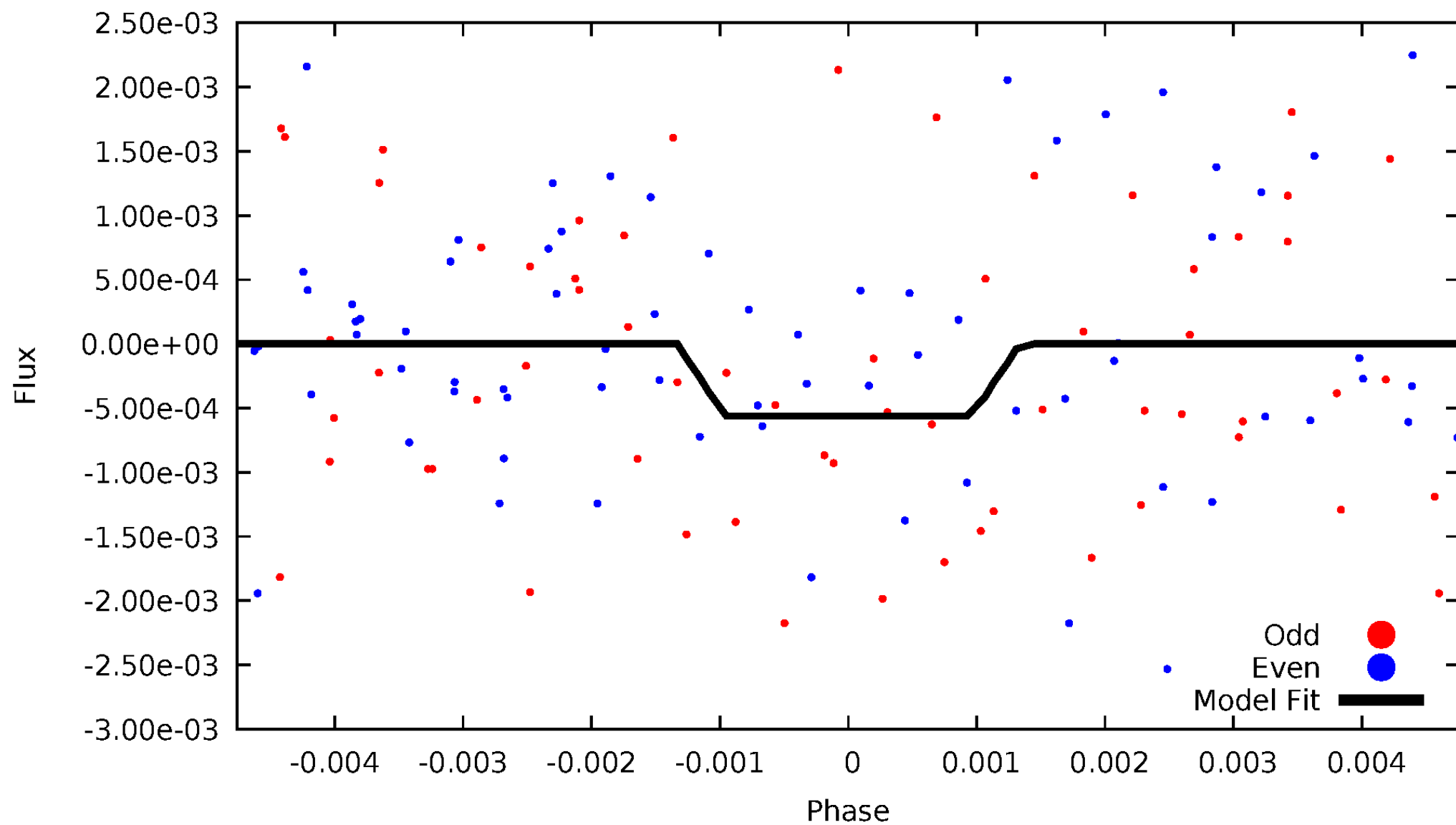
DV Odd/Even

TCE 009710475-03



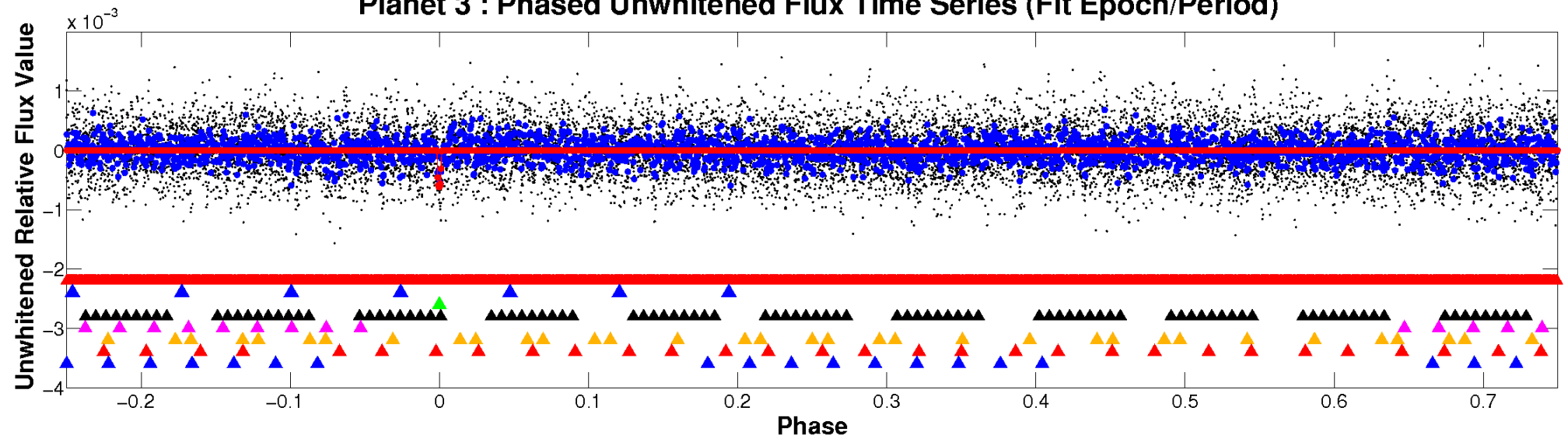
ALT Odd/Even

TCE 009710475-03

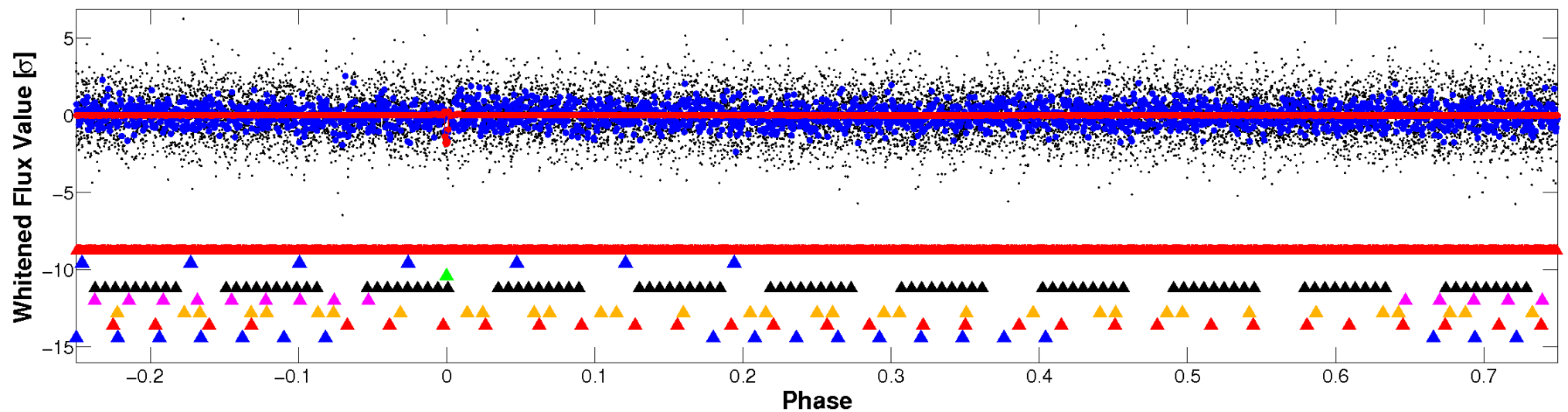


Non-Whitened Vs. Whitened Light Curve

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

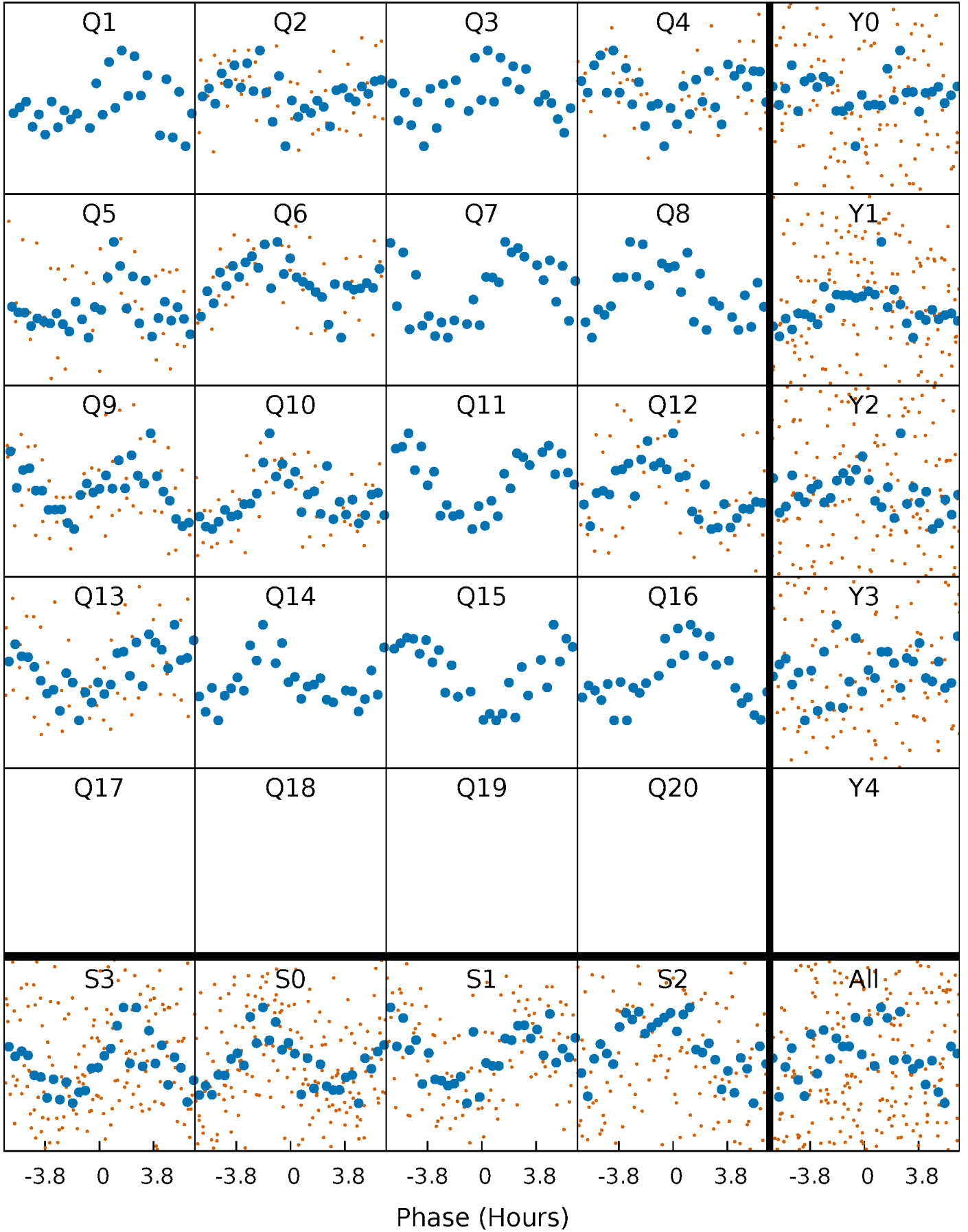


Planet 3 : Phased Whitened Flux Time Series (Fit Epoch/Period)



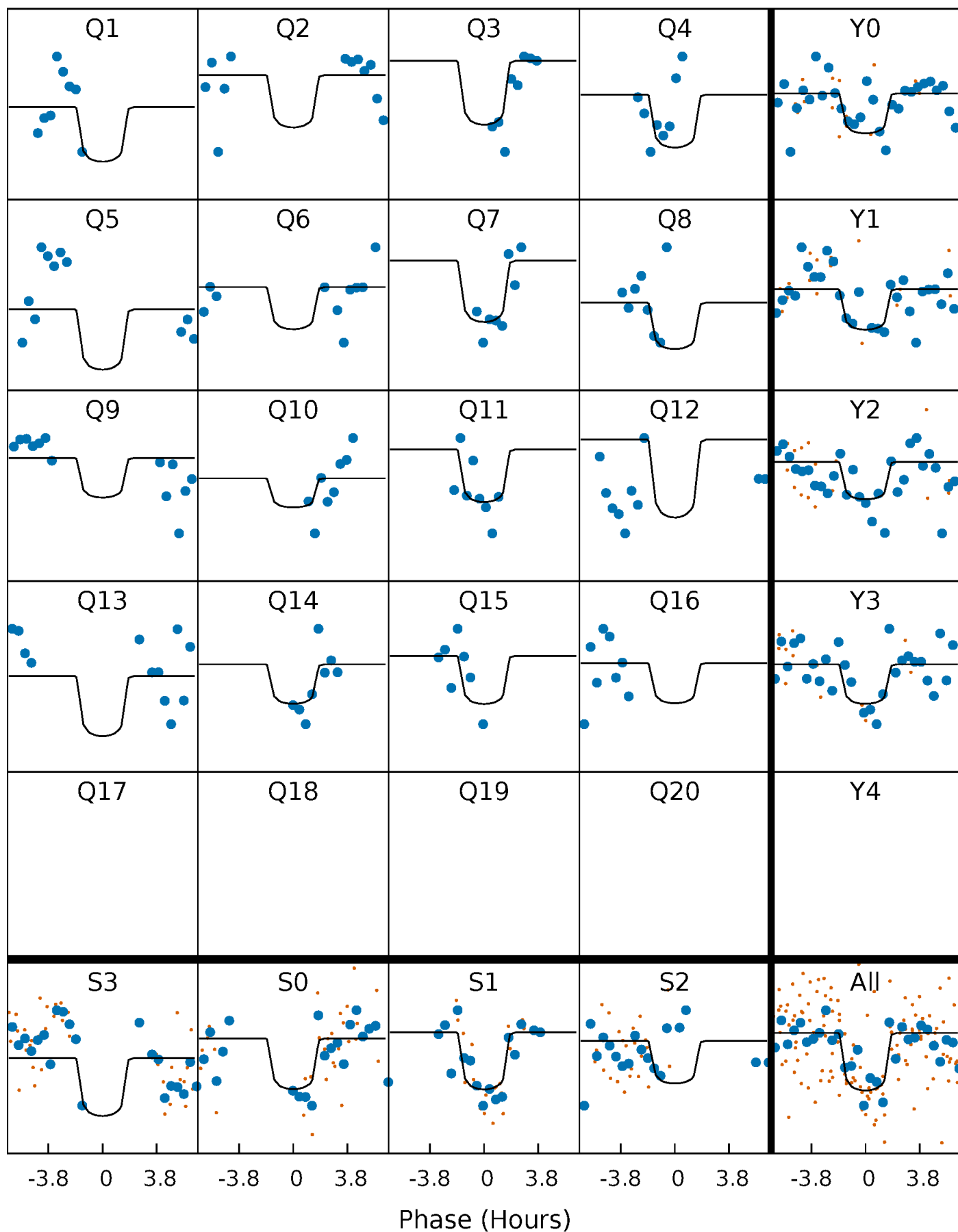
PDC Quarter-Phased Transit Curves

TCE 009710475-03 P= 53.498735 Days $T_0=141.253821$ (BKJD)



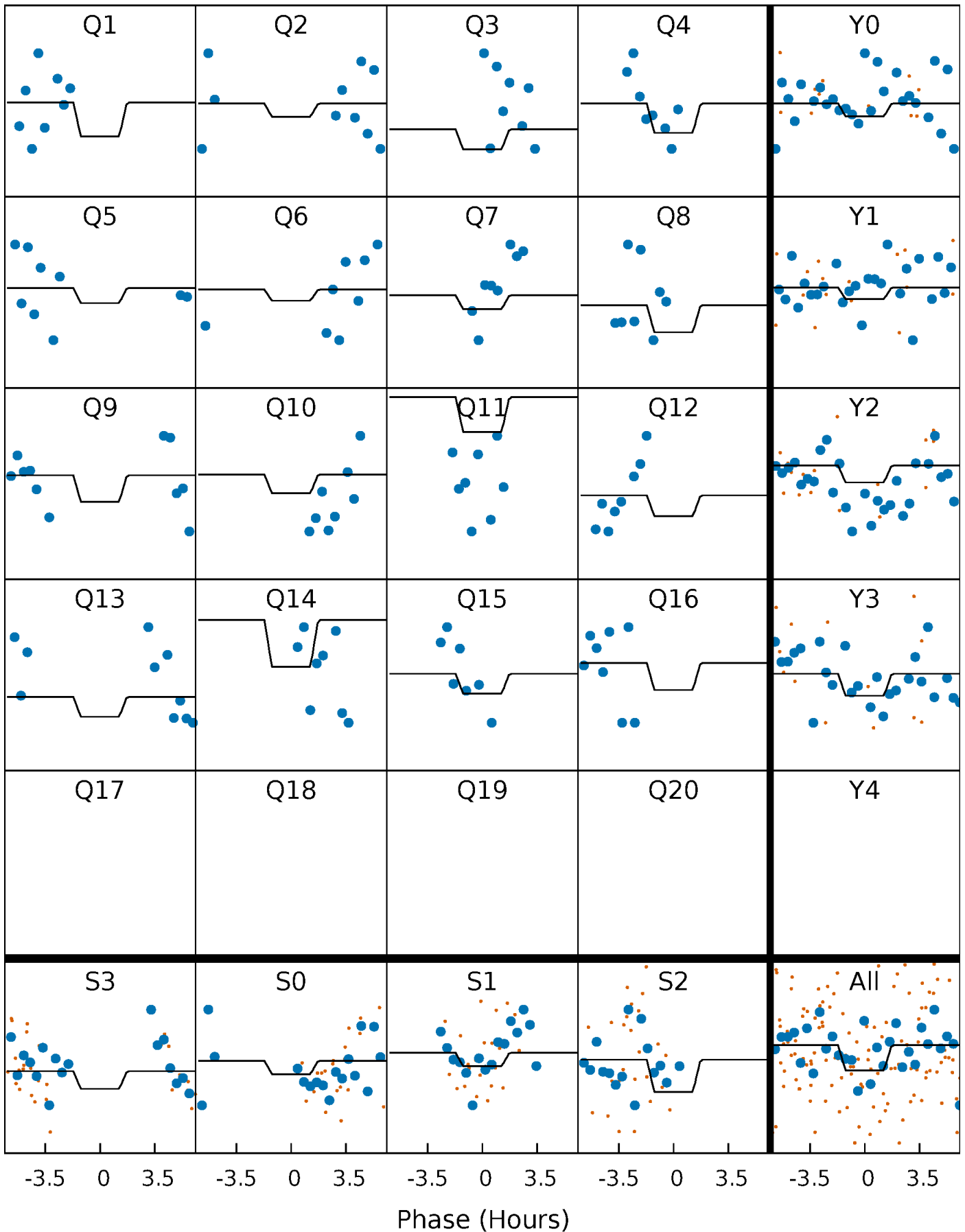
DV Quarter-Phased Transit Curves

TCE 009710475-03 P= 53.498735 Days $T_0=141.253821$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

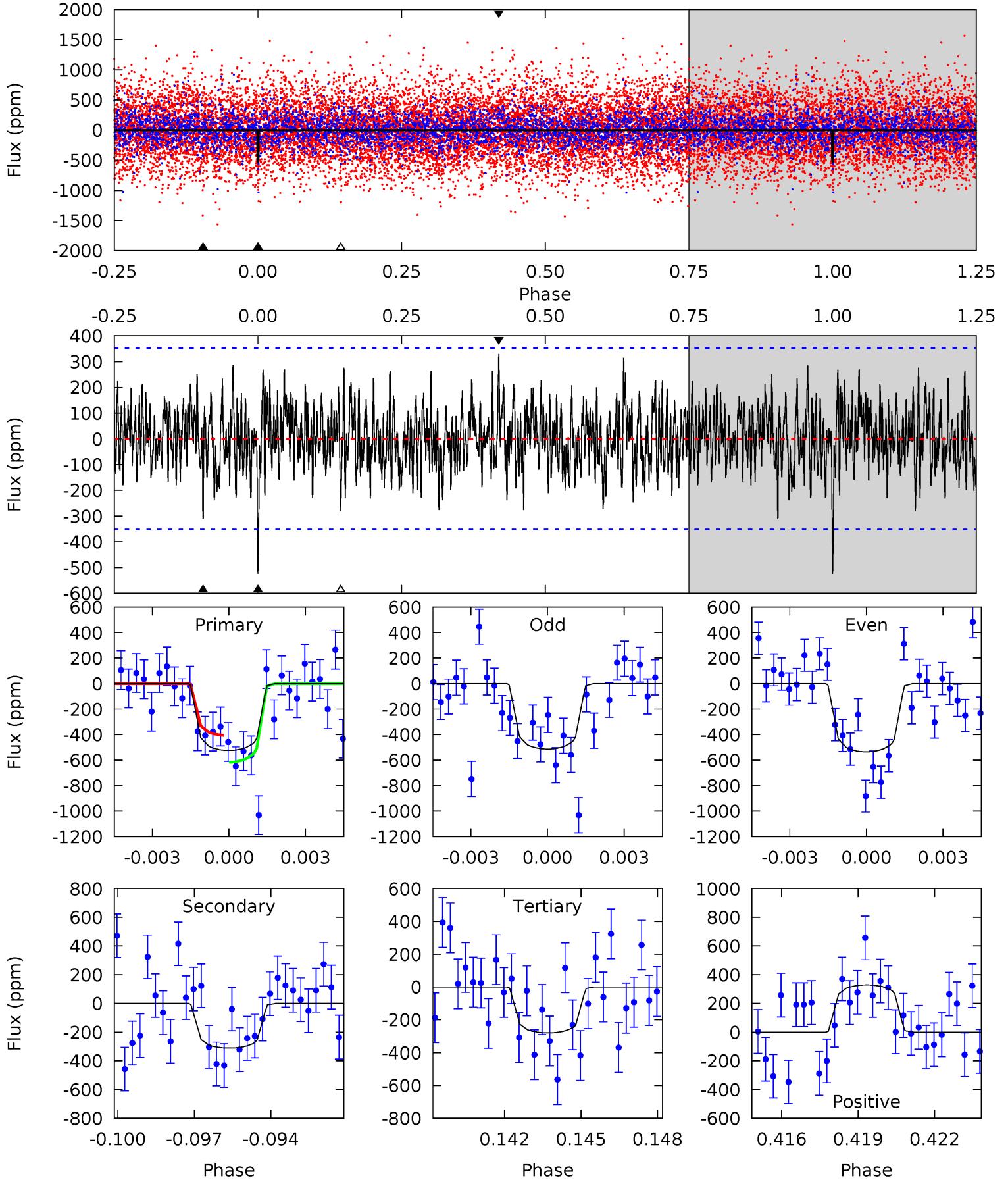
TCE 009710475-03 P= 53.496746 Days $T_0=141.278757$ (BKJD)



DV Model-Shift Uniqueness Test

009710475-03, P = 53.498735 Days, E = 87.755086 Days

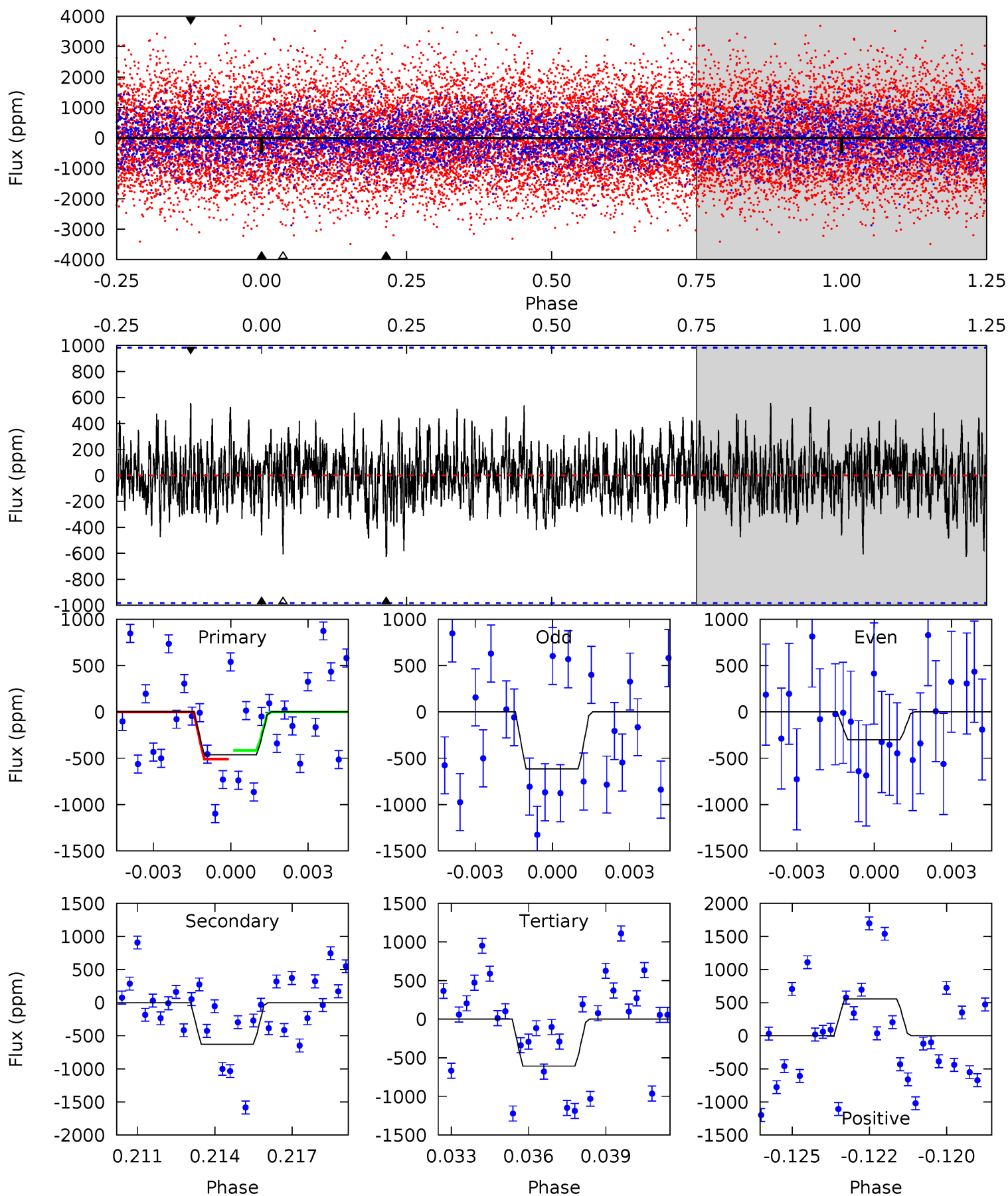
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
7.83	4.64	4.17	4.91	5.26	2.98	1.48	3.66	2.92	0.47	-0.27	0.16	0.88	0.39	1.57



Alt Model-Shift Uniqueness Test

009710475-03, P = 53.496746 Days, E = 87.782011 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
2.47	3.37	3.25	2.98	5.27	2.99	0.89	-0.78	-0.50	0.11	0.39	0.84	1.07	0.47	0.25



Stellar Parameters For KIC 009710475

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	9191^{+255}_{-475}	$3.962^{+0.258}_{-0.172}$	$0.070^{+0.150}_{-0.650}$	$2.658^{+0.810}_{-0.899}$	$2.363^{+0.323}_{-0.753}$	$0.177^{+0.320}_{-0.089}$
	+3%/-5%	+7%/-4%	+214%/-929%	+30%/-34%	+14%/-32%	+181%/-50%
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 009710475-03 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-311 ± 67	$6.86^{+4.58}_{-3.39}$	1499^{+132}_{-126}	7338^{+4157}_{-1549}	487^{+1467}_{-318}
Alt.	-628 ± 187	$6.76^{+4.28}_{-3.50}$	1495^{+123}_{-137}	9078^{+8639}_{-2241}	944^{+3297}_{-579}

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

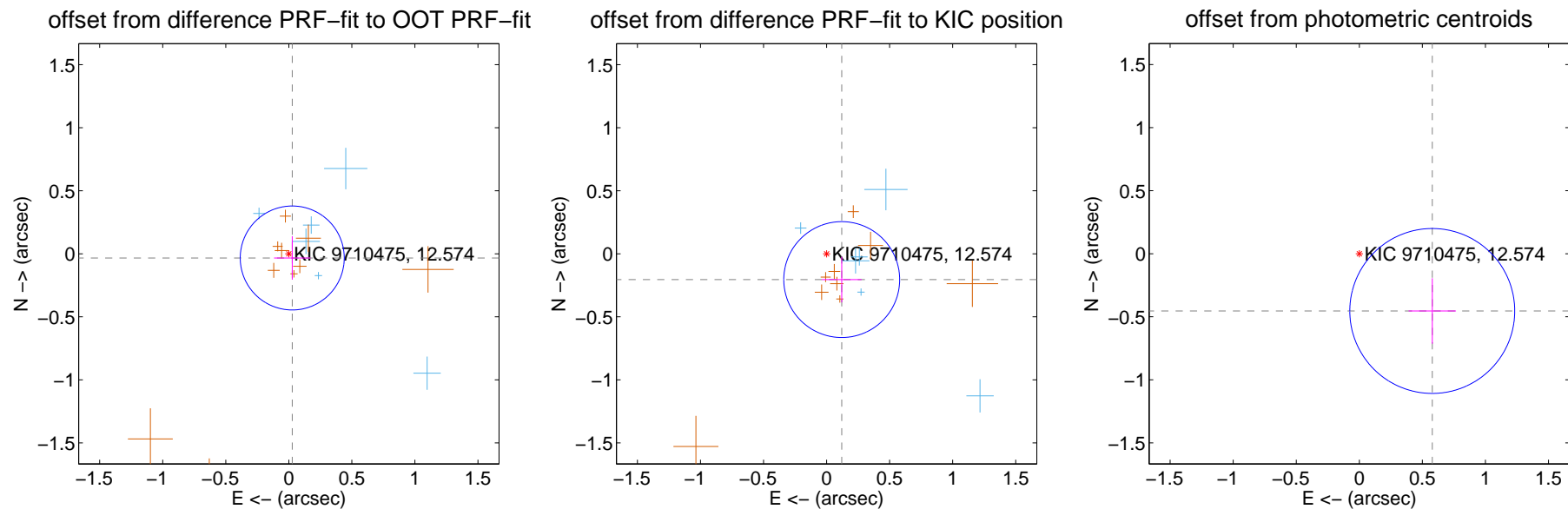
DV Centroid Data

Supplemental centroid analysis for 009710475-03. Kepler magnitude: 12.57. Transit SNR 9.27

There are 6 quarters with good PRF difference image offsets

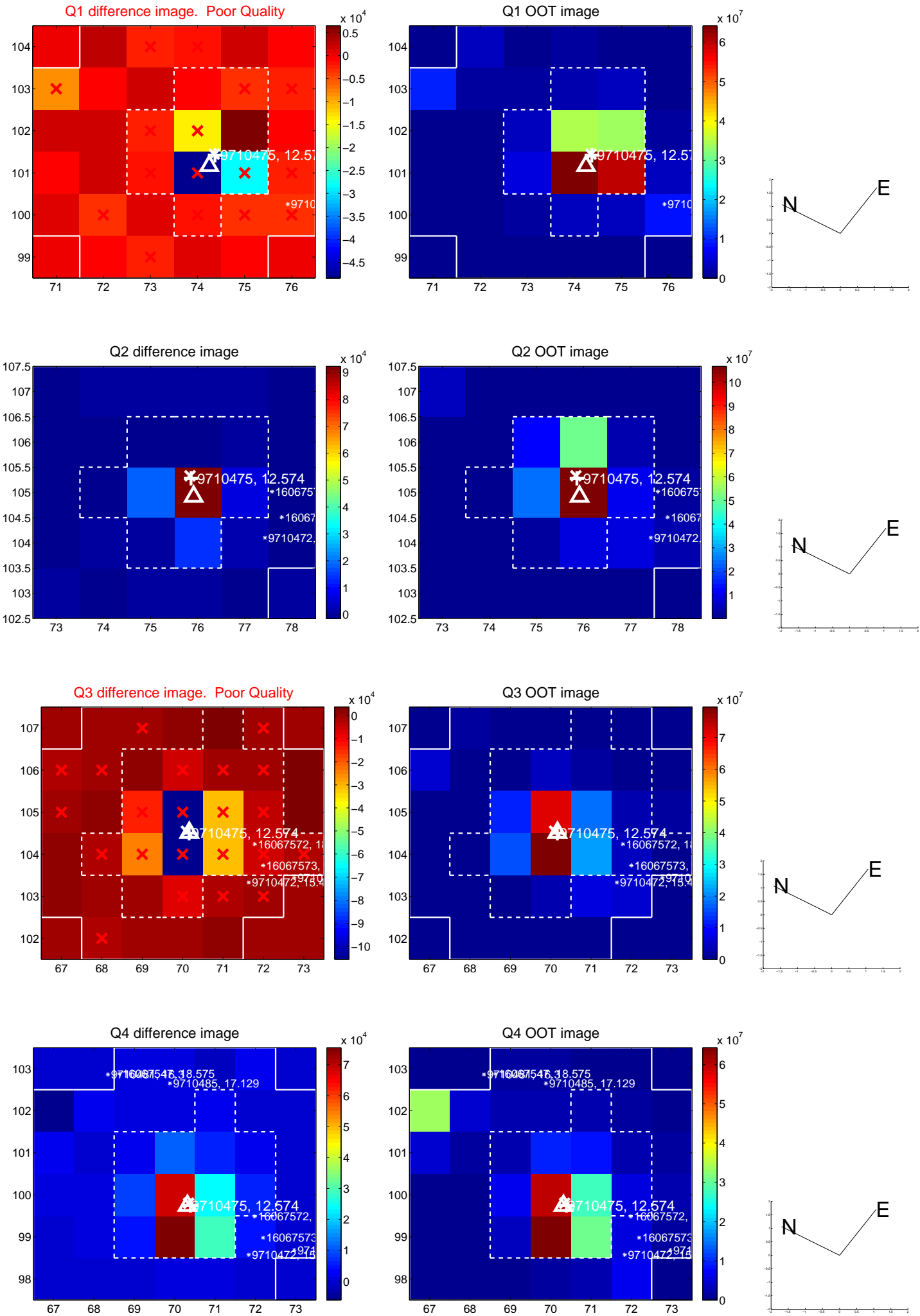
The direct PRF centroid is offset from the target star catalog position by about 0.26 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.043 ± 0.137	0.31	-0.027 ± 0.144	-0.033 ± 0.172
PRF-fit source offset from KIC position	0.237 ± 0.153	1.55	-0.120 ± 0.157	-0.205 ± 0.181
photometric centroid source offset	0.74 ± 0.22	3.37	-0.58 ± 0.19	-0.45 ± 0.26

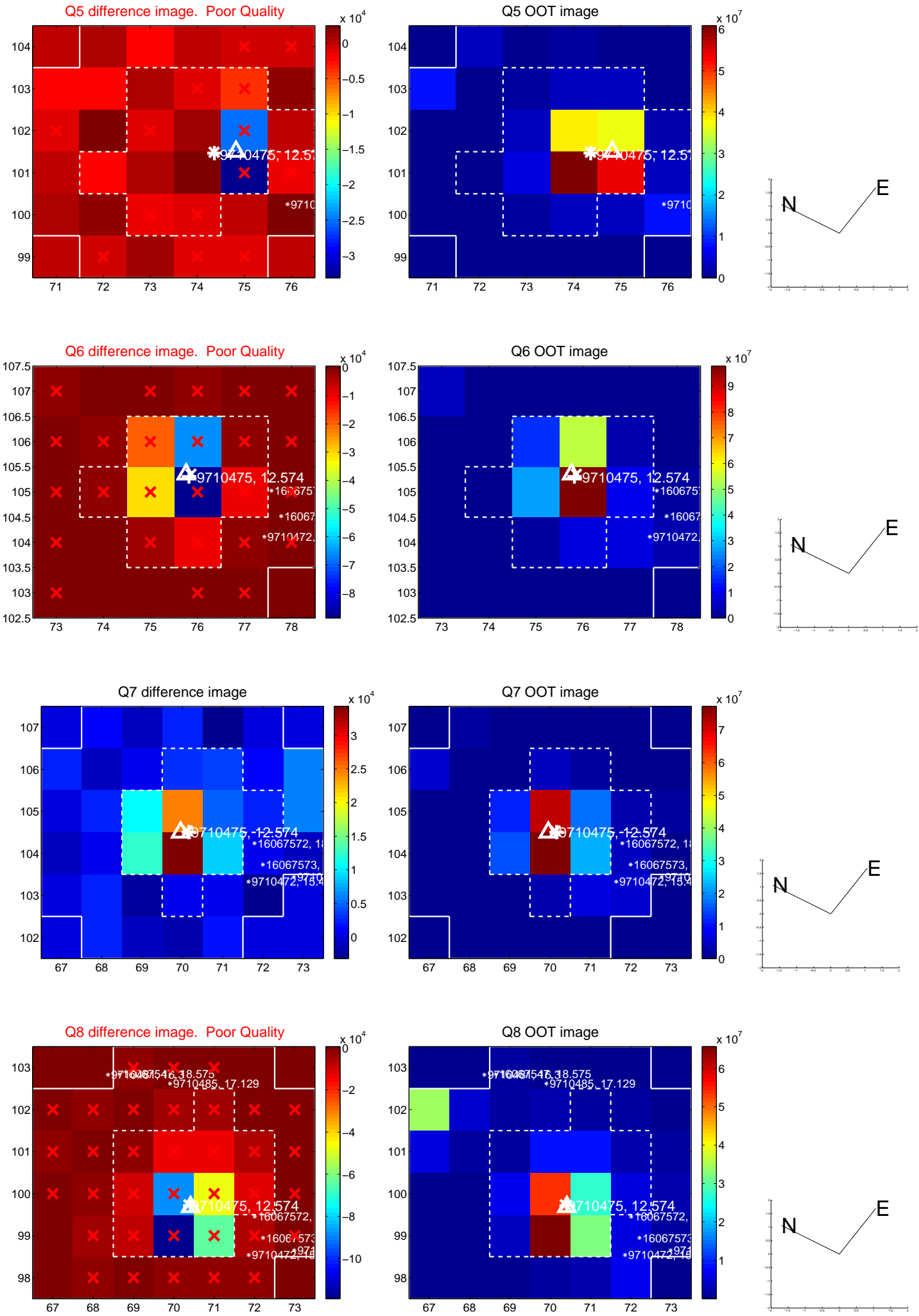


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

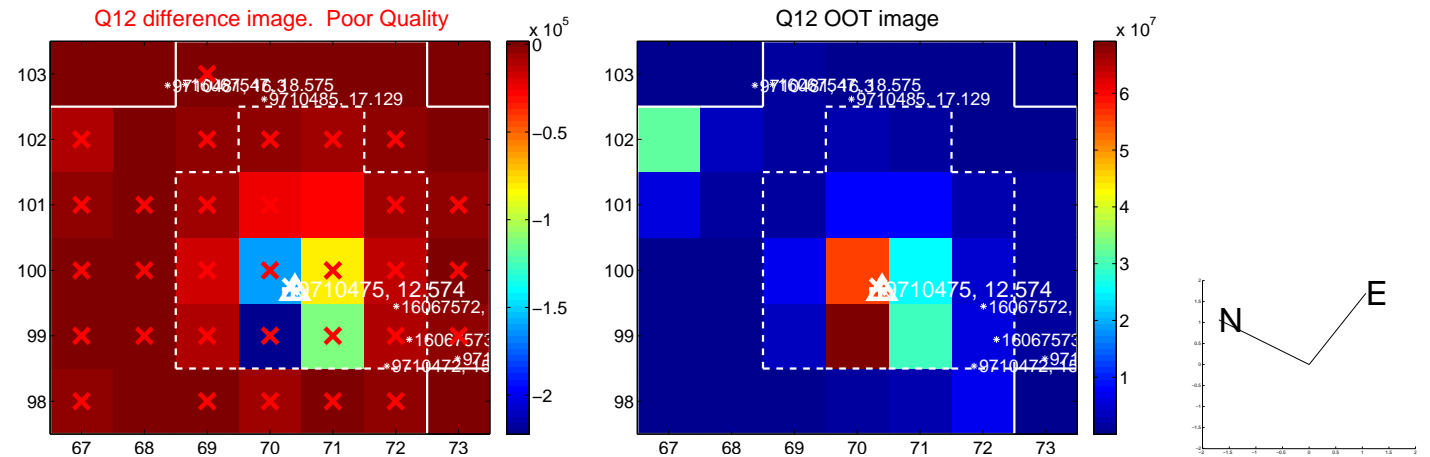
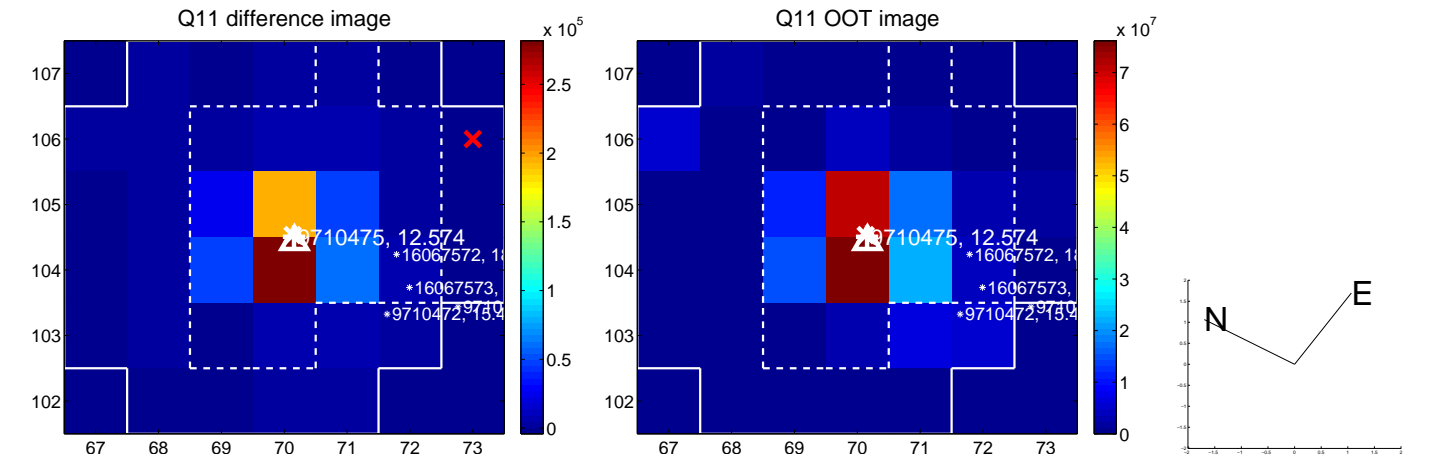
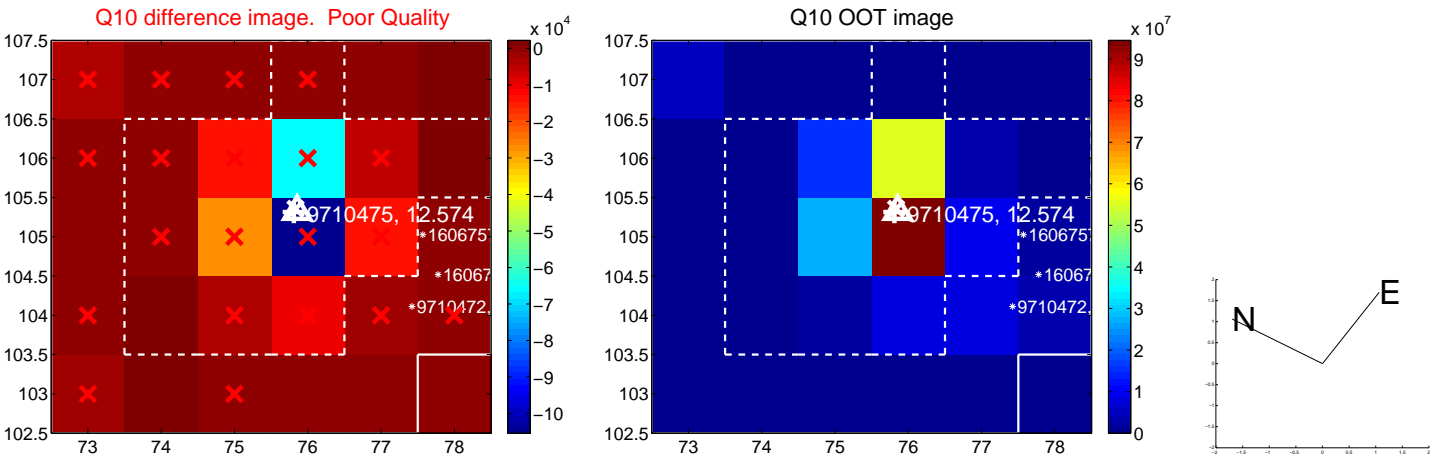
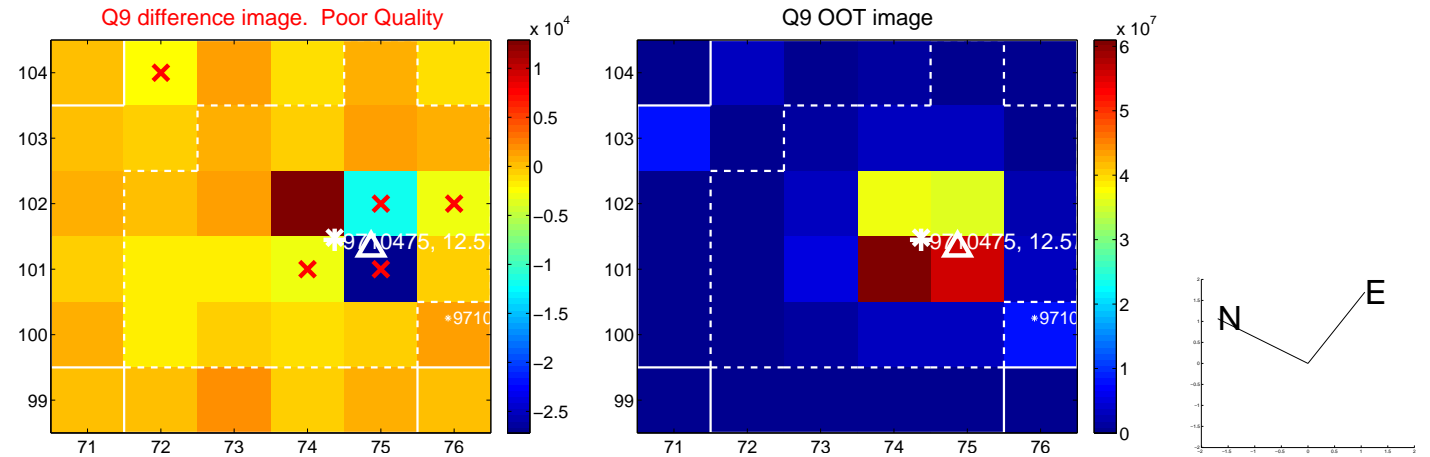
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



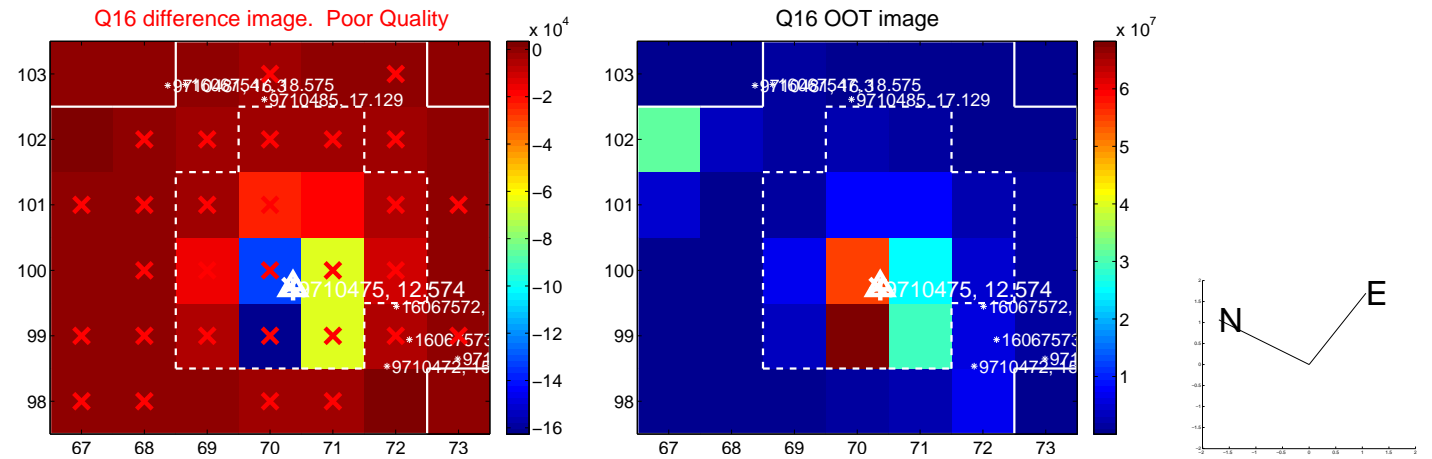
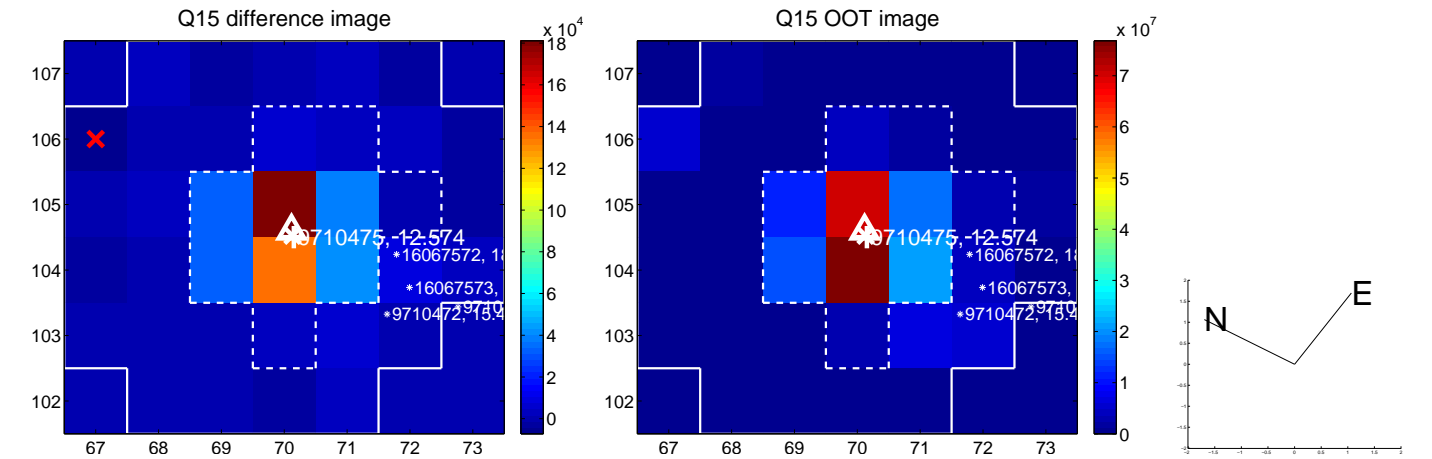
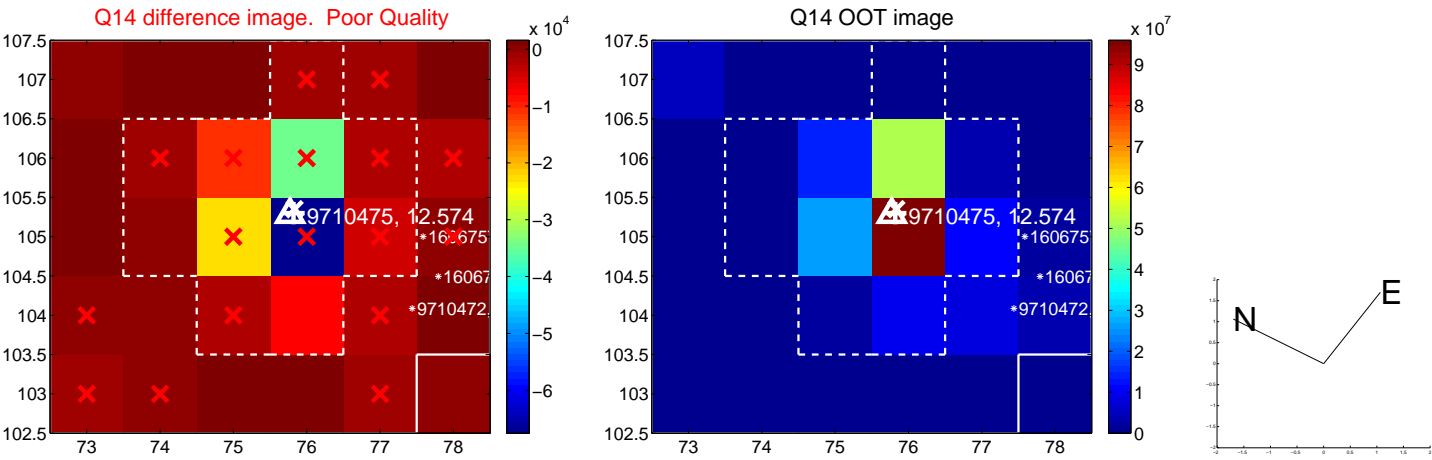
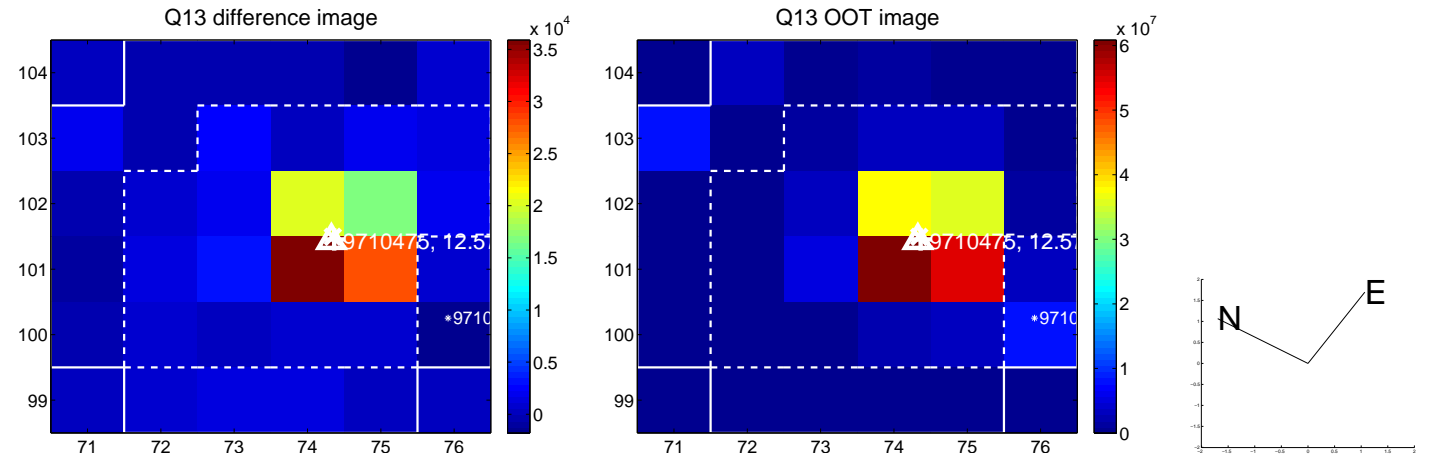
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



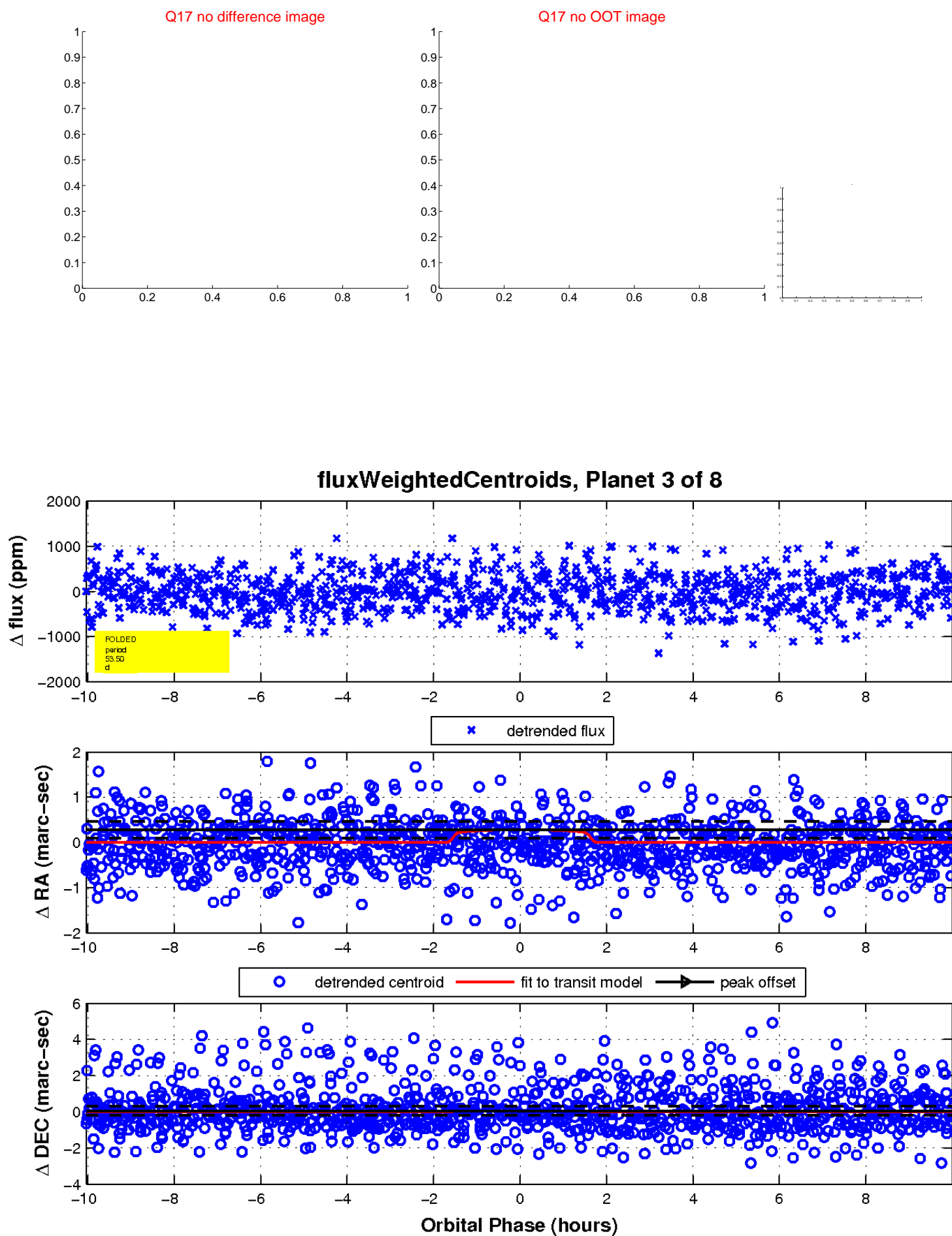
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

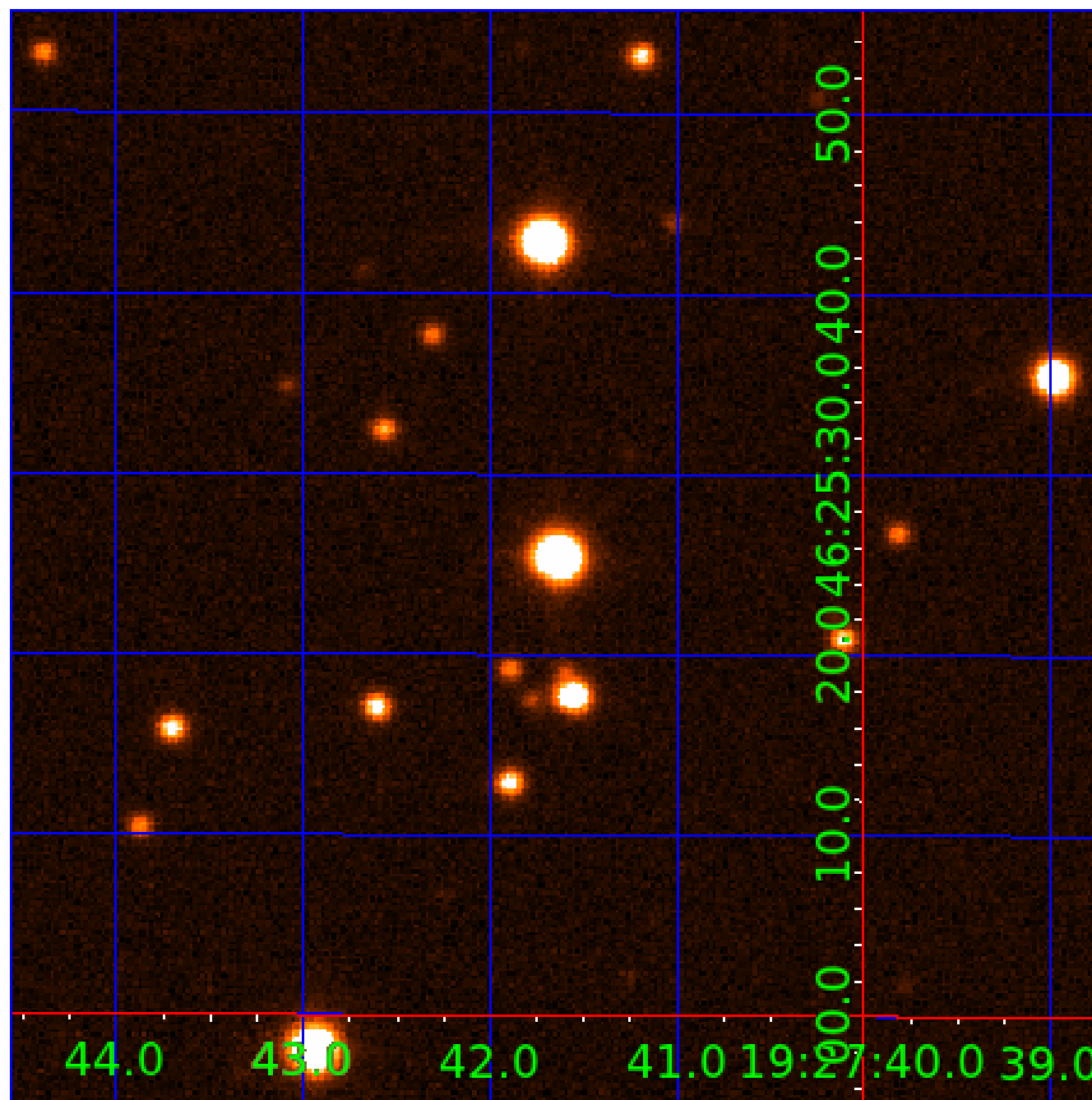


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 009710475

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})
009710475-01	OBS	No	0.815768	131.751161	18.2	5.011	10.2	3.9	2.66	9191	1.17	87222.12
009710475-02	OBS	No	210.070028	205.139547	991.1	2.097	10.0	10.3	2.66	9191	9.27	53.24
009710475-03	OBS	No	53.498735	141.253821	620.9	3.347	8.9	9.3	2.66	9191	7.13	329.81
009710475-04	OBS	No	14.557474	136.571193	351.5	2.690	8.8	8.9	2.66	9191	5.60	1870.40
009710475-05	OBS	No	105.762566	191.928121	676.6	4.355	8.7	8.7	2.66	9191	7.53	132.93
009710475-06	OBS	No	43.281749	152.778024	585.9	3.664	8.7	8.2	2.66	9191	11.24	437.50
009710475-07	OBS	No	50.033795	132.680564	505.3	1.762	8.4	7.7	2.66	9191	6.74	360.60
009710475-08	OBS	No	79.498344	136.881615	107.6	5.000	7.1	-1.0	2.66	9191	2.82	194.49

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009710475-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT
009710475-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL—TRANS_GAPPED—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
009710475-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE—TRANS_GAPPED—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
009710475-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE—TRANS_GAPPED—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
009710475-05	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—HALO_GHOST
009710475-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
009710475-07	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
009710475-08	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_NOFITS

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

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

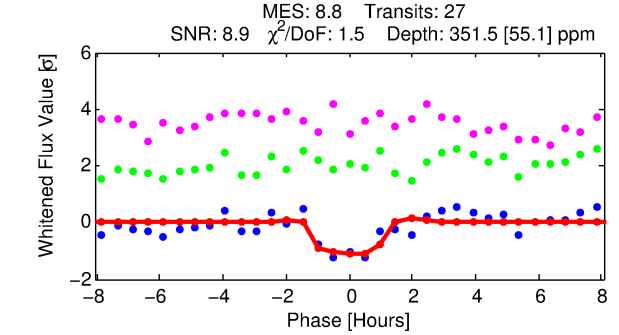
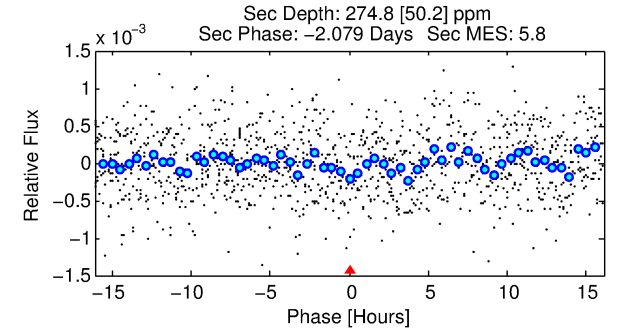
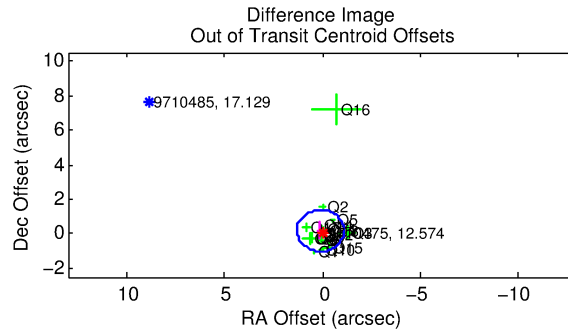
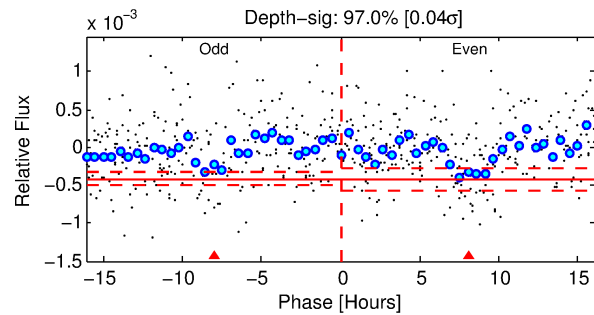
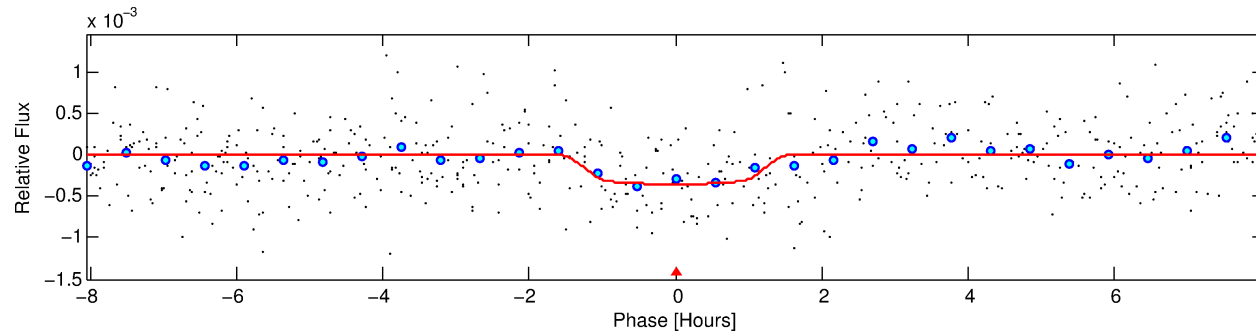
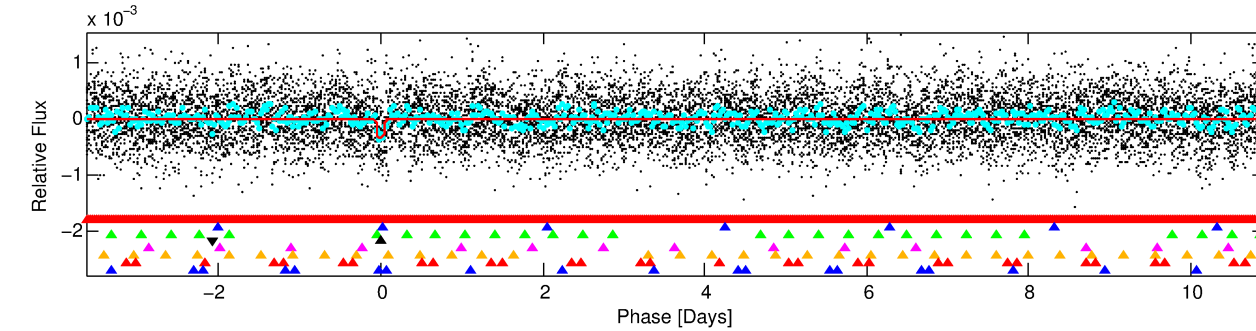
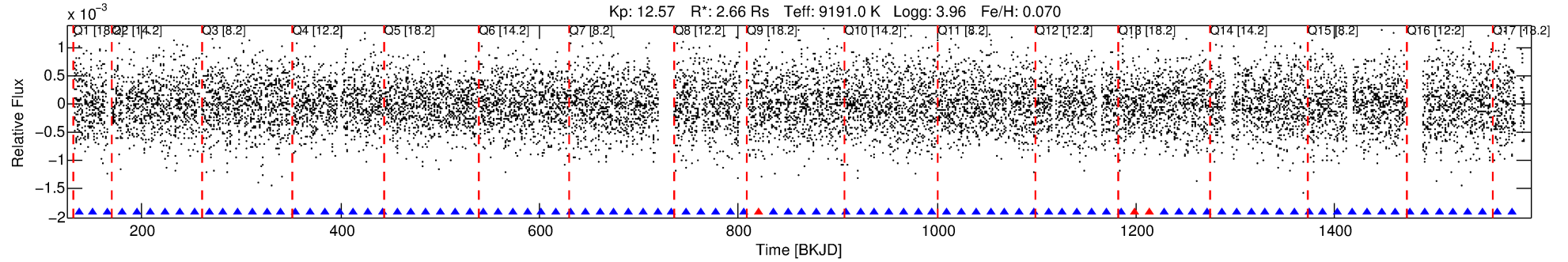
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 009710475-04

No Significant Match Found

DV One-Page Summary

KIC: 9710475 Candidate: 4 of 8 Period: 14.557 d



DV Fit Results:

Period = 14.55747 [0.00015] d
Epoch = 136.5712 [0.0085] BKJD
Rp/R* = 0.0193 [0.0105]
a/R* = 23.17 [86.53]
b = 0.85 [1.22]
Seff = 1870.40 [936.00]
Teff = 1677 [210] K
Rp = 5.60 [3.59] Re
a = 0.1554 [0.0466] AU
Ag = 116.44 [138.91] [0.83 σ]
Teffp = 8517 [2388] K [2.85 σ]

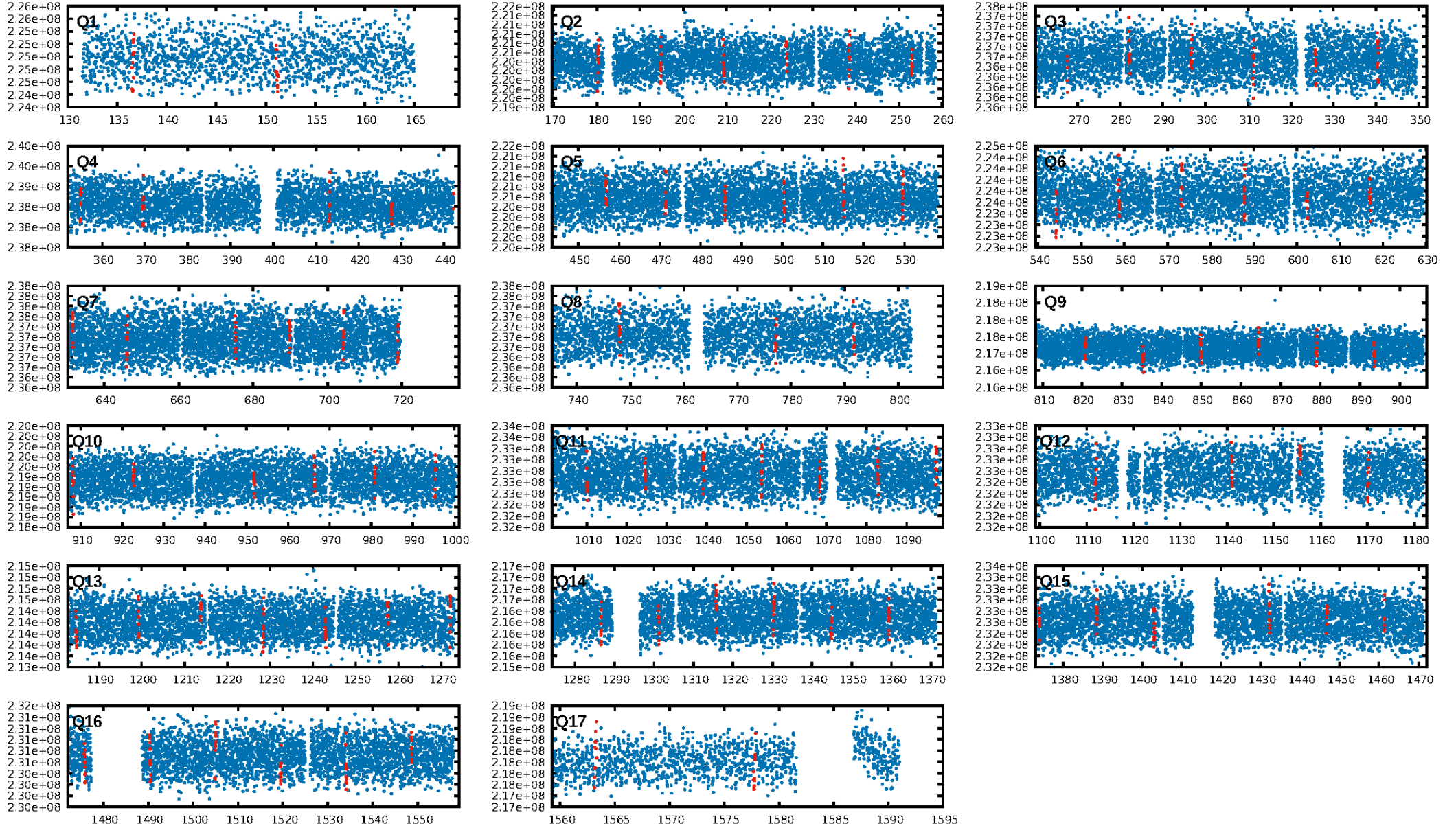
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [57.98 σ]
LongPeriod-sig: 100.0% [151.66 σ]
ModelChiSquare2-sig: 15.0%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: N/A
RollingBand-fgt: 0.88 [23/26]
GhostDiagnostic-chr: -5.194
Centroid-sig: 6.9%
Centroid-so: 0.394 arcsec [1.97 σ]
OotOffset-rm: 0.206 arcsec [0.51 σ]
KicOffset-rm: 0.086 arcsec [0.21 σ]
OotOffset-st: 4/4/4/5 [17]
KicOffset-st: 4/4/4/5 [17]
DiffImageQuality-fgm: 0.59 [10/17]
DiffImageOverlap-fno: 0.06 [1/17]

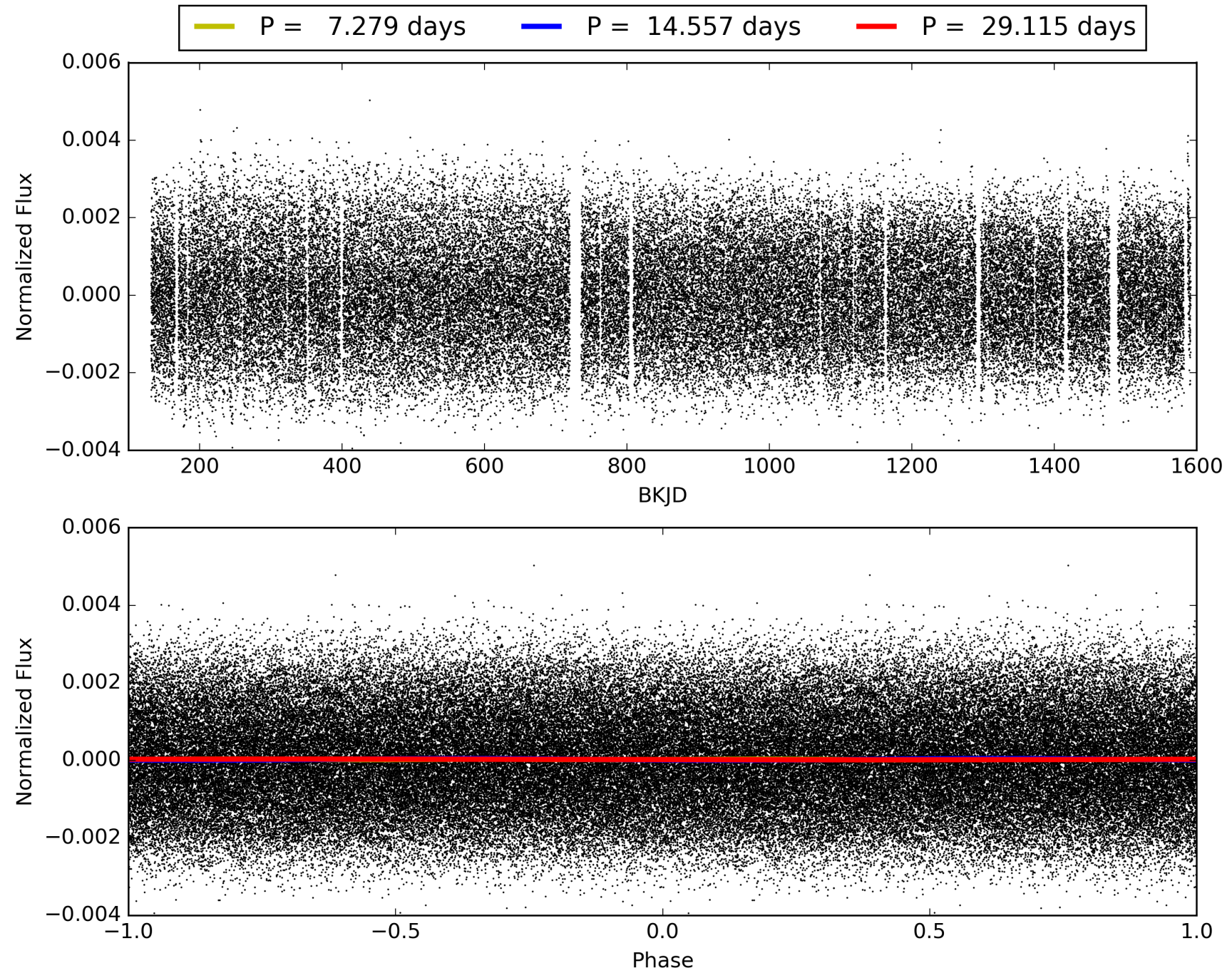
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 22:12:53 Z

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

TCE 009710475-04, PDC Light Curves

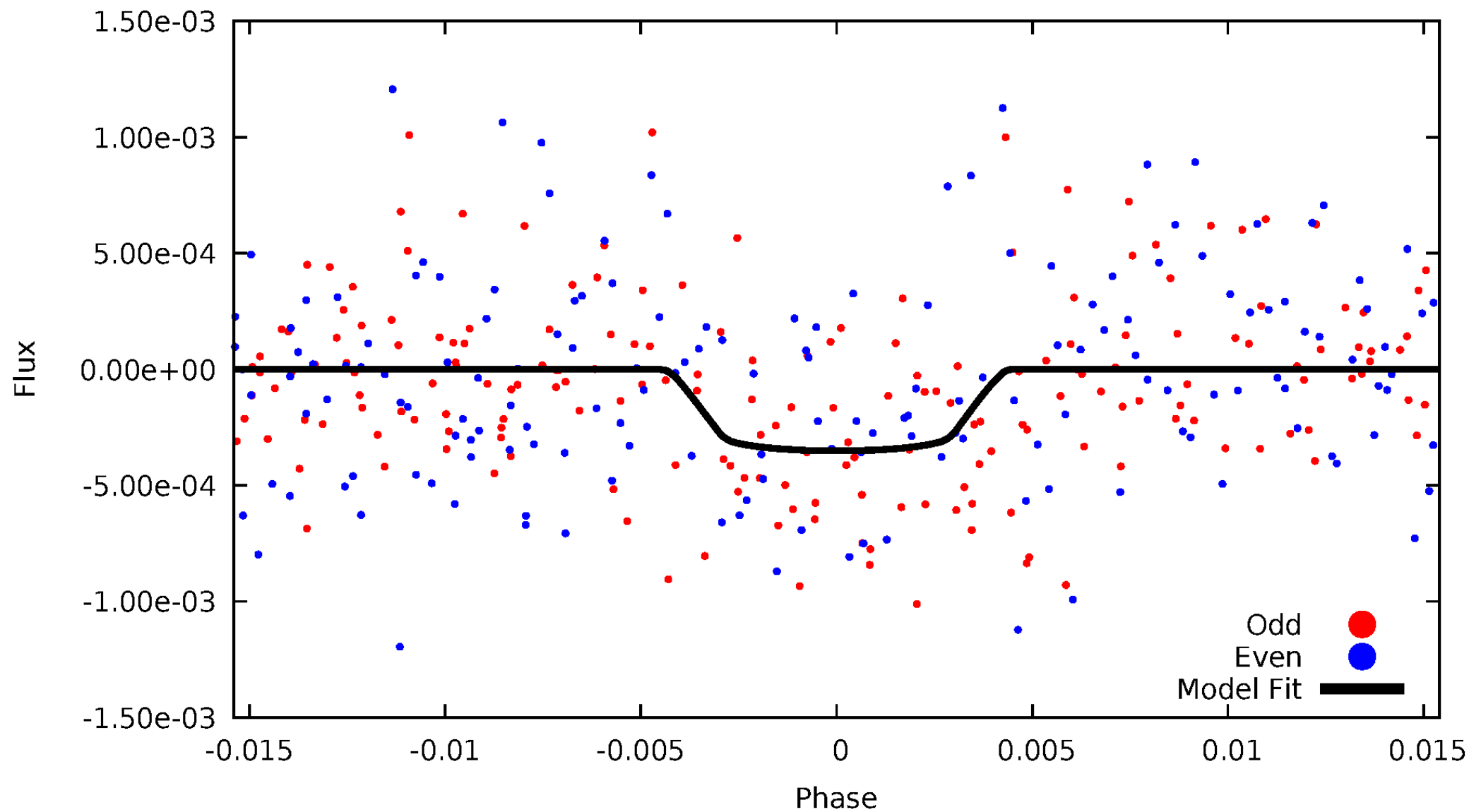


TCE 009710475-04



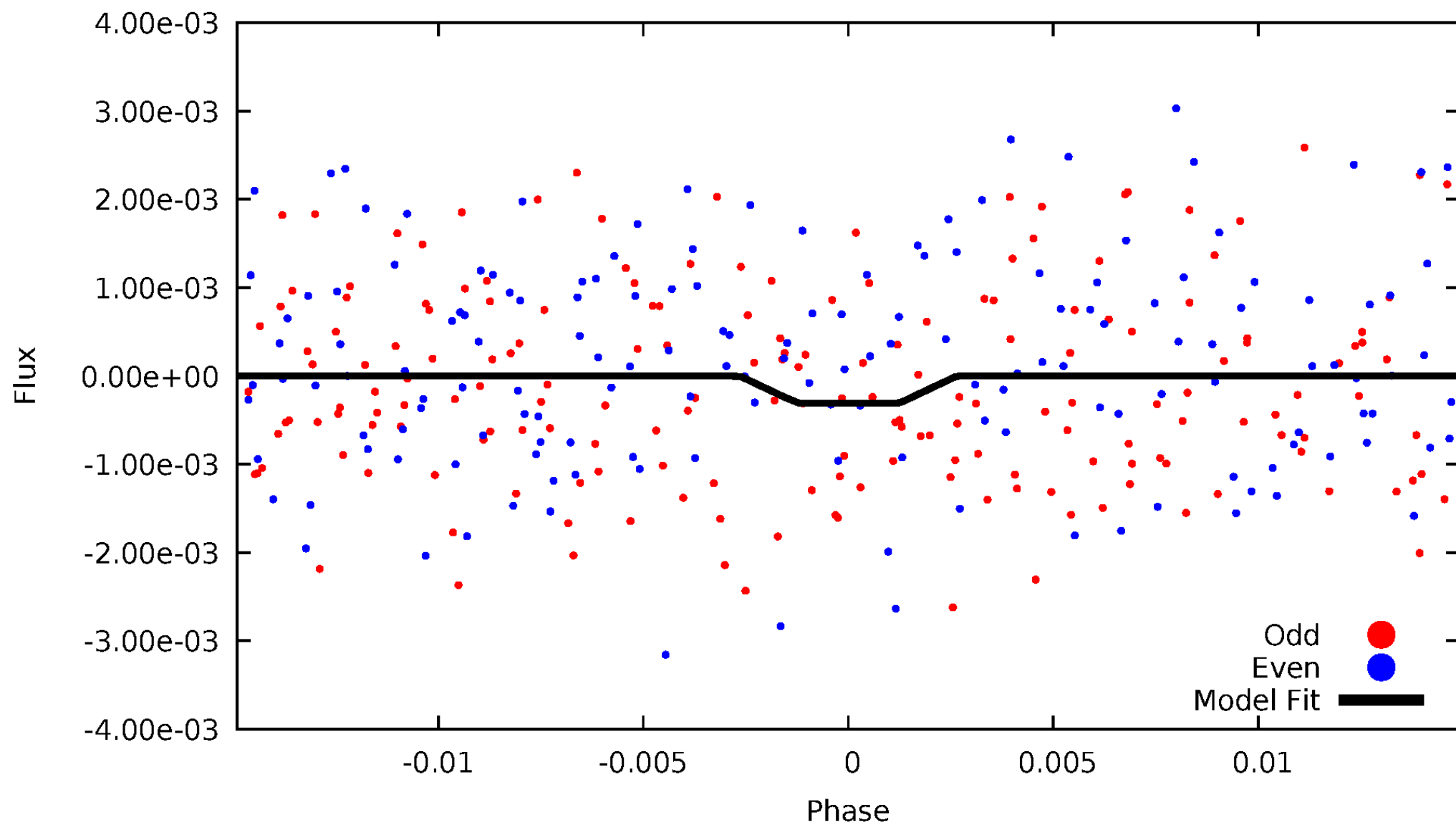
DV Odd/Even

TCE 009710475-04



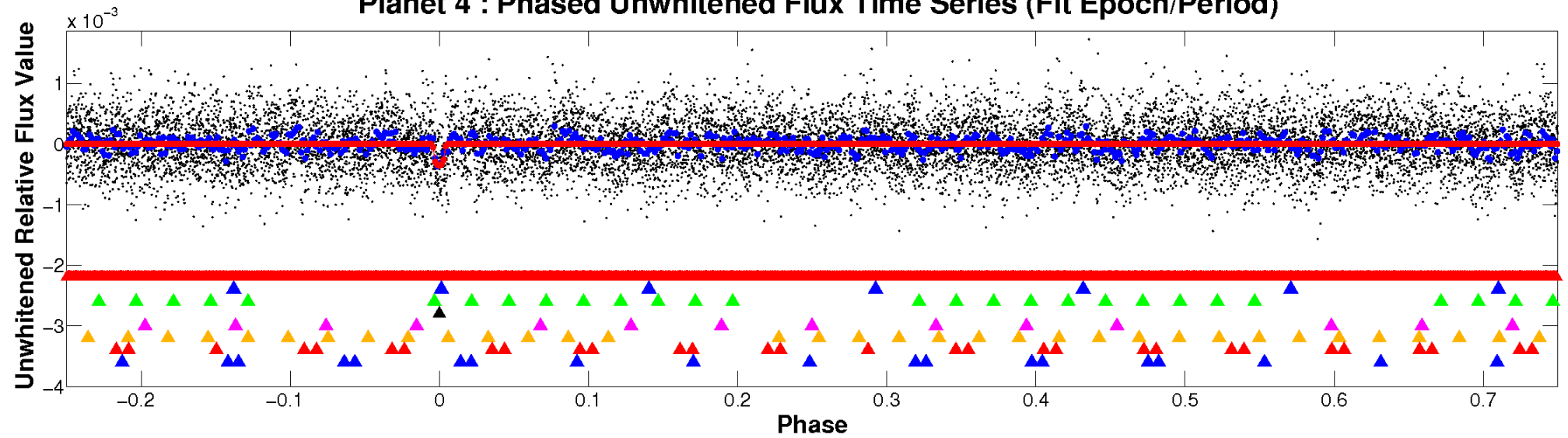
ALT Odd/Even

TCE 009710475-04

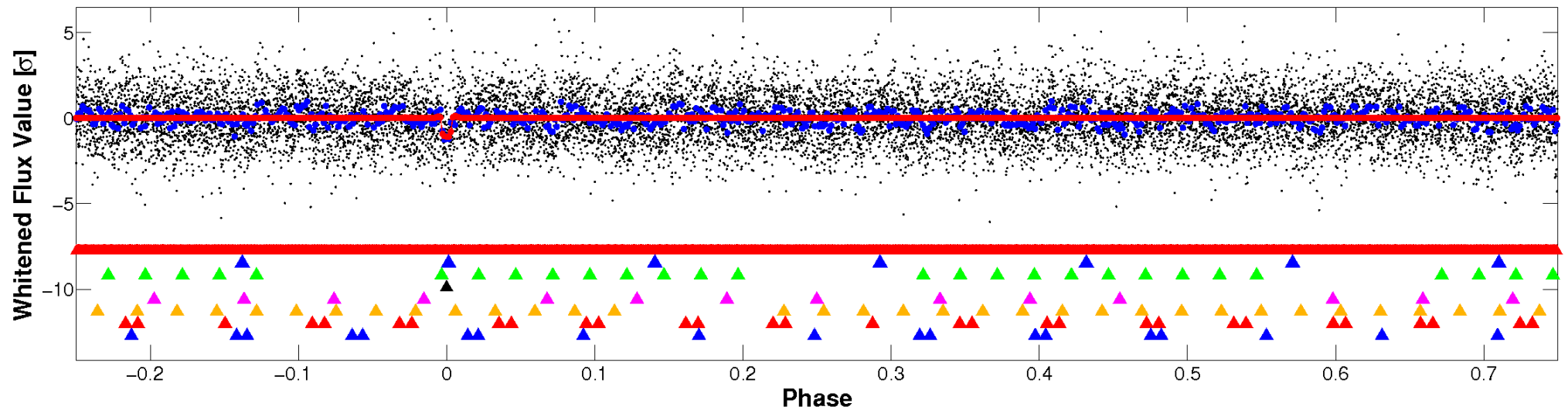


Non-Whitened Vs. Whitened Light Curve

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

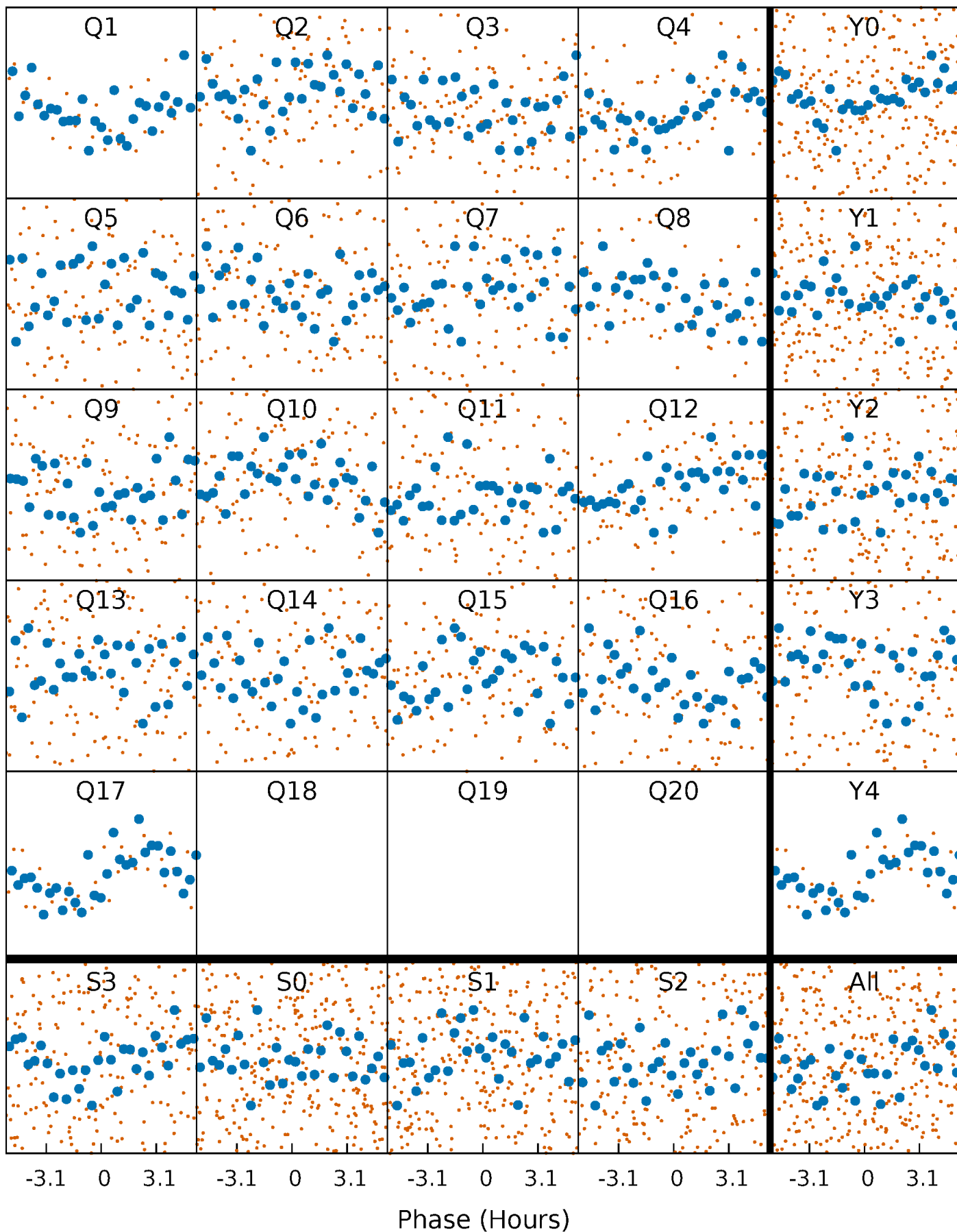


Planet 4 : Phased Whitened Flux Time Series (Fit Epoch/Period)



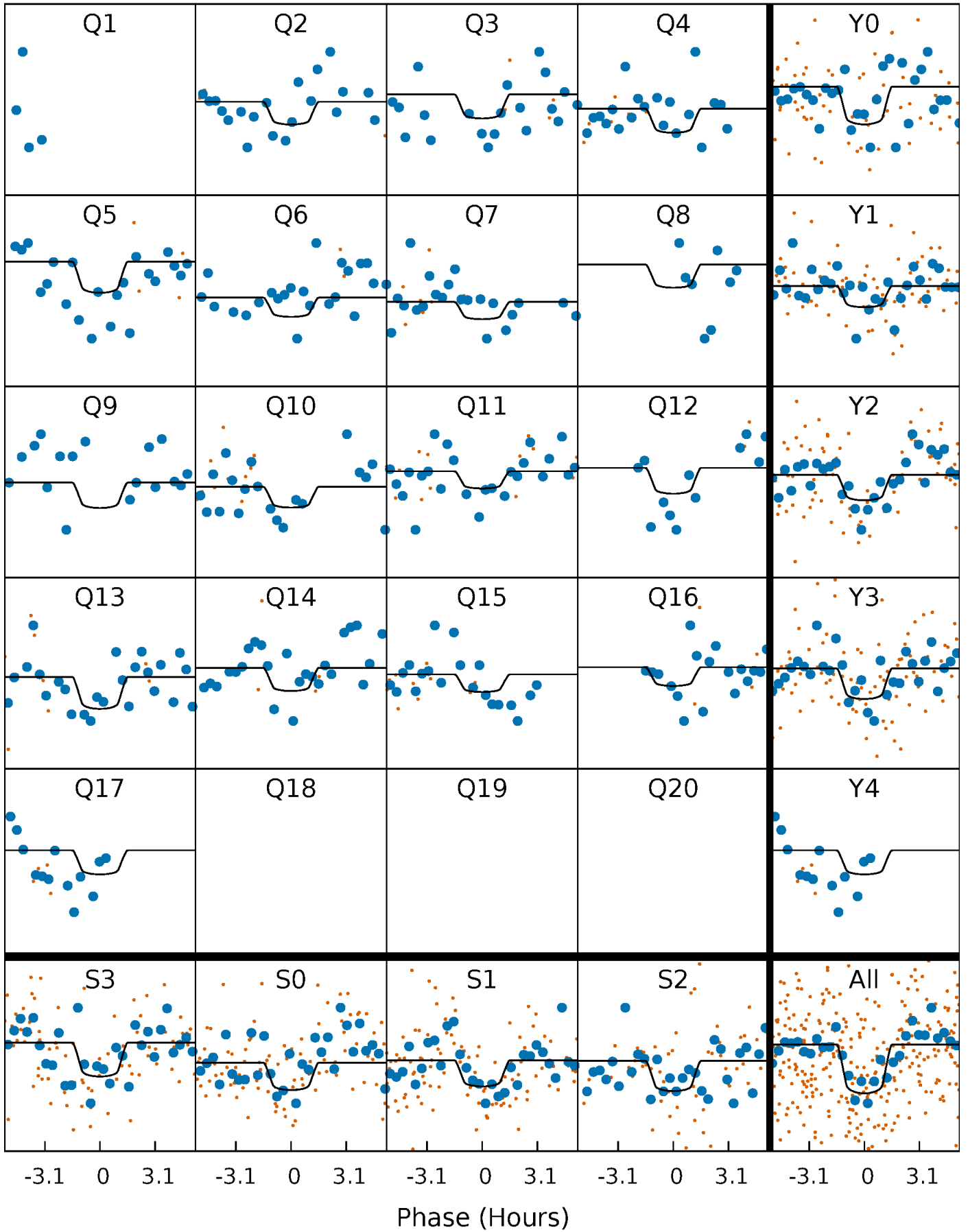
PDC Quarter-Phased Transit Curves

TCE 009710475-04 P= 14.557474 Days $T_0=136.571193$ (BKJD)



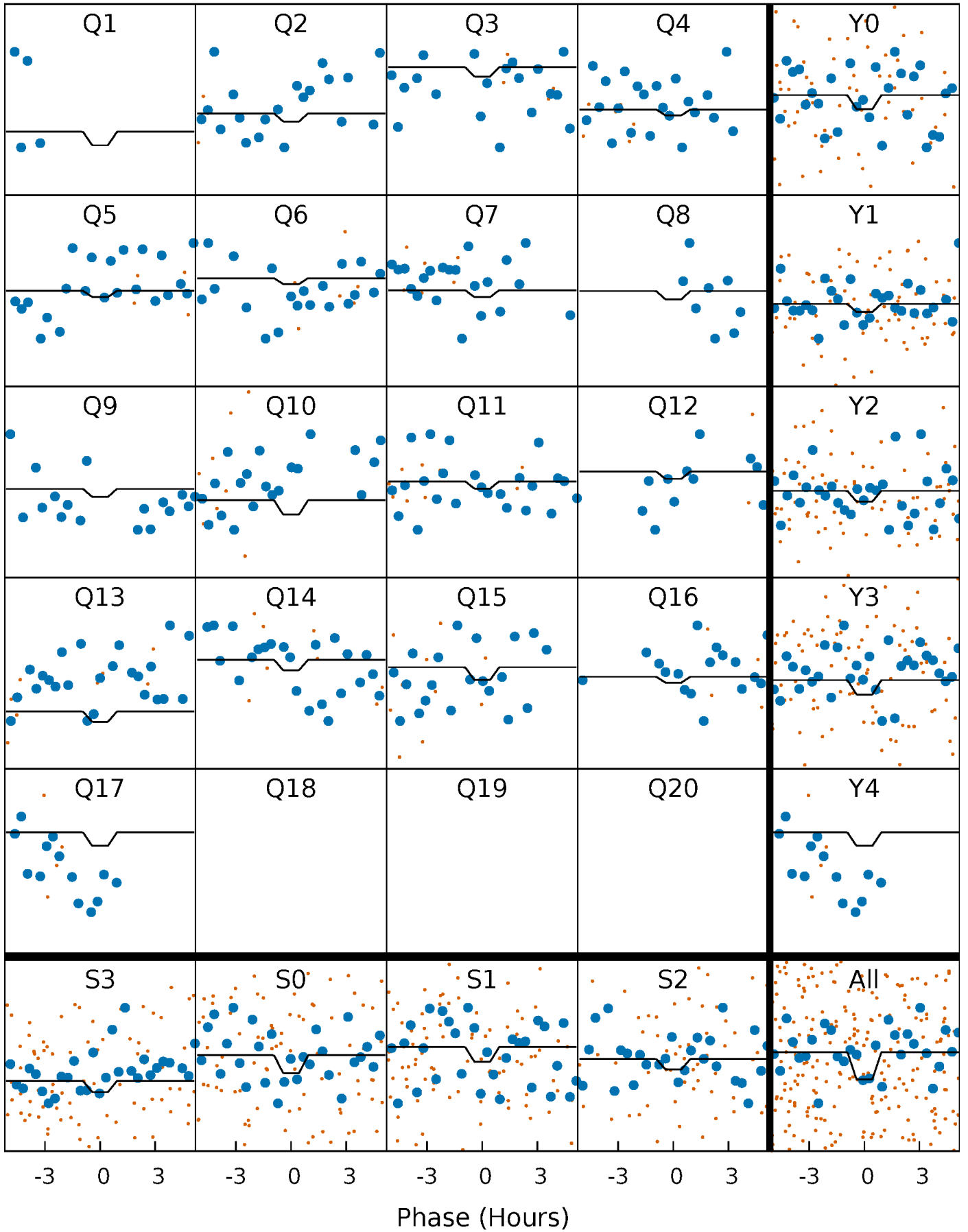
DV Quarter-Phased Transit Curves

TCE 009710475-04 P= 14.557474 Days $T_0=136.571193$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

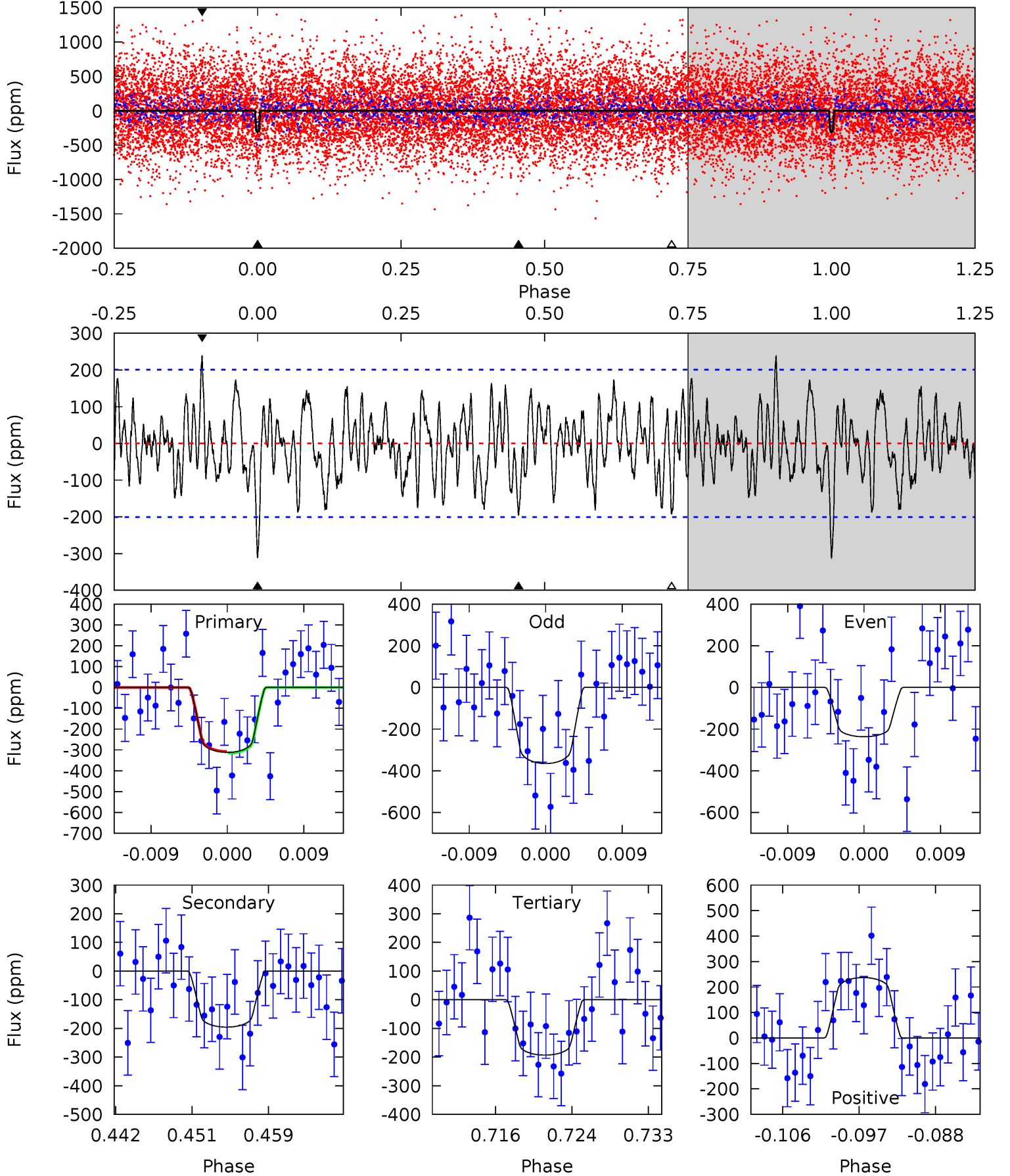
TCE 009710475-04 P= 14.557329 Days $T_0=136.568410$ (BKJD)



DV Model-Shift Uniqueness Test

009710475-04, P = 14.557474 Days, E = 122.013719 Days

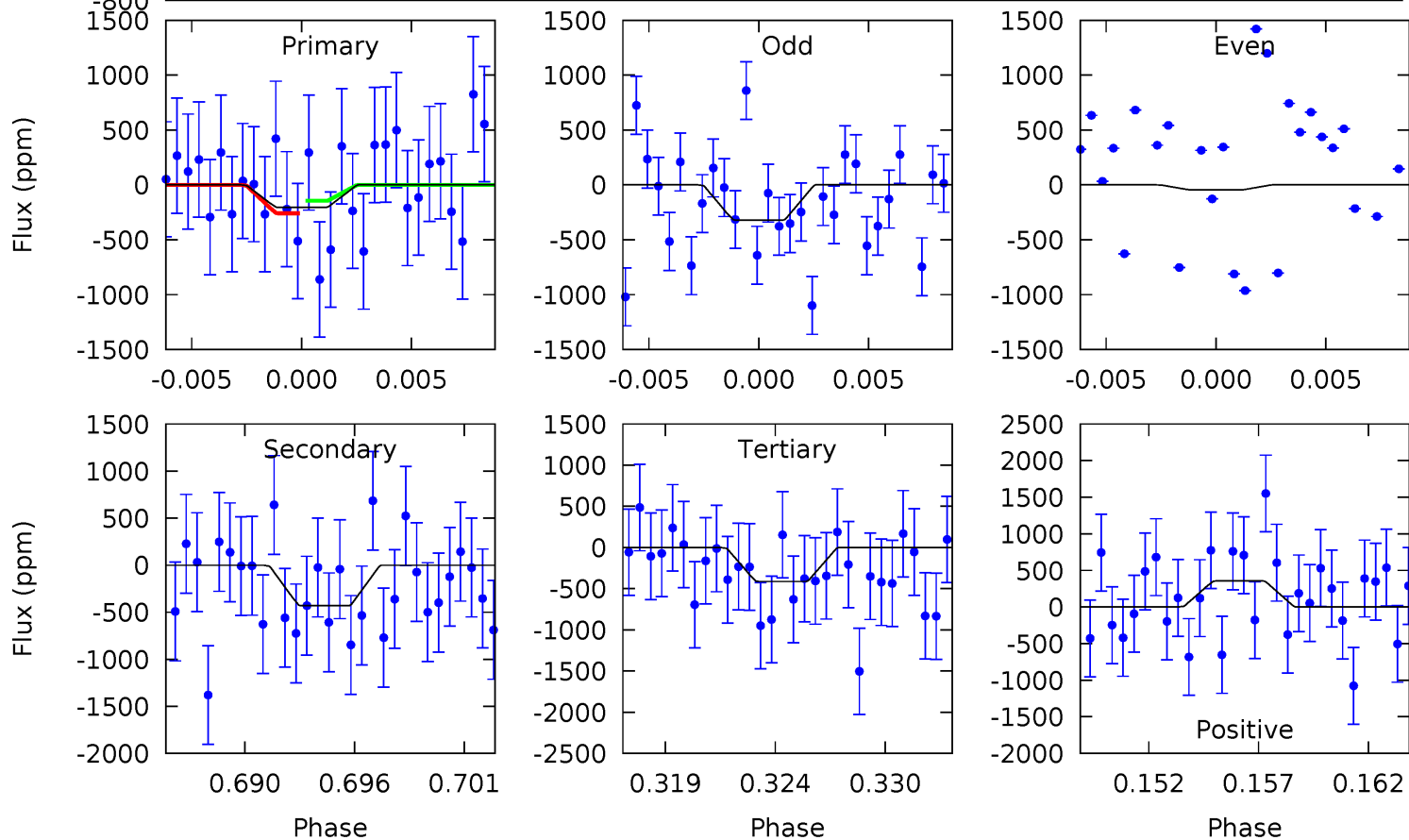
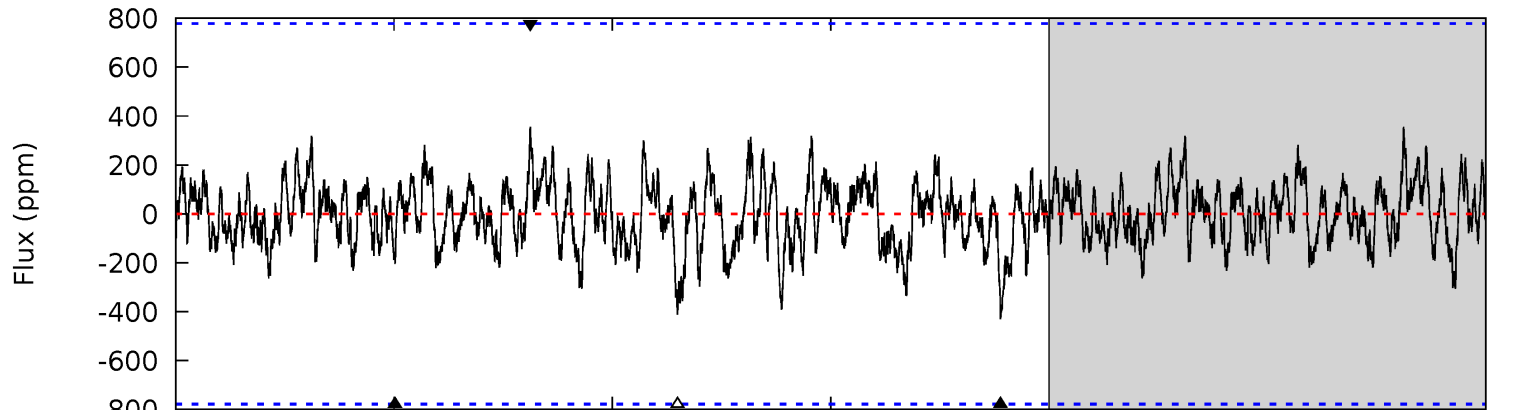
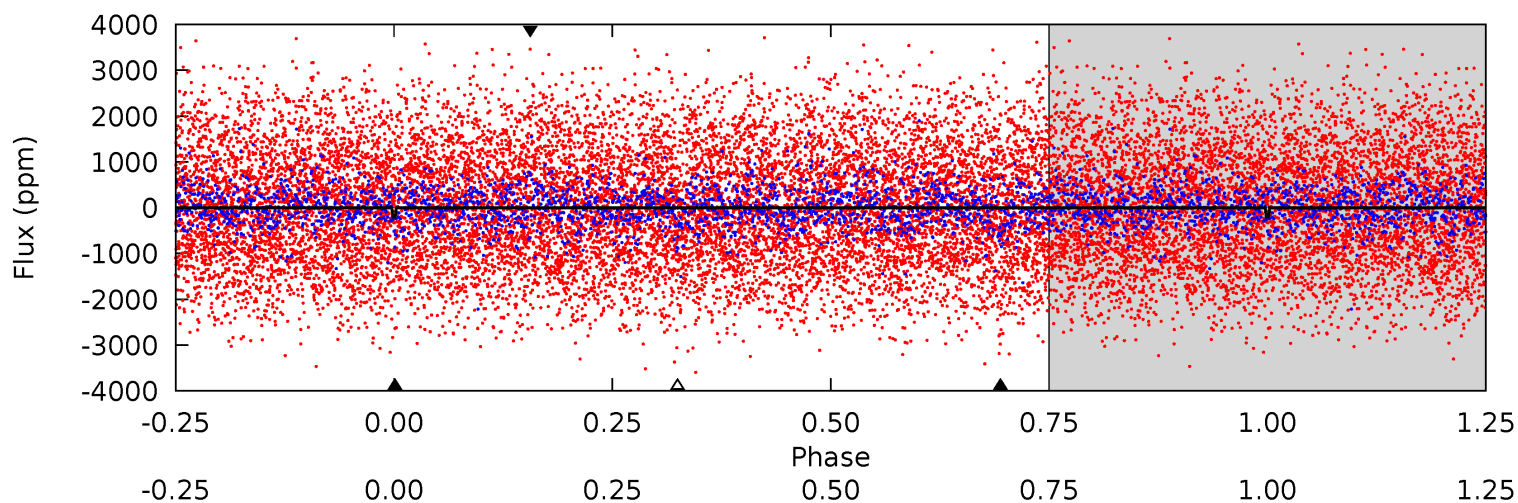
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
7.85	4.92	4.86	5.96	5.05	2.62	1.97	2.99	1.88	0.06	-1.04	1.60	0.80	0.43	0.10



Alt Model-Shift Uniqueness Test

009710475-04, $P = 14.557329$ Days, $E = 122.011081$ Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
1.35	2.84	2.72	2.35	5.15	2.79	0.81	-1.37	-1.00	0.12	0.49	0.89	0.96	0.45	0.37



Stellar Parameters For KIC 009710475

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	9191^{+255}_{-475}	$3.962^{+0.258}_{-0.172}$	$0.070^{+0.150}_{-0.650}$	$2.658^{+0.810}_{-0.899}$	$2.363^{+0.323}_{-0.753}$	$0.177^{+0.320}_{-0.089}$
	+3%/-5%	+7%/-4%	+214%/-929%	+30%/-34%	+14%/-32%	+181%/-50%
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 009710475-04 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-196 ± 40	$5.49^{+3.13}_{-2.97}$	2305^{+200}_{-217}	7239^{+5024}_{-1458}	84^{+308}_{-51}
Alt.	-430 ± 151	$4.93^{+3.02}_{-2.63}$	2312^{+190}_{-191}	9874^{+9086}_{-2595}	214^{+781}_{-141}

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 $A_{obs} \gg 1.0$

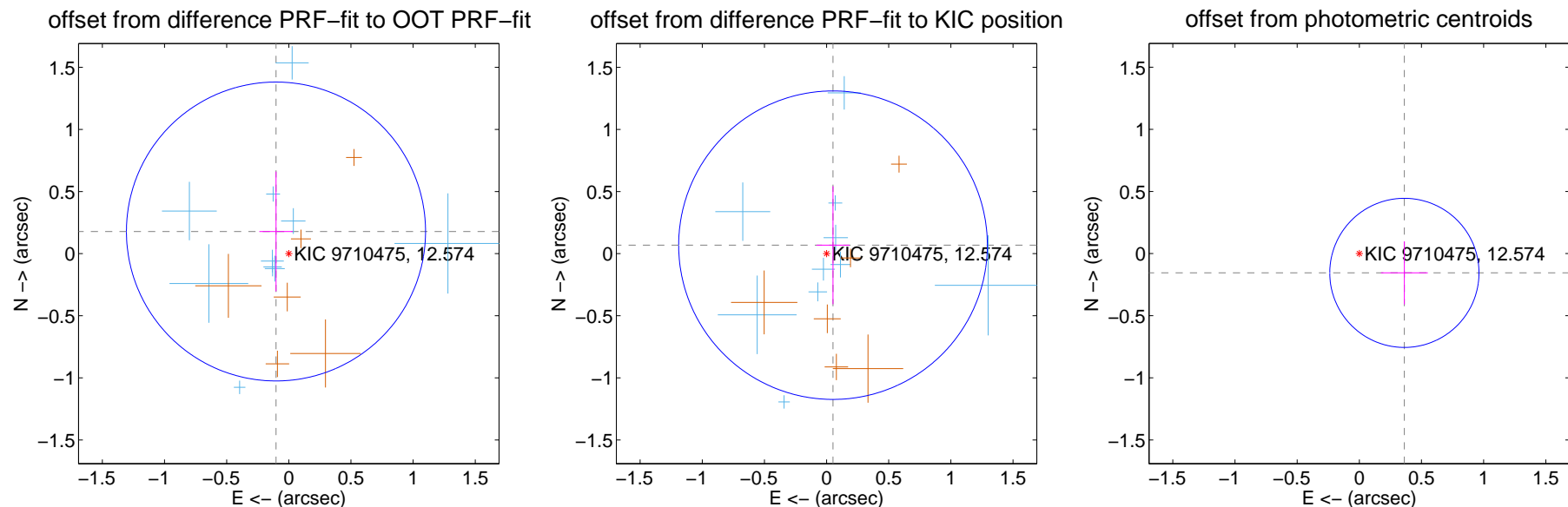
DV Centroid Data

Supplemental centroid analysis for 009710475-04. Kepler magnitude: 12.57. Transit SNR 8.93

There are 10 quarters with good PRF difference image offsets

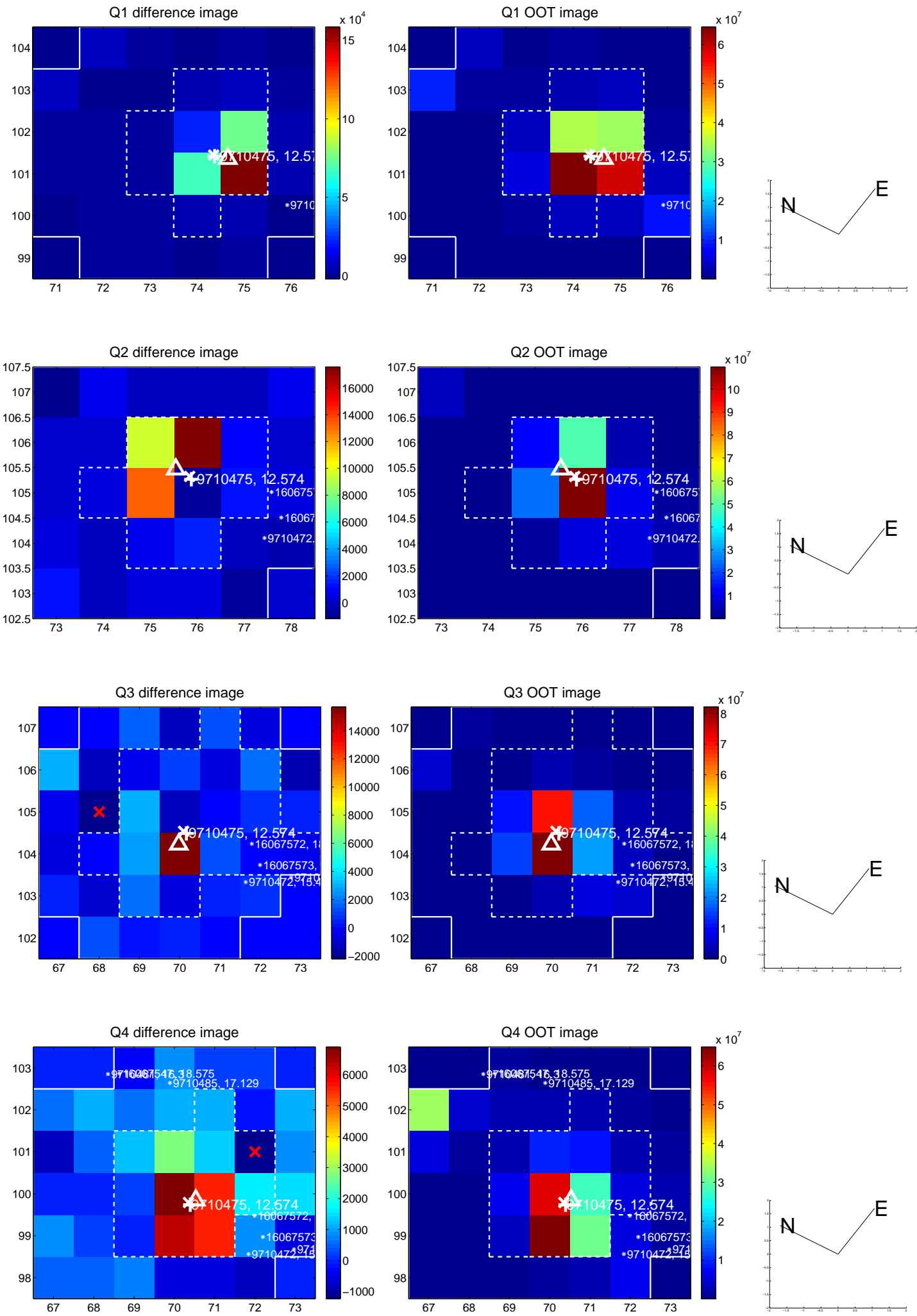
The direct PRF centroid is offset from the target star catalog position by about 0.13 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.206 ± 0.401	0.51	0.103 ± 0.134	0.178 ± 0.482
PRF-fit source offset from KIC position	0.086 ± 0.414	0.21	-0.052 ± 0.133	0.068 ± 0.475
photometric centroid source offset	0.39 ± 0.20	1.97	-0.36 ± 0.19	-0.16 ± 0.25

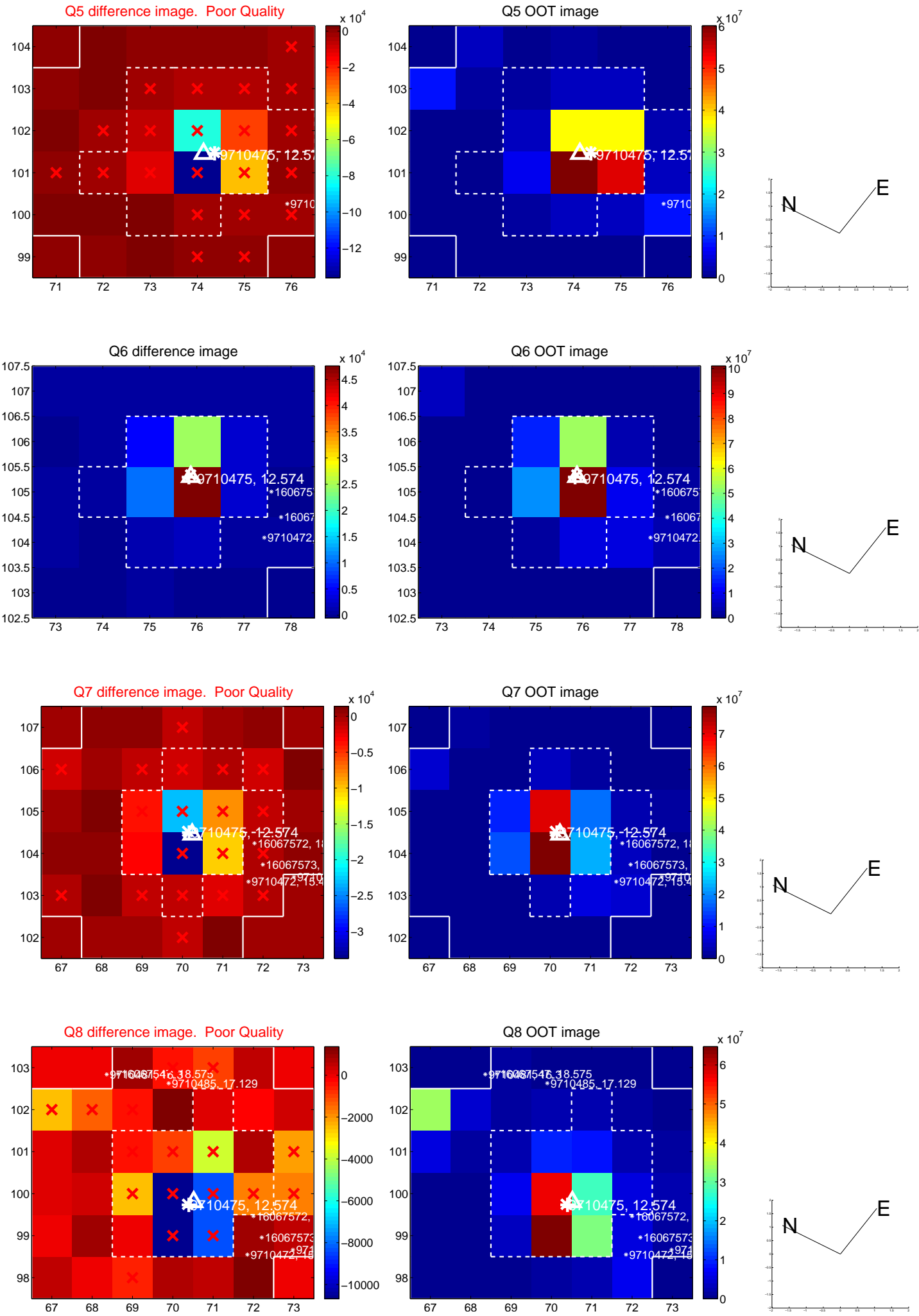


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

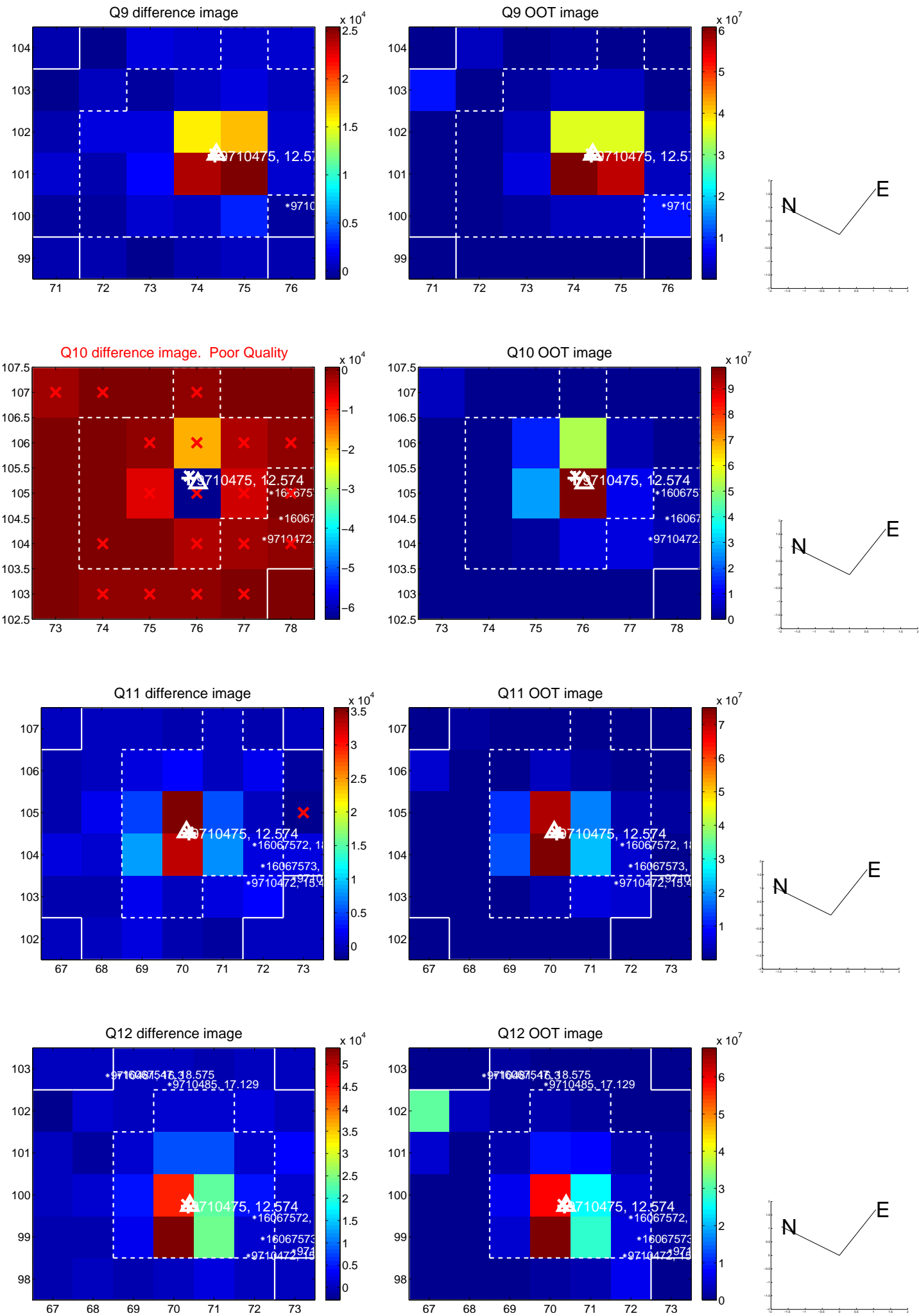
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



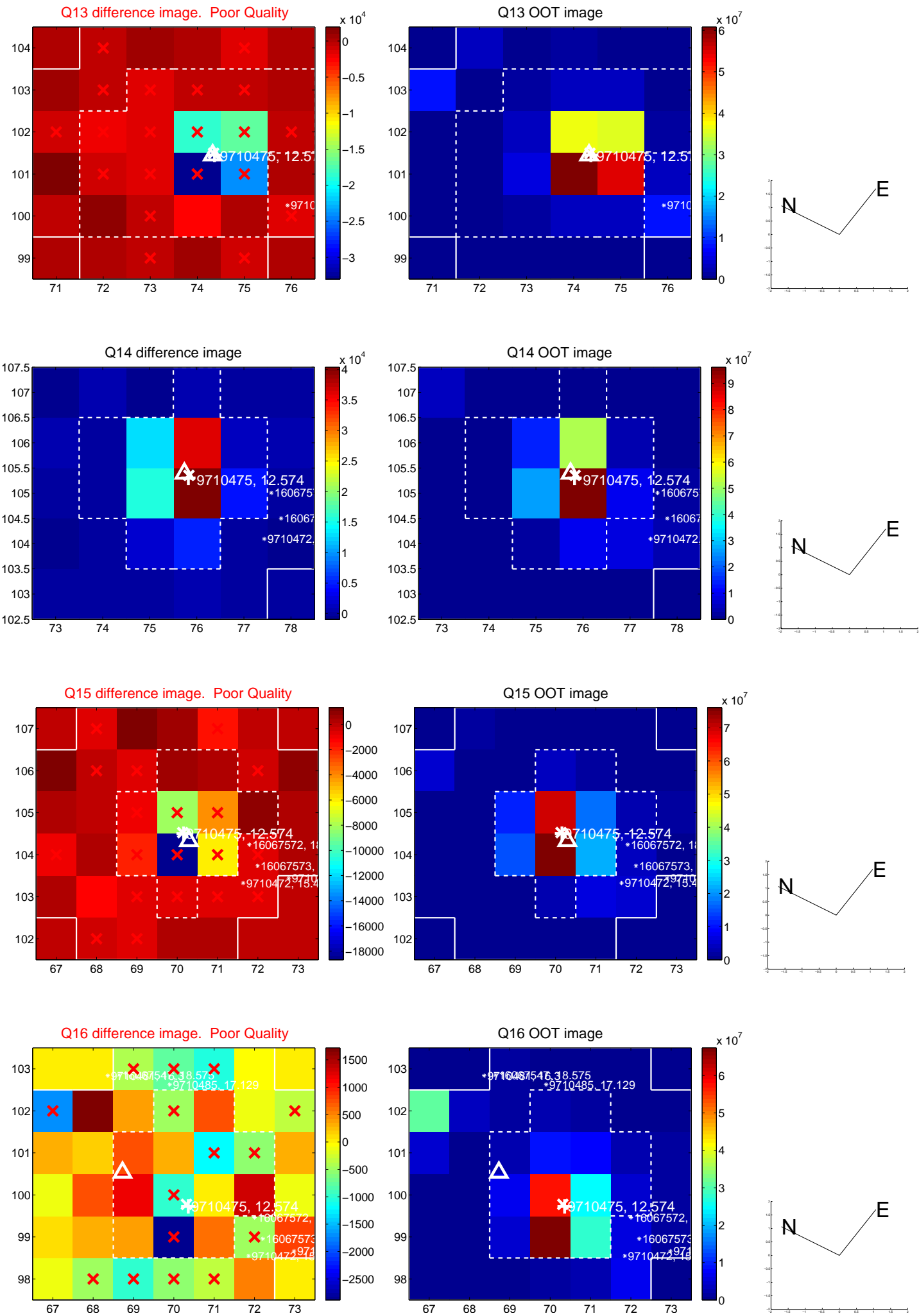
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



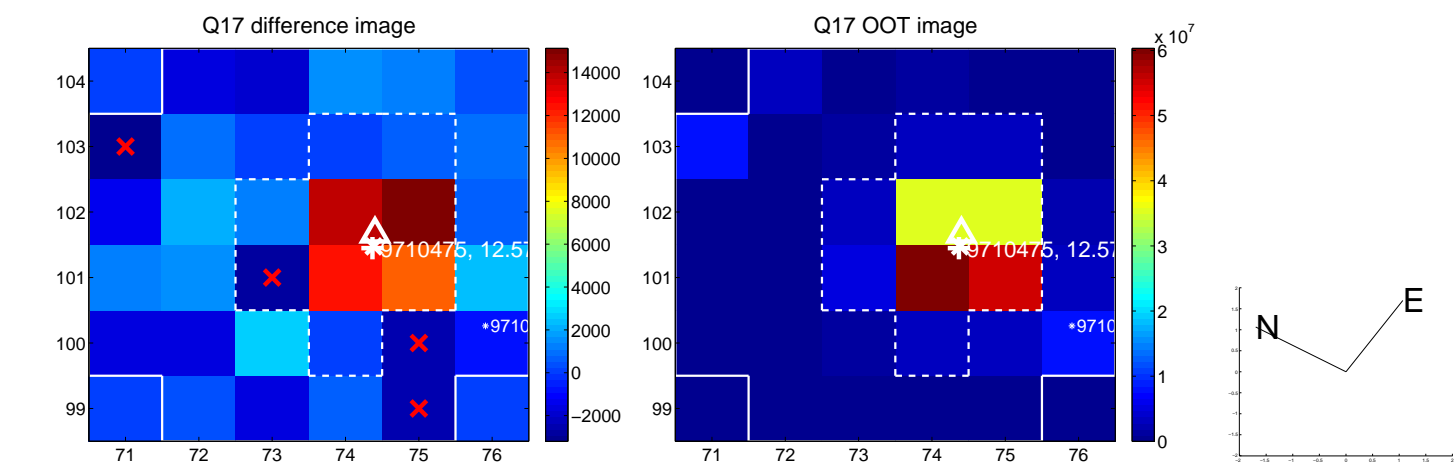
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



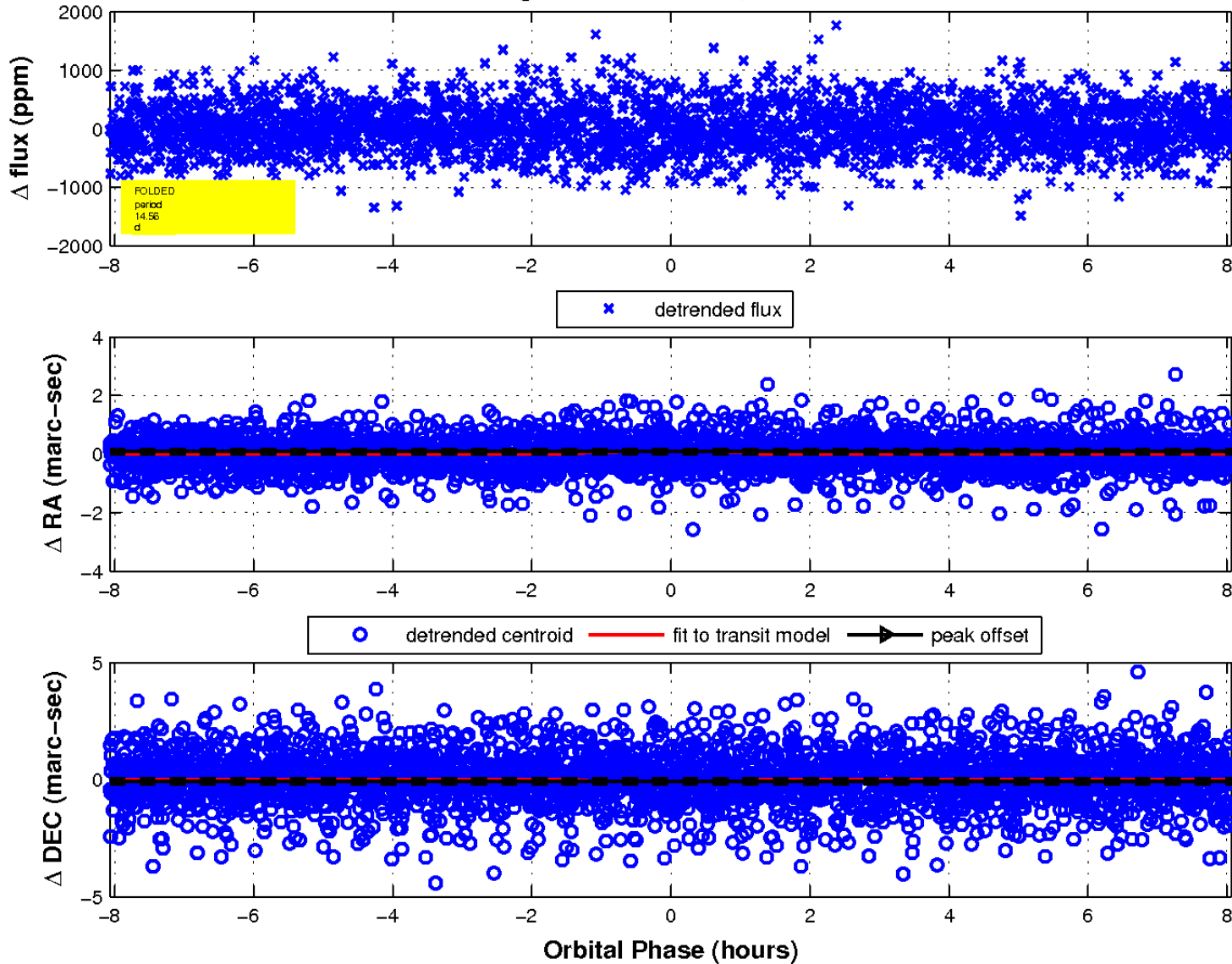
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

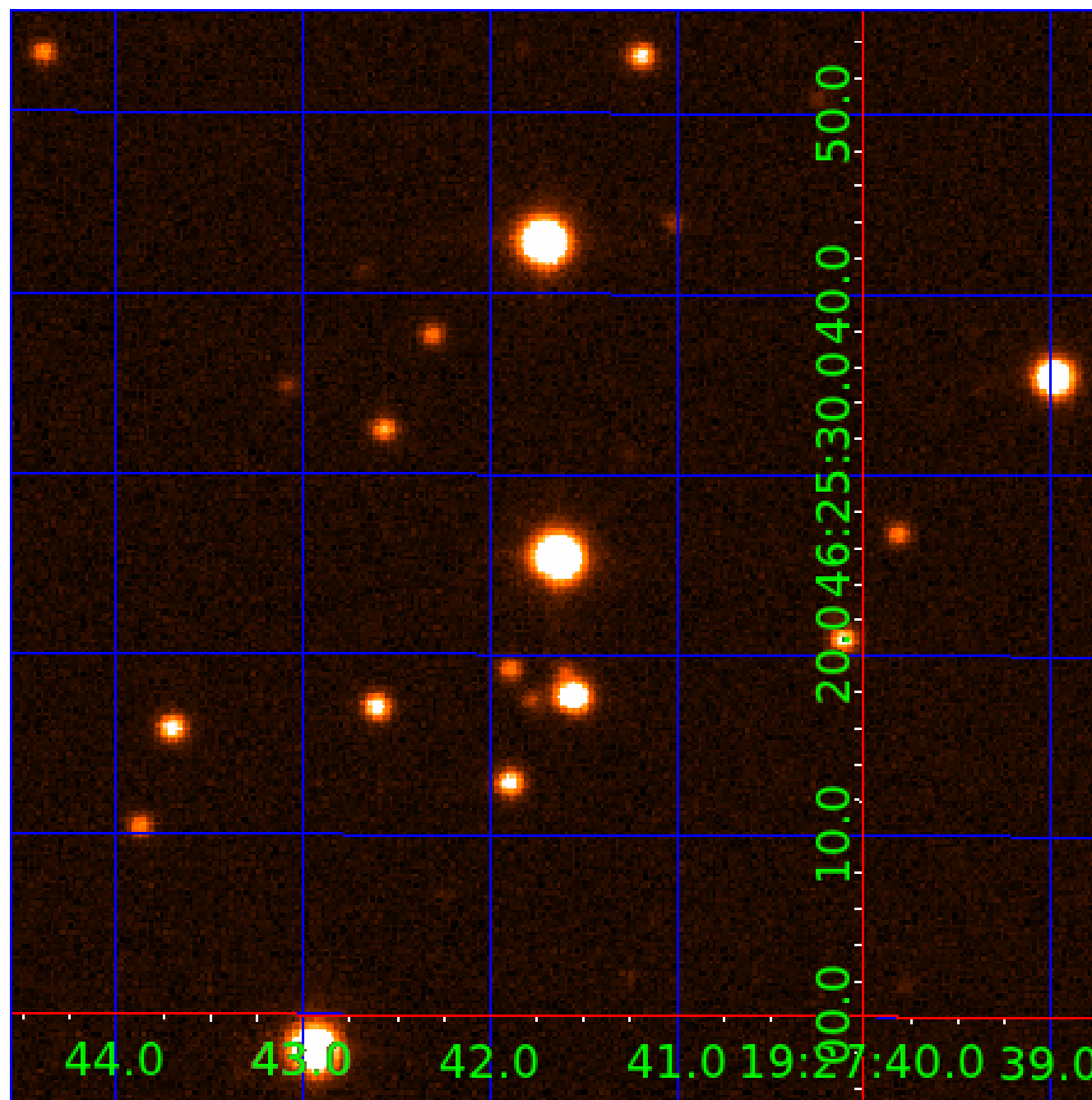


fluxWeightedCentroids, Planet 4 of 8



UKIRT Image

Declination



KIC 009710475

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})
009710475-01	OBS	No	0.815768	131.751161	18.2	5.011	10.2	3.9	2.66	9191	1.17	87222.12
009710475-02	OBS	No	210.070028	205.139547	991.1	2.097	10.0	10.3	2.66	9191	9.27	53.24
009710475-03	OBS	No	53.498735	141.253821	620.9	3.347	8.9	9.3	2.66	9191	7.13	329.81
009710475-04	OBS	No	14.557474	136.571193	351.5	2.690	8.8	8.9	2.66	9191	5.60	1870.40
009710475-05	OBS	No	105.762566	191.928121	676.6	4.355	8.7	8.7	2.66	9191	7.53	132.93
009710475-06	OBS	No	43.281749	152.778024	585.9	3.664	8.7	8.2	2.66	9191	11.24	437.50
009710475-07	OBS	No	50.033795	132.680564	505.3	1.762	8.4	7.7	2.66	9191	6.74	360.60
009710475-08	OBS	No	79.498344	136.881615	107.6	5.000	7.1	-1.0	2.66	9191	2.82	194.49

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009710475-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT
009710475-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL—TRANS_GAPPED—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
009710475-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE—TRANS_GAPPED—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
009710475-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE—TRANS_GAPPED—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
009710475-05	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—HALO_GHOST
009710475-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
009710475-07	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
009710475-08	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_NOFITS

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

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

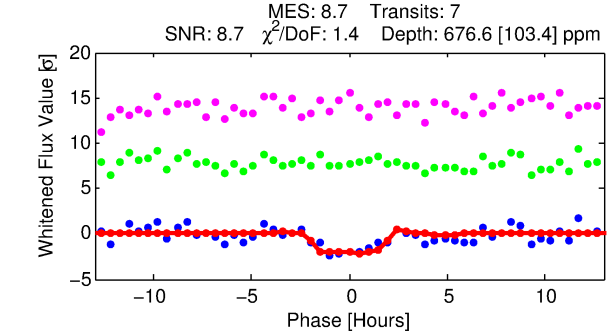
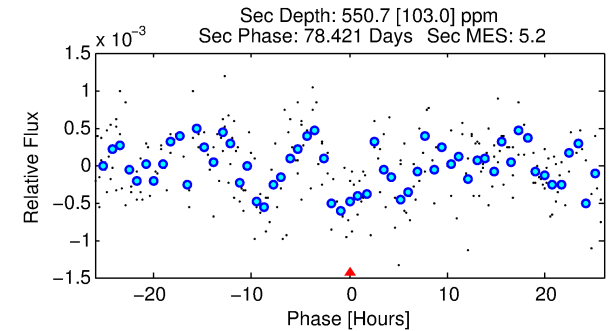
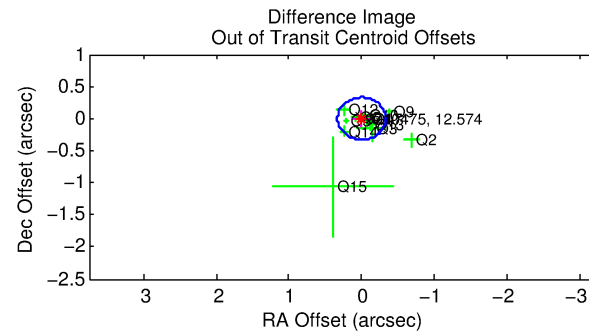
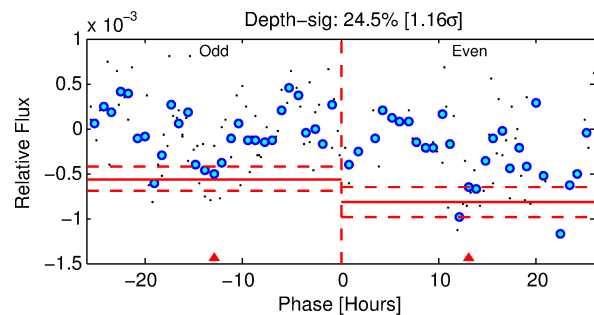
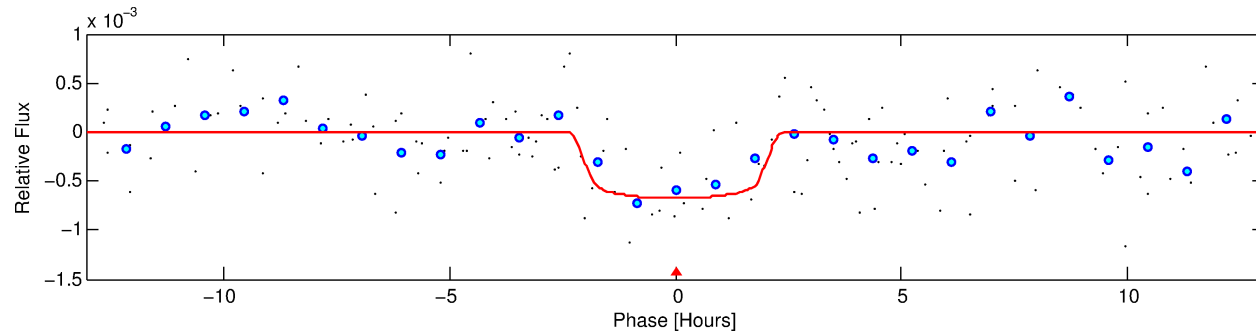
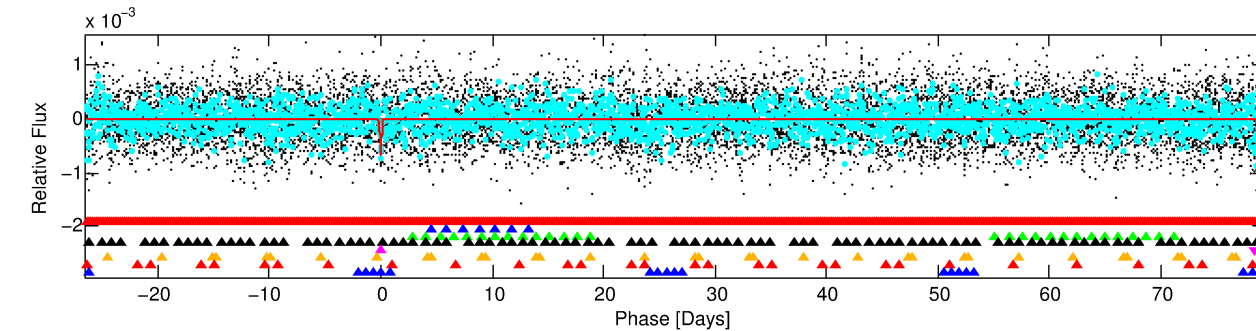
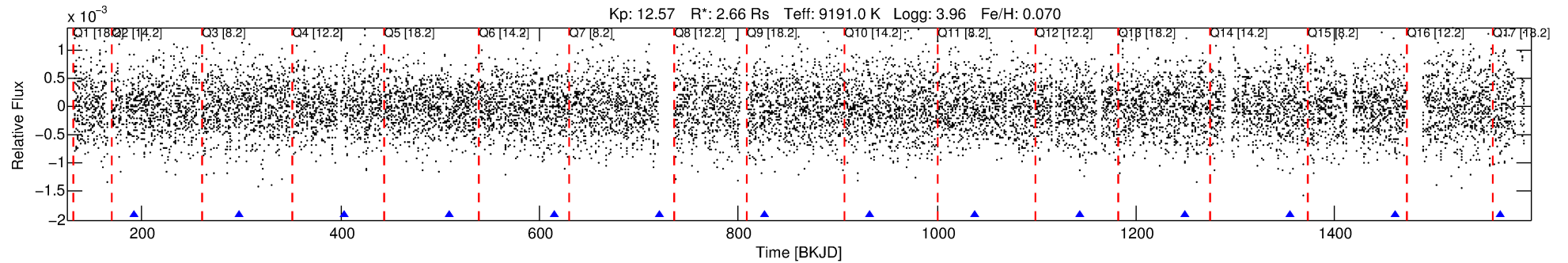
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 009710475-05

No Significant Match Found

DV One-Page Summary

KIC: 9710475 Candidate: 5 of 8 Period: 105.763 d



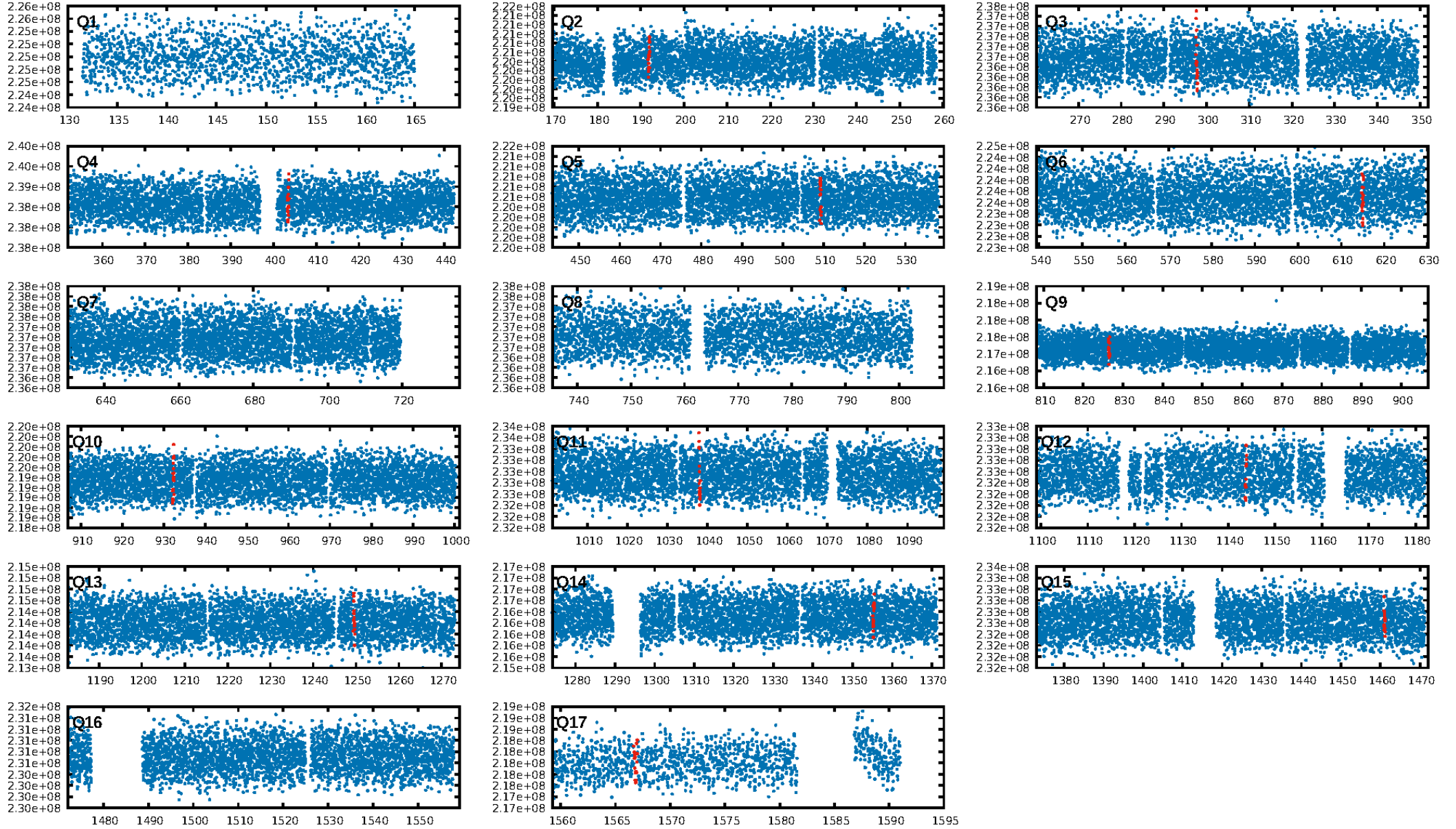
DV Fit Results:

Period = 105.76257 [0.00181] d
Epoch = 191.9281 [0.0112] BKJD
Rp/R* = 0.0260 [0.0146]
a/R* = 127.93 [484.78]
b = 0.76 [2.13]
Seff = 132.92 [66.52]
Teff = 866 [108] K
Rp = 7.53 [4.93] Re
a = 0.5829 [0.1749] AU
Ag = 1816.27 [2226.88] [0.82 σ]
Teffp = 8739 [2527] K [3.11 σ]

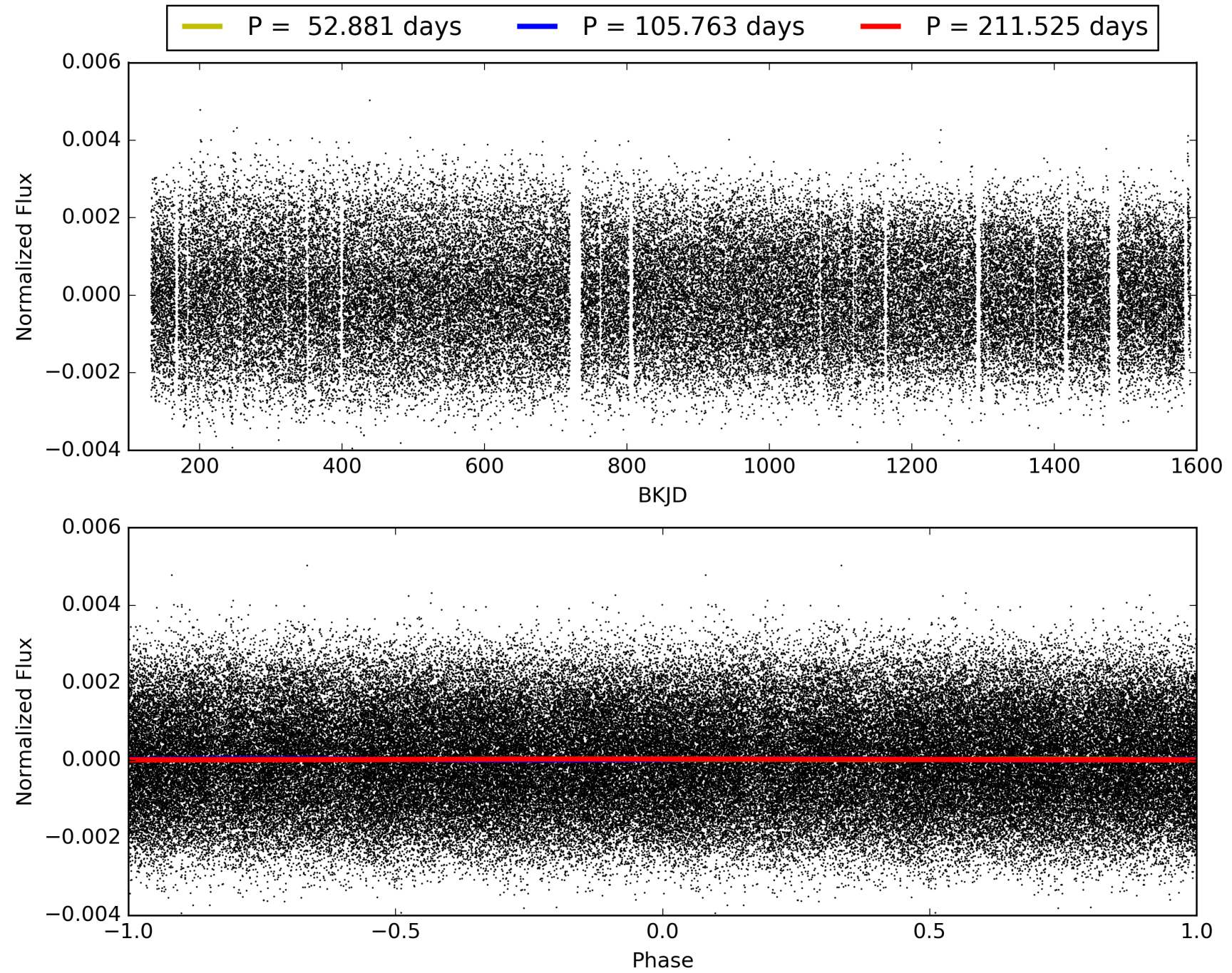
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [95.07 σ]
LongPeriod-sig: 100.0% [517.96 σ]
ModelChiSquare2-sig: 16.3%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [7/7]
GhostDiagnostic-chr: -0.1996
Centroid-sig: 16.1%
Centroid-so: 0.281 arcsec [1.03 σ]
OotOffset-rm: 0.003 arcsec [0.02 σ]
KicOffset-rm: 0.190 arcsec [1.89 σ]
OotOffset-st: 4/2/2/4 [12]
KicOffset-st: 4/2/2/4 [12]
DiffImageQuality-fgm: 0.58 [7/12]
DiffImageOverlap-fno: 0.00 [0/12]

TCE 009710475-05, PDC Light Curves

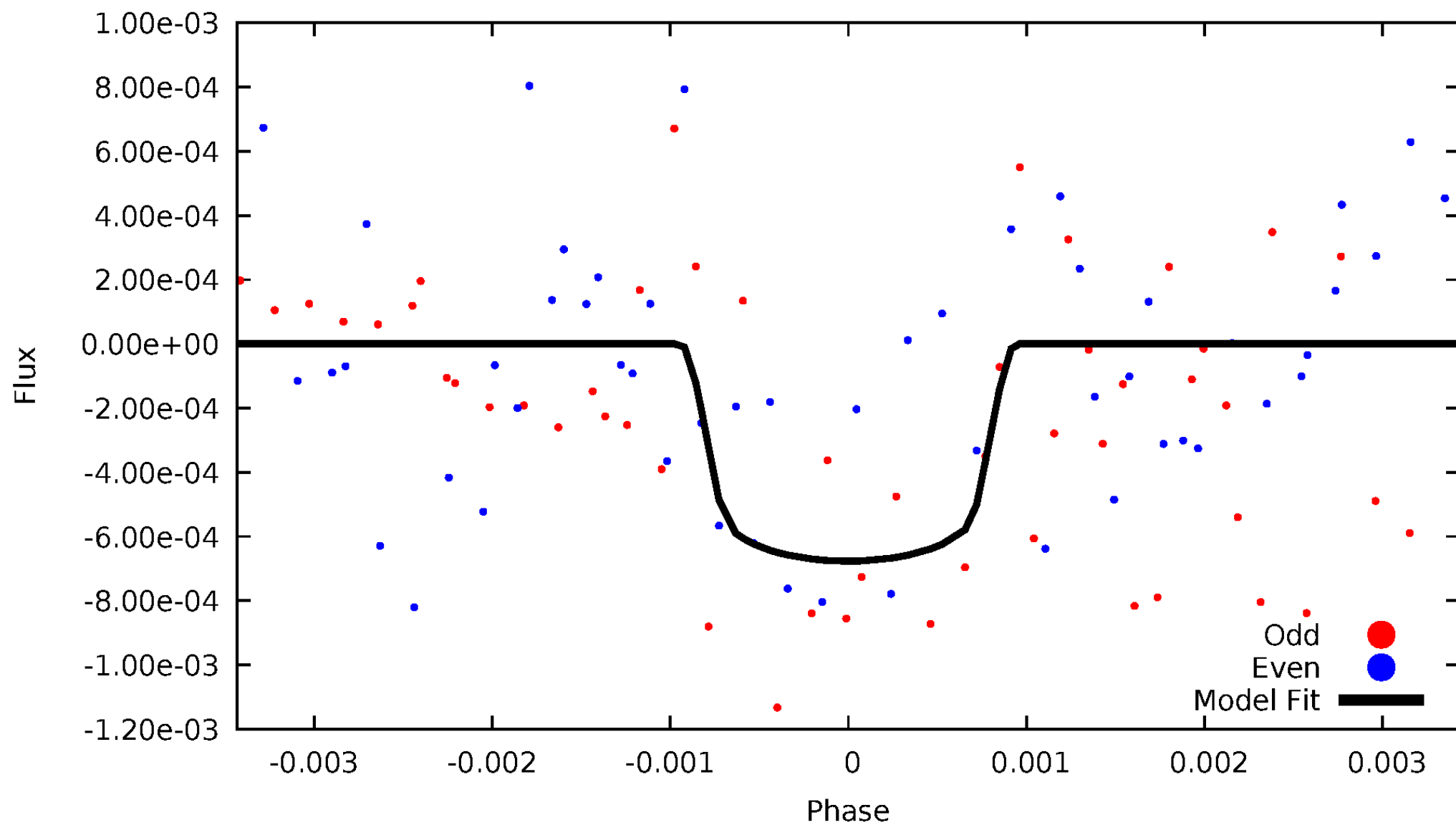


TCE 009710475-05



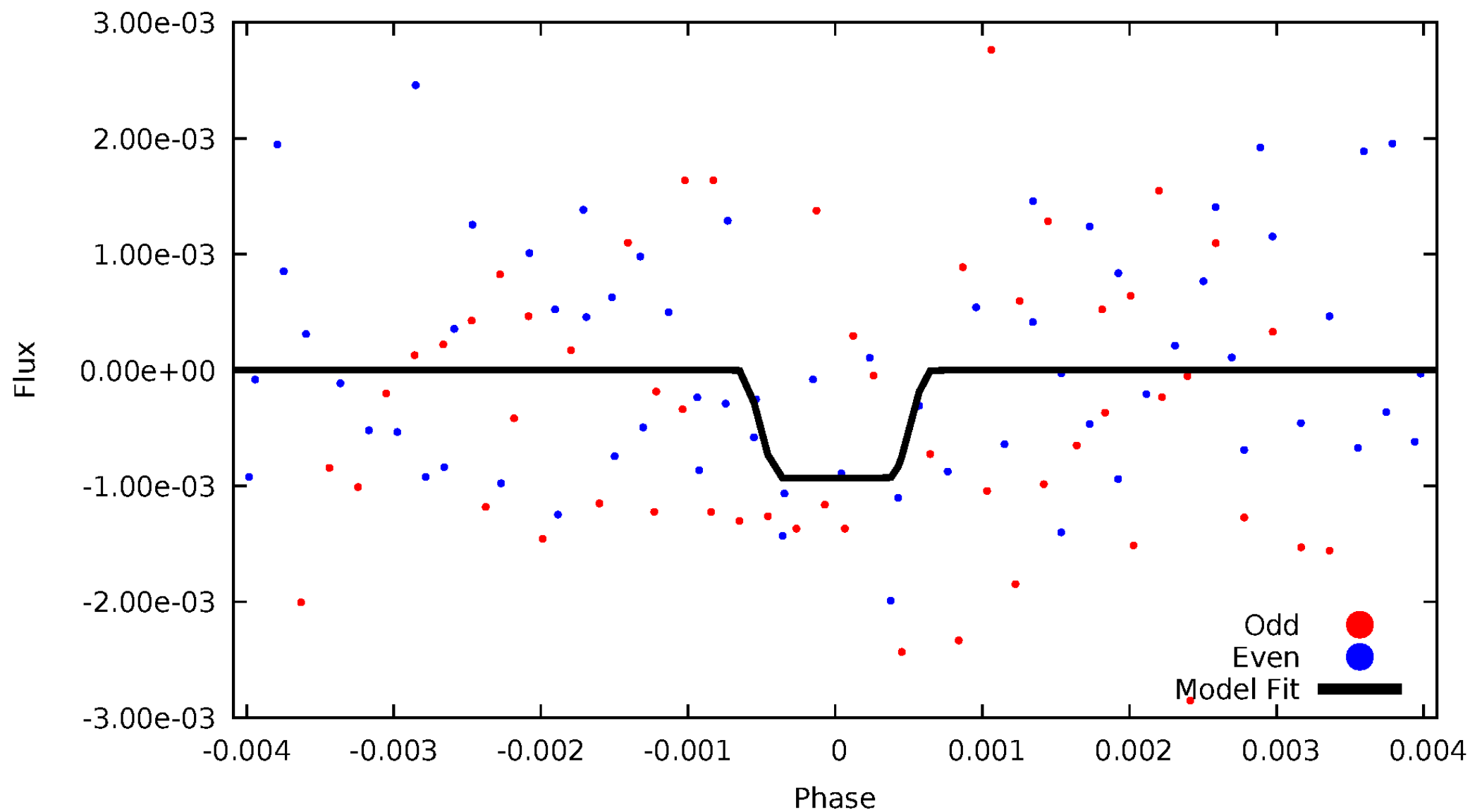
DV Odd/Even

TCE 009710475-05



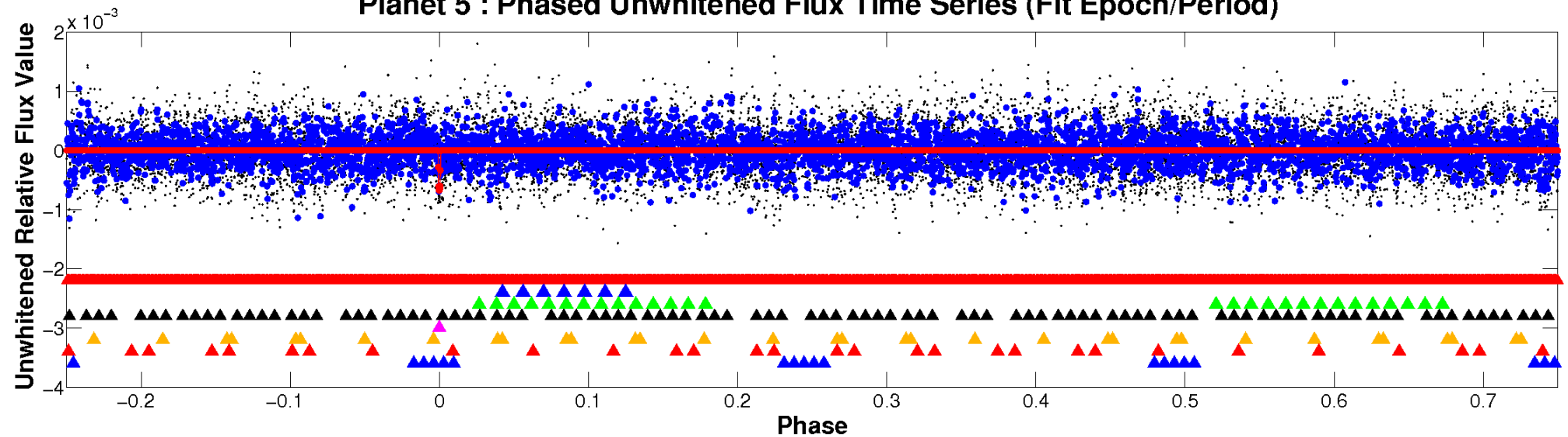
ALT Odd/Even

TCE 009710475-05

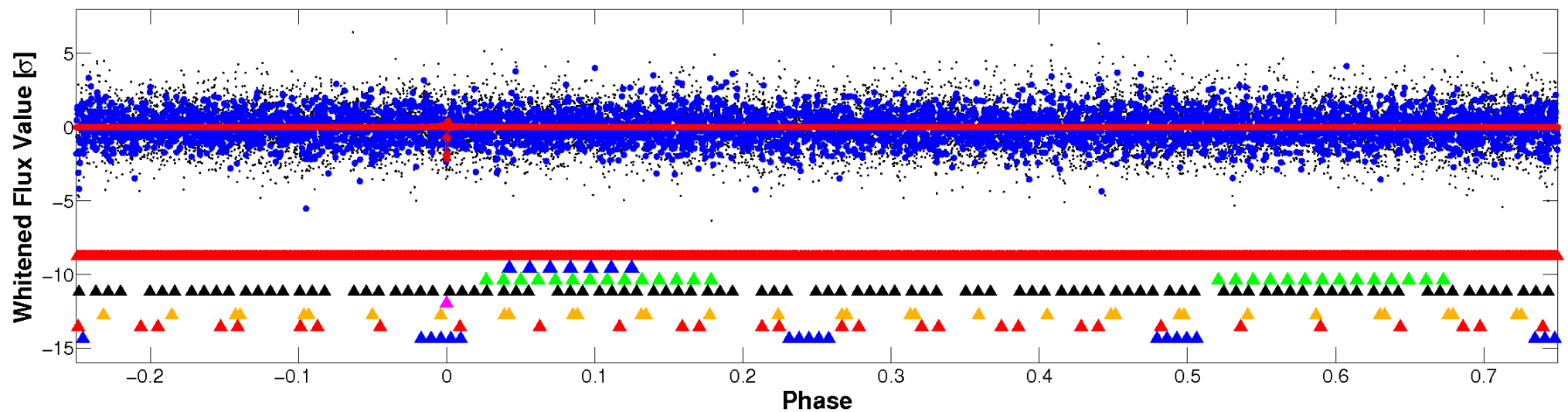


Non-Whitened Vs. Whitened Light Curve

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

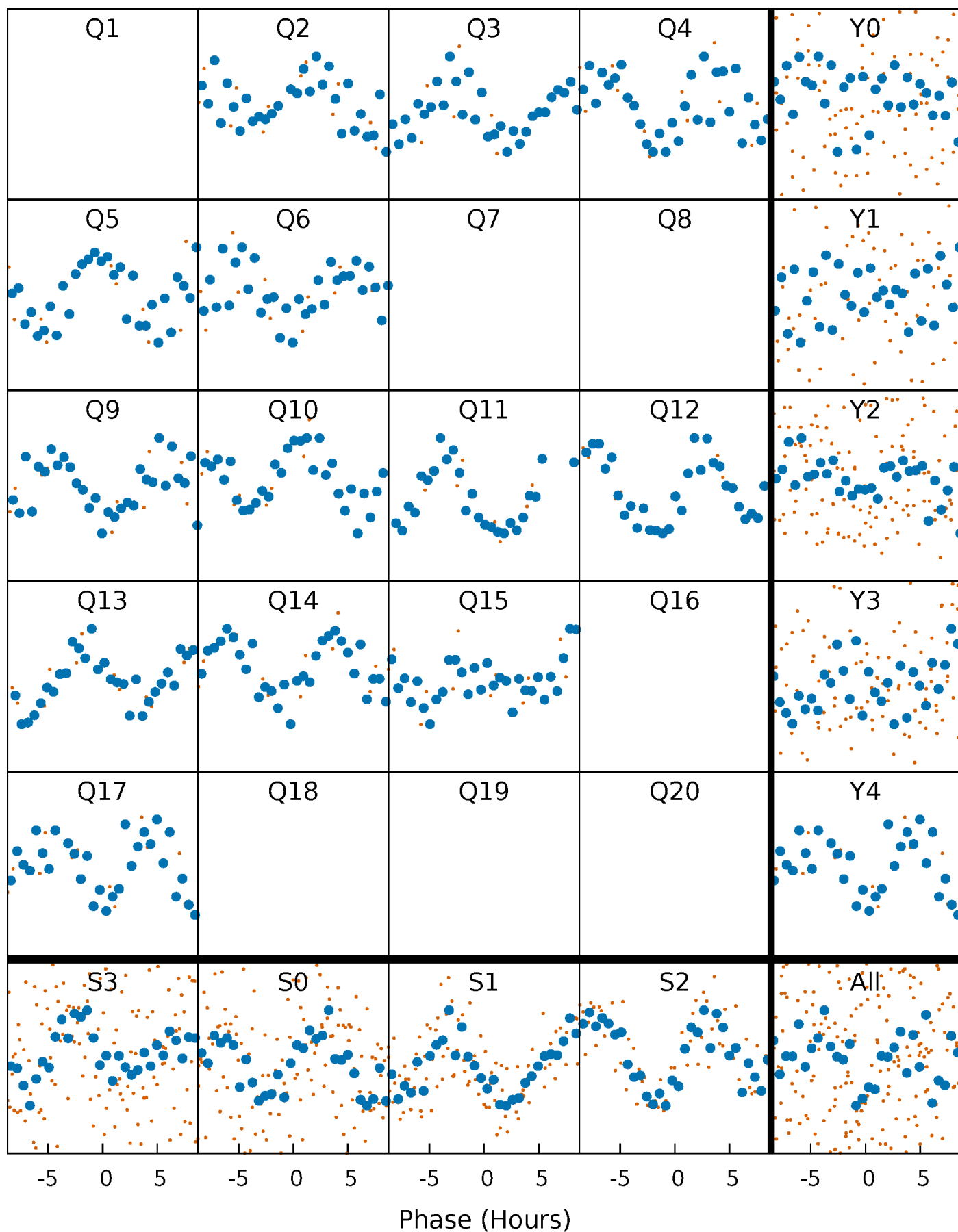


Planet 5 : Phased Whitened Flux Time Series (Fit Epoch/Period)



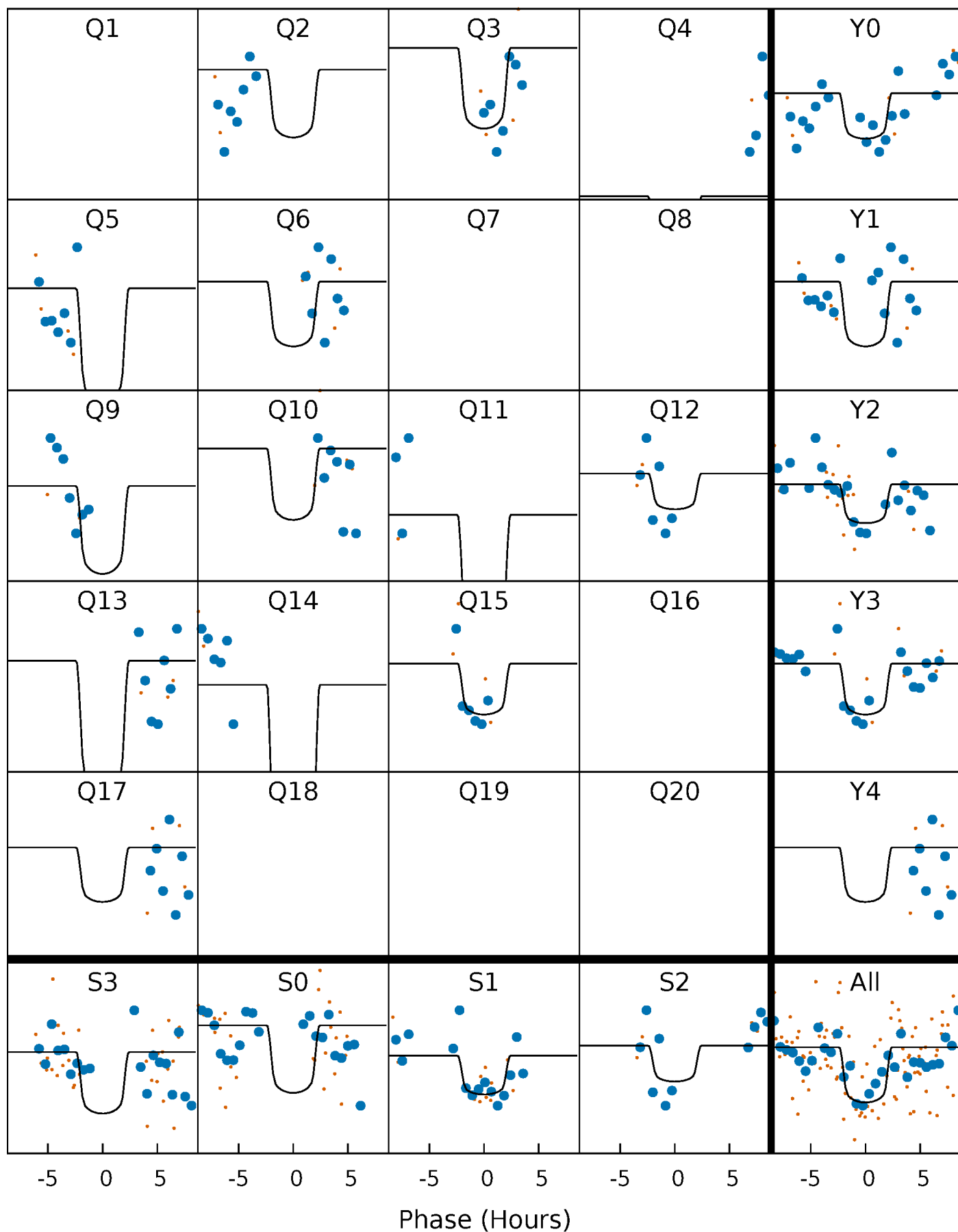
PDC Quarter-Phased Transit Curves

TCE 009710475-05 $P=105.762566$ Days $T_0=191.928121$ (BKJD)



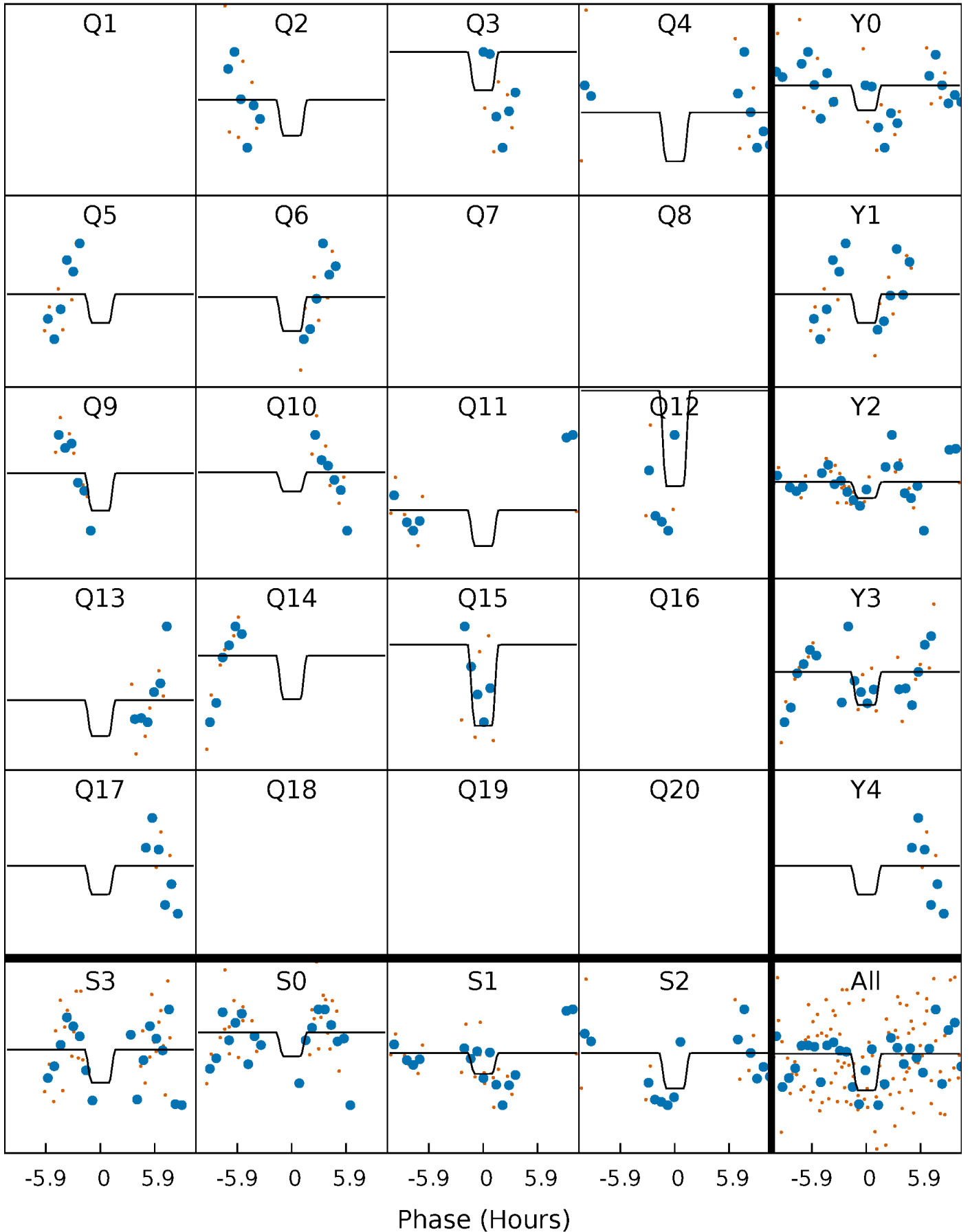
DV Quarter-Phased Transit Curves

TCE 009710475-05 P=105.762566 Days $T_0=191.928121$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

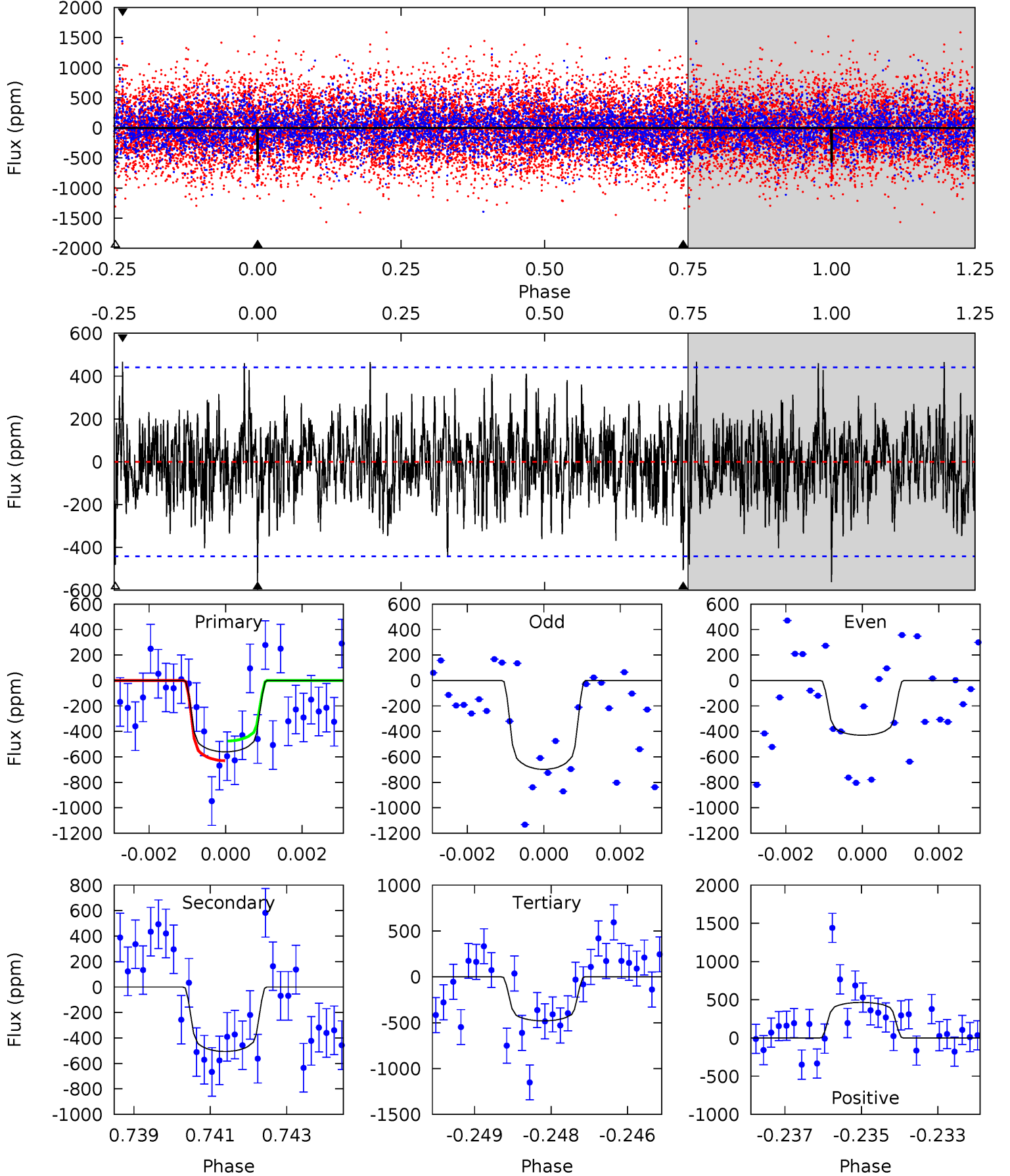
TCE 009710475-05 $P=105.760658$ Days $T_0=191.931018$ (BKJD)



DV Model-Shift Uniqueness Test

009710475-05, P = 105.762566 Days, E = 86.165555 Days

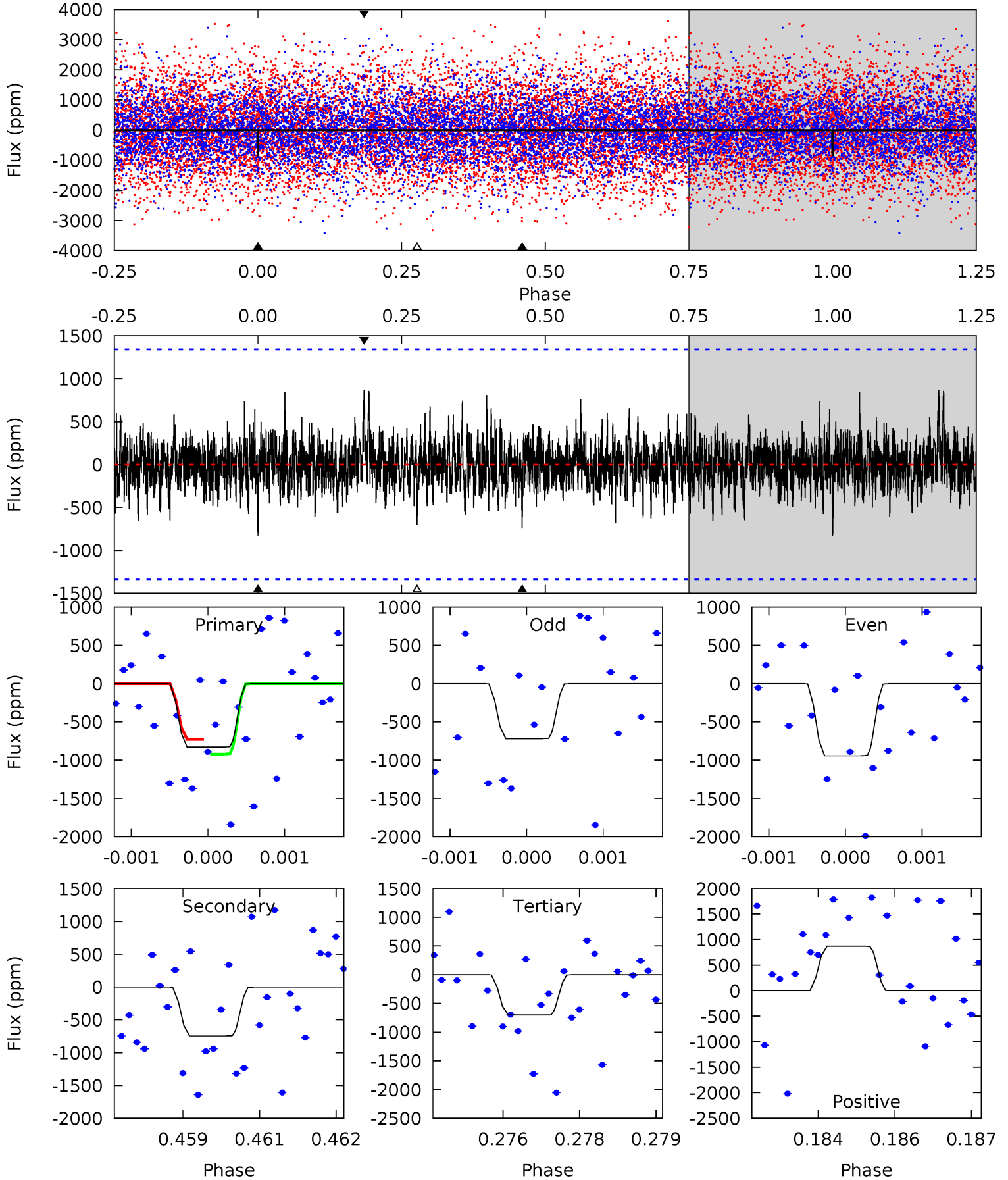
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
6.80	6.14	5.82	5.64	5.35	3.13	1.64	0.98	1.16	0.32	0.50	1.66	0.74	0.45	0.93



Alt Model-Shift Uniqueness Test

009710475-05, P = 105.760658 Days, E = 86.170360 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
3.34	3.01	2.83	3.51	5.40	3.21	0.86	0.52	-0.17	0.18	-0.51	0.46	1.23	0.51	0.39



Stellar Parameters For KIC 009710475

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$\rho_{\star} (\text{g}\cdot\text{cm}^{-3})$
	9191^{+255}_{-475}	$3.962^{+0.258}_{-0.172}$	$0.070^{+0.150}_{-0.650}$	$2.658^{+0.810}_{-0.899}$	$2.363^{+0.323}_{-0.753}$	$0.177^{+0.320}_{-0.089}$
	+3%/-5%	+7%/-4%	+214%/-929%	+30%/-34%	+14%/-32%	+181%/-50%
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 009710475-05 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-507 ± 82	$7.25^{+4.70}_{-3.73}$	1185^{+103}_{-114}	8061^{+5021}_{-1690}	1692^{+5584}_{-1046}
Alt.	-746 ± 248	$8.80^{+4.70}_{-4.08}$	1195^{+105}_{-112}	8135^{+4689}_{-1649}	1736^{+4319}_{-1055}

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

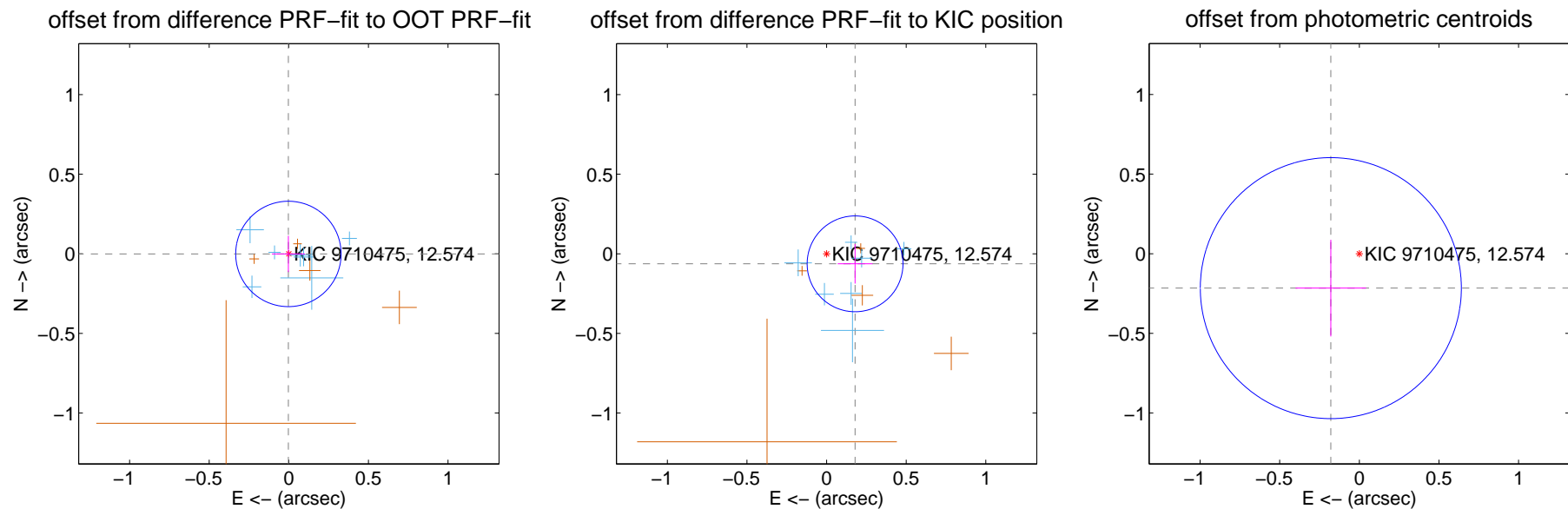
DV Centroid Data

Supplemental centroid analysis for 009710475-05. Kepler magnitude: 12.57. Transit SNR 8.65

There are 7 quarters with good PRF difference image offsets

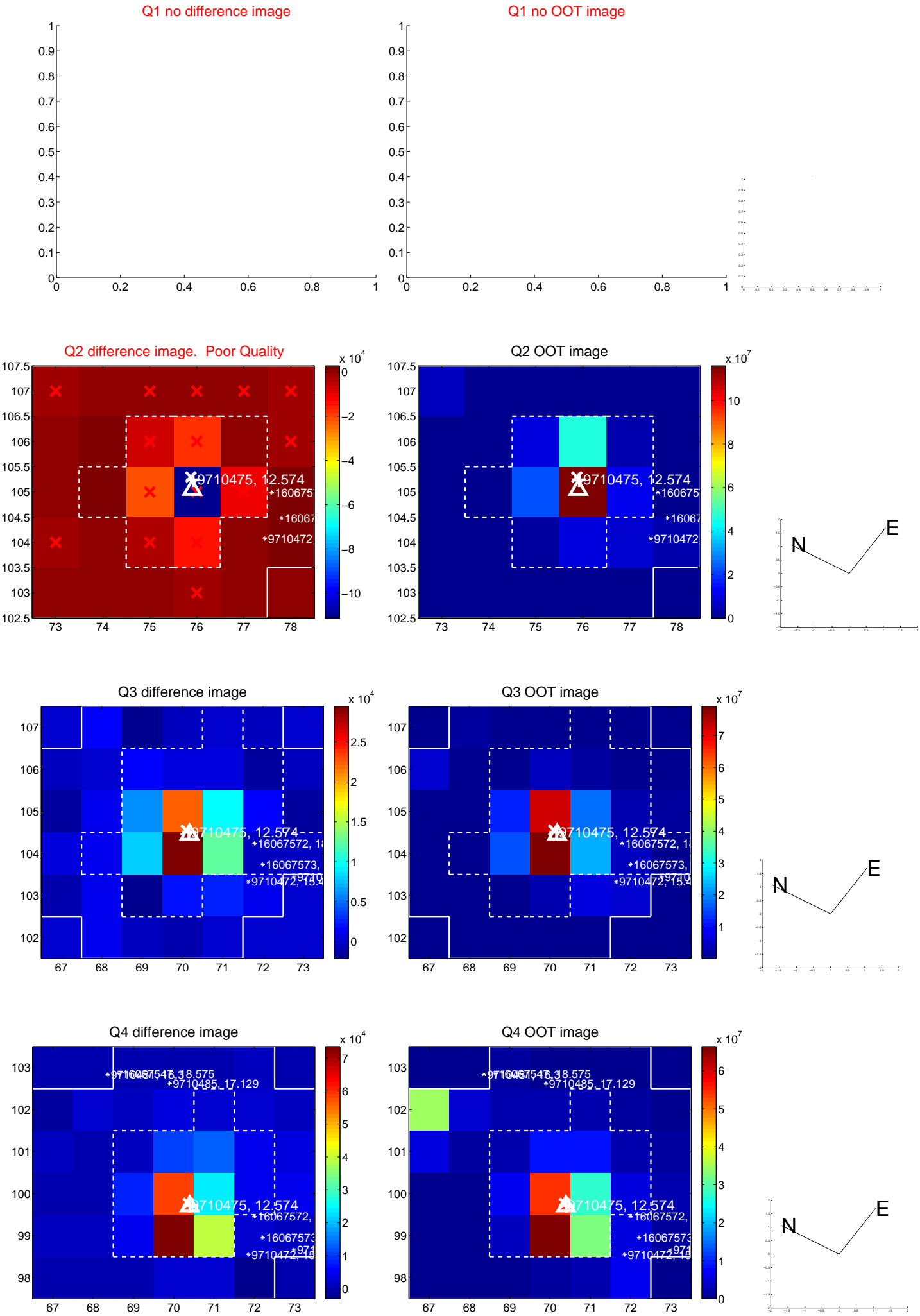
The direct PRF centroid is offset from the target star catalog position by about 0.13 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.003 ± 0.110	0.02	0.003 ± 0.104	-0.001 ± 0.114
PRF-fit source offset from KIC position	0.190 ± 0.100	1.89	-0.179 ± 0.109	-0.063 ± 0.124
photometric centroid source offset	0.28 ± 0.27	1.03	0.18 ± 0.22	-0.22 ± 0.30

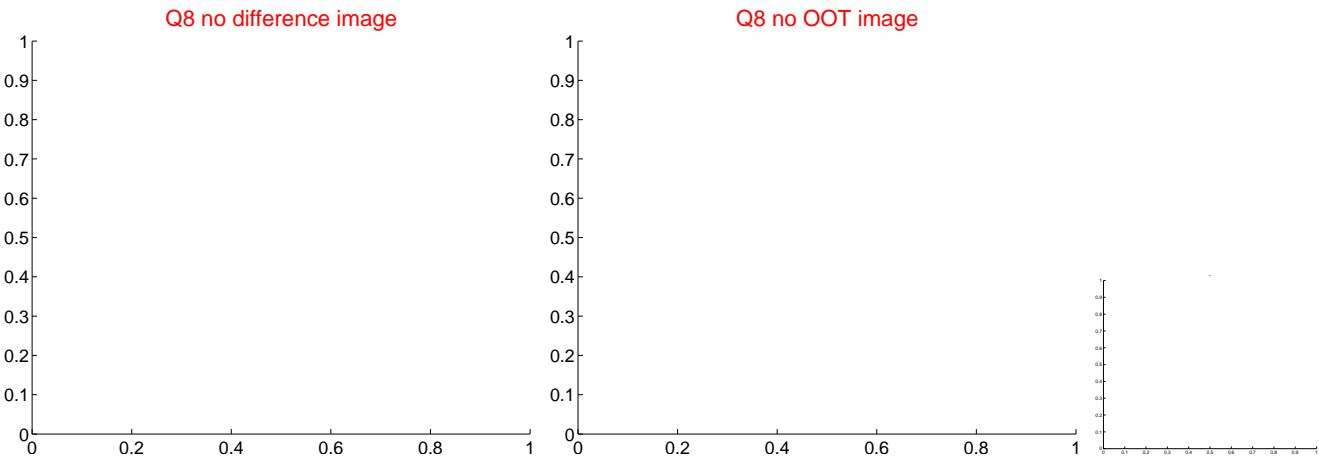
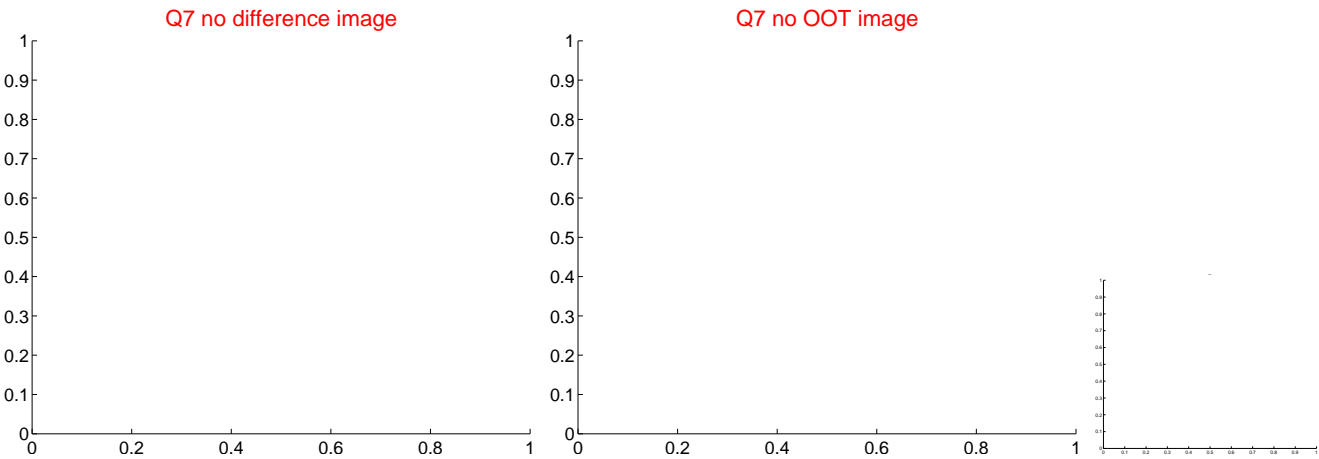
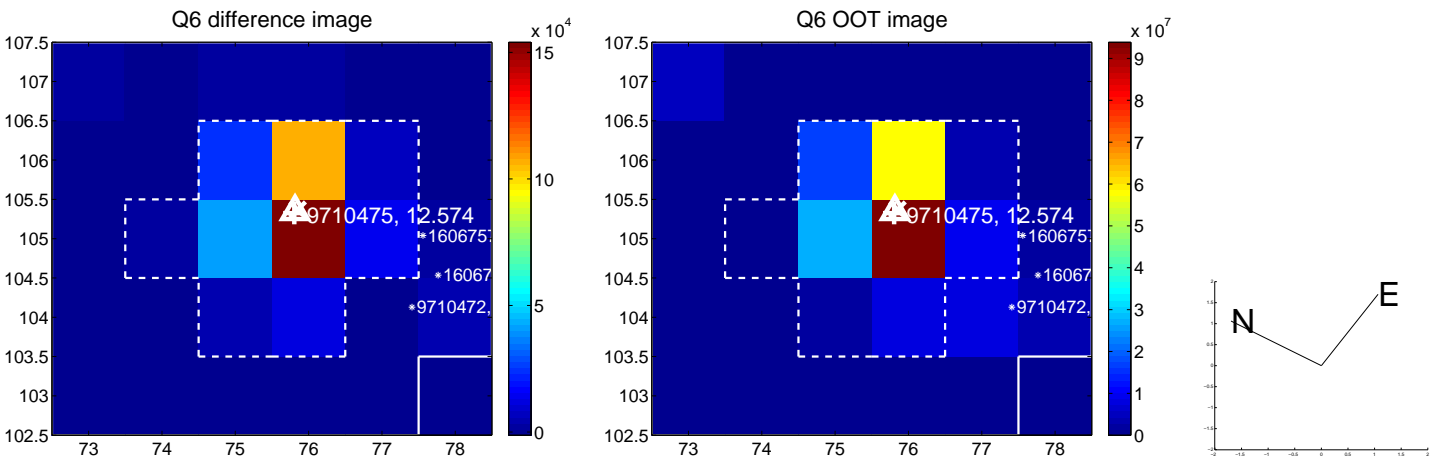
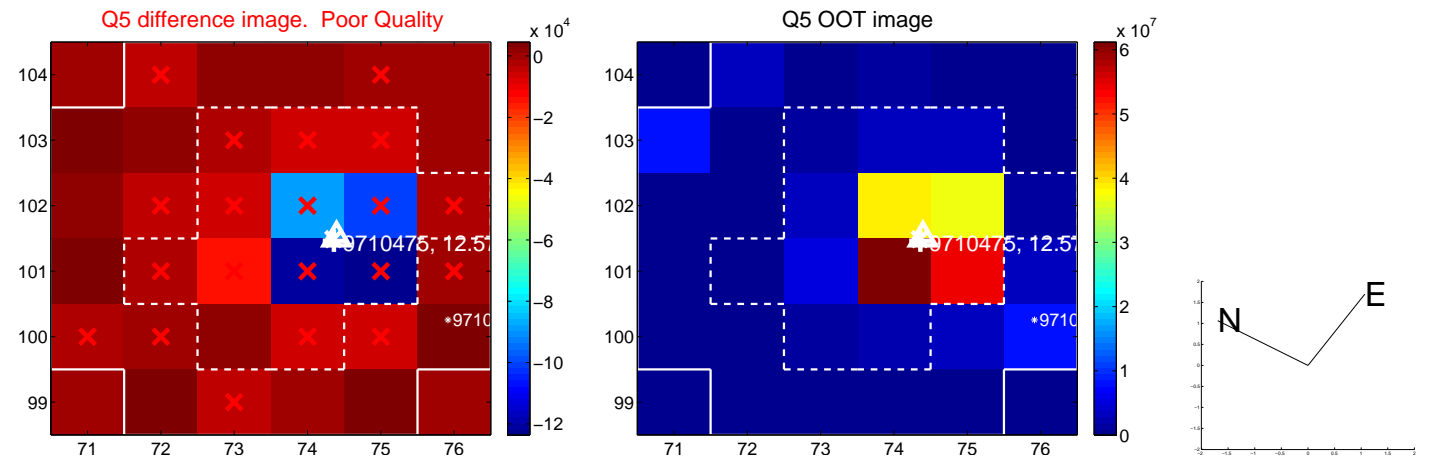


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

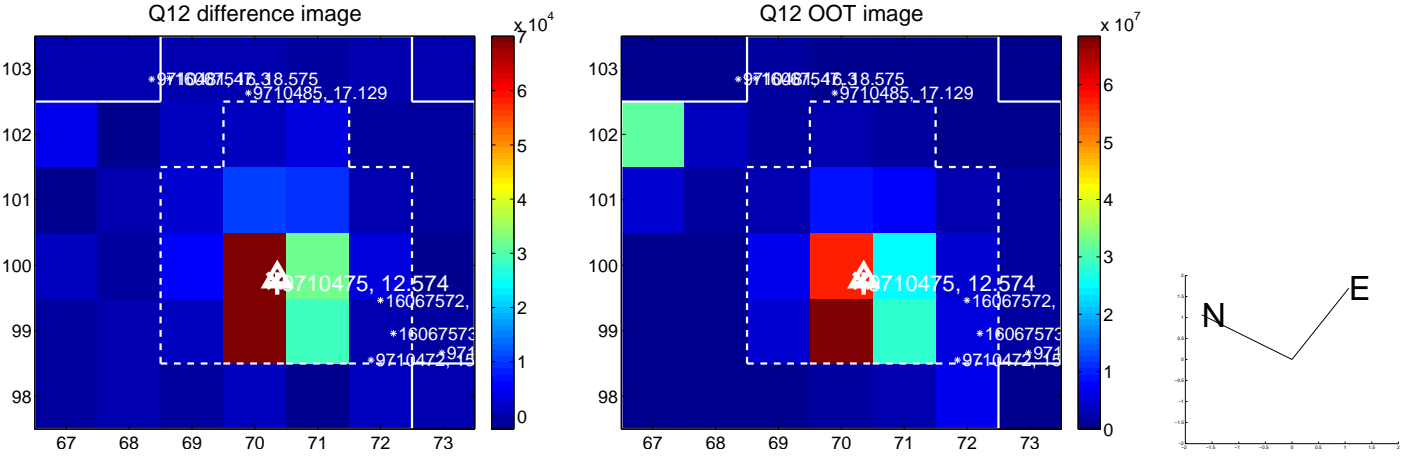
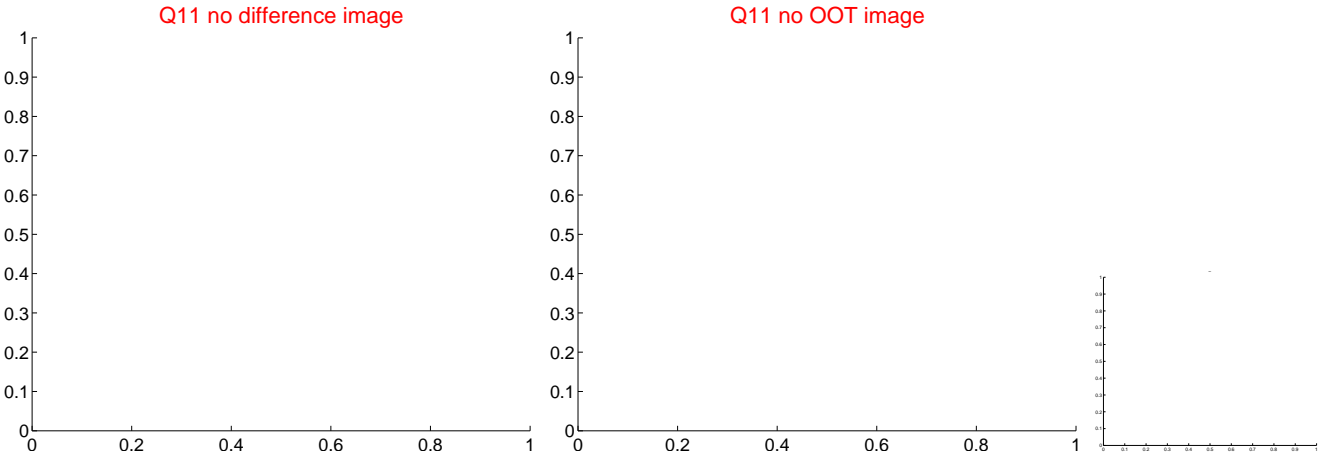
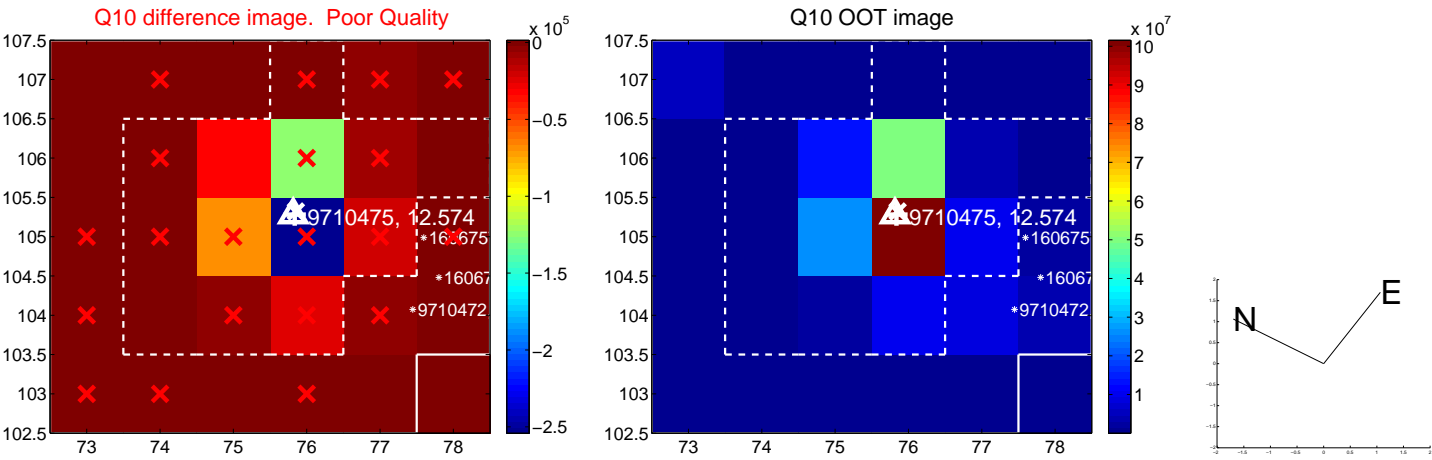
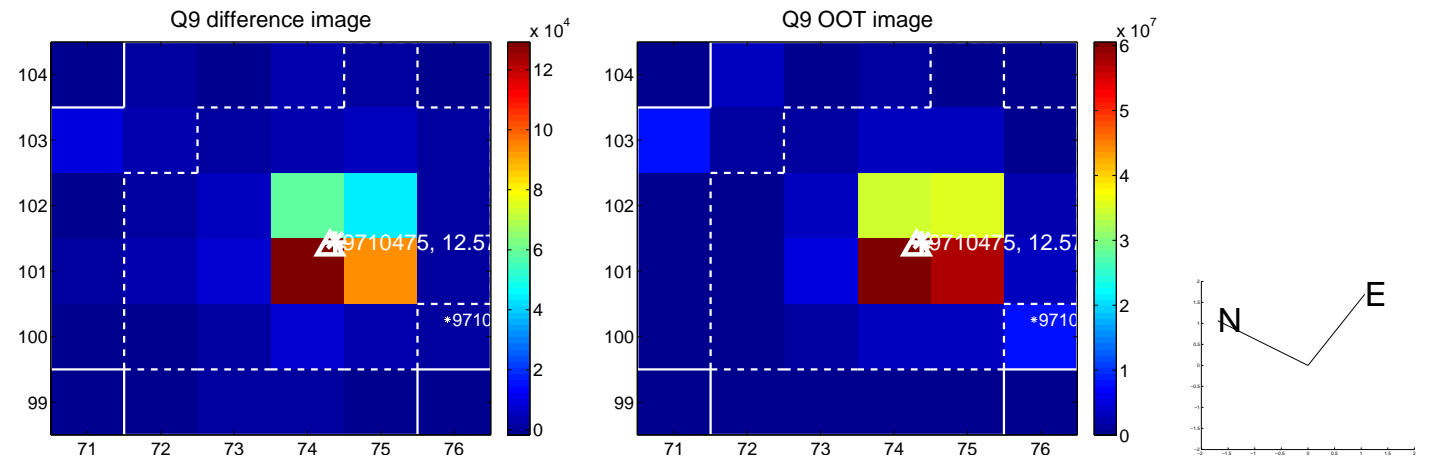
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



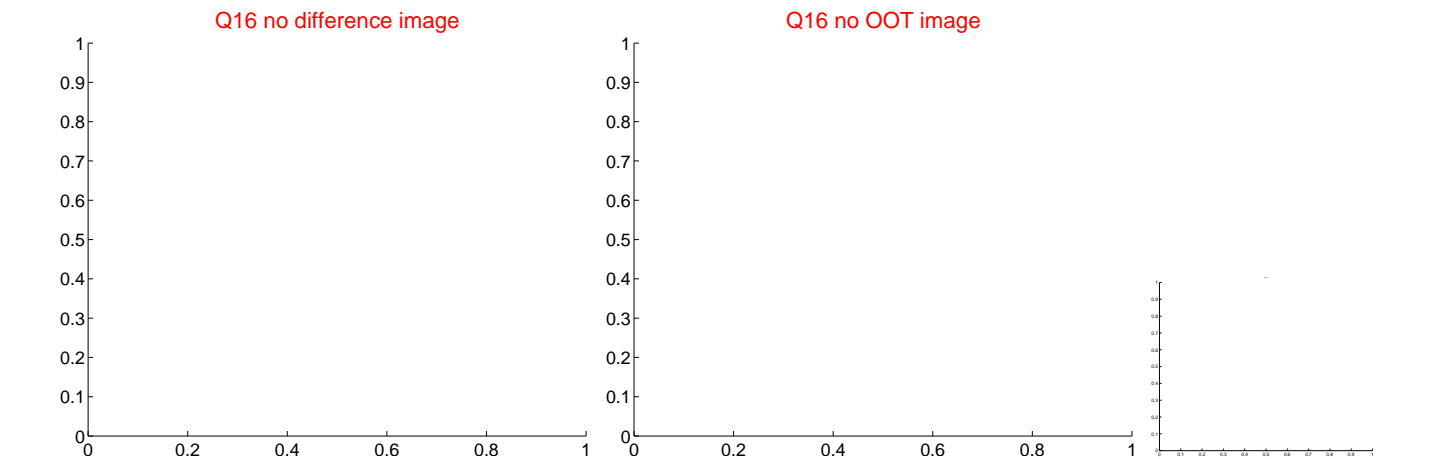
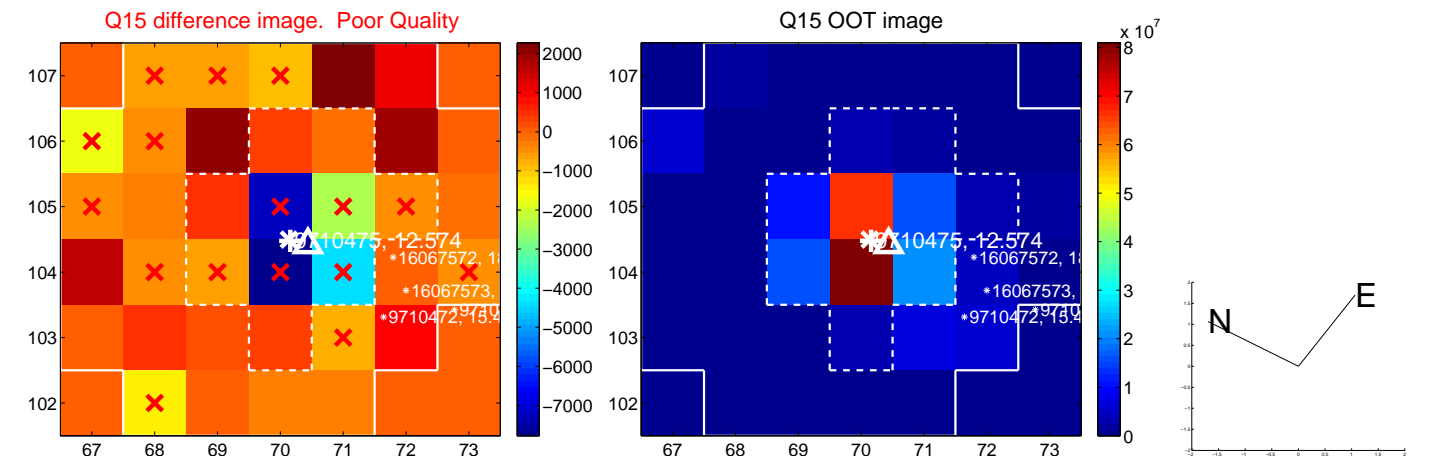
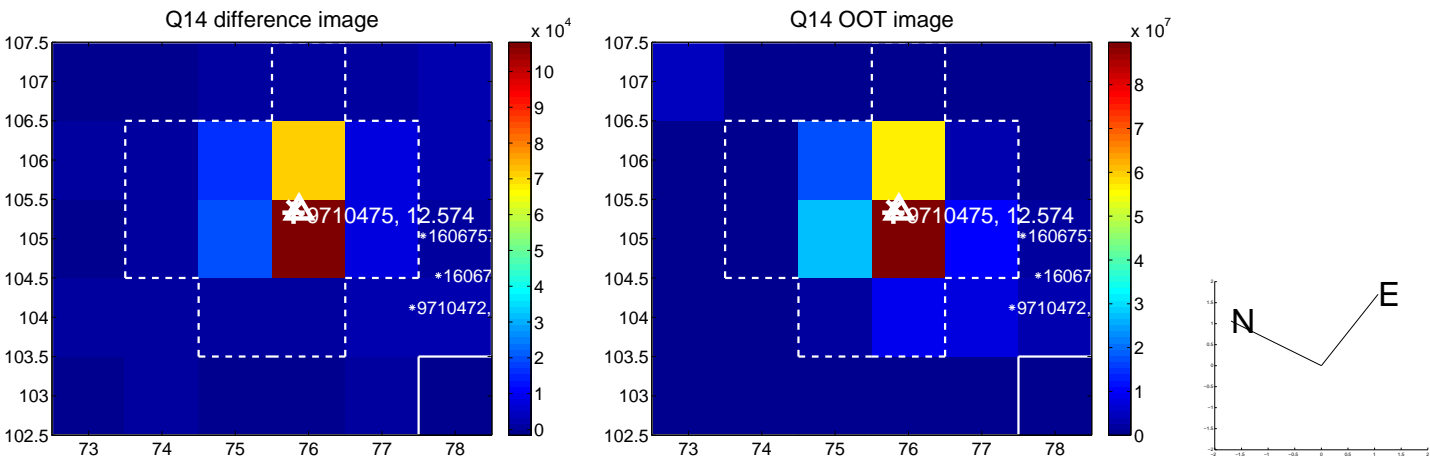
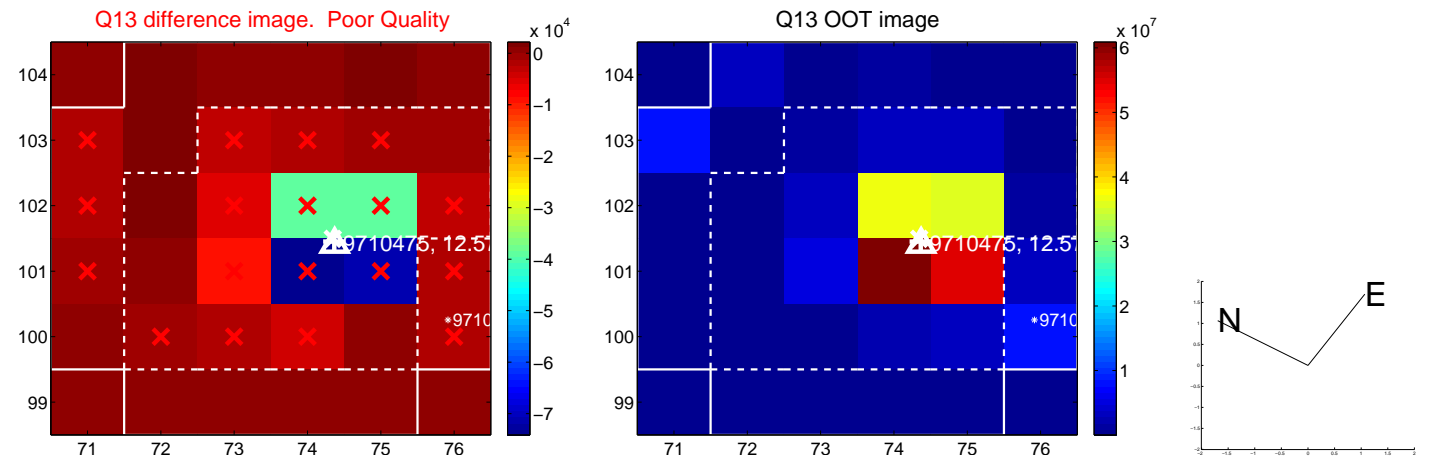
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



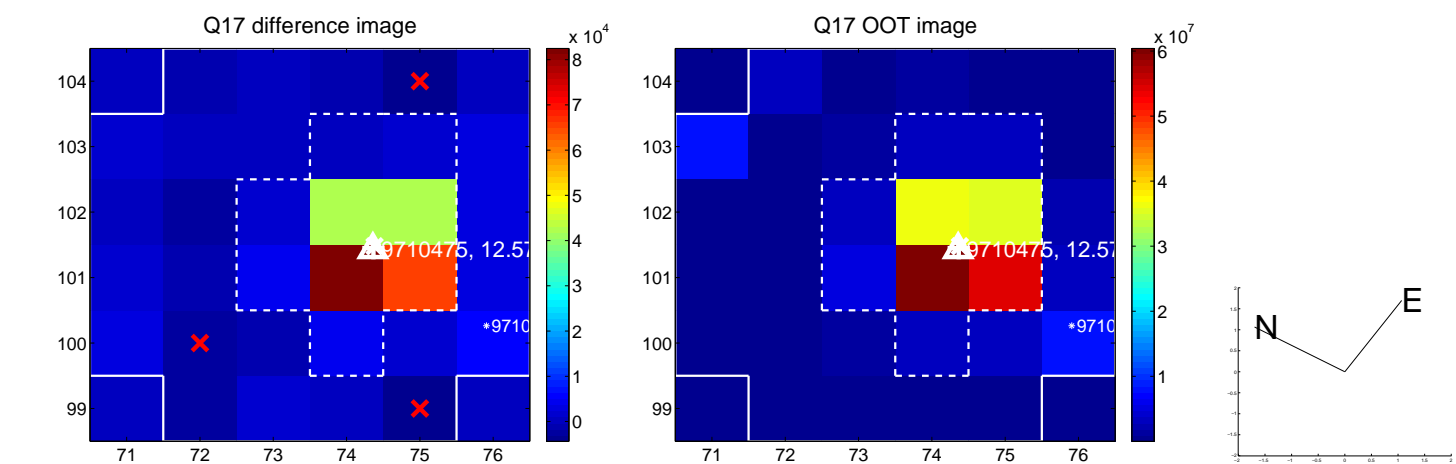
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



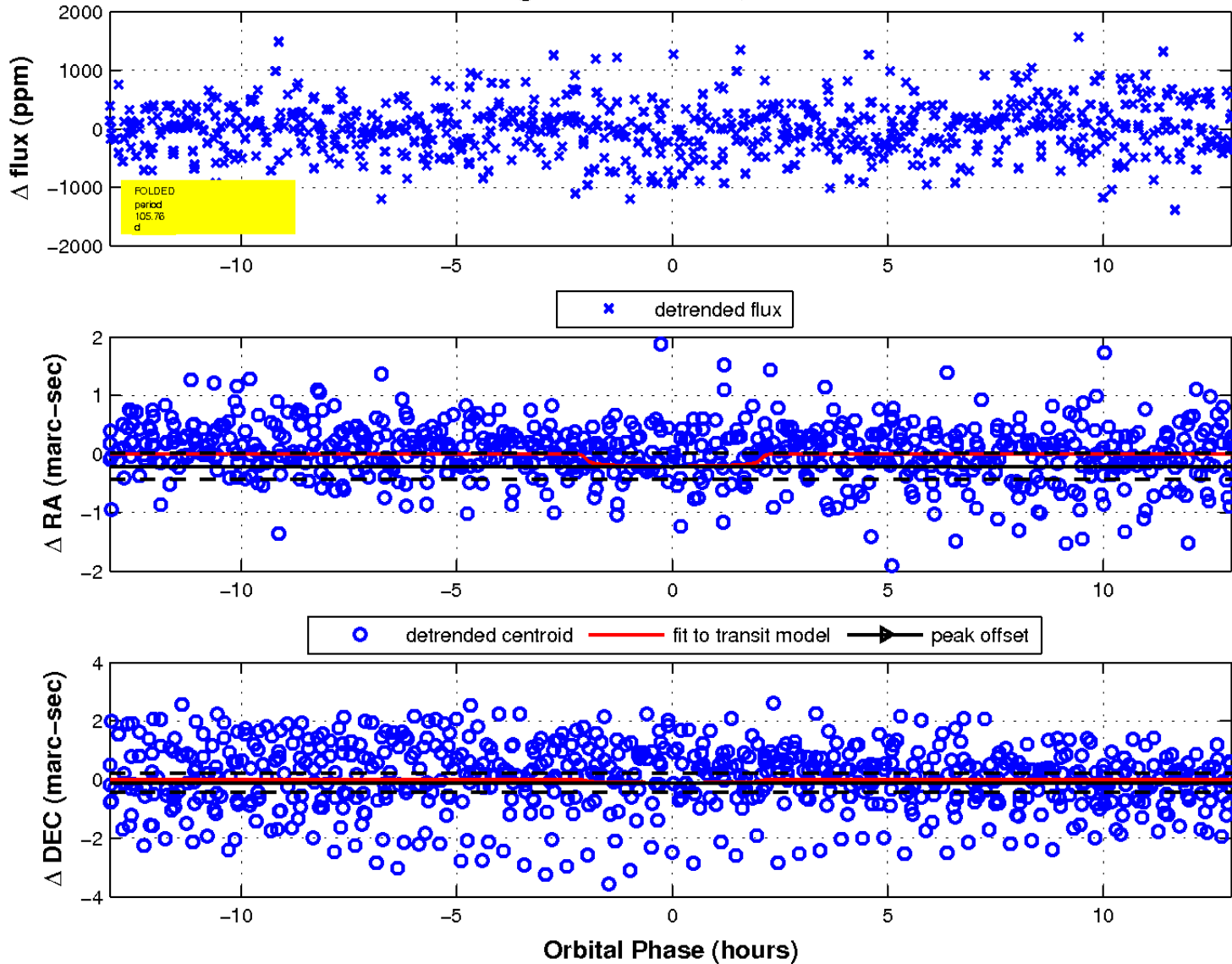
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

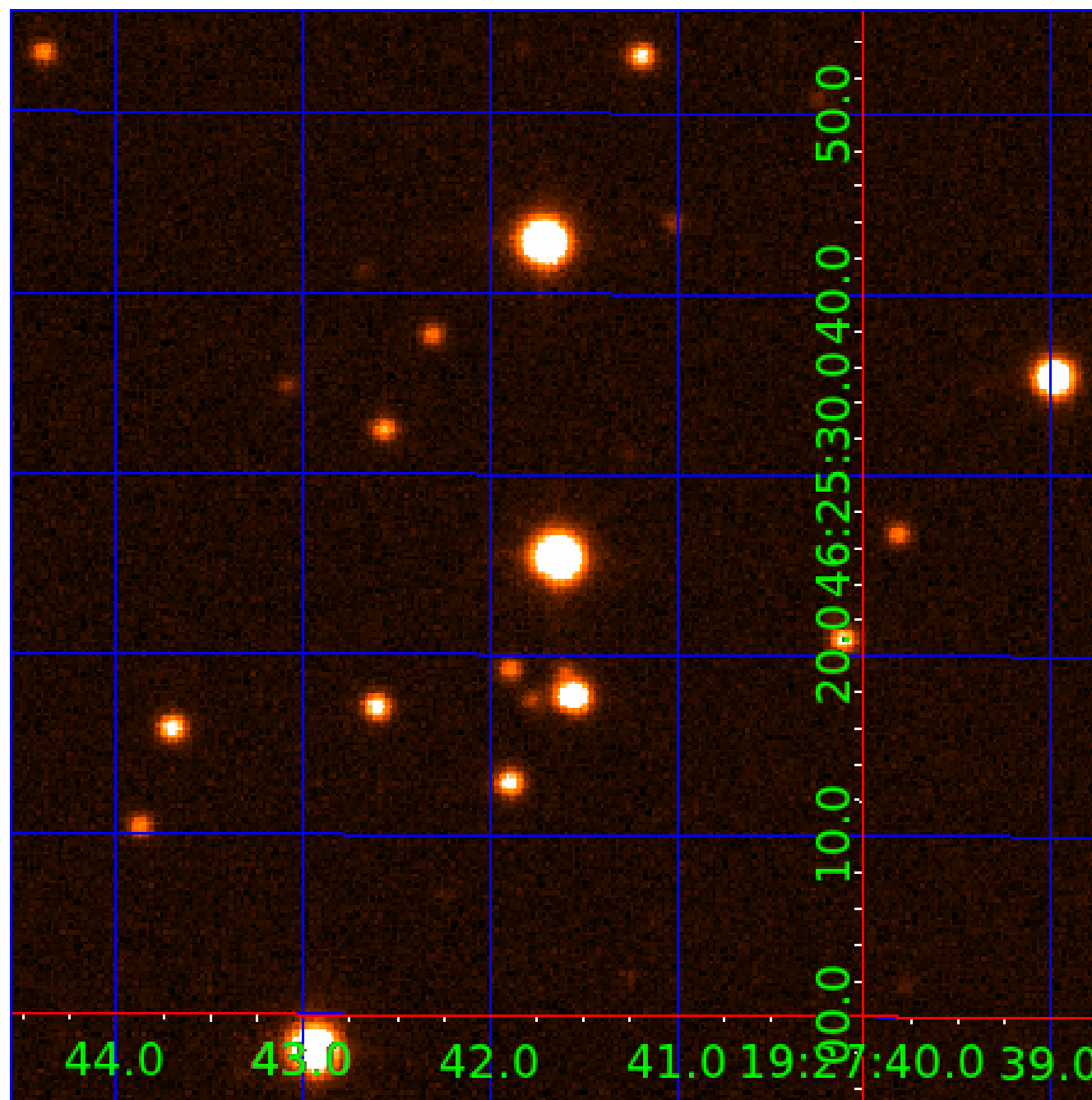


fluxWeightedCentroids, Planet 5 of 8



UKIRT Image

Declination



KIC 009710475

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})
009710475-01	OBS	No	0.815768	131.751161	18.2	5.011	10.2	3.9	2.66	9191	1.17	87222.12
009710475-02	OBS	No	210.070028	205.139547	991.1	2.097	10.0	10.3	2.66	9191	9.27	53.24
009710475-03	OBS	No	53.498735	141.253821	620.9	3.347	8.9	9.3	2.66	9191	7.13	329.81
009710475-04	OBS	No	14.557474	136.571193	351.5	2.690	8.8	8.9	2.66	9191	5.60	1870.40
009710475-05	OBS	No	105.762566	191.928121	676.6	4.355	8.7	8.7	2.66	9191	7.53	132.93
009710475-06	OBS	No	43.281749	152.778024	585.9	3.664	8.7	8.2	2.66	9191	11.24	437.50
009710475-07	OBS	No	50.033795	132.680564	505.3	1.762	8.4	7.7	2.66	9191	6.74	360.60
009710475-08	OBS	No	79.498344	136.881615	107.6	5.000	7.1	-1.0	2.66	9191	2.82	194.49

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009710475-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT
009710475-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL—TRANS_GAPPED—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
009710475-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE—TRANS_GAPPED—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
009710475-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE—TRANS_GAPPED—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
009710475-05	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—HALO_GHOST
009710475-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
009710475-07	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
009710475-08	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_NOFITS

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

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

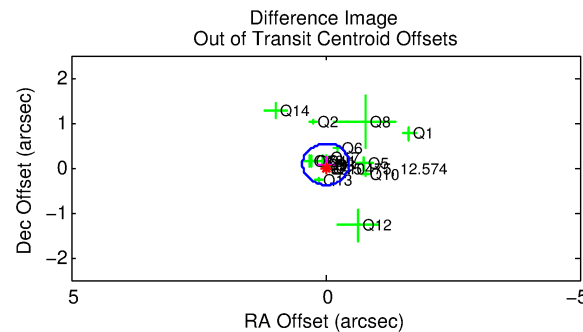
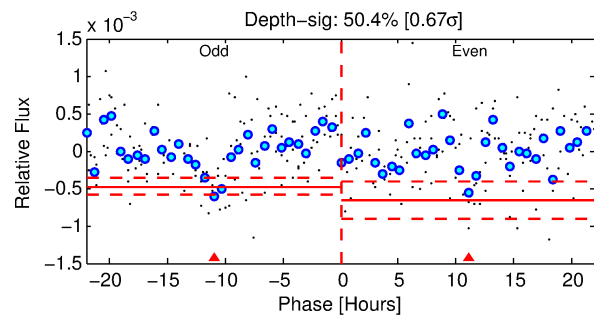
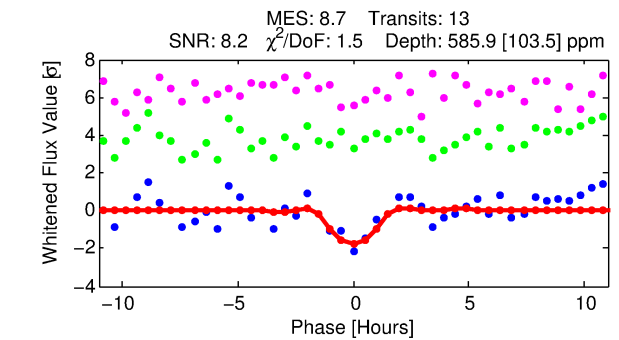
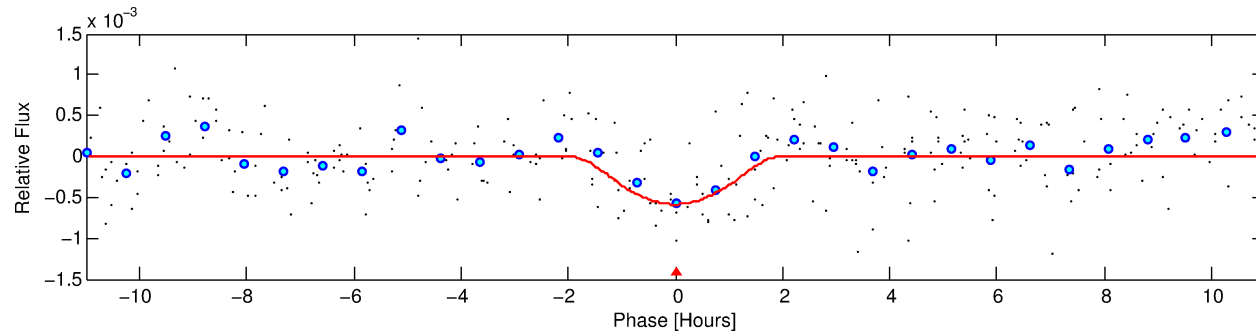
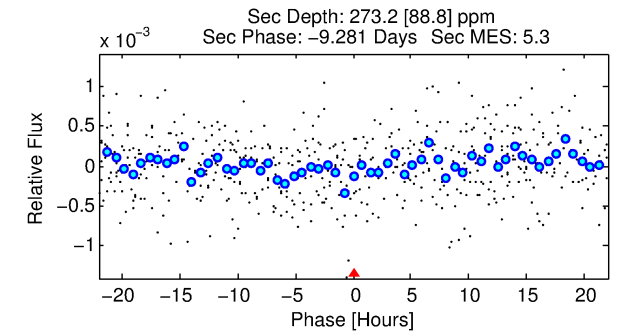
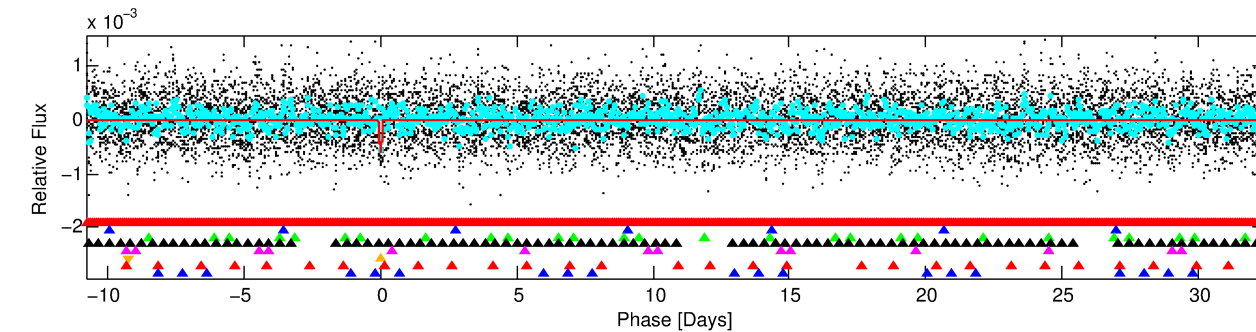
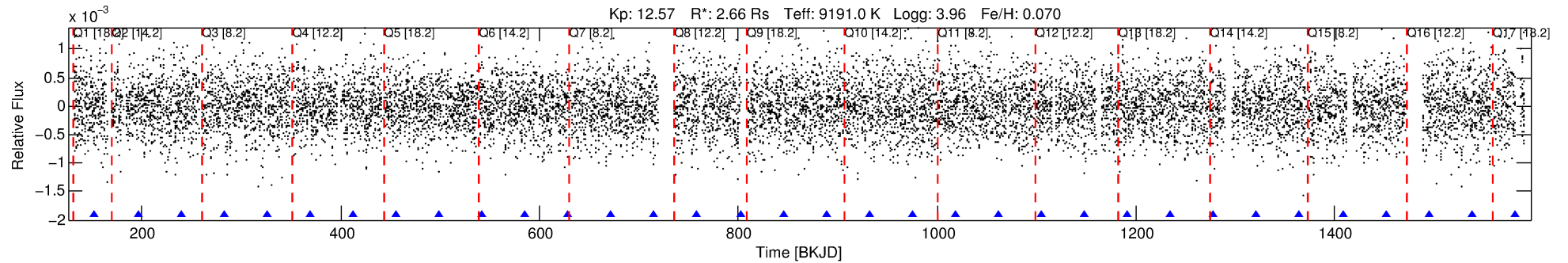
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 009710475-06

No Significant Match Found

DV One-Page Summary

KIC: 9710475 Candidate: 6 of 8 Period: 43.282 d



DV Fit Results:

Period = 43.28175 [0.00077] d
Epoch = 152.7780 [0.0182] BKJD
Rp/R* = 0.0388 [0.1708]
a/R* = 26.38 [33.01]
b = 1.00 [0.27]
Seff = 437.50 [218.94]
Teff = 1166 [146] K
Rp = 11.24 [49.68] Re
a = 0.3213 [0.0964] AU
Ag = 122.74 [1083.49] [0.11 σ]
Teffp = 6001 [13231] K [0.37 σ]

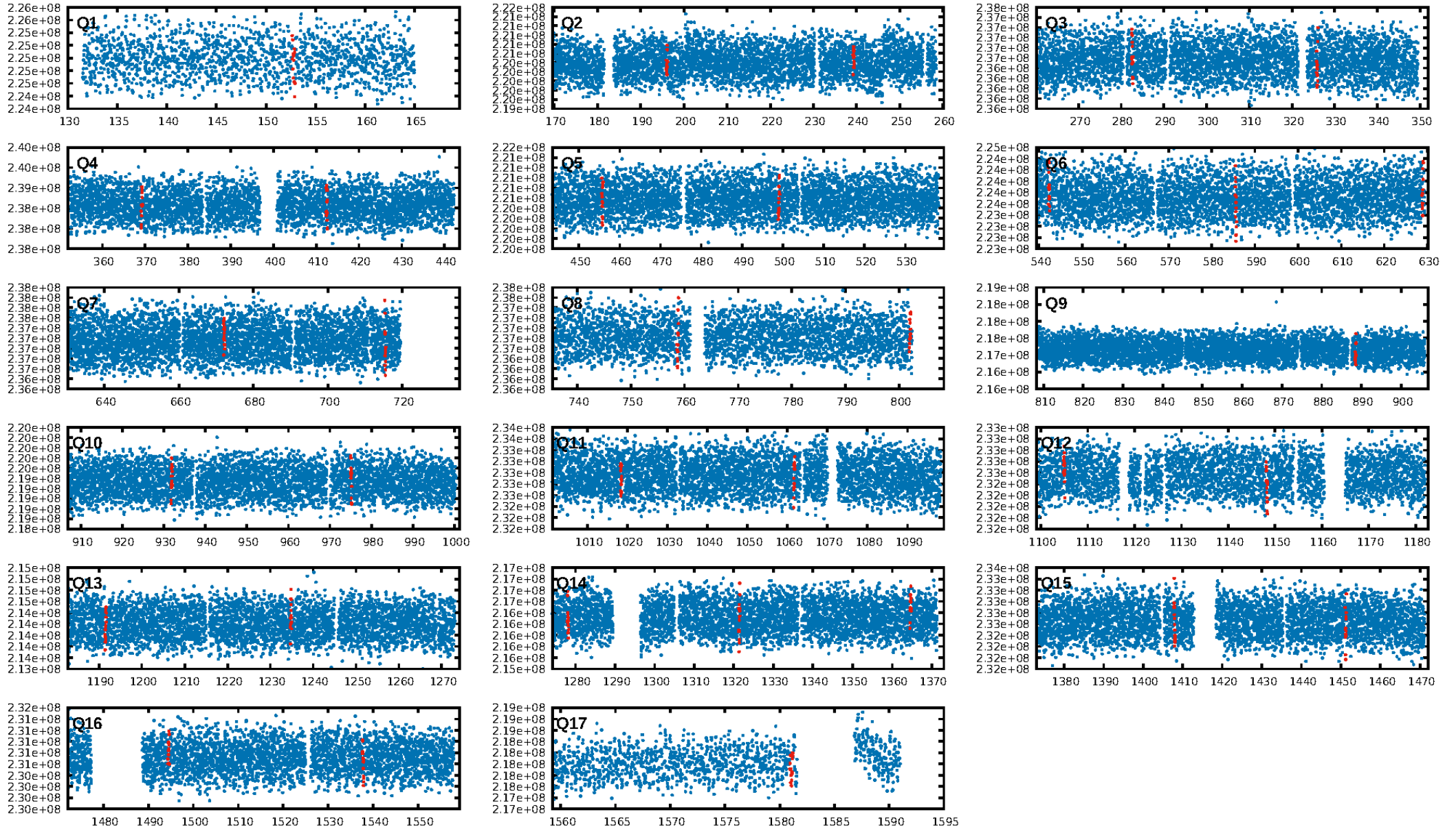
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [151.66 σ]
LongPeriod-sig: 100.0% [39.86 σ]
ModelChiSquare2-sig: 10.6%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [12/12]
GhostDiagnostic-chr: -5.073
Centroid-sig: 0.3%
Centroid-so: 0.280 arcsec [1.34 σ]
OotOffset-rm: 0.079 arcsec [0.51 σ]
KicOffset-rm: 0.080 arcsec [0.54 σ]
OotOffset-st: 4/4/4/5 [17]
KicOffset-st: 4/4/4/5 [17]
DiffImageQuality-fgm: 0.65 [11/17]
DiffImageOverlap-fno: 0.00 [0/17]

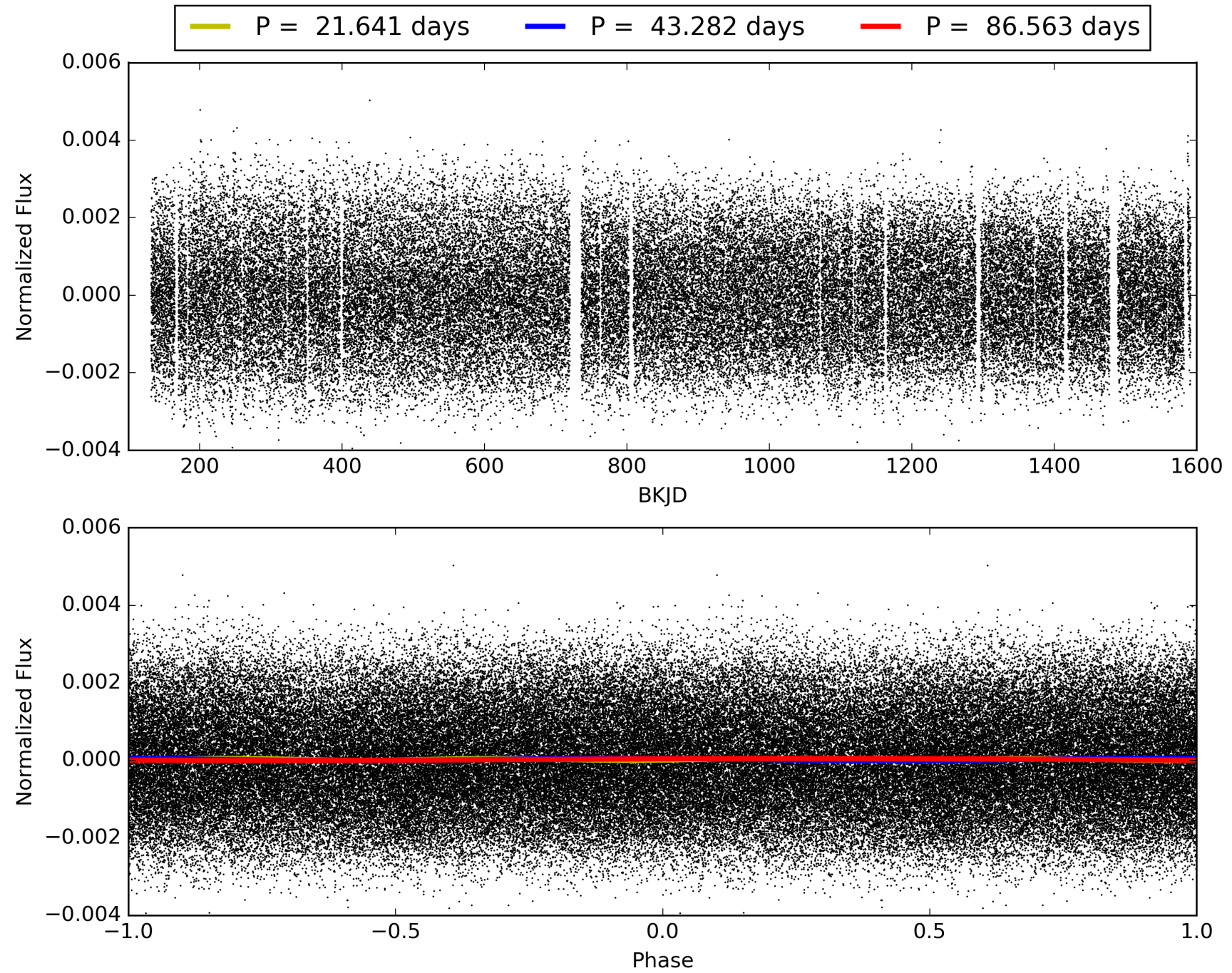
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This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

TCE 009710475-06, PDC Light Curves

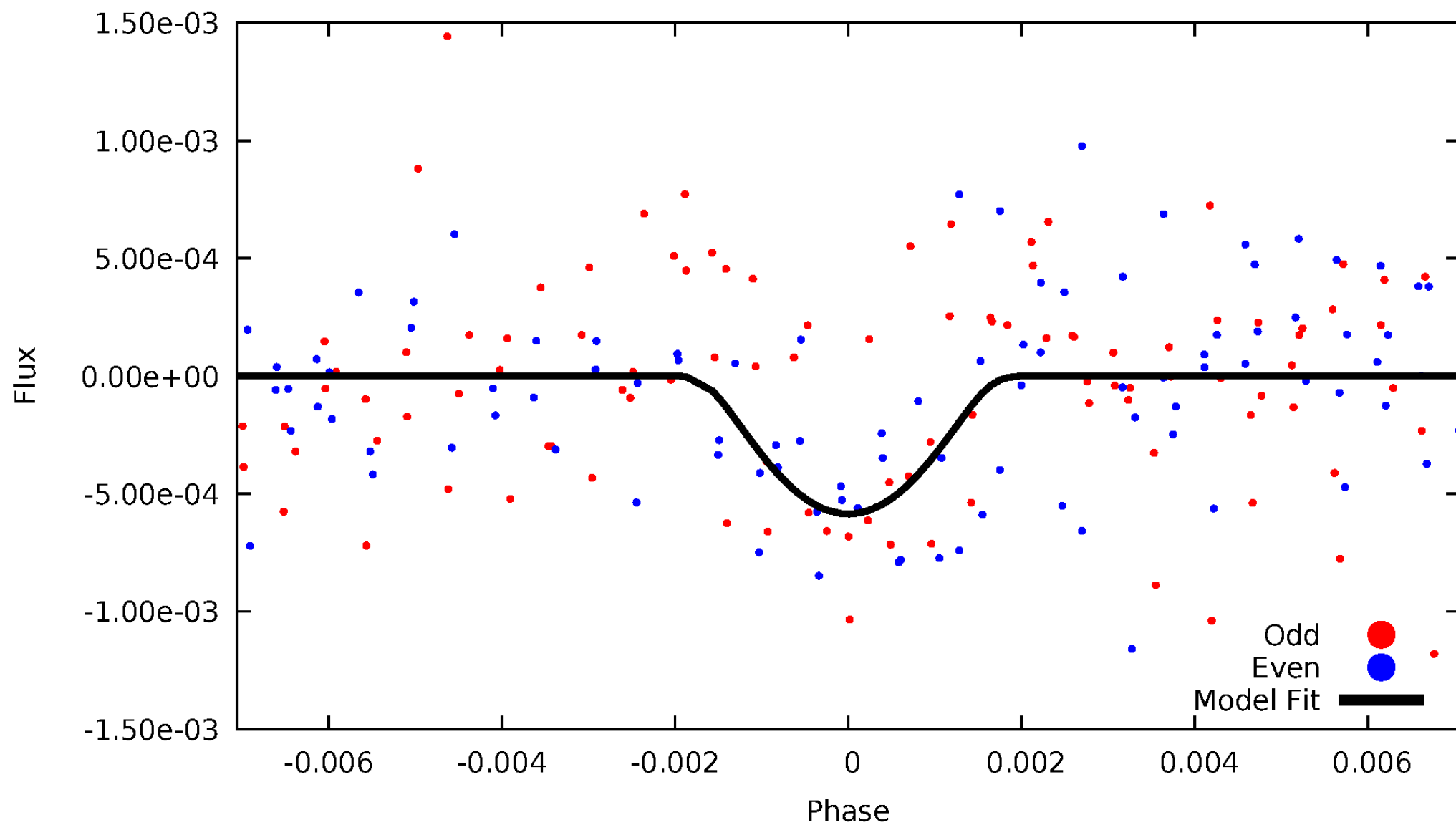


TCE 009710475-06



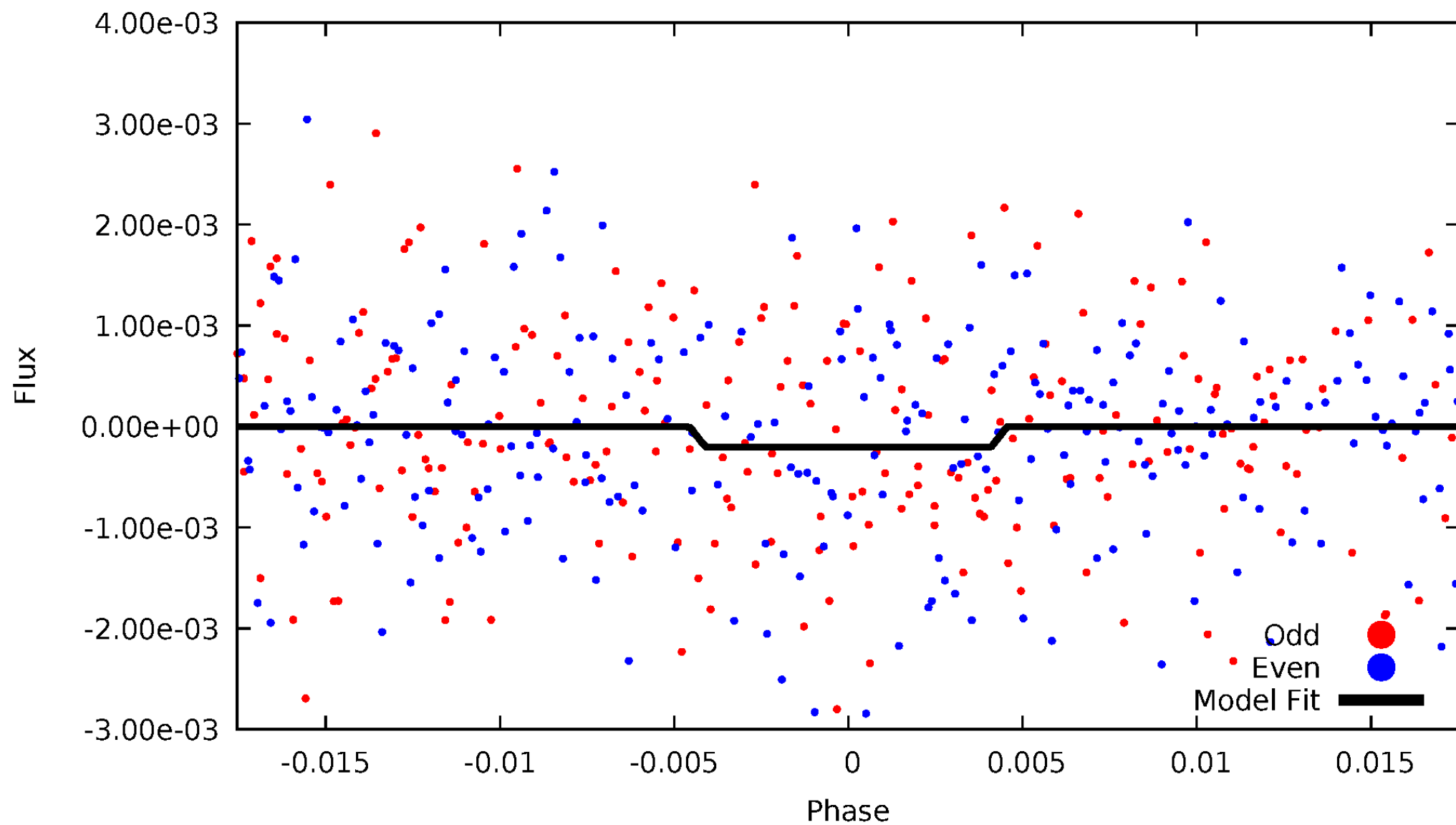
DV Odd/Even

TCE 009710475-06



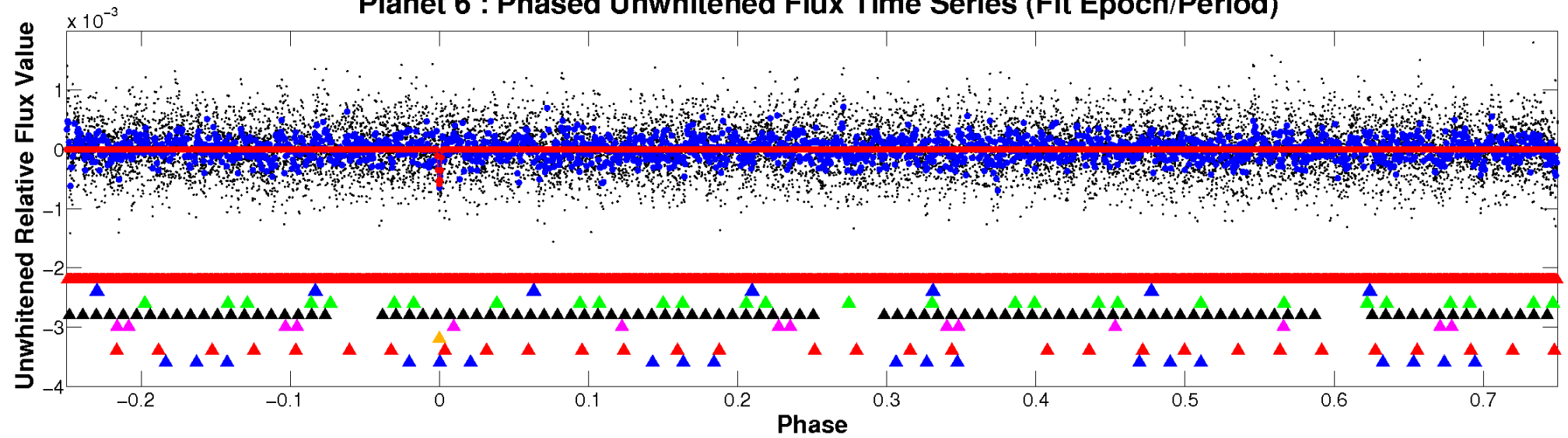
ALT Odd/Even

TCE 009710475-06

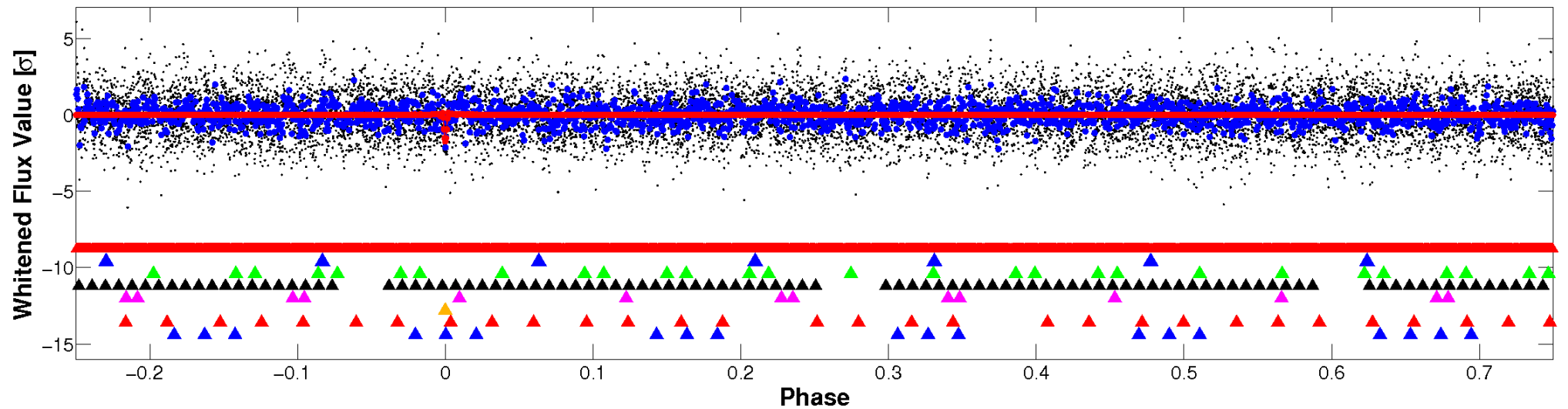


Non-Whitened Vs. Whitened Light Curve

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

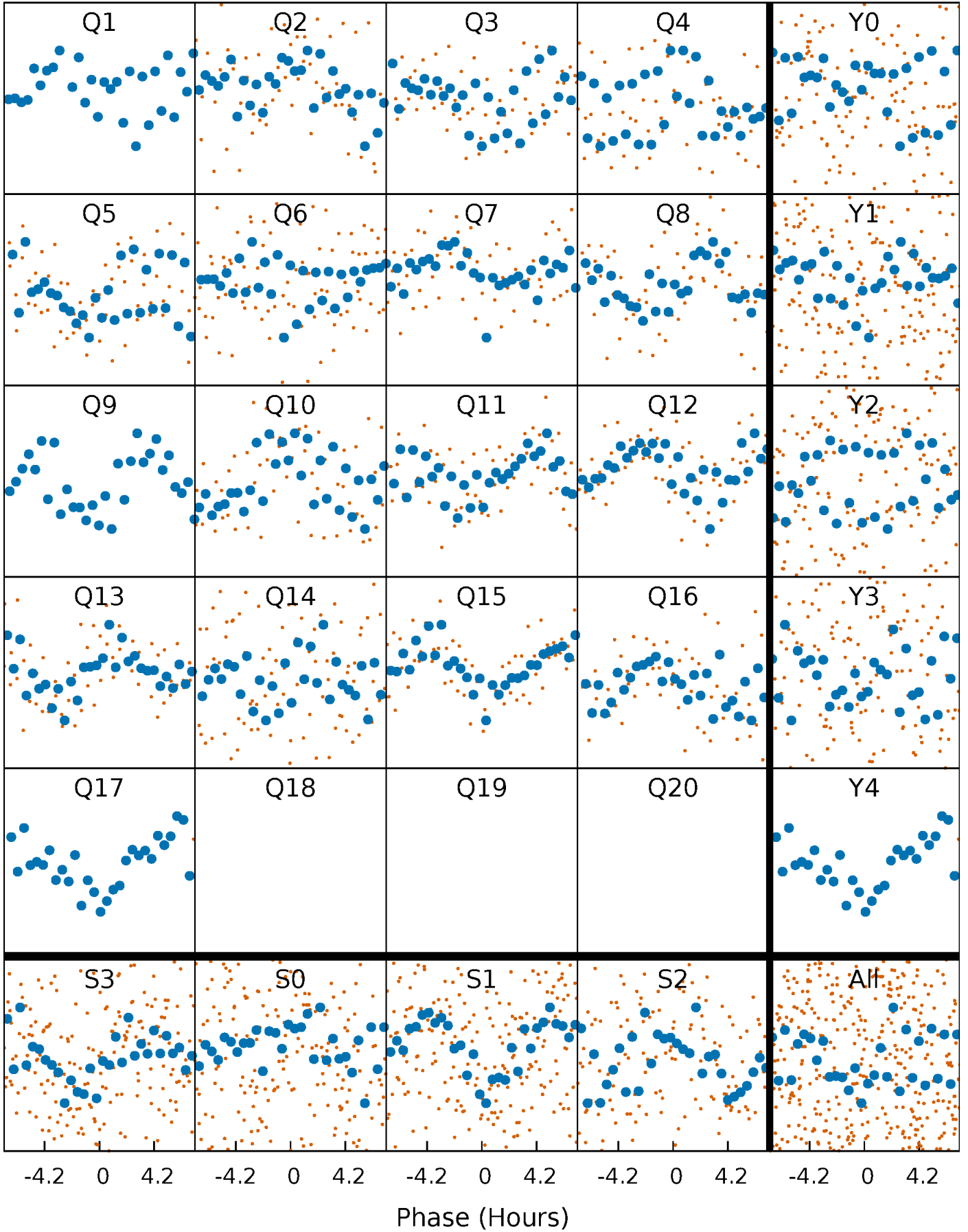


Planet 6 : Phased Whitened Flux Time Series (Fit Epoch/Period)



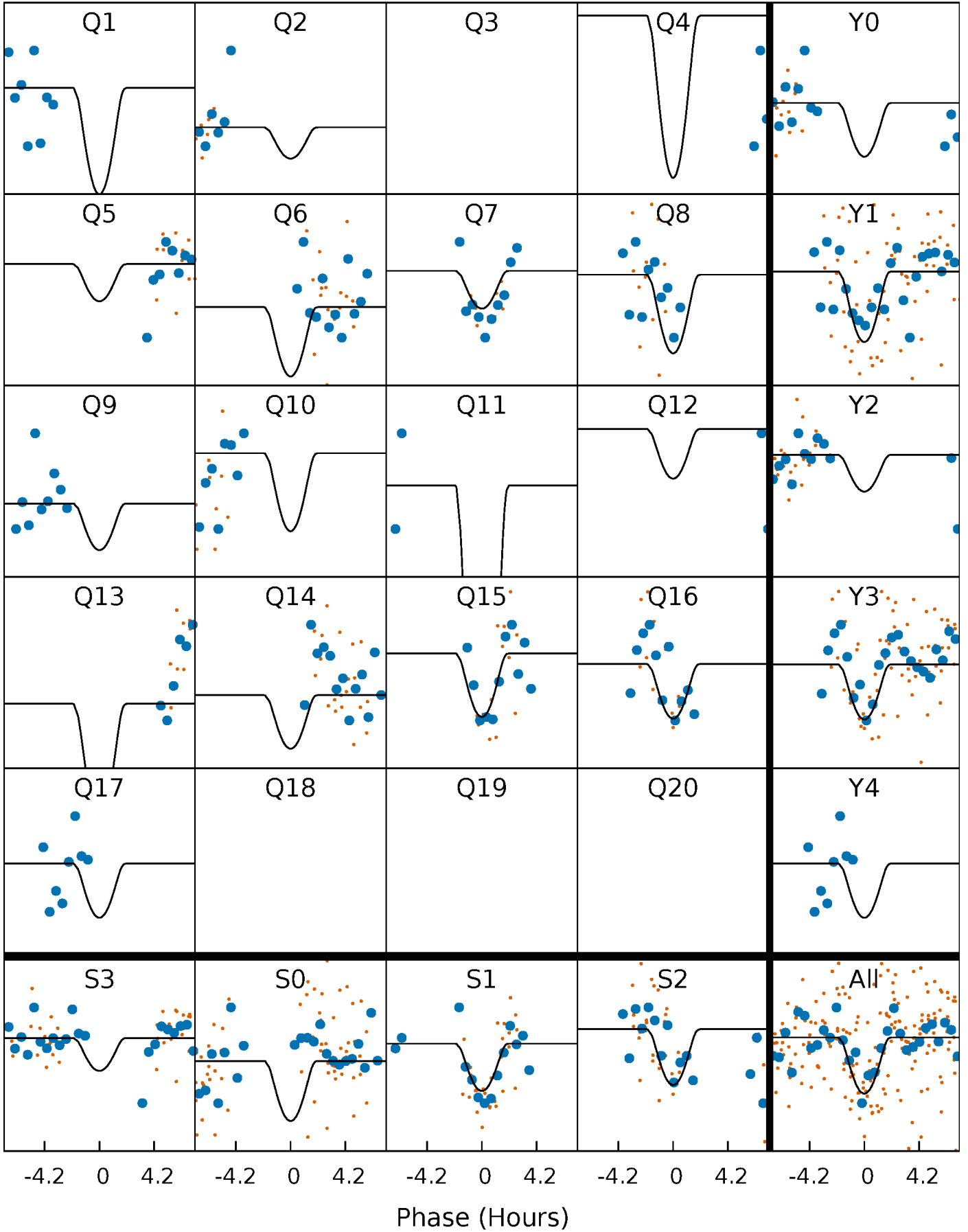
PDC Quarter-Phased Transit Curves

TCE 009710475-06 P= 43.281749 Days $T_0=152.778024$ (BKJD)



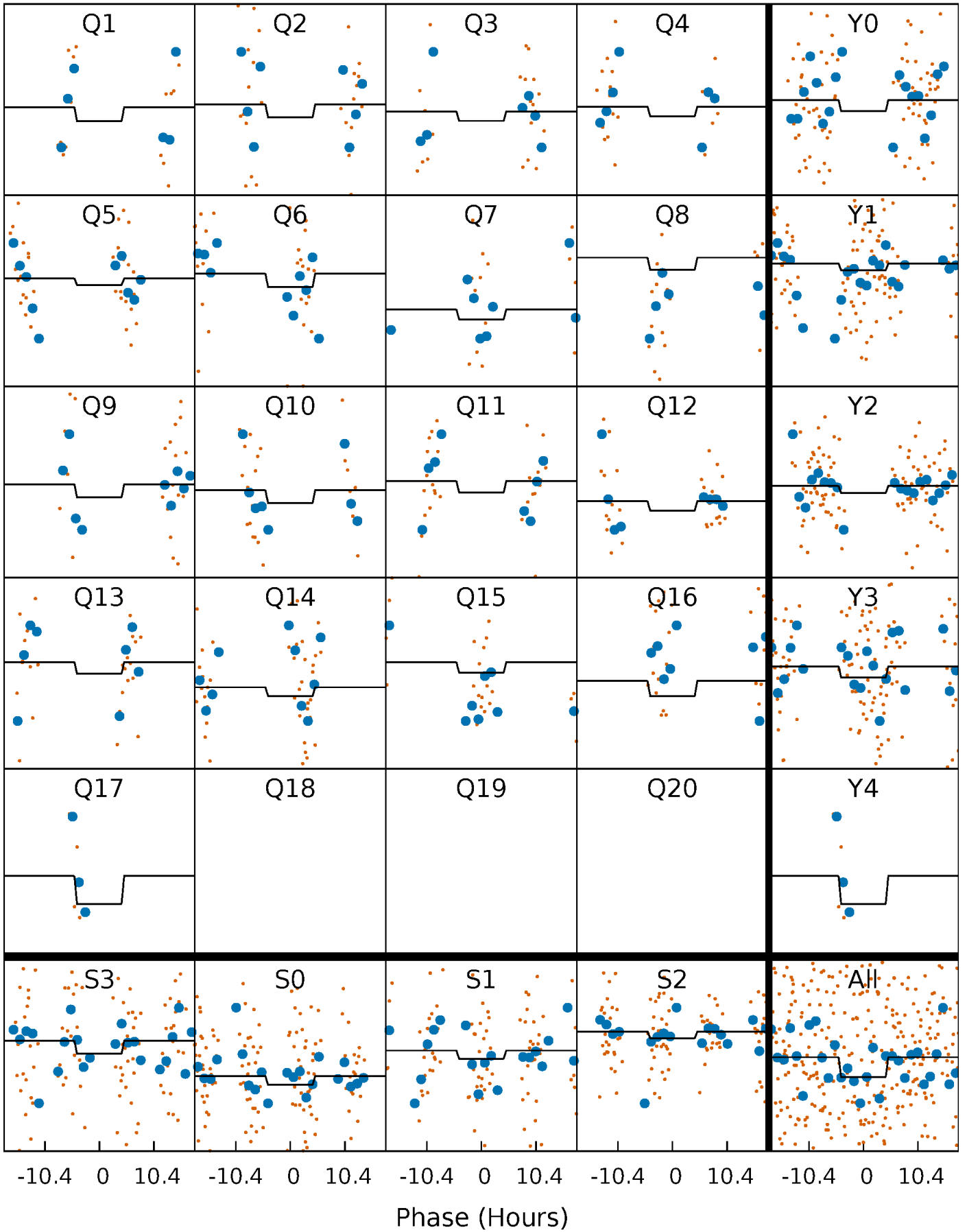
DV Quarter-Phased Transit Curves

TCE 009710475-06 P= 43.281749 Days $T_0=152.778024$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

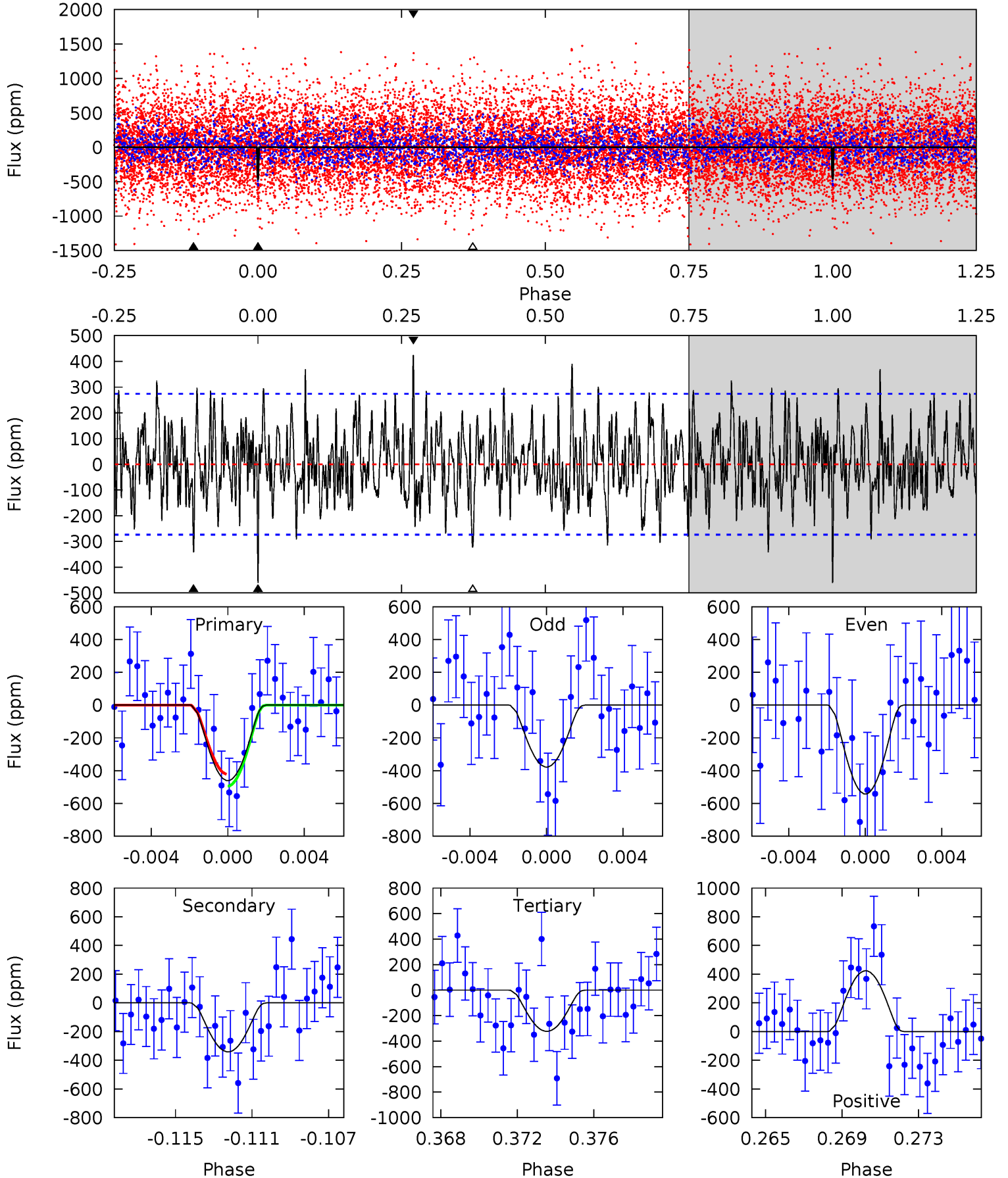
TCE 009710475-06 P= 43.282404 Days $T_0=152.804758$ (BKJD)



DV Model-Shift Uniqueness Test

009710475-06, $P = 43.281749$ Days, $E = 109.496275$ Days

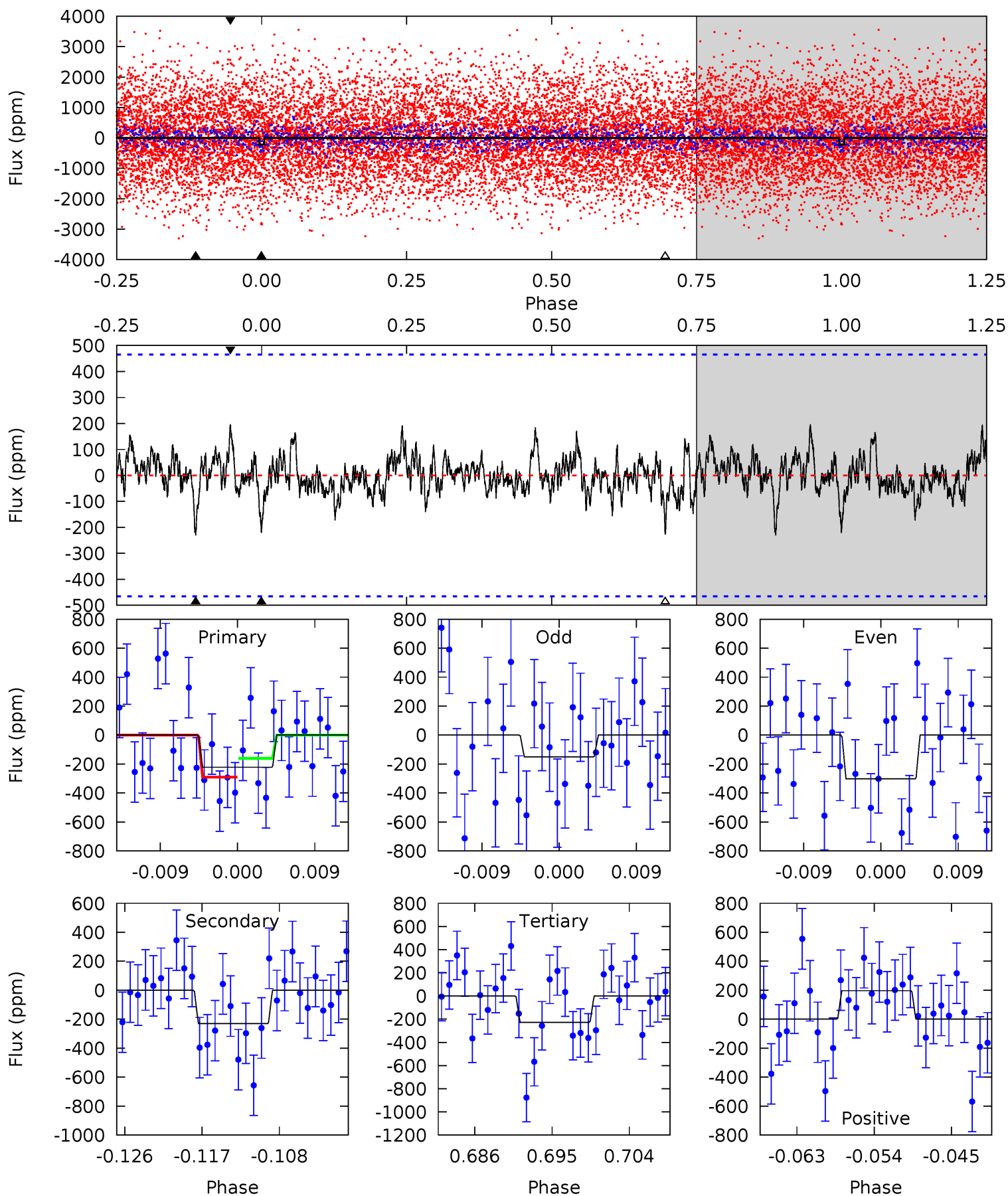
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
8.76	6.49	6.15	8.06	5.20	2.88	2.25	2.62	0.71	0.35	-1.56	1.58	1.01	0.48	0.68



Alt Model-Shift Uniqueness Test

009710475-06, P = 43.282404 Days, E = 109.522354 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
2.41	2.51	2.46	2.14	5.05	2.61	0.65	-0.05	0.27	0.05	0.37	0.83	1.34	0.46	0.70



Stellar Parameters For KIC 009710475

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	9191^{+255}_{-475}	$3.962^{+0.258}_{-0.172}$	$0.070^{+0.150}_{-0.650}$	$2.658^{+0.810}_{-0.899}$	$2.363^{+0.323}_{-0.753}$	$0.177^{+0.320}_{-0.089}$
	+3%/-5%	+7%/-4%	+214%/-929%	+30%/-34%	+14%/-32%	+181%/-50%
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 009710475-06 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-342 ± 53	$36.02^{+40.02}_{-25.70}$	1603^{+156}_{-144}	3649^{+2438}_{-738}	15^{+173}_{-12}
Alt.	-231 ± 92	$32.87^{+39.05}_{-23.68}$	1605^{+144}_{-142}	3478^{+2336}_{-755}	11^{+142}_{-9}

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

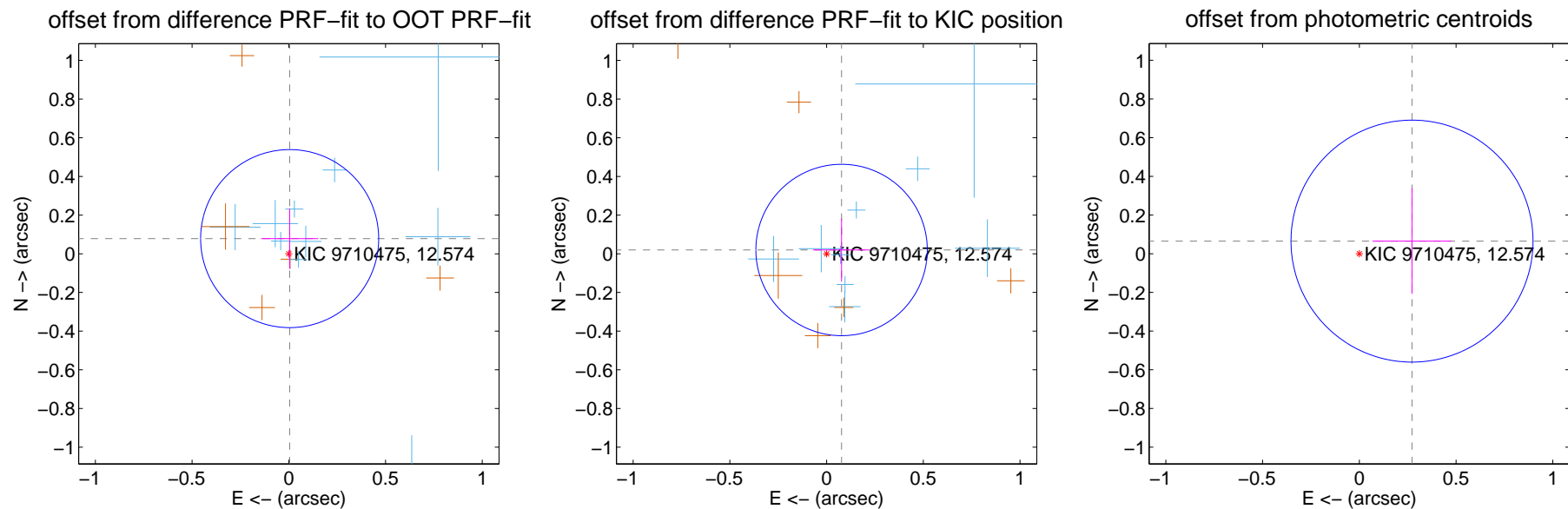
DV Centroid Data

Supplemental centroid analysis for 009710475-06. Kepler magnitude: 12.57. Transit SNR 8.18

There are 11 quarters with good PRF difference image offsets

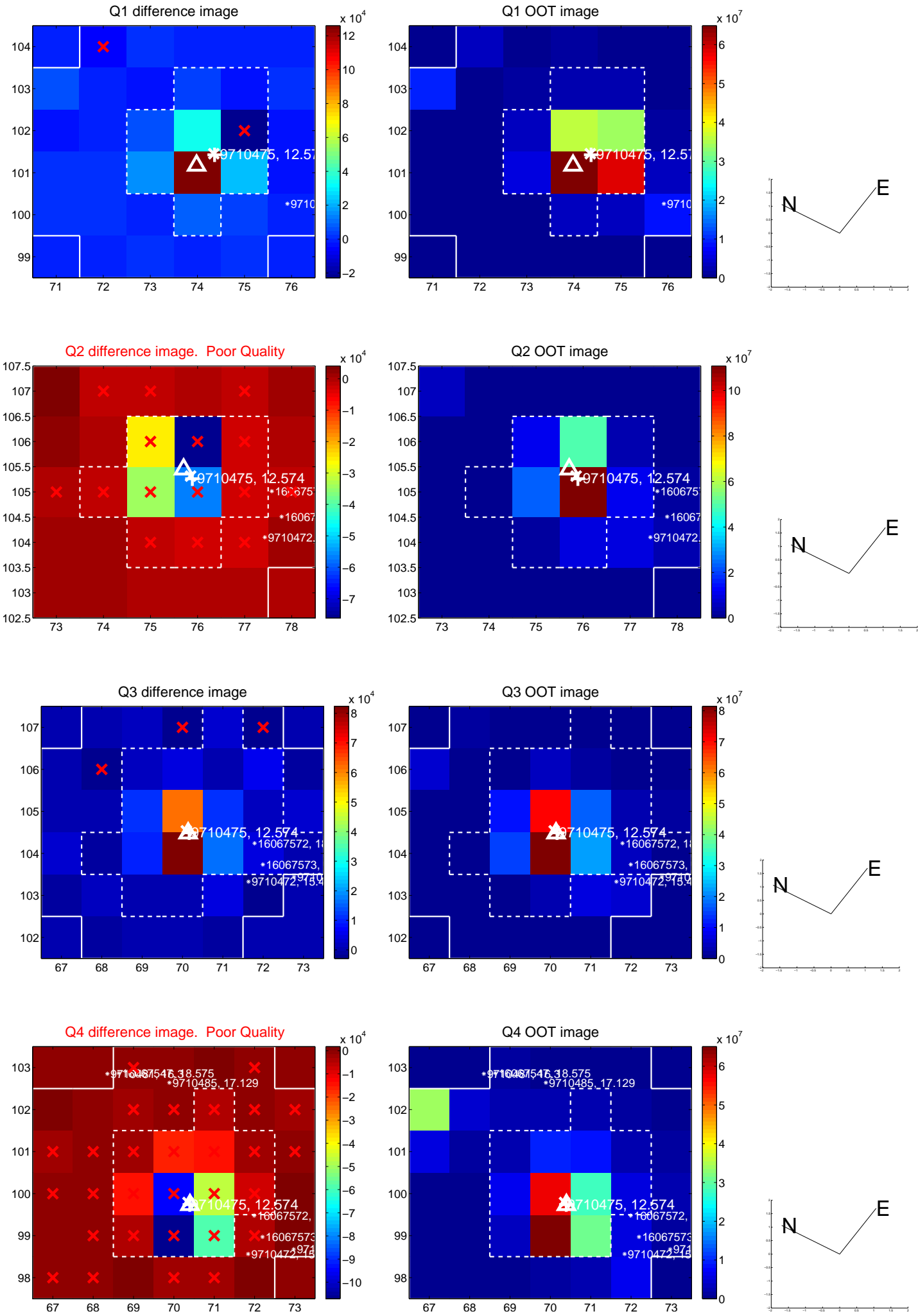
The direct PRF centroid is offset from the target star catalog position by about 0.13 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.079 ± 0.153	0.51	-0.004 ± 0.147	0.078 ± 0.155
PRF-fit source offset from KIC position	0.080 ± 0.148	0.54	-0.078 ± 0.147	0.020 ± 0.163
photometric centroid source offset	0.28 ± 0.21	1.34	-0.27 ± 0.20	0.07 ± 0.27

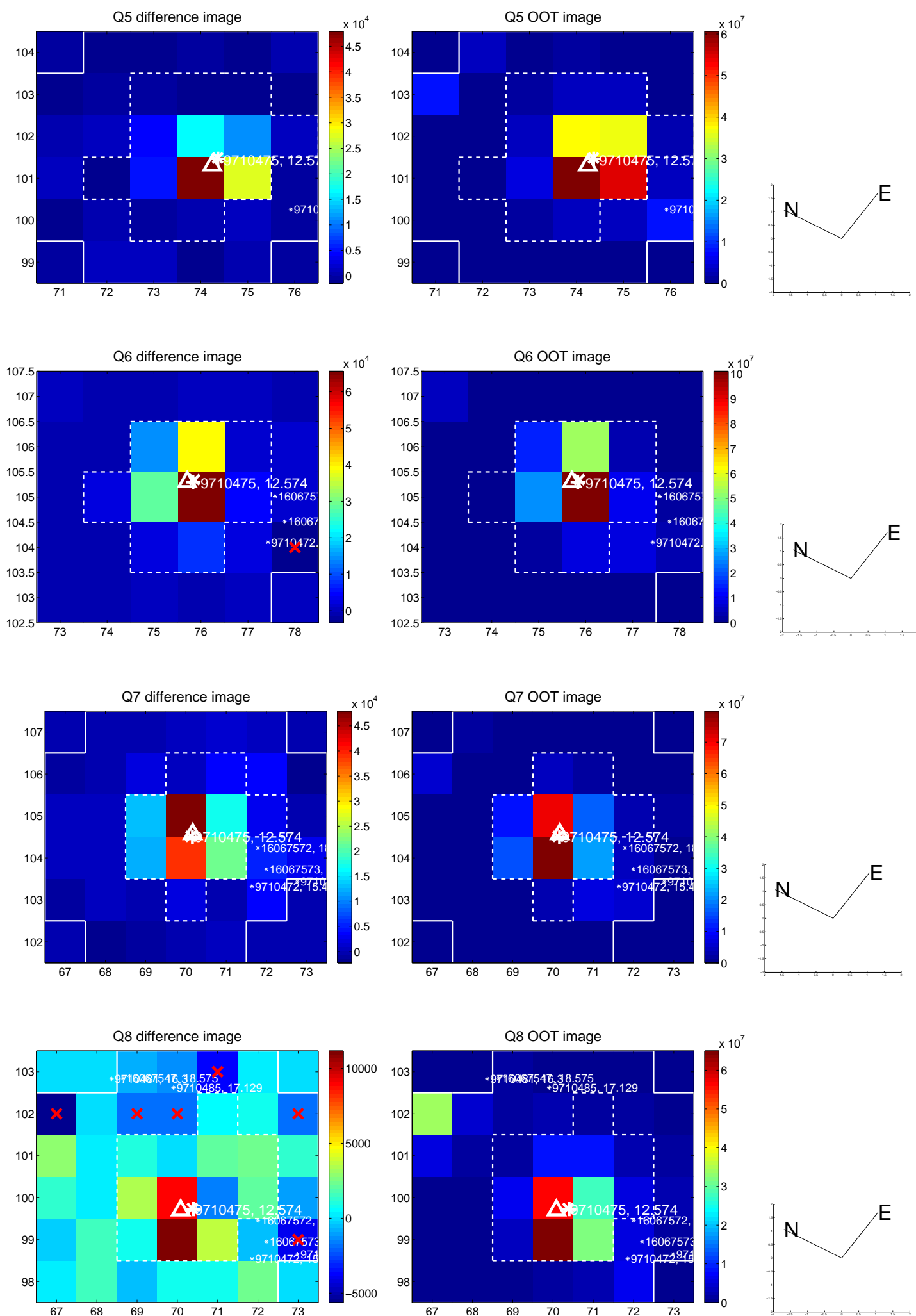


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

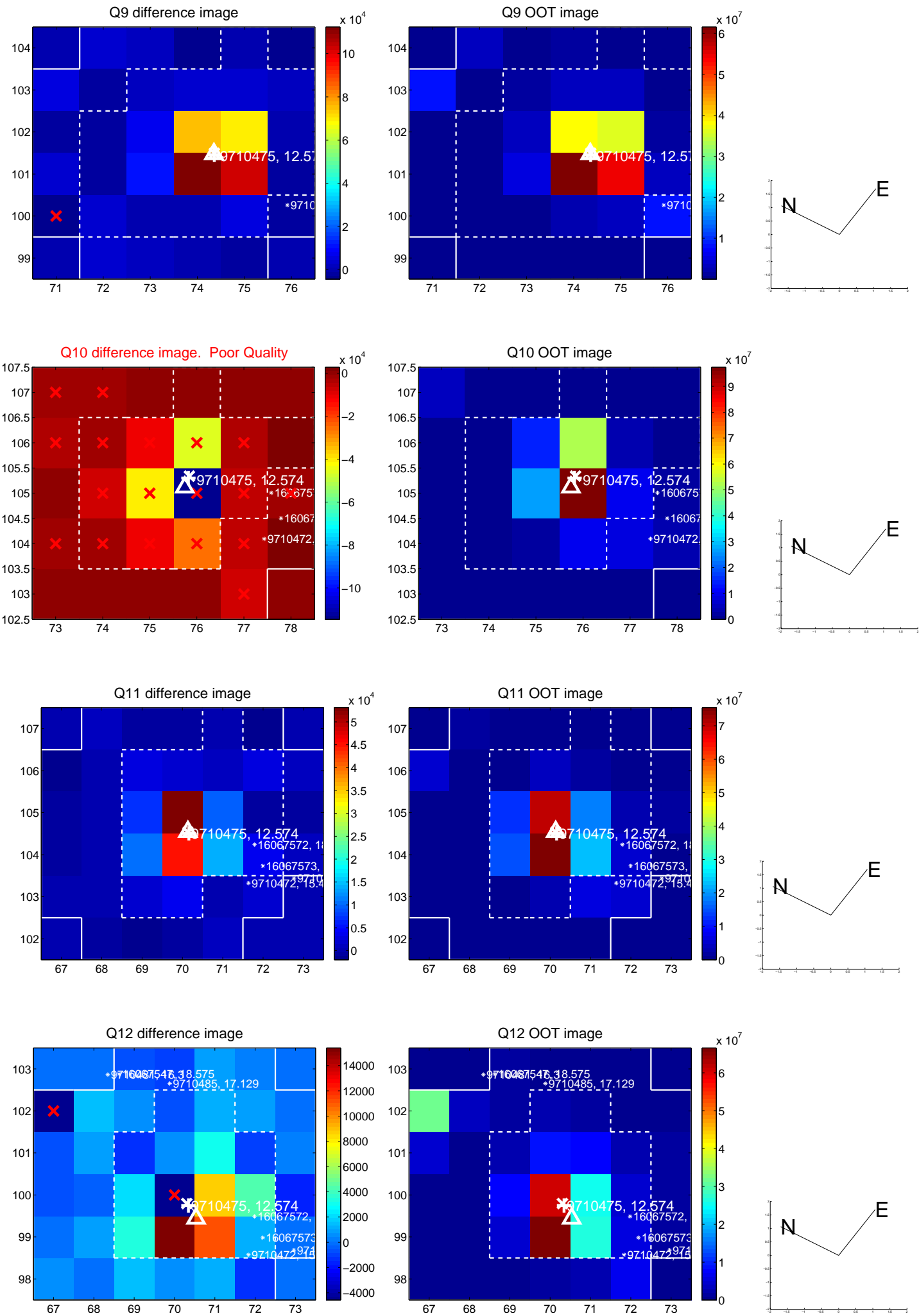
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



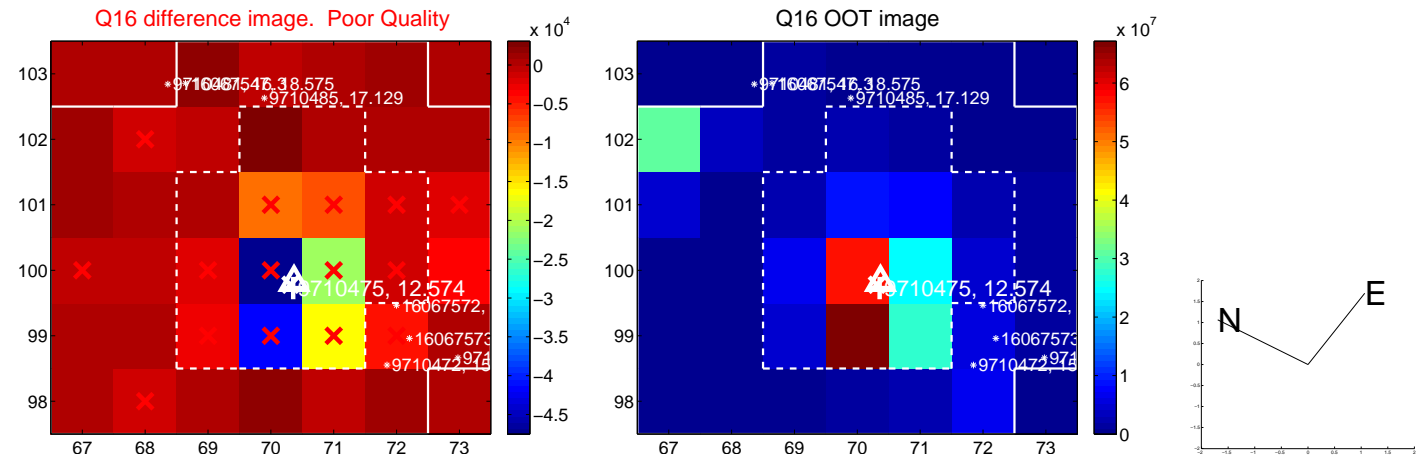
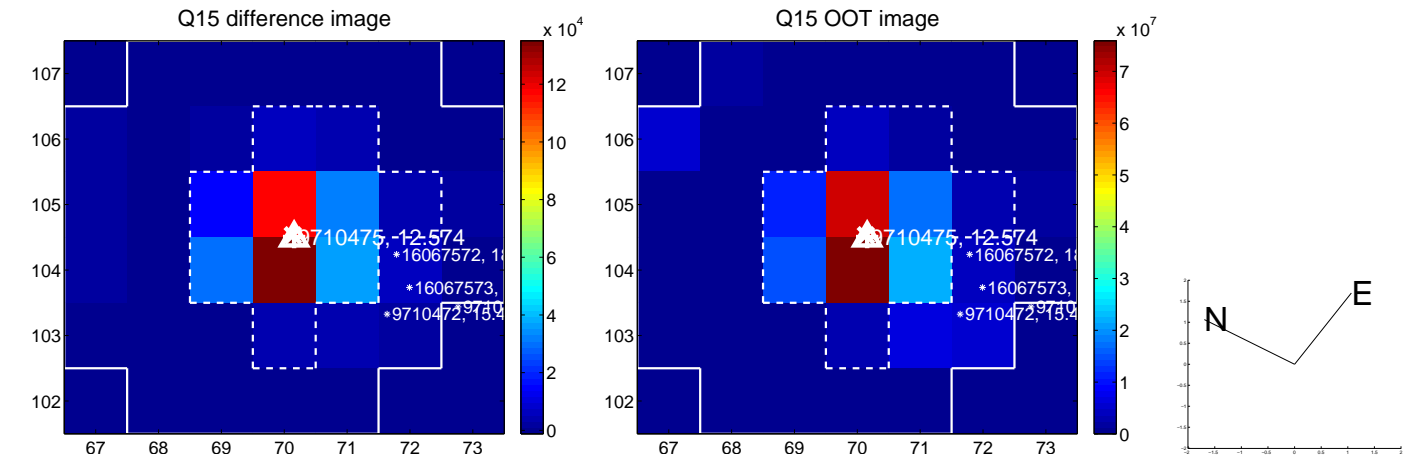
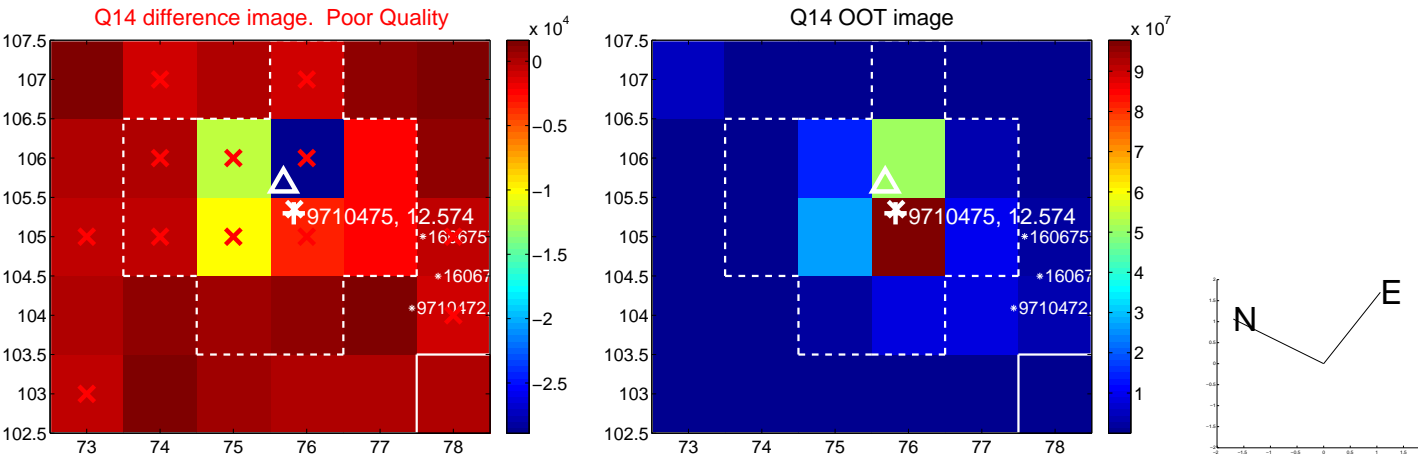
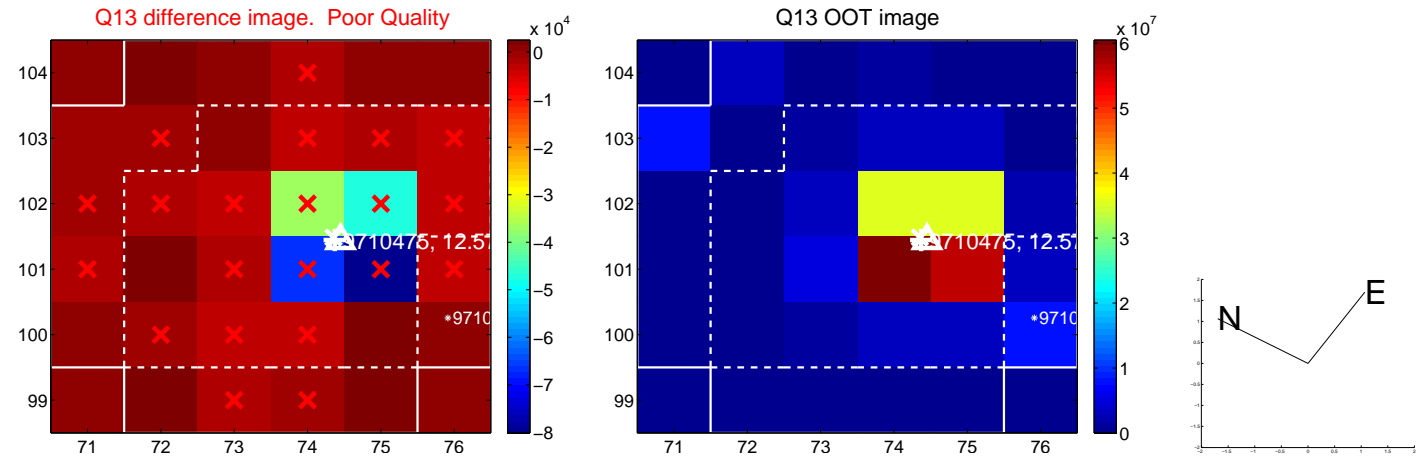
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



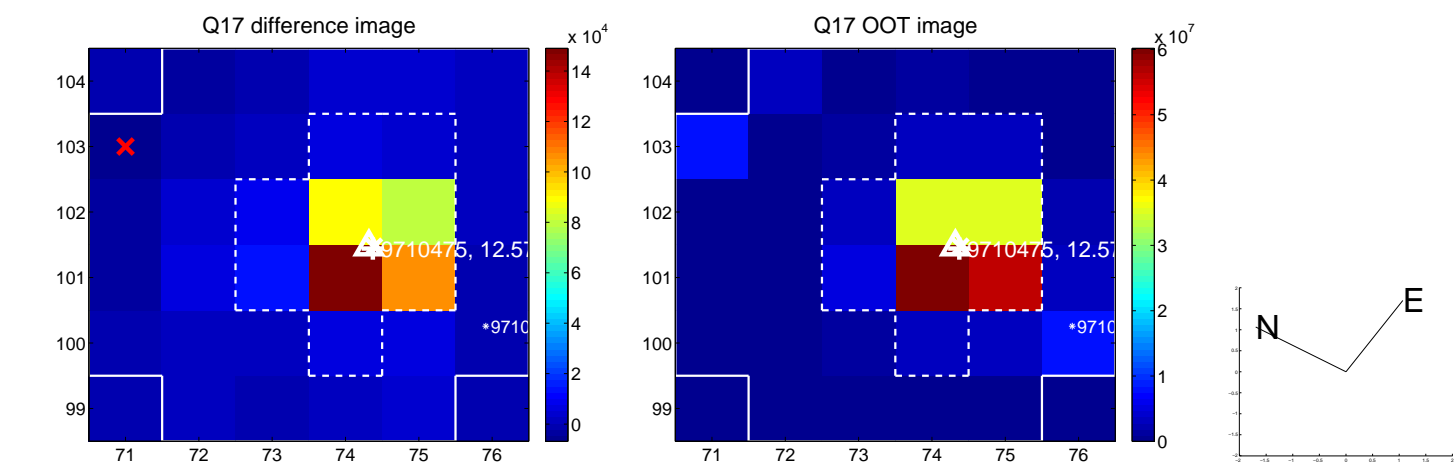
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



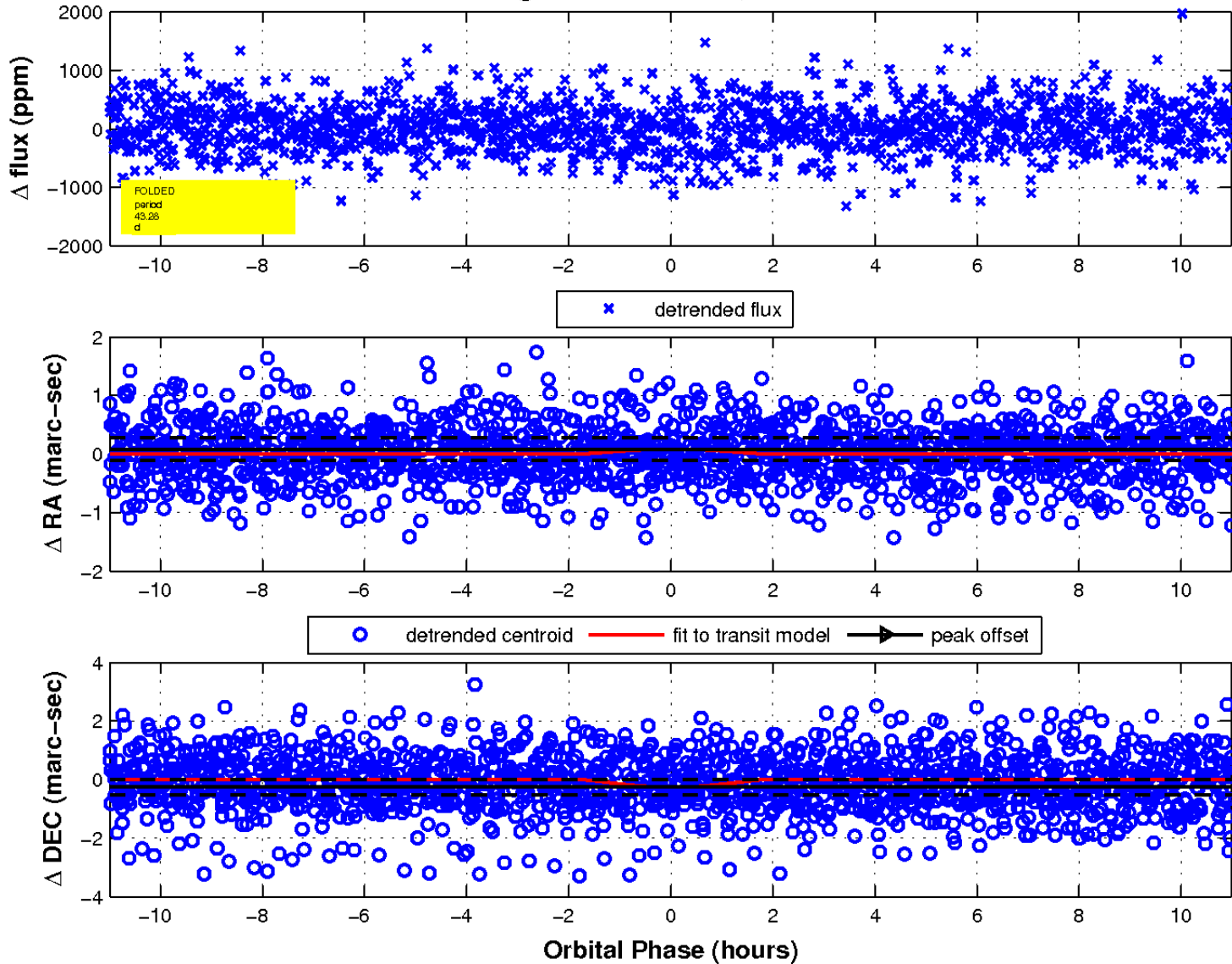
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

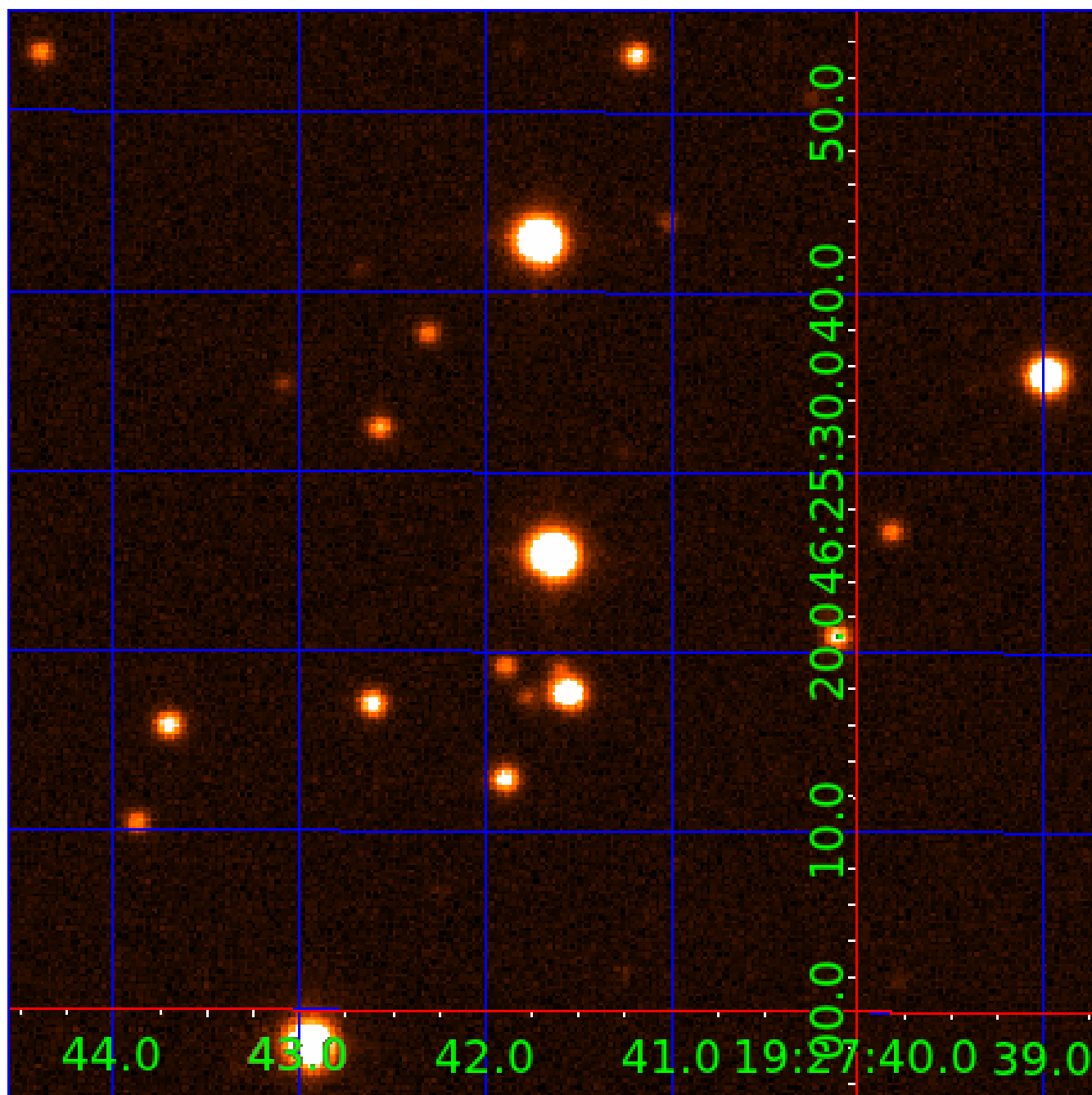


fluxWeightedCentroids, Planet 6 of 8



UKIRT Image

Declination



KIC 009710475

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})
009710475-01	OBS	No	0.815768	131.751161	18.2	5.011	10.2	3.9	2.66	9191	1.17	87222.12
009710475-02	OBS	No	210.070028	205.139547	991.1	2.097	10.0	10.3	2.66	9191	9.27	53.24
009710475-03	OBS	No	53.498735	141.253821	620.9	3.347	8.9	9.3	2.66	9191	7.13	329.81
009710475-04	OBS	No	14.557474	136.571193	351.5	2.690	8.8	8.9	2.66	9191	5.60	1870.40
009710475-05	OBS	No	105.762566	191.928121	676.6	4.355	8.7	8.7	2.66	9191	7.53	132.93
009710475-06	OBS	No	43.281749	152.778024	585.9	3.664	8.7	8.2	2.66	9191	11.24	437.50
009710475-07	OBS	No	50.033795	132.680564	505.3	1.762	8.4	7.7	2.66	9191	6.74	360.60
009710475-08	OBS	No	79.498344	136.881615	107.6	5.000	7.1	-1.0	2.66	9191	2.82	194.49

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009710475-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT
009710475-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL—TRANS_GAPPED—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
009710475-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE—TRANS_GAPPED—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
009710475-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE—TRANS_GAPPED—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
009710475-05	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—HALO_GHOST
009710475-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
009710475-07	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
009710475-08	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_NOFITS

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

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

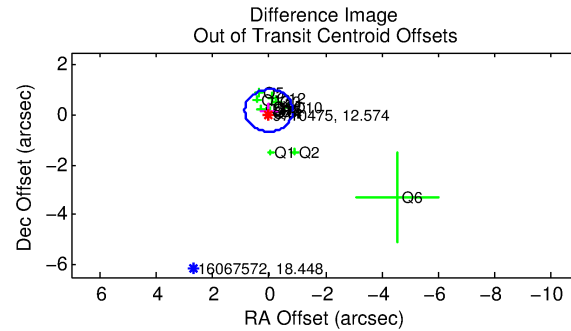
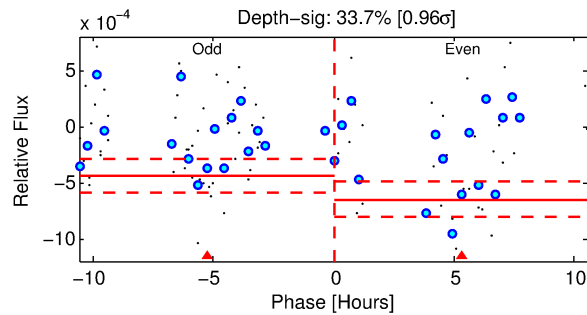
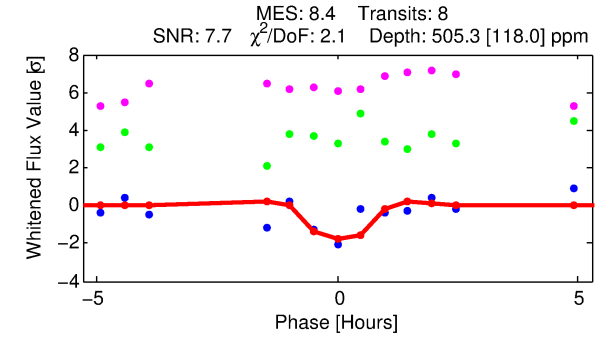
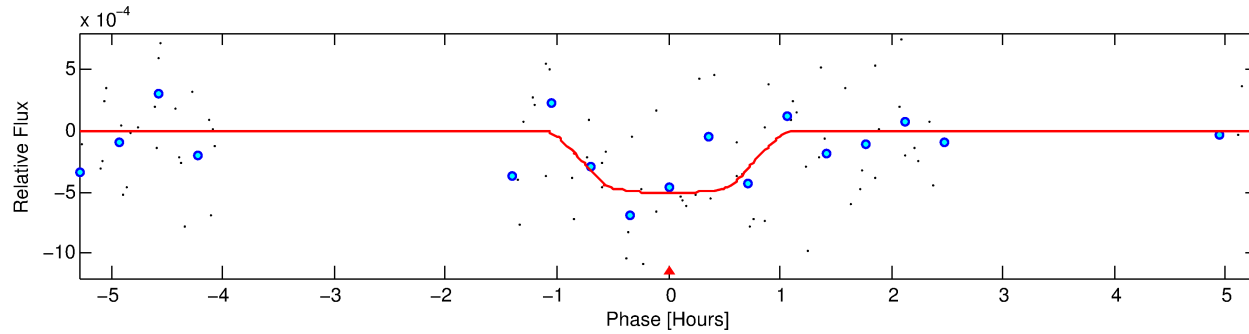
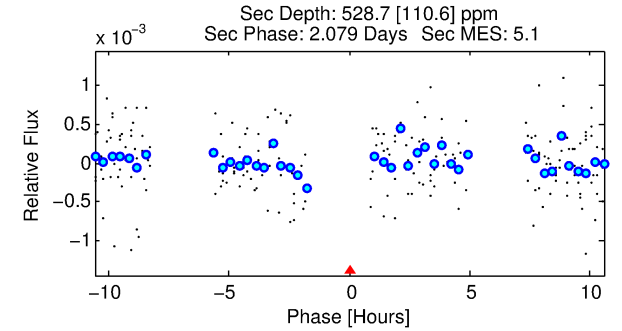
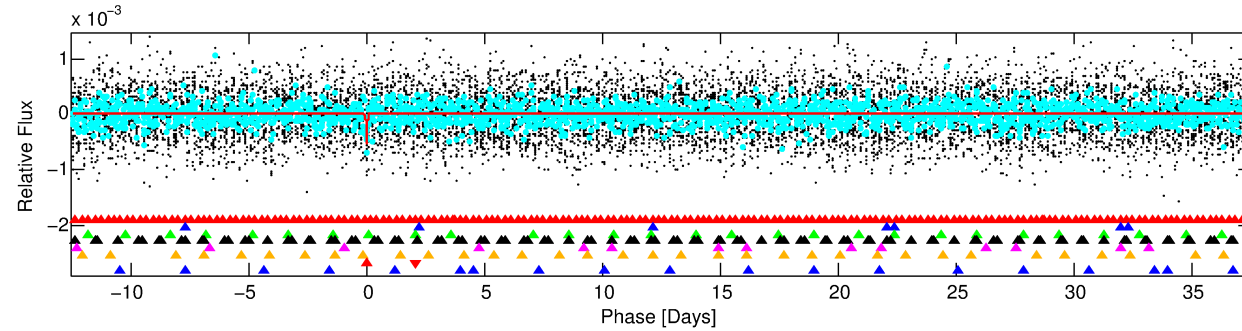
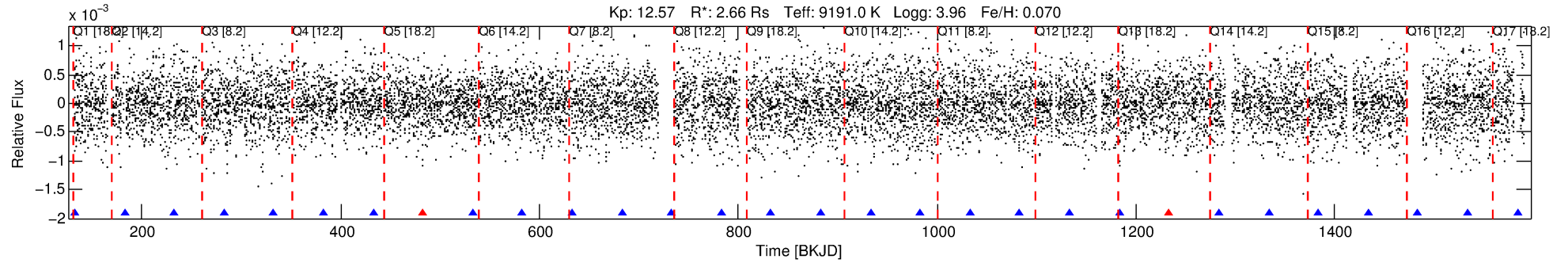
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 009710475-07

No Significant Match Found

DV One-Page Summary

KIC: 9710475 Candidate: 7 of 8 Period: 50.034 d



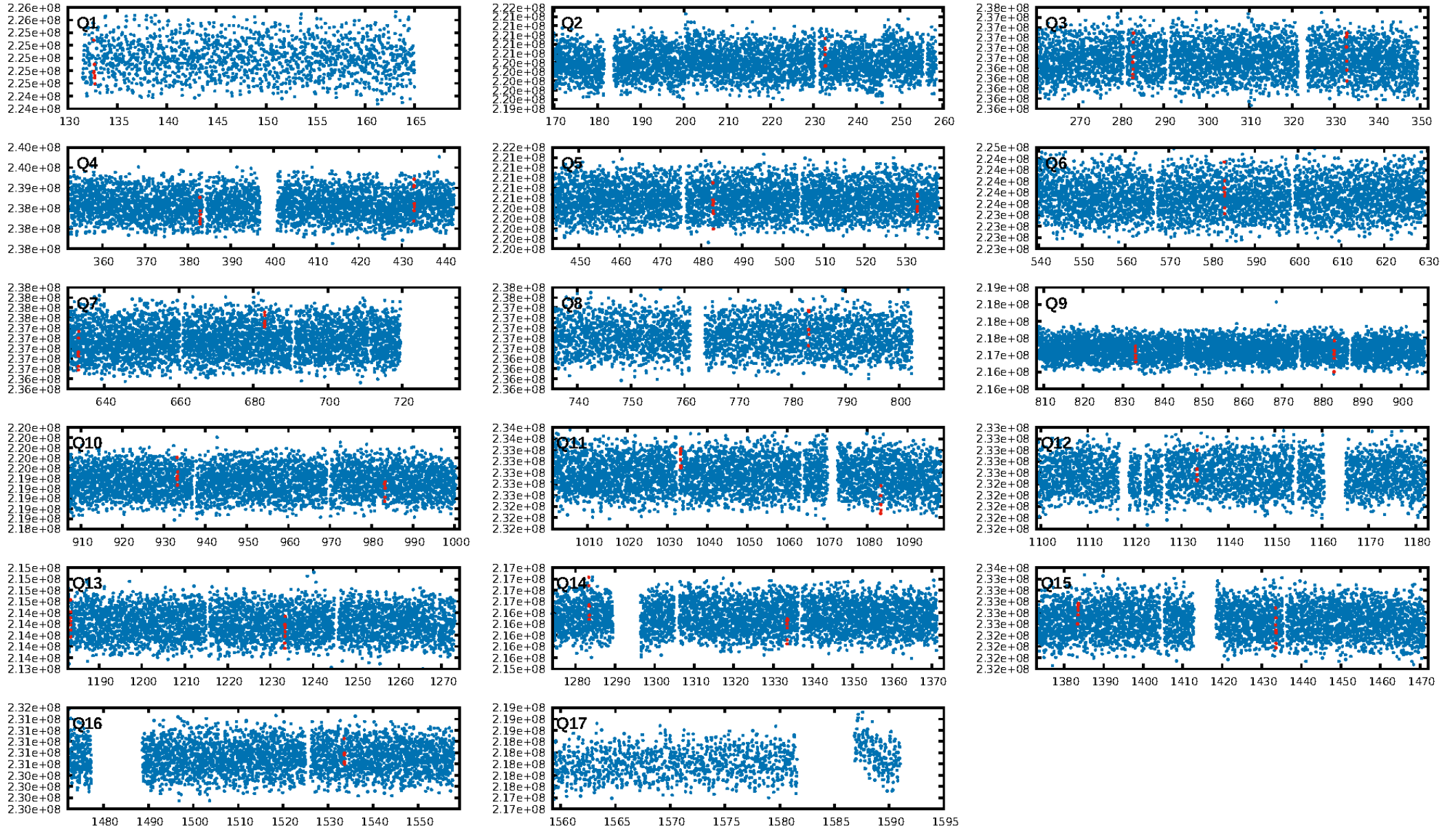
DV Fit Results:

Period = 50.03379 [0.00059] d
Epoch = 132.6806 [0.0115] BKJD
Rp/R* = 0.0232 [0.0198]
a/R* = 121.54 [707.65]
b = 0.86 [1.84]
Seff = 360.60 [180.46]
Teff = 1111 [139] K
Rp = 6.74 [6.17] Re
a = 0.3539 [0.1062] AU
Ag = 802.91 [1424.90] [0.56 σ]
Teffp = 9145 [3950] K [2.03 σ]

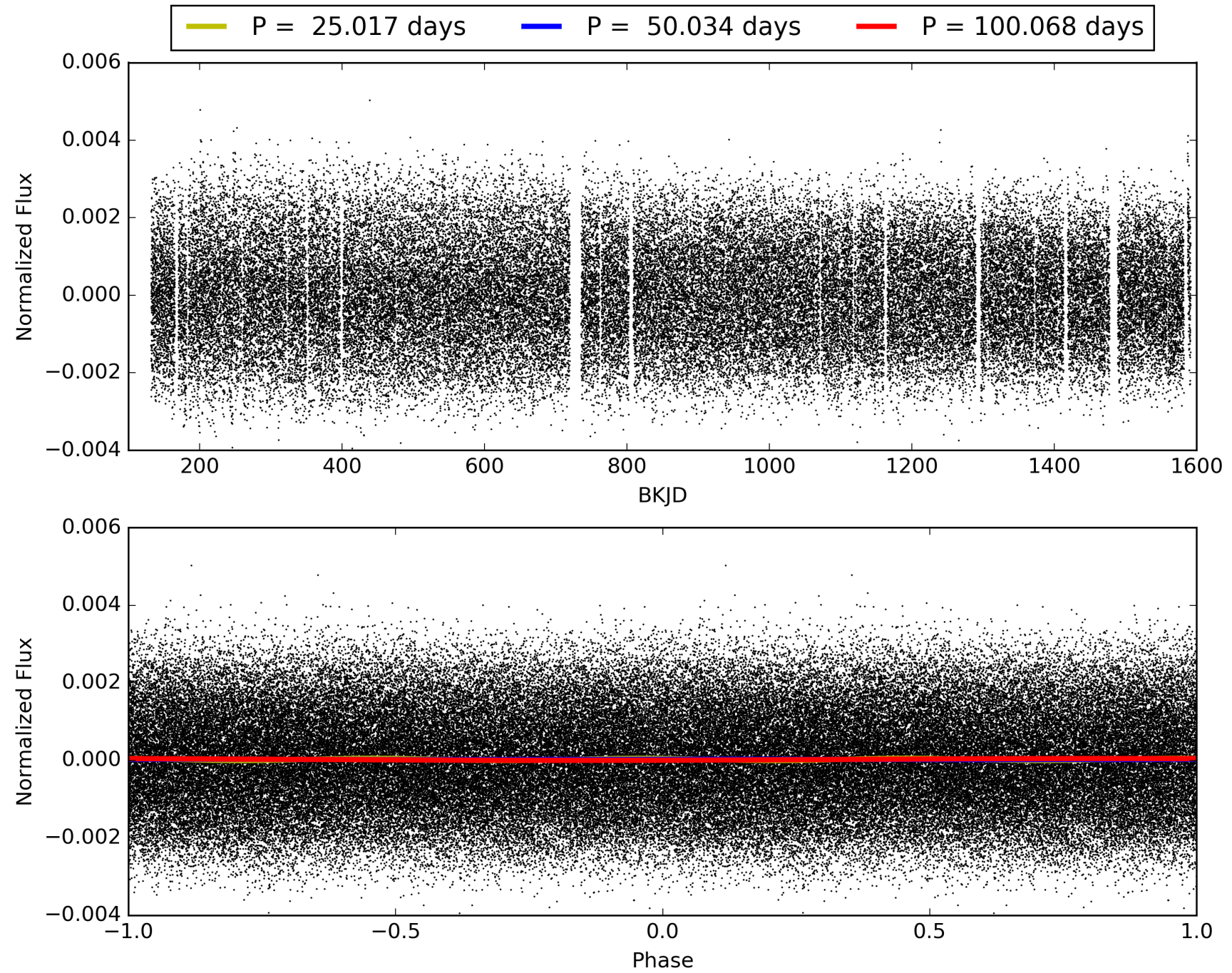
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [39.86 σ]
LongPeriod-sig: 100.0% [21.98 σ]
ModelChiSquare2-sig: 72.4%
ModelChiSquareGof-sig: 5.3%
Bootstrap-pfa: N/A
RollingBand-fgt: 0.75 [6/8]
GhostDiagnostic-chr: -12.35
Centroid-sig: 53.6%
Centroid-so: 0.189 arcsec [0.51 σ]
OotOffset-rm: 0.173 arcsec [0.61 σ]
KicOffset-rm: 0.084 arcsec [0.50 σ]
OotOffset-st: 4/4/3/4 [15]
KicOffset-st: 4/4/3/4 [15]
DiffImageQuality-fgm: 0.53 [8/15]
DiffImageOverlap-fno: 0.47 [7/15]

TCE 009710475-07, PDC Light Curves

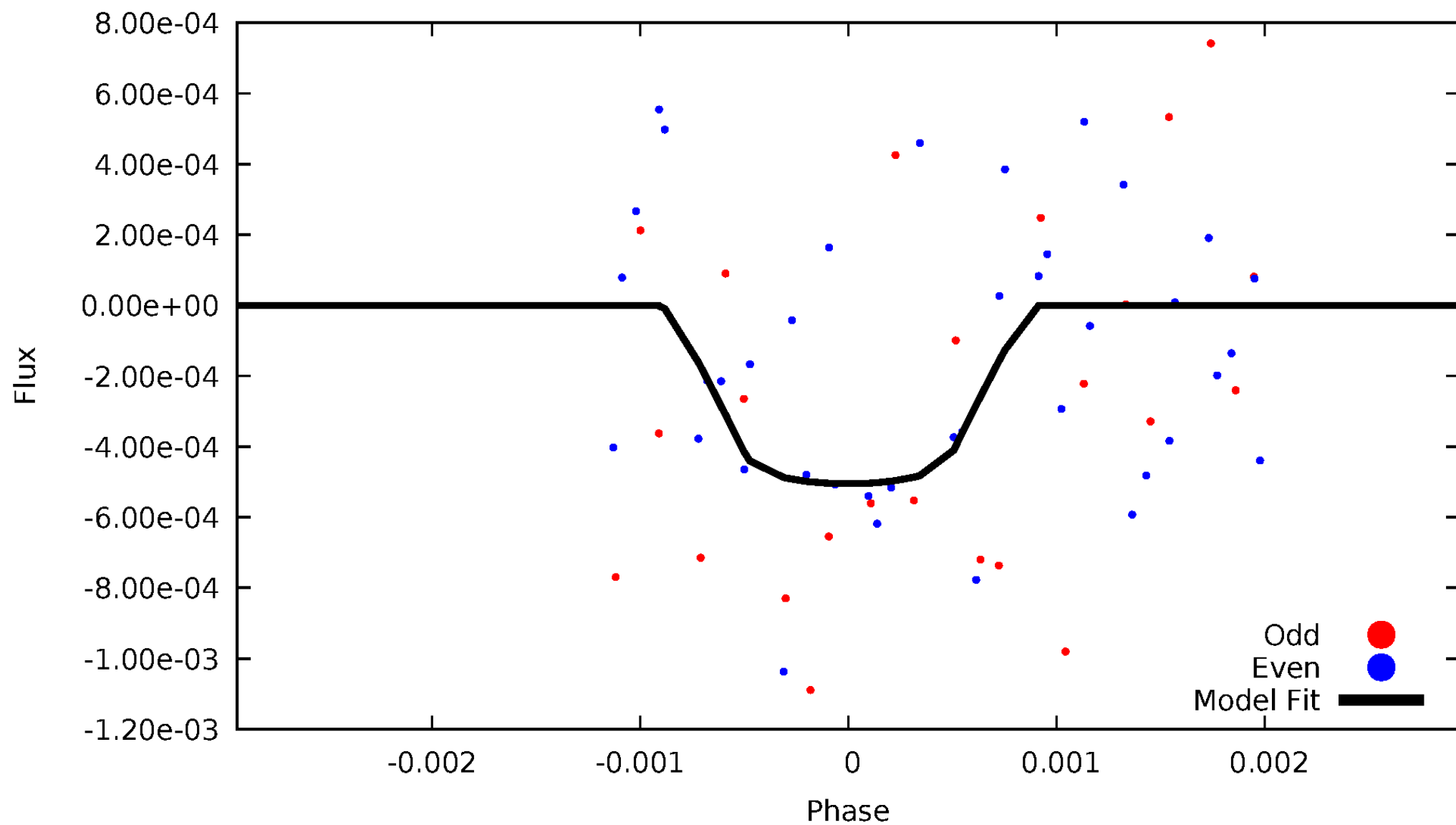


TCE 009710475-07



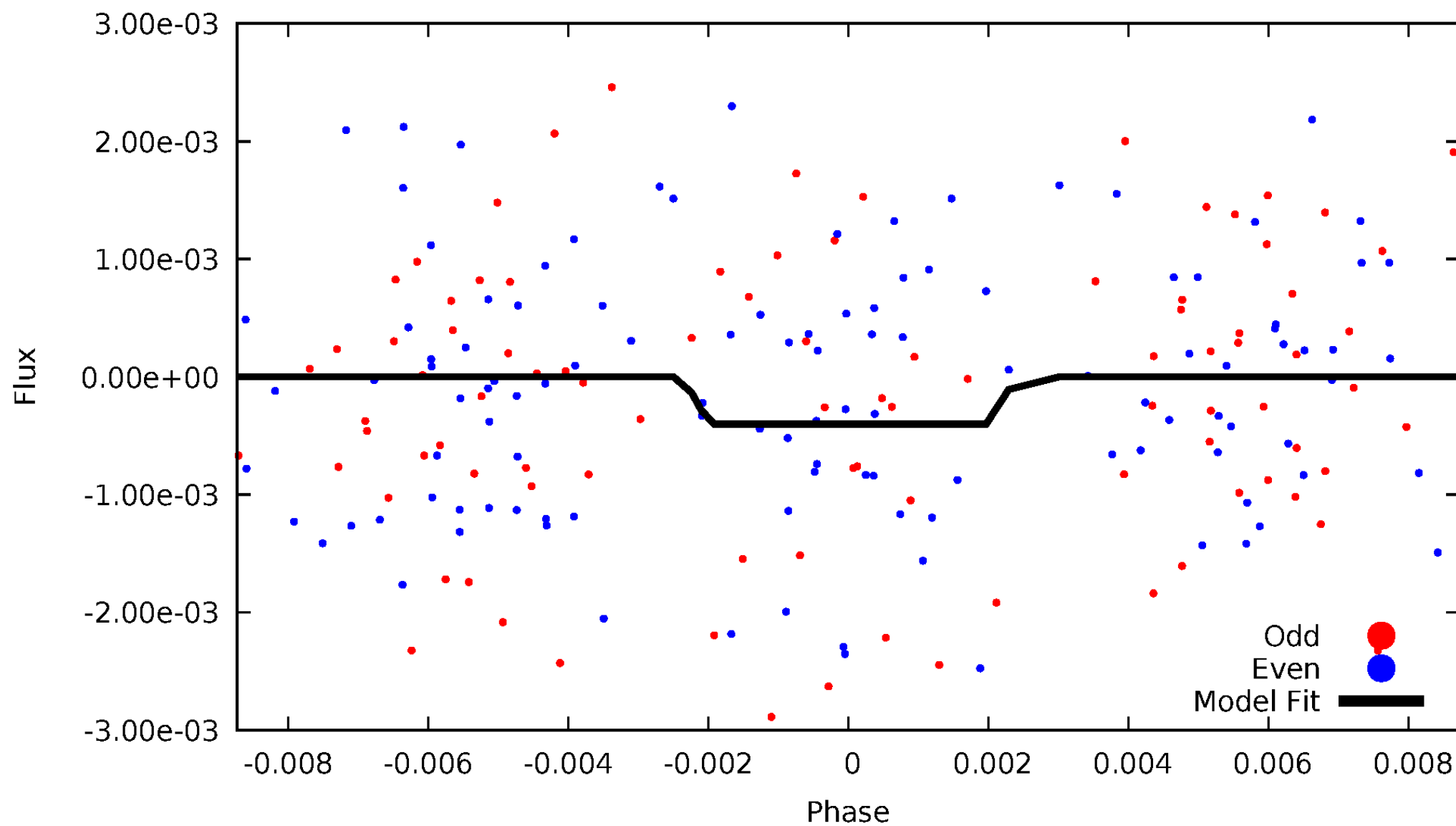
DV Odd/Even

TCE 009710475-07



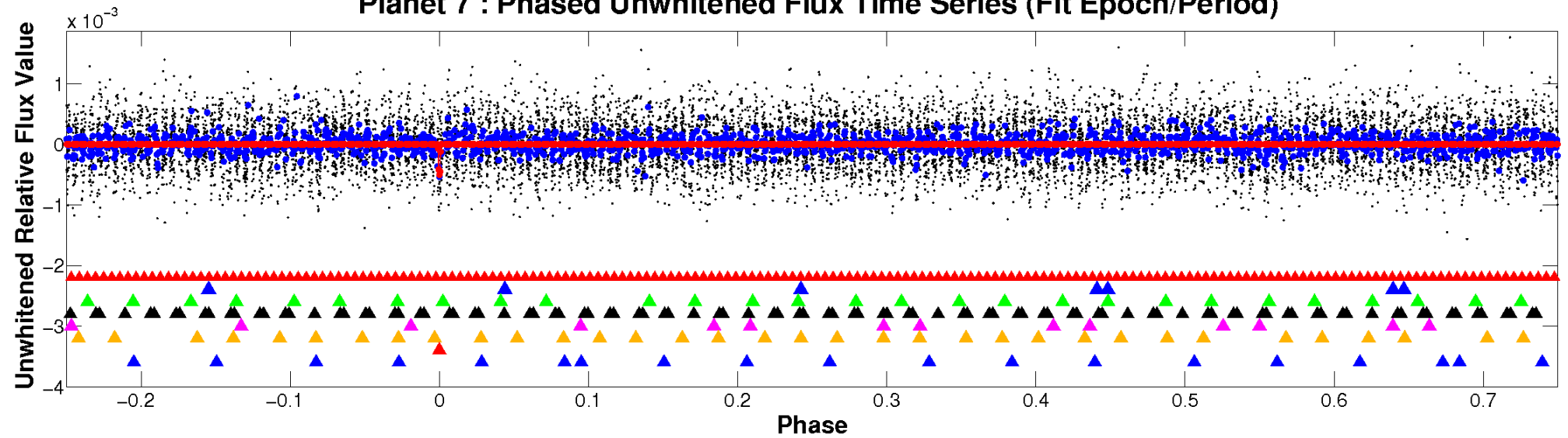
ALT Odd/Even

TCE 009710475-07

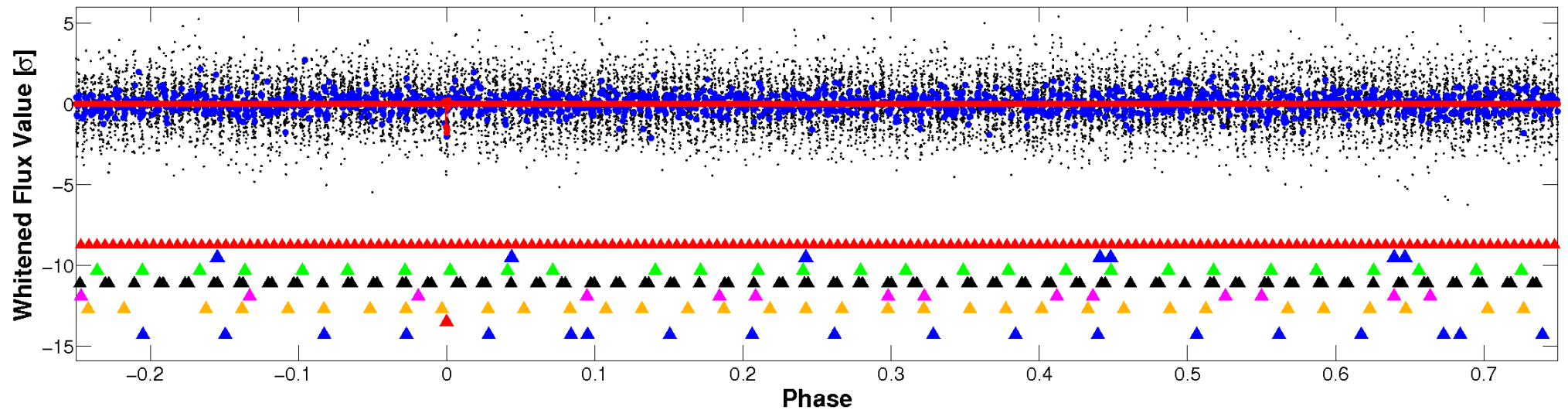


Non-Whitened Vs. Whitened Light Curve

Planet 7 : Phased Unwhitened Flux Time Series (Fit Epoch/Period)

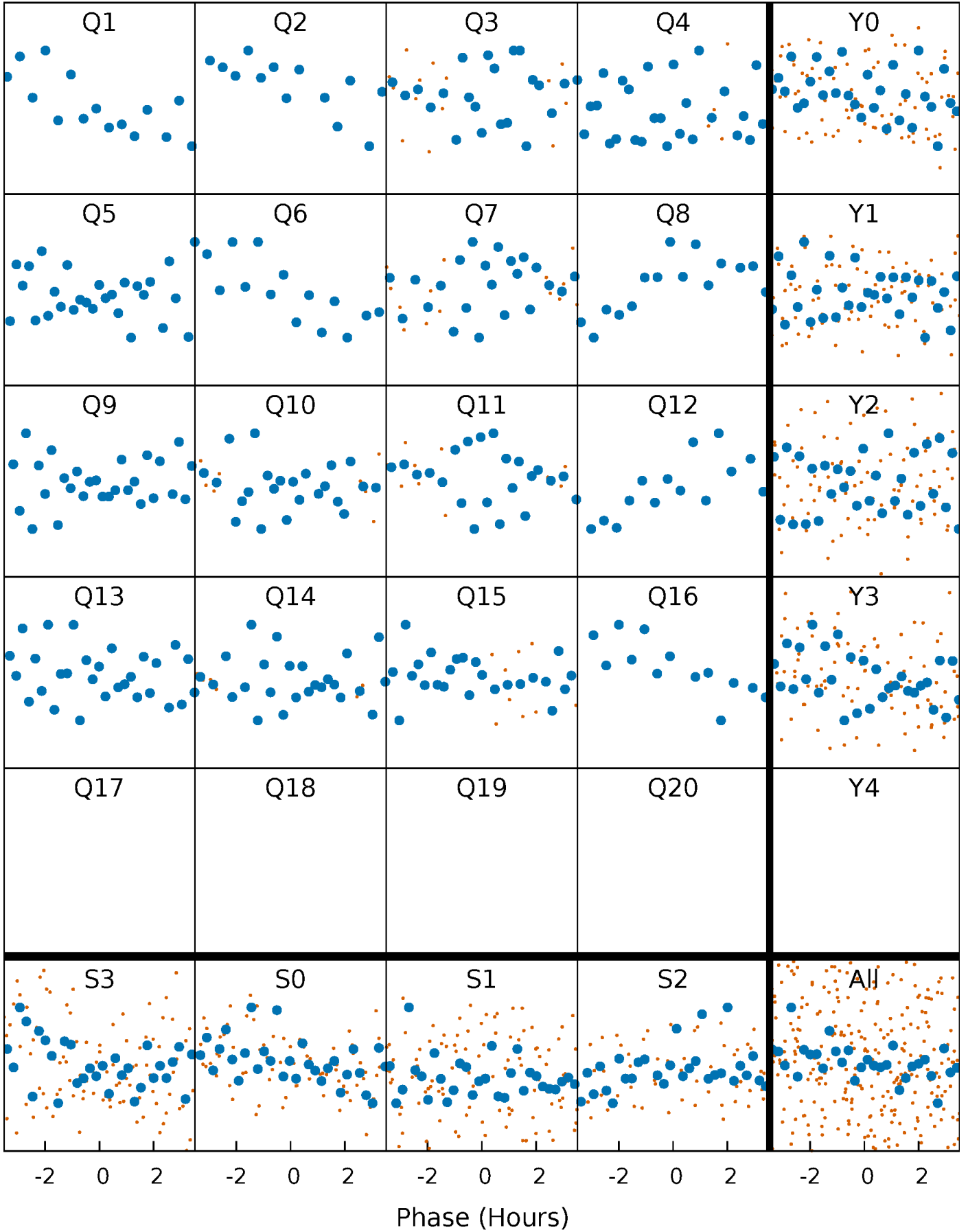


Planet 7 : Phased Whitened Flux Time Series (Fit Epoch/Period)



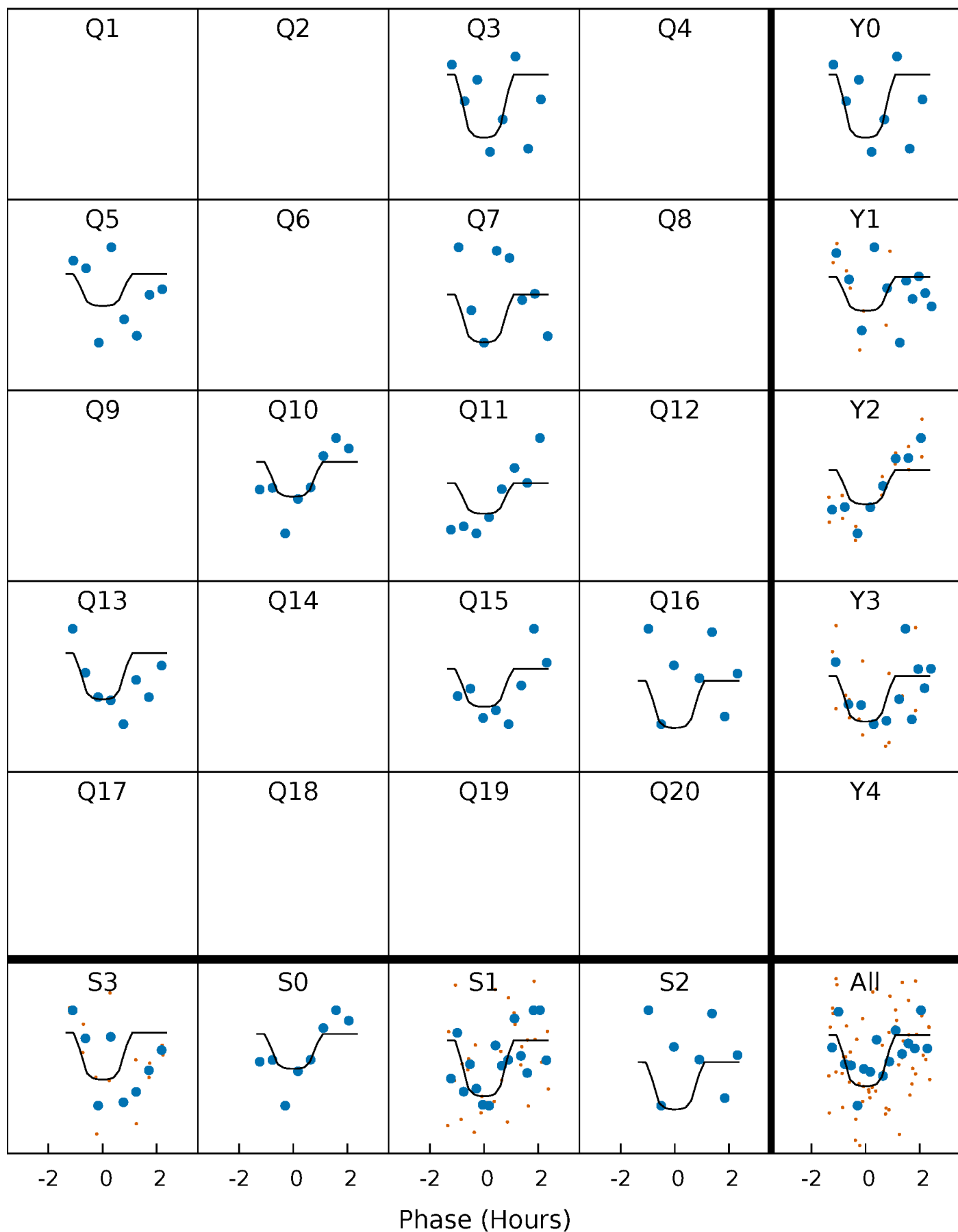
PDC Quarter-Phased Transit Curves

TCE 009710475-07 P= 50.033795 Days $T_0=132.680564$ (BKJD)



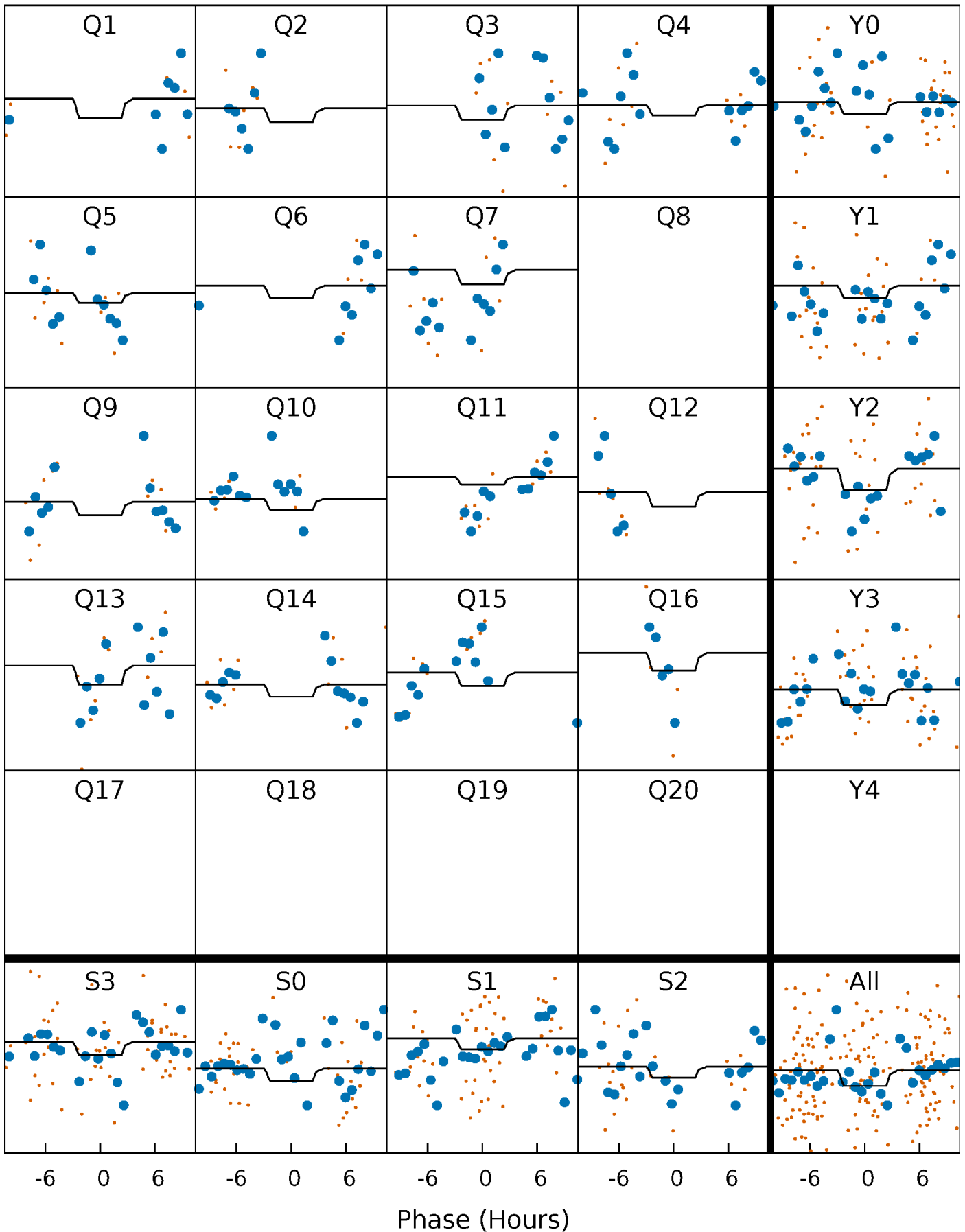
DV Quarter-Phased Transit Curves

TCE 009710475-07 P= 50.033795 Days $T_0=132.680564$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

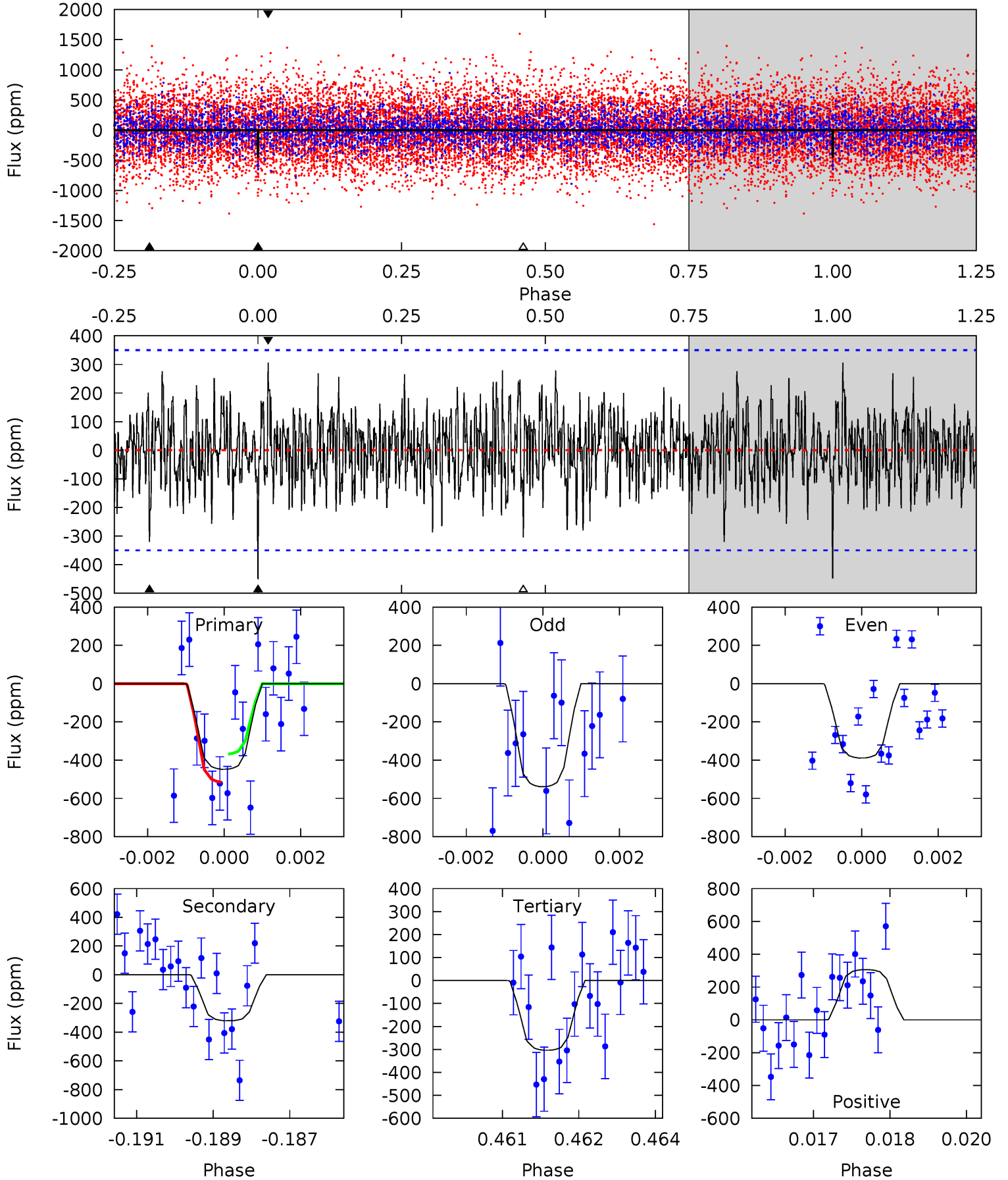
TCE 009710475-07 $P = 50.038190$ Days $T_0 = 132.637044$ (BKJD)



DV Model-Shift Uniqueness Test

009710475-07, P = 50.033795 Days, E = 82.646769 Days

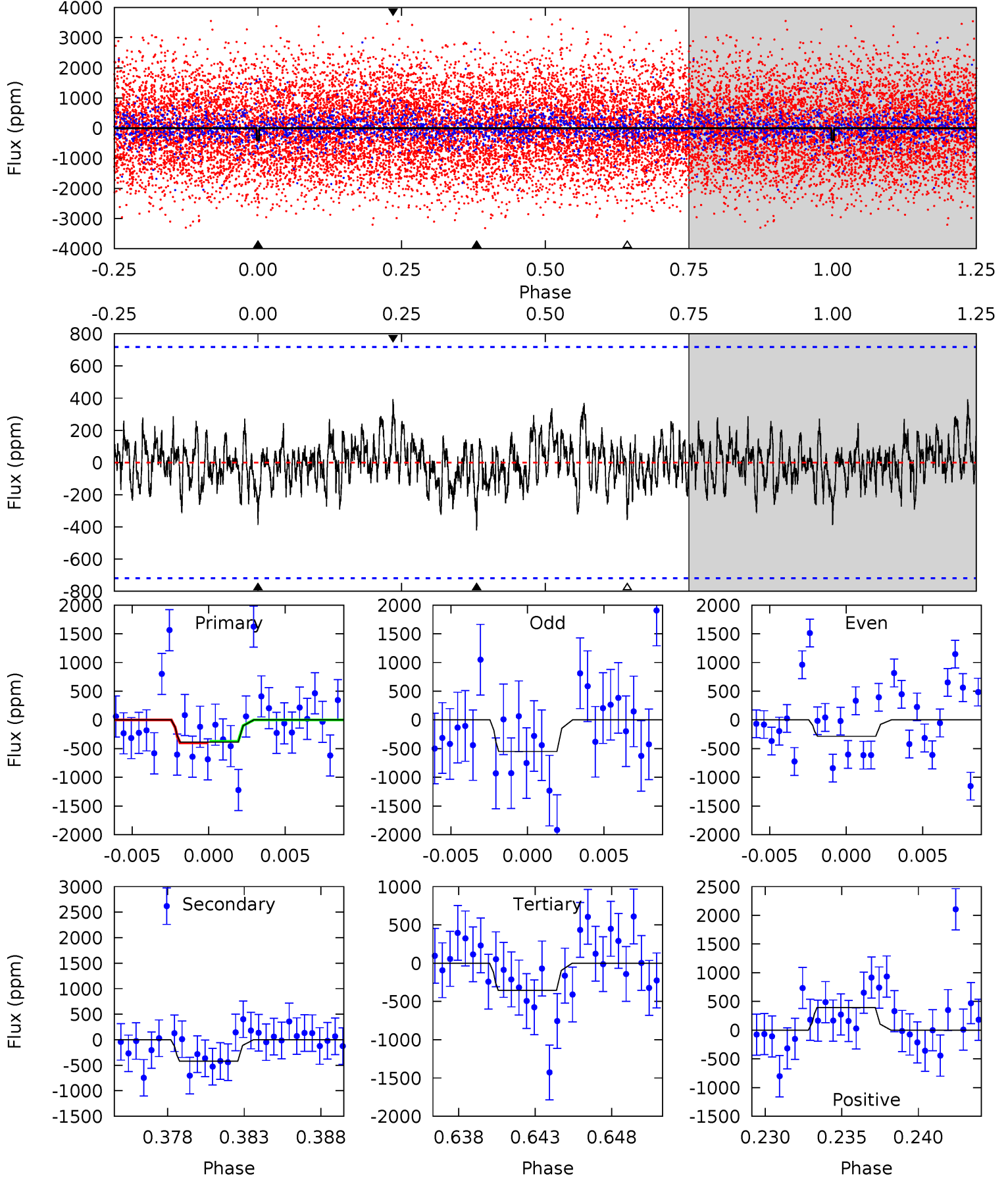
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
6.83	4.89	4.64	4.67	5.34	3.12	1.49	2.19	2.16	0.25	0.22	1.09	0.89	0.41	1.12



Alt Model-Shift Uniqueness Test

009710475-07, P = 50.038190 Days, E = 82.598854 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
2.78	3.01	2.55	2.82	5.15	2.80	0.84	0.23	-0.04	0.46	0.19	0.92	0.69	0.48	0.09



Stellar Parameters For KIC 009710475

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	9191^{+255}_{-475}	$3.962^{+0.258}_{-0.172}$	$0.070^{+0.150}_{-0.650}$	$2.658^{+0.810}_{-0.899}$	$2.363^{+0.323}_{-0.753}$	$0.177^{+0.320}_{-0.089}$
	+3%/-5%	+7%/-4%	+214%/-929%	+30%/-34%	+14%/-32%	+181%/-50%
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 009710475-07 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-321 ± 66	$7.22^{+6.04}_{-4.29}$	1533^{+121}_{-137}	7203^{+6271}_{-1816}	413^{+2110}_{-290}
Alt.	-420 ± 140	$6.48^{+5.25}_{-4.14}$	1520^{+128}_{-135}	8240^{+8754}_{-2358}	656^{+3526}_{-479}

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

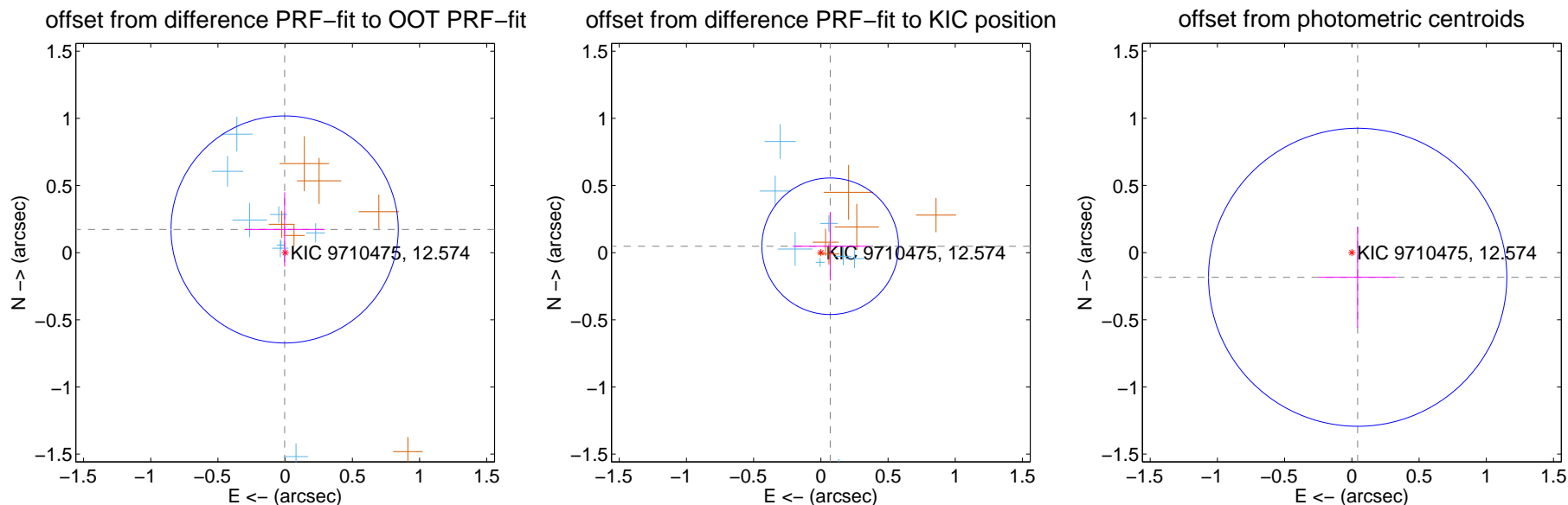
DV Centroid Data

Supplemental centroid analysis for 009710475-07. Kepler magnitude: 12.57. Transit SNR 7.72

There are 8 quarters with good PRF difference image offsets

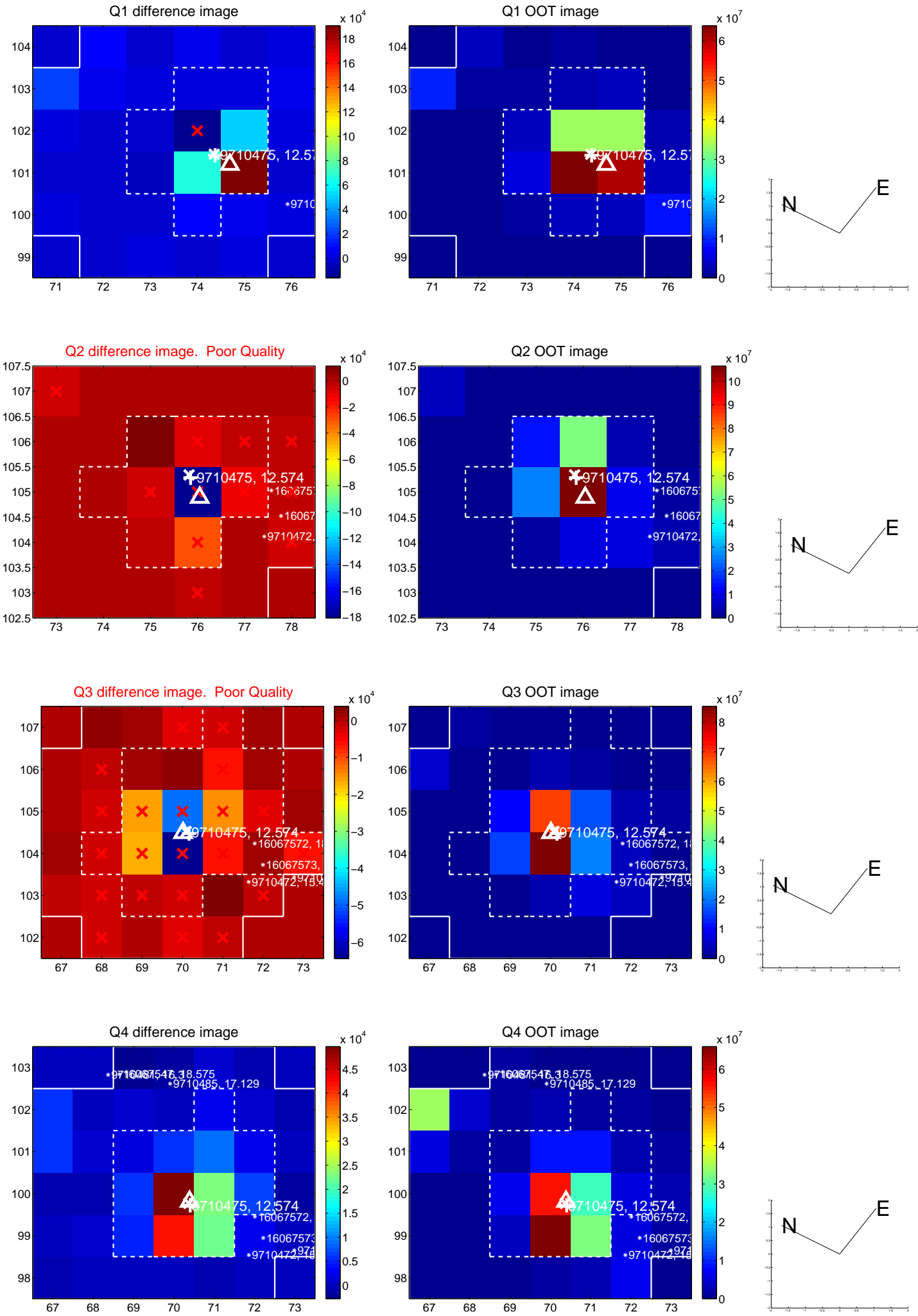
The direct PRF centroid is offset from the target star catalog position by about 0.15 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.173 ± 0.282	0.61	0.004 ± 0.299	0.173 ± 0.277
PRF-fit source offset from KIC position	0.084 ± 0.169	0.50	-0.070 ± 0.280	0.048 ± 0.255
photometric centroid source offset	0.19 ± 0.37	0.51	-0.04 ± 0.29	-0.18 ± 0.37

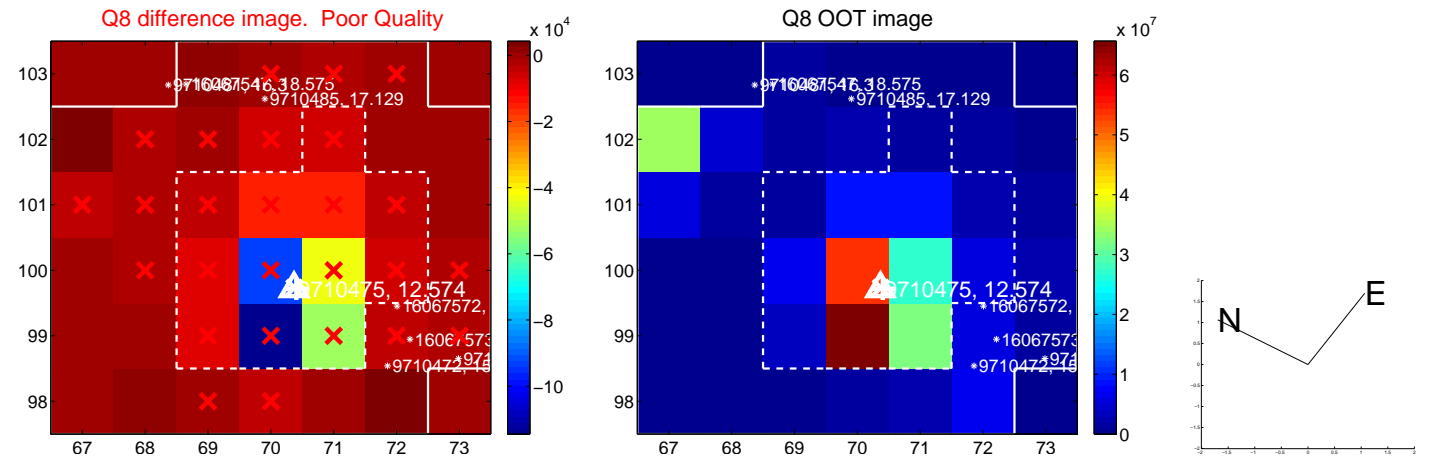
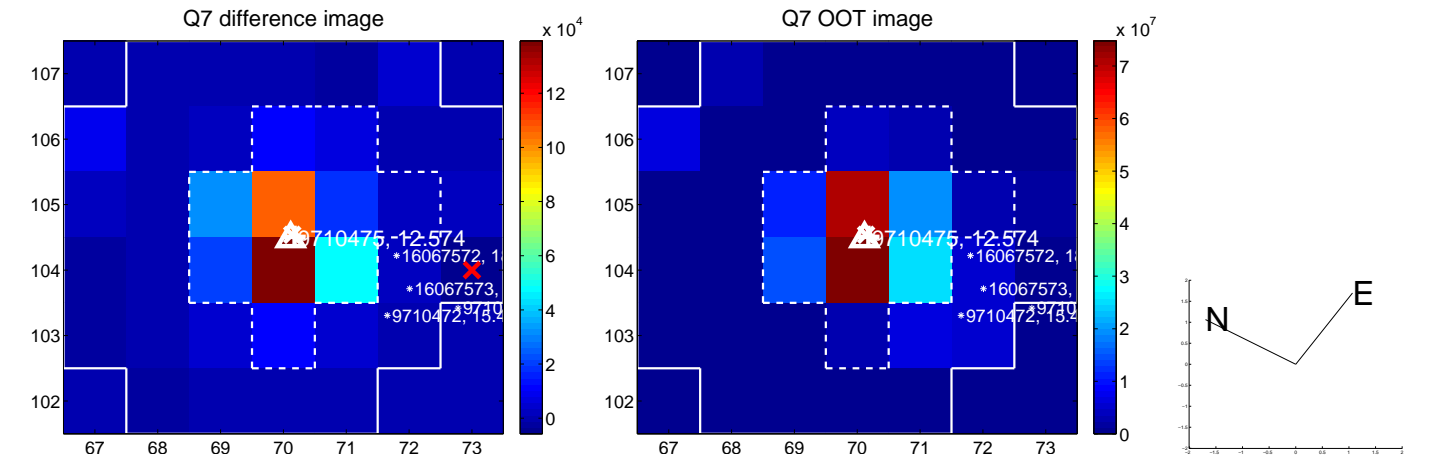
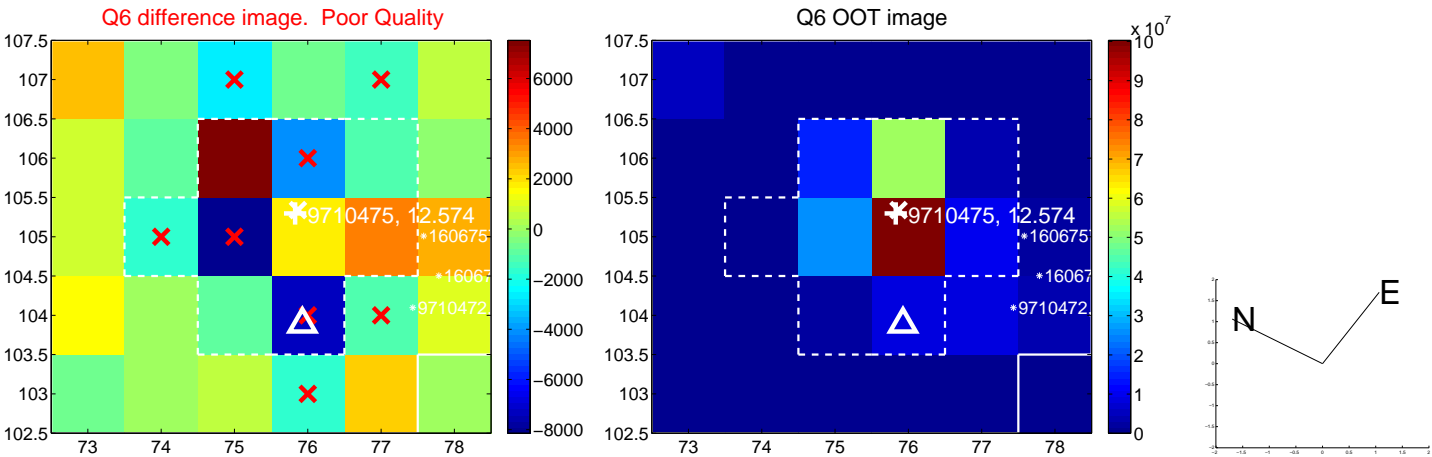
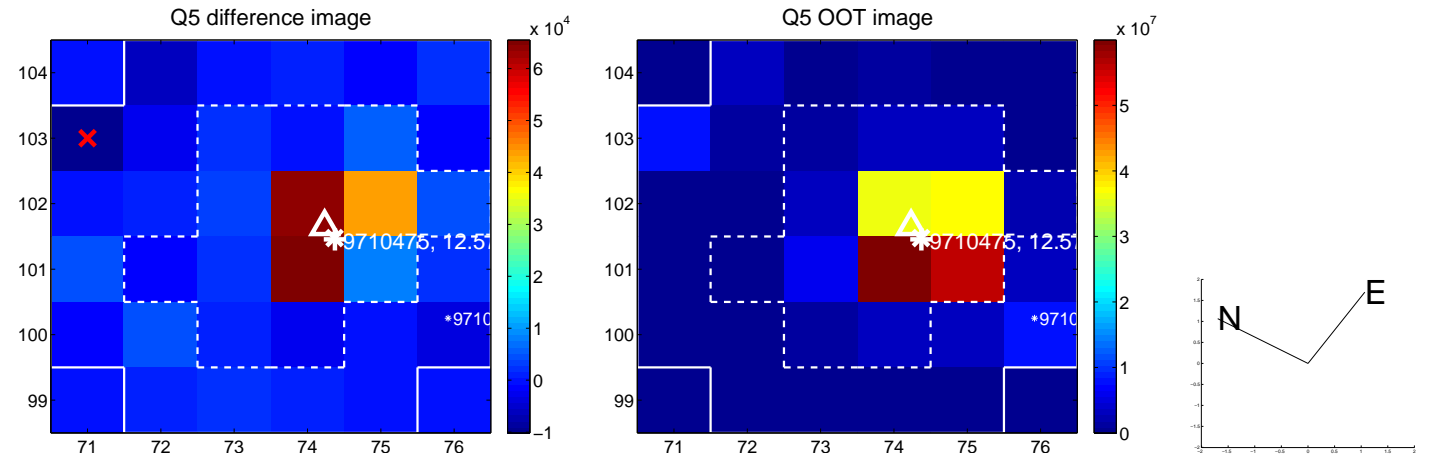


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

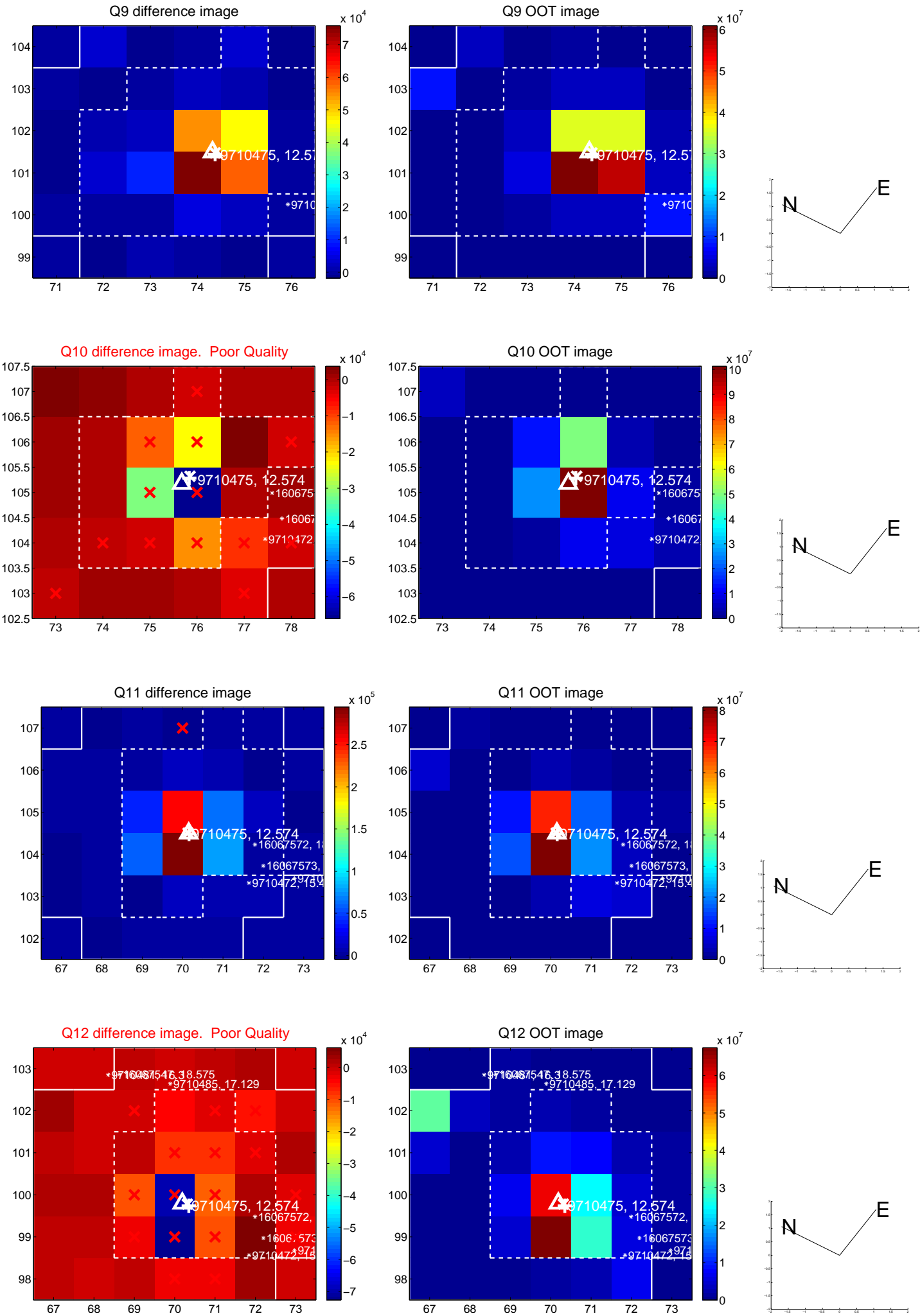
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



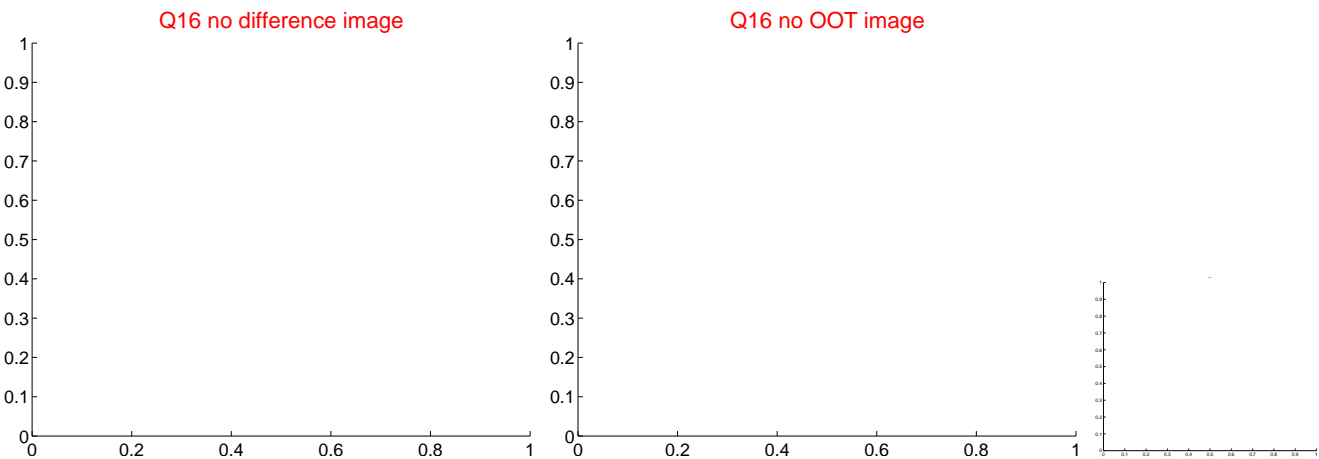
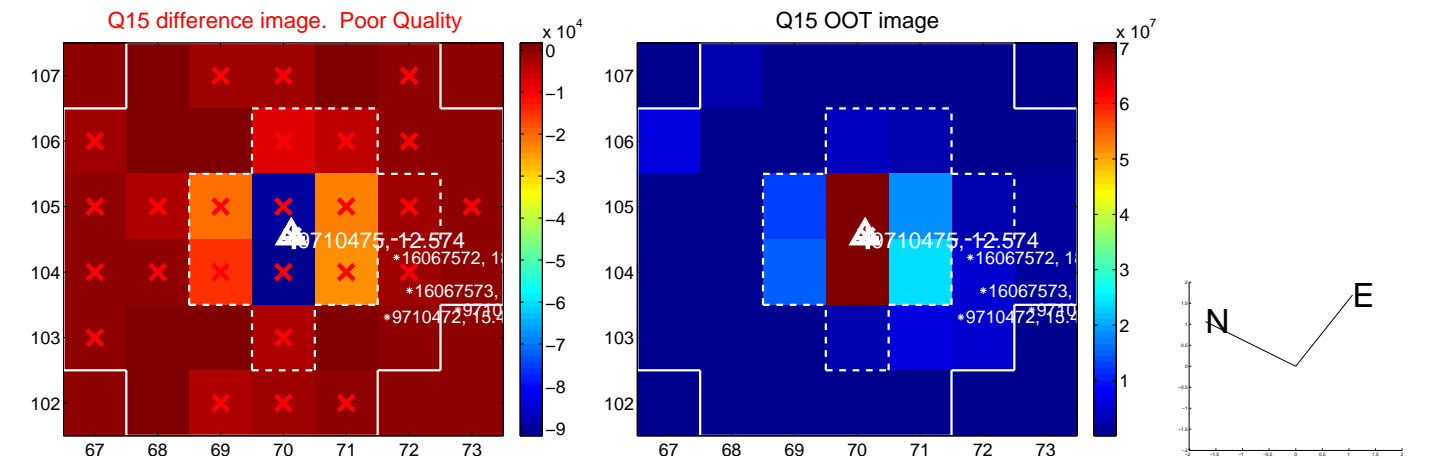
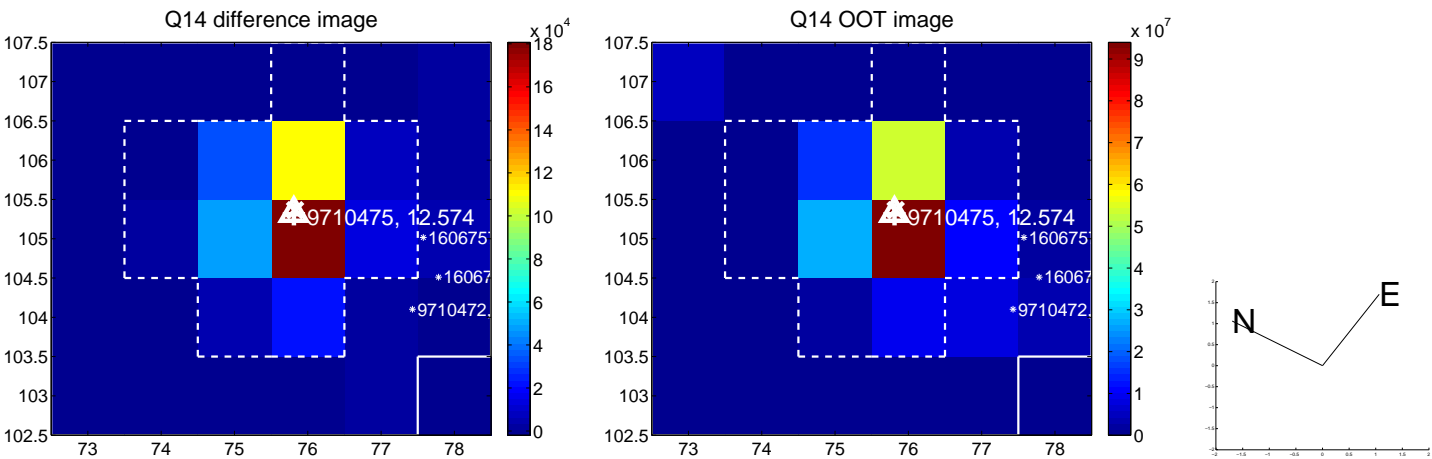
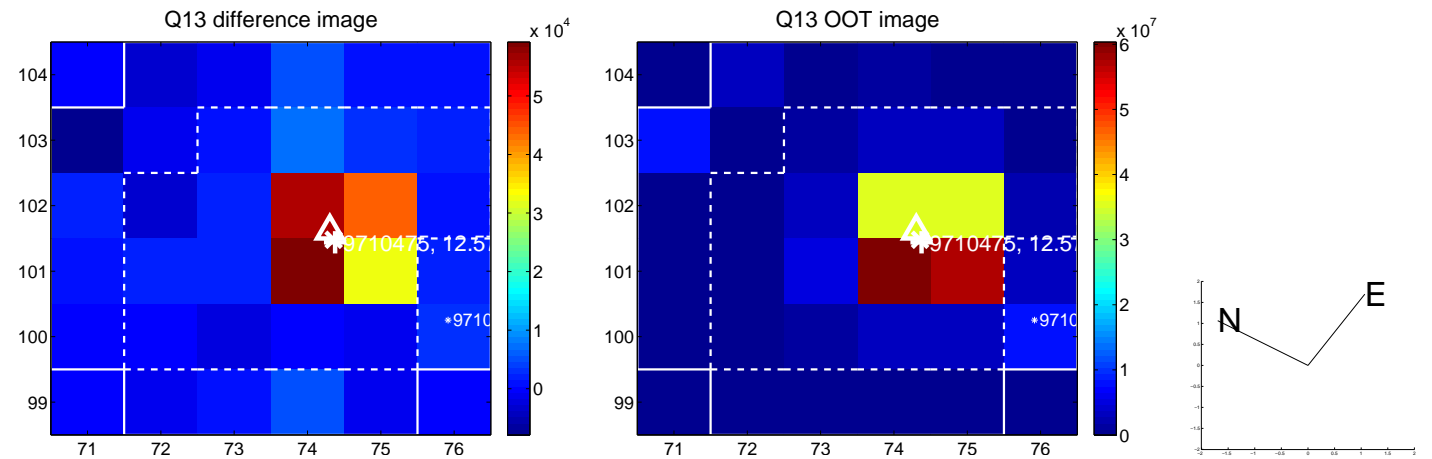
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



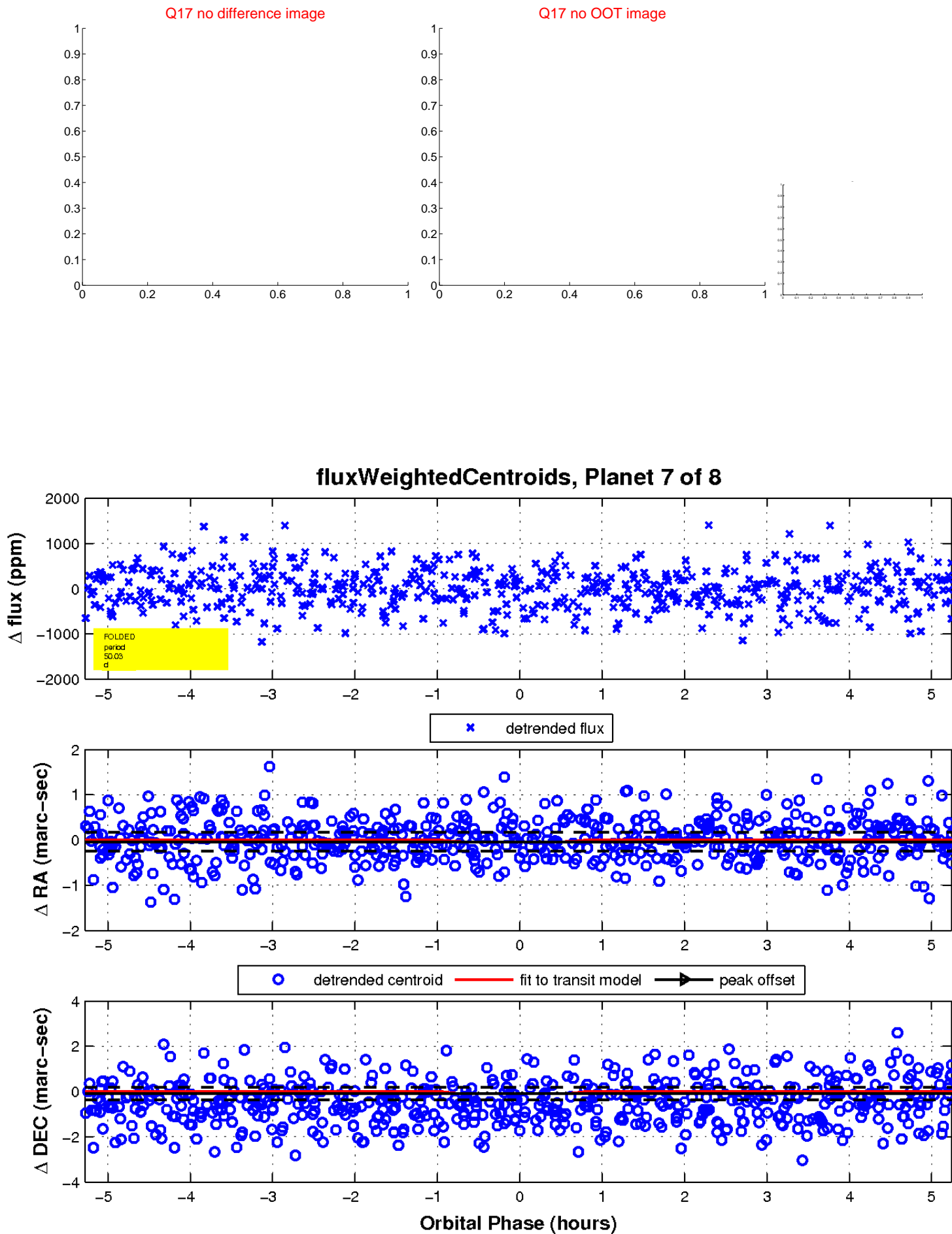
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

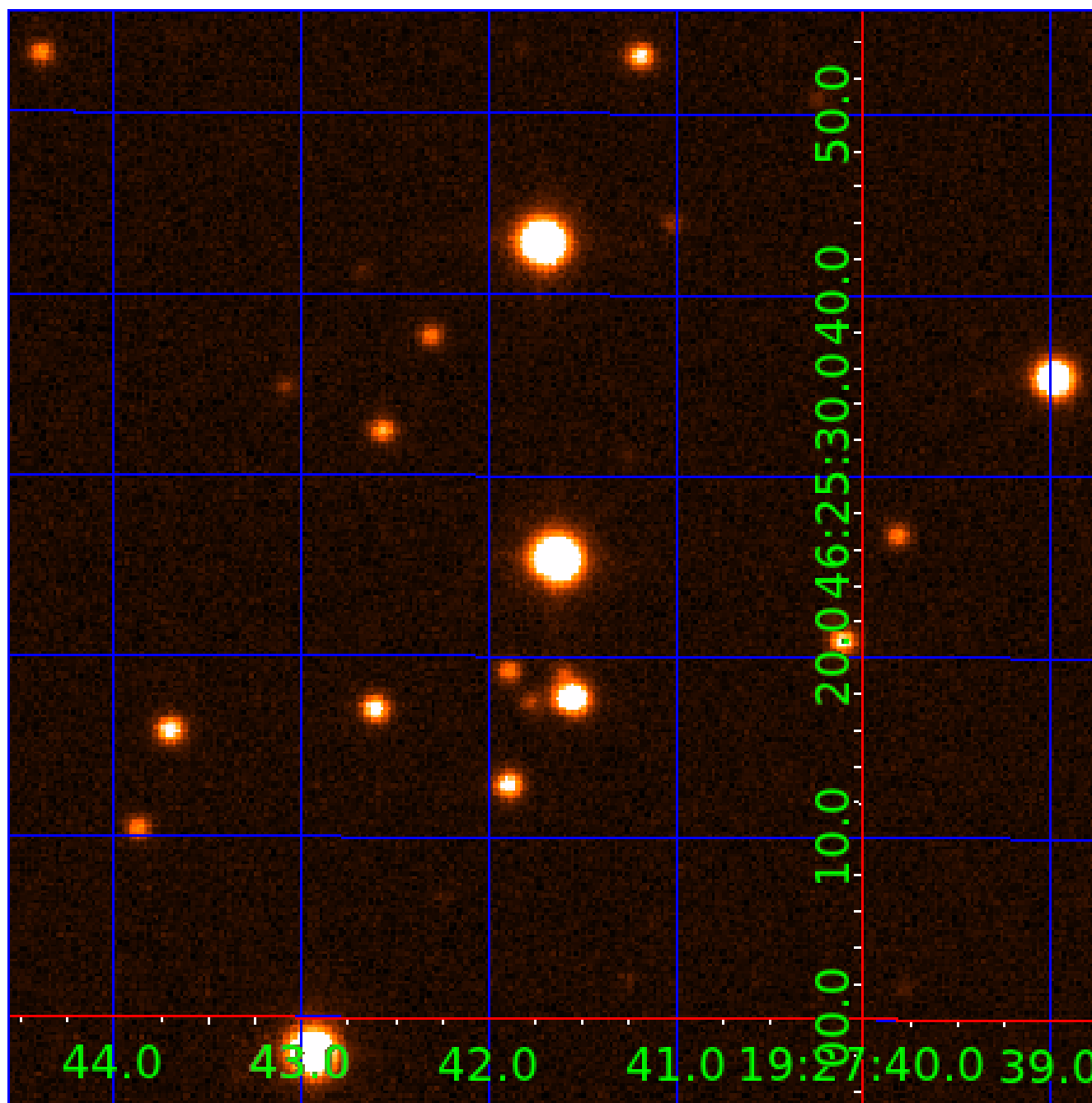


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 009710475

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})
009710475-01	OBS	No	0.815768	131.751161	18.2	5.011	10.2	3.9	2.66	9191	1.17	87222.12
009710475-02	OBS	No	210.070028	205.139547	991.1	2.097	10.0	10.3	2.66	9191	9.27	53.24
009710475-03	OBS	No	53.498735	141.253821	620.9	3.347	8.9	9.3	2.66	9191	7.13	329.81
009710475-04	OBS	No	14.557474	136.571193	351.5	2.690	8.8	8.9	2.66	9191	5.60	1870.40
009710475-05	OBS	No	105.762566	191.928121	676.6	4.355	8.7	8.7	2.66	9191	7.53	132.93
009710475-06	OBS	No	43.281749	152.778024	585.9	3.664	8.7	8.2	2.66	9191	11.24	437.50
009710475-07	OBS	No	50.033795	132.680564	505.3	1.762	8.4	7.7	2.66	9191	6.74	360.60
009710475-08	OBS	No	79.498344	136.881615	107.6	5.000	7.1	-1.0	2.66	9191	2.82	194.49

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009710475-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT
009710475-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL—TRANS_GAPPED—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
009710475-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE—TRANS_GAPPED—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
009710475-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE—TRANS_GAPPED—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
009710475-05	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—HALO_GHOST
009710475-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
009710475-07	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
009710475-08	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_NOFITS

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

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

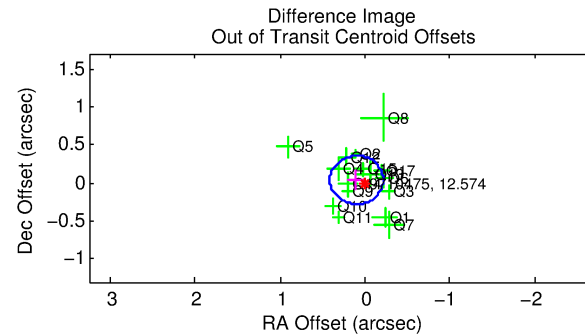
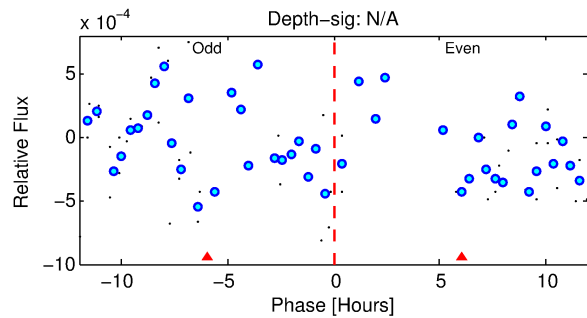
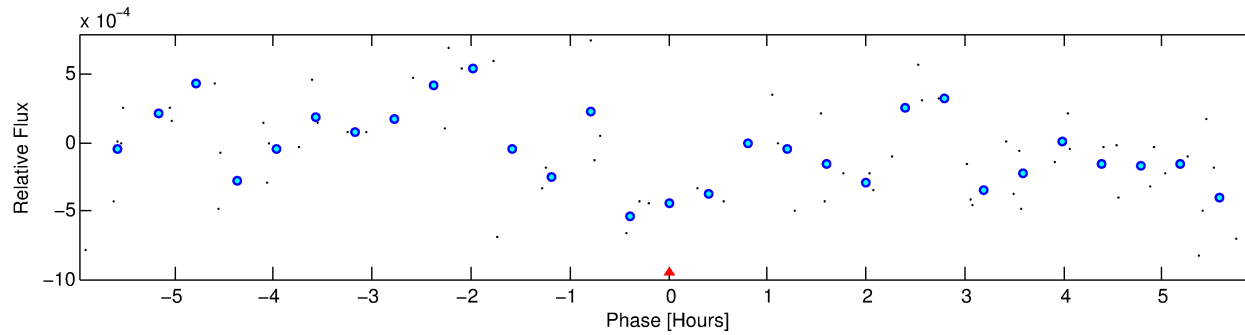
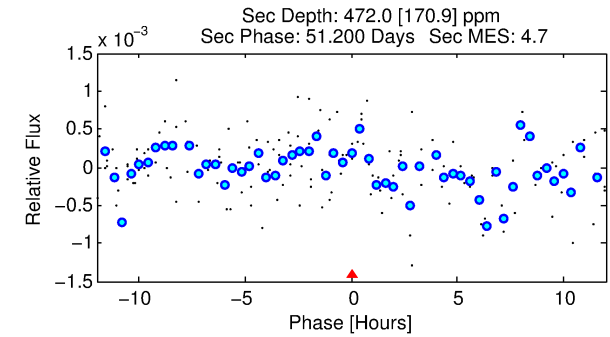
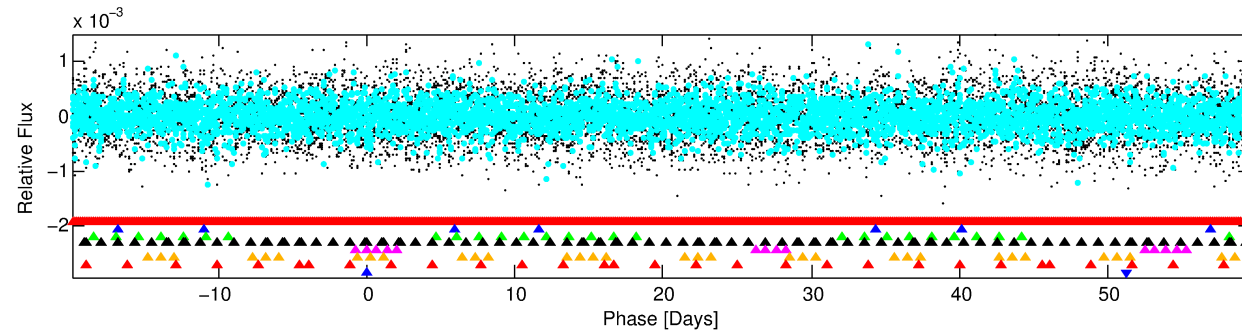
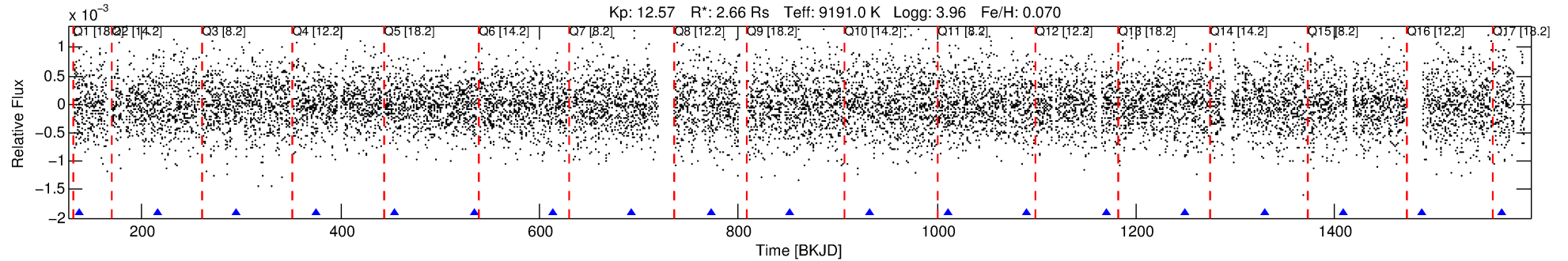
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 009710475-08

No Significant Match Found

DV One-Page Summary

KIC: 9710475 Candidate: 8 of 8 Period: 79.498 d



TPS TCE Results:

Period = 79.49834 d
Epoch = 136.8816 BKJD

DV fit results are unavailable

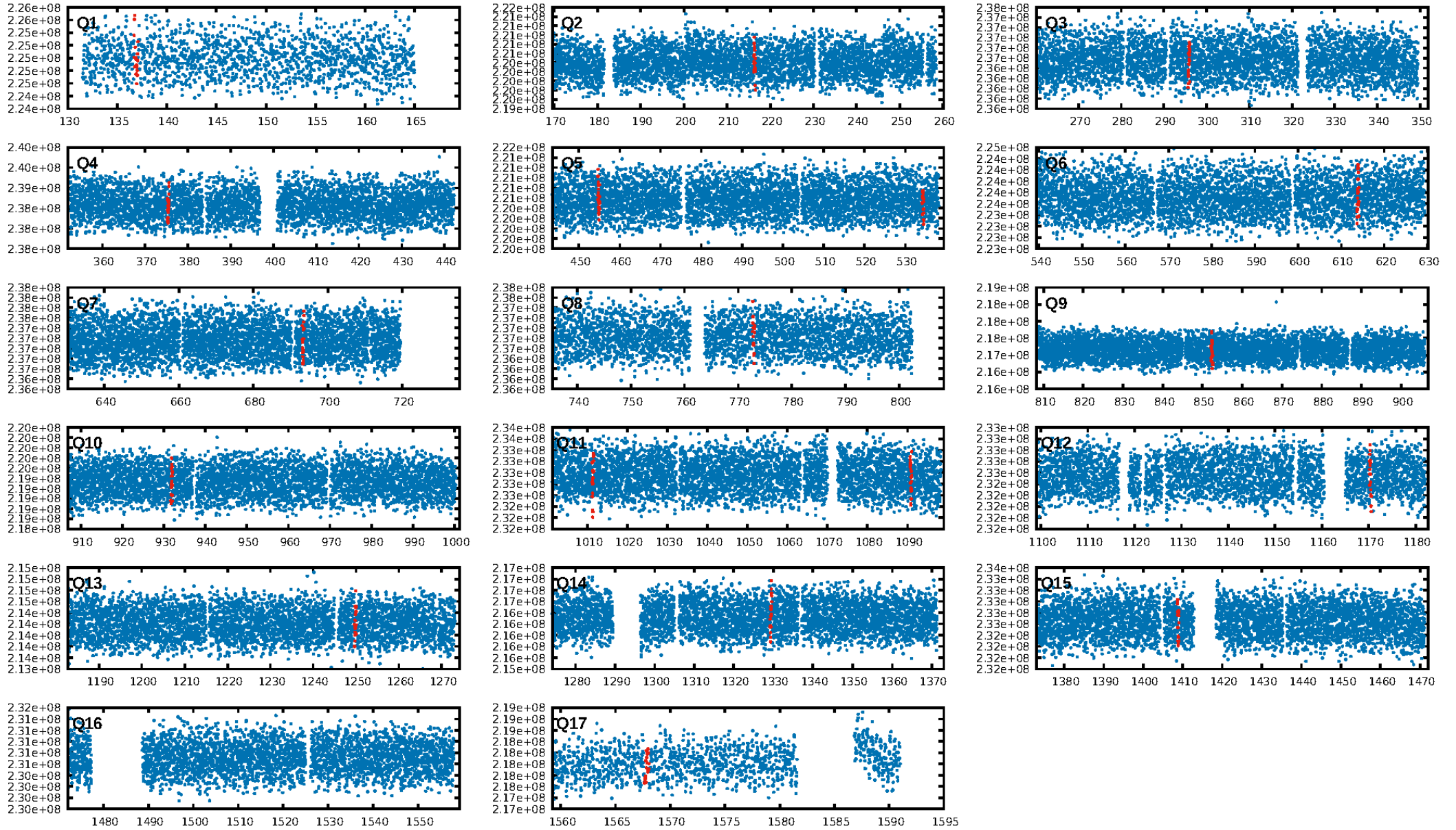
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [103.71σ]
LongPeriod-sig: 100.0% [95.07σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [5/5]
GhostDiagnostic-chr: 4.334
Centroid-sig: 66.5%
Centroid-so: 0.272 arcsec [1.04σ]
OotOffset-rm: 0.105 arcsec [1.00σ]
KicOffset-rm: 0.080 arcsec [0.68σ]
OotOffset-st: 4/4/3/5 [16]
KicOffset-st: 4/4/3/5 [16]
DiffImageQuality-fgm: 0.56 [9/16]
DiffImageOverlap-fno: 0.00 [0/16]

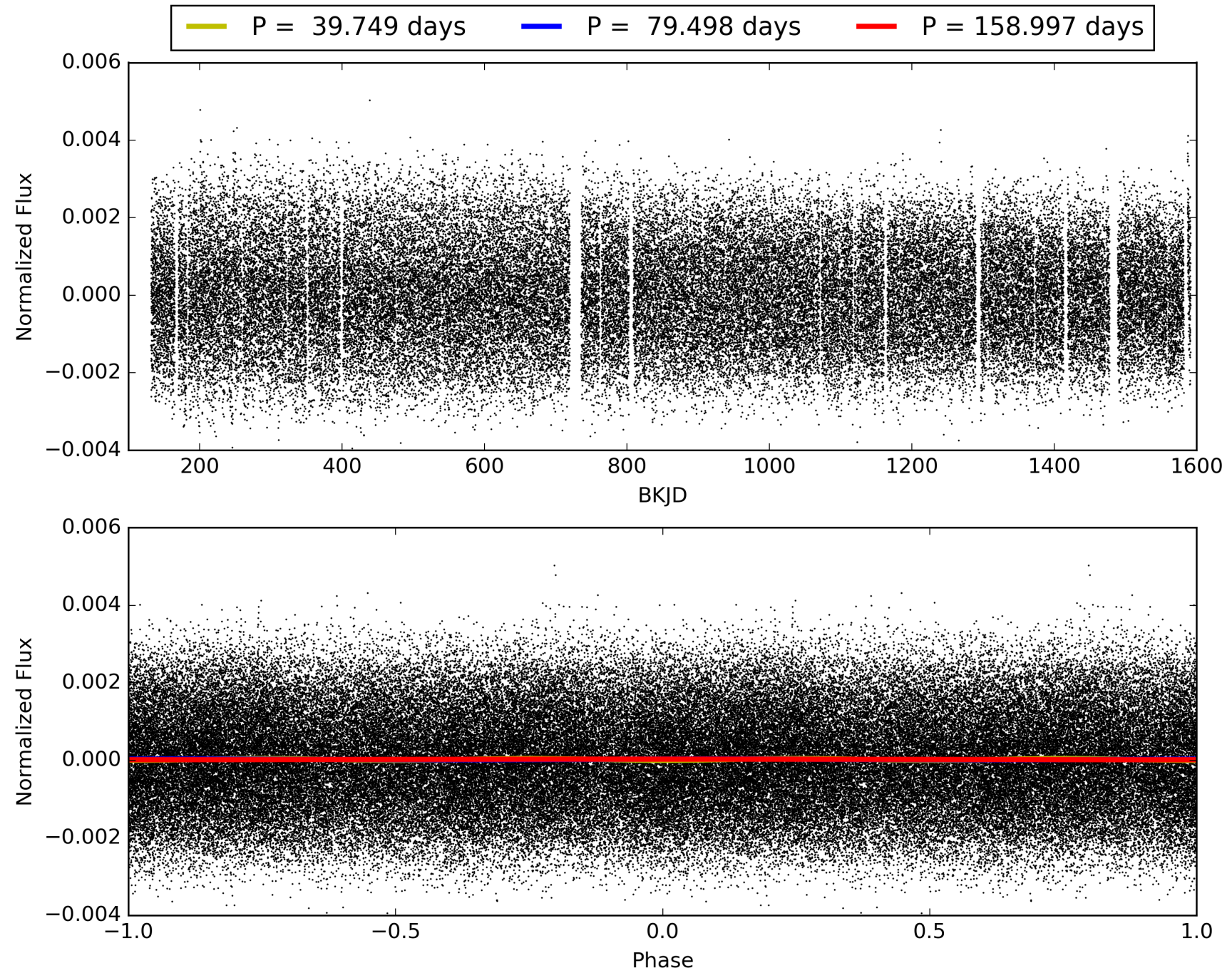
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 22:13:10 Z

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

TCE 009710475-08, PDC Light Curves

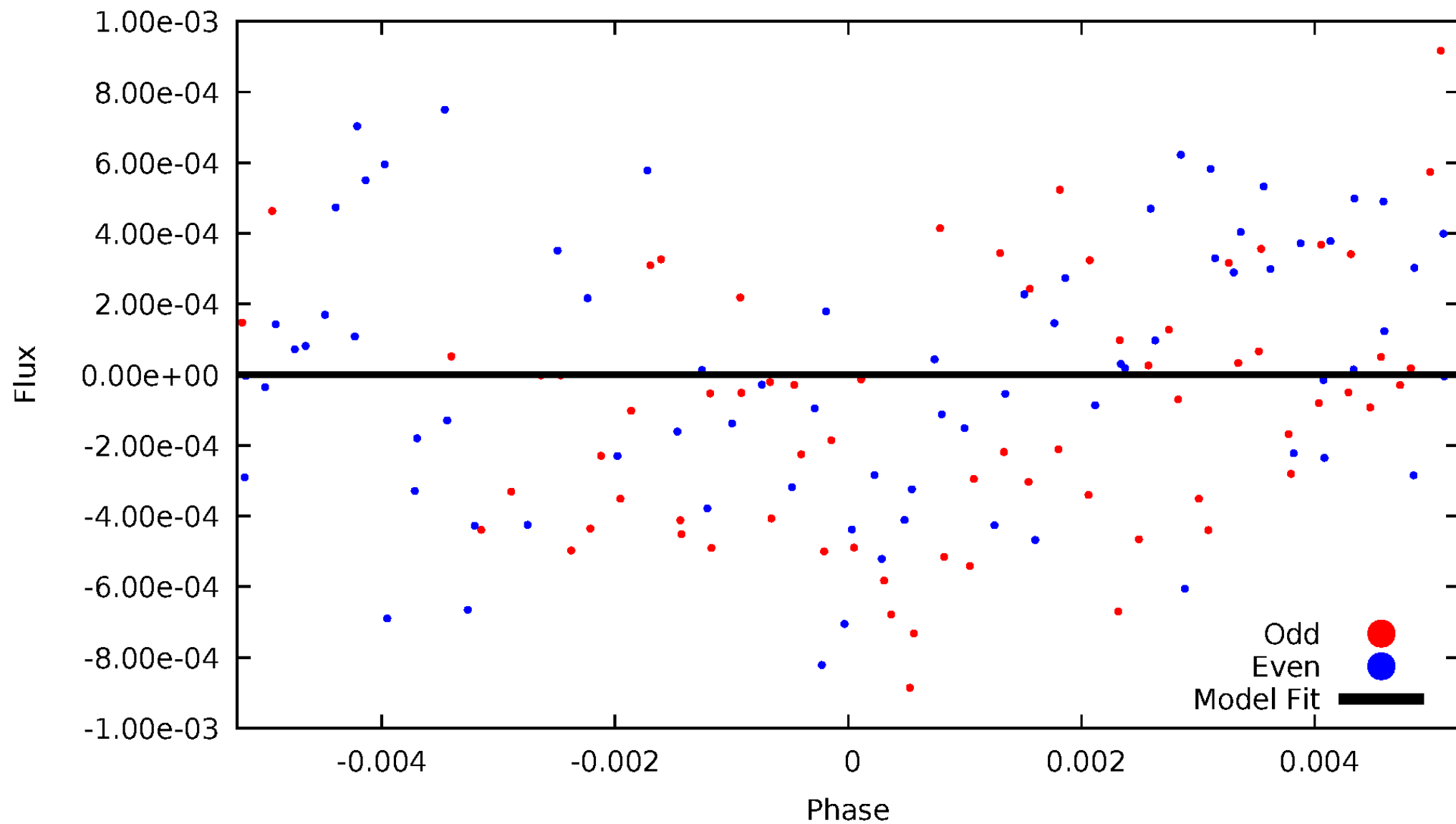


TCE 009710475-08



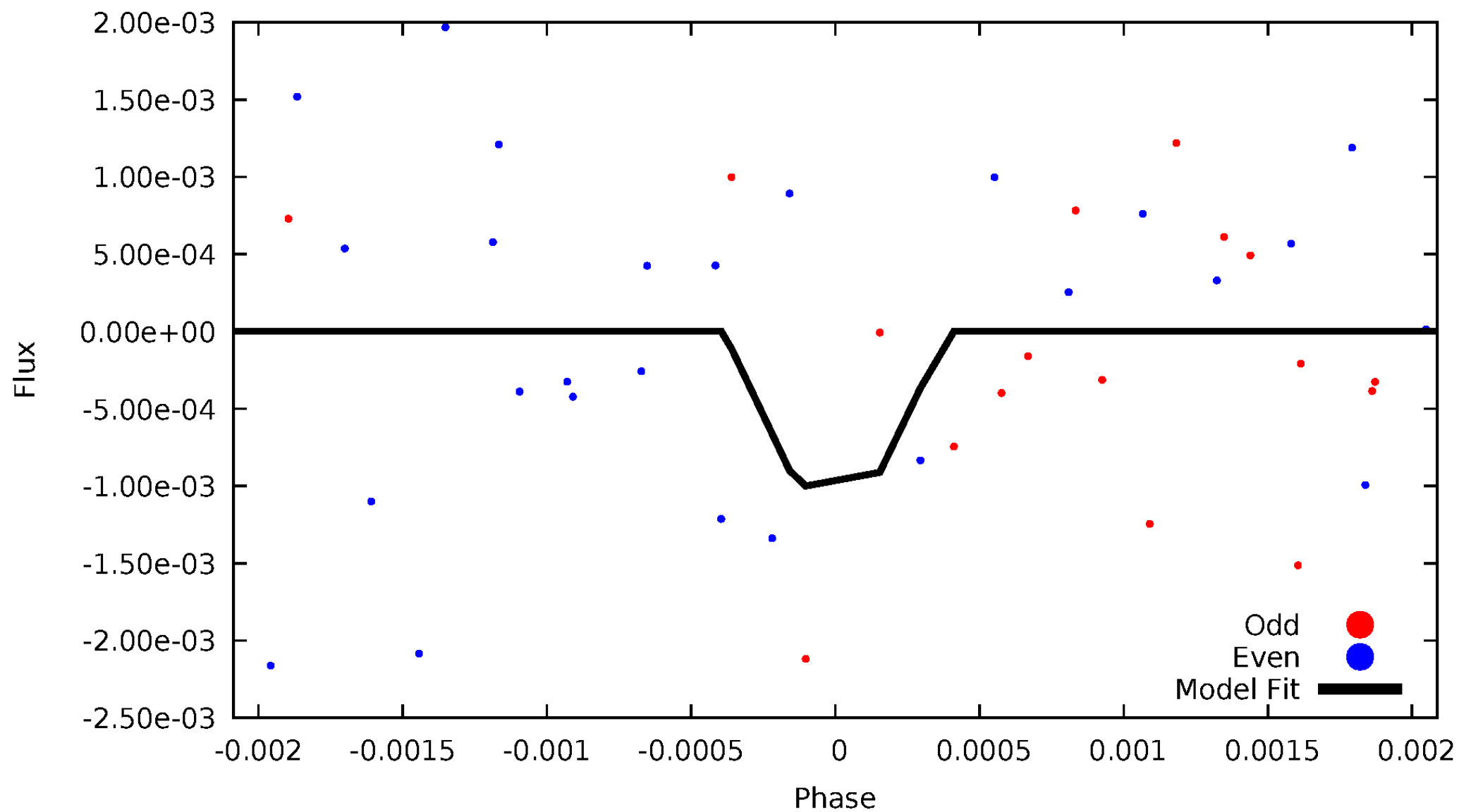
DV Odd/Even

TCE 009710475-08



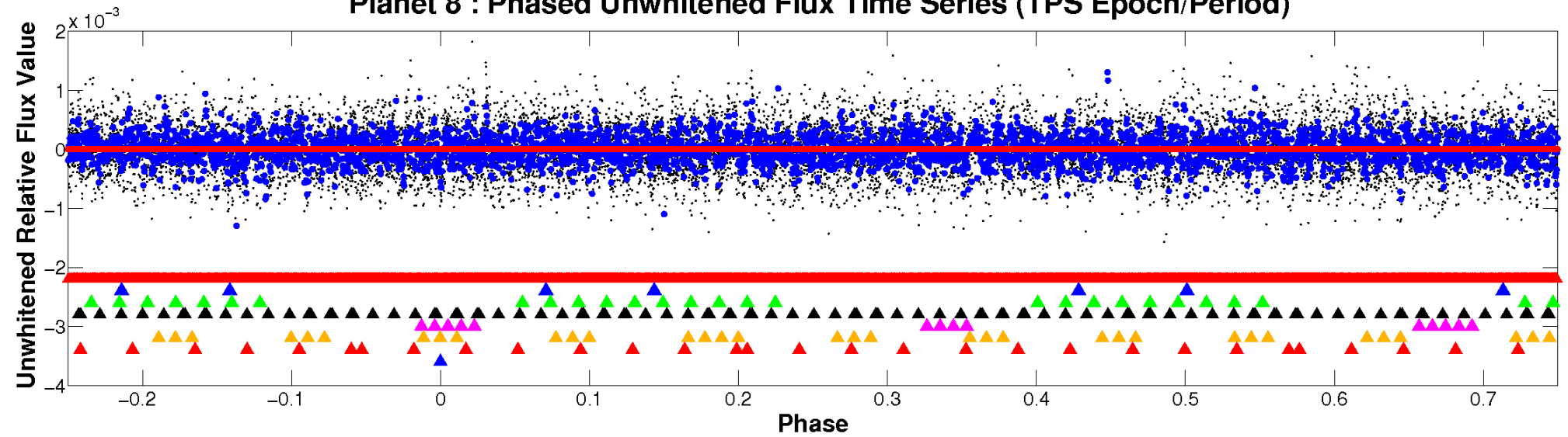
ALT Odd/Even

TCE 009710475-08

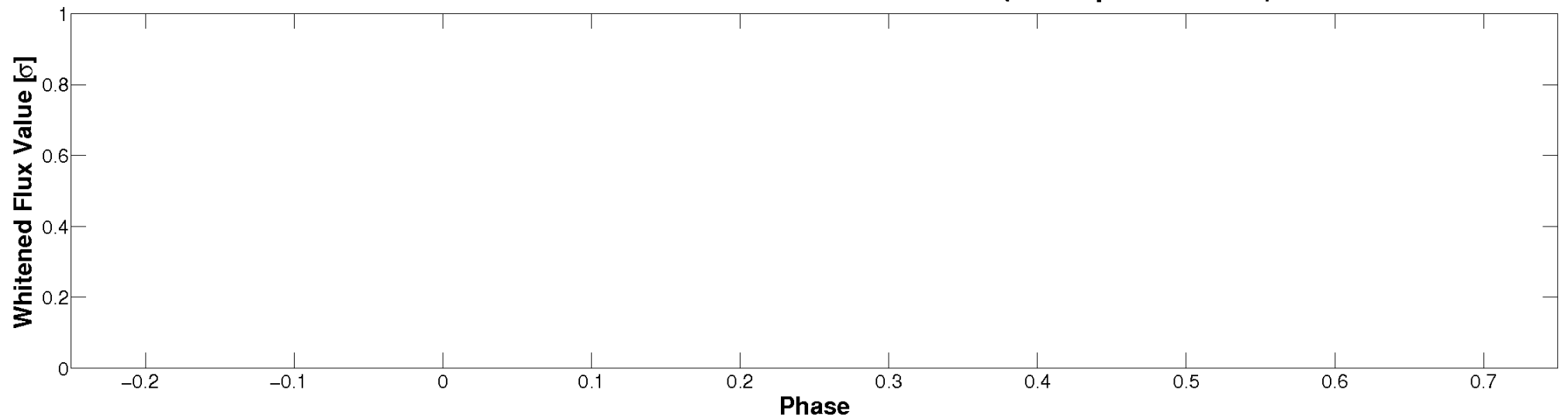


Non-Whitened Vs. Whitened Light Curve

Planet 8 : Phased Unwhitened Flux Time Series (TPS Epoch/Period)

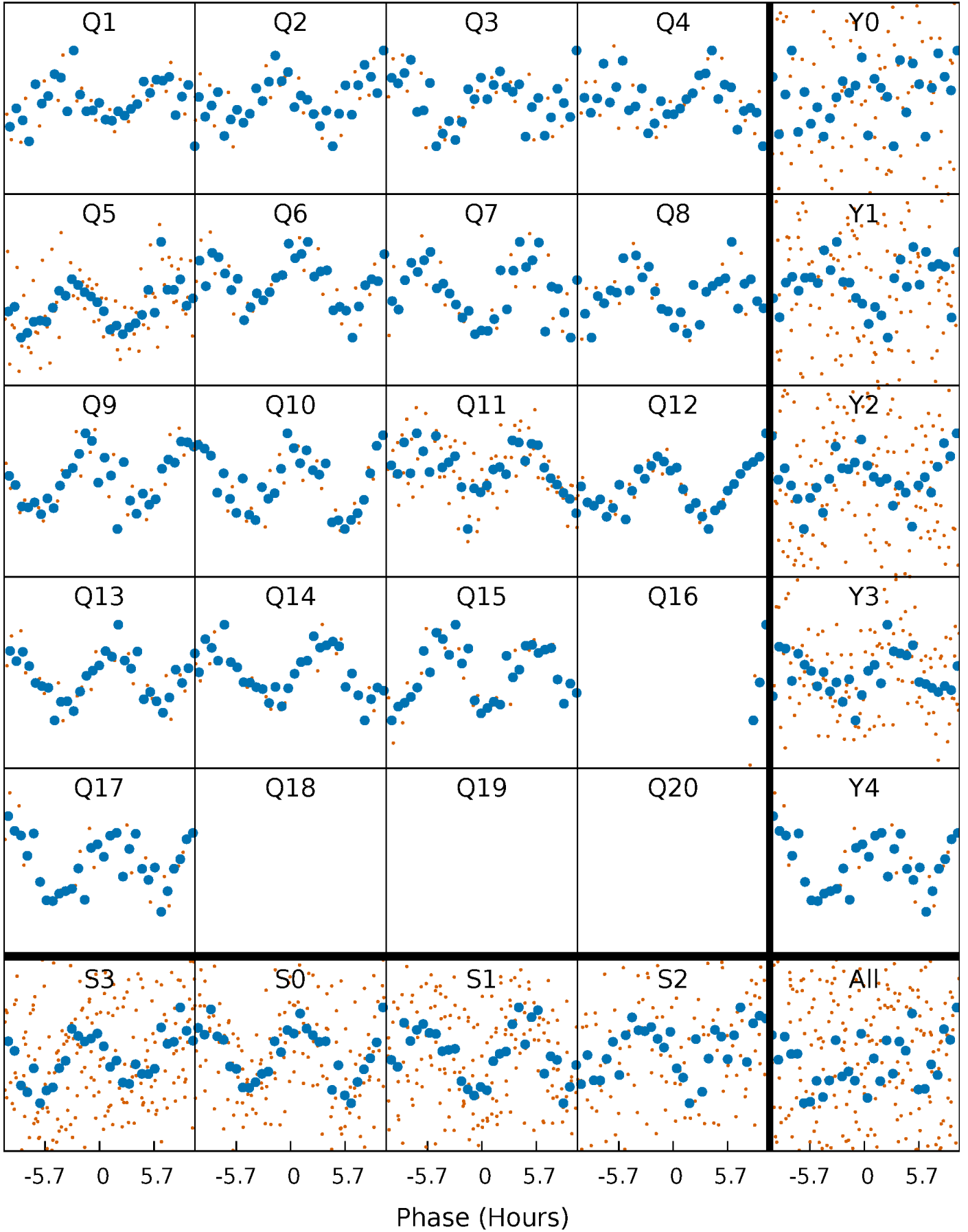


Planet 8 : Phased Whitened Flux Time Series (TPS Epoch/Period)



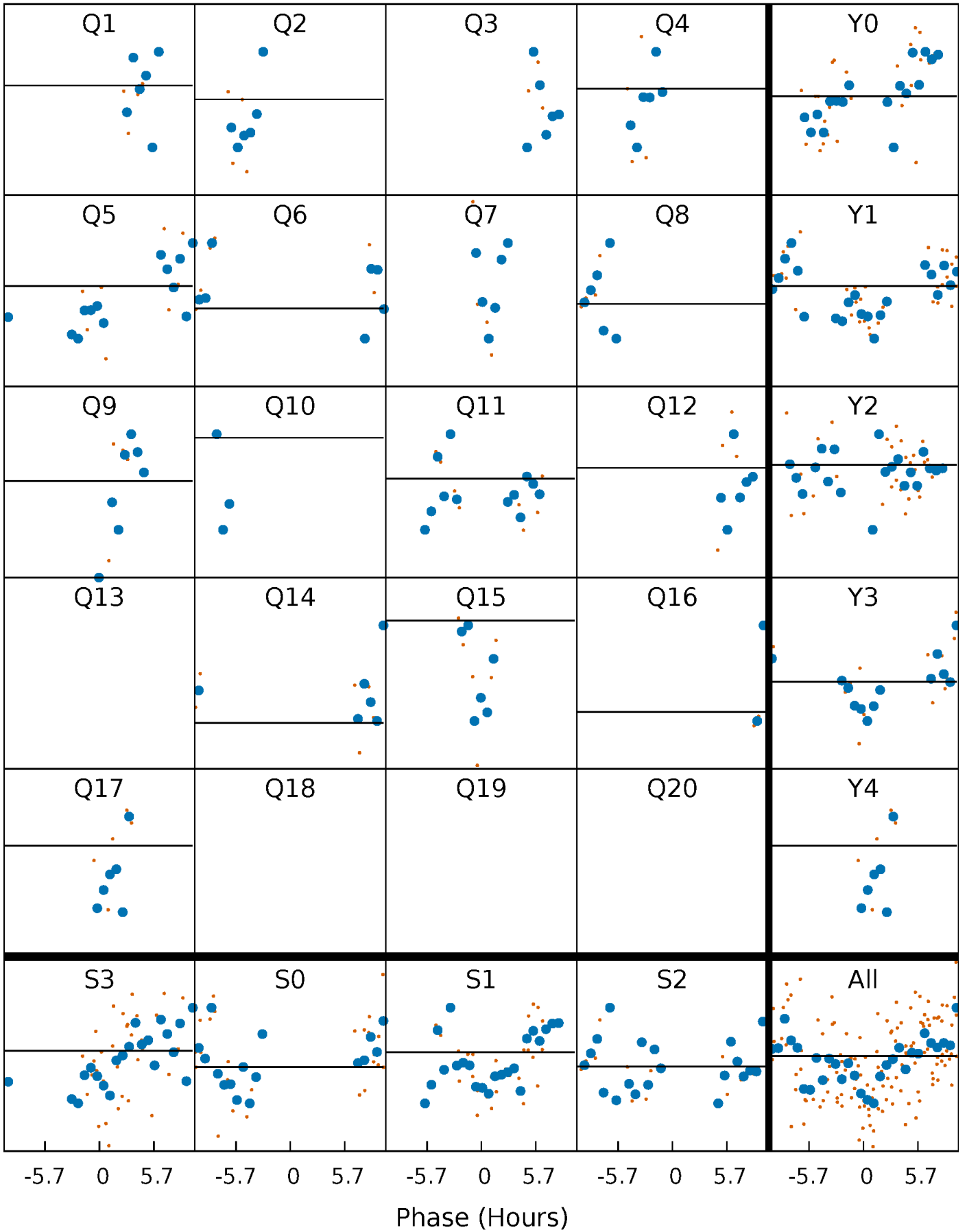
PDC Quarter-Phased Transit Curves

TCE 009710475-08 P= 79.498344 Days $T_0=136.881615$ (BKJD)



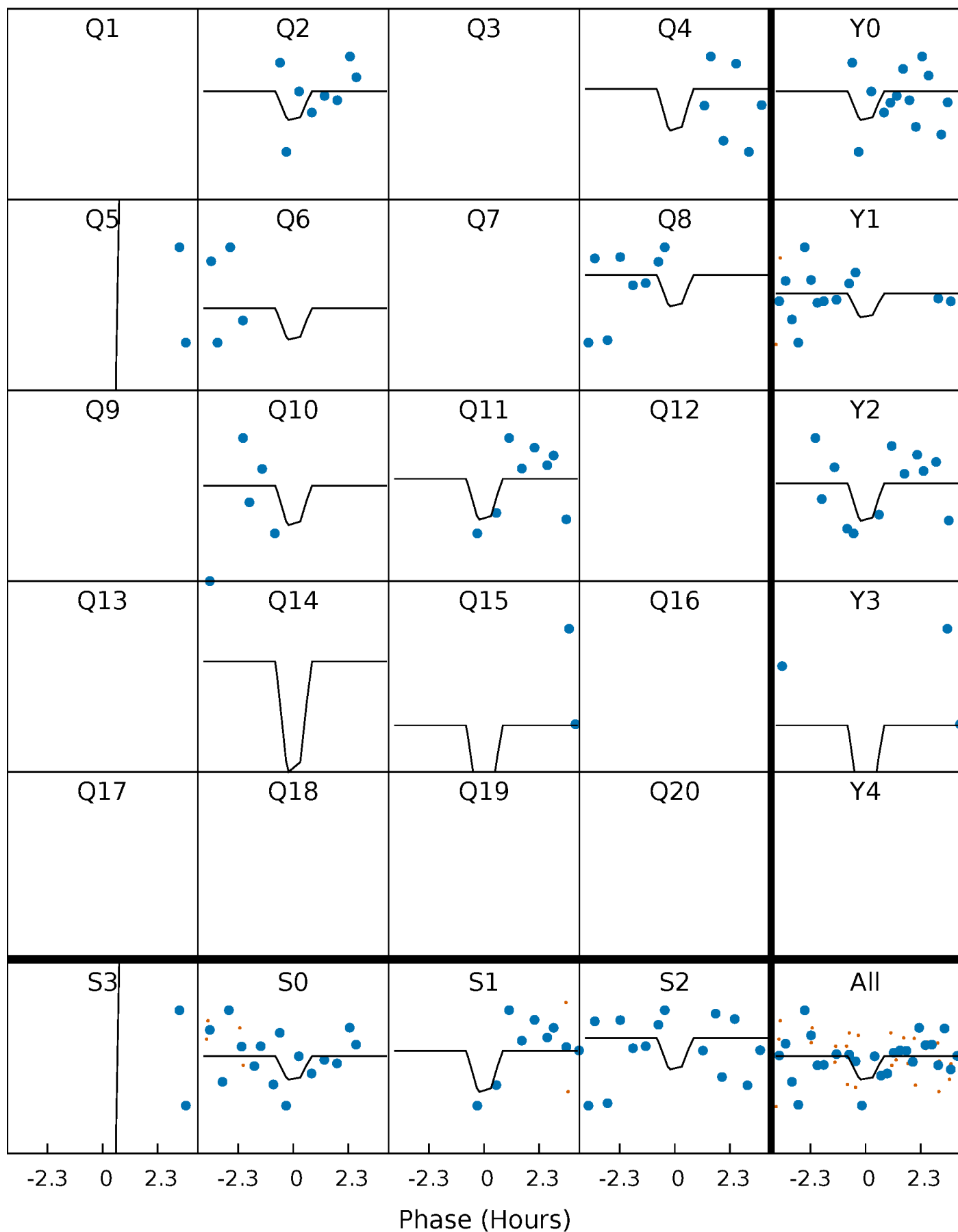
DV Quarter-Phased Transit Curves

TCE 009710475-08 $P = 79.498344$ Days $T_0 = 136.881615$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

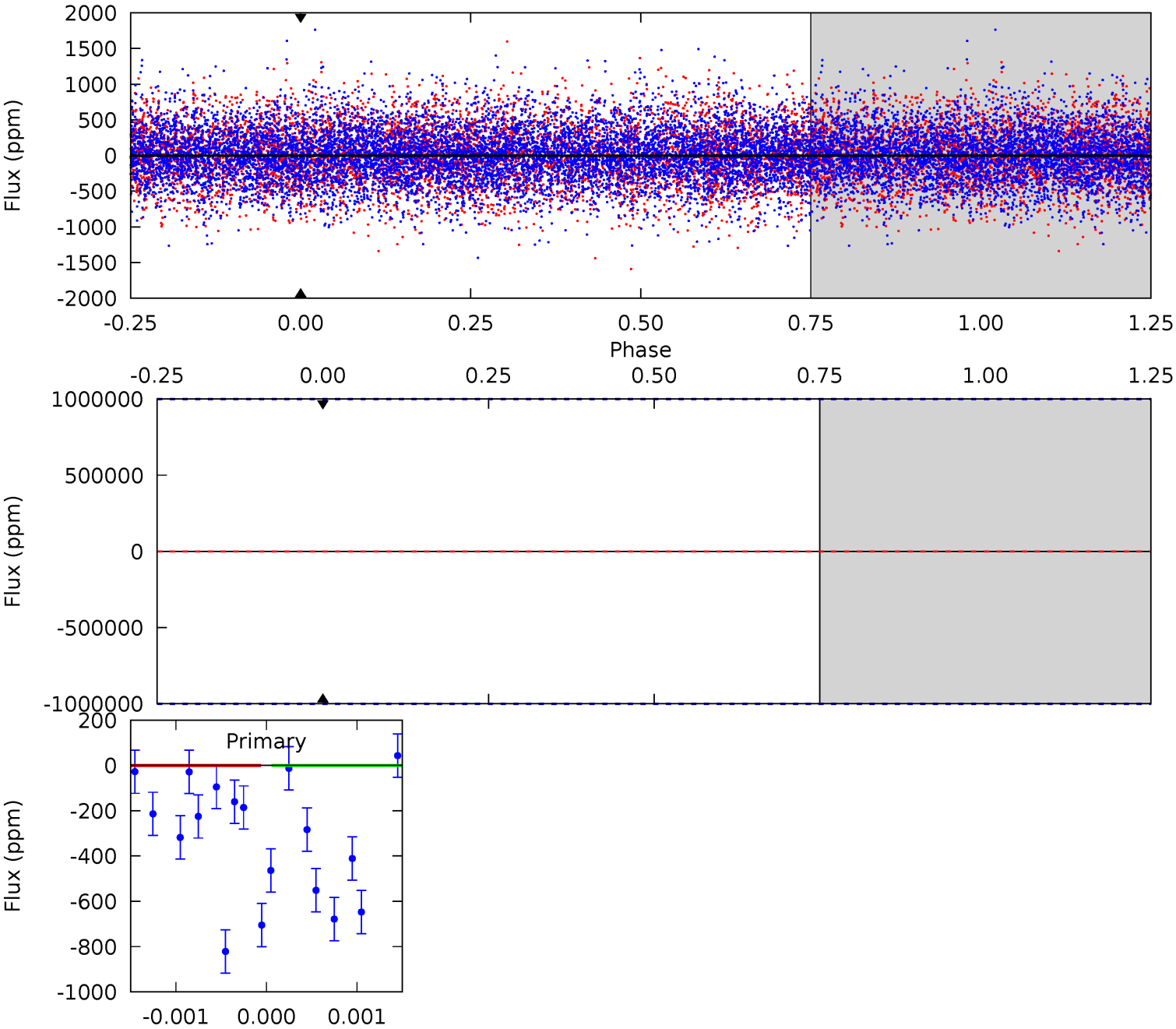
TCE 009710475-08 P= 79.498344 Days $T_0=136.639438$ (BKJD)



DV Model-Shift Uniqueness Test

009710475-08, P = 79.498344 Days, E = 57.383271 Days

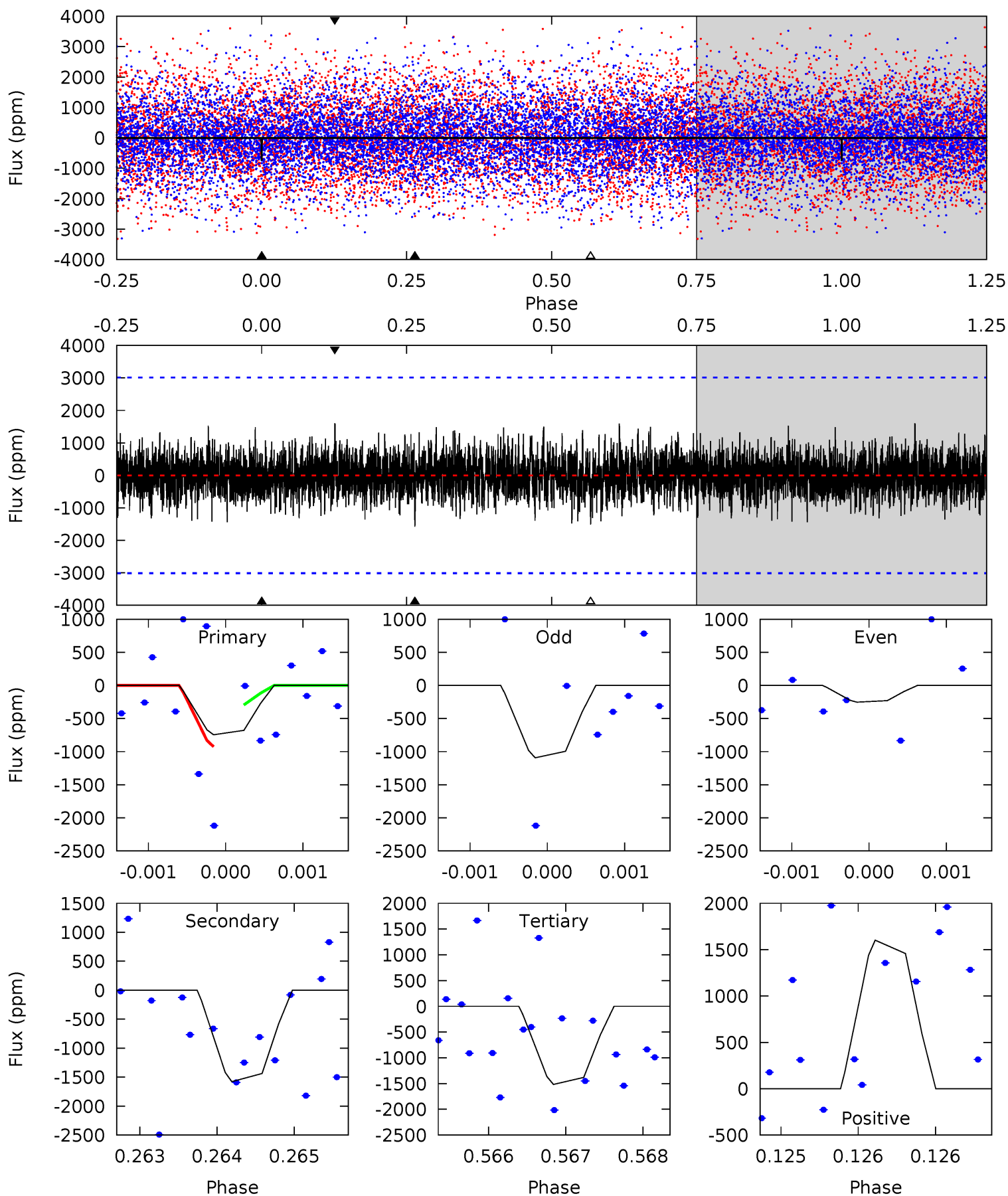
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
0	0	0	0	1.00	1.00	1.00	0	0	0	0	0	0	0	0



Alt Model-Shift Uniqueness Test

009710475-08, P = 79.498344 Days, E = 57.141094 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
1.37	2.89	2.78	2.94	5.53	3.41	0.84	-1.41	-1.57	0.11	-0.04	0.77	1.00	0.50	0.50



Stellar Parameters For KIC 009710475

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	9191^{+255}_{-475}	$3.962^{+0.258}_{-0.172}$	$0.070^{+0.150}_{-0.650}$	$2.658^{+0.810}_{-0.899}$	$2.363^{+0.323}_{-0.753}$	$0.177^{+0.320}_{-0.089}$
	+3%/-5%	+7%/-4%	+214%/-929%	+30%/-34%	+14%/-32%	+181%/-50%
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 009710475-08 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	0 ± 1000000	$18.55^{+22.13}_{-12.91}$	1318^{+109}_{-114}	7486^{+85458}_{-72856}	790^{+75538}_{-53406}
Alt.	-1578 ± 545	$22.01^{+23.31}_{-15.37}$	1314^{+102}_{-117}	6075^{+7321}_{-1734}	377^{+3951}_{-294}

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 $A_{obs} \gg 1.0$

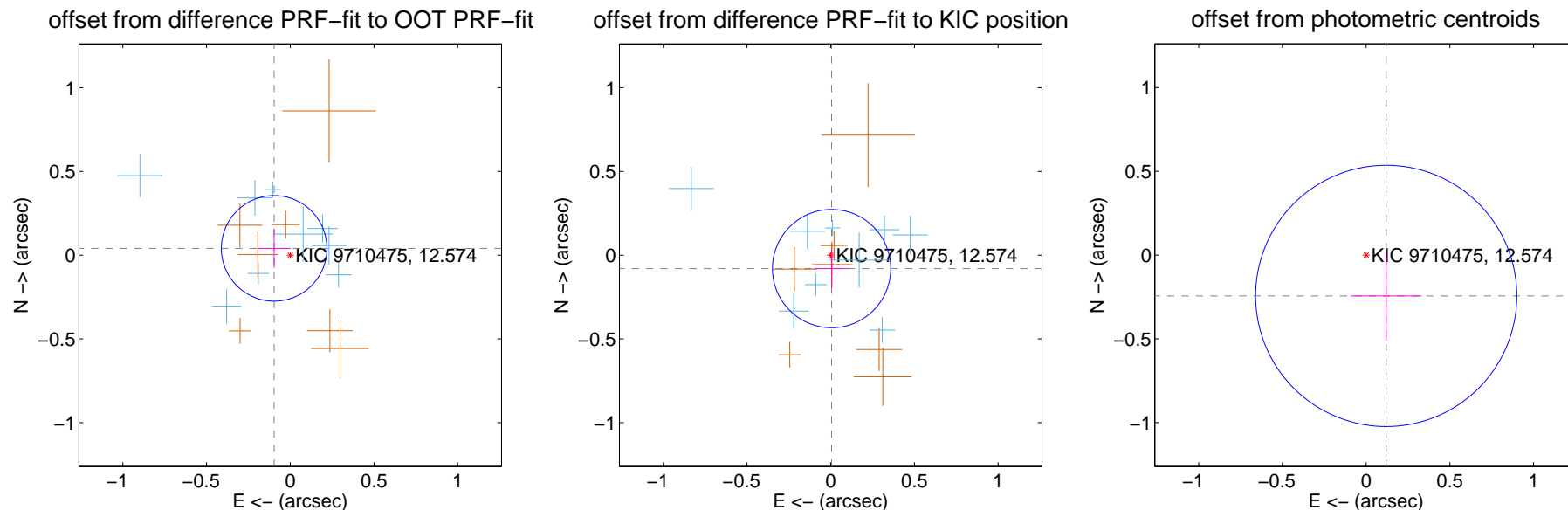
DV Centroid Data

Supplemental centroid analysis for 009710475-08. Kepler magnitude: 12.57. Transit SNR -1.00

There are 9 quarters with good PRF difference image offsets

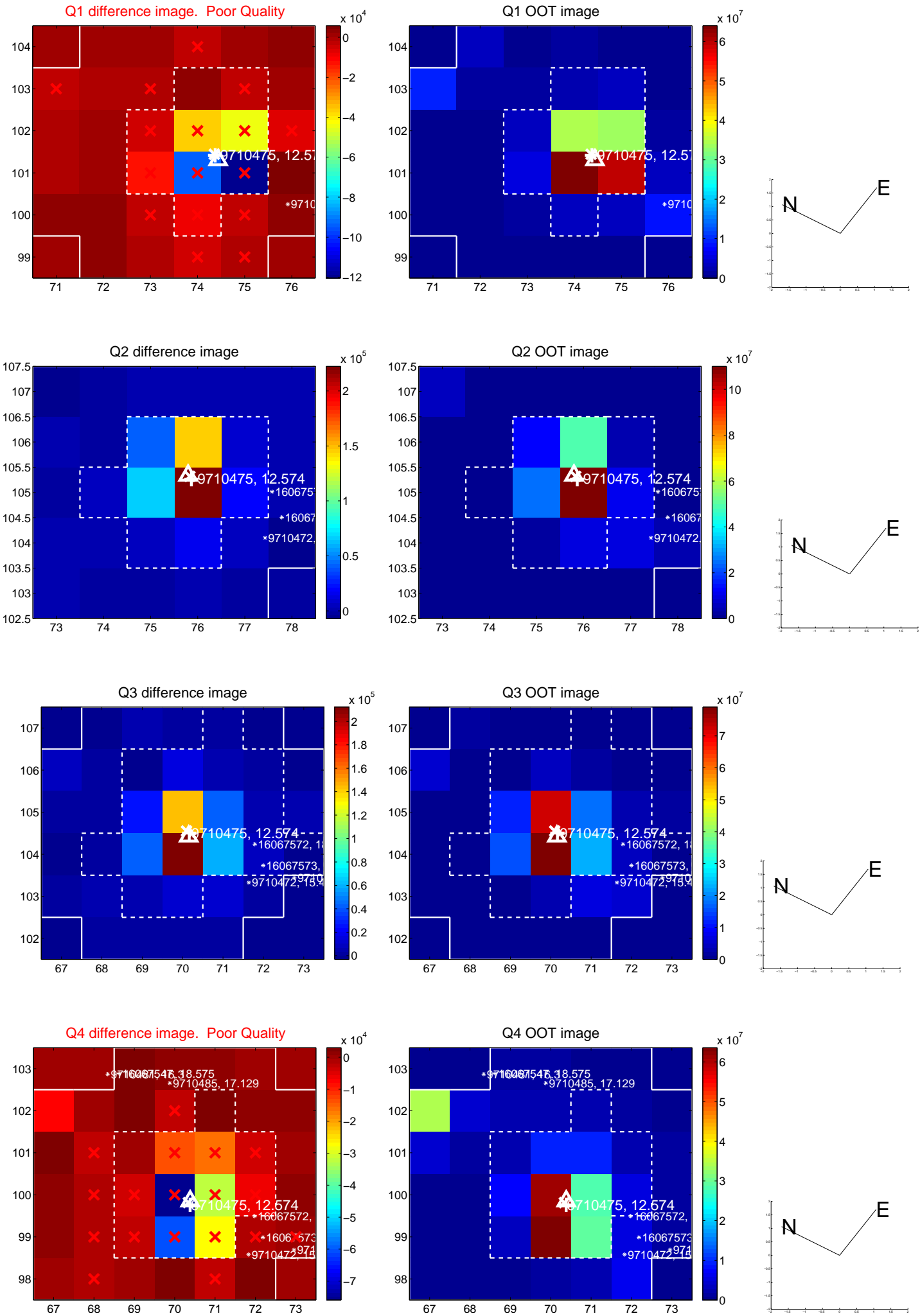
The direct PRF centroid is offset from the target star catalog position by about 0.13 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.105 ± 0.105	1.00	0.096 ± 0.098	0.041 ± 0.116
PRF-fit source offset from KIC position	0.080 ± 0.118	0.68	-0.005 ± 0.104	-0.080 ± 0.117
photometric centroid source offset	0.27 ± 0.26	1.04	-0.12 ± 0.21	-0.24 ± 0.27

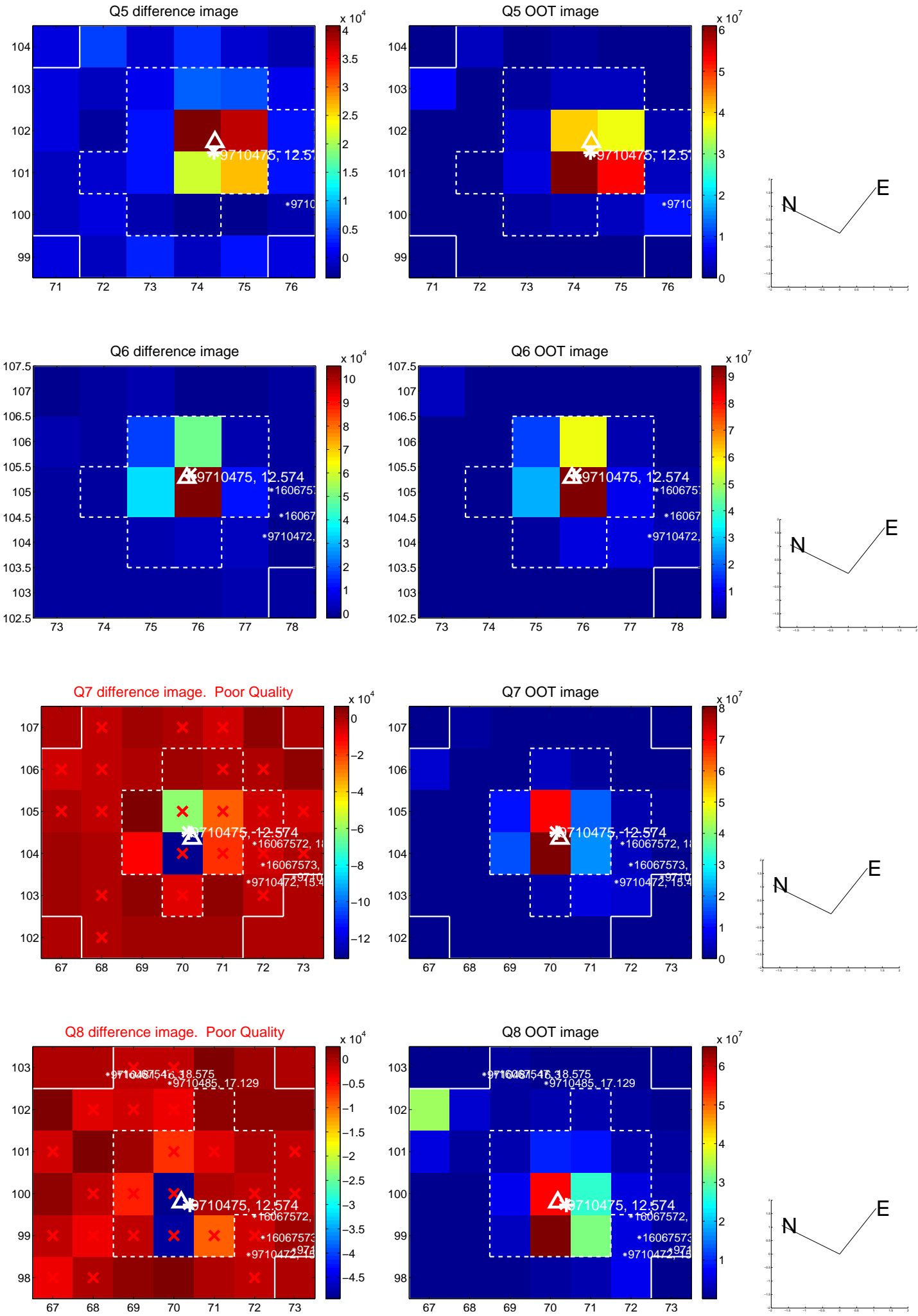


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets**; **Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

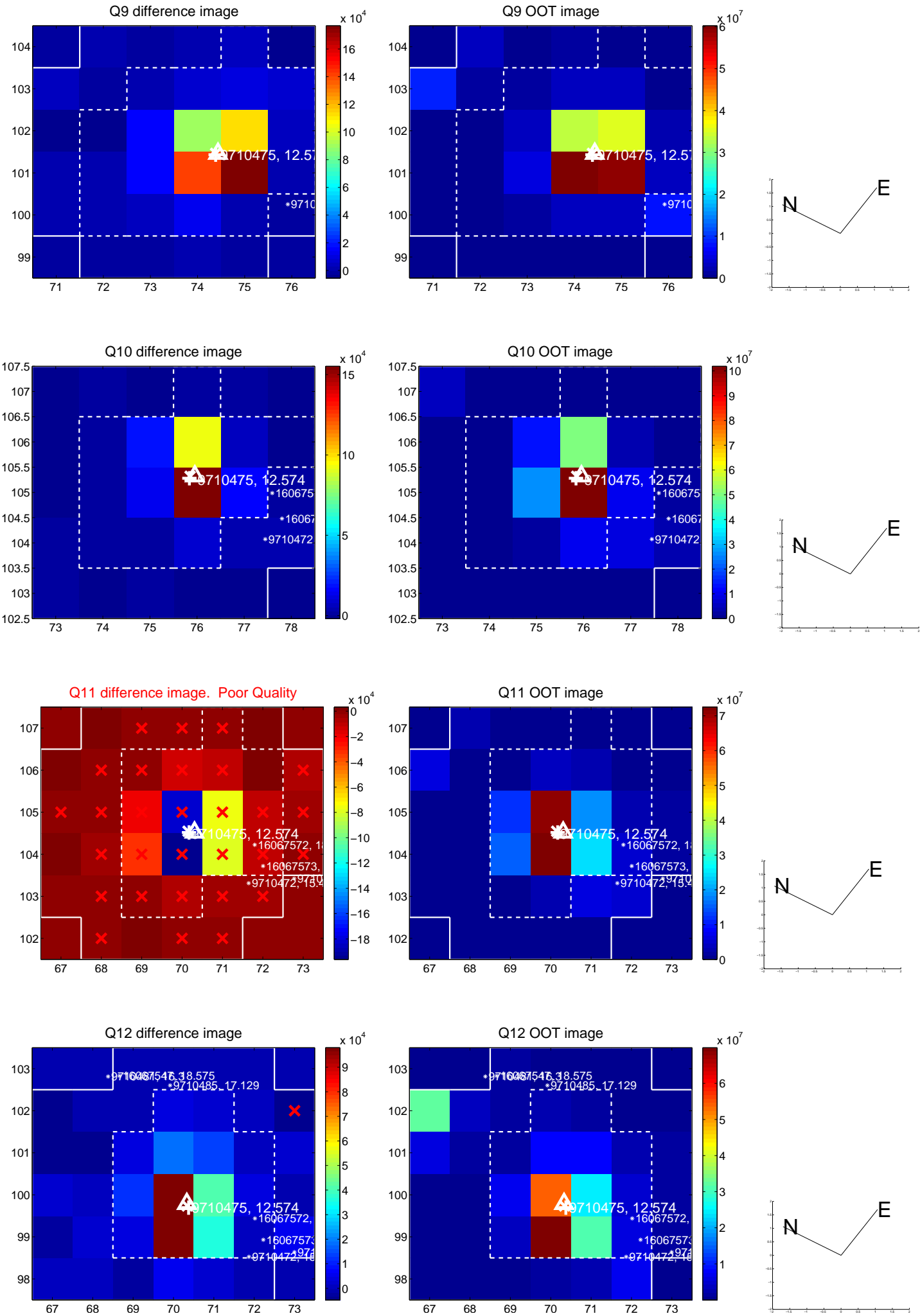
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



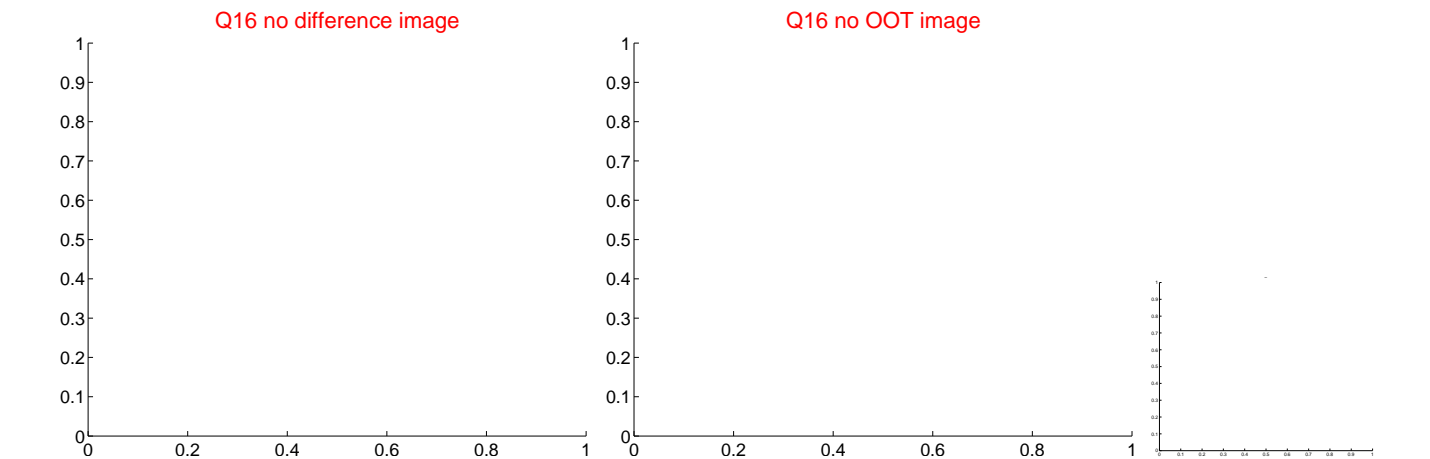
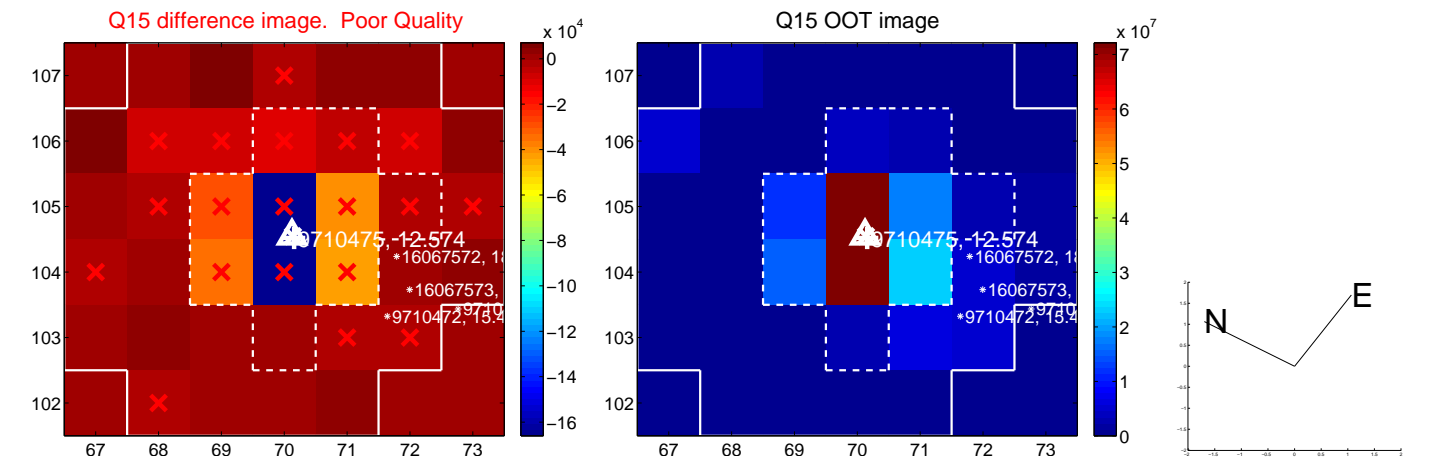
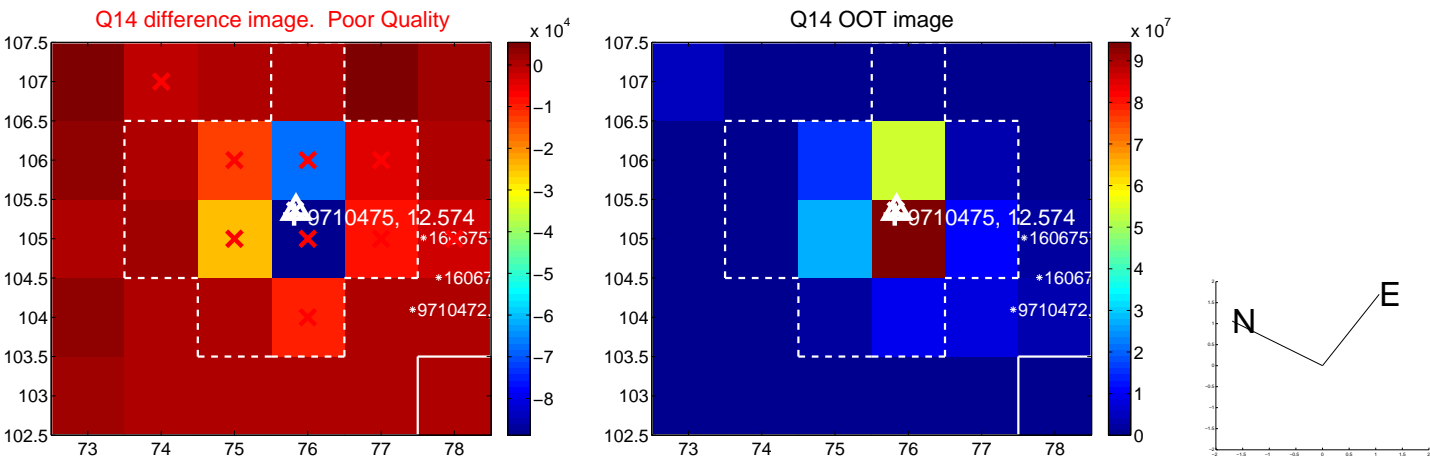
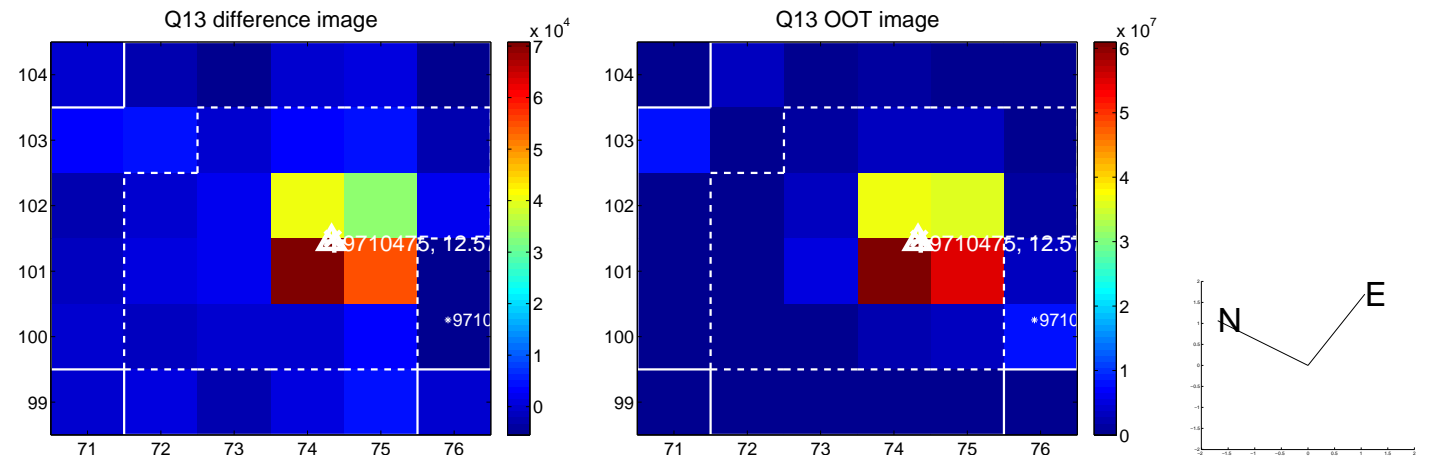
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



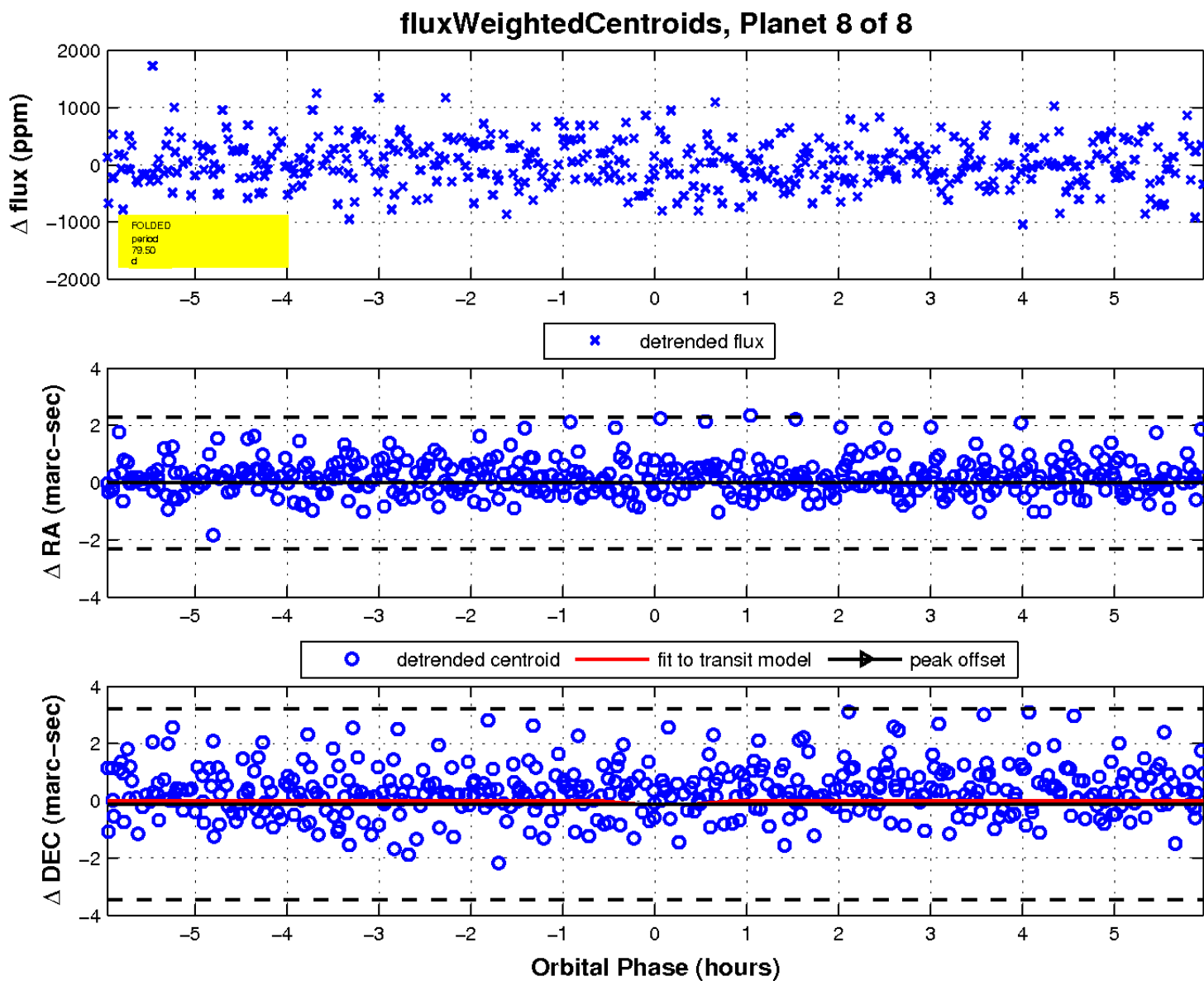
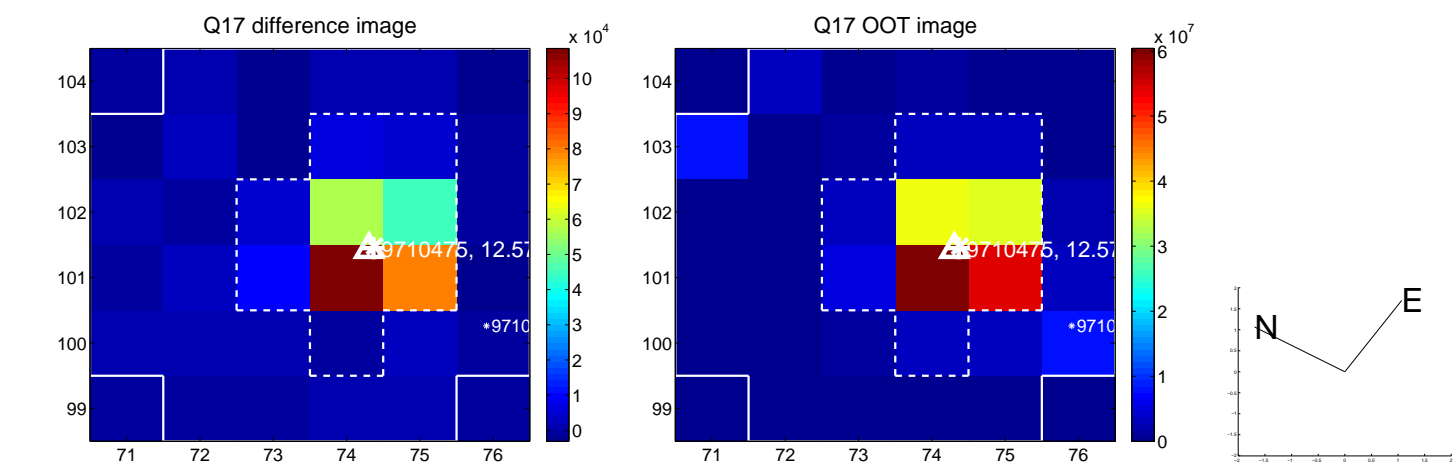
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



UKIRT Image

Declination

