

KIC 006037990

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})
006037990-01	OBS	No	0.941516	132.447097	0.0	0.745	9.1	0.0	2.41	7455	0.02	31086.02
006037990-02	OBS	No	0.941589	132.199746	17.1	3.386	8.6	10.3	2.41	7455	1.15	31082.82
006037990-03	OBS	No	377.597941	259.696367	220.2	15.132	10.4	8.2	2.41	7455	4.11	10.51
006037990-04	OBS	No	212.593237	177.967881	132.1	13.284	9.5	6.7	2.41	7455	3.04	22.61
006037990-05	OBS	No	148.337997	191.533284	144.6	7.251	7.2	6.7	2.41	7455	3.18	36.53
006037990-06	OBS	No	93.289589	191.737863	157.9	3.082	7.2	6.9	2.41	7455	3.49	67.80

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
006037990-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA_TRACKER—SWEET_NTL—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT—CENT_FEW_DIFFS
006037990-02	OBS	FP	0.00	1	0	0	0	SWEET_NTL—LPP_DV—SAME_NTL_PERIOD
006037990-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—LPP_DV—LPP_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
006037990-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
006037990-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE—TRANS_GAPPED—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT
006037990-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—MOD_NONUNIQ_ALT

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

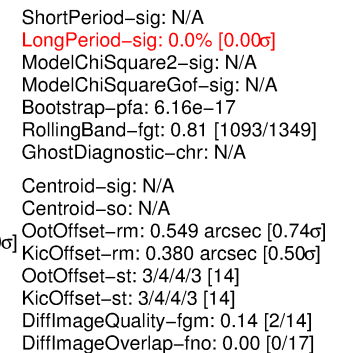
N = Not Transit-Like. S = Stellar Eclipse. C = Centroid Offset. E = Ephemeris Match.

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

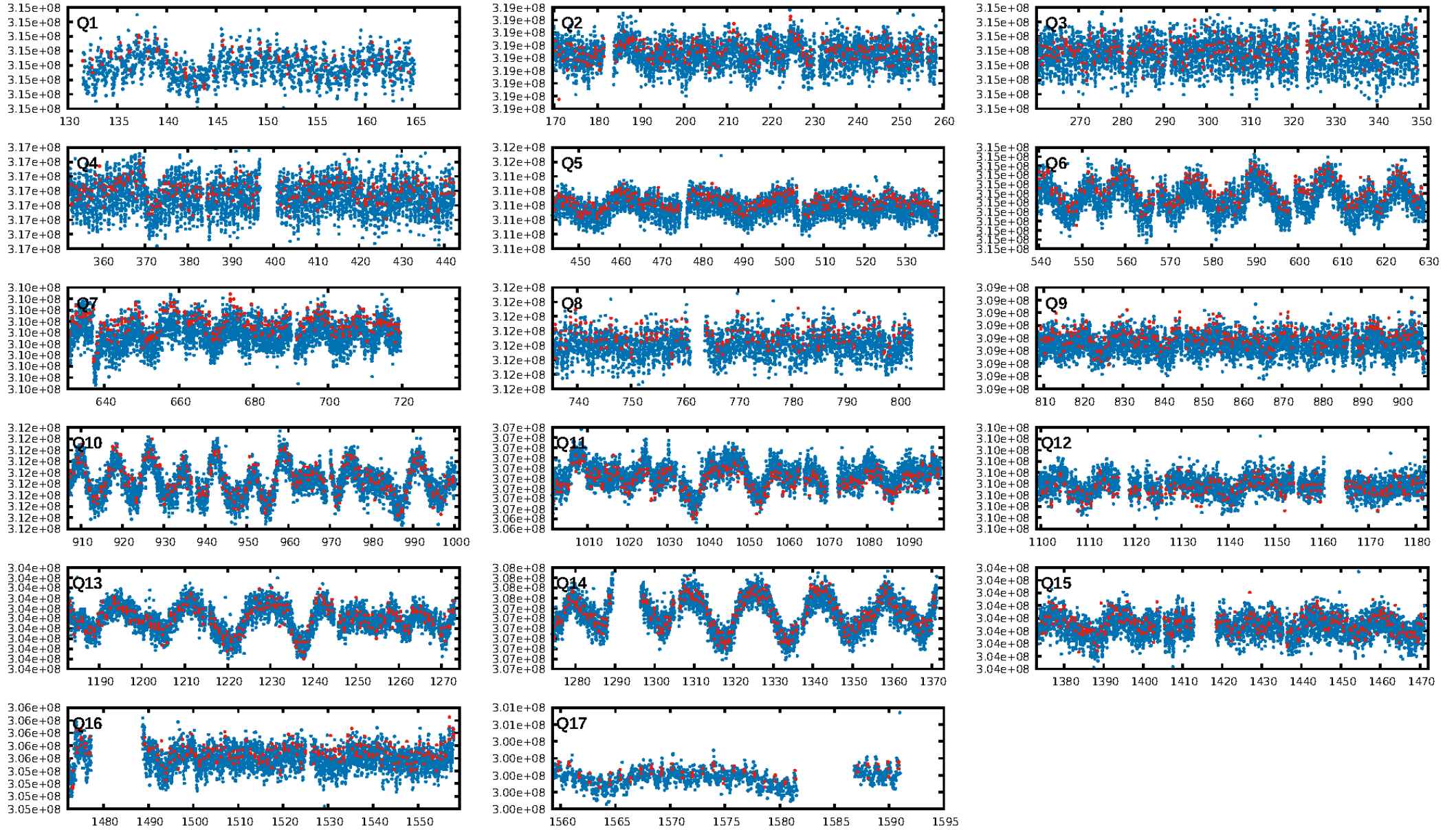
Ephemeris Match Information For 006037990-01

No Significant Match Found

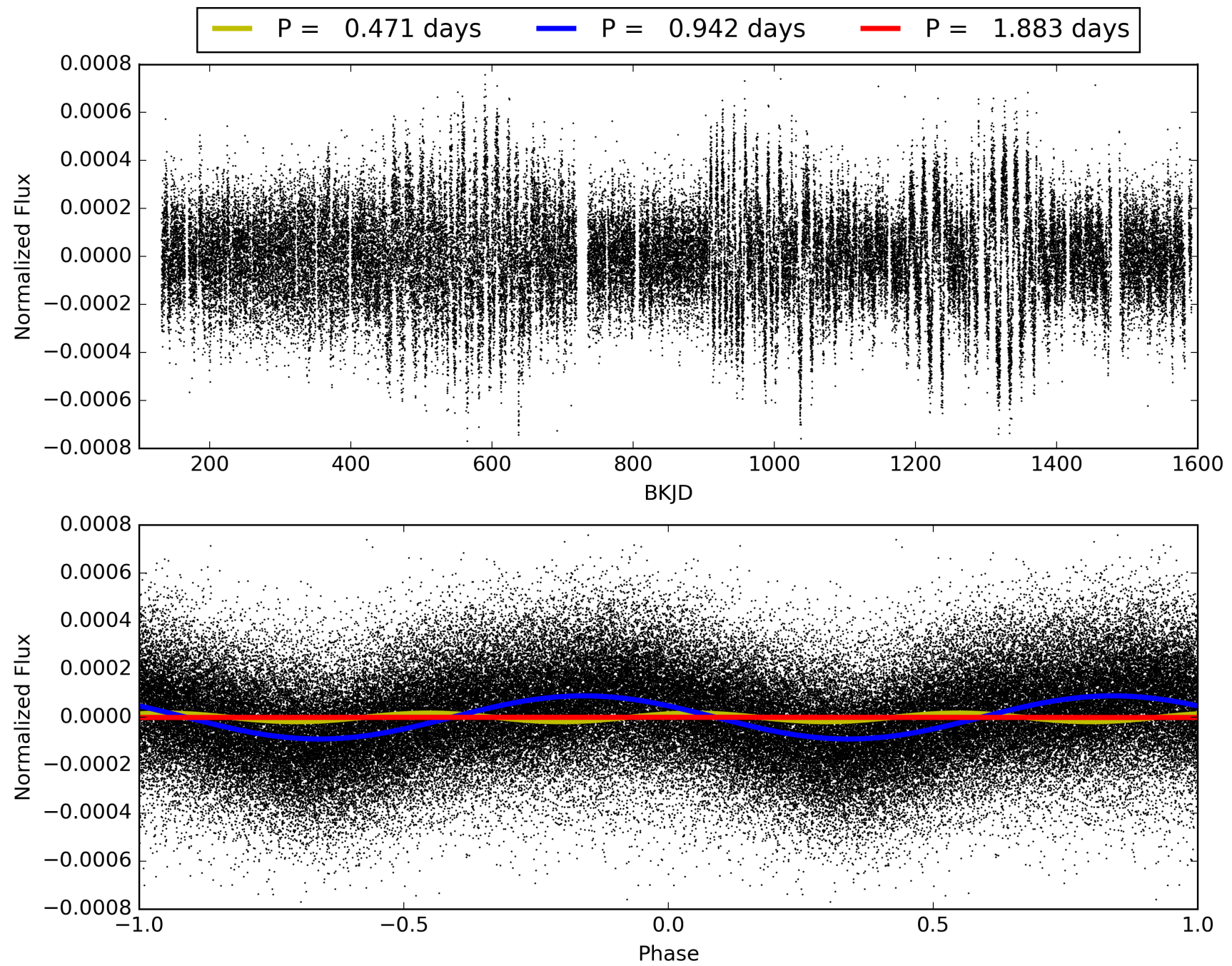
KIC: 6037990 Candidate: 1 of 6 Period: 0.942 d



TCE 006037990-01, PDC Light Curves

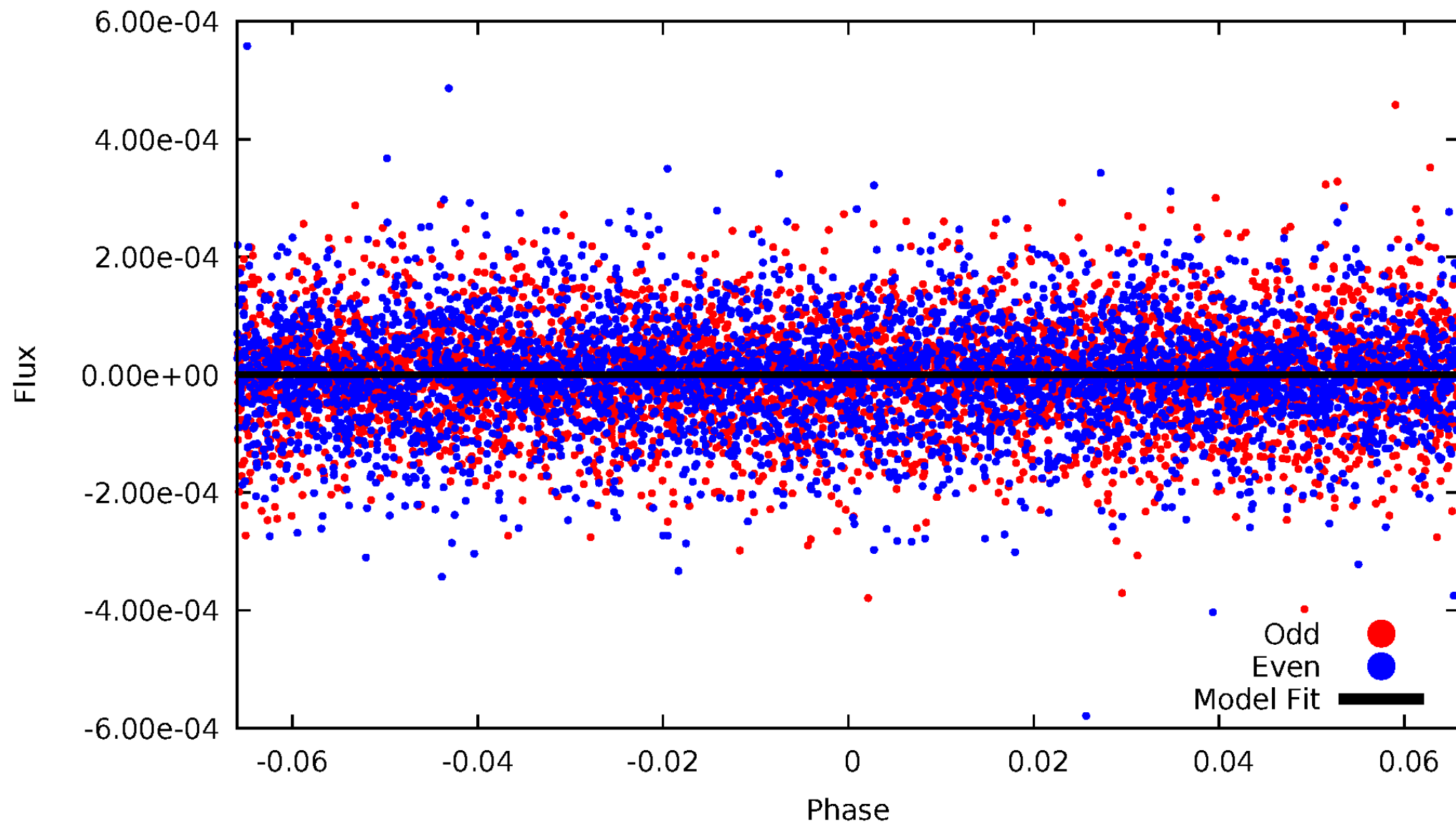


TCE 006037990-01



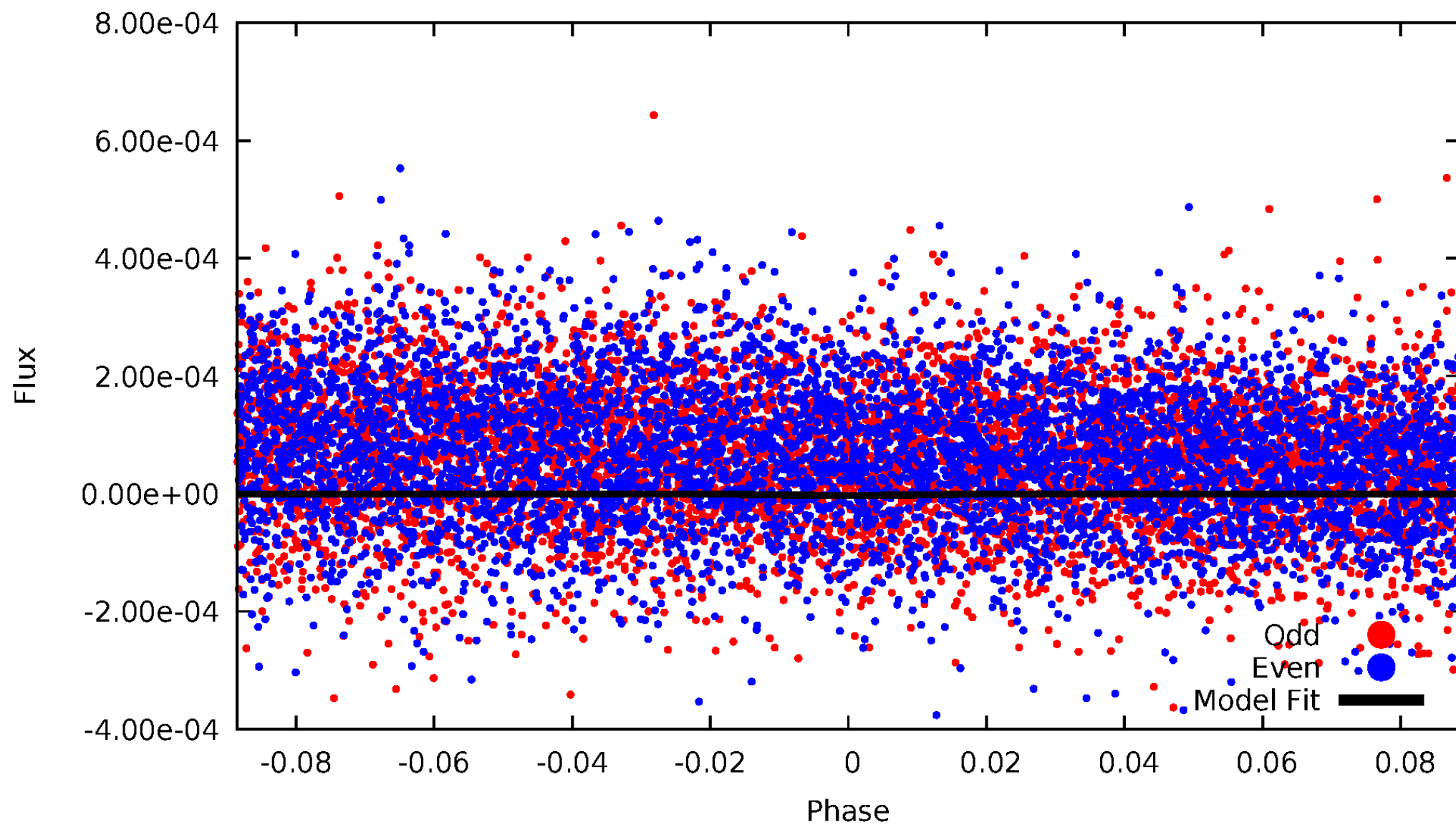
DV Odd/Even

TCE 006037990-01

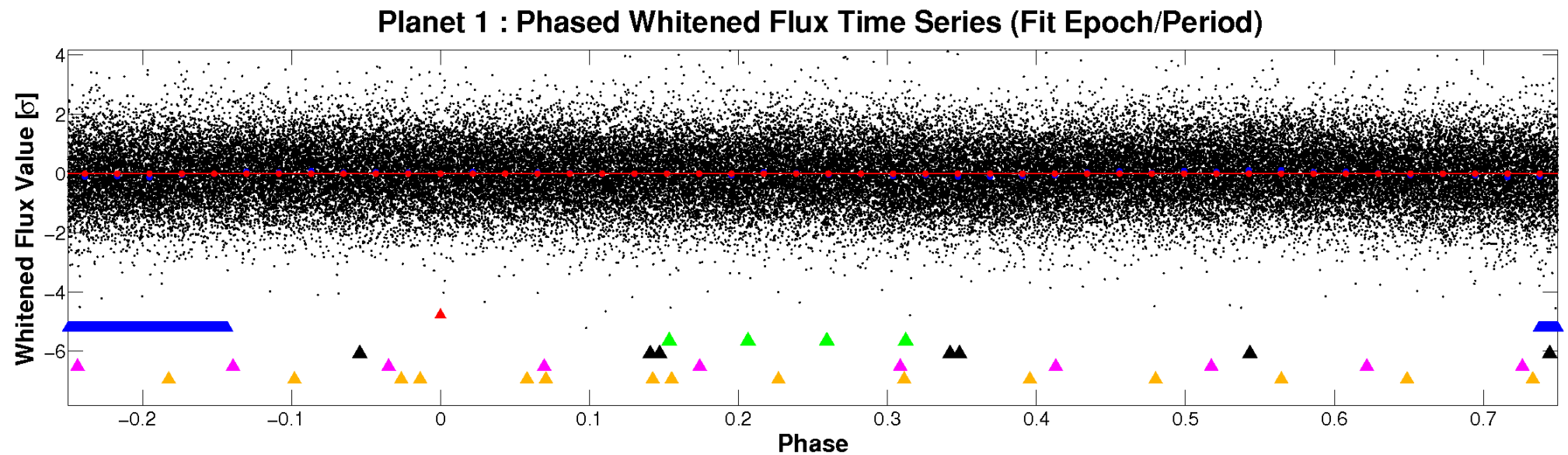
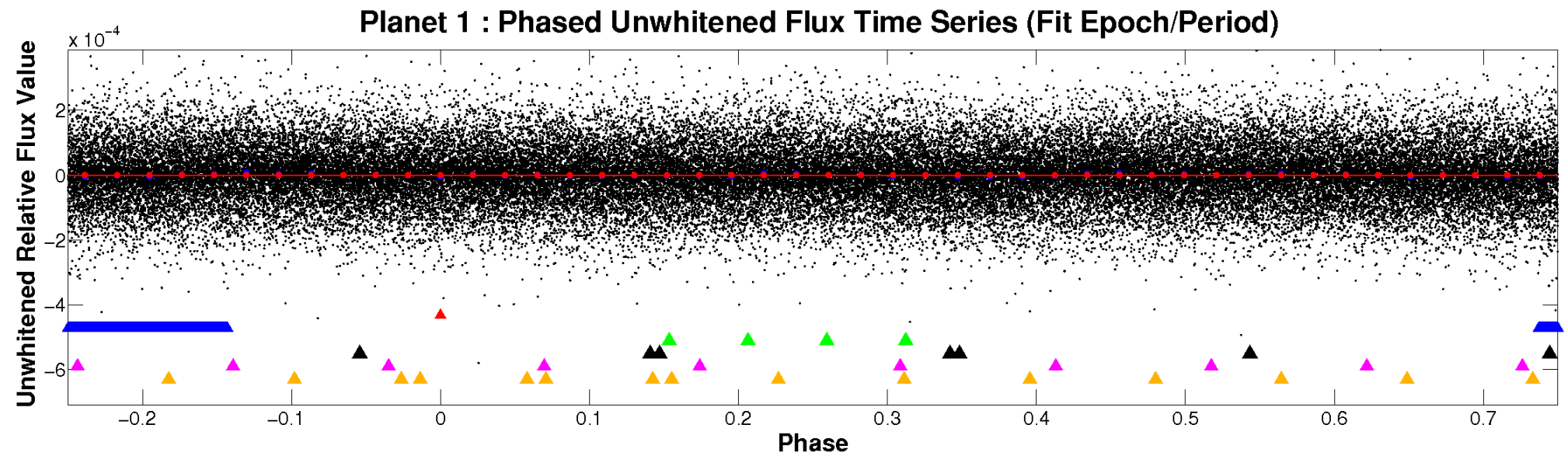


ALT Odd/Even

TCE 006037990-01

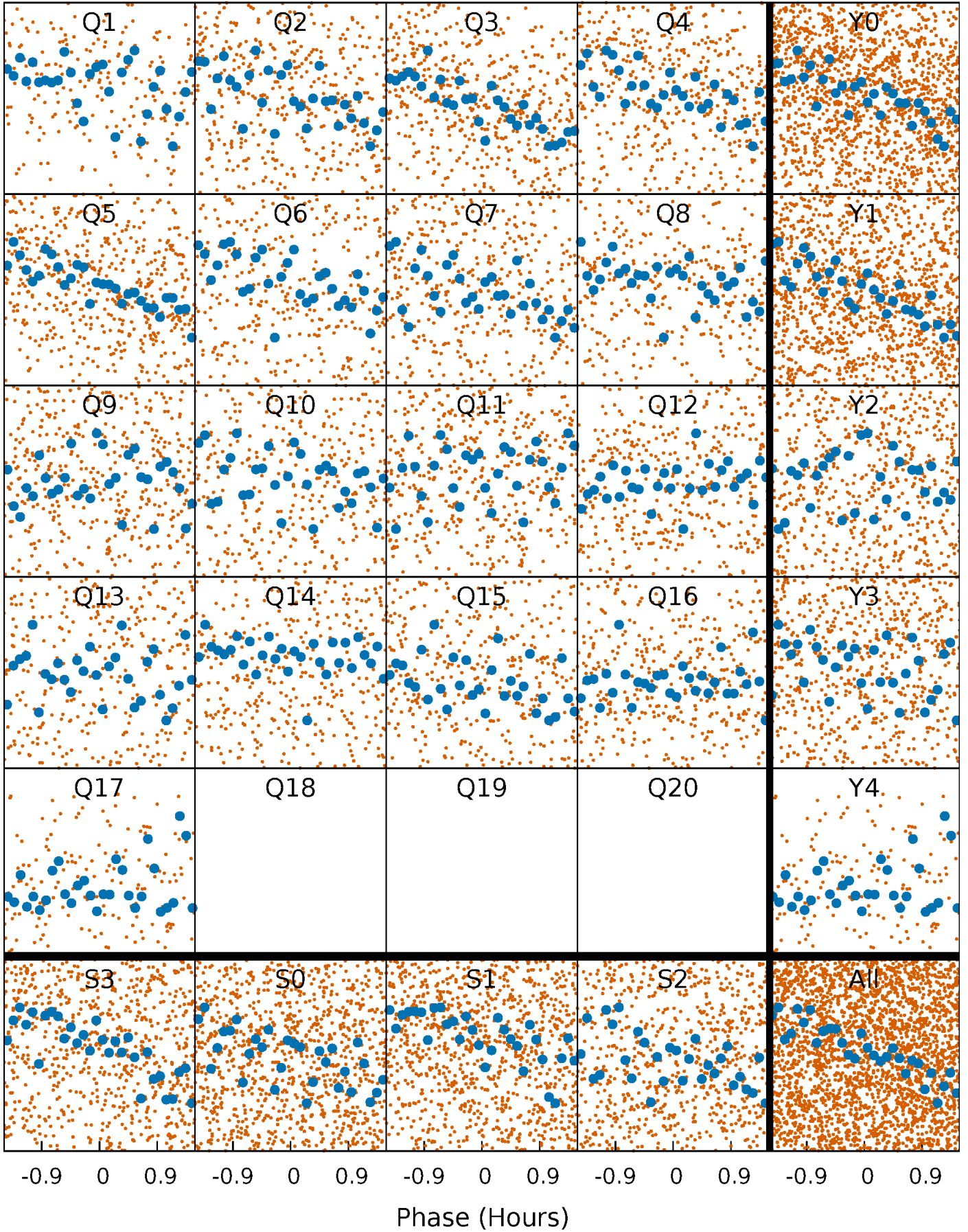


Non-Whitened Vs. Whitened Light Curve



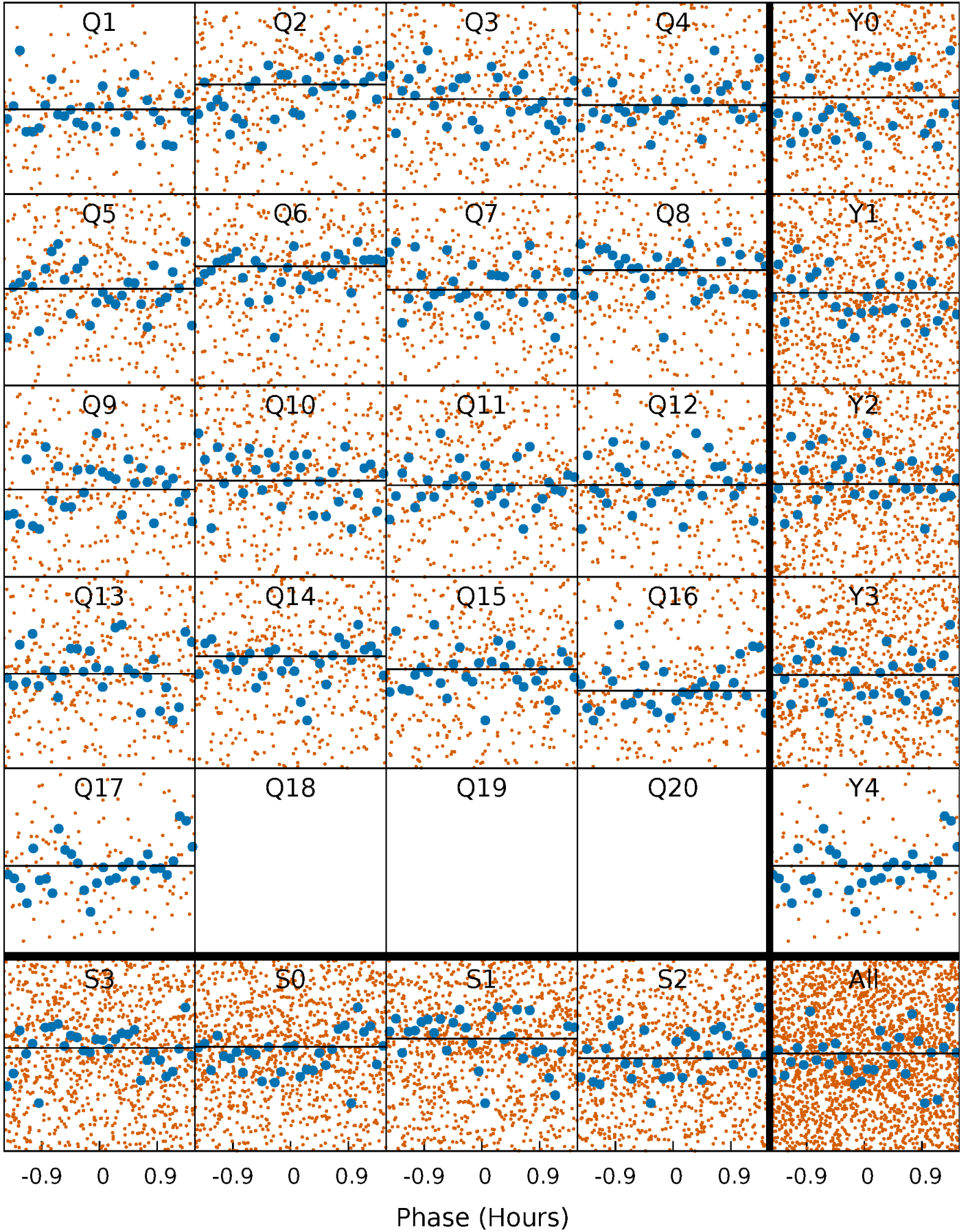
PDC Quarter-Phased Transit Curves

TCE 006037990-01 P= 0.941516 Days $T_0=132.447097$ (BKJD)



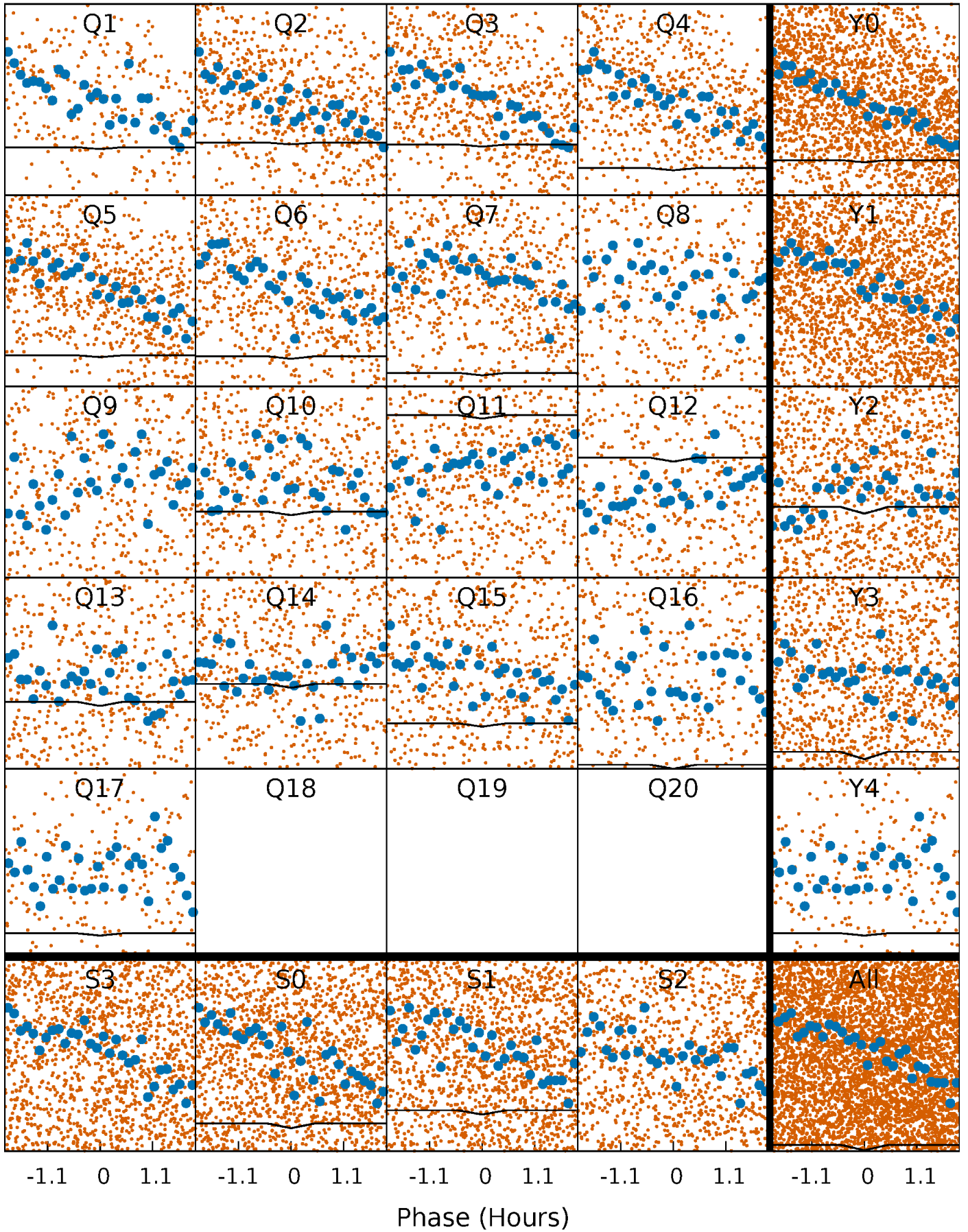
DV Quarter-Phased Transit Curves

TCE 006037990-01 $P = 0.941516$ Days $T_0 = 132.447097$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

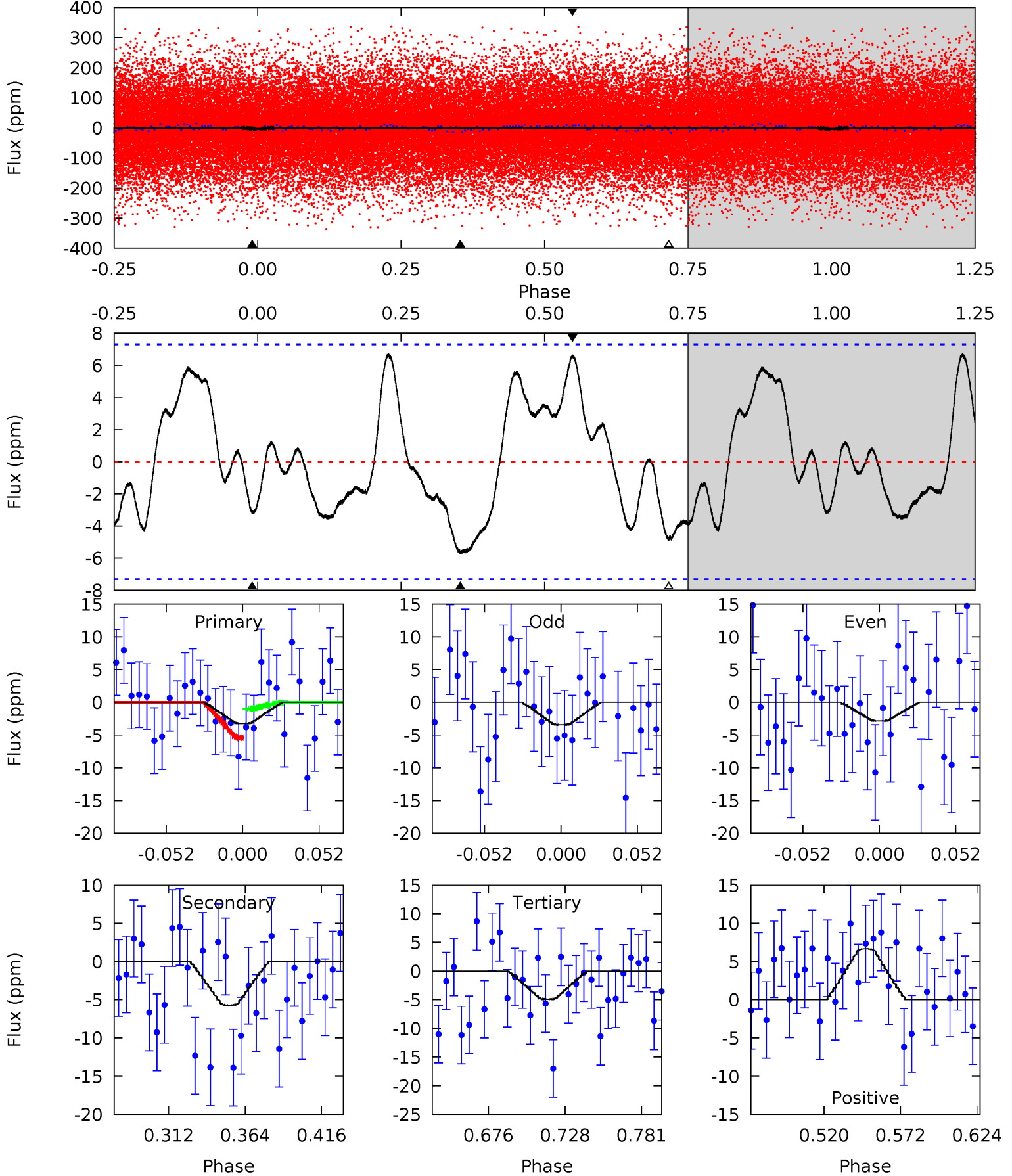
TCE 006037990-01 P= 0.941533 Days $T_0=132.426060$ (BKJD)



DV Model-Shift Uniqueness Test

006037990-01, P = 0.941516 Days, E = 131.505581 Days

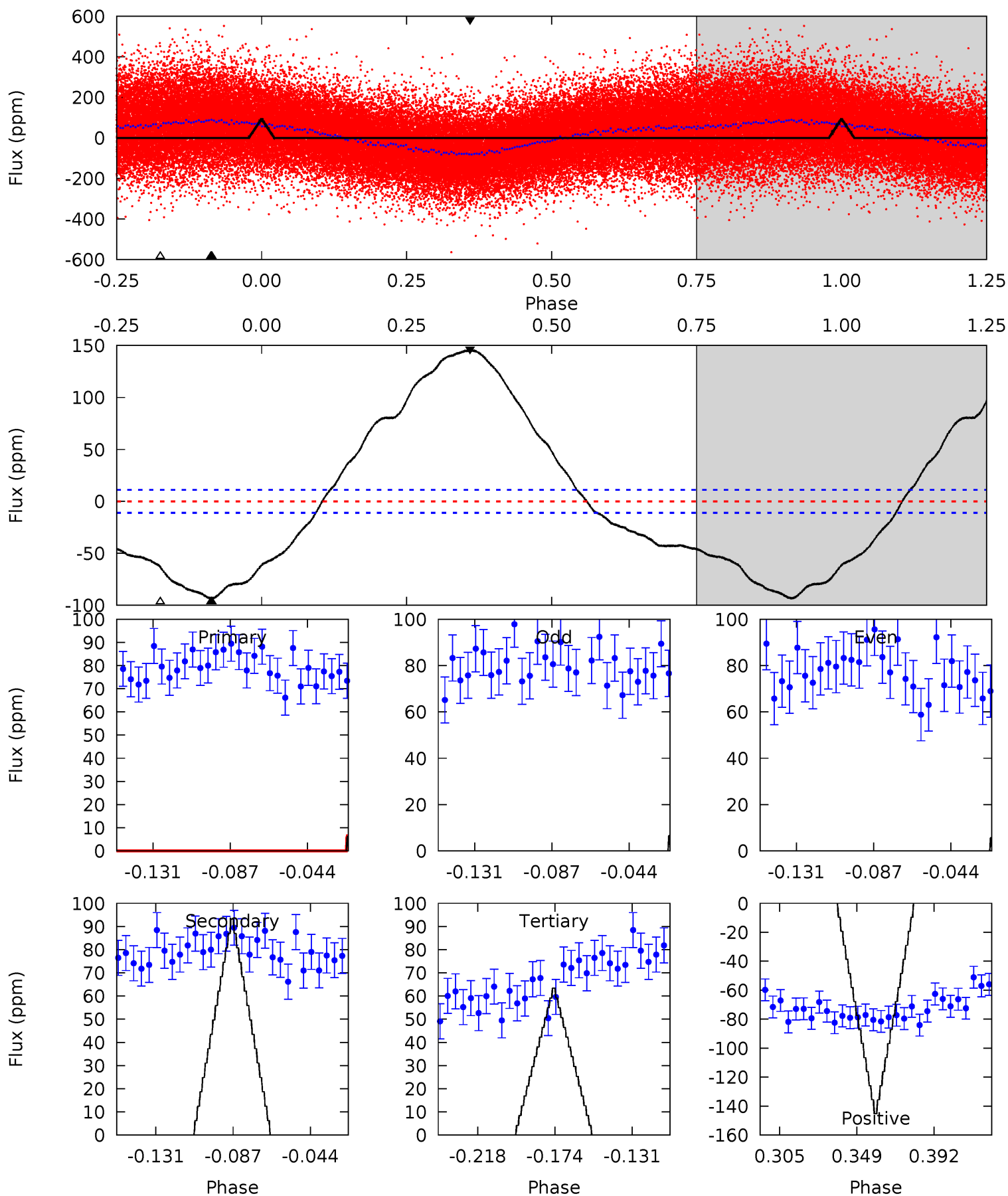
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
2.08	3.68	3.16	4.28	4.70	1.94	2.08	-1.07	-2.20	0.52	-0.60	0.19	2.31	0.54	1.43



Alt Model-Shift Uniqueness Test

006037990-01, P = 0.941533 Days, E = 131.484527 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
40.2	40.2	27.3	62.6	4.74	2.02	31.2	12.9	-22.4	12.8	-22.4	2.87	1.04	0.61	2.25



Stellar Parameters For KIC 006037990

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$\rho_{\star} (\text{g}\cdot\text{cm}^{-3})$
	7455^{+209}_{-314}	$3.921^{+0.287}_{-0.143}$	$-0.080^{+0.200}_{-0.350}$	$2.407^{+0.478}_{-0.888}$	$1.759^{+0.195}_{-0.391}$	$0.178^{+0.347}_{-0.065}$
	+3%/-4%	+7%/-4%	+250%/-438%	+20%/-37%	+11%/-22%	+195%/-37%
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 006037990-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-6 ± 2	$6.22^{+7.79}_{-4.28}$	4626^{+387}_{-401}	-3862^{+7393}_{-328}	$0.040^{+0.392}_{-0.032}$
Alt.	-93 ± 2	$6.19^{+7.44}_{-4.45}$	4657^{+367}_{-446}	4146^{+4526}_{-7843}	$0.700^{+7.512}_{-0.560}$

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

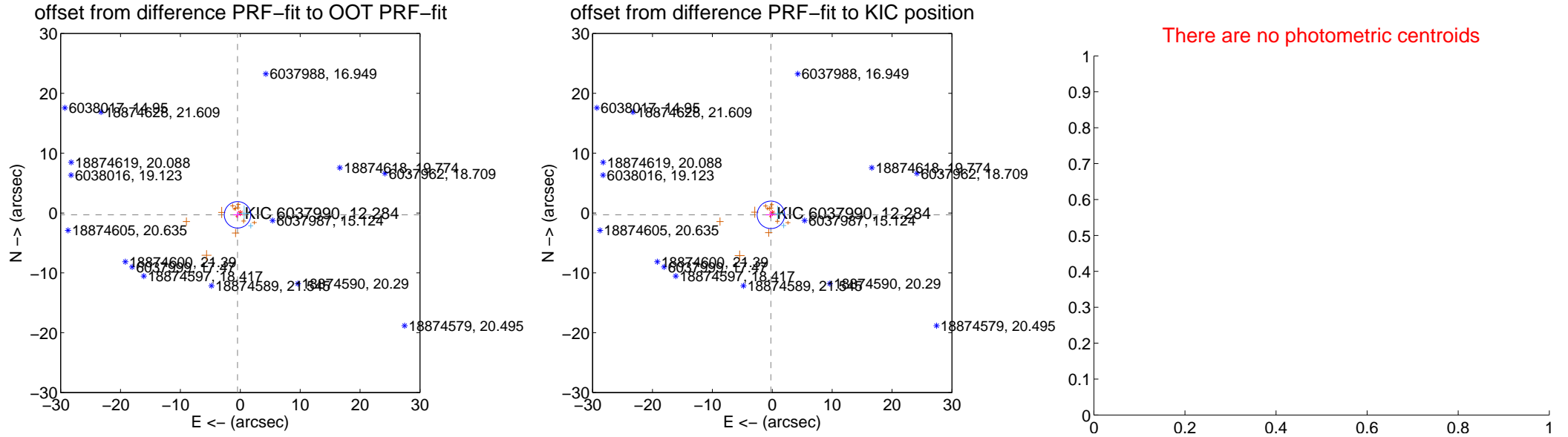
DV Centroid Data

Supplemental centroid analysis for 006037990-01. Kepler magnitude: 12.28. Transit SNR 0.00

There are 2 quarters with good PRF difference image offsets

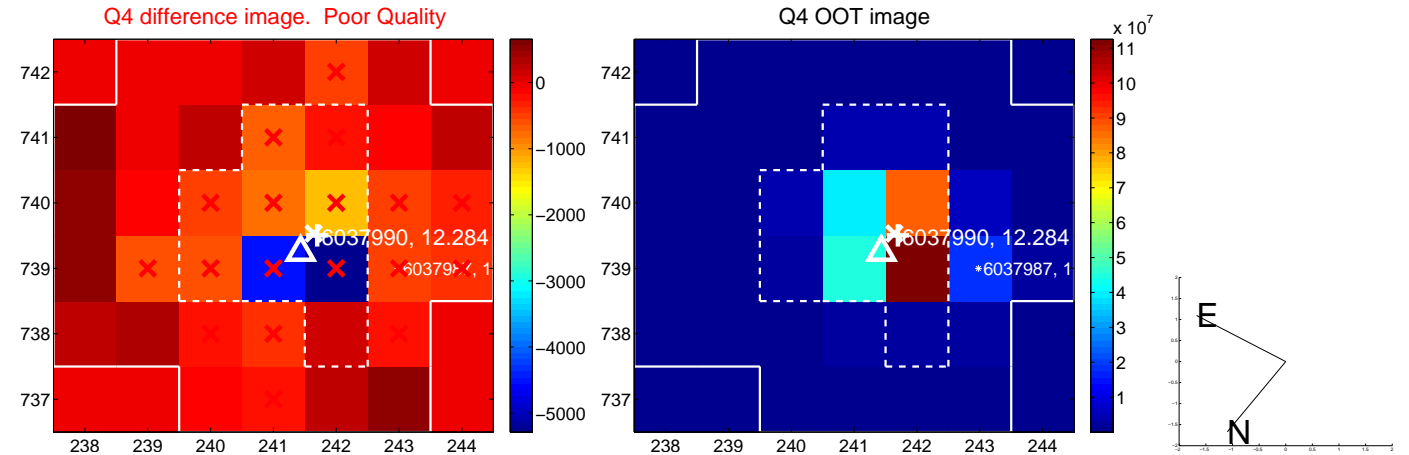
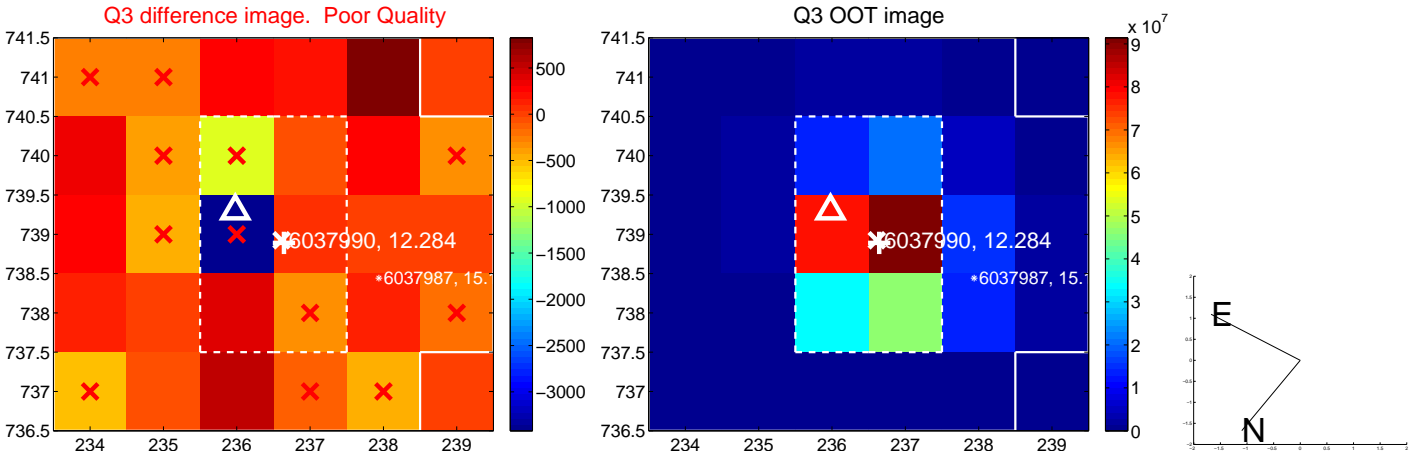
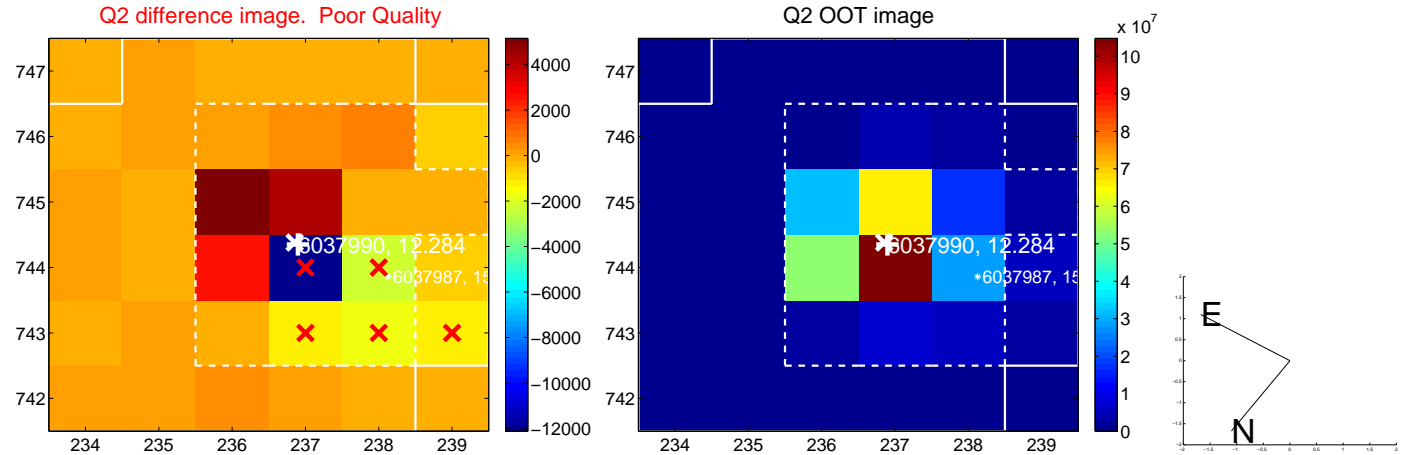
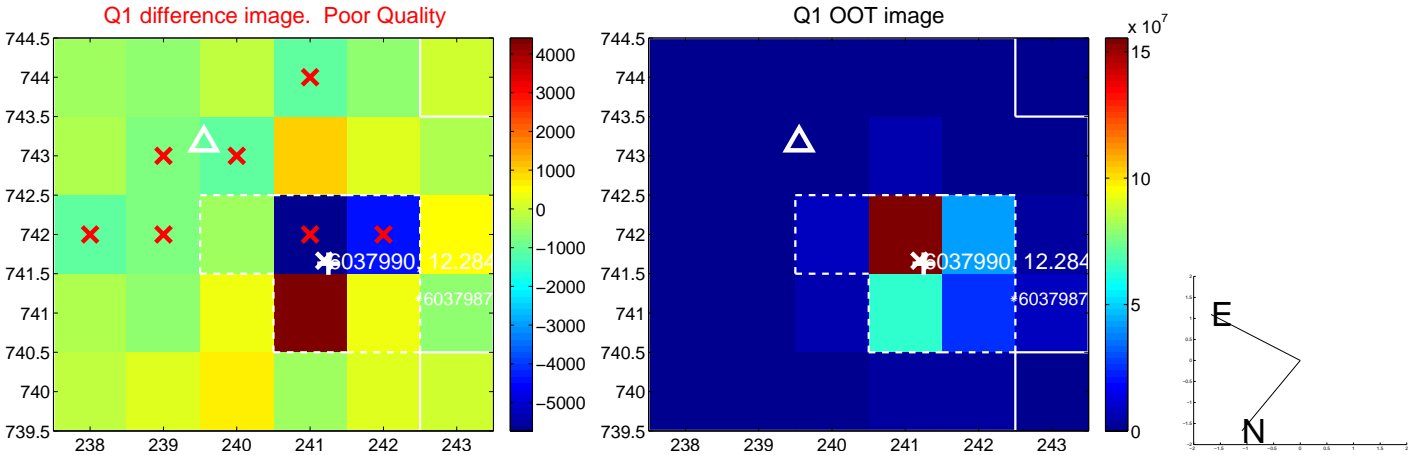
The direct PRF centroid is offset from the target star catalog position by about 0.29 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.549 ± 0.737	0.74	0.458 ± 0.705	-0.303 ± 0.548
PRF-fit source offset from KIC position	0.380 ± 0.765	0.50	0.228 ± 0.823	-0.304 ± 0.569
photometric centroid source offset	—	—	—	—

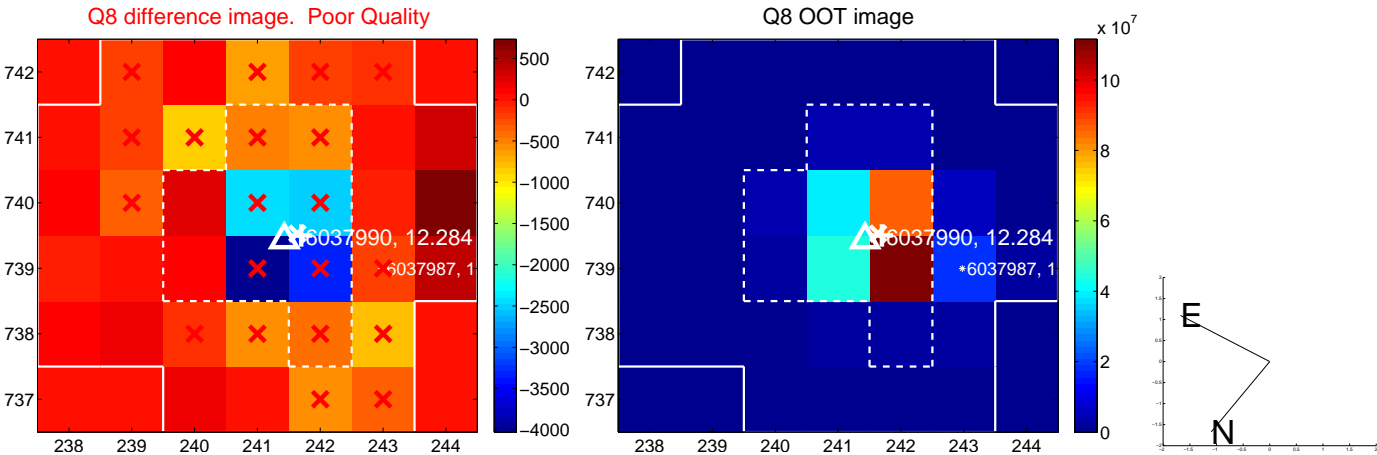
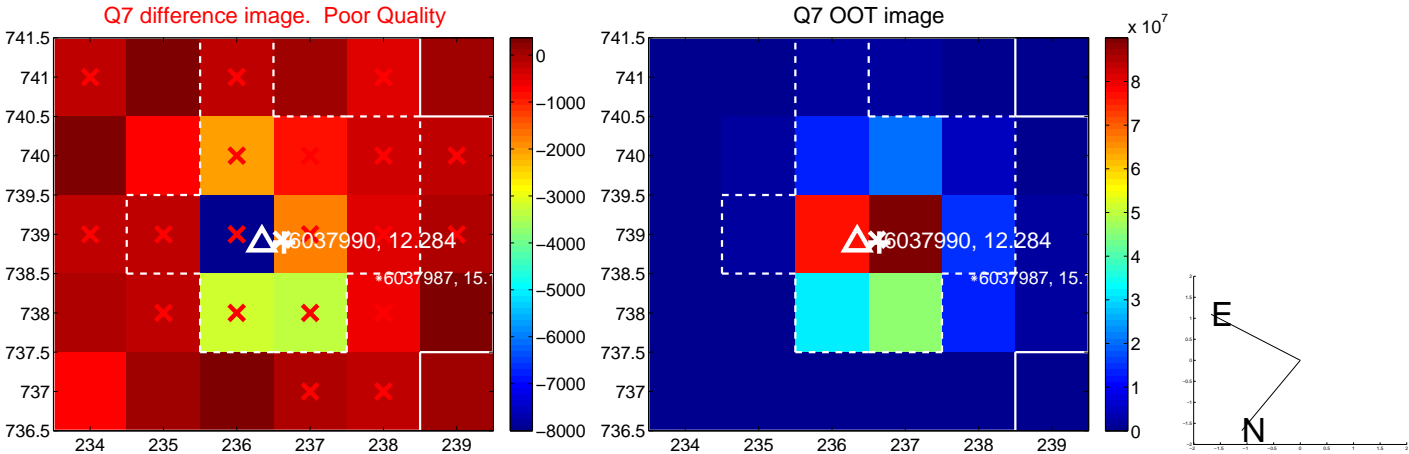
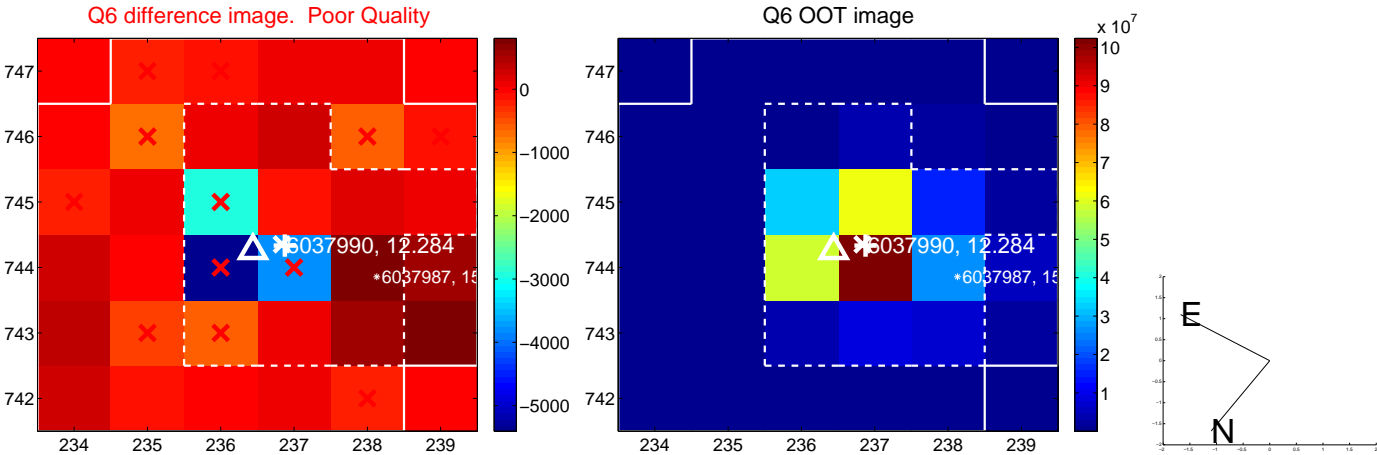
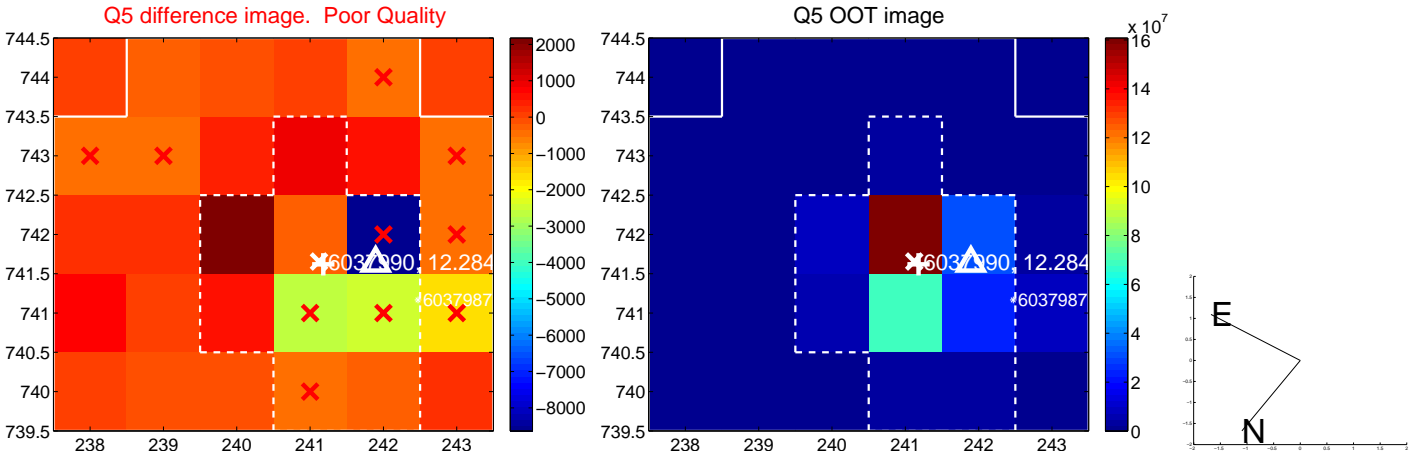


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

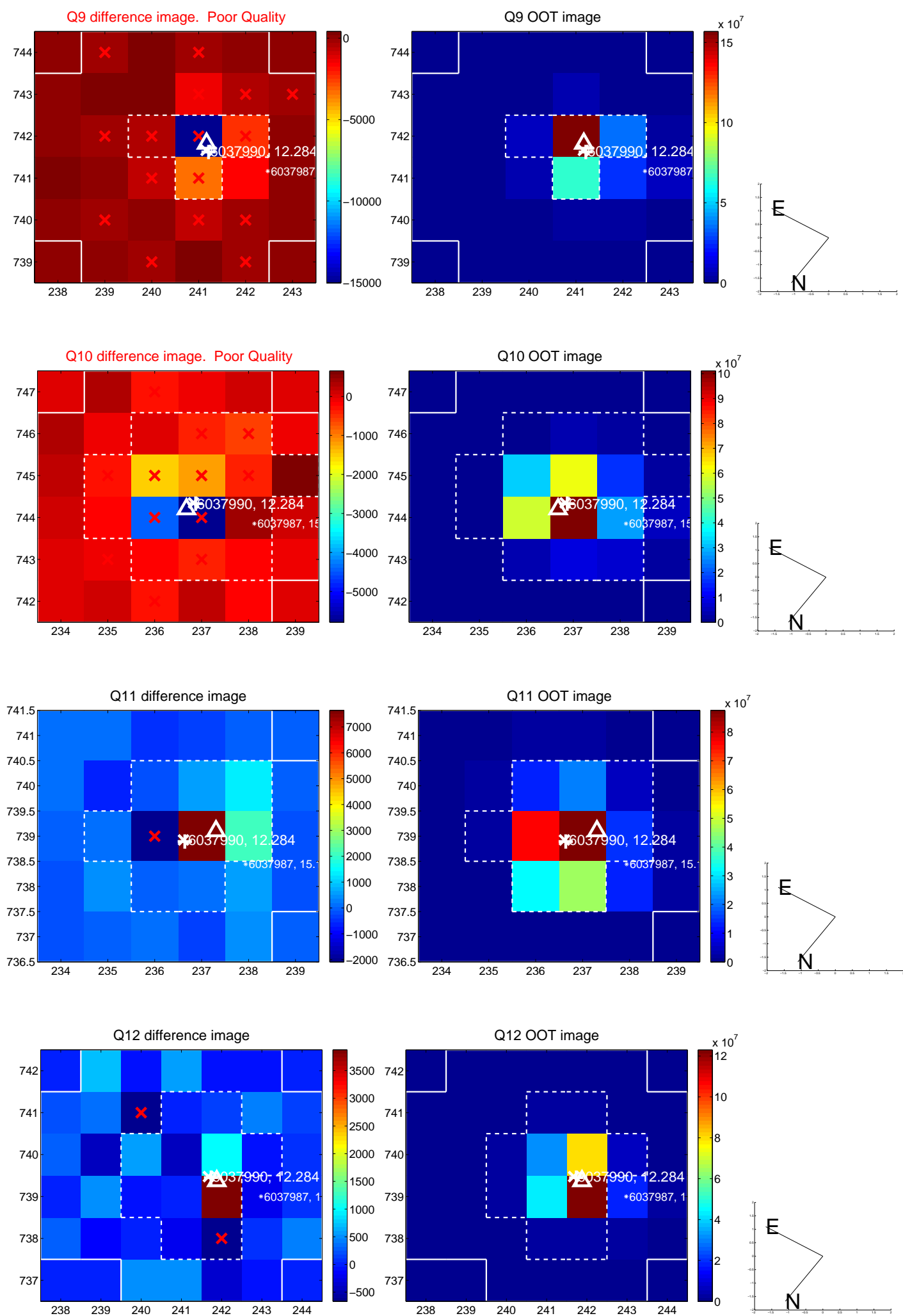
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



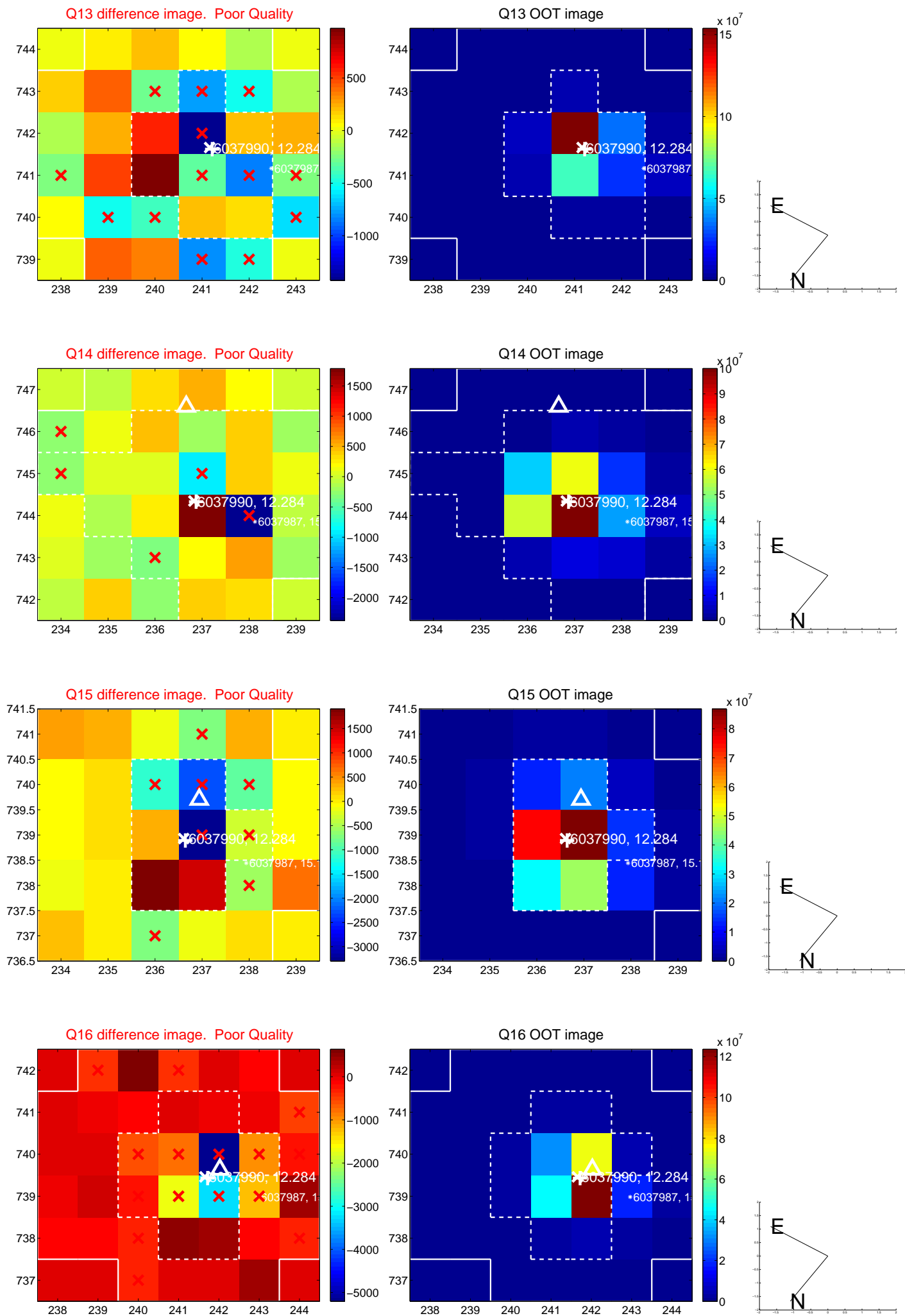
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



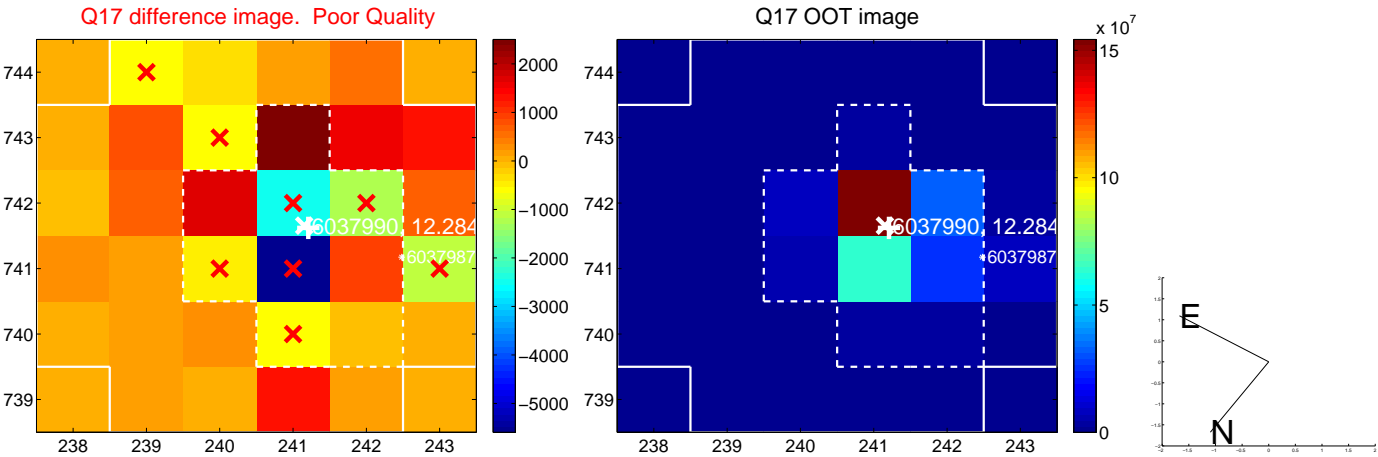
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



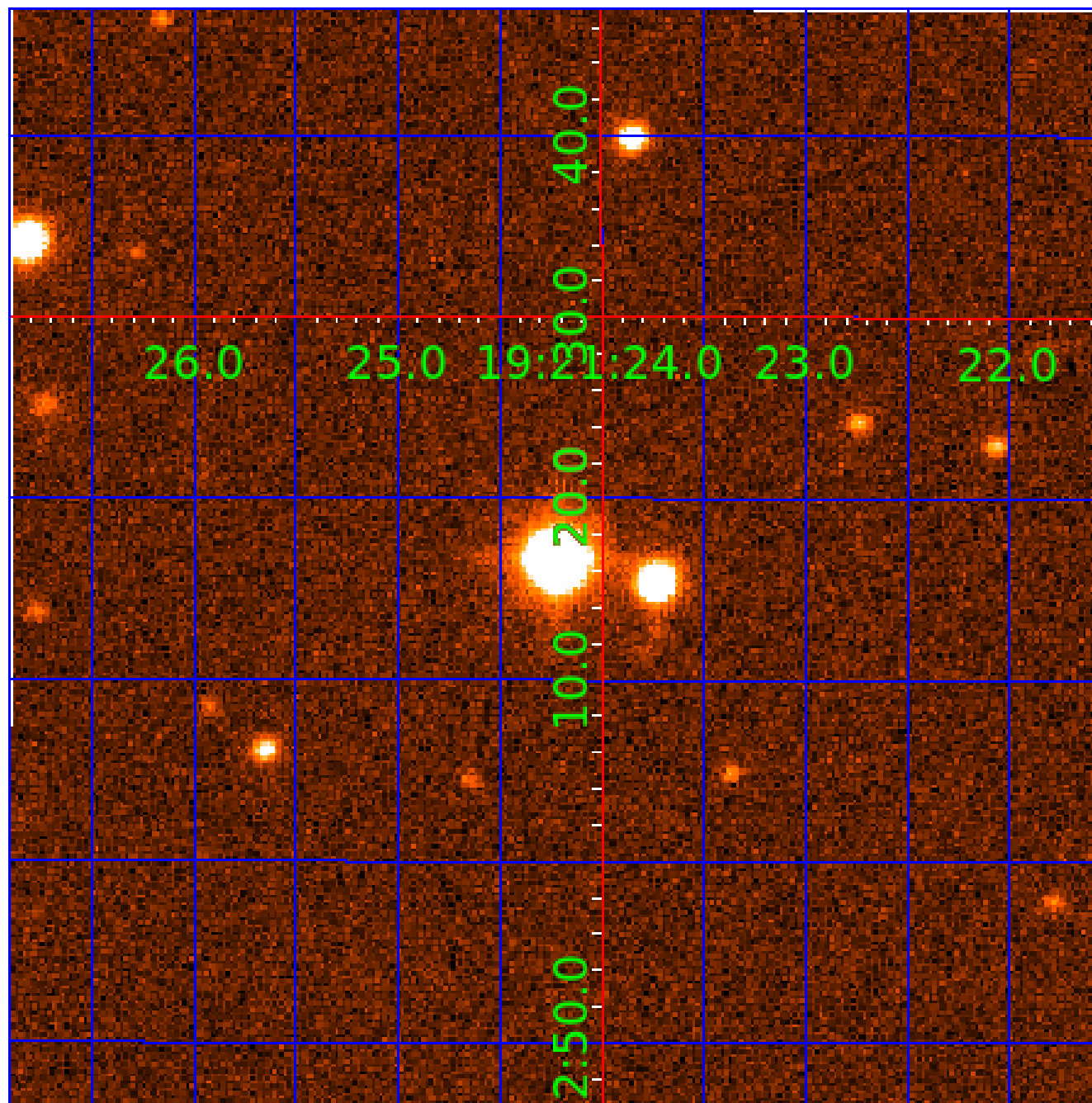
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ✕: large negative pixel value.



folded centroid time series figure for this object.

UKIRT Image

Declination



KIC 006037990

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})
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Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
006037990-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA_TRACKER—SWEET_NTL—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT—CENT_FEW_DIFFS
006037990-02	OBS	FP	0.00	1	0	0	0	SWEET_NTL—LPP_DV—SAME_NTL_PERIOD
006037990-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—LPP_DV—LPP_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
006037990-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
006037990-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE—TRANS_GAPPED—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT
006037990-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—MOD_NONUNIQ_ALT

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

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

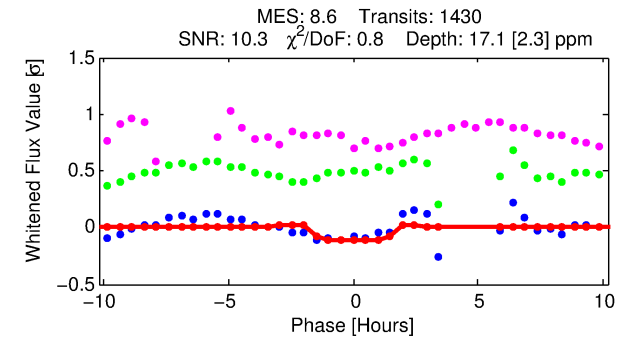
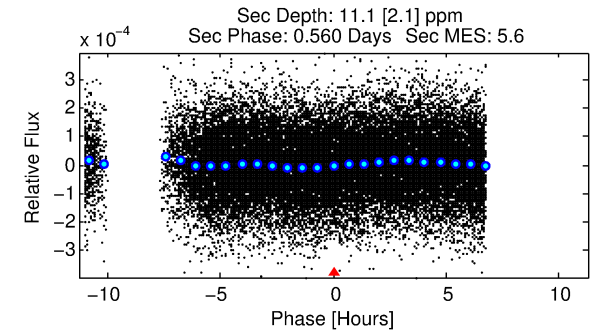
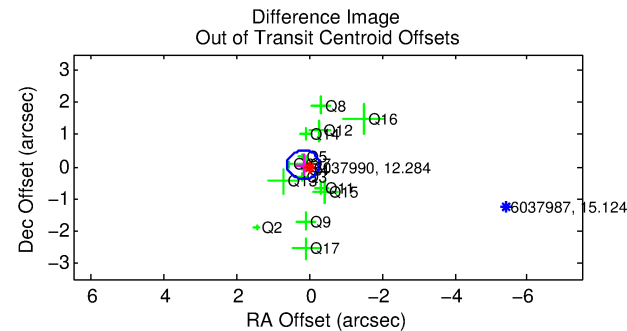
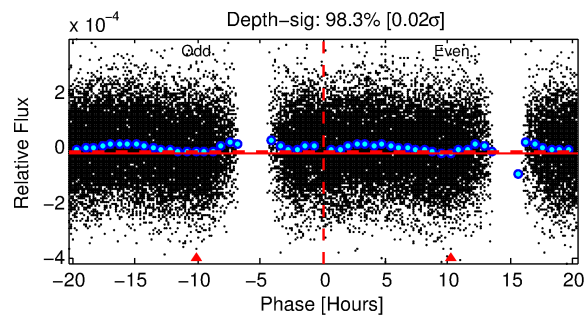
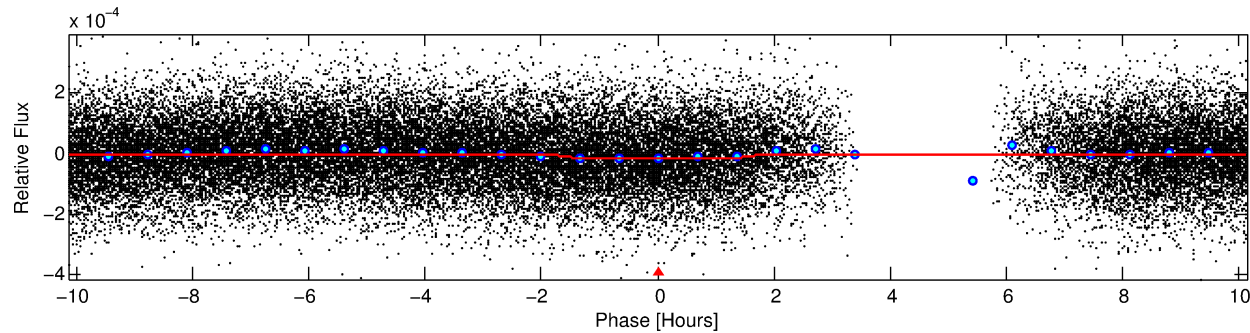
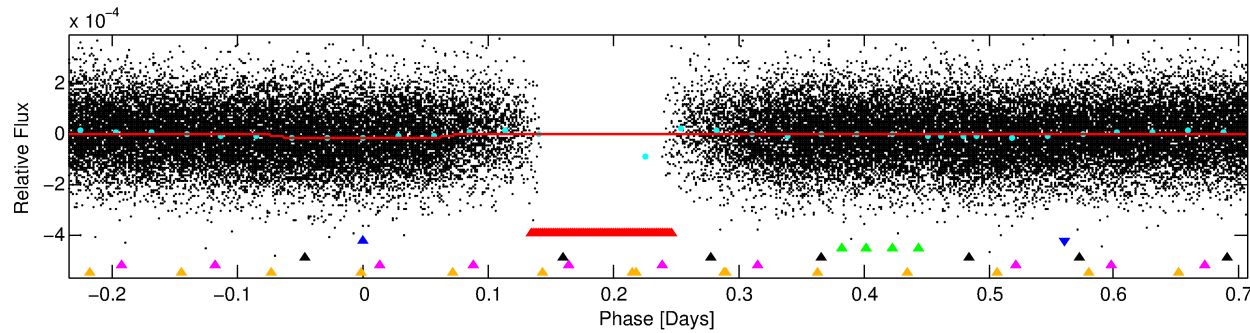
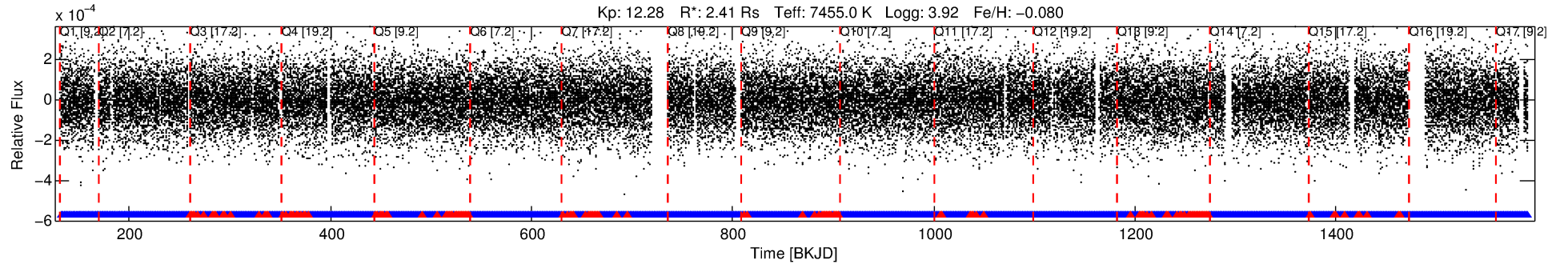
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 006037990-02

No Significant Match Found

DV One-Page Summary

KIC: 6037990 Candidate: 2 of 6 Period: 0.942 d



DV Fit Results:

Period = 0.94159 [0.00002] d
Epoch = 132.1997 [0.0035] BKJD
Rp/R* = 0.0044 [0.0010]
a/R* = 1.33 [0.82]
b = 0.90 [0.30]
Seff = 31082.82 [16534.48]
Teq = 3386 [450] K
Rp = 1.15 [0.50] Re
a = 0.0227 [0.0075] AU
Ag = 2.37 [1.66] [0.83 σ]
Teffp = 6497 [835] K [3.28 σ]

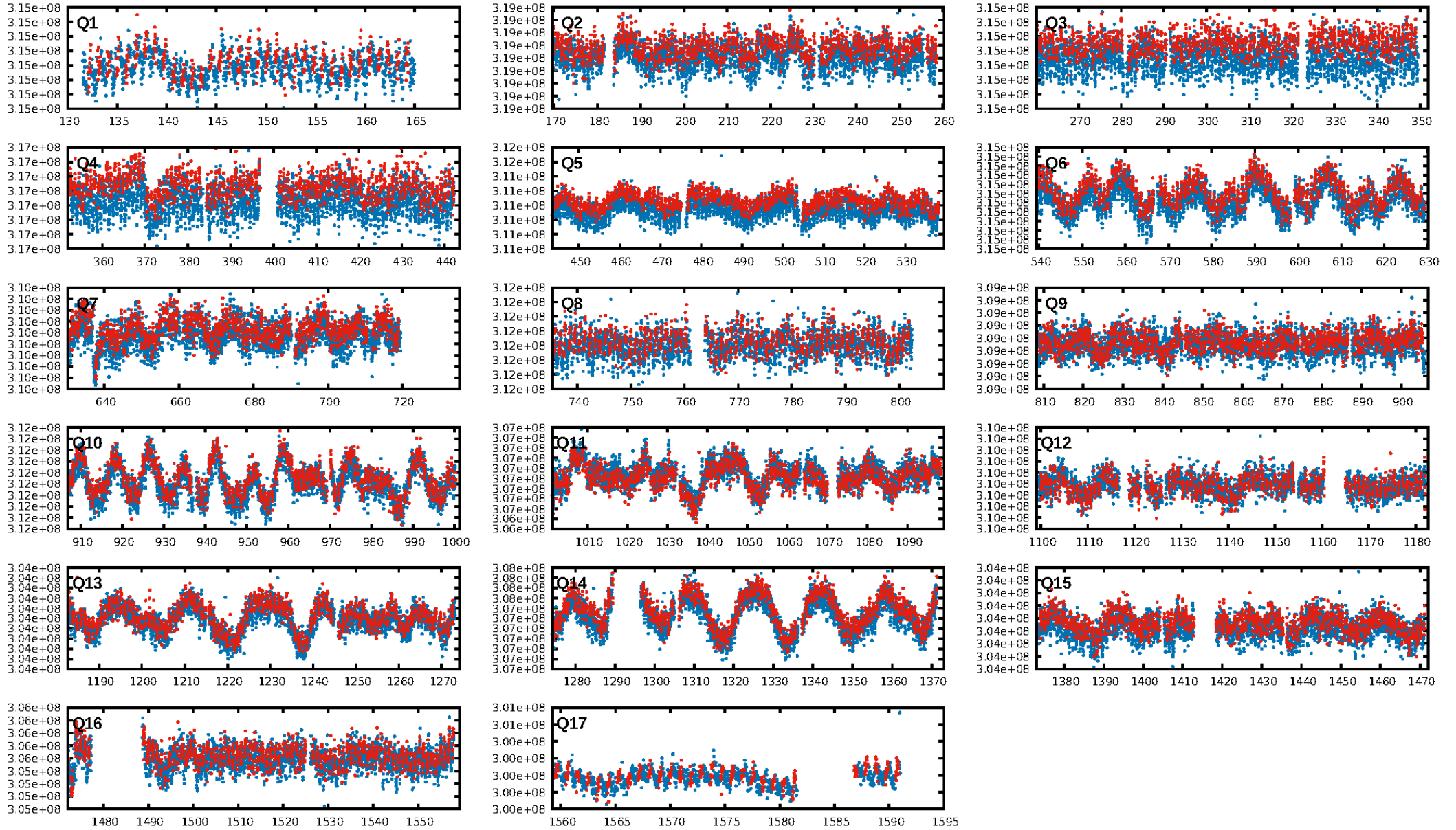
DV Diagnostic Results:

ShortPeriod-sig: 0.0% [0.00 σ]
LongPeriod-sig: 100.0% [484.05 σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 3.32e-15
RollingBand-fgt: 0.88 [1207/1366]
GhostDiagnostic-chr: -5.448
Centroid-sig: 0.0%
Centroid-so: 1.285 arcsec [2.03 σ]
OotOffset-rm: 0.175 arcsec [1.18 σ]
KicOffset-rm: 0.092 arcsec [0.35 σ]
OotOffset-st: 3/4/4/4 [15]
KicOffset-st: 3/4/4/4 [15]
DiffImageQuality-fgm: 0.27 [4/15]
DiffImageOverlap-fno: 0.00 [0/17]

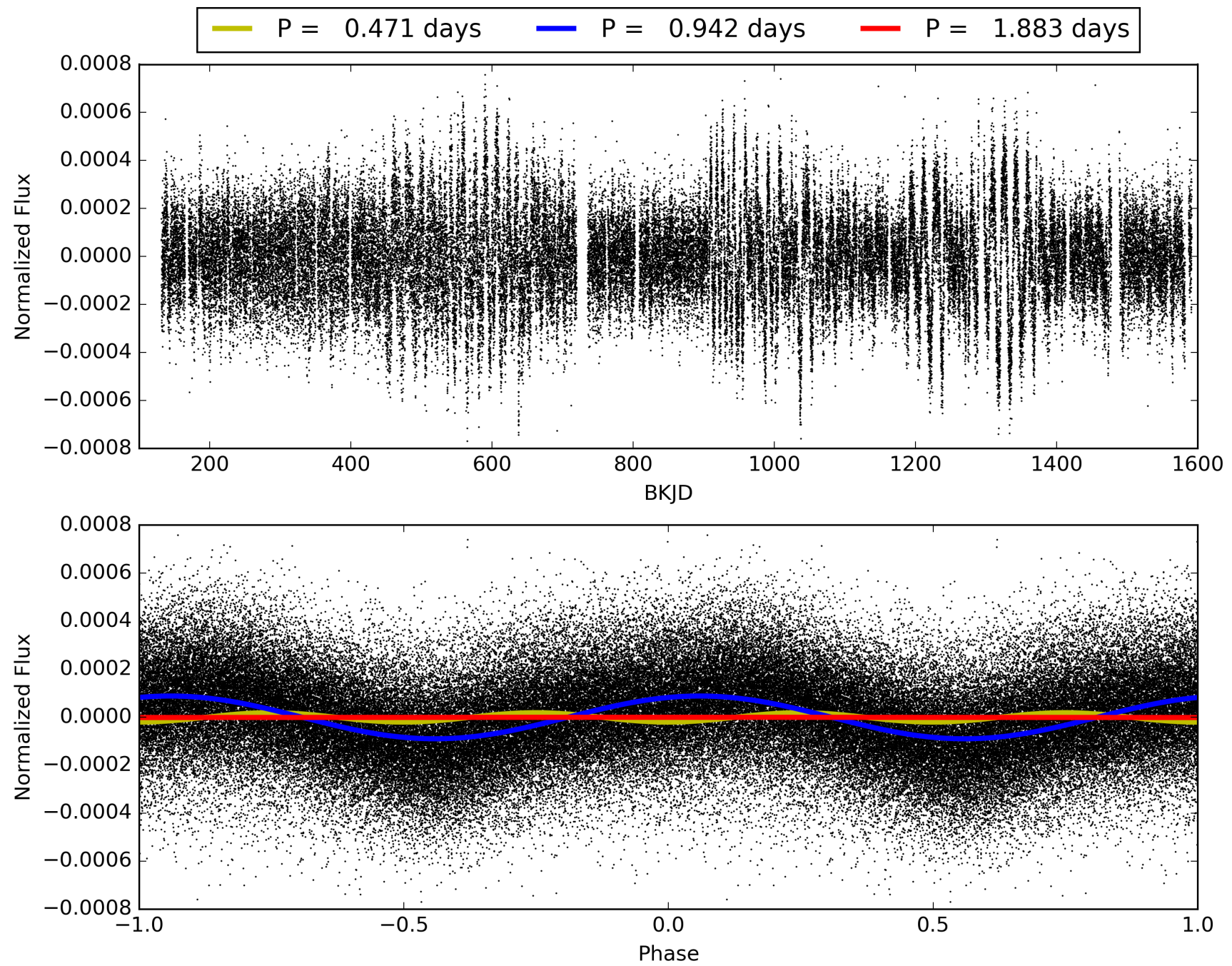
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 19:40:42 Z

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

TCE 006037990-02, PDC Light Curves

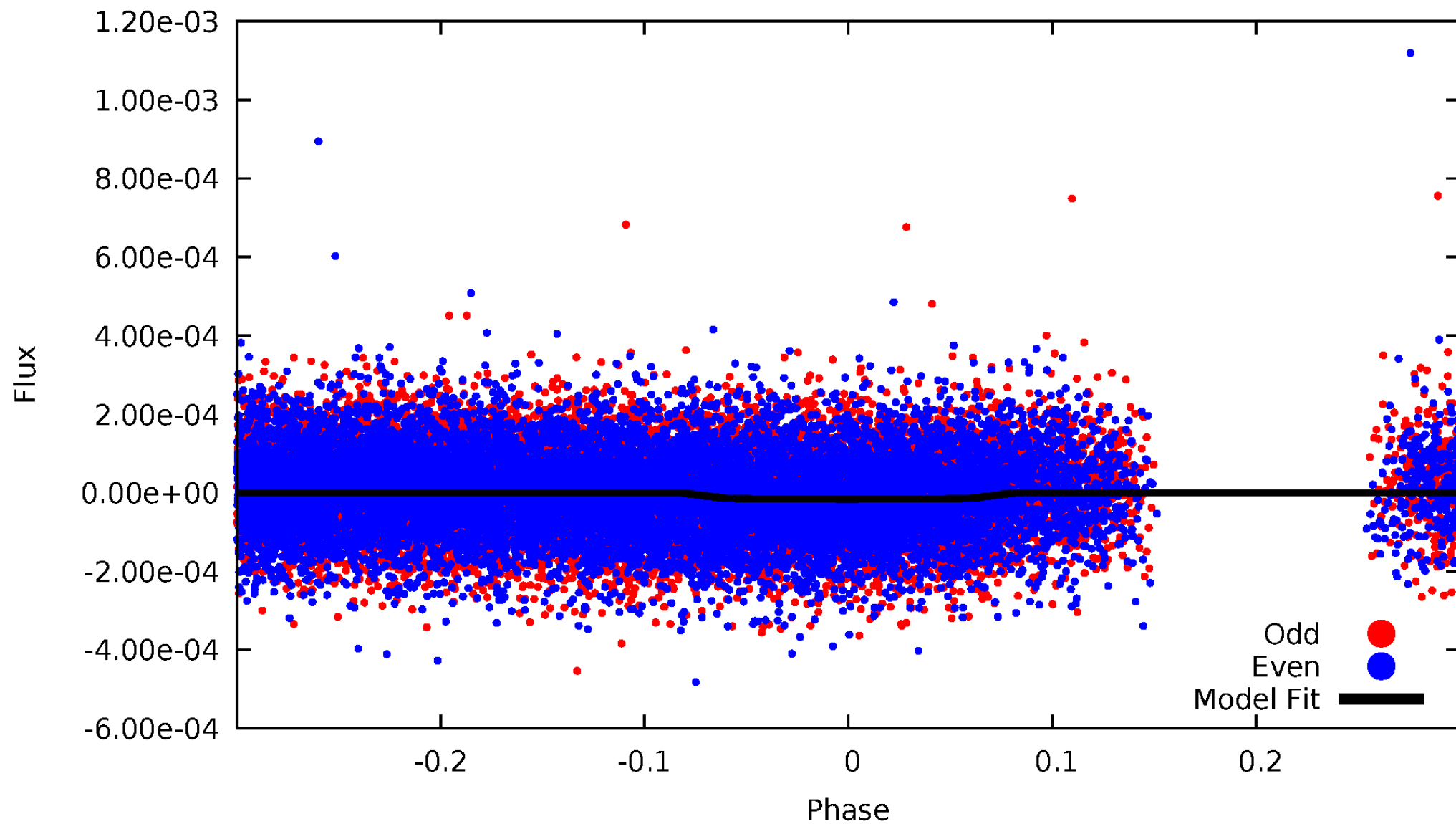


TCE 006037990-02



DV Odd/Even

TCE 006037990-02

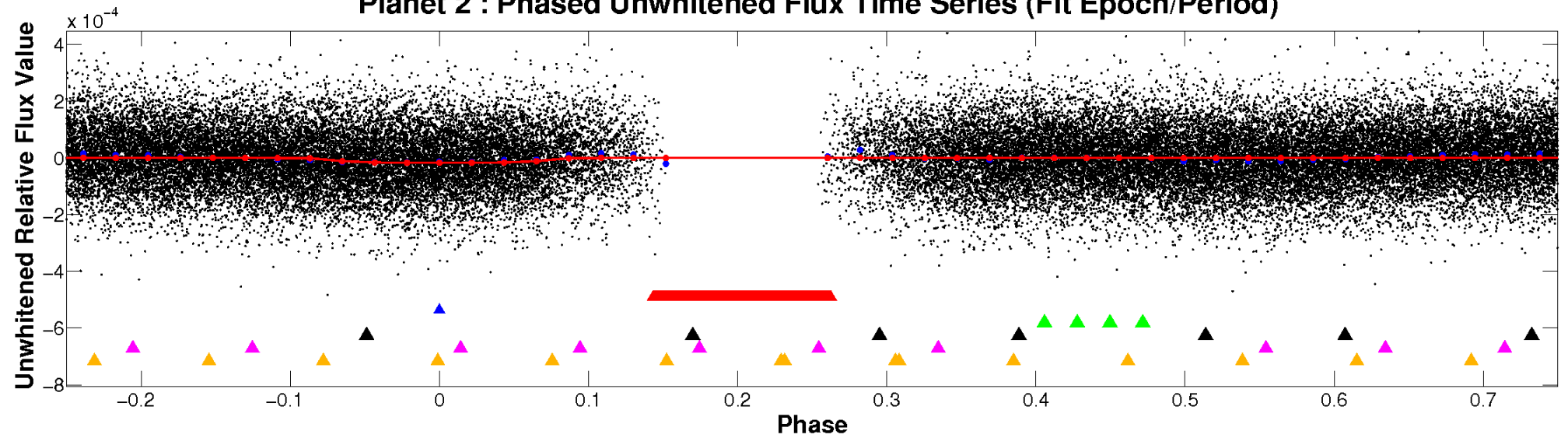


ALT Odd/Even

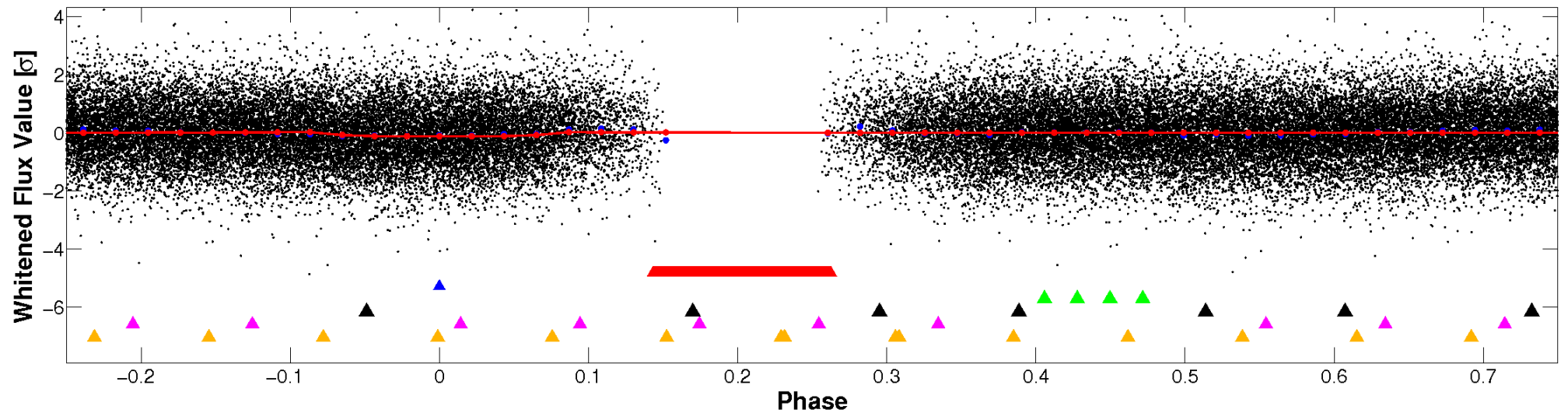
This plot does not exist for this TCE.

Non-Whitened Vs. Whitened Light Curve

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

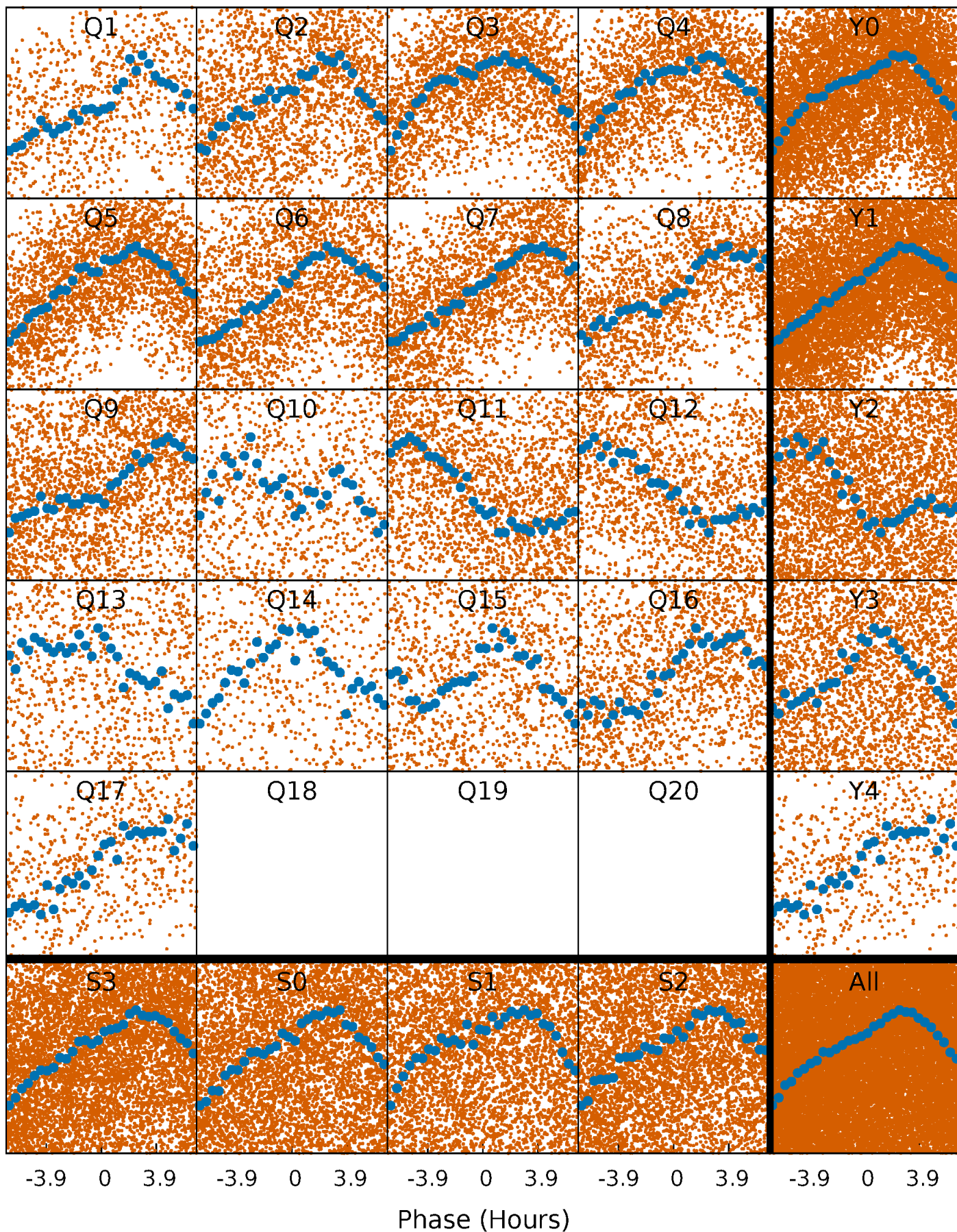


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



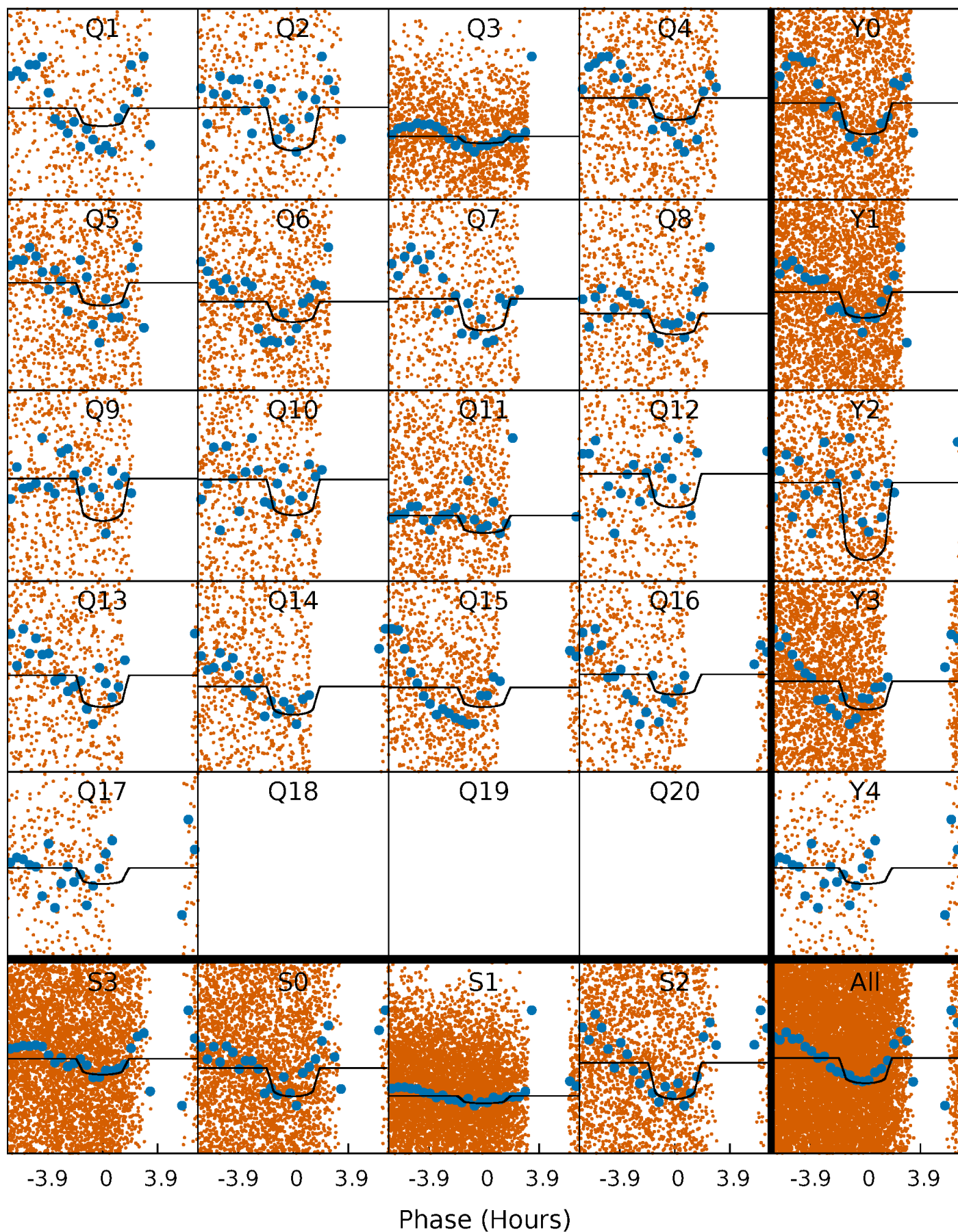
PDC Quarter-Phased Transit Curves

TCE 006037990-02 P= 0.941589 Days $T_0=132.199746$ (BKJD)



DV Quarter-Phased Transit Curves

TCE 006037990-02 P= 0.941589 Days $T_0=132.199746$ (BKJD)

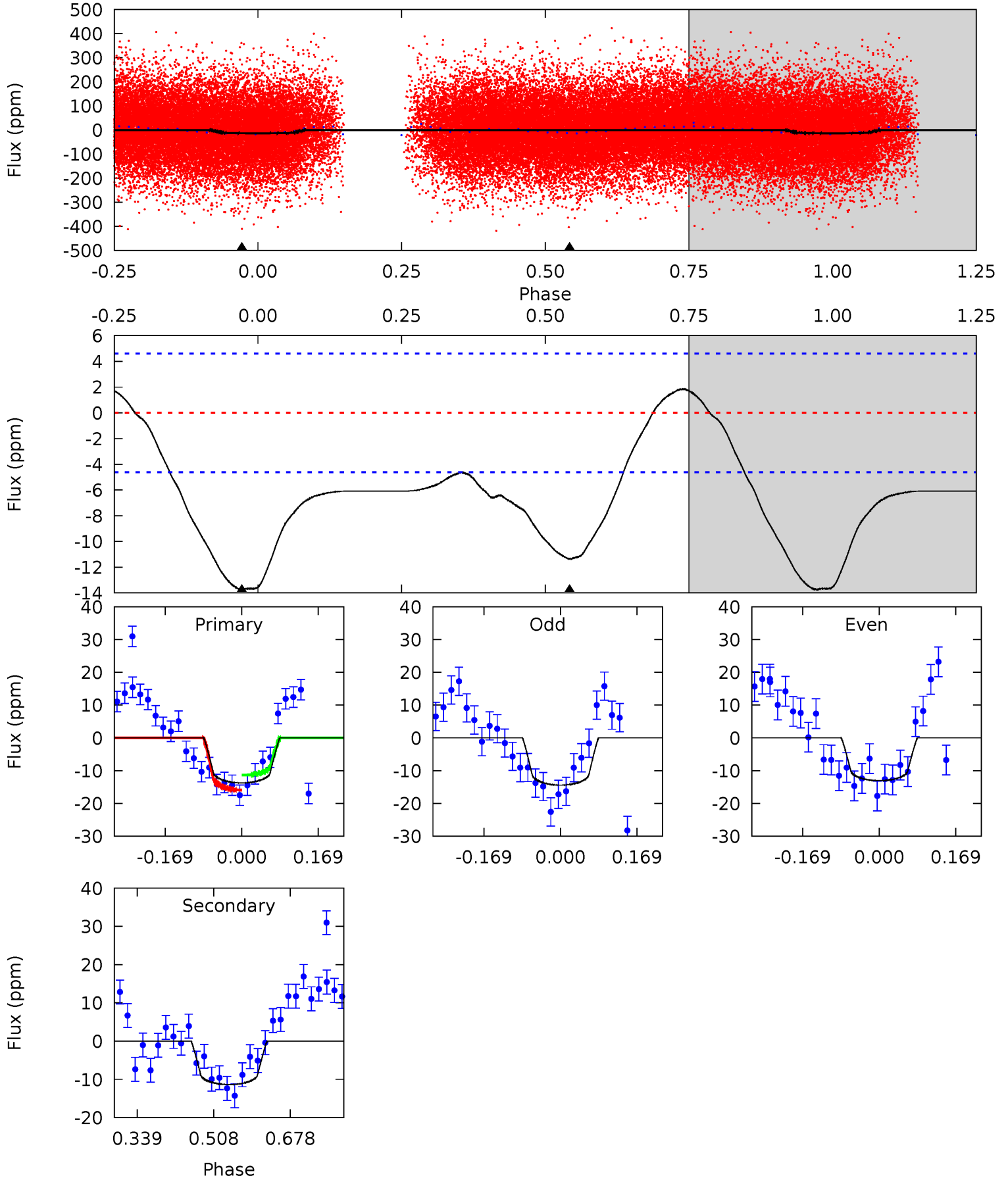


This plot does not exist for this TCE.

DV Model-Shift Uniqueness Test

006037990-02, P = 0.941589 Days, E = 131.258157 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
13.3	11.0	0	0	4.45	1.37	2.98	13.3	13.3	11.0	11.0	0.66	0.94	0.12	2.20



Alt Model-Shift Uniqueness Test

This plot does not exist for this TCE.

Stellar Parameters For KIC 006037990

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$\rho_{\star} (\text{g}\cdot\text{cm}^{-3})$
	7455^{+209}_{-314}	$3.921^{+0.287}_{-0.143}$	$-0.080^{+0.200}_{-0.350}$	$2.407^{+0.478}_{-0.888}$	$1.759^{+0.195}_{-0.391}$	$0.178^{+0.347}_{-0.065}$
	+3%/-4%	+7%/-4%	+250%/-438%	+20%/-37%	+11%/-22%	+195%/-37%
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 006037990-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-11 ± 1	$1.11^{+0.33}_{-0.31}$	4690^{+315}_{-422}	6247^{+1013}_{-783}	$2.599^{+2.327}_{-1.040}$
Alt.	N/A	N/A	N/A	N/A	N/A

T_{max} = Theoretical Maximum Planetary Temperature
 T_{obs} = Observed Planetary Temperature (Assuming $A=0.3$)
 A_{obs} = Observed Albedo (Assuming $T=0$)

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

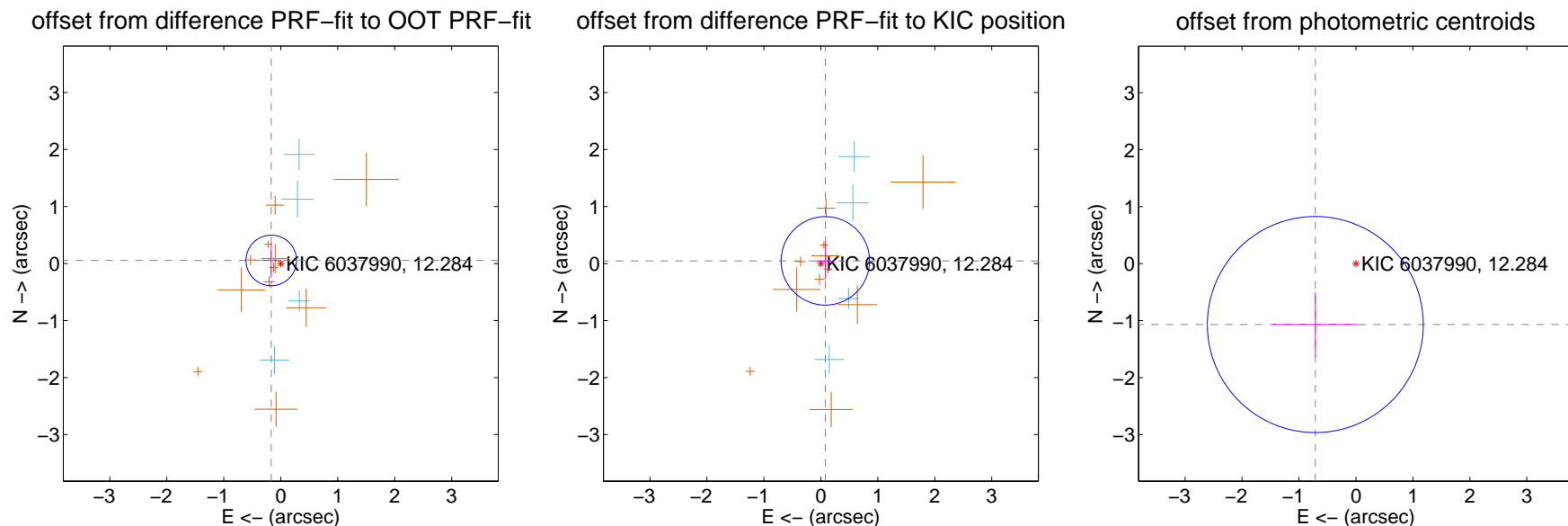
DV Centroid Data

Supplemental centroid analysis for 006037990-02. Kepler magnitude: 12.28. Transit SNR 10.27

There are 4 quarters with good PRF difference image offsets

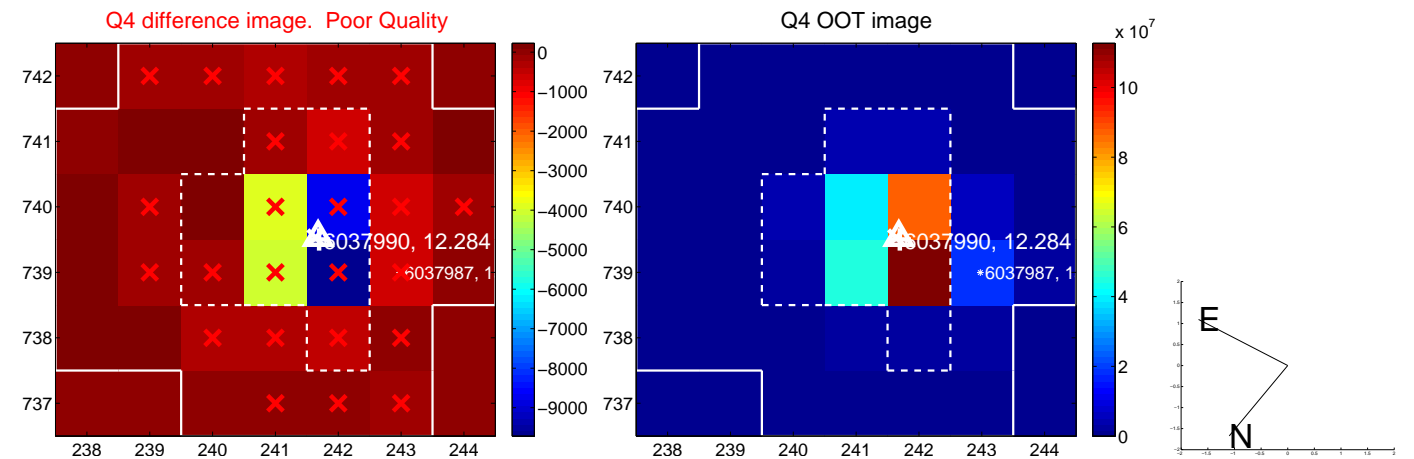
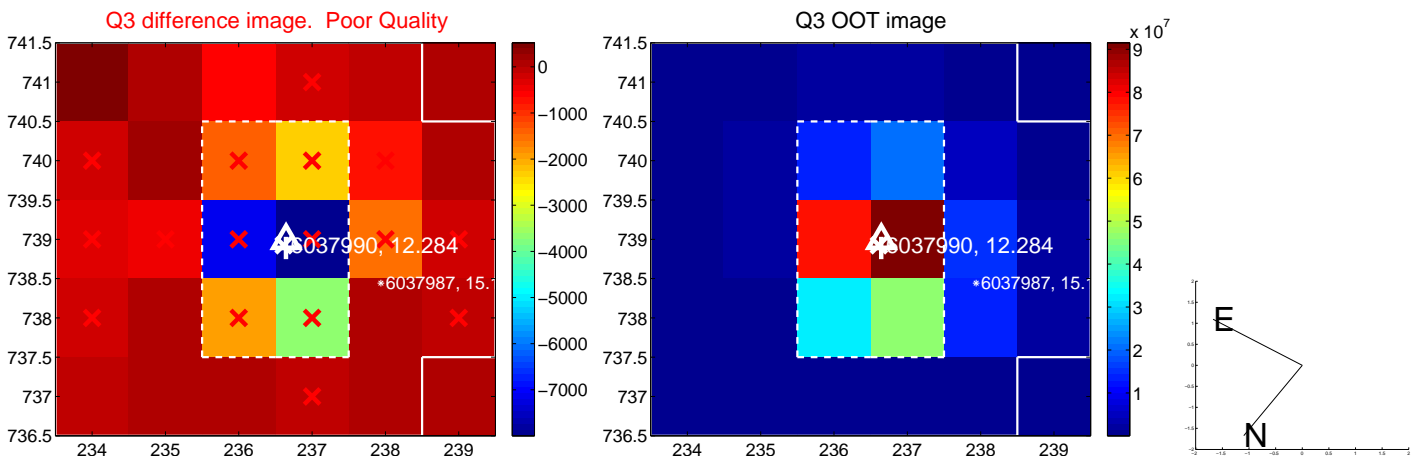
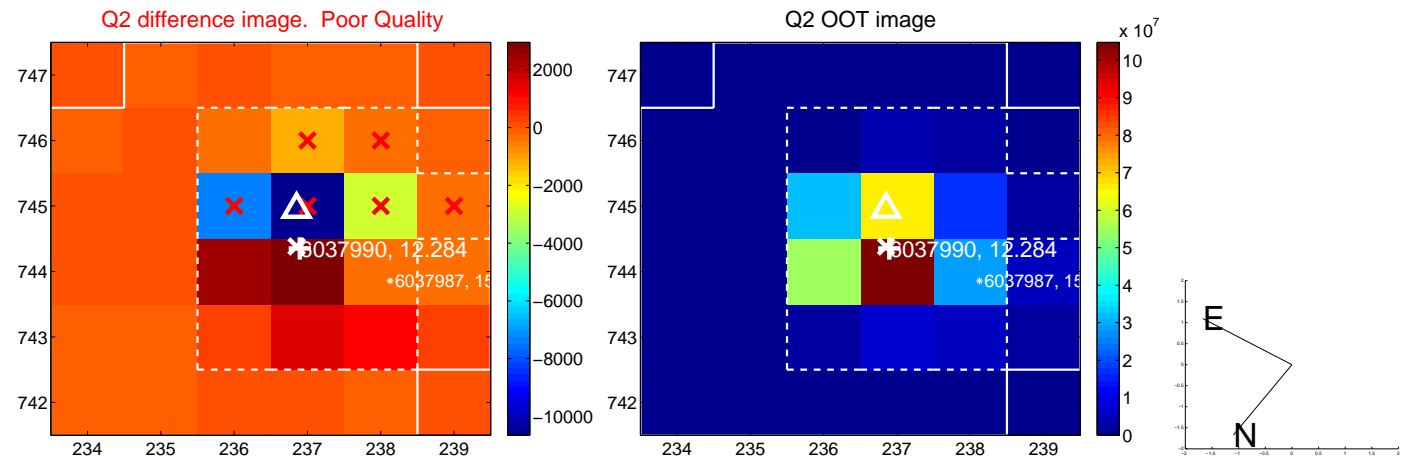
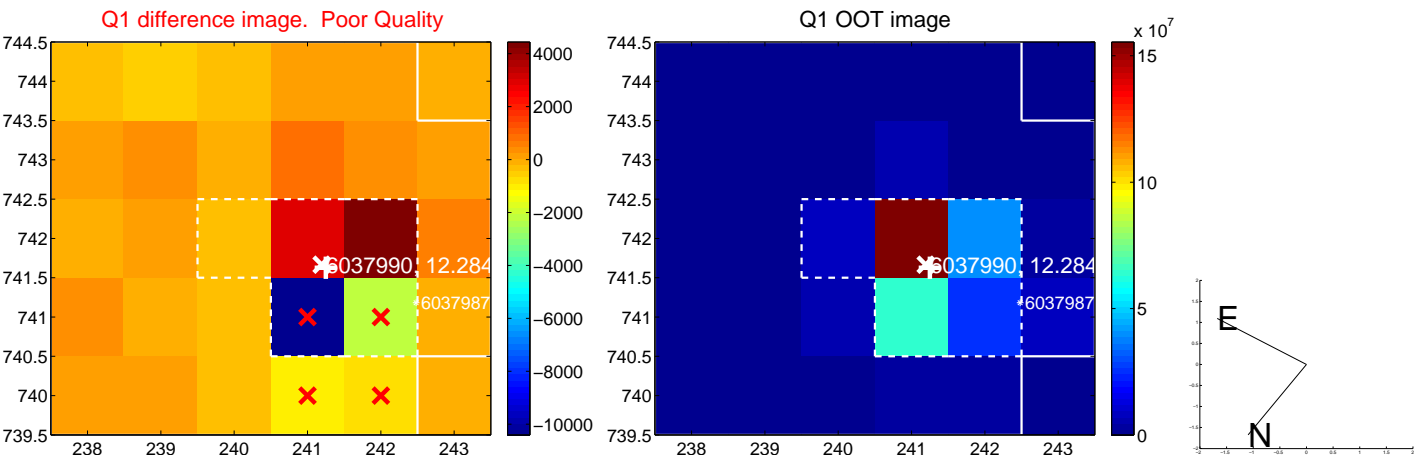
The direct PRF centroid is offset from the target star catalog position by about 0.26 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.175 ± 0.148	1.18	0.166 ± 0.164	0.055 ± 0.307
PRF-fit source offset from KIC position	0.092 ± 0.259	0.35	-0.079 ± 0.164	0.047 ± 0.315
photometric centroid source offset	1.29 ± 0.63	2.03	0.71 ± 0.75	-1.07 ± 0.57

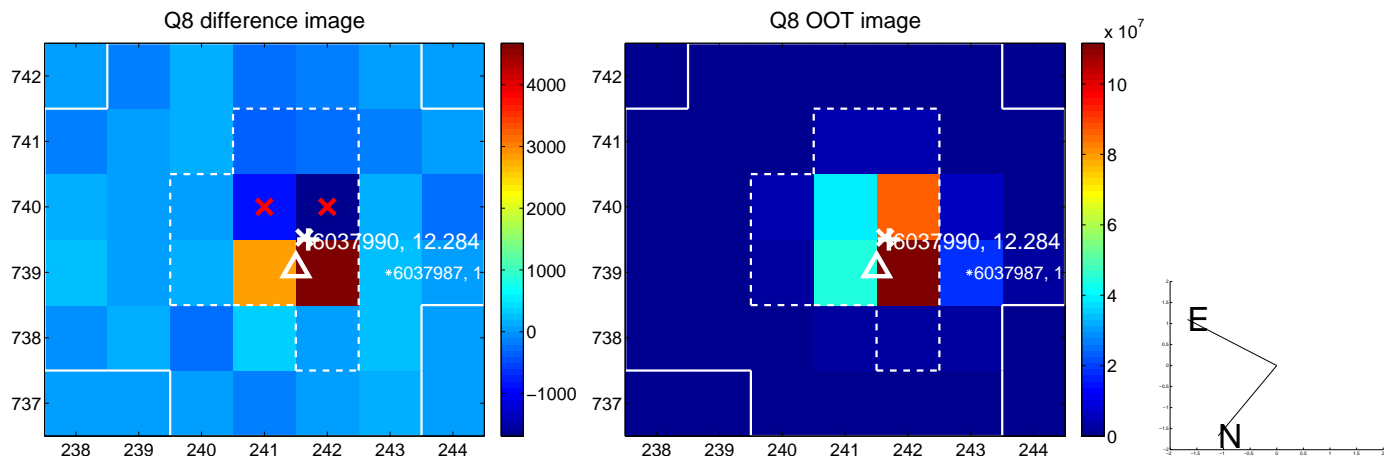
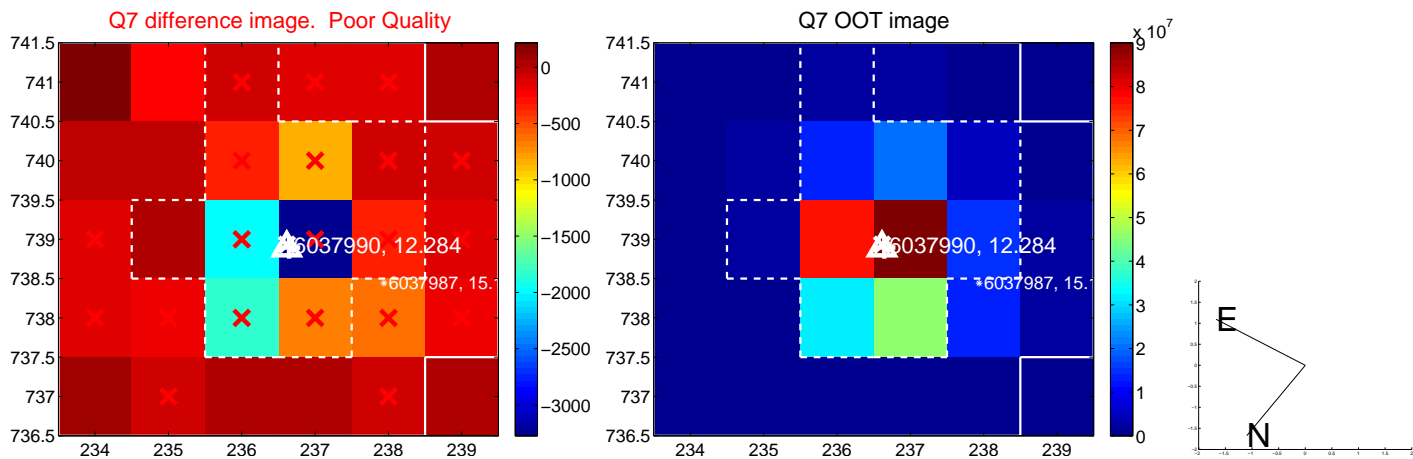
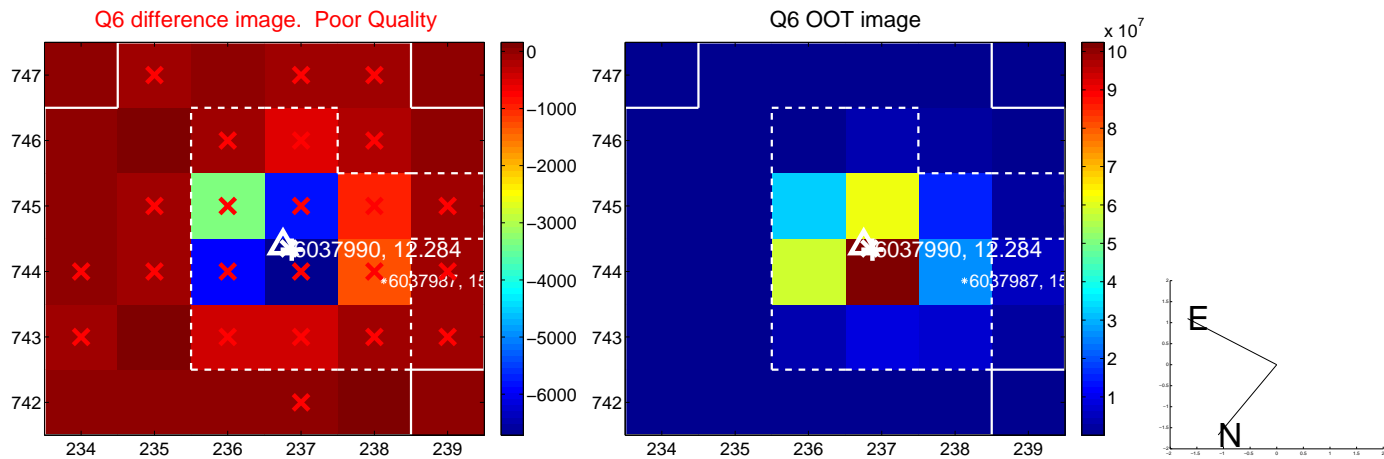
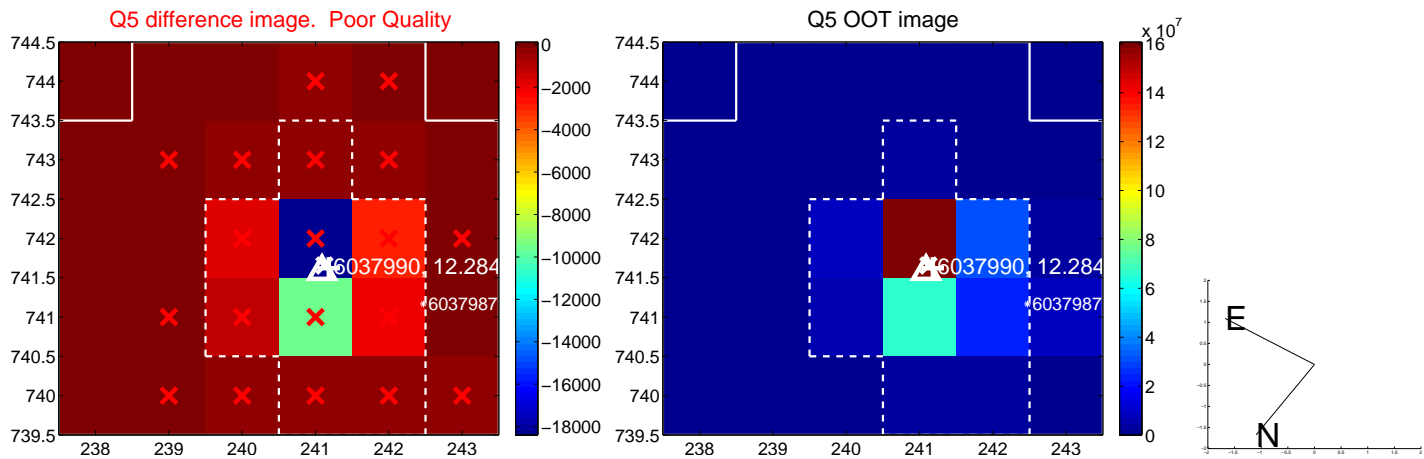


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets**; **Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

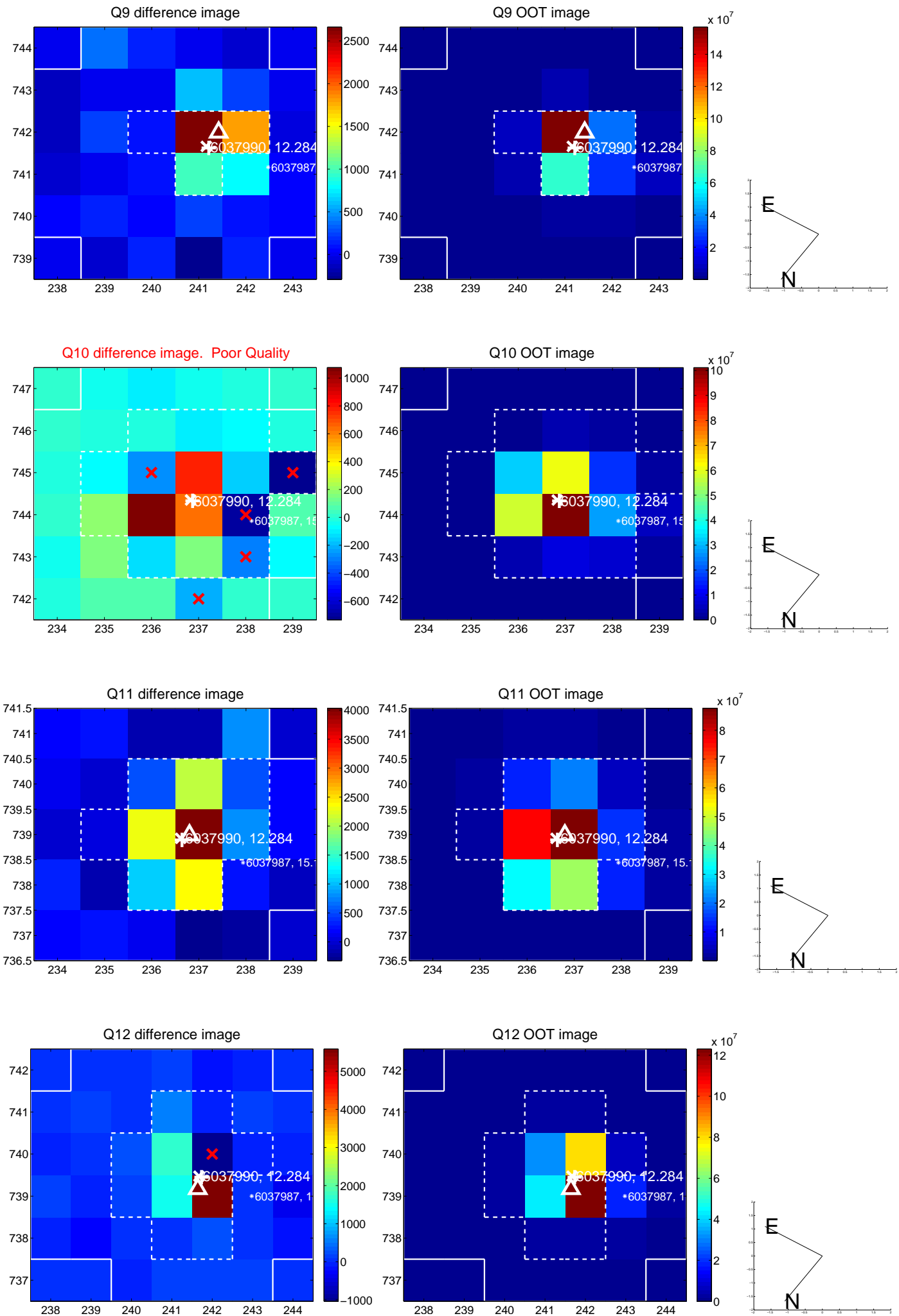
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



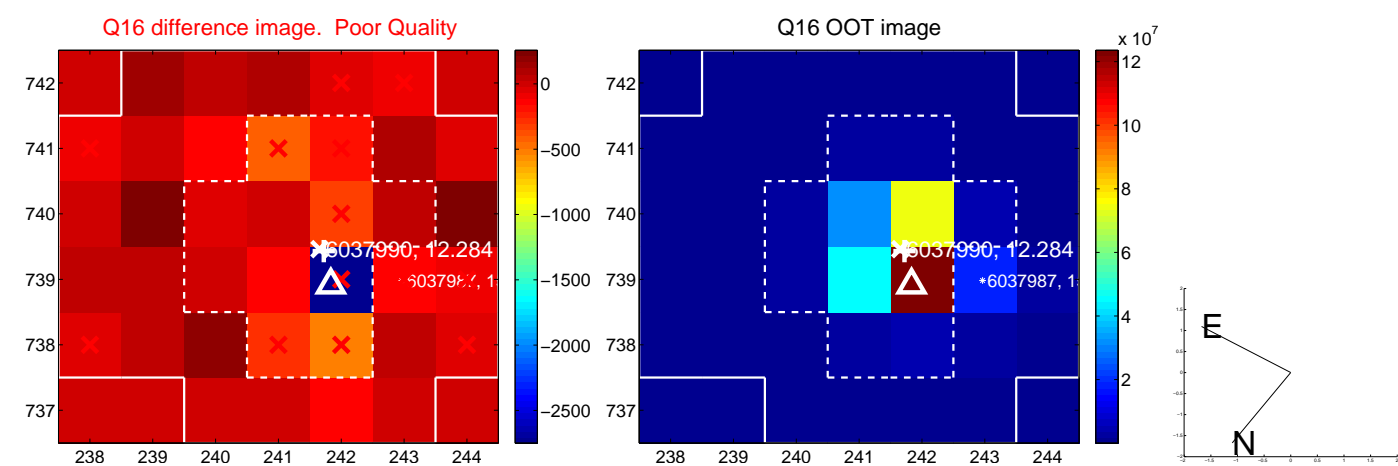
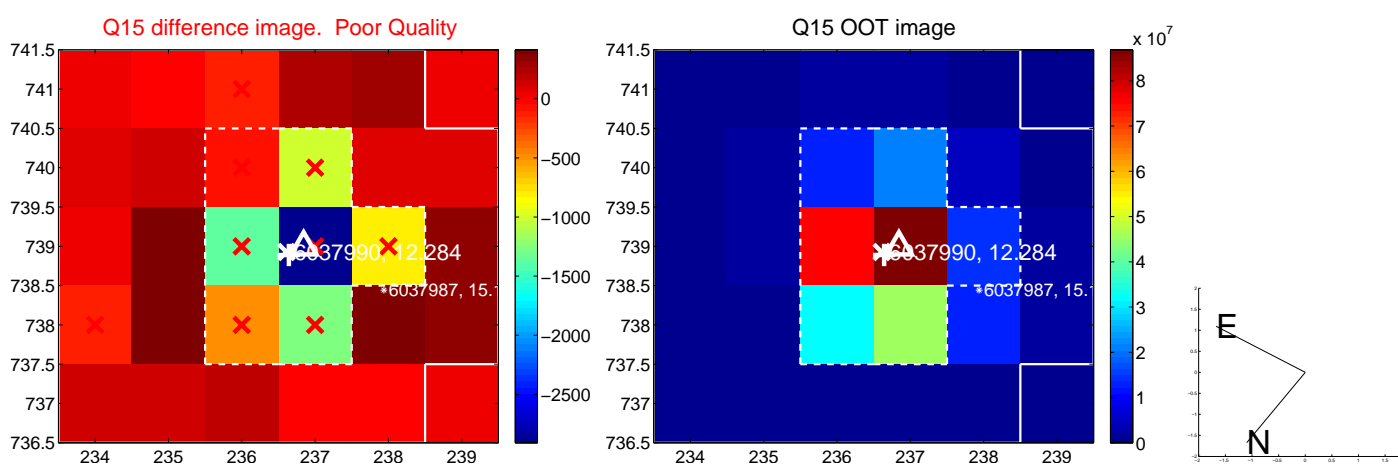
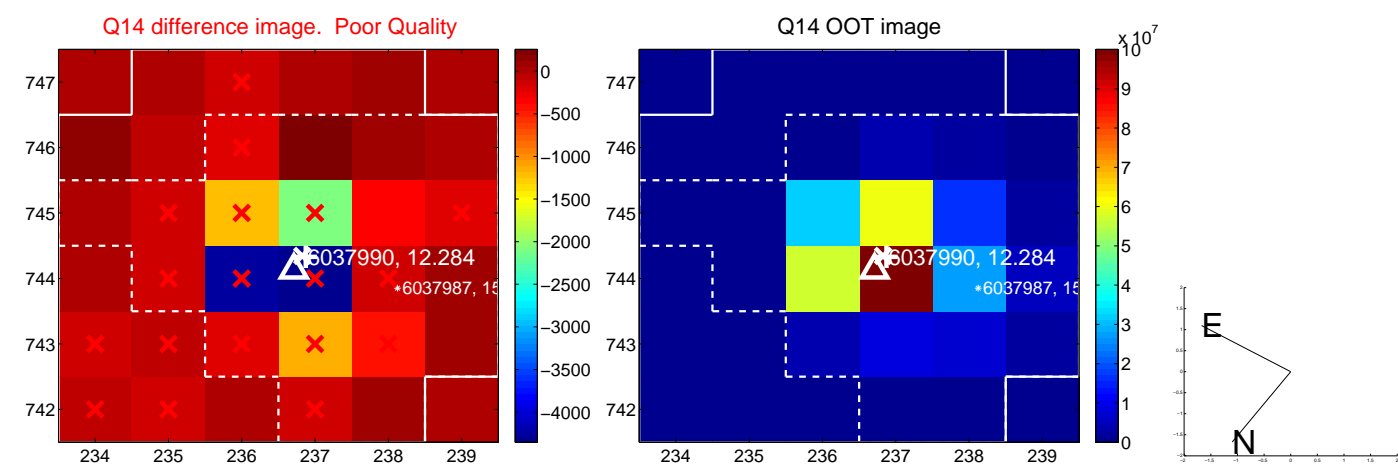
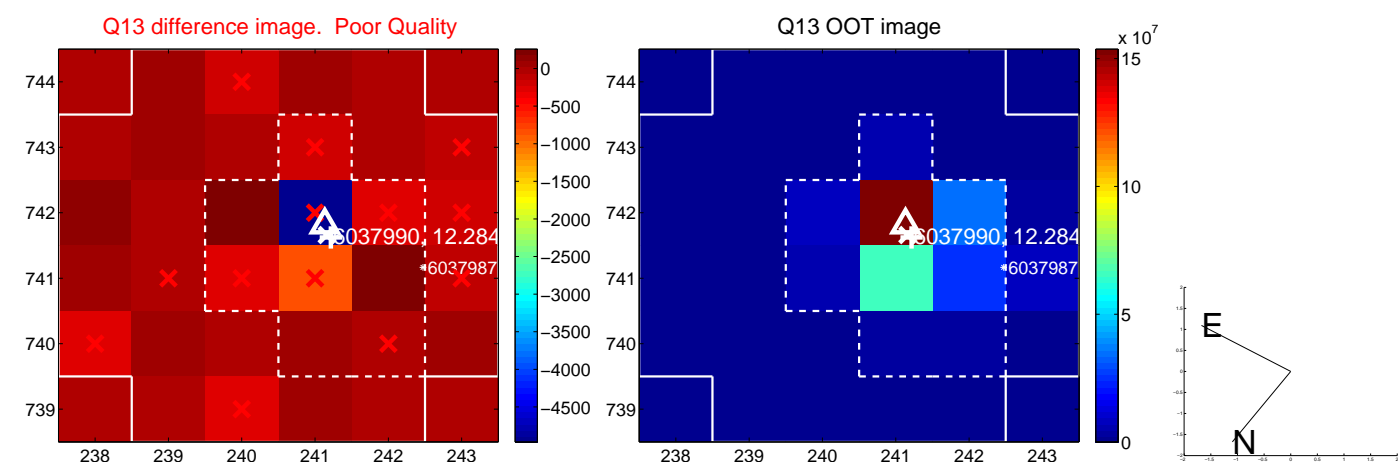
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



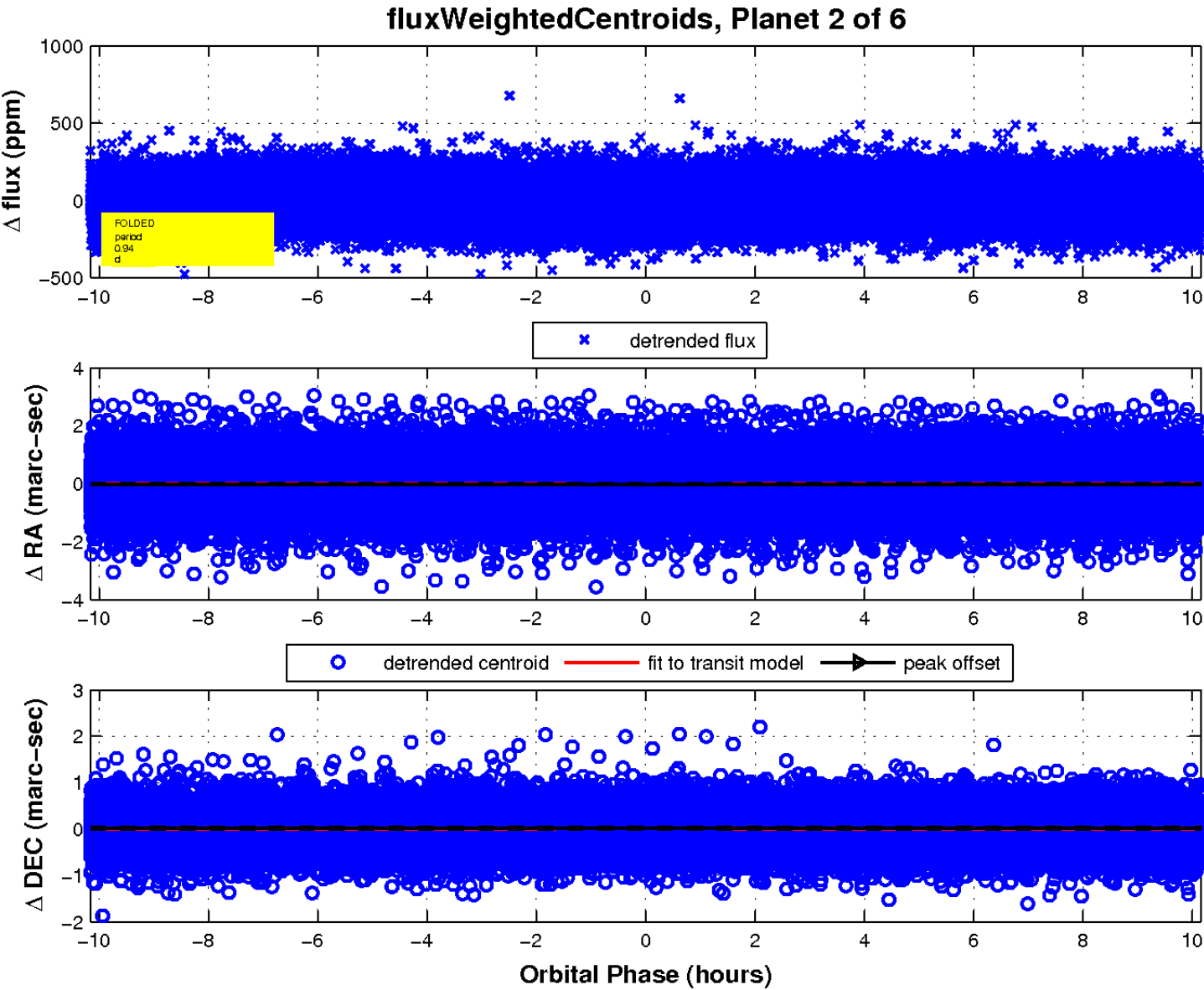
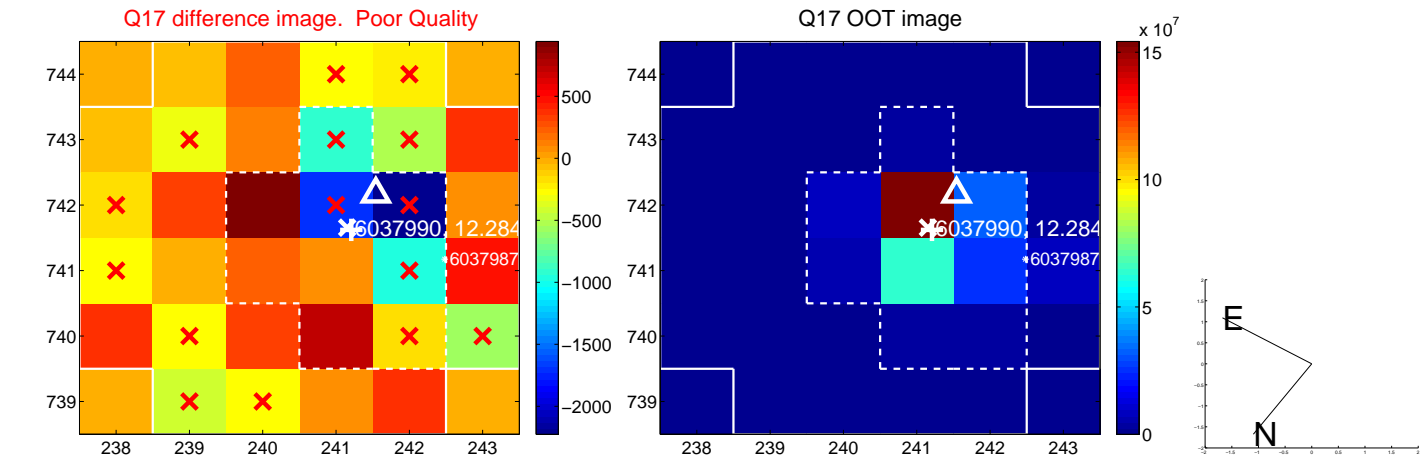
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

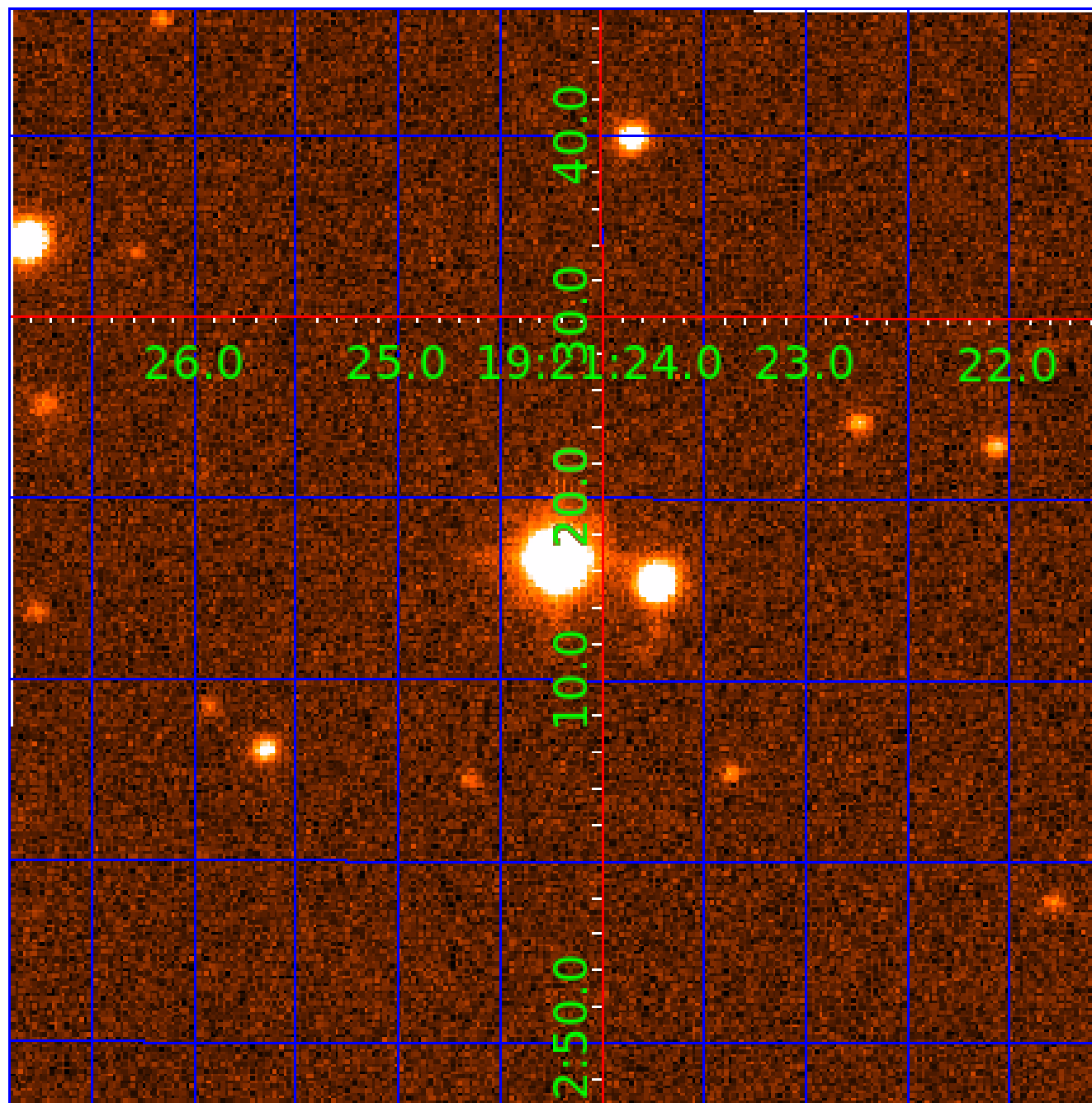


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 006037990

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})
006037990-01	OBS	No	0.941516	132.447097	0.0	0.745	9.1	0.0	2.41	7455	0.02	31086.02
006037990-02	OBS	No	0.941589	132.199746	17.1	3.386	8.6	10.3	2.41	7455	1.15	31082.82
006037990-03	OBS	No	377.597941	259.696367	220.2	15.132	10.4	8.2	2.41	7455	4.11	10.51
006037990-04	OBS	No	212.593237	177.967881	132.1	13.284	9.5	6.7	2.41	7455	3.04	22.61
006037990-05	OBS	No	148.337997	191.533284	144.6	7.251	7.2	6.7	2.41	7455	3.18	36.53
006037990-06	OBS	No	93.289589	191.737863	157.9	3.082	7.2	6.9	2.41	7455	3.49	67.80

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
006037990-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA_TRACKER—SWEET_NTL—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT—CENT_FEW_DIFFS
006037990-02	OBS	FP	0.00	1	0	0	0	SWEET_NTL—LPP_DV—SAME_NTL_PERIOD
006037990-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—LPP_DV—LPP_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
006037990-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
006037990-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE—TRANS_GAPPED—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT
006037990-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—MOD_NONUNIQ_ALT

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

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

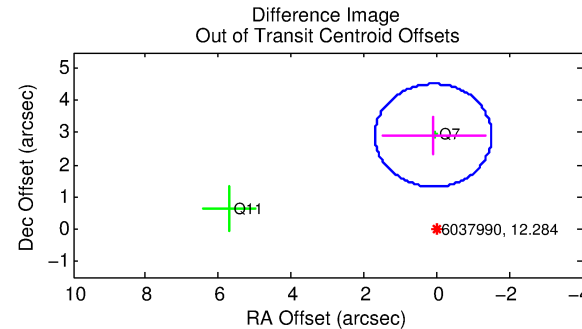
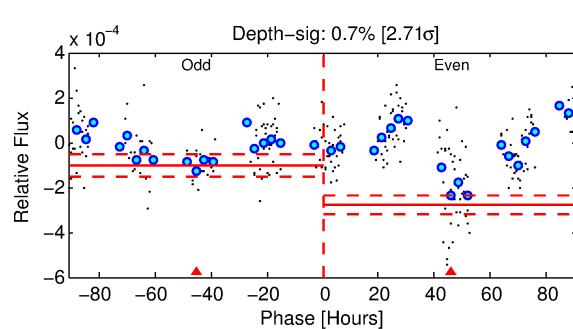
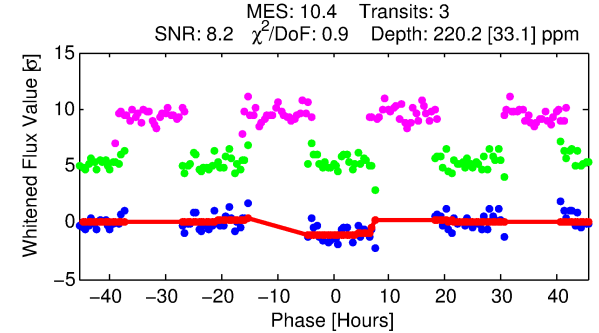
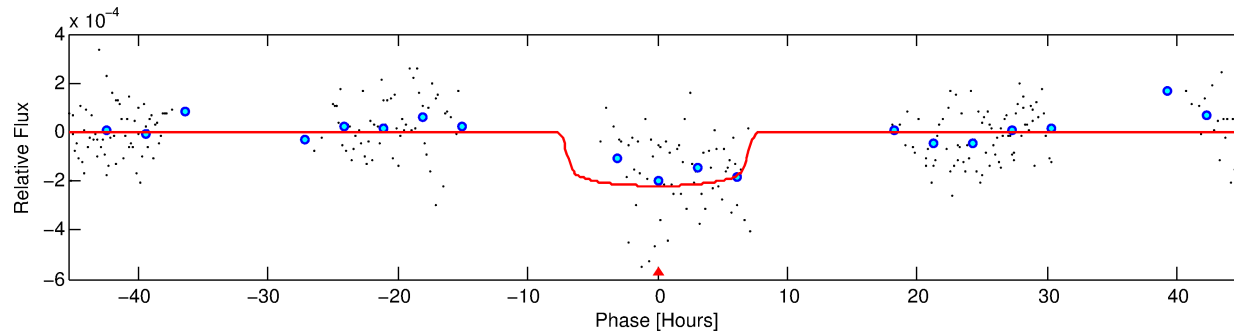
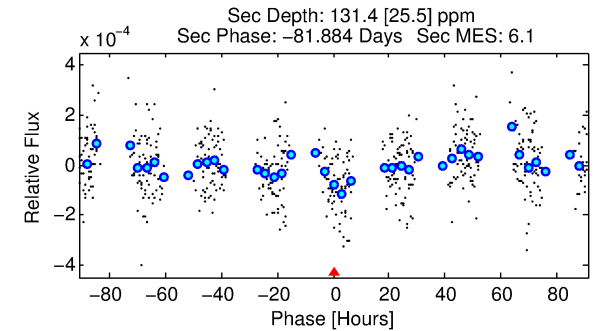
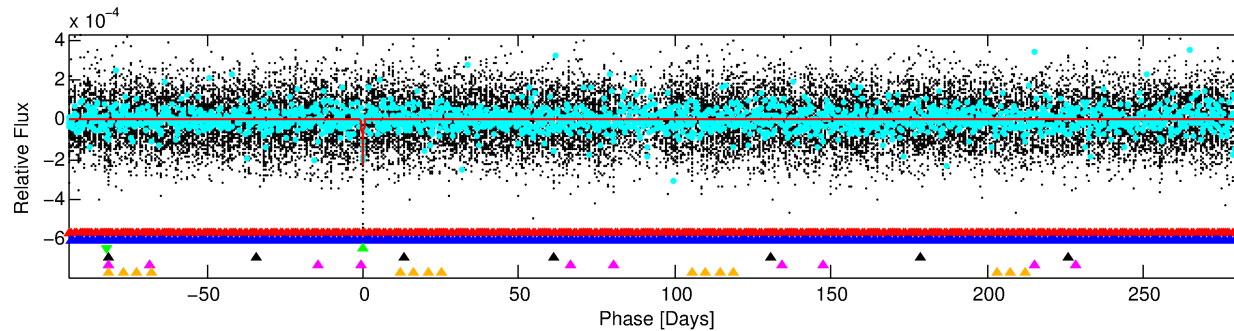
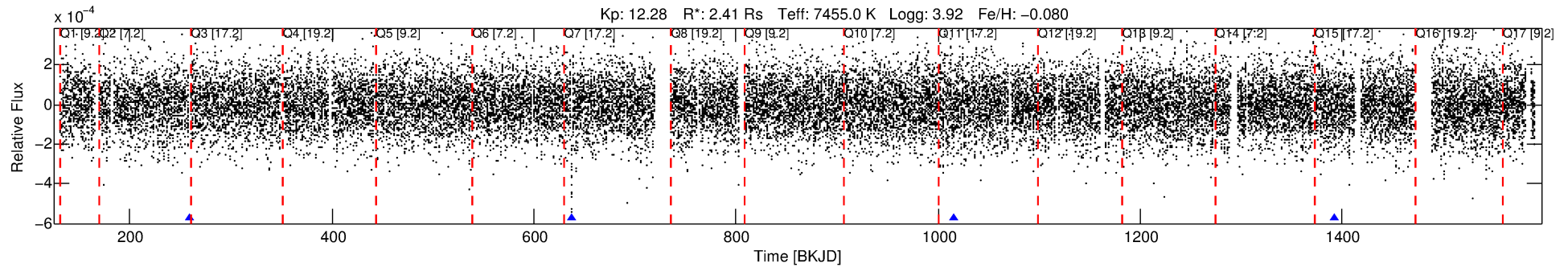
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 006037990-03

No Significant Match Found

DV One-Page Summary

KIC: 6037990 Candidate: 3 of 6 Period: 377.598 d



DV Fit Results:

Period = 377.59794 [0.02909] d
Epoch = 259.6964 [0.0905] BKJD
Rp/R* = 0.0157 [0.0025]
a/R* = 92.12 [88.83]
b = 0.89 [0.20]
Seff = 10.51 [5.59]
Teq = 459 [61] K
Rp = 4.11 [1.66] Re
a = 1.2351 [0.4078] AU
Ag = 6518.95 [4112.02] [1.59σ]
Teffp = 6378 [661] K [8.92σ]

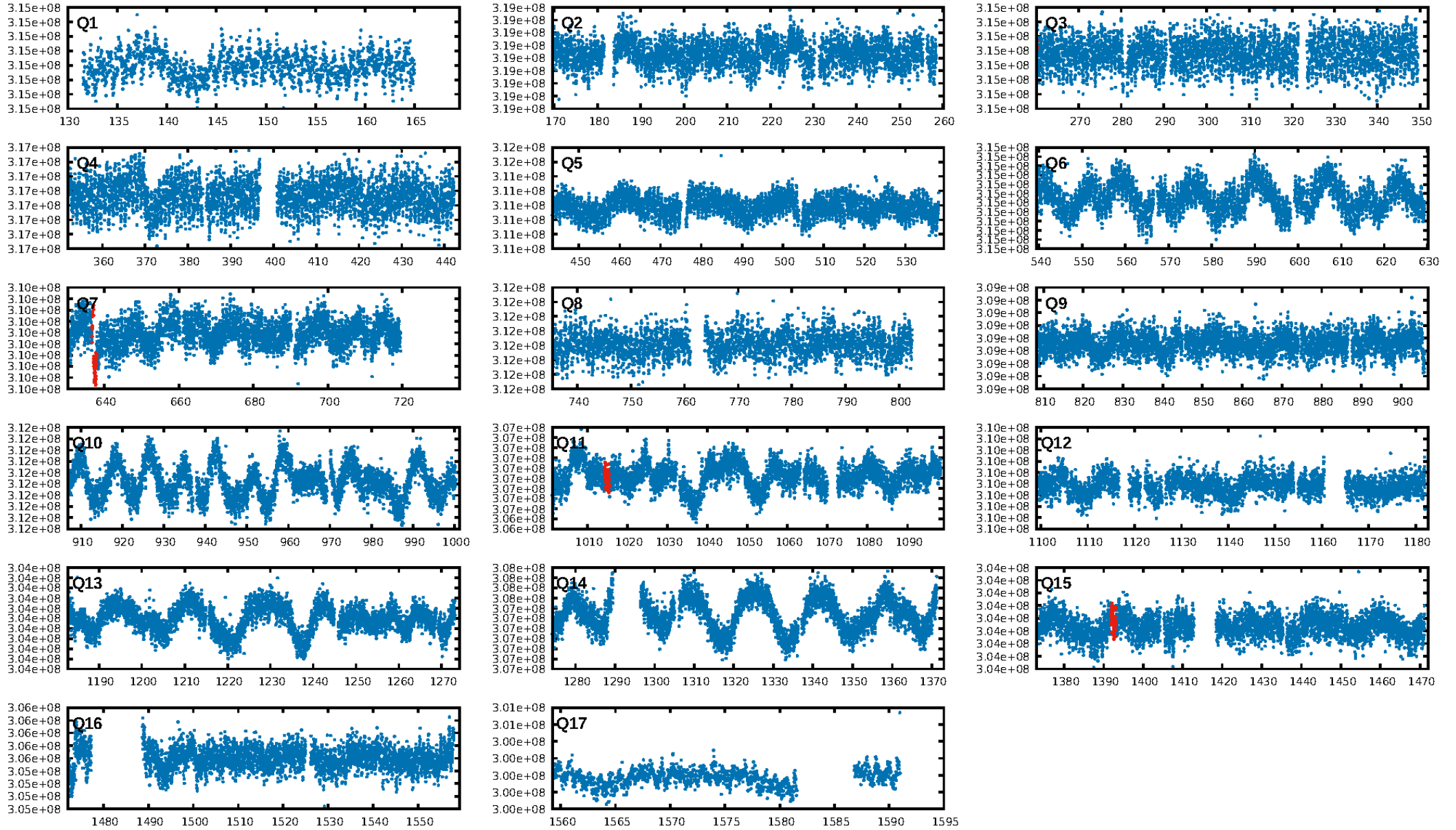
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [196.67σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 1.7%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 1.50e-13
RollingBand-fgt: 1.00 [3/3]
GhostDiagnostic-chr: 4.647
Centroid-sig: 33.7%
Centroid-so: 1.564 arcsec [1.14σ]
OotOffset-rm: 2.914 arcsec [5.44σ]
KicOffset-rm: 2.977 arcsec [4.83σ]
OotOffset-st: 0/2/0/0 [2]
KicOffset-st: 0/2/0/0 [2]
DiffImageQuality-fgm: 0.50 [1/2]
DiffImageOverlap-fno: 0.00 [0/2]

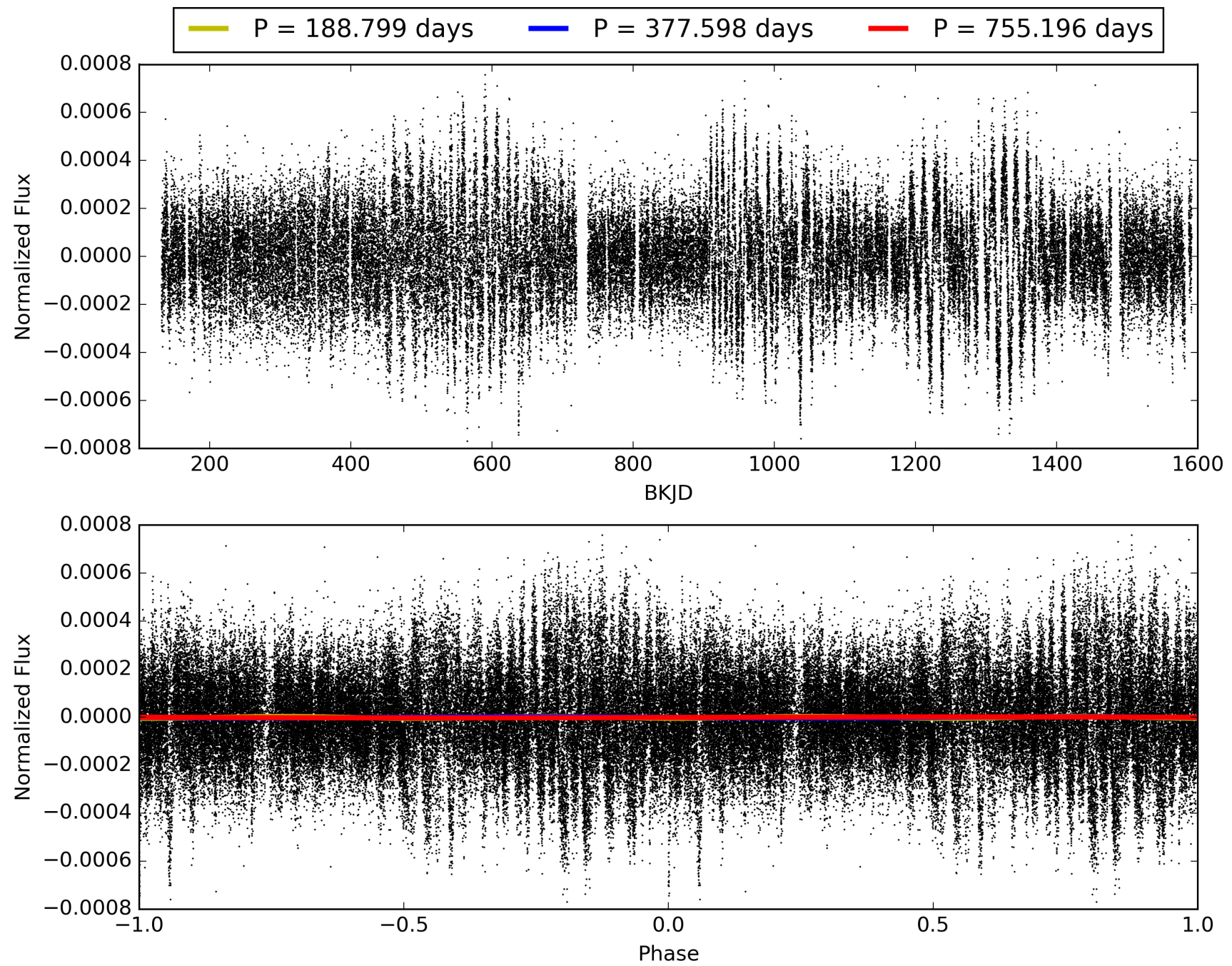
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 19:40:52 Z

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

TCE 006037990-03, PDC Light Curves

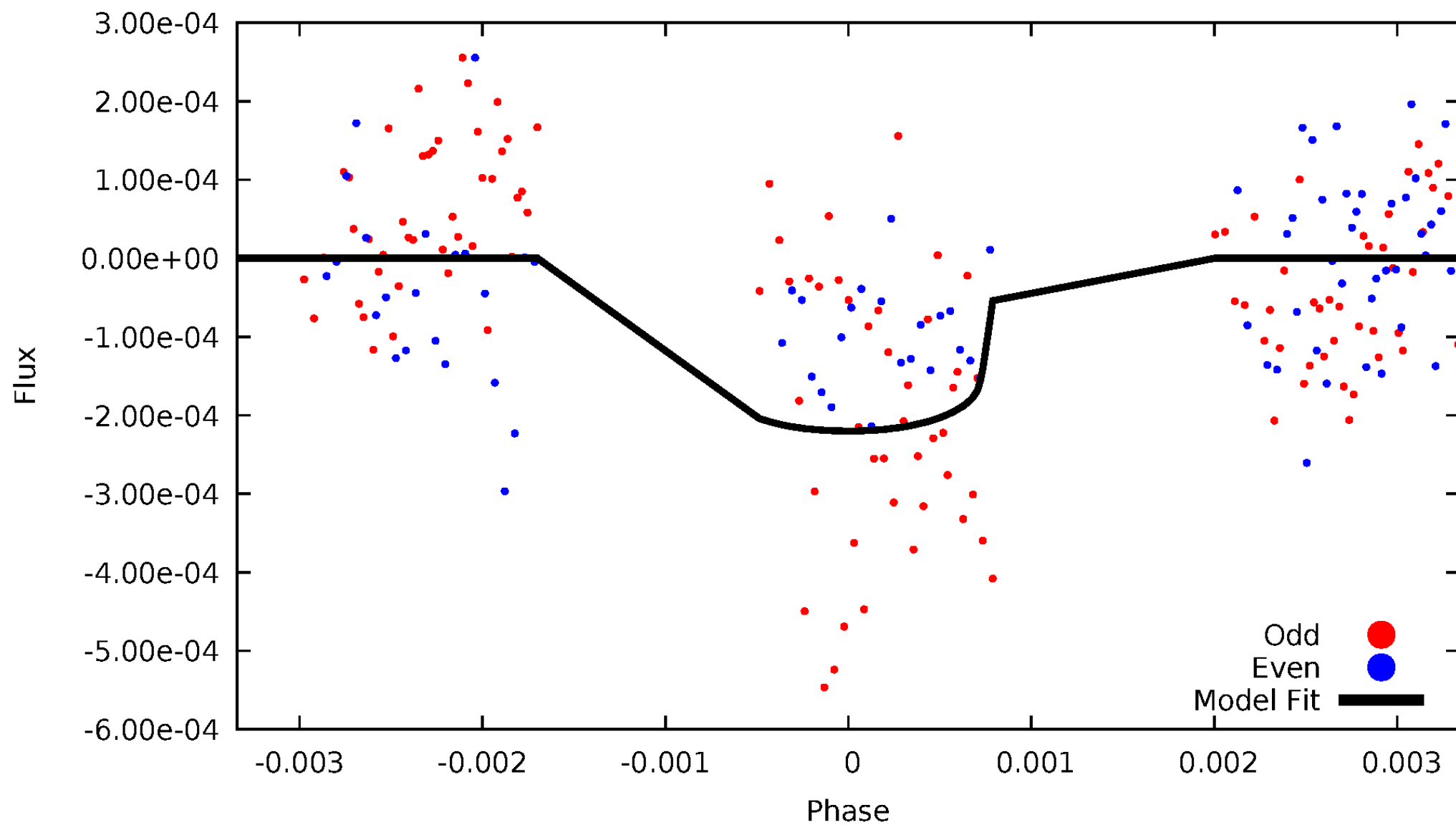


TCE 006037990-03



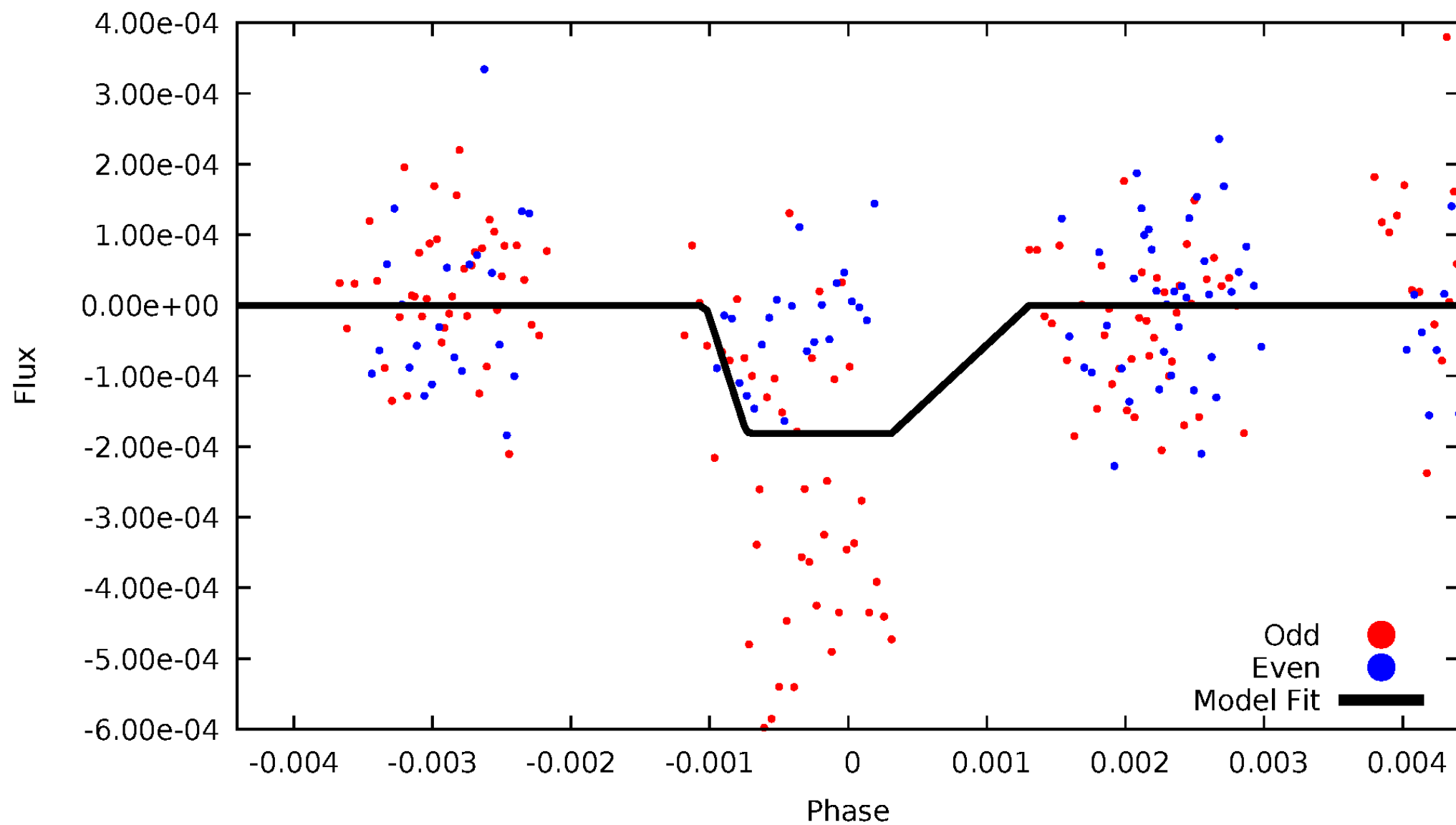
DV Odd/Even

TCE 006037990-03

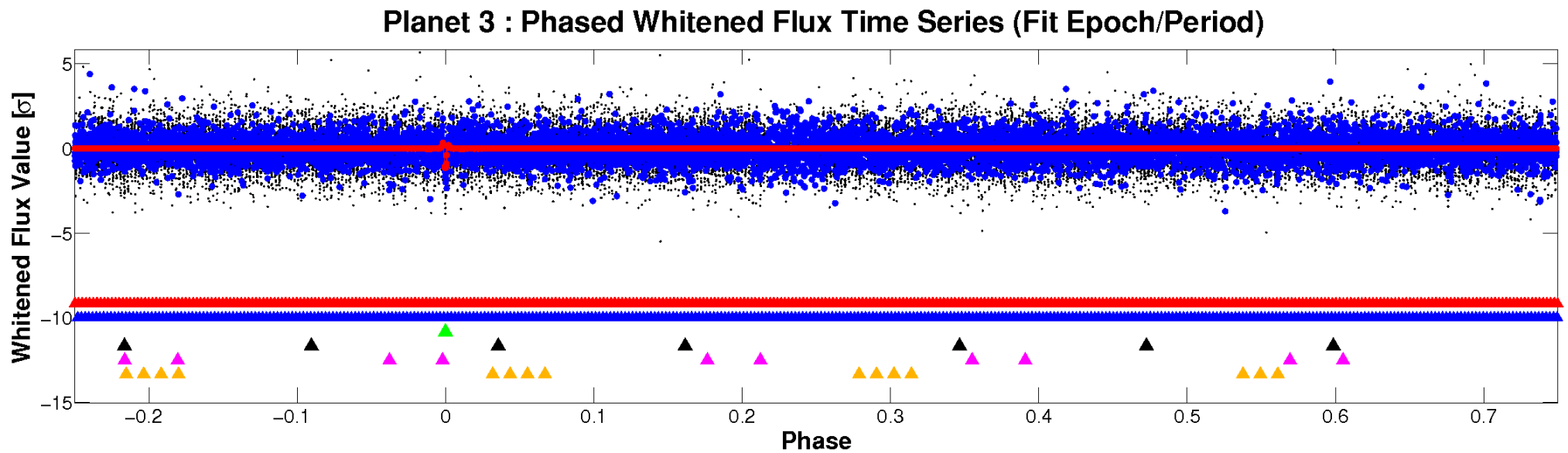
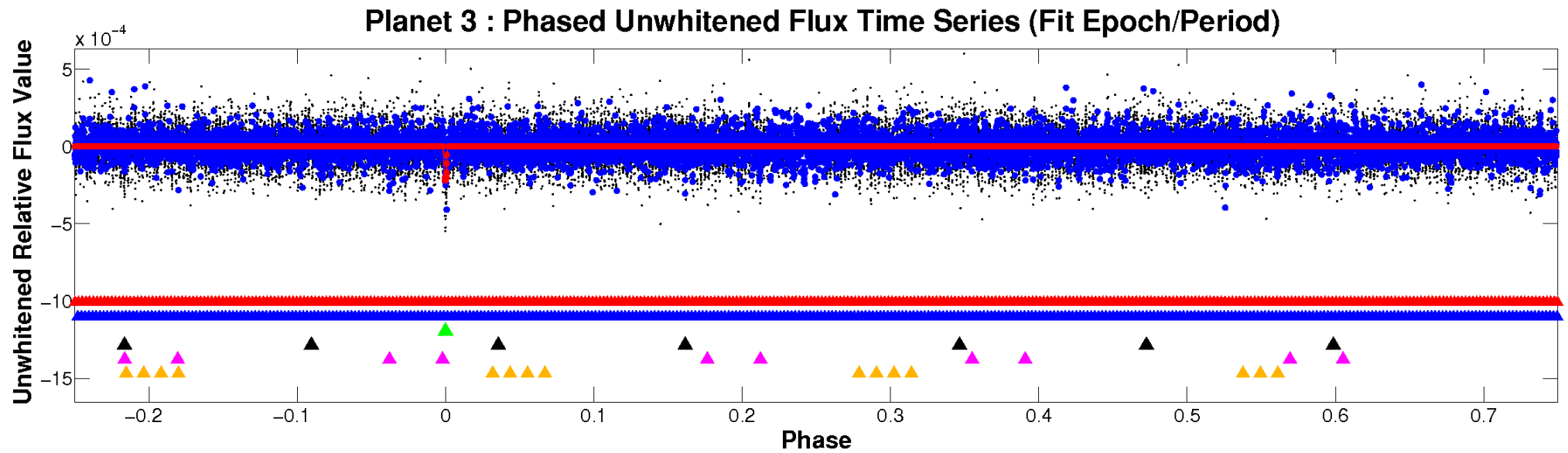


ALT Odd/Even

TCE 006037990-03

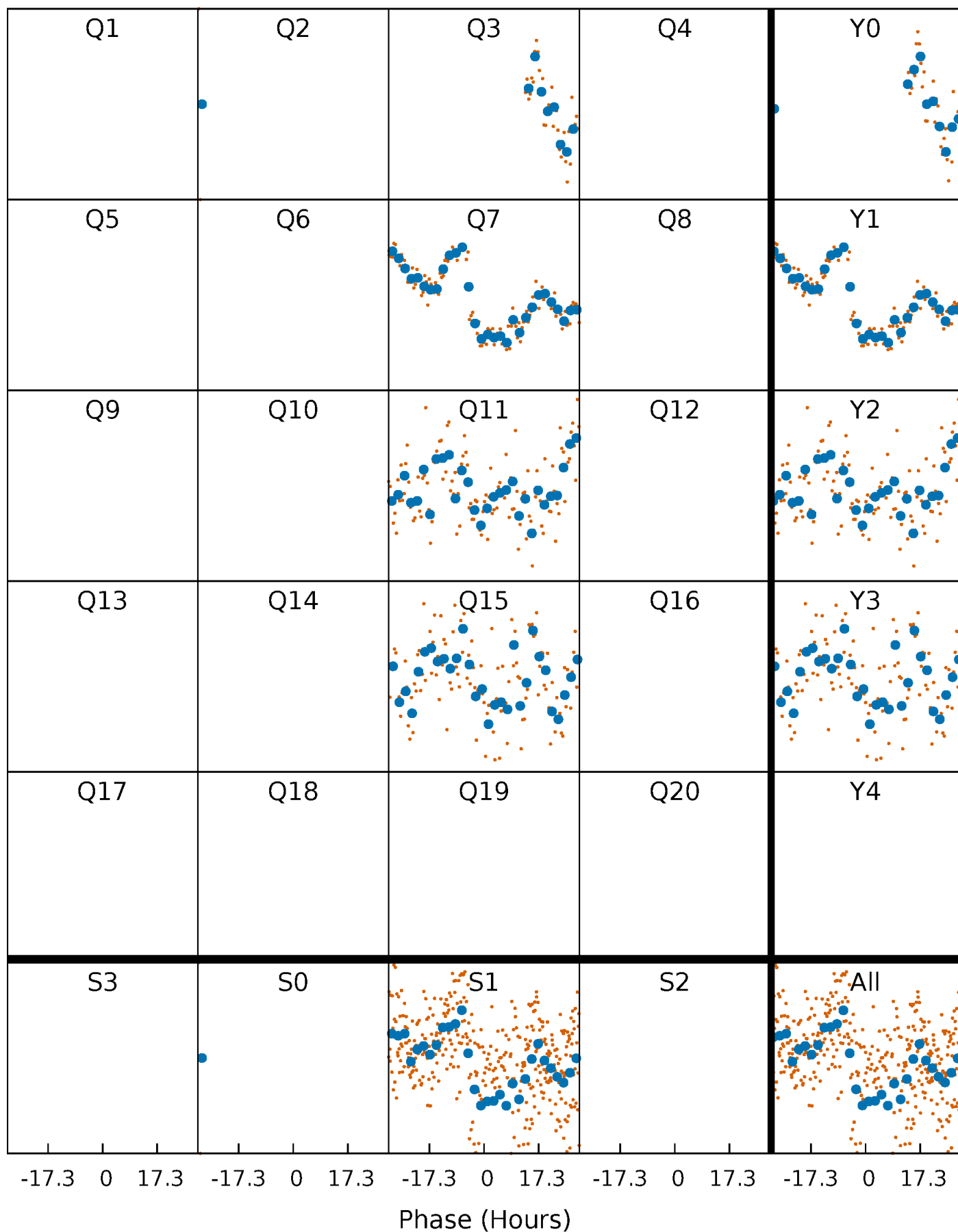


Non-Whitened Vs. Whitened Light Curve



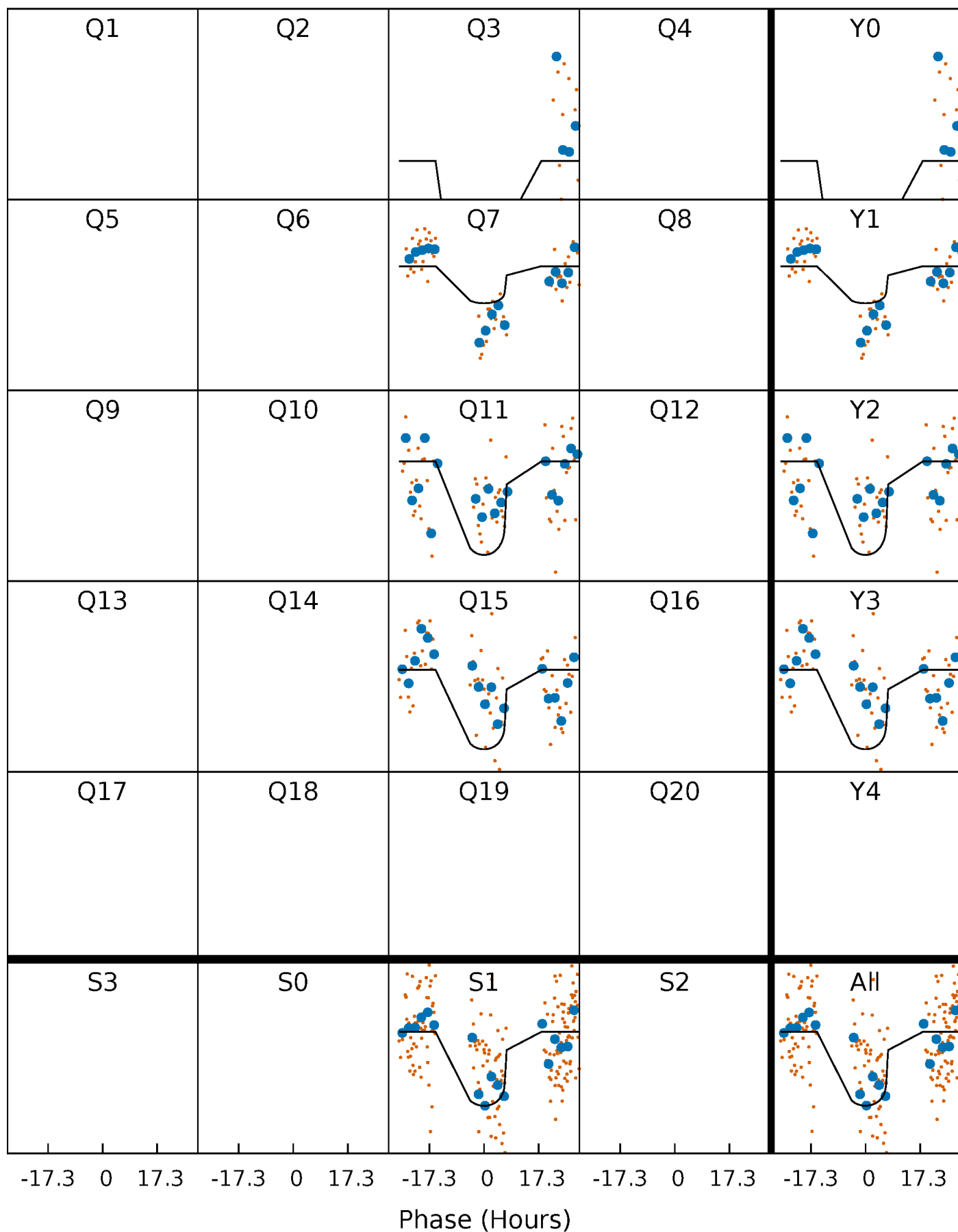
PDC Quarter-Phased Transit Curves

TCE 006037990-03 $P=377.597941$ Days $T_0=259.696367$ (BKJD)



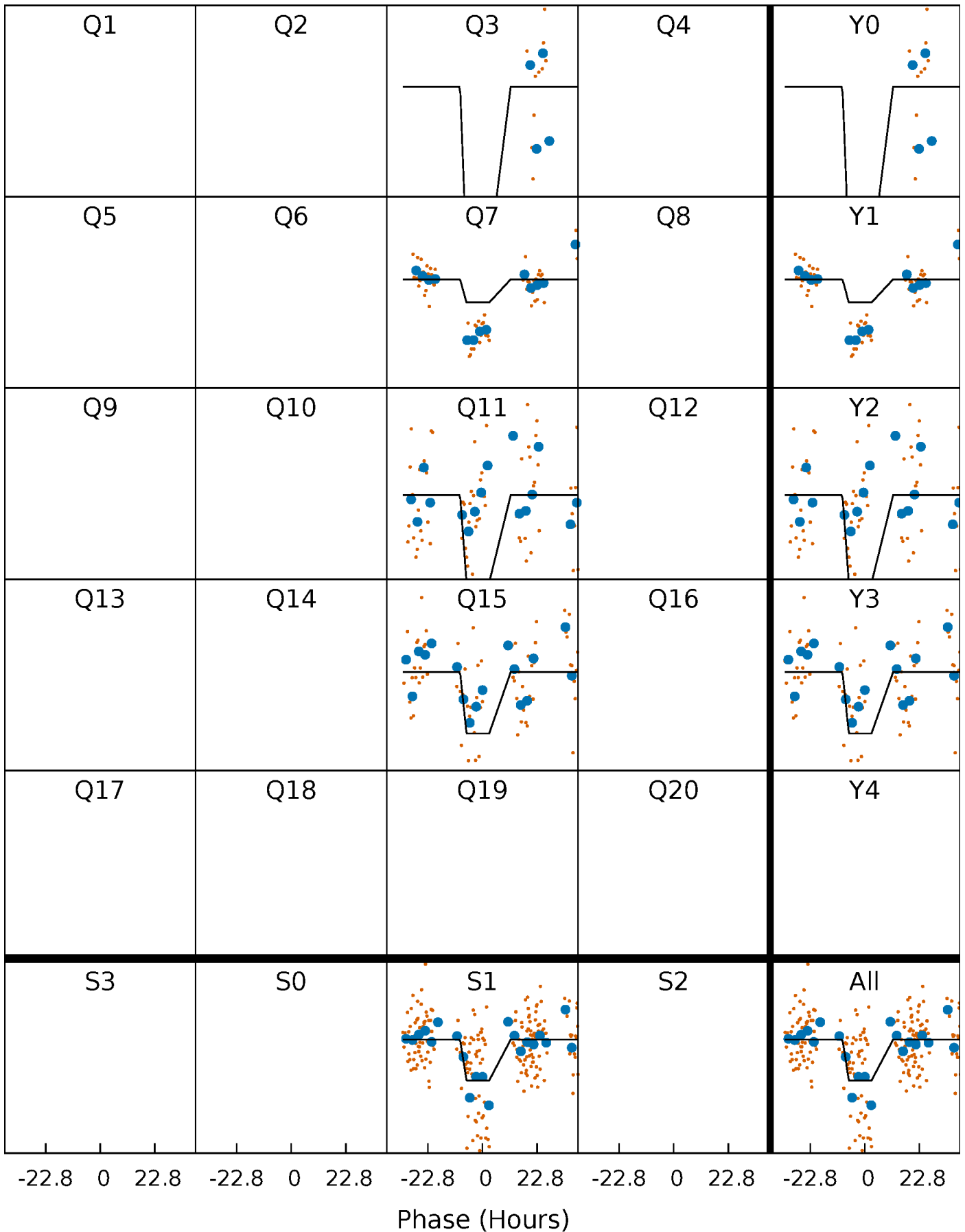
DV Quarter-Phased Transit Curves

TCE 006037990-03 $P=377.597941$ Days $T_0=259.696367$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

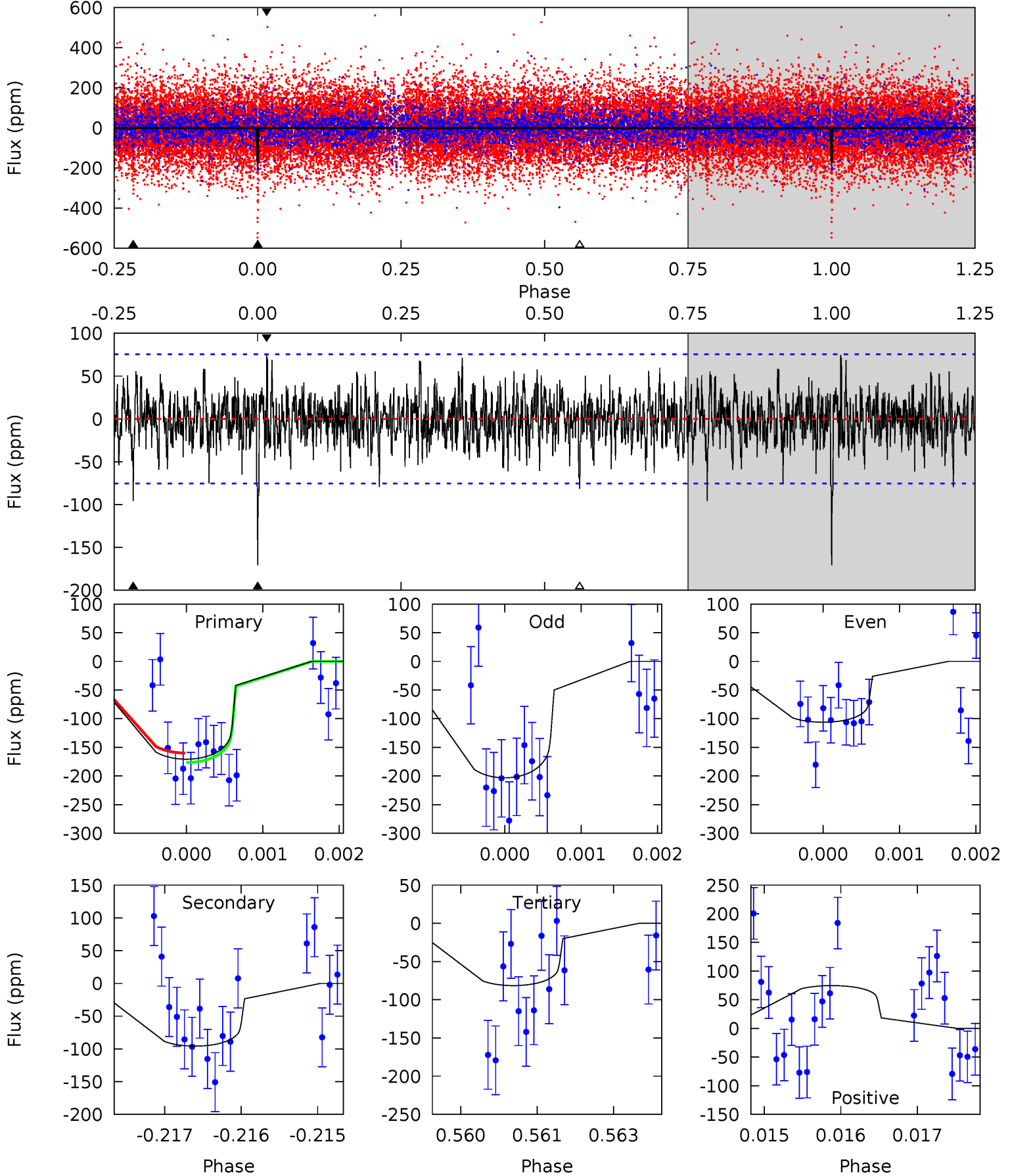
TCE 006037990-03 $P=377.639433$ Days $T_0=259.834917$ (BKJD)



DV Model-Shift Uniqueness Test

006037990-03, P = 377.597941 Days, E = 259.696367 Days

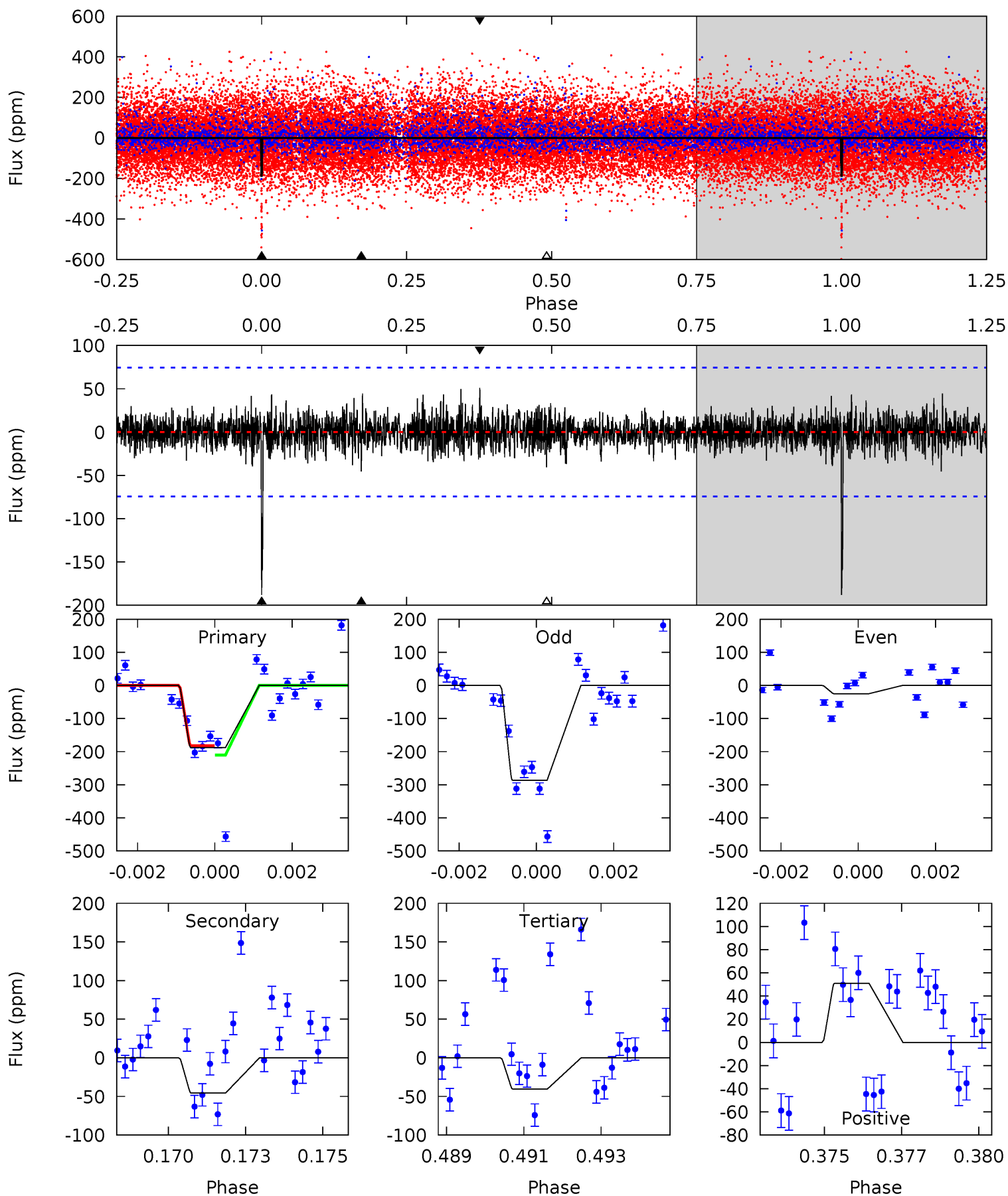
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
12.3	6.87	5.85	5.36	5.42	3.23	1.59	6.41	6.90	1.03	1.51	3.34	1.70	0.30	0.55



Alt Model-Shift Uniqueness Test

006037990-03, P = 377.639433 Days, E = 259.834917 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
13.4	3.25	2.88	3.63	5.30	3.05	0.86	10.5	9.78	0.36	-0.39	9.08	1.77	0.21	0.77



Stellar Parameters For KIC 006037990

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	7455^{+209}_{-314}	$3.921^{+0.287}_{-0.143}$	$-0.080^{+0.200}_{-0.350}$	$2.407^{+0.478}_{-0.888}$	$1.759^{+0.195}_{-0.391}$	$0.178^{+0.347}_{-0.065}$
	+3%/-4%	+7%/-4%	+250%/-438%	+20%/-37%	+11%/-22%	+195%/-37%
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 006037990-03 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-96 ± 14	$3.95^{+0.92}_{-0.88}$	633^{+43}_{-60}	5781^{+590}_{-450}	5048^{+3243}_{-1806}
Alt.	-45 ± 14	$3.43^{+0.91}_{-0.83}$	637^{+44}_{-56}	5167^{+709}_{-508}	3090^{+2618}_{-1405}

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

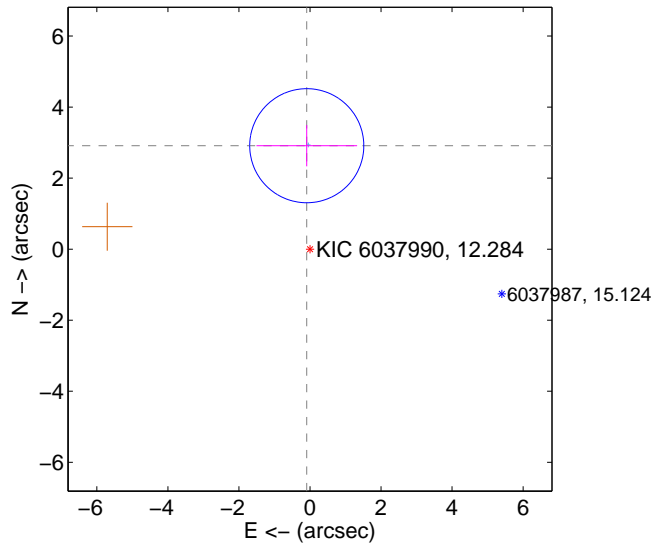
Supplemental centroid analysis for 006037990-03. Kepler magnitude: 12.28. Transit SNR 8.24

There are 1 quarters with good PRF difference image offsets

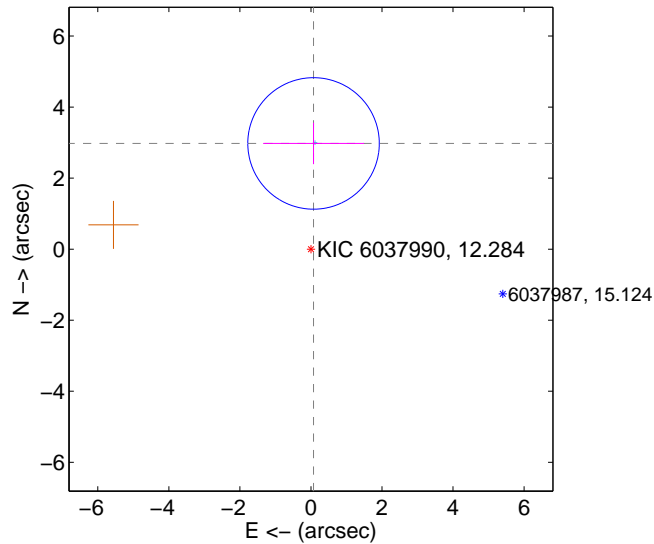
The direct PRF centroid is offset from the target star catalog position by about 0.16 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	2.914 ± 0.535	5.44	0.091 ± 1.416	2.913 ± 0.579
PRF-fit source offset from KIC position	2.977 ± 0.617	4.83	-0.073 ± 1.420	2.977 ± 0.582
photometric centroid source offset	1.56 ± 1.37	1.14	-1.42 ± 1.44	-0.66 ± 0.96

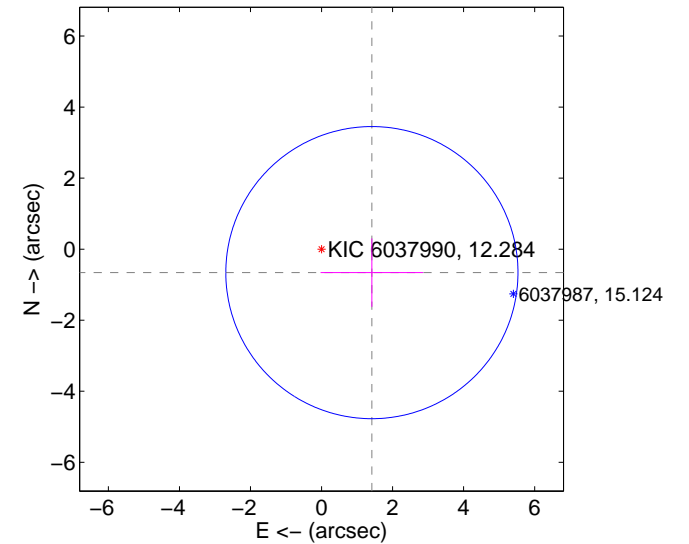
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position



offset from photometric centroids



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

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



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

Q5 no difference image



Q5 no OOT image



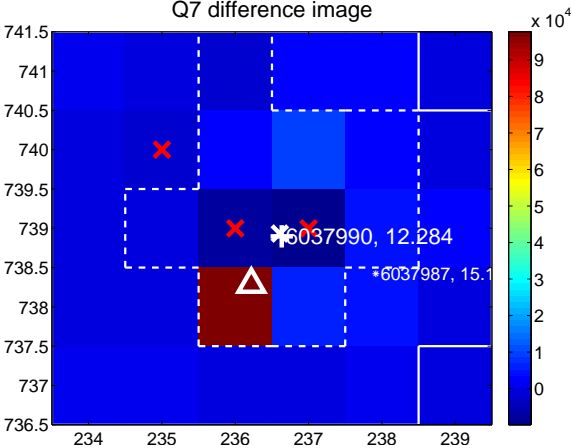
Q6 no difference image



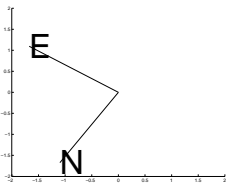
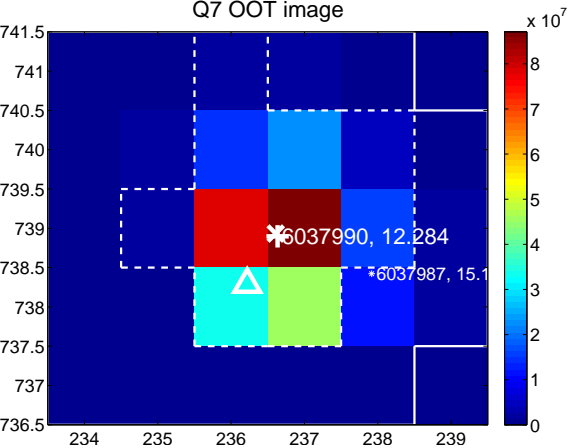
Q6 no OOT image



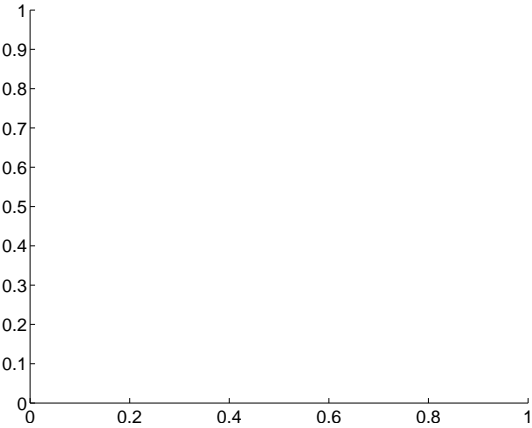
Q7 difference image



Q7 OOT image



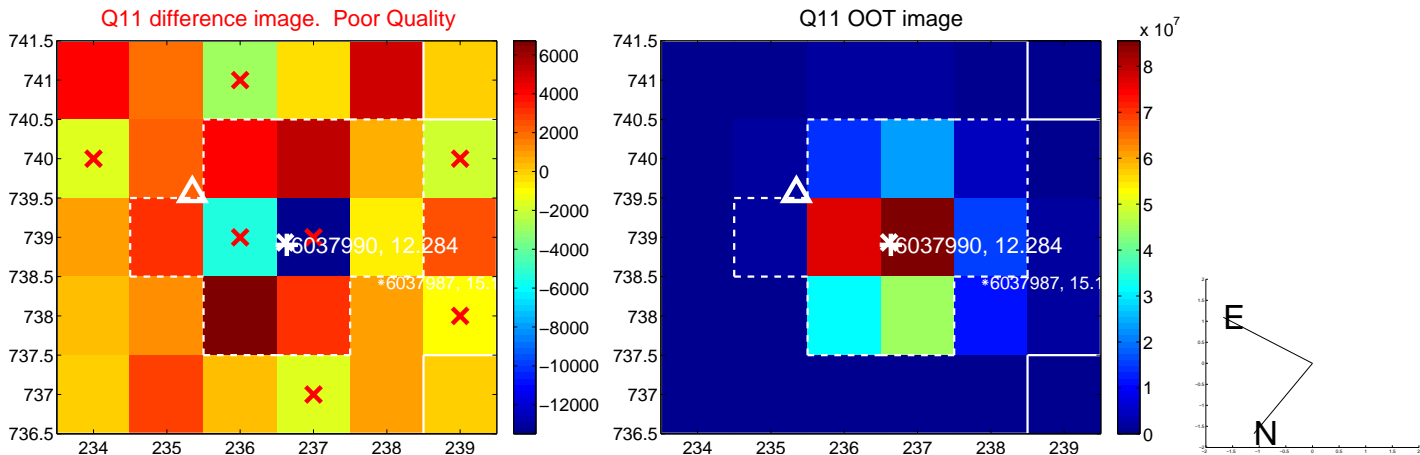
Q8 no difference image



Q8 no OOT image



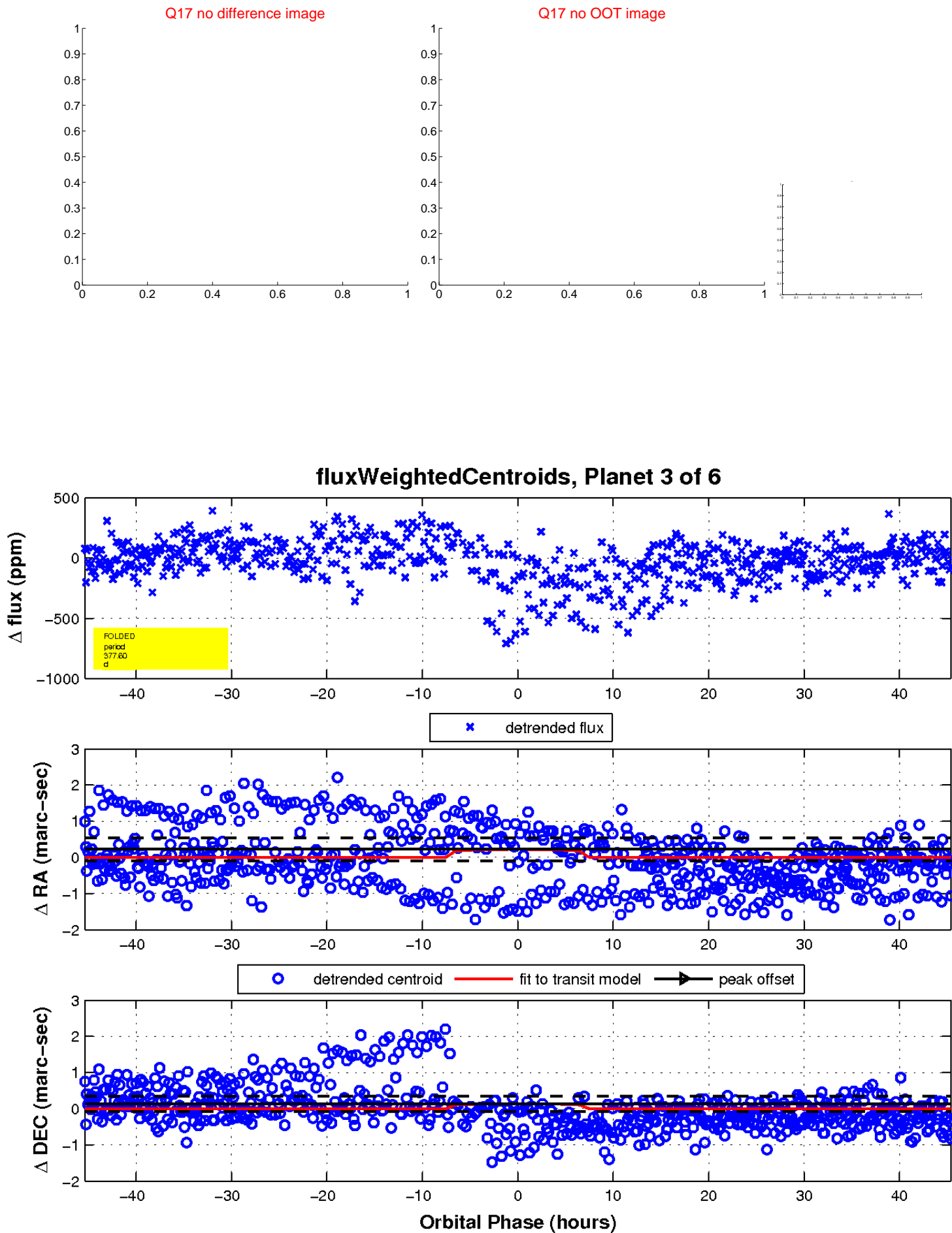
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value



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

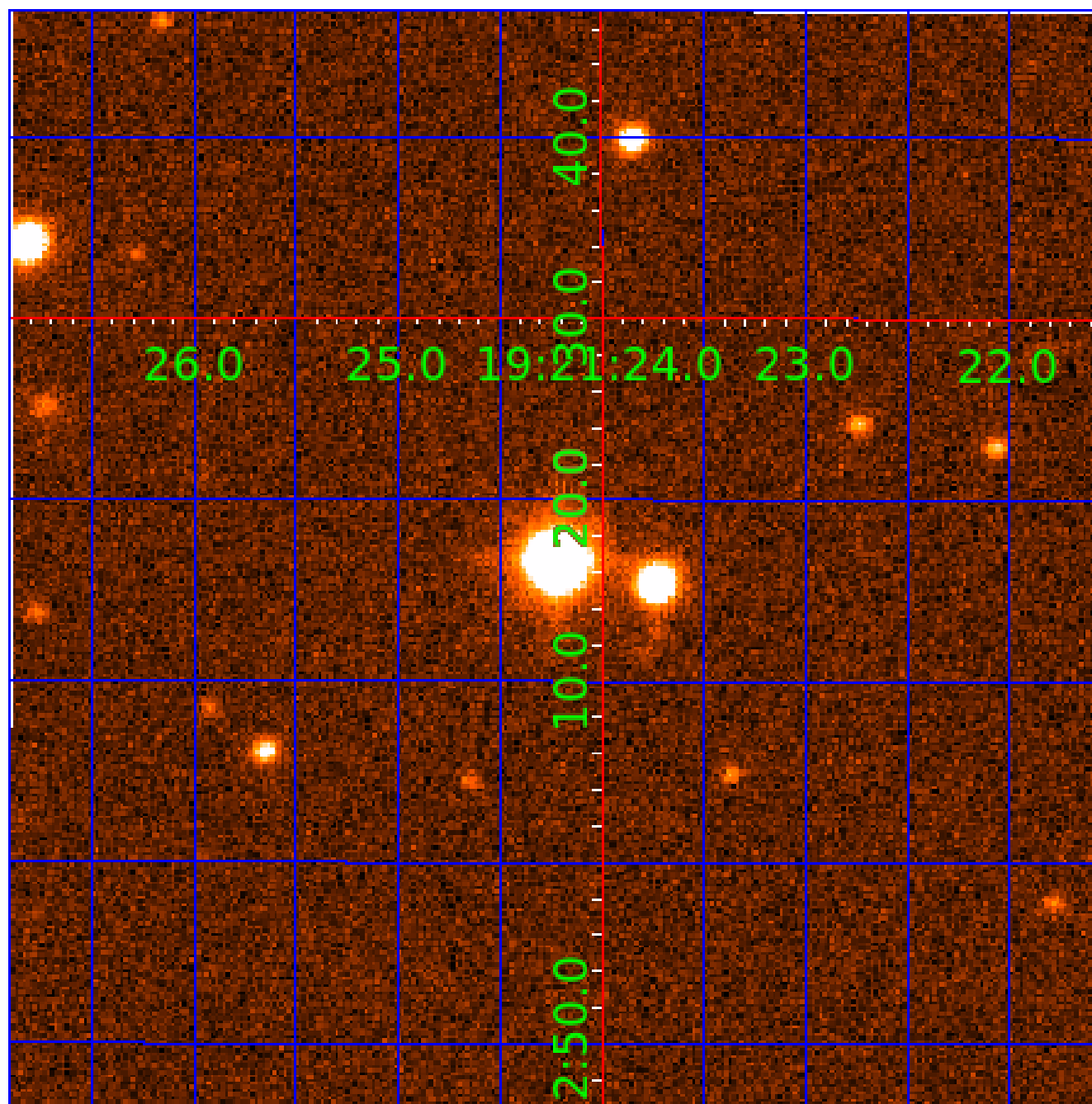


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 006037990

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})
006037990-01	OBS	No	0.941516	132.447097	0.0	0.745	9.1	0.0	2.41	7455	0.02	31086.02
006037990-02	OBS	No	0.941589	132.199746	17.1	3.386	8.6	10.3	2.41	7455	1.15	31082.82
006037990-03	OBS	No	377.597941	259.696367	220.2	15.132	10.4	8.2	2.41	7455	4.11	10.51
006037990-04	OBS	No	212.593237	177.967881	132.1	13.284	9.5	6.7	2.41	7455	3.04	22.61
006037990-05	OBS	No	148.337997	191.533284	144.6	7.251	7.2	6.7	2.41	7455	3.18	36.53
006037990-06	OBS	No	93.289589	191.737863	157.9	3.082	7.2	6.9	2.41	7455	3.49	67.80

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
006037990-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA_TRACKER—SWEET_NTL—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT—CENT_FEW_DIFFS
006037990-02	OBS	FP	0.00	1	0	0	0	SWEET_NTL—LPP_DV—SAME_NTL_PERIOD
006037990-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—LPP_DV—LPP_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
006037990-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
006037990-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE—TRANS_GAPPED—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT
006037990-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—MOD_NONUNIQ_ALT

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

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

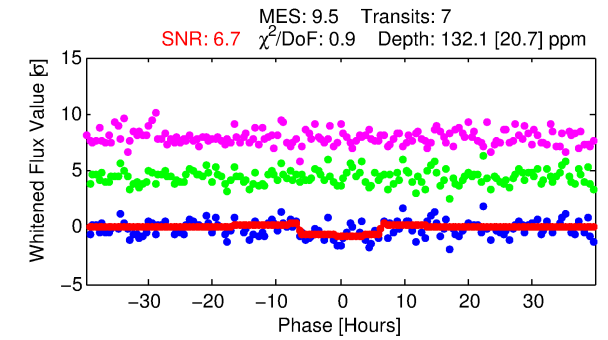
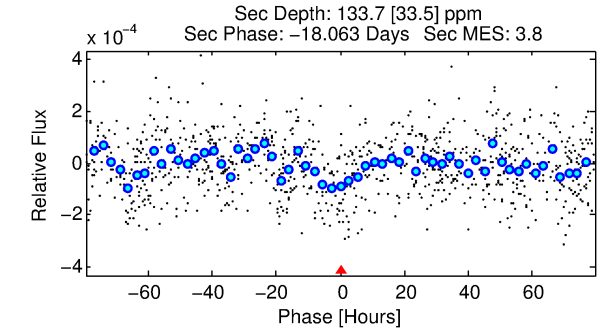
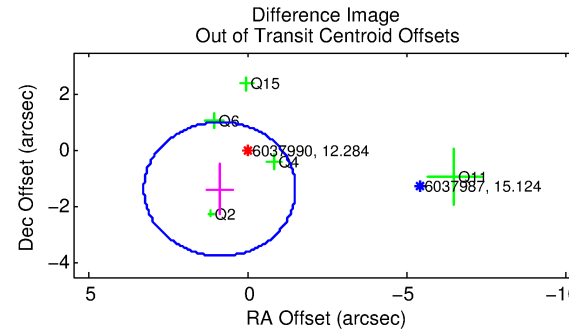
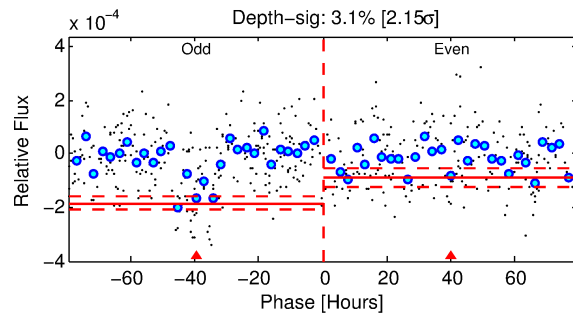
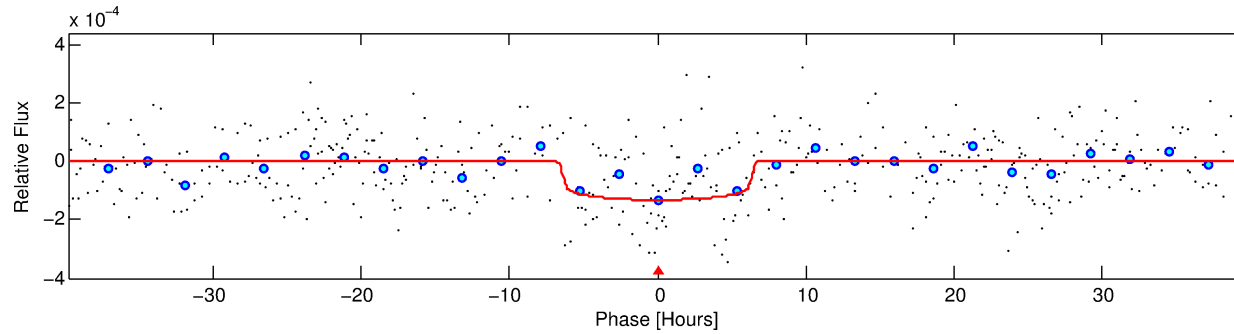
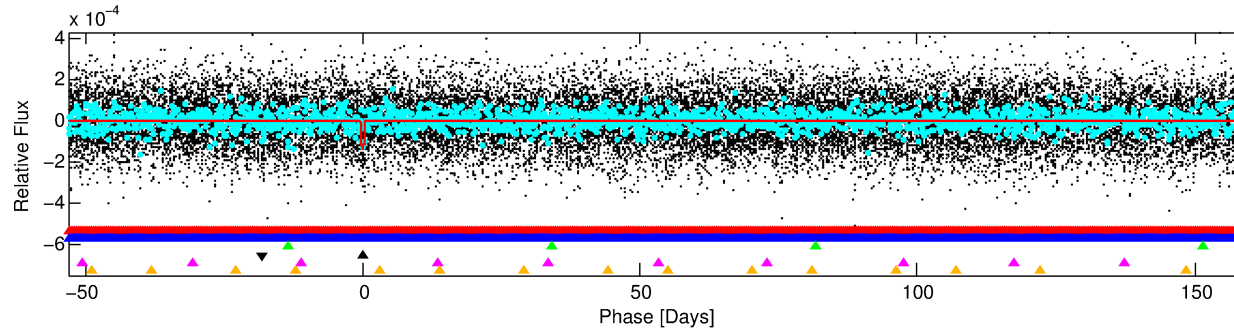
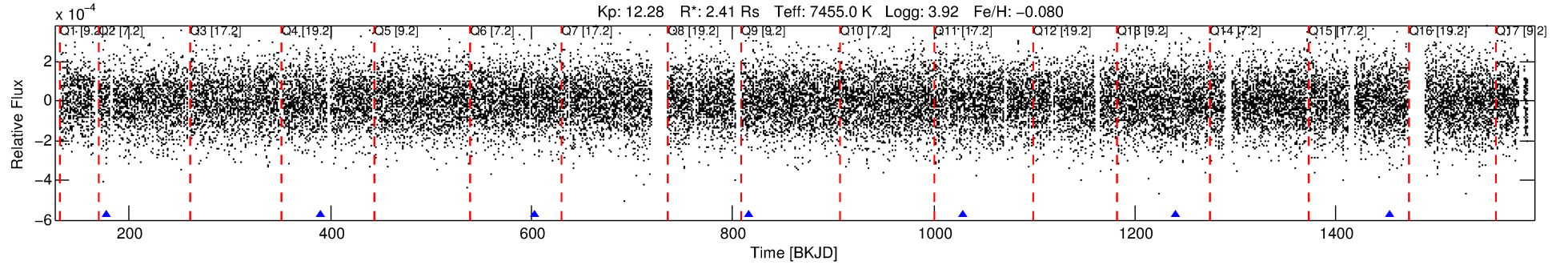
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 006037990-04

No Significant Match Found

DV One-Page Summary

KIC: 6037990 Candidate: 4 of 6 Period: 212.593 d



DV Fit Results:

Period = 212.59324 [0.00805] d
Epoch = 177.9679 [0.0315] BKJD
Rp/R* = 0.0116 [0.0051]
a/R* = 76.84 [212.21]
b = 0.79 [1.29]
Seff = 22.61 [12.03]
Teq = 556 [74] K
Rp = 3.04 [1.74] Re
a = 0.8421 [0.2781] AU
Ag = 5645.04 [5882.39] [0.96 σ]
Teffp = 7452 [1727] K [3.99 σ]

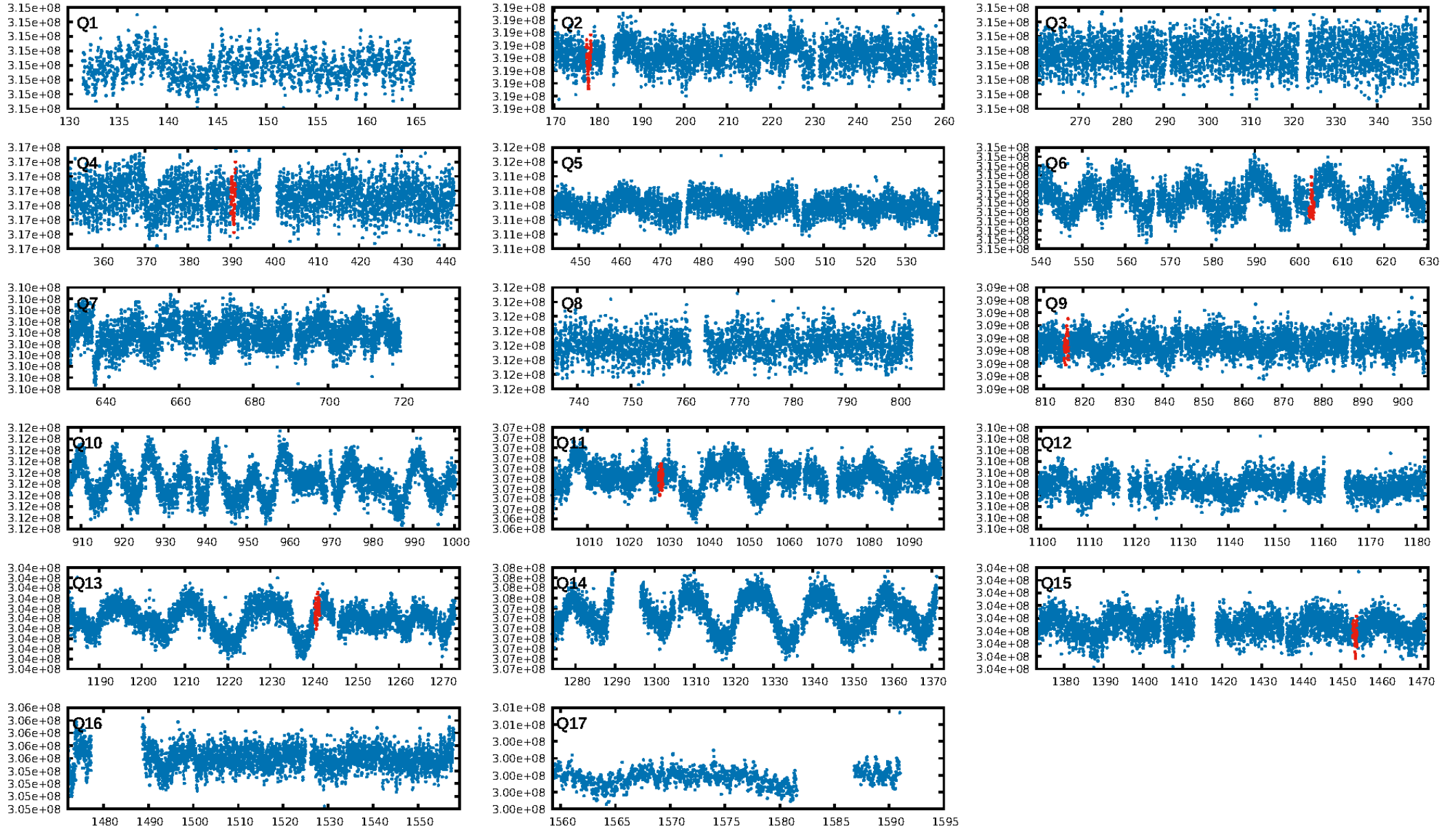
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [101.90 σ]
LongPeriod-sig: 100.0% [196.67 σ]
ModelChiSquare2-sig: 15.4%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 2.23e-13
RollingBand-fgt: 1.00 [7/7]
GhostDiagnostic-chr: 2.534
Centroid-sig: 1.6%
Centroid-so: 2.535 arcsec [2.06 σ]
OotOffset-rm: 1.632 arcsec [2.05 σ]
KicOffset-rm: 1.526 arcsec [1.80 σ]
OotOffset-st: 2/2/1/0 [5]
KicOffset-st: 2/2/1/0 [5]
DiffImageQuality-fgm: 0.60 [3/5]
DiffImageOverlap-fno: 0.00 [0/6]

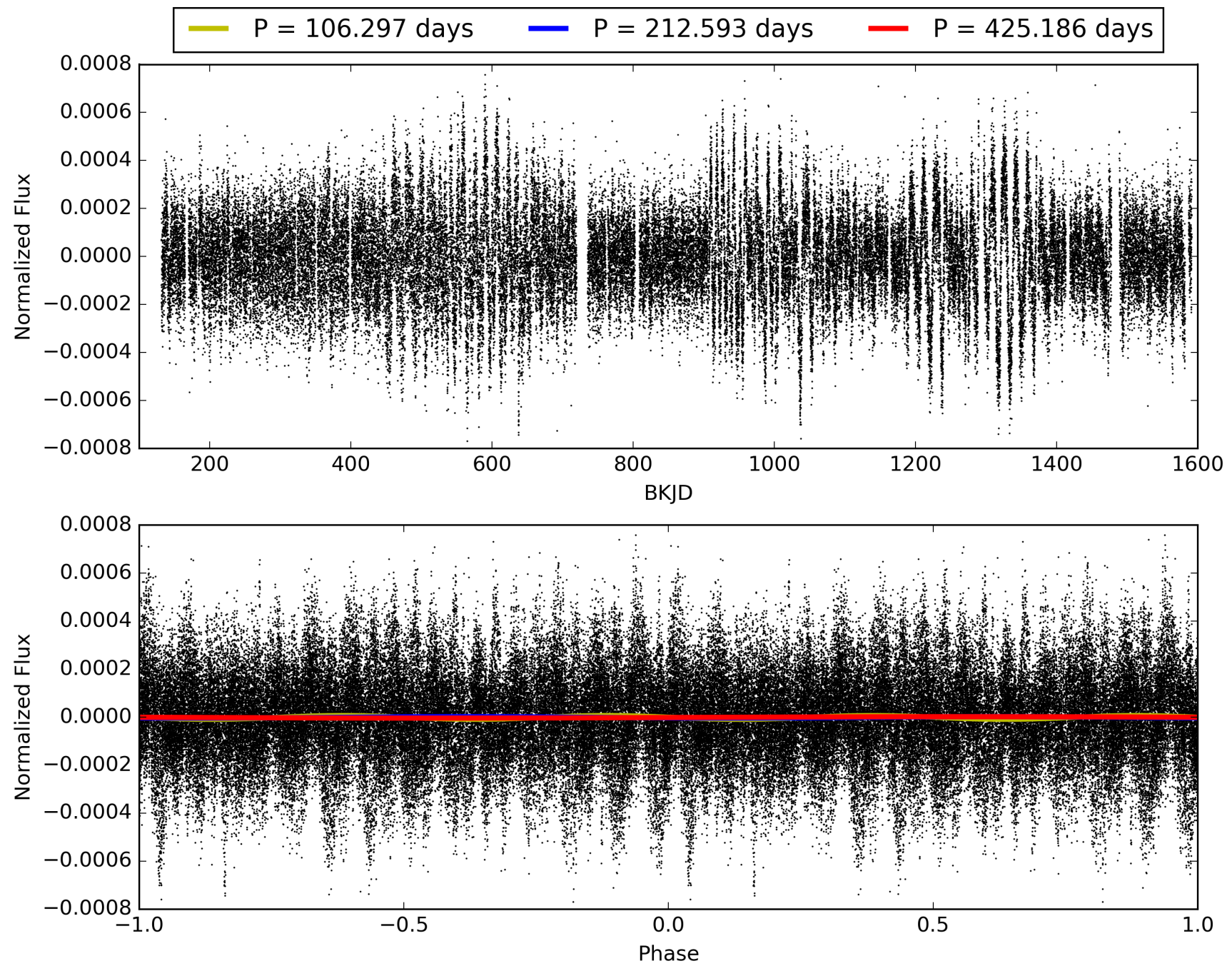
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 19:40:58 Z

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

TCE 006037990-04, PDC Light Curves

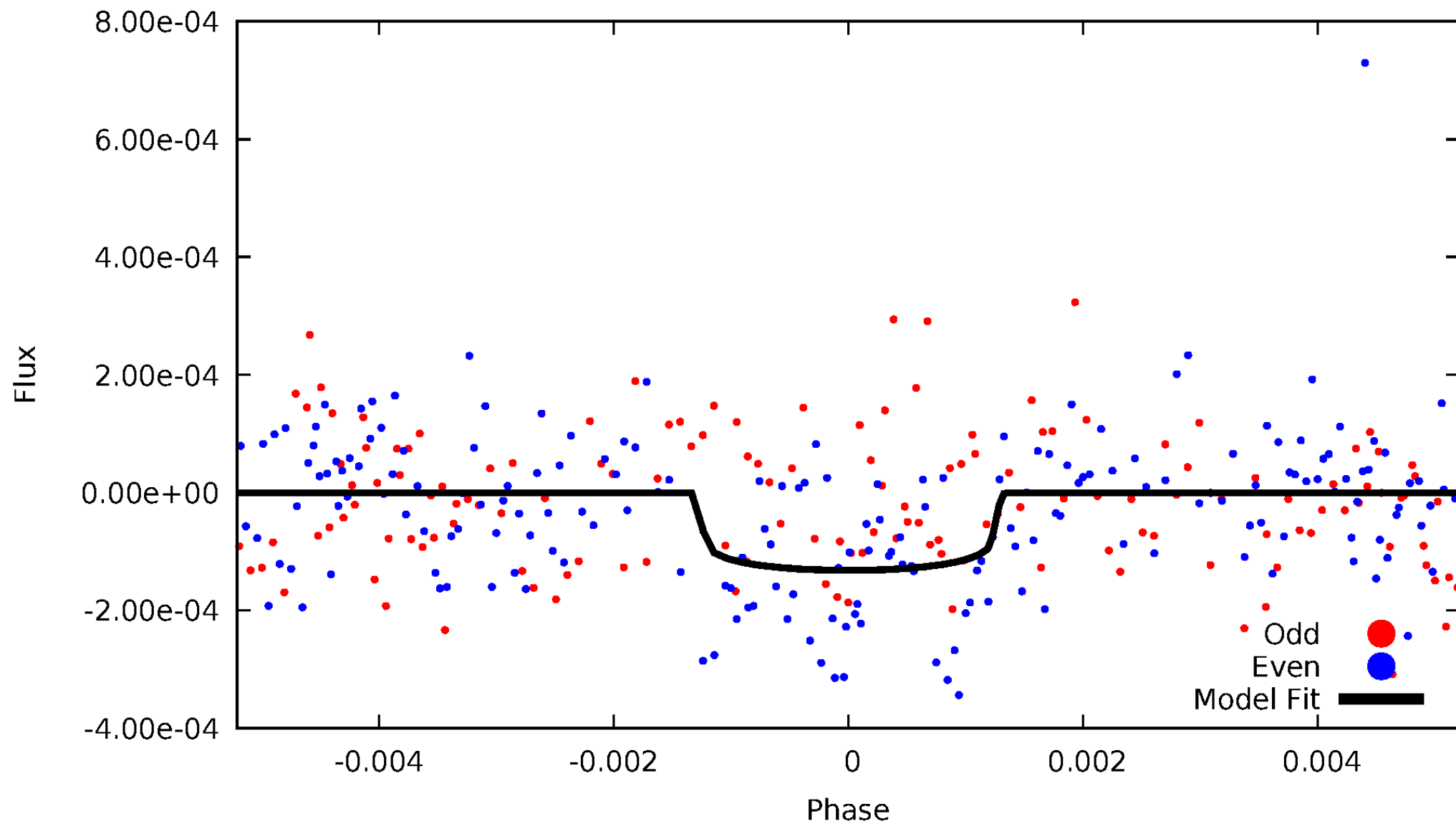


TCE 006037990-04



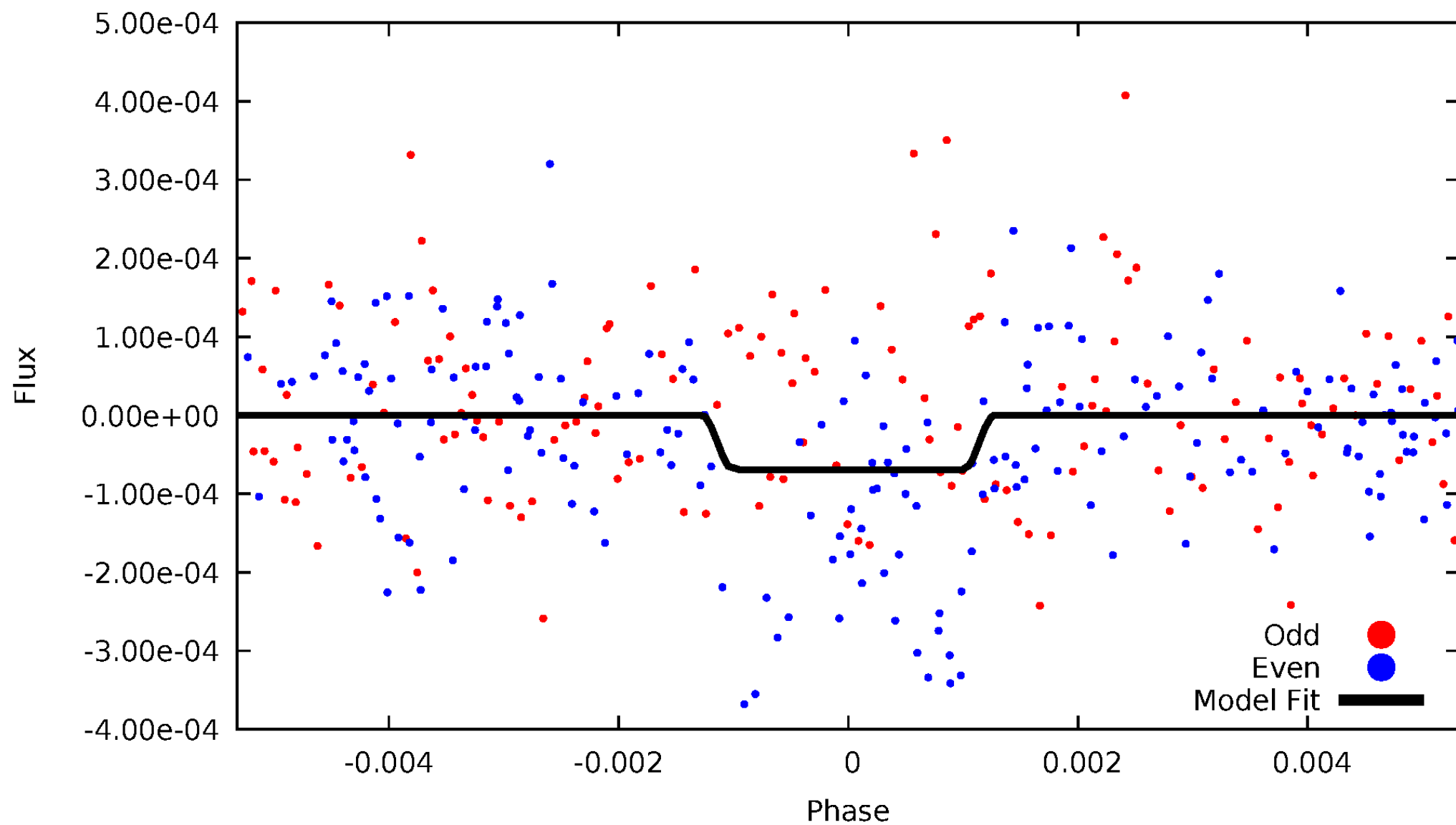
DV Odd/Even

TCE 006037990-04



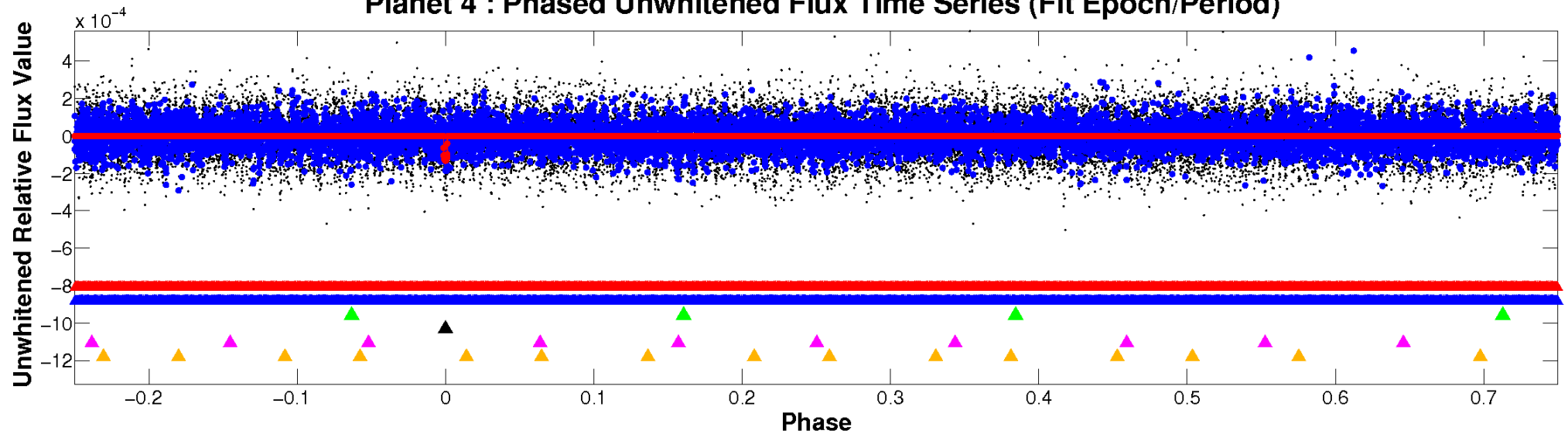
ALT Odd/Even

TCE 006037990-04

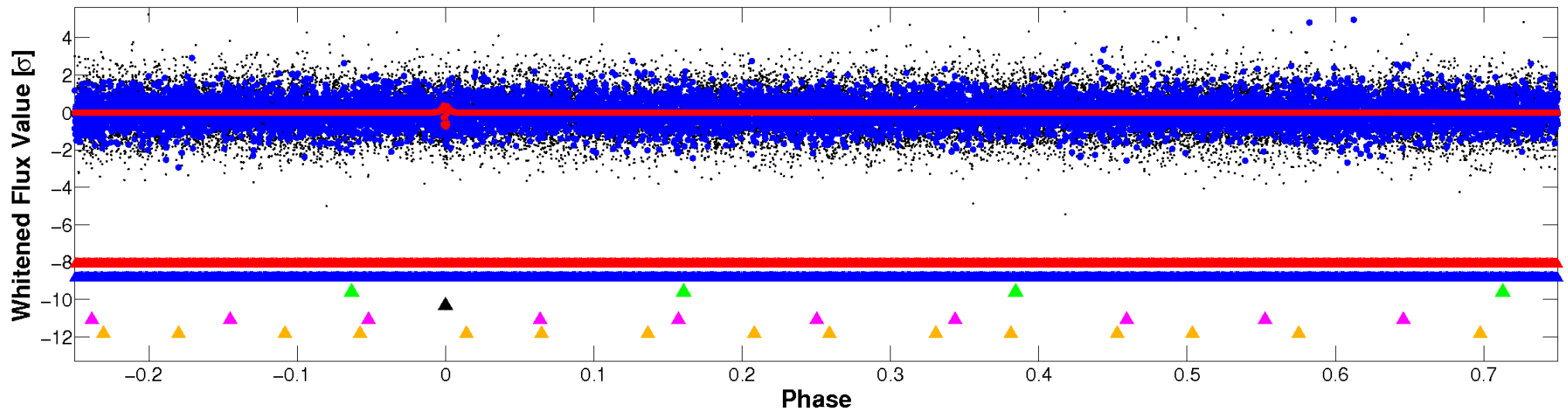


Non-Whitened Vs. Whitened Light Curve

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



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



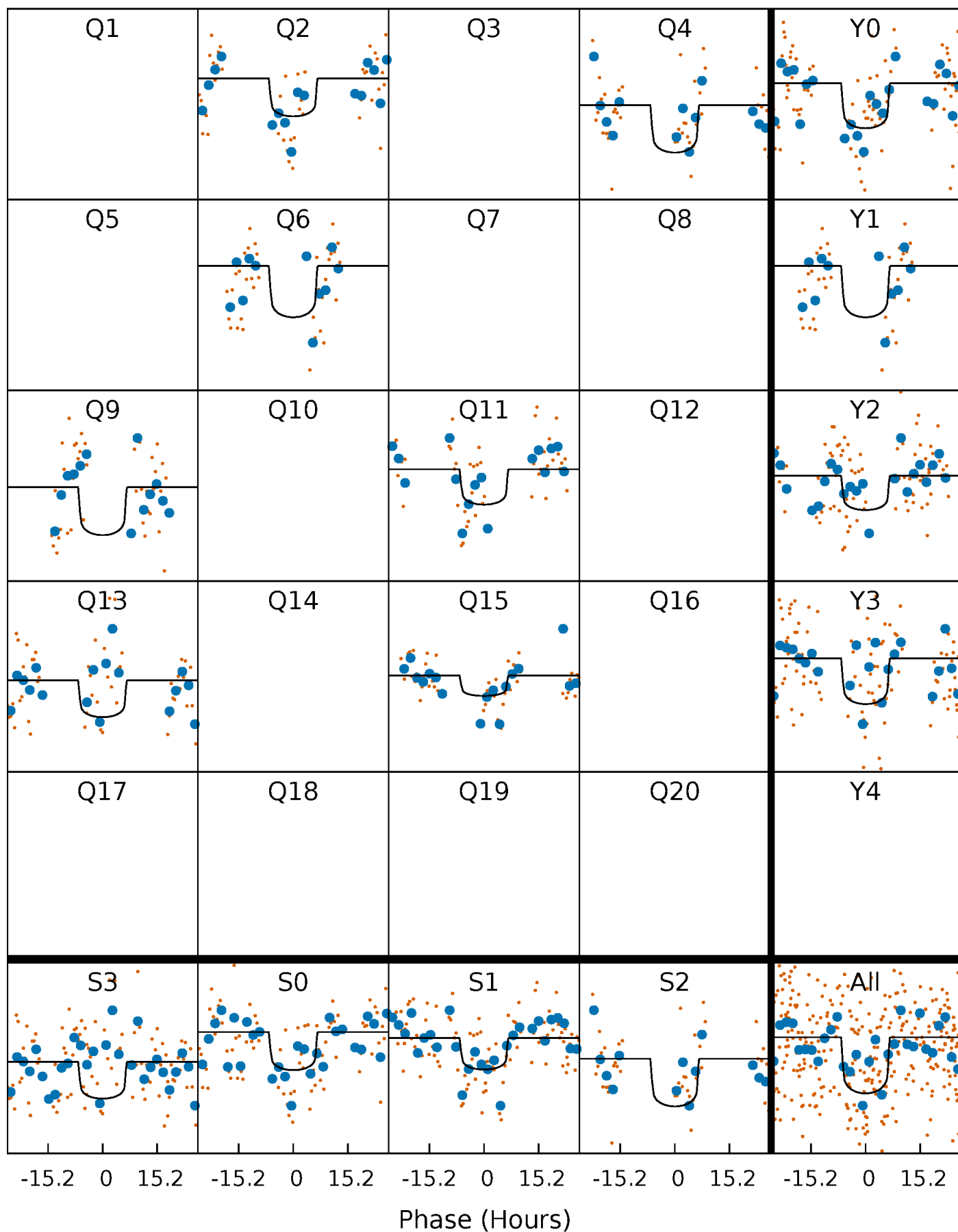
PDC Quarter-Phased Transit Curves

TCE 006037990-04 P=212.593237 Days $T_0=177.967881$ (BKJD)



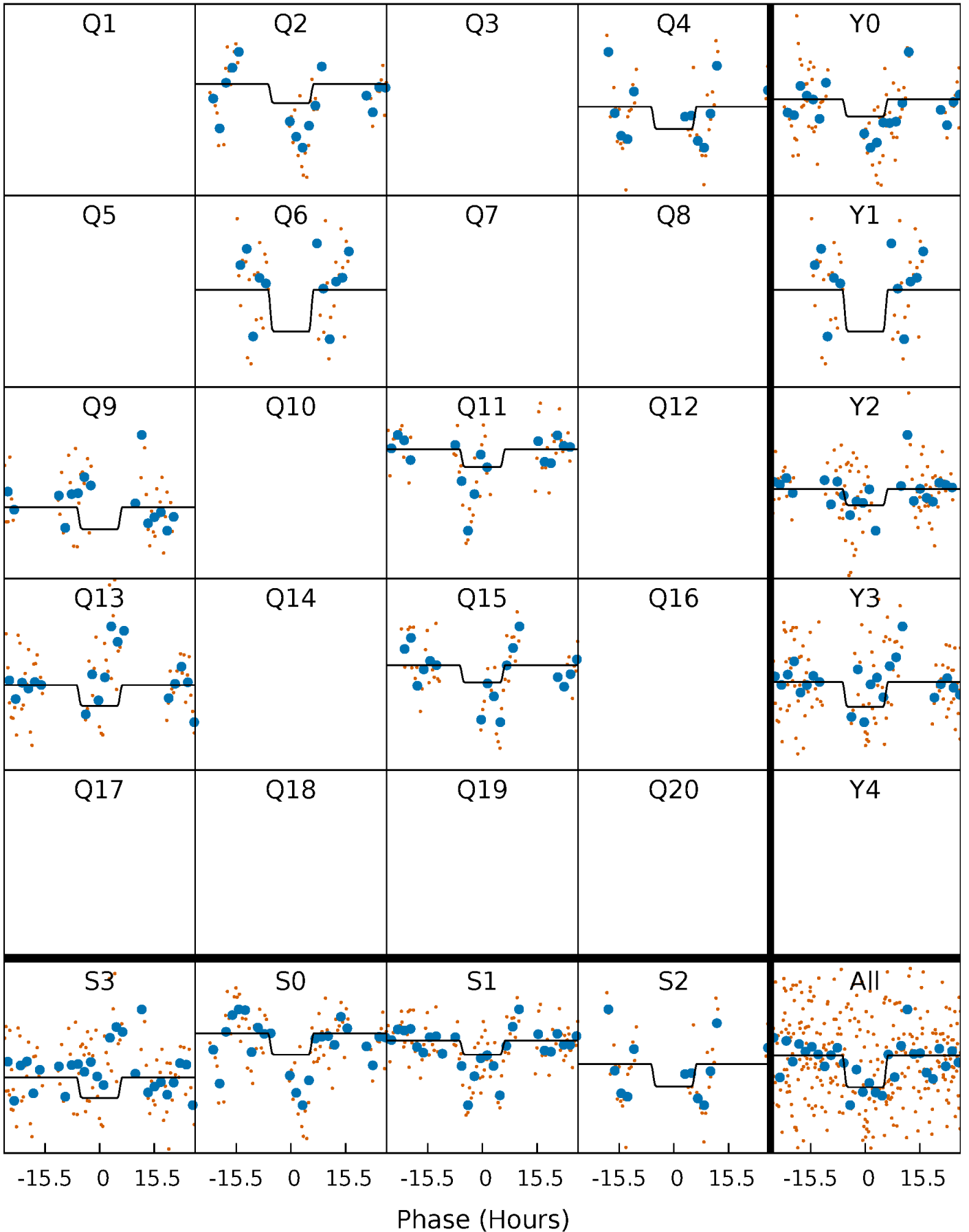
DV Quarter-Phased Transit Curves

TCE 006037990-04 P=212.593237 Days $T_0=177.967881$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

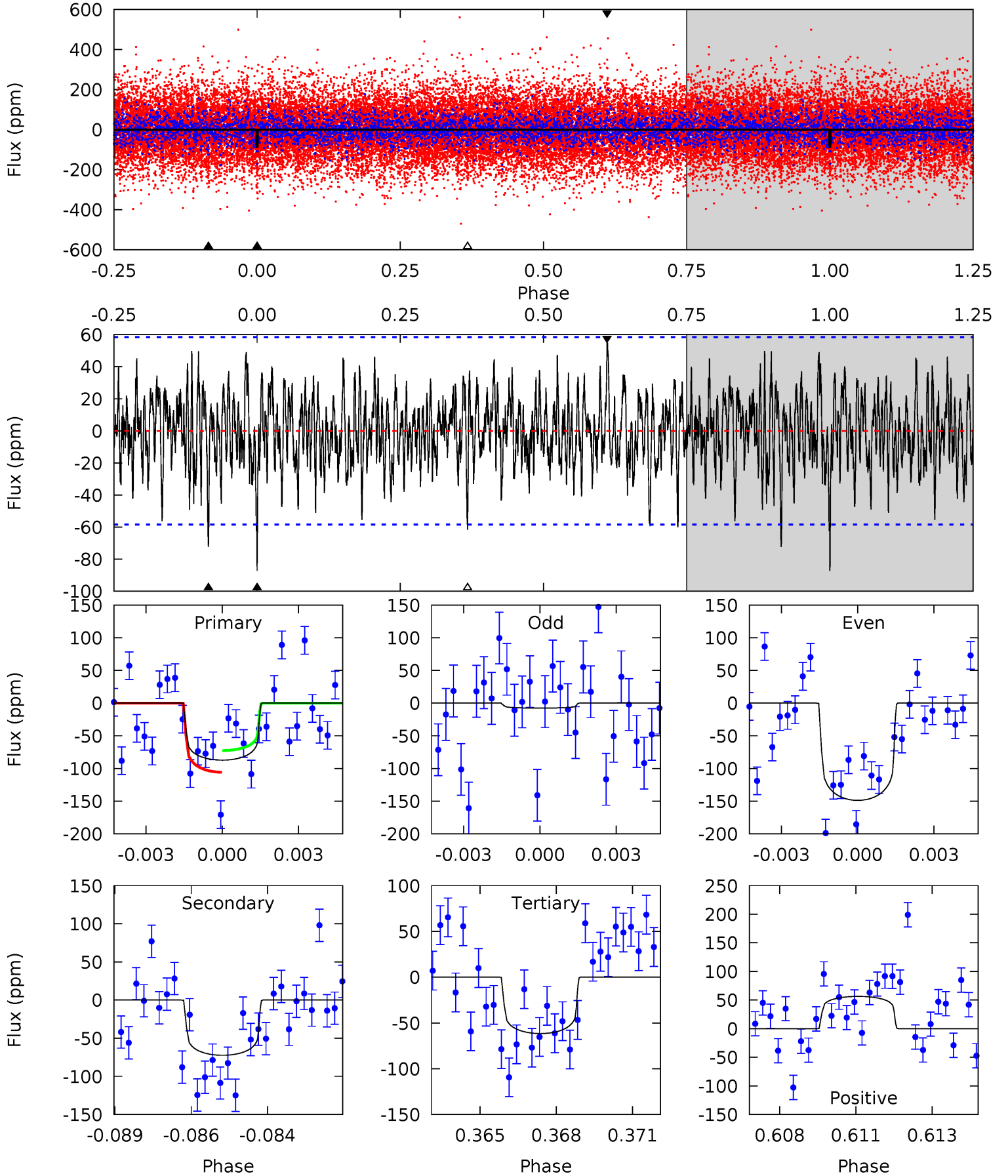
TCE 006037990-04 $P=212.624814$ Days $T_0=177.770750$ (BKJD)



DV Model-Shift Uniqueness Test

006037990-04, P = 212.593237 Days, E = 177.967881 Days

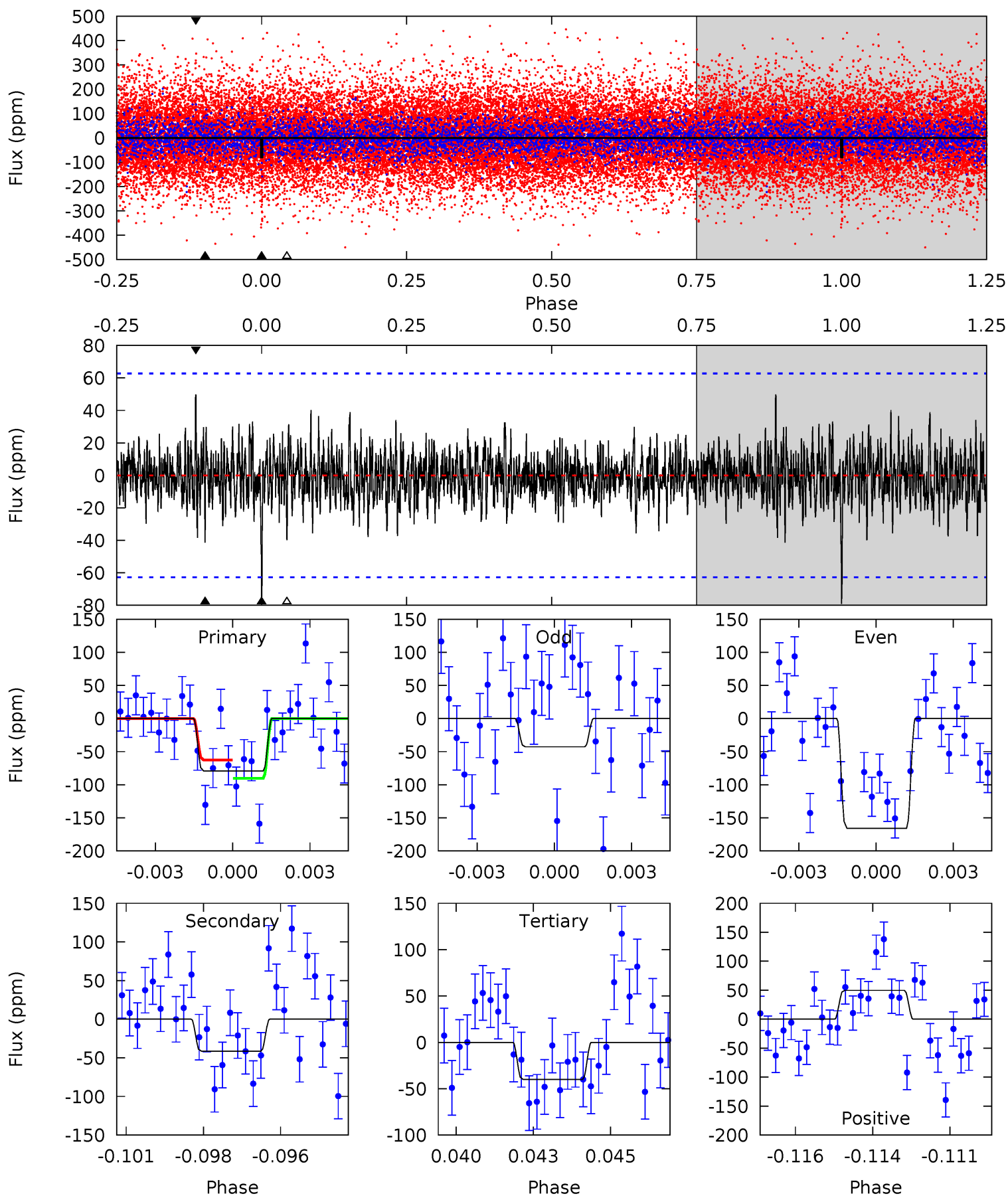
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
7.88	6.54	5.56	5.09	5.28	3.01	1.68	2.32	2.79	0.97	1.44	6.32	0.76	0.39	1.49



Alt Model-Shift Uniqueness Test

006037990-04, P = 212.624814 Days, E = 177.770750 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
6.67	3.49	3.36	4.19	5.28	3.02	0.98	3.31	2.48	0.13	-0.70	5.20	0.76	0.39	1.15



Stellar Parameters For KIC 006037990

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	7455^{+209}_{-314}	$3.921^{+0.287}_{-0.143}$	$-0.080^{+0.200}_{-0.350}$	$2.407^{+0.478}_{-0.888}$	$1.759^{+0.195}_{-0.391}$	$0.178^{+0.347}_{-0.065}$
	+3%/-4%	+7%/-4%	+250%/-438%	+20%/-37%	+11%/-22%	+195%/-37%
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 006037990-04 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-72 ± 11	$2.95^{+1.43}_{-1.25}$	772^{+56}_{-76}	6255^{+2282}_{-1036}	3235^{+6488}_{-1798}
Alt.	-41 ± 12	$2.29^{+1.33}_{-1.27}$	765^{+57}_{-70}	6144^{+3679}_{-1222}	3149^{+13059}_{-2033}

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

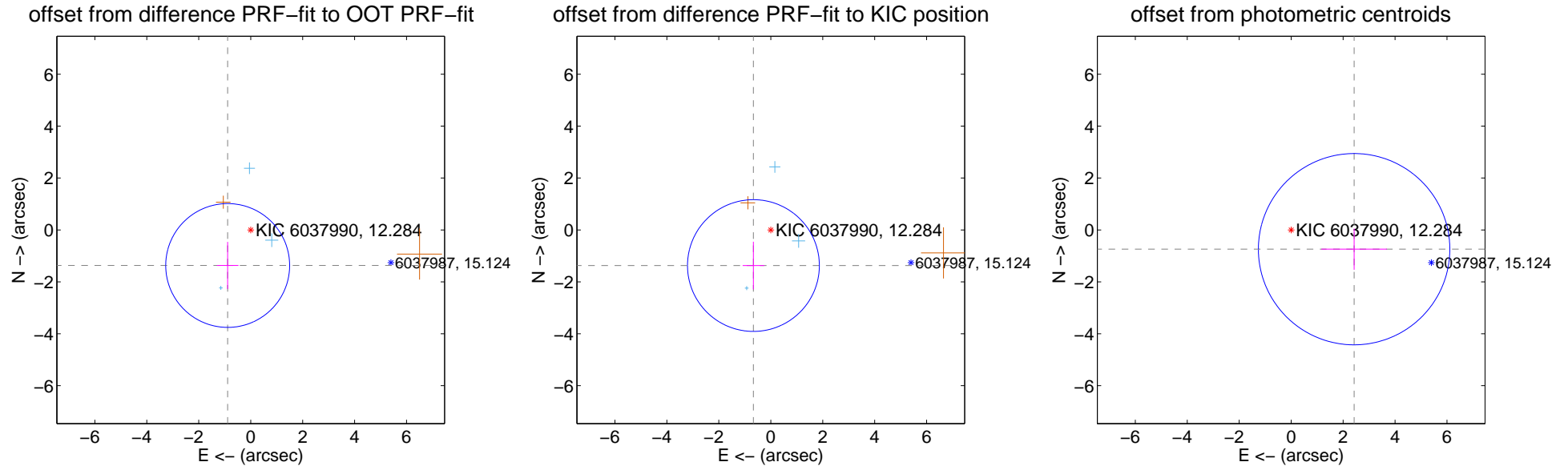
DV Centroid Data

Supplemental centroid analysis for 006037990-04. Kepler magnitude: 12.28. Transit SNR 6.68

There are 3 quarters with good PRF difference image offsets

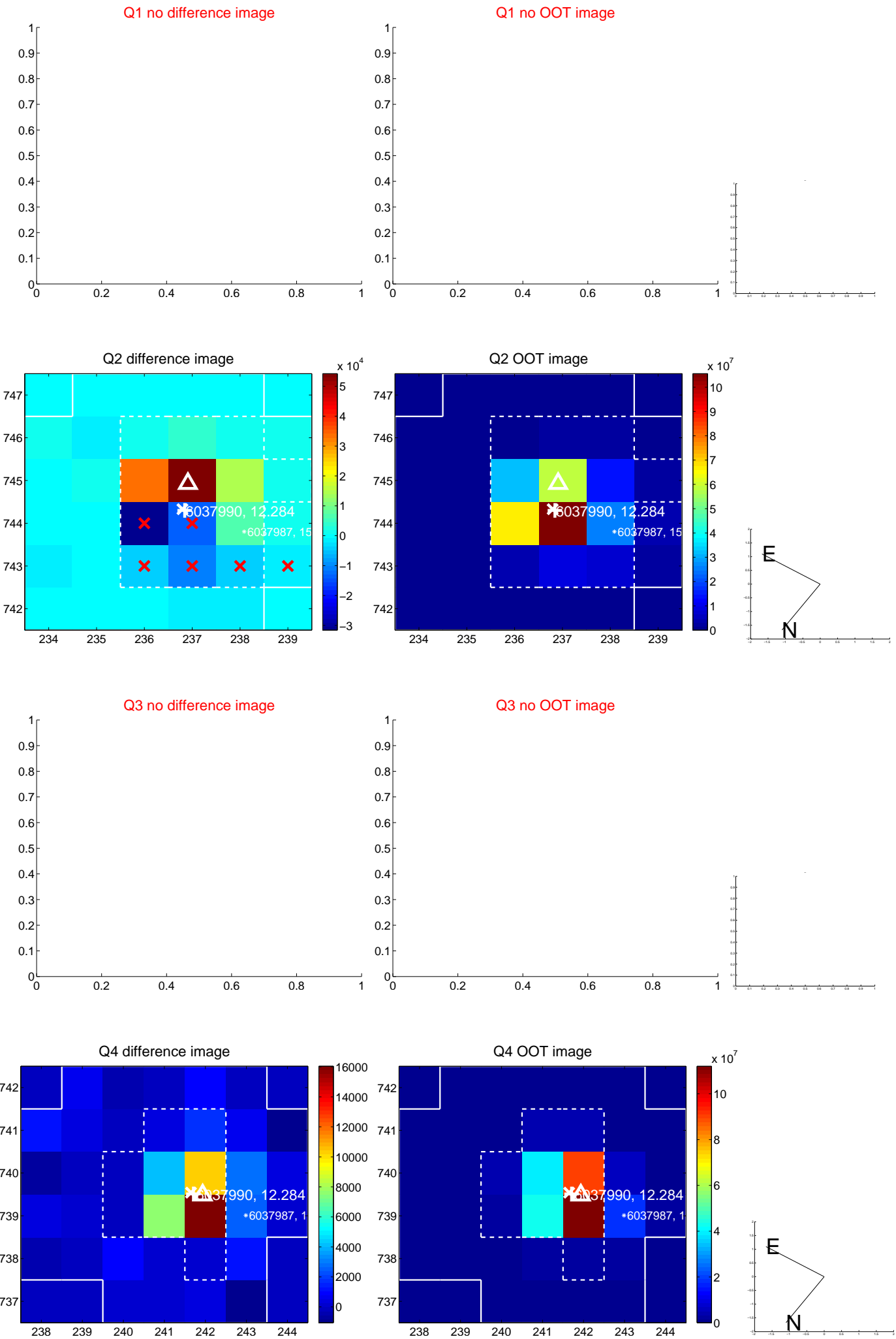
The direct PRF centroid is offset from the target star catalog position by about 0.21 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	1.632 ± 0.795	2.05	0.887 ± 0.416	-1.370 ± 0.908
PRF-fit source offset from KIC position	1.526 ± 0.846	1.80	0.668 ± 0.415	-1.372 ± 0.919
photometric centroid source offset	2.53 ± 1.23	2.06	-2.42 ± 1.26	-0.74 ± 0.79



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

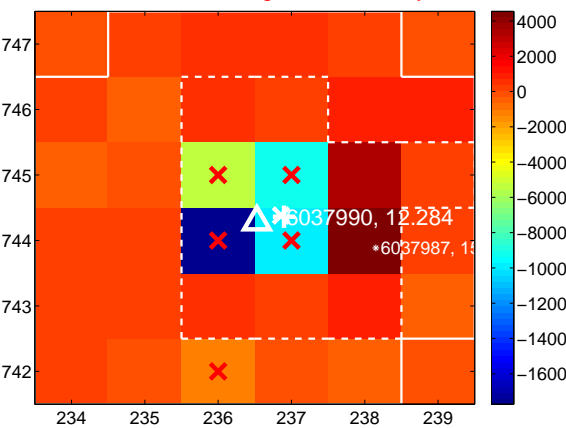
Q5 no difference image



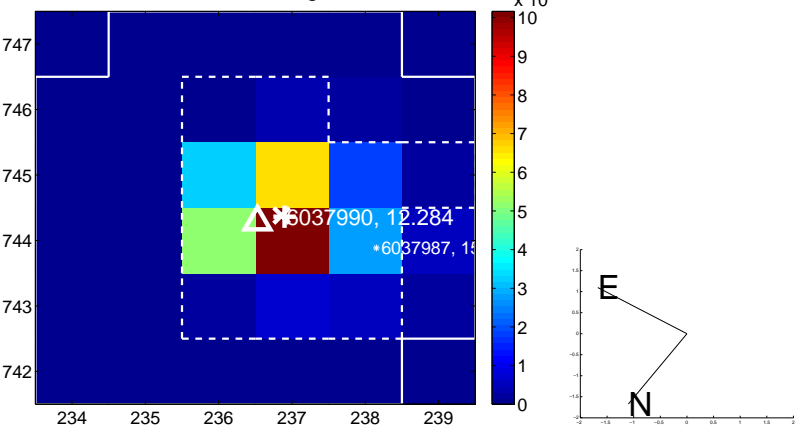
Q5 no OOT image



Q6 difference image. Poor Quality



Q6 OOT image



Q7 no difference image



Q7 no OOT image



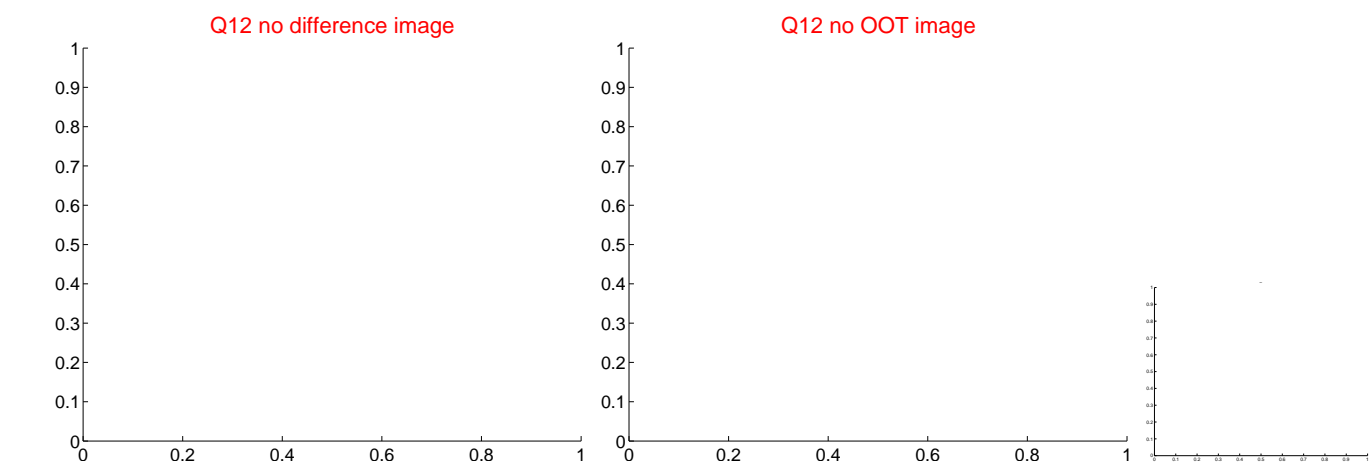
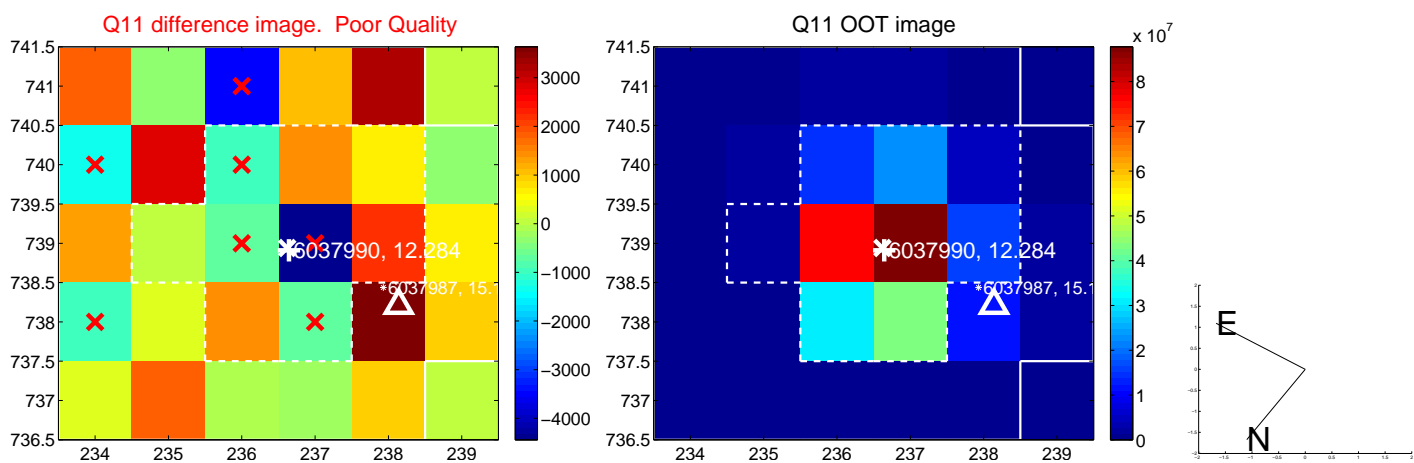
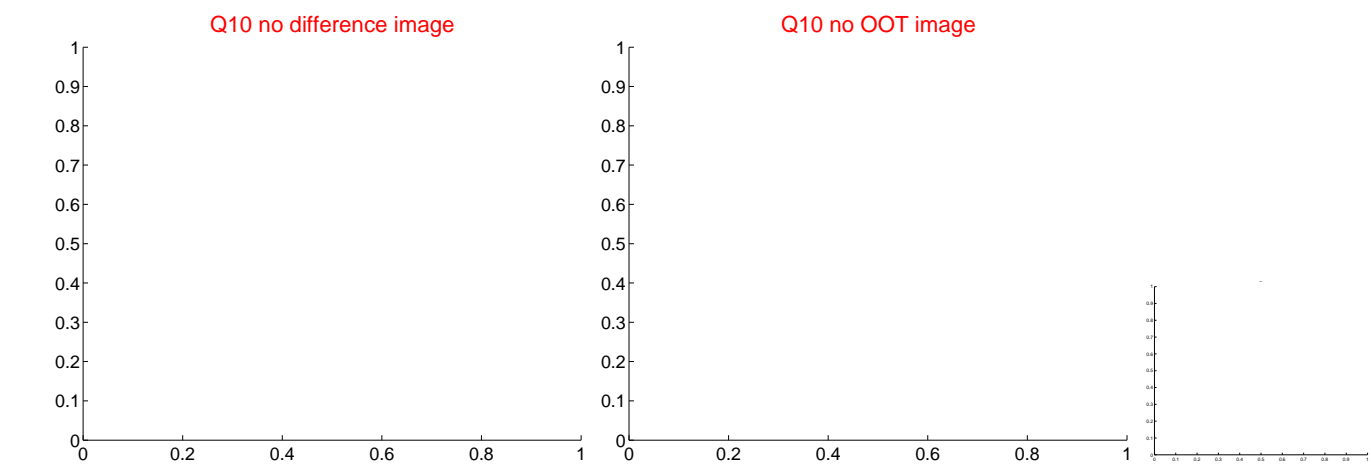
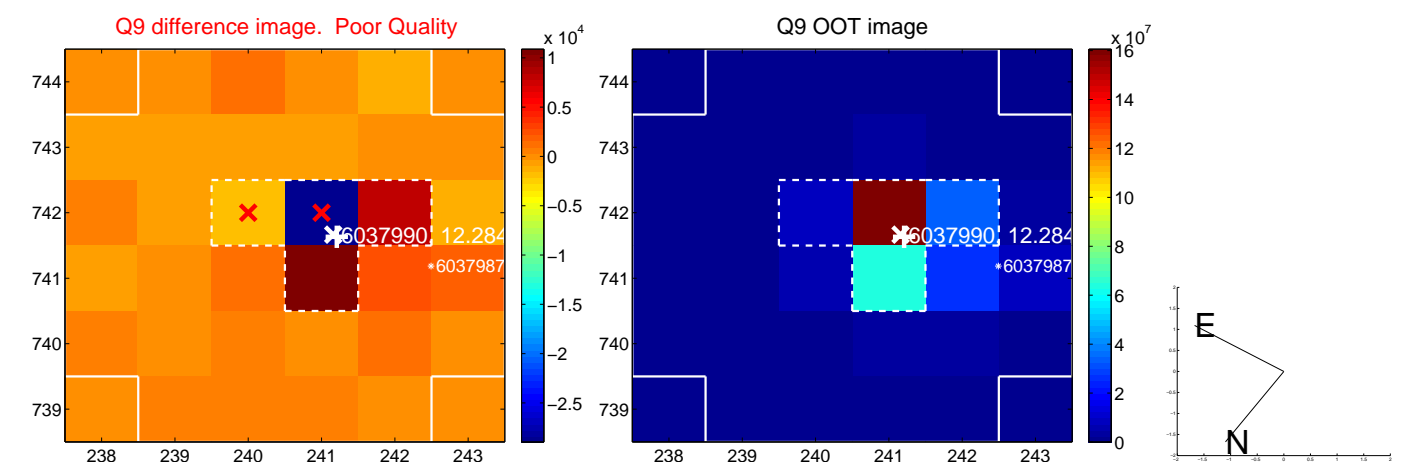
Q8 no difference image



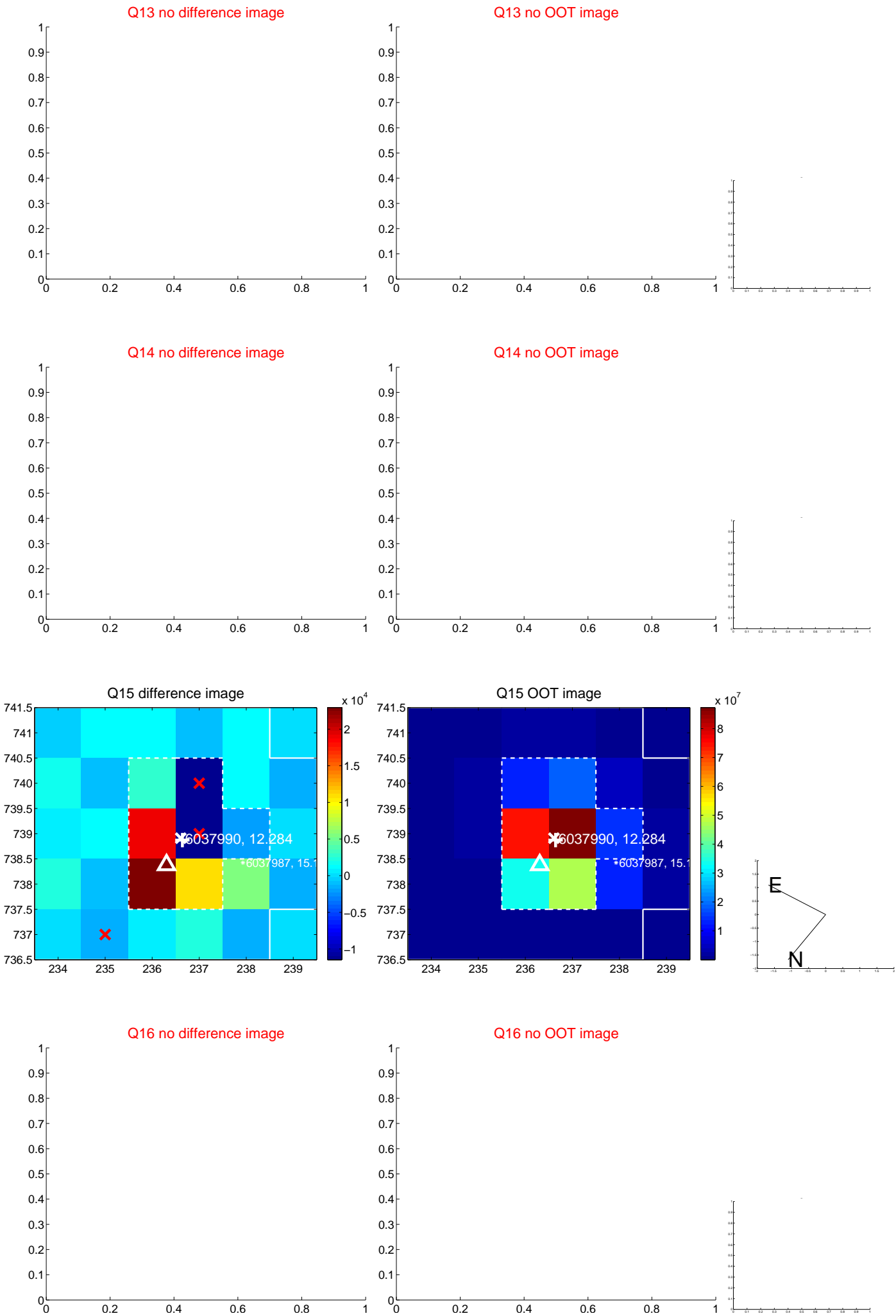
Q8 no OOT image



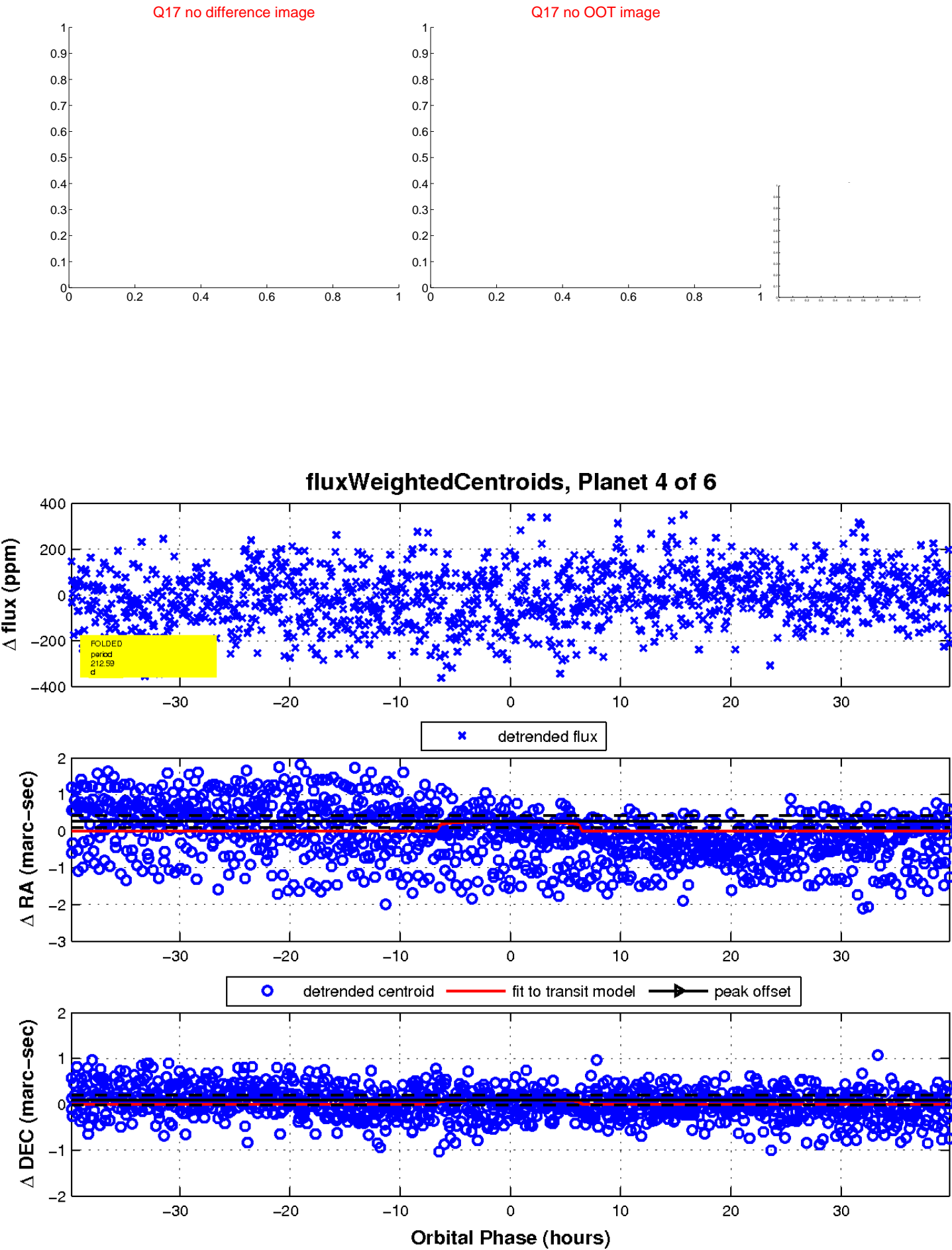
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

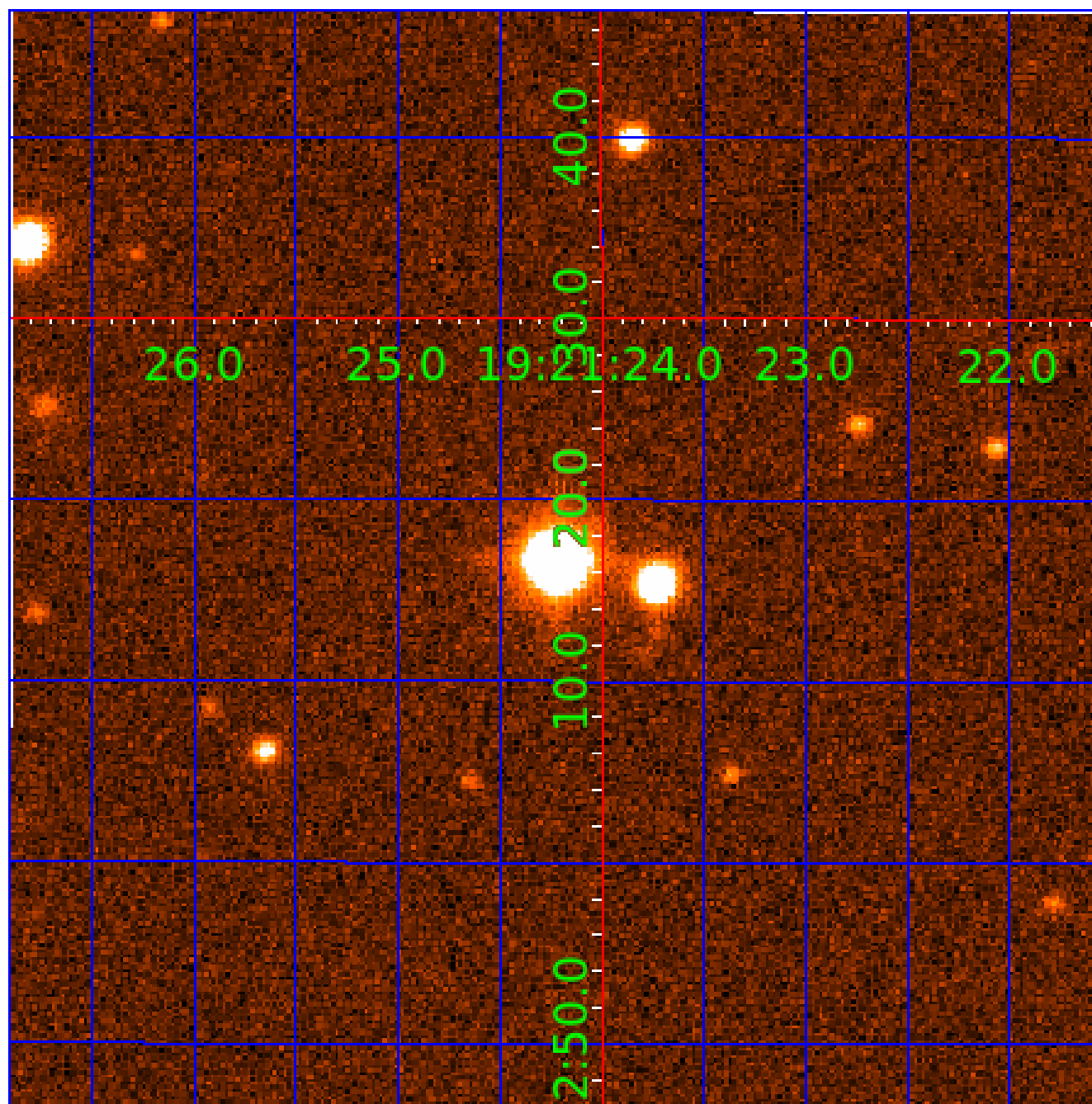


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 006037990

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})
006037990-01	OBS	No	0.941516	132.447097	0.0	0.745	9.1	0.0	2.41	7455	0.02	31086.02
006037990-02	OBS	No	0.941589	132.199746	17.1	3.386	8.6	10.3	2.41	7455	1.15	31082.82
006037990-03	OBS	No	377.597941	259.696367	220.2	15.132	10.4	8.2	2.41	7455	4.11	10.51
006037990-04	OBS	No	212.593237	177.967881	132.1	13.284	9.5	6.7	2.41	7455	3.04	22.61
006037990-05	OBS	No	148.337997	191.533284	144.6	7.251	7.2	6.7	2.41	7455	3.18	36.53
006037990-06	OBS	No	93.289589	191.737863	157.9	3.082	7.2	6.9	2.41	7455	3.49	67.80

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
006037990-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA_TRACKER—SWEET_NTL—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT—CENT_FEW_DIFFS
006037990-02	OBS	FP	0.00	1	0	0	0	SWEET_NTL—LPP_DV—SAME_NTL_PERIOD
006037990-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—LPP_DV—LPP_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
006037990-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
006037990-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE—TRANS_GAPPED—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT
006037990-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—MOD_NONUNIQ_ALT

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

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

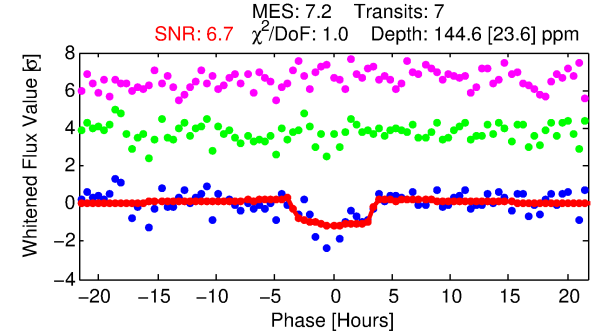
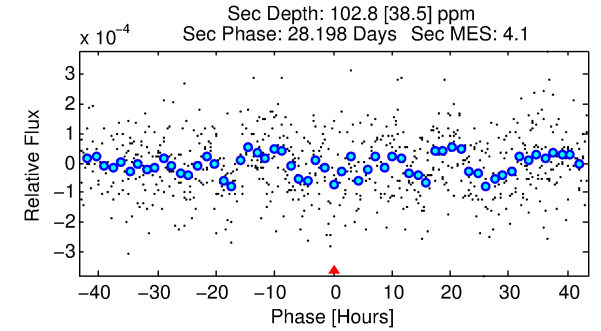
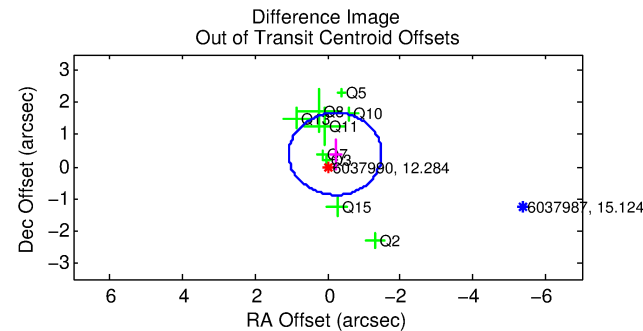
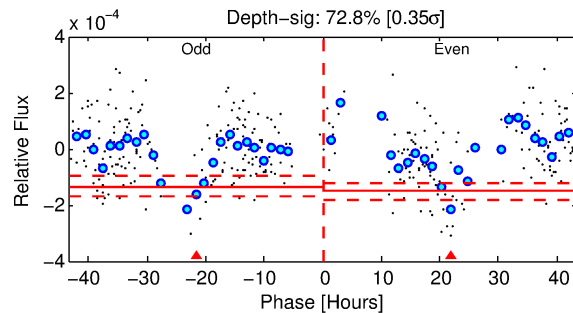
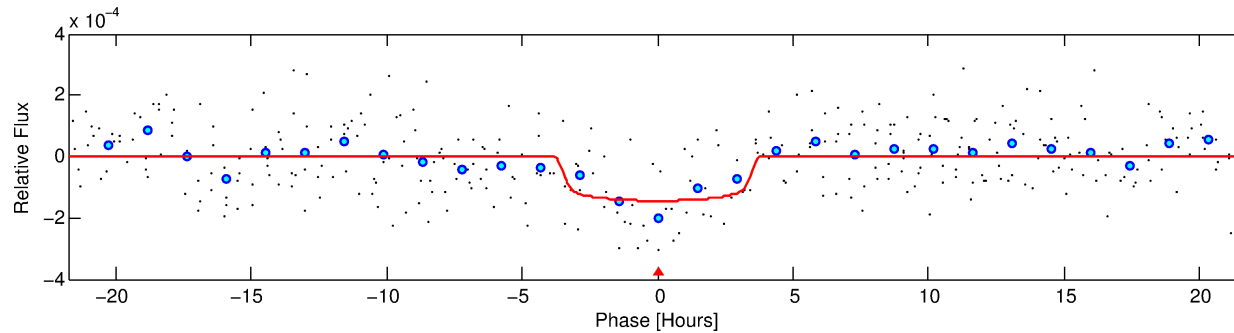
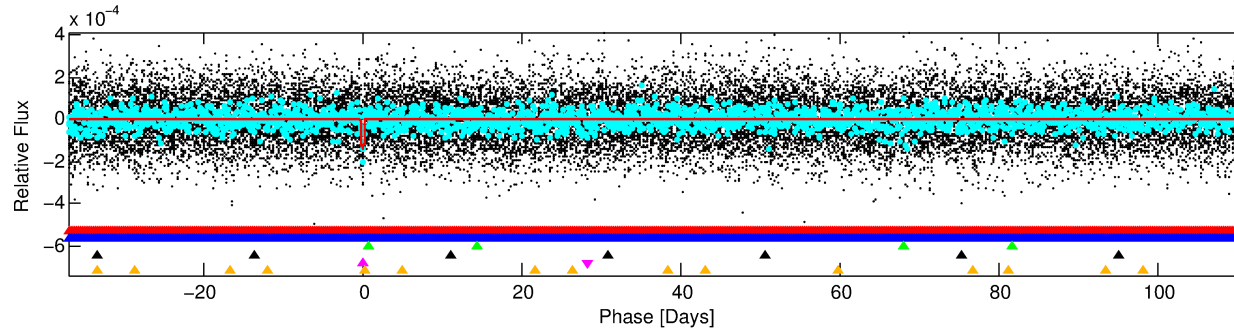
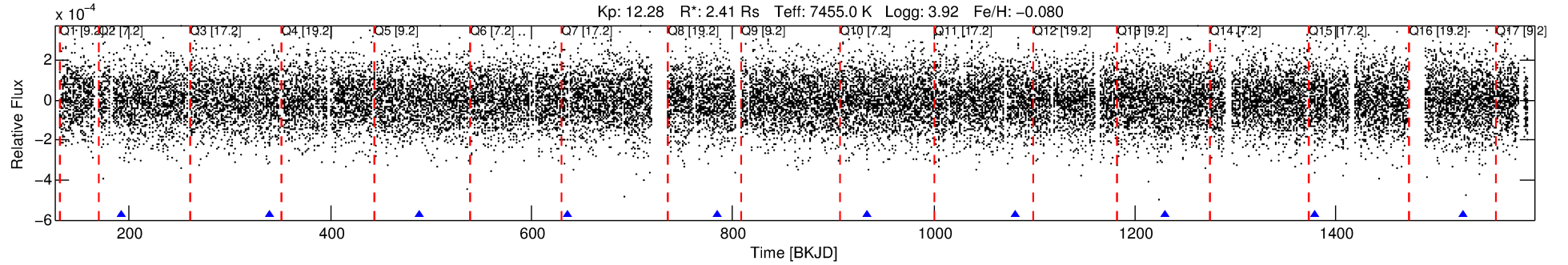
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 006037990-05

No Significant Match Found

DV One-Page Summary

KIC: 6037990 Candidate: 5 of 6 Period: 148.338 d



DV Fit Results:

Period = 148.33800 [0.00282] d
Epoch = 191.5333 [0.0152] BKJD
Rp/R* = 0.0121 [0.0098]
a/R* = 97.83 [498.85]
b = 0.80 [2.37]
Seff = 36.53 [19.43]
Teq = 627 [83] K
Rp = 3.18 [2.82] Re
a = 0.6625 [0.2187] AU
Ag = 2449.05 [4240.46] [0.58 σ]
Teffp = 6818 [2838] K [2.18 σ]

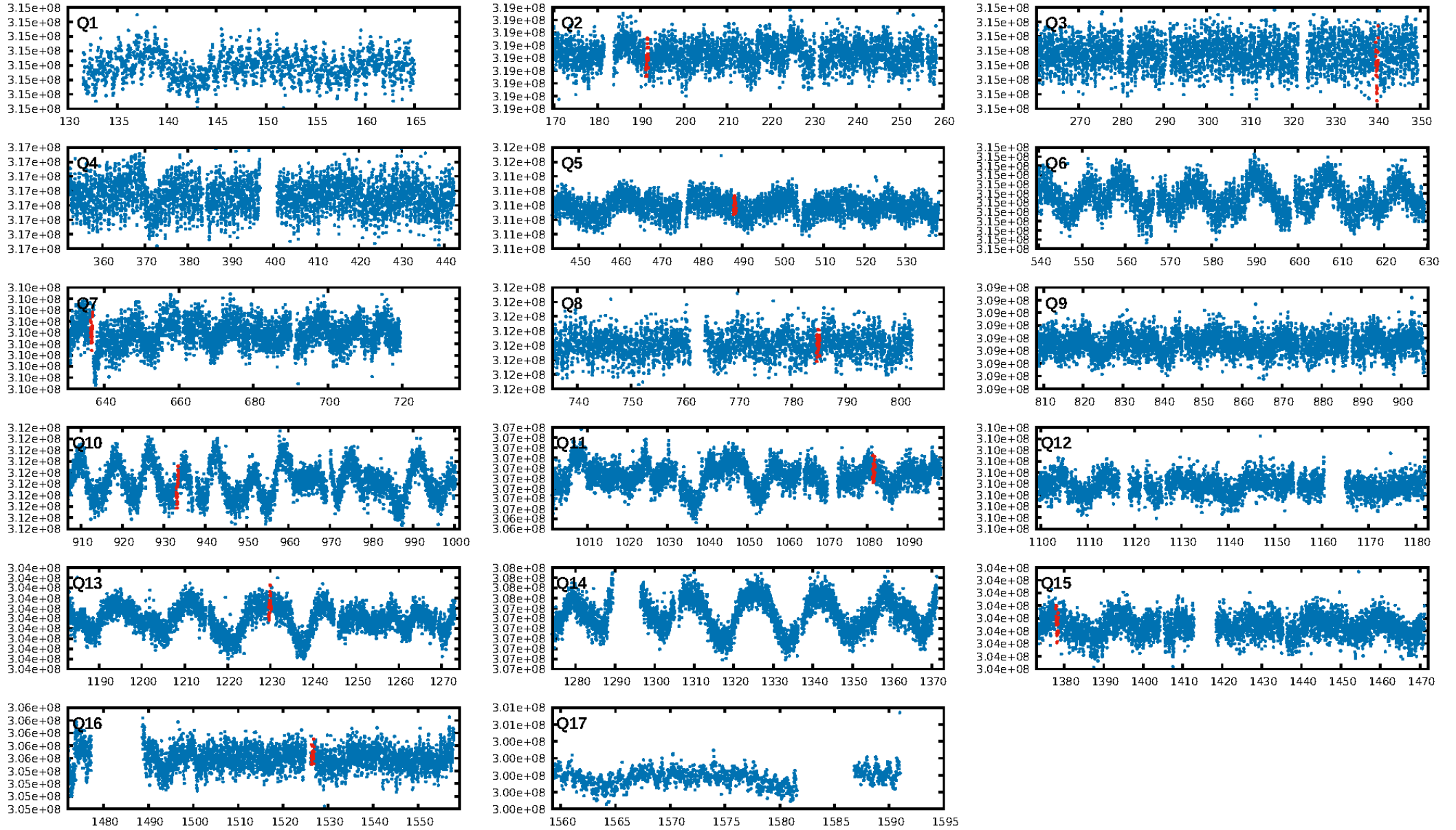
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [167.69 σ]
LongPeriod-sig: 100.0% [101.90 σ]
ModelChiSquare2-sig: 66.1%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 4.89e-10
RollingBand-fgt: 1.00 [7/7]
GhostDiagnostic-chr: -0.8338
Centroid-sig: 74.3%
Centroid-so: 0.078 arcsec [0.08 σ]
OotOffset-rm: 0.447 arcsec [1.05 σ]
KicOffset-rm: 0.616 arcsec [1.76 σ]
OotOffset-st: 2/4/1/2 [9]
KicOffset-st: 2/4/1/2 [9]
DiffImageQuality-fgm: 0.56 [5/9]
DiffImageOverlap-fno: 0.00 [0/9]

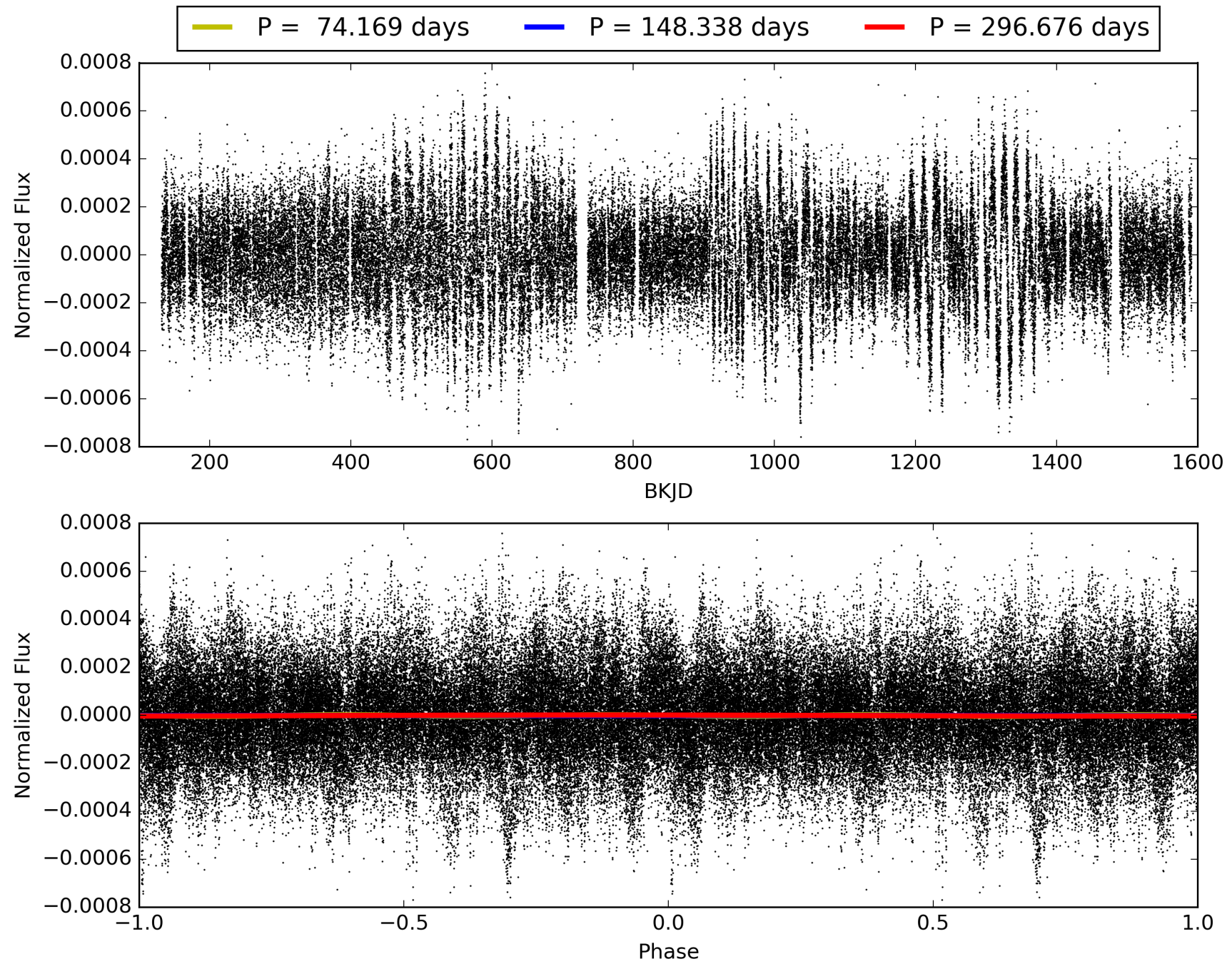
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 19:41:03 Z

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

TCE 006037990-05, PDC Light Curves

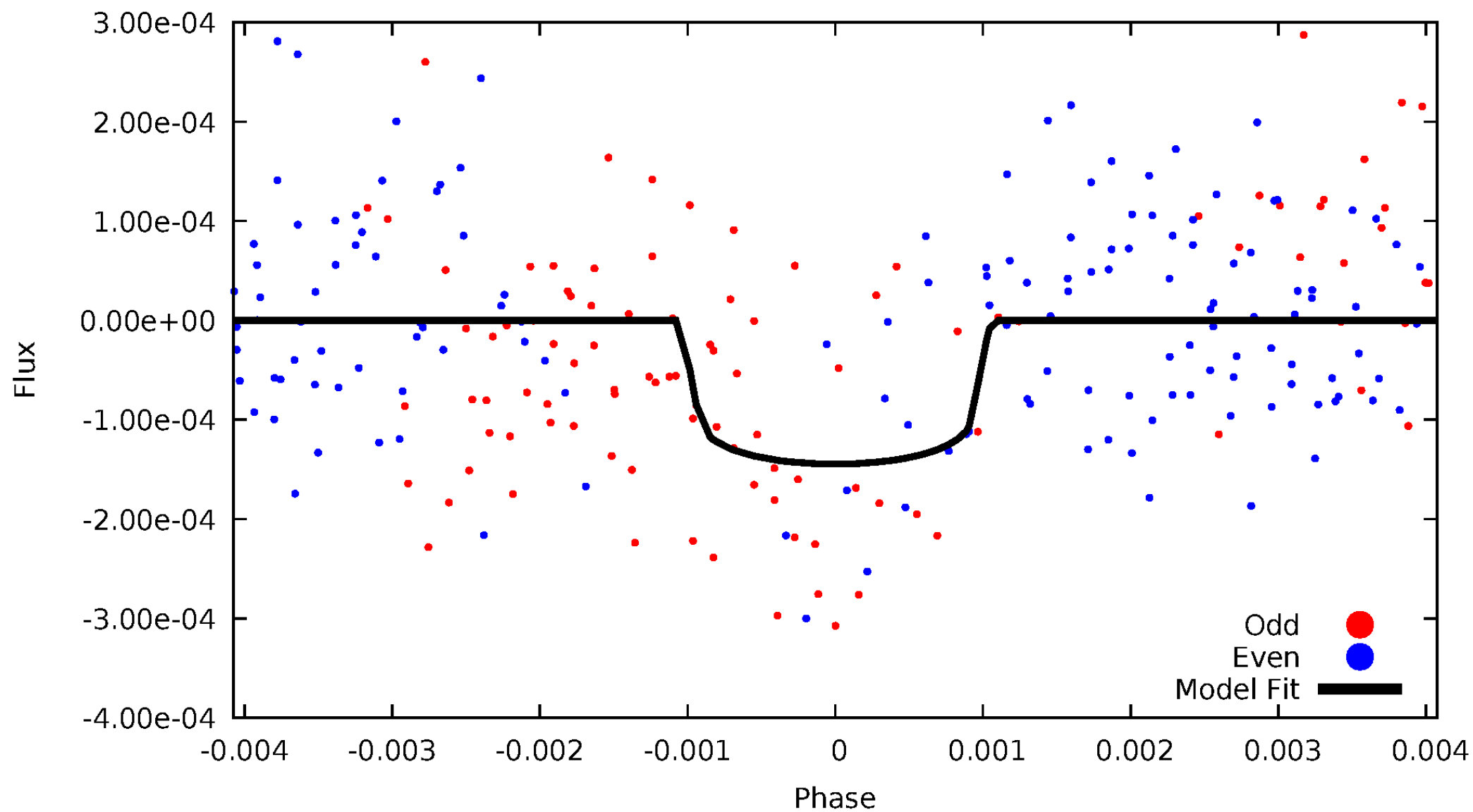


TCE 006037990-05



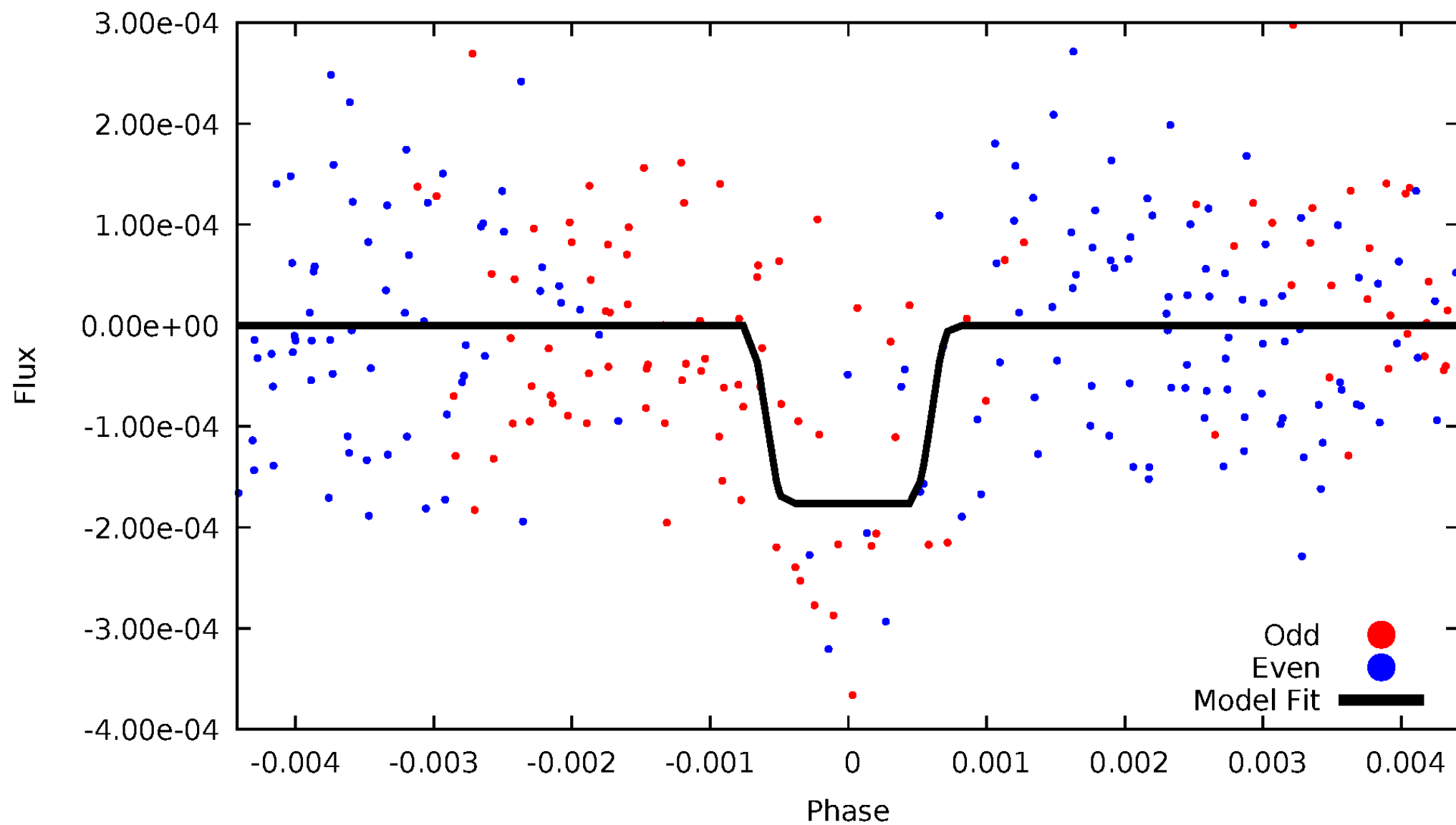
DV Odd/Even

TCE 006037990-05



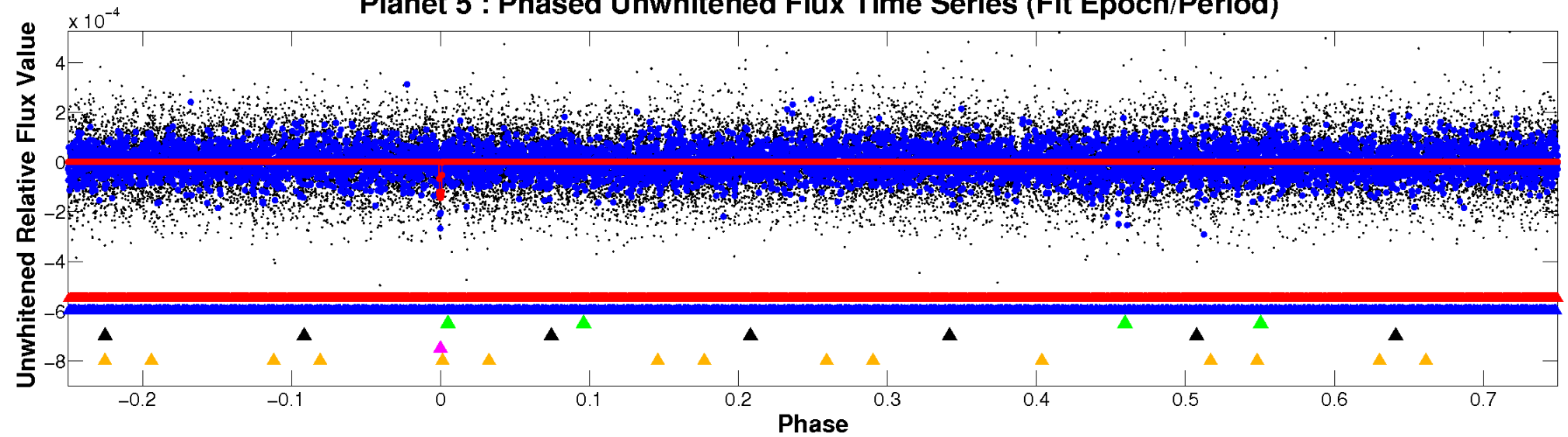
ALT Odd/Even

TCE 006037990-05

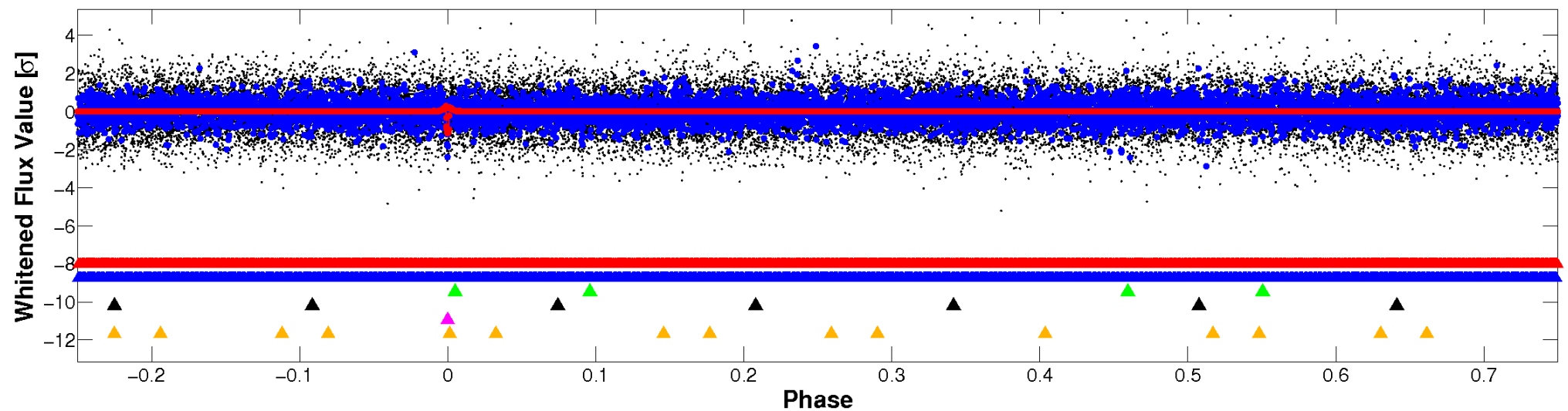


Non-Whitened Vs. Whitened Light Curve

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

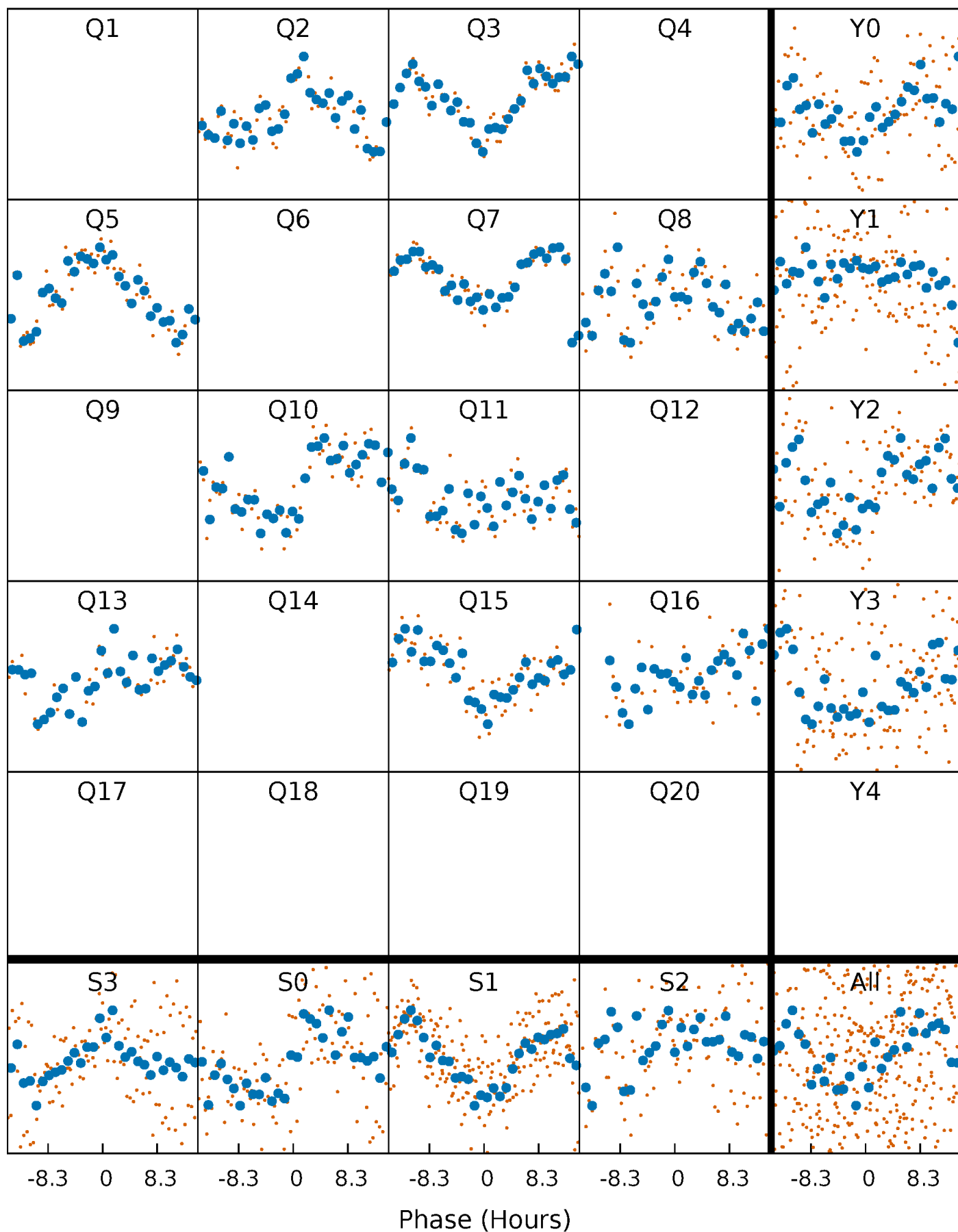


Planet 5 : Phased Whitened Flux Time Series (Fit Epoch/Period)



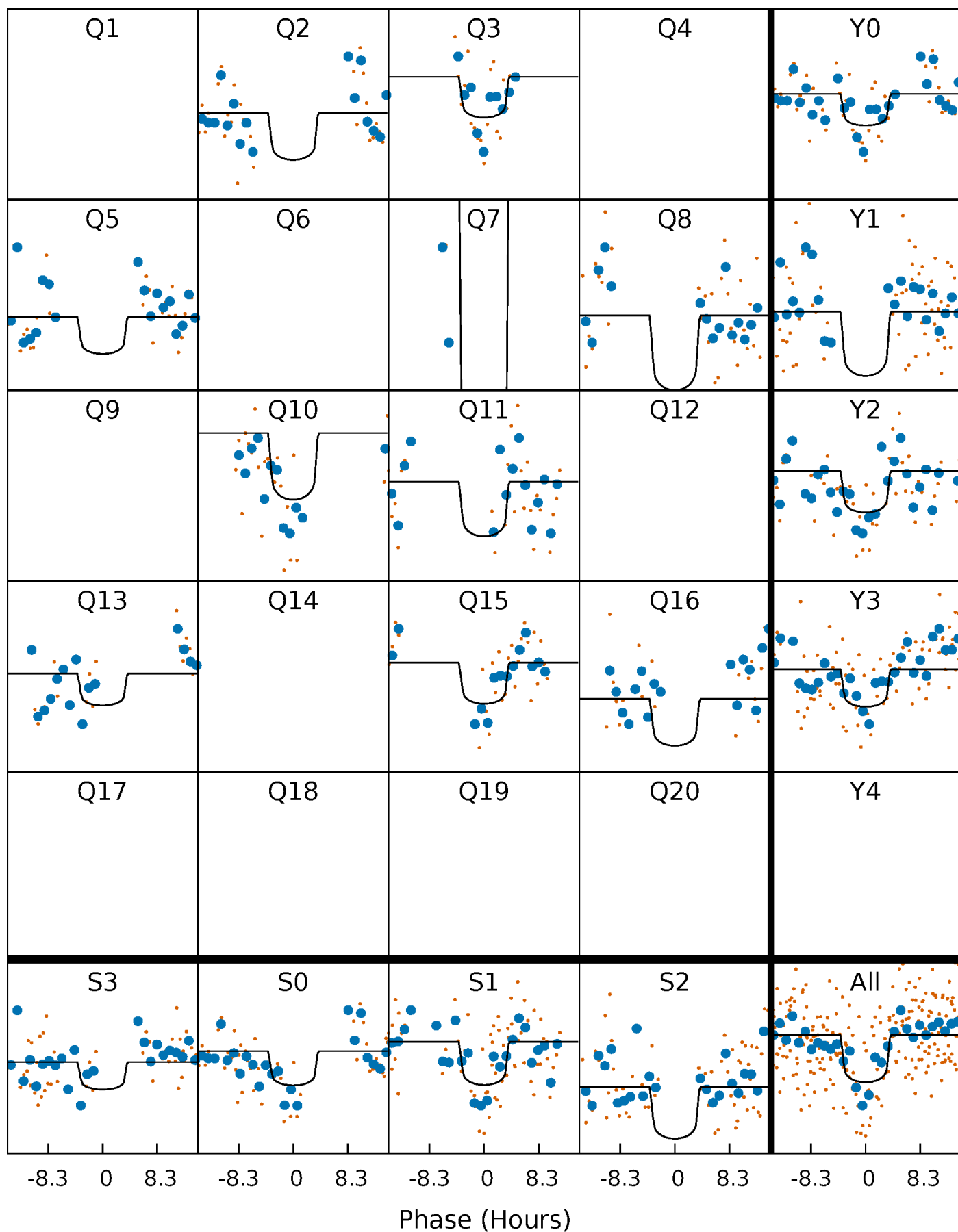
PDC Quarter-Phased Transit Curves

TCE 006037990-05 $P=148.337997$ Days $T_0=191.533284$ (BKJD)



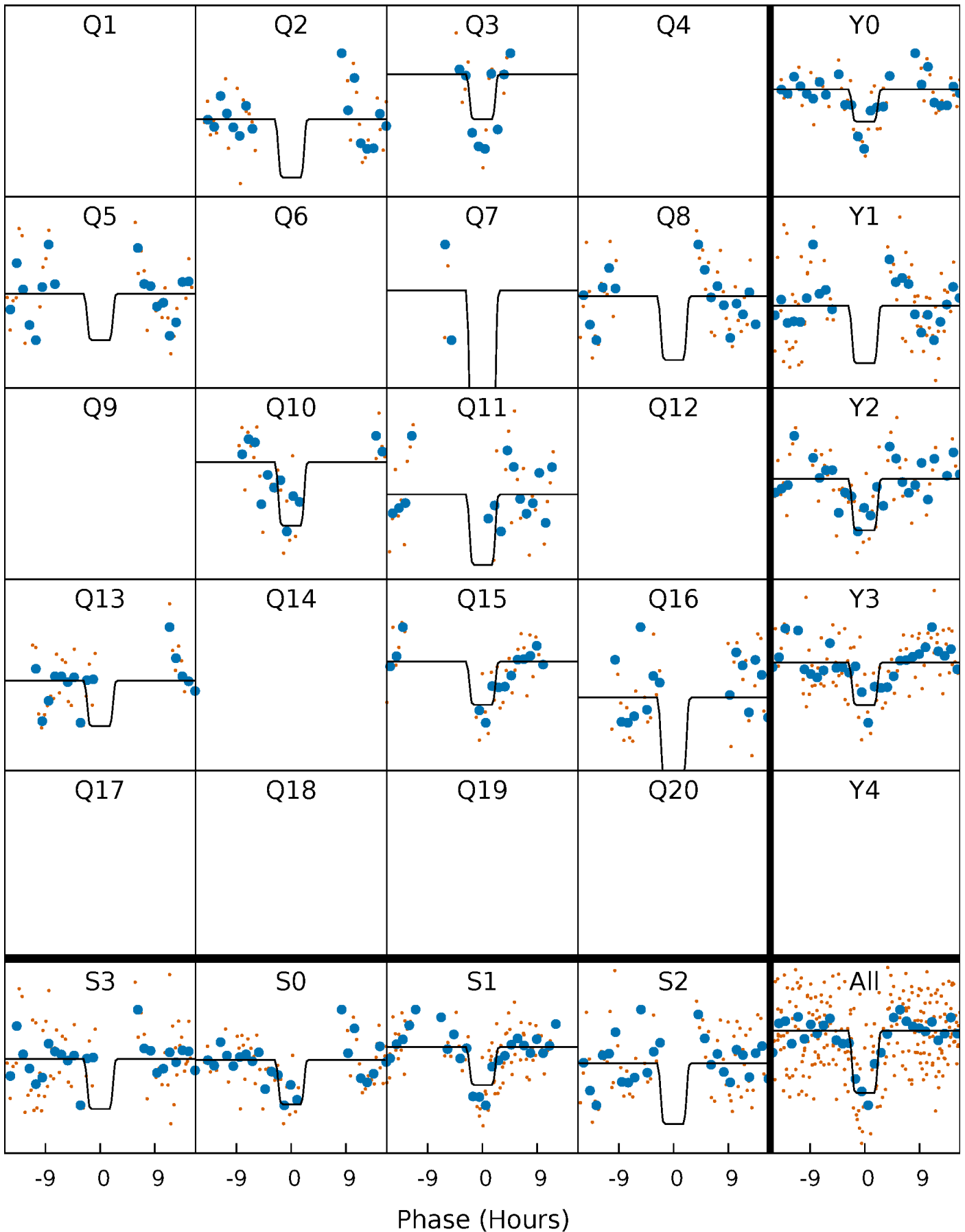
DV Quarter-Phased Transit Curves

TCE 006037990-05 $P=148.337997$ Days $T_0=191.533284$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

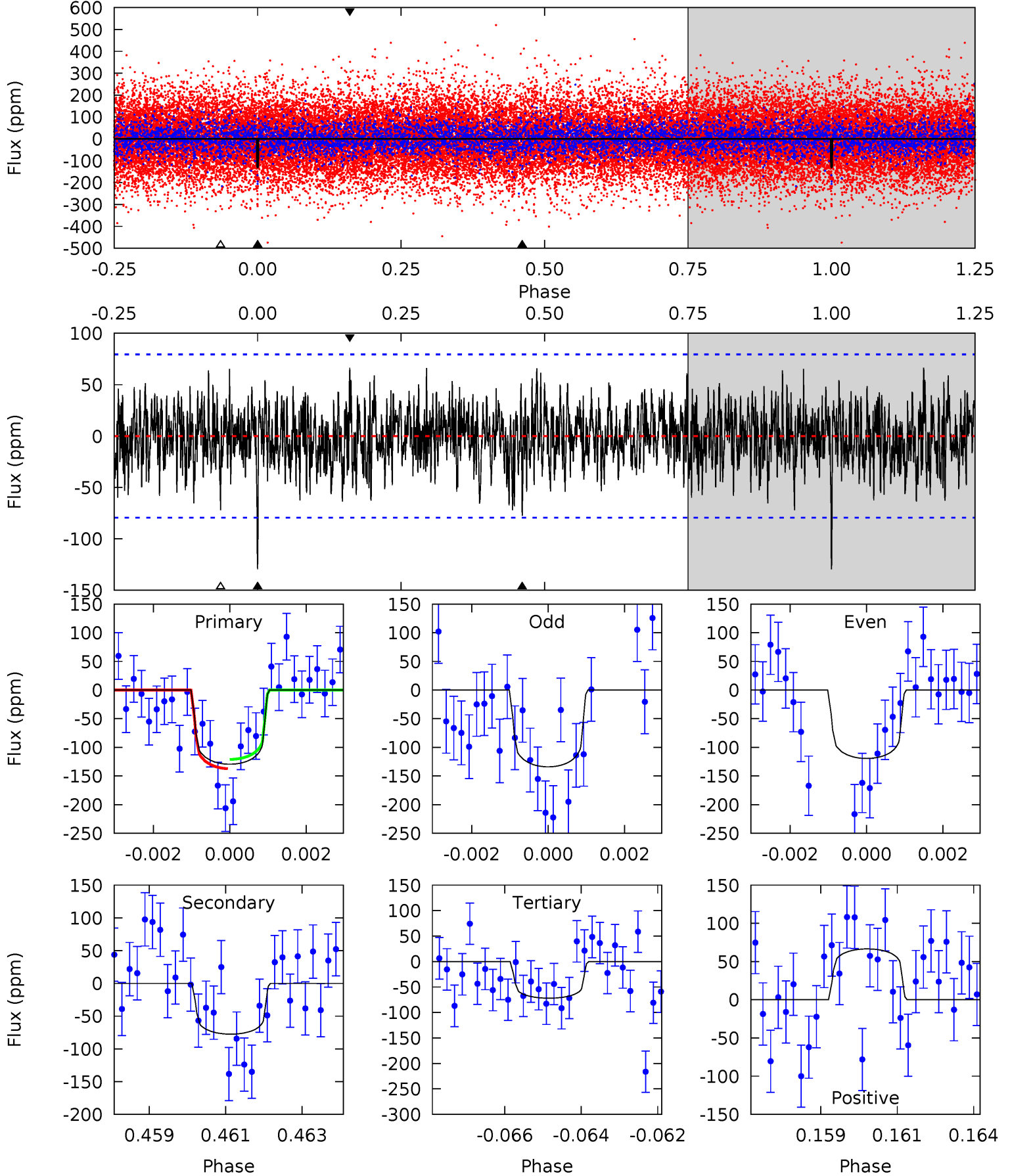
TCE 006037990-05 $P=148.337466$ Days $T_0=191.529631$ (BKJD)



DV Model-Shift Uniqueness Test

006037990-05, P = 148.337997 Days, E = 43.195287 Days

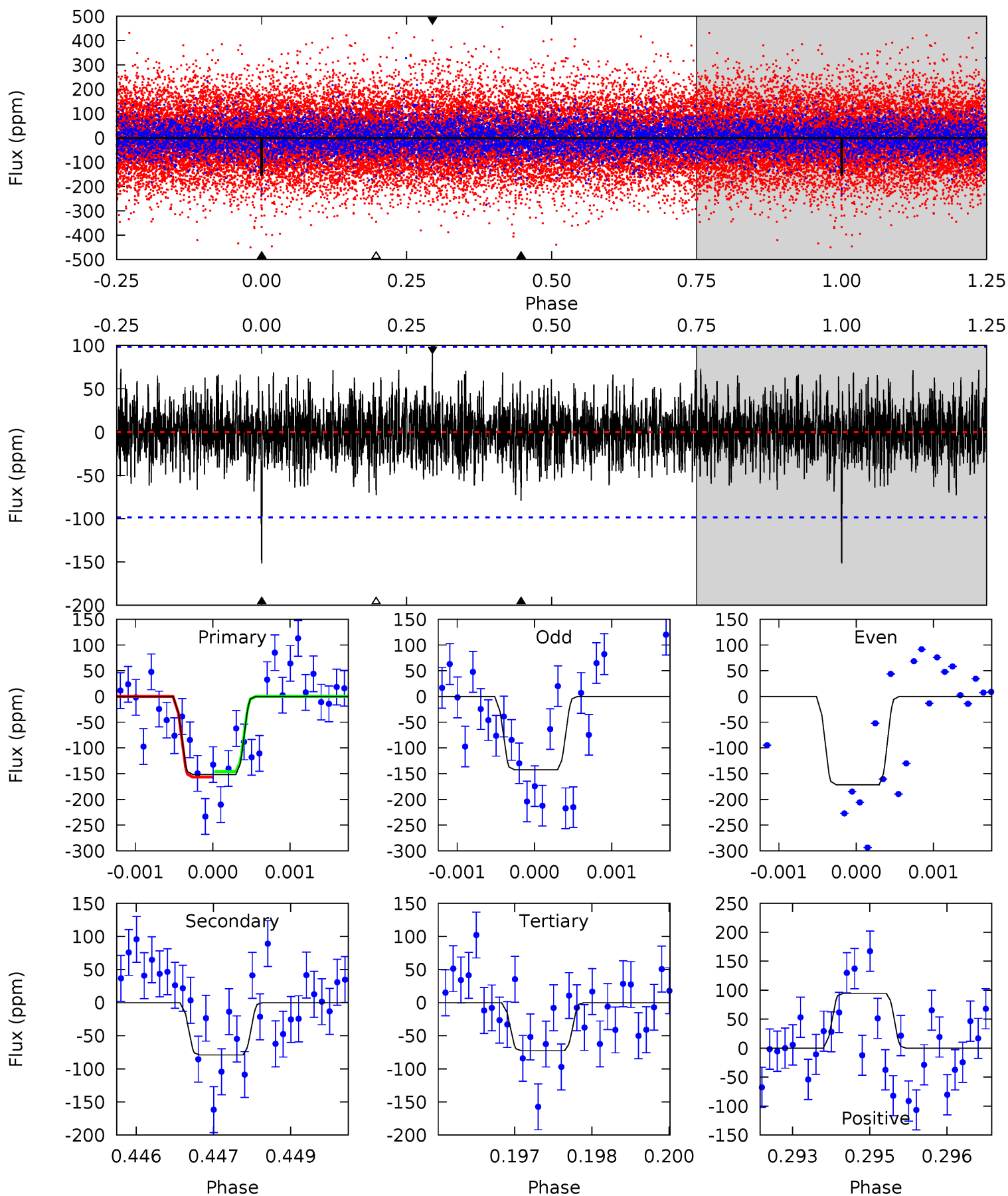
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
8.67	5.19	4.82	4.46	5.32	3.07	1.51	3.85	4.22	0.37	0.74	0.46	0.83	0.34	0.54



Alt Model-Shift Uniqueness Test

006037990-05, P = 148.337466 Days, E = 43.192165 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
8.29	4.33	3.97	5.17	5.38	3.18	1.26	4.32	3.12	0.35	-0.84	0.75	0.91	0.38	0.30



Stellar Parameters For KIC 006037990

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	7455^{+209}_{-314}	$3.921^{+0.287}_{-0.143}$	$-0.080^{+0.200}_{-0.350}$	$2.407^{+0.478}_{-0.888}$	$1.759^{+0.195}_{-0.391}$	$0.178^{+0.347}_{-0.065}$
	+3%/-4%	+7%/-4%	+250%/-438%	+20%/-37%	+11%/-22%	+195%/-37%
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 006037990-05 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-78 ± 15	$3.48^{+2.27}_{-2.10}$	869^{+58}_{-81}	5831^{+3678}_{-1159}	1505^{+7436}_{-962}
Alt.	-79 ± 18	$3.63^{+2.75}_{-2.11}$	869^{+61}_{-76}	5745^{+3543}_{-1147}	1389^{+6318}_{-926}

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 $A_{obs} \gg 1.0$

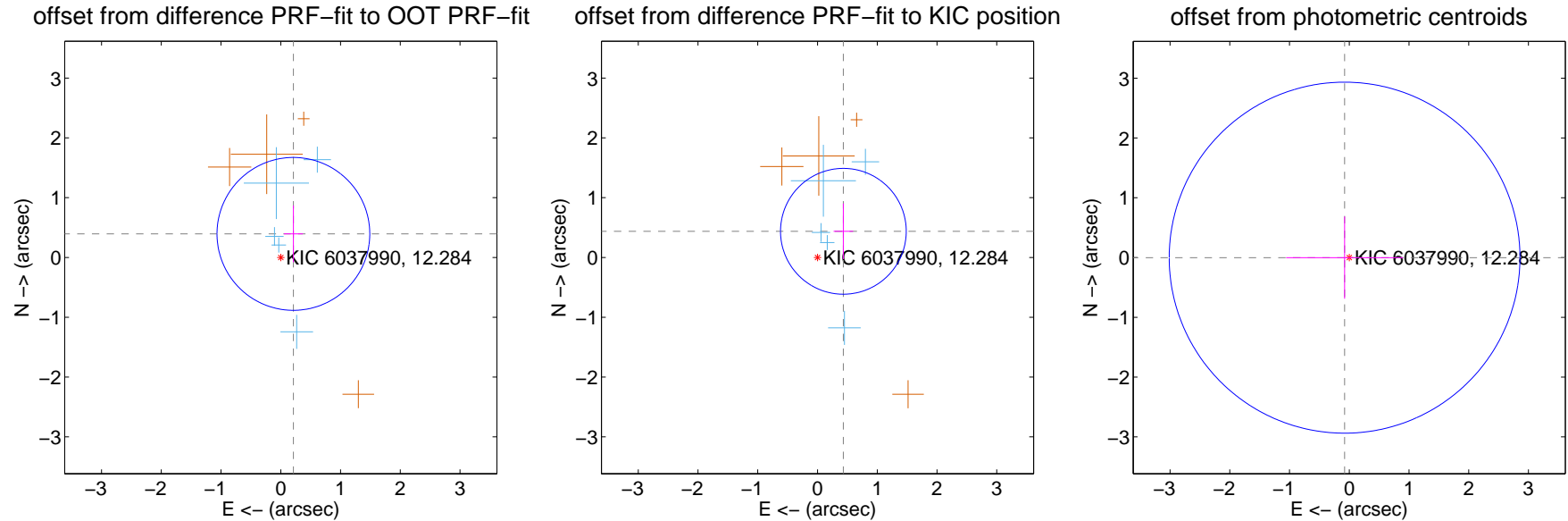
DV Centroid Data

Supplemental centroid analysis for 006037990-05. Kepler magnitude: 12.28. Transit SNR 6.74

There are 5 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.20 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.447 ± 0.426	1.05	-0.211 ± 0.159	0.394 ± 0.476
PRF-fit source offset from KIC position	0.616 ± 0.351	1.76	-0.433 ± 0.164	0.438 ± 0.466
photometric centroid source offset	0.08 ± 0.98	0.08	0.08 ± 0.98	-0.00 ± 0.69



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.

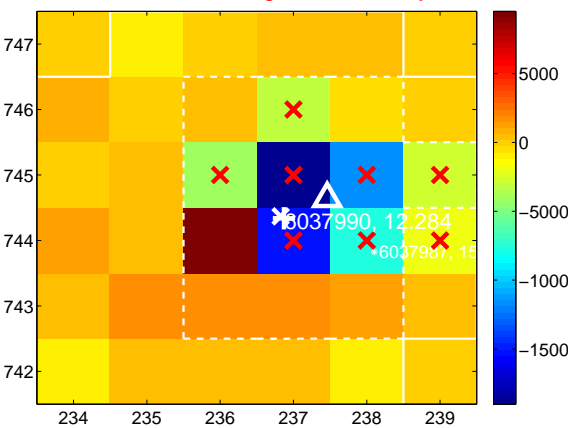
Q1 no difference image



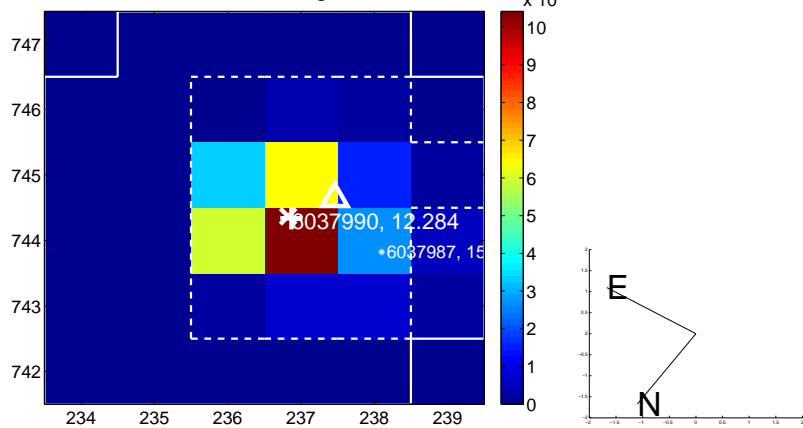
Q1 no OOT image



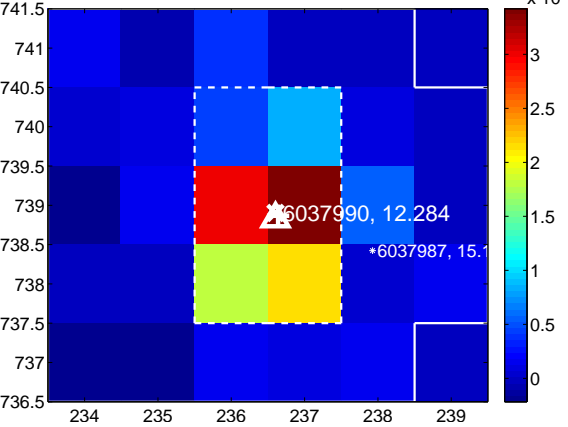
Q2 difference image. Poor Quality



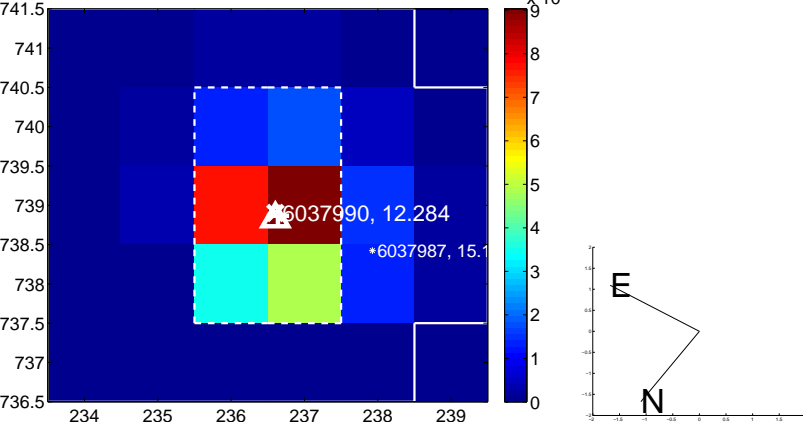
Q2 OOT image



Q3 difference image



Q3 OOT image



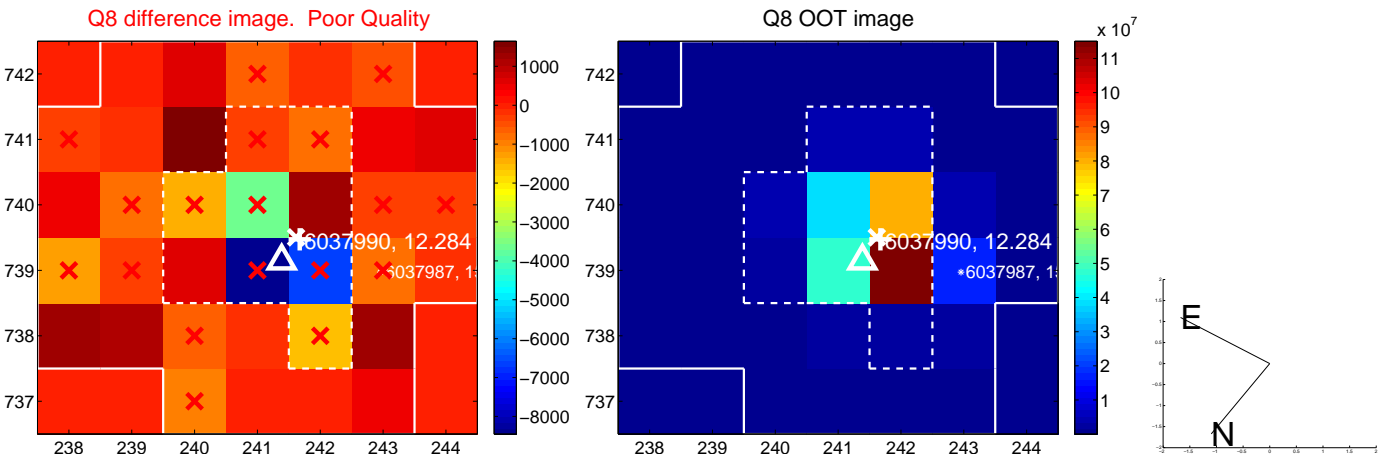
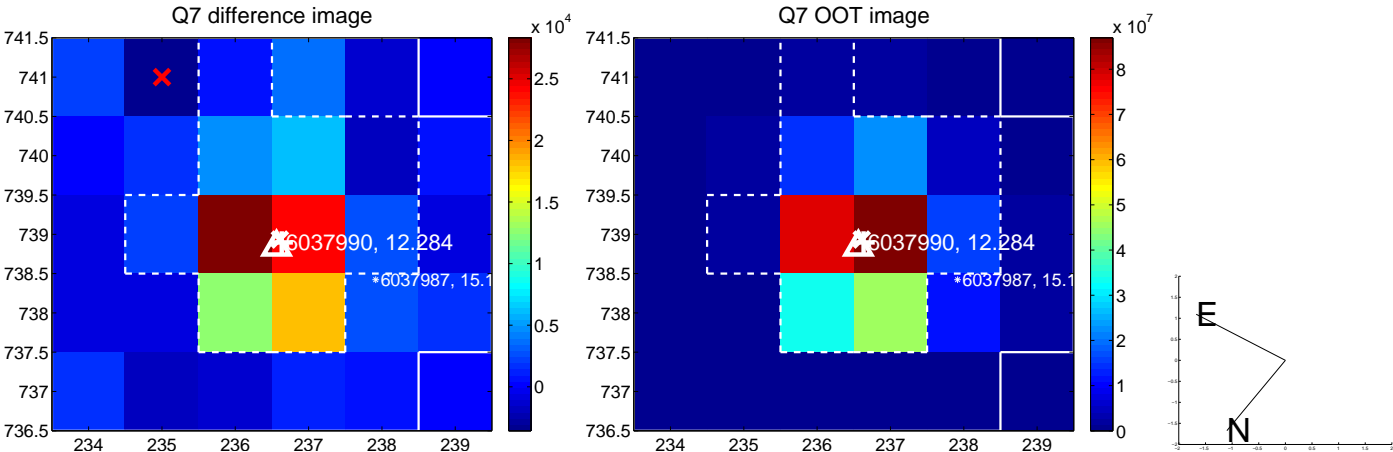
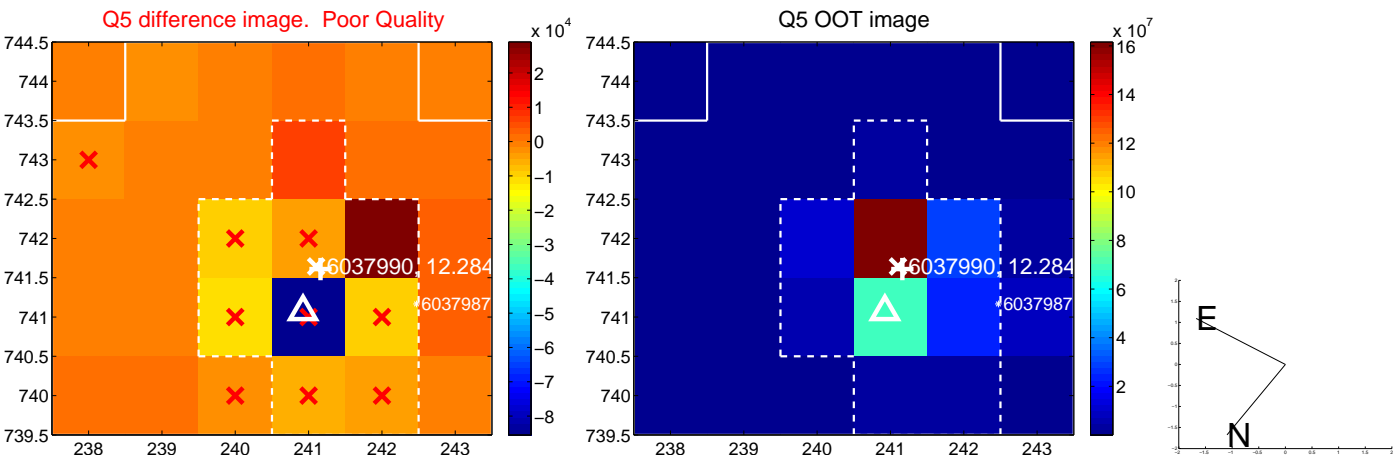
Q4 no difference image



Q4 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.

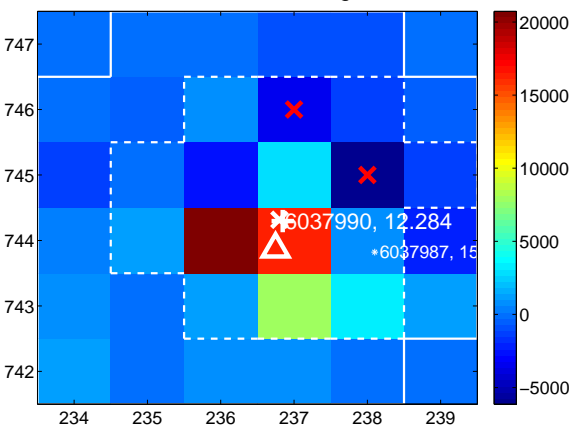
Q9 no difference image



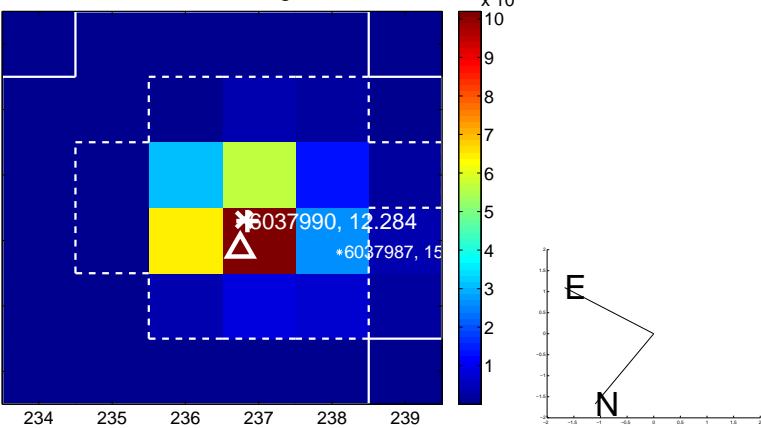
Q9 no OOT image



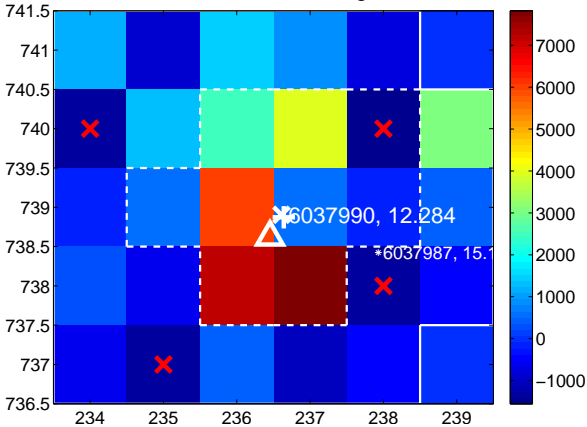
Q10 difference image



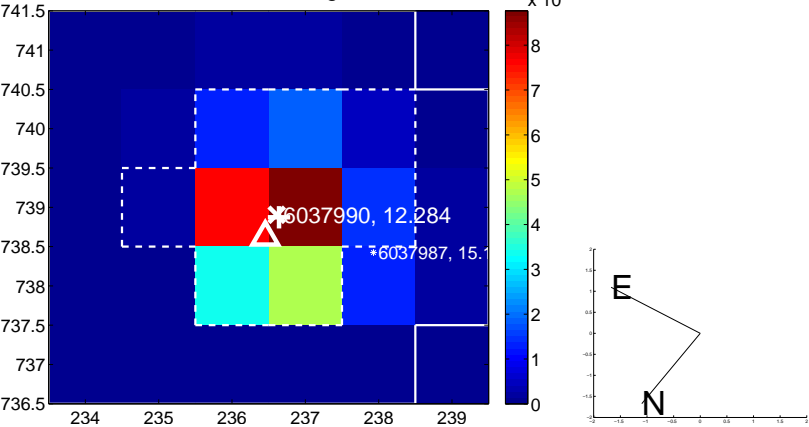
Q10 OOT image



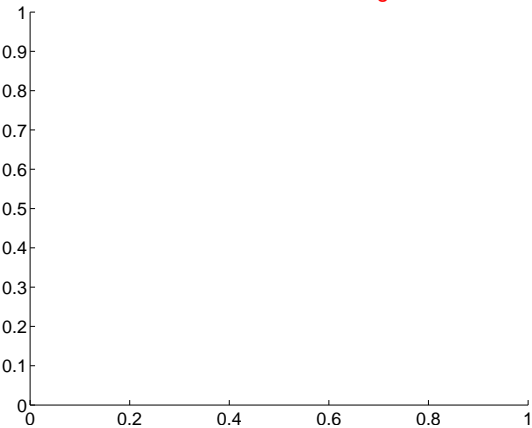
Q11 difference image



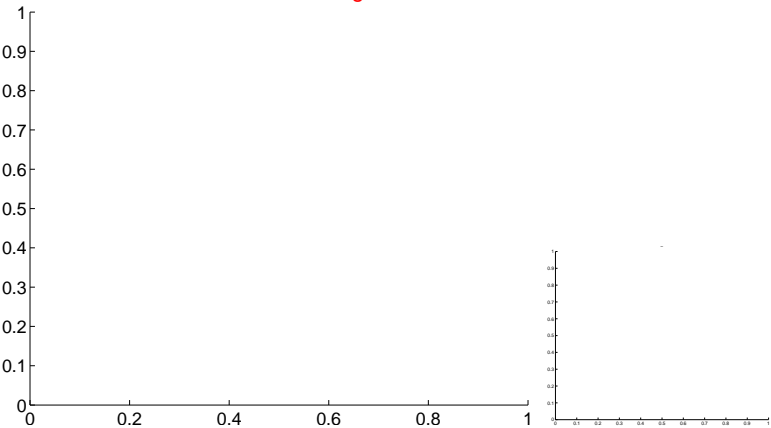
Q11 OOT image



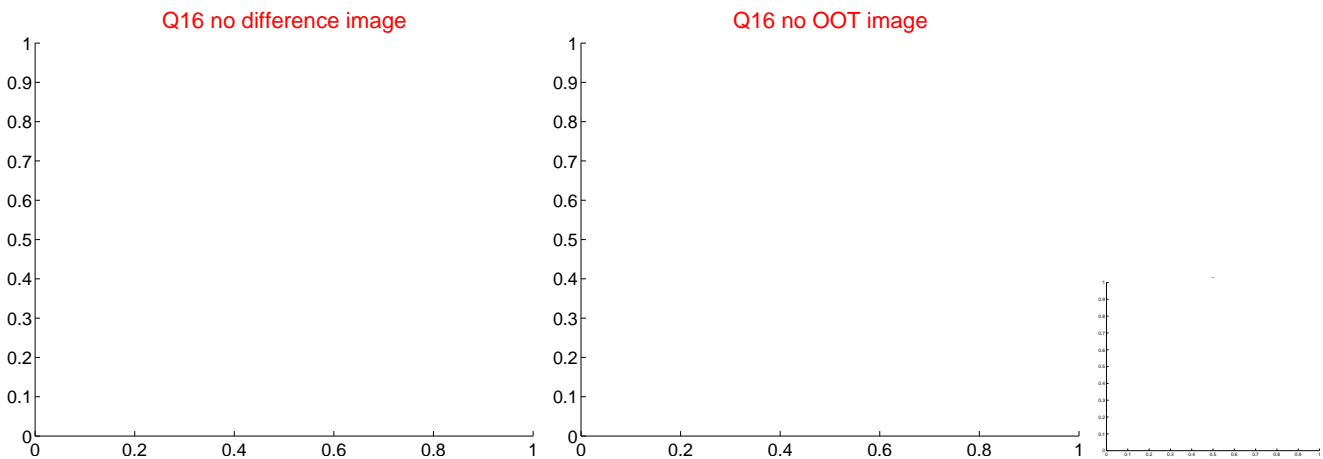
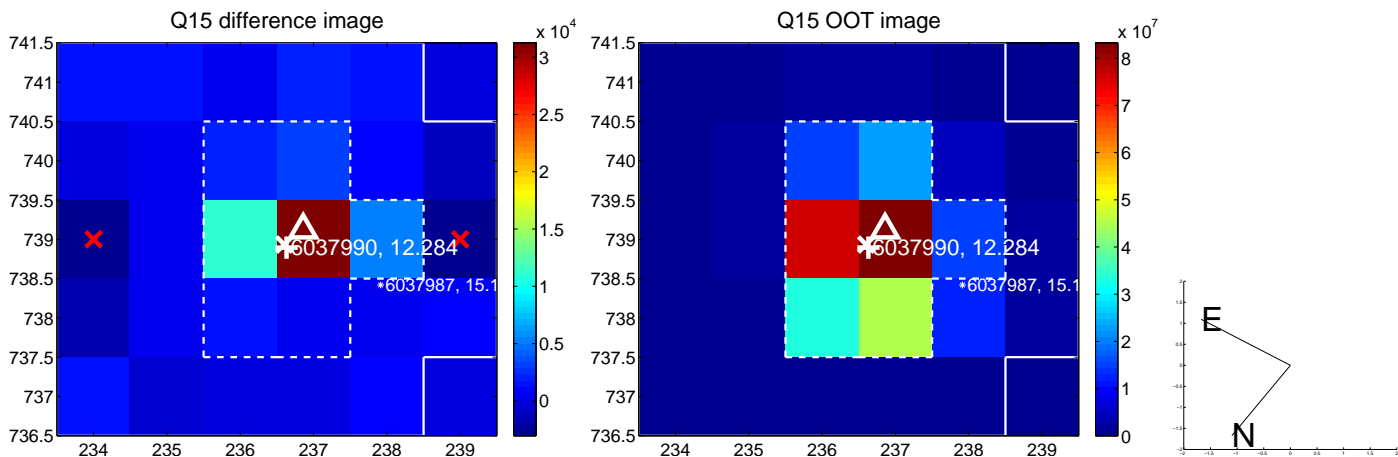
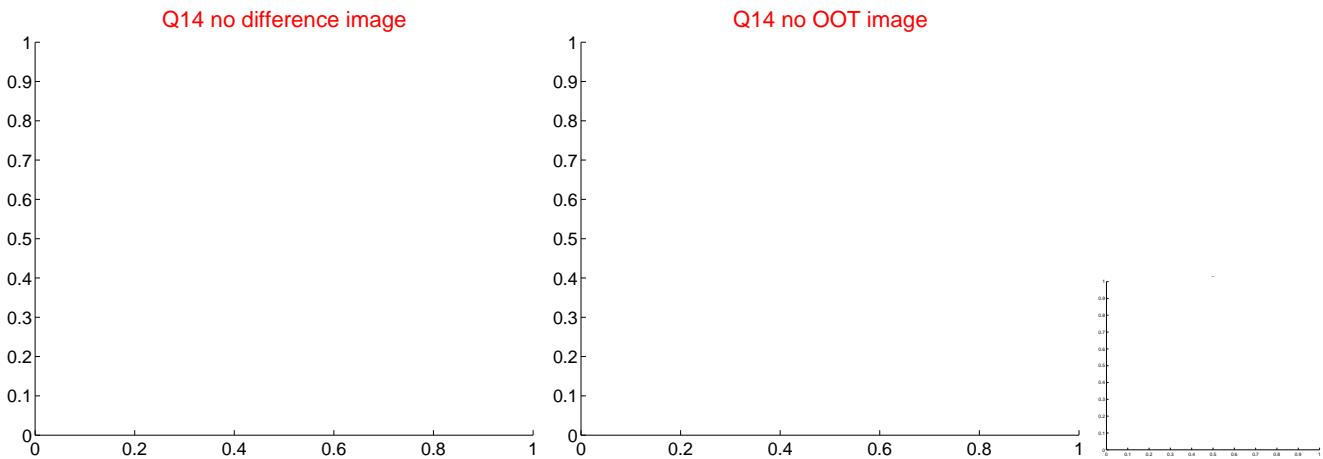
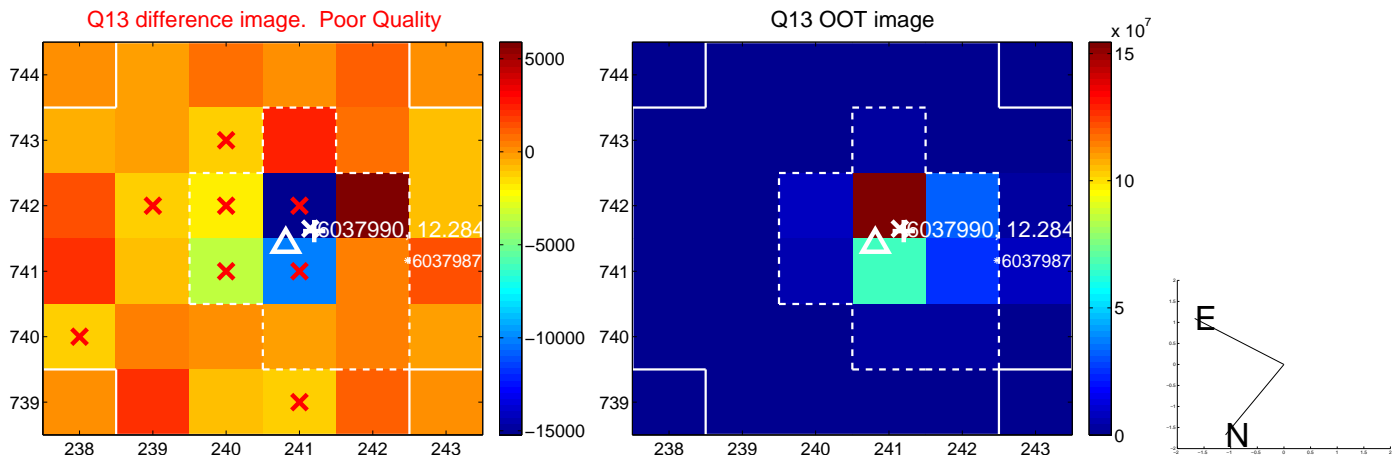
Q12 no difference image



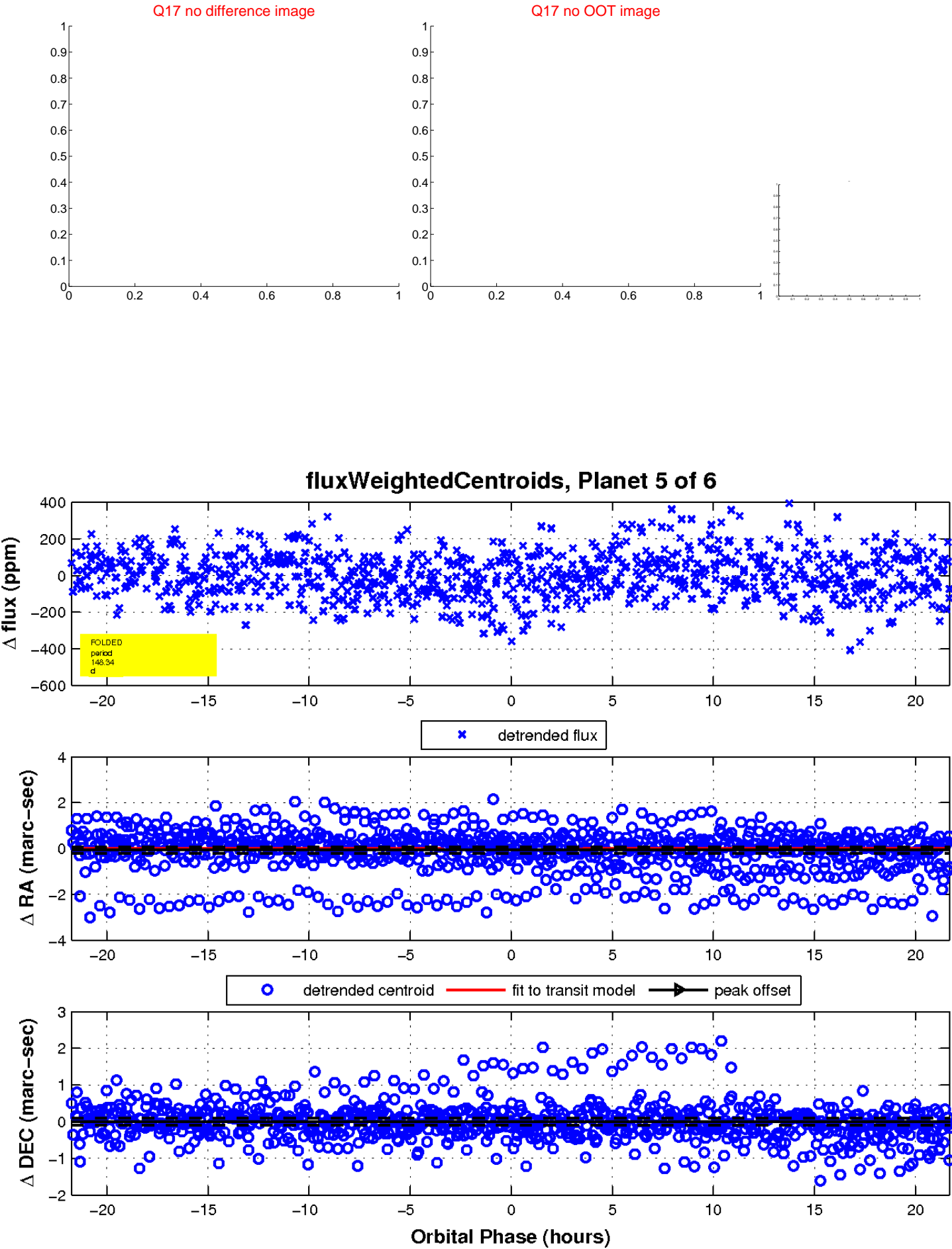
Q12 no OOT image



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

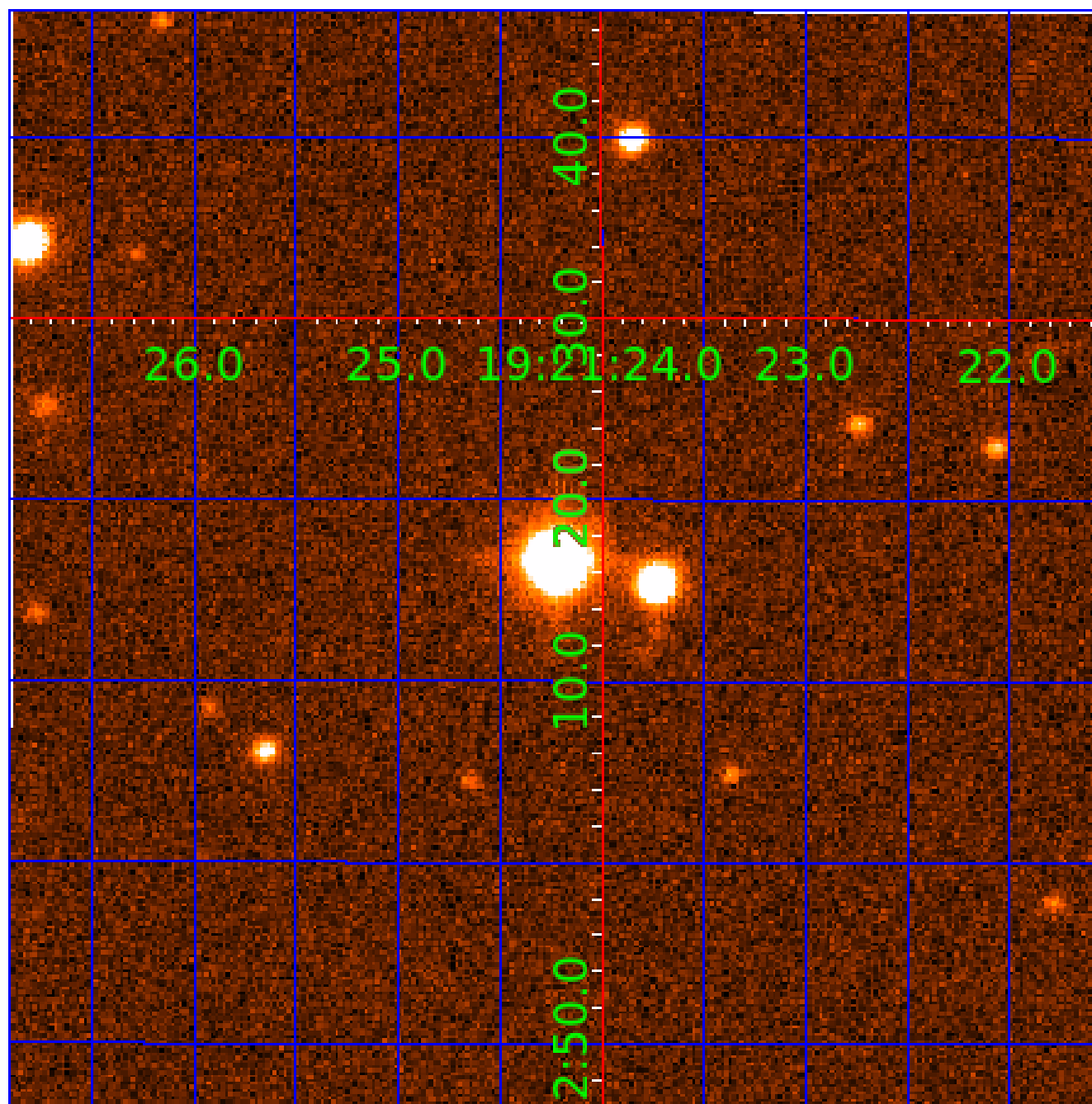


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 006037990

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})
006037990-01	OBS	No	0.941516	132.447097	0.0	0.745	9.1	0.0	2.41	7455	0.02	31086.02
006037990-02	OBS	No	0.941589	132.199746	17.1	3.386	8.6	10.3	2.41	7455	1.15	31082.82
006037990-03	OBS	No	377.597941	259.696367	220.2	15.132	10.4	8.2	2.41	7455	4.11	10.51
006037990-04	OBS	No	212.593237	177.967881	132.1	13.284	9.5	6.7	2.41	7455	3.04	22.61
006037990-05	OBS	No	148.337997	191.533284	144.6	7.251	7.2	6.7	2.41	7455	3.18	36.53
006037990-06	OBS	No	93.289589	191.737863	157.9	3.082	7.2	6.9	2.41	7455	3.49	67.80

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
006037990-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA_TRACKER—SWEET_NTL—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT—CENT_FEW_DIFFS
006037990-02	OBS	FP	0.00	1	0	0	0	SWEET_NTL—LPP_DV—SAME_NTL_PERIOD
006037990-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—LPP_DV—LPP_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
006037990-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
006037990-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE—TRANS_GAPPED—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT
006037990-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—MOD_NONUNIQ_ALT

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

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

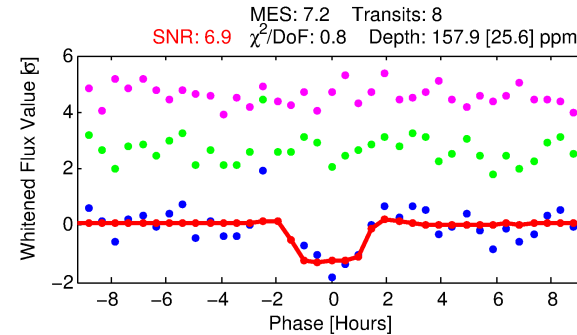
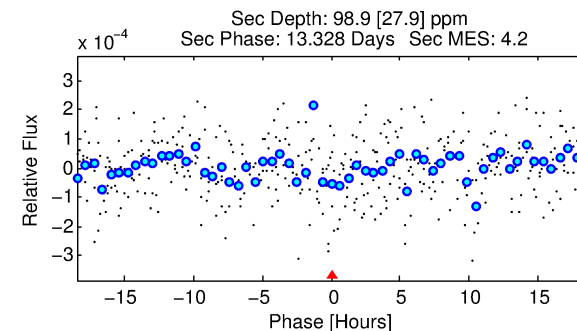
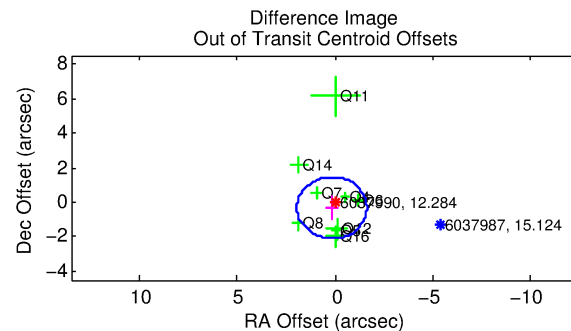
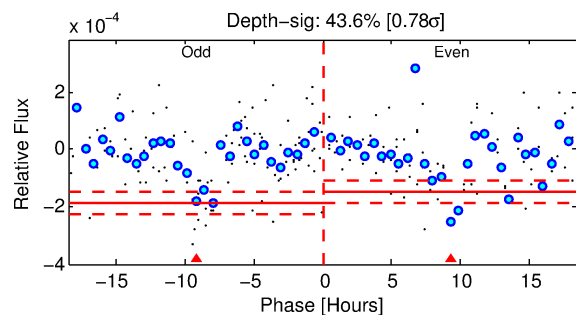
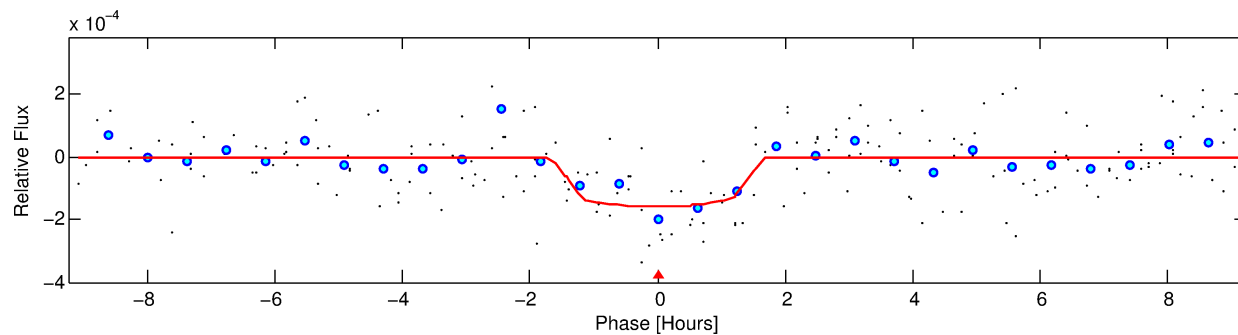
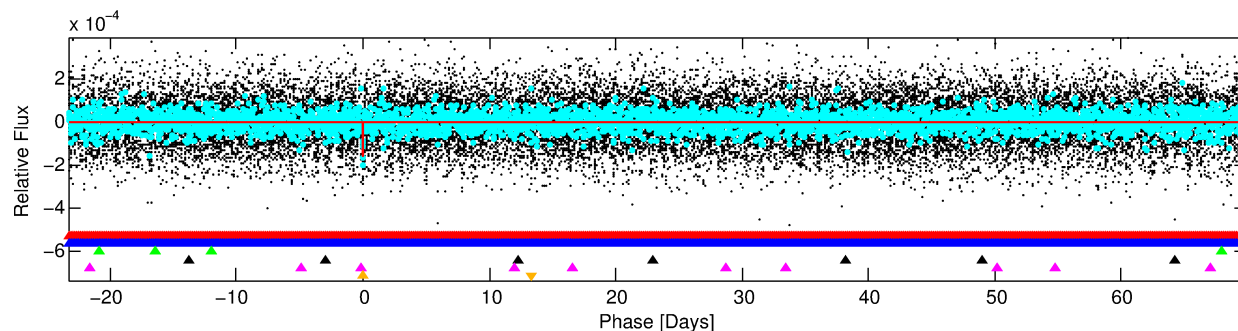
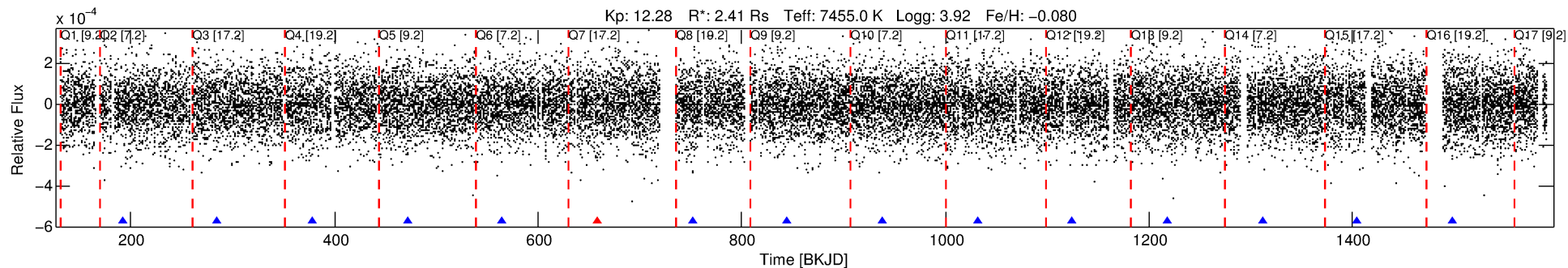
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 006037990-06

No Significant Match Found

DV One-Page Summary

KIC: 6037990 Candidate: 6 of 6 Period: 93.290 d



DV Fit Results:

Period = 93.28959 [0.00201] d
Epoch = 191.7379 [0.0111] BKJD
Rp/R* = 0.0133 [0.0086]
a/R* = 109.79 [459.51]
b = 0.90 [0.93]
Seff = 67.80 [36.07]
Teq = 732 [97] K
Rp = 3.49 [2.60] Re
a = 0.4863 [0.1606] AU
Ag = 1056.64 [1500.33] [0.70 σ]
Teffp = 6450 [2157] K [2.65 σ]

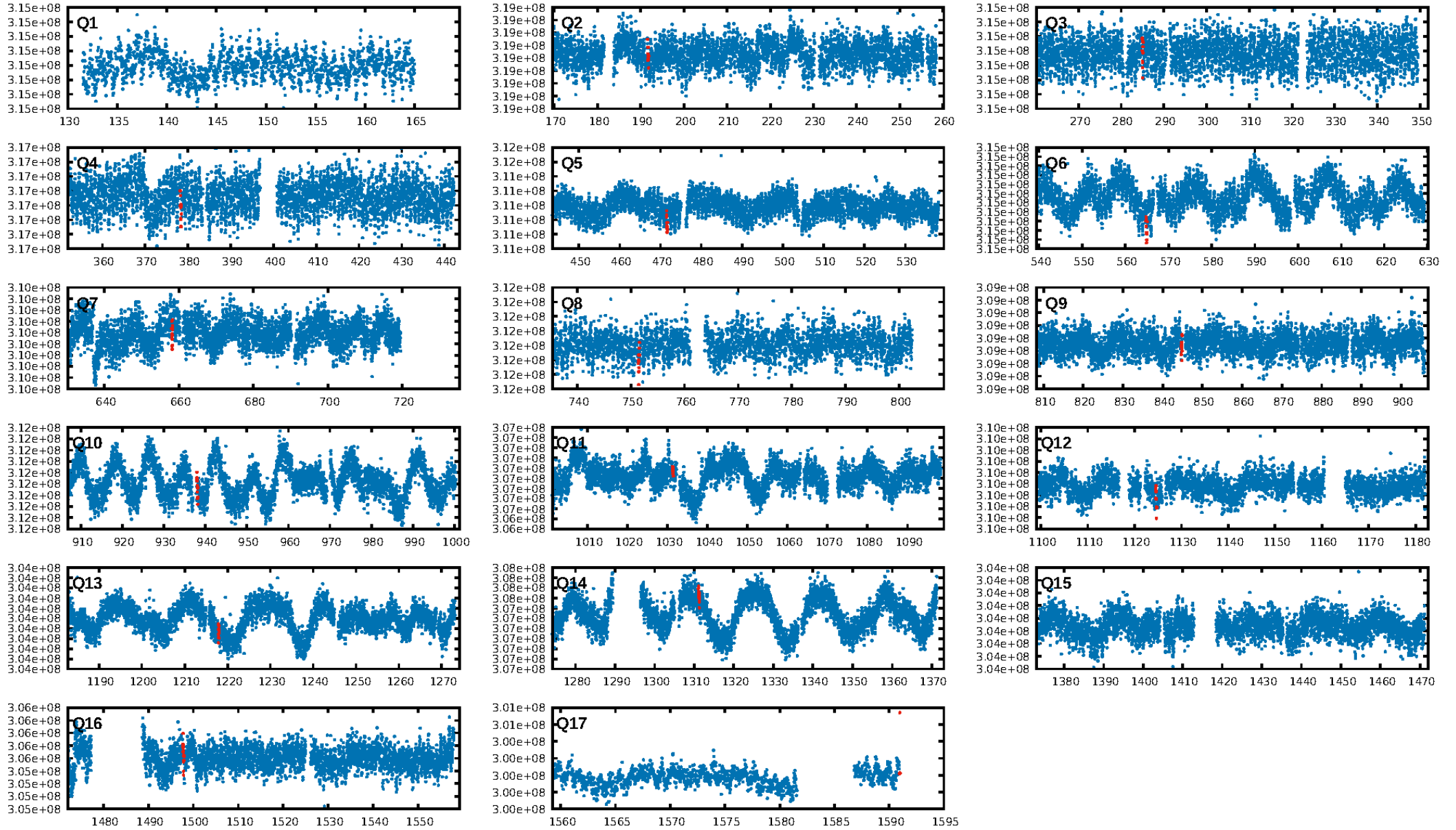
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [484.05 σ]
LongPeriod-sig: 100.0% [167.69 σ]
ModelChiSquare2-sig: 82.6%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 5.31e-10
RollingBand-fgt: 0.88 [7/8]
GhostDiagnostic-chr: 3.264
Centroid-sig: 37.2%
Centroid-so: 1.030 arcsec [1.20 σ]
OotOffset-rm: 0.370 arcsec [0.62 σ]
KicOffset-rm: 0.350 arcsec [0.41 σ]
OotOffset-st: 2/2/4/1 [9]
KicOffset-st: 2/2/4/1 [9]
DiffImageQuality-fgm: 0.78 [7/9]
DiffImageOverlap-fno: 0.00 [0/11]

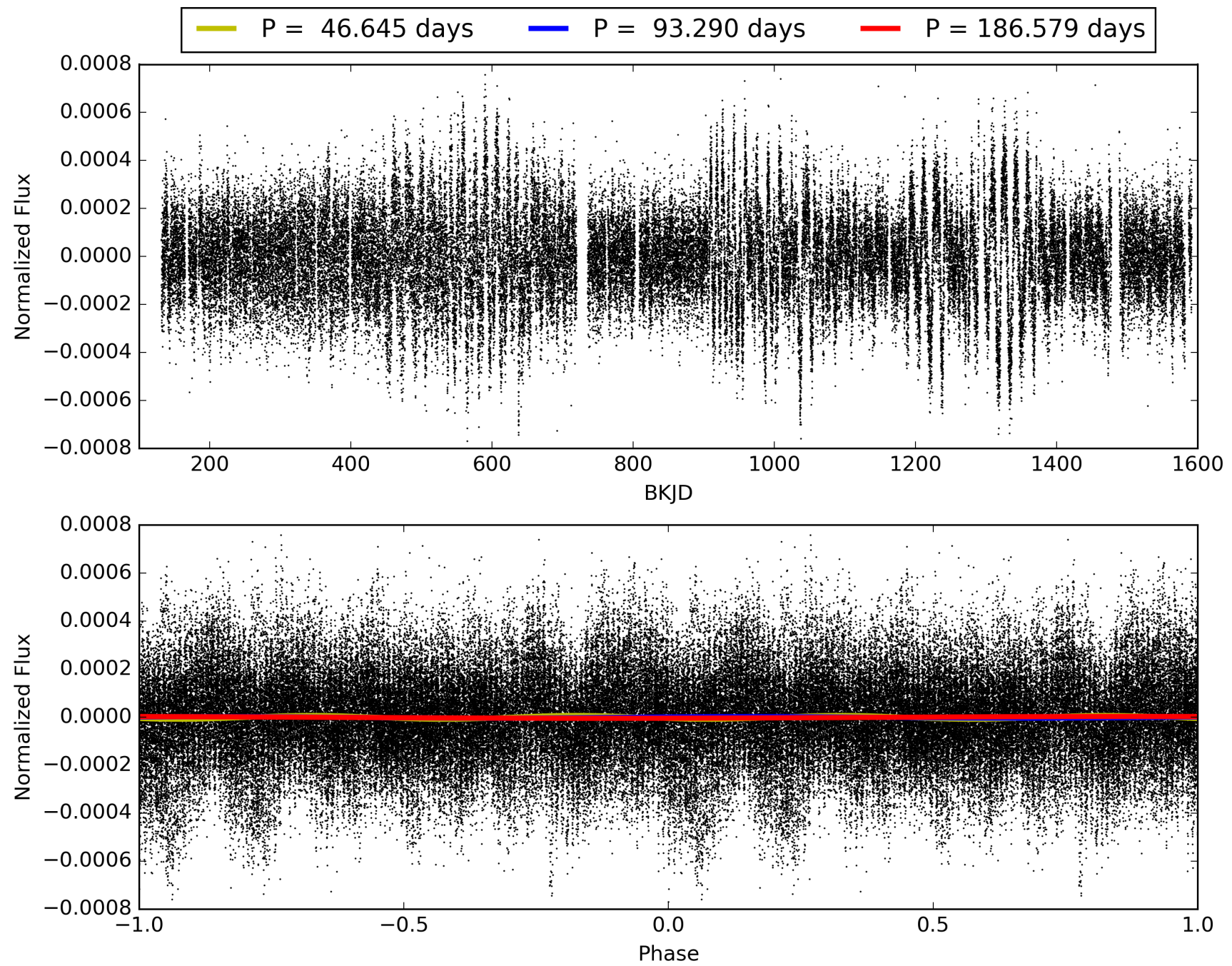
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 19:41:09 Z

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

TCE 006037990-06, PDC Light Curves

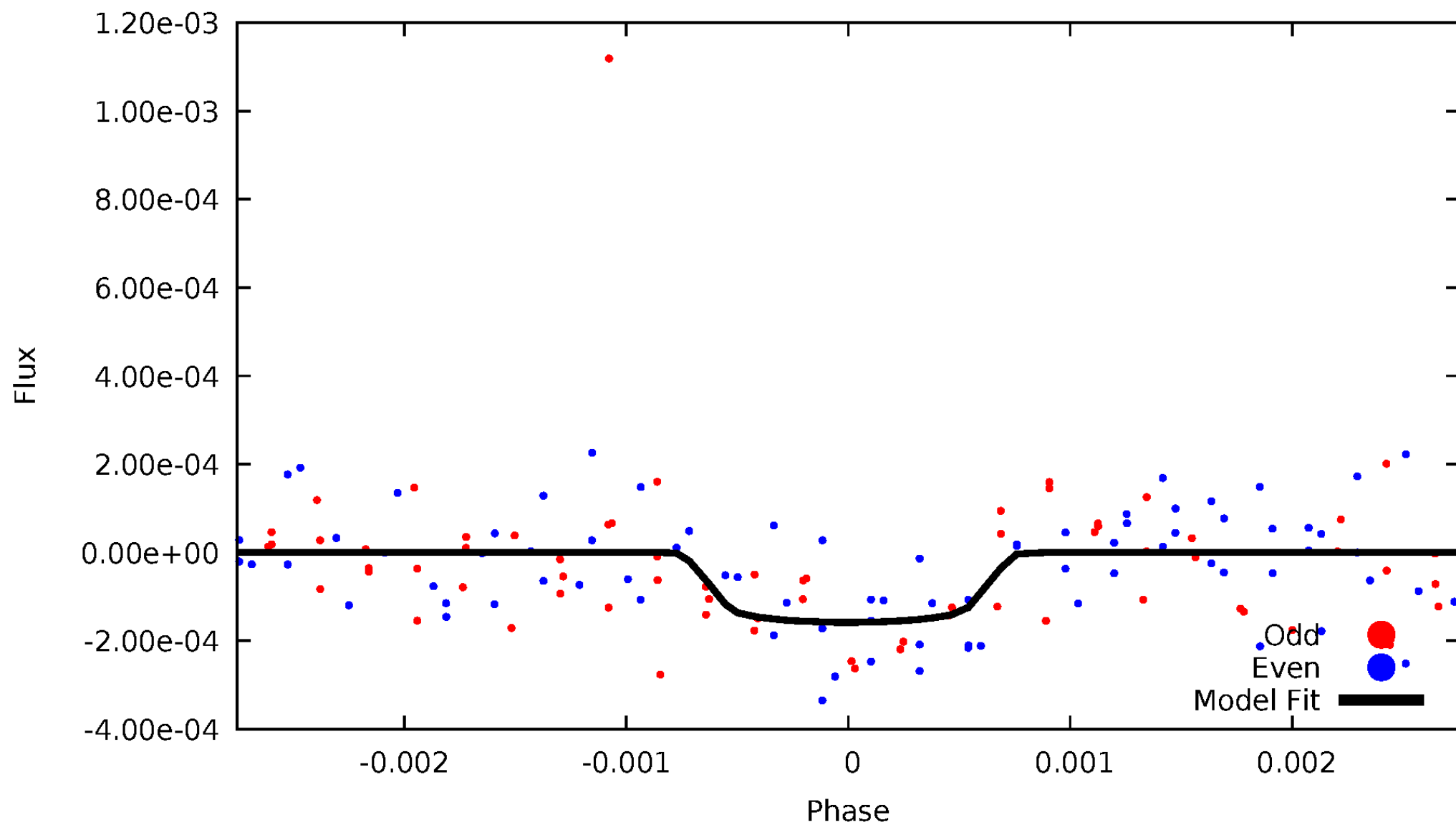


TCE 006037990-06



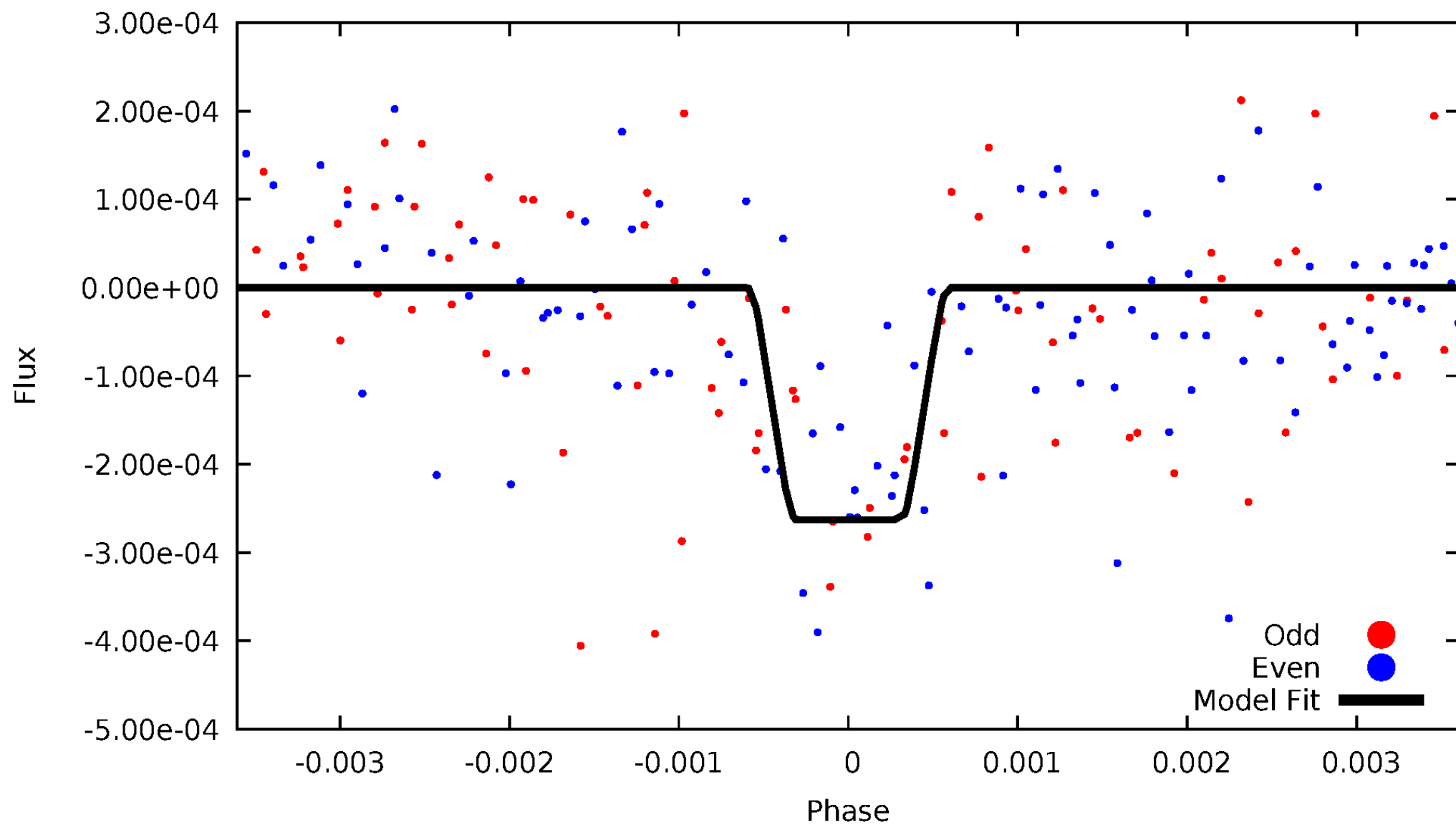
DV Odd/Even

TCE 006037990-06



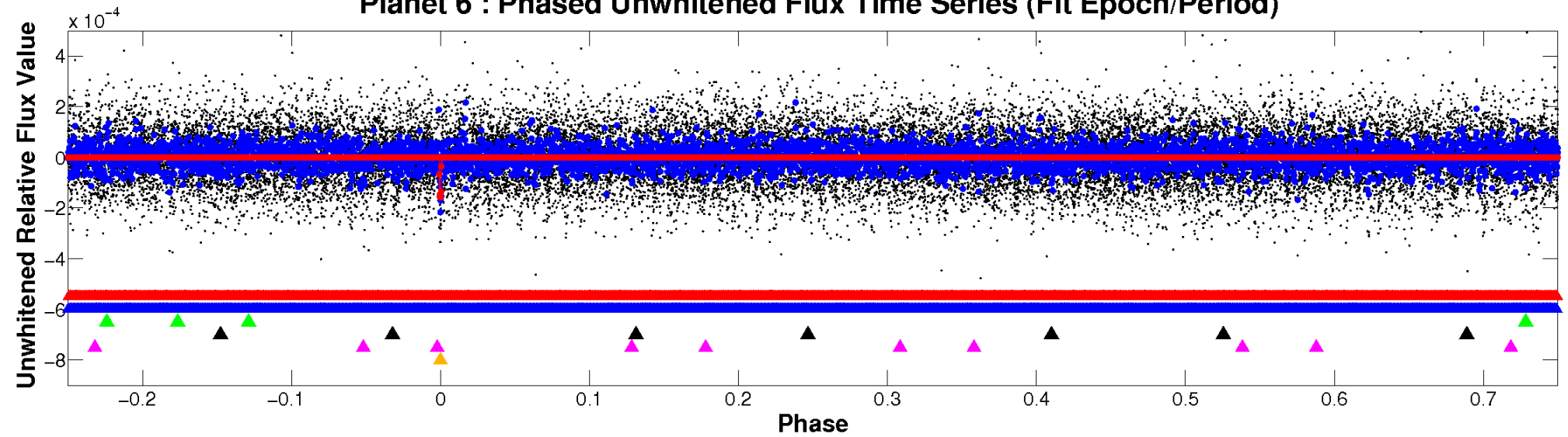
ALT Odd/Even

TCE 006037990-06

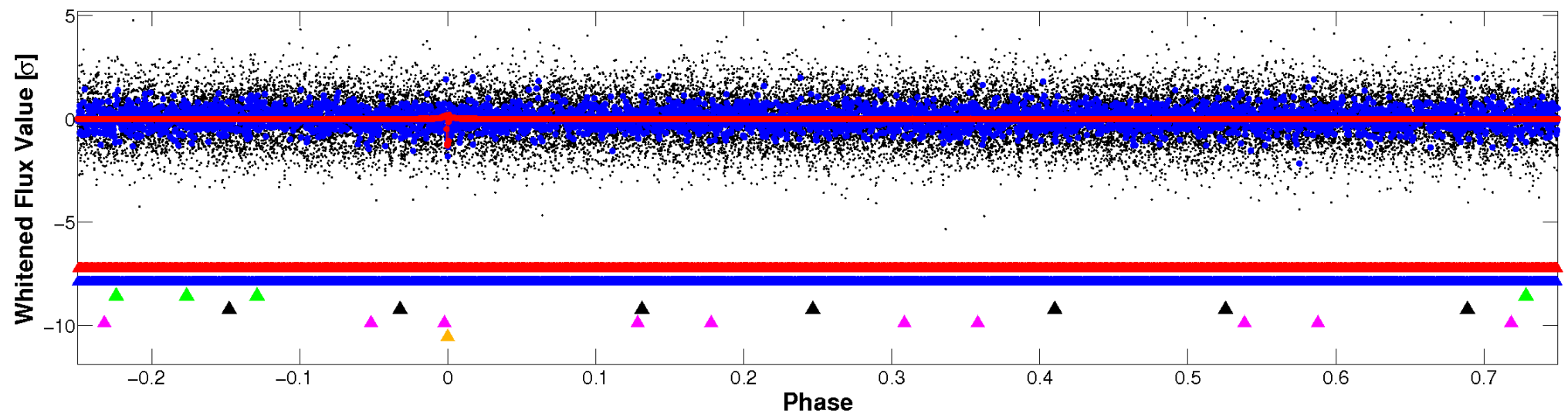


Non-Whitened Vs. Whitened Light Curve

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

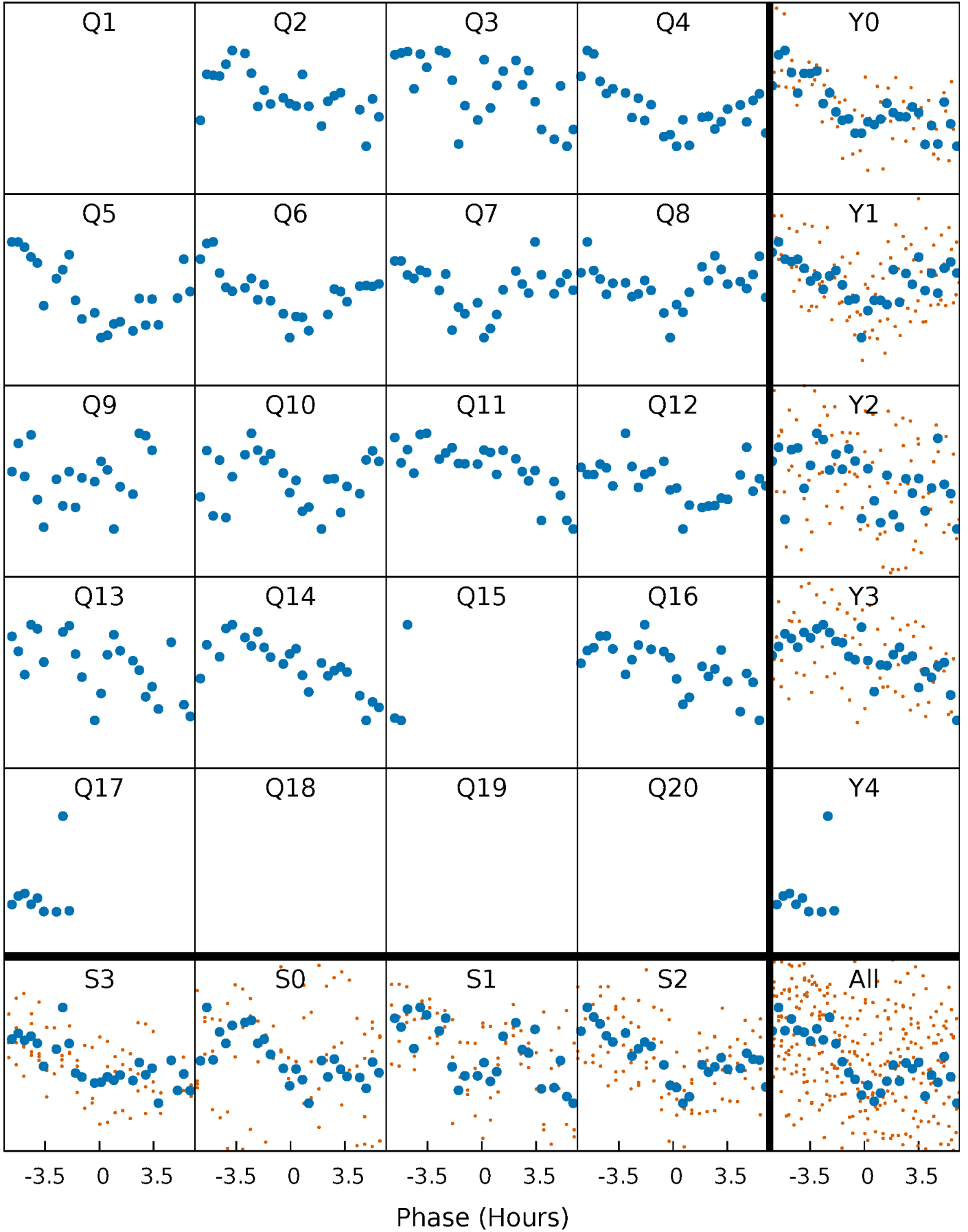


Planet 6 : Phased Whitened Flux Time Series (Fit Epoch/Period)



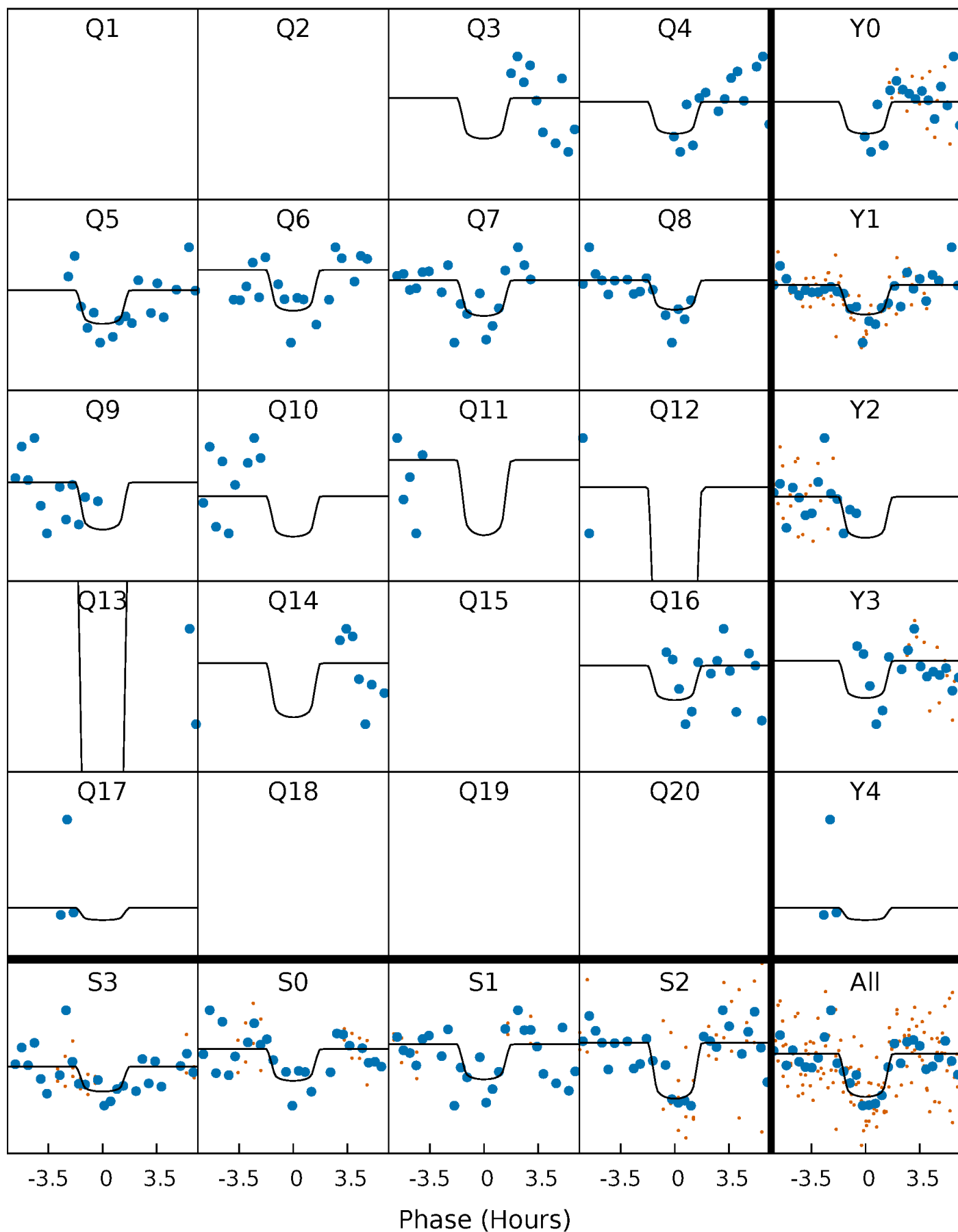
PDC Quarter-Phased Transit Curves

TCE 006037990-06 P= 93.289589 Days $T_0=191.737863$ (BKJD)



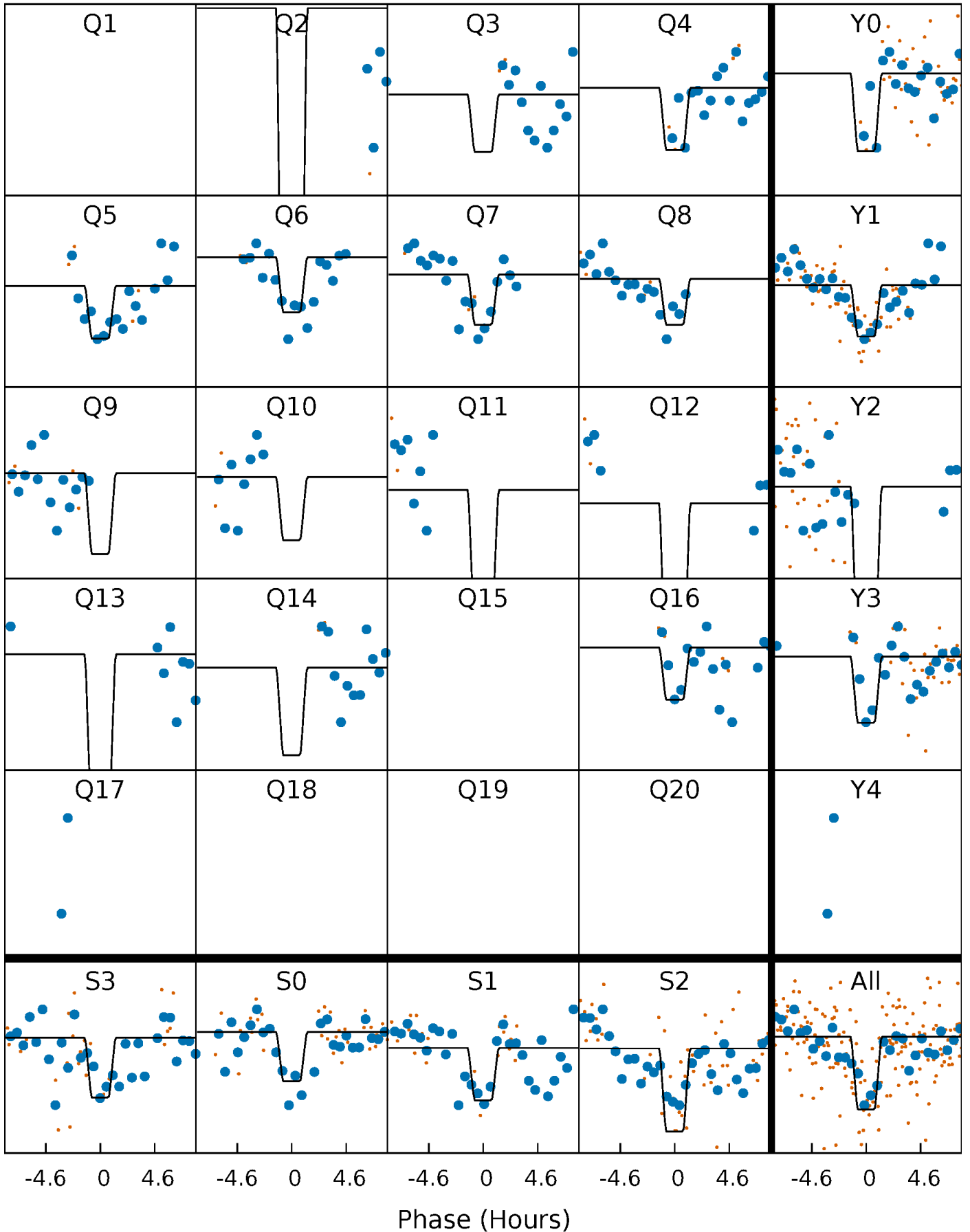
DV Quarter-Phased Transit Curves

TCE 006037990-06 P= 93.289589 Days $T_0=191.737863$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

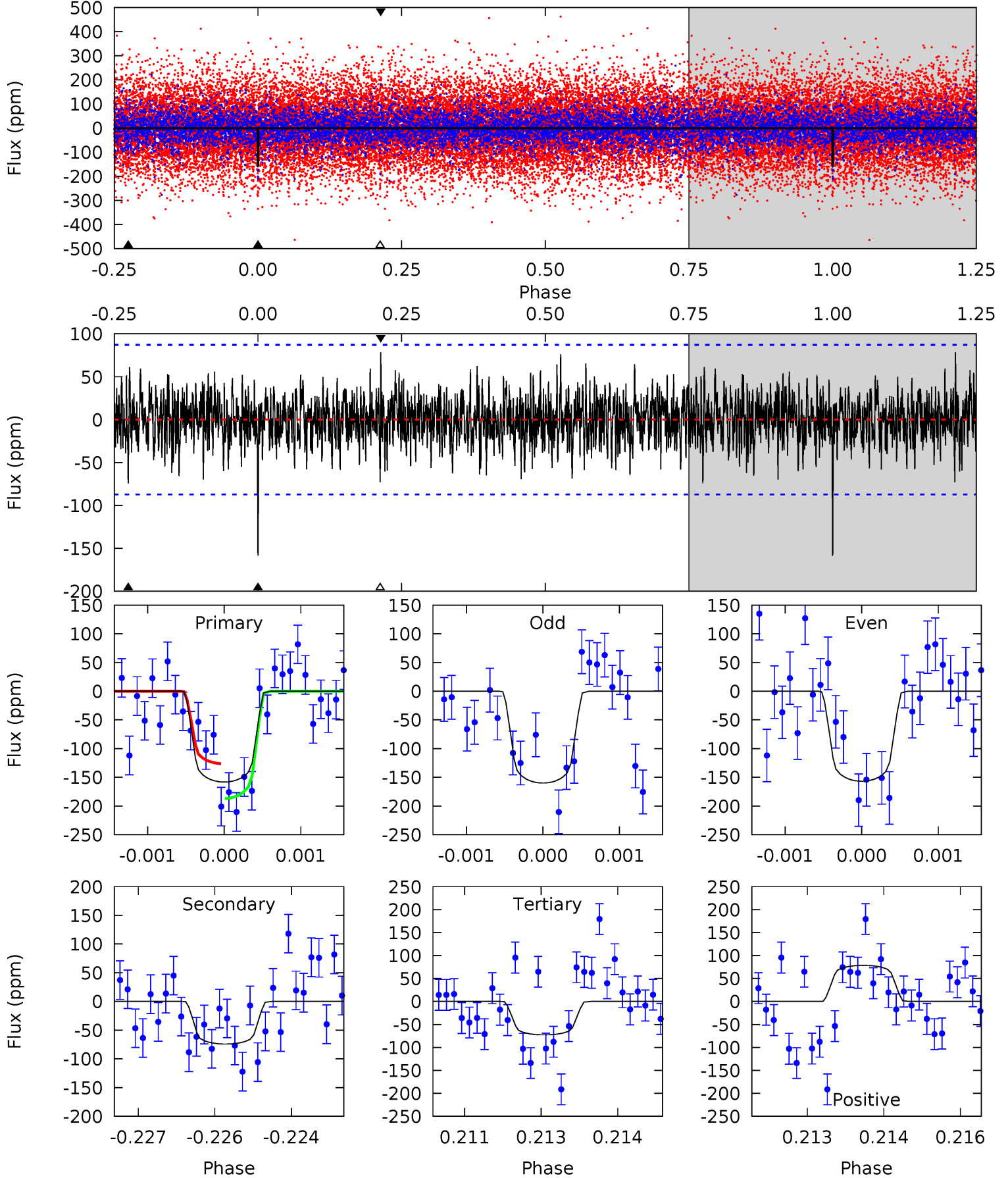
TCE 006037990-06 $P = 93.290952$ Days $T_0 = 191.743748$ (BKJD)



DV Model-Shift Uniqueness Test

006037990-06, P = 93.289589 Days, E = 98.448274 Days

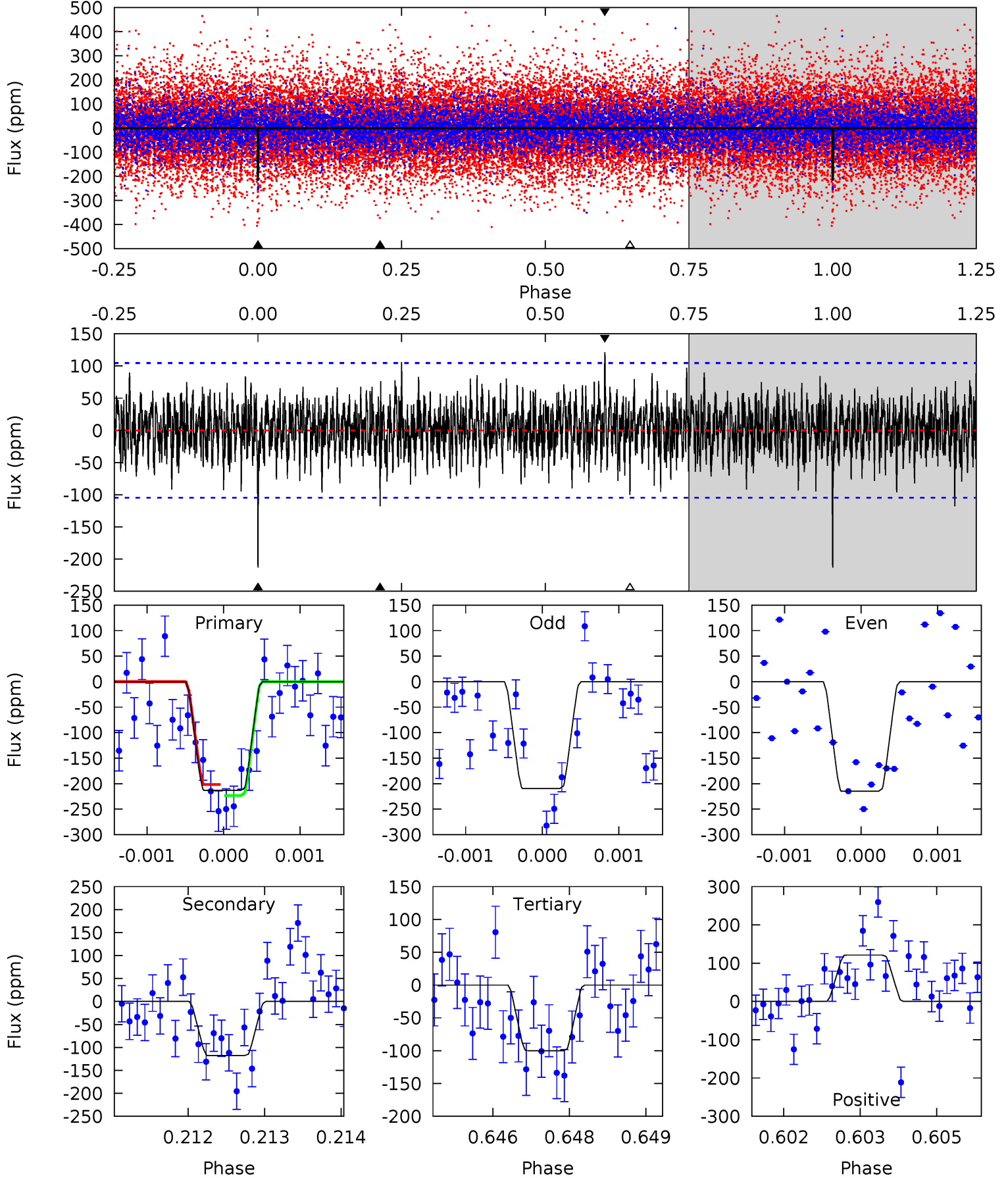
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
9.78	4.59	4.50	4.86	5.38	3.18	1.38	5.28	4.92	0.09	-0.27	0.10	0.92	0.33	1.87



Alt Model-Shift Uniqueness Test

006037990-06, P = 93.290952 Days, E = 98.452796 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
11.0	6.10	5.18	6.27	5.42	3.24	1.58	5.85	4.76	0.92	-0.17	0.13	0.89	0.36	0.56



Stellar Parameters For KIC 006037990

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	7455^{+209}_{-314}	$3.921^{+0.287}_{-0.143}$	$-0.080^{+0.200}_{-0.350}$	$2.407^{+0.478}_{-0.888}$	$1.759^{+0.195}_{-0.391}$	$0.178^{+0.347}_{-0.065}$
	+3%/-4%	+7%/-4%	+250%/-438%	+20%/-37%	+11%/-22%	+195%/-37%
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 006037990-06 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-74 ± 16	$3.46^{+2.18}_{-1.96}$	1012^{+69}_{-95}	5731^{+3053}_{-1074}	738^{+3151}_{-444}
Alt.	-118 ± 19	$3.98^{+2.41}_{-1.97}$	1009^{+74}_{-93}	6018^{+2704}_{-1062}	949^{+2831}_{-588}

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 $A_{obs} \gg 1.0$

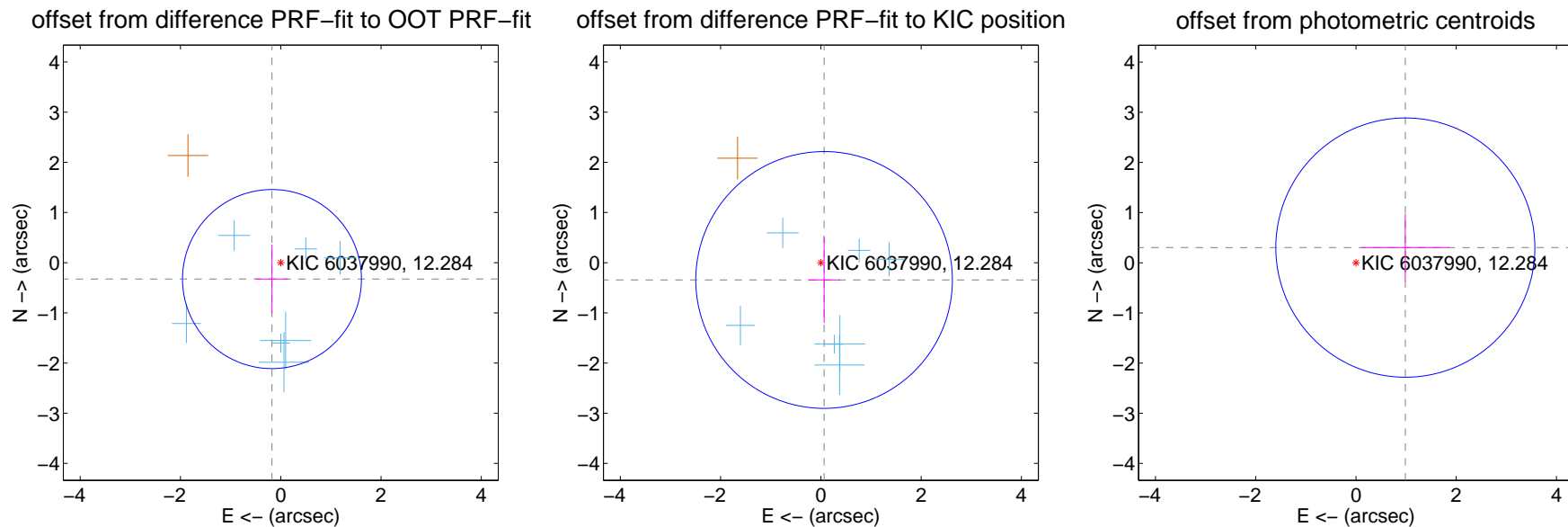
DV Centroid Data

Supplemental centroid analysis for 006037990-06. Kepler magnitude: 12.28. Transit SNR 6.89

There are 7 quarters with good PRF difference image offsets

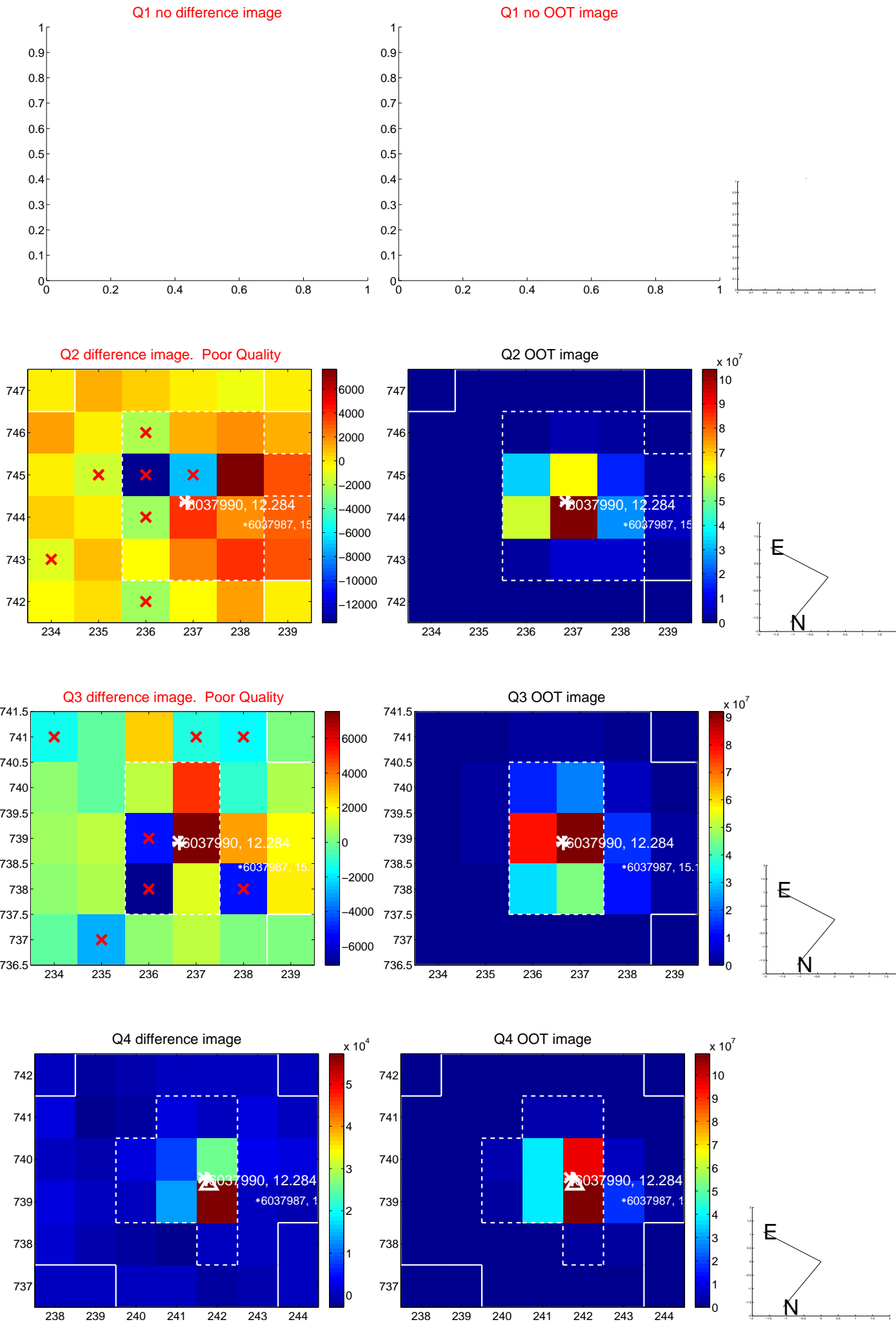
The direct PRF centroid is offset from the target star catalog position by about 0.31 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.370 ± 0.595	0.62	0.175 ± 0.322	-0.326 ± 0.686
PRF-fit source offset from KIC position	0.350 ± 0.853	0.41	-0.064 ± 0.320	-0.344 ± 0.855
photometric centroid source offset	1.03 ± 0.86	1.20	-0.99 ± 0.88	0.30 ± 0.67

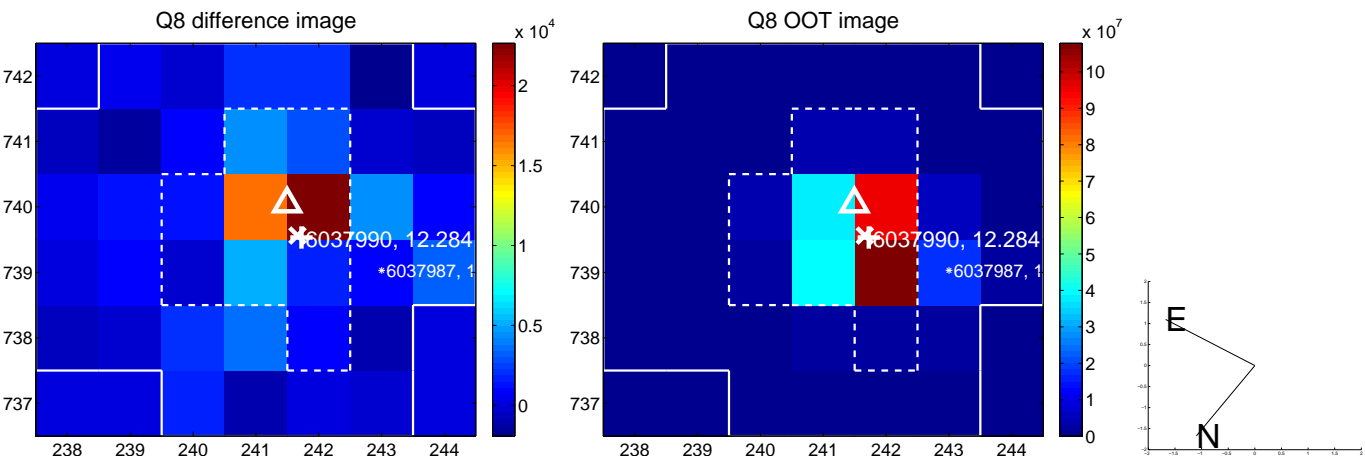
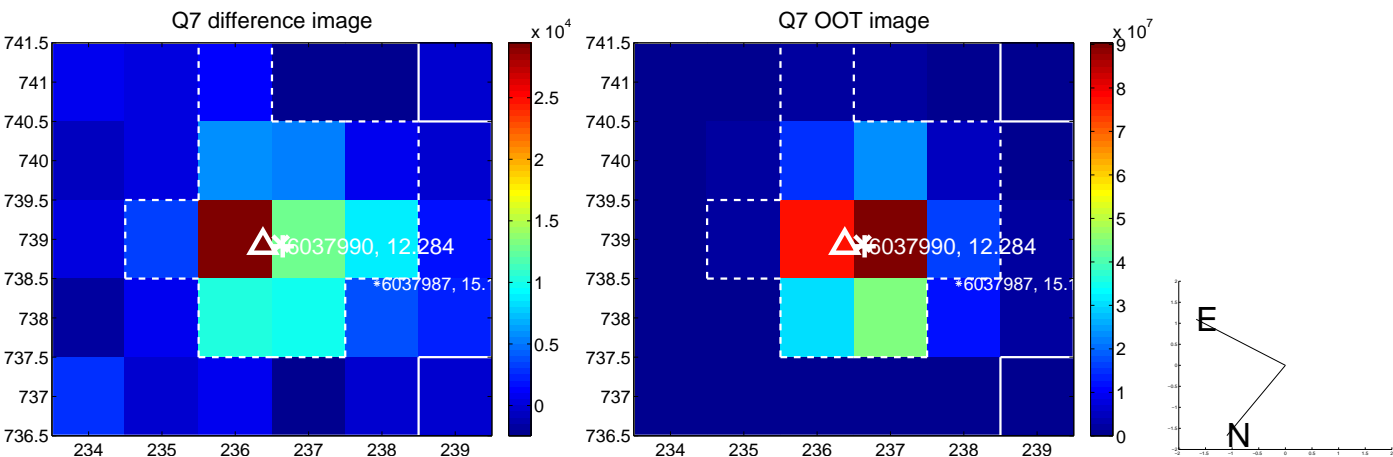
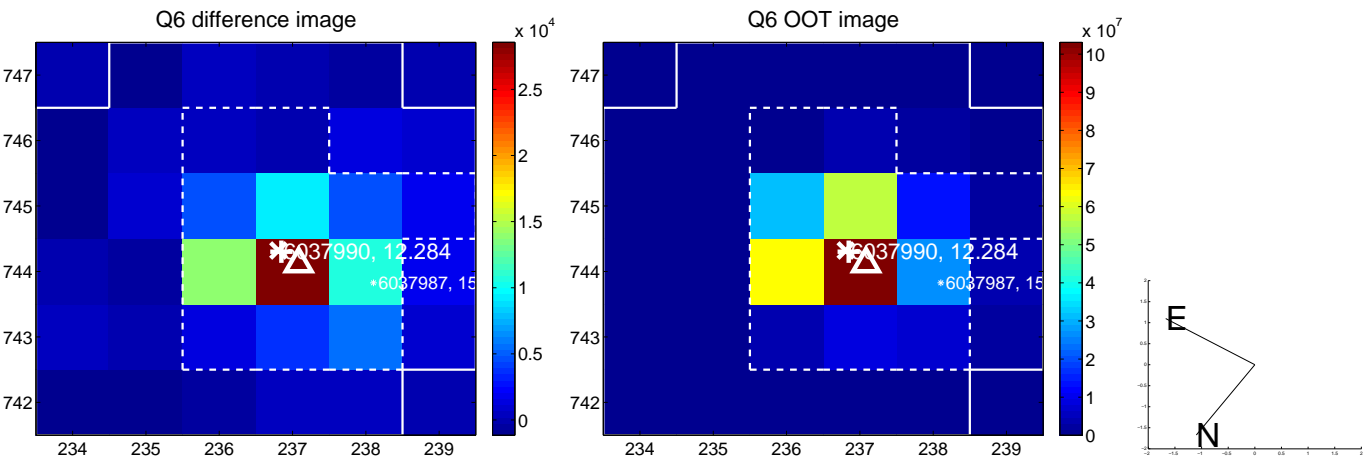
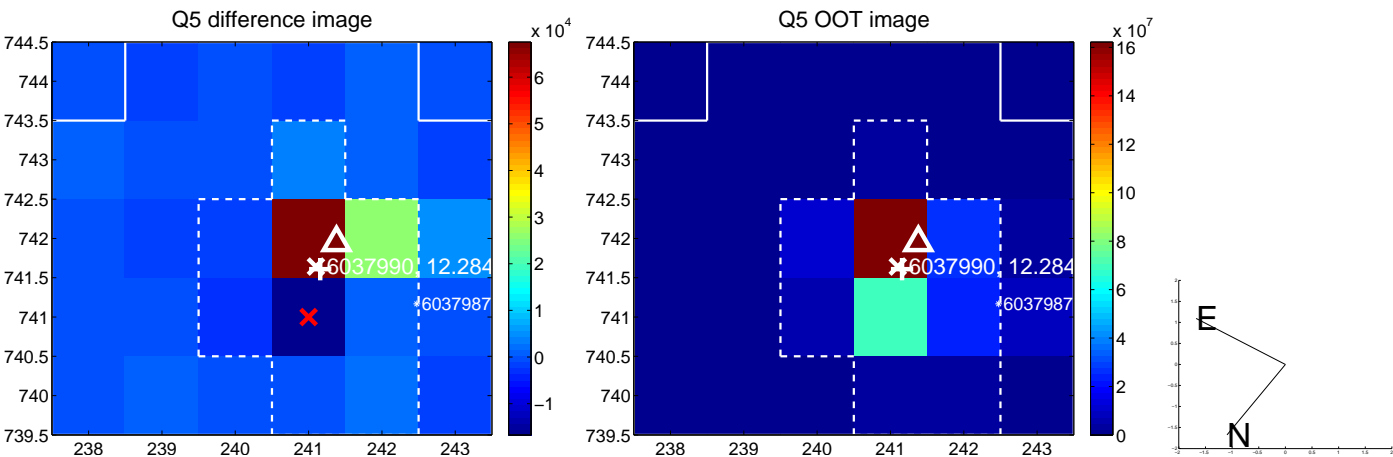


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets**; **Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

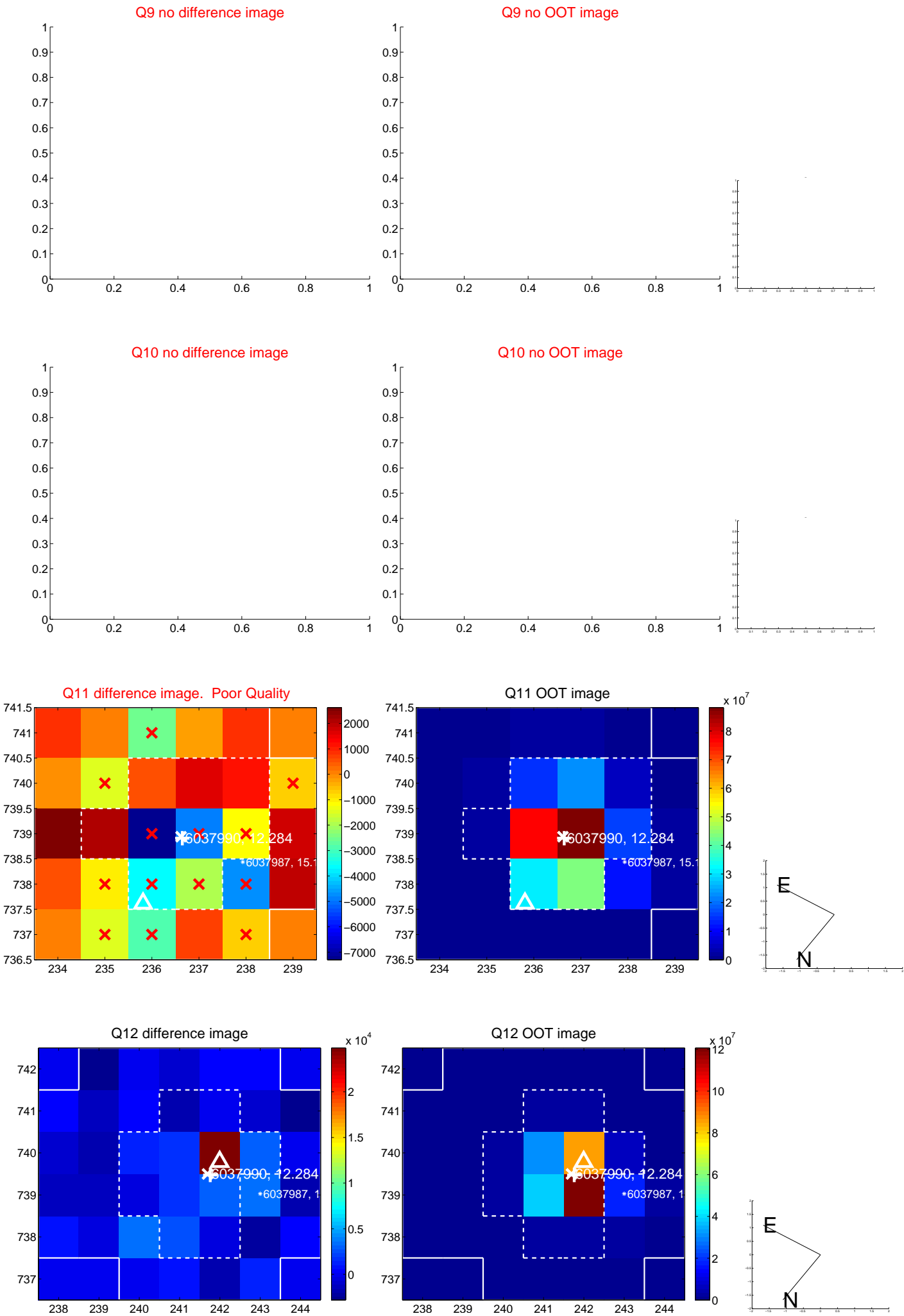
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

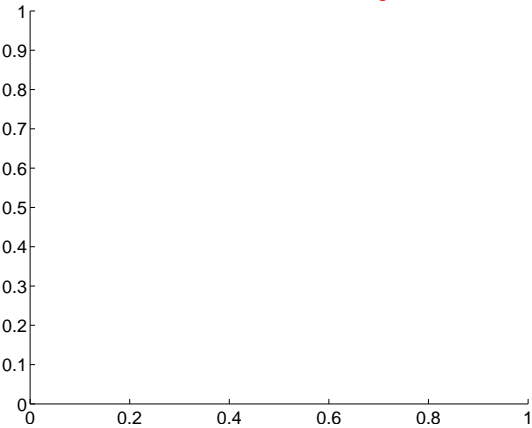


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

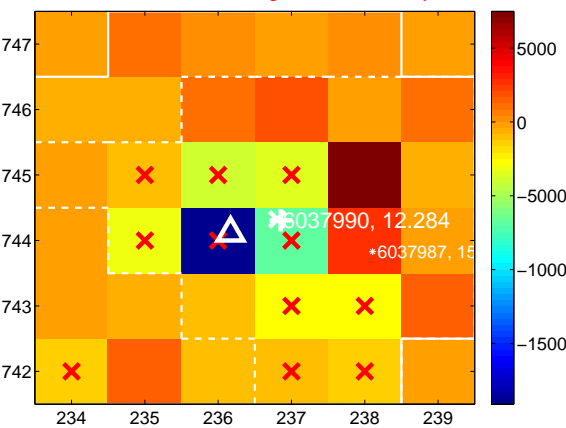
Q13 no difference image



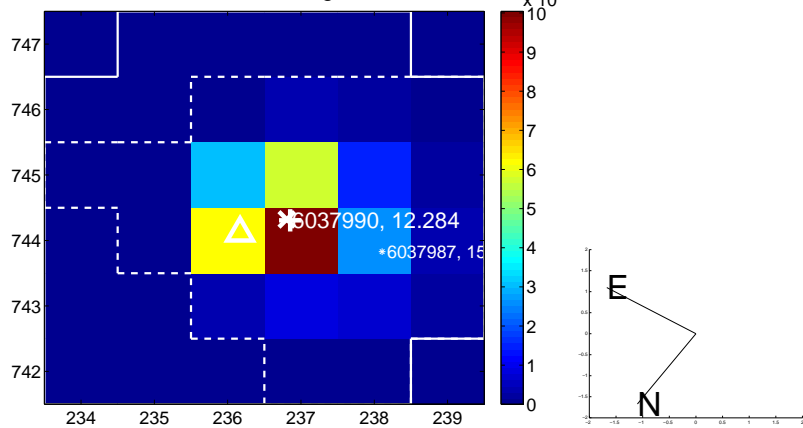
Q13 no OOT image



Q14 difference image. Poor Quality



Q14 OOT image



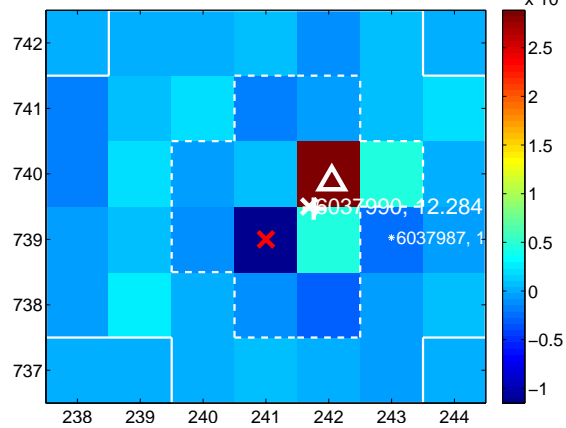
Q15 no difference image



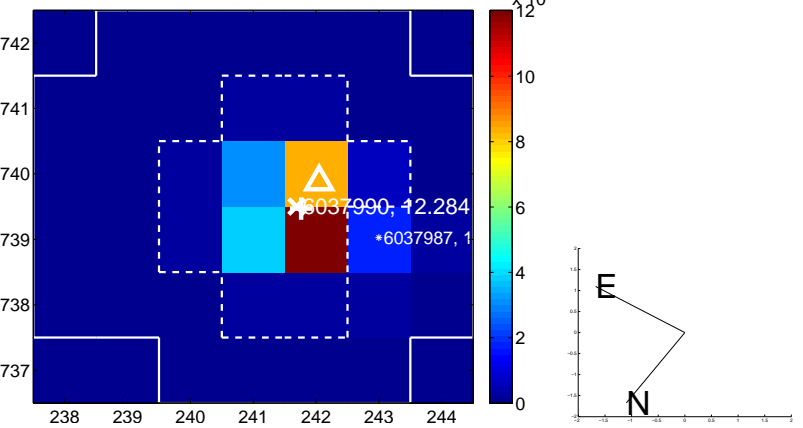
Q15 no OOT image



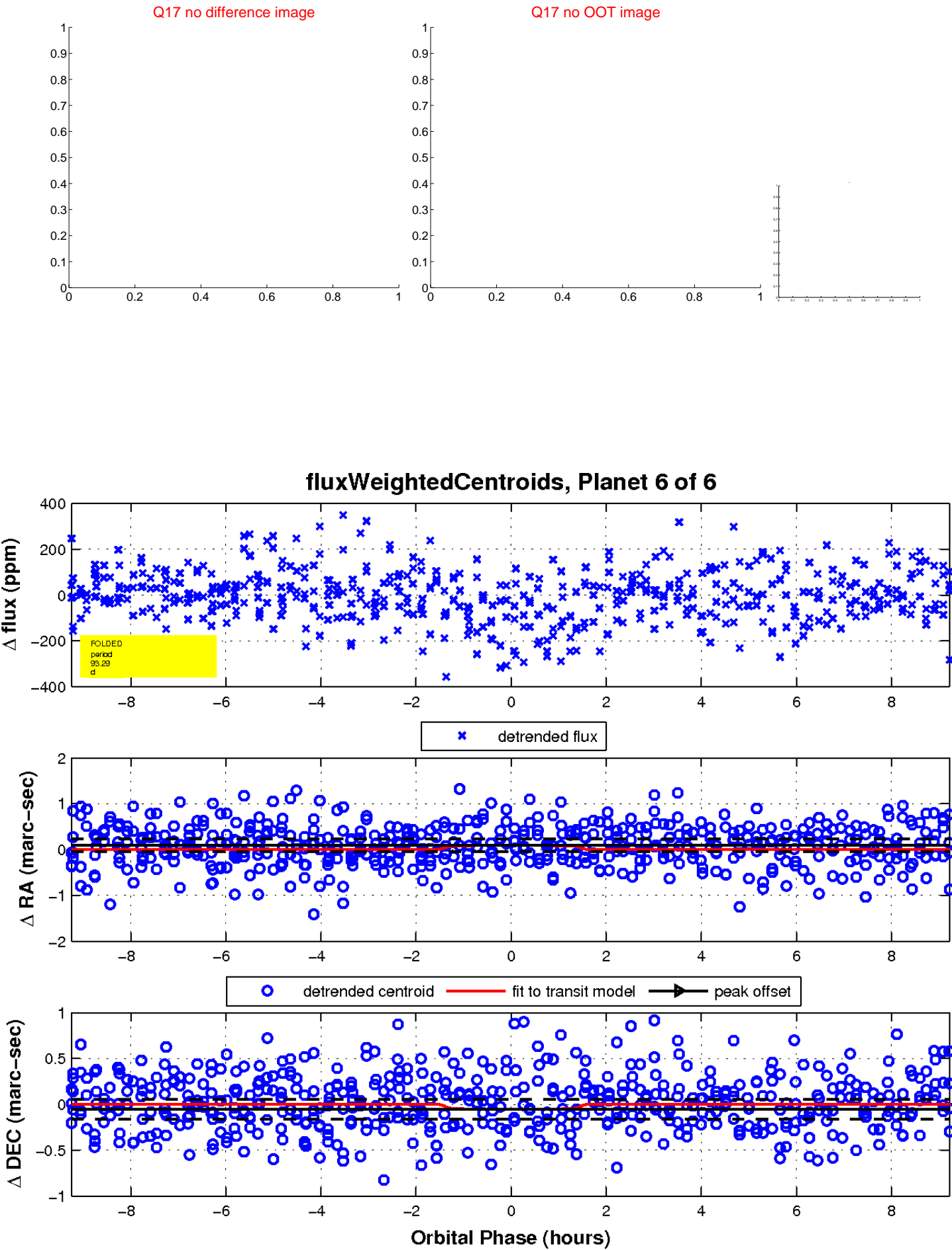
Q16 difference image



Q16 OOT image



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



UKIRT Image

Declination

