KIC 006441729

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 ($S_\oplus$)
006441729-01	OBS	No	1.411140	131.816212	21.7	4.682	10.2	8.6	2.24	7556	1.21	18839.93
006441729-02	OBS	No	224.912304	146.070469	207.2	14.527	8.0	6.9	2.24	7556	3.54	21.80

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
006441729-01	OBS	FP	0.00	1	0	0	0	LPP_DV—MOD_NONUNIQ_ALT
006441729-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—MOD_NONUNIQ_DV

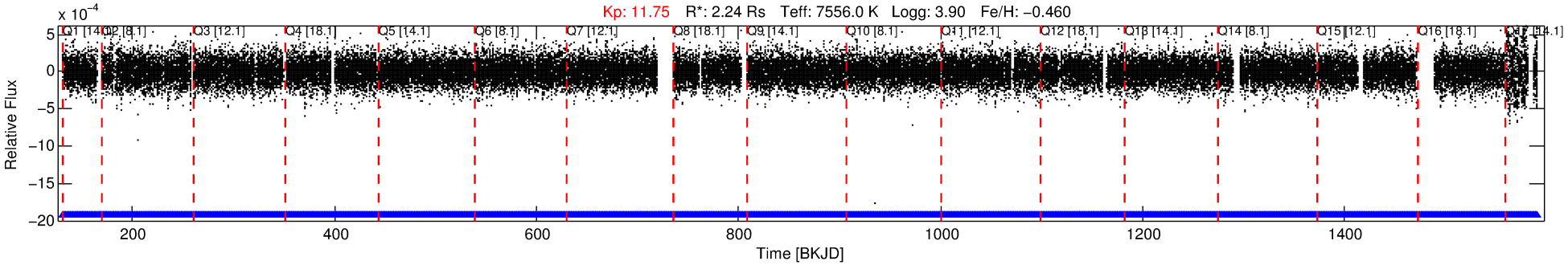
Notes: OBS = Observed. INJ = Injected. INV = Inverted. SCR = Scrambled.
N = Not Transit-Like. S = Stellar Eclipse. C = Centroid Offset. E = Ephemeris Match.
See `http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col` for comment definitions.

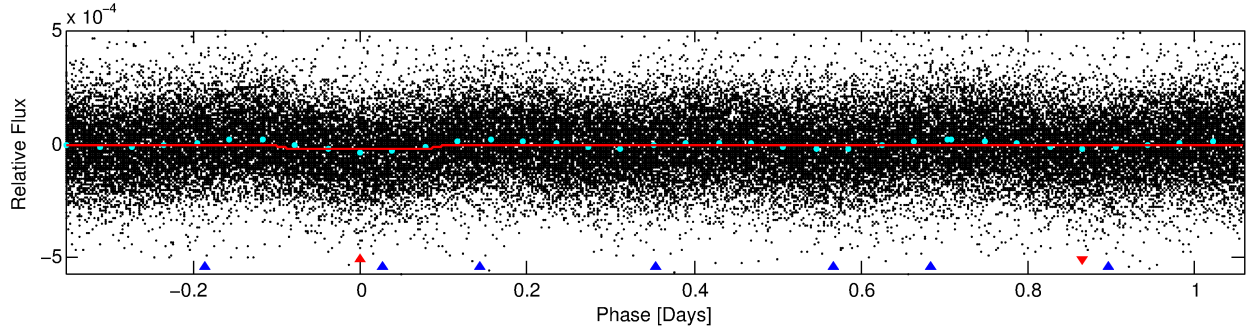
Ephemeris Match Information For 006441729-01

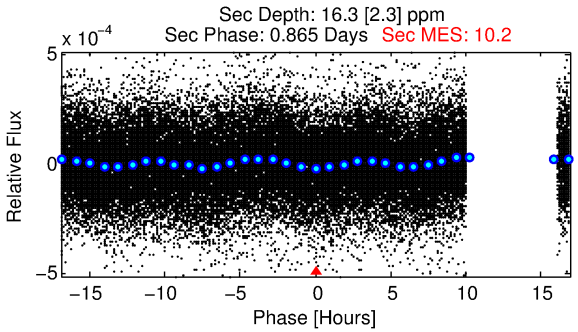
No Significant Match Found

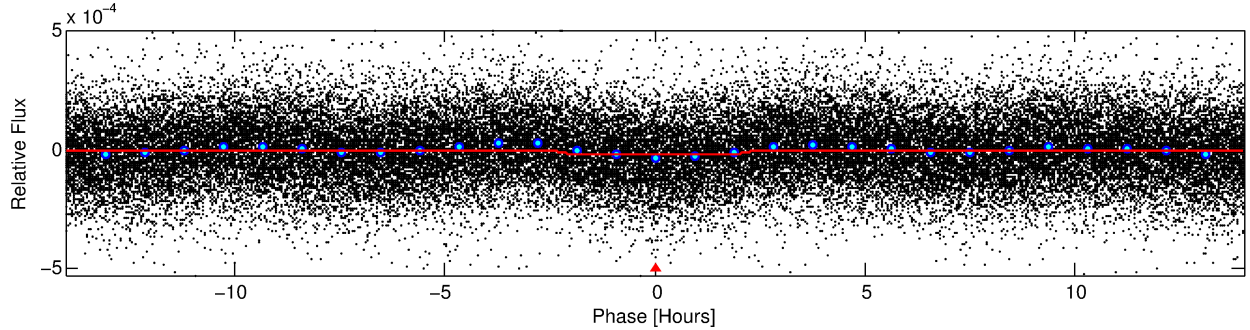
DV One-Page Summary

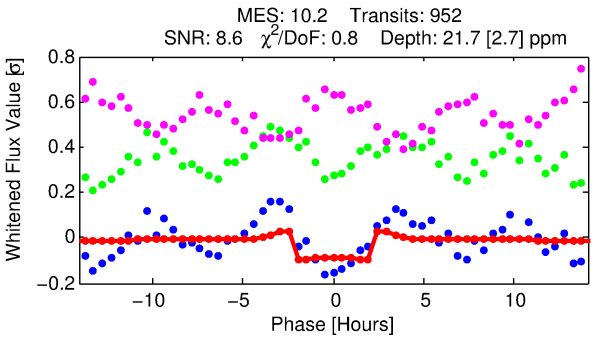
KIC: 6441729 Candidate: 1 of 2 Period: 1.411 d

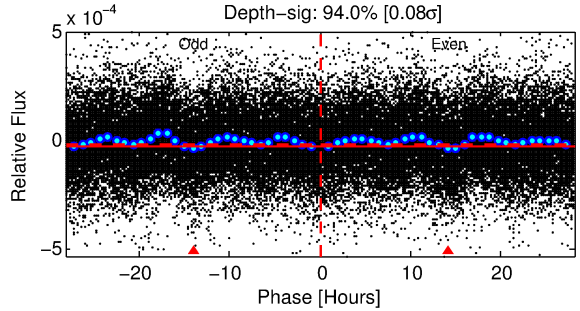


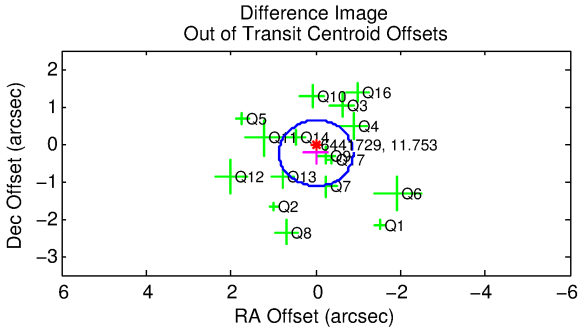












DV Fit Results:

Period = 1.41114 [0.00001] d
Epoch = 131.8162 [0.0030] BKJD
Rp/R* = 0.0050 [0.0009]
a/R* = 1.39 [0.72]
b = 0.90 [0.23]

Seff = 18839.93 [11595.07]
Teq = 2987 [460] K
Rp = 1.21 [0.49] Re
a = 0.0279 [0.0101] AU

Ag = 4.76 [3.37] [1.12σ]
Teffp = 6822 [716] K [4.51σ]

DV Diagnostic Results:

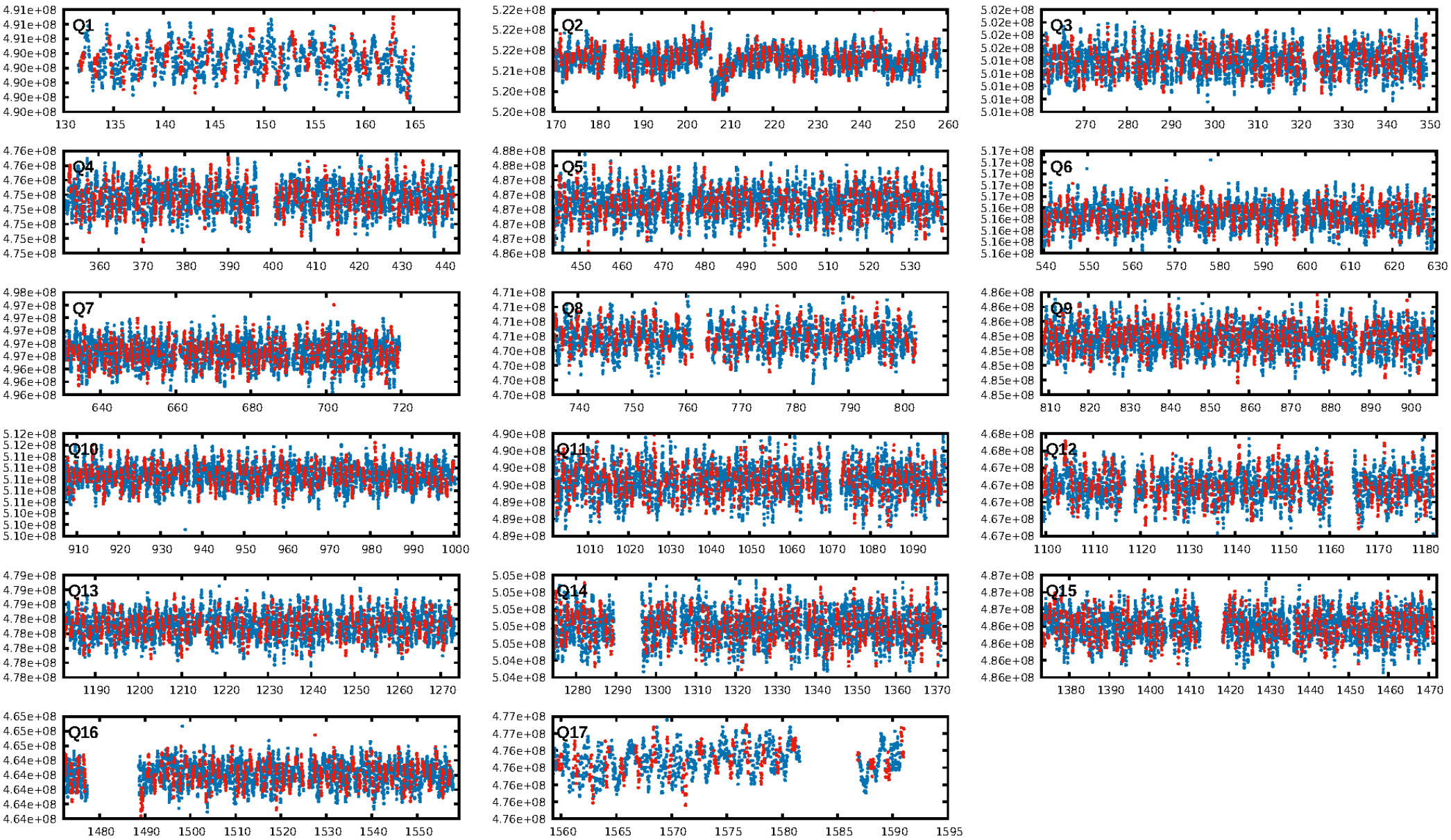
ShortPeriod−sig: N/A
LongPeriod−sig: 100.0% [351.44σ]
ModelChiSquare2−sig: N/A
ModelChiSquareGof−sig: N/A
Bootstrap−pfa: 1.41e−17
RollingBand−fgt: 1.00 [909/909]
GhostDiagnostic−chr: 1.961

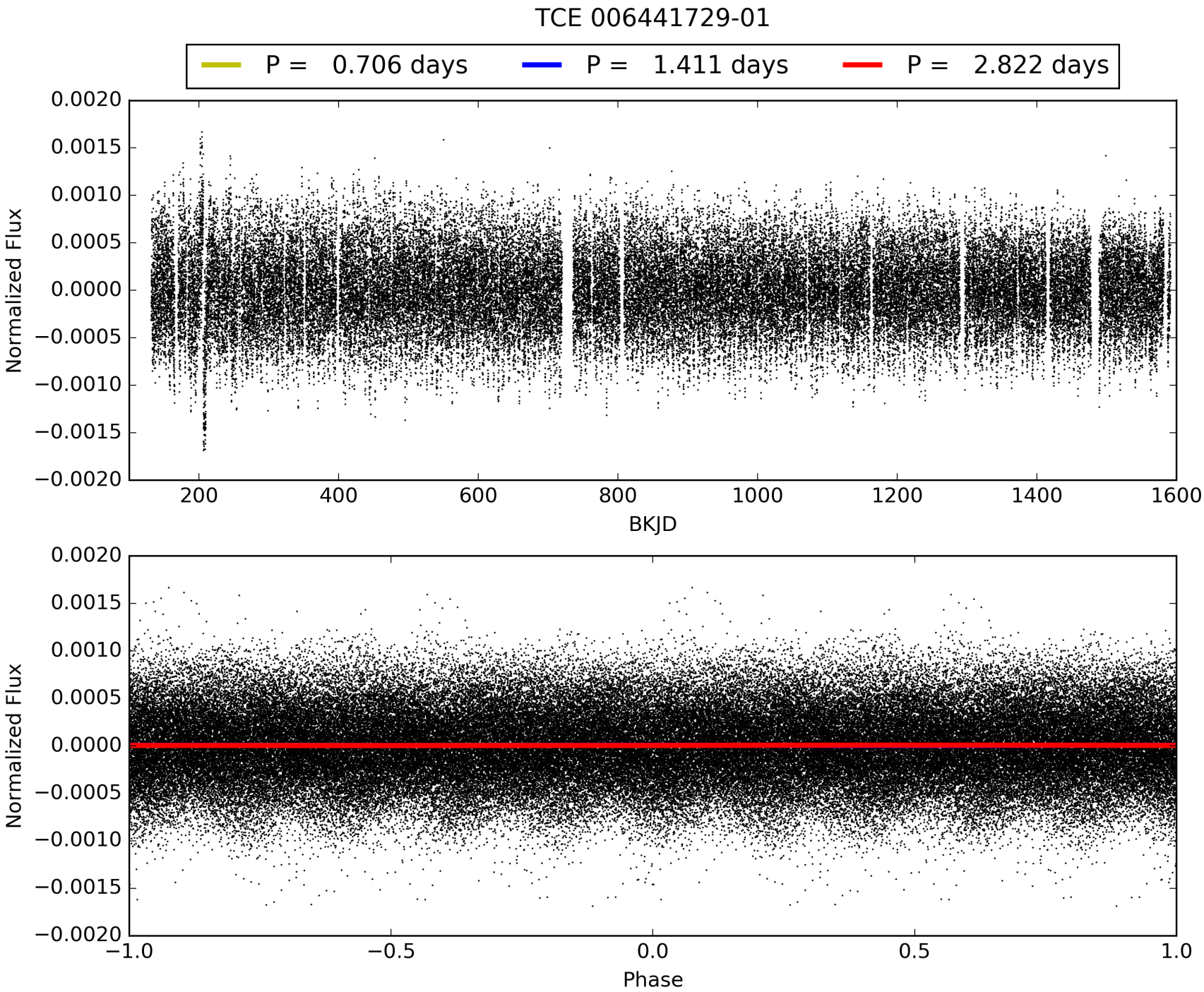
Centroid−sig: 46.8%
Centroid−so: 0.033 arcsec [0.08σ]
OotOffset−rm: 0.247 arcsec [0.84σ]
KicOffset−rm: 0.159 arcsec [0.54σ]
OotOffset−st: 4/3/4/5 [16]
KicOffset−st: 4/3/4/5 [16]
DiffImageQuality−fgm: 0.88 [14/16]
DiffImageOverlap−fno: 1.00 [17/17]

Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29−Jan−2016 21:39:16 Z

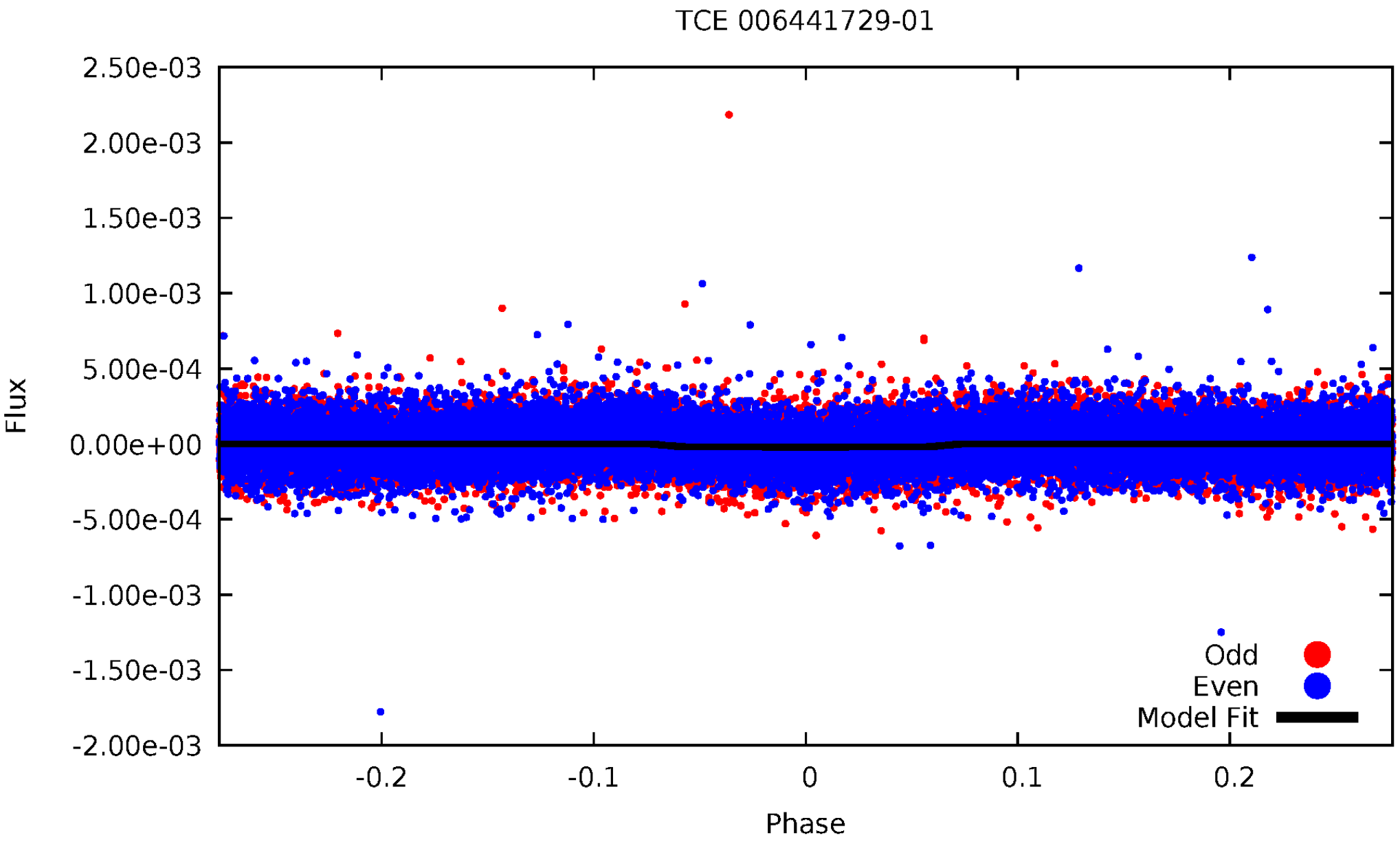
This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

TCE 006441729-01, PDC Light Curves

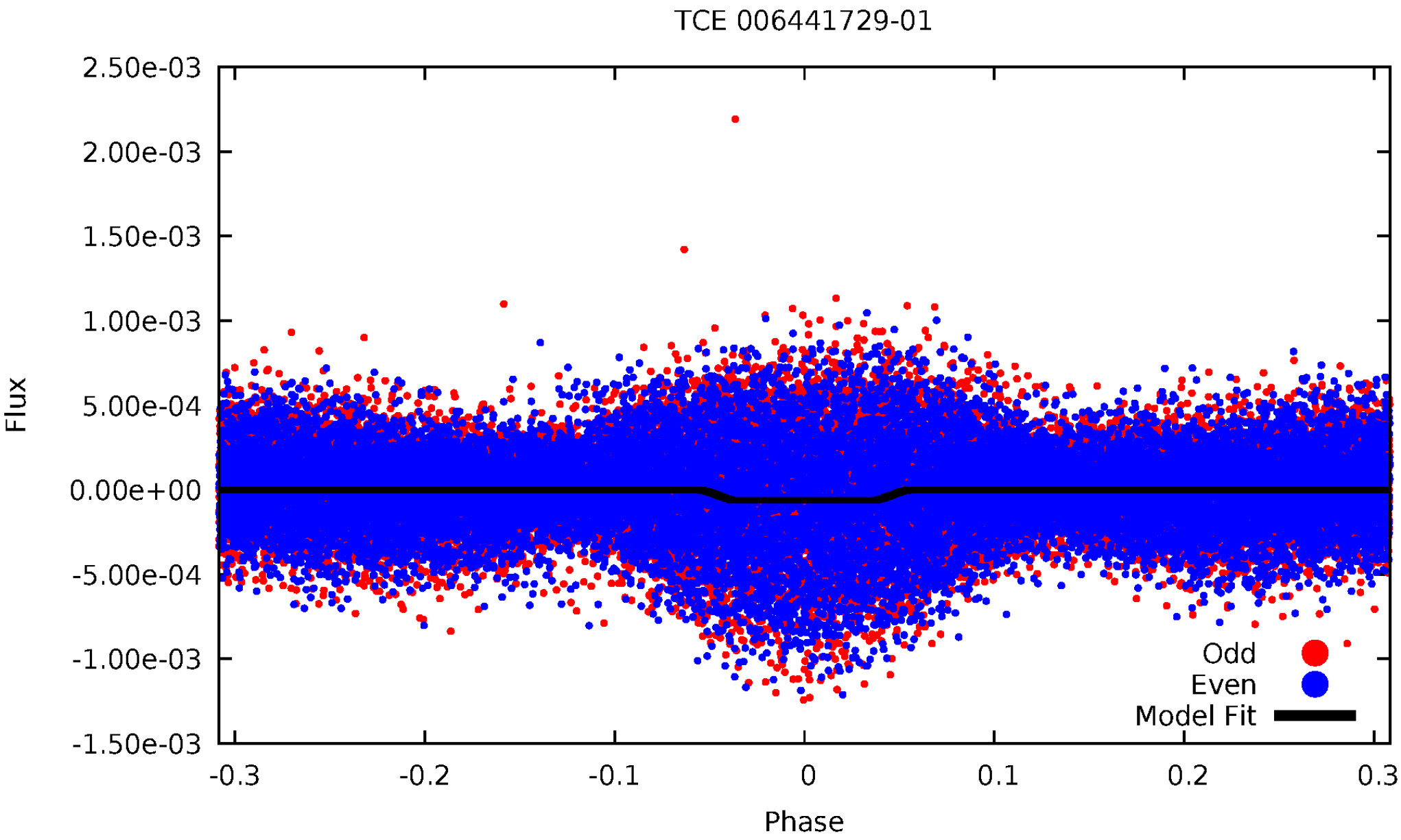



TCE 006441729-01
P = 0.706 days
P = 1.411 days
P = 2.822 days
Normalized Flux
BKJD
Normalized Flux
Phase

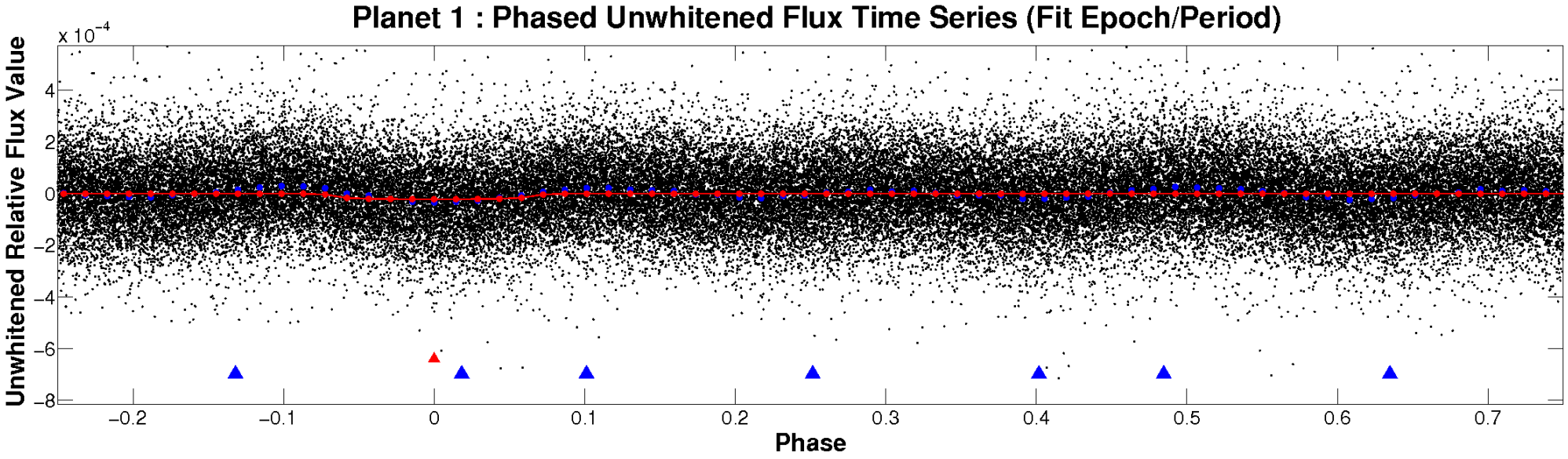
DV Odd/Even

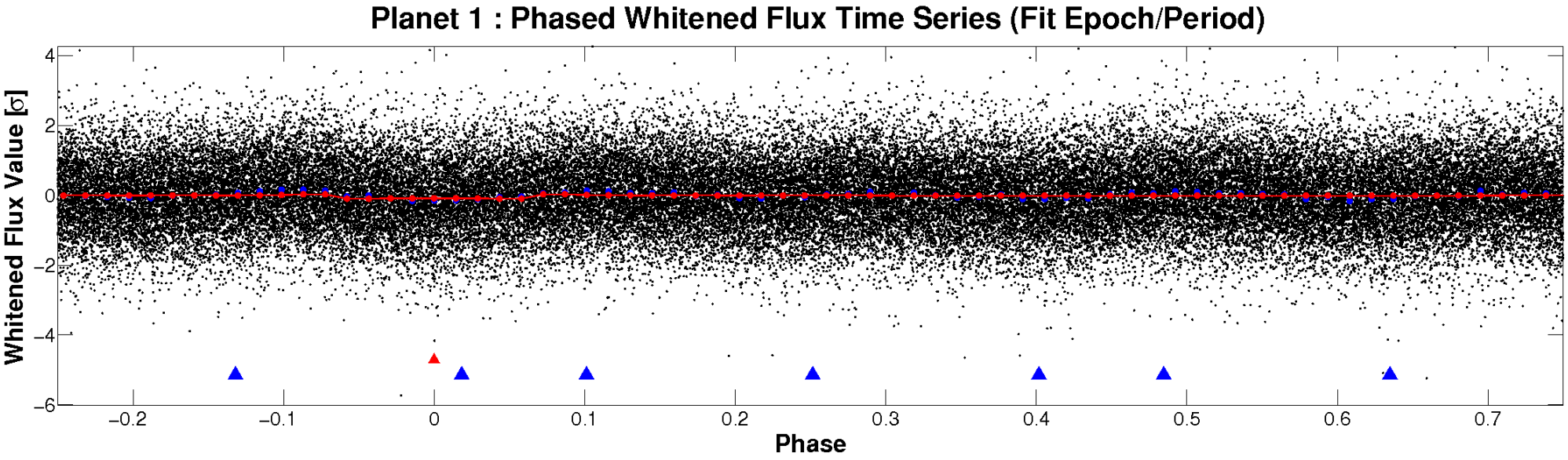

TCE 006441729-01
2.50e-03
2.00e-03
1.50e-03
1.00e-03
5.00e-04
0.00e+00
-5.00e-04
-1.00e-03
-1.50e-03
-2.00e-03
Flux
-0.2
-0.1
0
0.1
0.2
Phase
Odd
Even
Model Fit

ALT Odd/Even


TCE 006441729-01
2.50e-03
2.00e-03
1.50e-03
1.00e-03
5.00e-04
0.00e+00
-5.00e-04
-1.00e-03
-1.50e-03
Flux
-0.3
-0.2
-0.1
0
0.1
0.2
0.3
Phase
Odd
Even
Model Fit

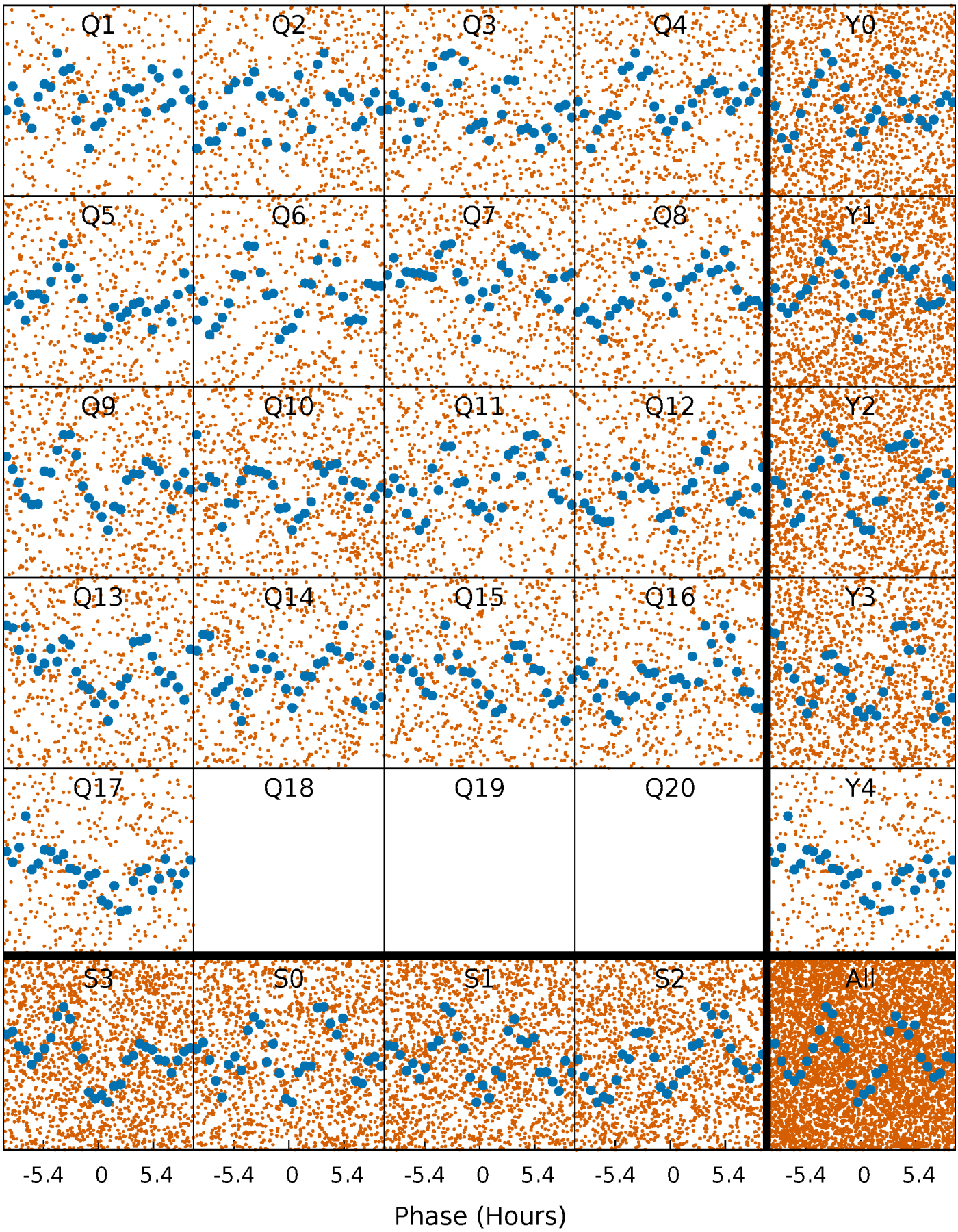
Non-Whitened Vs. Whitened Light Curve





PDC Quarter-Phased Transit Curves

TCE 006441729-01 P= 1.411140 Days T_0=131.816212 (BKJD)



DV Quarter-Phased Transit Curves

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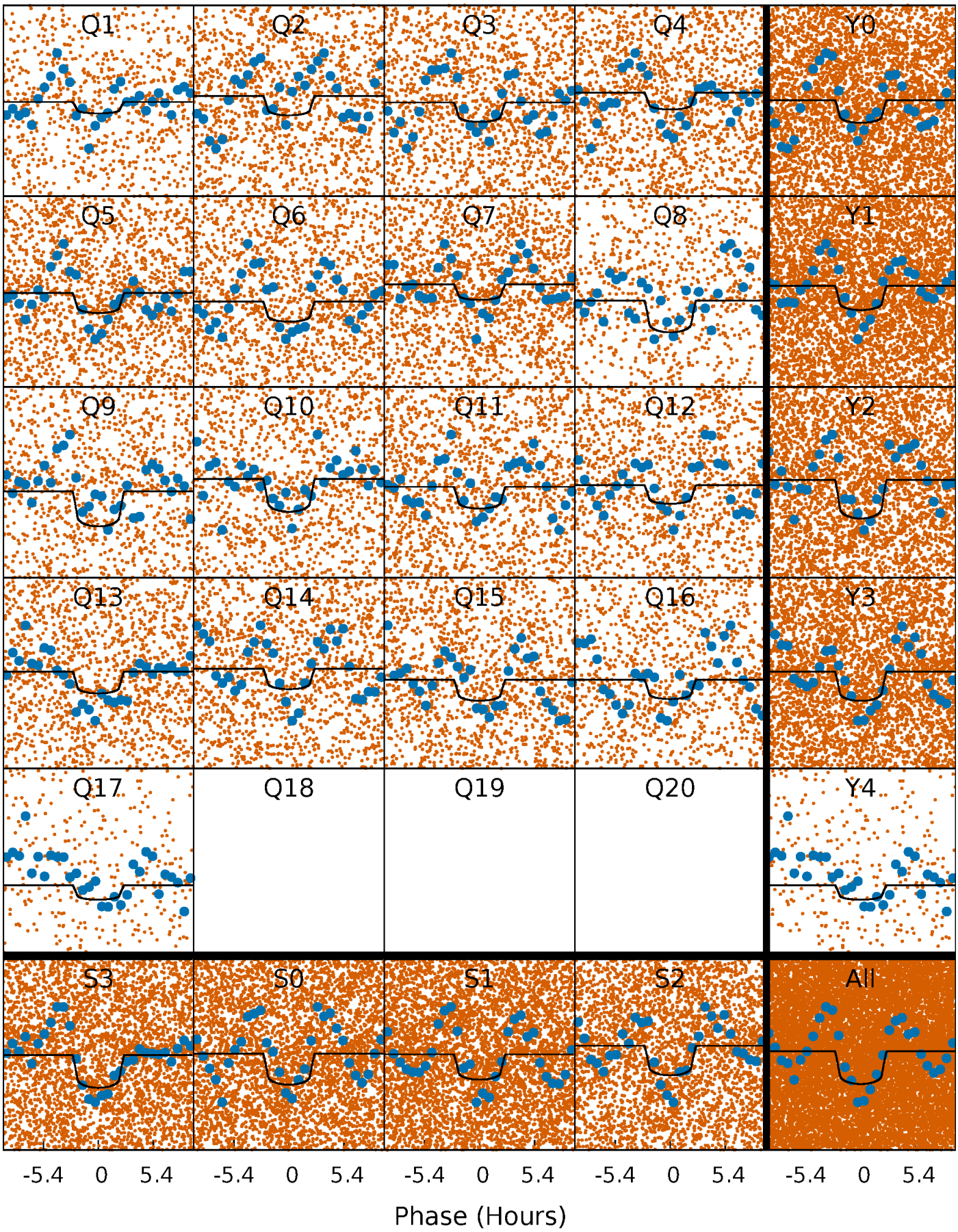
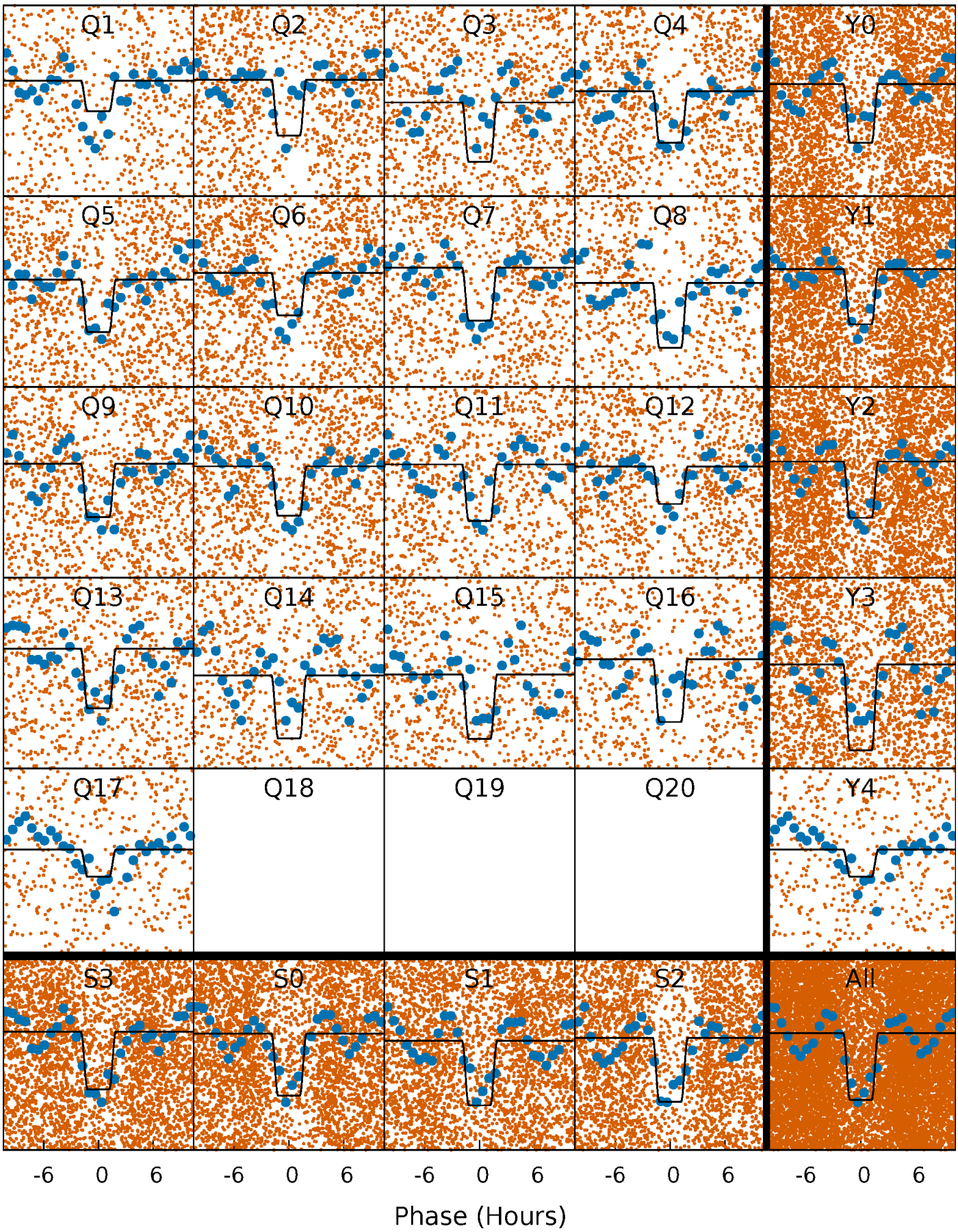


Alt. Detrend Quarter-Phased Transit Curves

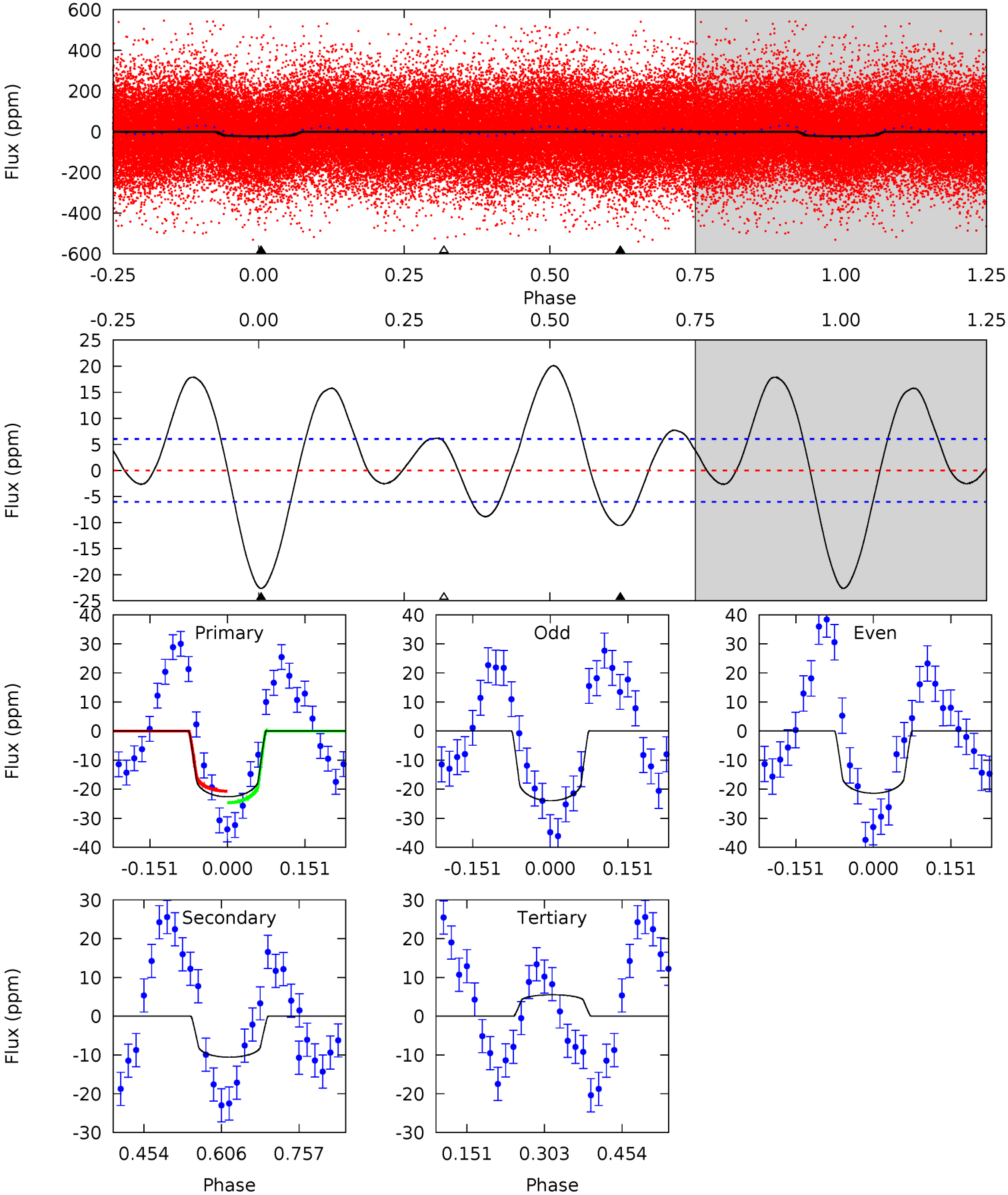
TCE 006441729-01 P= 1.411163 Days T_0=131.814504 (BKJD)



DV Model-Shift Uniqueness Test

006441729-01, P = 1.411140 Days, E = 130.405072 Days

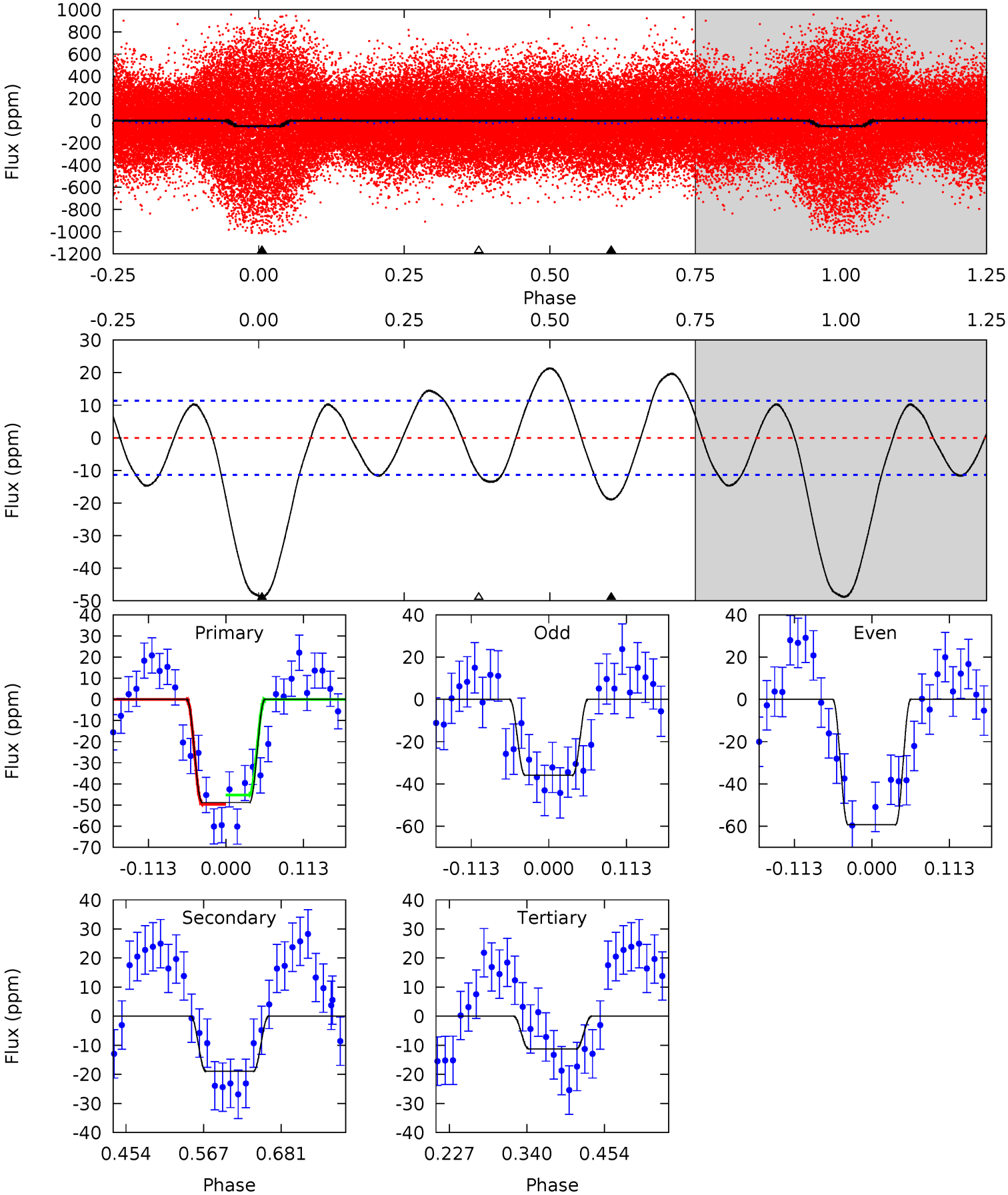
Pri	Sec	Ter	Pos	FA_1	FA_2	F_{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
16.8	7.87	-4.11	0	4.48	1.43	3.66	20.9	16.8	12.0	7.87	0.95	1.03	0.47	1.48



Alt Model-Shift Uniqueness Test

006441729-01, P = 1.411163 Days, E = 130.403341 Days

Pri	Sec	Ter	Pos	FA_1	FA_2	F_{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
19.5	7.55	4.48	0	4.54	1.58	4.00	15.0	19.5	3.08	7.55	4.67	1.54	0.30	0.87



Stellar Parameters For KIC 006441729

	$T_{\rm eff}(K)$	$\log(g)$	[Fe/H]	R ($R_\odot$)	$M(M_\odot)$	$p_\star$ (g·cm^{-3})
	7556^{+234}_{-313}	$3.899^{+0.353}_{-0.118}$	$-0.460^{+0.250}_{-0.300}$	$2.237^{+0.470}_{-0.806}$	$1.447^{+0.209}_{-0.255}$	$0.182^{+0.497}_{-0.066}$
	+3%/-4%	+9%/-3%	+54%/-65%	+21%/-36%	+14%/-18%	+273%/-36%
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 006441729-01 / KOI

Detrend	Depth (ppm)	R_p ($R_\oplus$)	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-11±1	$1.12^{+0.31}_{-0.30}$	4057^{+329}_{-415}	5900^{+700}_{-553}	$3.625^{+2.921}_{-1.429}$
Alt.	-19±3	$1.86^{+0.36}_{-0.42}$	4057^{+322}_{-383}	5315^{+441}_{-353}	$2.359^{+1.525}_{-0.746}$

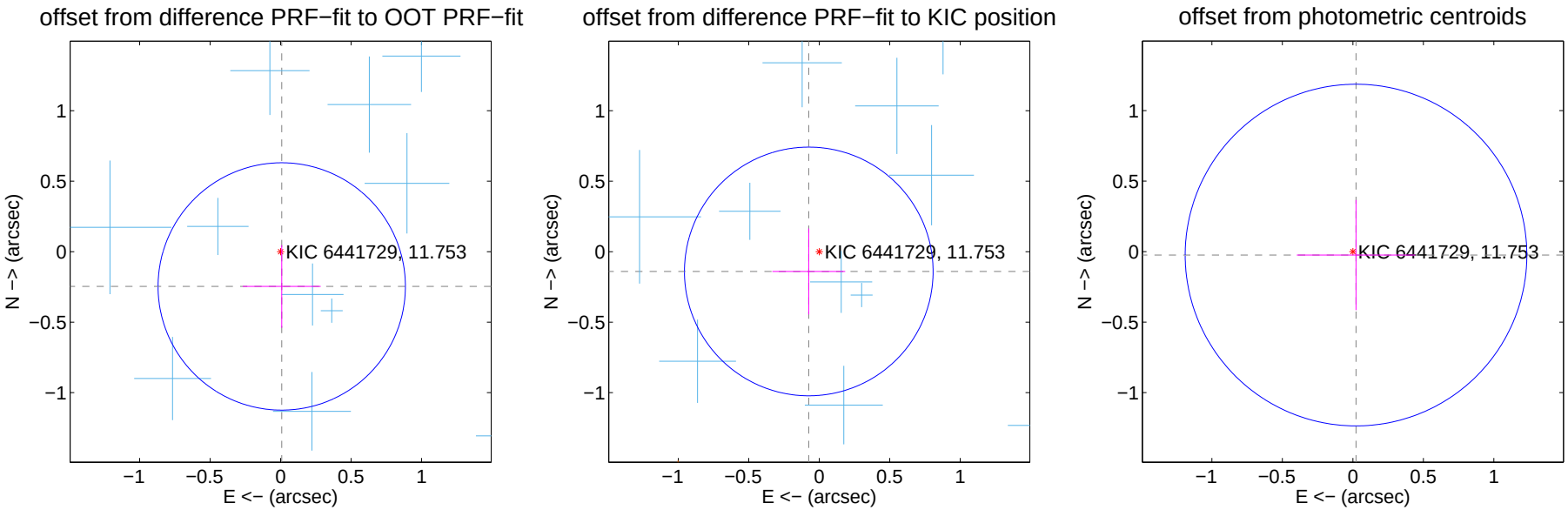
T_{max} = Theoretical Maximum Planetary Temperature
T_{obs} = Observed Planetary Temperature (Assuming A=0.3)
A_{obs} = Observed Albedo (Assuming T=0)

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

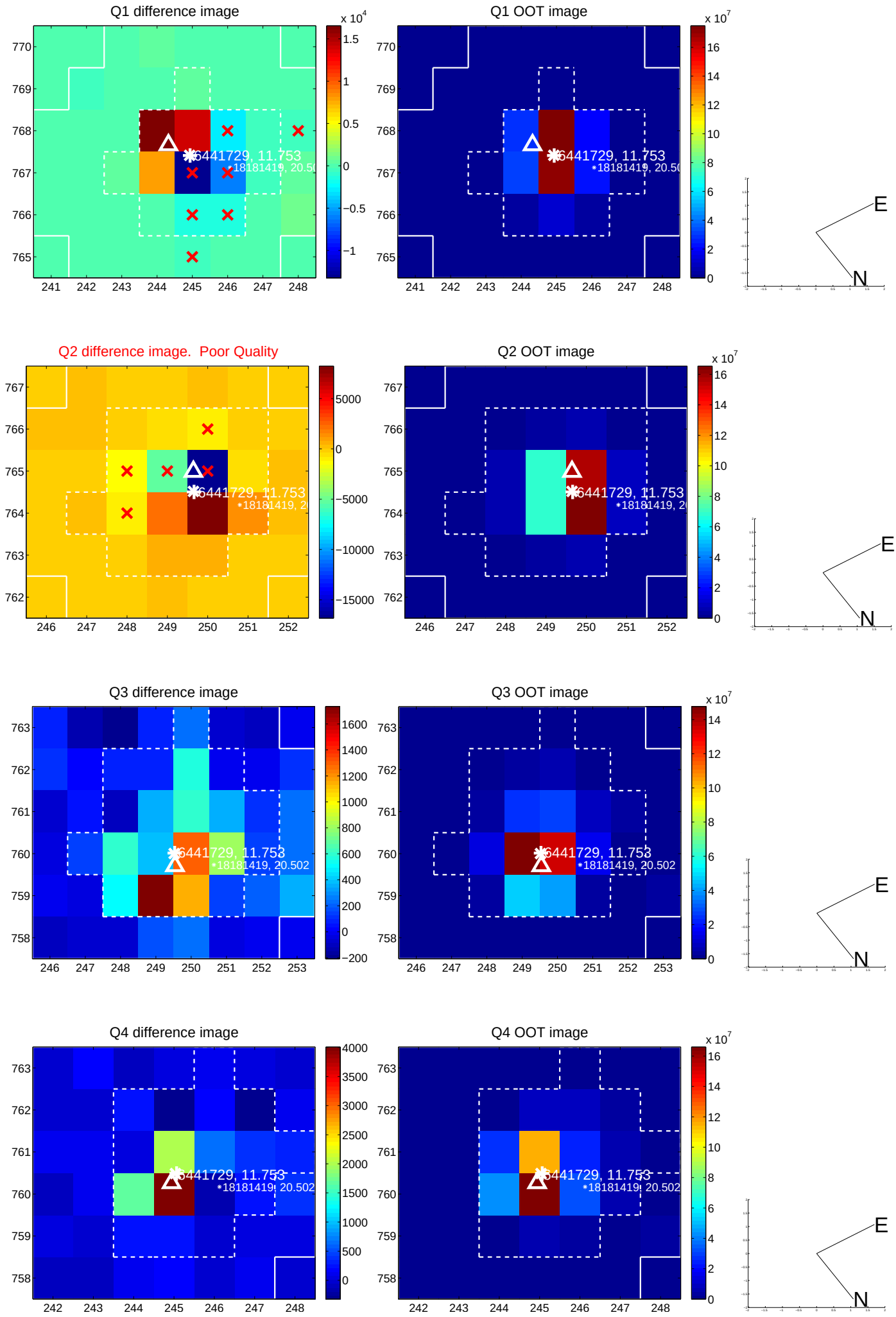
Supplemental centroid analysis for 006441729-01. Kepler magnitude: 11.75. Transit SNR 8.65
There are 14 quarters with good PRF difference image offsets
The direct PRF centroid is offset from the target star catalog position by about 0.13 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.247 ± 0.292	0.84	-0.008 ± 0.277	-0.247 ± 0.293
PRF-fit source offset from KIC position	0.159 ± 0.294	0.54	0.074 ± 0.258	-0.140 ± 0.305
photometric centroid source offset	0.03 ± 0.40	0.08	-0.02 ± 0.42	-0.02 ± 0.39

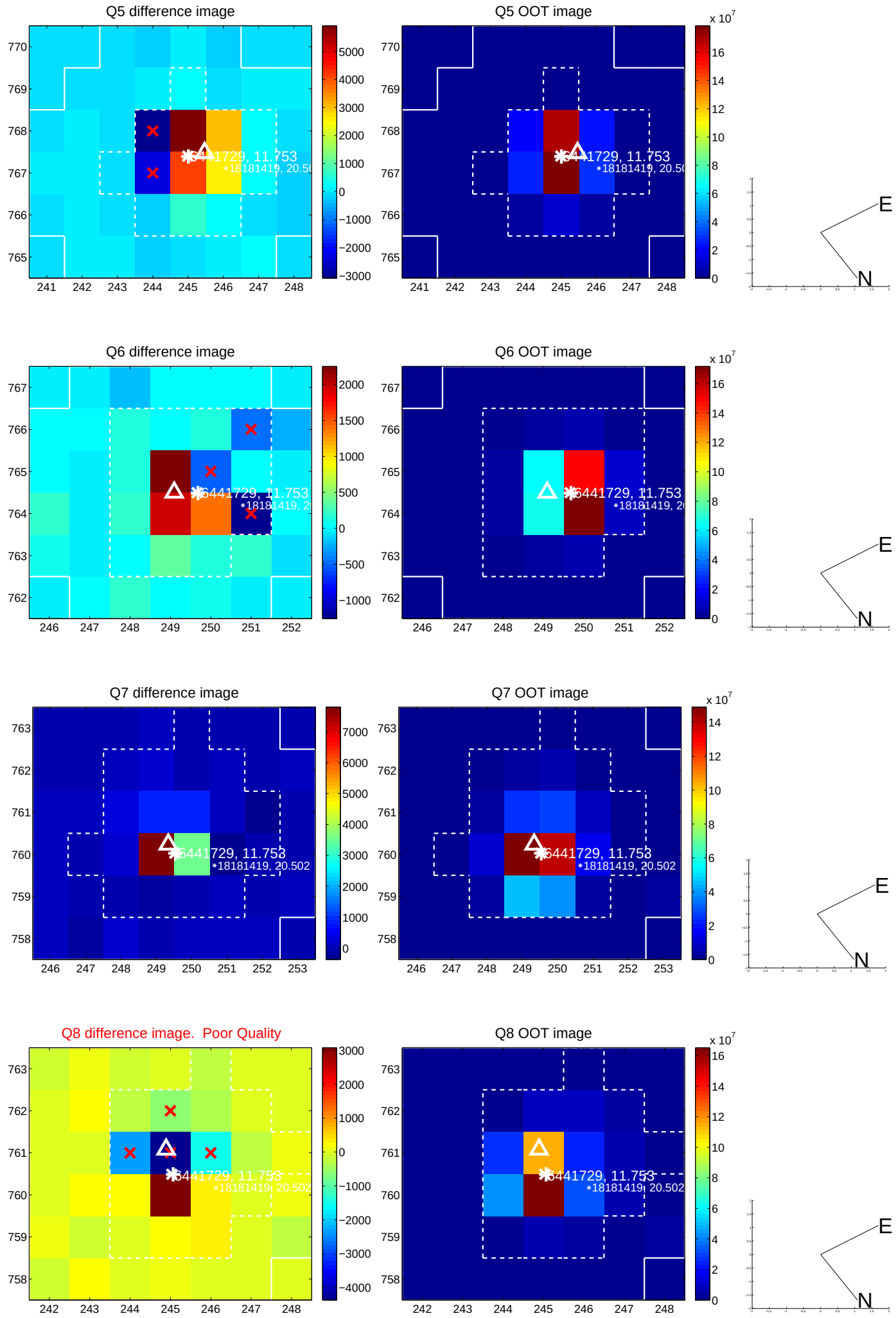


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one-σ uncertainty. Blue circle: three-σ. Red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

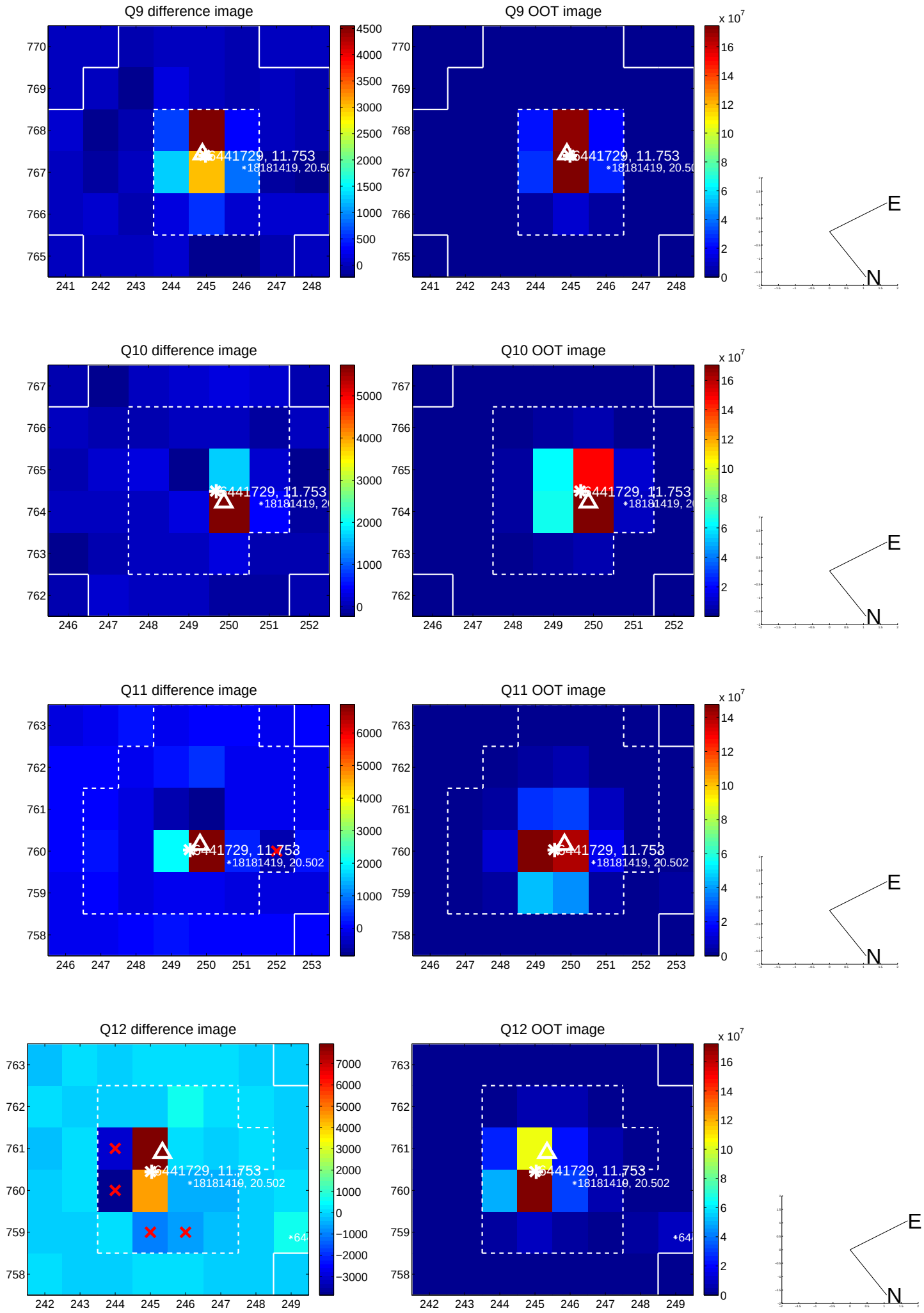
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.



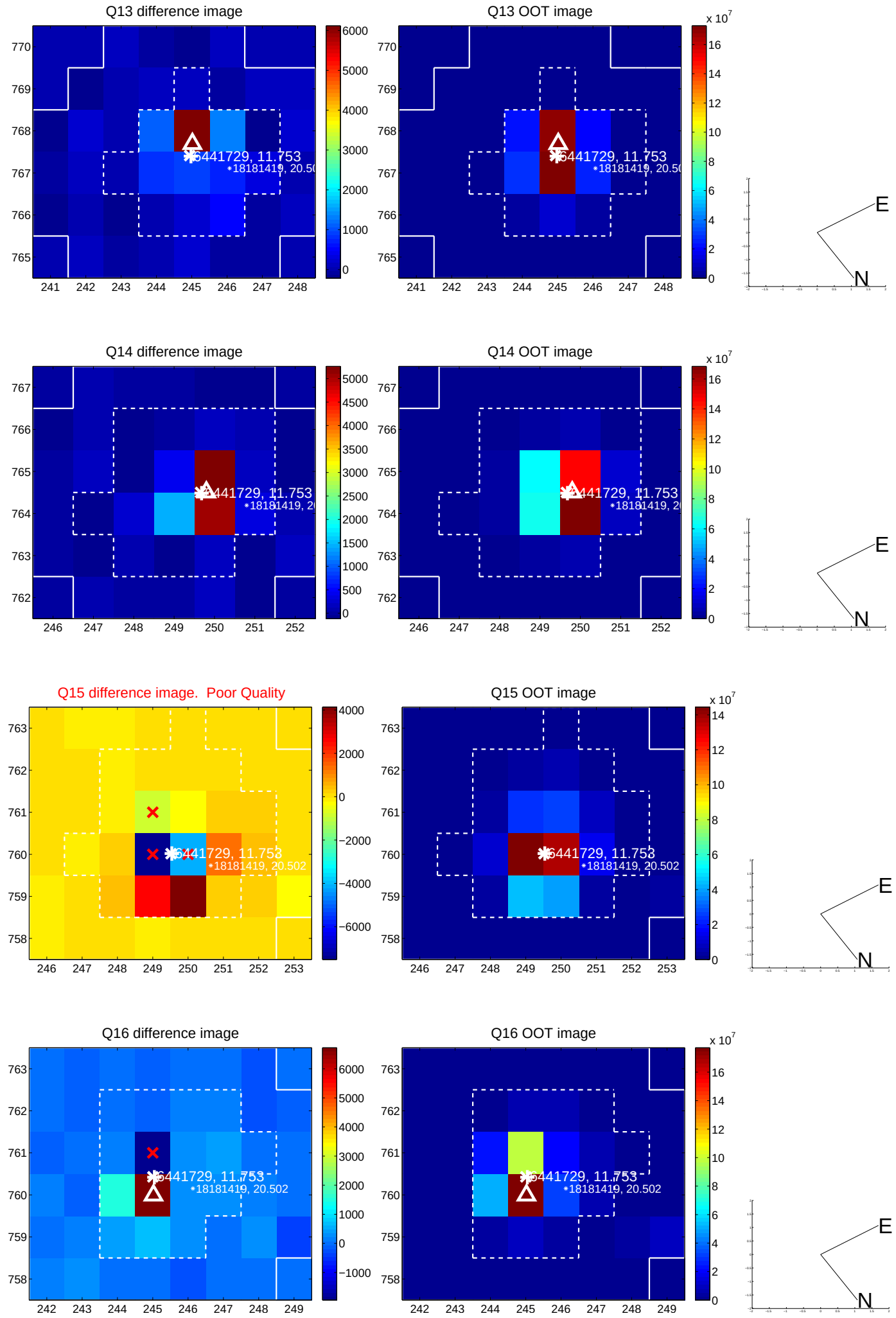
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.



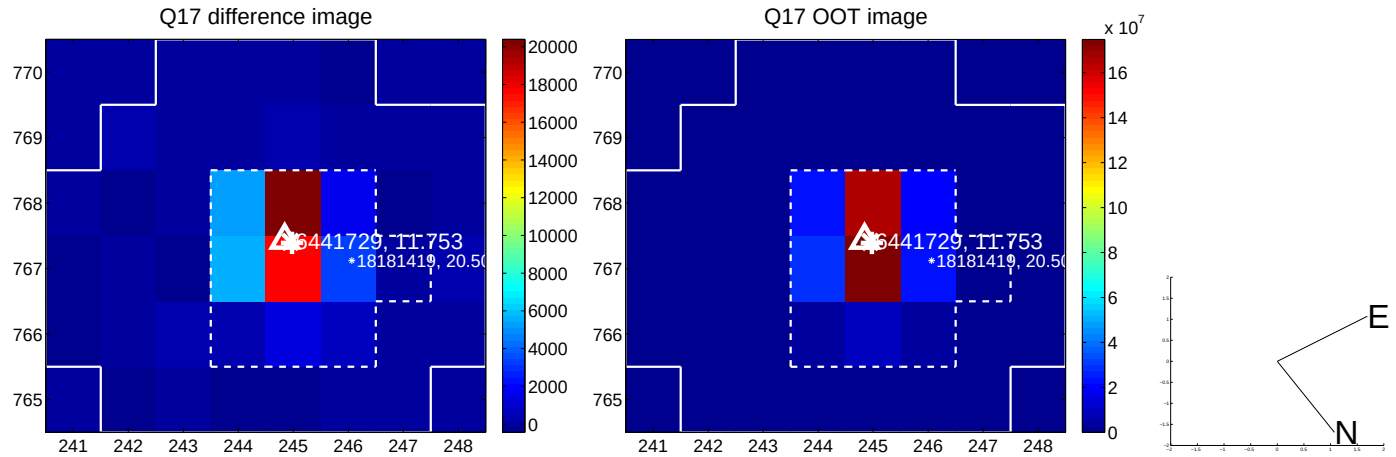
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.

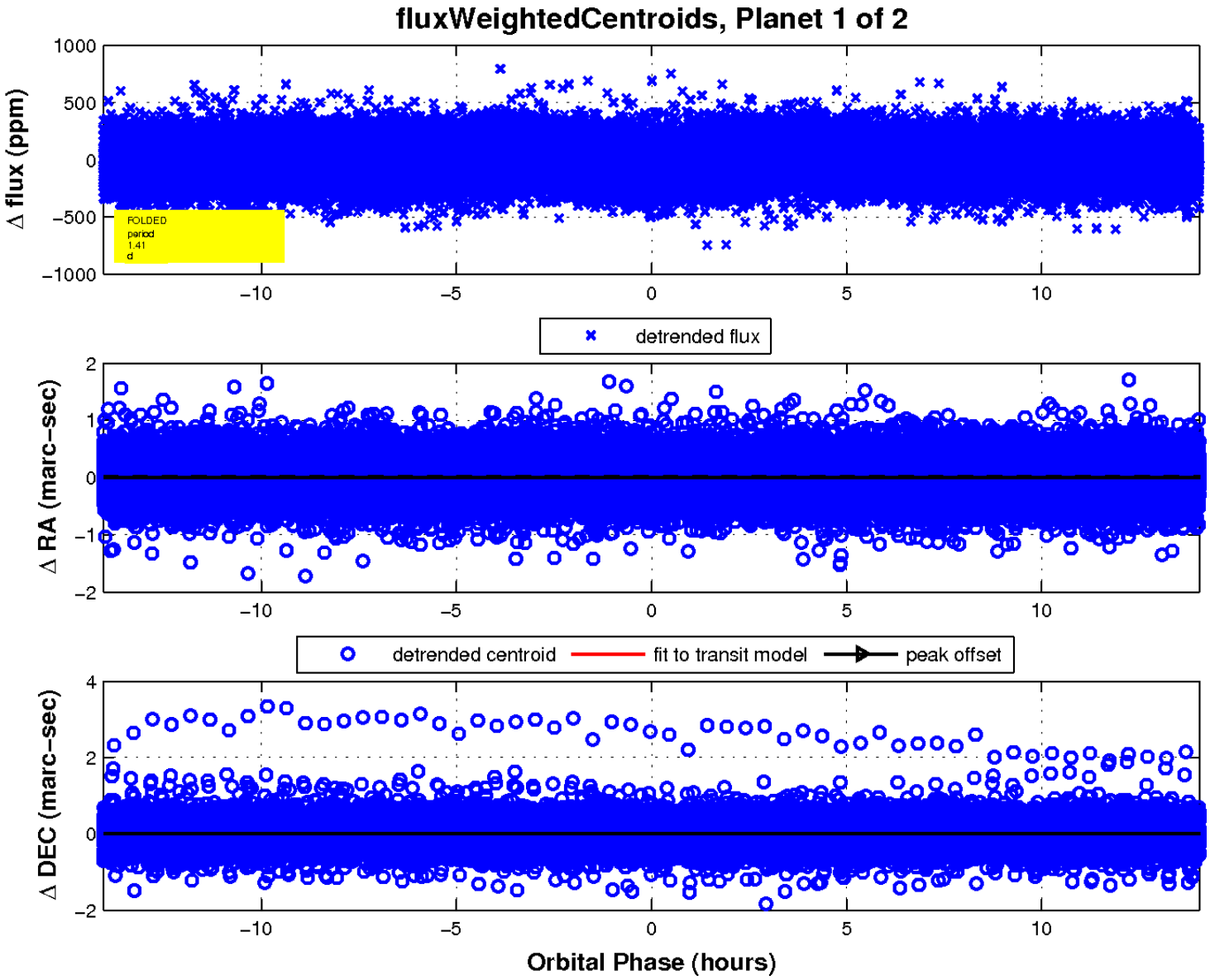


white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.

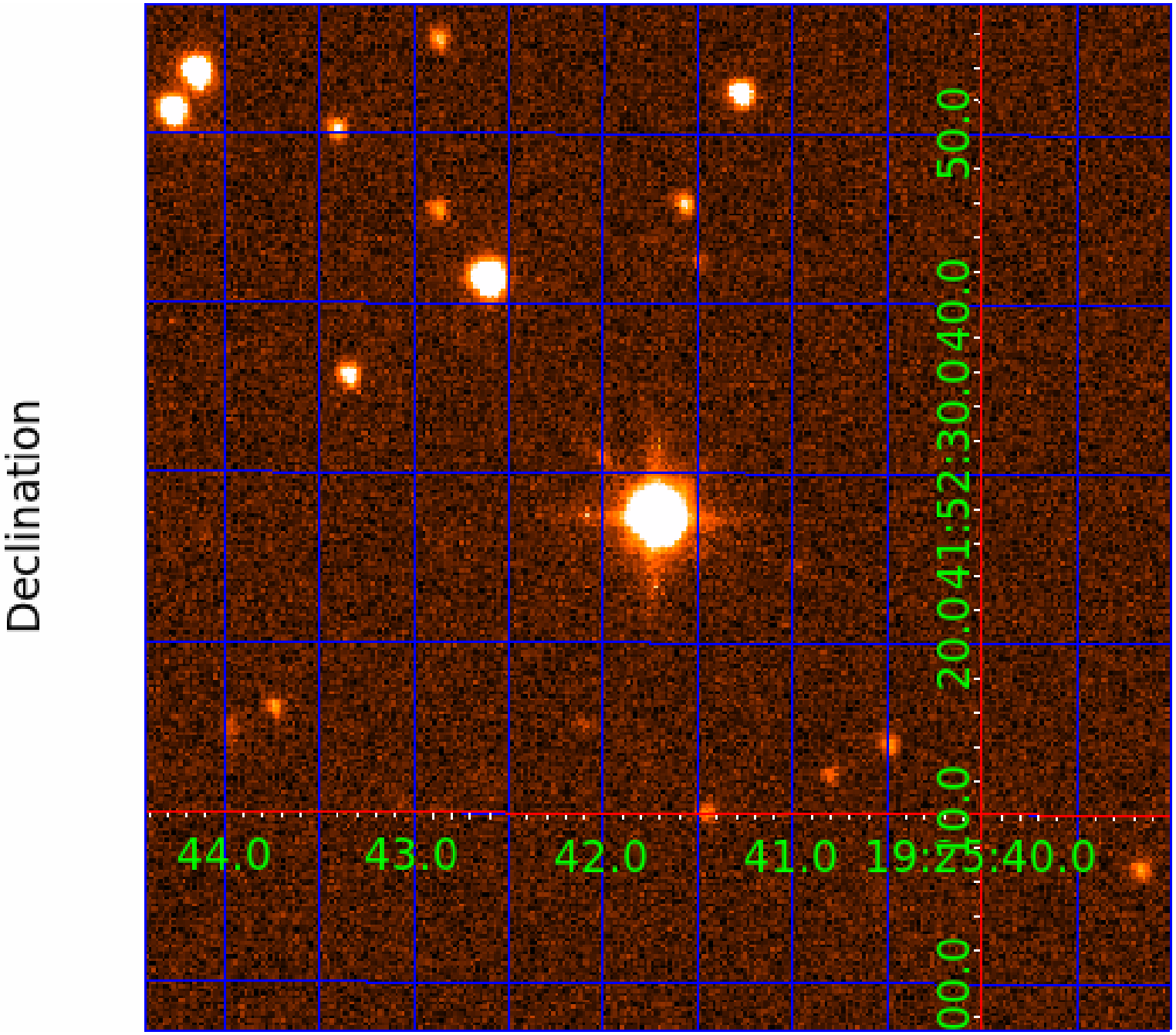


white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.





UKIRT Image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20.0
41:52:30.0
40.0
50.0

KIC 006441729

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 ($S_\oplus$)
006441729-01	OBS	No	1.411140	131.816212	21.7	4.682	10.2	8.6	2.24	7556	1.21	18839.93
006441729-02	OBS	No	224.912304	146.070469	207.2	14.527	8.0	6.9	2.24	7556	3.54	21.80

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
006441729-01	OBS	FP	0.00	1	0	0	0	LPP_DV—MOD_NONUNIQ_ALT
006441729-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—MOD_NONUNIQ_DV

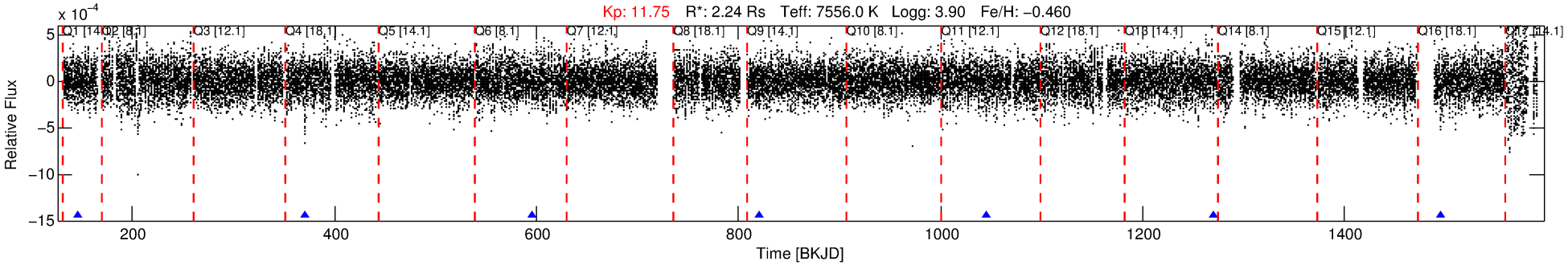
Notes: OBS = Observed. INJ = Injected. INV = Inverted. SCR = Scrambled.
N = Not Transit-Like. S = Stellar Eclipse. C = Centroid Offset. E = Ephemeris Match.
See `http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col` for comment definitions.

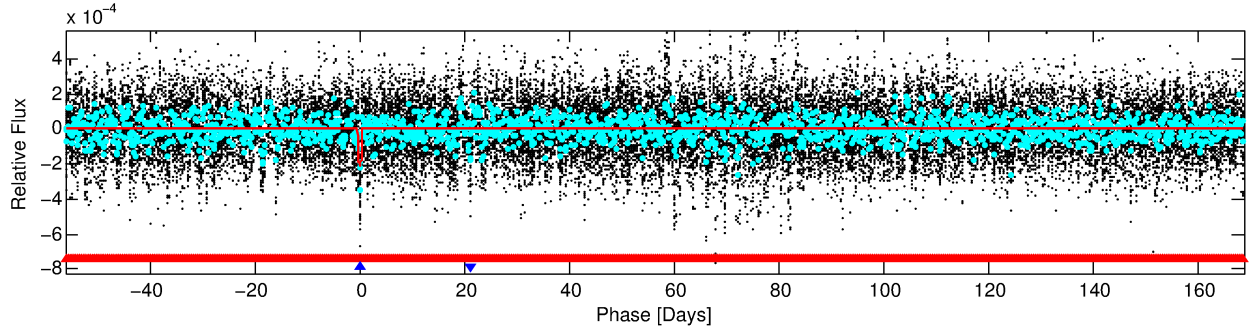
Ephemeris Match Information For 006441729-02

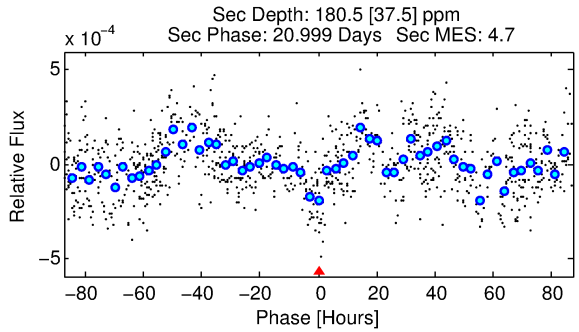
No Significant Match Found

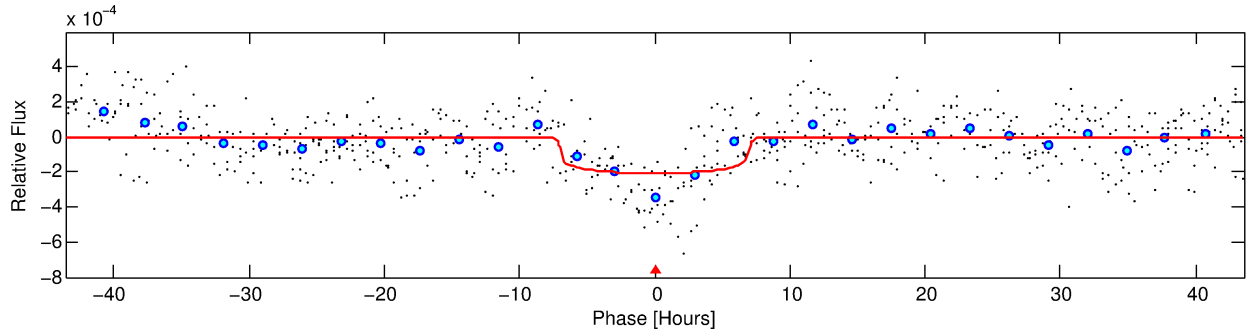
DV One-Page Summary

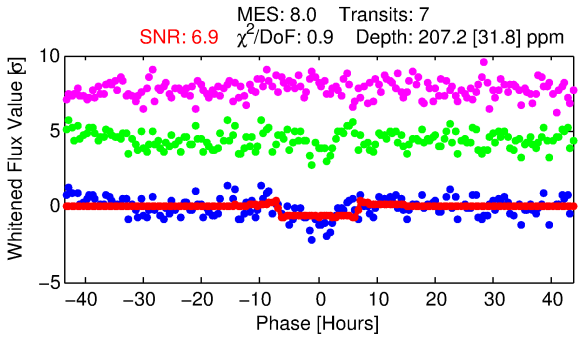
KIC: 6441729 Candidate: 2 of 2 Period: 224.912 d

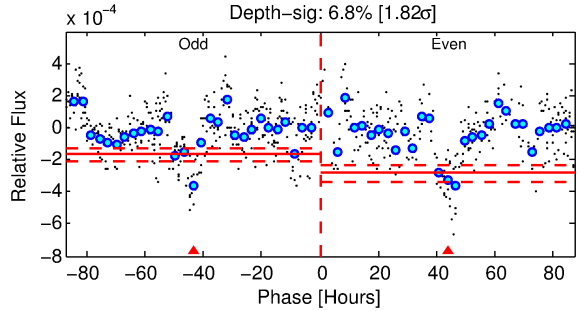


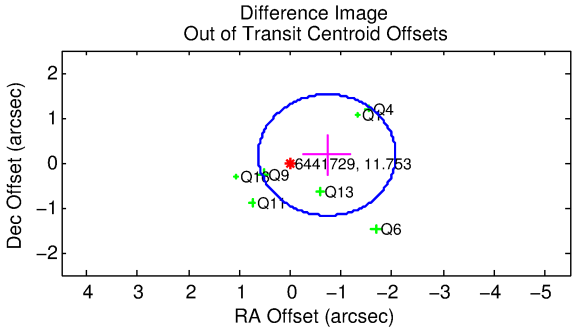












DV Fit Results:

Period = 224.91230 [0.00404] d
Epoch = 146.0705 [0.0144] BKJD
Rp/R* = 0.0145 [0.0023]
a/R* = 75.58 [57.58]
b = 0.79 [0.37]

Seff = 21.80 [13.42]
Teq = 551 [85] K
Rp = 3.53 [1.39] Re
a = 0.8187 [0.2965] AU

Ag = 5327.43 [3751.23] [1.42σ]
Teffp = 7278 [754] K [8.86σ]

DV Diagnostic Results:

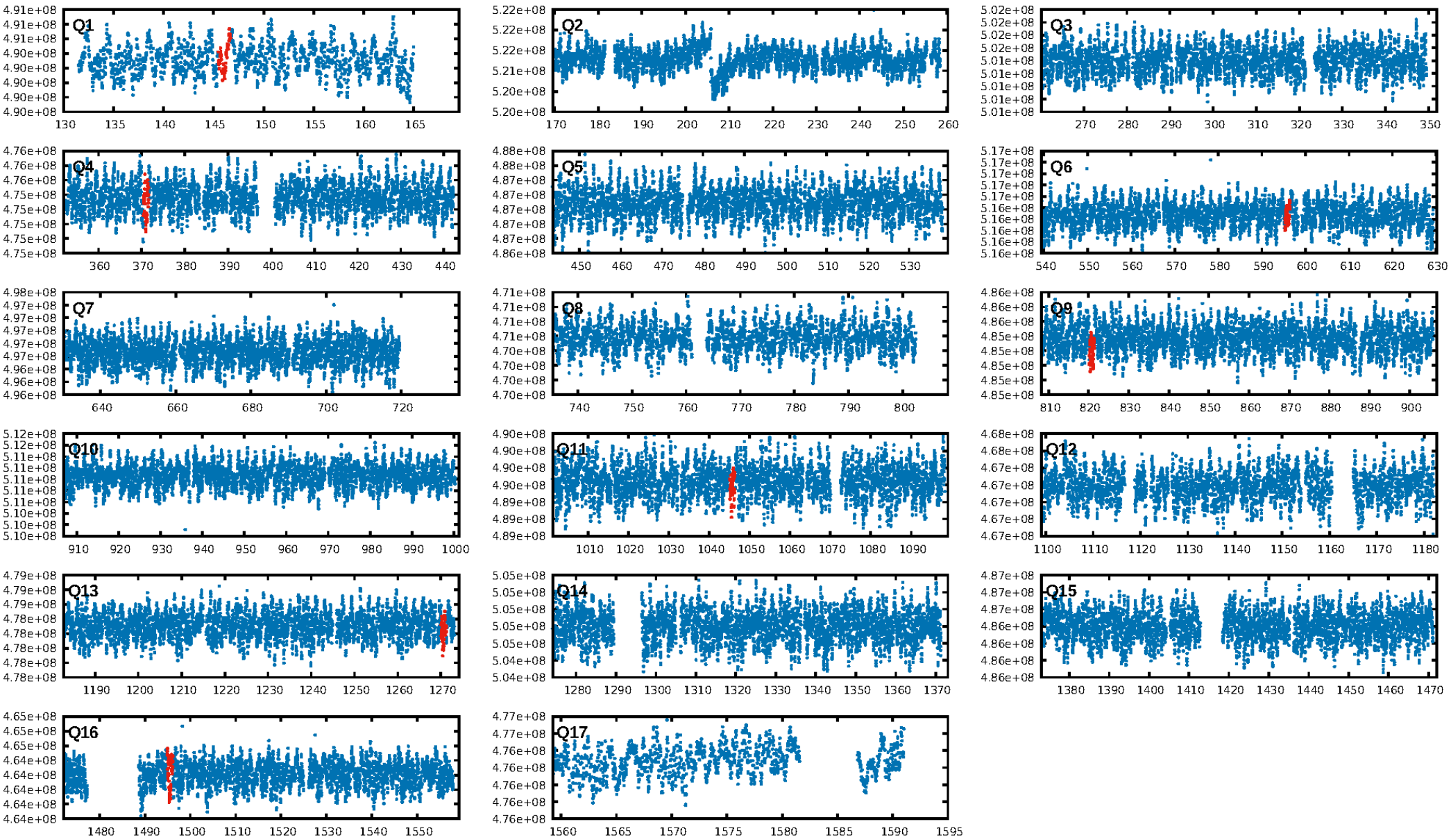
ShortPeriod−sig: 100.0% [351.44σ]
LongPeriod−sig: N/A
ModelChiSquare2−sig: 55.9%
ModelChiSquareGof−sig: 100.0%
Bootstrap−pfa: 1.18e−11
RollingBand−fgt: 1.00 [6/6]
GhostDiagnostic−chr: 1.895

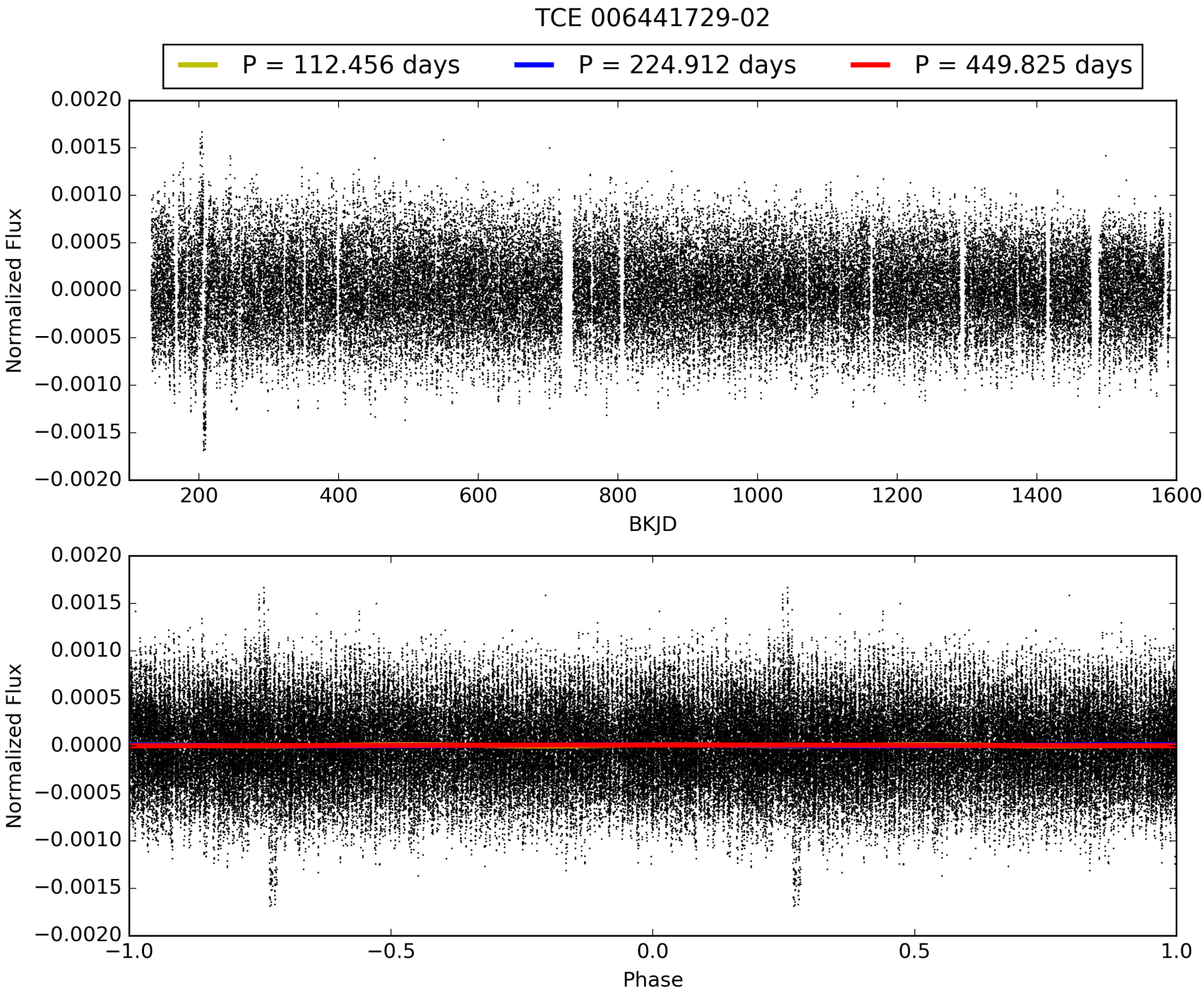
Centroid−sig: 47.8%
Centroid−so: 0.403 arcsec [1.19σ]
OotOffset−rm: 0.743 arcsec [1.65σ]
KicOffset−rm: 0.705 arcsec [1.55σ]
OotOffset−st: 1/1/2/3 [7]
KicOffset−st: 1/1/2/3 [7]
DiffImageQuality−fgm: 1.00 [7/7]
DiffImageOverlap−fno: 0.00 [0/7]

Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29−Jan−2016 21:39:27 Z

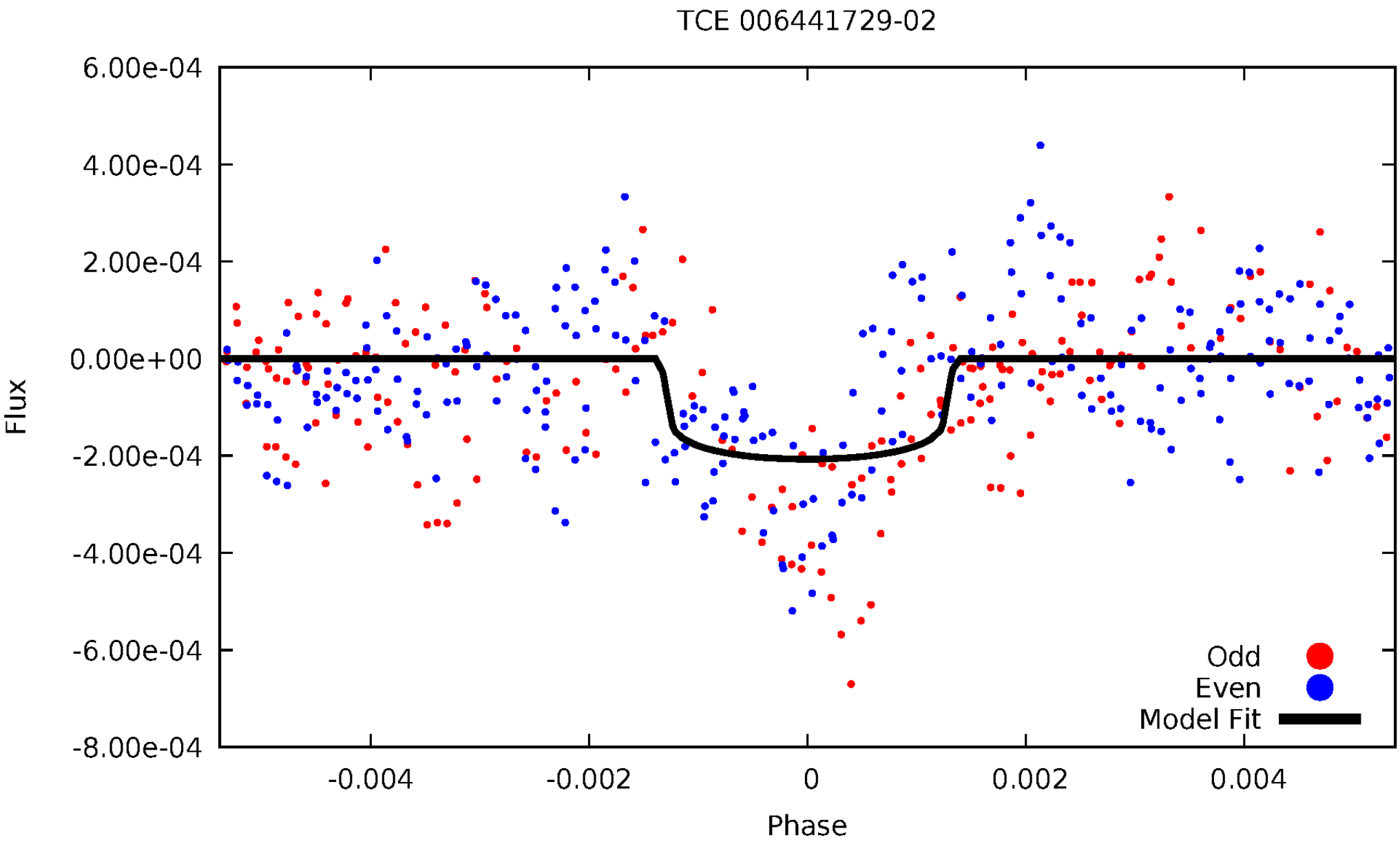
This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

TCE 006441729-02, PDC Light Curves




TCE 006441729-02
P = 112.456 days
P = 224.912 days
P = 449.825 days
Normalized Flux
BKJD
Normalized Flux
Phase

DV Odd/Even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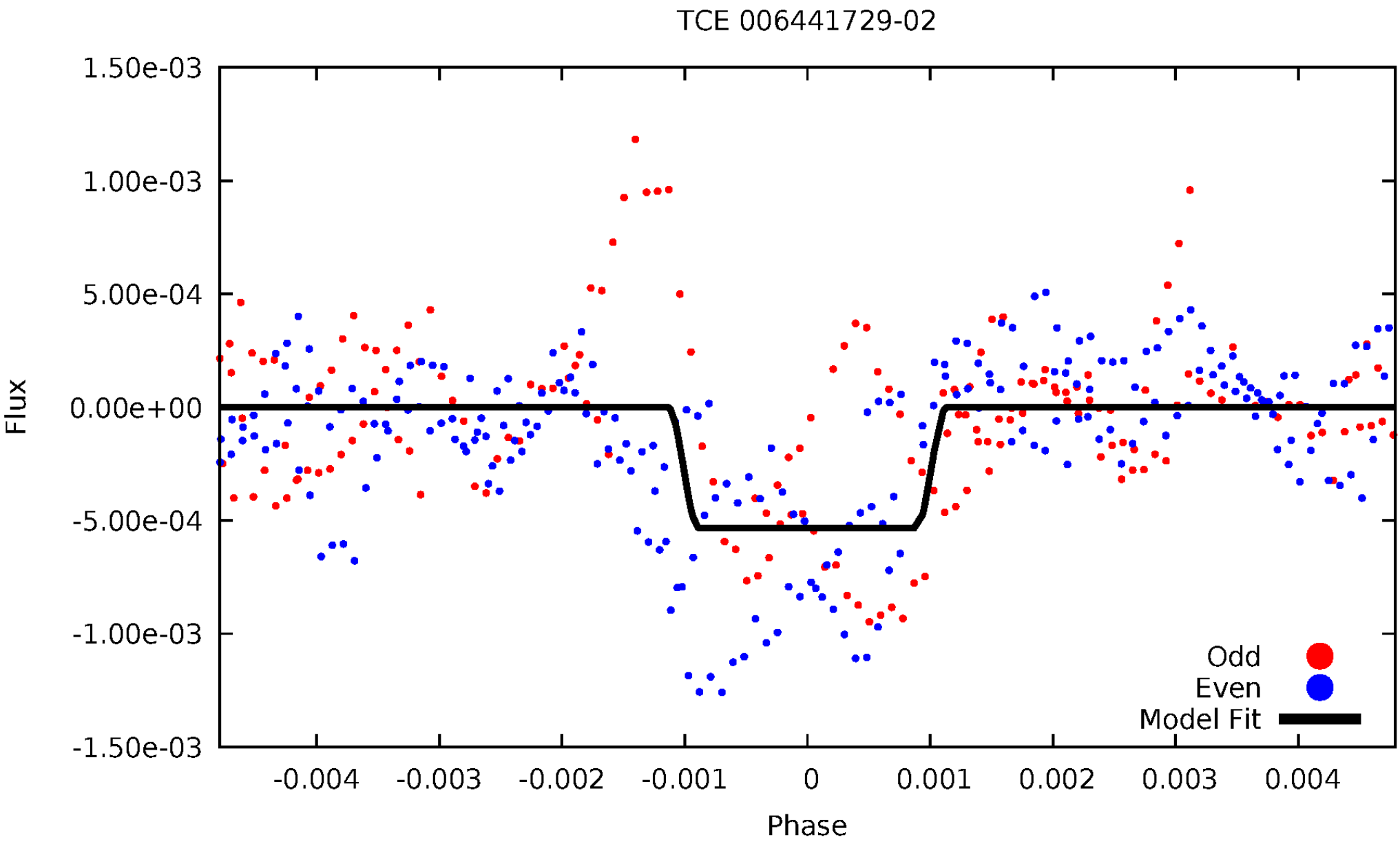
4.00e-04
2.00e-04
0.00e+00
-2.00e-04
-4.00e-04
-6.00e-04
-8.00e-04
Flux
-0.004
-0.002
0
0.002
0.004
Phase
Odd
Even
Model Fit

ALT Odd/Even


TCE 006441729-02
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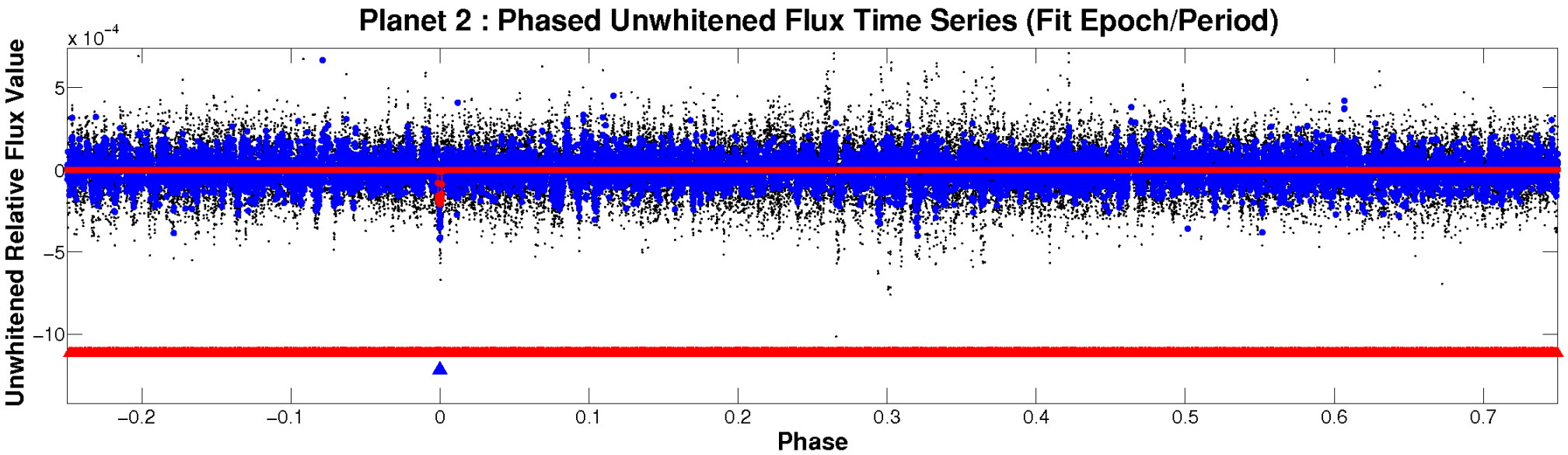
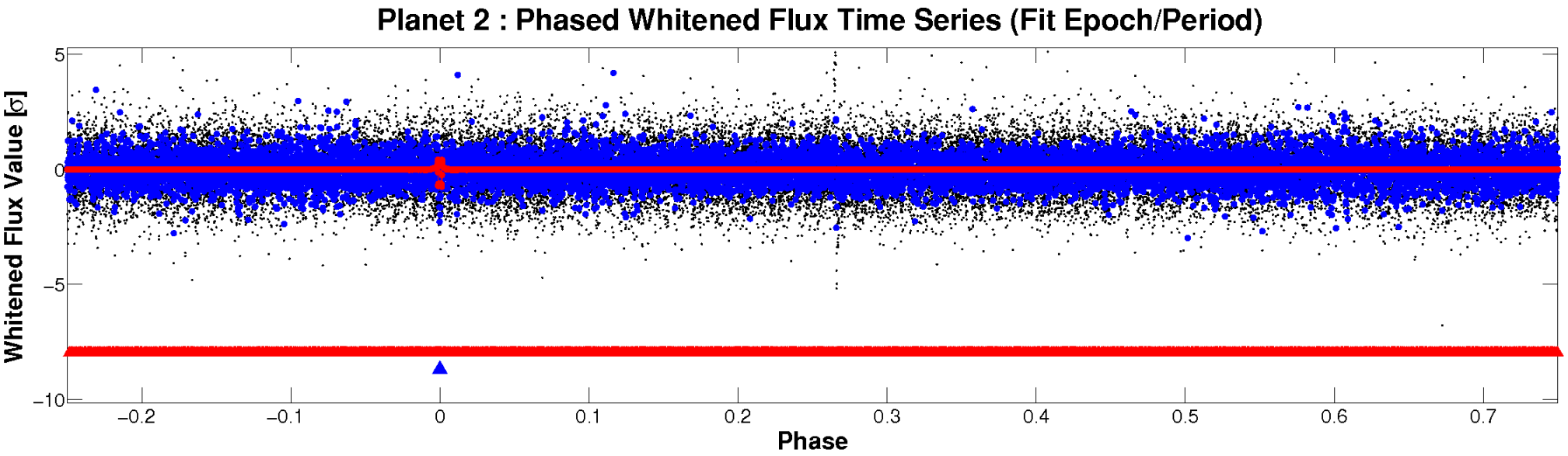
5.00e-04
0.00e+00
-5.00e-04
-1.00e-03
-1.50e-03
Flux
-0.004
-0.003
-0.002
-0.001
0
0.001
0.002
0.003
0.004
Phase
Odd
Even
Model Fit

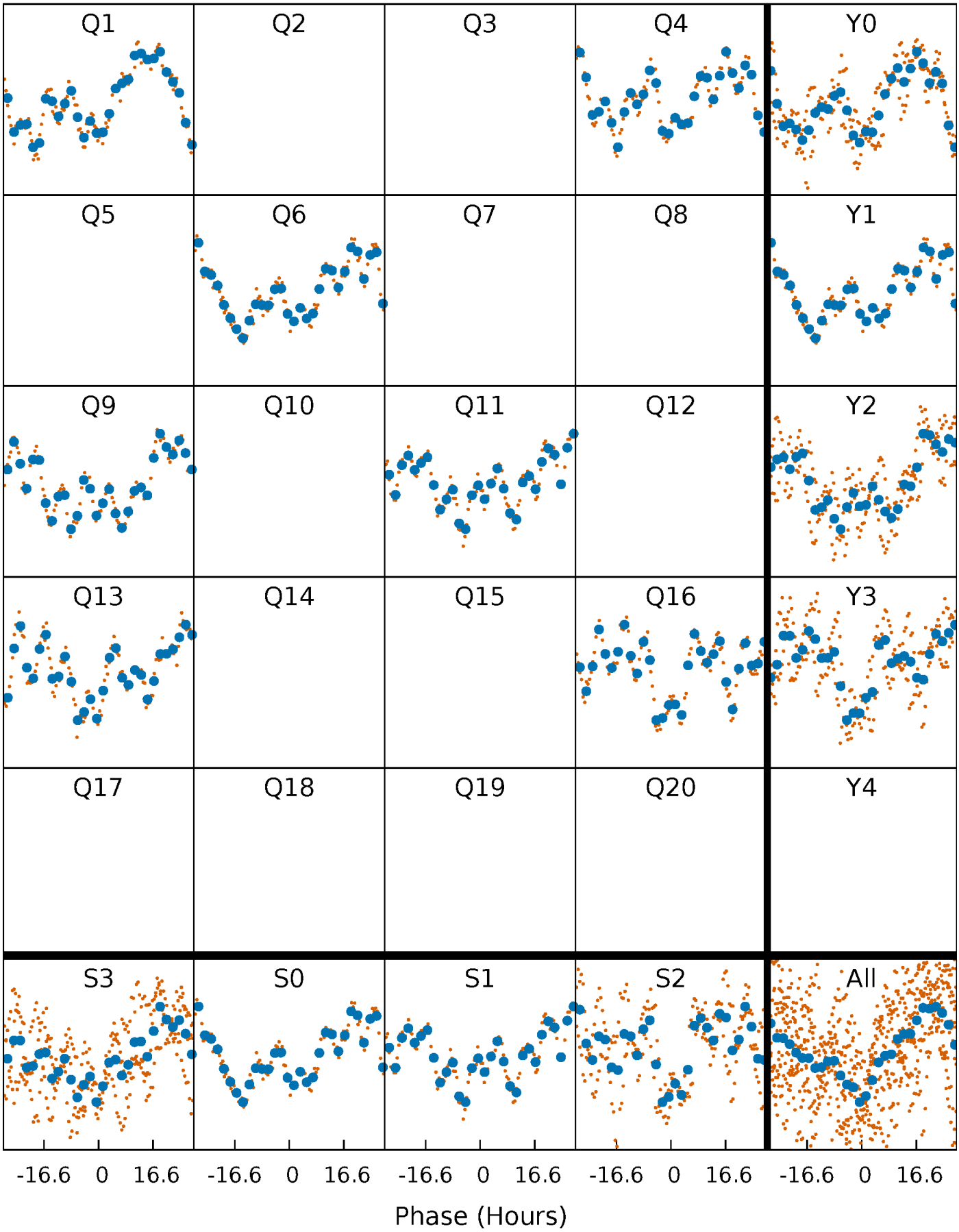
Non-Whitened Vs. Whitened Light Curve





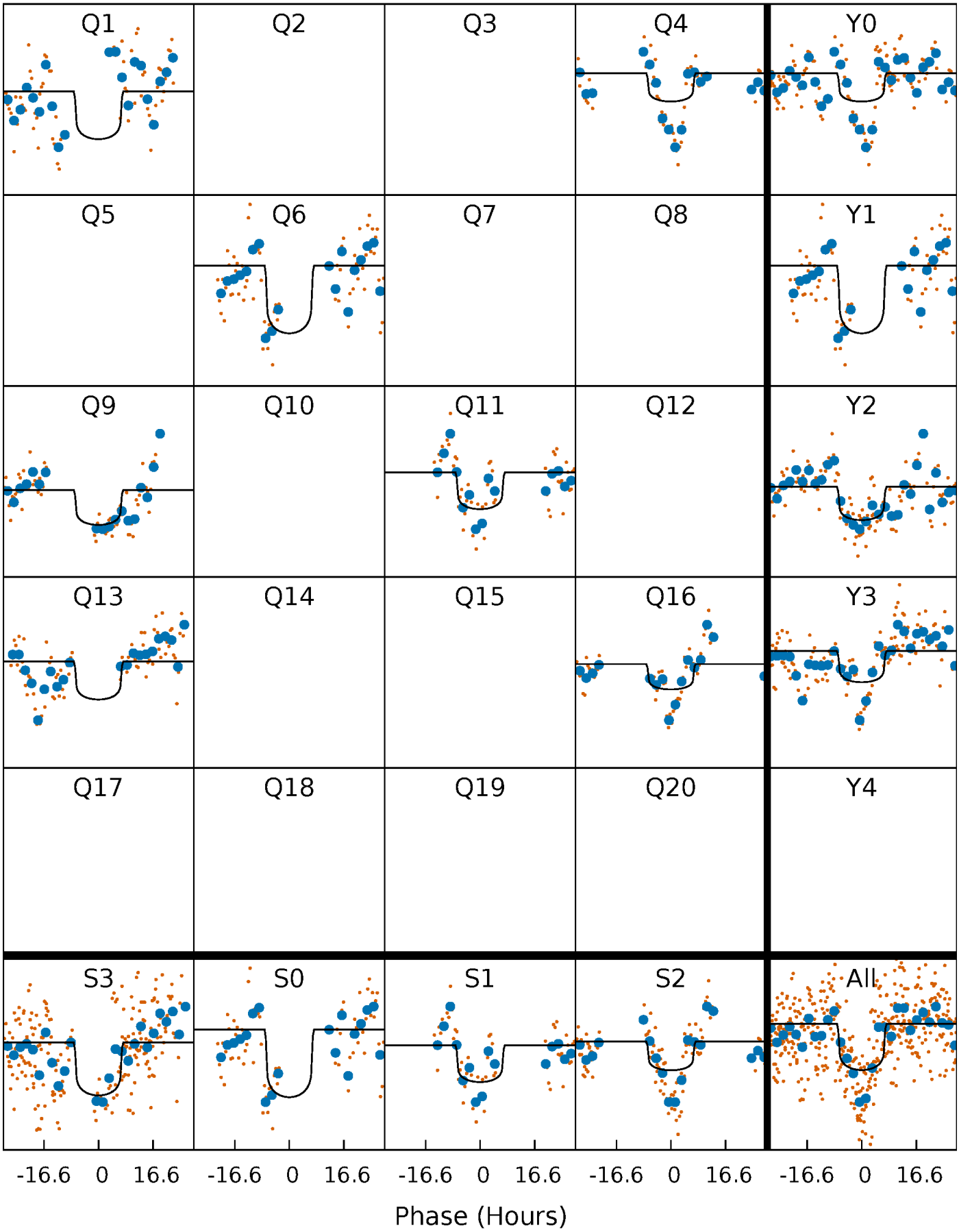
PDC Quarter-Phased Transit Curves

TCE 006441729-02 P=224.912304 Days T_0=146.070469 (BKJD)



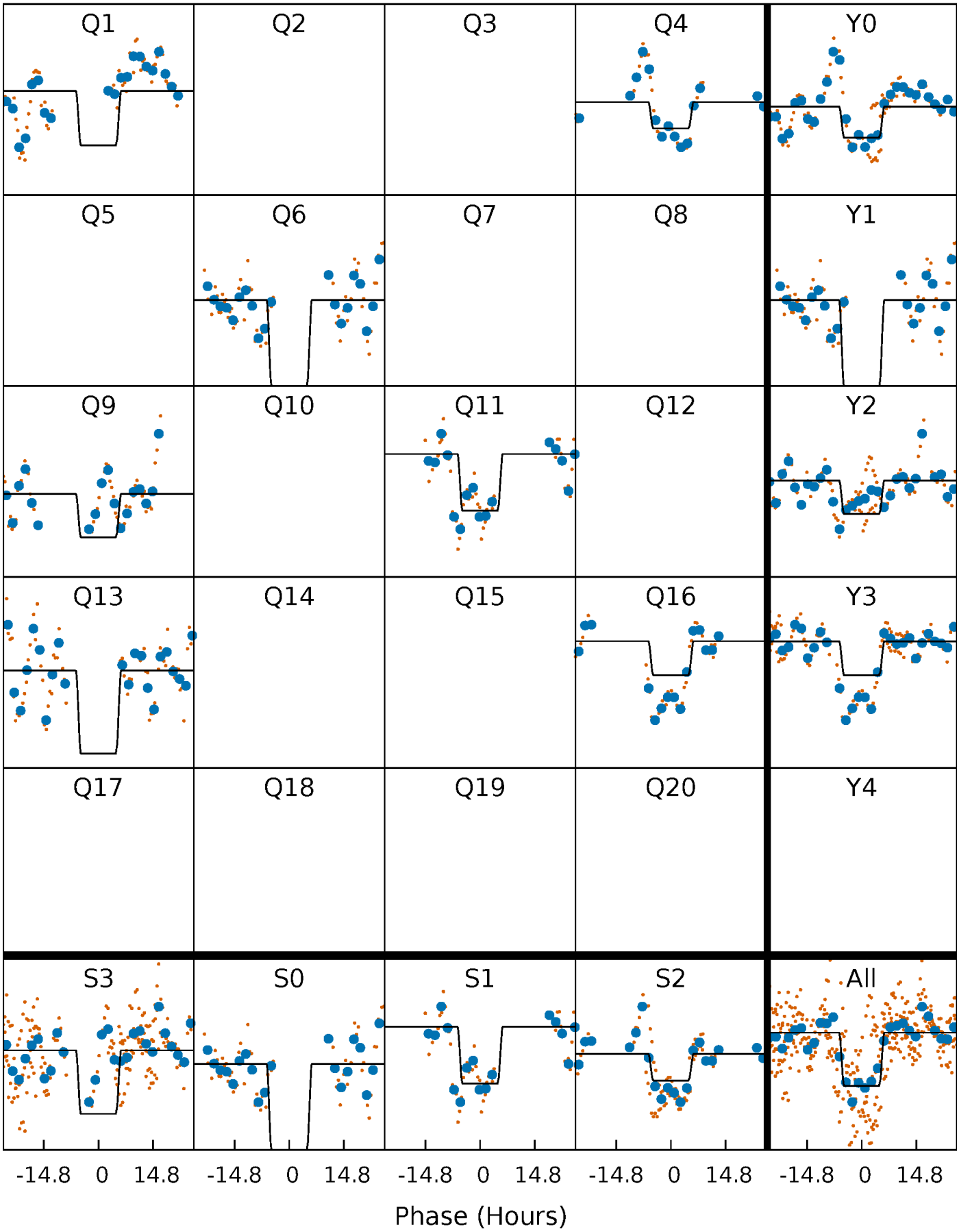
DV Quarter-Phased Transit Curves

TCE 006441729-02 P=224.912304 Days T_0=146.070469 (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

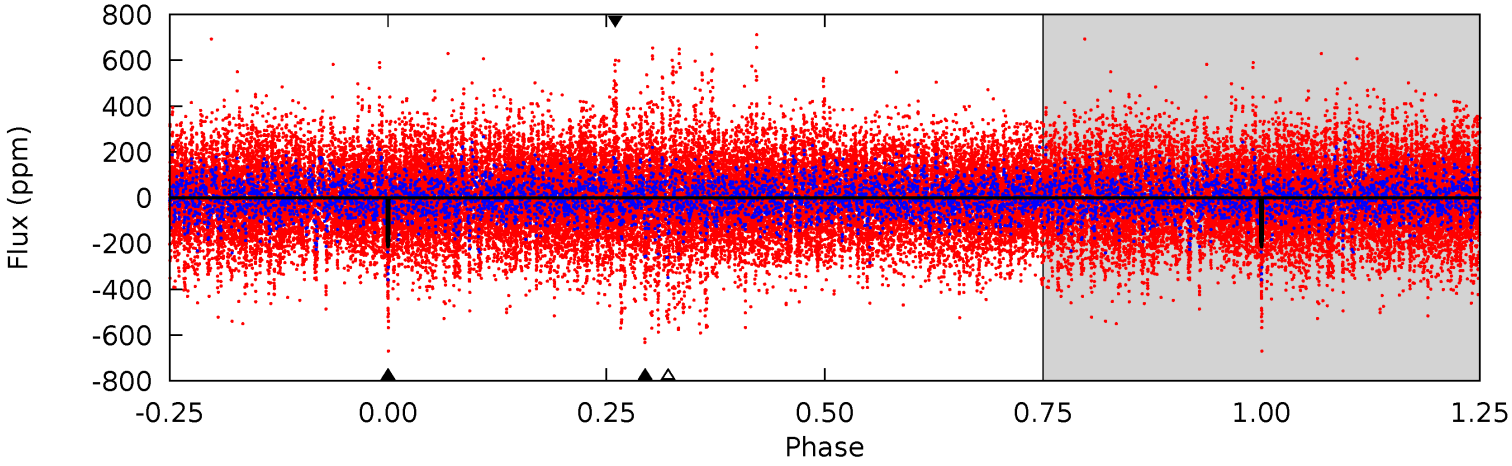
TCE 006441729-02 P=224.905384 Days T_0=146.135615 (BKJD)

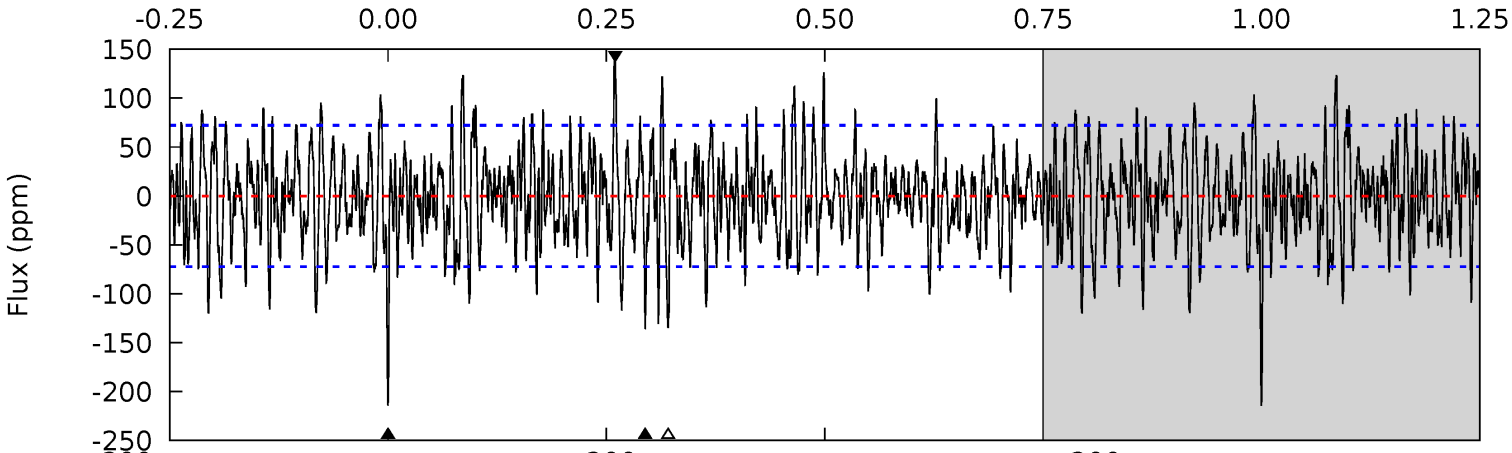


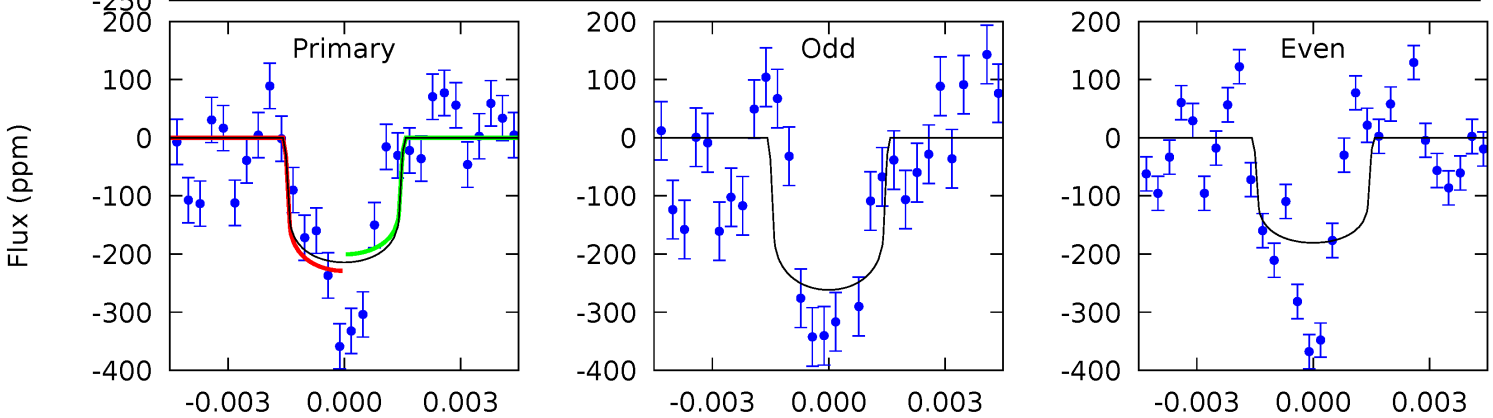
DV Model-Shift Uniqueness Test

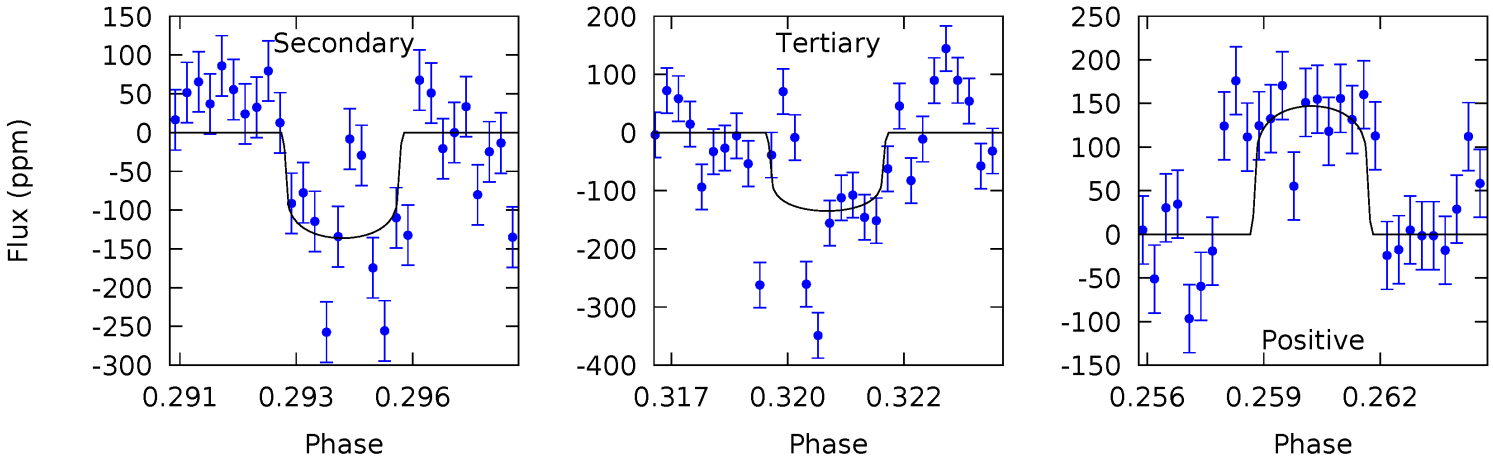
006441729-02, P = 224.912304 Days, E = 146.070469 Days

Pri	Sec	Ter	Pos	FA_1	FA_2	F_{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
15.6	9.93	9.83	10.7	5.28	3.01	3.07	5.80	4.91	0.10	-0.80	2.92	0.76	0.41	1.04





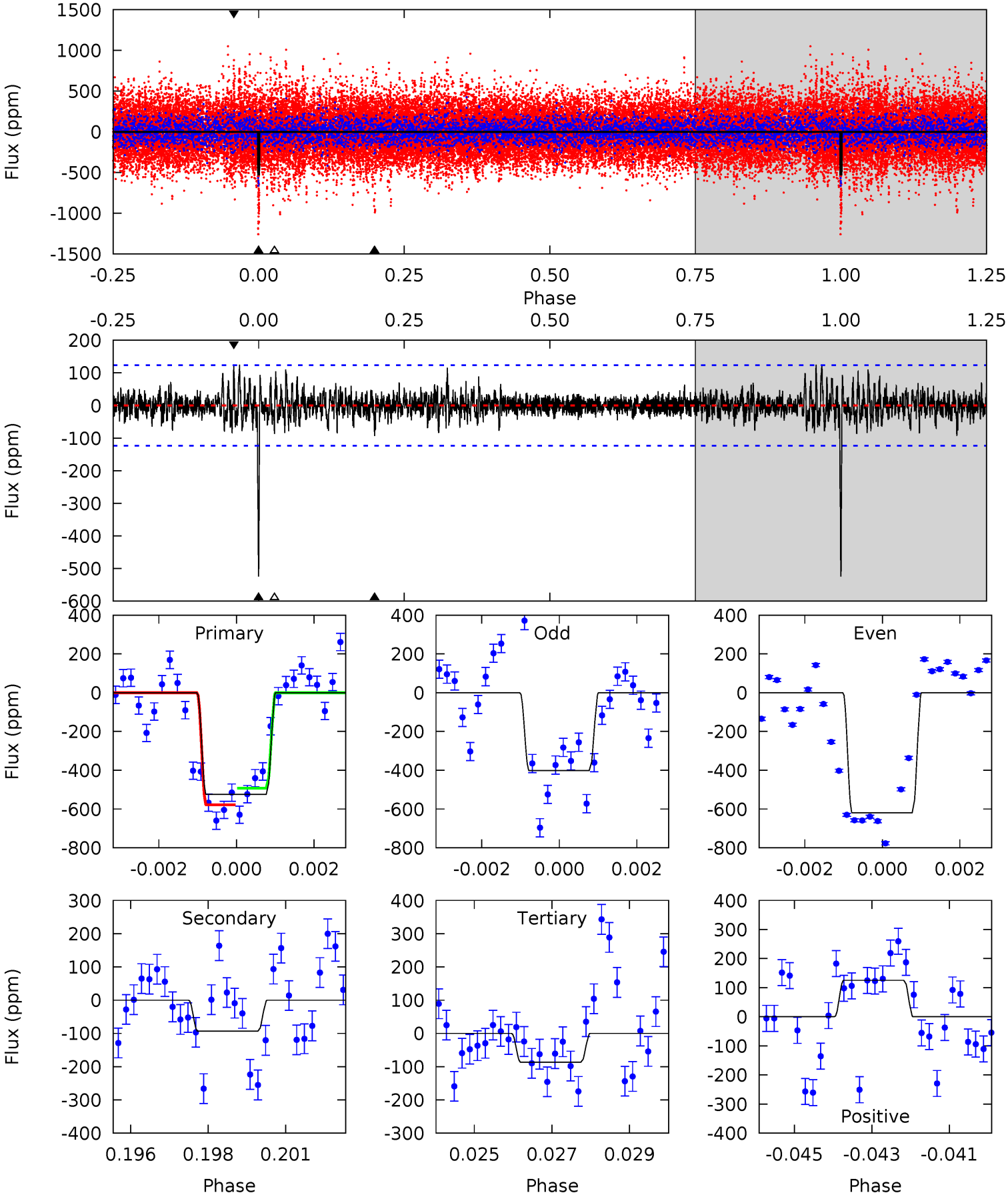




Alt Model-Shift Uniqueness Test

006441729-02, P = 224.905384 Days, E = 146.135615 Days

Pri	Sec	Ter	Pos	FA_1	FA_2	F_{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
22.6	4.01	3.73	5.39	5.30	3.05	1.16	18.8	17.2	0.28	-1.38	4.65	1.30	0.19	1.84



Stellar Parameters For KIC 006441729

	$T_{\rm eff}(K)$	$\log(g)$	[Fe/H]	R ($R_\odot$)	$M(M_\odot)$	$p_\star$ (g·cm^{-3})
	7556^{+234}_{-313}	$3.899^{+0.353}_{-0.118}$	$-0.460^{+0.250}_{-0.300}$	$2.237^{+0.470}_{-0.806}$	$1.447^{+0.209}_{-0.255}$	$0.182^{+0.497}_{-0.066}$
	+3%/-4%	+9%/-3%	+54%/-65%	+21%/-36%	+14%/-18%	+273%/-36%
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 006441729-02 / KOI

Detrend	Depth (ppm)	R_p ($R_\oplus$)	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-136±14	$3.34^{+0.81}_{-0.73}$	751^{+55}_{-70}	6675^{+713}_{-554}	4559^{+2838}_{-1653}
Alt.	-93±23	$5.42^{+1.04}_{-1.06}$	754^{+49}_{-69}	4876^{+366}_{-341}	1176^{+680}_{-427}

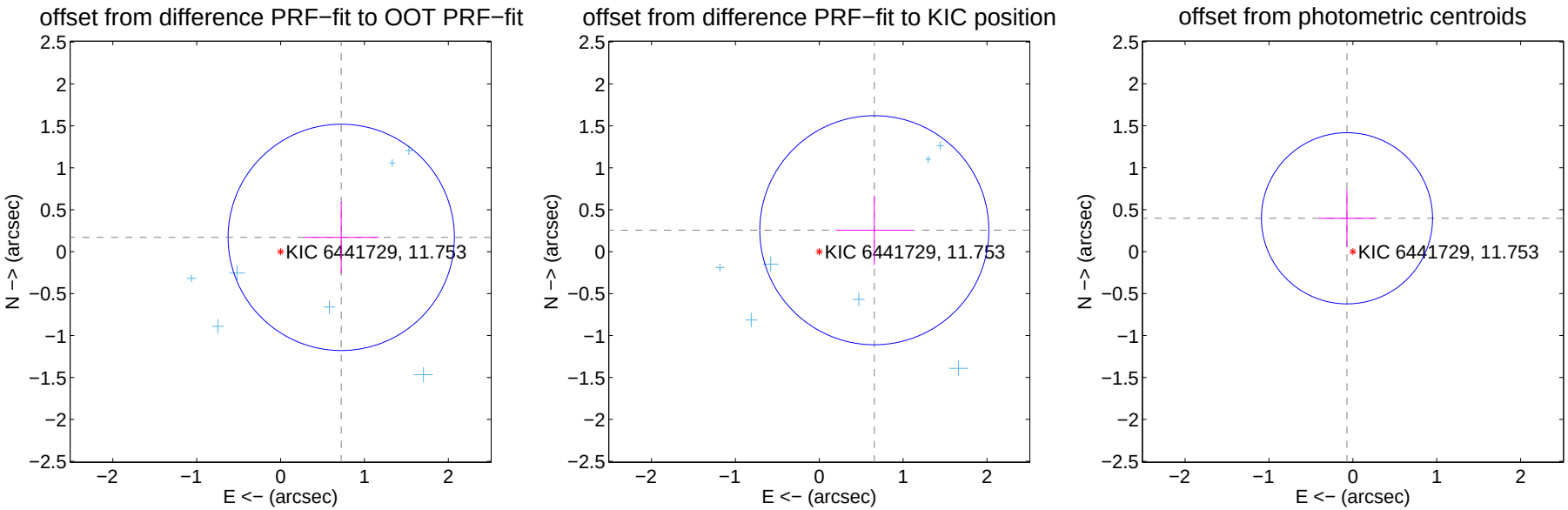
T_{max} = Theoretical Maximum Planetary Temperature
T_{obs} = Observed Planetary Temperature (Assuming A=0.3)
A_{obs} = Observed Albedo (Assuming T=0)

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

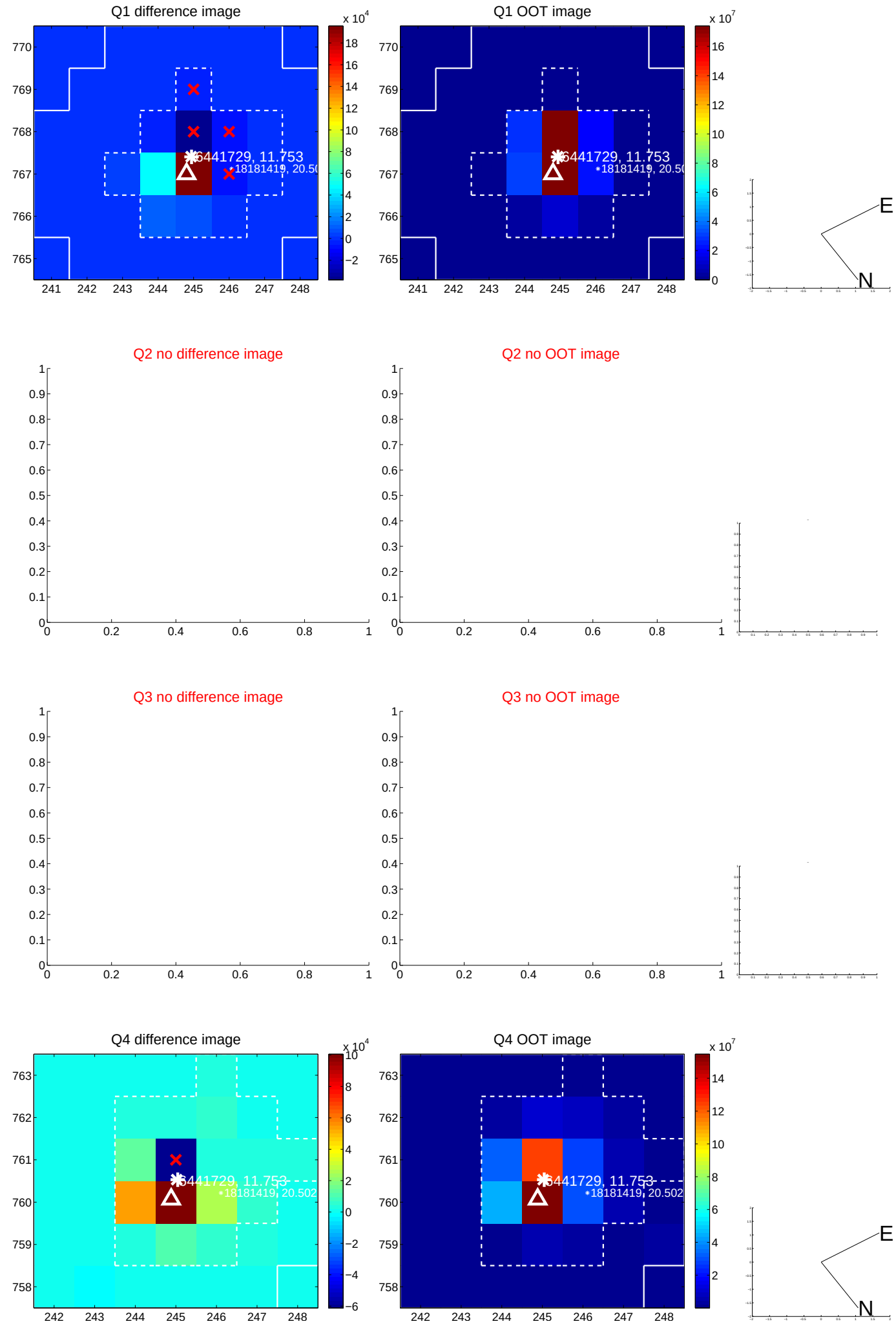
Supplemental centroid analysis for 006441729-02. Kepler magnitude: 11.75. Transit SNR 6.85
There are 7 quarters with good PRF difference image offsets
The direct PRF centroid is offset from the target star catalog position by about 0.18 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.743 ± 0.450	1.65	-0.723 ± 0.451	0.171 ± 0.426
PRF-fit source offset from KIC position	0.705 ± 0.455	1.55	-0.657 ± 0.461	0.256 ± 0.414
photometric centroid source offset	0.40 ± 0.34	1.19	0.07 ± 0.33	0.40 ± 0.34

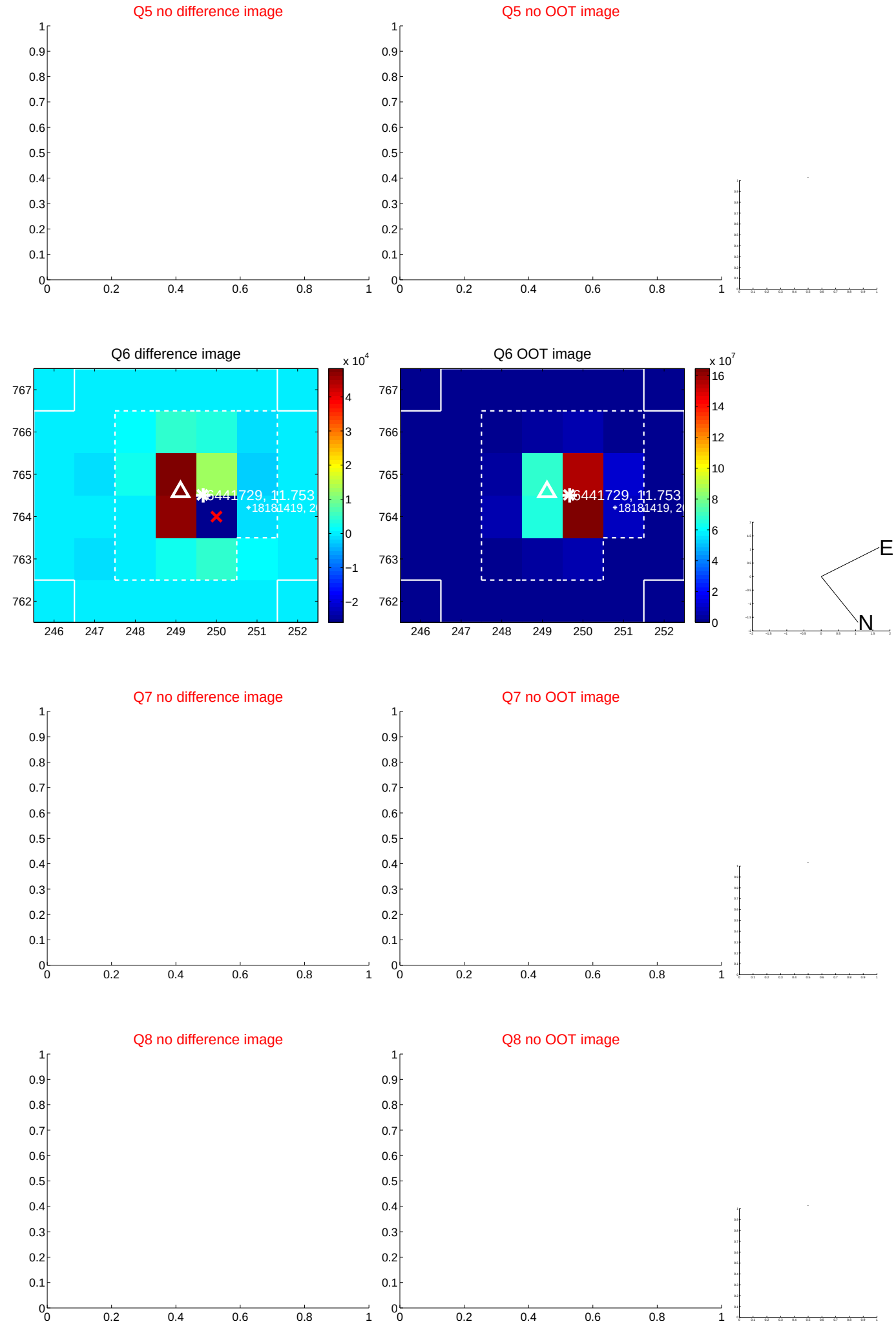


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one-σ uncertainty. Blue circle: three-σ. Red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

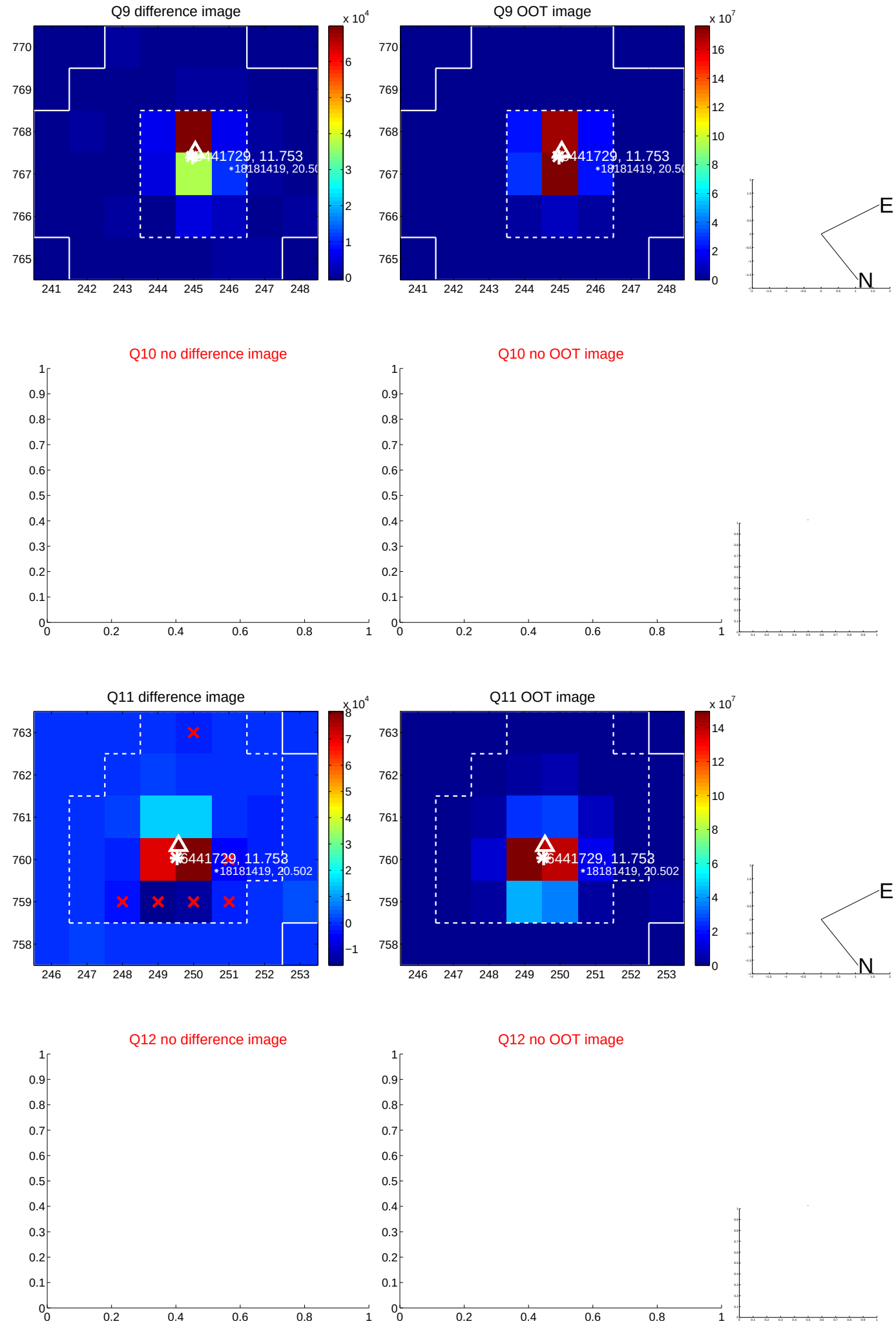
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.



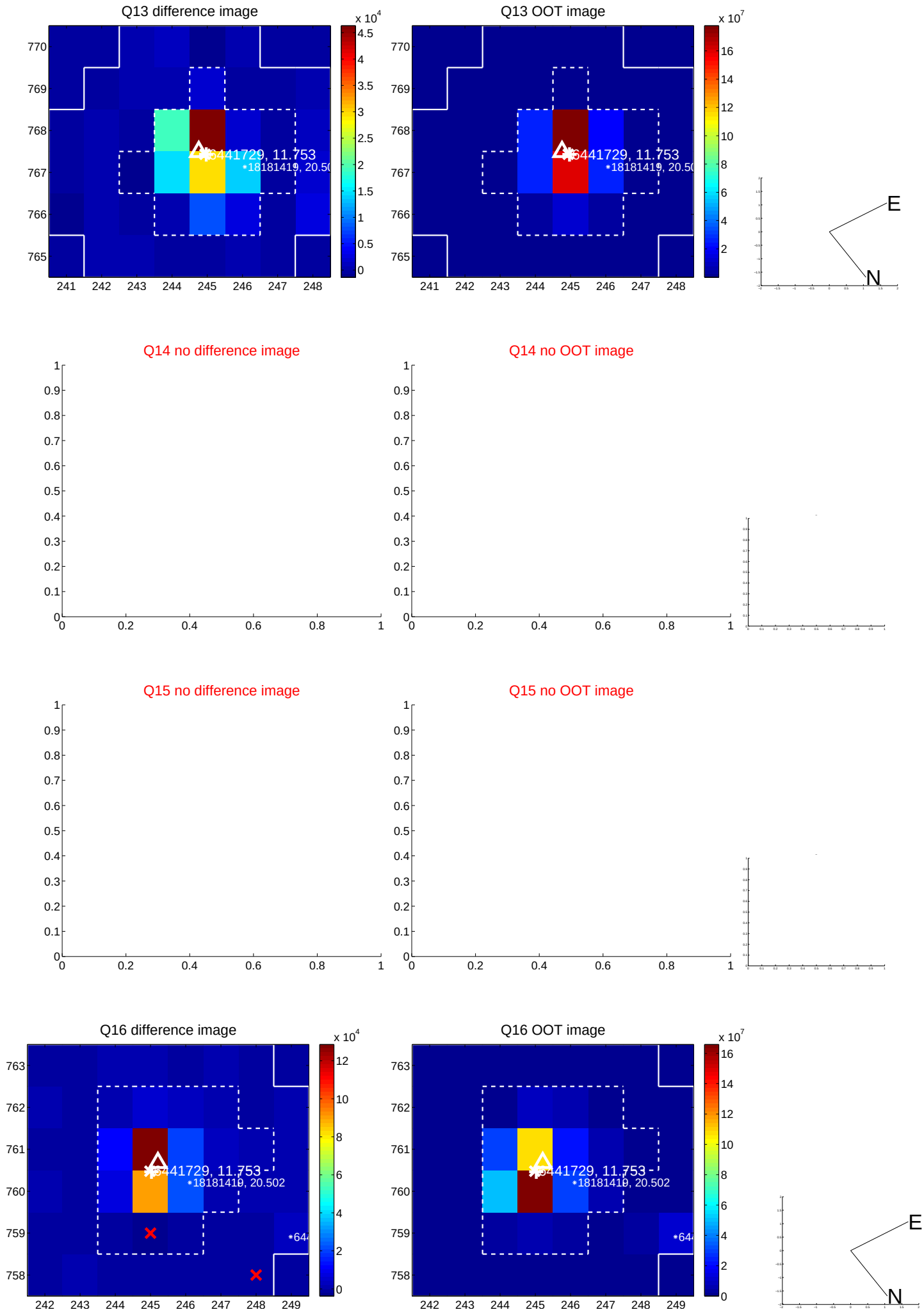
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.



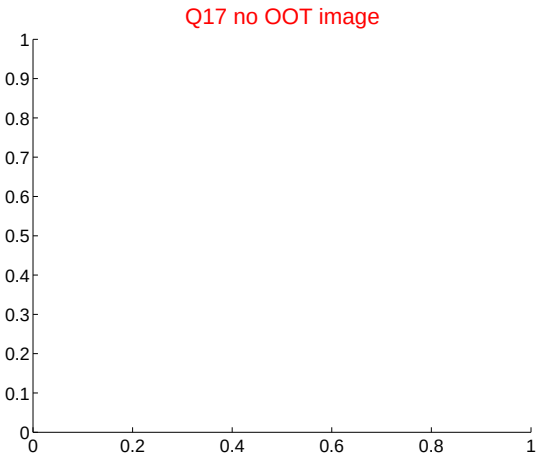
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.

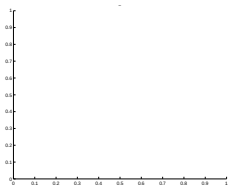


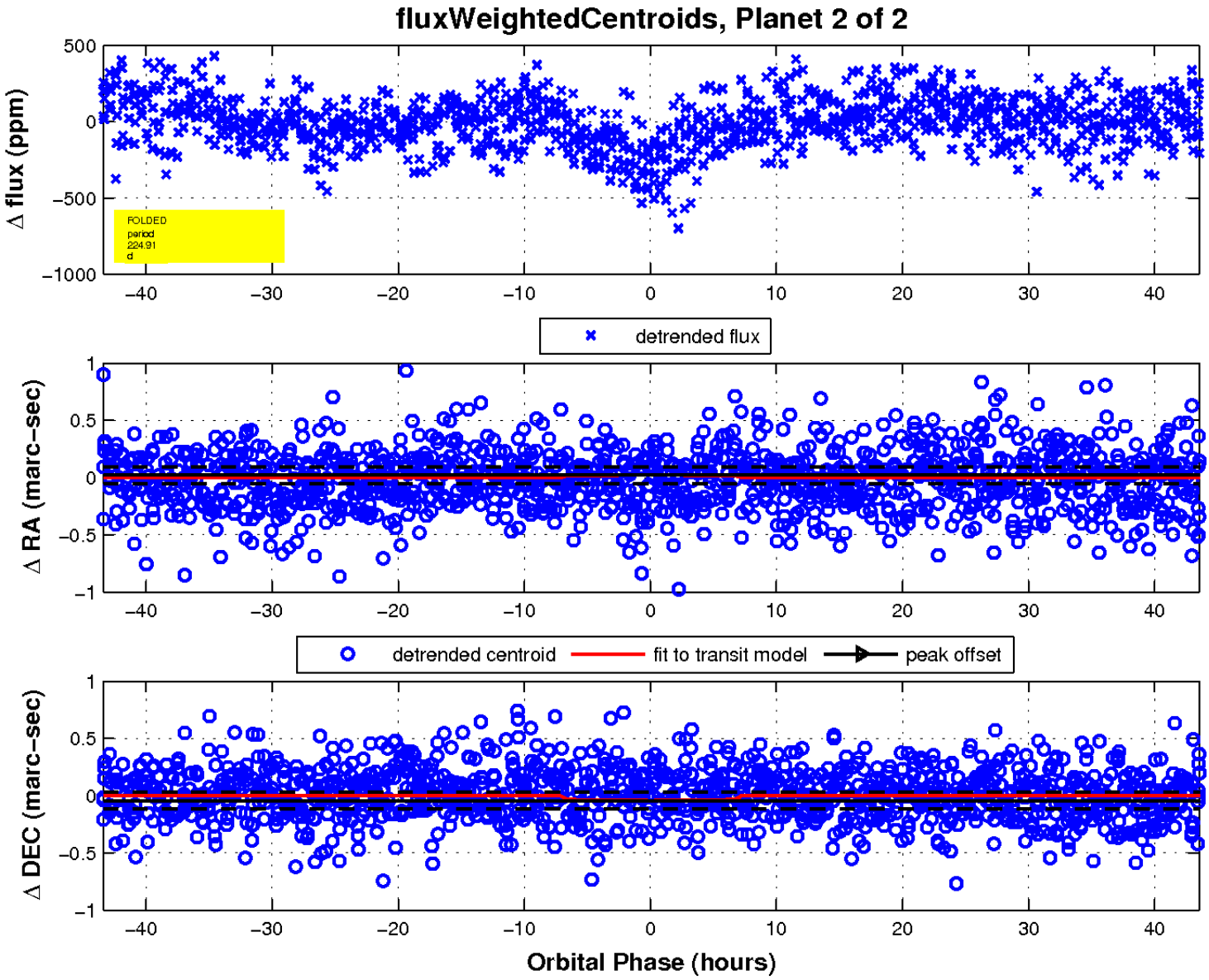
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.



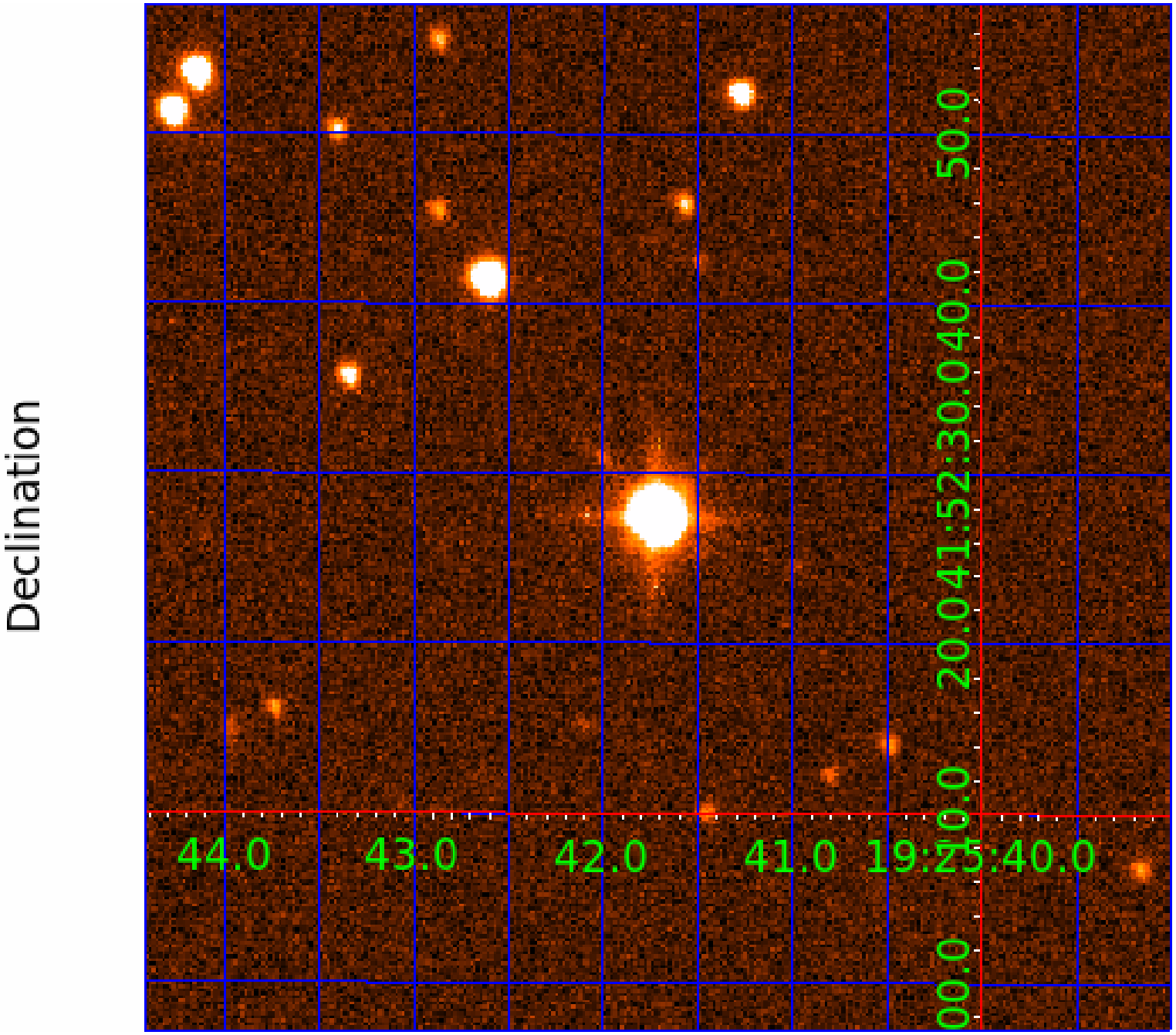
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.







UKIRT Image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