

KIC 009030447

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})
009030447-01	OBS	No	1.751846	131.736321	20.7	6.479	7.7	7.1	3.41	6924	1.57	20370.45
009030447-02	OBS	No	301.539638	175.496539	359.2	15.674	10.9	7.1	3.41	6924	8.01	21.27
009030447-03	OBS	No	113.911778	215.286571	295.6	3.991	10.0	5.4	3.41	6924	6.62	77.91
009030447-04	OBS	No	306.826384	251.181345	275.2	8.444	8.6	7.0	3.41	6924	6.03	20.79
009030447-05	OBS	No	124.311107	251.743549	184.9	6.514	7.6	6.7	3.41	6924	5.14	69.34

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009030447-01	OBS	FP	0.00	1	0	0	0	LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
009030447-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
009030447-03	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—INCONSISTENT_TRANS—HALO_GHOST
009030447-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL_TRACKER—LPP_DV—MOD_NONUNIQ_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
009030447-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_MEAS

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 009030447-01

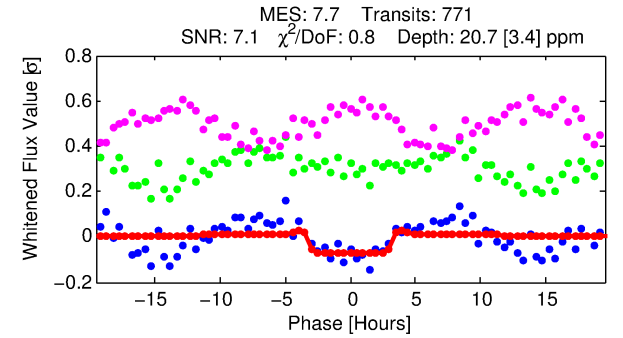
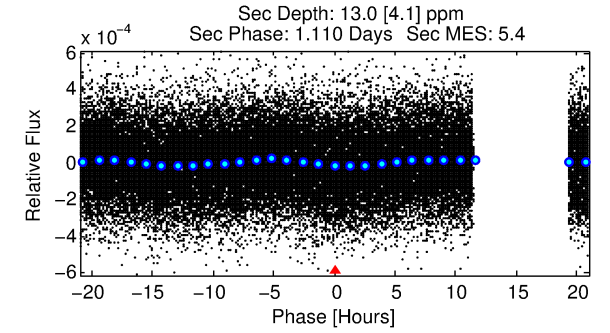
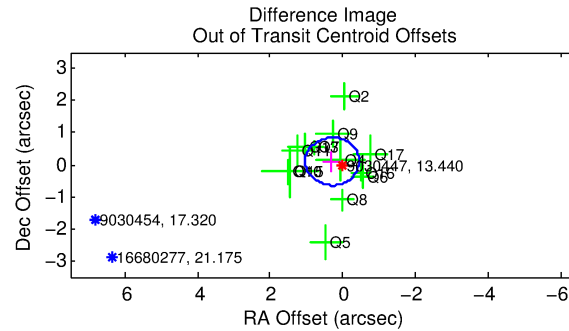
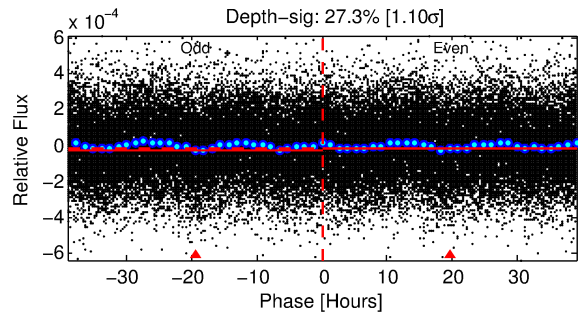
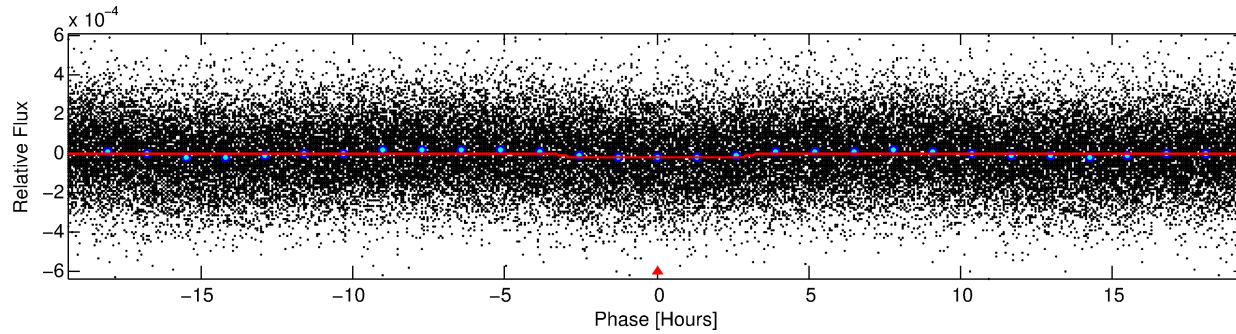
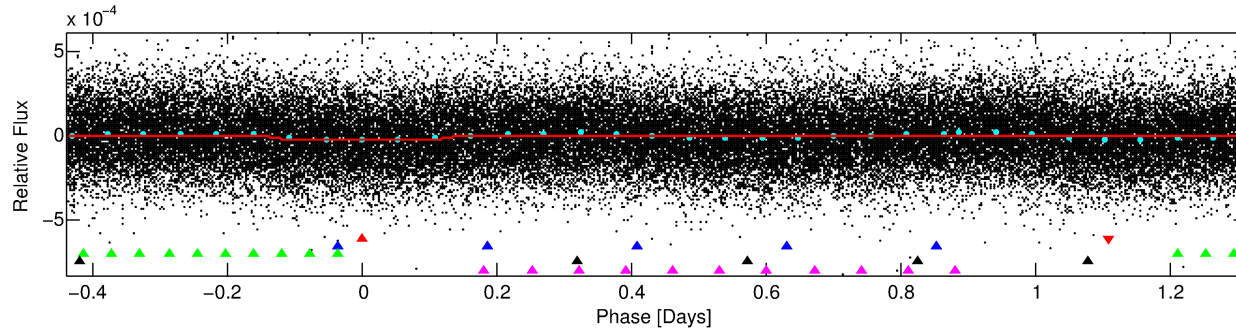
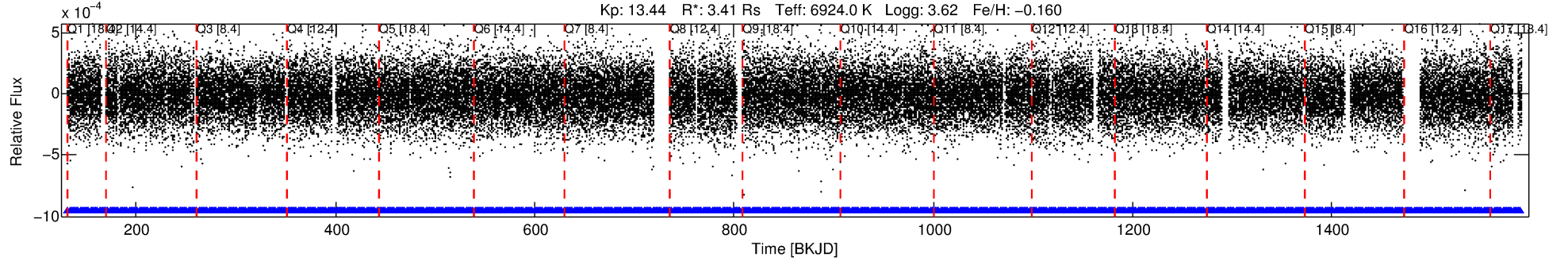
No Significant Match Found

DV One-Page Summary

KIC: 9030447 Candidate: 1 of 5 Period: 1.752 d

KOI: K01401 Corr: No Ephemeris Match

Kp: 13.44 R*: 3.41 Rs Teff: 6924.0 K Logg: 3.62 Fe/H: -0.160



DV Fit Results:

Period = 1.75185 [0.00002] d
Epoch = 131.7363 [0.0062] BKJD
Rp/R* = 0.0042 [0.0042]
a/R* = 2.15 [9.55]
b = 0.08 [68.53]
Seff = 20370.45 [10869.51]
Teq = 3046 [406] K
Rp = 1.57 [1.68] Re
a = 0.0343 [0.0113] AU
Ag = 3.43 [7.22] [0.34σ]
Teffp = 6409 [3279] K [1.02σ]

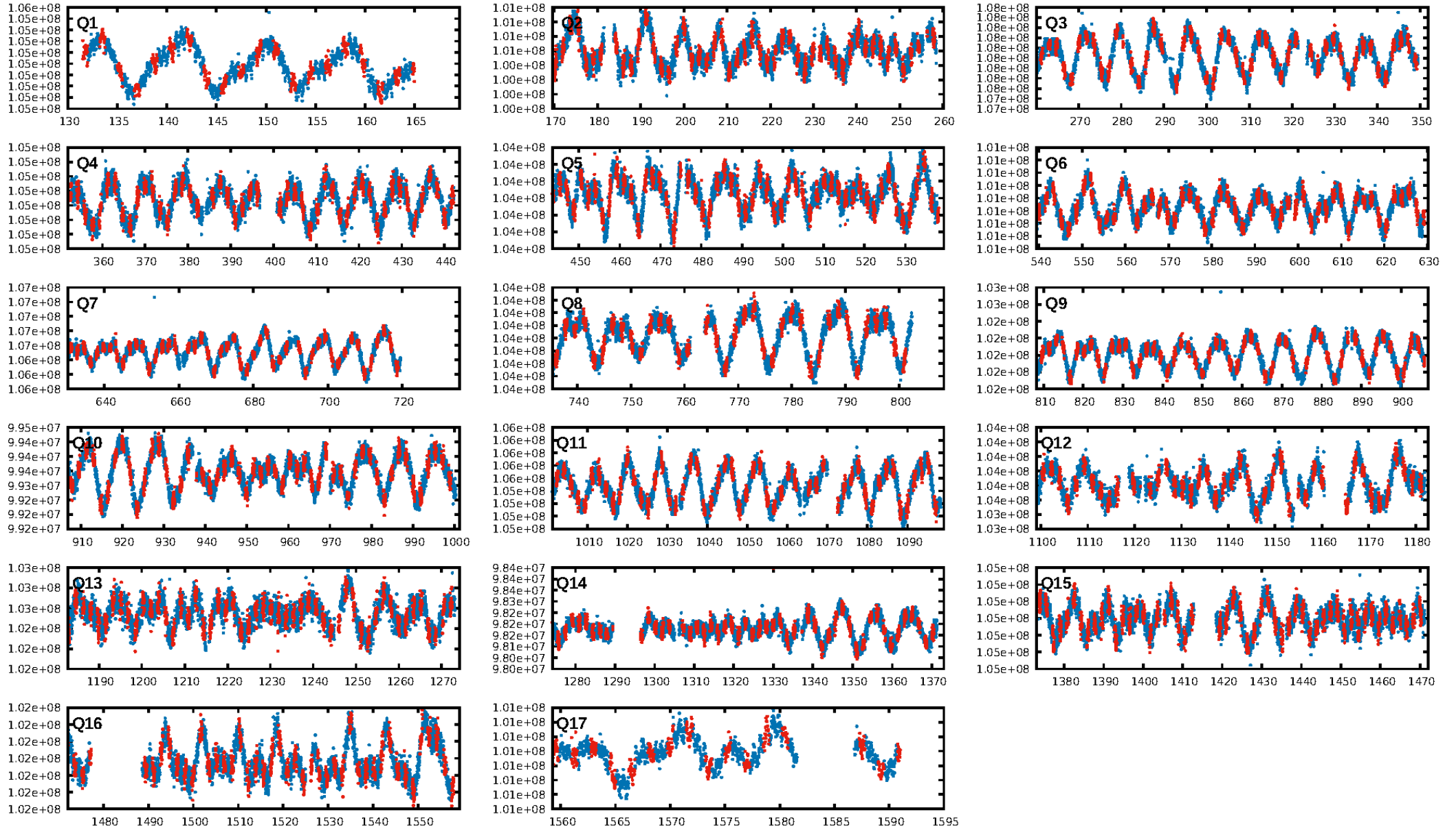
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [353.74σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 7.35e-11
RollingBand-fgt: 1.00 [735/735]
GhostDiagnostic-chr: 1.129
Centroid-sig: 67.6%
Centroid-so: 0.569 arcsec [0.60σ]
OotOffset-rm: 0.314 arcsec [1.27σ]
KicOffset-rm: 0.264 arcsec [1.03σ]
OotOffset-st: 3/3/3/4 [13]
KicOffset-st: 3/3/3/4 [13]
DiffImageQuality-fgm: 0.85 [11/13]
DiffImageOverlap-fno: 1.00 [17/17]

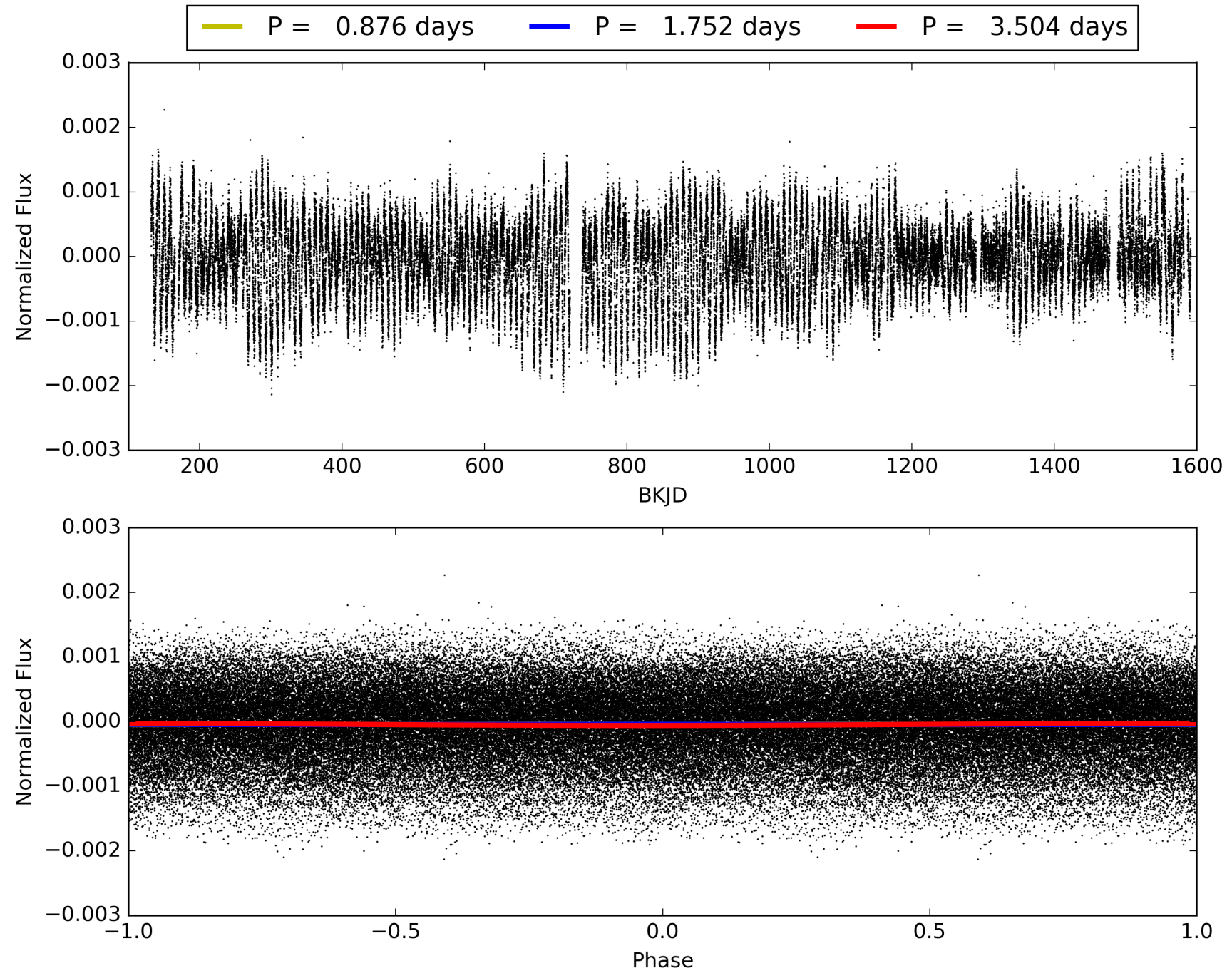
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This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

TCE 009030447-01, PDC Light Curves

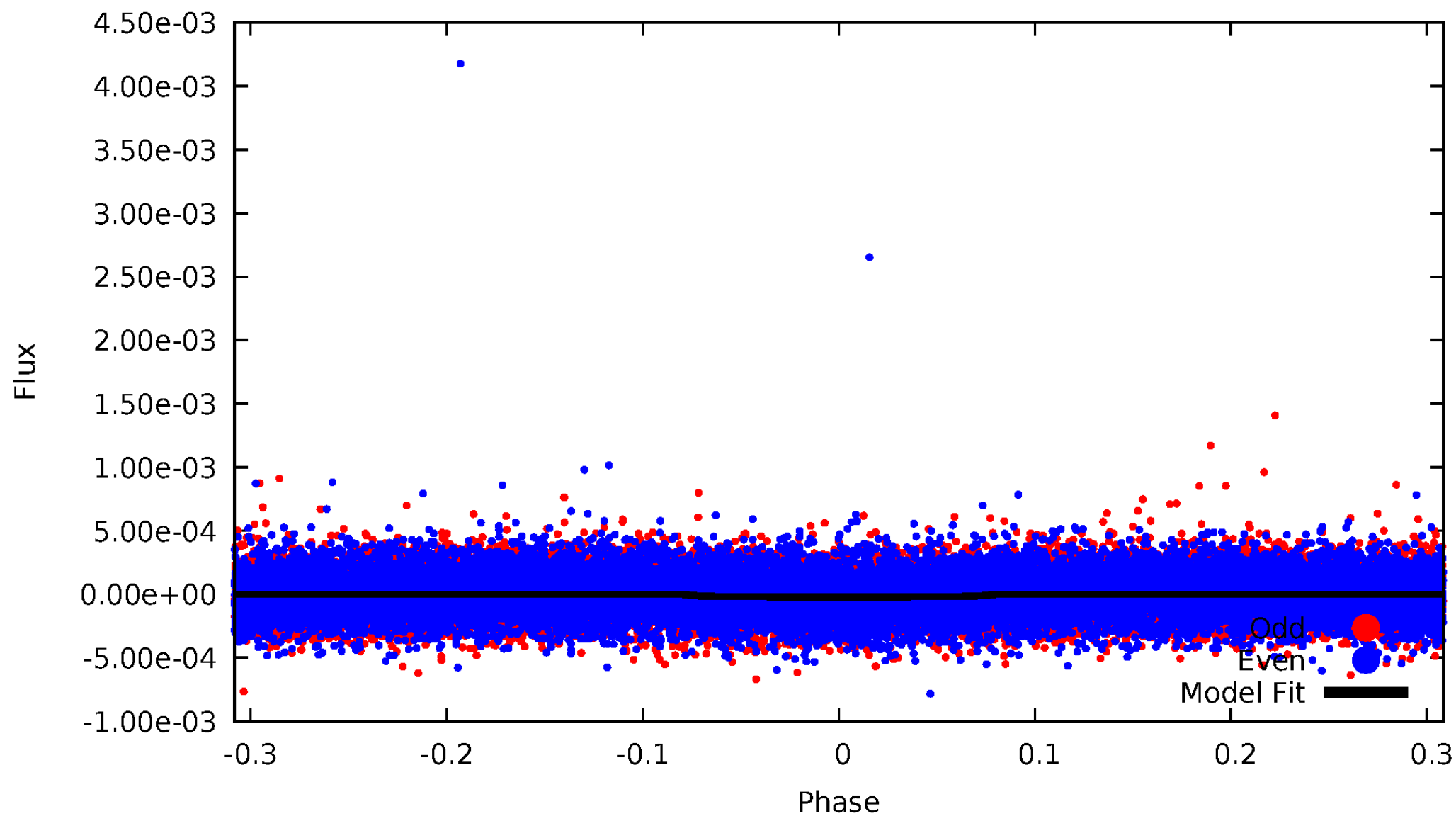


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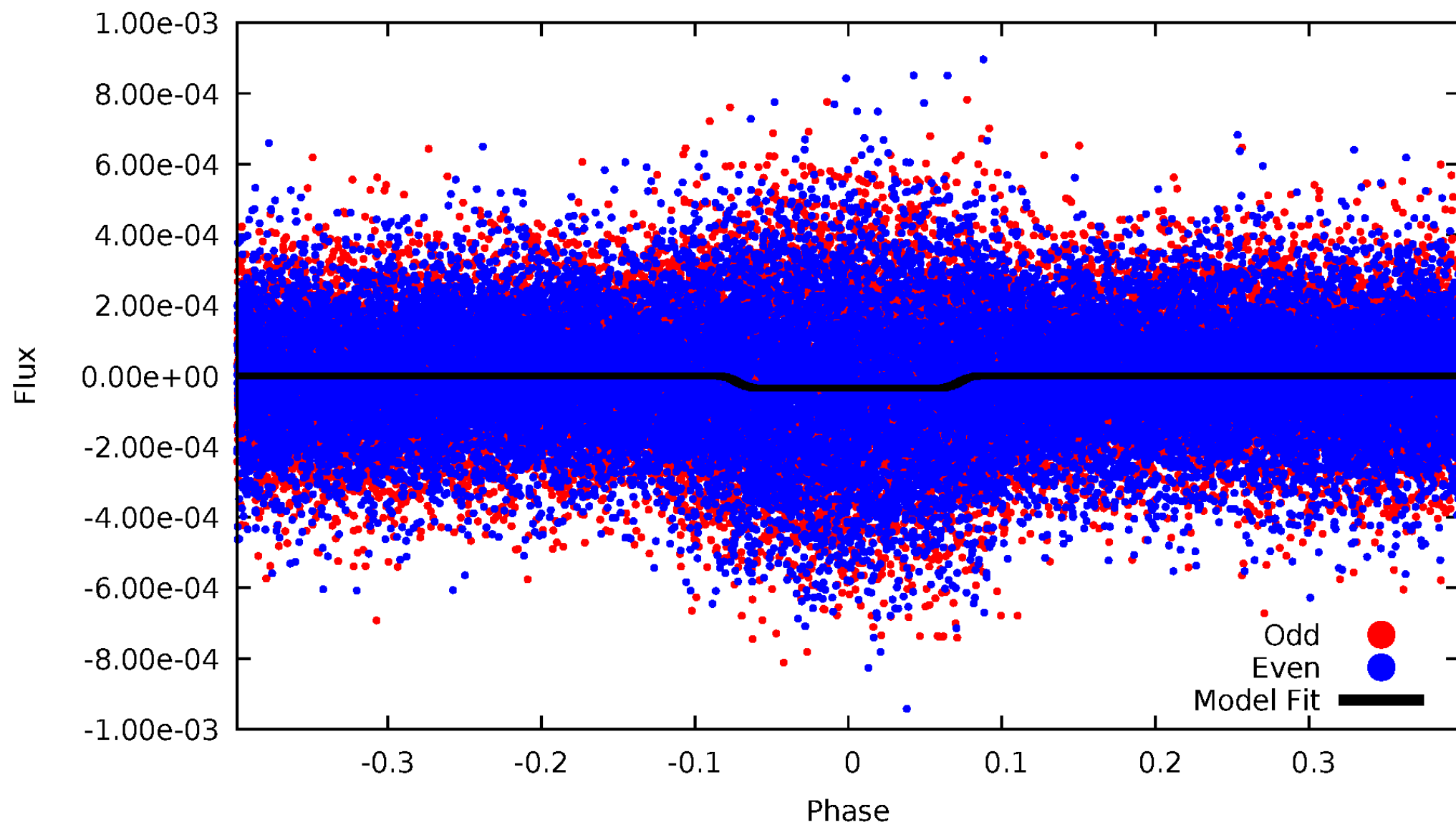
DV Odd/Even

TCE 009030447-01

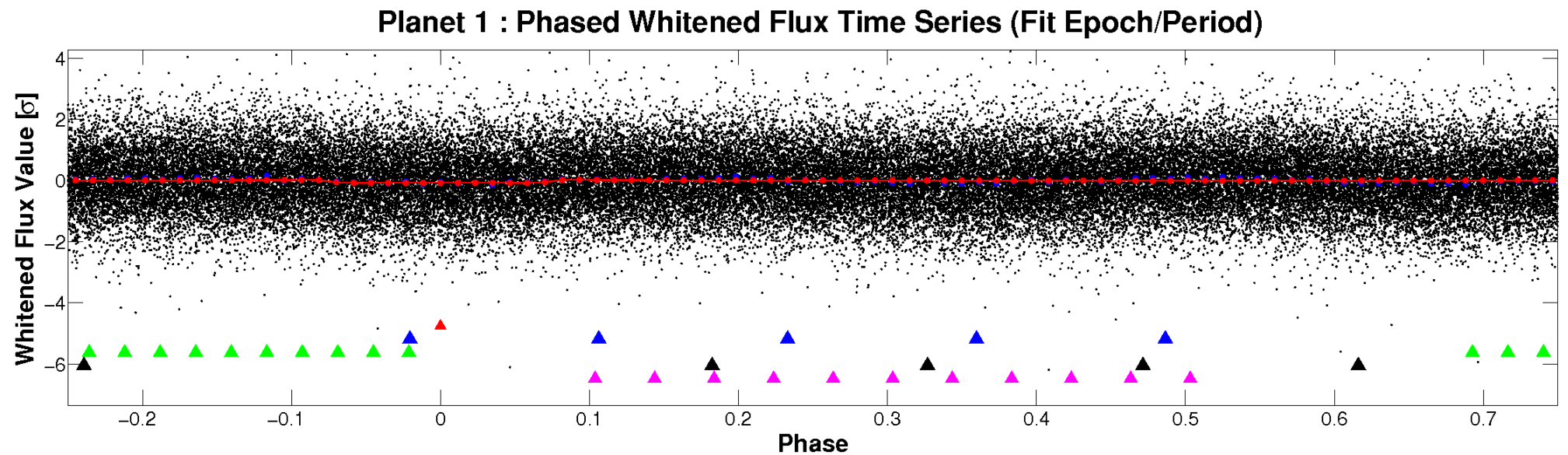
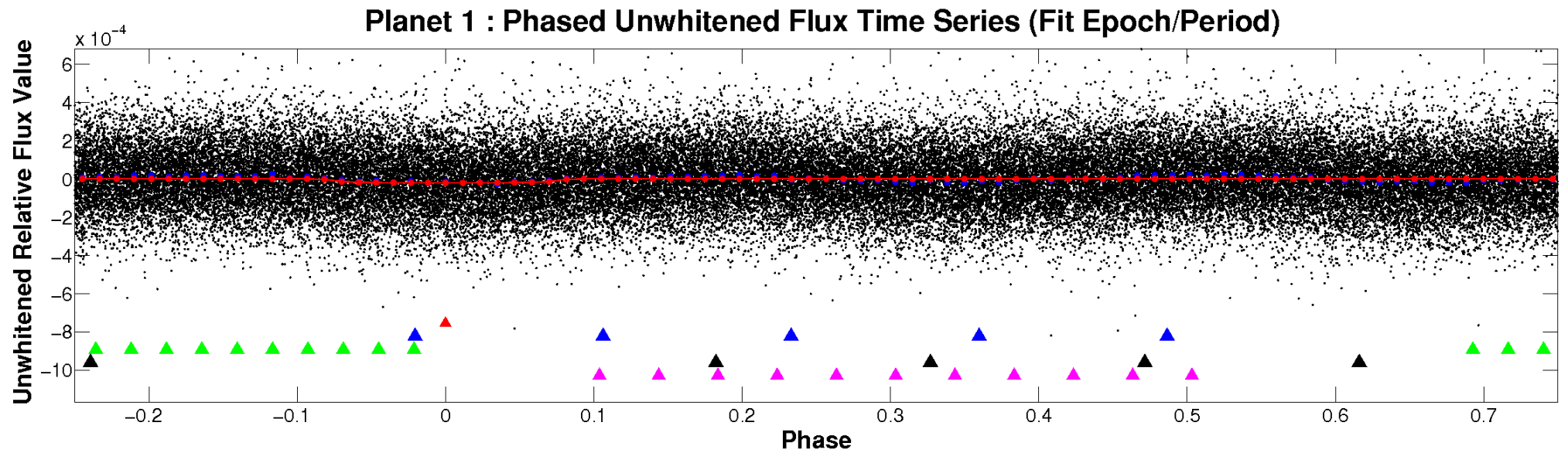


ALT Odd/Even

TCE 009030447-01

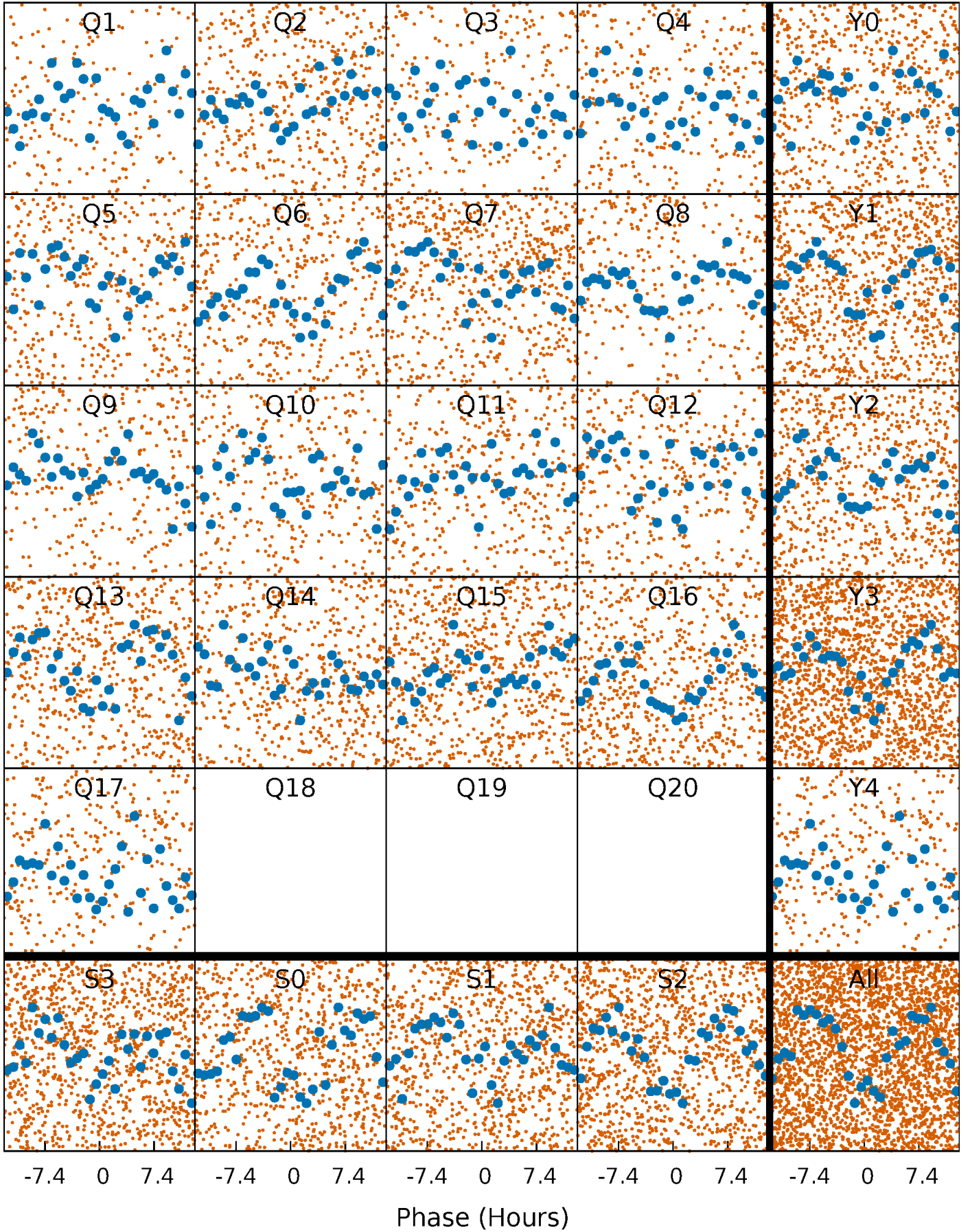


Non-Whitened Vs. Whitened Light Curve



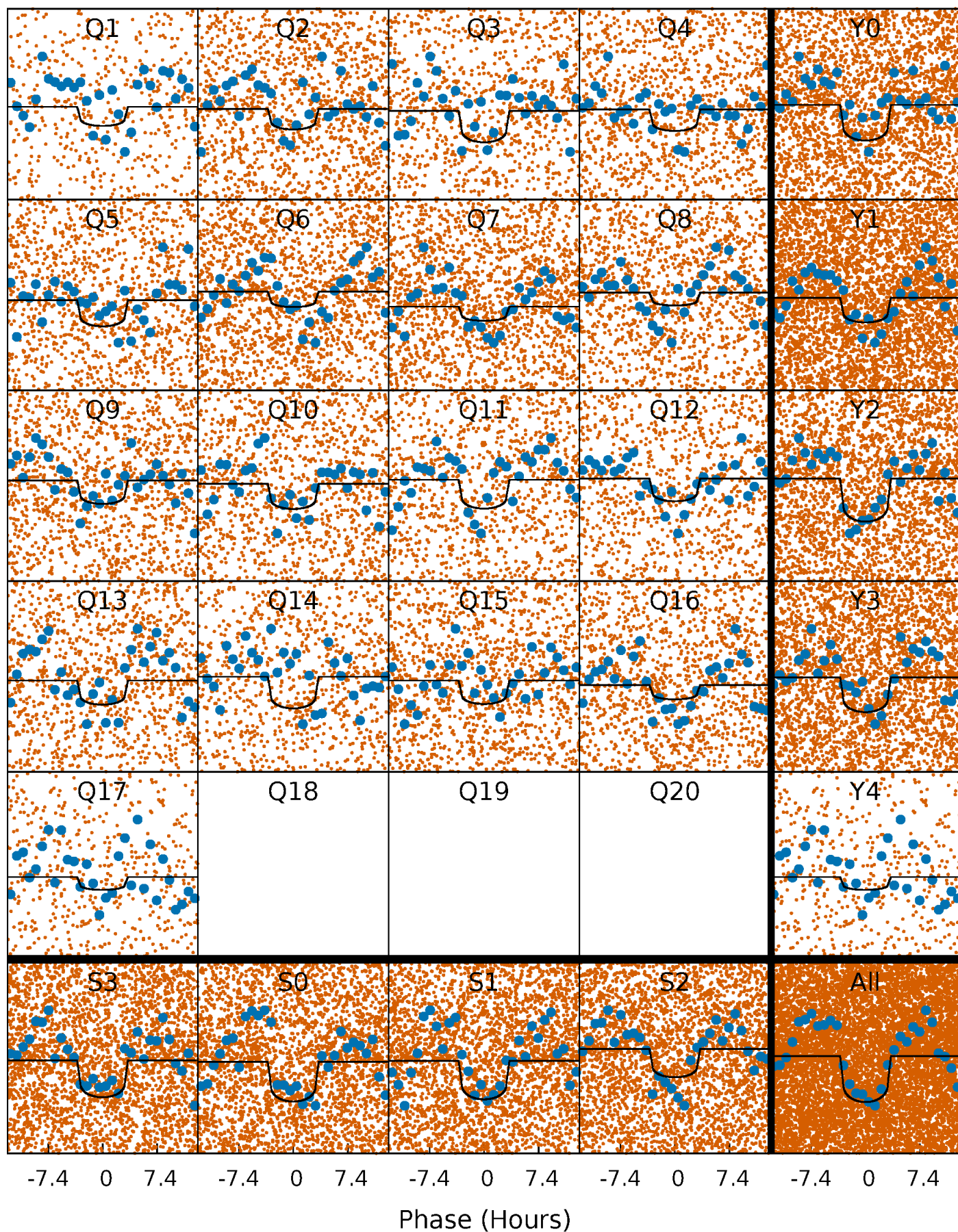
PDC Quarter-Phased Transit Curves

TCE 009030447-01 P= 1.751846 Days $T_0=131.736321$ (BKJD)



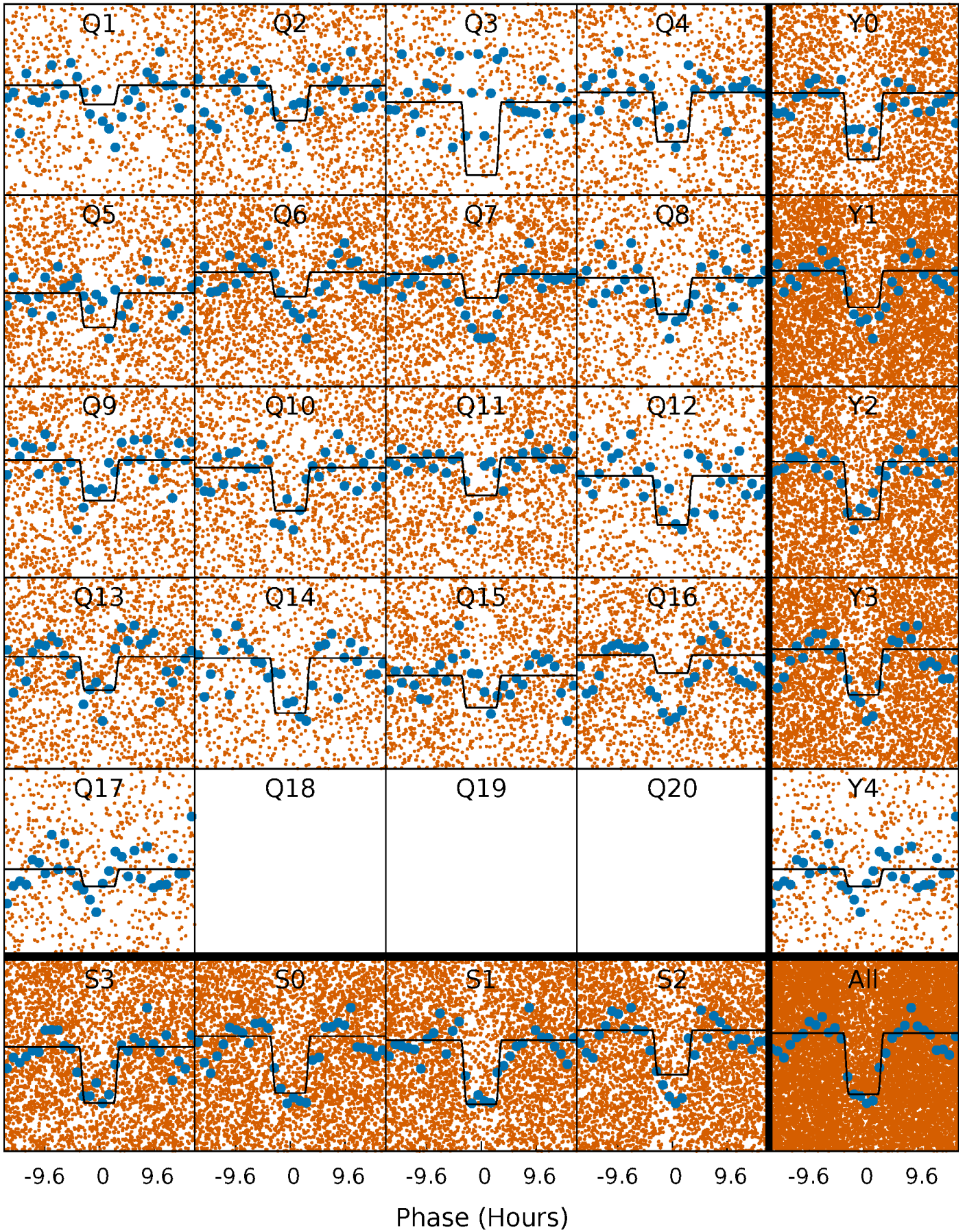
DV Quarter-Phased Transit Curves

TCE 009030447-01 P= 1.751846 Days $T_0=131.736321$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

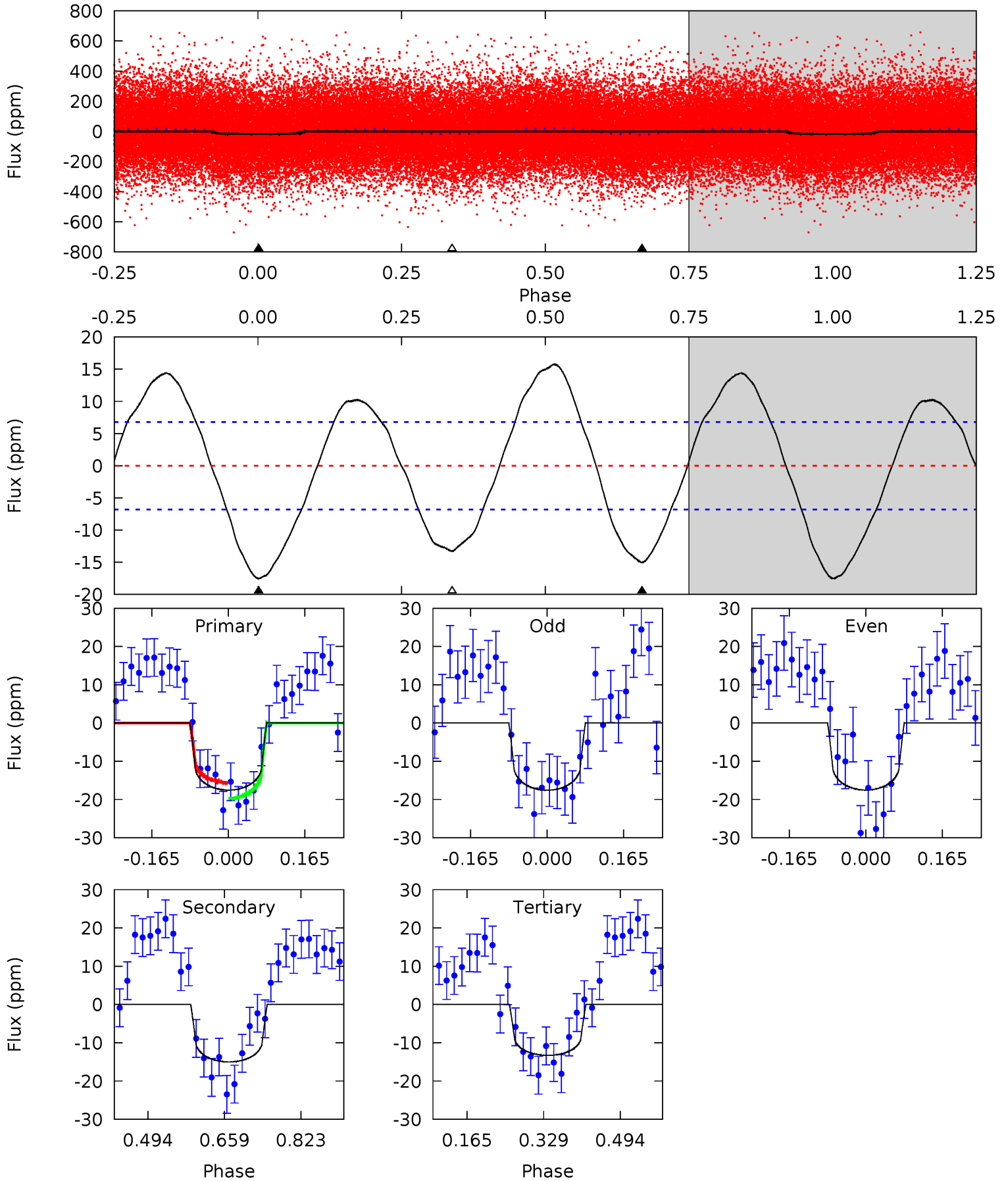
TCE 009030447-01 P= 1.751858 Days $T_0=131.742341$ (BKJD)



DV Model-Shift Uniqueness Test

009030447-01, P = 1.751846 Days, E = 129.984475 Days

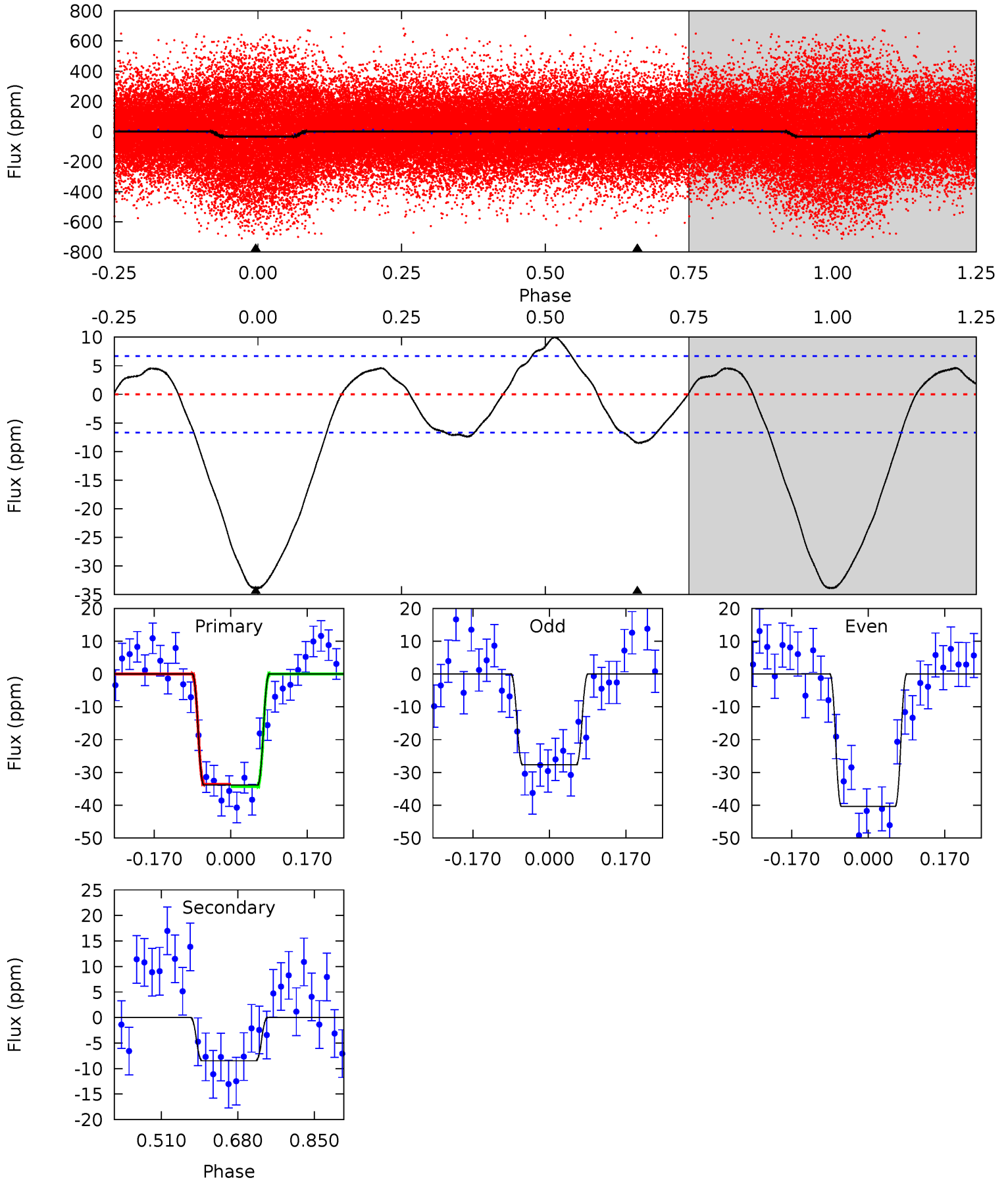
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
11.5	9.84	8.72	0	4.46	1.39	6.11	2.79	11.5	1.12	9.84	0.01	1.08	0.47	1.35



Alt Model-Shift Uniqueness Test

009030447-01, P = 1.751858 Days, E = 129.990483 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
22.5	5.63	0	0	4.45	1.37	3.18	22.5	22.5	5.63	5.63	4.21	0.86	0.23	0.24



Stellar Parameters For KIC 009030447

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6924^{+186}_{-249}	$3.616^{+0.296}_{-0.056}$	$-0.160^{+0.300}_{-0.250}$	$3.412^{+0.409}_{-1.228}$	$1.755^{+0.183}_{-0.339}$	$0.062^{+0.136}_{-0.011}$
	+3%/-4%	+8%/-2%	+188%/-156%	+12%/-36%	+10%/-19%	+219%/-18%
Source	PHO1	FLK73	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 009030447-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-15 ± 2	$1.71^{+1.38}_{-1.07}$	4148^{+218}_{-325}	5881^{+5475}_{-1524}	$3.348^{+21.230}_{-2.339}$
Alt.	-8 ± 2	$2.16^{+1.52}_{-1.27}$	4141^{+228}_{-319}	4518^{+2643}_{-1423}	$1.159^{+5.766}_{-0.778}$

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 $A_{obs} \gg 1.0$

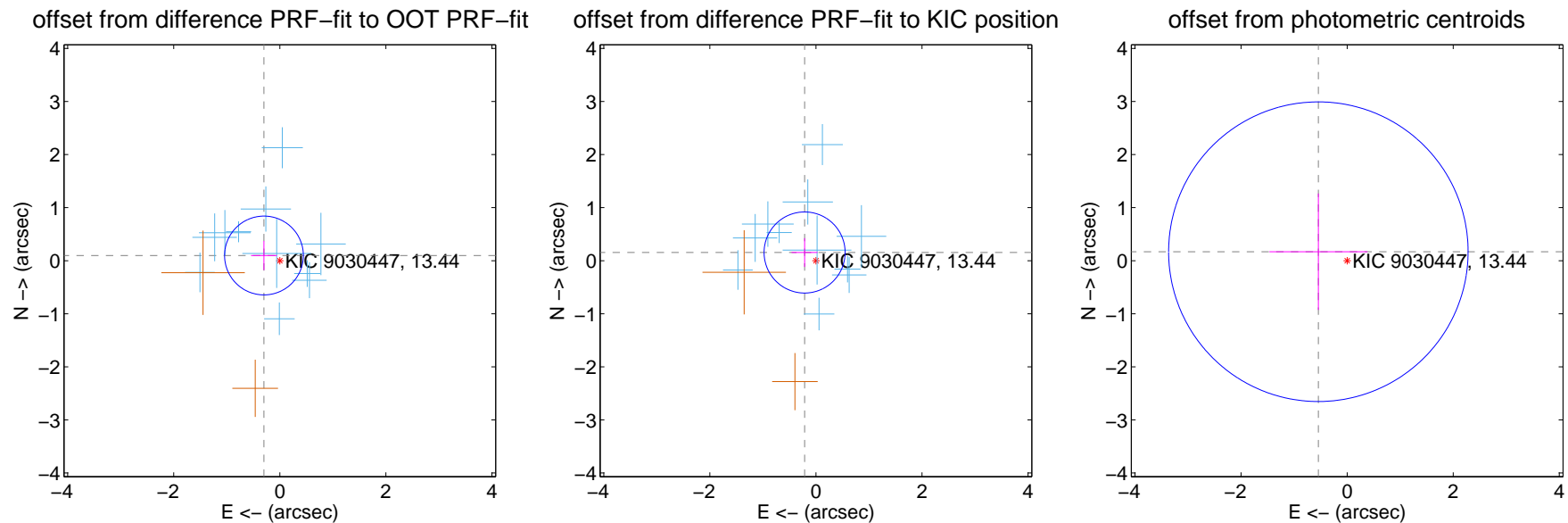
DV Centroid Data

Supplemental centroid analysis for 009030447-01. Kepler magnitude: 13.44. Transit SNR 7.13

There are 11 quarters with good PRF difference image offsets

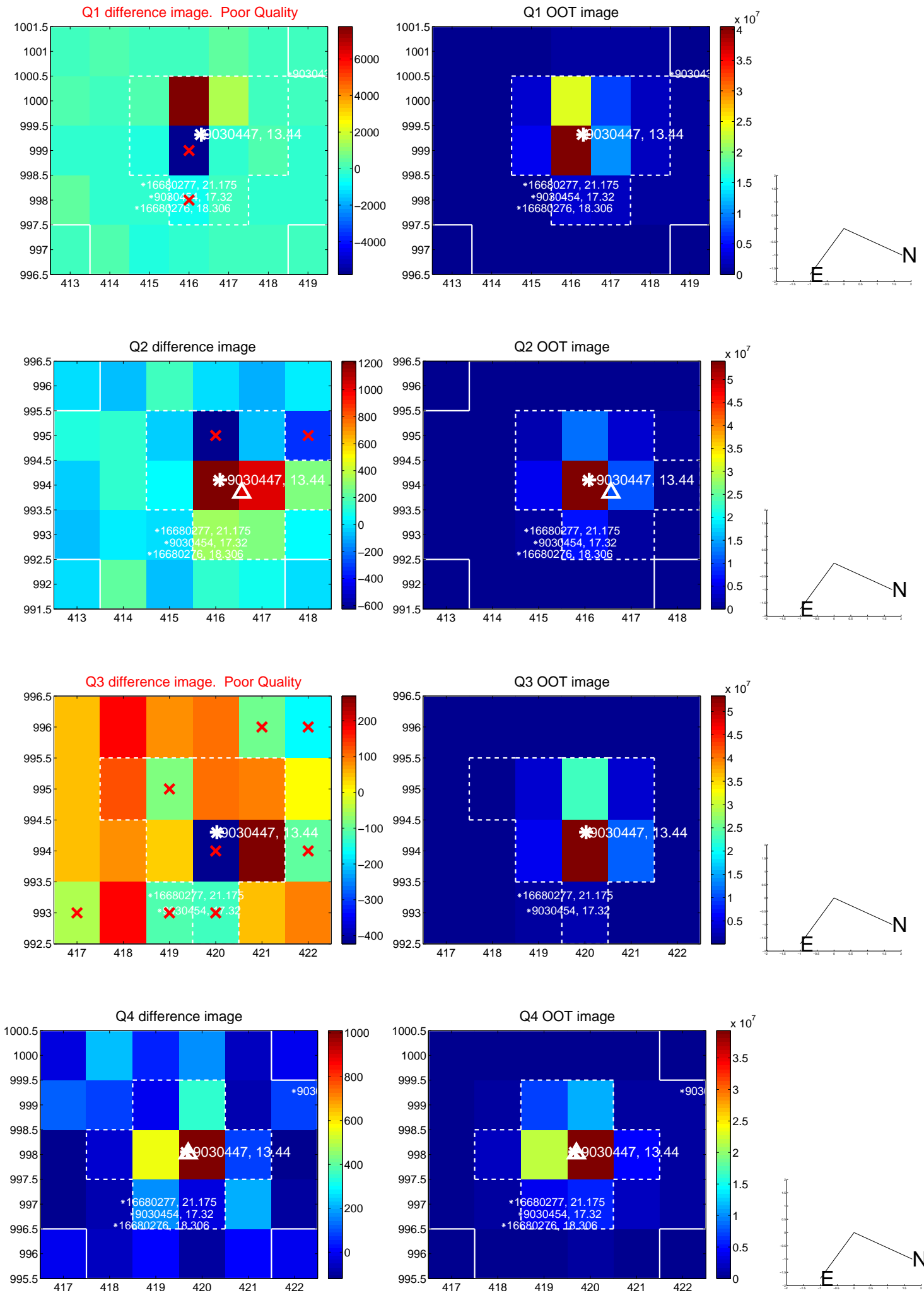
The direct PRF centroid is offset from the target star catalog position by about 0.17 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.314 ± 0.248	1.27	0.299 ± 0.244	0.098 ± 0.275
PRF-fit source offset from KIC position	0.264 ± 0.255	1.03	0.213 ± 0.246	0.155 ± 0.270
photometric centroid source offset	0.57 ± 0.94	0.60	0.54 ± 0.92	0.17 ± 1.10

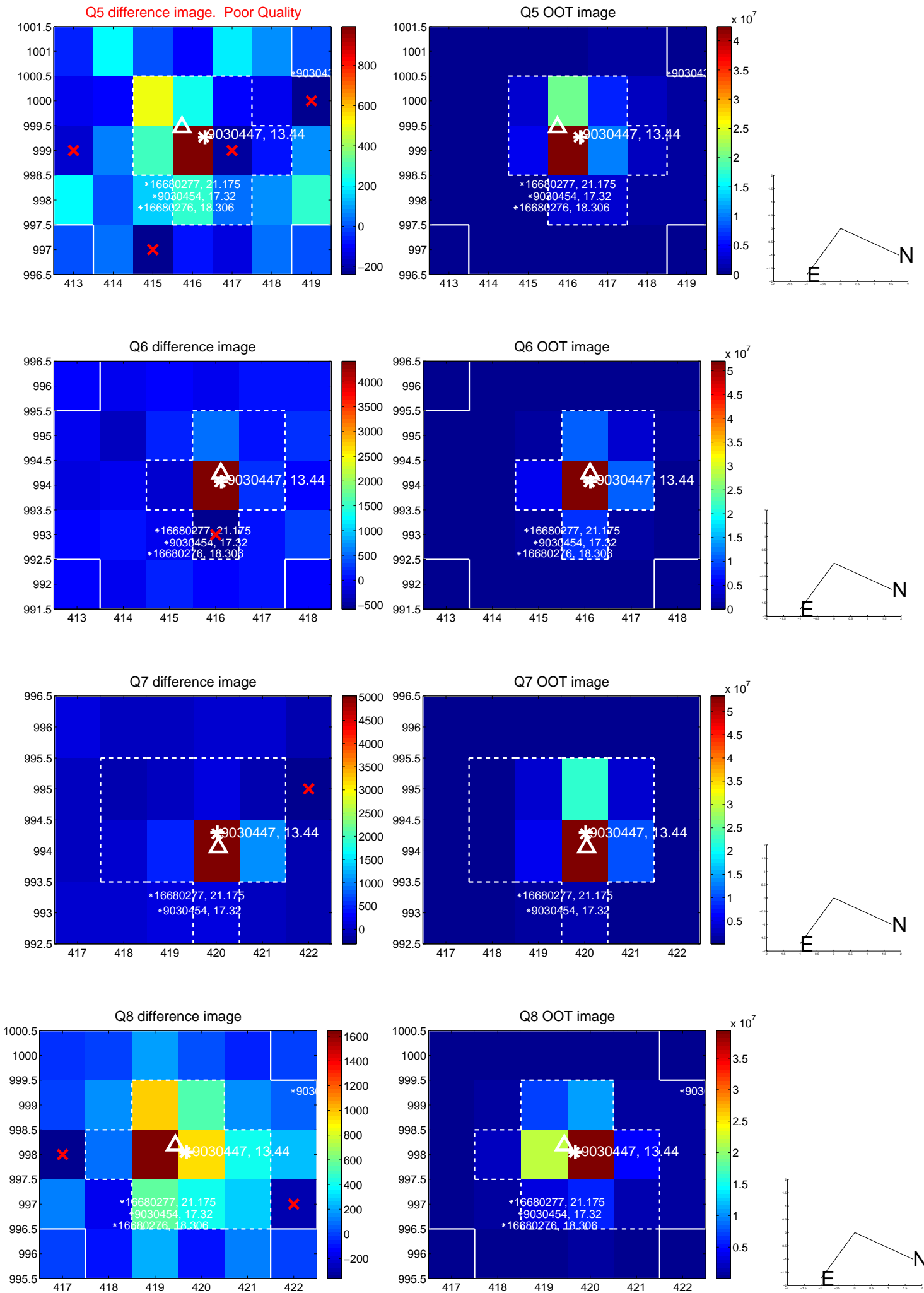


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets**; **Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

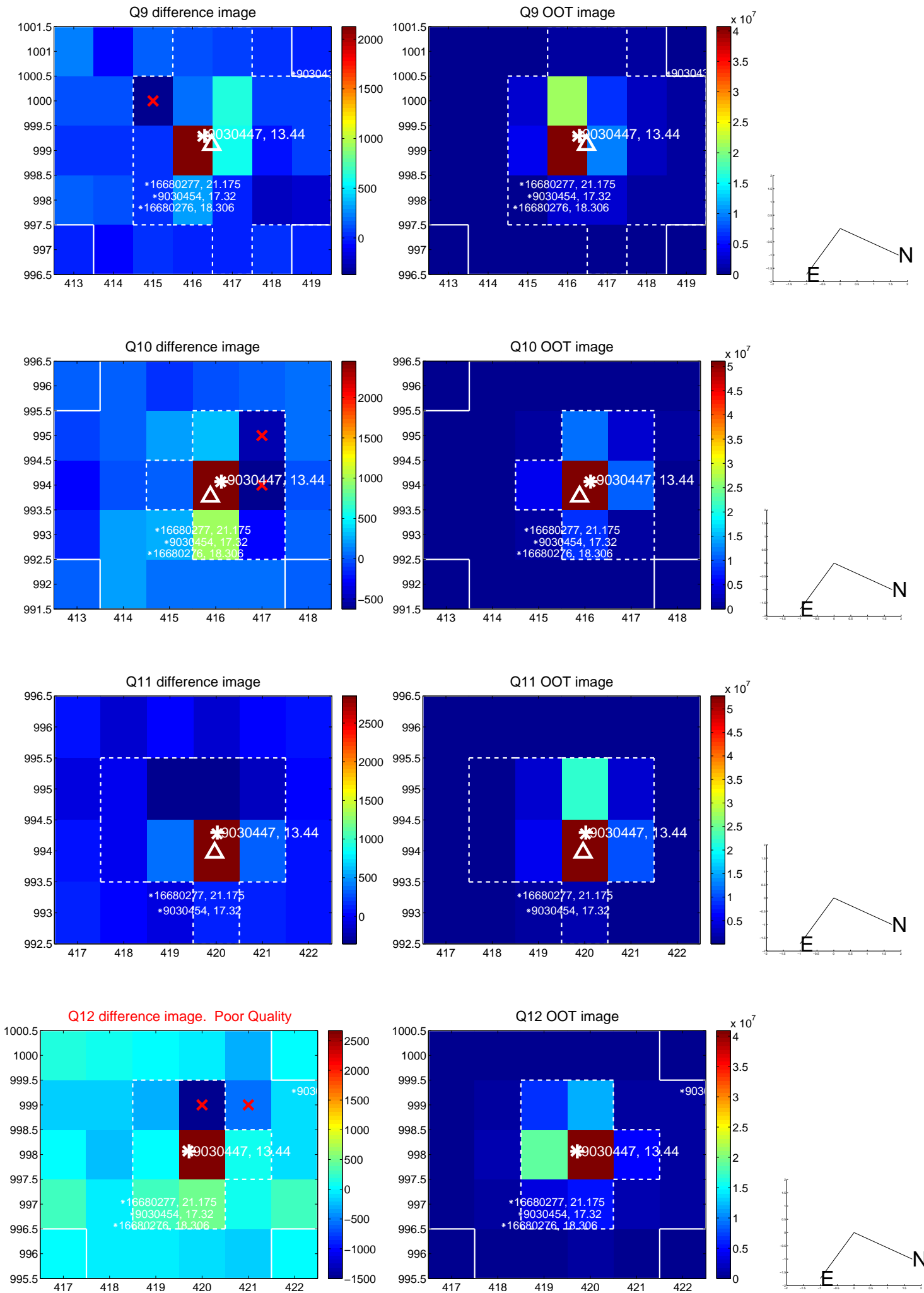
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



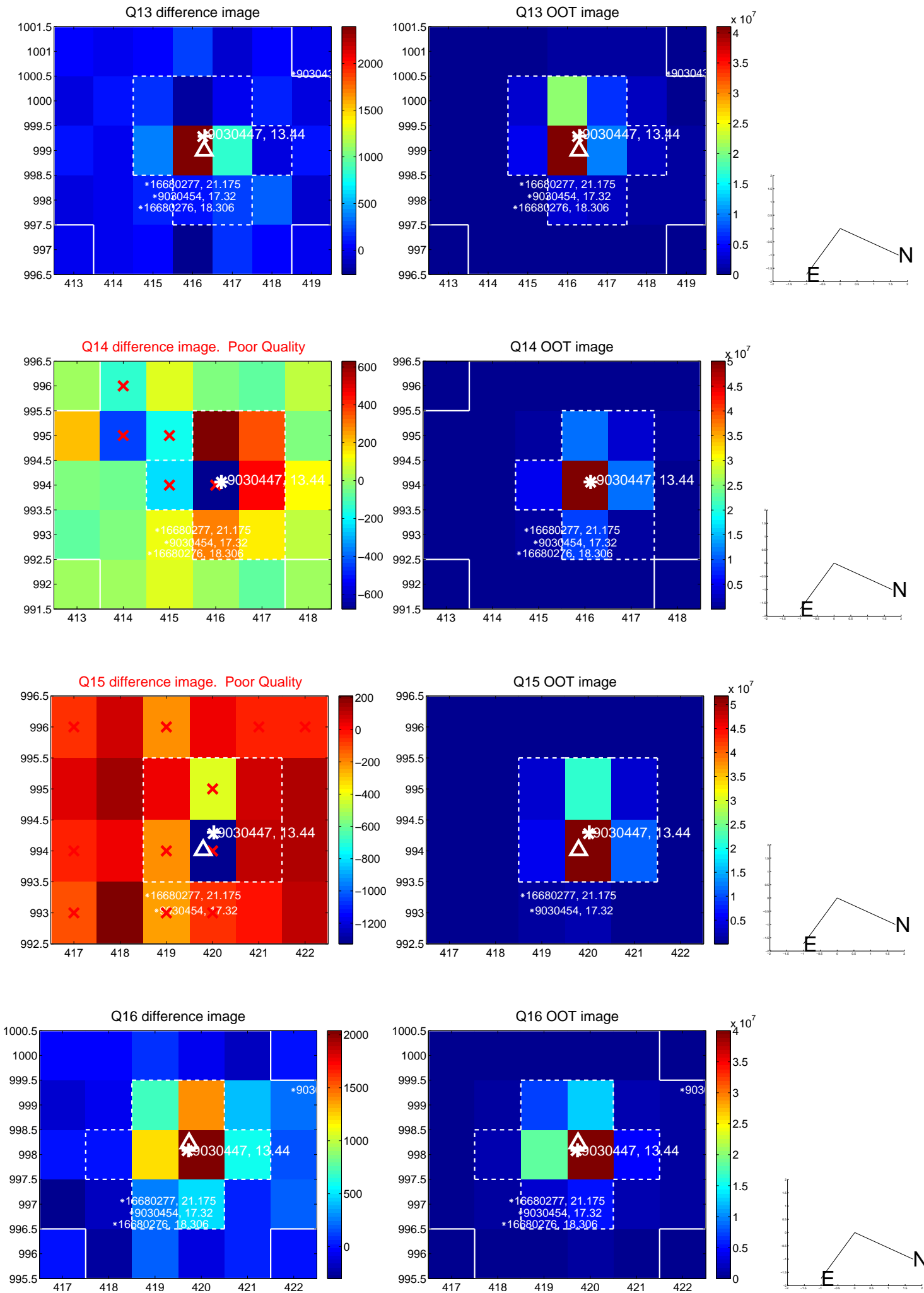
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



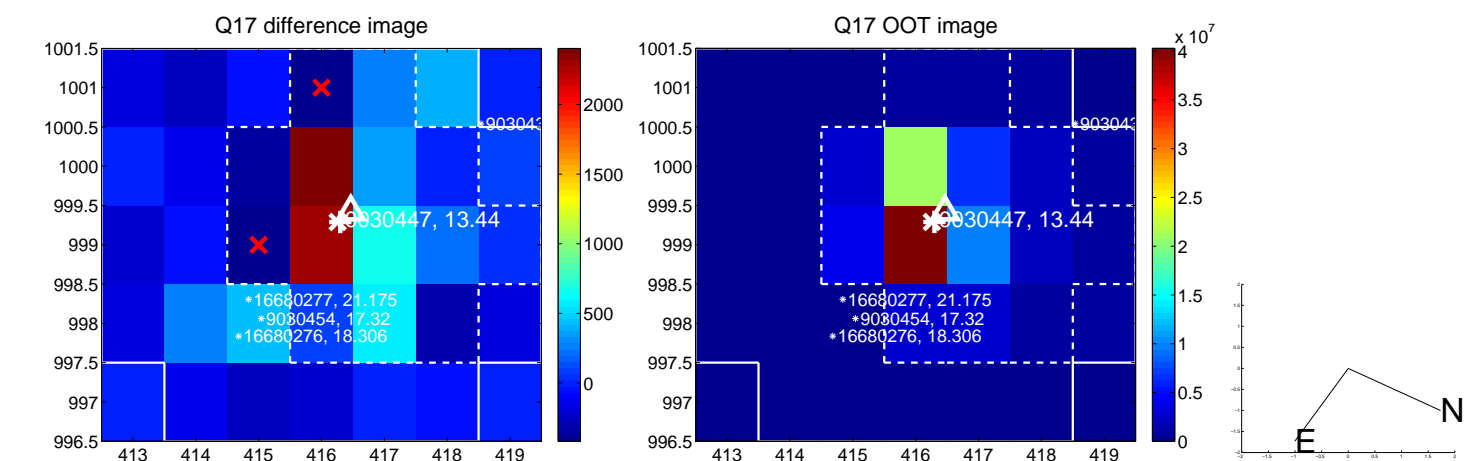
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



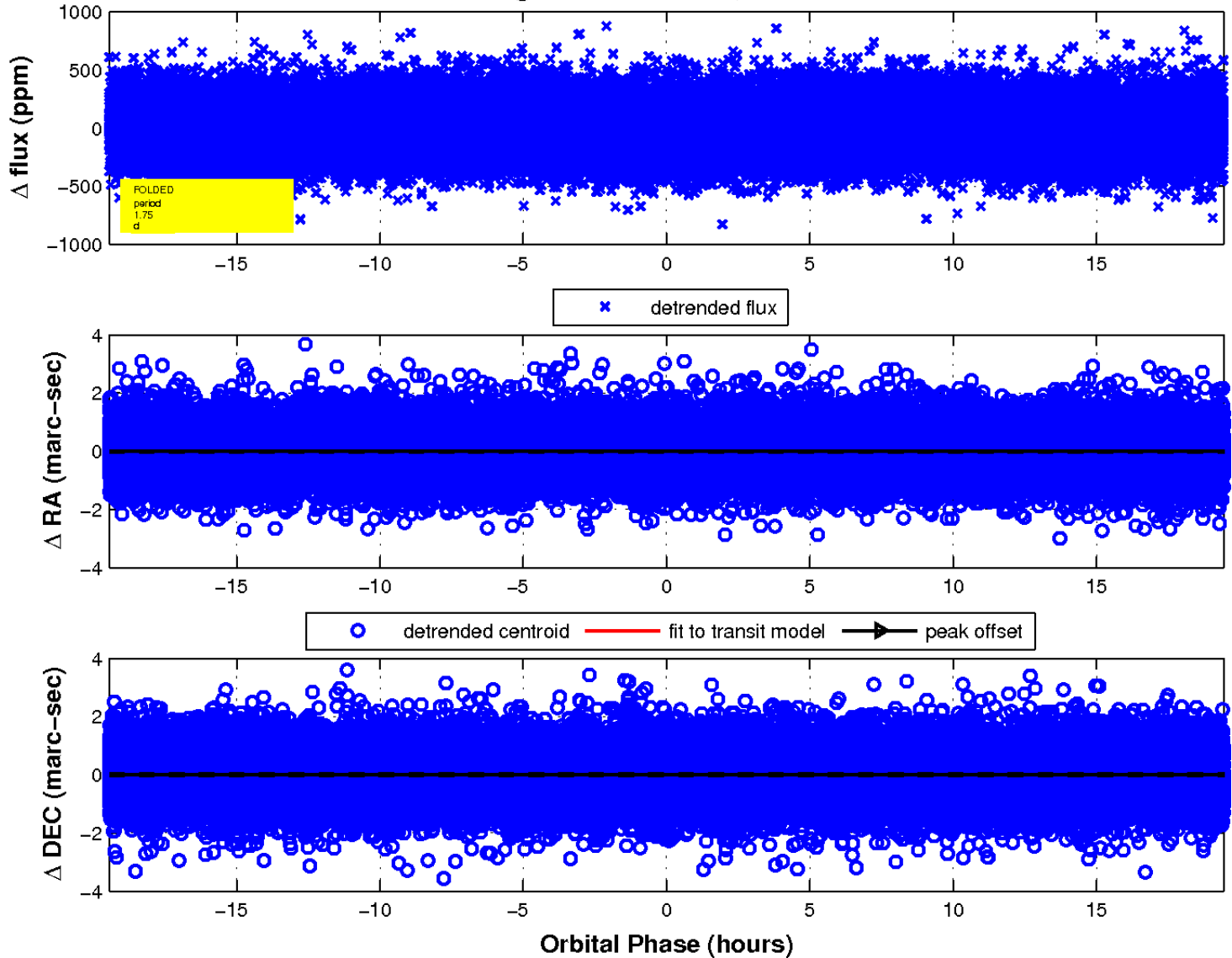
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

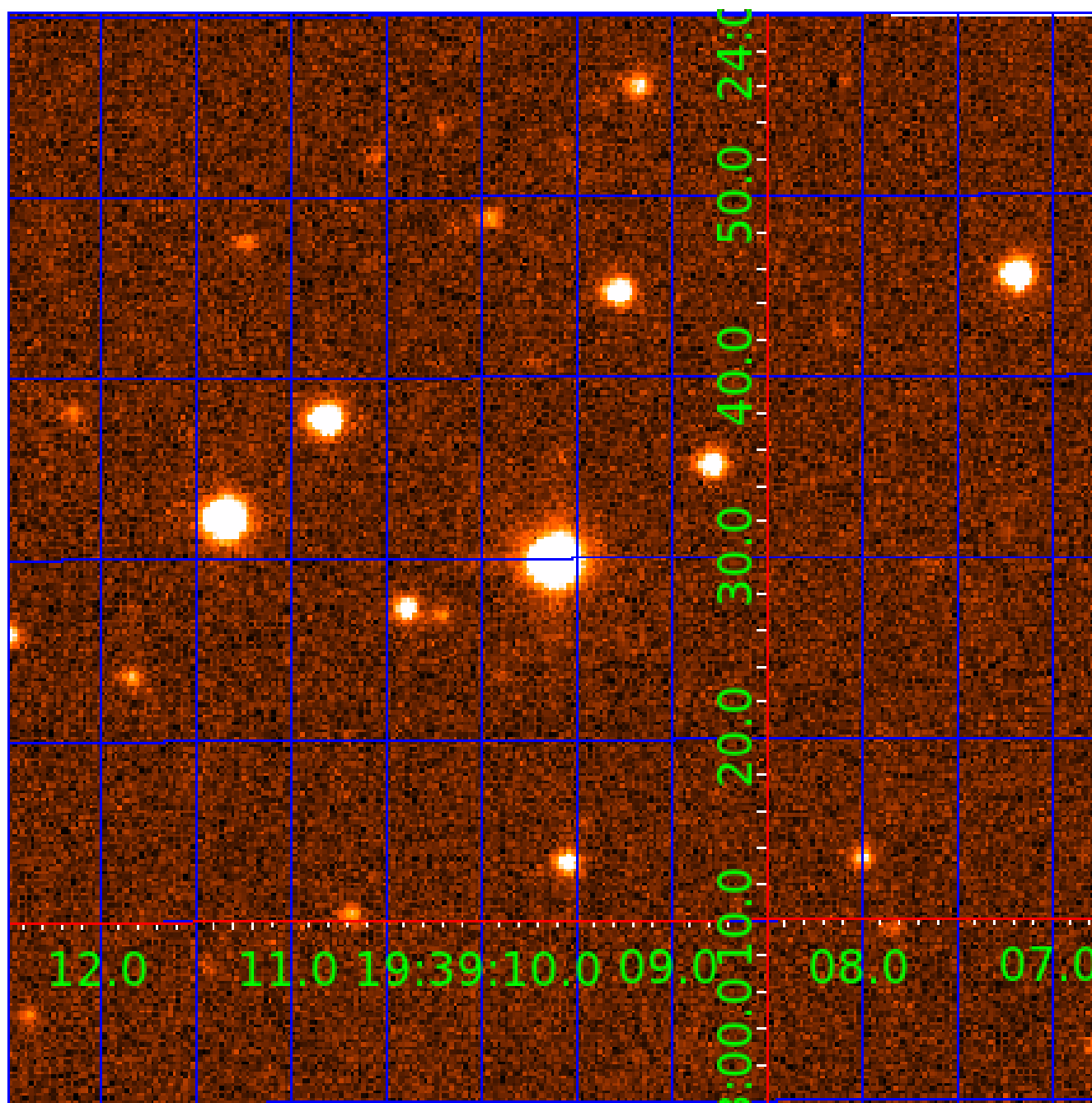


fluxWeightedCentroids, Planet 1 of 5



UKIRT Image

Declination



KIC 009030447

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})
009030447-01	OBS	No	1.751846	131.736321	20.7	6.479	7.7	7.1	3.41	6924	1.57	20370.45
009030447-02	OBS	No	301.539638	175.496539	359.2	15.674	10.9	7.1	3.41	6924	8.01	21.27
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Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009030447-01	OBS	FP	0.00	1	0	0	0	LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
009030447-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
009030447-03	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—INCONSISTENT_TRANS—HALO_GHOST
009030447-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL_TRACKER—LPP_DV—MOD_NONUNIQ_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
009030447-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_MEAS

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 009030447-02

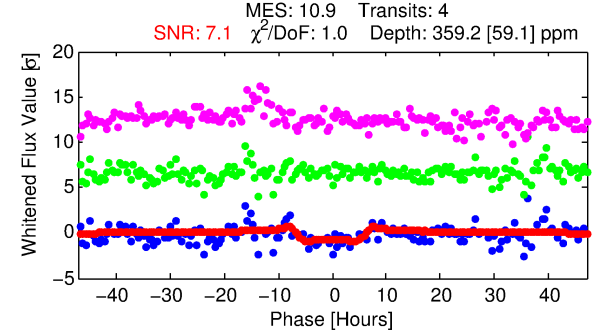
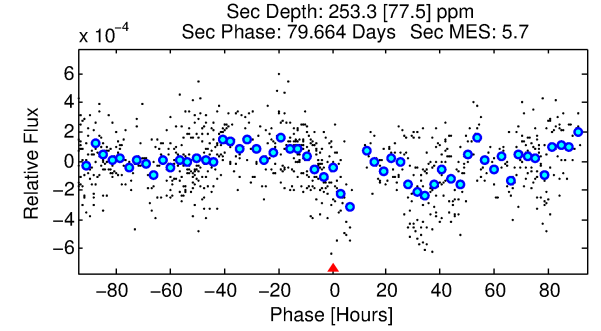
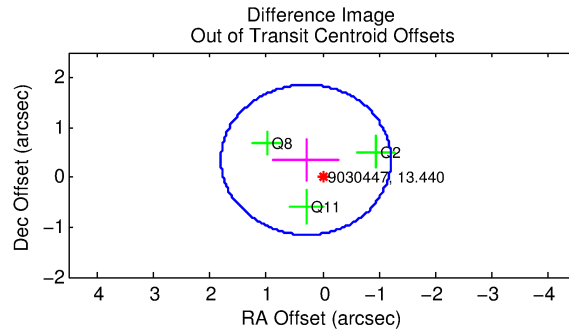
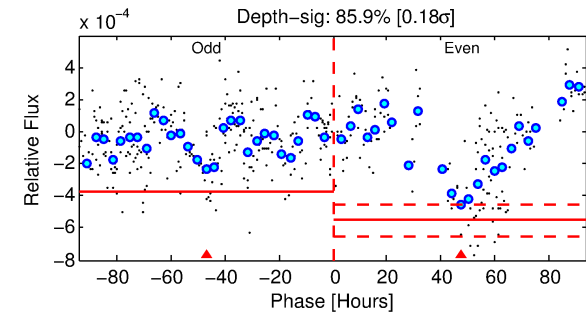
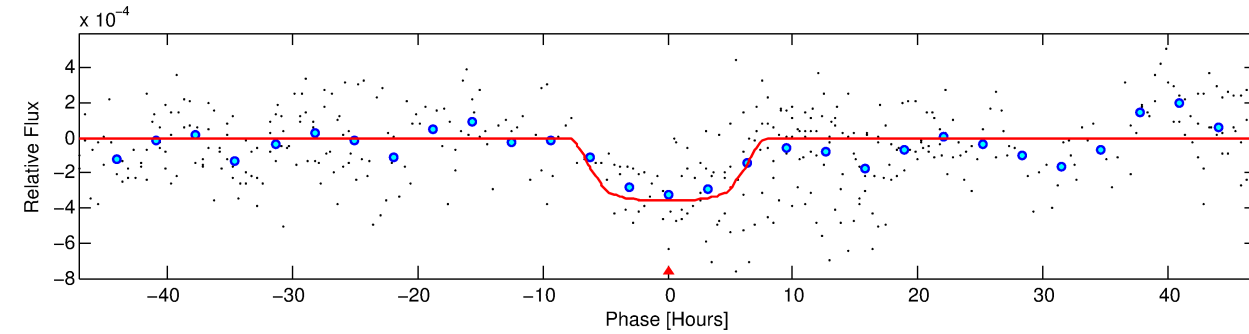
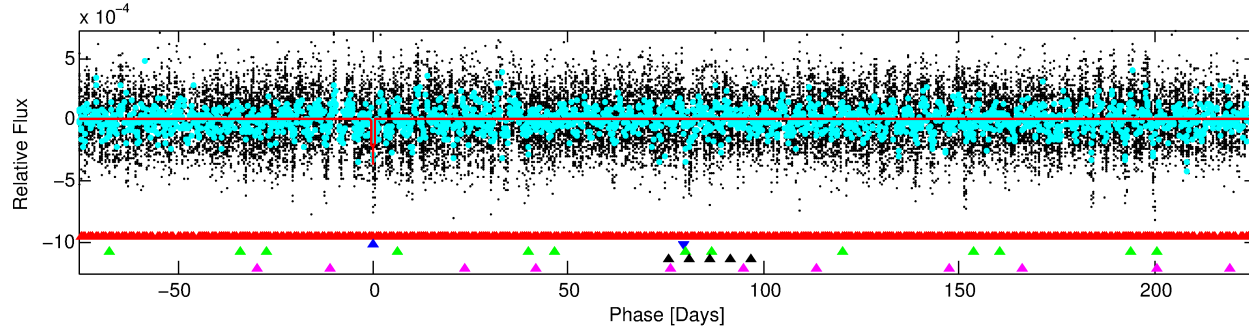
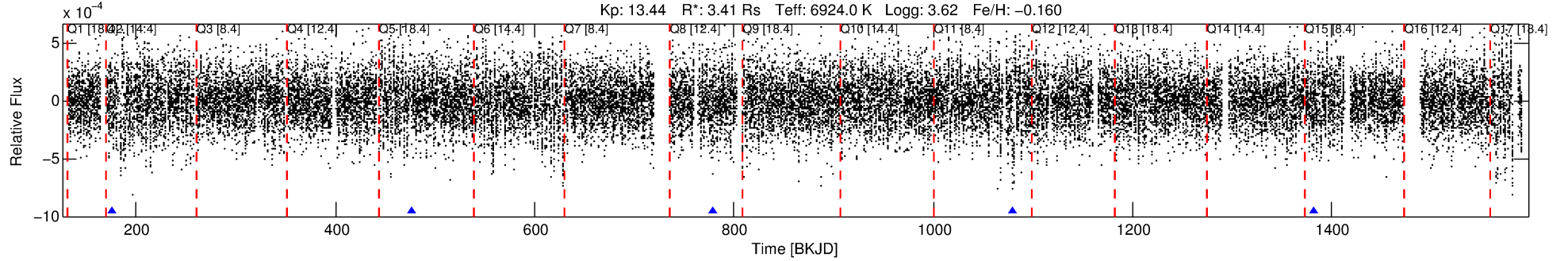
No Significant Match Found

DV One-Page Summary

KIC: 9030447 Candidate: 2 of 5 Period: 301.540 d

KOI: K01401 Corr: No Ephemeris Match

Kp: 13.44 R*: 3.41 Rs Teff: 6924.0 K Logg: 3.62 Fe/H: -0.160



DV Fit Results:

Period = 301.53964 [0.01425] d
Epoch = 175.4965 [0.0488] BKJD
Rp/R* = 0.0215 [0.0021]
a/R* = 52.70 [11.55]
b = 0.96 [0.02]
Seff = 21.27 [11.35]
Teq = 548 [73] K
Rp = 8.01 [2.98] Re
a = 1.0615 [0.3508] AU
Ag = 2446.76 [1535.53] [1.59σ]
Teffp = 5955 [578] K [9.29σ]

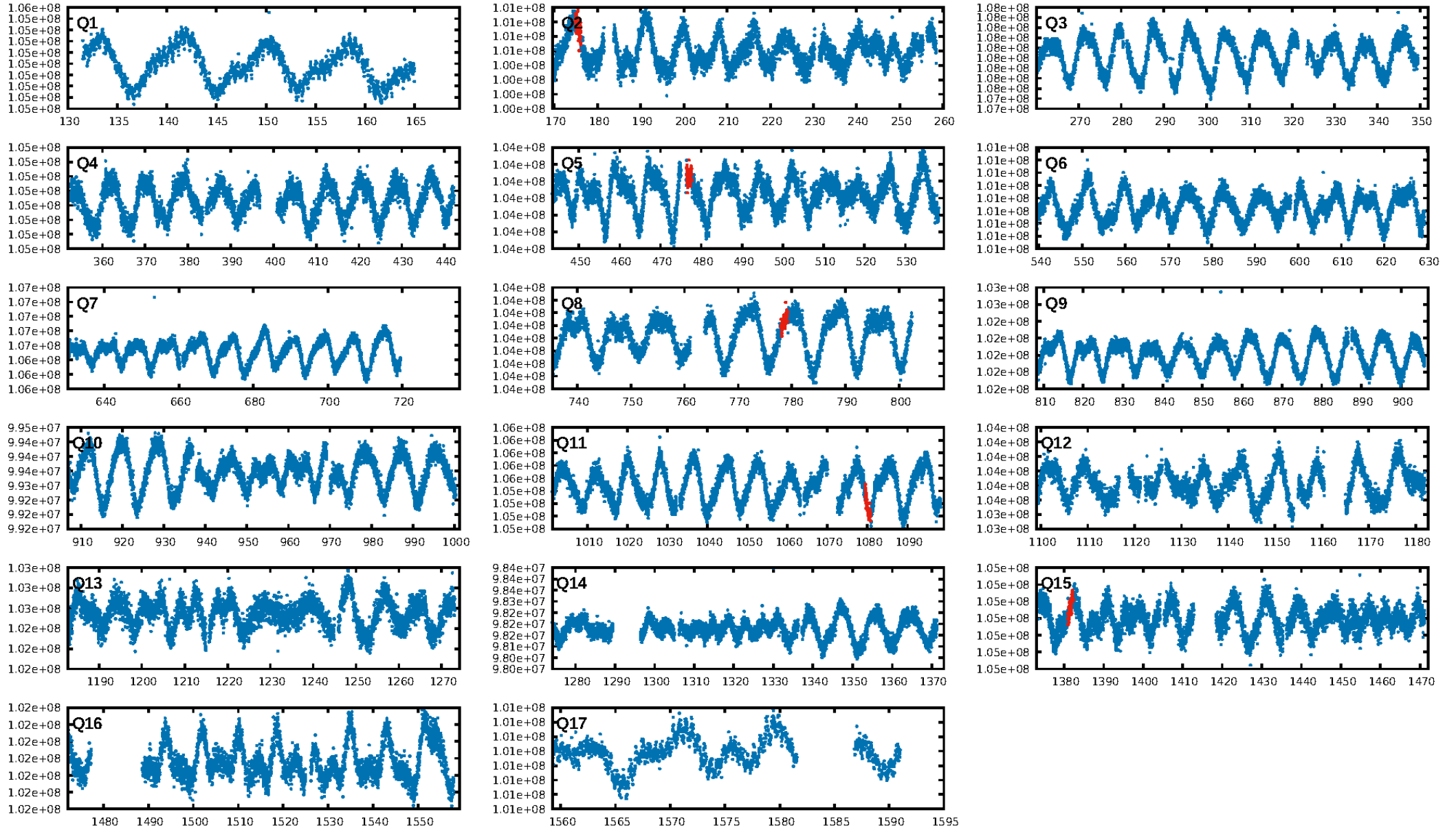
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [250.59σ]
LongPeriod-sig: 100.0% [7.13σ]
ModelChiSquare2-sig: 2.3%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 2.46e-17
RollingBand-fgt: 1.00 [4/4]
GhostDiagnostic-chr: -3.369
Centroid-sig: 0.3%
Centroid-so: 0.904 arcsec [1.71σ]
OotOffset-rm: 0.455 arcsec [0.91σ]
KicOffset-rm: 0.464 arcsec [0.95σ]
OotOffset-st: 1/1/1/0 [3]
KicOffset-st: 1/1/1/0 [3]
DiffImageQuality-fgm: 0.33 [1/3]
DiffImageOverlap-fno: 0.00 [0/4]

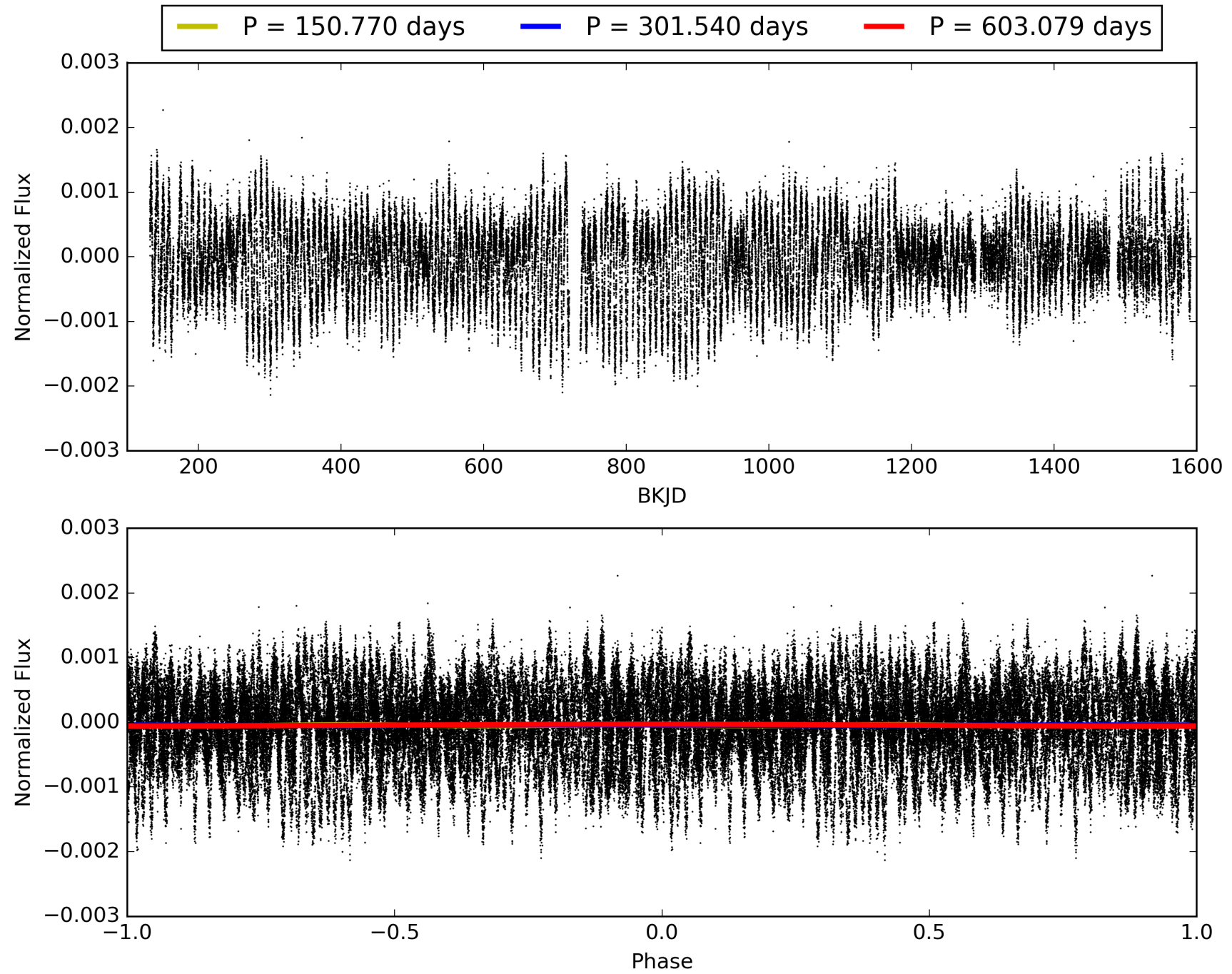
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 02-Feb-2016 17:20:23 Z

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

TCE 009030447-02, PDC Light Curves

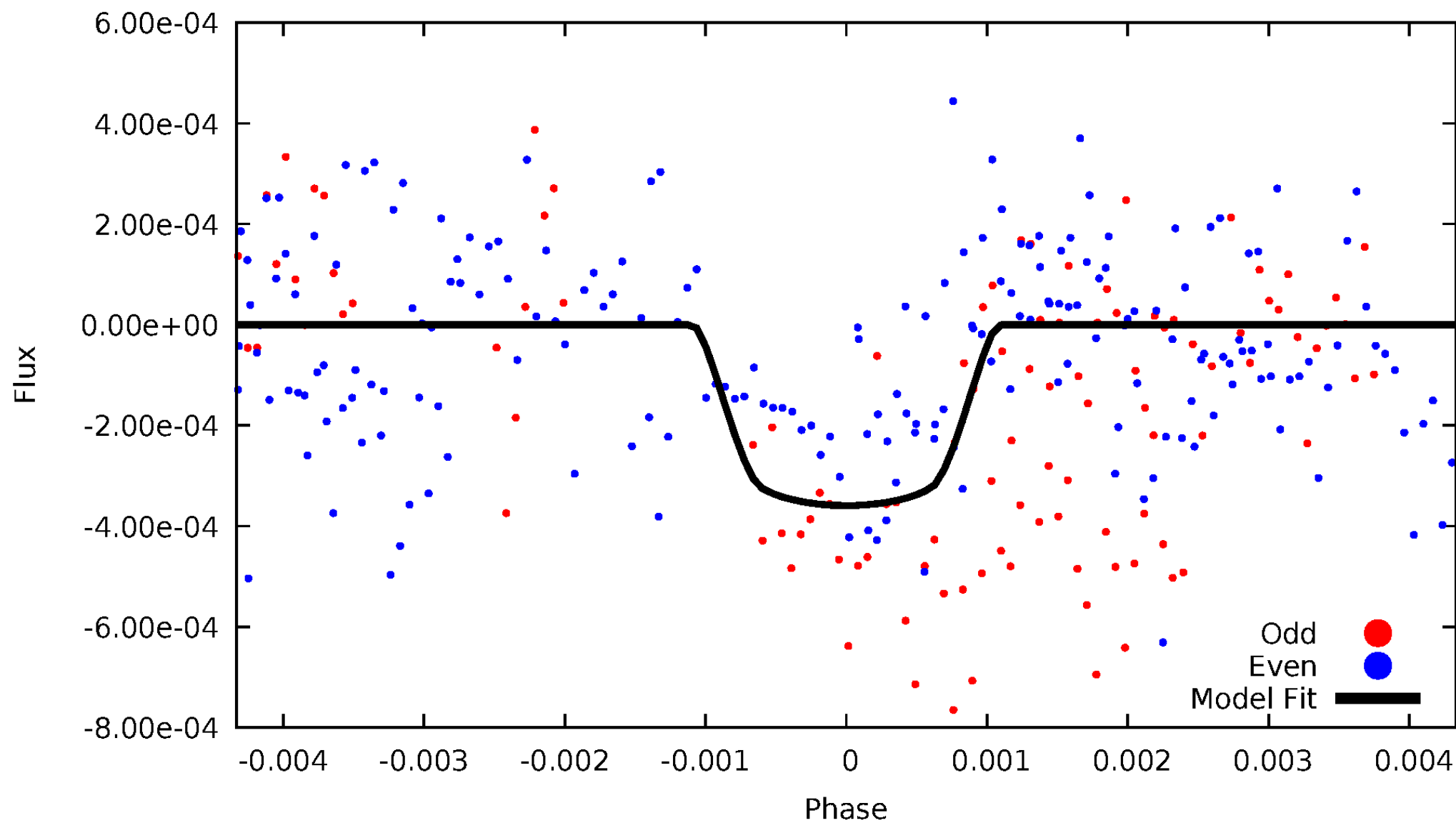


TCE 009030447-02



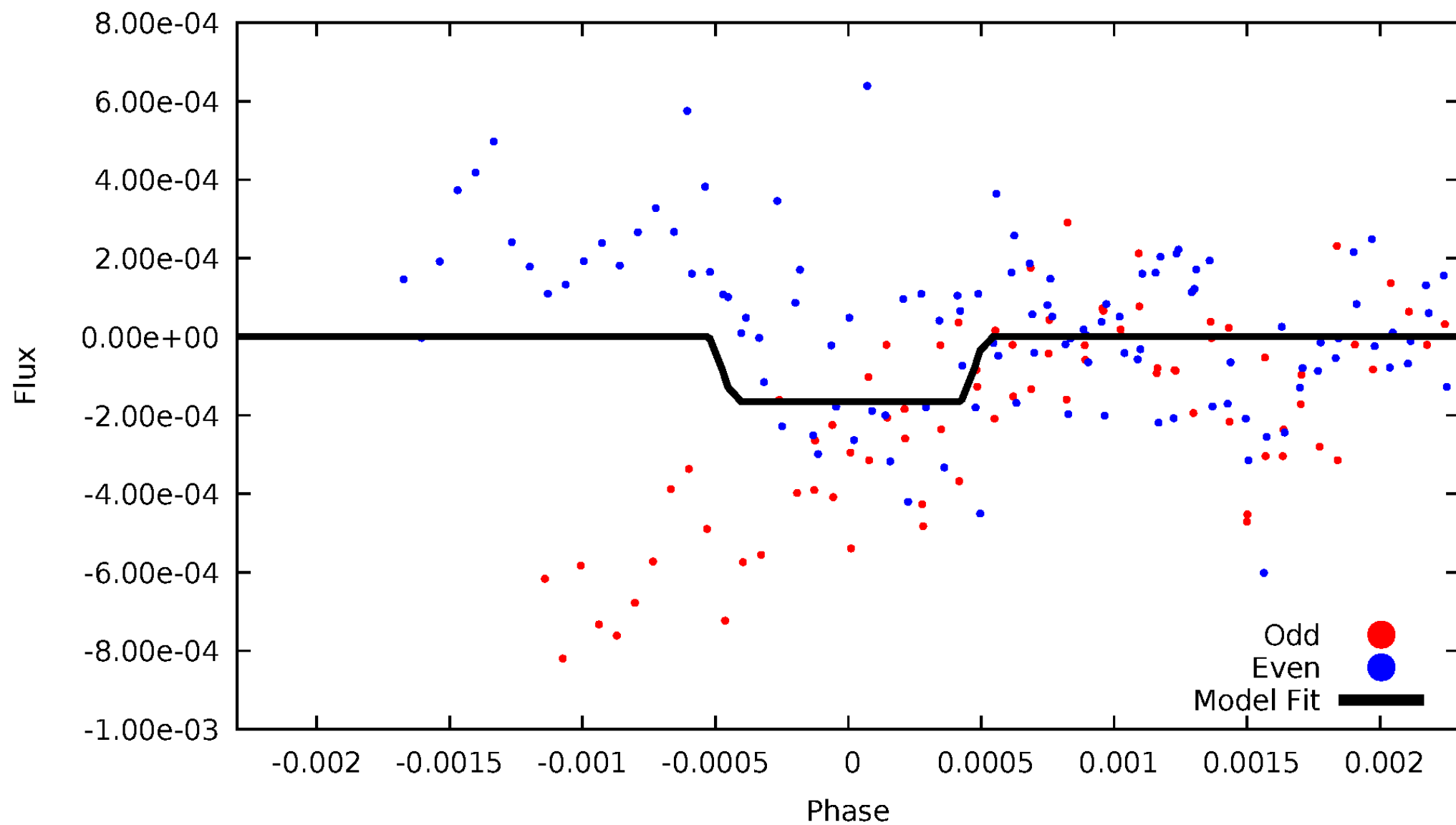
DV Odd/Even

TCE 009030447-02



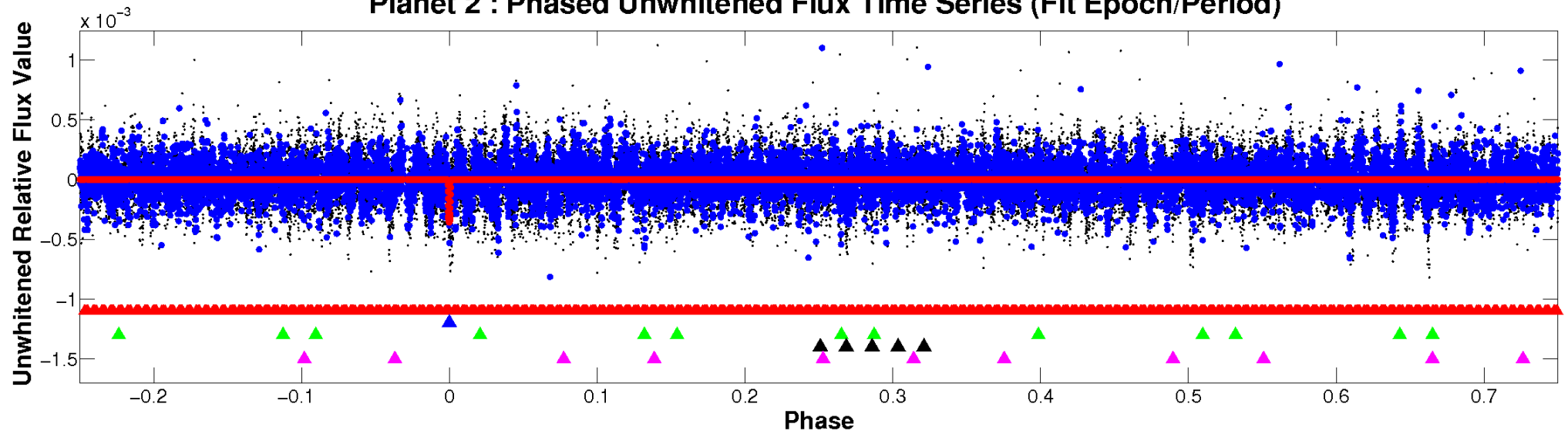
ALT Odd/Even

TCE 009030447-02

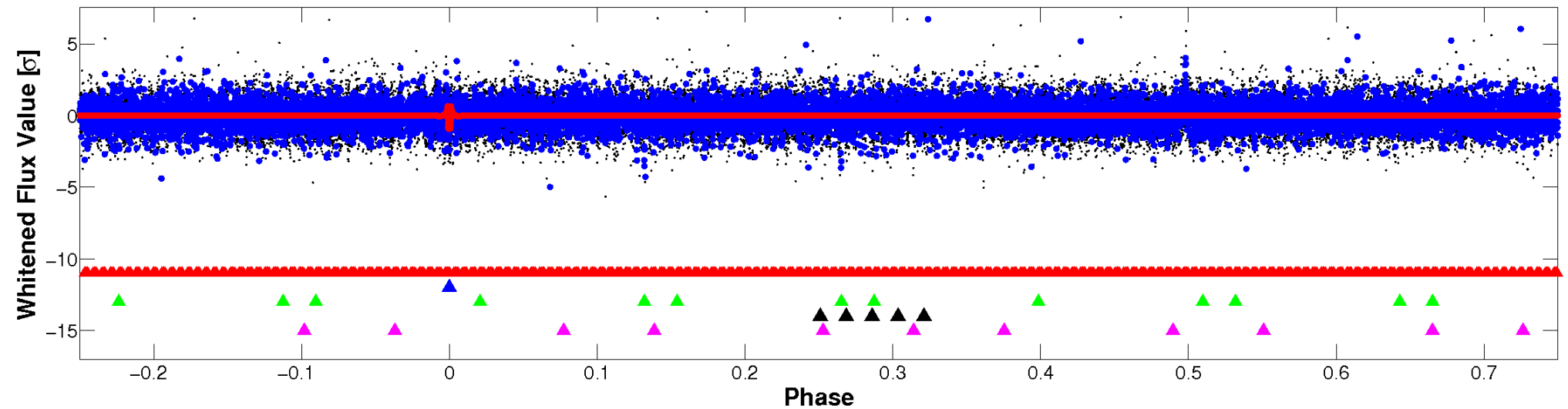


Non-Whitened Vs. Whitened Light Curve

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

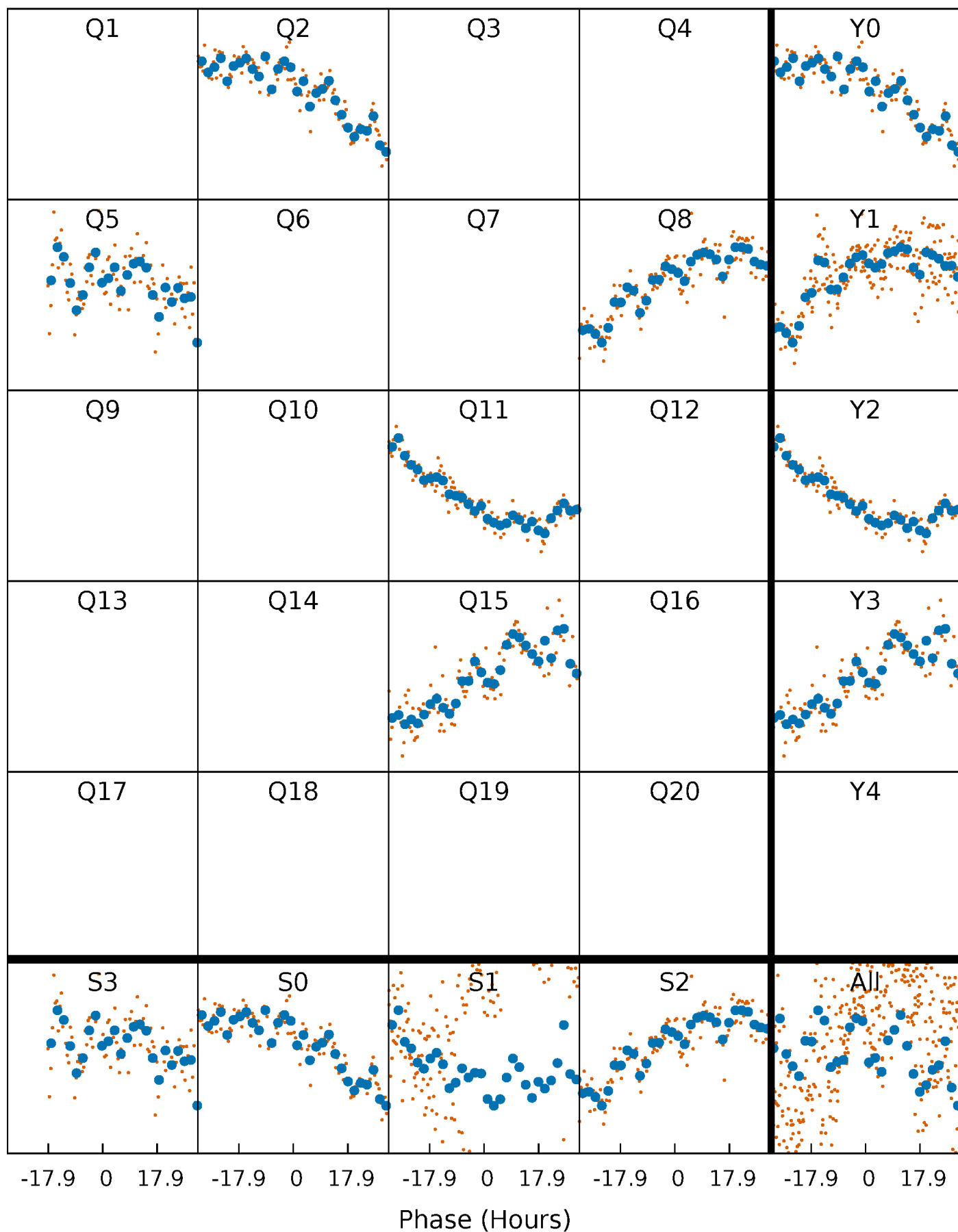


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



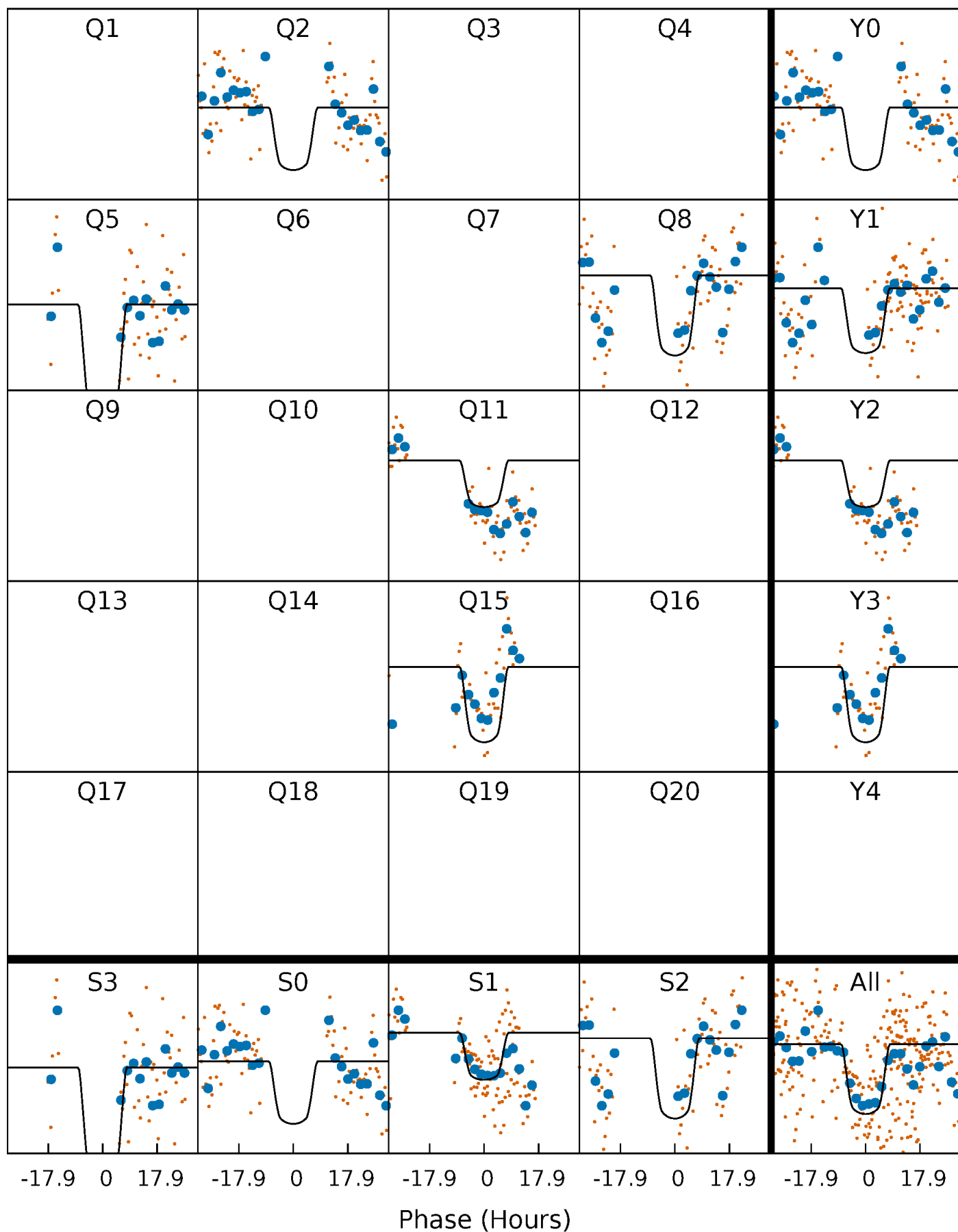
PDC Quarter-Phased Transit Curves

TCE 009030447-02 P=301.539638 Days $T_0=175.496539$ (BKJD)



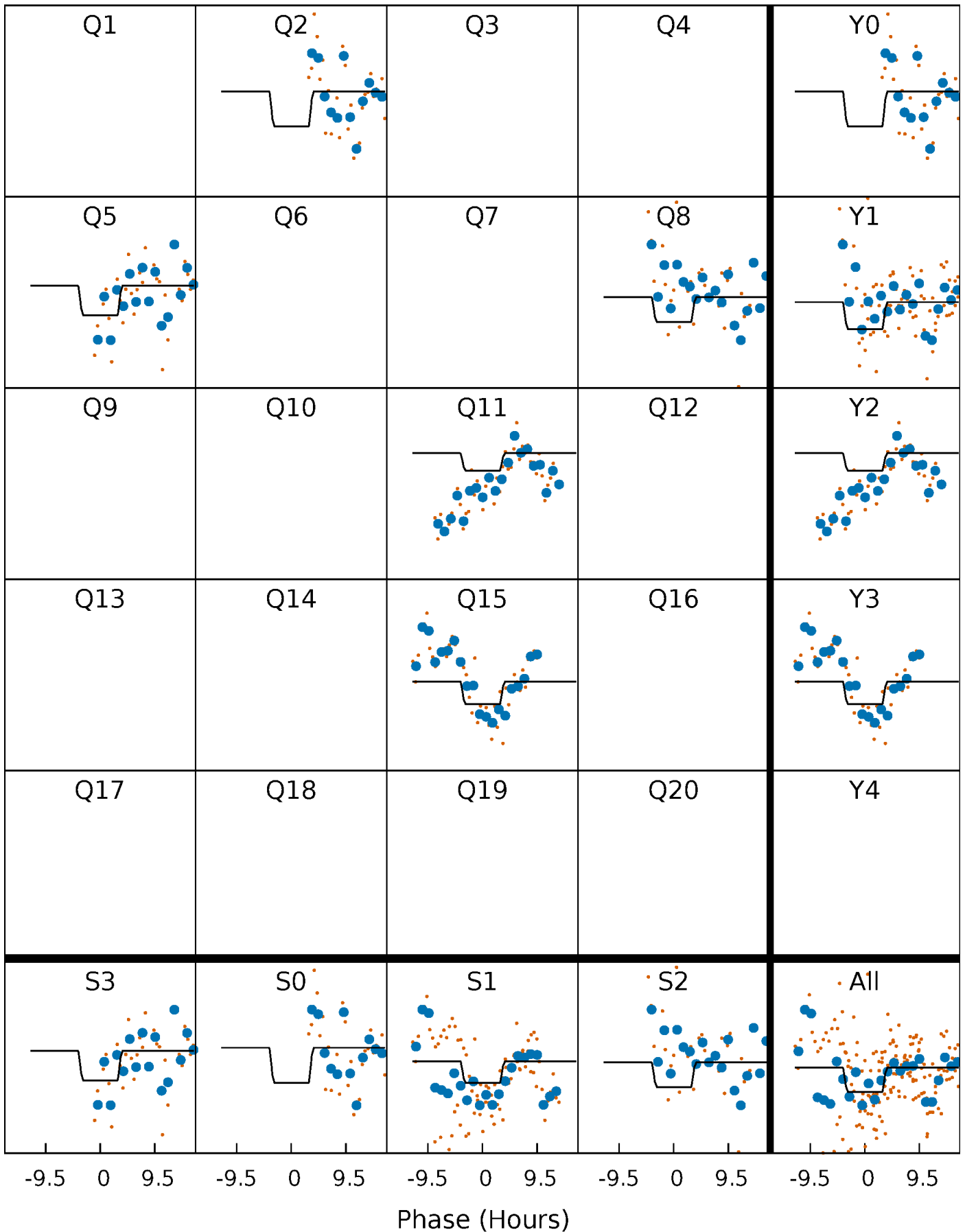
DV Quarter-Phased Transit Curves

TCE 009030447-02 $P=301.539638$ Days $T_0=175.496539$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

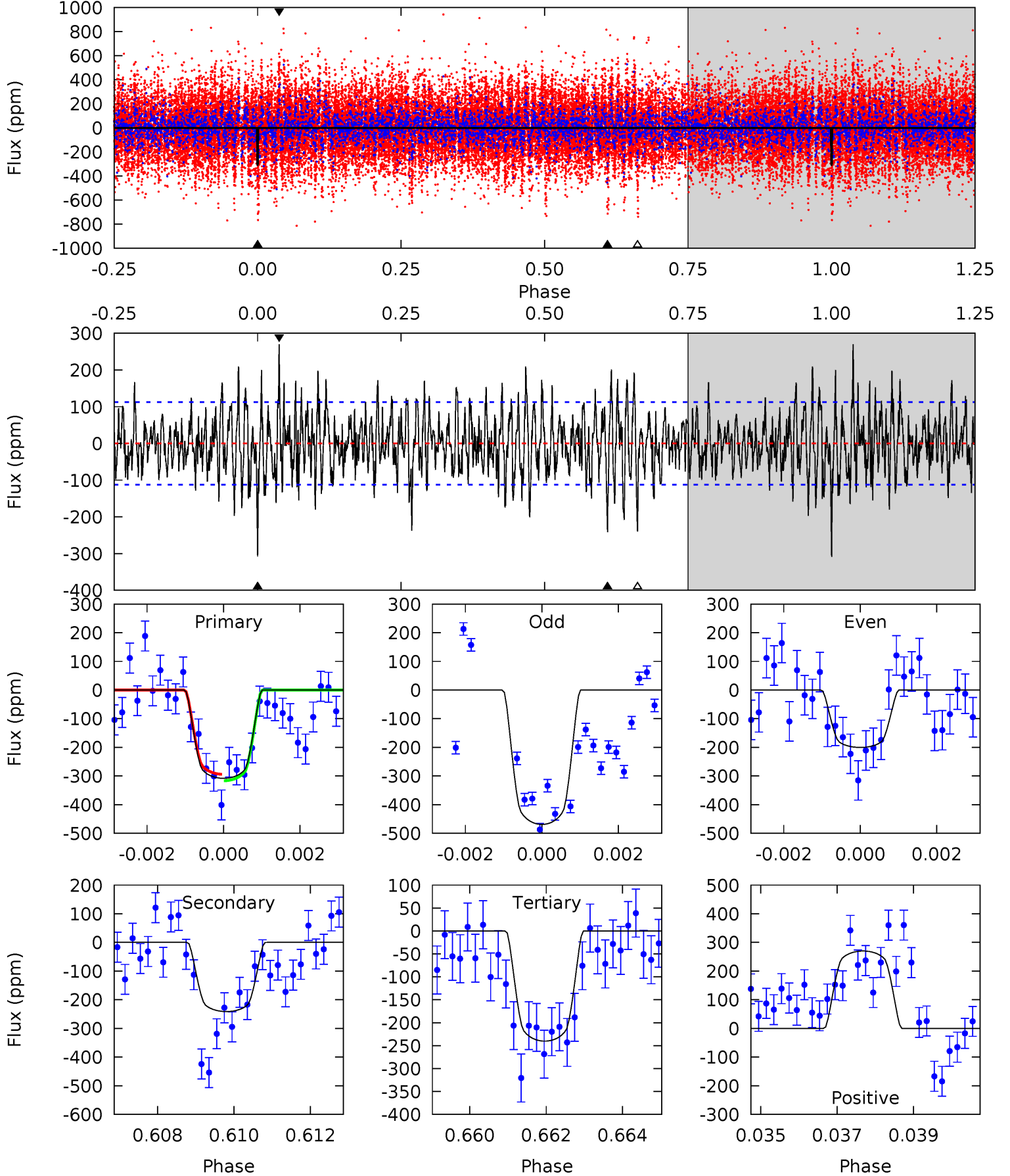
TCE 009030447-02 $P=301.476744$ Days $T_0=175.829783$ (BKJD)



DV Model-Shift Uniqueness Test

009030447-02, P = 301.539638 Days, E = 175.496539 Days

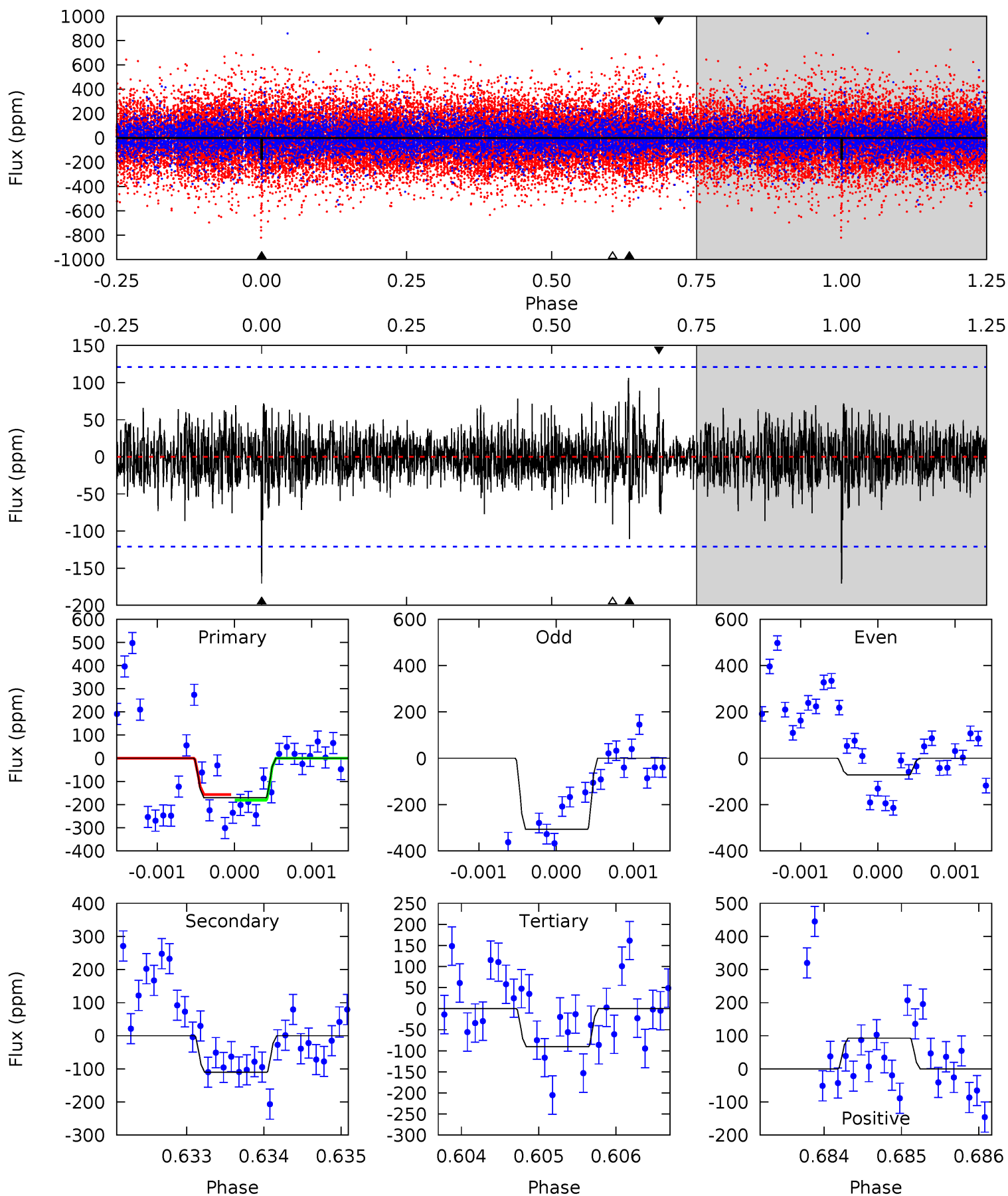
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
14.5	11.4	11.3	12.7	5.31	3.07	3.36	3.21	1.80	0.05	-1.36	6.19	1.18	0.47	0.49



Alt Model-Shift Uniqueness Test

009030447-02, P = 301.476744 Days, E = 175.829783 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
7.68	4.98	4.08	4.18	5.45	3.29	1.02	3.60	3.50	0.89	0.80	5.31	0.66	0.38	0.54



Stellar Parameters For KIC 009030447

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6924^{+186}_{-249}	$3.616^{+0.296}_{-0.056}$	$-0.160^{+0.300}_{-0.250}$	$3.412^{+0.409}_{-1.228}$	$1.755^{+0.183}_{-0.339}$	$0.062^{+0.136}_{-0.011}$
	+3%/-4%	+8%/-2%	+188%/-156%	+12%/-36%	+10%/-19%	+219%/-18%
Source	PHO1	FLK73	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 009030447-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-241 ± 21	$7.51^{+1.26}_{-1.44}$	741^{+41}_{-63}	5819^{+383}_{-315}	2638^{+1347}_{-643}
Alt.	-110 ± 22	$4.43^{+0.96}_{-0.90}$	743^{+42}_{-62}	6171^{+748}_{-506}	3425^{+2331}_{-1125}

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

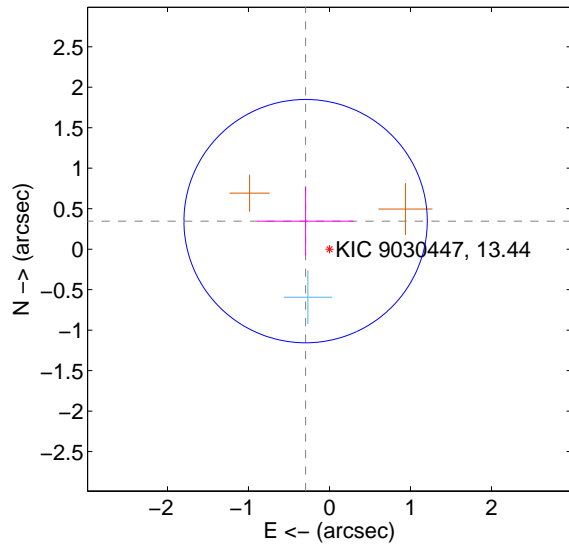
Supplemental centroid analysis for 009030447-02. Kepler magnitude: 13.44. Transit SNR 7.06

There are 1 quarters with good PRF difference image offsets

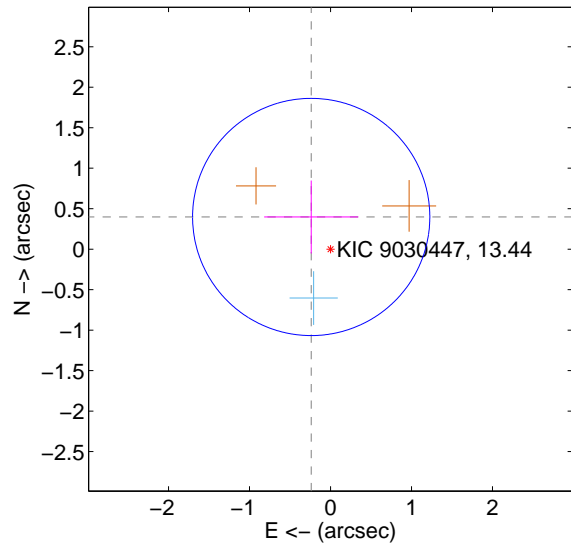
The direct PRF centroid is offset from the target star catalog position by about 0.06 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.455 ± 0.501	0.91	0.295 ± 0.592	0.346 ± 0.423
PRF-fit source offset from KIC position	0.464 ± 0.488	0.95	0.239 ± 0.582	0.398 ± 0.450
photometric centroid source offset	0.90 ± 0.53	1.71	0.57 ± 0.47	-0.70 ± 0.57

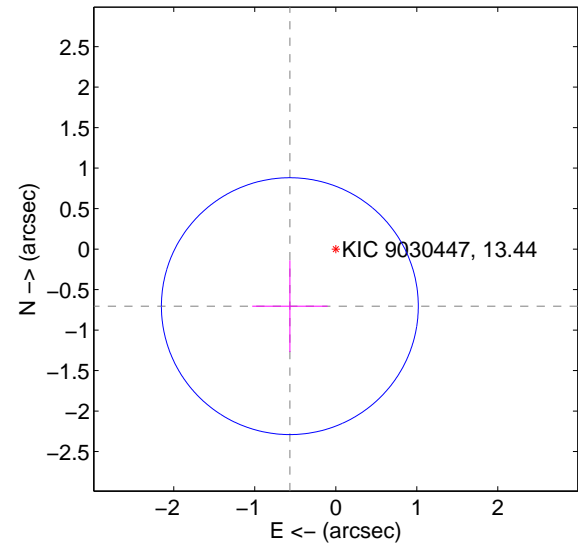
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position



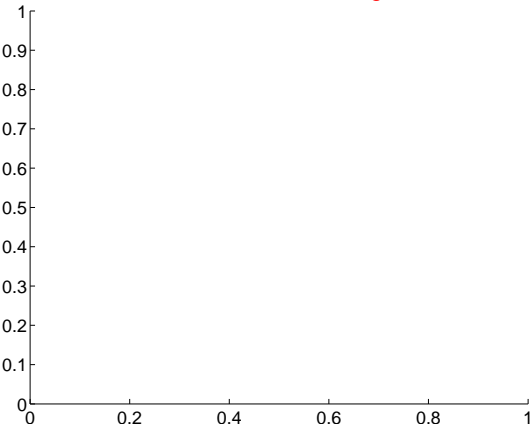
offset from photometric centroids



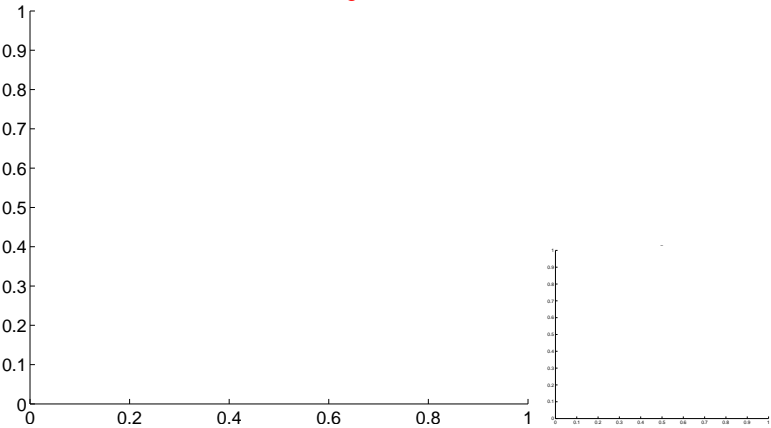
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

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

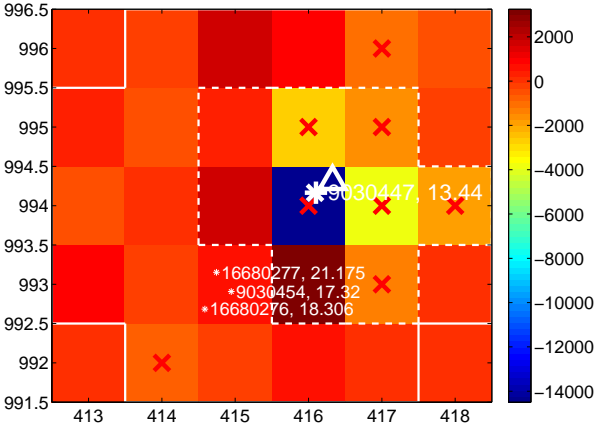
Q1 no difference image



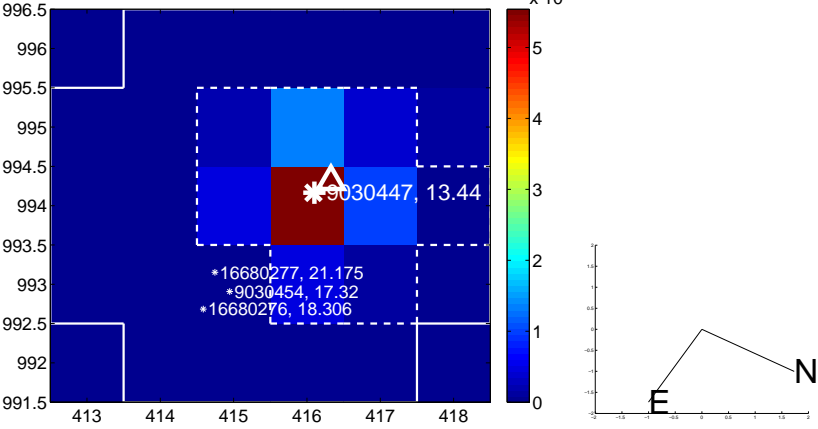
Q1 no OOT image



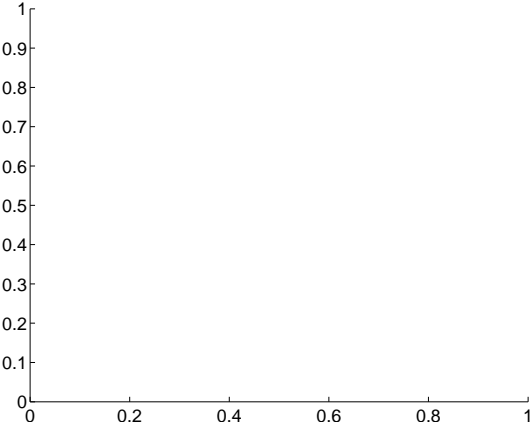
Q2 difference image. Poor Quality



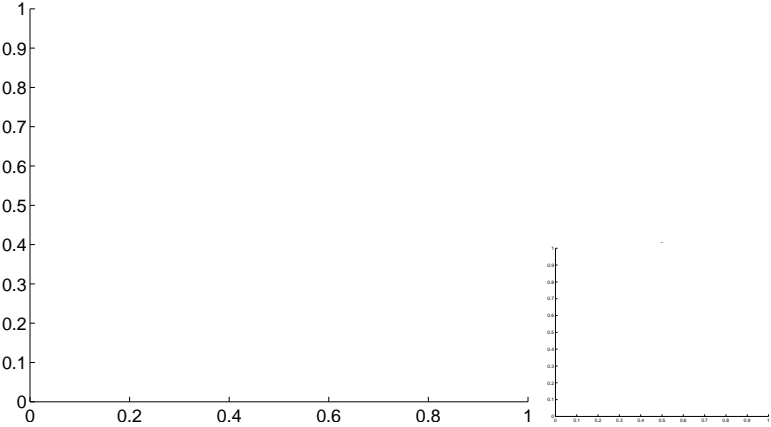
Q2 OOT image



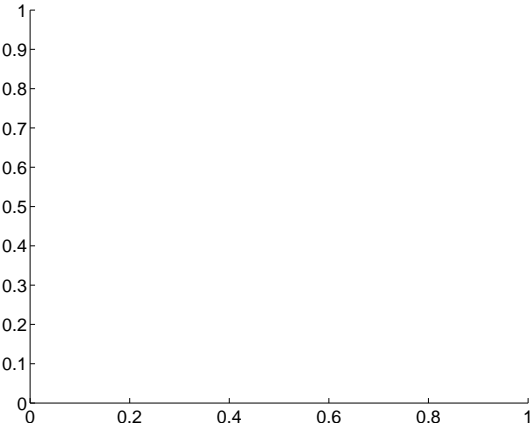
Q3 no difference image



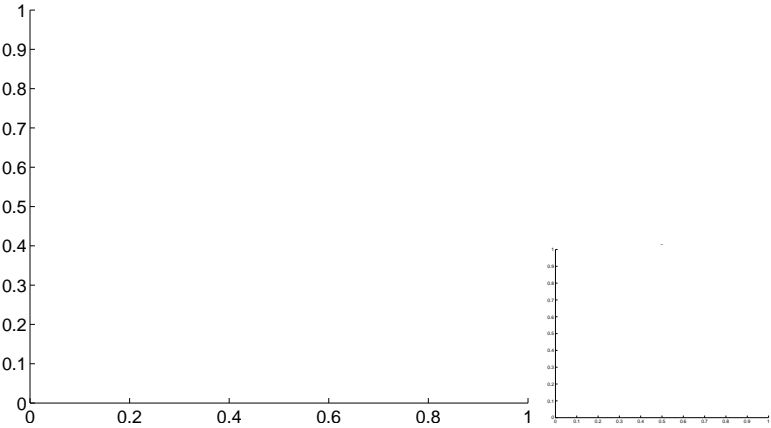
Q3 no OOT image



Q4 no difference image

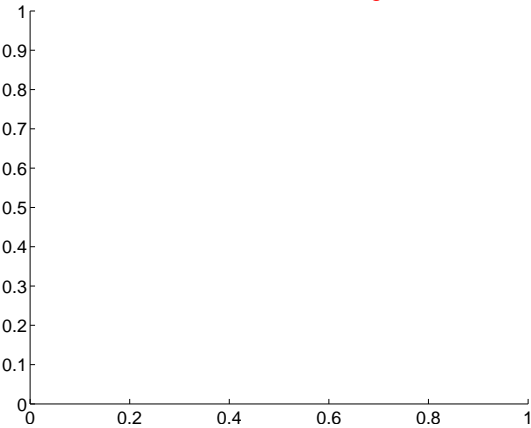


Q4 no OOT image

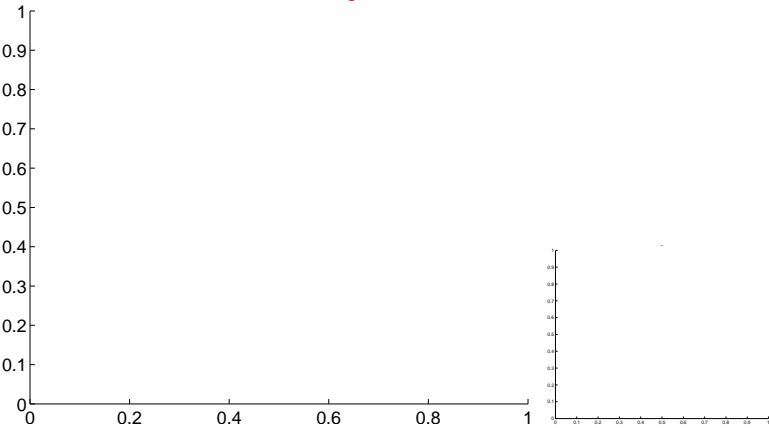


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.

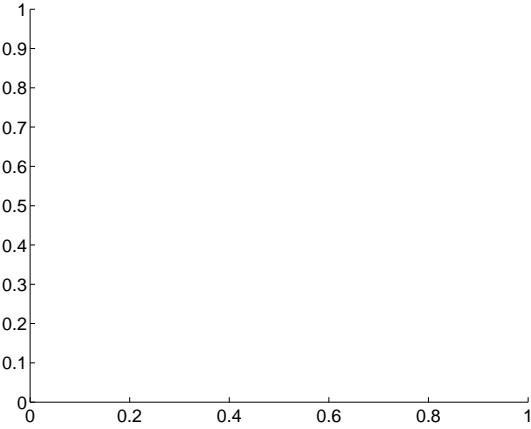
Q5 no difference image



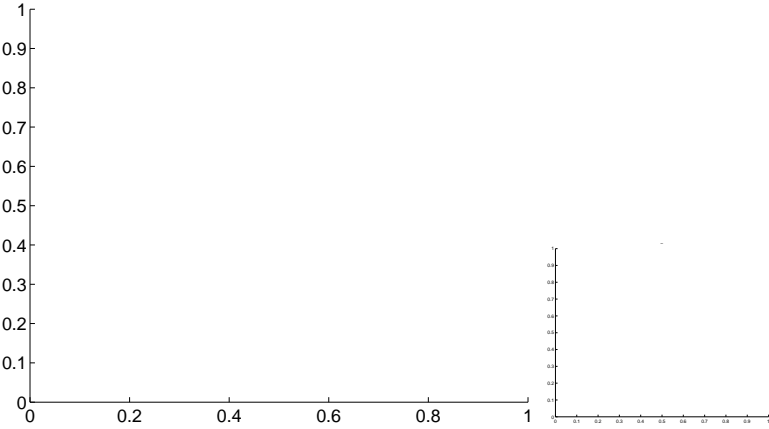
Q5 no OOT image



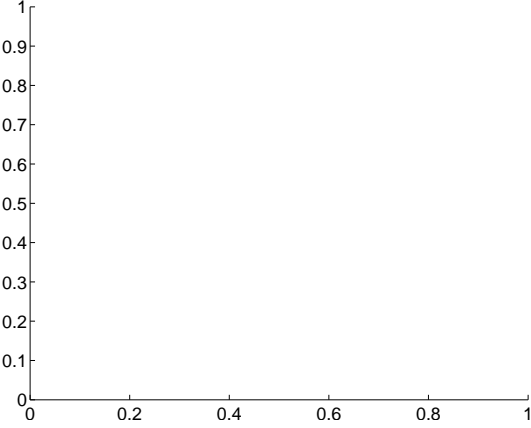
Q6 no difference image



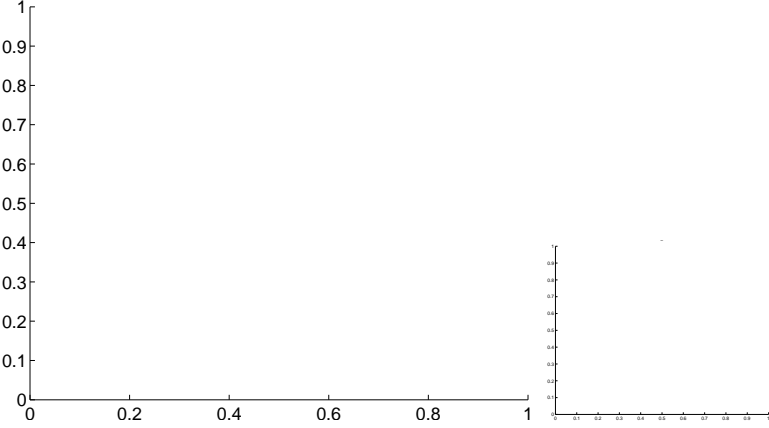
Q6 no OOT image



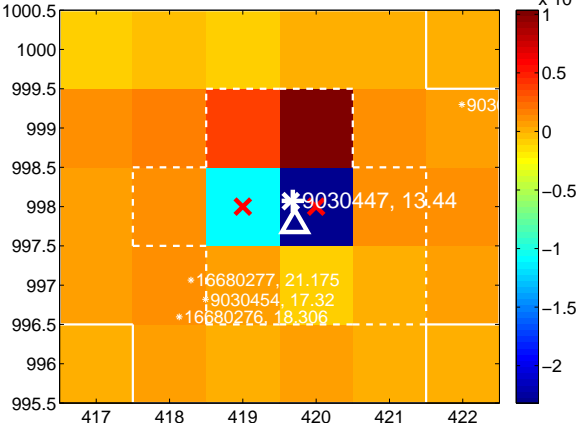
Q7 no difference image



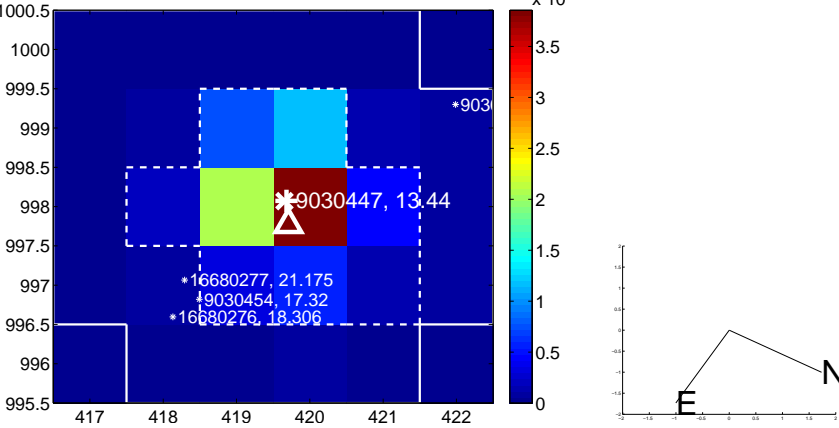
Q7 no OOT image



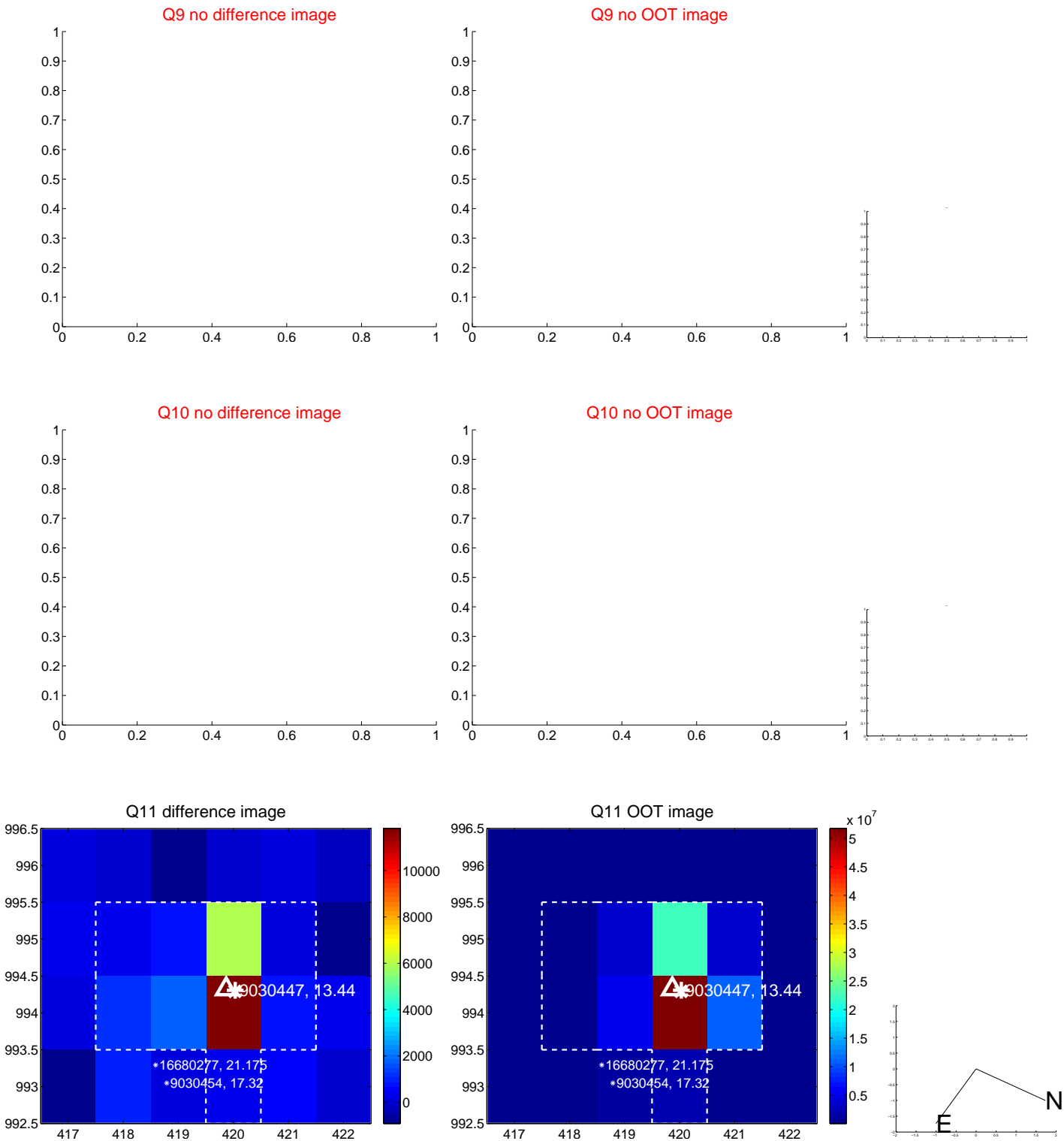
Q8 difference image. Poor Quality



Q8 OOT image

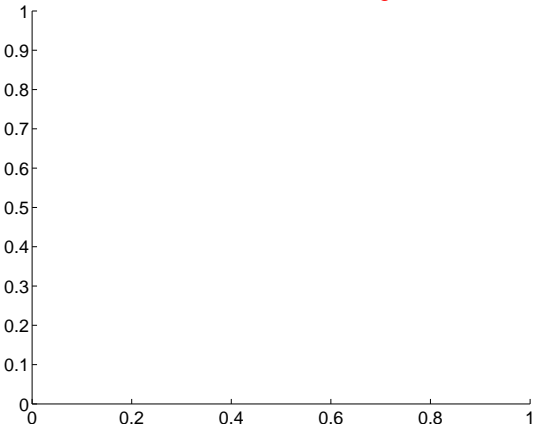


white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.

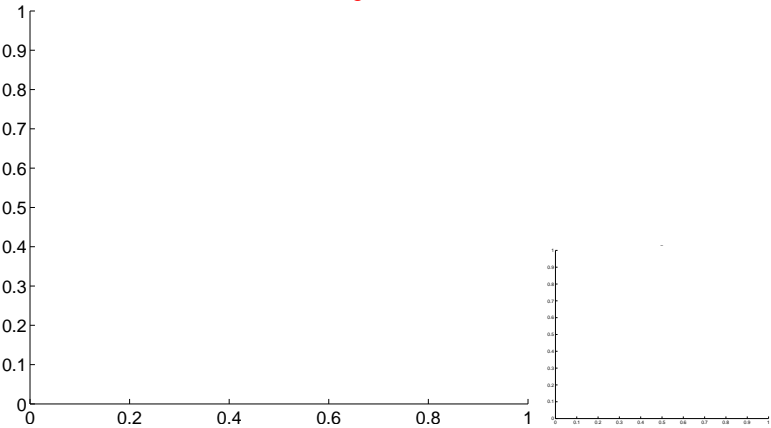


white ×: KIC target position; +: OOT centroid; △: difference centroid. red ✕: large negative pixel value.

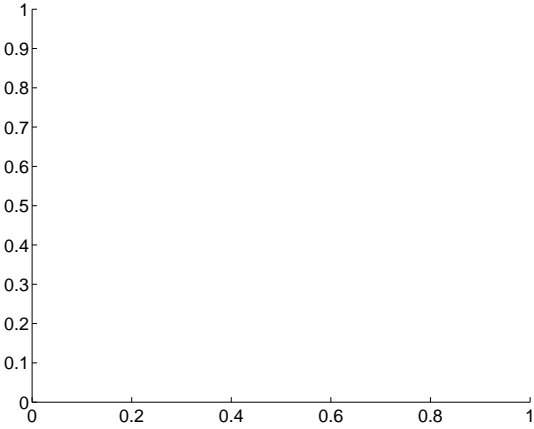
Q13 no difference image



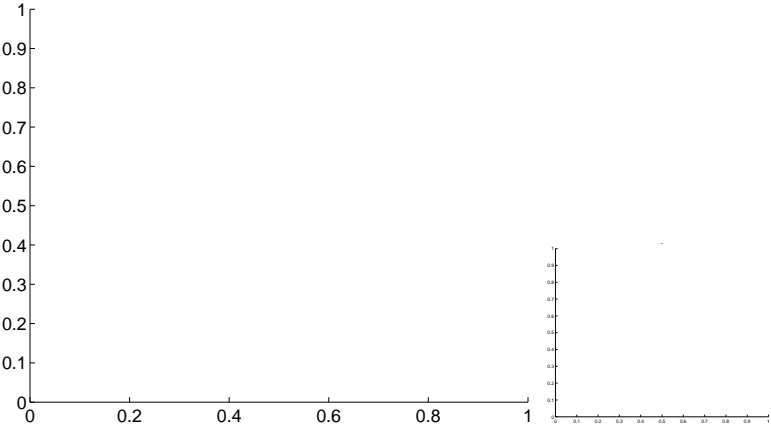
Q13 no OOT image



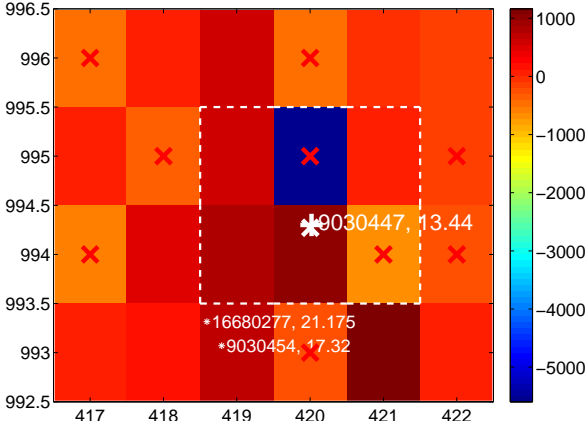
Q14 no difference image



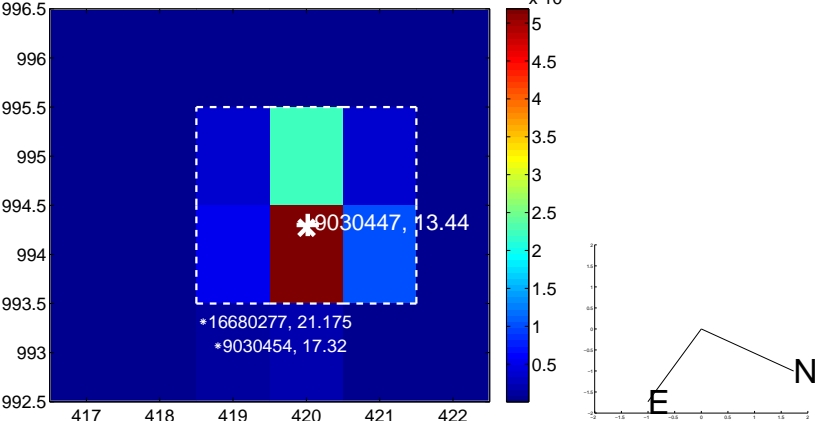
Q14 no OOT image



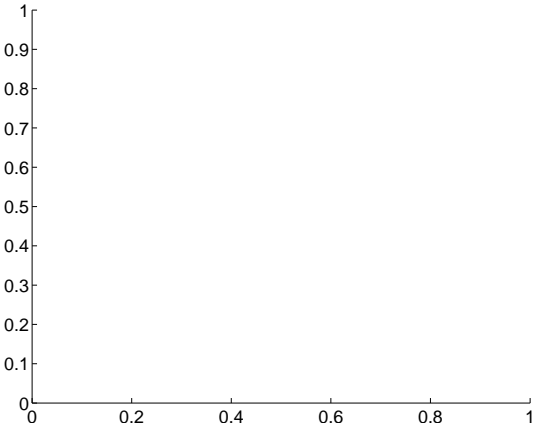
Q15 difference image. Poor Quality



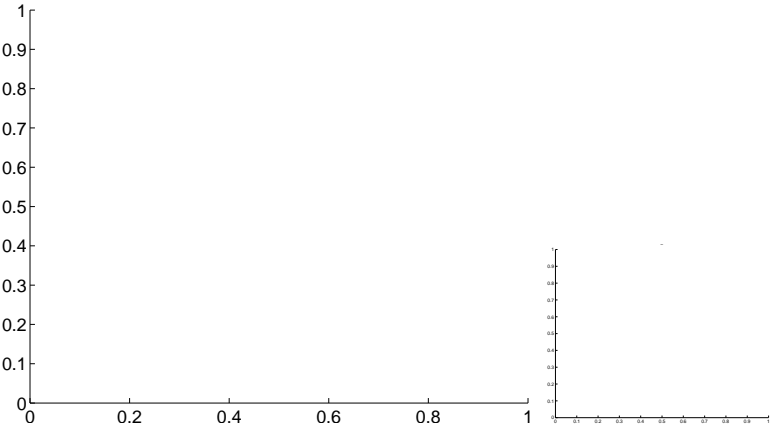
Q15 OOT image



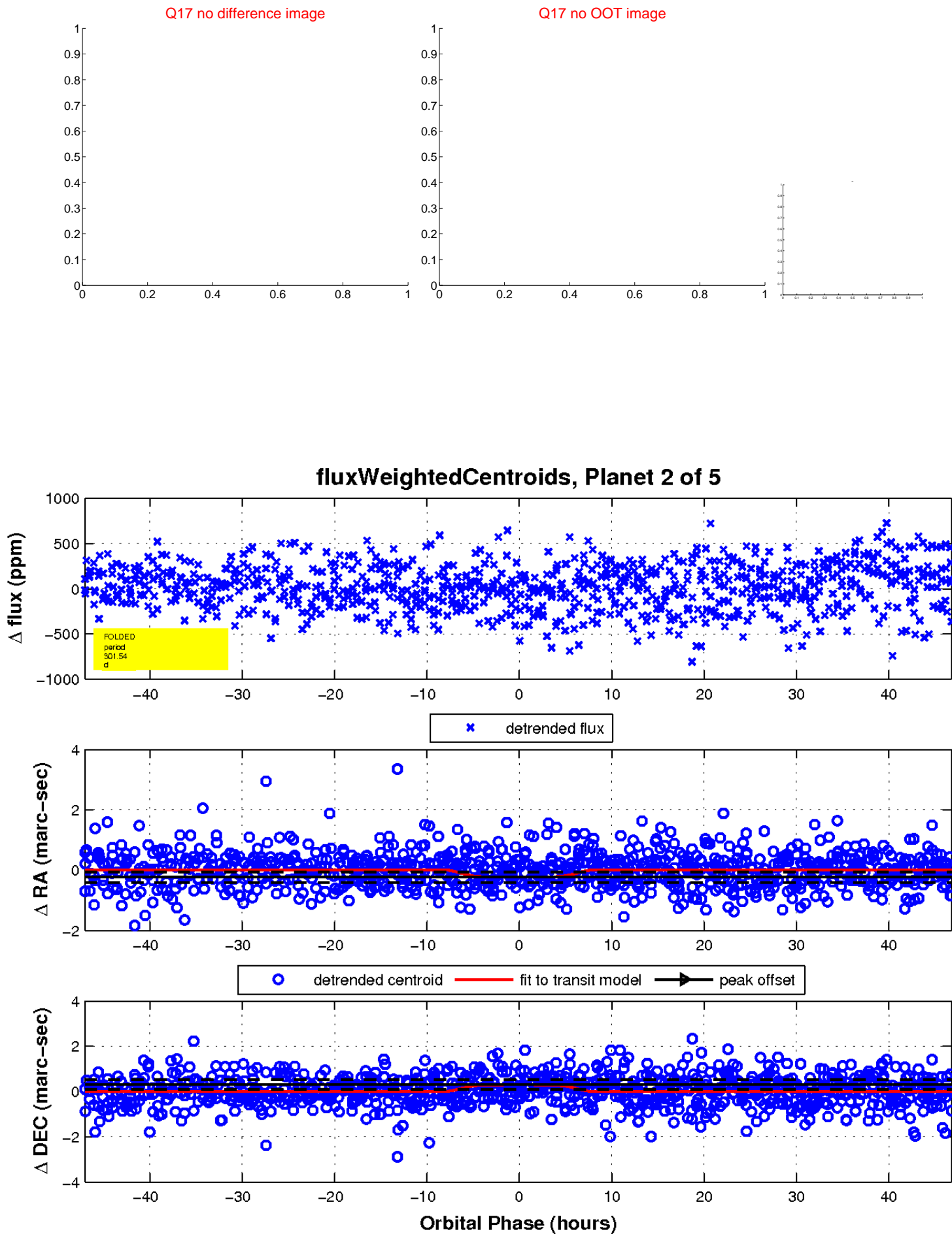
Q16 no difference image



Q16 no OOT image

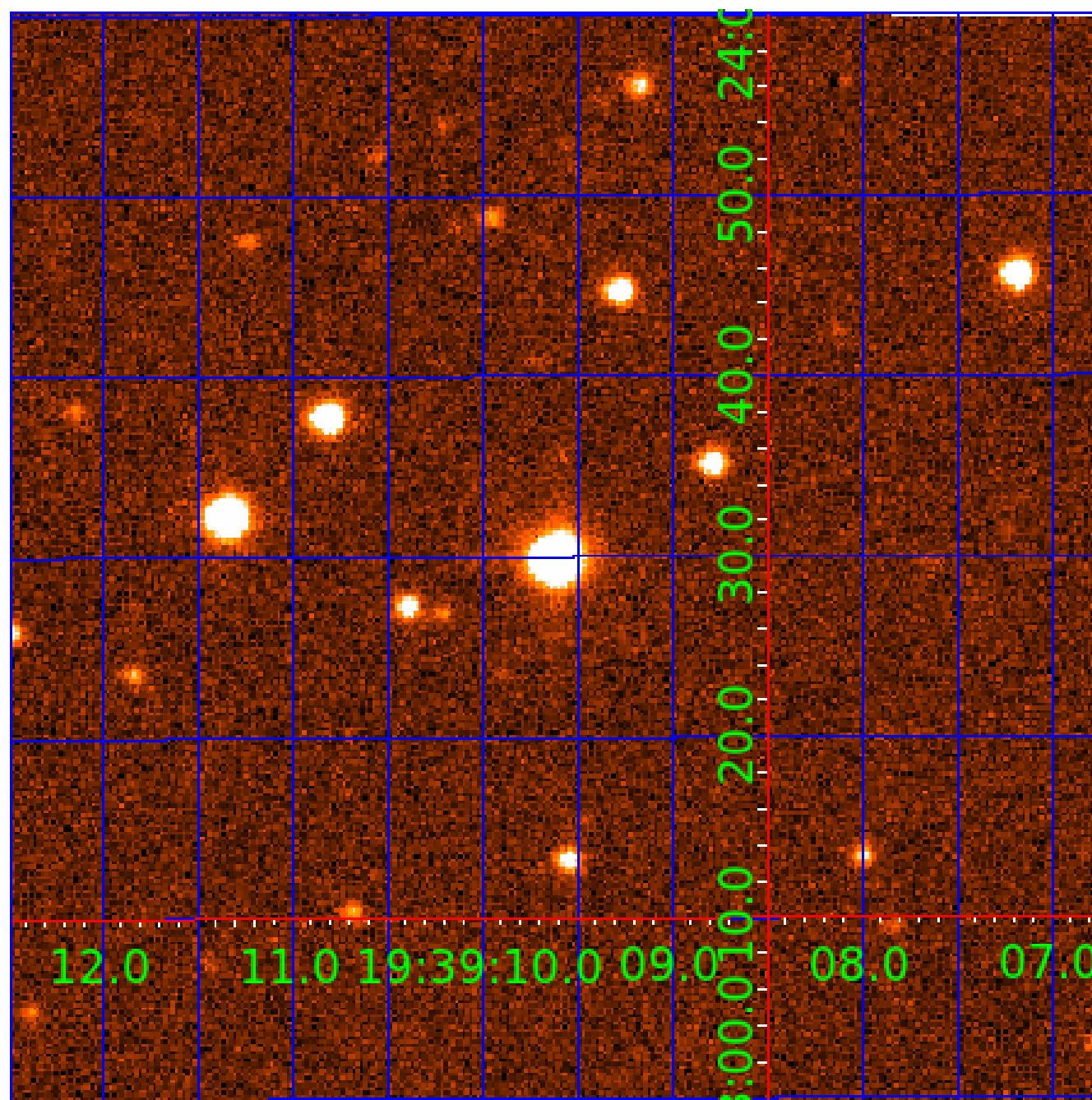


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 009030447

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})
009030447-01	OBS	No	1.751846	131.736321	20.7	6.479	7.7	7.1	3.41	6924	1.57	20370.45
009030447-02	OBS	No	301.539638	175.496539	359.2	15.674	10.9	7.1	3.41	6924	8.01	21.27
009030447-03	OBS	No	113.911778	215.286571	295.6	3.991	10.0	5.4	3.41	6924	6.62	77.91
009030447-04	OBS	No	306.826384	251.181345	275.2	8.444	8.6	7.0	3.41	6924	6.03	20.79
009030447-05	OBS	No	124.311107	251.743549	184.9	6.514	7.6	6.7	3.41	6924	5.14	69.34

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009030447-01	OBS	FP	0.00	1	0	0	0	LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
009030447-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
009030447-03	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—INCONSISTENT_TRANS—HALO_GHOST
009030447-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL_TRACKER—LPP_DV—MOD_NONUNIQ_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
009030447-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_MEAS

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

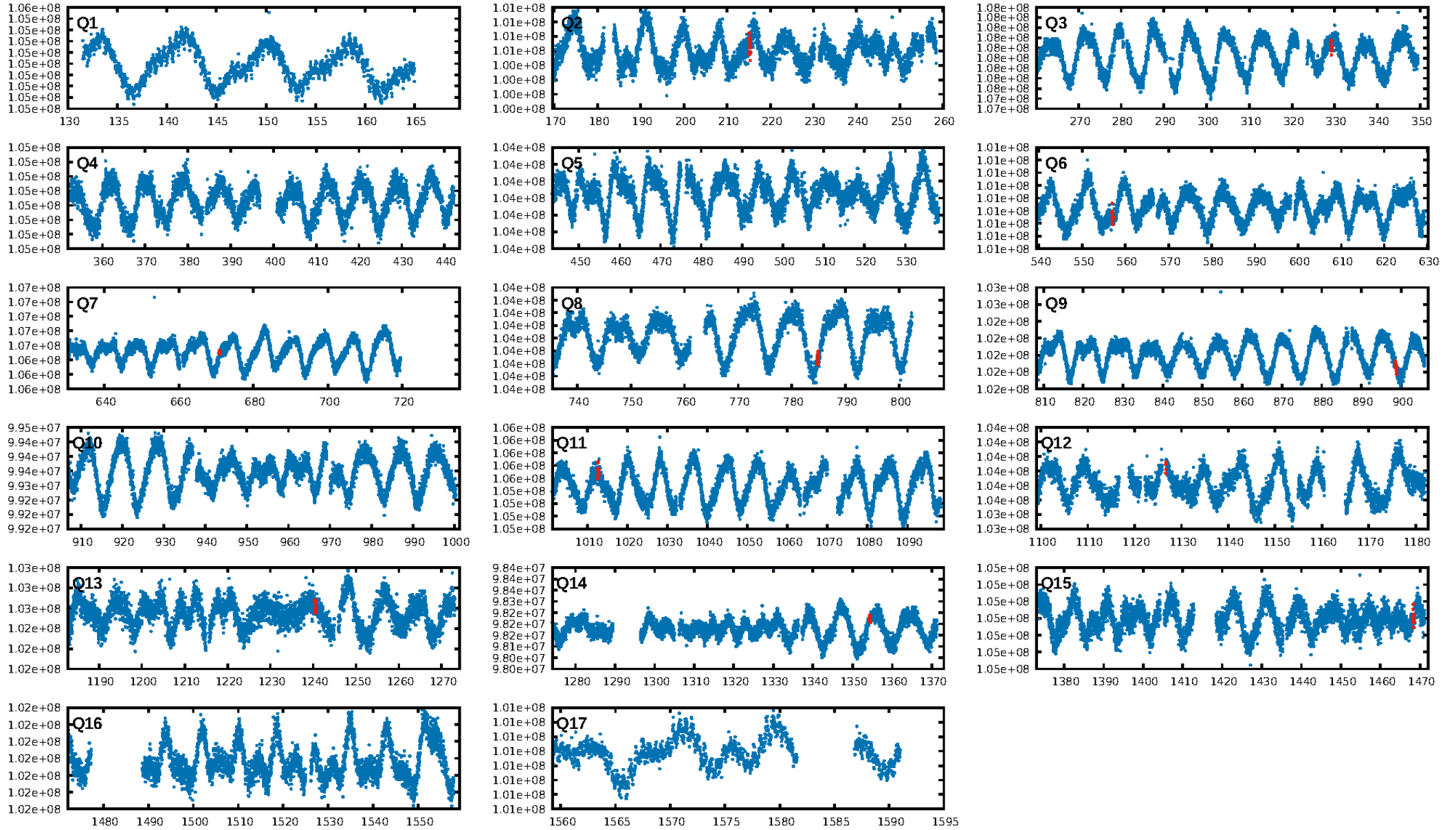
N = Not Transit-Like. S = Stellar Eclipse. C = Centroid Offset. E = Ephemeris Match.

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

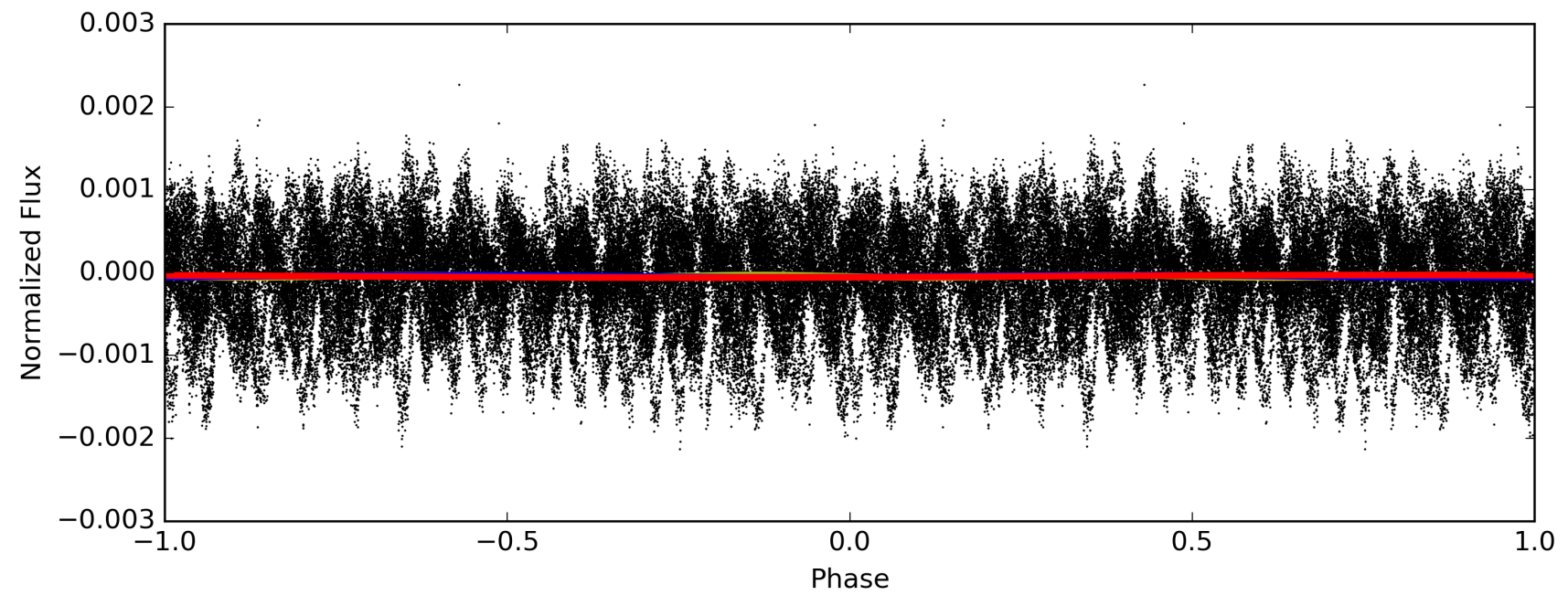
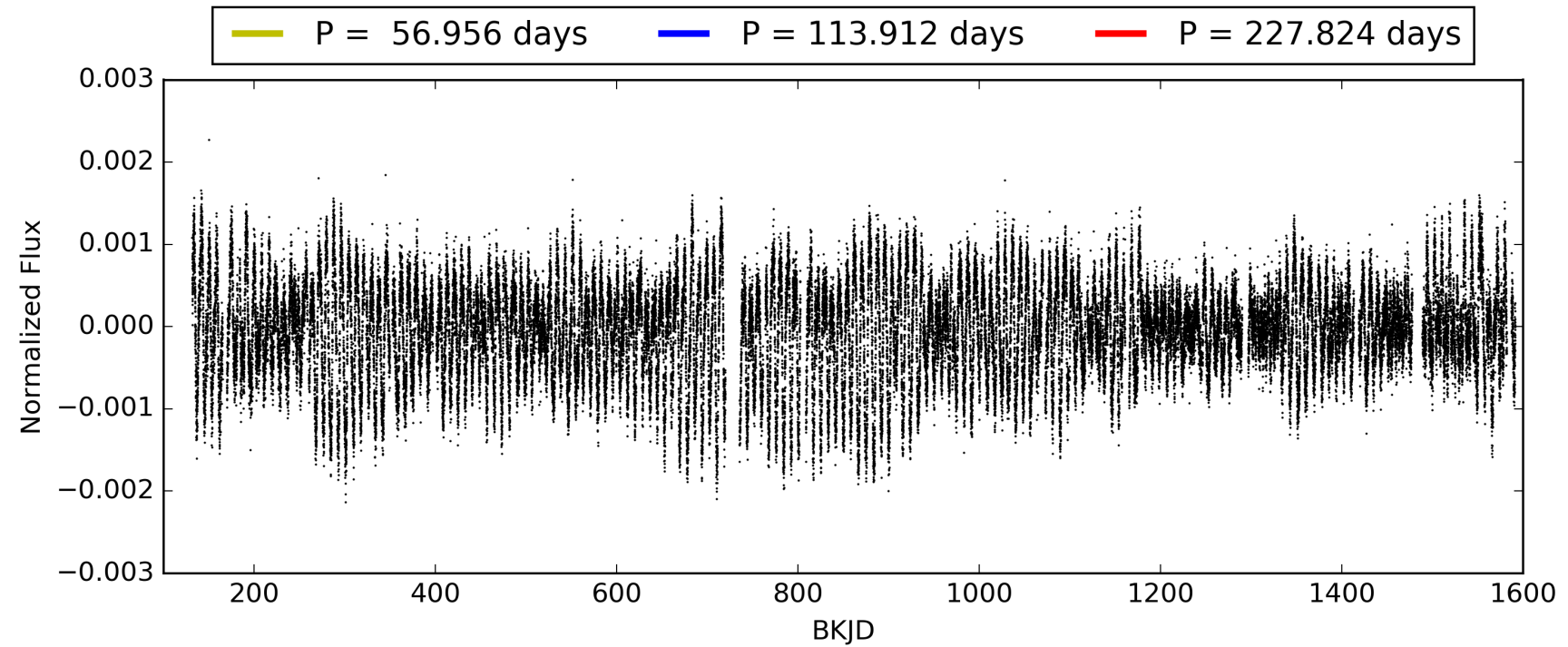
Ephemeris Match Information For 009030447-03

No Significant Match Found

TCE 009030447-03, PDC Light Curves

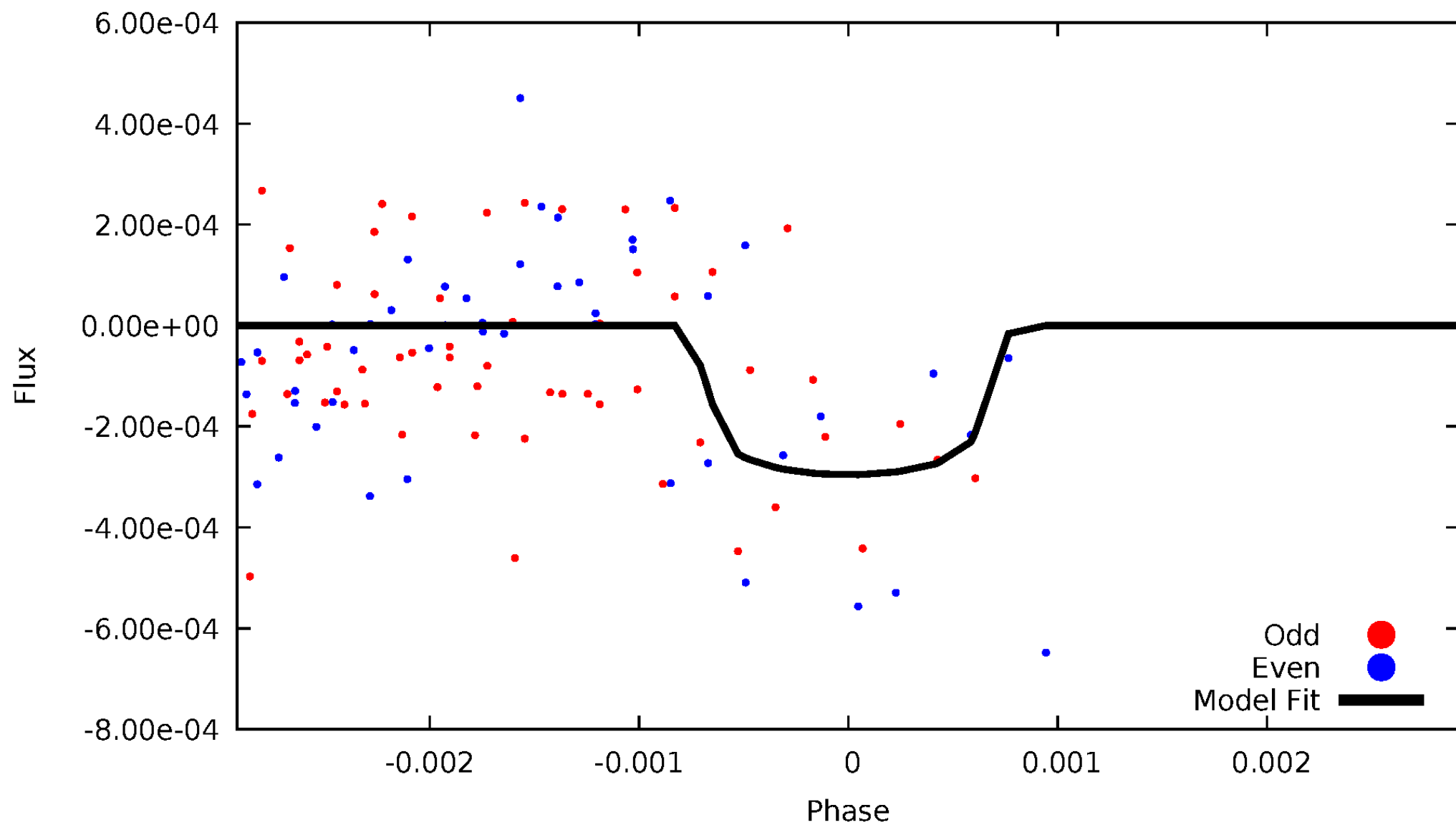


TCE 009030447-03



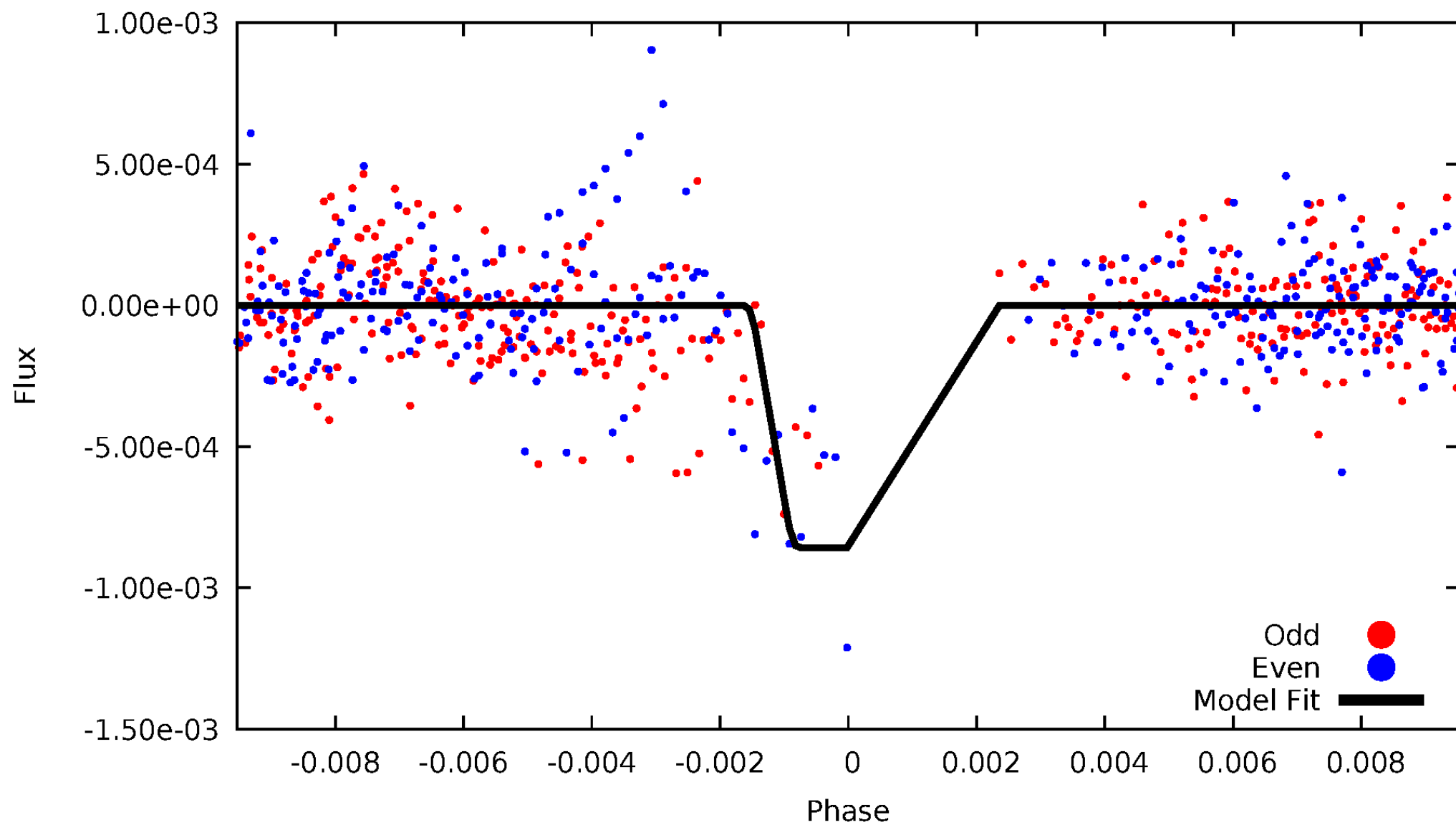
DV Odd/Even

TCE 009030447-03

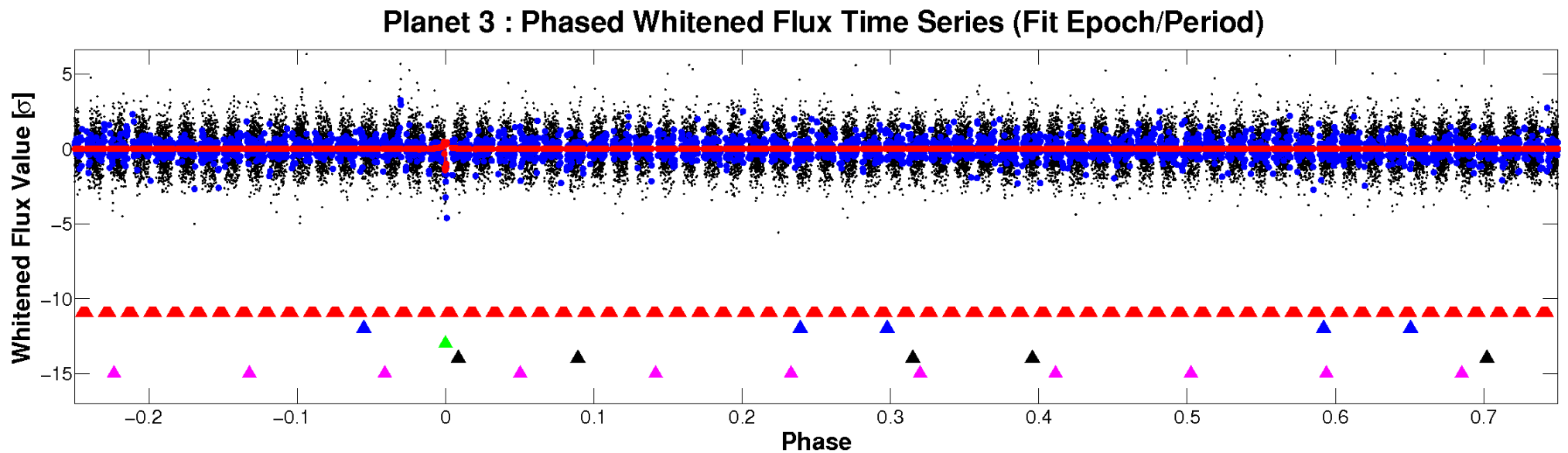
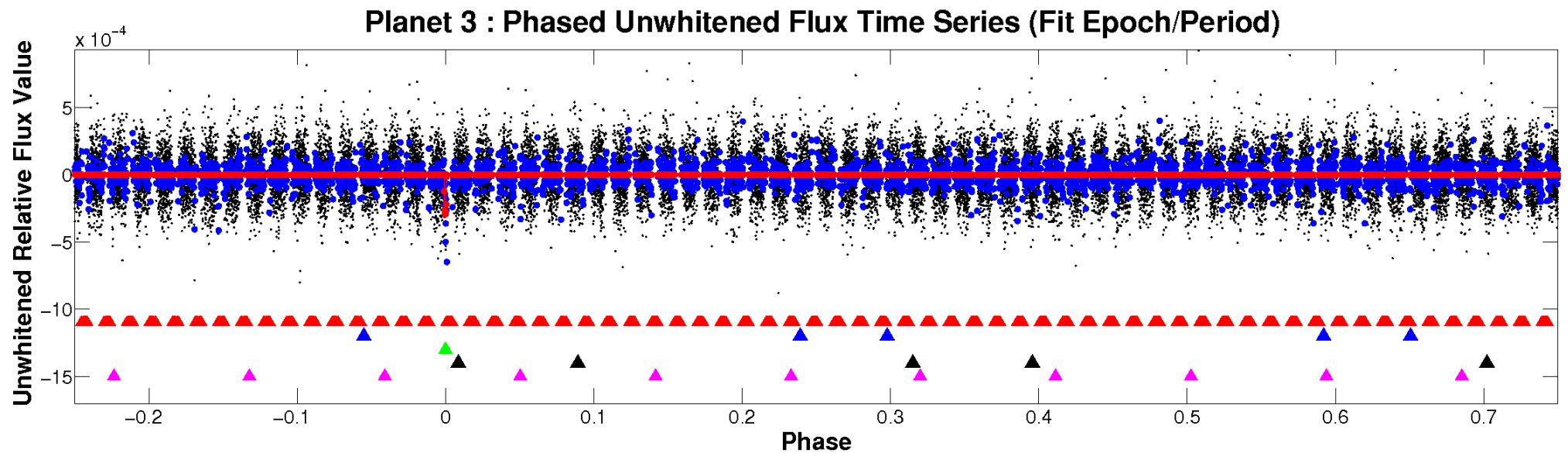


ALT Odd/Even

TCE 009030447-03

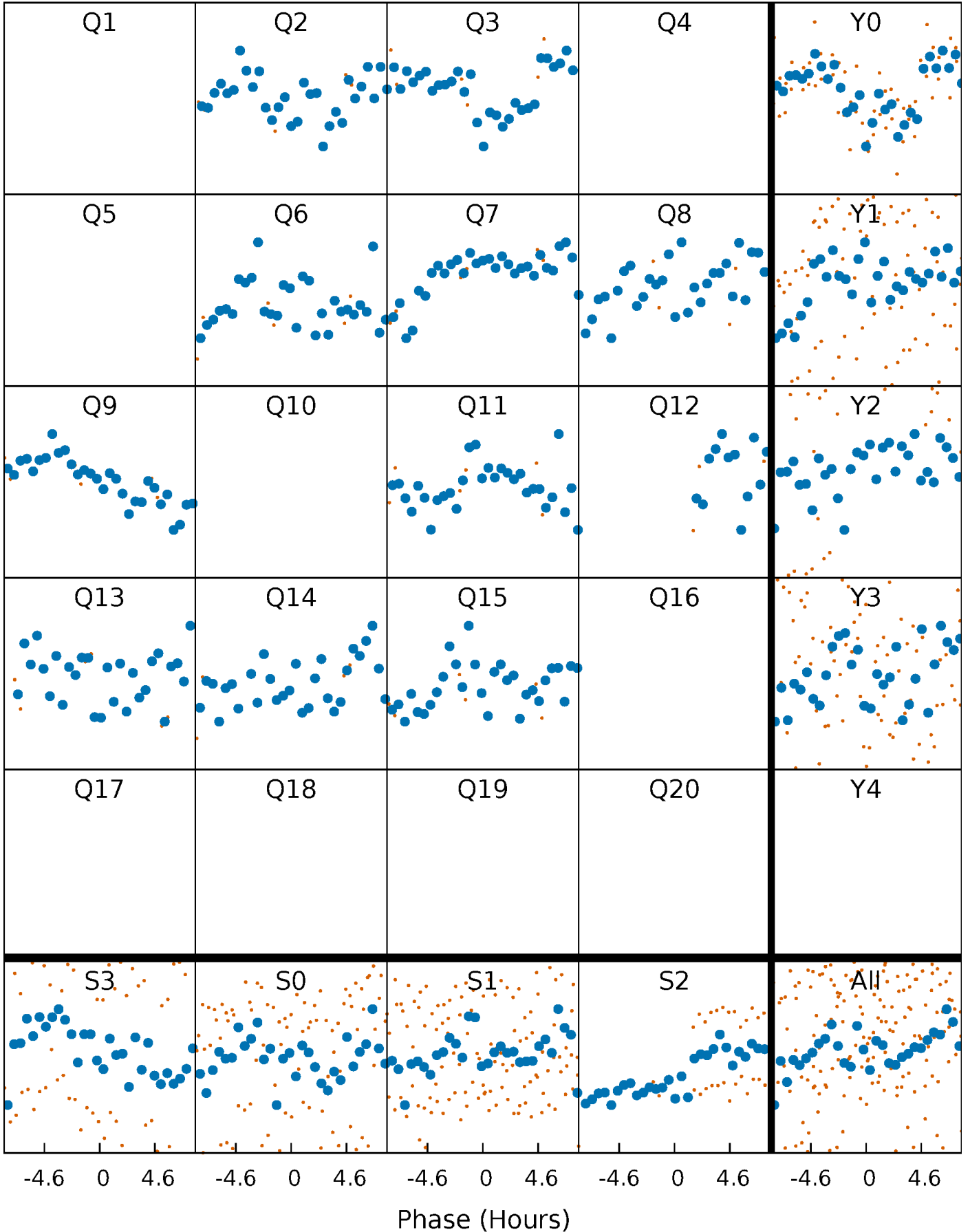


Non-Whitened Vs. Whitened Light Curve



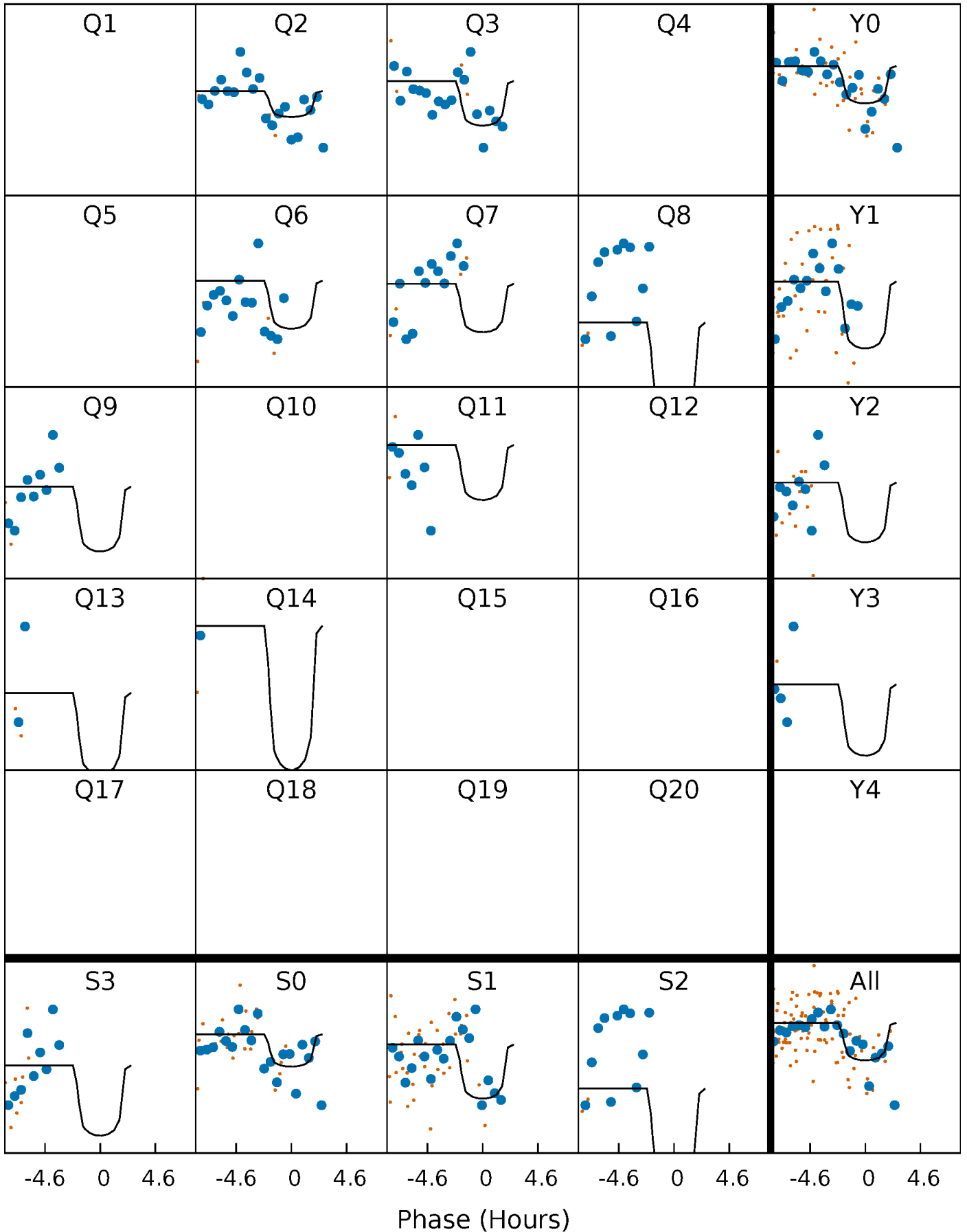
PDC Quarter-Phased Transit Curves

TCE 009030447-03 $P=113.911778$ Days $T_0=215.286572$ (BKJD)



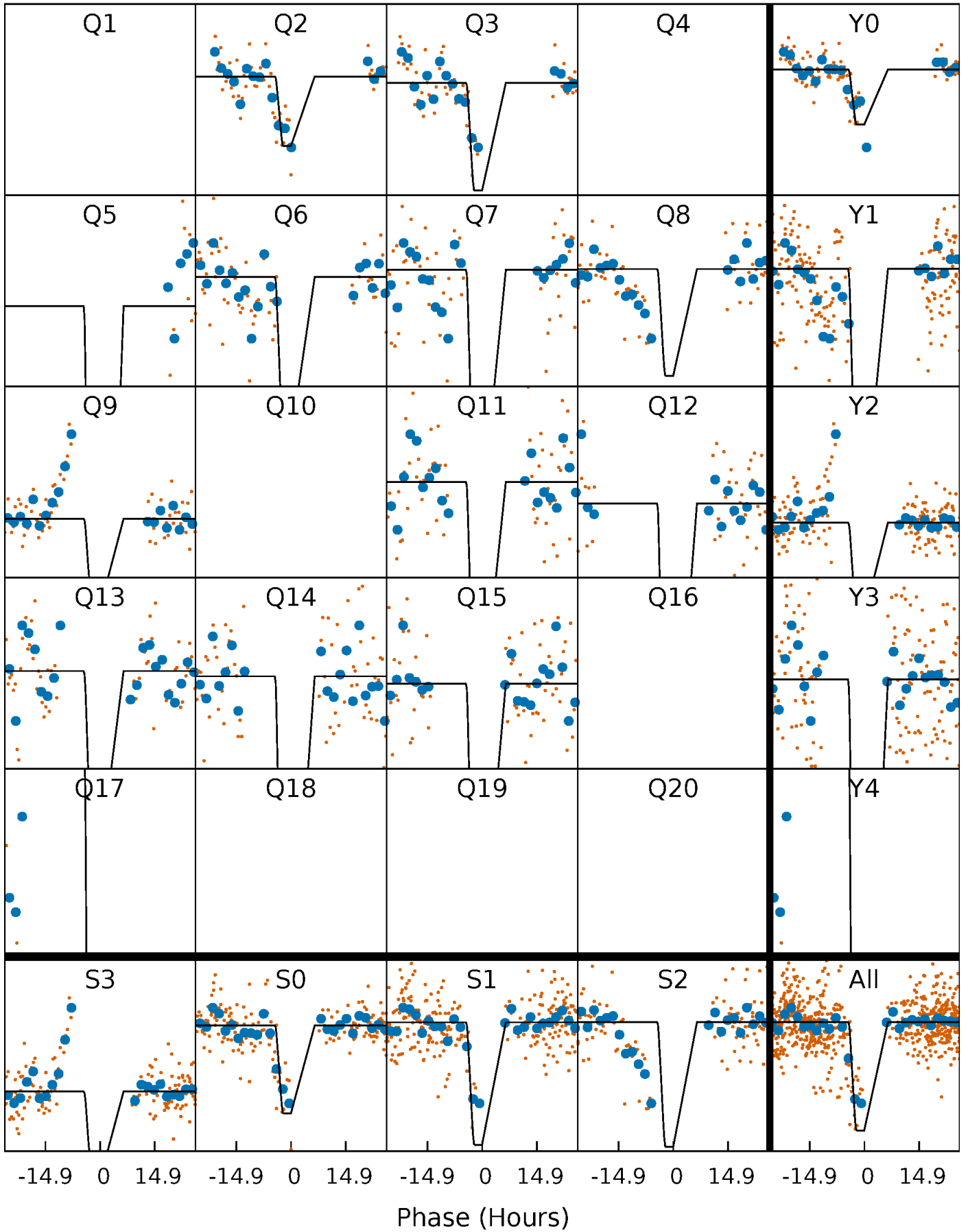
DV Quarter-Phased Transit Curves

TCE 009030447-03 P=113.911778 Days $T_0=215.286572$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

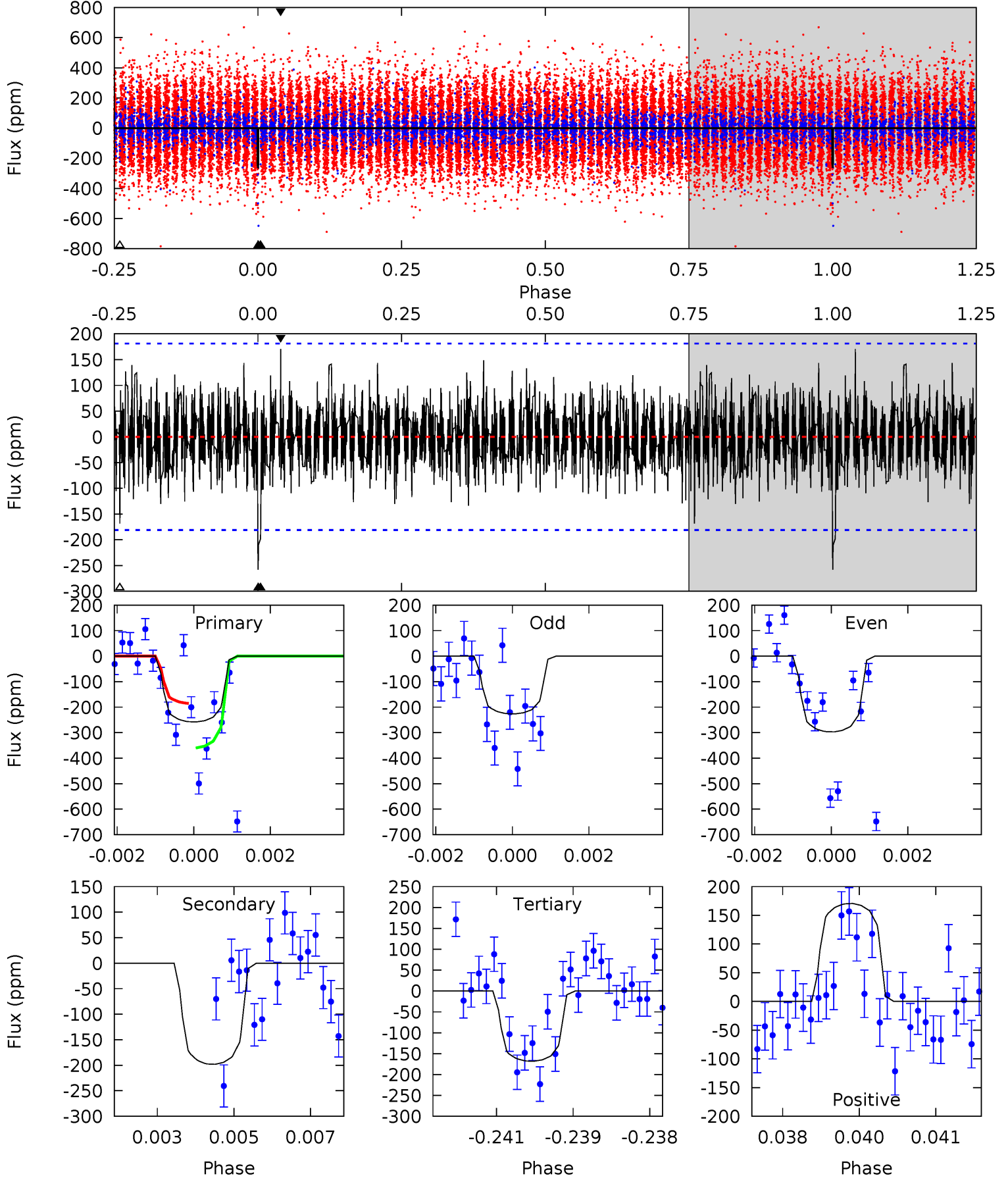
TCE 009030447-03 P=113.923908 Days $T_0=215.396424$ (BKJD)



DV Model-Shift Uniqueness Test

009030447-03, P = 113.911778 Days, E = 101.374794 Days

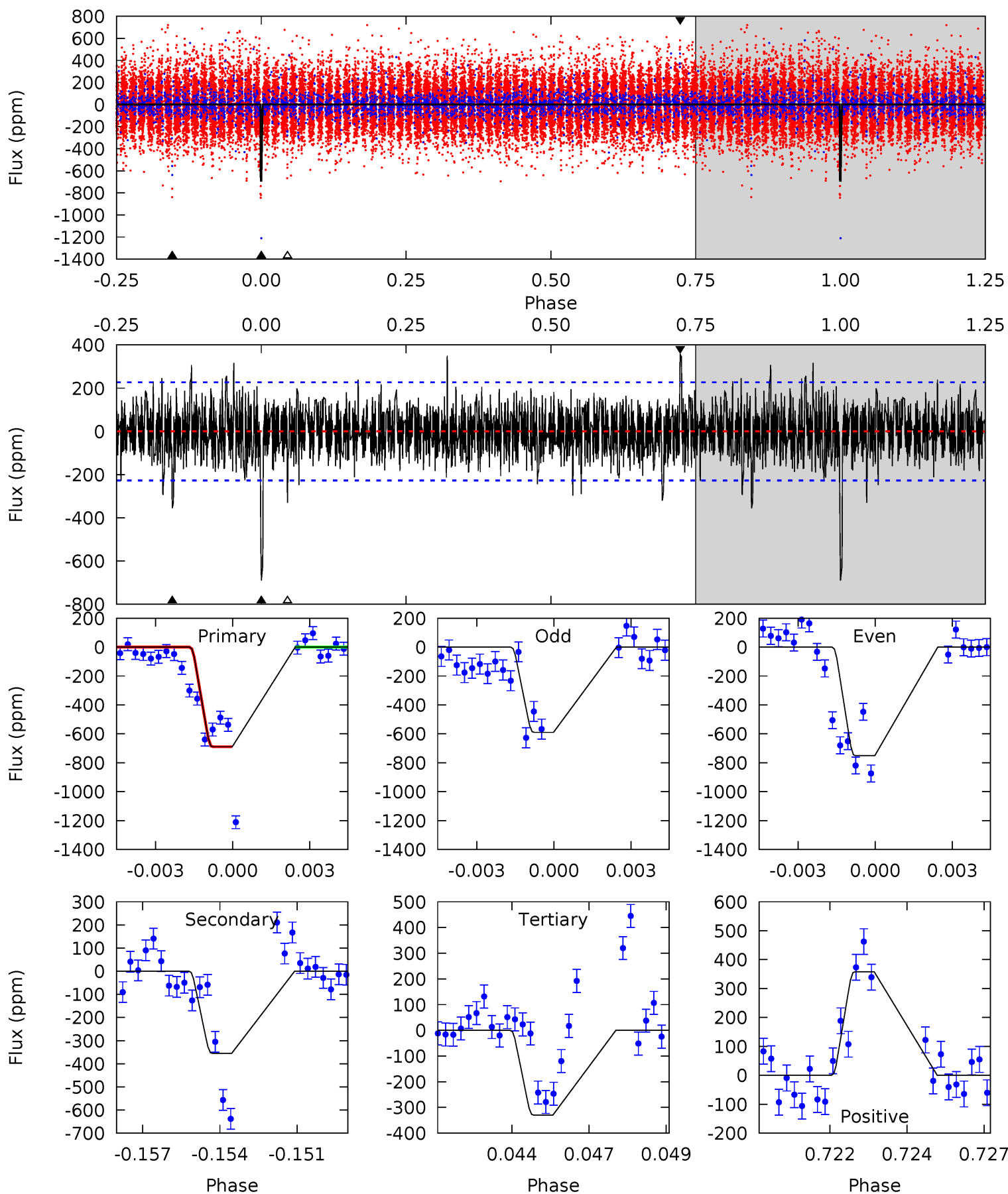
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
7.63	5.86	4.97	5.05	5.36	3.15	1.20	2.66	2.59	0.89	0.82	1.05	0.69	0.40	2.54



Alt Model-Shift Uniqueness Test

009030447-03, P = 113.923908 Days, E = 101.472516 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
16.0	8.22	7.64	8.29	5.26	2.98	1.59	8.33	7.68	0.59	-0.07	1.87	0	0.34	0



Stellar Parameters For KIC 009030447

	$T_{\text{eff}} (K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M (M_{\odot})$	$\rho_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6924^{+186}_{-249}	$3.616^{+0.296}_{-0.056}$	$-0.160^{+0.300}_{-0.250}$	$3.412^{+0.409}_{-1.228}$	$1.755^{+0.183}_{-0.339}$	$0.062^{+0.136}_{-0.011}$
	+3%/-4%	+8%/-2%	+188%/-156%	+12%/-36%	+10%/-19%	+219%/-18%
Source	PHO1	FLK73	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 009030447-03 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-198 ± 34	$7.12^{+5.17}_{-4.30}$	1032^{+55}_{-94}	5644^{+3998}_{-1130}	650^{+3649}_{-434}
Alt.	-355 ± 43	$10.25^{+5.63}_{-5.14}$	1029^{+54}_{-93}	5494^{+2292}_{-894}	587^{+1692}_{-351}

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

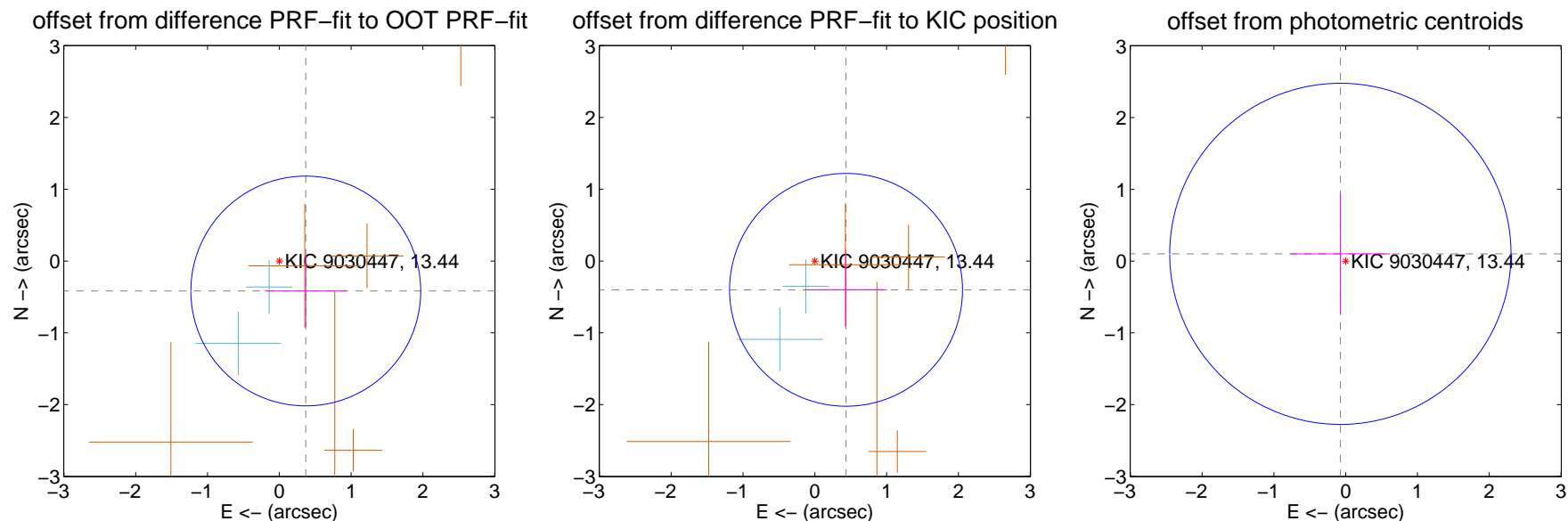
DV Centroid Data

Supplemental centroid analysis for 009030447-03. Kepler magnitude: 13.44. Transit SNR 5.43

There are 2 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.07 arcsec

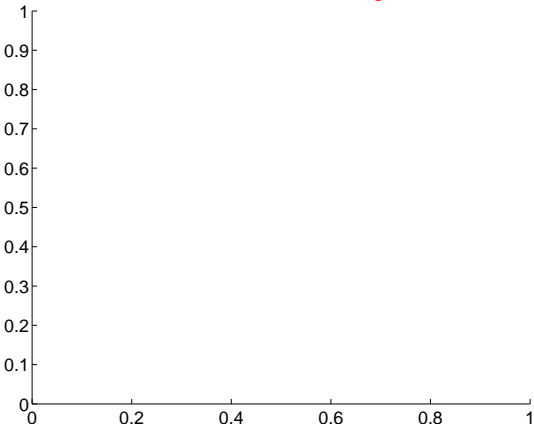
	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.557 ± 0.534	1.04	-0.369 ± 0.571	-0.417 ± 0.502
PRF-fit source offset from KIC position	0.591 ± 0.541	1.09	-0.435 ± 0.571	-0.401 ± 0.502
photometric centroid source offset	0.13 ± 0.79	0.16	0.07 ± 0.69	0.10 ± 0.84



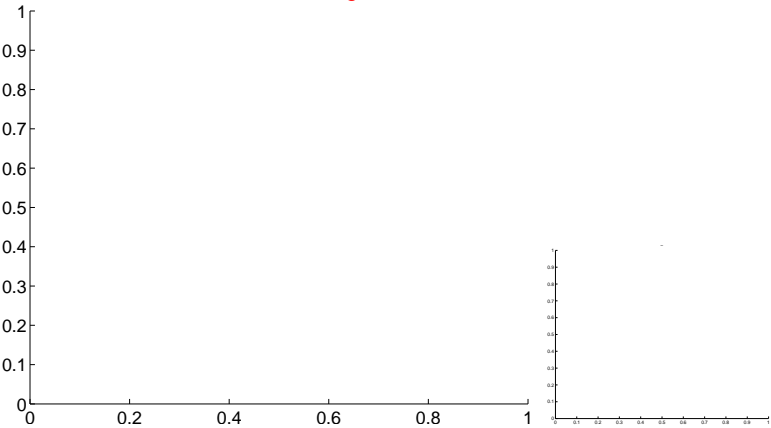
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

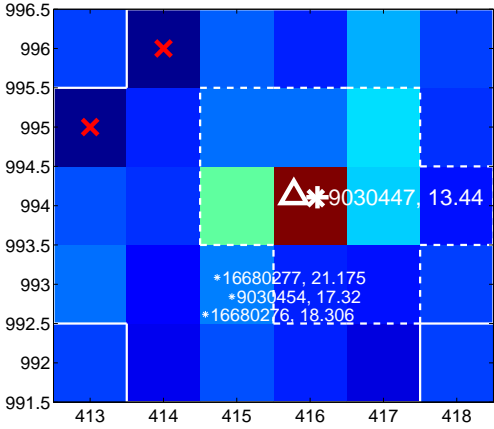
Q1 no difference image



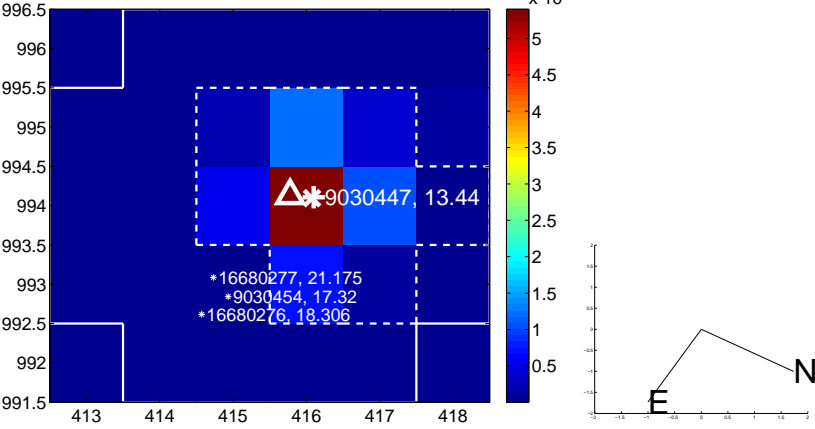
Q1 no OOT image



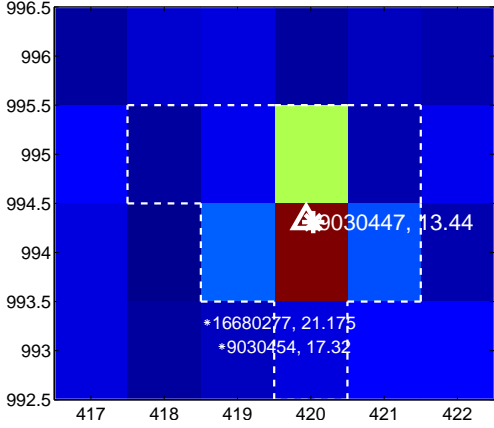
Q2 difference image



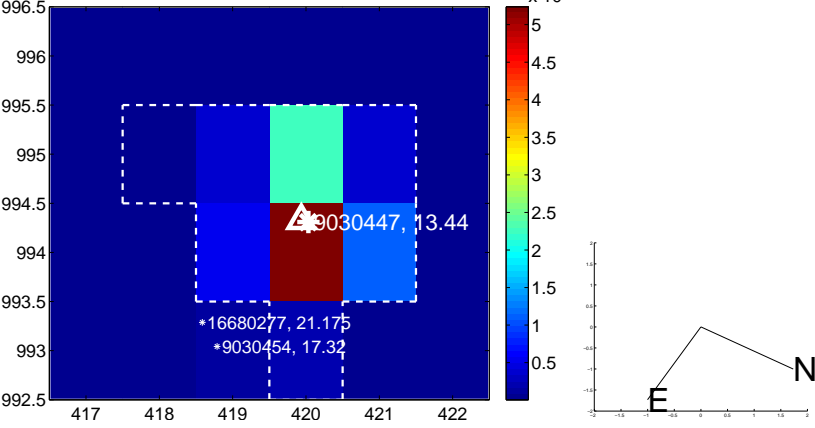
Q2 OOT image



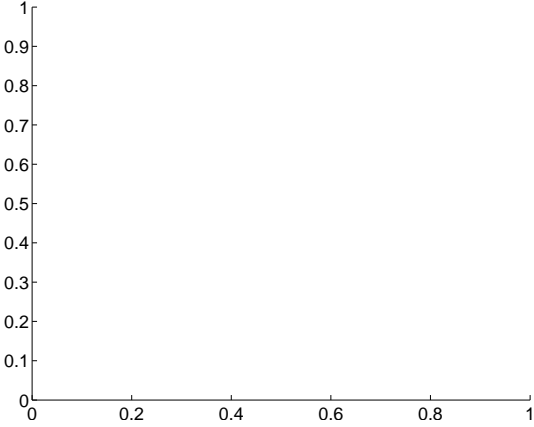
Q3 difference image



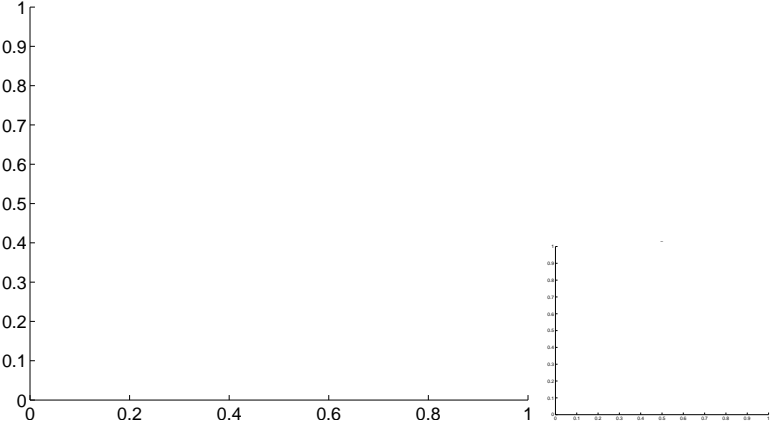
Q3 OOT image



Q4 no difference image

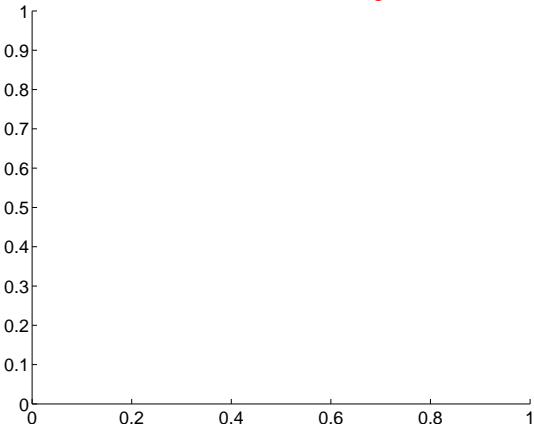


Q4 no OOT image

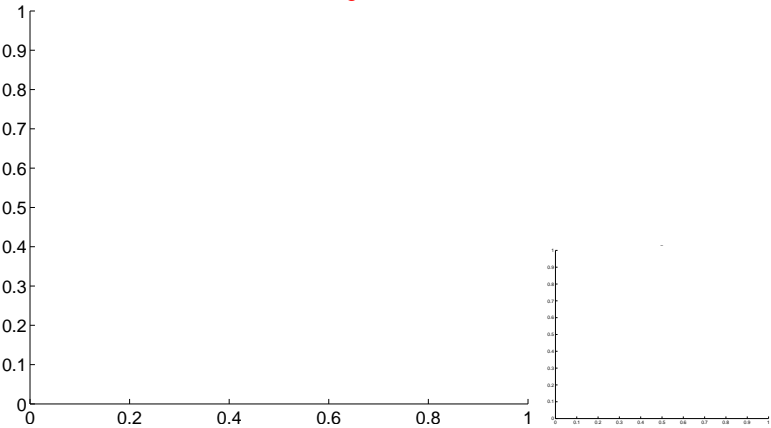


white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.

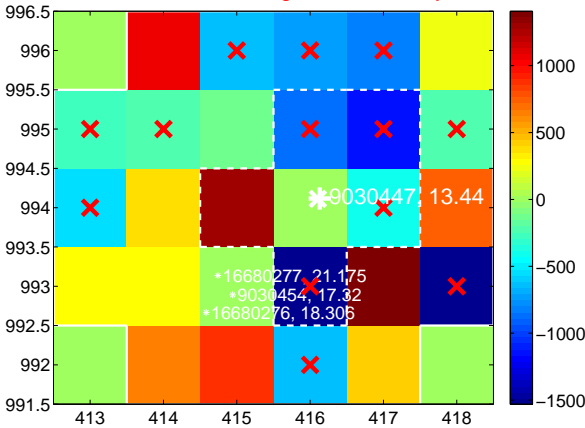
Q5 no difference image



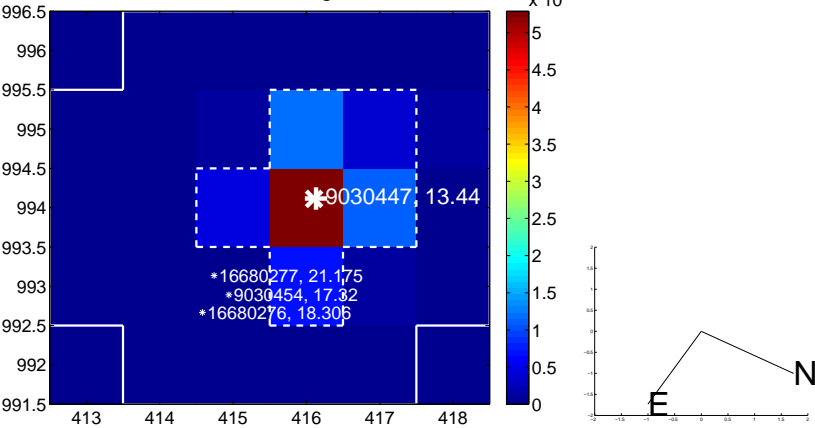
Q5 no OOT image



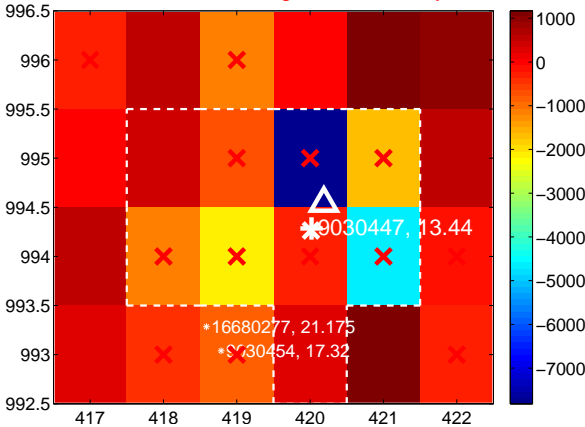
Q6 difference image. Poor Quality



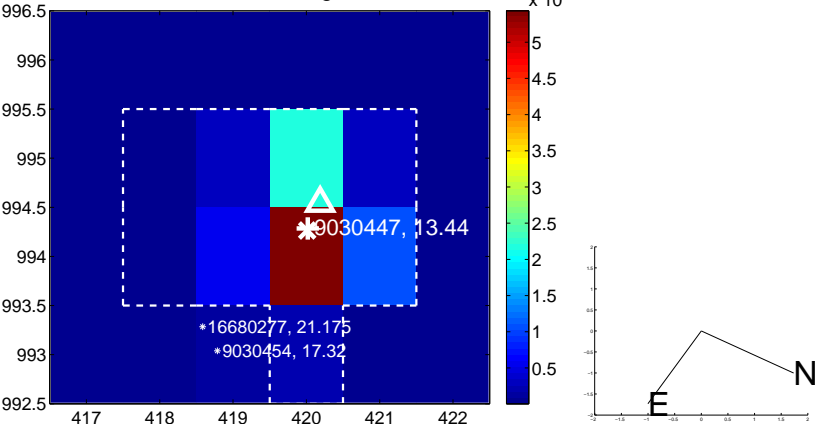
Q6 OOT image



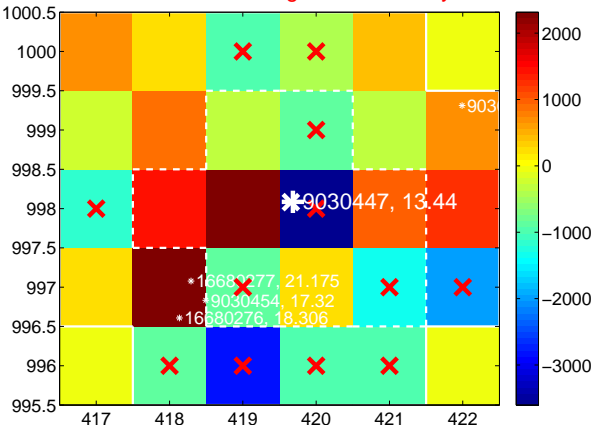
Q7 difference image. Poor Quality



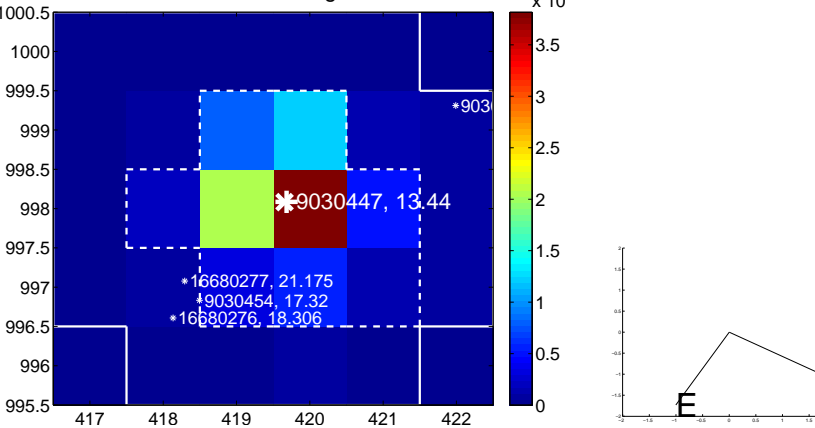
Q7 OOT image



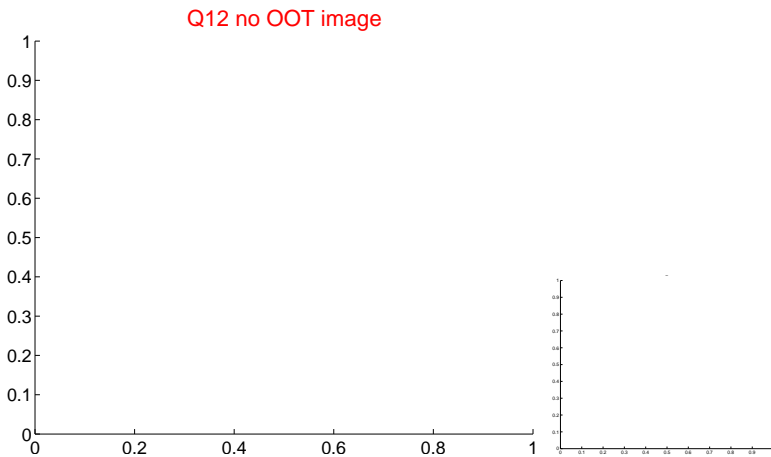
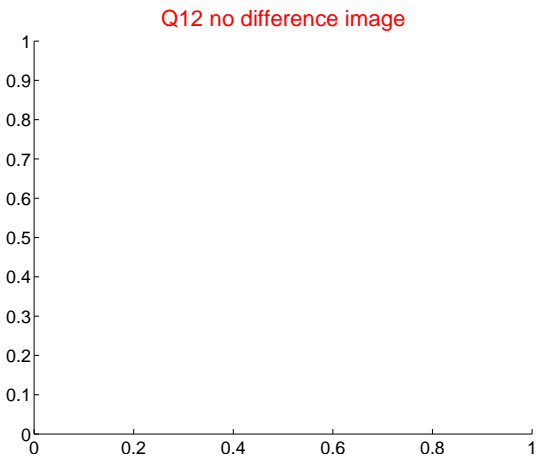
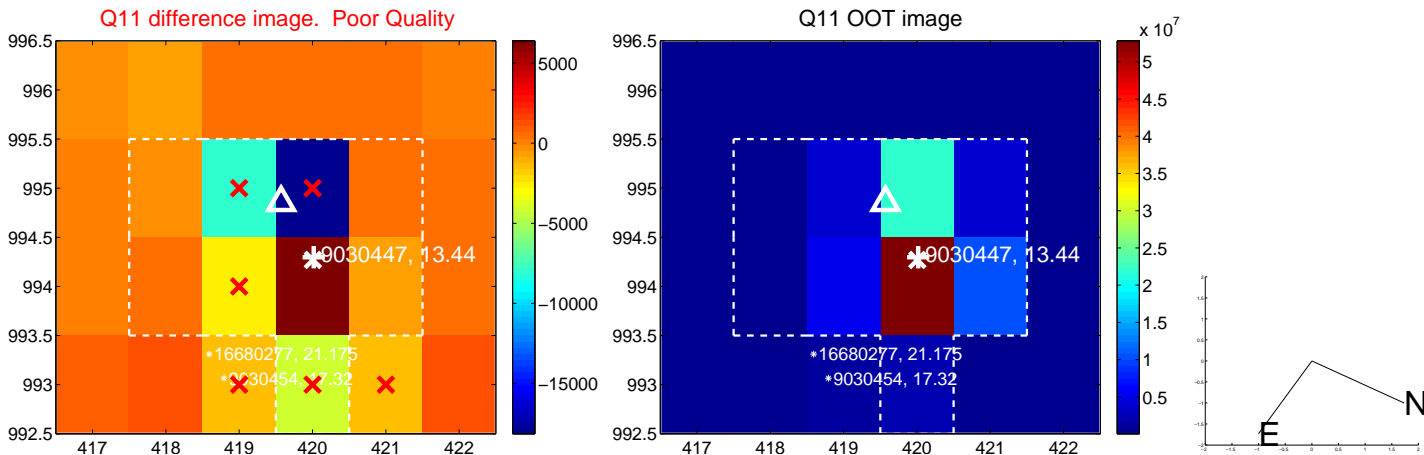
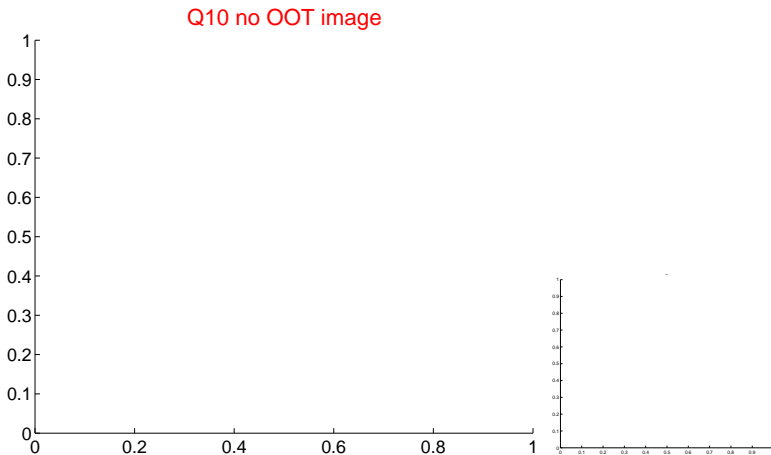
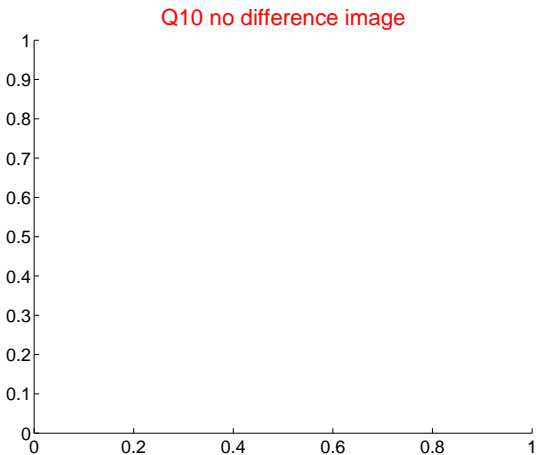
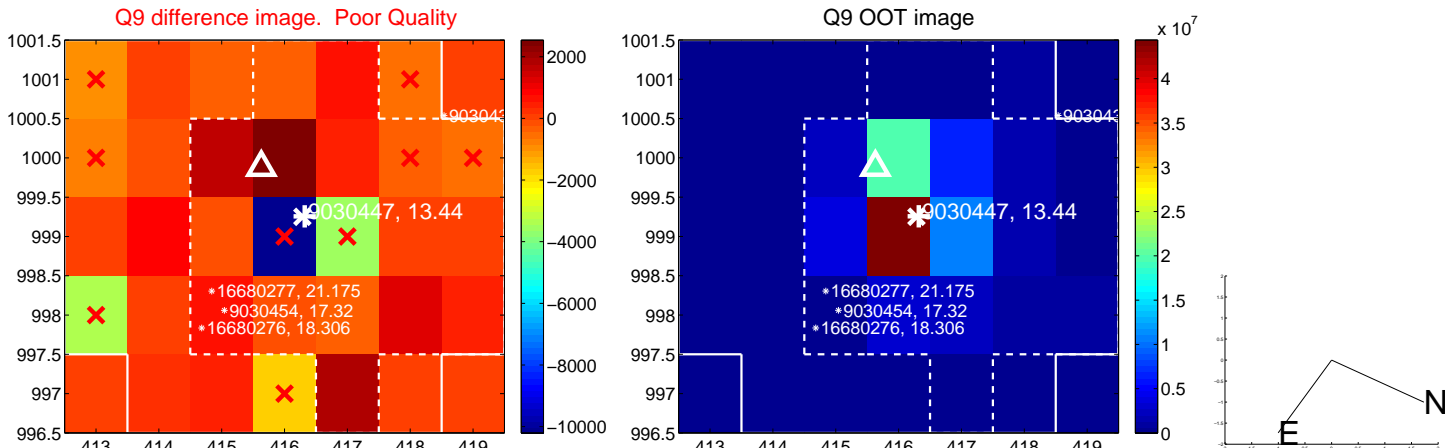
Q8 difference image. Poor Quality



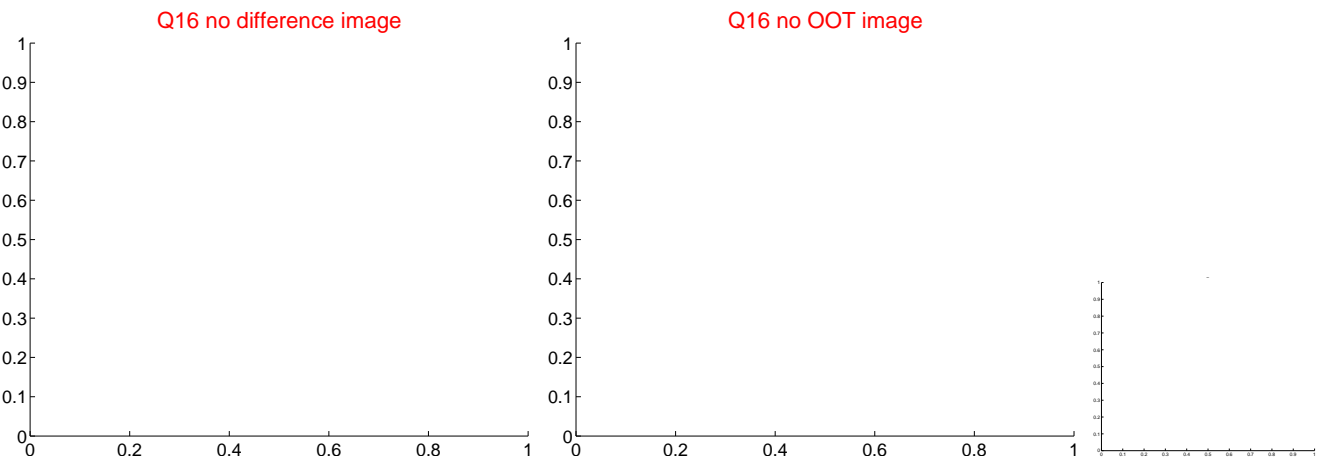
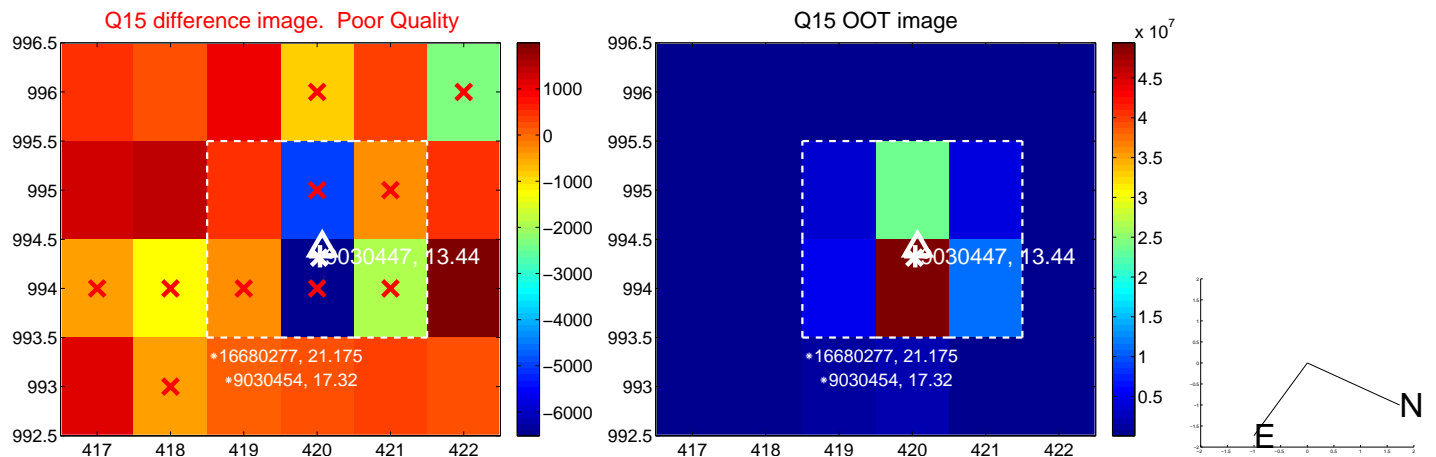
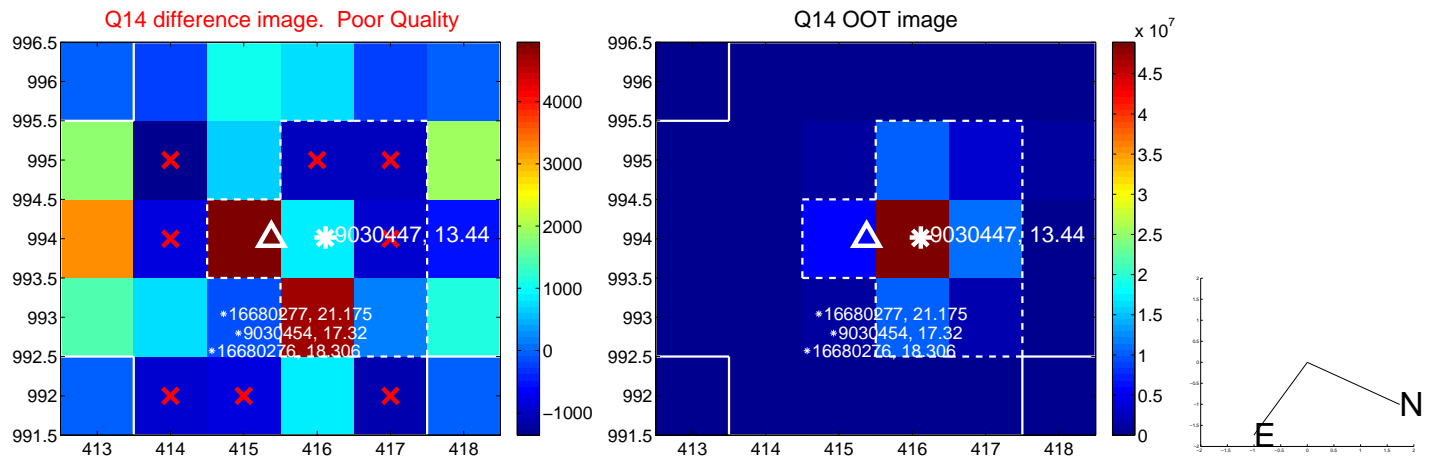
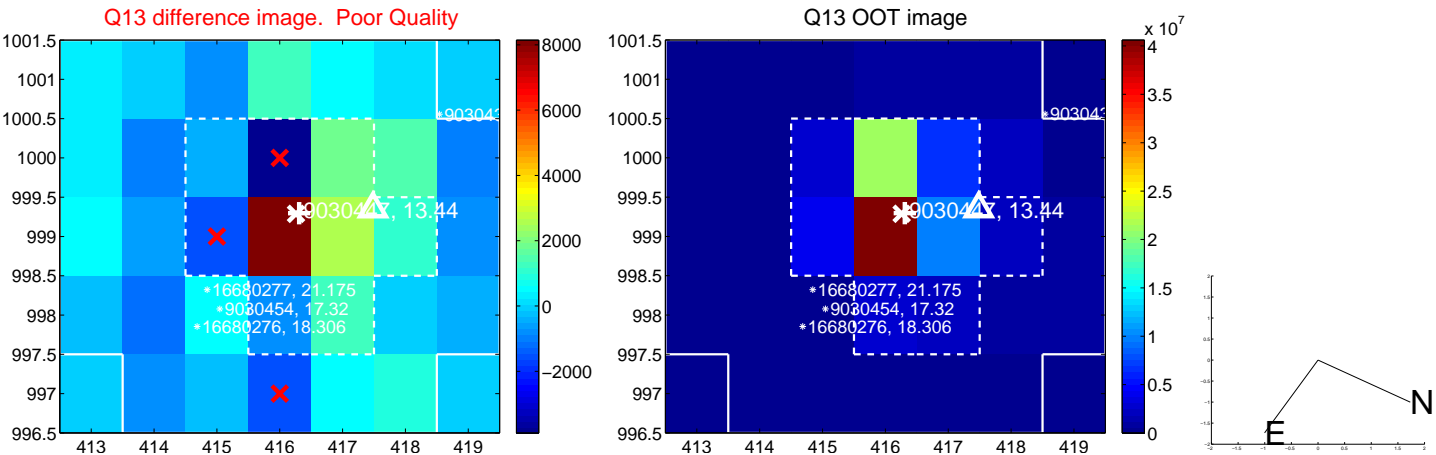
Q8 OOT image



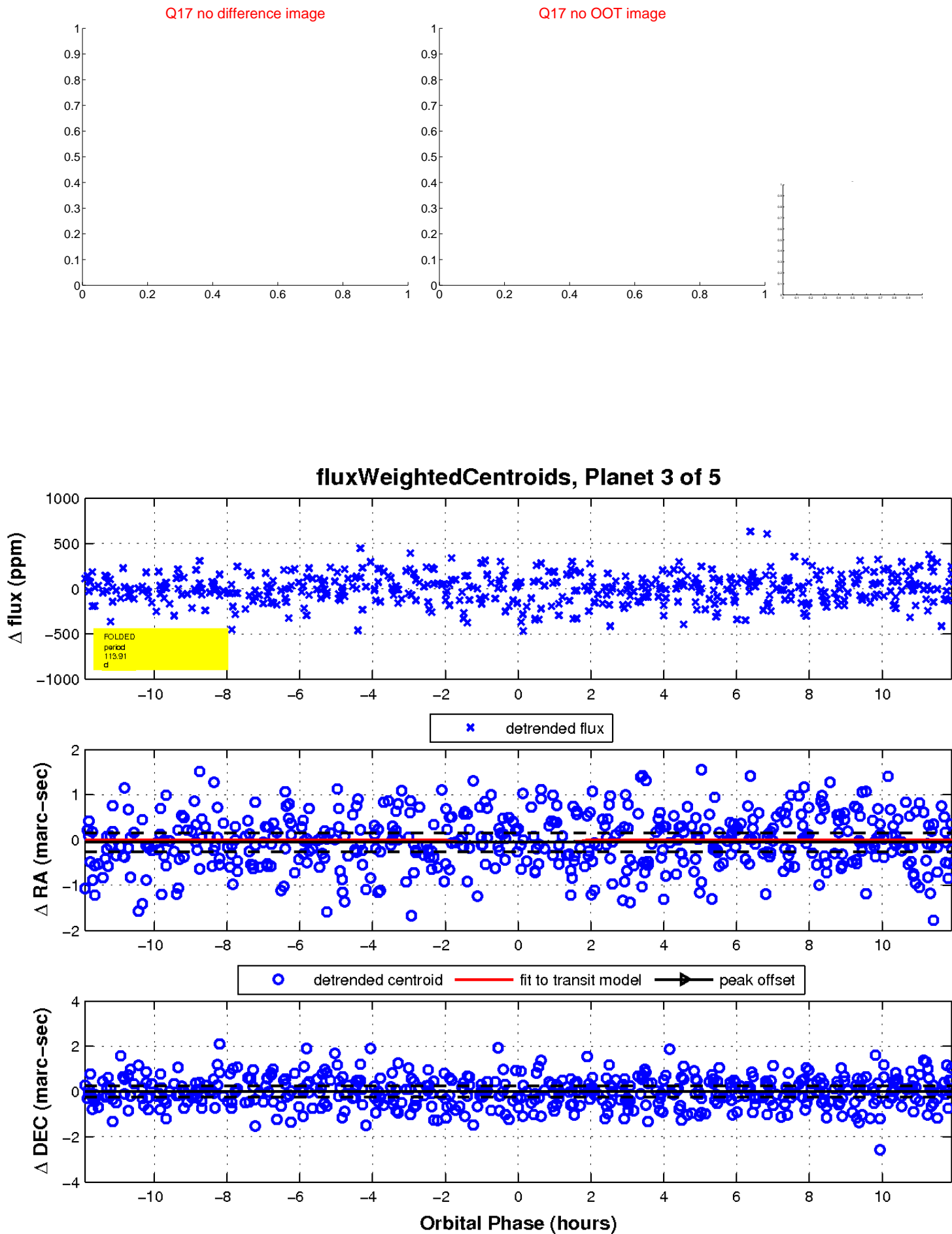
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value



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

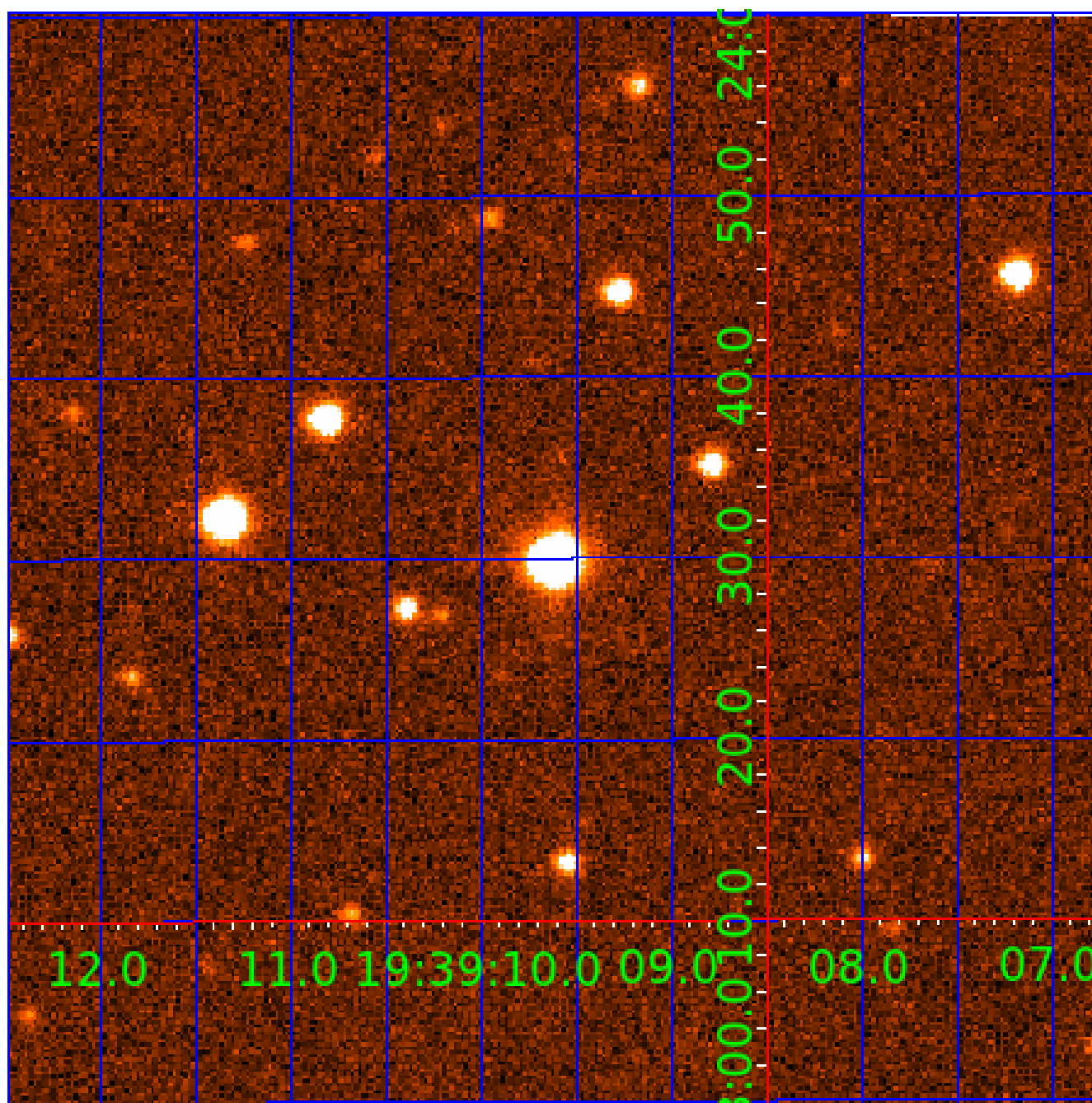


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 009030447

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})
009030447-01	OBS	No	1.751846	131.736321	20.7	6.479	7.7	7.1	3.41	6924	1.57	20370.45
009030447-02	OBS	No	301.539638	175.496539	359.2	15.674	10.9	7.1	3.41	6924	8.01	21.27
009030447-03	OBS	No	113.911778	215.286571	295.6	3.991	10.0	5.4	3.41	6924	6.62	77.91
009030447-04	OBS	No	306.826384	251.181345	275.2	8.444	8.6	7.0	3.41	6924	6.03	20.79
009030447-05	OBS	No	124.311107	251.743549	184.9	6.514	7.6	6.7	3.41	6924	5.14	69.34

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009030447-01	OBS	FP	0.00	1	0	0	0	LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
009030447-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
009030447-03	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—INCONSISTENT_TRANS—HALO_GHOST
009030447-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL_TRACKER—LPP_DV—MOD_NONUNIQ_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
009030447-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_MEAS

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.

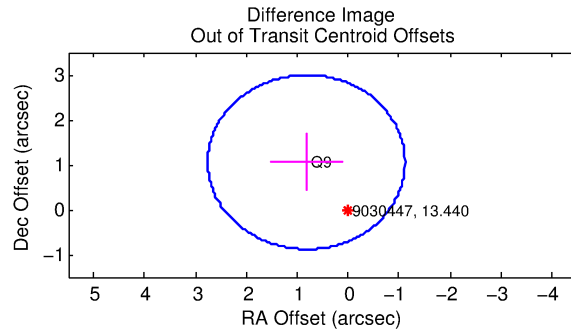
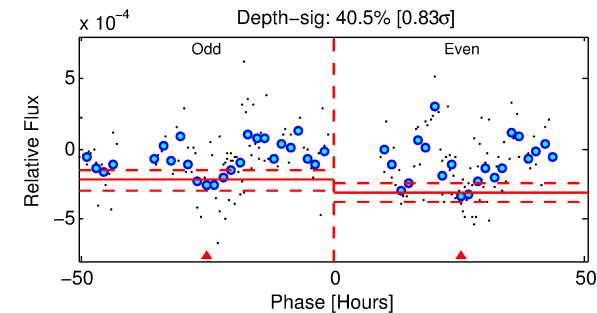
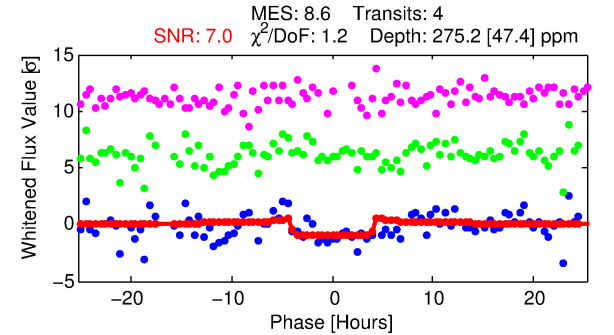
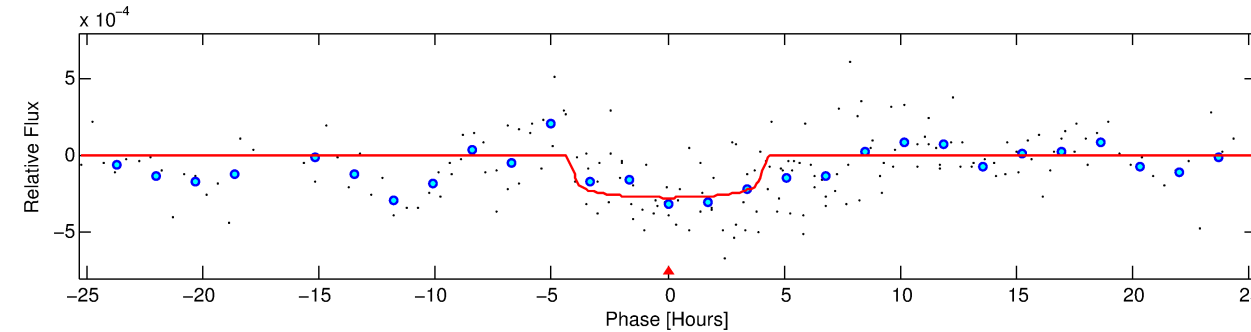
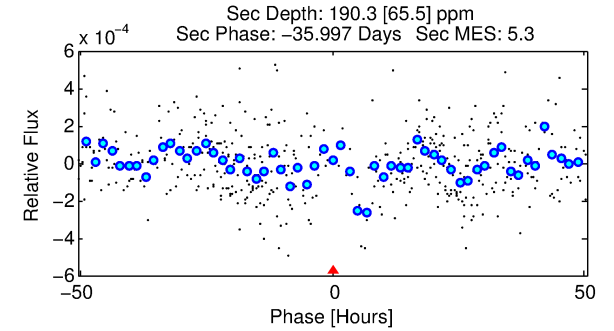
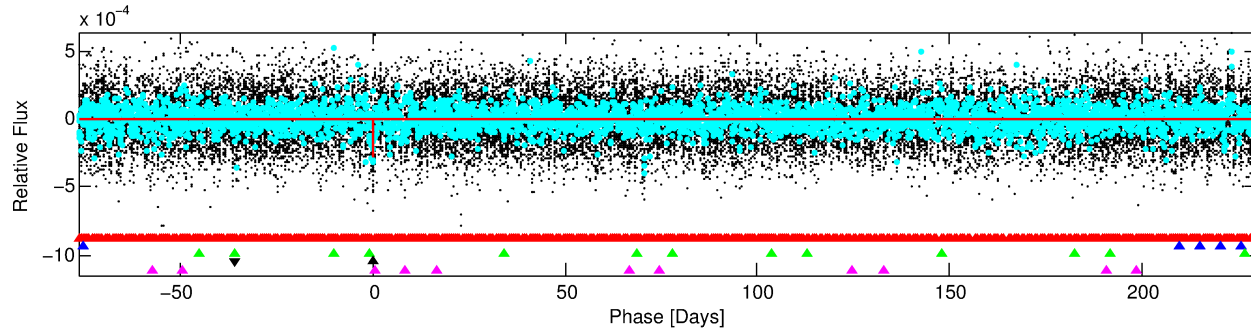
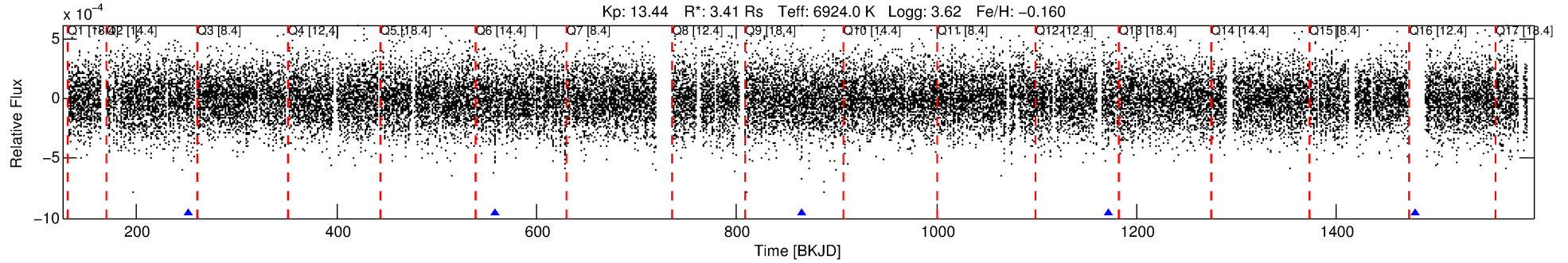
Ephemeris Match Information For 009030447-04

No Significant Match Found

DV One-Page Summary

KIC: 9030447 Candidate: 4 of 5 Period: 306.826 d

KOI: K01401 Corr: No Ephemeris Match



DV Fit Results:

Period = 306.82638 [0.00802] d
Epoch = 251.1813 [0.0185] BKJD
Rp/R* = 0.0162 [0.0099]
a/R* = 209.90 [743.17]
b = 0.68 [2.80]
Seff = 20.79 [11.09]
Teq = 544 [73] K
Rp = 6.03 [4.28] Re
a = 1.0739 [0.3549] AU
Ag = 3316.52 [4541.09] [0.73σ]
Teffp = 6388 [2040] K [2.86σ]

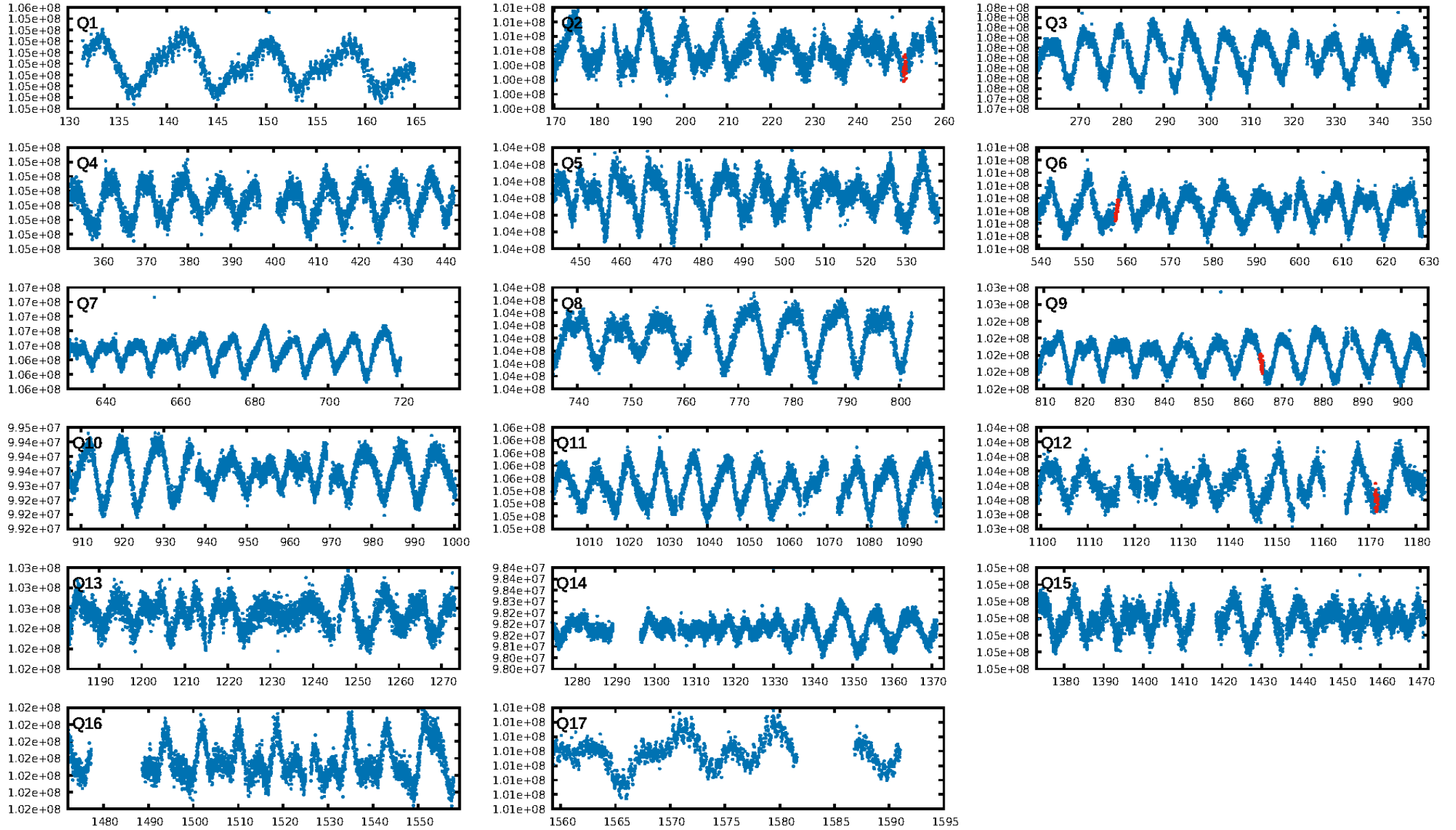
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [7.13σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 52.9%
ModelChiSquareGof-sig: 99.9%
Bootstrap-pfa: 6.35e-11
RollingBand-fgt: 1.00 [4/4]
GhostDiagnostic-chr: -1.381
Centroid-sig: 1.2%
Centroid-so: 1.885 arcsec [1.74σ]
OotOffset-rm: 1.336 arcsec [2.07σ]
KicOffset-rm: 1.382 arcsec [2.17σ]
OotOffset-st: 0/0/0/1 [1]
KicOffset-st: 0/0/0/1 [1]
DiffImageQuality-fgm: 1.00 [1/1]
DiffImageOverlap-fno: 0.33 [1/3]

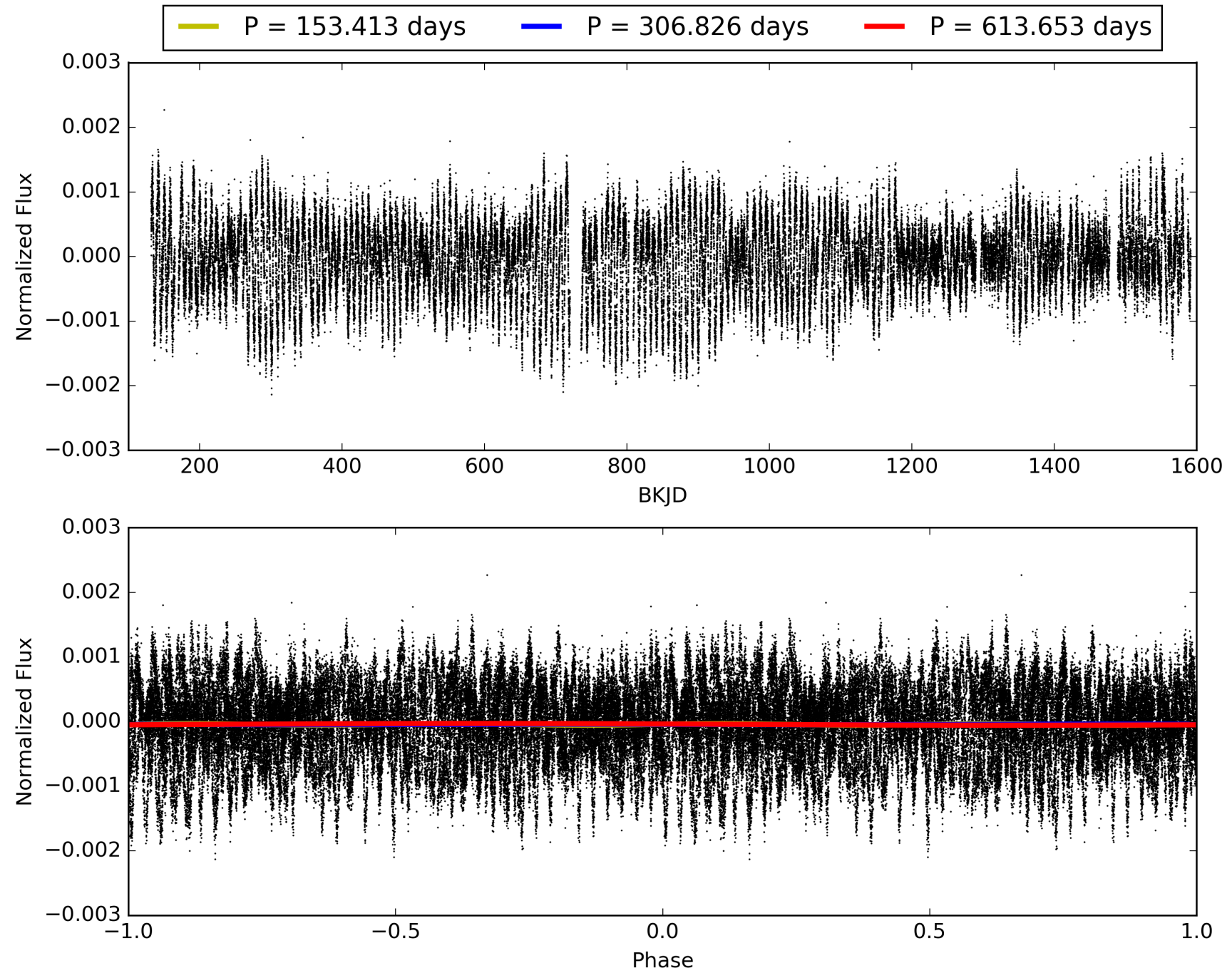
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 02-Feb-2016 17:20:35 Z

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

TCE 009030447-04, PDC Light Curves

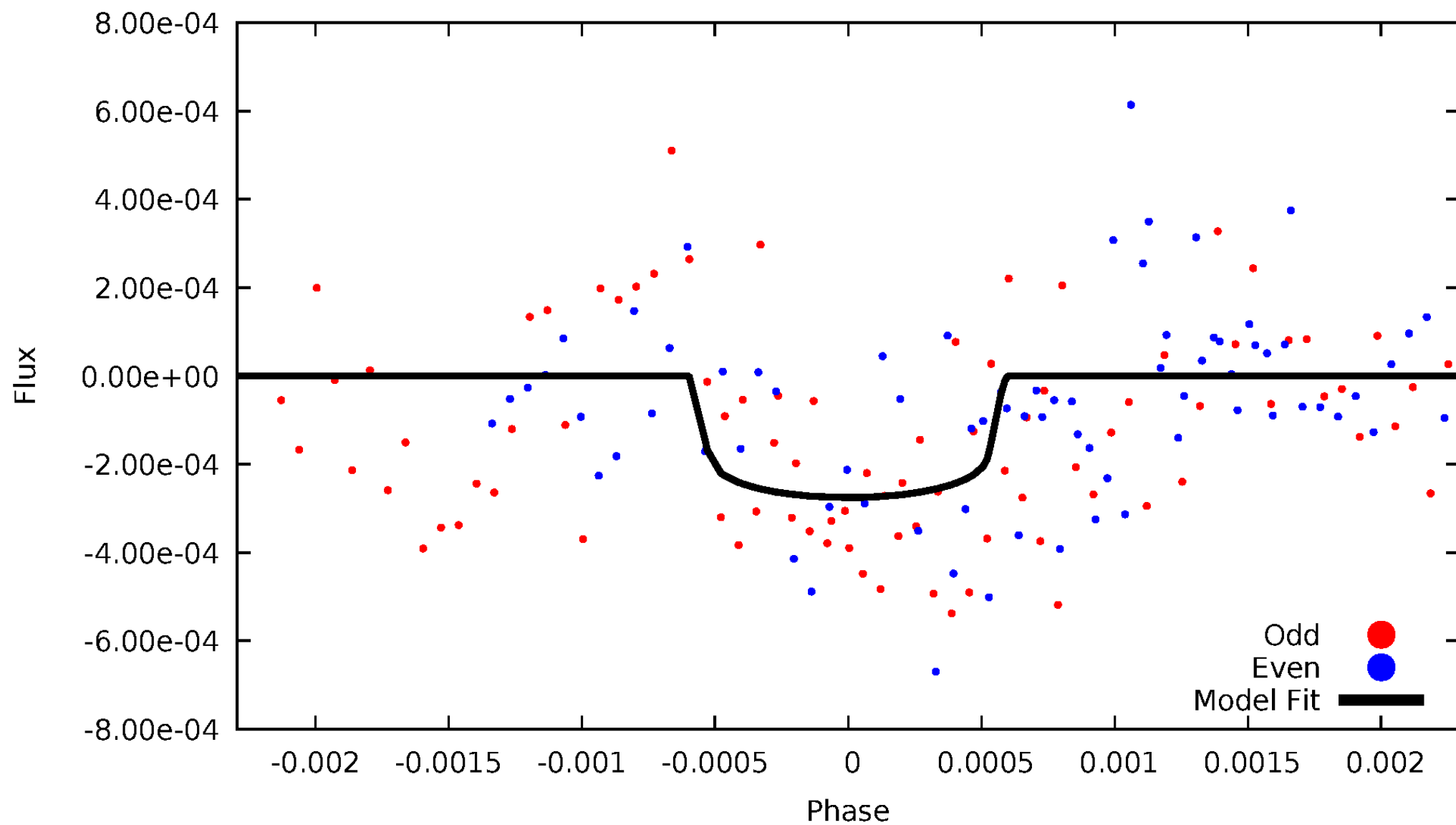


TCE 009030447-04



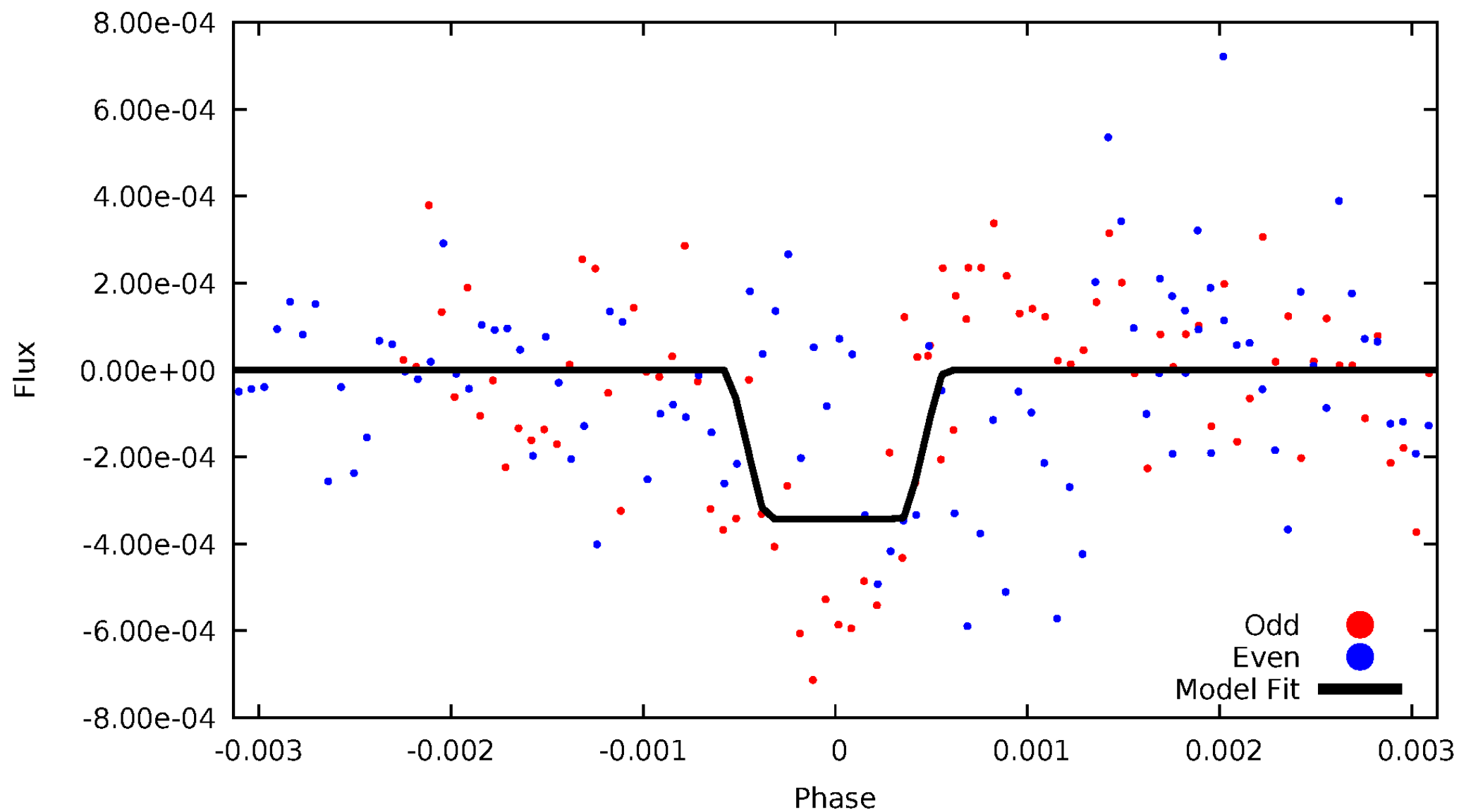
DV Odd/Even

TCE 009030447-04



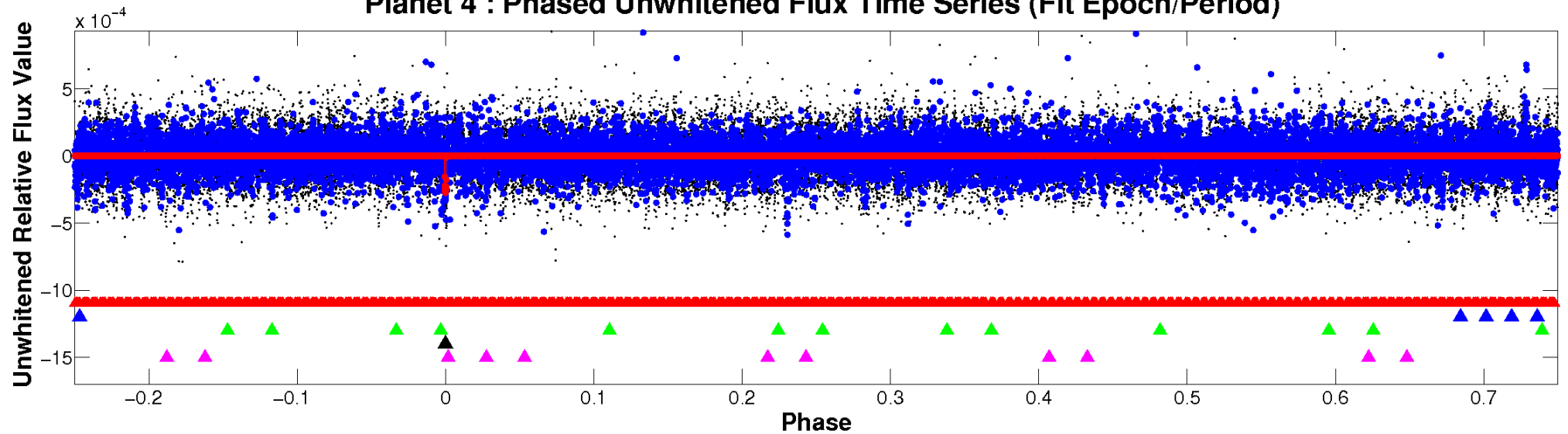
ALT Odd/Even

TCE 009030447-04

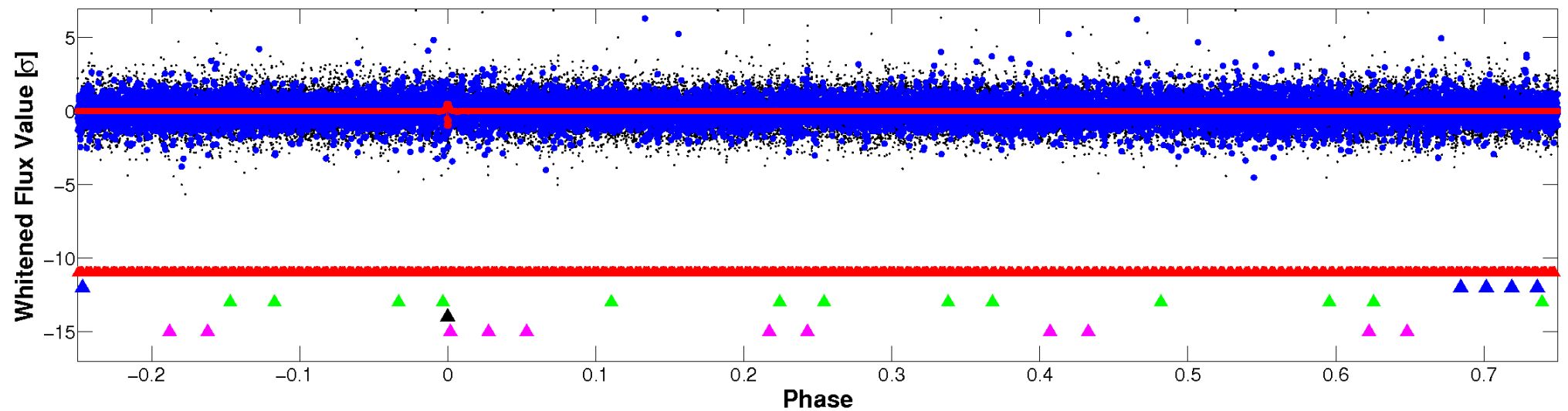


Non-Whitened Vs. Whitened Light Curve

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

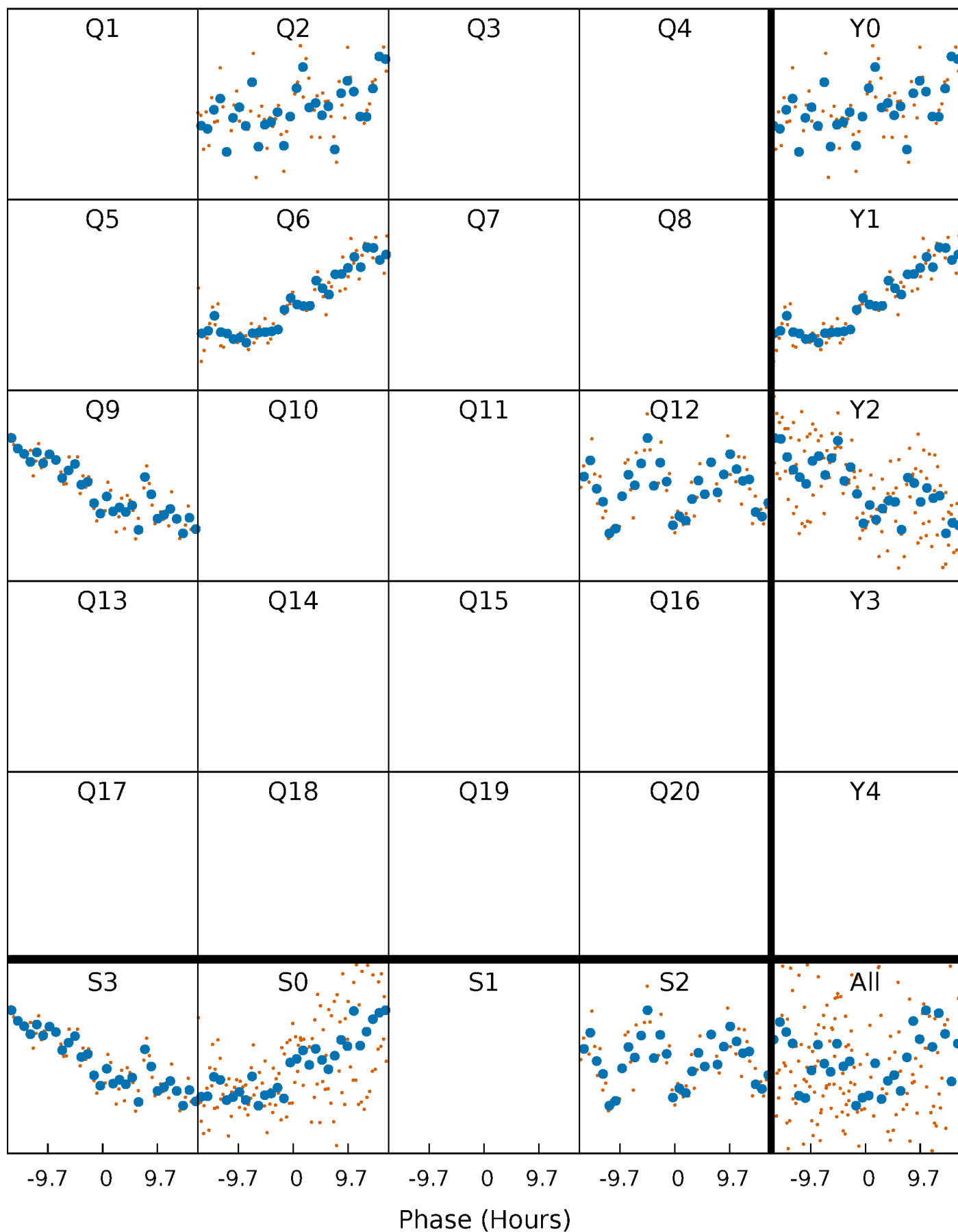


Planet 4 : Phased Whitened Flux Time Series (Fit Epoch/Period)



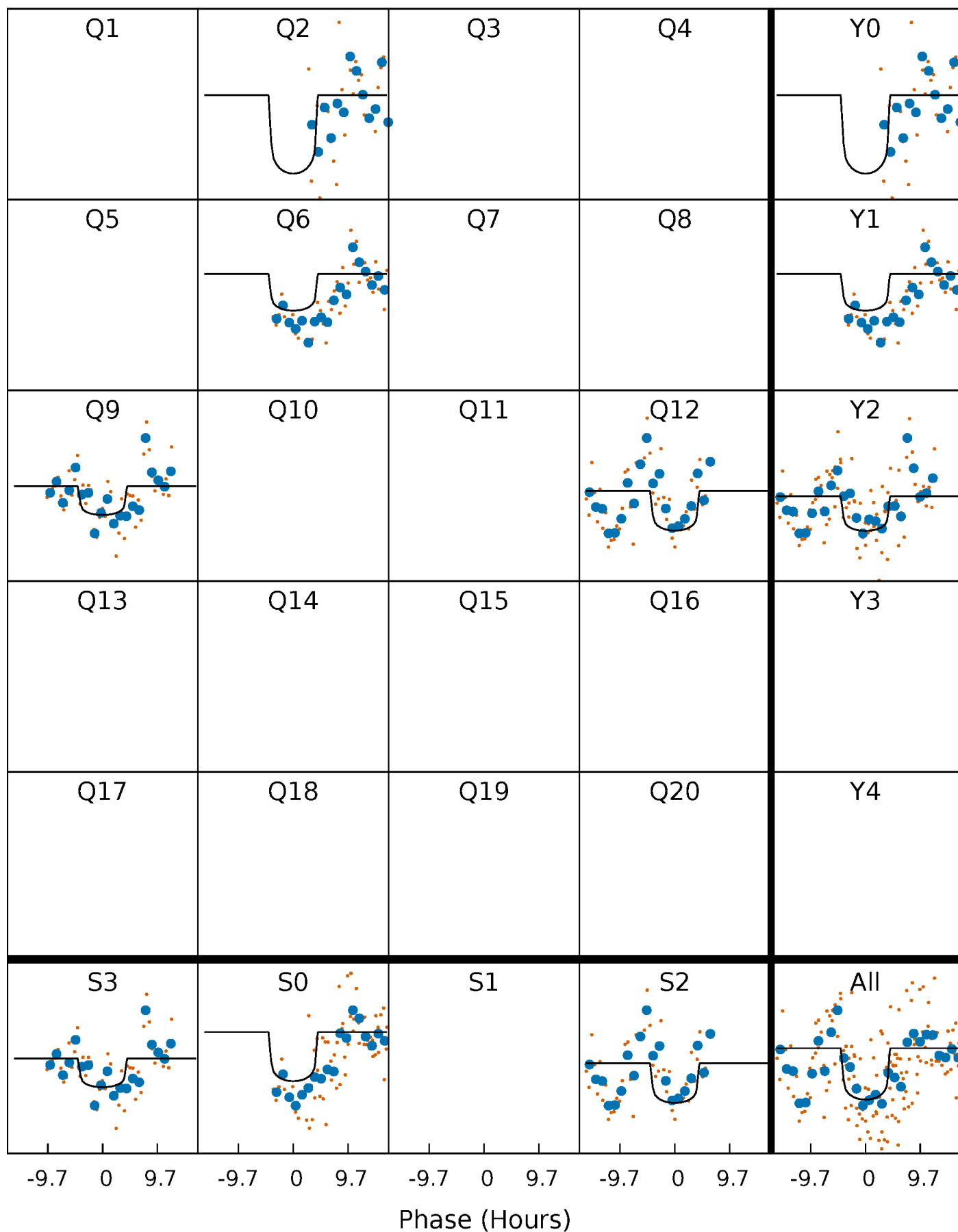
PDC Quarter-Phased Transit Curves

TCE 009030447-04 $P=306.826384$ Days $T_0=251.181345$ (BKJD)



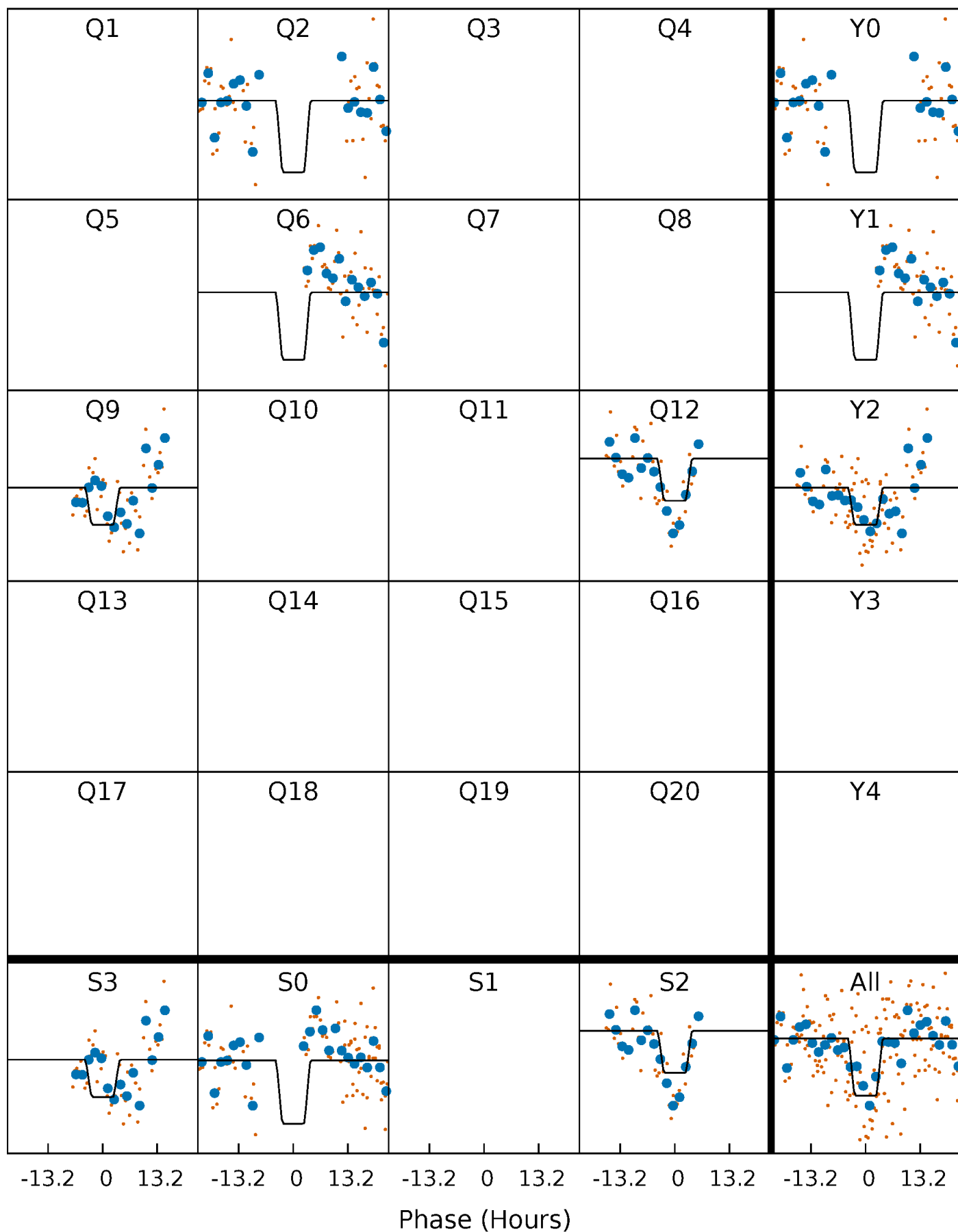
DV Quarter-Phased Transit Curves

TCE 009030447-04 $P=306.826384$ Days $T_0=251.181345$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

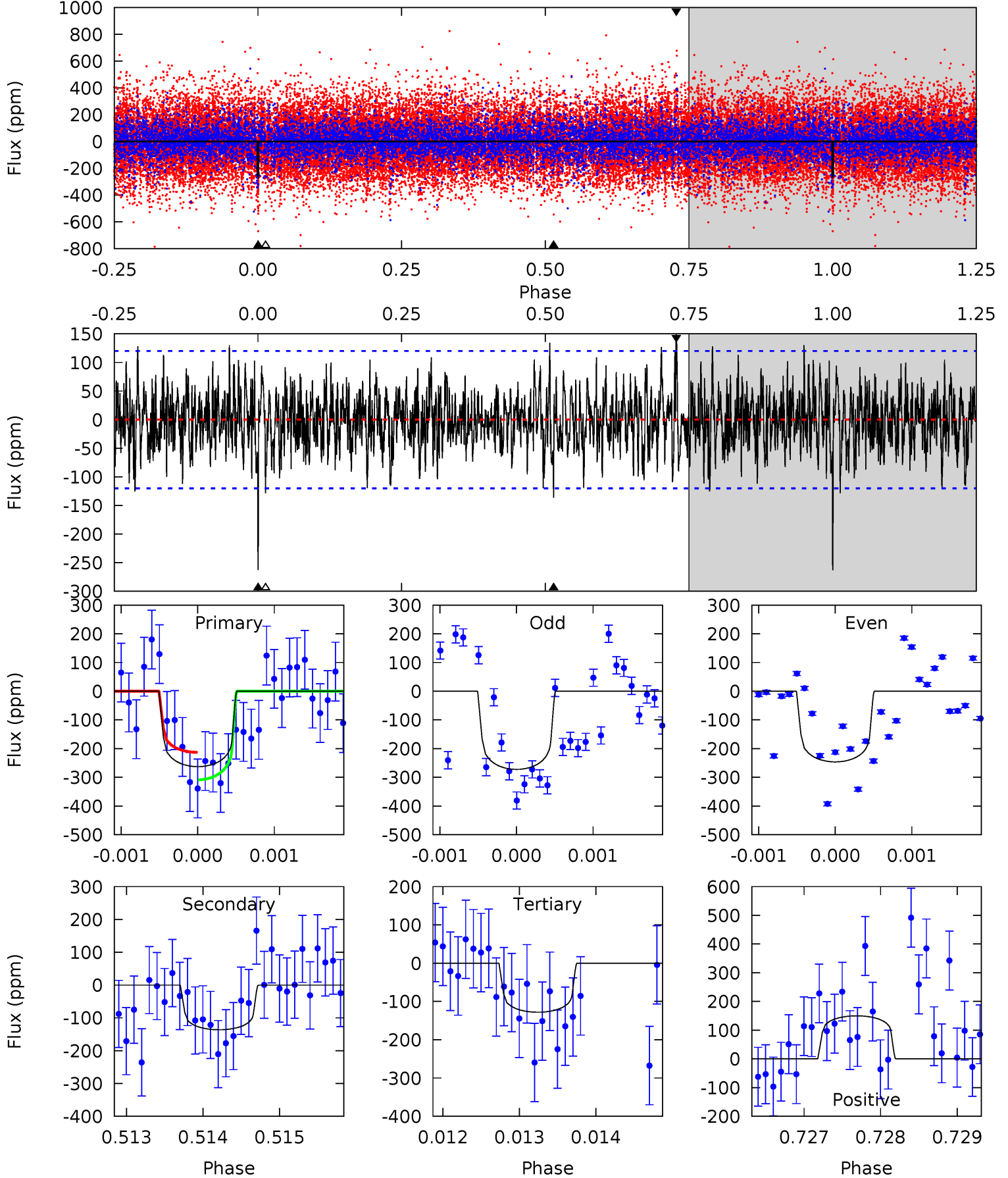
TCE 009030447-04 $P=306.973372$ Days $T_0=250.777180$ (BKJD)



DV Model-Shift Uniqueness Test

009030447-04, P = 306.826384 Days, E = 251.181345 Days

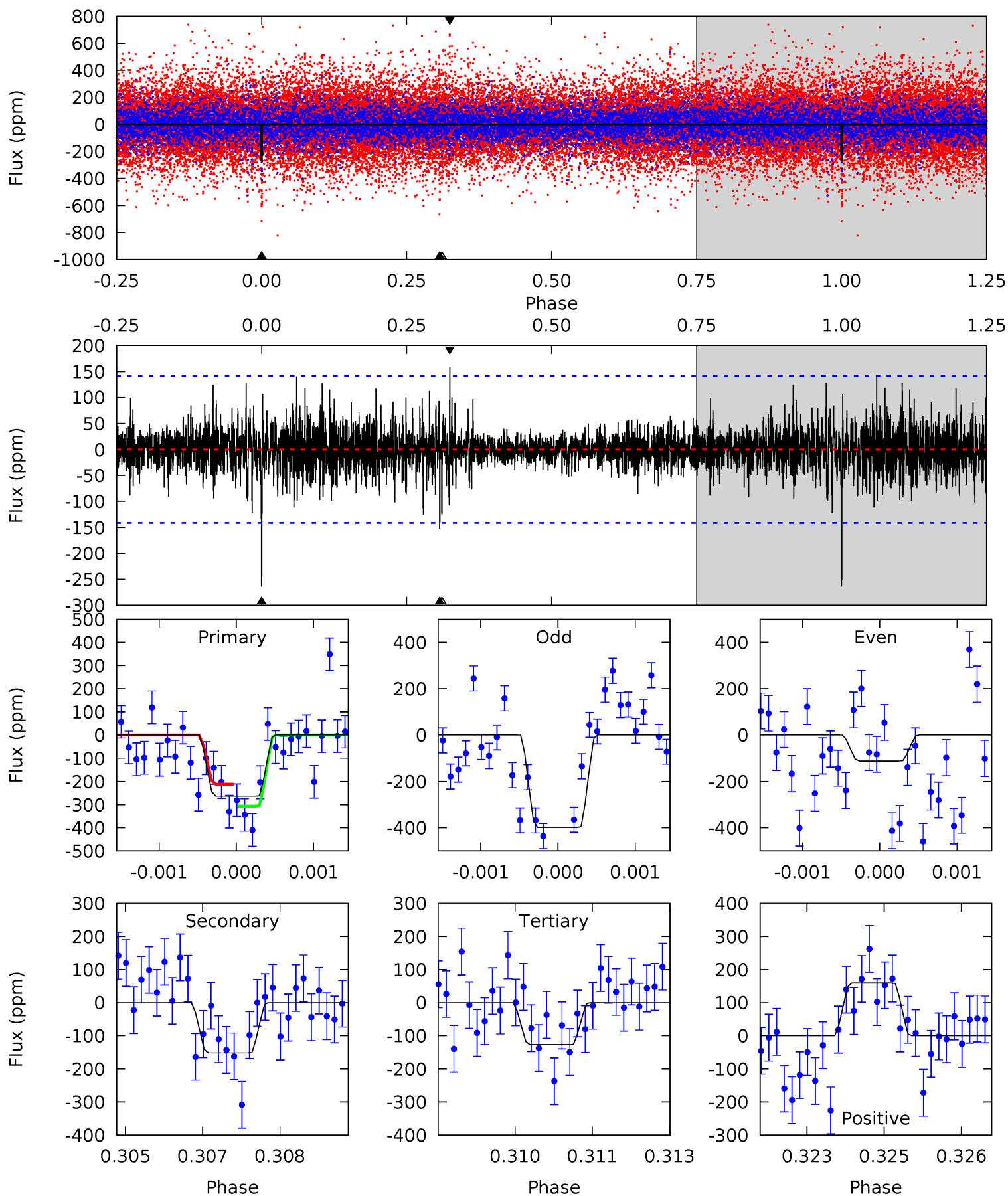
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
11.9	6.15	5.79	6.77	5.42	3.24	1.84	6.08	5.10	0.37	-0.62	0.57	1.14	0.36	2.14



Alt Model-Shift Uniqueness Test

009030447-04, P = 306.973372 Days, E = 250.777180 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
10.1	5.82	4.86	6.10	5.42	3.24	1.13	5.24	4.00	0.96	-0.28	5.48	1.38	0.38	1.79



Stellar Parameters For KIC 009030447

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$\rho_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6924^{+186}_{-249}	$3.616^{+0.296}_{-0.056}$	$-0.160^{+0.300}_{-0.250}$	$3.412^{+0.409}_{-1.228}$	$1.755^{+0.183}_{-0.339}$	$0.062^{+0.136}_{-0.011}$
	+3%/-4%	+8%/-2%	+188%/-156%	+12%/-36%	+10%/-19%	+219%/-18%
Source	PHO1	FLK73	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 009030447-04 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-136 ± 22	$6.19^{+3.42}_{-3.34}$	739^{+43}_{-63}	5562^{+2637}_{-963}	2264^{+8400}_{-1331}
Alt.	-152 ± 26	$6.46^{+3.54}_{-3.29}$	738^{+41}_{-62}	5520^{+2653}_{-902}	2208^{+7118}_{-1245}

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

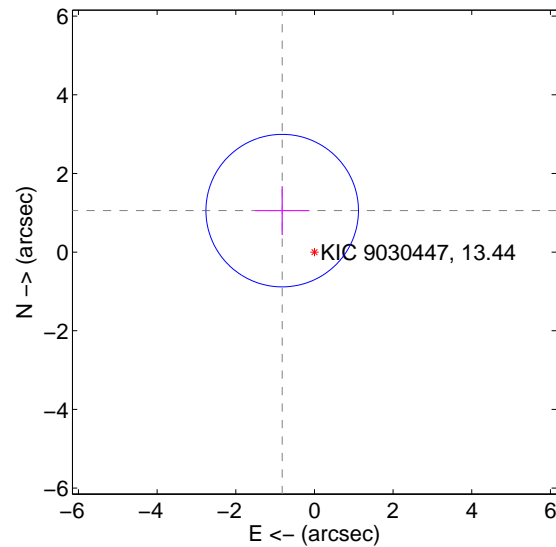
Supplemental centroid analysis for 009030447-04. Kepler magnitude: 13.44. Transit SNR 6.99

There are 1 quarters with good PRF difference image offsets

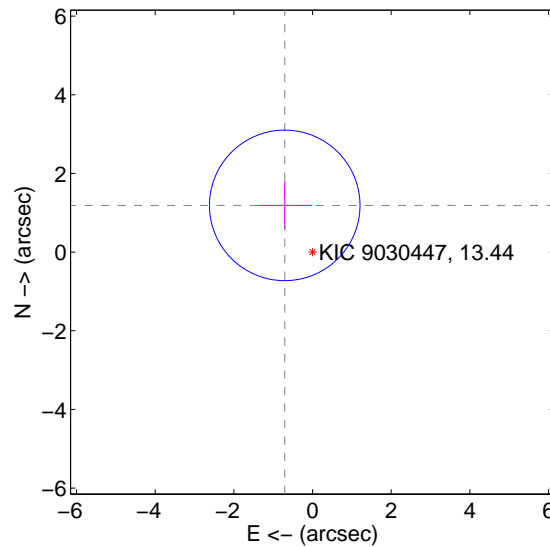
The direct PRF centroid is offset from the target star catalog position by about 0.17 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	1.336 ± 0.646	2.07	0.820 ± 0.690	1.055 ± 0.618
PRF-fit source offset from KIC position	1.382 ± 0.638	2.17	0.707 ± 0.690	1.188 ± 0.618
photometric centroid source offset	1.88 ± 1.08	1.74	-0.56 ± 1.00	1.80 ± 1.09

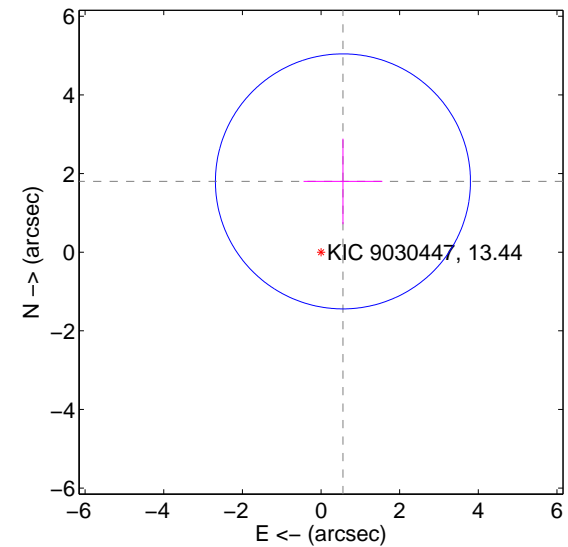
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

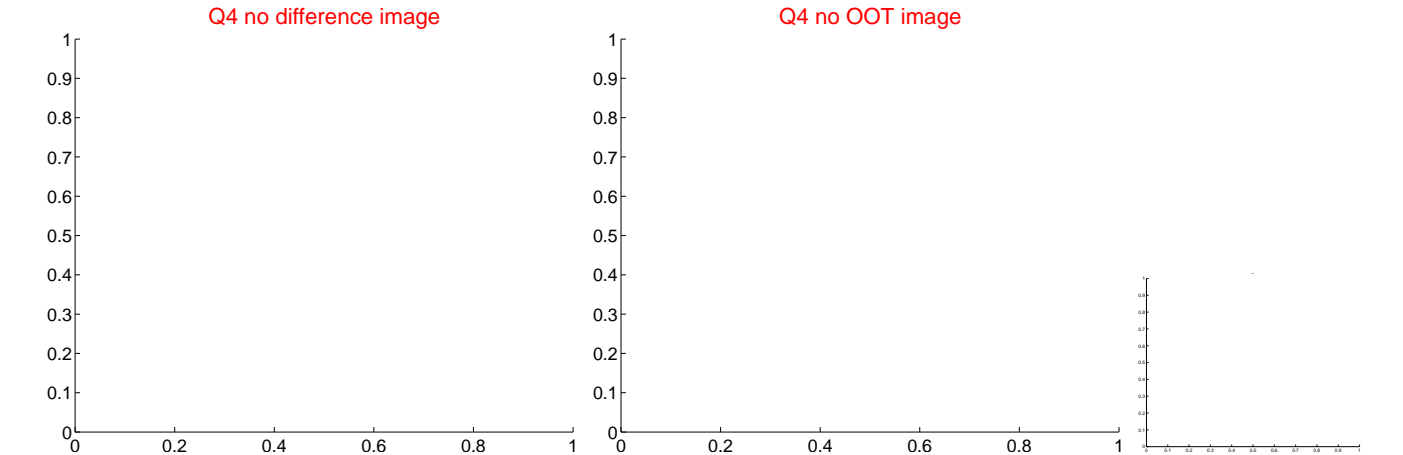
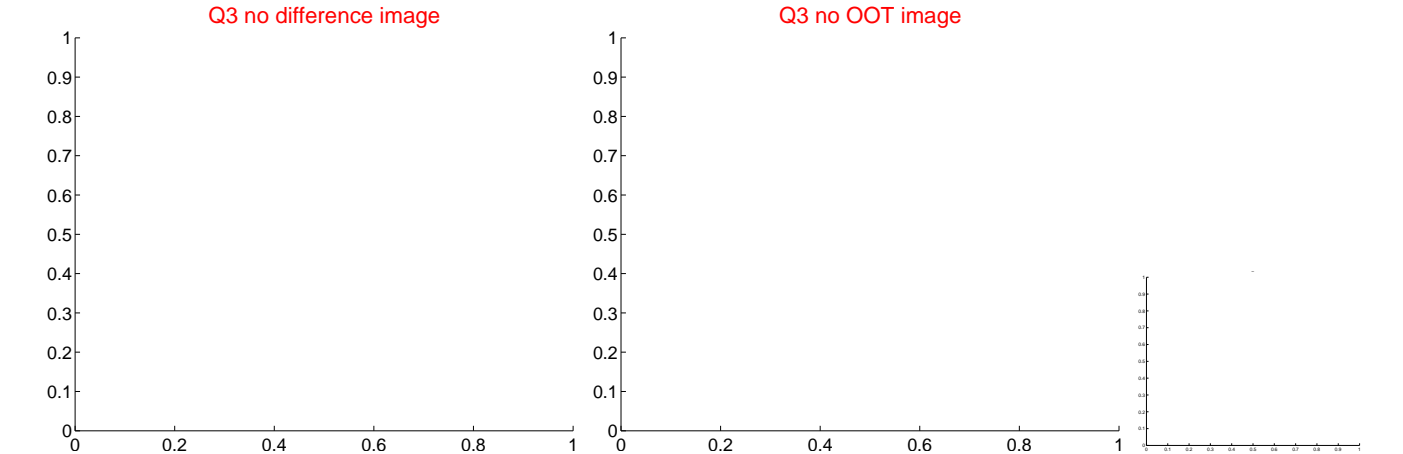
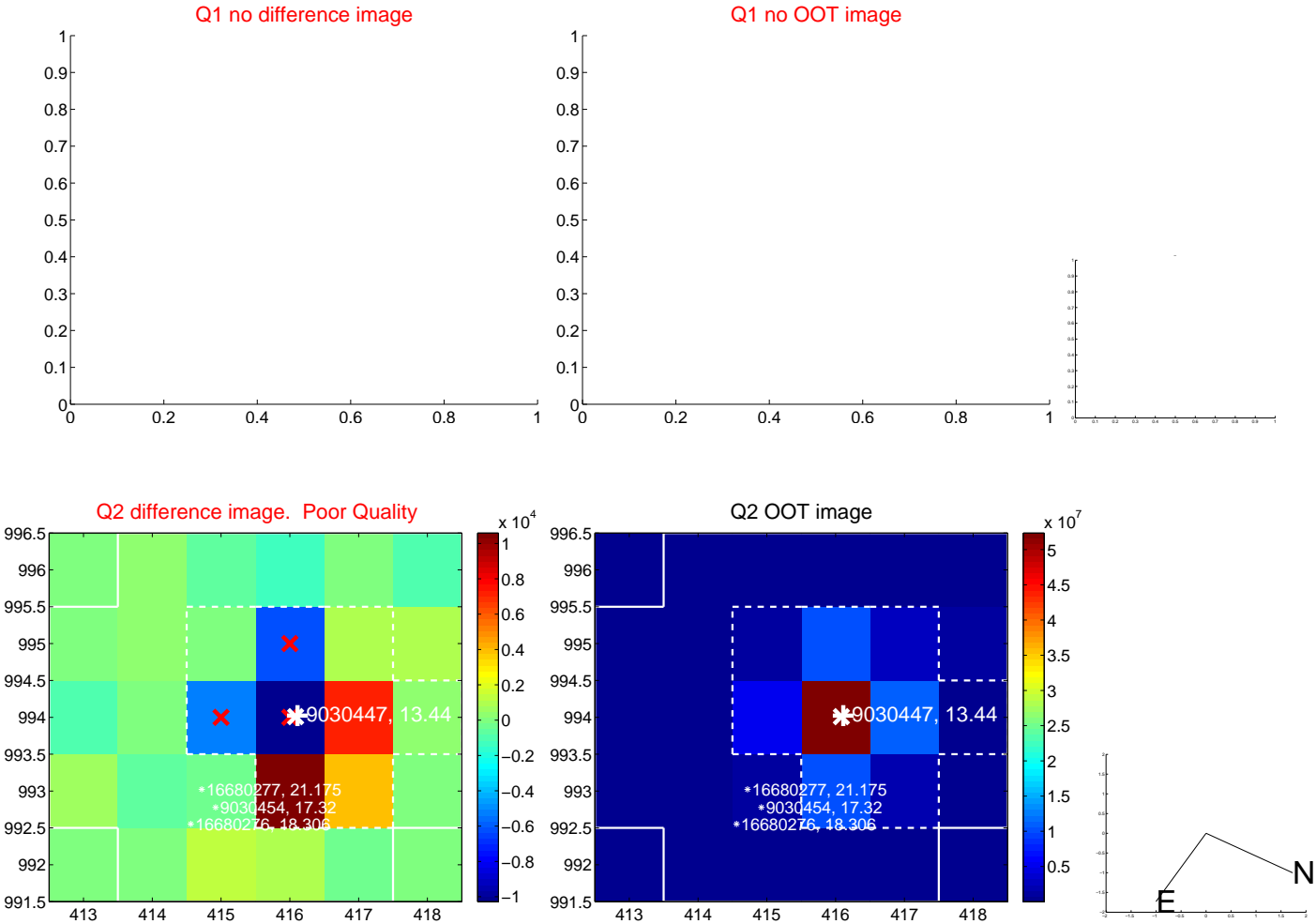


offset from photometric centroids



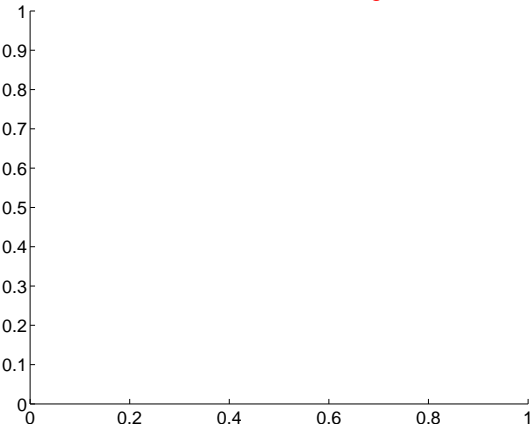
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

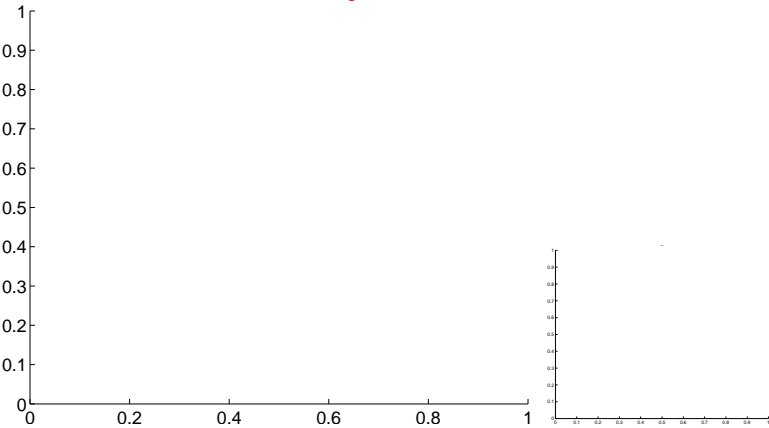


white ×: KIC target position; +: OOT centroid; △: difference centroid. red ✕: large negative pixel value.

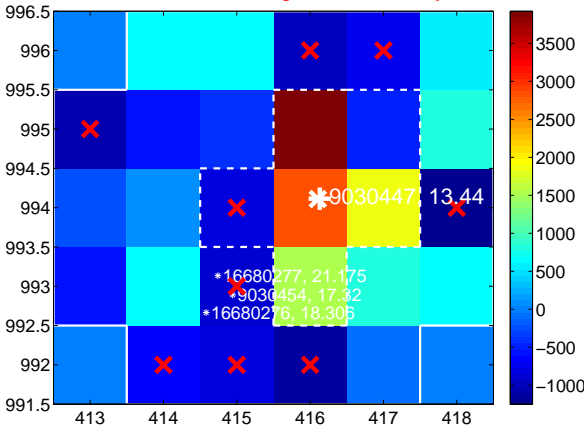
Q5 no difference image



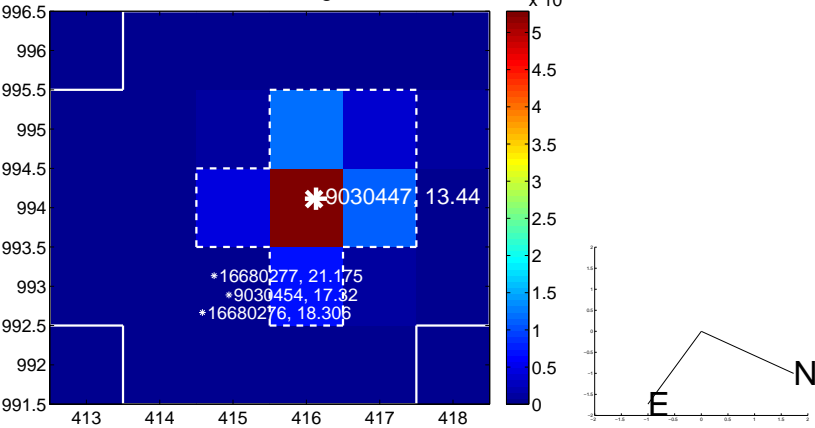
Q5 no OOT image



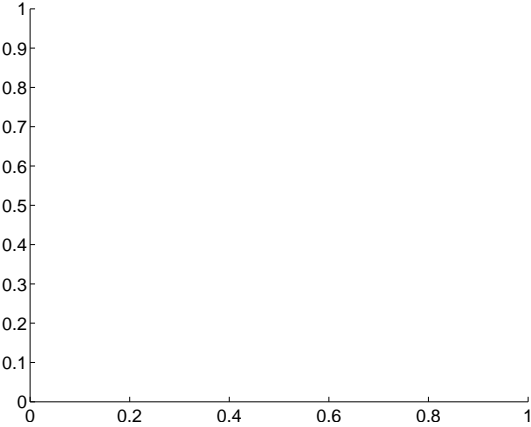
Q6 difference image. Poor Quality



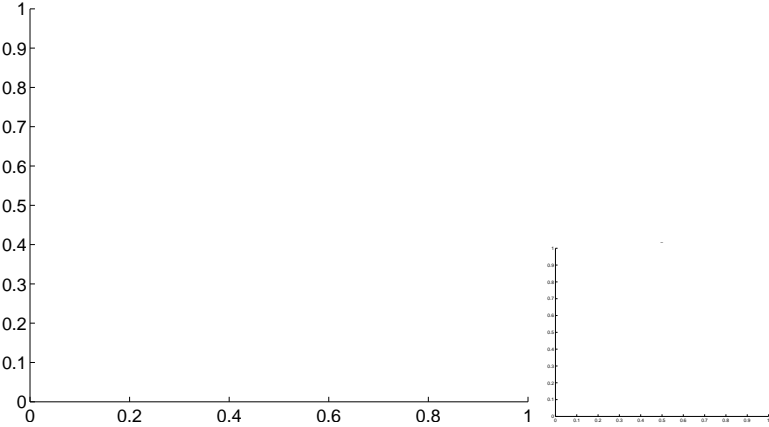
Q6 OOT image



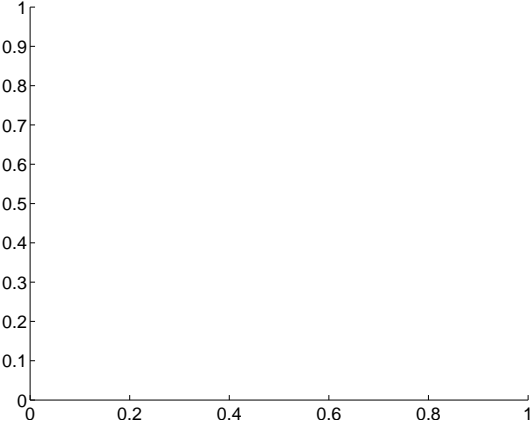
Q7 no difference image



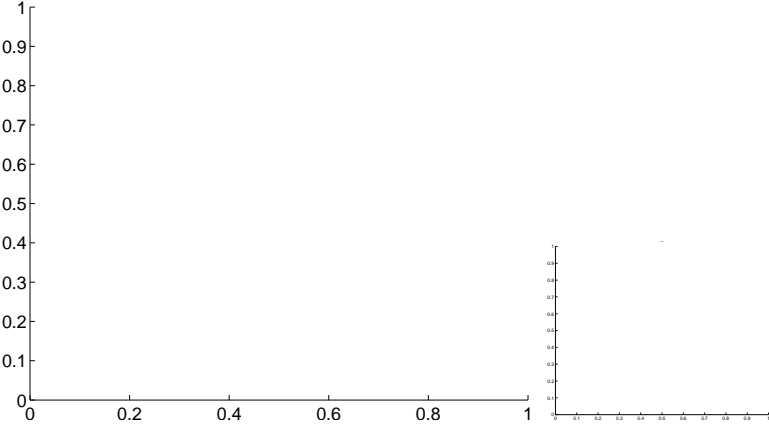
Q7 no OOT image



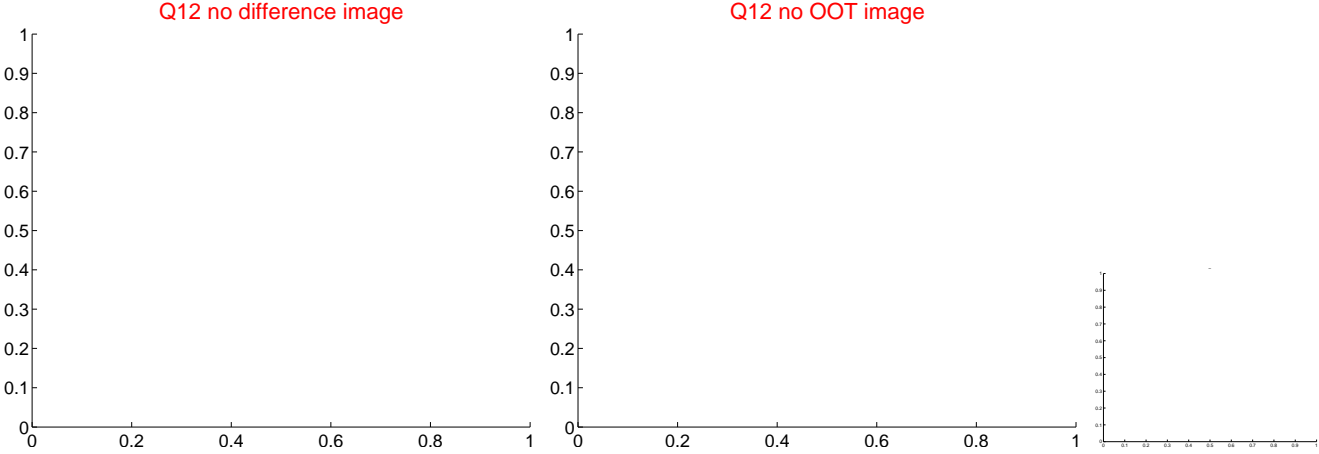
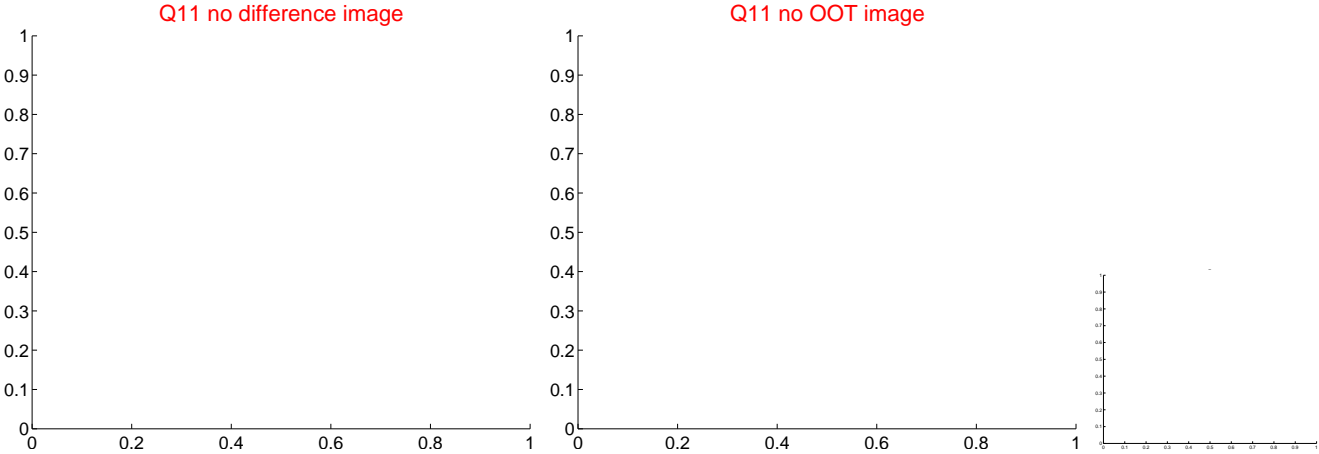
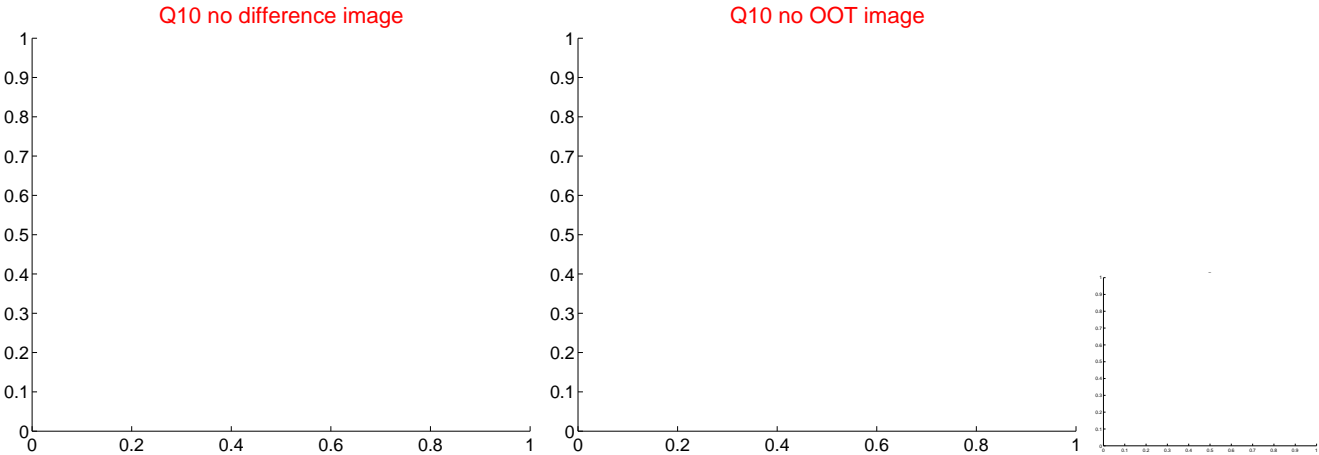
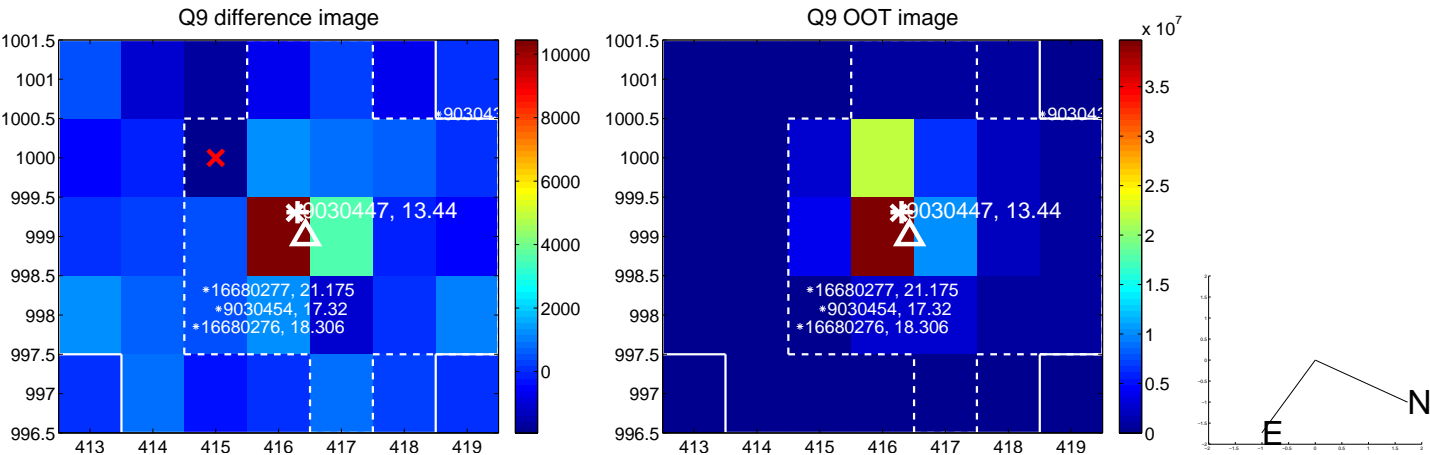
Q8 no difference image



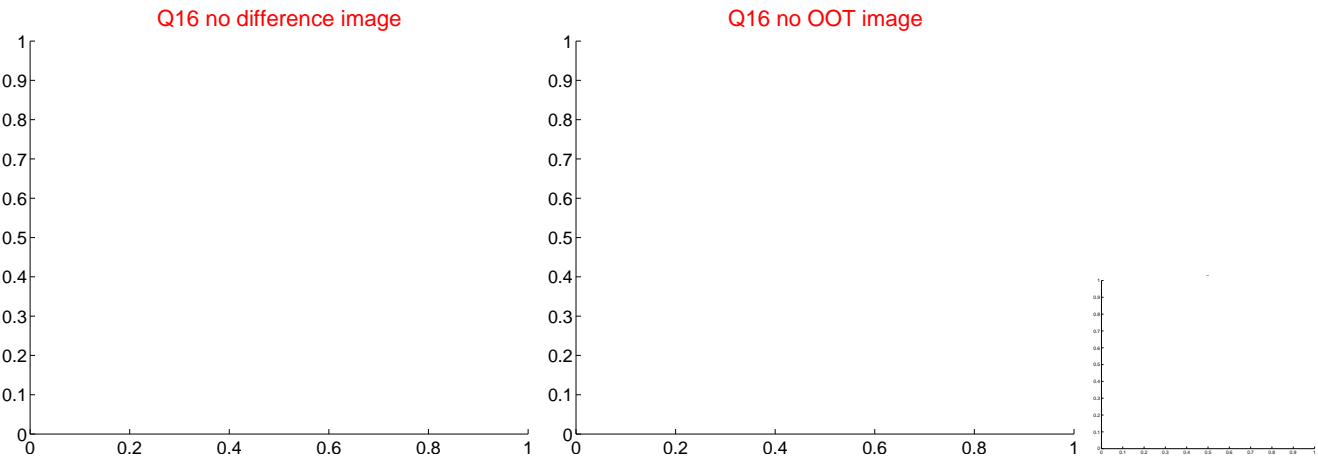
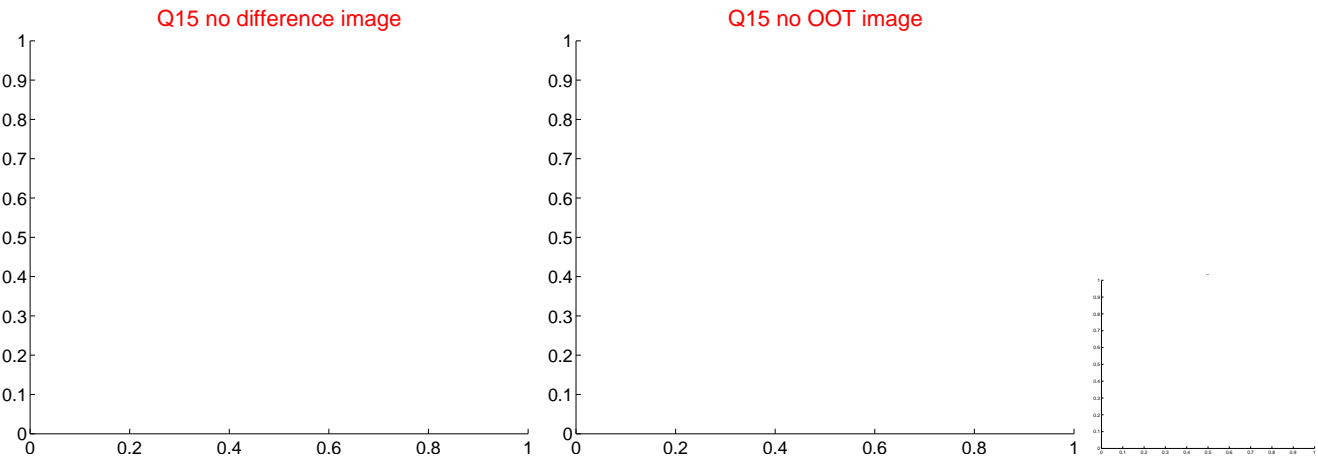
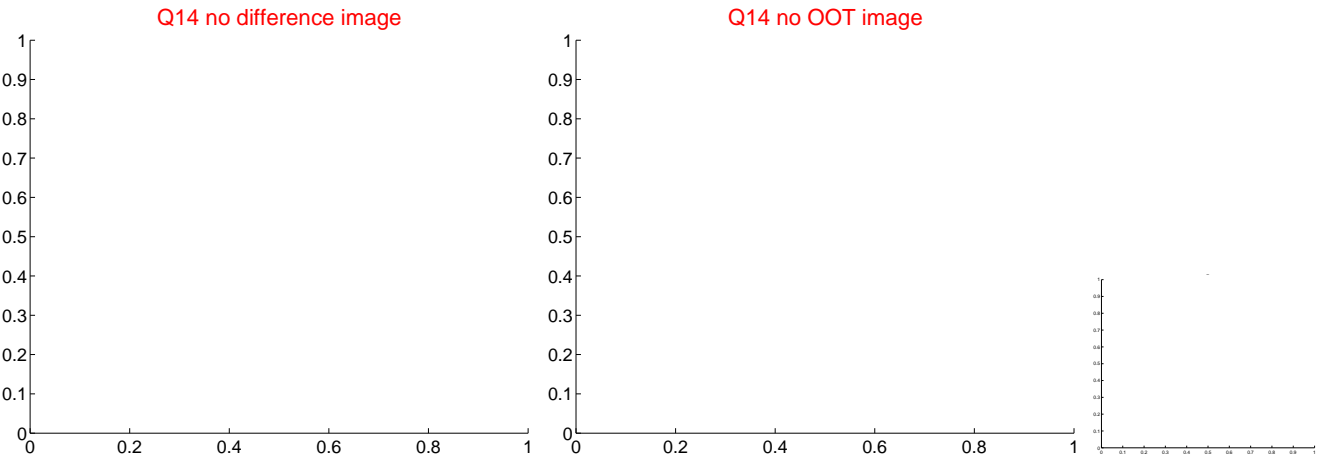
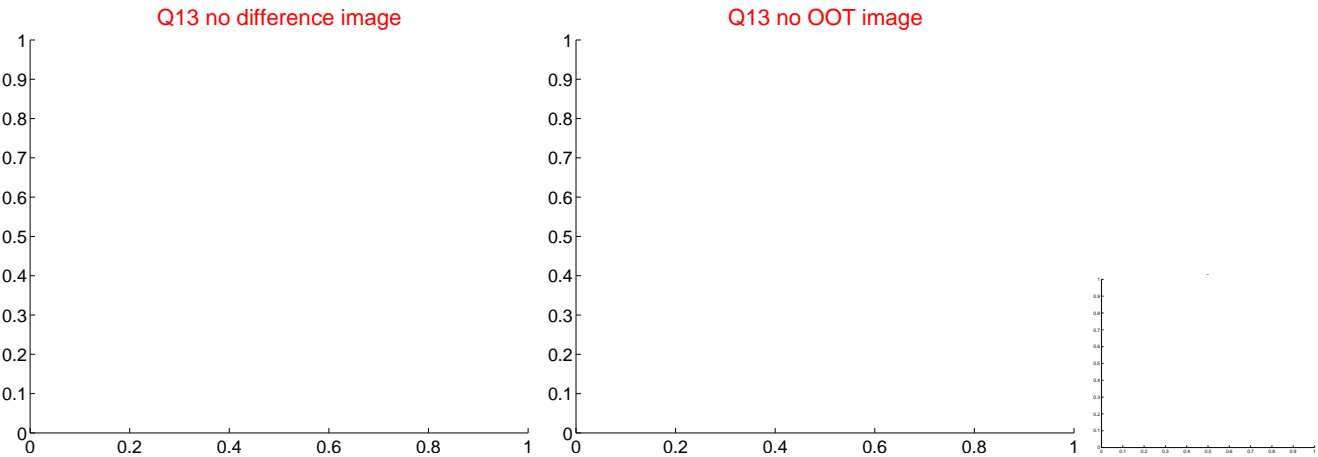
Q8 no OOT image



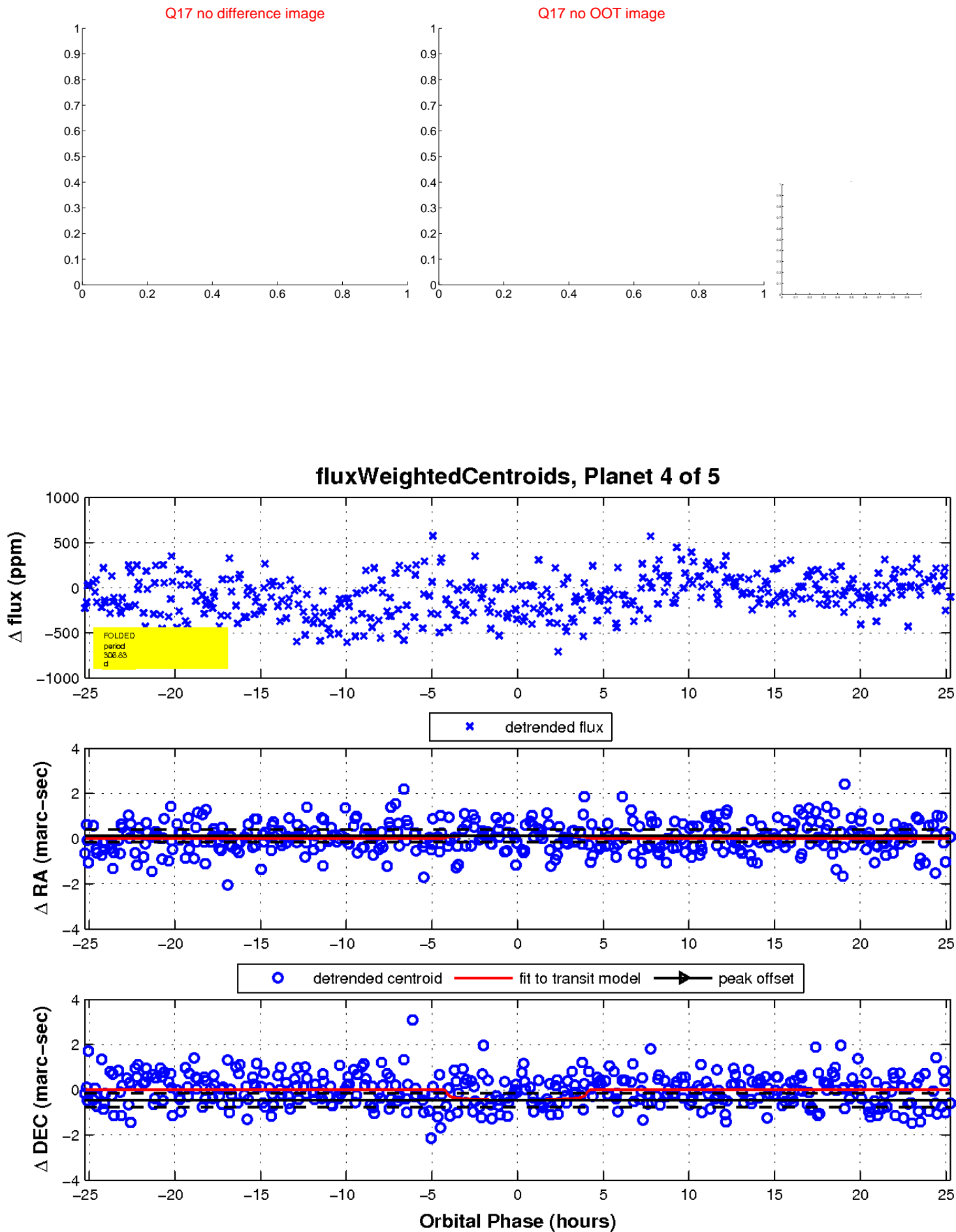
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.



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

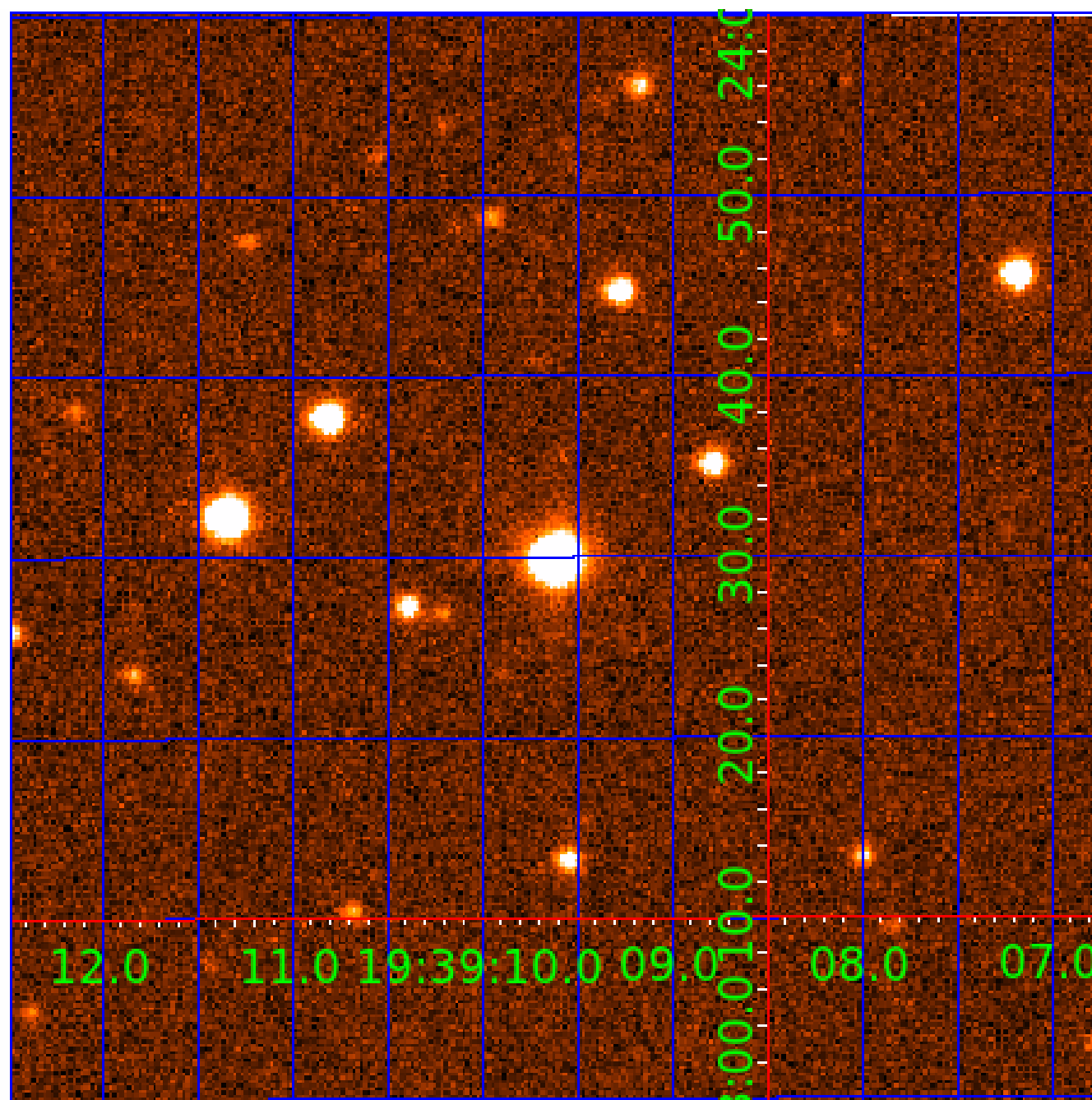


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 009030447

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})
009030447-01	OBS	No	1.751846	131.736321	20.7	6.479	7.7	7.1	3.41	6924	1.57	20370.45
009030447-02	OBS	No	301.539638	175.496539	359.2	15.674	10.9	7.1	3.41	6924	8.01	21.27
009030447-03	OBS	No	113.911778	215.286571	295.6	3.991	10.0	5.4	3.41	6924	6.62	77.91
009030447-04	OBS	No	306.826384	251.181345	275.2	8.444	8.6	7.0	3.41	6924	6.03	20.79
009030447-05	OBS	No	124.311107	251.743549	184.9	6.514	7.6	6.7	3.41	6924	5.14	69.34

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009030447-01	OBS	FP	0.00	1	0	0	0	LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
009030447-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
009030447-03	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—INCONSISTENT_TRANS—HALO_GHOST
009030447-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL_TRACKER—LPP_DV—MOD_NONUNIQ_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
009030447-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_MEAS

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

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

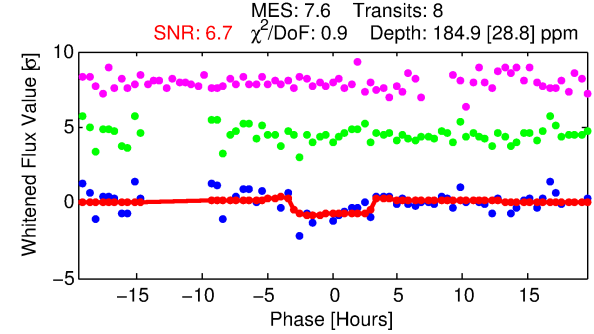
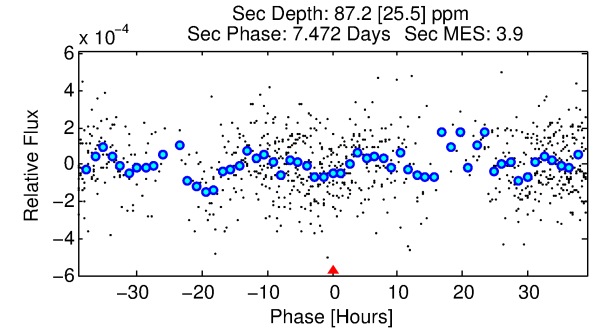
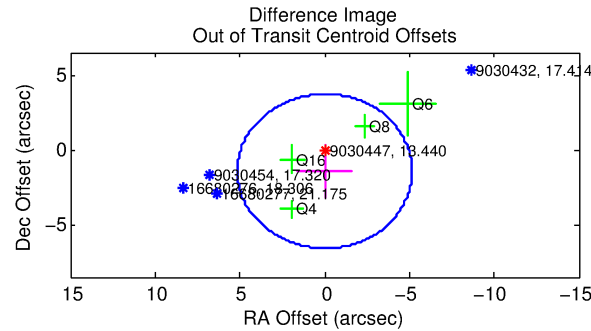
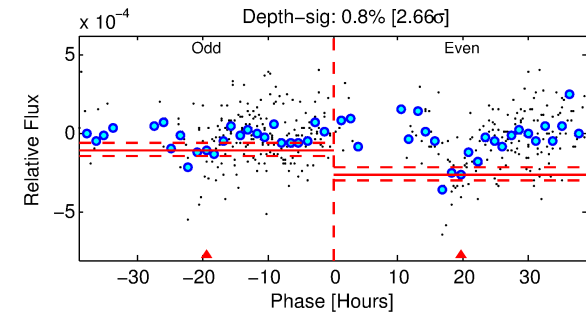
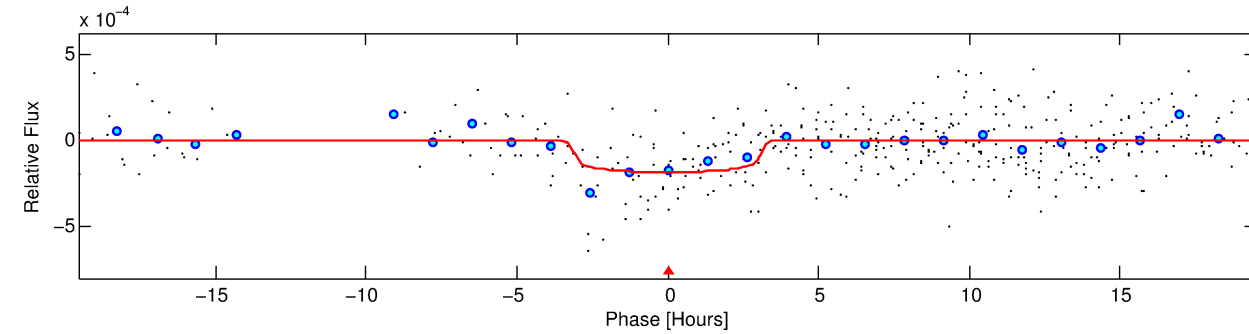
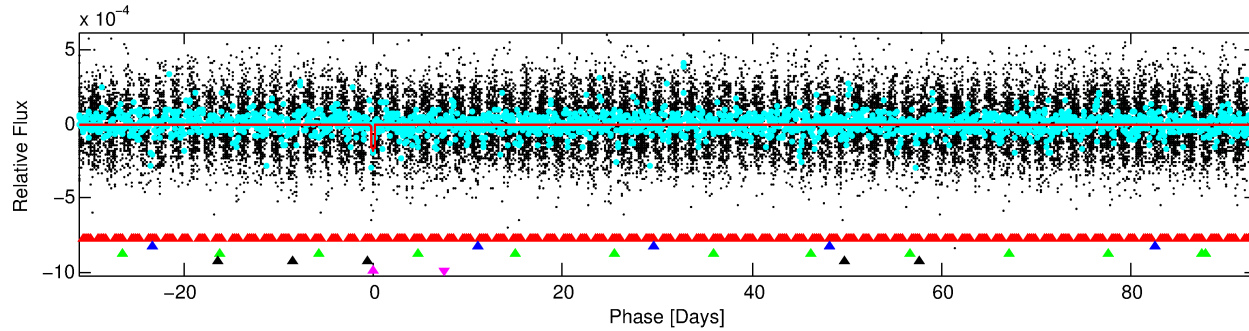
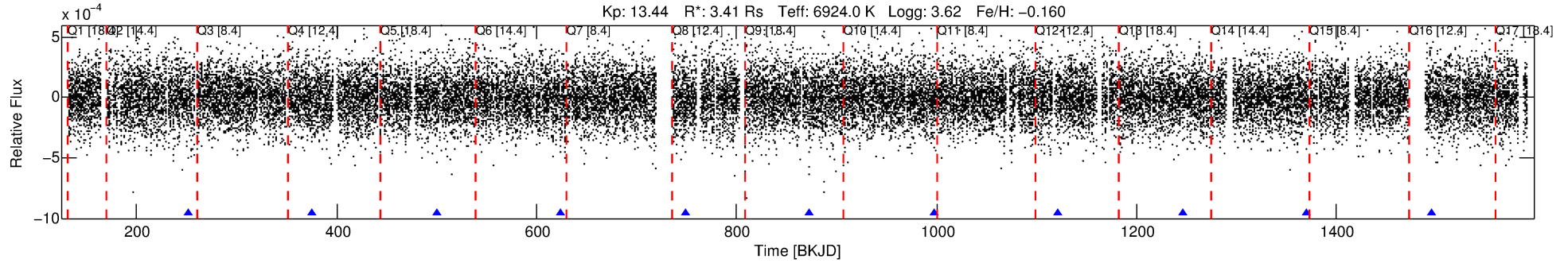
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 009030447-05

No Significant Match Found

DV One-Page Summary

KIC: 9030447 Candidate: 5 of 5 Period: 124.311 d
KOI: K01401 Corr: No Ephemeris Match



DV Fit Results:

Period = 124.31111 [0.00326] d
Epoch = 251.7435 [0.0127] BKJD
Rp/R* = 0.0138 [0.0067]
a/R* = 88.86 [250.78]
b = 0.81 [1.21]
Seff = 69.34 [37.00]
Teff = 736 [98] K
Rp = 5.14 [3.11] Re
a = 0.5880 [0.1943] AU
Ag = 628.60 [715.61] [0.88 σ]
Teffp = 5696 [1461] K [3.39 σ]

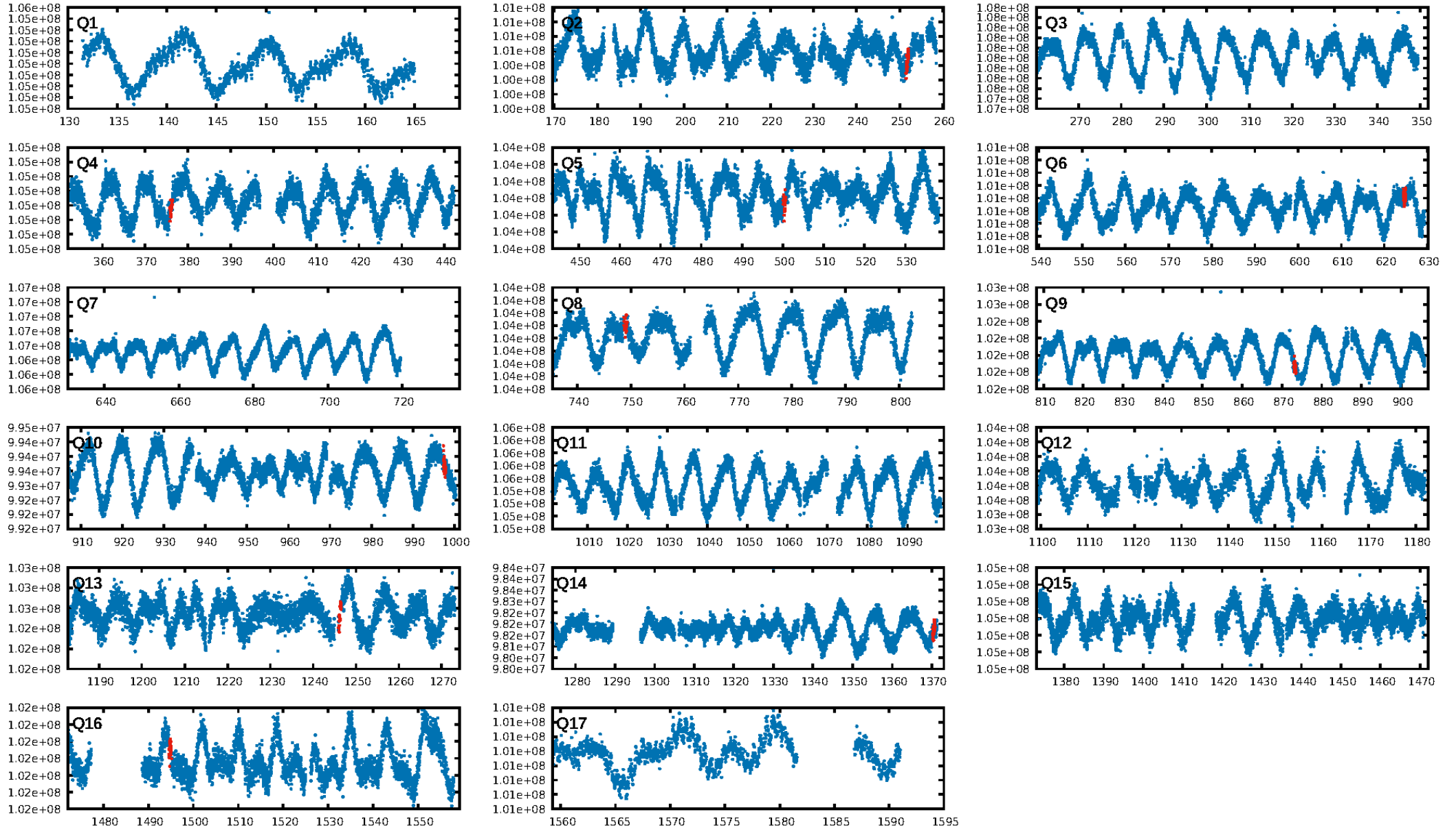
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [32.67 σ]
LongPeriod-sig: 100.0% [250.59 σ]
ModelChiSquare2-sig: 19.6%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 1.36e-10
RollingBand-fgt: 1.00 [8/8]
GhostDiagnostic-chr: -1.166
Centroid-sig: 50.5%
Centroid-so: 0.968 arcsec [0.96 σ]
OotOffset-rm: 1.437 arcsec [0.84 σ]
KicOffset-rm: 1.354 arcsec [0.78 σ]
OotOffset-st: 1/0/3/0 [4]
KicOffset-st: 1/0/3/0 [4]
DiffImageQuality-fgm: 0.25 [1/4]
DiffImageOverlap-fno: 0.25 [2/8]

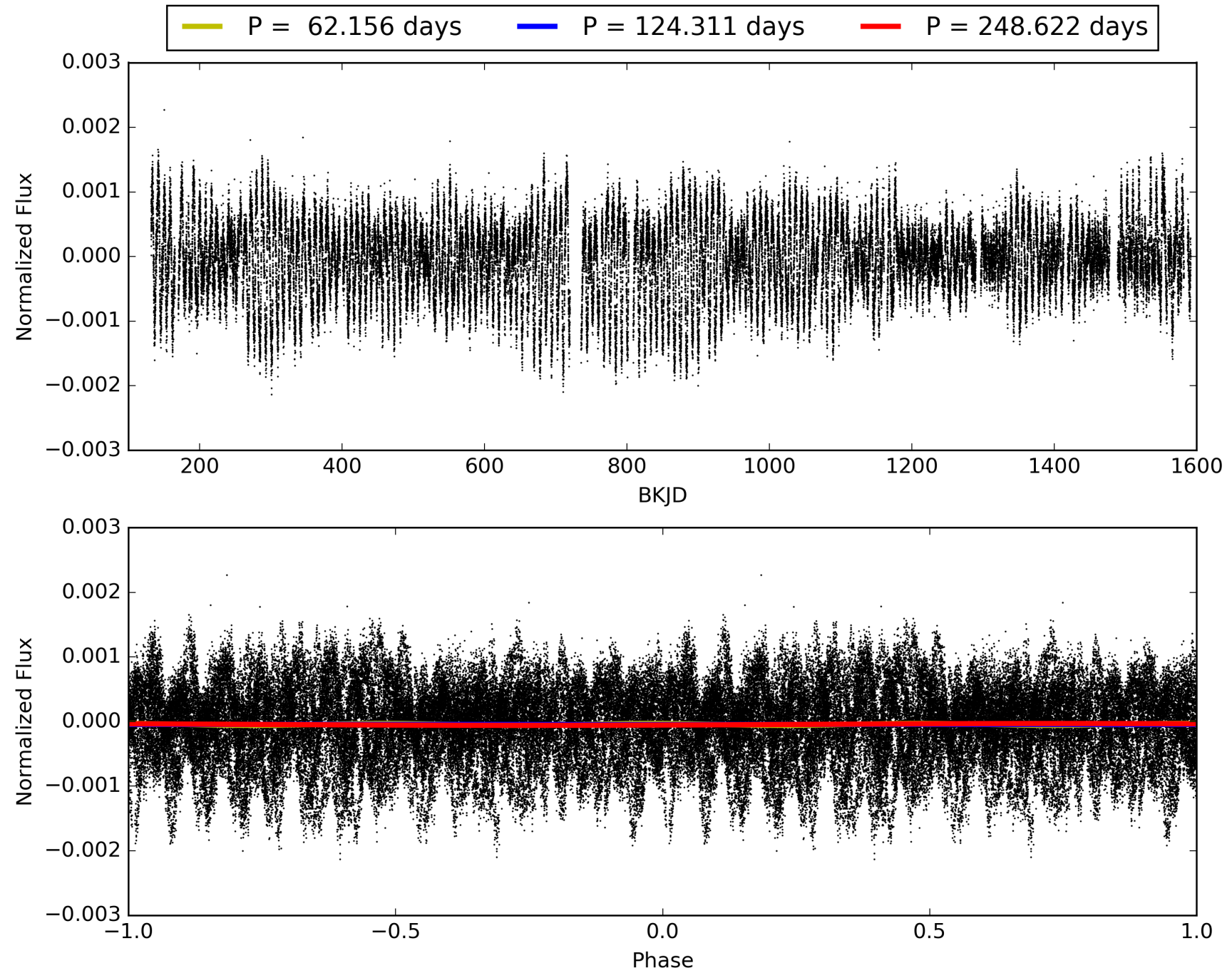
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 02-Feb-2016 17:20:41 Z

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

TCE 009030447-05, PDC Light Curves

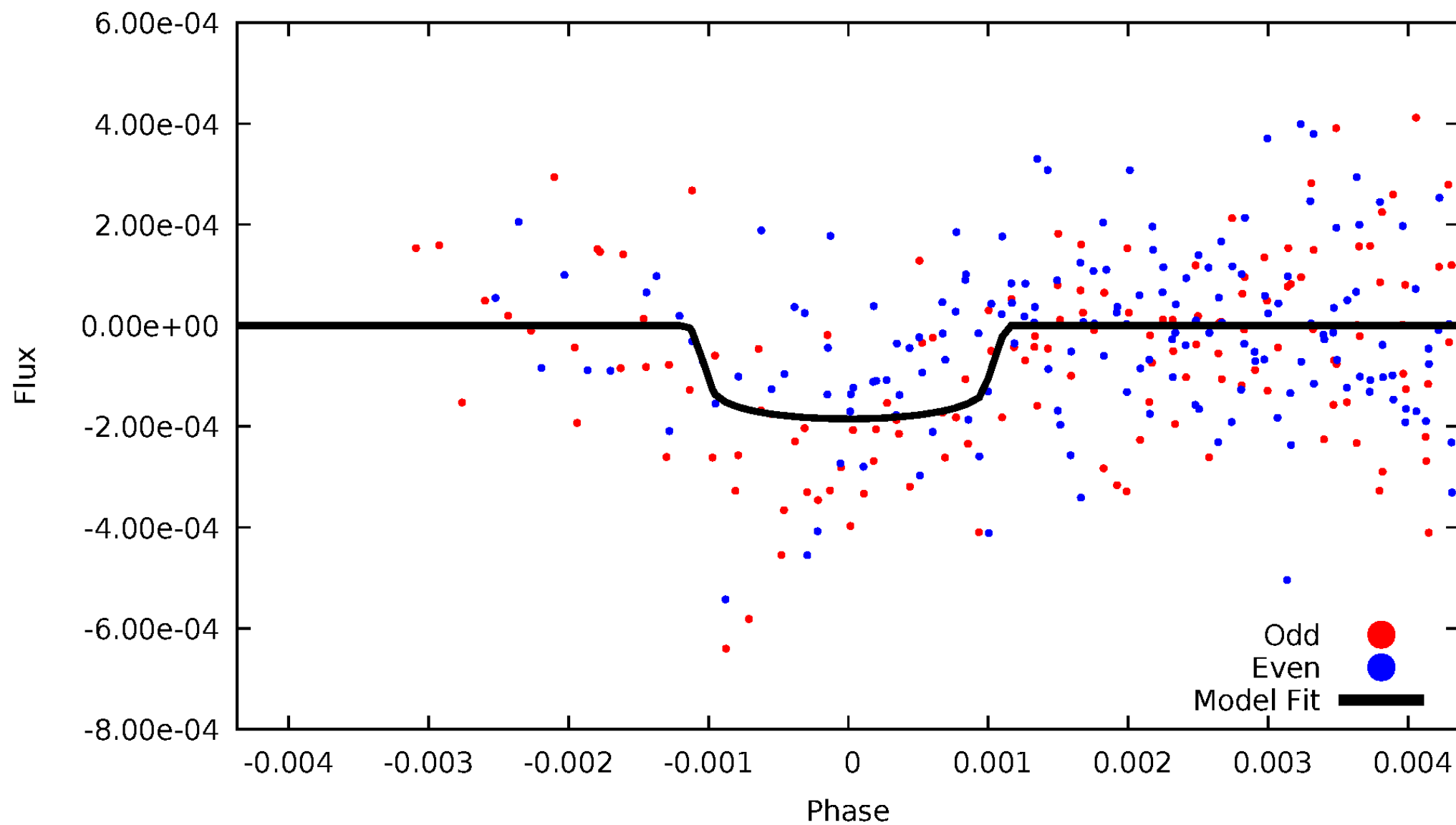


TCE 009030447-05



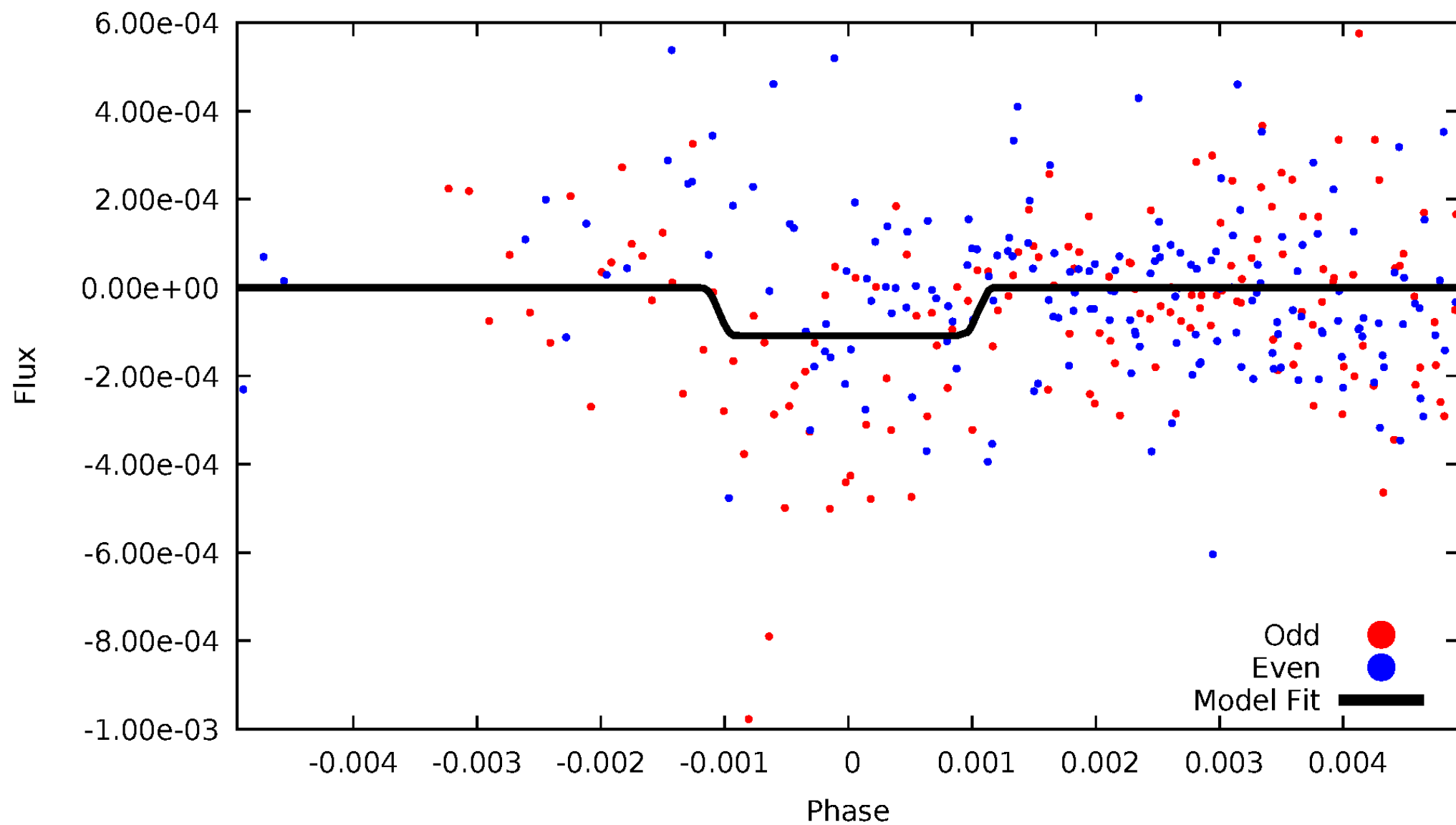
DV Odd/Even

TCE 009030447-05



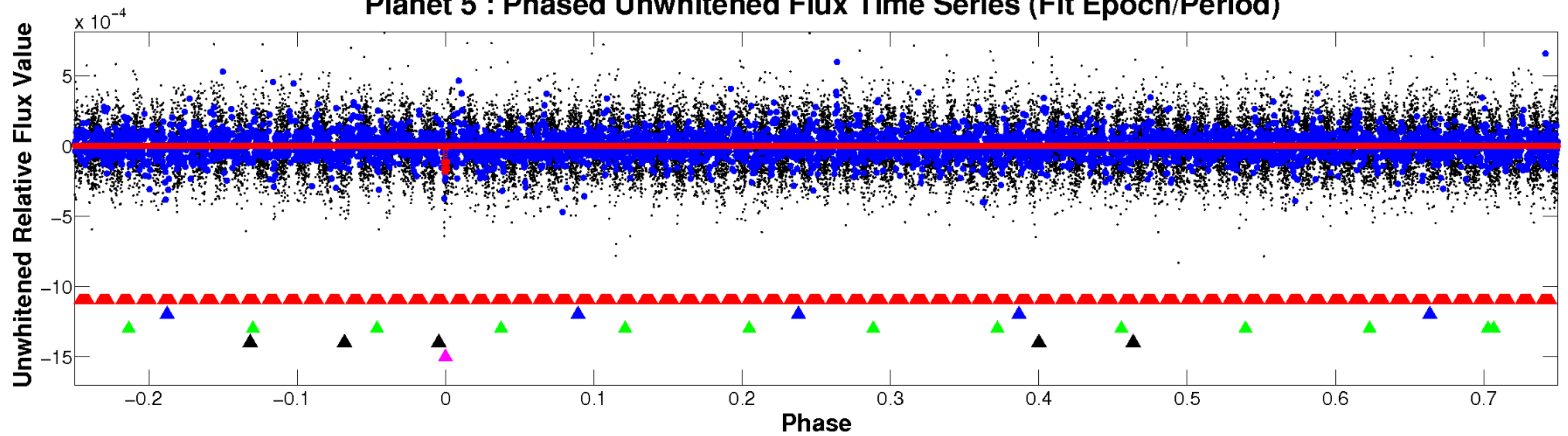
ALT Odd/Even

TCE 009030447-05

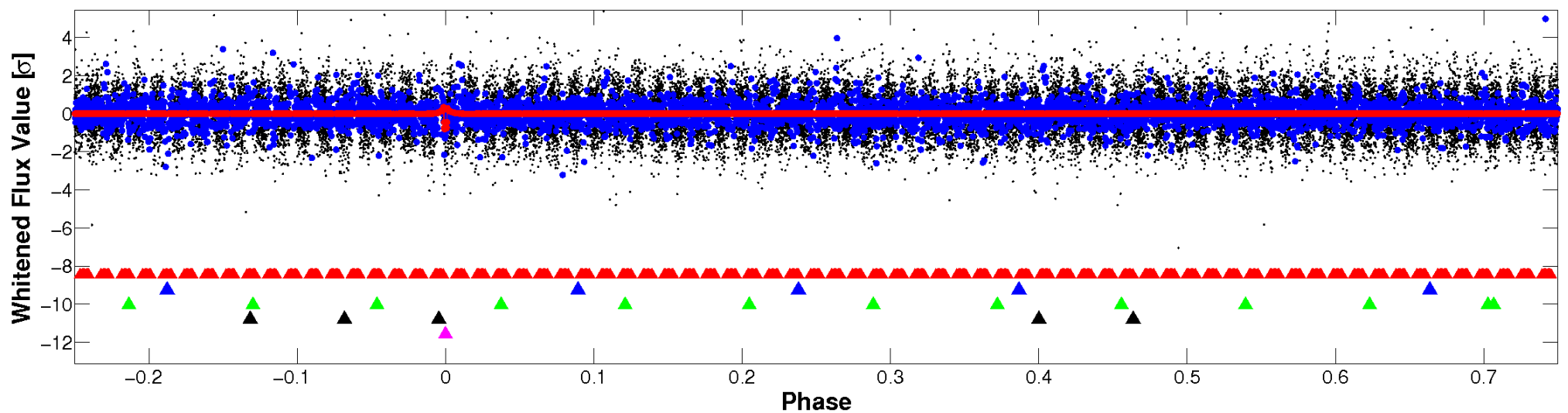


Non-Whitened Vs. Whitened Light Curve

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

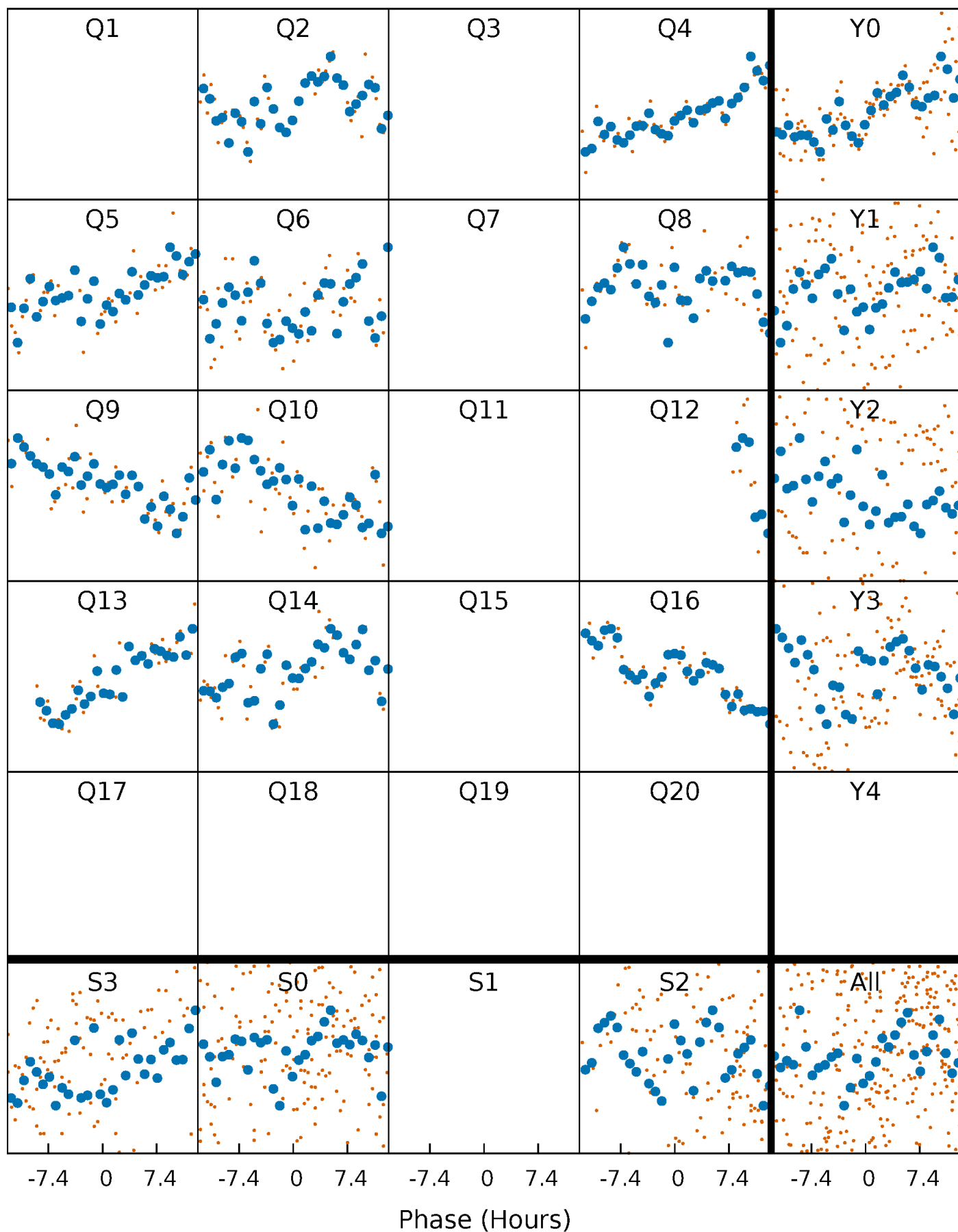


Planet 5 : Phased Whitened Flux Time Series (Fit Epoch/Period)



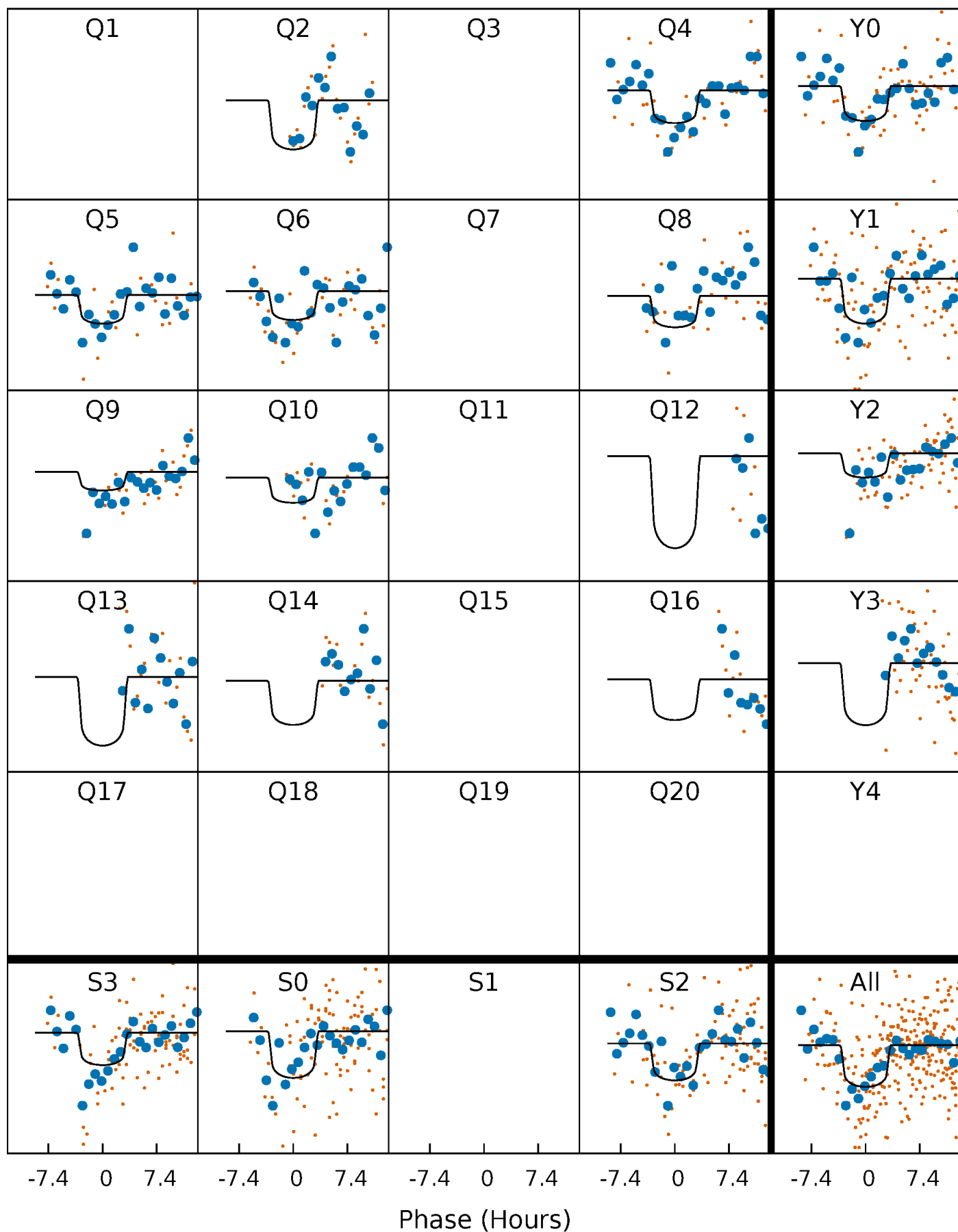
PDC Quarter-Phased Transit Curves

TCE 009030447-05 $P=124.311106$ Days $T_0=251.743549$ (BKJD)



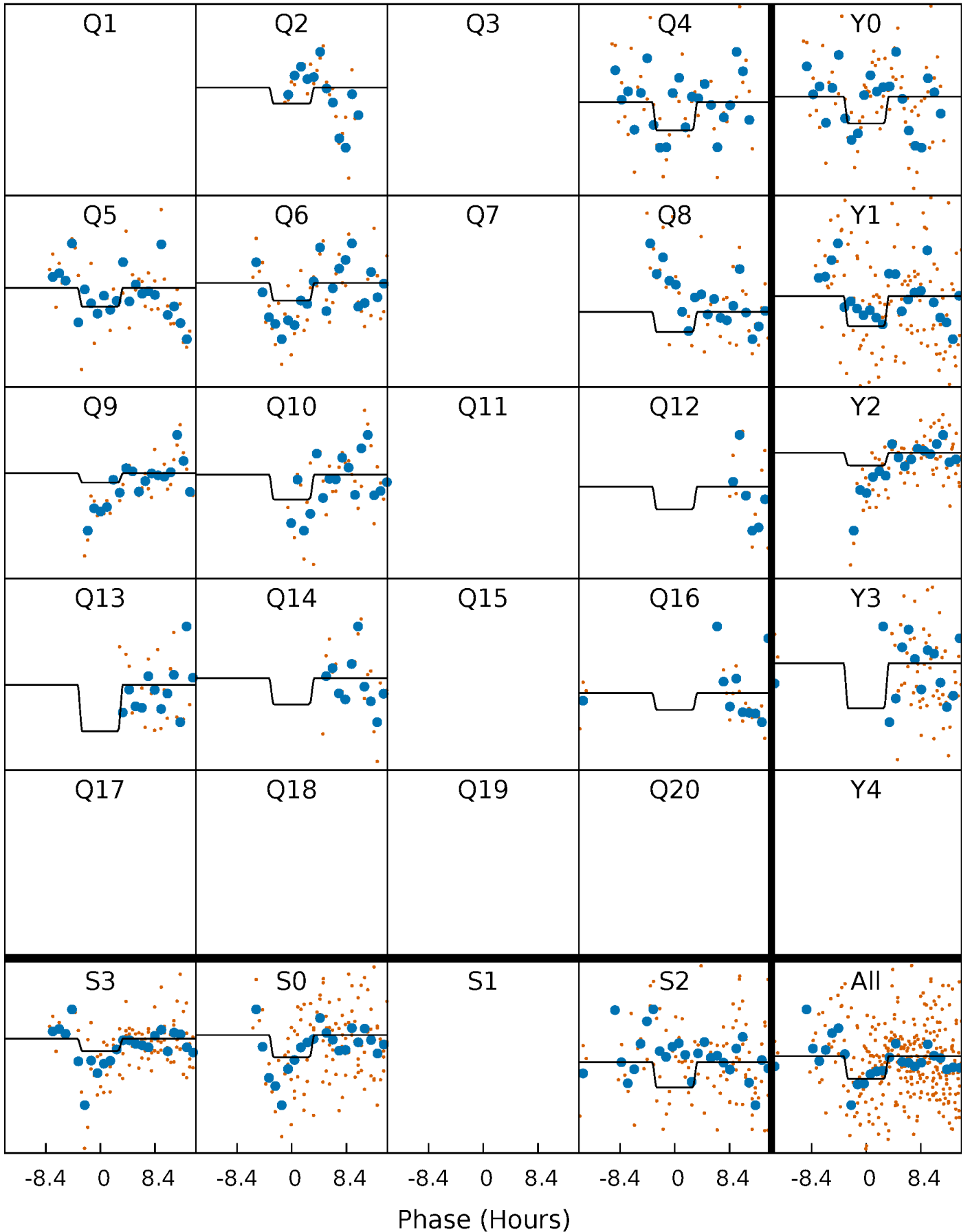
DV Quarter-Phased Transit Curves

TCE 009030447-05 P=124.311106 Days $T_0=251.743549$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

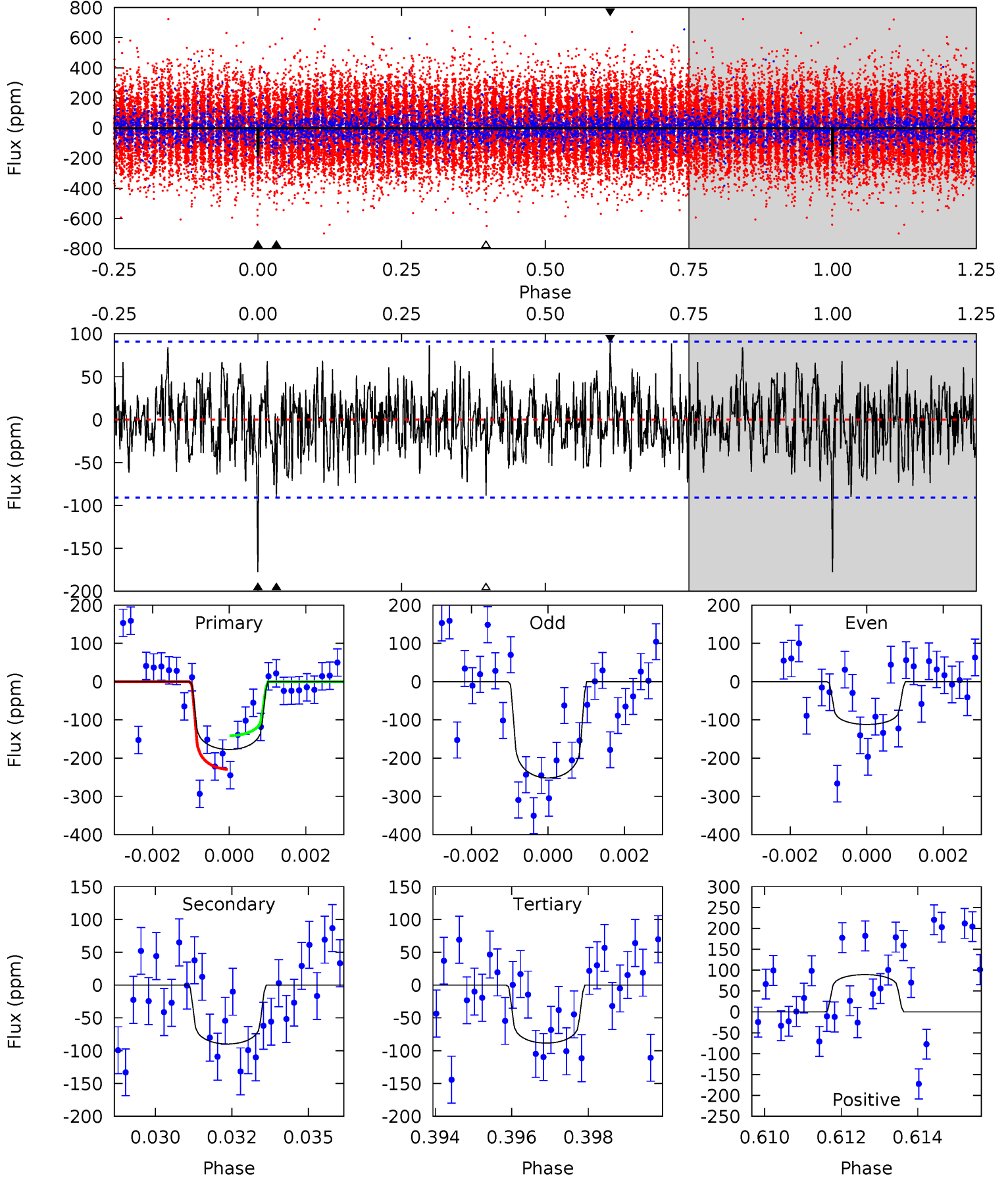
TCE 009030447-05 $P=124.304590$ Days $T_0=251.767526$ (BKJD)



DV Model-Shift Uniqueness Test

009030447-05, P = 124.311106 Days, E = 127.432443 Days

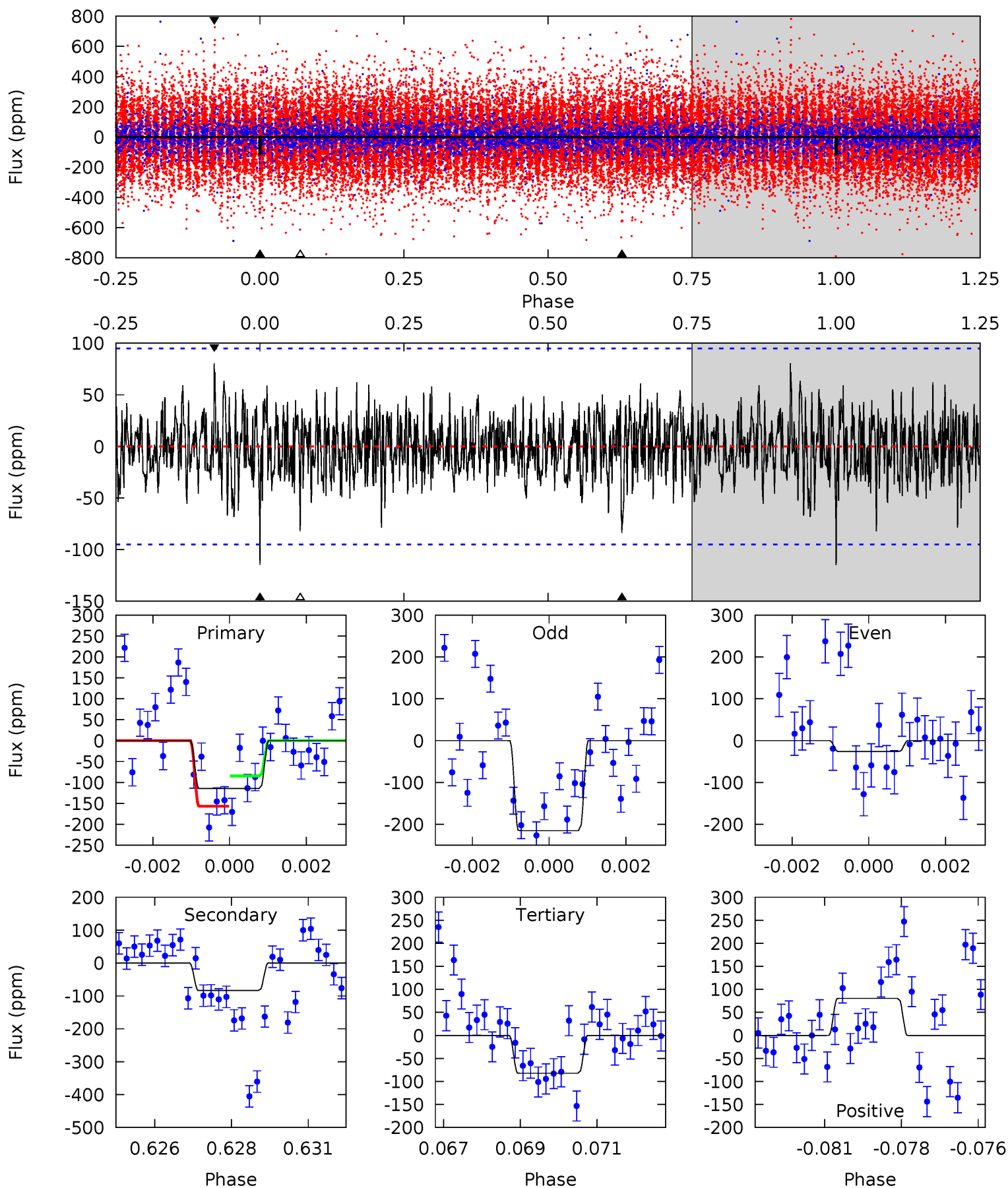
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
10.3	5.24	5.16	5.21	5.30	3.05	1.59	5.19	5.14	0.08	0.03	4.07	1.06	0.33	2.51



Alt Model-Shift Uniqueness Test

009030447-05, P = 124.304590 Days, E = 127.462936 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
6.41	4.68	4.59	4.49	5.30	3.05	1.21	1.82	1.92	0.09	0.19	5.27	0.96	0.41	1.99



Stellar Parameters For KIC 009030447

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6924^{+186}_{-249}	$3.616^{+0.296}_{-0.056}$	$-0.160^{+0.300}_{-0.250}$	$3.412^{+0.409}_{-1.228}$	$1.755^{+0.183}_{-0.339}$	$0.062^{+0.136}_{-0.011}$
	+3%/-4%	+8%/-2%	+188%/-156%	+12%/-36%	+10%/-19%	+219%/-18%
Source	PHO1	FLK73	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 009030447-05 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-90 ± 17	$4.84^{+2.53}_{-2.43}$	998^{+60}_{-83}	5614^{+2421}_{-914}	715^{+2069}_{-408}
Alt.	-84 ± 18	$3.62^{+2.40}_{-2.13}$	1002^{+54}_{-86}	6363^{+4594}_{-1323}	1200^{+5588}_{-763}

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

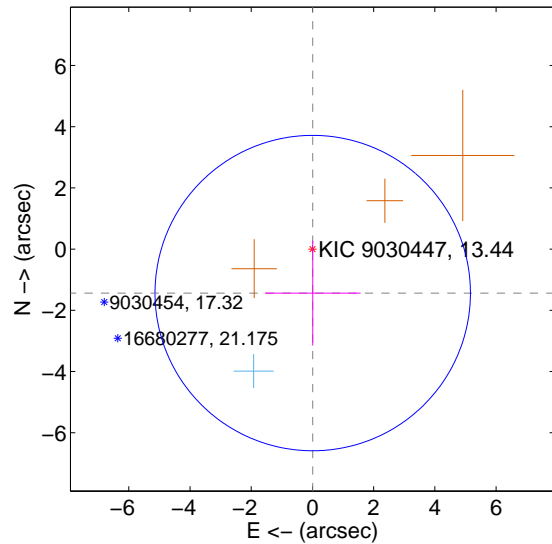
Supplemental centroid analysis for 009030447-05. Kepler magnitude: 13.44. Transit SNR 6.72

There are 1 quarters with good PRF difference image offsets

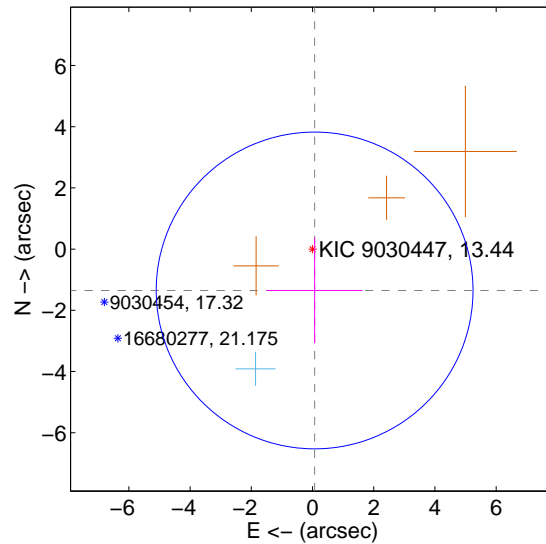
The direct PRF centroid is offset from the target star catalog position by about 0.11 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	1.437 ± 1.718	0.84	-0.009 ± 1.565	-1.437 ± 1.718
PRF-fit source offset from KIC position	1.354 ± 1.725	0.78	-0.068 ± 1.563	-1.352 ± 1.726
photometric centroid source offset	0.97 ± 1.01	0.96	-0.90 ± 0.99	0.35 ± 1.17

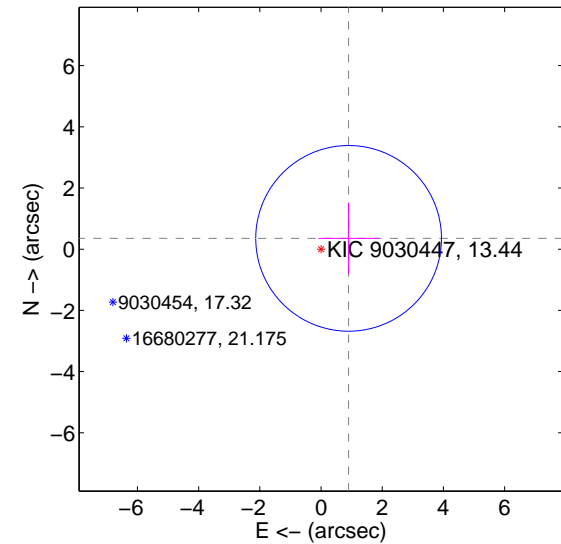
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position



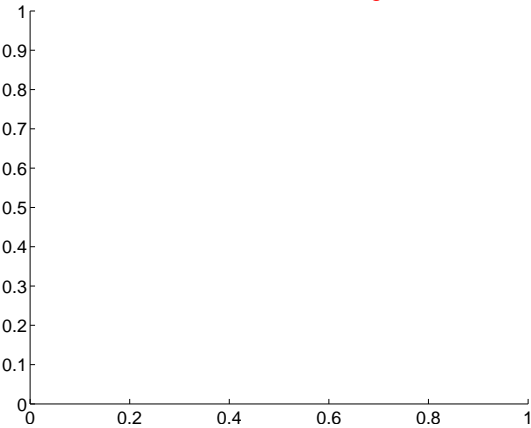
offset from photometric centroids



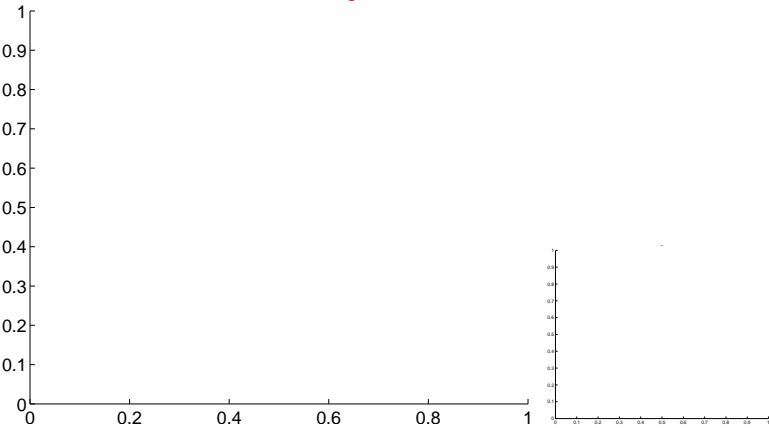
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

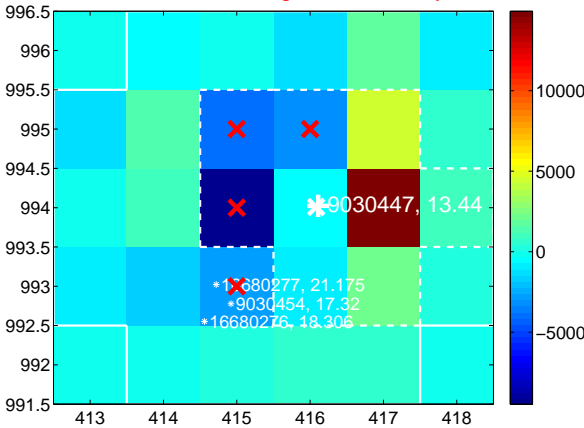
Q1 no difference image



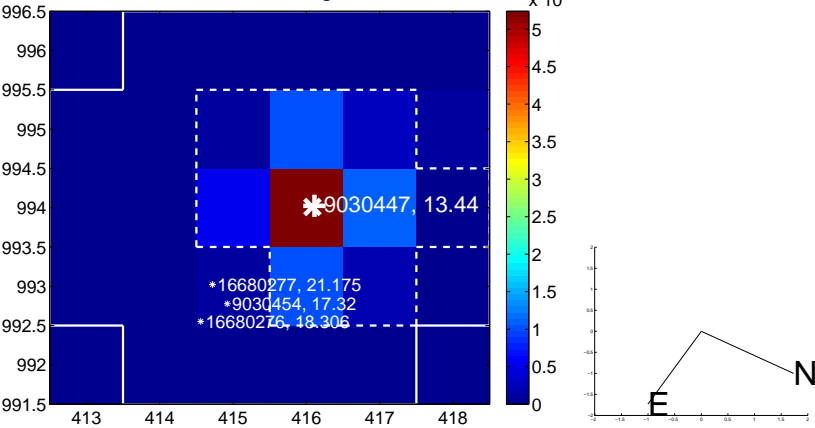
Q1 no OOT image



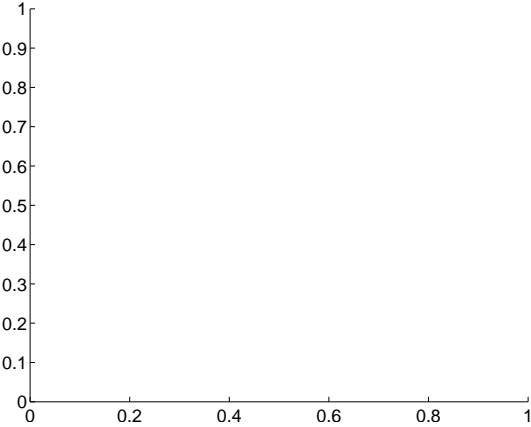
Q2 difference image. Poor Quality



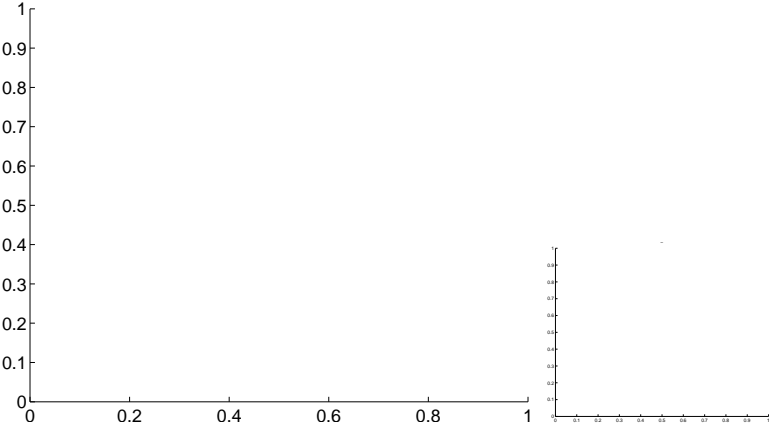
Q2 OOT image



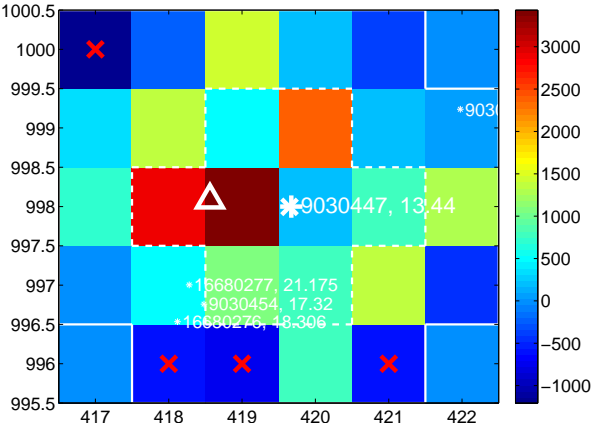
Q3 no difference image



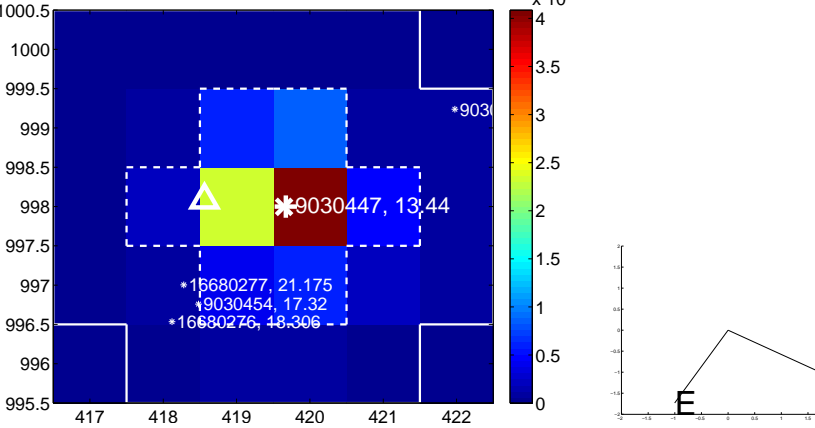
Q3 no OOT image



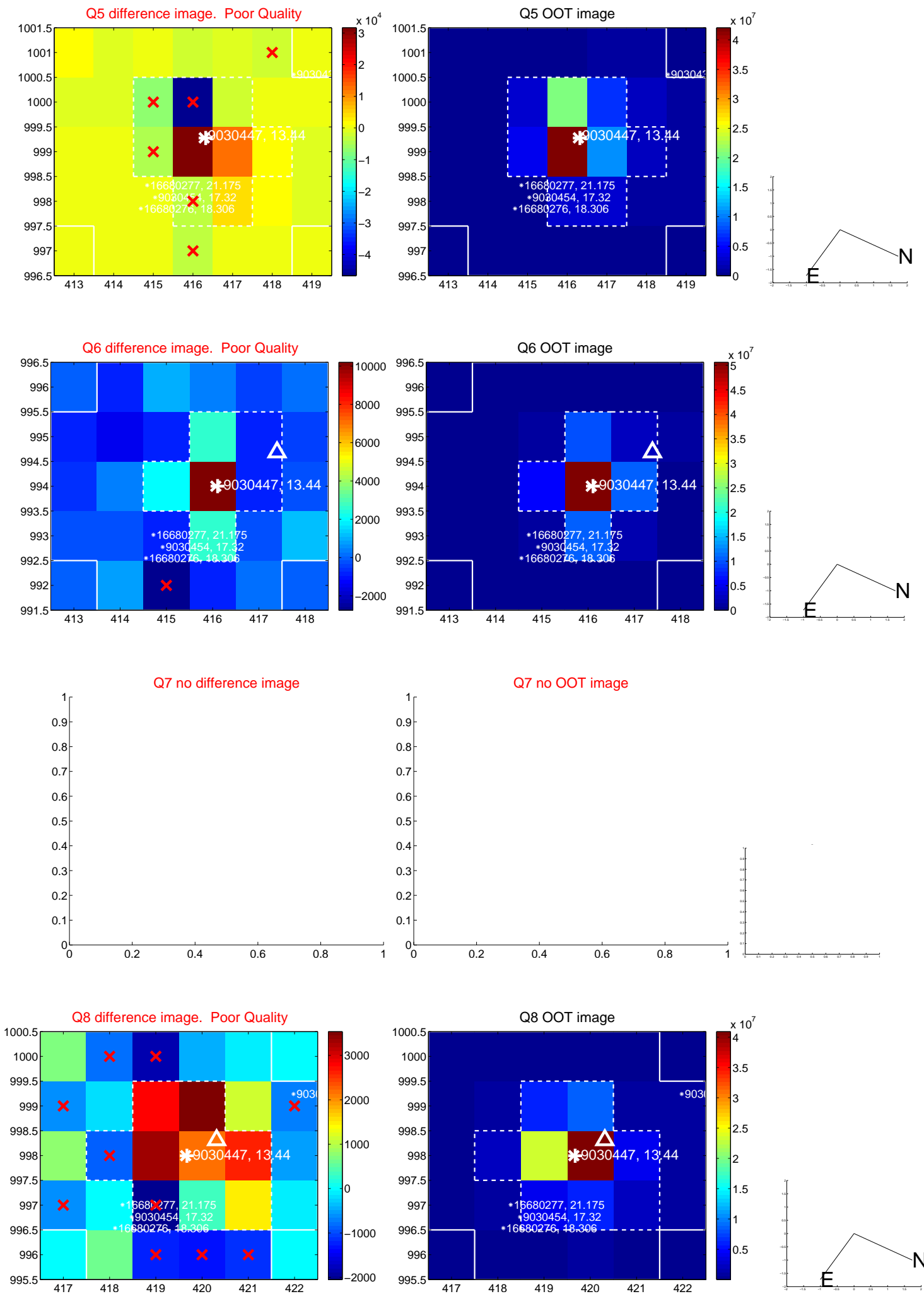
Q4 difference image



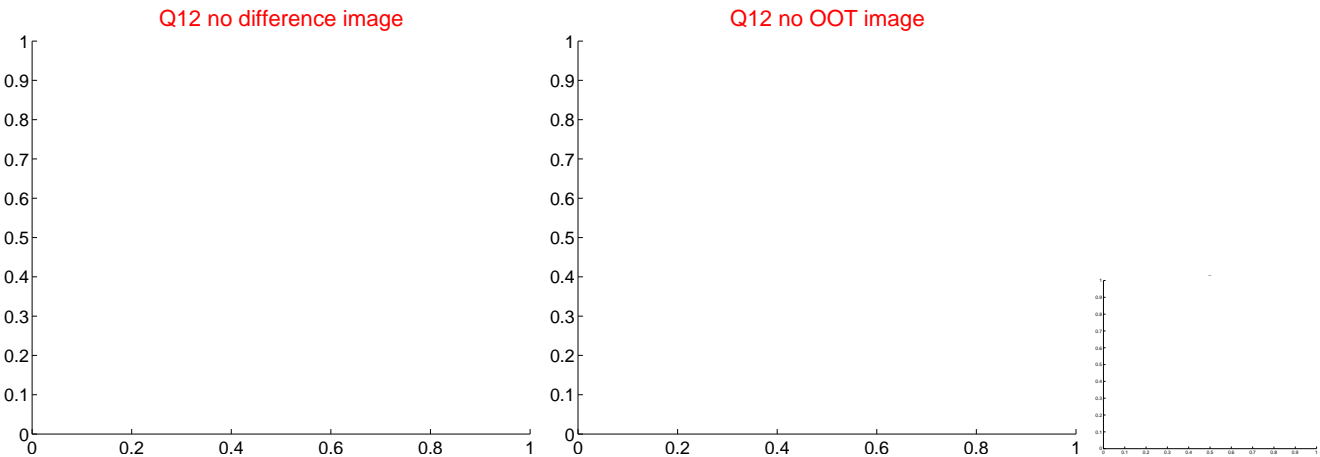
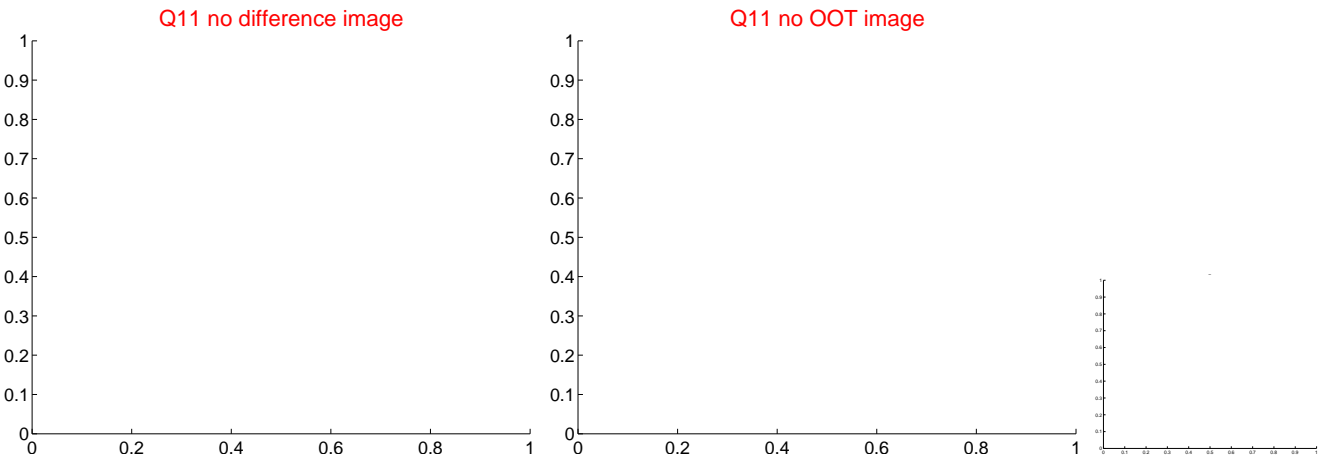
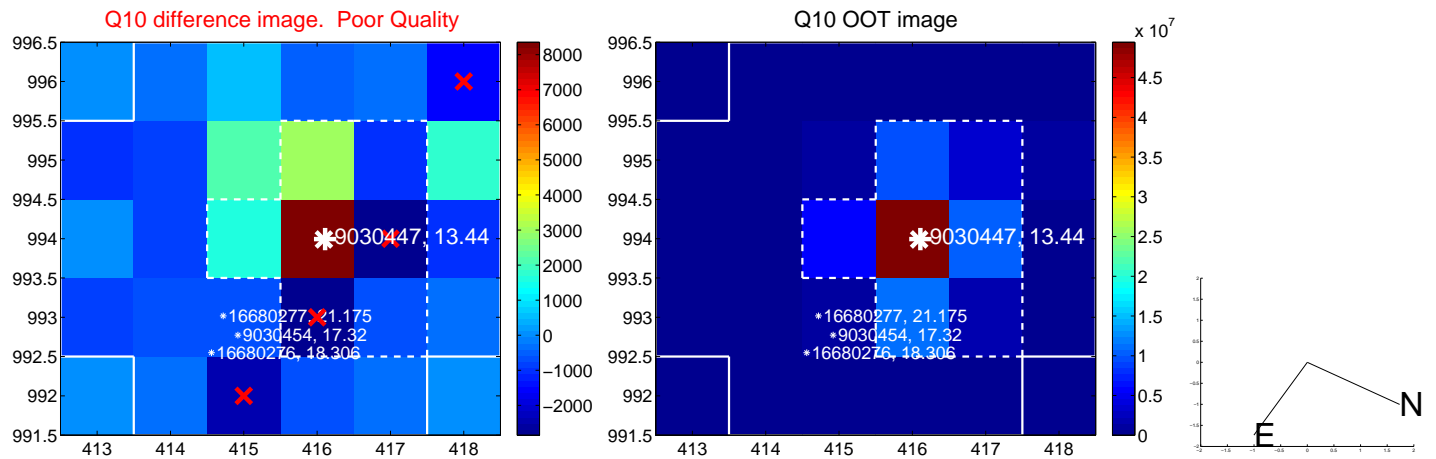
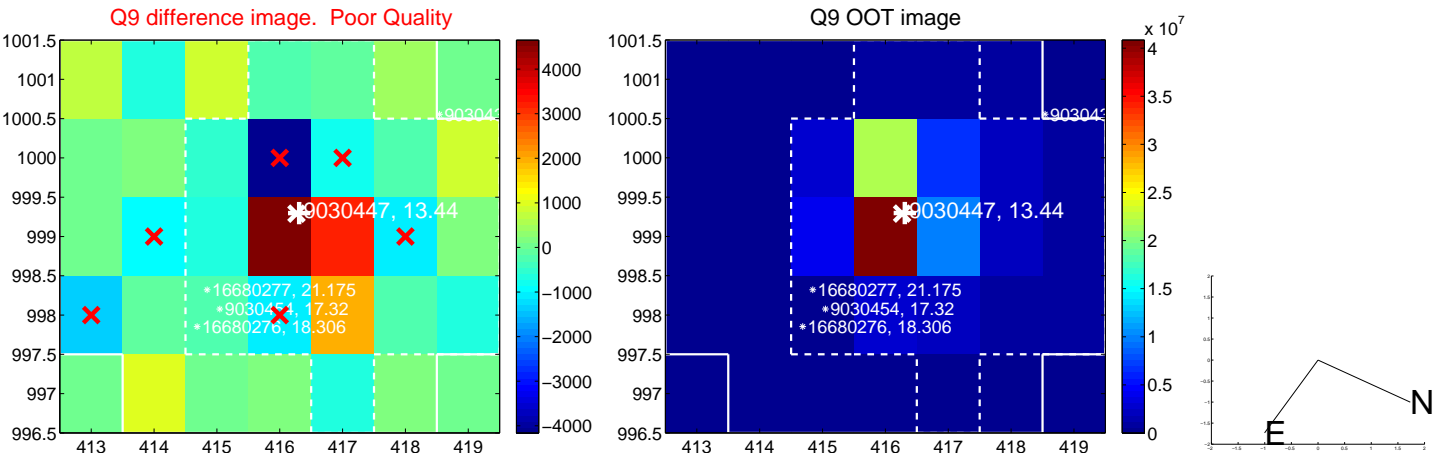
Q4 OOT image



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

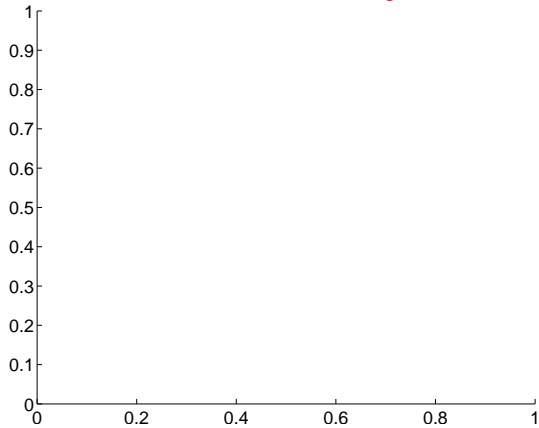


white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.

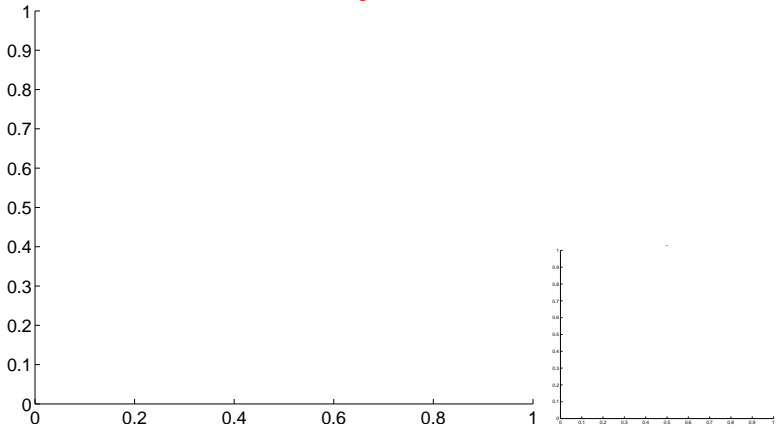


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.

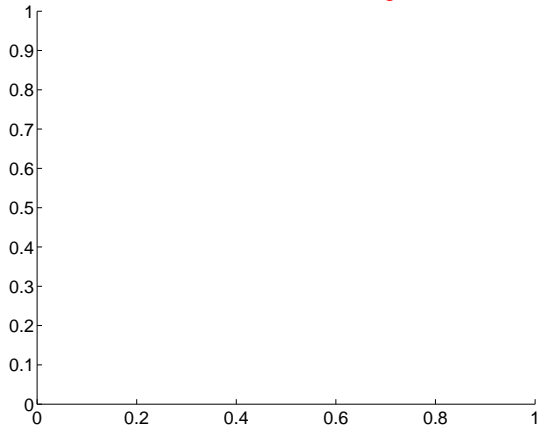
Q13 no difference image



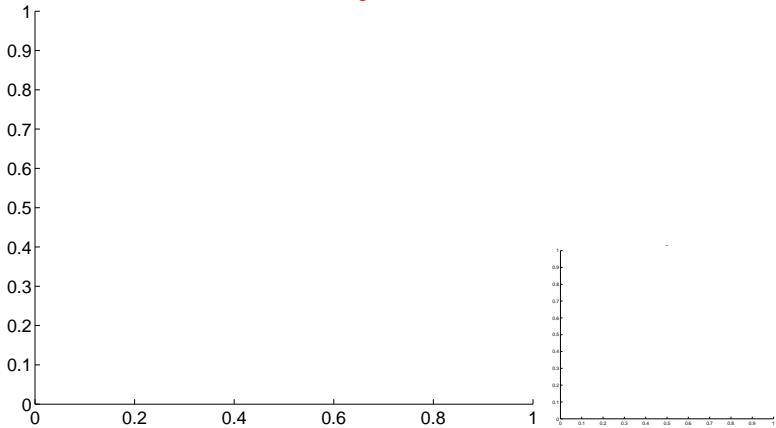
Q13 no OOT image



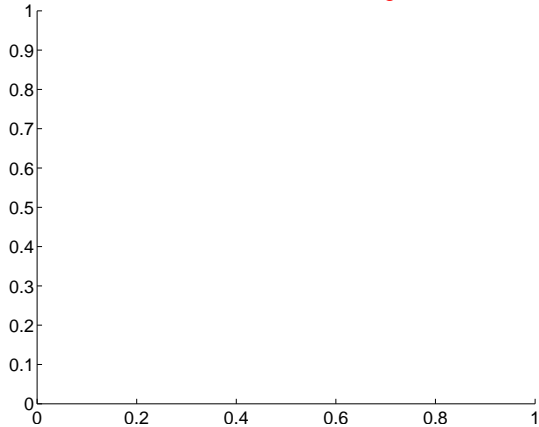
Q14 no difference image



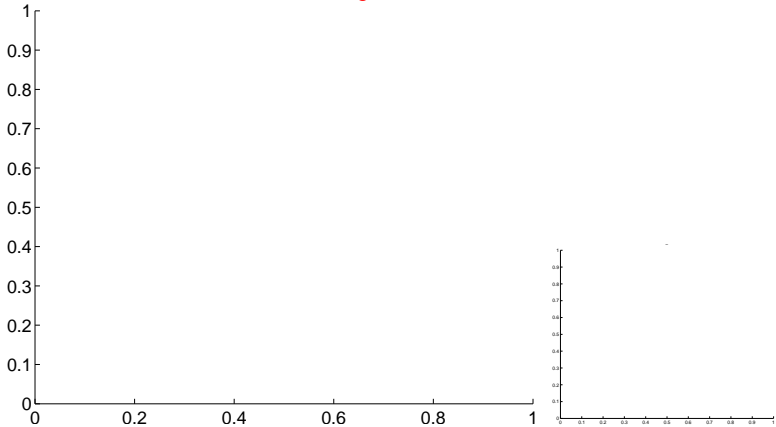
Q14 no OOT image



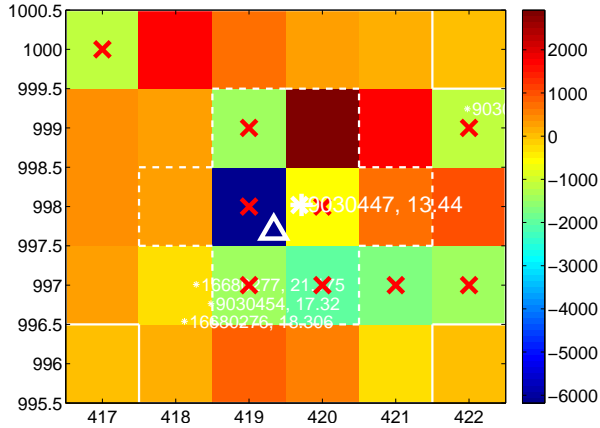
Q15 no difference image



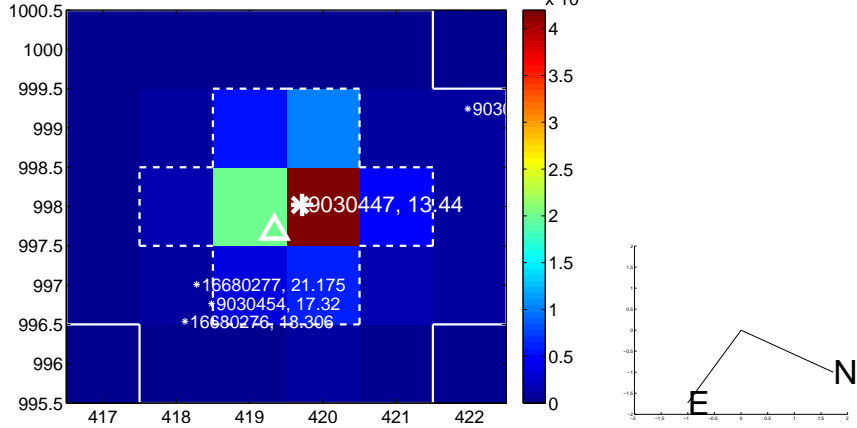
Q15 no OOT image



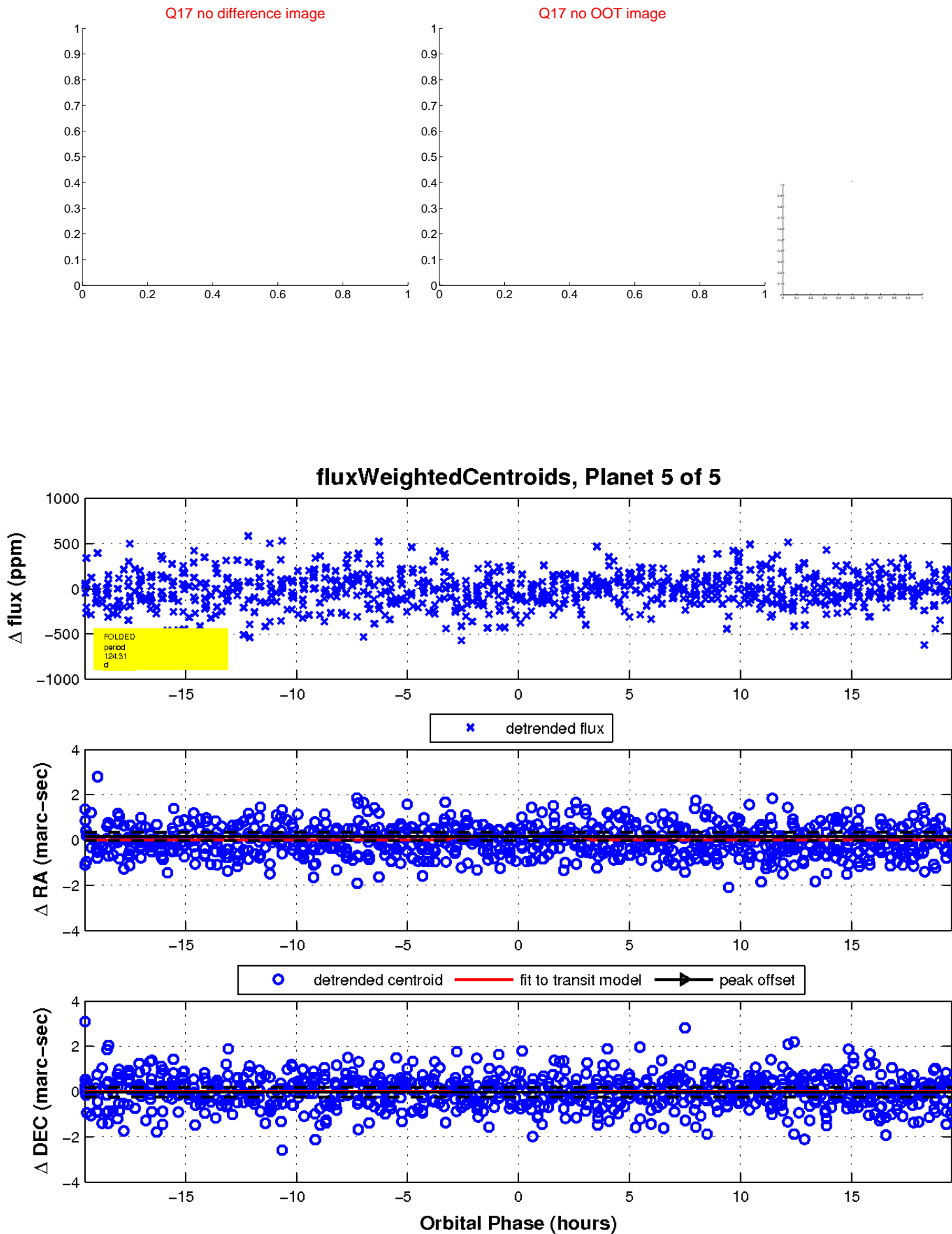
Q16 difference image. Poor Quality



Q16 OOT image



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



UKIRT Image

Declination

