KIC 006448890

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 ($S_\oplus$)
006448890-01	OBS	1241.01	21.405401	147.093379	386.0	11.314	28.0	29.8	4.36	4838	11.16	330.56
006448890-02	OBS	1241.02	10.500674	135.650870	190.1	17.870	19.5	21.6	4.36	4838	11.80	854.40

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
006448890-01	OBS	PC	1.00	0	0	0	0	NO_COMMENT
006448890-02	OBS	FP	0.10	1	0	0	0	LPP_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.

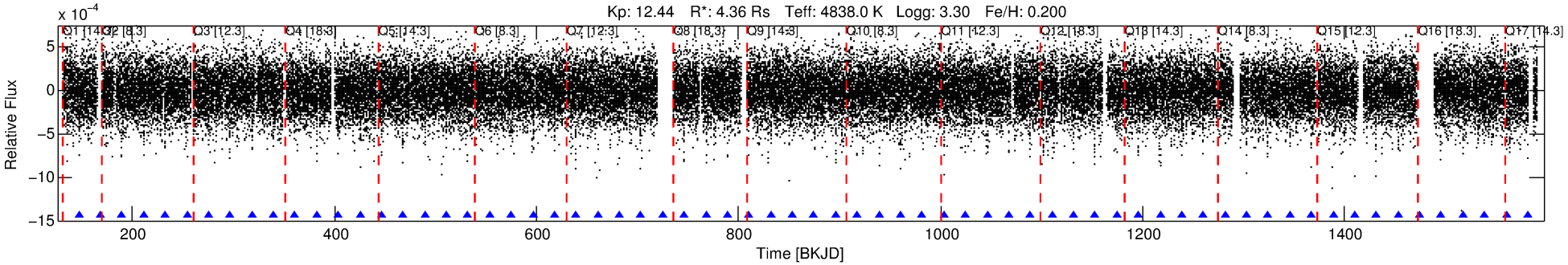
Ephemeris Match Information For 006448890-01

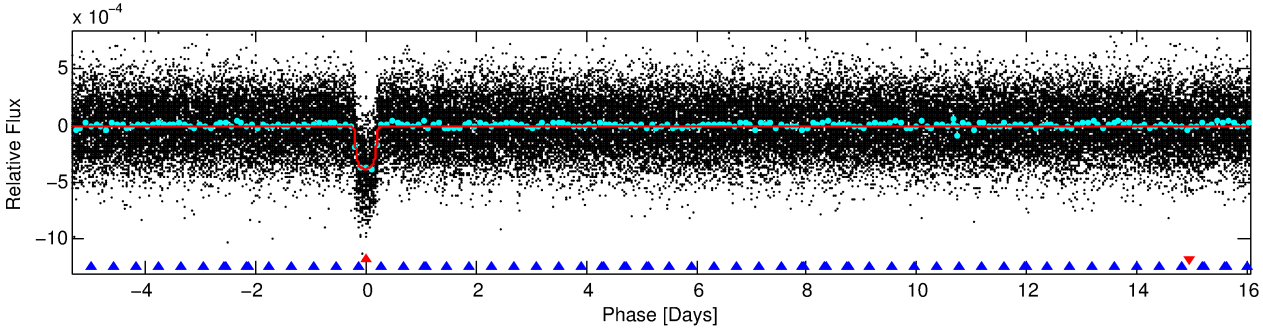
No Significant Match Found

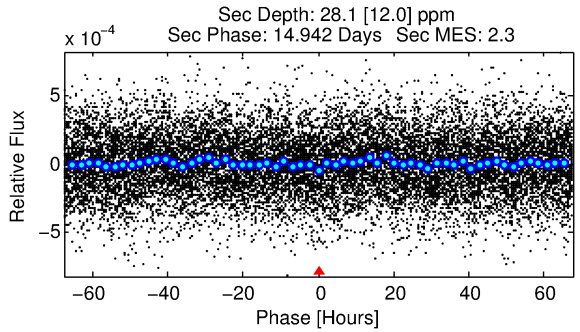
DV One-Page Summary

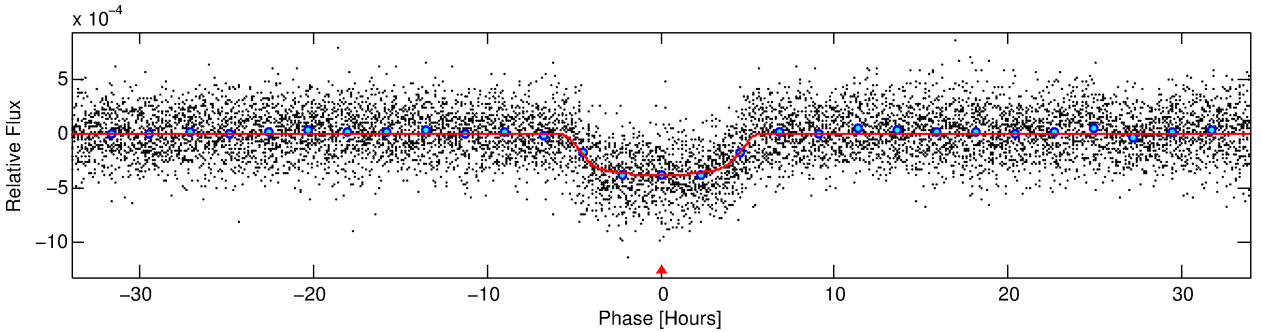
KIC: 6448890 Candidate: 1 of 2 Period: 21.405 d
KOI: K01241.01 Name: Kepler−56c Corr: 0.985

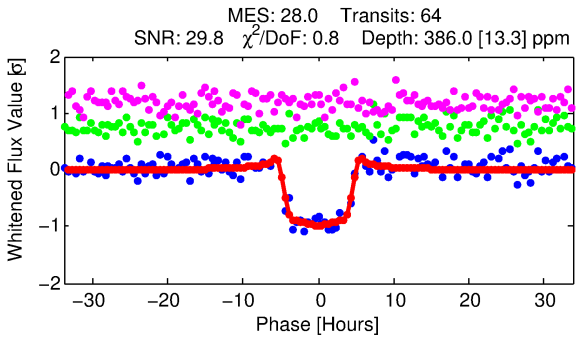
Kp: 12.44 R*: 4.36 Rs Teff: 4838.0 K Logg: 3.30 Fe/H: 0.200

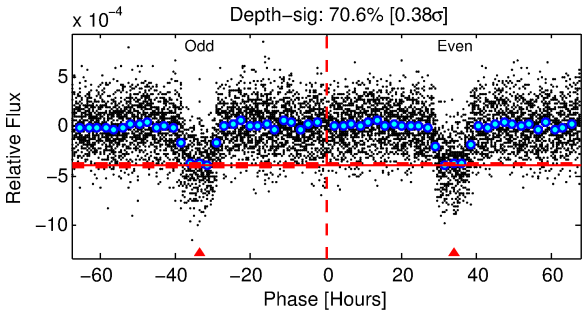


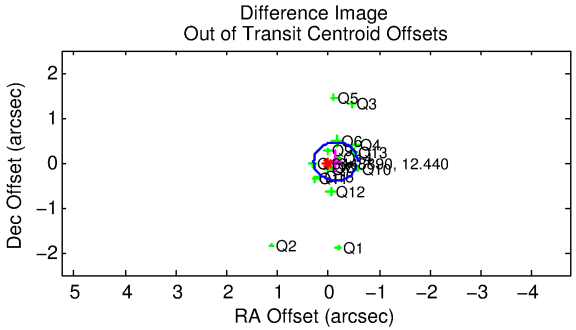












DV Fit Results:

Period = 21.40540 [0.00016] d
Epoch = 147.0934 [0.0063] BKJD
Rp/R* = 0.0235 [0.0006]
a/R* = 5.91 [0.41]
b = 0.94 [0.01]

Seff = 330.56 [46.47]
Teq = 1087 [38] K
Rp = 11.17 [1.67] Re
a = 0.1680 [0.0177] AU

Ag = 3.51 [1.57] [1.60σ]
Teffp = 2300 [250] K [4.80σ]

DV Diagnostic Results:

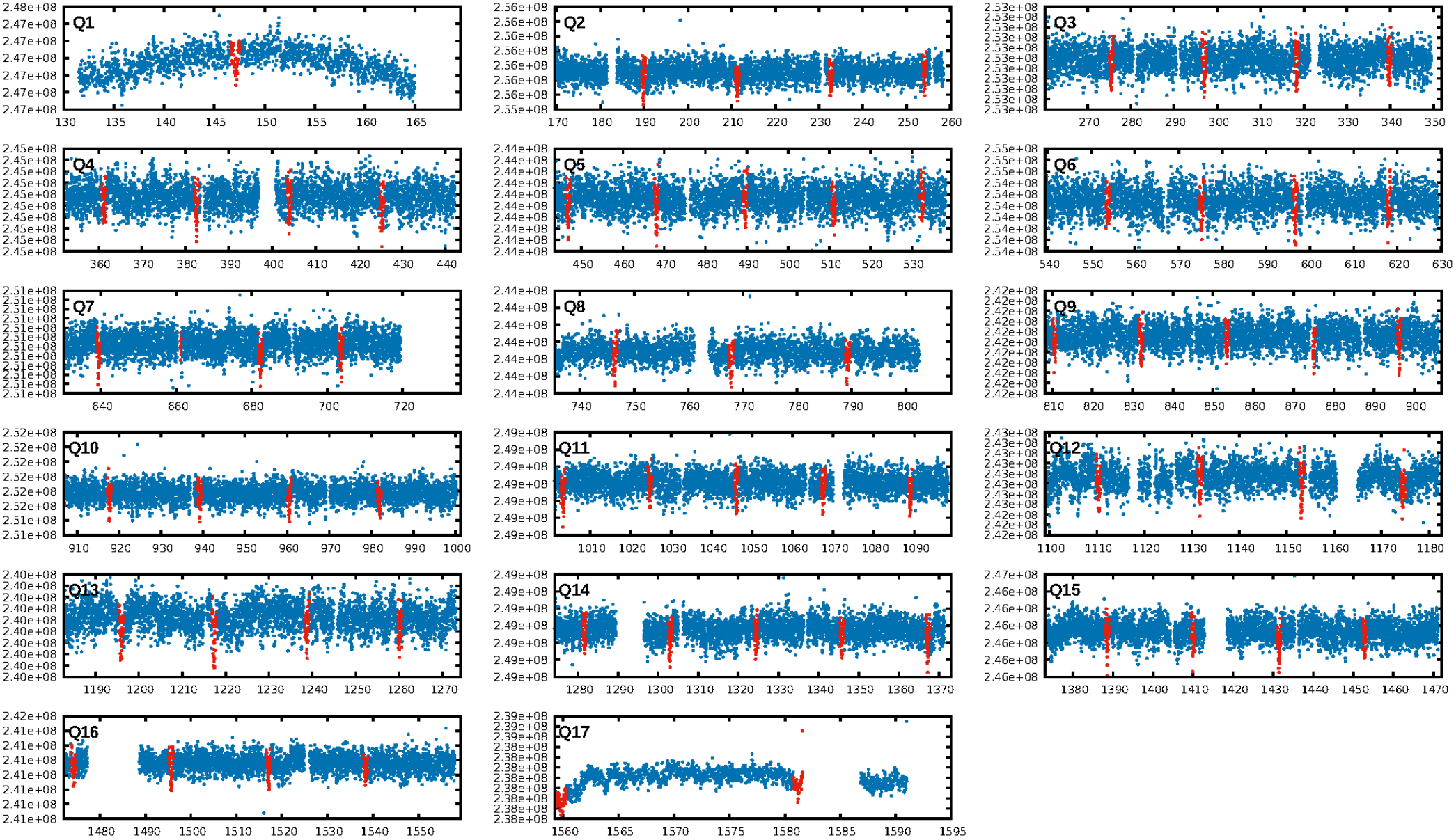
ShortPeriod−sig: 100.0% [12.37σ]
LongPeriod−sig: N/A
ModelChiSquare2−sig: 98.8%
ModelChiSquareGof−sig: 100.0%
Bootstrap−pfa: 3.31e−126
RollingBand−fgt: 1.00 [61/61]
GhostDiagnostic−chr: 23.75

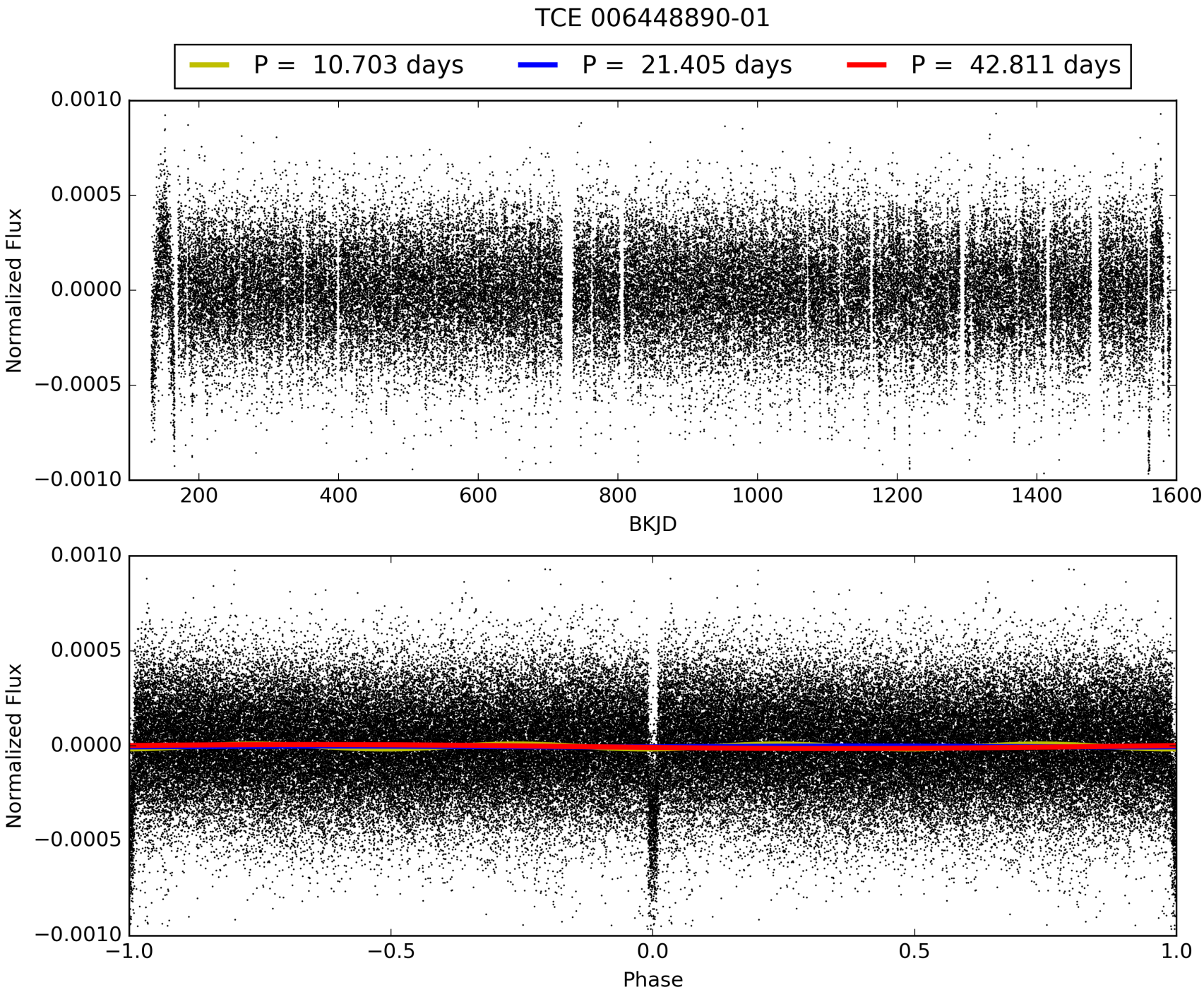
Centroid−sig: 3.6%
Centroid−so: 0.253 arcsec [2.29σ]
OotOffset−rm: 0.142 arcsec [1.00σ]
KicOffset−rm: 0.245 arcsec [2.09σ]
OotOffset−st: 4/4/4/4 [16]
KicOffset−st: 4/4/4/4 [16]
DiffImageQuality−fgm: 1.00 [16/16]
DiffImageOverlap−fno: 0.81 [13/16]

Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 −− Date Generated: 30−Jan−2016 20:45:29 Z

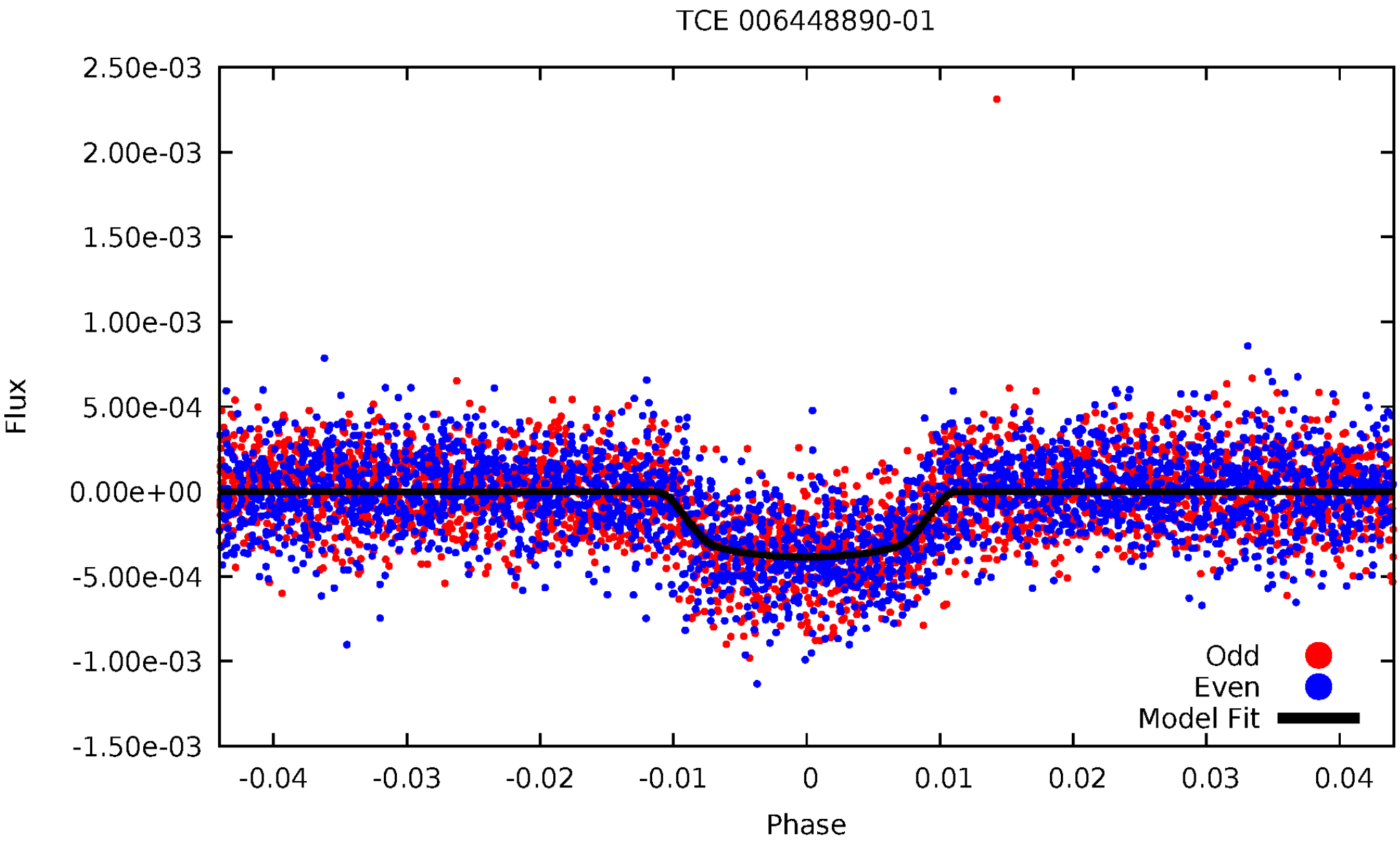
This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

TCE 006448890-01, PDC Light Curves

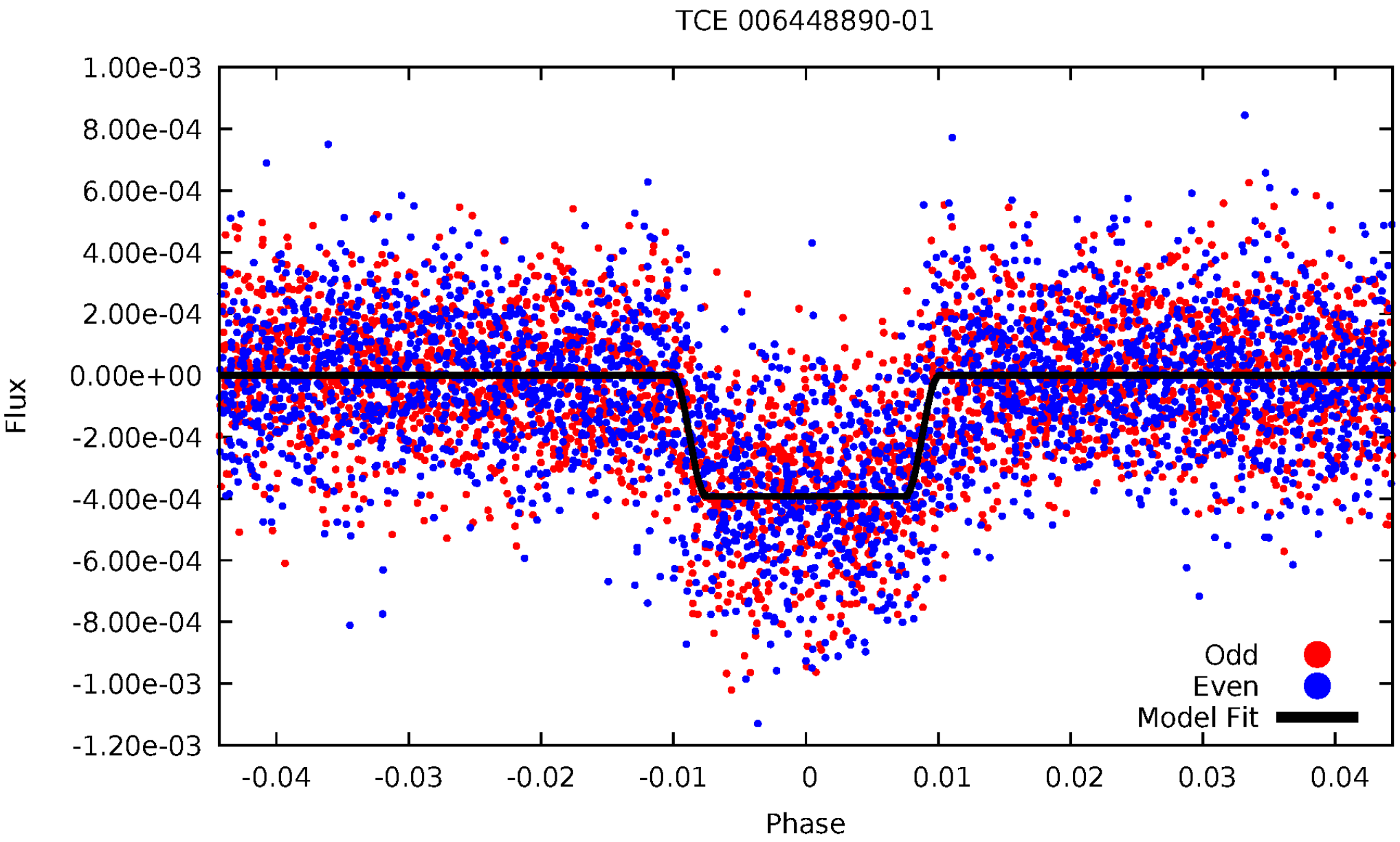



TCE 006448890-01
P = 10.703 days
P = 21.405 days
P = 42.811 days
Normalized Flux
0.0010
0.0005
0.0000
−0.0005
−0.0010
200
400
600
800
1000
1200
1400
1600
BKJD
Normalized Flux
0.0010
0.0005
0.0000
−0.0005
−0.0010
−1.0
−0.5
0.0
0.5
1.0
Phase

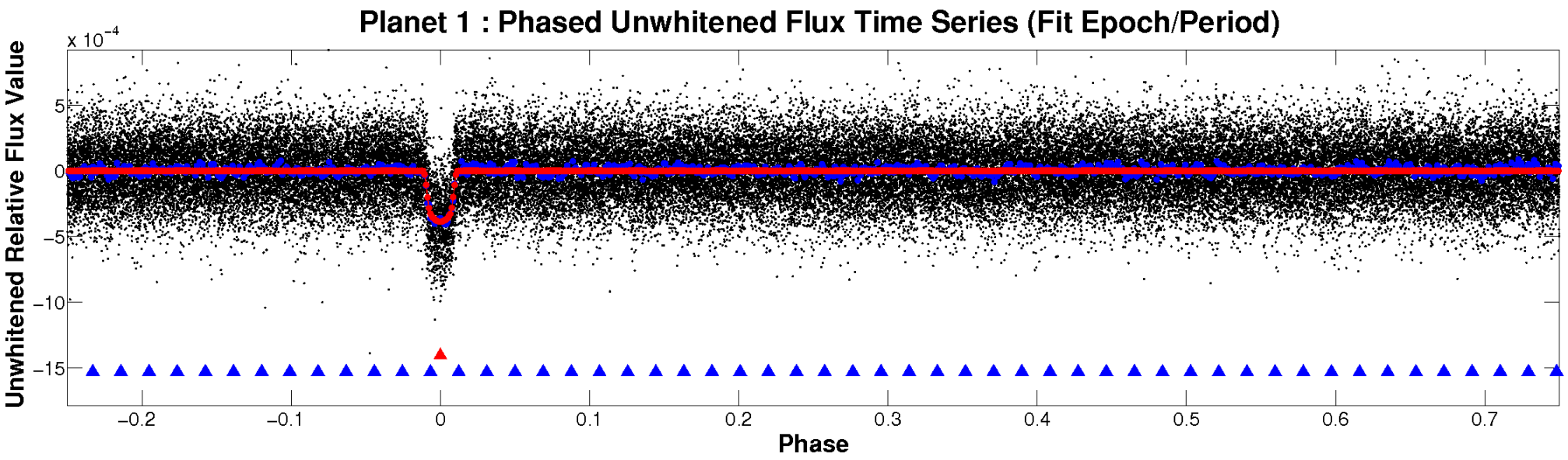
DV Odd/Even

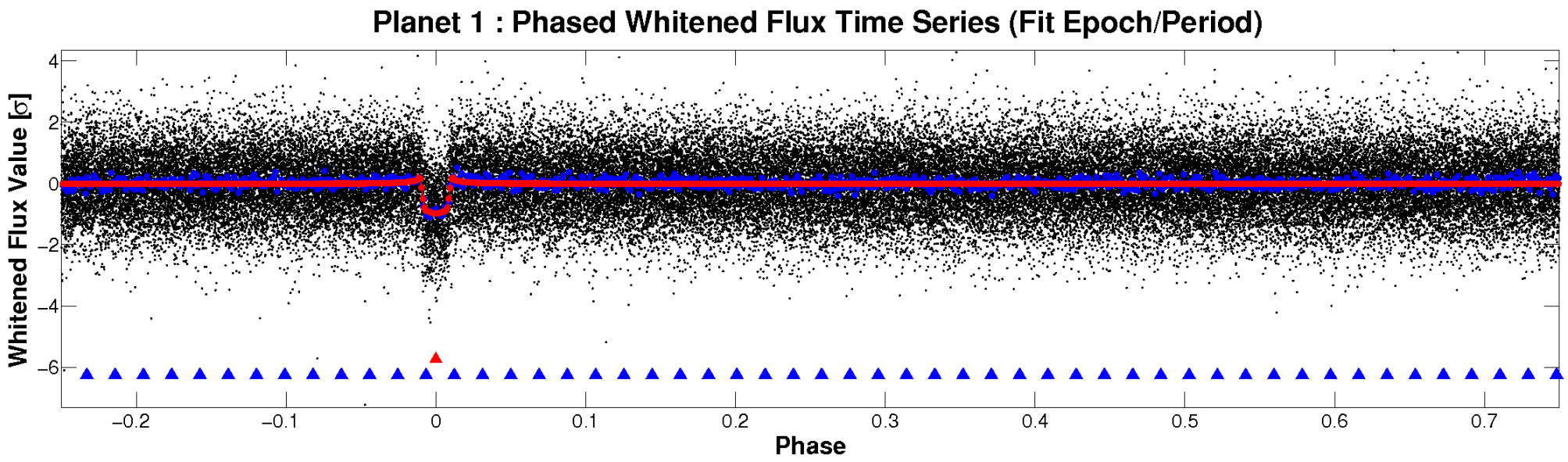

TCE 006448890-01
2.50e-03
2.00e-03
1.50e-03
1.00e-03
5.00e-04
0.00e+00
-5.00e-04
-1.00e-03
-1.50e-03
Flux
-0.04
-0.03
-0.02
-0.01
0
0.01
0.02
0.03
0.04
Phase
Odd
Even
Model Fit

ALT Odd/Even


TCE 006448890-01
1.00e-03
8.00e-04
6.00e-04
4.00e-04
2.00e-04
0.00e+00
-2.00e-04
-4.00e-04
-6.00e-04
-8.00e-04
-1.00e-03
-1.20e-03
Flux
-0.04
-0.03
-0.02
-0.01
0
0.01
0.02
0.03
0.04
Phase
Odd
Even
Model Fit

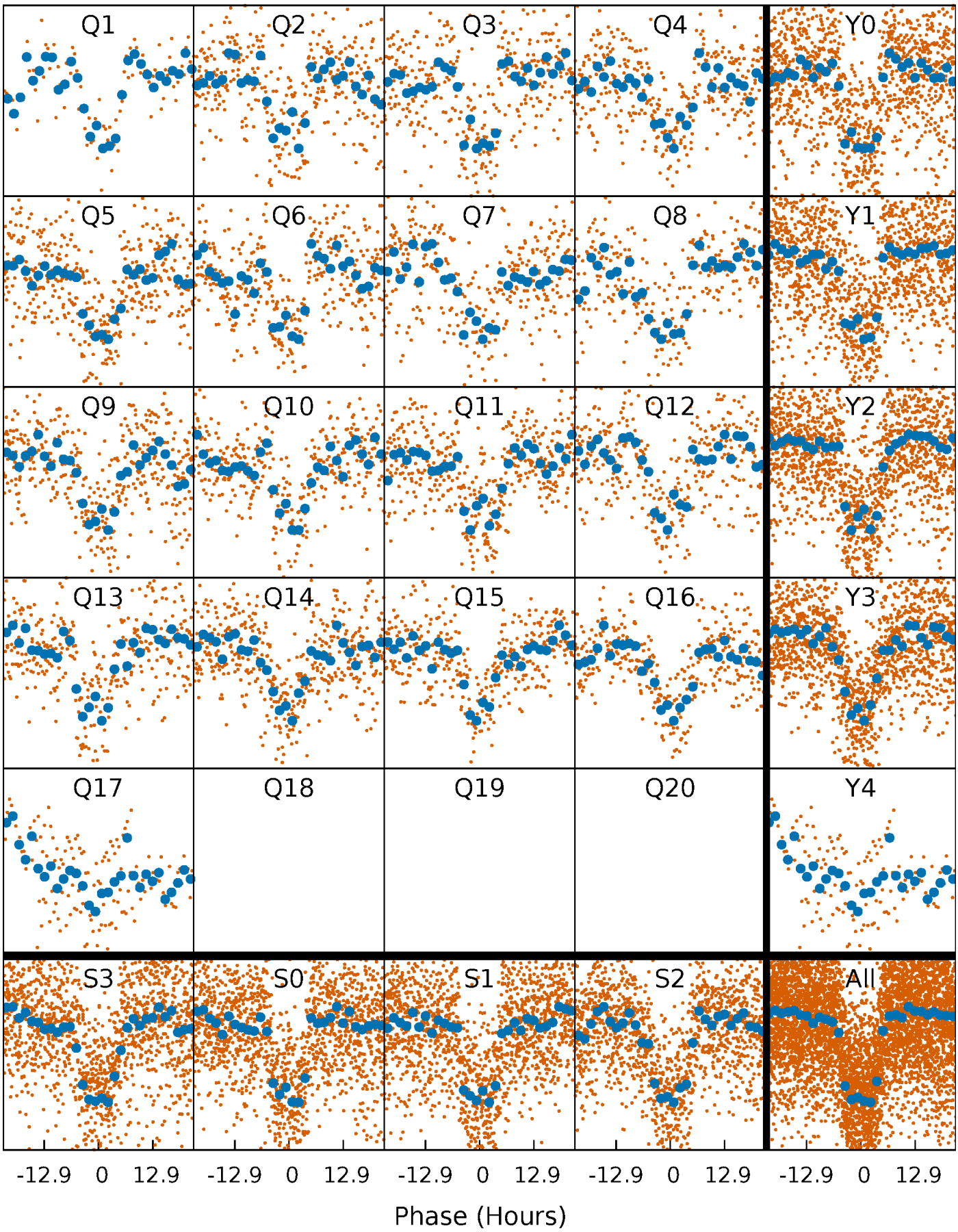
Non-Whitened Vs. Whitened Light Curve





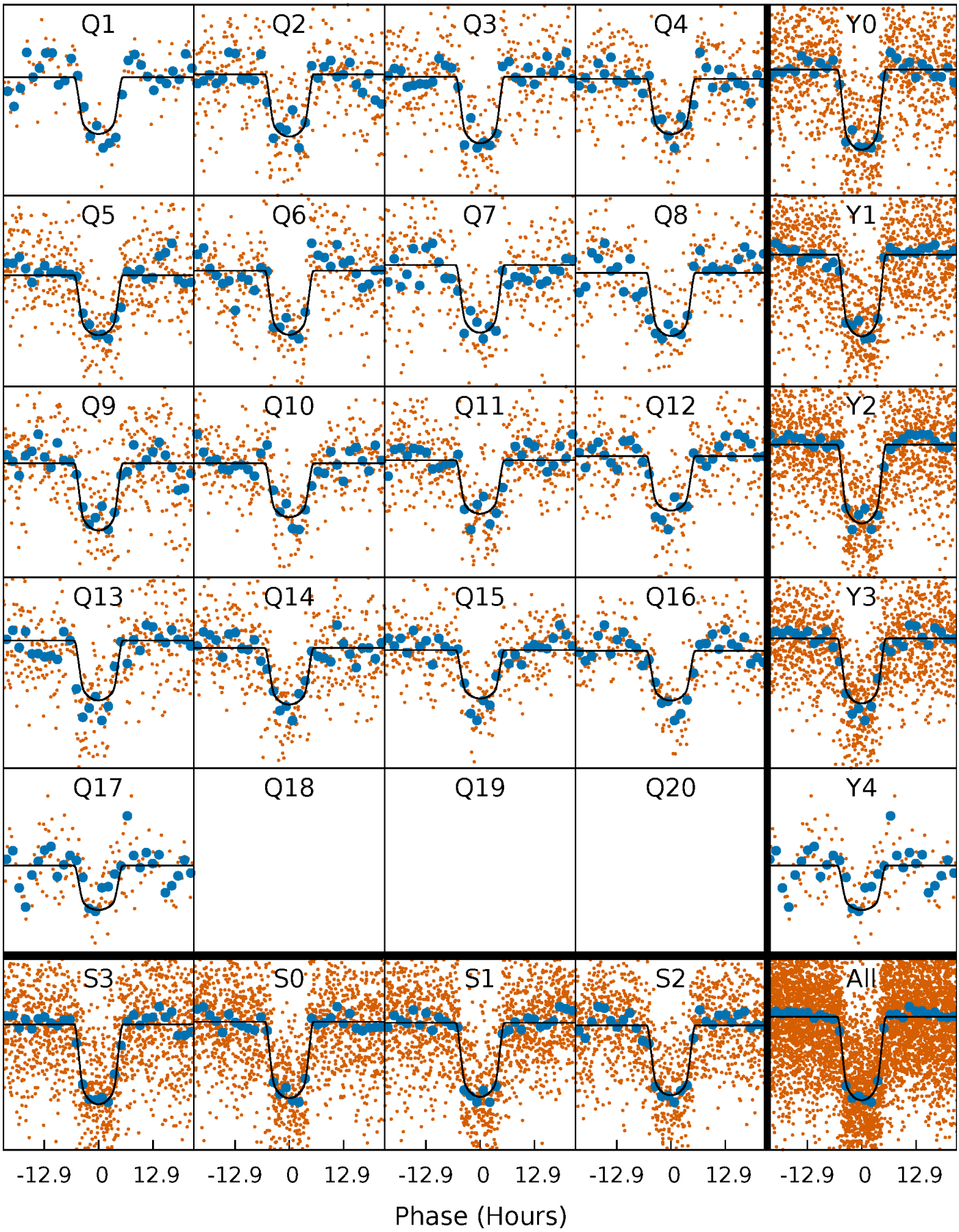
PDC Quarter-Phased Transit Curves

TCE 006448890-01 P= 21.405401 Days T_0=147.093379 (BKJD)



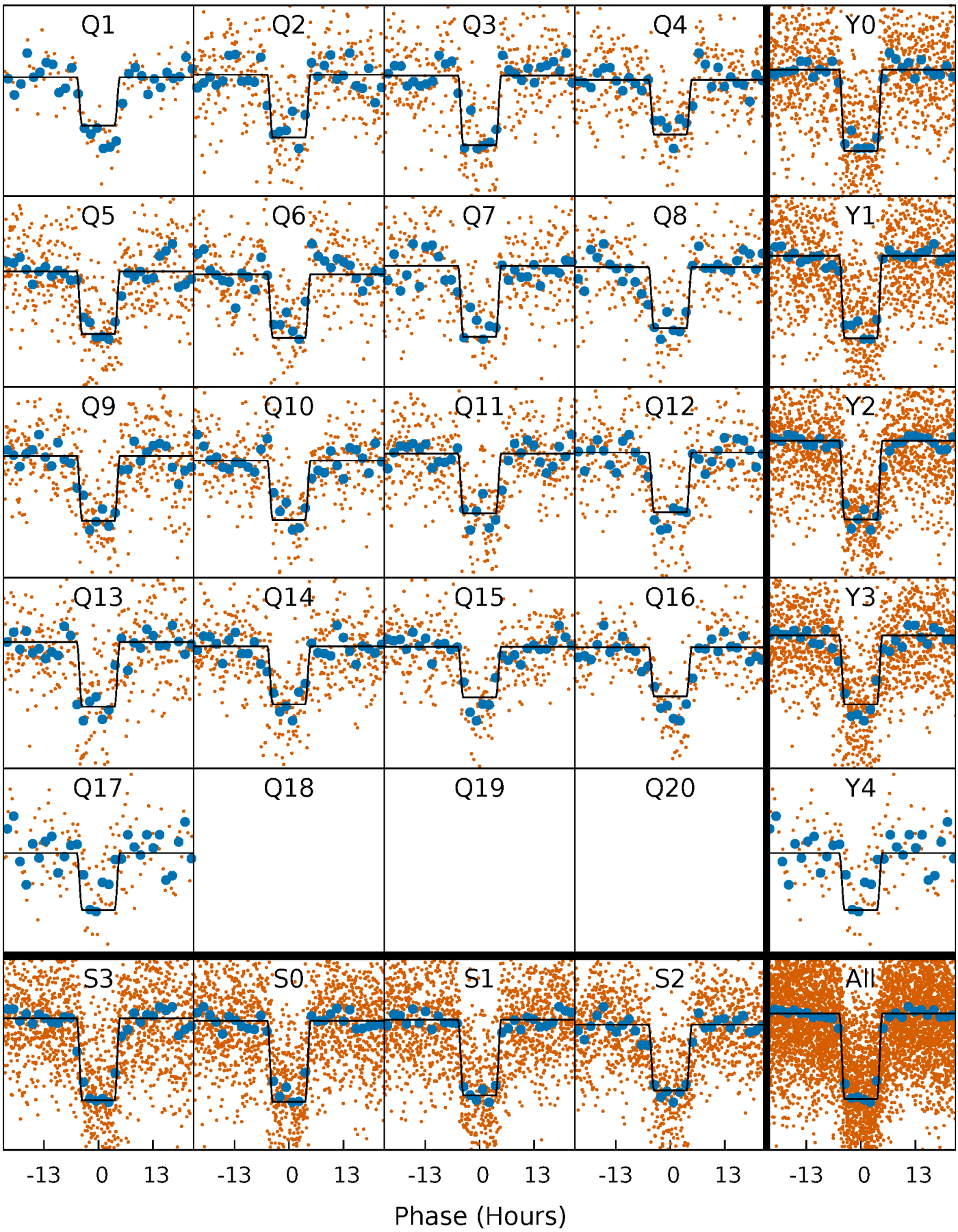
DV Quarter-Phased Transit Curves

TCE 006448890-01 P= 21.405401 Days T_0=147.093379 (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

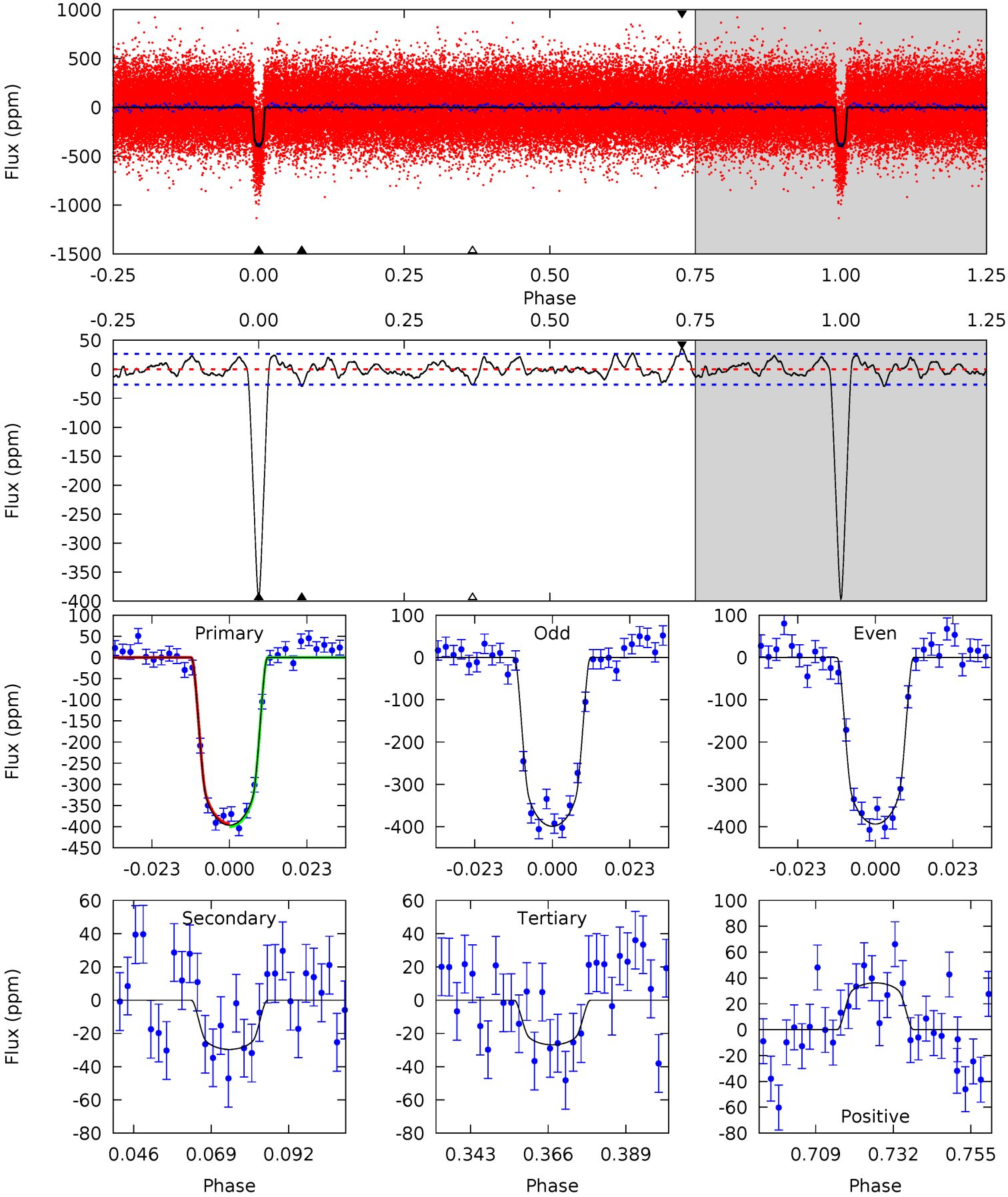
TCE 006448890-01 P= 21.405373 Days T_0=147.092991 (BKJD)



DV Model-Shift Uniqueness Test

006448890-01, P = 21.405401 Days, E = 125.687978 Days

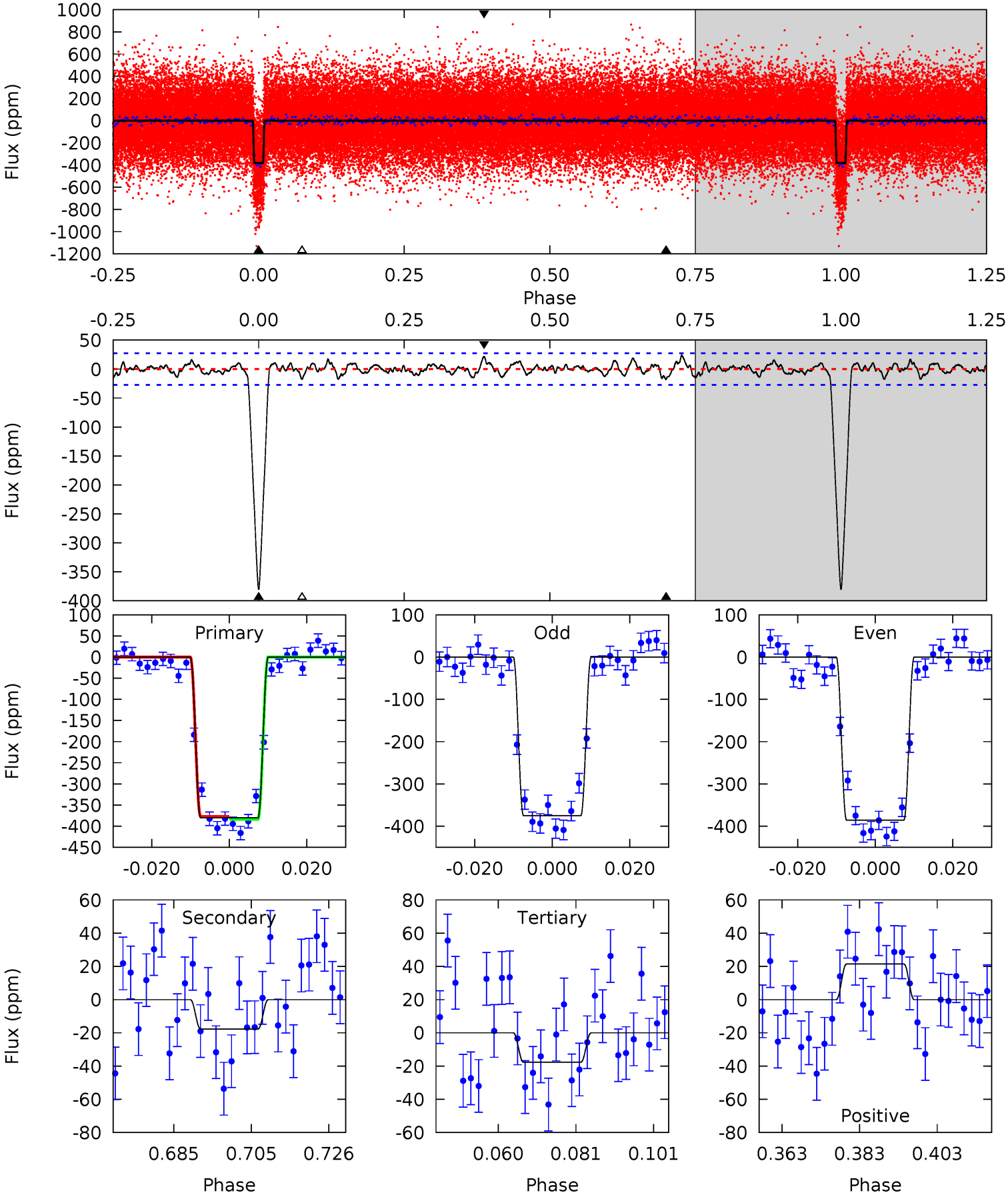
Pri	Sec	Ter	Pos	FA_1	FA_2	F_{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
72.6	5.42	4.92	6.63	4.87	2.28	2.01	67.7	66.0	0.50	-1.21	0.48	0.96	0.08	0.64



Alt Model-Shift Uniqueness Test

006448890-01, P = 21.405373 Days, E = 125.687618 Days

Pri	Sec	Ter	Pos	FA_1	FA_2	F_{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
68.2	3.17	3.16	3.84	4.89	2.32	1.25	65.0	64.4	0.01	-0.66	0.96	0.99	0.06	0.64



Stellar Parameters For KIC 006448890

	$T_{\rm eff}(K)$	$\log(g)$	[Fe/H]	R ($R_\odot$)	$M(M_\odot)$	$p_\star$ (g·cm^{-3})
	4838^{+65}_{-79}	$3.299^{+0.050}_{-0.041}$	$0.200^{+0.100}_{-0.150}$	$4.361^{+0.296}_{-0.641}$	$1.381^{+0.158}_{-0.316}$	$0.023^{+0.006}_{-0.003}$
	+1%/-2%	+2%/-1%	+50%/-75%	+7%/-15%	+11%/-23%	+27%/-13%
Source	SPE8	AST8	SPE8	DSEP		

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

Secondary Eclipse Parameters for KIC 006448890-01 / KOI 1241.01

Detrend	Depth (ppm)	R_p ($R_\oplus$)	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-30±5	$11.31^{+0.62}_{-0.91}$	1517^{+36}_{-40}	2924^{+85}_{-87}	$3.732^{+0.784}_{-0.744}$
Alt.	-18±6	$9.53^{+0.56}_{-0.69}$	1518^{+35}_{-39}	2850^{+127}_{-168}	$3.098^{+1.095}_{-1.020}$

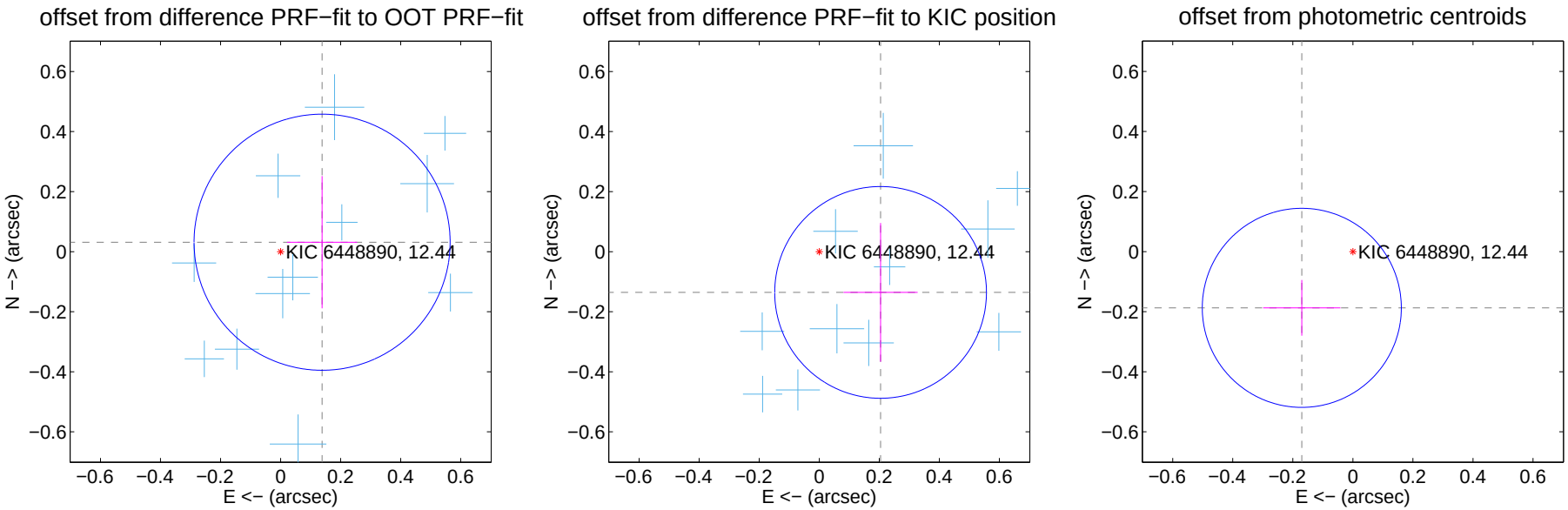
T_{max} = Theoretical Maximum Planetary Temperature
T_{obs} = Observed Planetary Temperature (Assuming A=0.3)
A_{obs} = Observed Albedo (Assuming T=0)

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

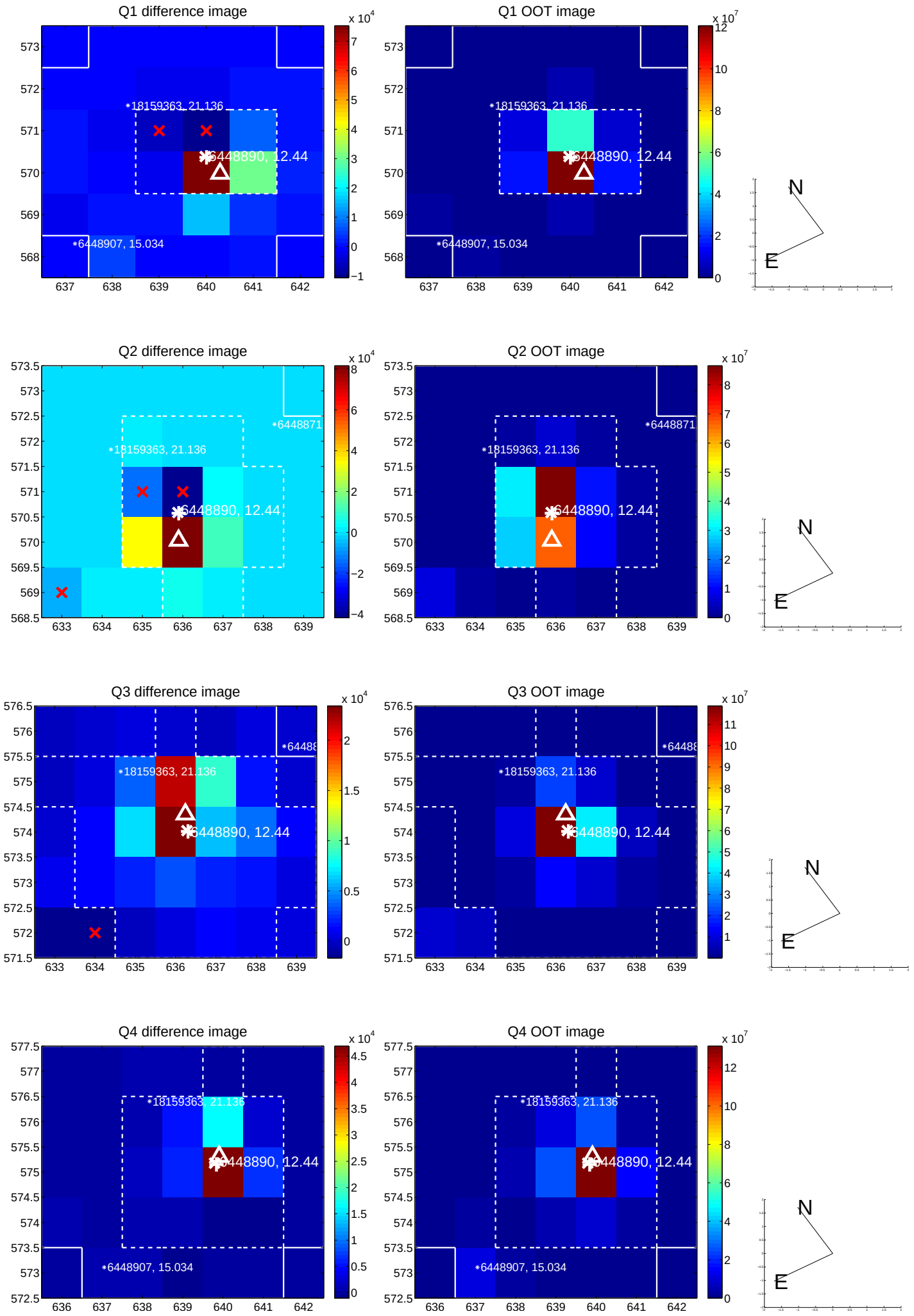
Supplemental centroid analysis for 006448890-01. Kepler magnitude: 12.44. Transit SNR 29.76
There are 16 quarters with good PRF difference image offsets
The direct PRF centroid is offset from the target star catalog position by about 0.25 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.142 ± 0.142	1.00	-0.138 ± 0.117	0.031 ± 0.220
PRF-fit source offset from KIC position	0.245 ± 0.118	2.09	-0.204 ± 0.124	-0.136 ± 0.231
photometric centroid source offset	0.25 ± 0.11	2.29	0.17 ± 0.13	-0.19 ± 0.09

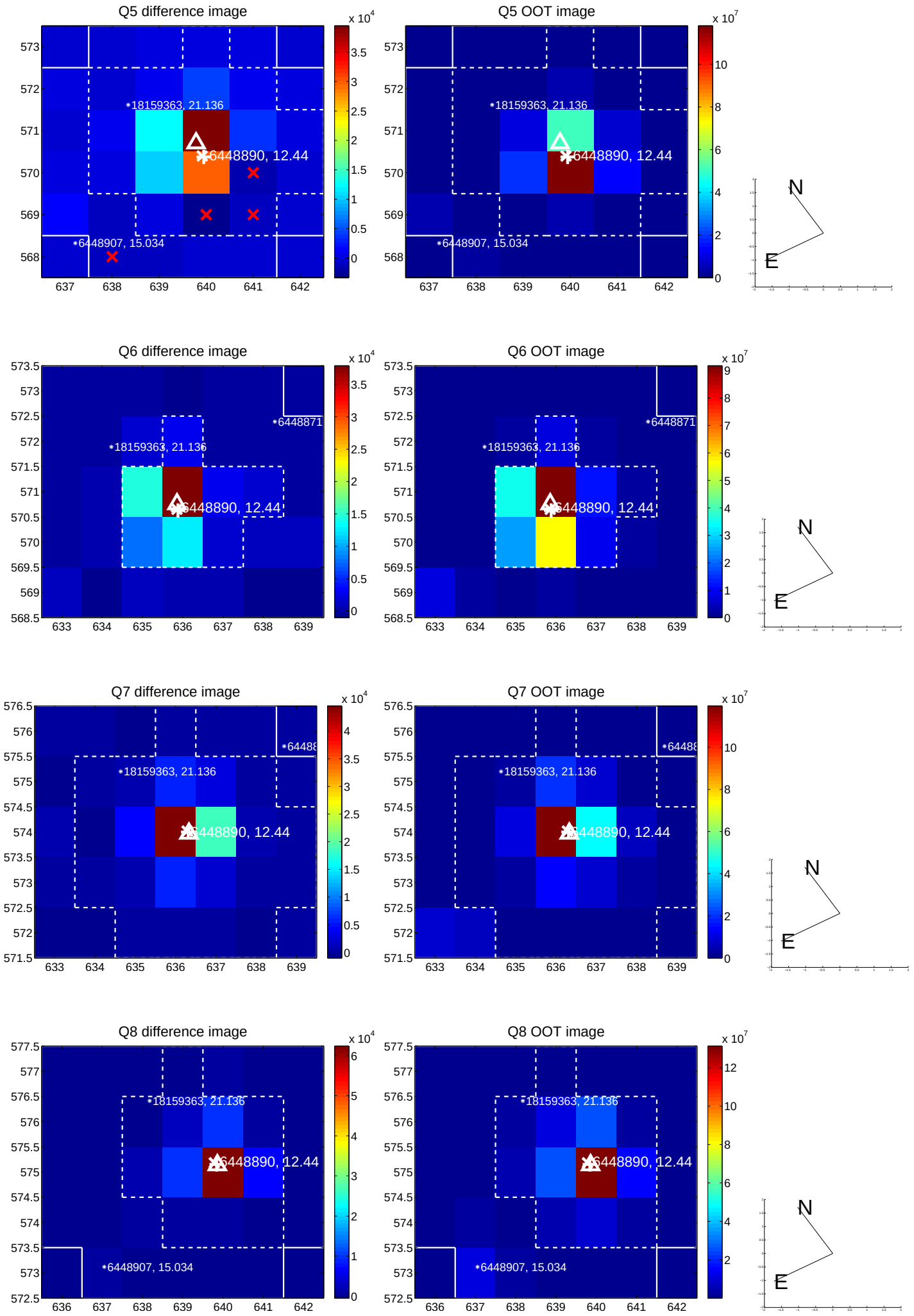


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one-σ uncertainty. Blue circle: three-σ. Red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

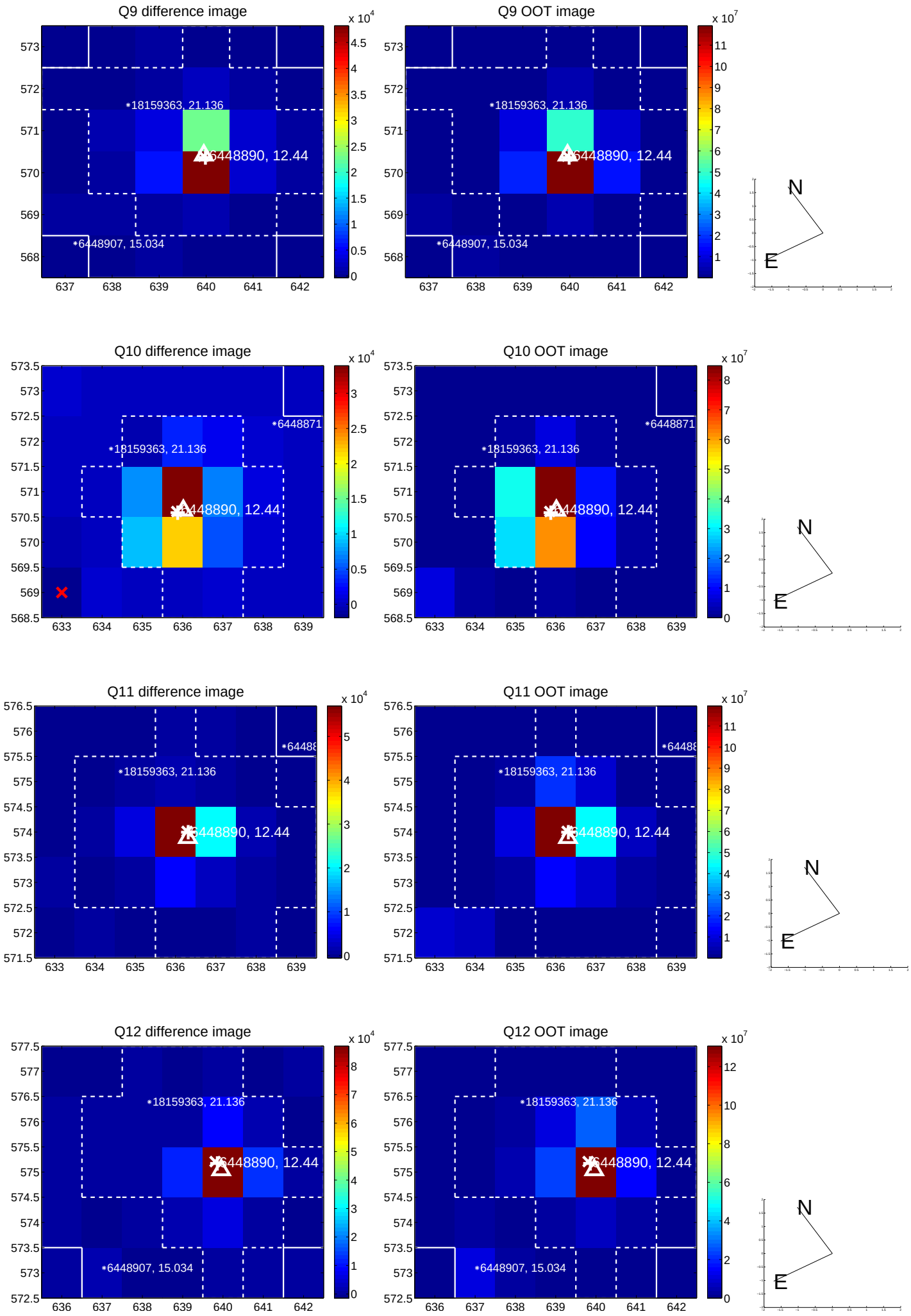
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.



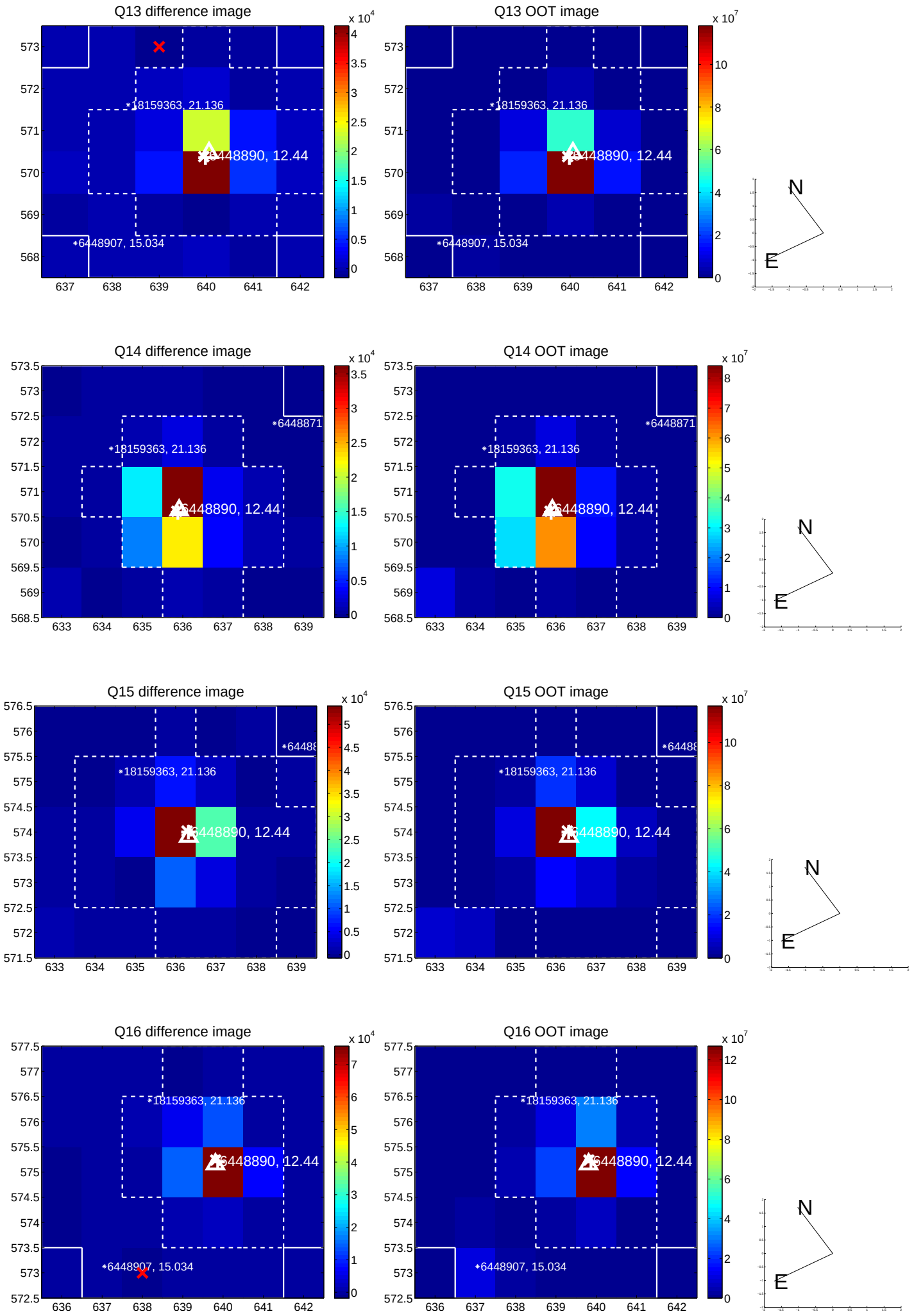
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.



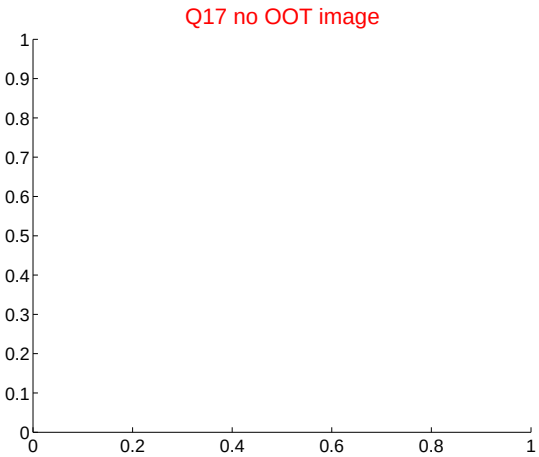
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ✕: large negative pixel value.

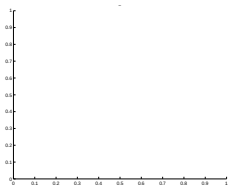


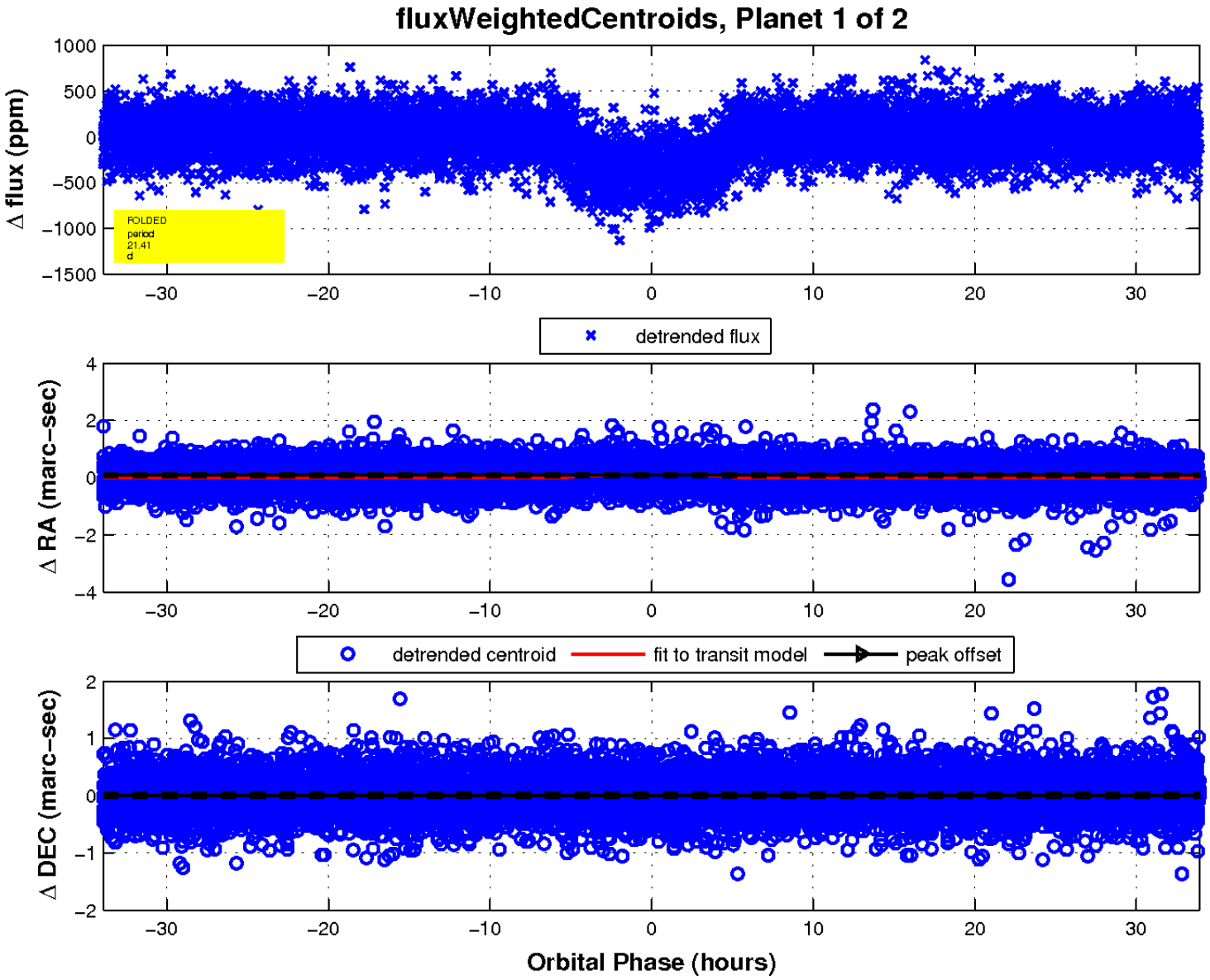
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ✕: large negative pixel value.



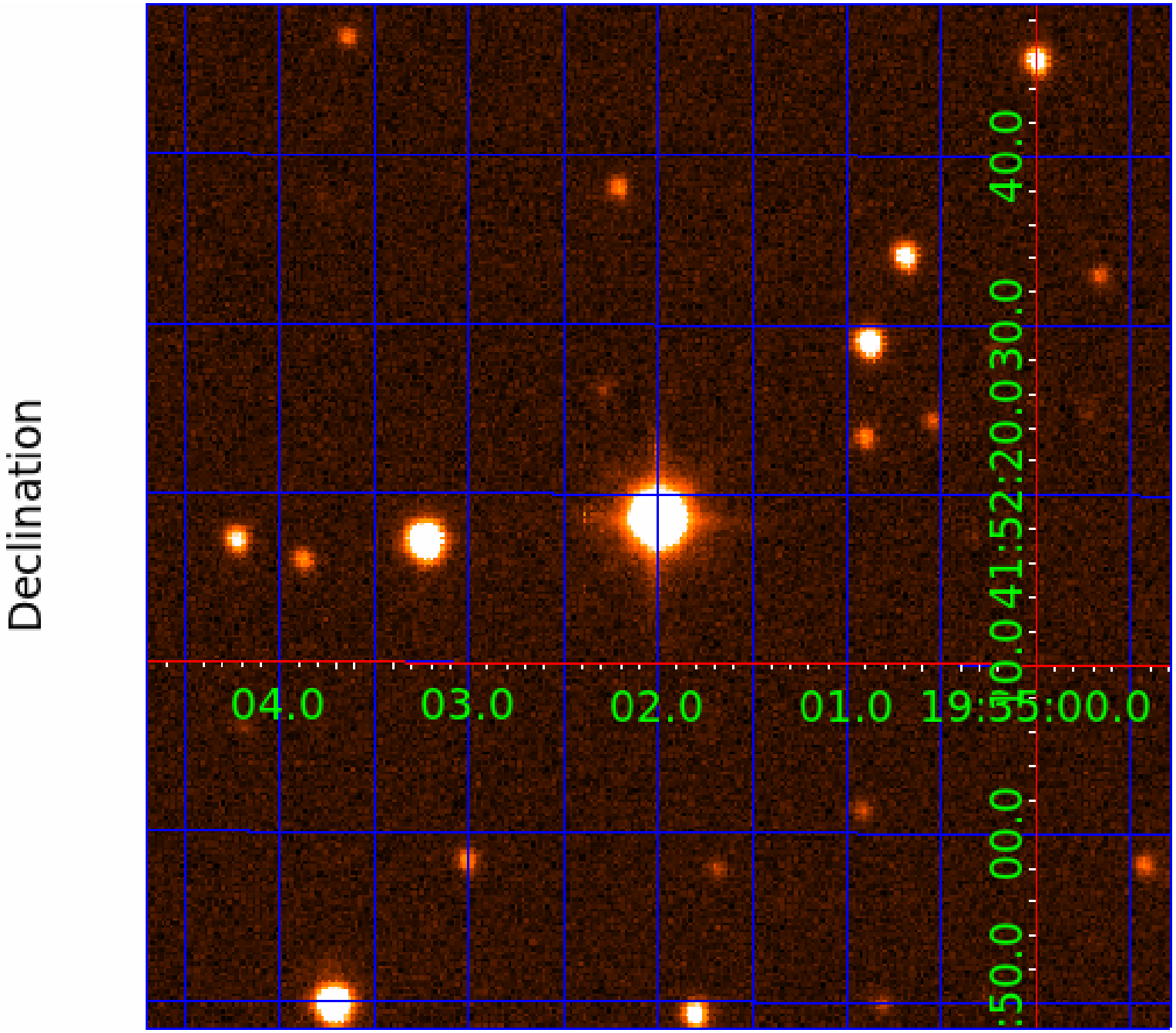
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.







UKIRT Image


Declination
04.0
03.0
02.0
01.0
19:55:00.0
40.0
30.0
20.0
41:52:10.0
00.0
:50.0

KIC 006448890

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 ($S_\oplus$)
006448890-01	OBS	1241.01	21.405401	147.093379	386.0	11.314	28.0	29.8	4.36	4838	11.16	330.56
006448890-02	OBS	1241.02	10.500674	135.650870	190.1	17.870	19.5	21.6	4.36	4838	11.80	854.40

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
006448890-01	OBS	PC	1.00	0	0	0	0	NO_COMMENT
006448890-02	OBS	FP	0.10	1	0	0	0	LPP_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.

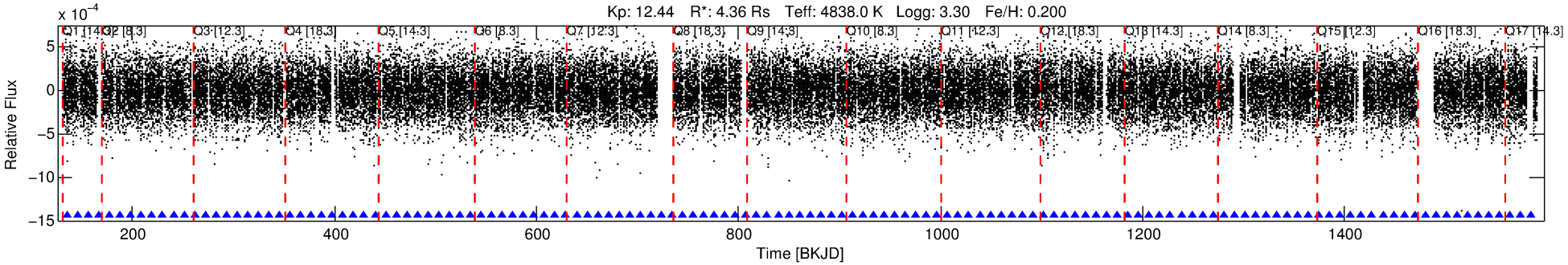
Ephemeris Match Information For 006448890-02

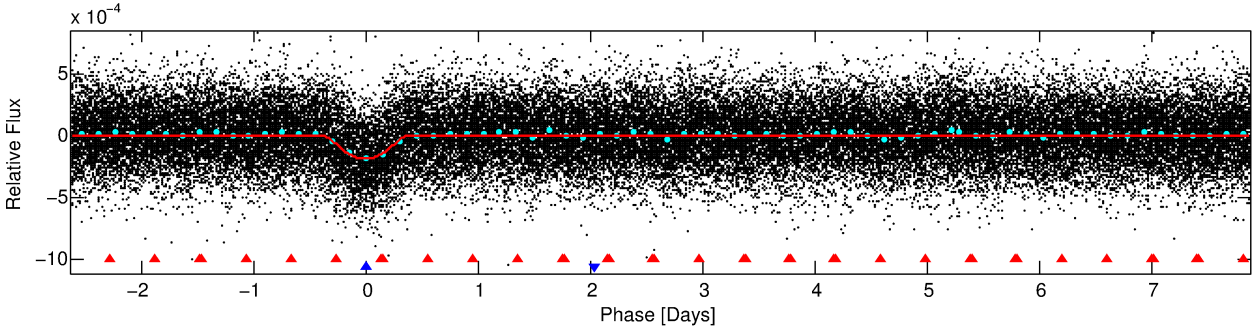
No Significant Match Found

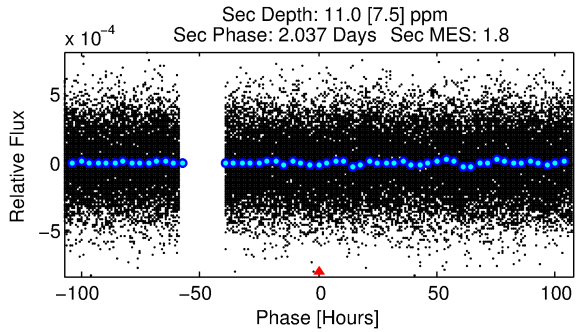
DV One-Page Summary

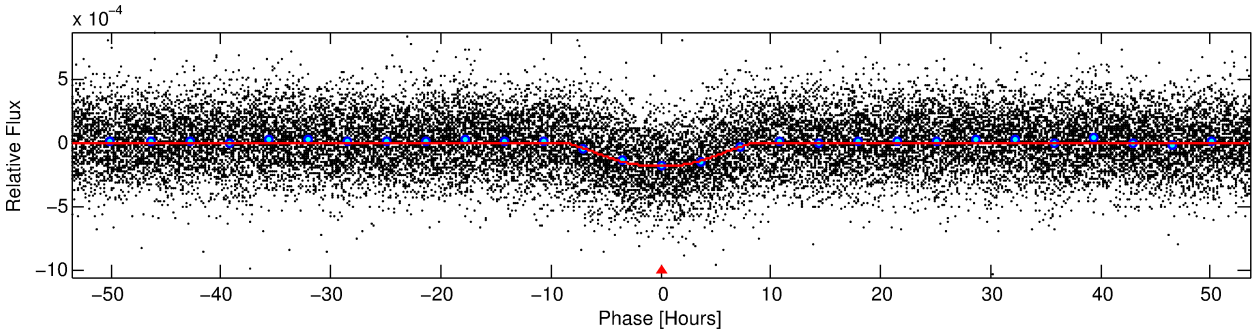
KIC: 6448890 Candidate: 2 of 2 Period: 10.501 d
KOI: K01241.02 Name: Kepler−56b Corr: 0.865

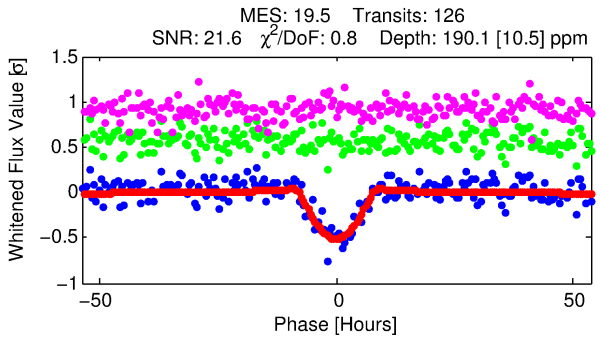
Kp: 12.44 R*: 4.36 Rs Teff: 4838.0 K Logg: 3.30 Fe/H: 0.200

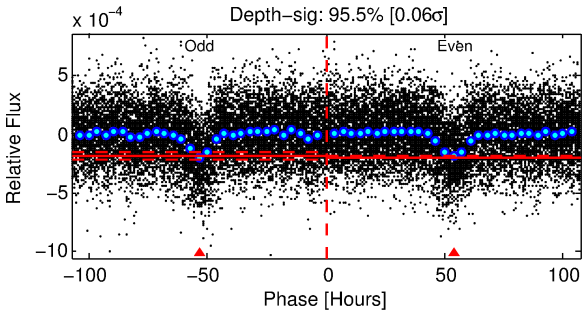


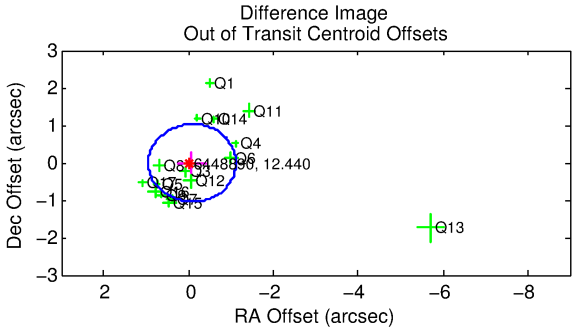












DV Fit Results:

Period = 10.50067 [0.00023] d
Epoch = 135.6509 [0.0180] BKJD
Rp/R* = 0.0248 [0.0225]
a/R* = 1.48 [0.20]
b = 1.00 [0.04]

Seff = 854.40 [120.10]
Teq = 1379 [48] K
Rp = 11.80 [10.84] Re
a = 0.1045 [0.0110] AU

Ag = 0.48 [0.92] [−0.57σ]
Teffp = 1771 [858] K [0.46σ]

DV Diagnostic Results:

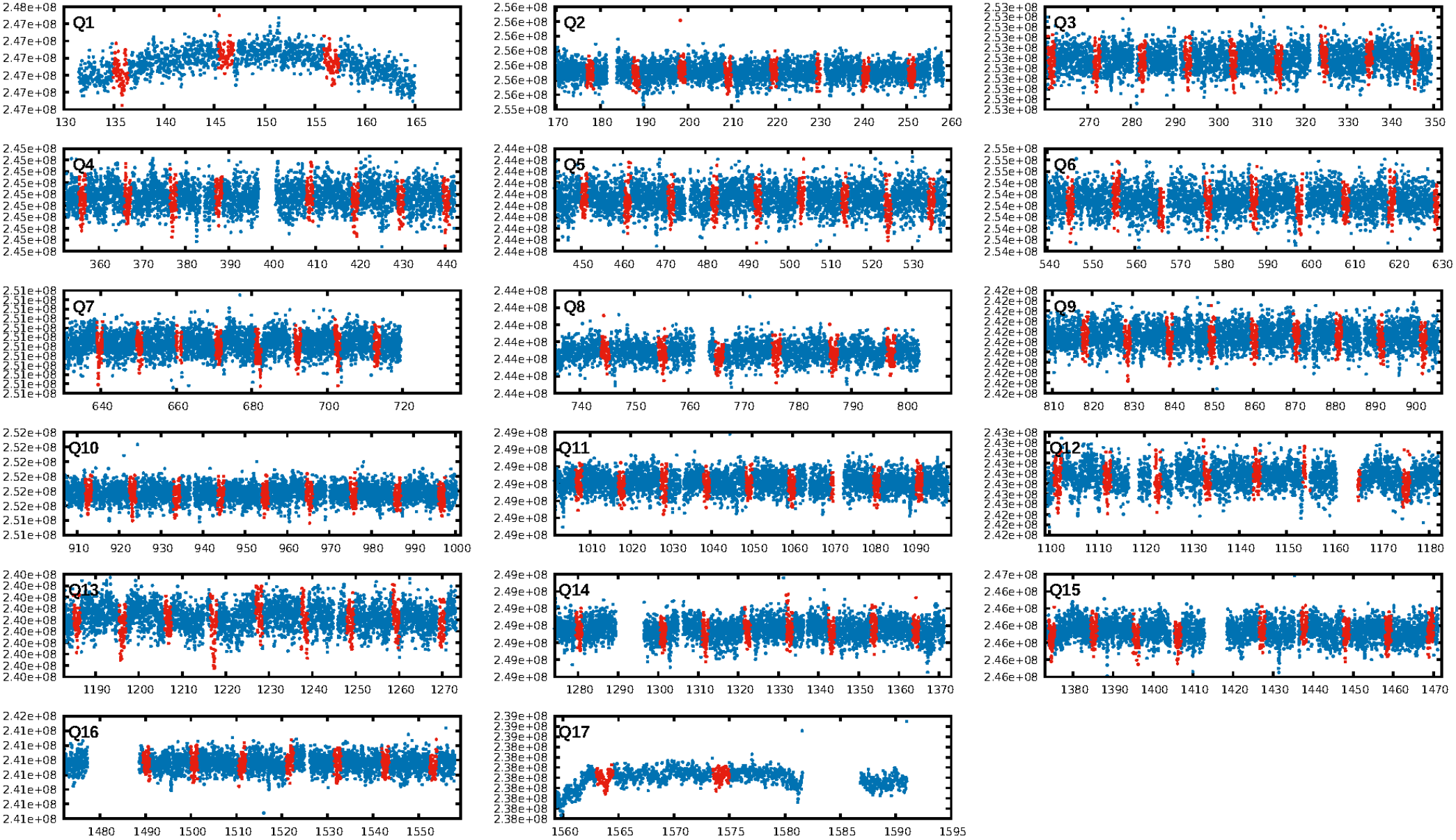
ShortPeriod−sig: N/A
LongPeriod−sig: 100.0% [12.37σ]
ModelChiSquare2−sig: 98.9%
ModelChiSquareGof−sig: 100.0%
Bootstrap−pfa: 8.87e−63
RollingBand−fgt: 1.00 [121/121]
GhostDiagnostic−chr: −7.392

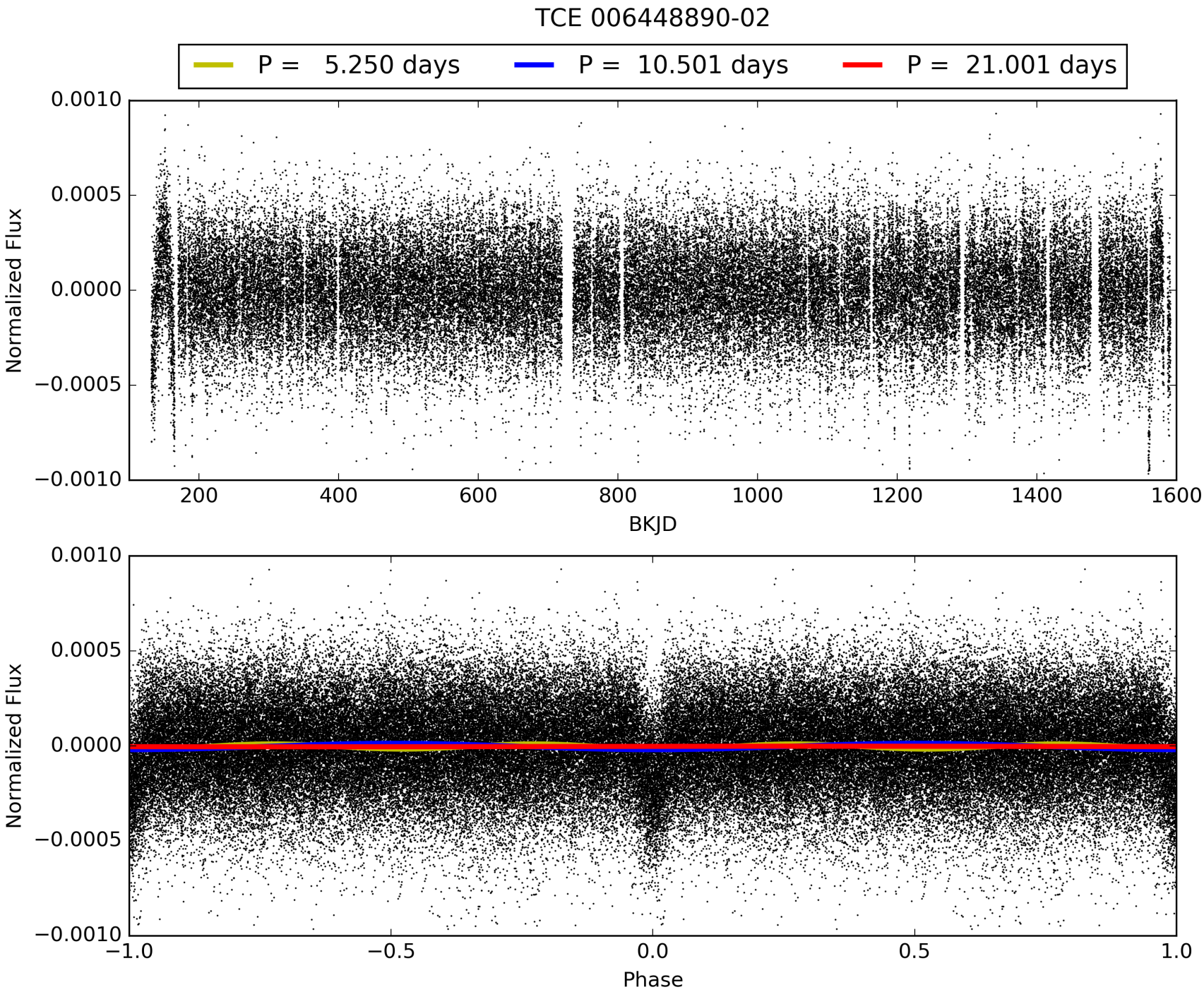
Centroid−sig: 4.8%
Centroid−so: 0.202 arcsec [1.42σ]
OotOffset−rm: 0.088 arcsec [0.26σ]
KicOffset−rm: 0.224 arcsec [0.67σ]
OotOffset−st: 3/4/4/5 [16]
KicOffset−st: 3/4/4/5 [16]
DiffImageQuality−fgm: 0.94 [15/16]
DiffImageOverlap−fno: 1.00 [17/17]

Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 −− Date Generated: 30−Jan−2016 20:45:37 Z

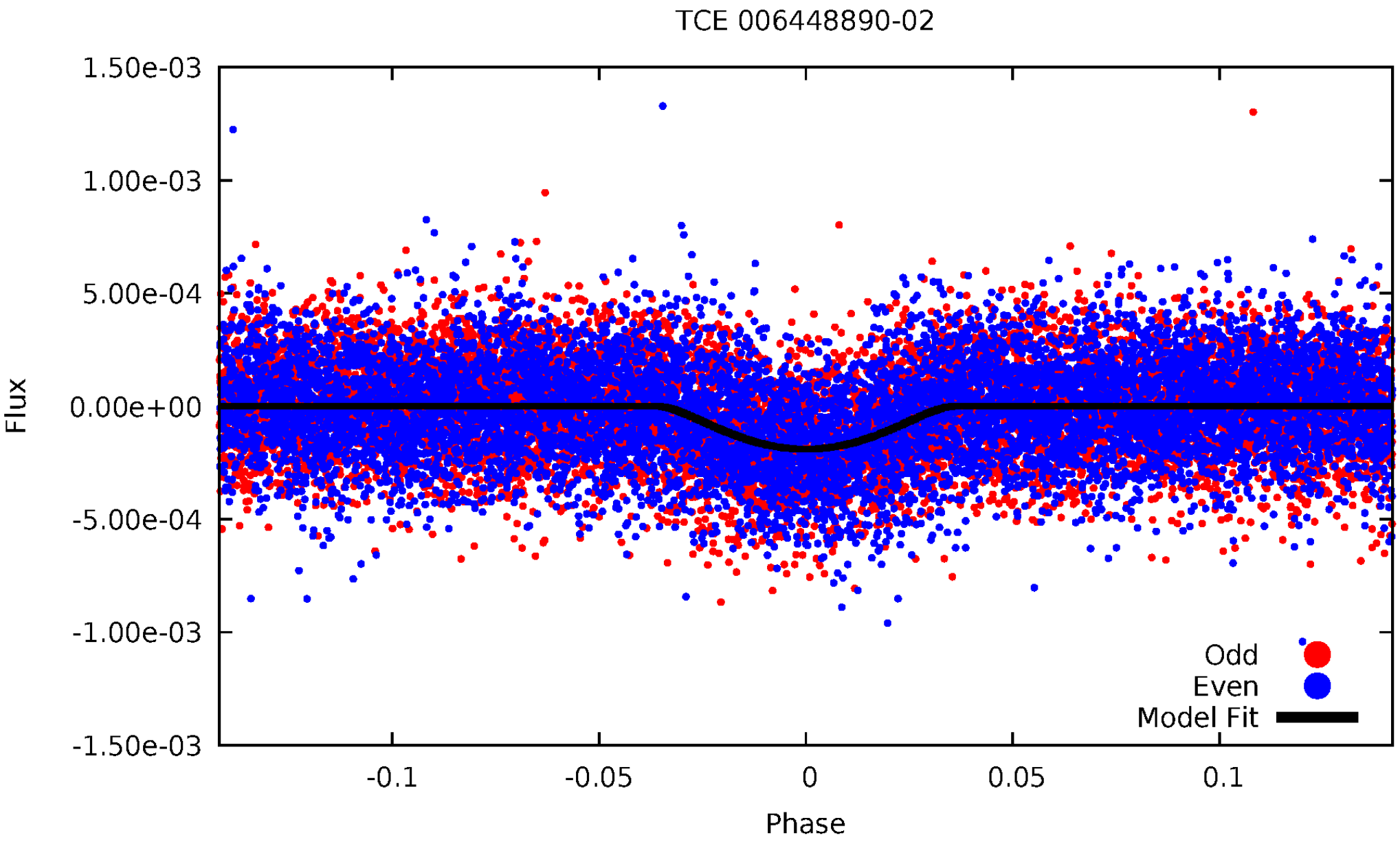
This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

TCE 006448890-02, PDC Light Curves

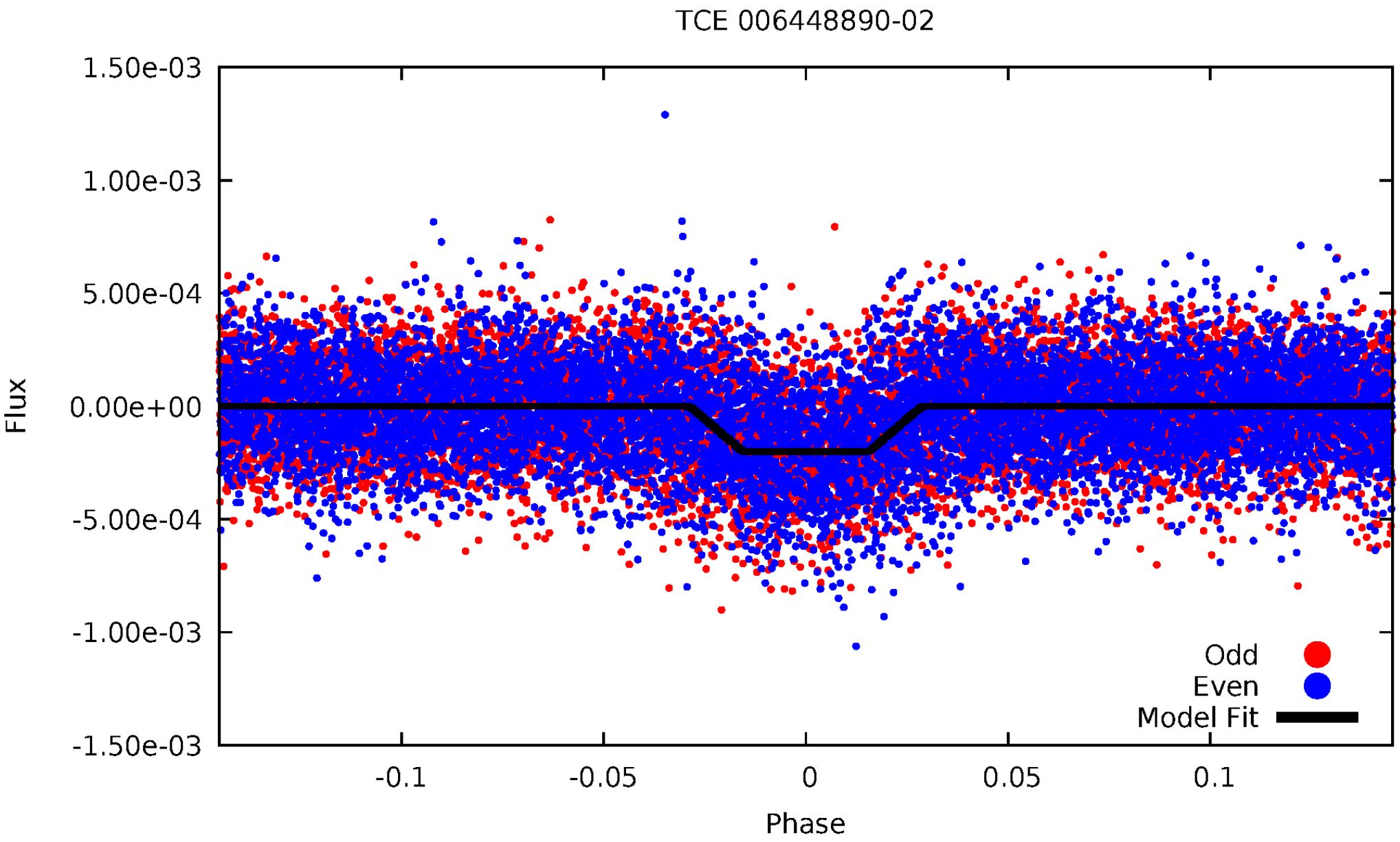



TCE 006448890-02
P = 5.250 days
P = 10.501 days
P = 21.001 days
Normalized Flux
0.0010
0.0005
0.0000
−0.0005
−0.0010
200
400
600
800
1000
1200
1400
1600
BKJD
Normalized Flux
0.0010
0.0005
0.0000
−0.0005
−0.0010
−1.0
−0.5
0.0
0.5
1.0
Phase

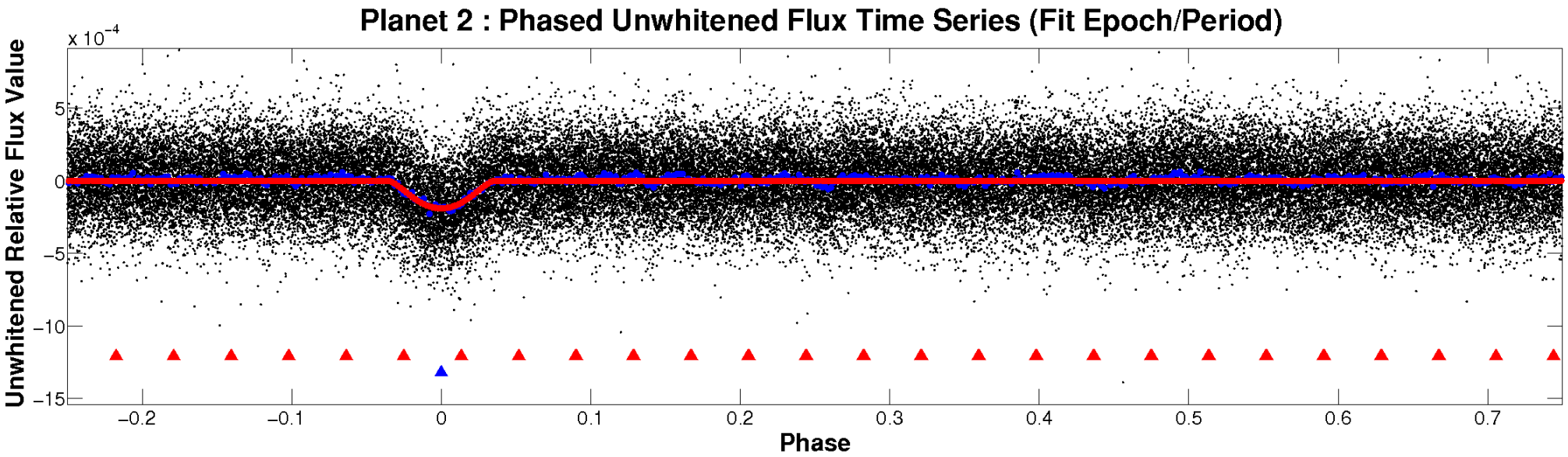
DV Odd/Even

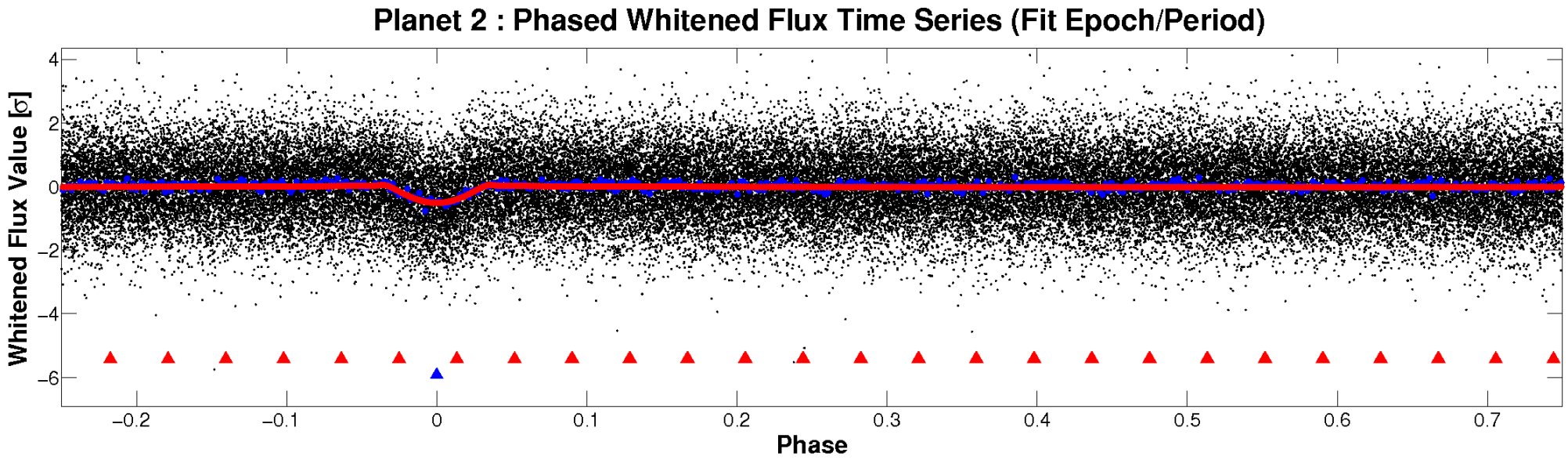

TCE 006448890-02
1.50e-03
1.00e-03
5.00e-04
0.00e+00
-5.00e-04
-1.00e-03
-1.50e-03
Flux
-0.1
-0.05
0
0.05
0.1
Phase
Odd
Even
Model Fit

ALT Odd/Even


TCE 006448890-02
1.50e-03
1.00e-03
5.00e-04
0.00e+00
-5.00e-04
-1.00e-03
-1.50e-03
Flux
-0.1
-0.05
0
0.05
0.1
Phase
Odd
Even
Model Fit

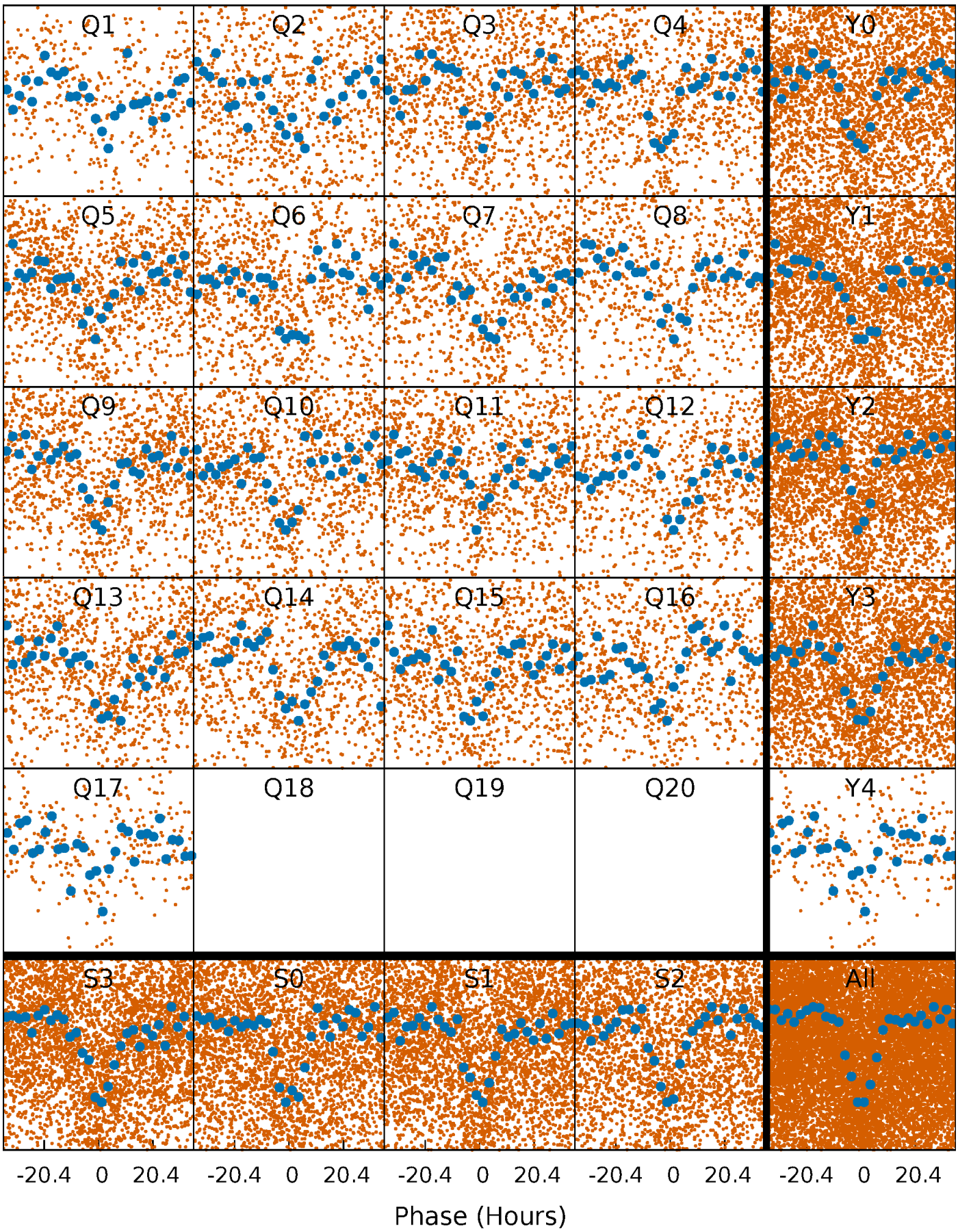
Non-Whitened Vs. Whitened Light Curve





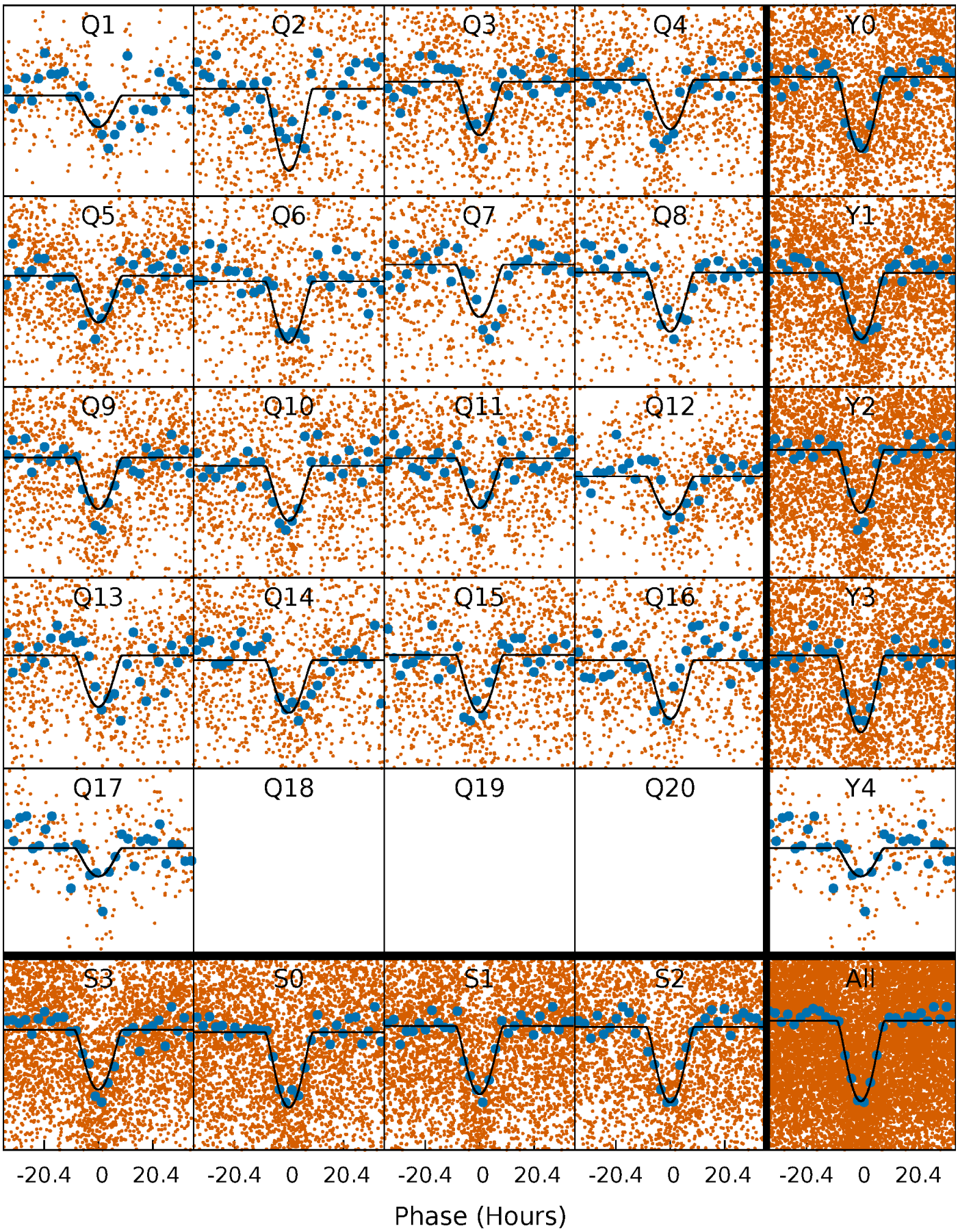
PDC Quarter-Phased Transit Curves

TCE 006448890-02 P= 10.500674 Days T_0=135.650870 (BKJD)



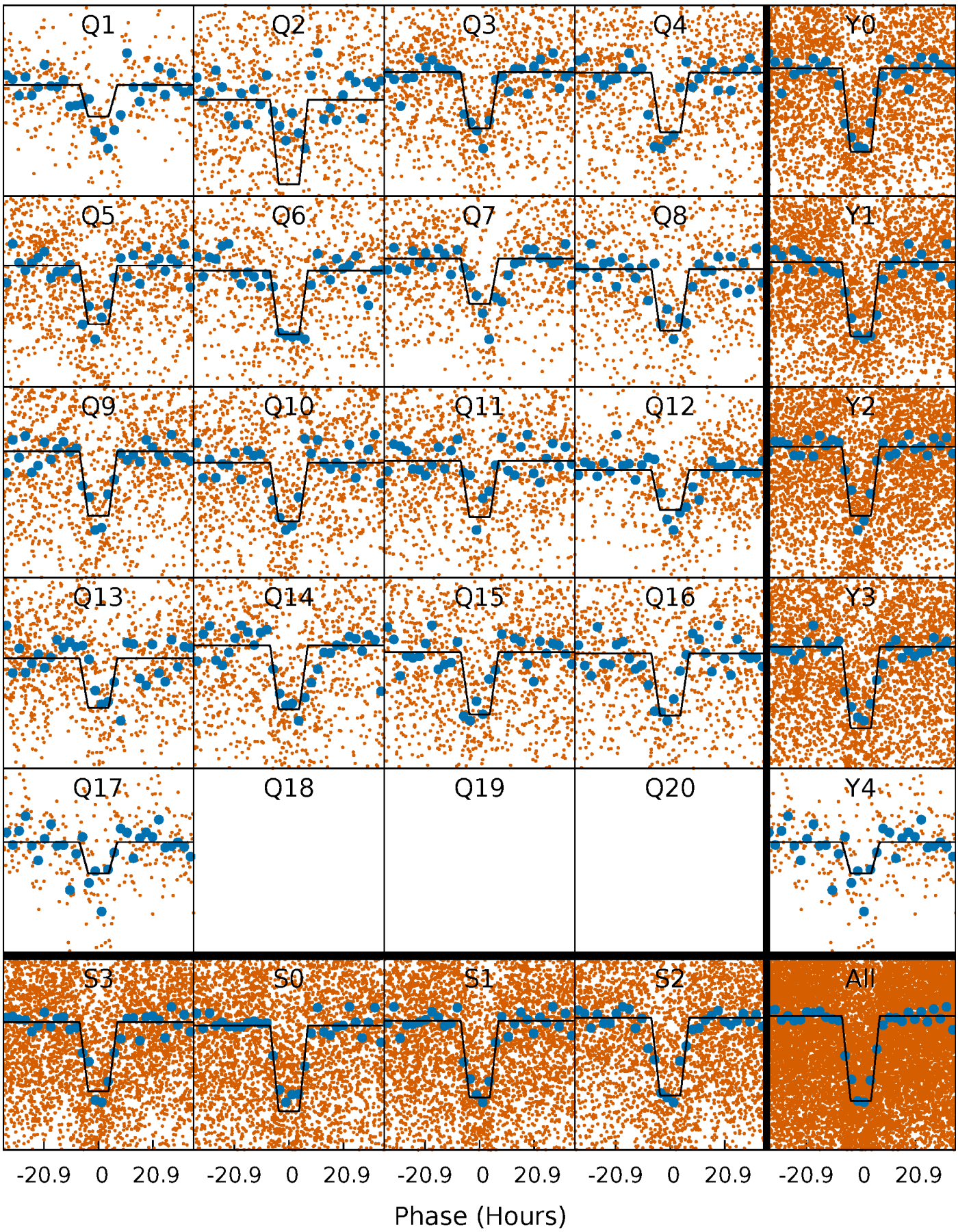
DV Quarter-Phased Transit Curves

TCE 006448890-02 P= 10.500674 Days T_0=135.650870 (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

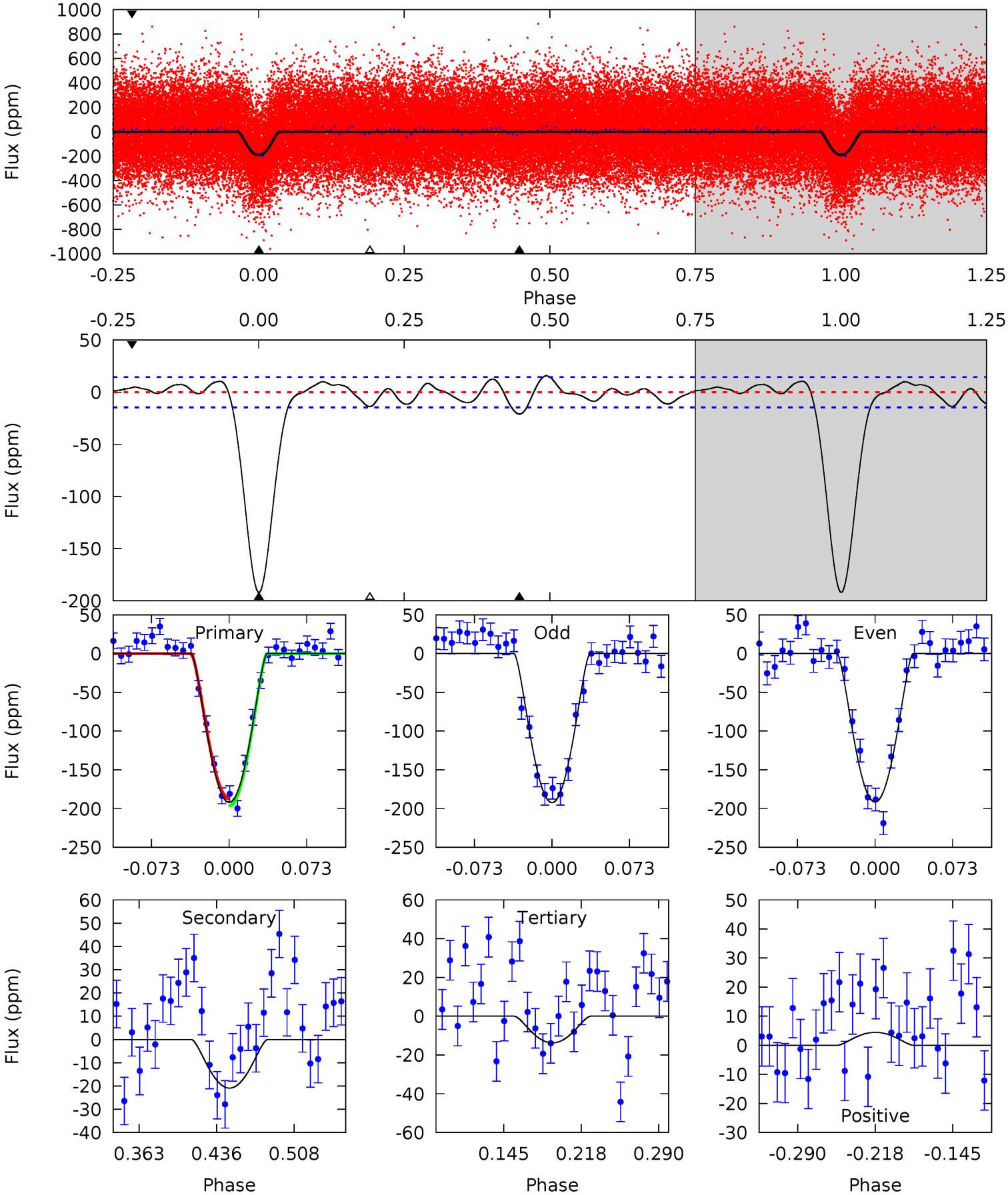
TCE 006448890-02 P= 10.500740 Days T_0=135.652722 (BKJD)



DV Model-Shift Uniqueness Test

006448890-02, P = 10.500674 Days, E = 125.150196 Days

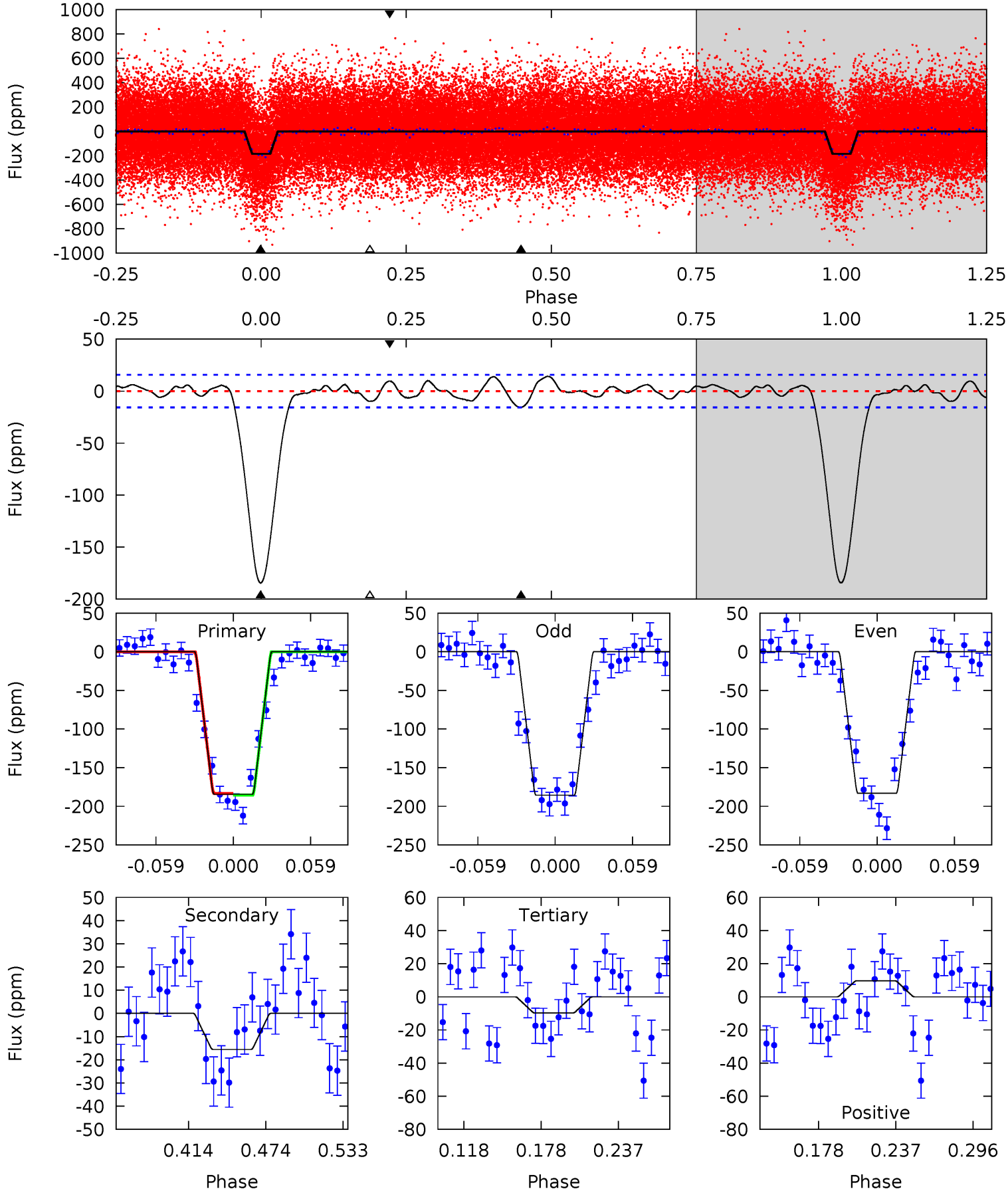
Pri	Sec	Ter	Pos	FA_1	FA_2	F_{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
61.0	6.64	4.37	1.41	4.63	1.80	1.84	56.6	59.6	2.27	5.23	0.13	1.04	0.08	1.47



Alt Model-Shift Uniqueness Test

006448890-02, P = 10.500740 Days, E = 125.151982 Days

Pri	Sec	Ter	Pos	FA_1	FA_2	F_{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
54.9	4.62	2.90	2.88	4.67	1.89	1.34	52.0	52.0	1.72	1.74	0.37	1.02	0.07	0.29



Stellar Parameters For KIC 006448890

	$T_{\rm eff}(K)$	$\log(g)$	[Fe/H]	R ($R_\odot$)	$M(M_\odot)$	$p_\star$ (g·cm^{-3})
	4838^{+65}_{-79}	$3.299^{+0.050}_{-0.041}$	$0.200^{+0.100}_{-0.150}$	$4.361^{+0.296}_{-0.641}$	$1.381^{+0.158}_{-0.316}$	$0.023^{+0.006}_{-0.003}$
	+1%/-2%	+2%/-1%	+50%/-75%	+7%/-15%	+11%/-23%	+27%/-13%
Source	SPE8	AST8	SPE8	DSEP		

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

Secondary Eclipse Parameters for KIC 006448890-02 / KOI 1241.02

Detrend	Depth (ppm)	R_p ($R_\oplus$)	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-21±3	$14.39^{+9.45}_{-9.26}$	1923^{+46}_{-50}	2427^{+1104}_{-4526}	$0.594^{+4.434}_{-0.380}$
Alt.	-16±3	$10.36^{+8.92}_{-6.92}$	1923^{+42}_{-49}	2617^{+1223}_{-4650}	$0.857^{+7.187}_{-0.618}$

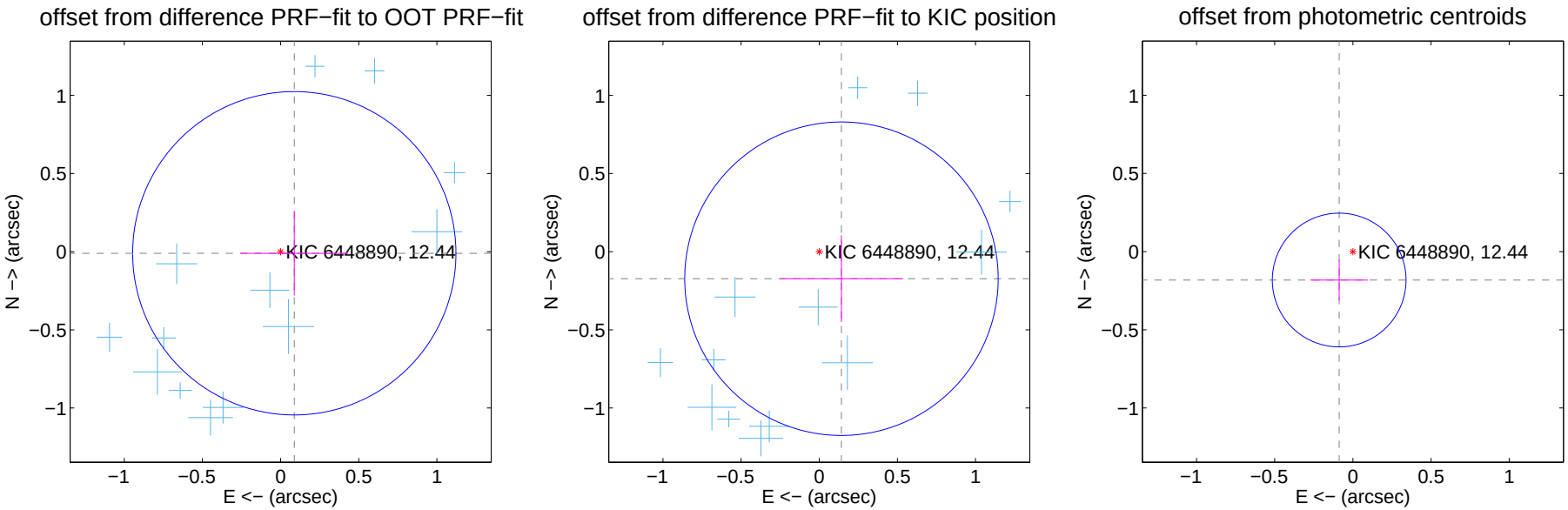
T_{max} = Theoretical Maximum Planetary Temperature
T_{obs} = Observed Planetary Temperature (Assuming A=0.3)
A_{obs} = Observed Albedo (Assuming T=0)

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

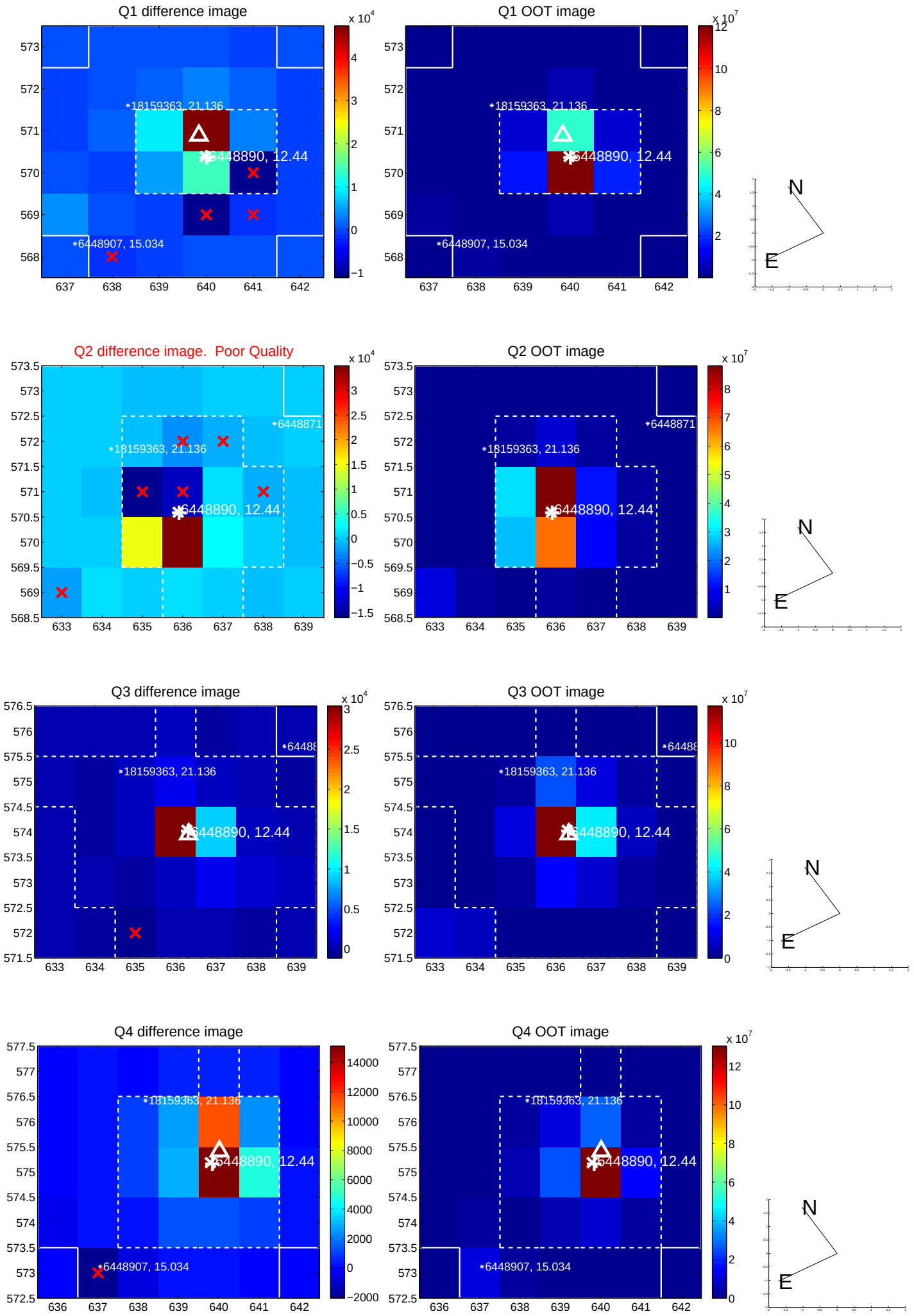
Supplemental centroid analysis for 006448890-02. Kepler magnitude: 12.44. Transit SNR 21.58
There are 15 quarters with good PRF difference image offsets
The direct PRF centroid is offset from the target star catalog position by about 0.18 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.088 ± 0.345	0.26	-0.088 ± 0.344	-0.010 ± 0.270
PRF-fit source offset from KIC position	0.224 ± 0.334	0.67	-0.142 ± 0.395	-0.173 ± 0.276
photometric centroid source offset	0.20 ± 0.14	1.42	0.09 ± 0.19	-0.18 ± 0.13

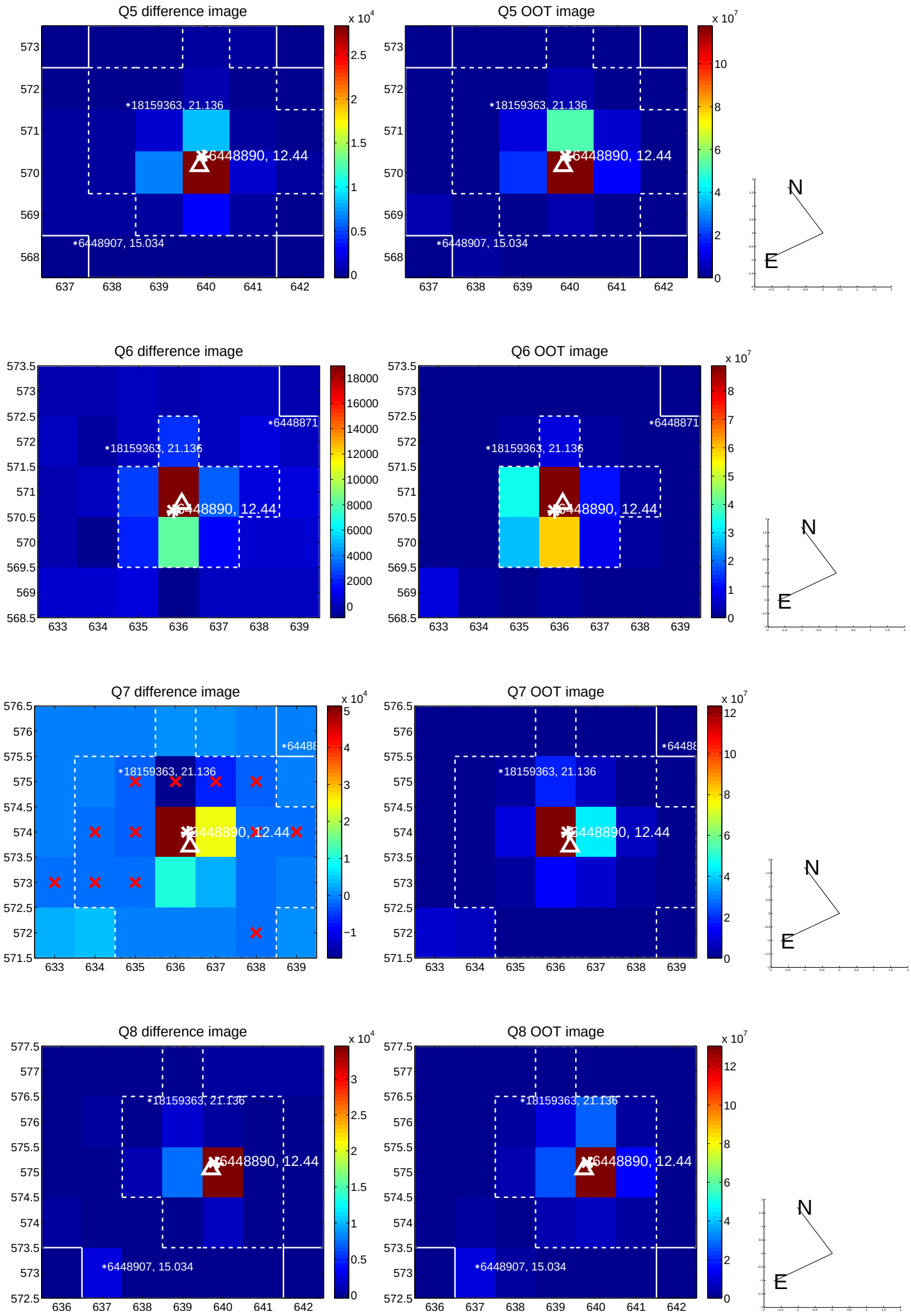


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one-σ uncertainty. Blue circle: three-σ. Red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

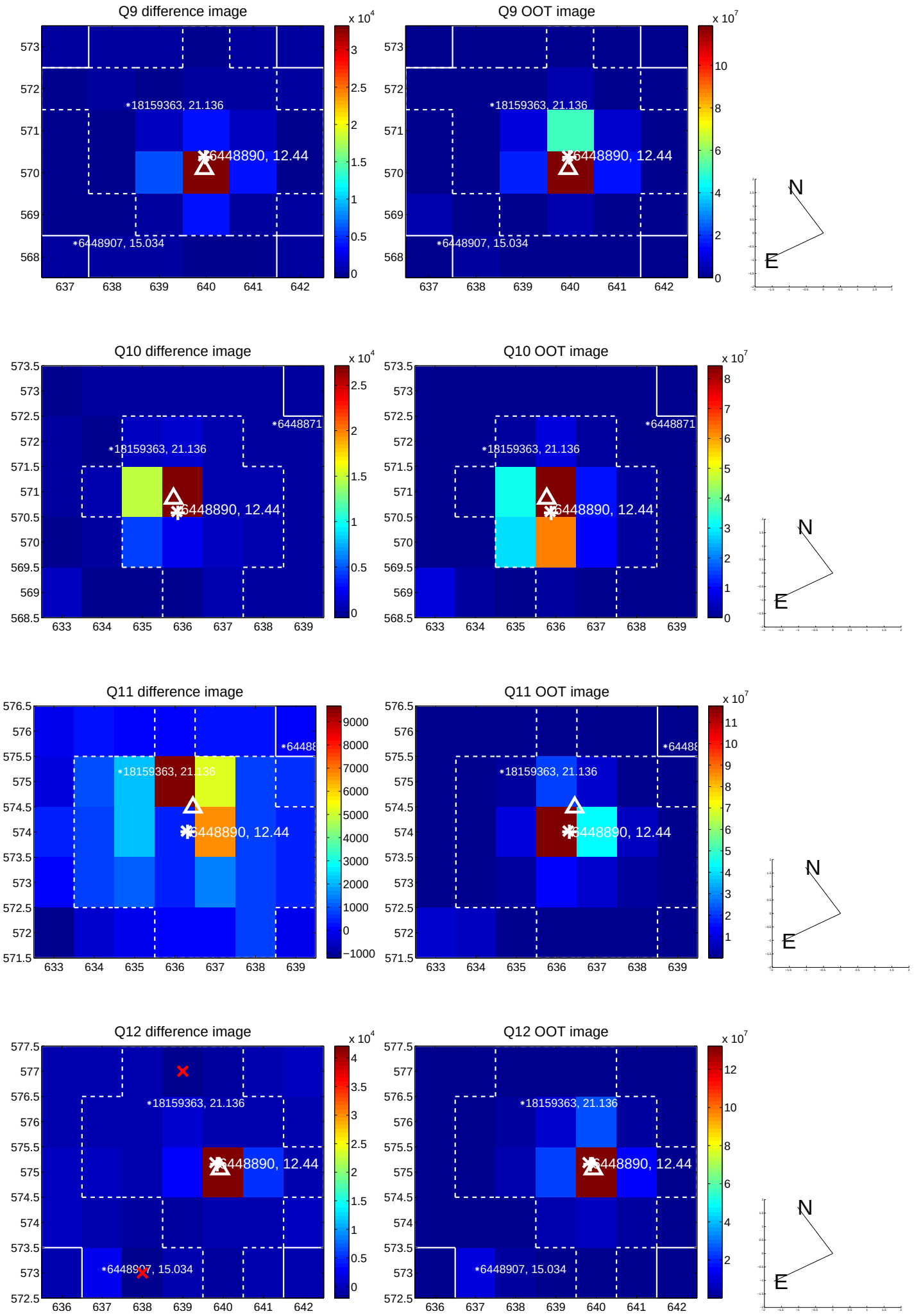
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.



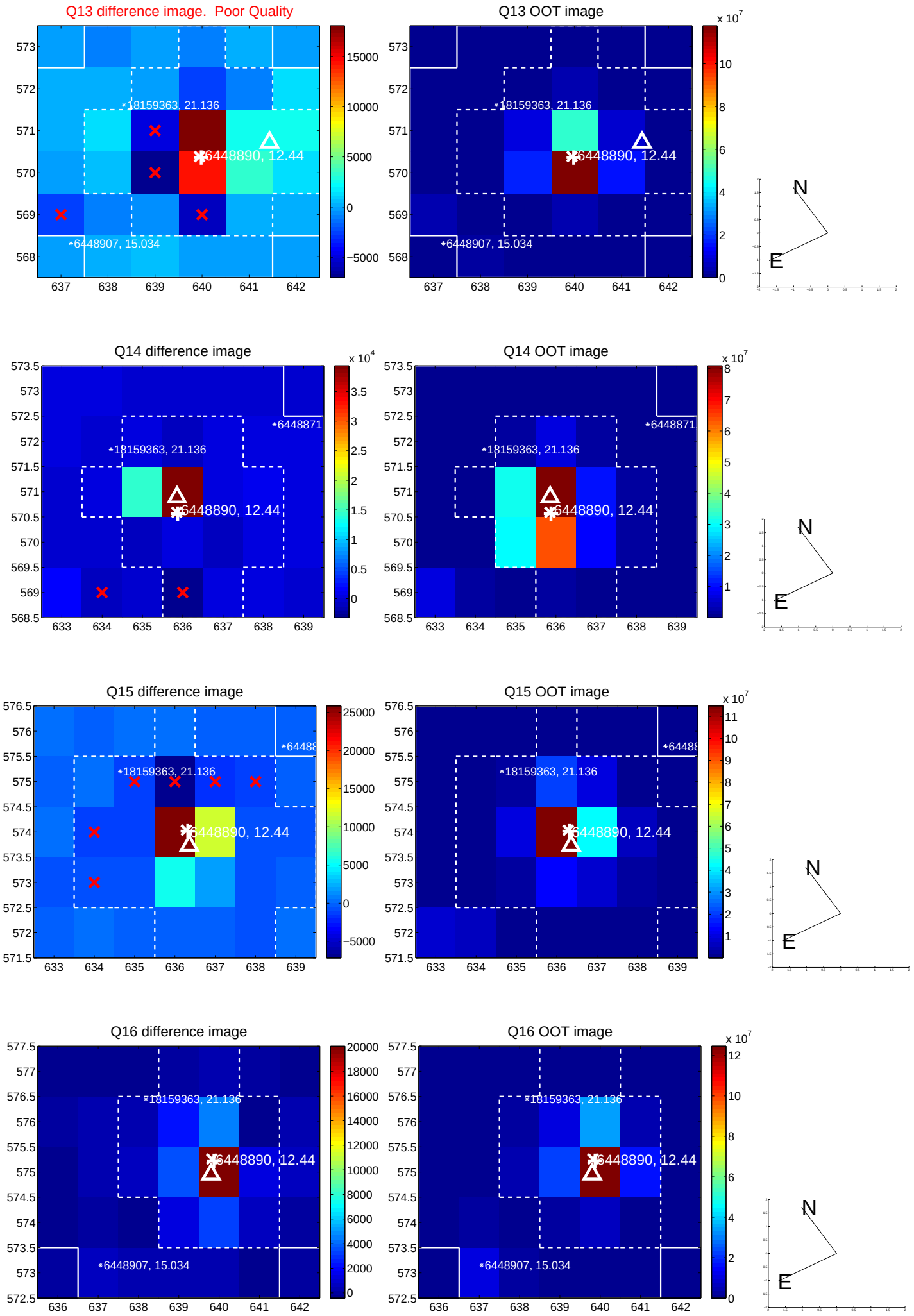
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.



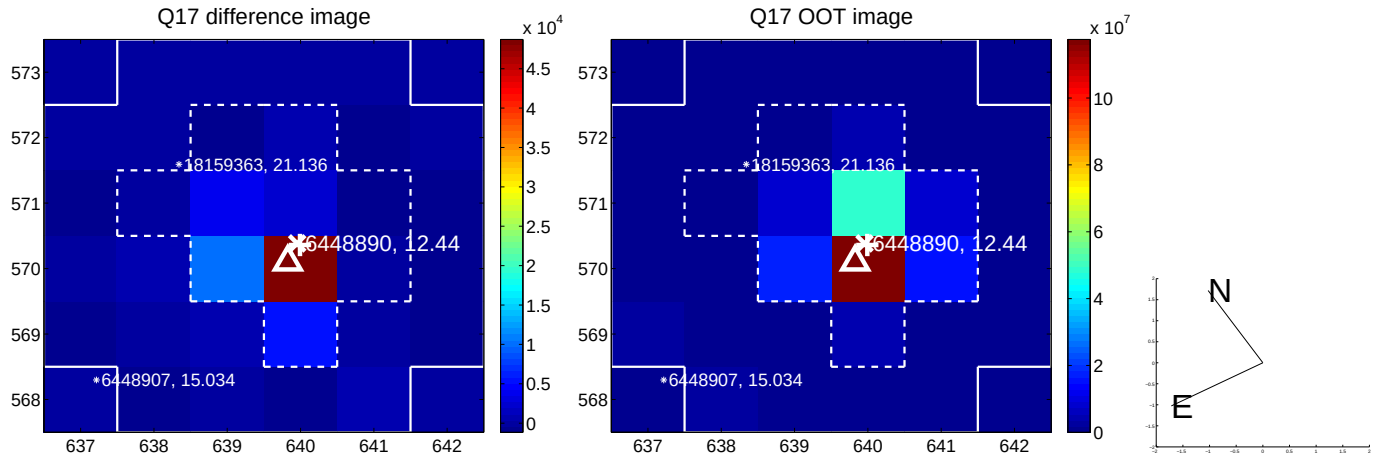
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.

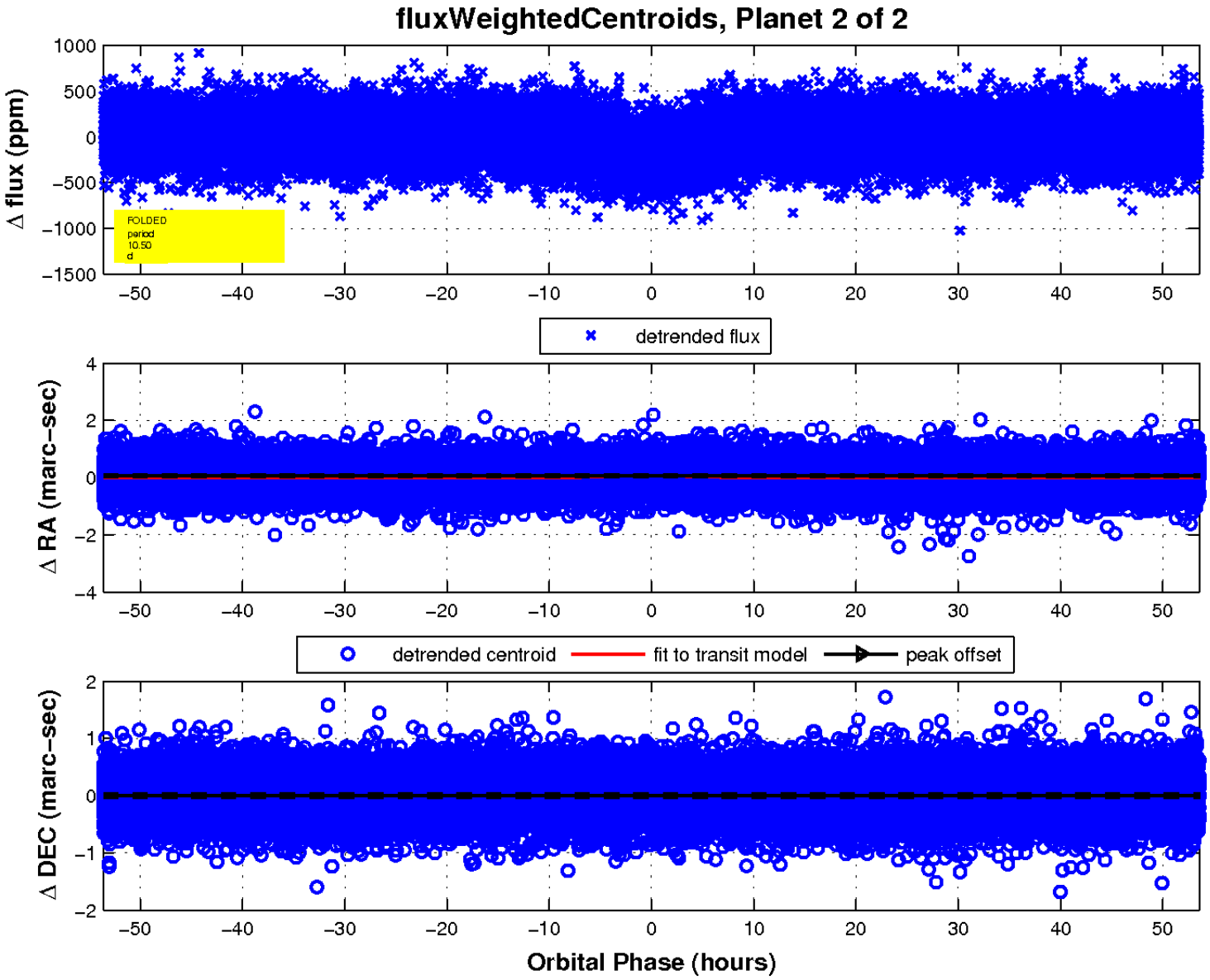


white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.

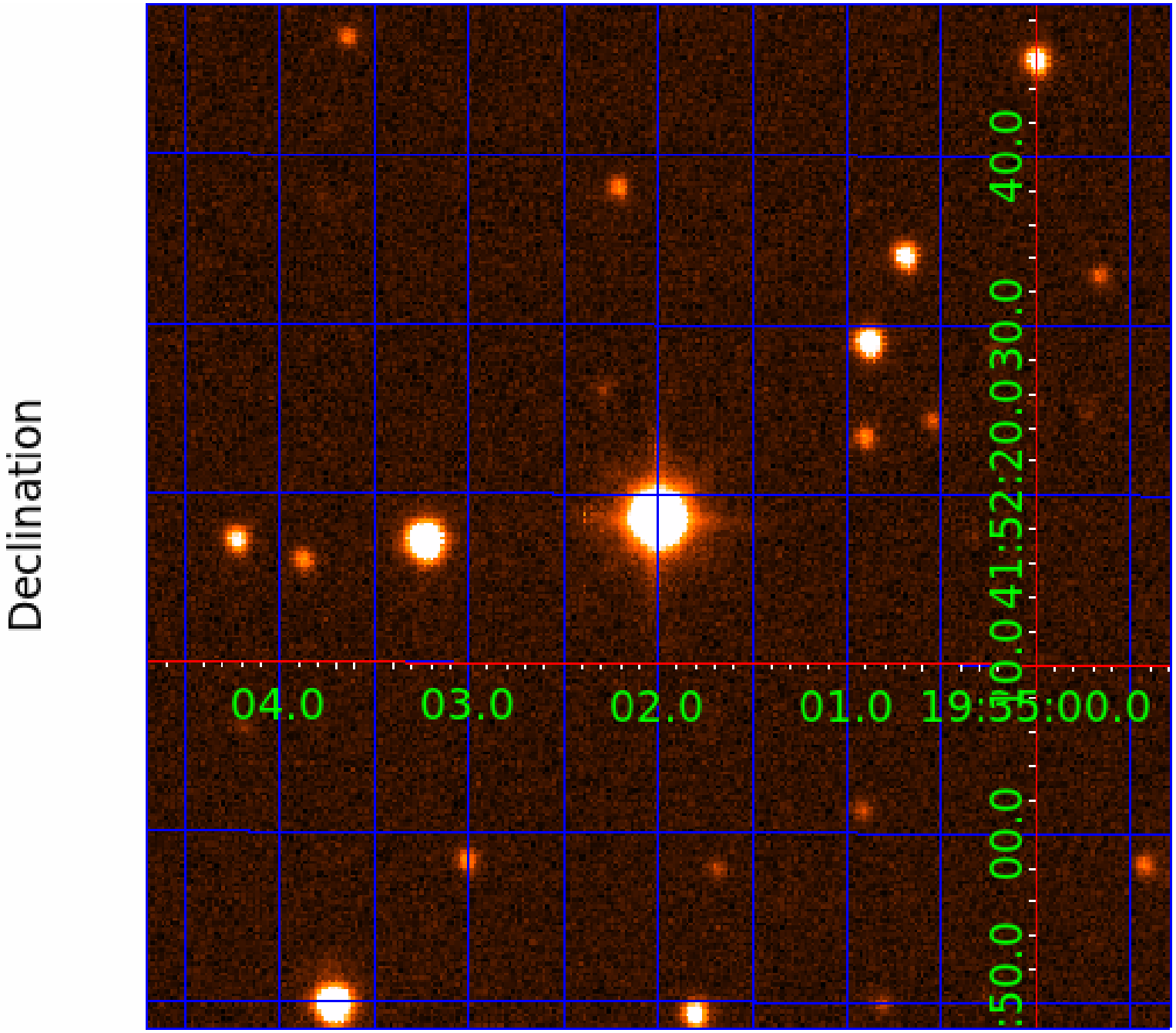


white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.





UKIRT Image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