KIC 009206046

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 ($S_\oplus$)
009206046-01	OBS	No	505.804321	158.222395	2022.4	6.595	15.3	8.7	2.03	7511	10.72	5.81
009206046-02	OBS	No	1.060030	131.550542	80.1	8.729	15.2	6.8	2.03	7511	1.91	21651.85

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009206046-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_SKYE—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
009206046-02	OBS	FP	0.00	1	0	0	0	SWEET_NTL—LPP_DV—MOD_NONUNIQ_DV

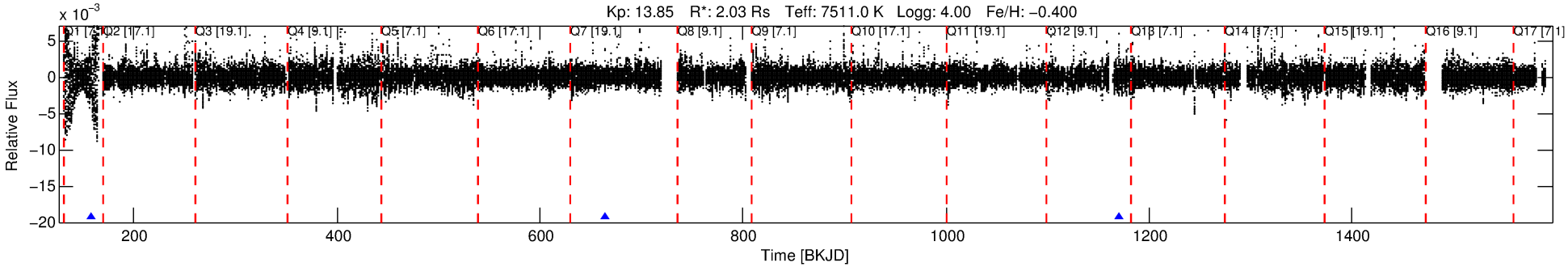
Notes: OBS = Observed. INJ = Injected. INV = Inverted. SCR = Scrambled.
N = Not Transit-Like. S = Stellar Eclipse. C = Centroid Offset. E = Ephemeris Match.
See `http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col` for comment definitions.

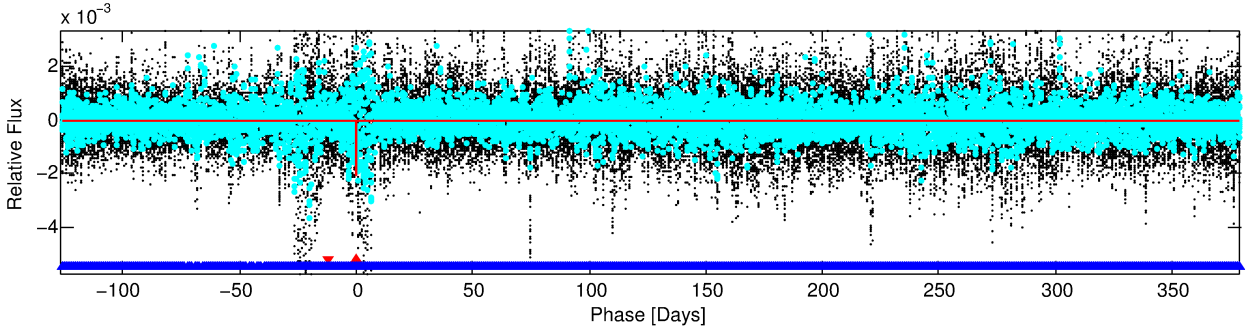
Ephemeris Match Information For 009206046-01

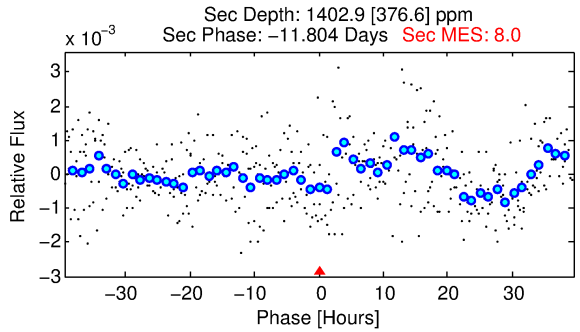
No Significant Match Found

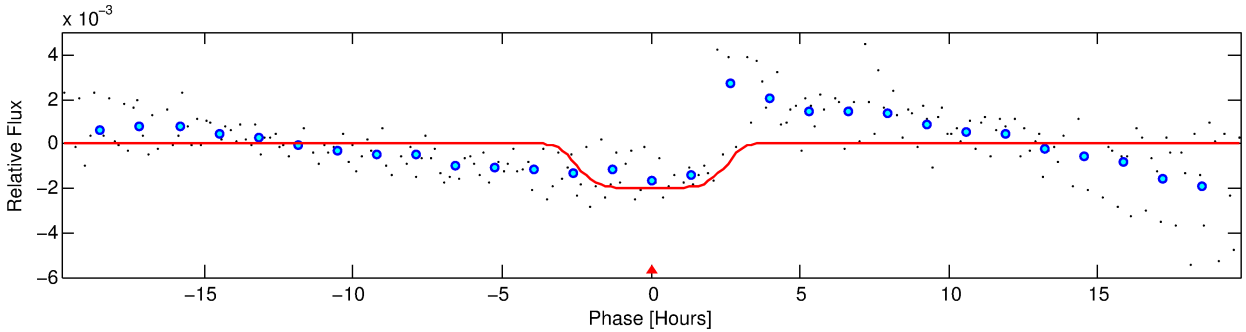
DV One-Page Summary

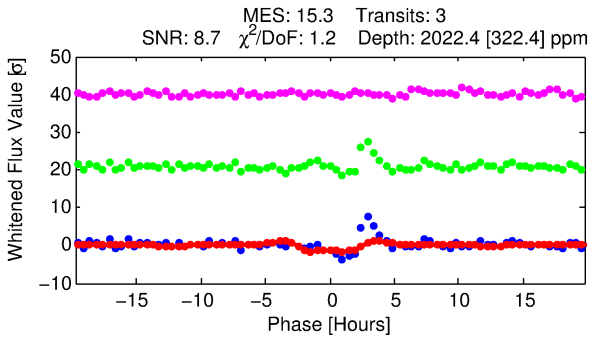
KIC: 9206046 Candidate: 1 of 2 Period: 505.804 d

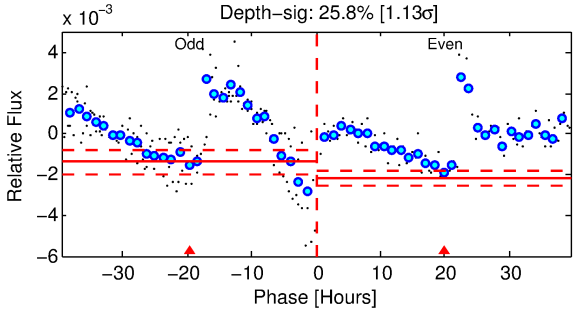


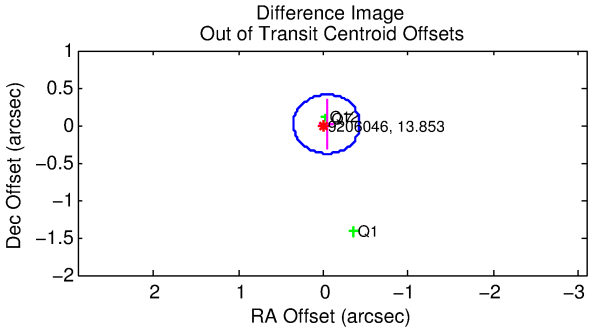












DV Fit Results:

Period = 505.80432 [0.00896] d
Epoch = 158.2224 [0.0107] BKJD
Rp/R* = 0.0483 [0.0048]
a/R* = 301.77 [68.47]
b = 0.91 [0.04]

Seff = 5.81 [2.89]
Teq = 396 [49] K
Rp = 10.72 [3.80] Re
a = 1.4253 [0.4360] AU

Ag = 13633.69 [7836.28] [1.74σ]
Teffp = 6613 [615] K [10.08σ]

DV Diagnostic Results:

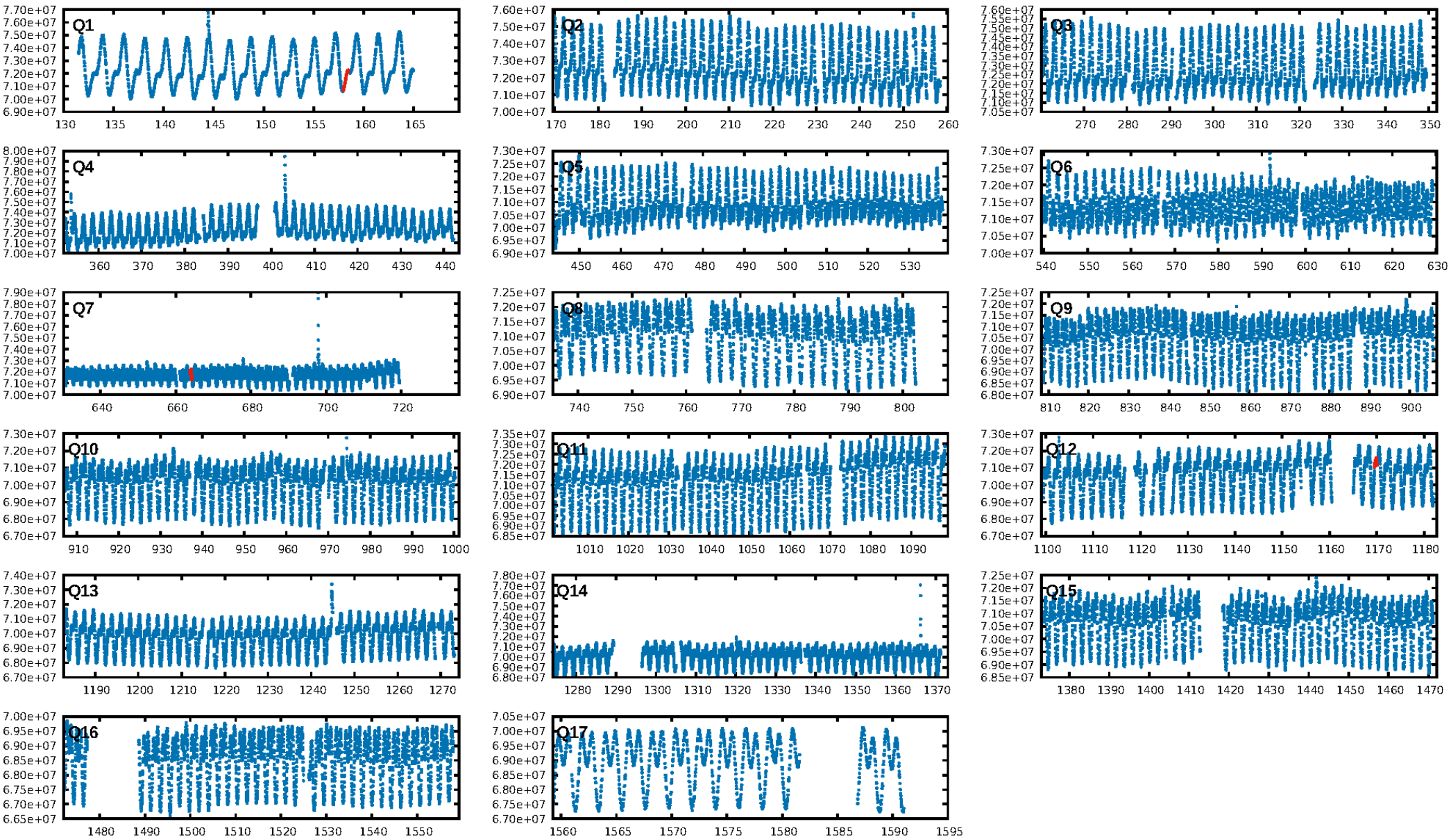
ShortPeriod−sig: 100.0% [1107.32σ]
LongPeriod−sig: N/A
ModelChiSquare2−sig: 33.9%
ModelChiSquareGof−sig: 61.3%
Bootstrap−pfa: N/A
RollingBand−fgt: 1.00 [2/2]
GhostDiagnostic−chr: 2.09

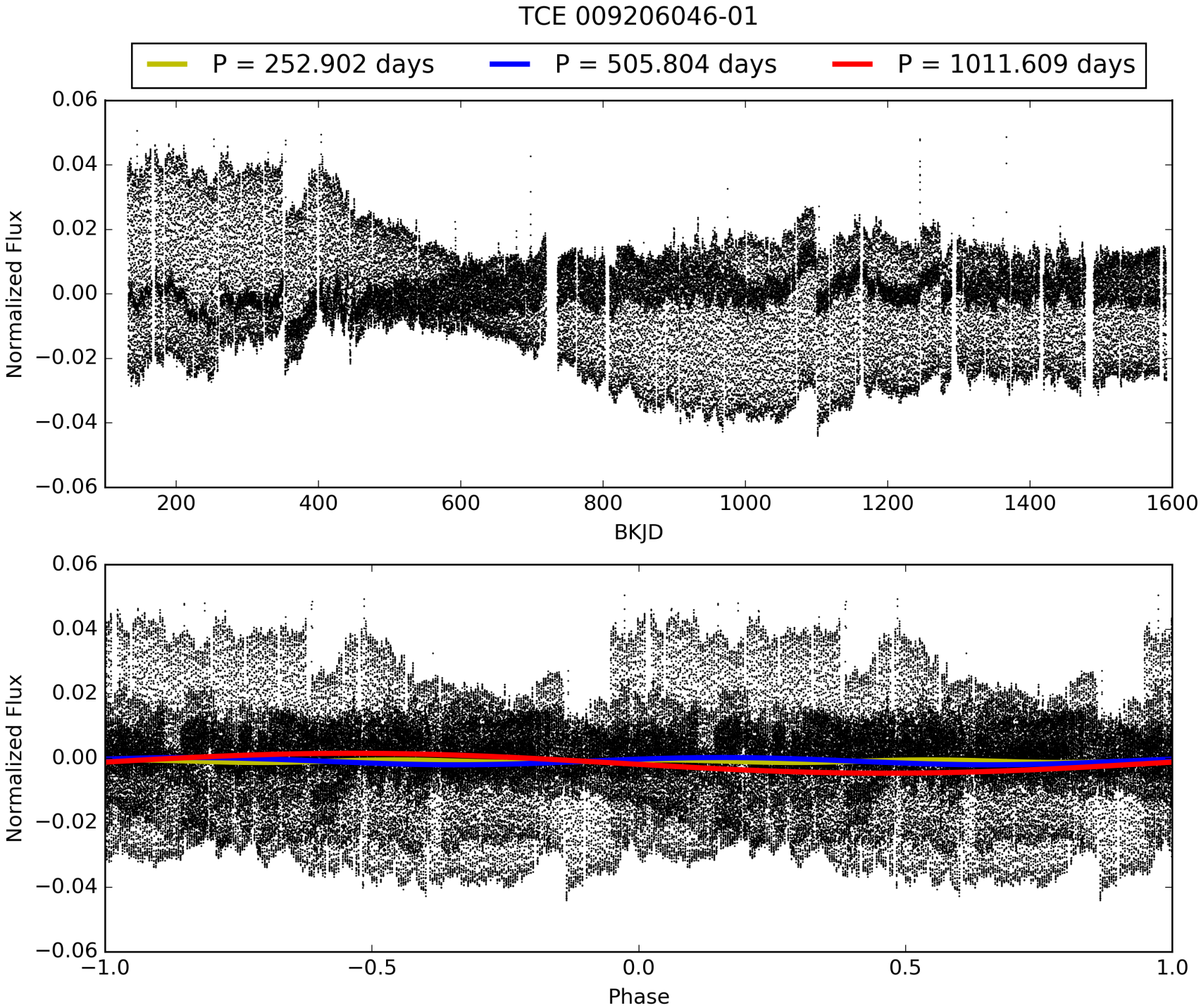
Centroid−sig: 16.3%
Centroid−so: 0.214 arcsec [0.81σ]
OotOffset−rm: 0.039 arcsec [0.30σ]
KicOffset−rm: 0.062 arcsec [0.15σ]
OotOffset−st: 0/1/1/1 [3]
KicOffset−st: 0/1/1/1 [3]
DiffImageQuality−fgm: 0.00 [0/3]
DiffImageOverlap−fno: 0.00 [0/3]

Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29−Jan−2016 11:05:55 Z

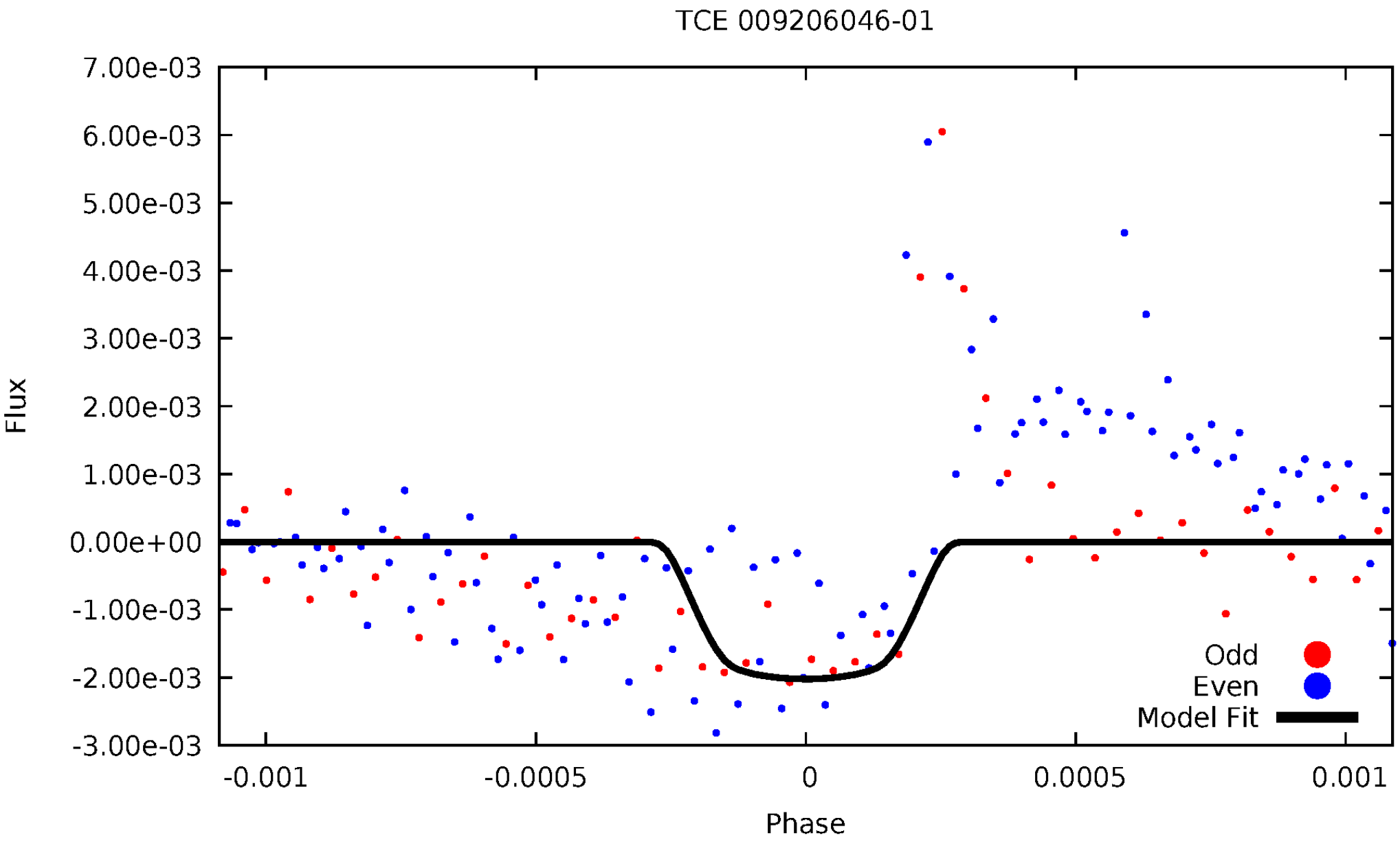
This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

TCE 009206046-01, PDC Light Curves




TCE 009206046-01
P = 252.902 days
P = 505.804 days
P = 1011.609 days
Normalized Flux
BKJD
Normalized Flux
Phase

DV Odd/Even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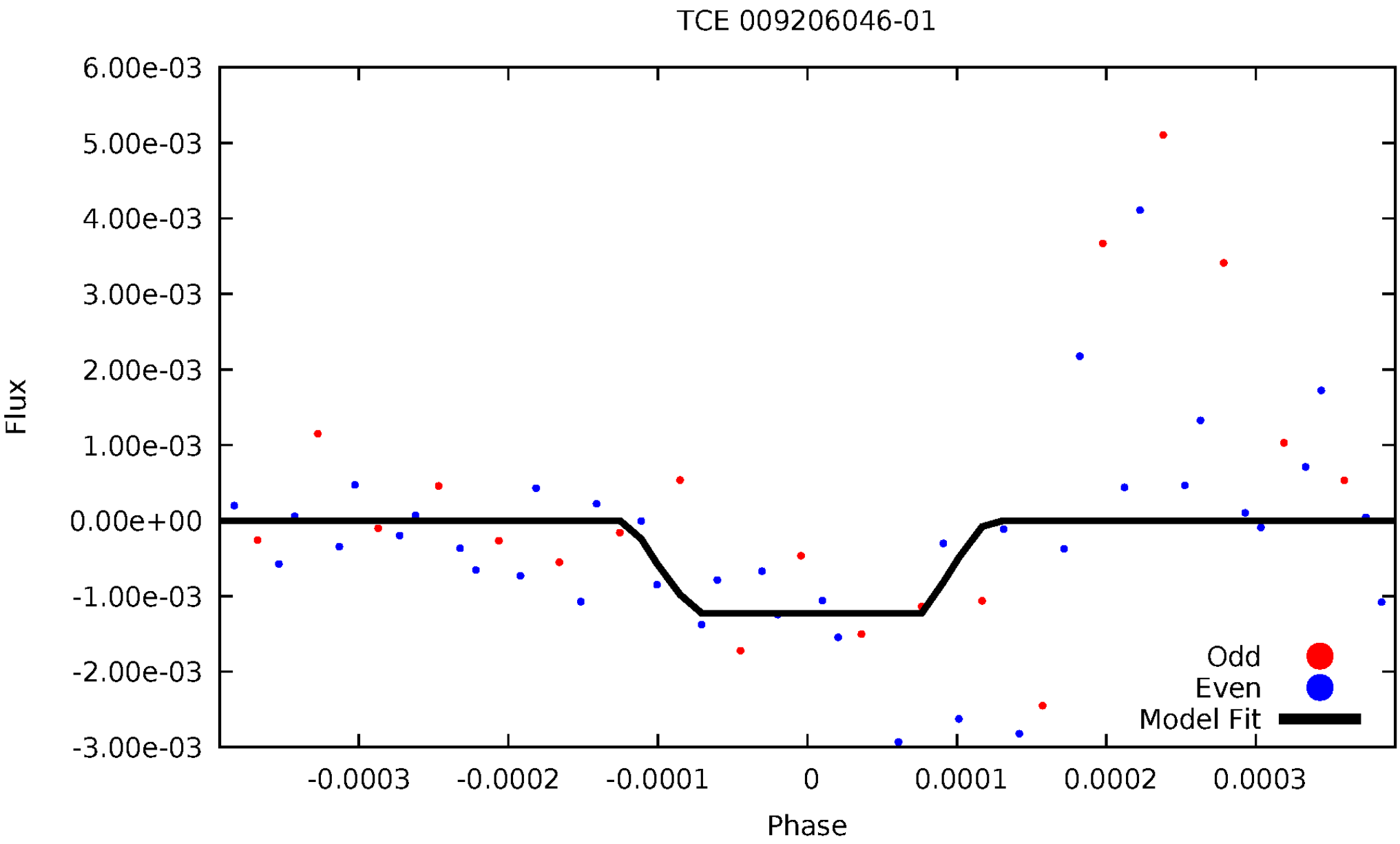
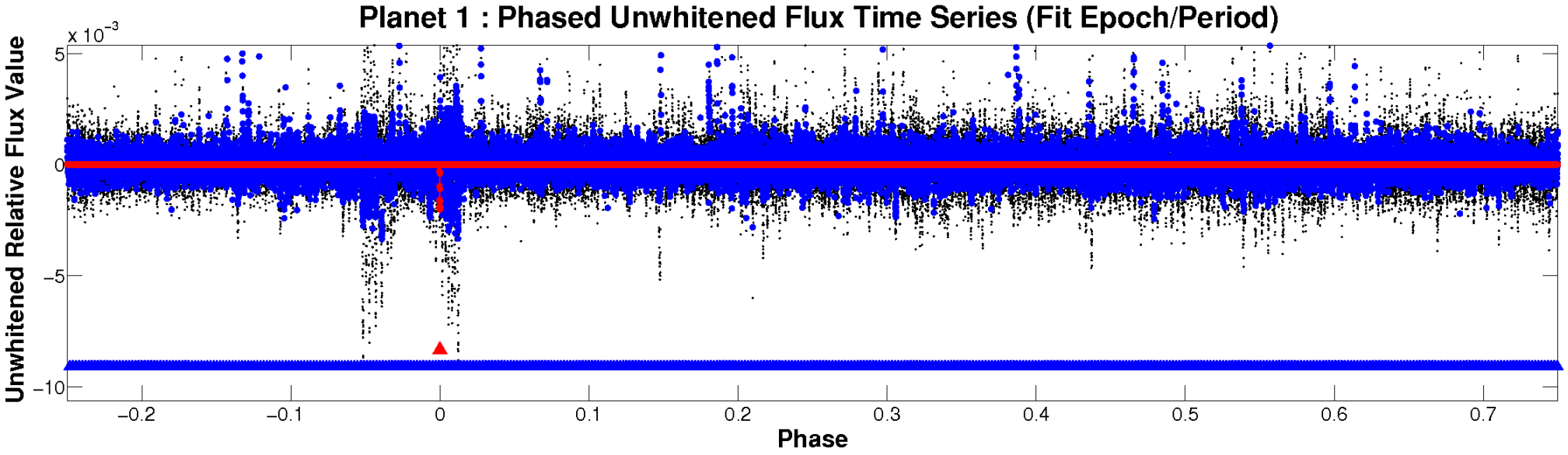
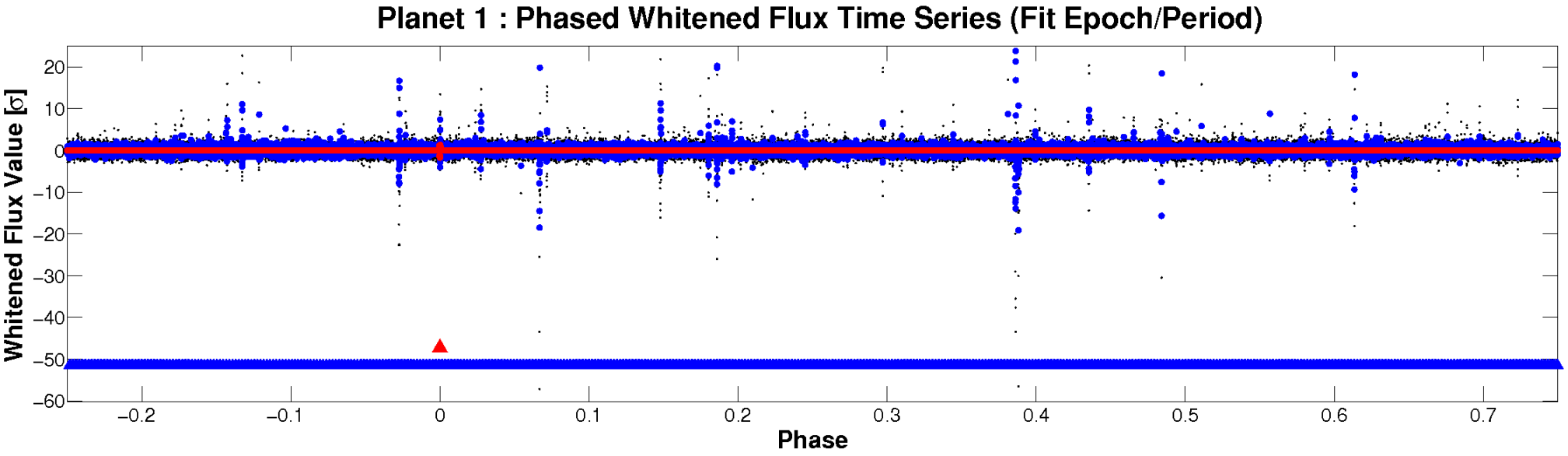
7.00e-03
6.00e-03
5.00e-03
4.00e-03
3.00e-03
2.00e-03
1.00e-03
0.00e+00
-1.00e-03
-2.00e-03
-3.00e-03
Flux
-0.001
-0.0005
0
0.0005
0.001
Phase
Odd
Even
Model Fit

ALT Odd/Even


TCE 009206046-01
6.00e-03
5.00e-03
4.00e-03
3.00e-03
2.00e-03
1.00e-03
0.00e+00
-1.00e-03
-2.00e-03
-3.00e-03
Flux
-0.0003
-0.0002
-0.0001
0
0.0001
0.0002
0.0003
Phase
Odd
Even
Model Fit

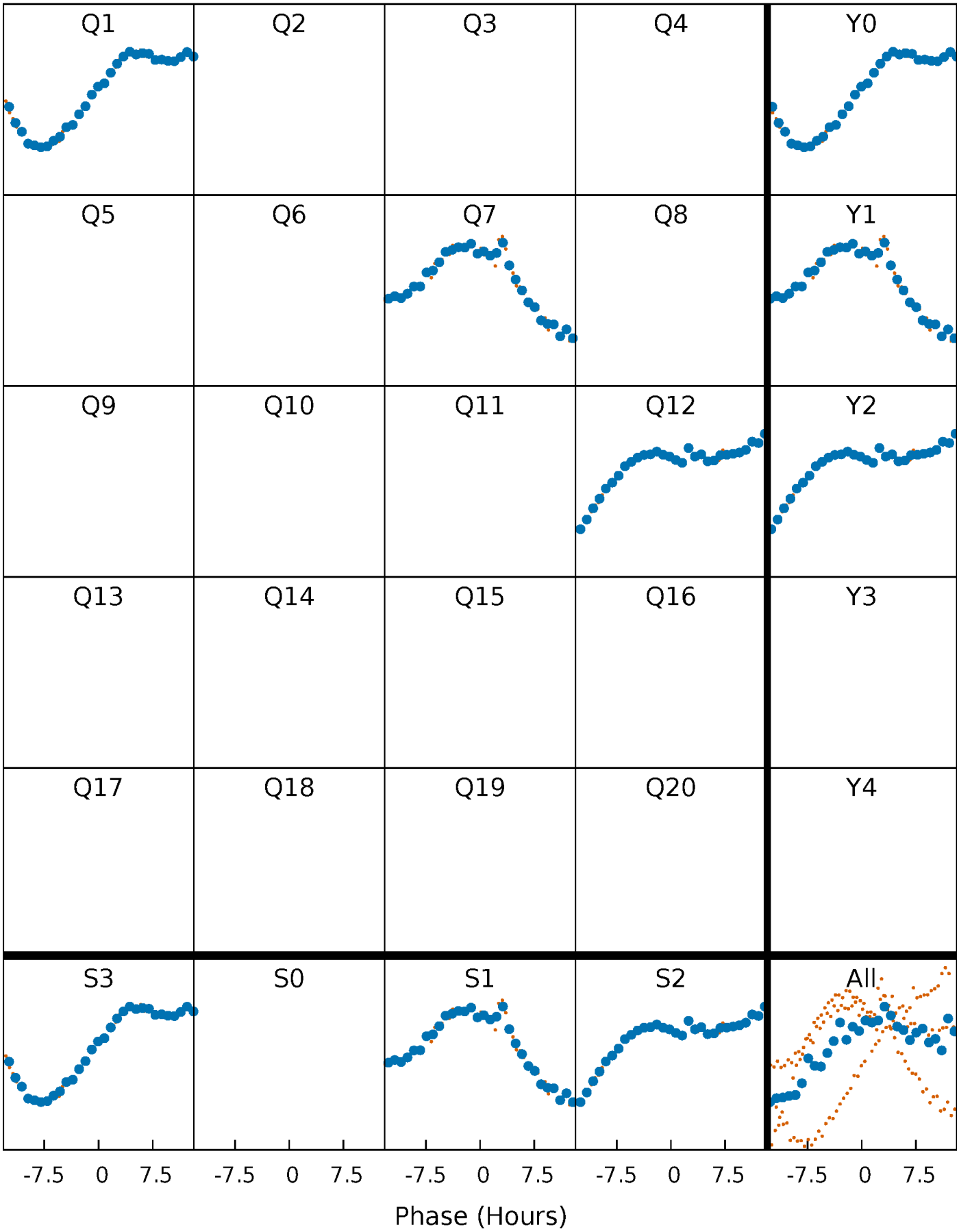
Non-Whitened Vs. Whitened Light Curve





PDC Quarter-Phased Transit Curves

TCE 009206046-01 P=505.804321 Days T_0=158.222395 (BKJD)



DV Quarter-Phased Transit Curves

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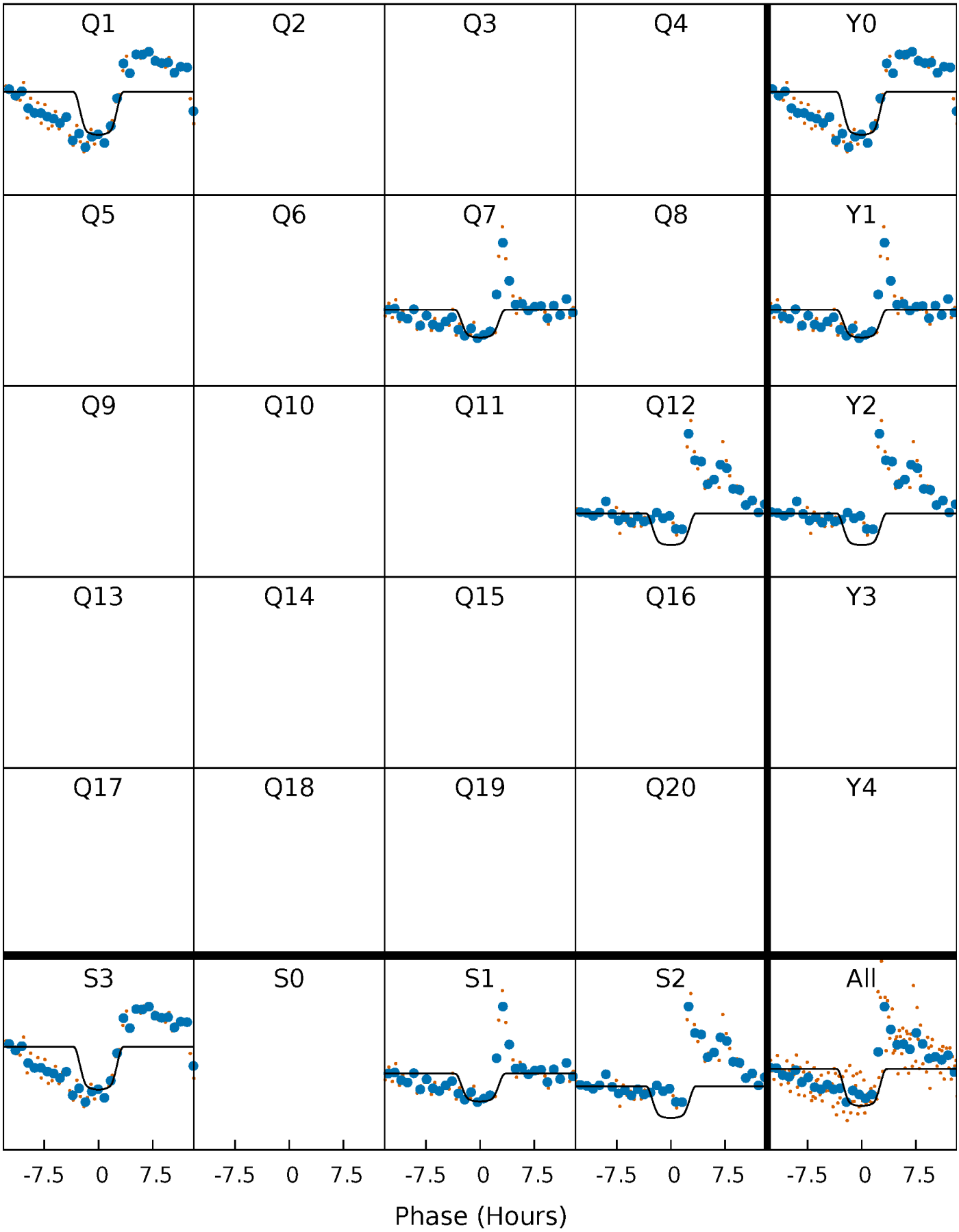
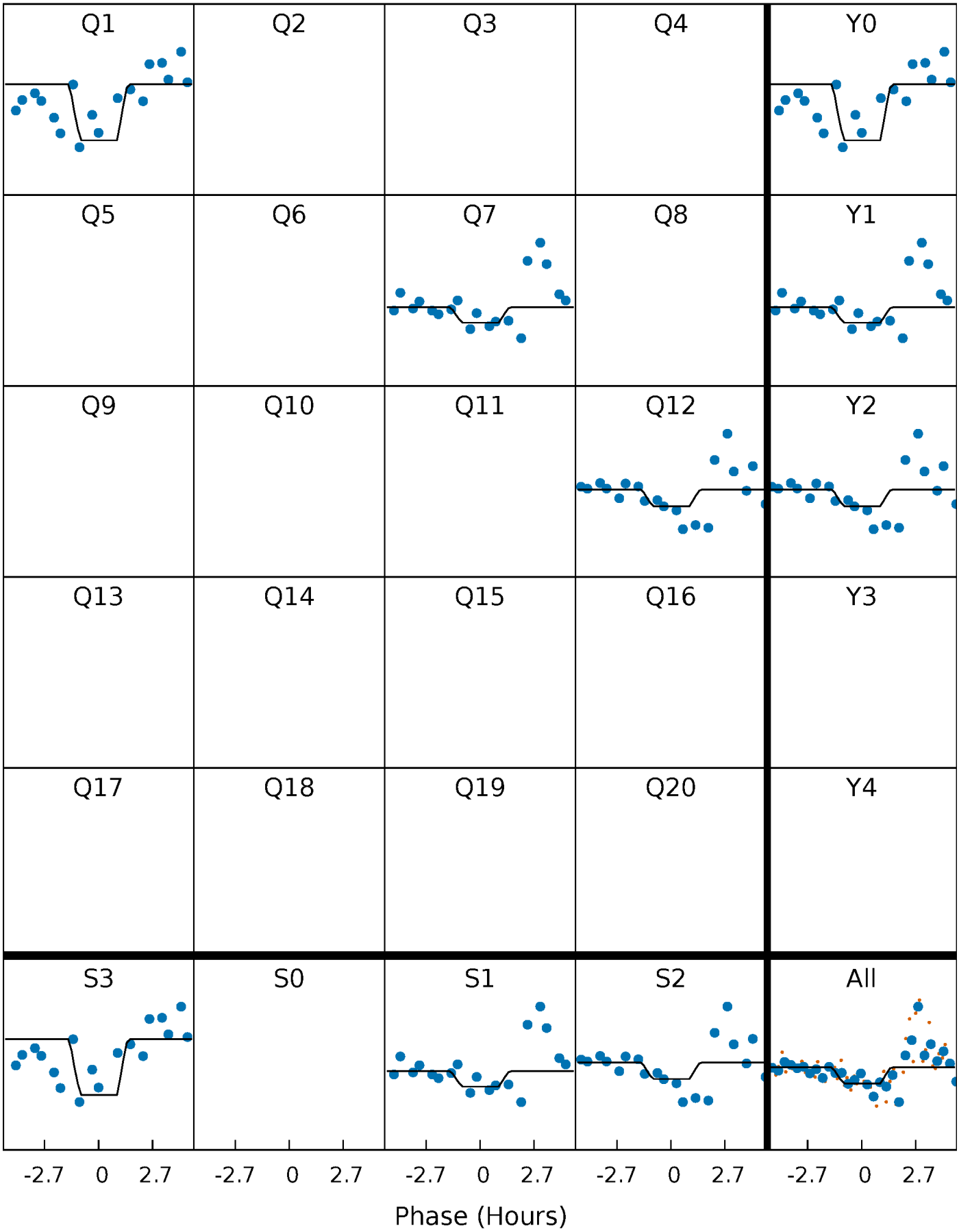


Alt. Detrend Quarter-Phased Transit Curves

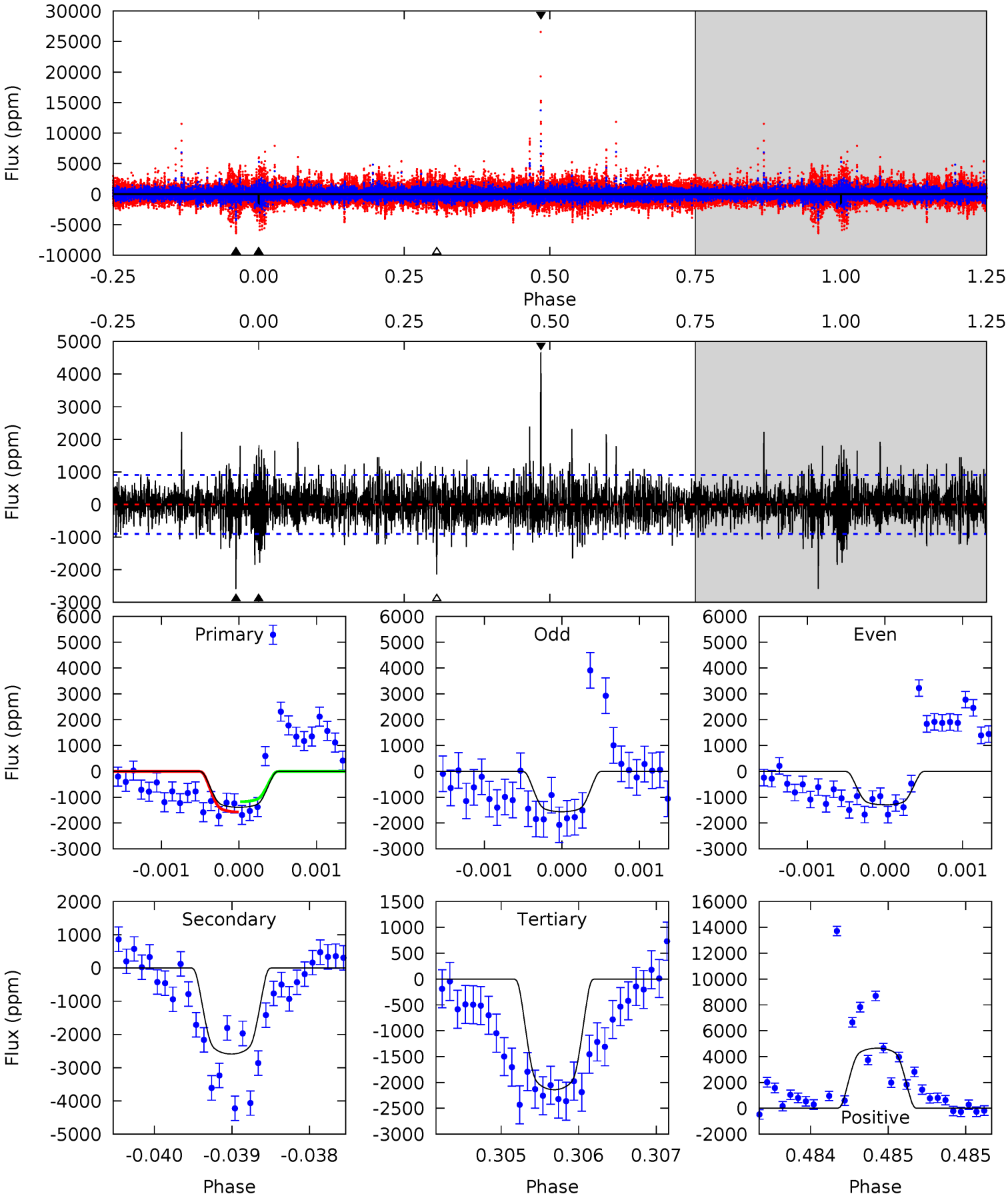
TCE 009206046-01 P=505.798722 Days T_0=158.235493 (BKJD)



DV Model-Shift Uniqueness Test

009206046-01, P = 505.804321 Days, E = 158.222395 Days

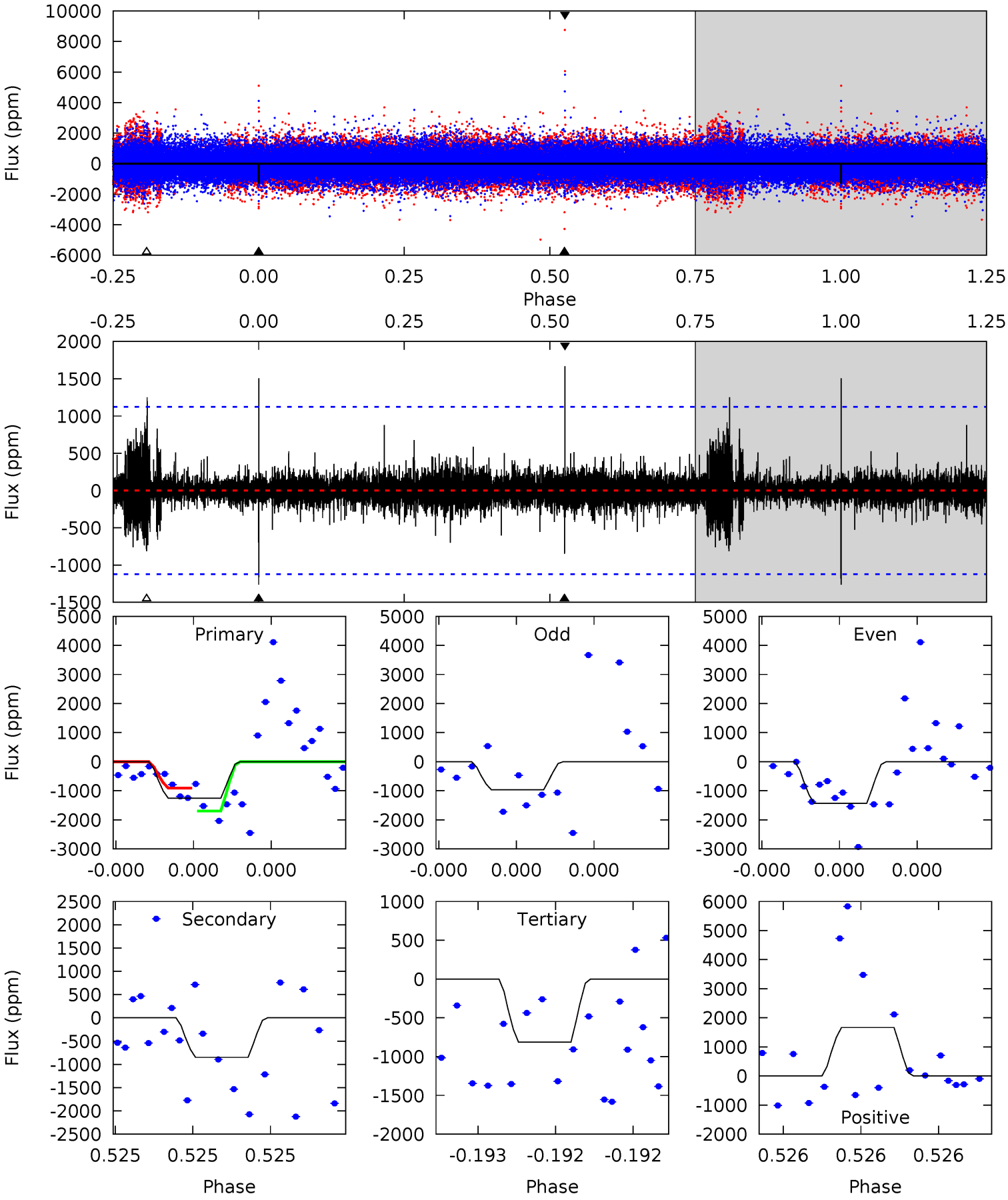
Pri	Sec	Ter	Pos	FA_1	FA_2	F_{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
8.54	15.9	13.1	28.6	5.55	3.45	2.84	-4.61	-20.0	2.76	-12.7	0.65	0.83	0.64	1.21



Alt Model-Shift Uniqueness Test

009206046-01, P = 505.798722 Days, E = 158.235493 Days

Pri	Sec	Ter	Pos	FA_1	FA_2	F_{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
6.42	4.33	4.14	8.48	5.72	3.70	0.74	2.28	-2.07	0.19	-4.15	1.12	1.29	0.57	2.02



Stellar Parameters For KIC 009206046

	$T_{\rm eff}(K)$	$\log(g)$	[Fe/H]	R ($R_\odot$)	$M(M_\odot)$	$p_\star$ (g·cm^{-3})
	7511^{+233}_{-311}	$4.000^{+0.267}_{-0.144}$	$-0.400^{+0.250}_{-0.350}$	$2.034^{+0.520}_{-0.693}$	$1.509^{+0.198}_{-0.272}$	$0.252^{+0.457}_{-0.109}$
	+3%/-4%	+7%/-4%	+62%/-87%	+26%/-34%	+13%/-18%	+181%/-43%
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 009206046-01 / KOI

Detrend	Depth (ppm)	R_p ($R_\oplus$)	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-2589±163	$10.46^{+2.09}_{-1.94}$	547^{+39}_{-44}	7724^{+670}_{-503}	26358^{+13427}_{-7949}
Alt.	-850±196	$7.59^{+1.67}_{-1.60}$	547^{+39}_{-50}	6759^{+710}_{-692}	16222^{+10994}_{-5844}

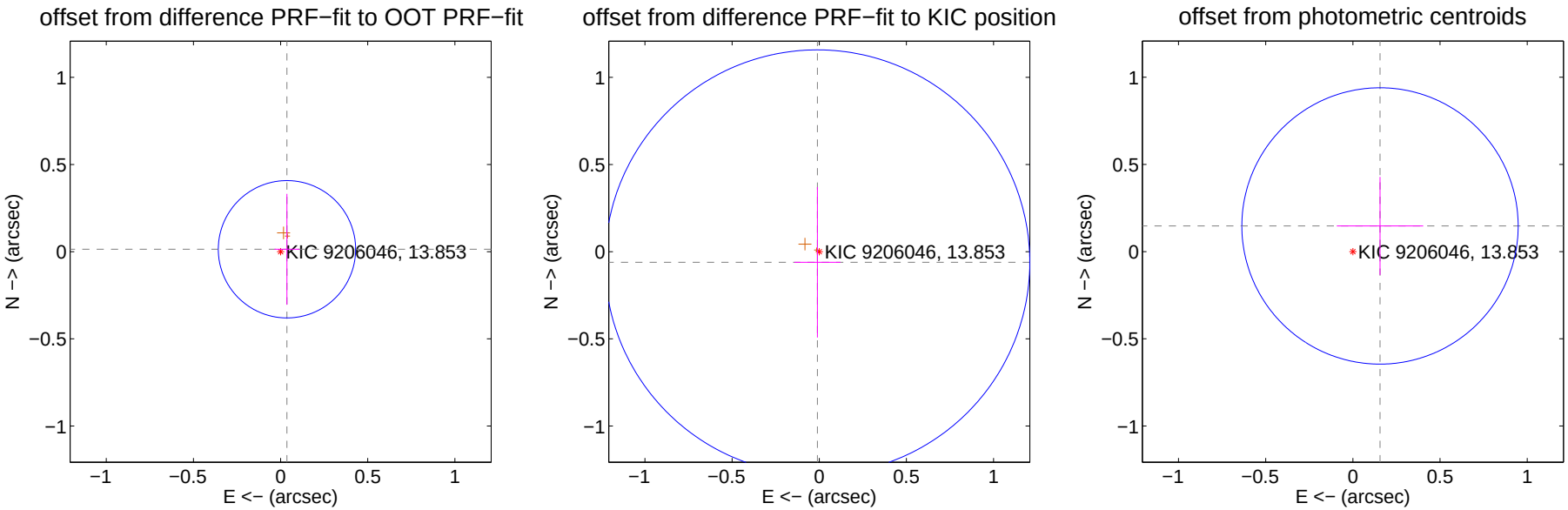
T_{max} = Theoretical Maximum Planetary Temperature
T_{obs} = Observed Planetary Temperature (Assuming A=0.3)
A_{obs} = Observed Albedo (Assuming T=0)

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

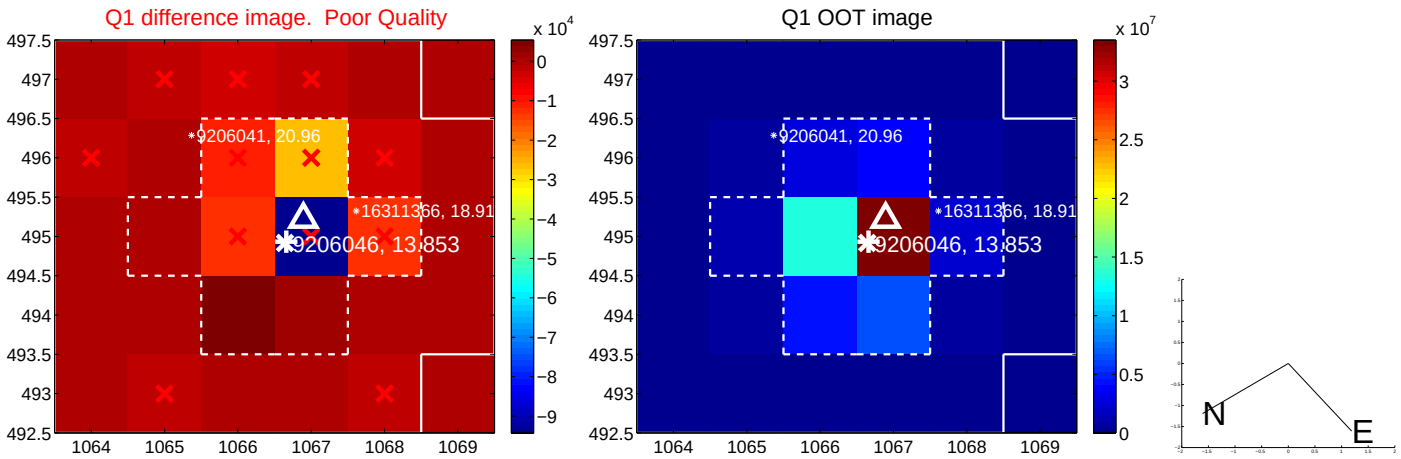
Supplemental centroid analysis for 009206046-01. Kepler magnitude: 13.85. Transit SNR 8.65
There are 0 quarters with good PRF difference image offsets
The direct PRF centroid is offset from the target star catalog position by about 0.12 arcsec

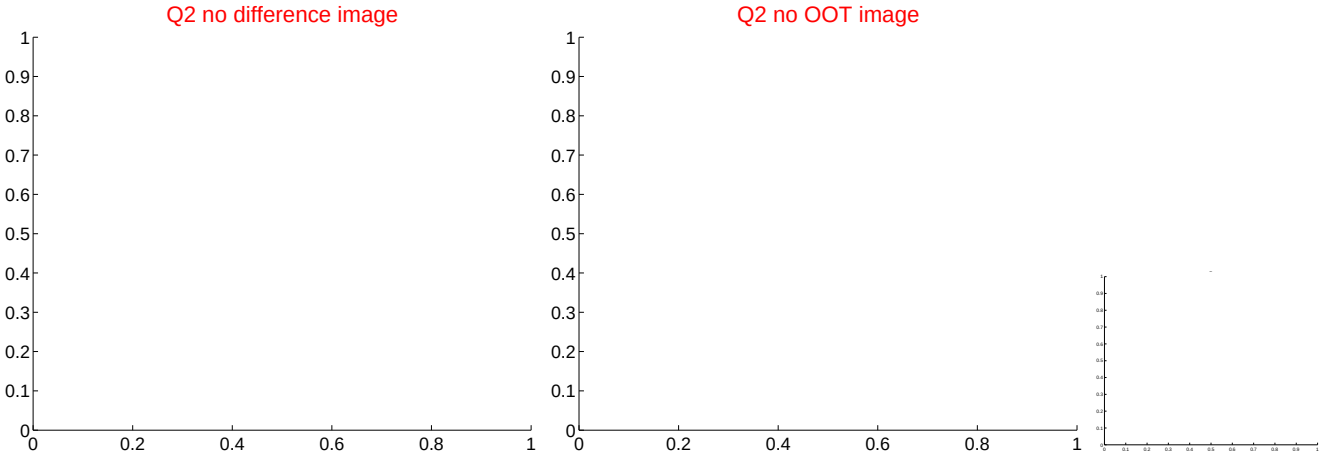
	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.039 ± 0.131	0.30	-0.037 ± 0.072	0.014 ± 0.318
PRF-fit source offset from KIC position	0.062 ± 0.406	0.15	0.011 ± 0.133	-0.061 ± 0.432
photometric centroid source offset	0.21 ± 0.26	0.81	-0.16 ± 0.25	0.15 ± 0.28

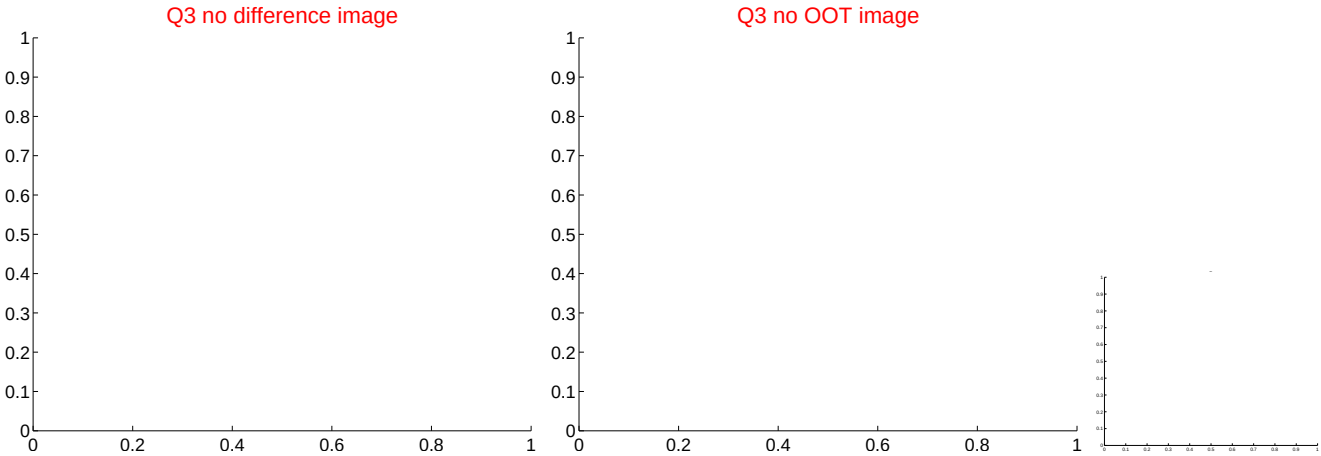


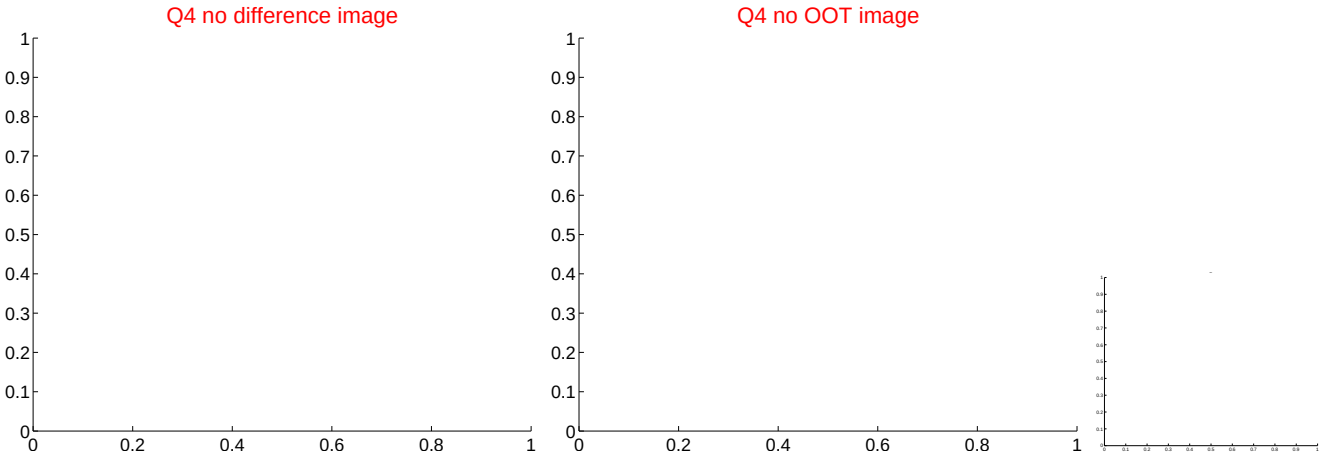
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one-σ uncertainty. Blue circle: three-σ. Red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

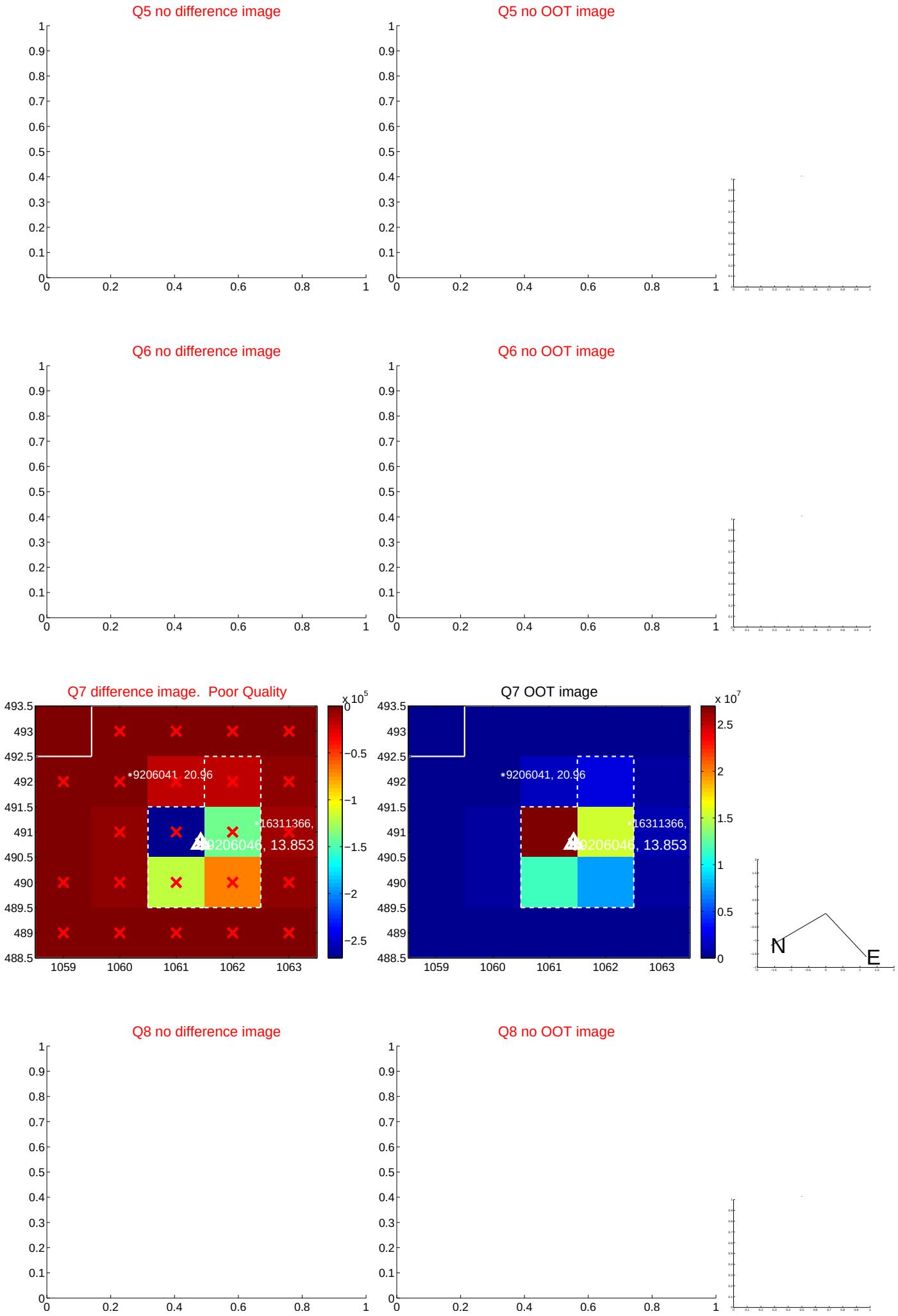




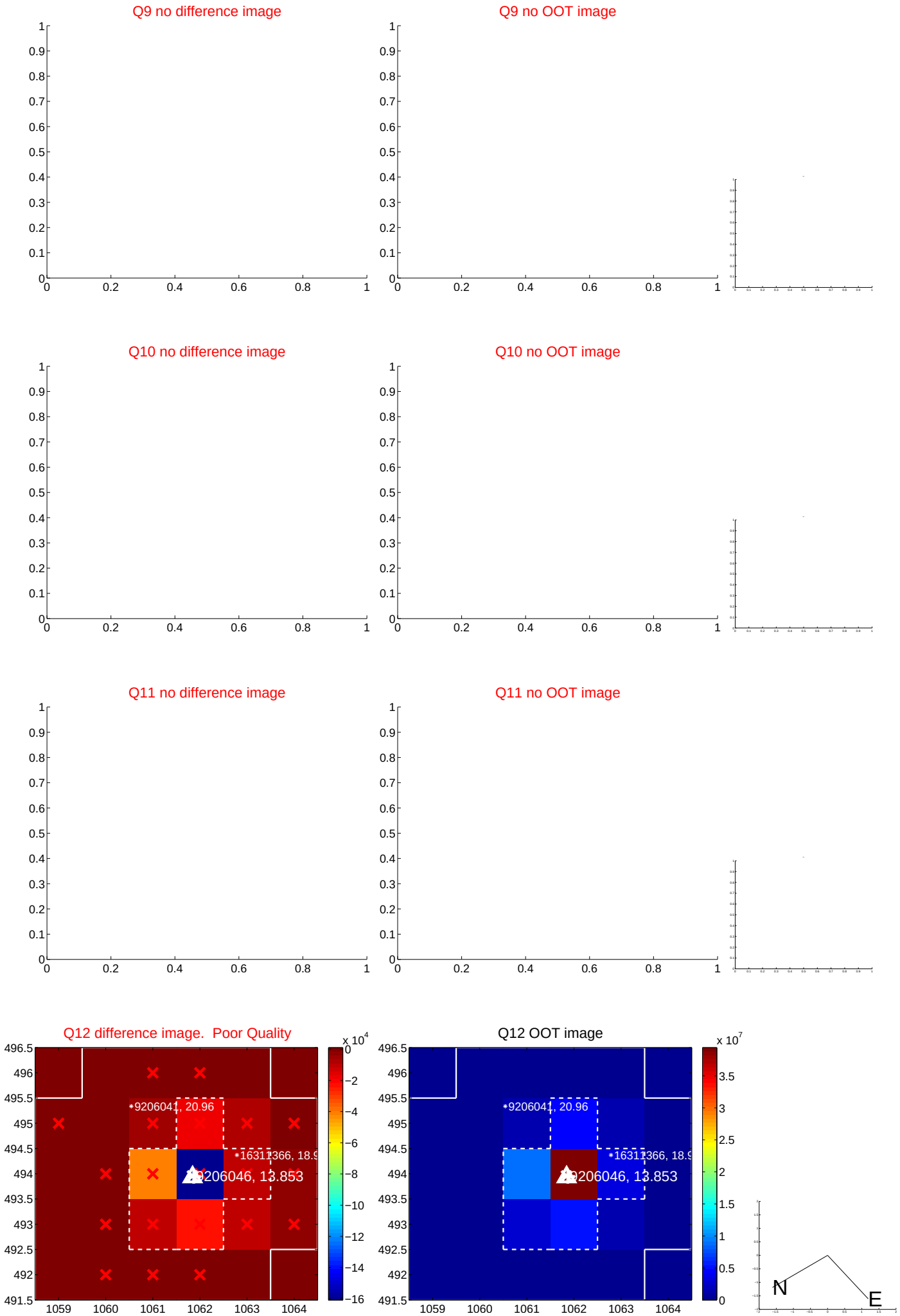




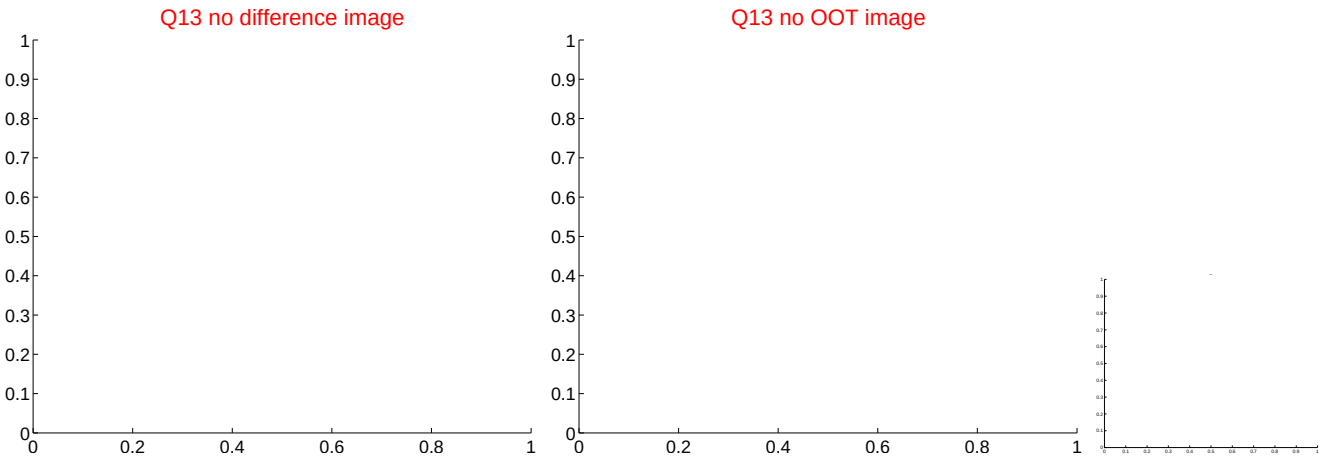
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.

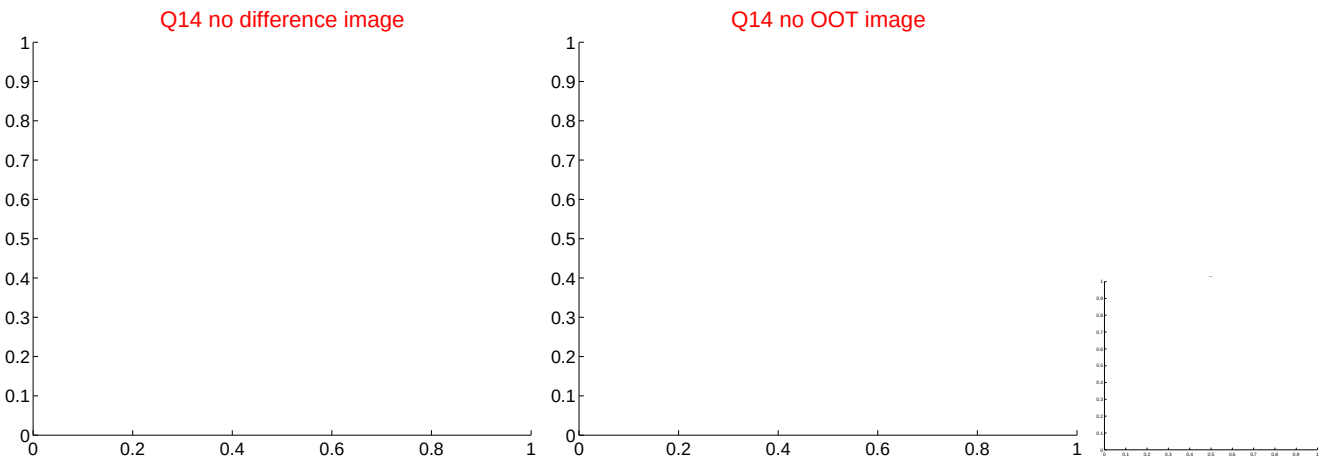


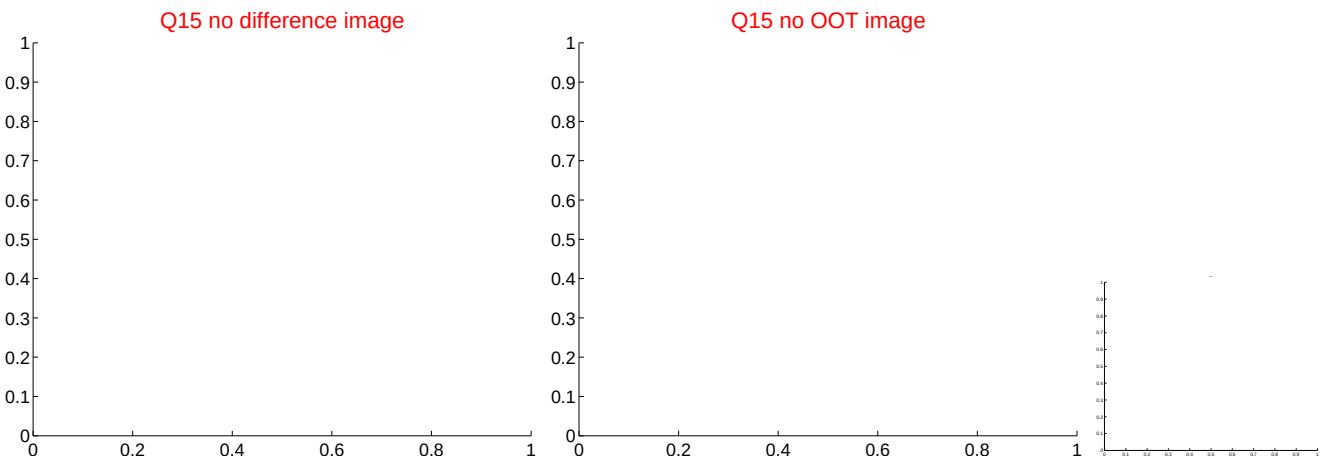
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.

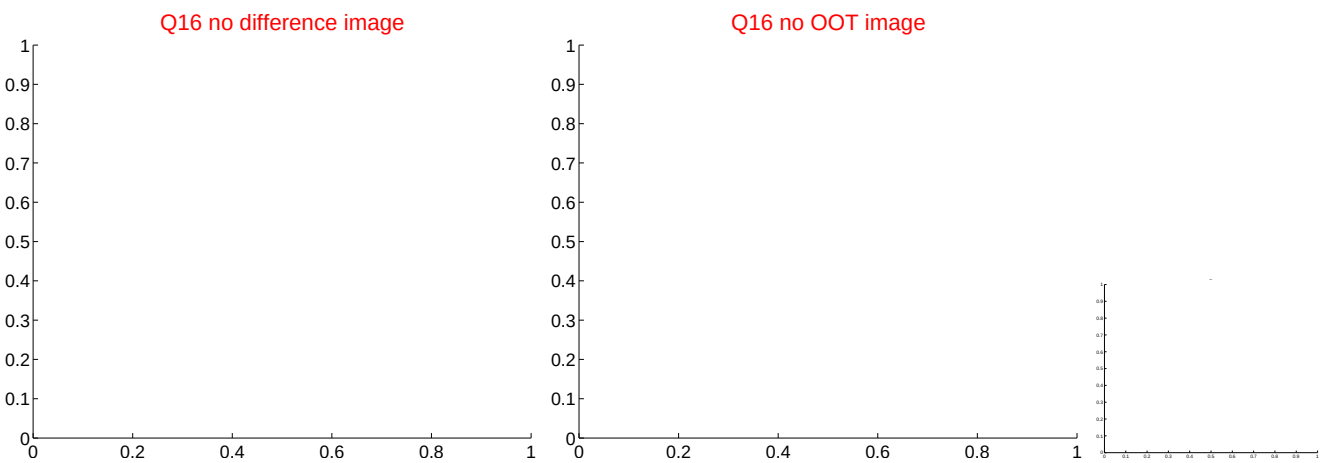


white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.

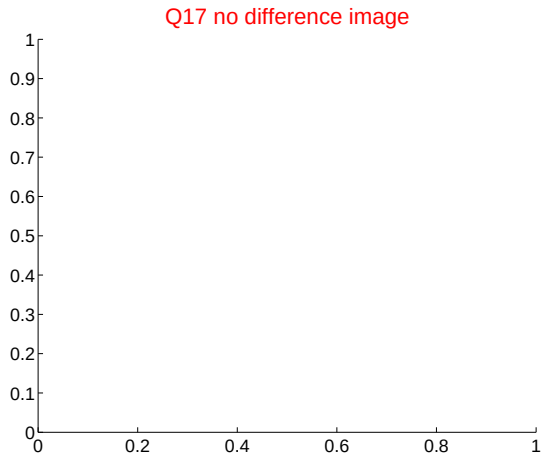


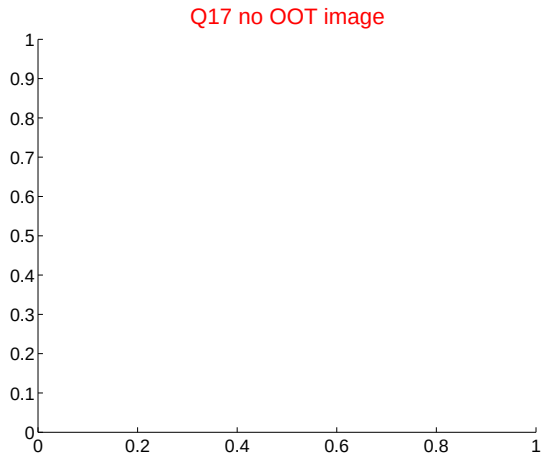


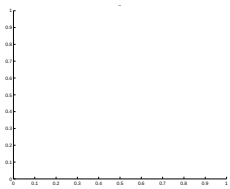


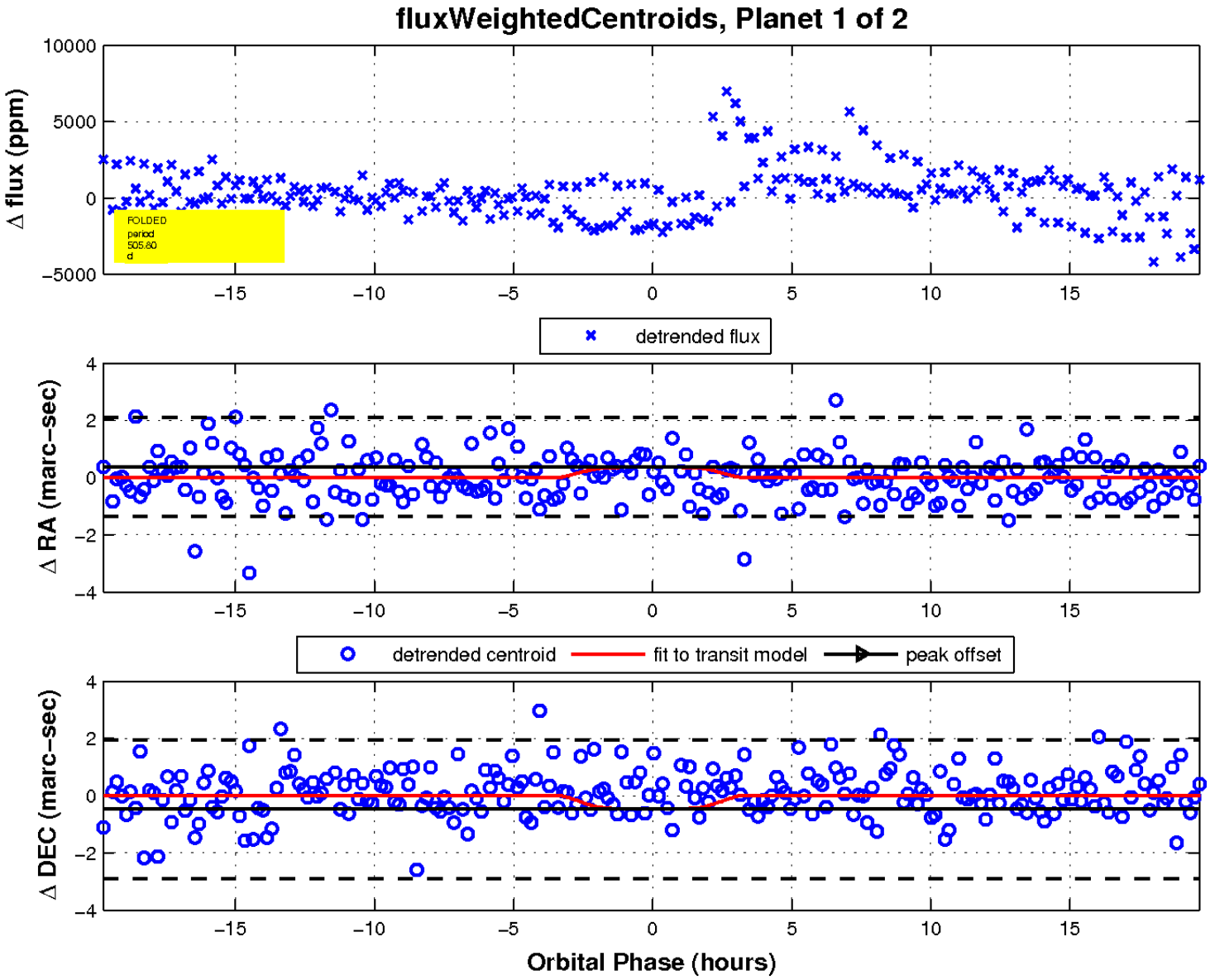


white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.

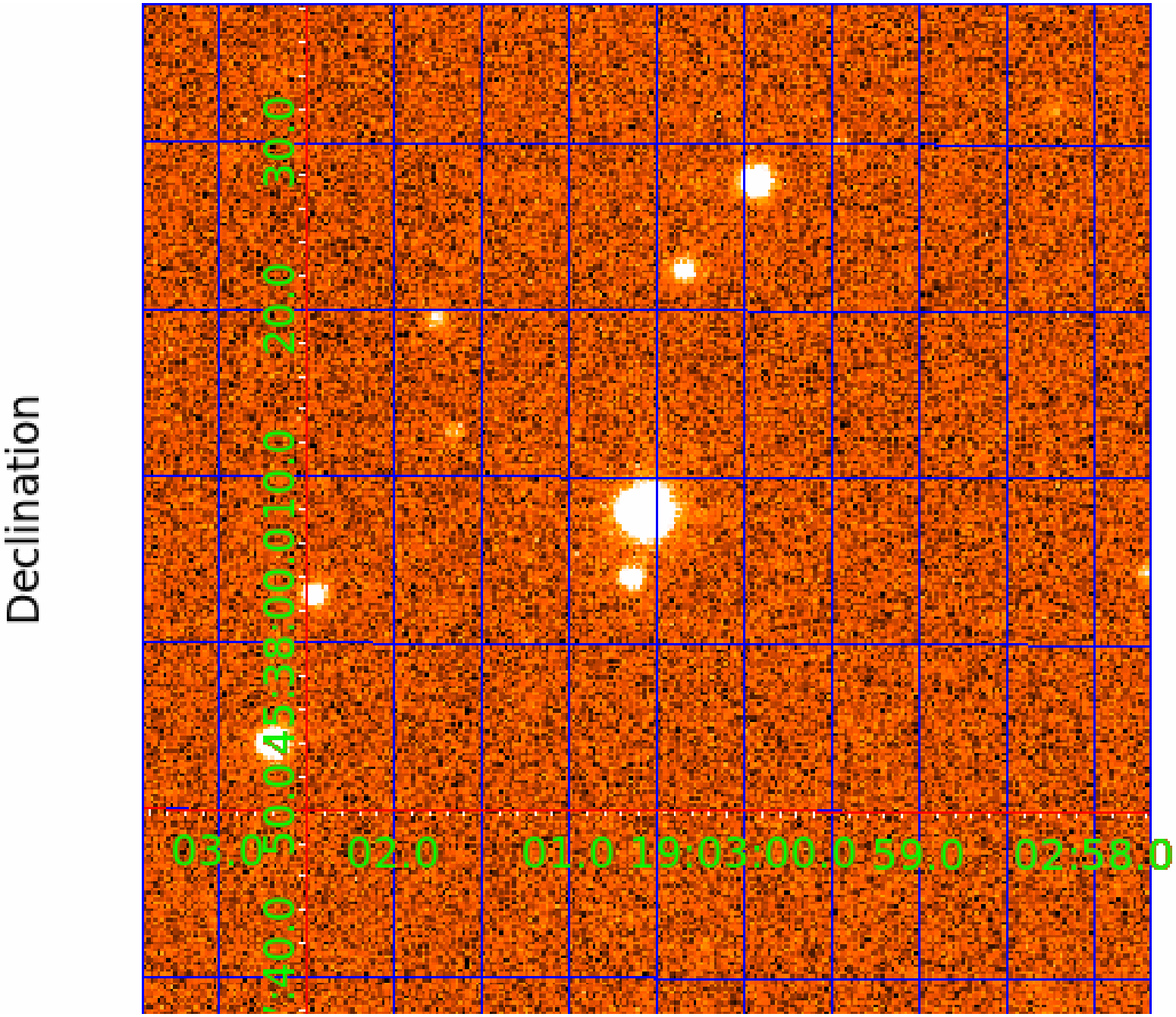








UKIRT Image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10.0
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02.0
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19:03:00.0
59.0
02:58.0

KIC 009206046

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 ($S_\oplus$)
009206046-01	OBS	No	505.804321	158.222395	2022.4	6.595	15.3	8.7	2.03	7511	10.72	5.81
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Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009206046-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_SKYE—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
009206046-02	OBS	FP	0.00	1	0	0	0	SWEET_NTL—LPP_DV—MOD_NONUNIQ_DV

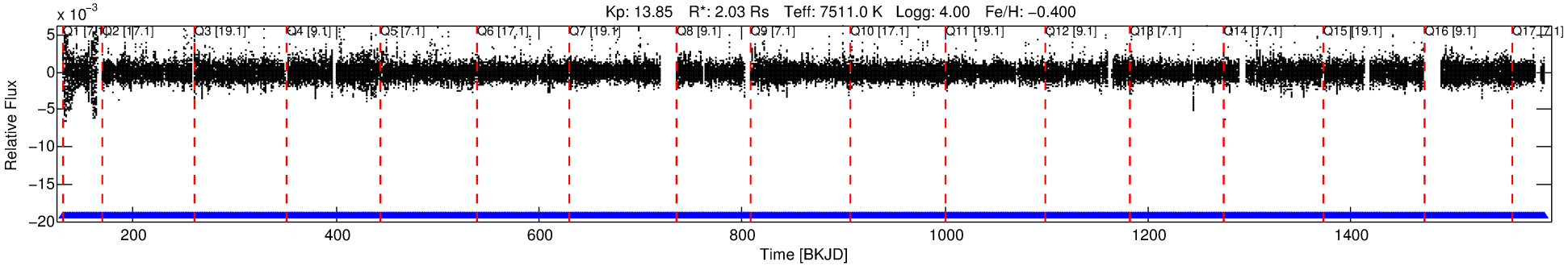
Notes: OBS = Observed. INJ = Injected. INV = Inverted. SCR = Scrambled.
N = Not Transit-Like. S = Stellar Eclipse. C = Centroid Offset. E = Ephemeris Match.
See `http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col` for comment definitions.

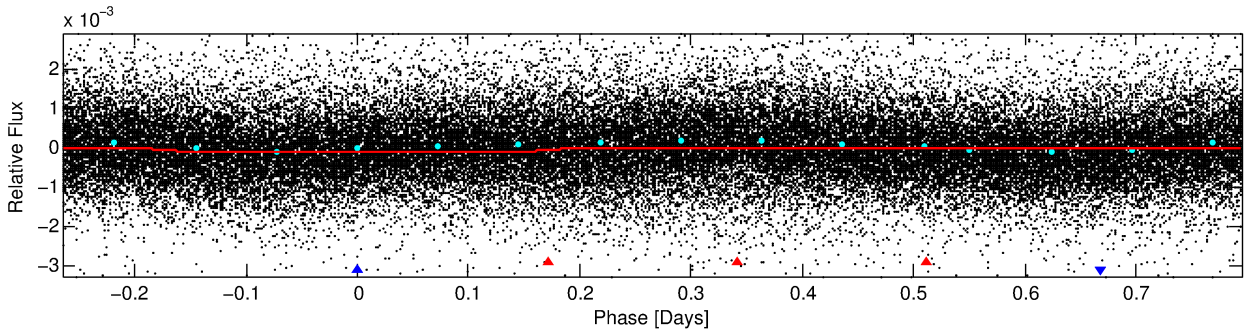
Ephemeris Match Information For 009206046-02

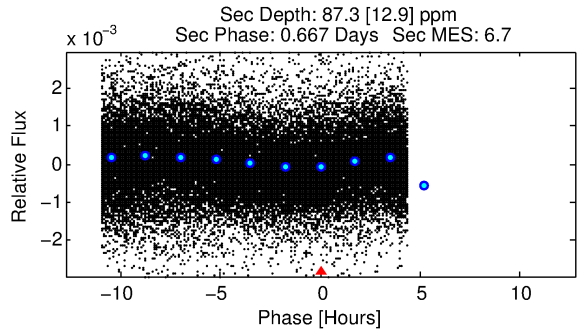
No Significant Match Found

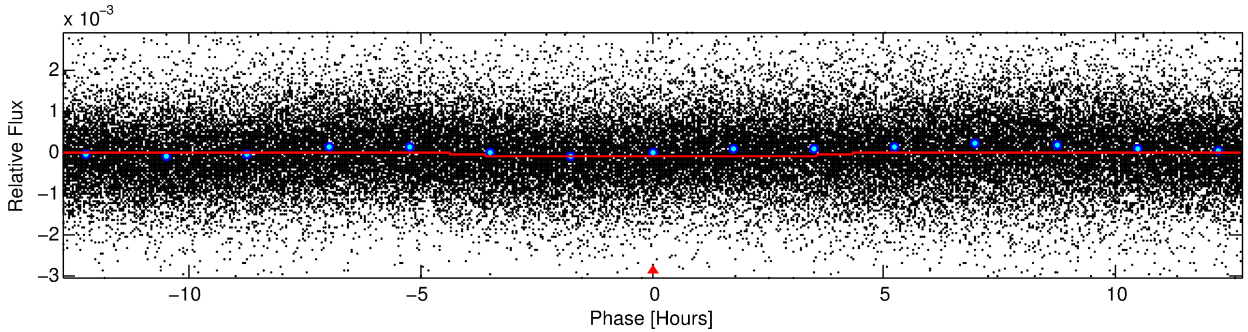
DV One-Page Summary

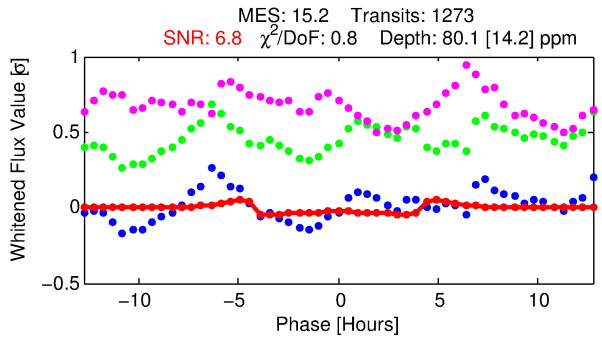
KIC: 9206046 Candidate: 2 of 2 Period: 1.060 d

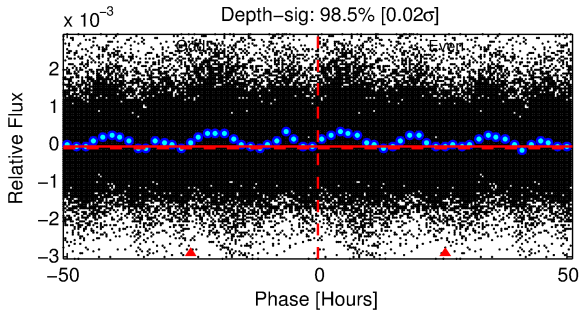


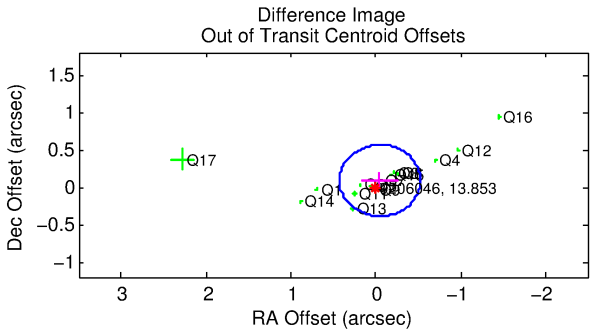












DV Fit Results:

Period = 1.06003 [0.00002] d
Epoch = 131.5505 [0.0043] BKJD
Rp/R* = 0.0086 [0.0057]
a/R* = 1.10 [0.81]
b = 0.57 [4.92]

Seff = 21651.85 [10760.96]
Teq = 3093 [384] K
Rp = 1.91 [1.43] Re
a = 0.0233 [0.0071] AU

Ag = 7.20 [10.25] [0.60σ]
Teffp = 7833 [2654] K [1.77σ]

DV Diagnostic Results:

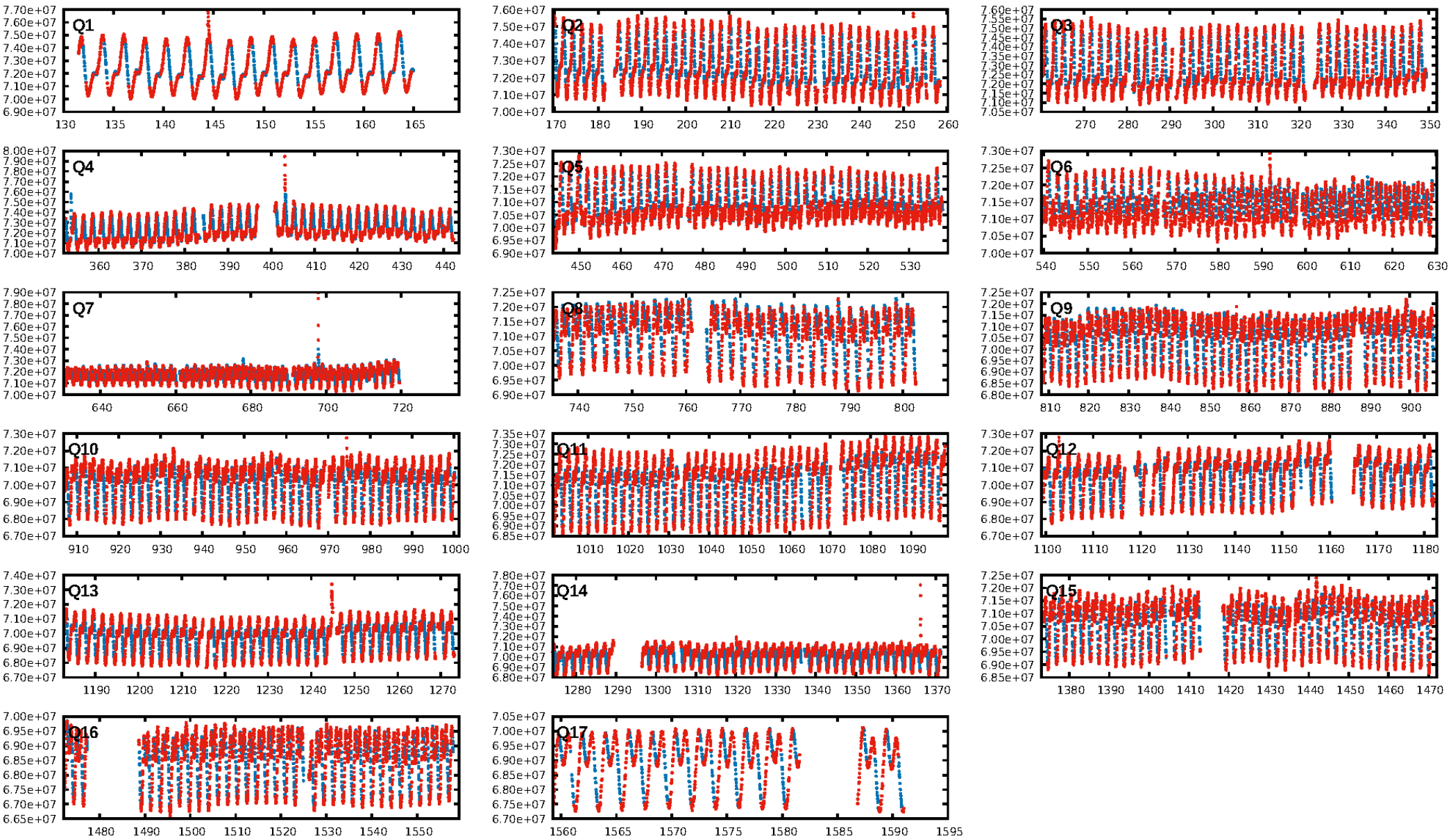
ShortPeriod−sig: N/A
LongPeriod−sig: 100.0% [1107.32σ]
ModelChiSquare2−sig: N/A
ModelChiSquareGof−sig: N/A
Bootstrap−pfa: N/A
RollingBand−fgt: 1.00 [1216/1216]
GhostDiagnostic−chr: 0.5682

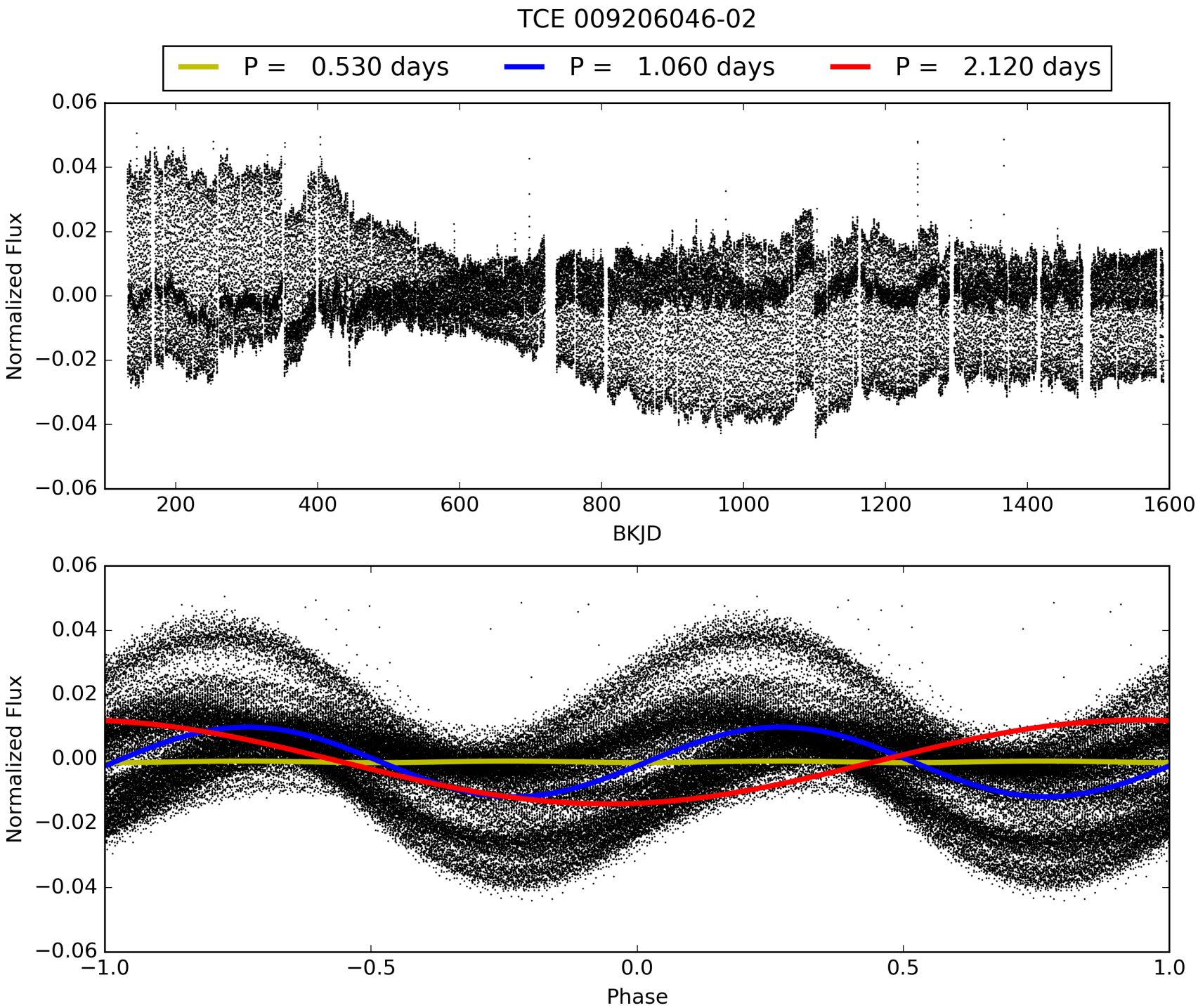
Centroid−sig: 2.3%
Centroid−so: 0.335 arcsec [1.54σ]
OotOffset−rm: 0.101 arcsec [0.64σ]
KicOffset−rm: 0.031 arcsec [0.14σ]
OotOffset−st: 2/4/4/5 [15]
KicOffset−st: 2/4/4/5 [15]
DiffImageQuality−fgm: 0.87 [13/15]
DiffImageOverlap−fno: 1.00 [17/17]

Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29−Jan−2016 11:06:06 Z

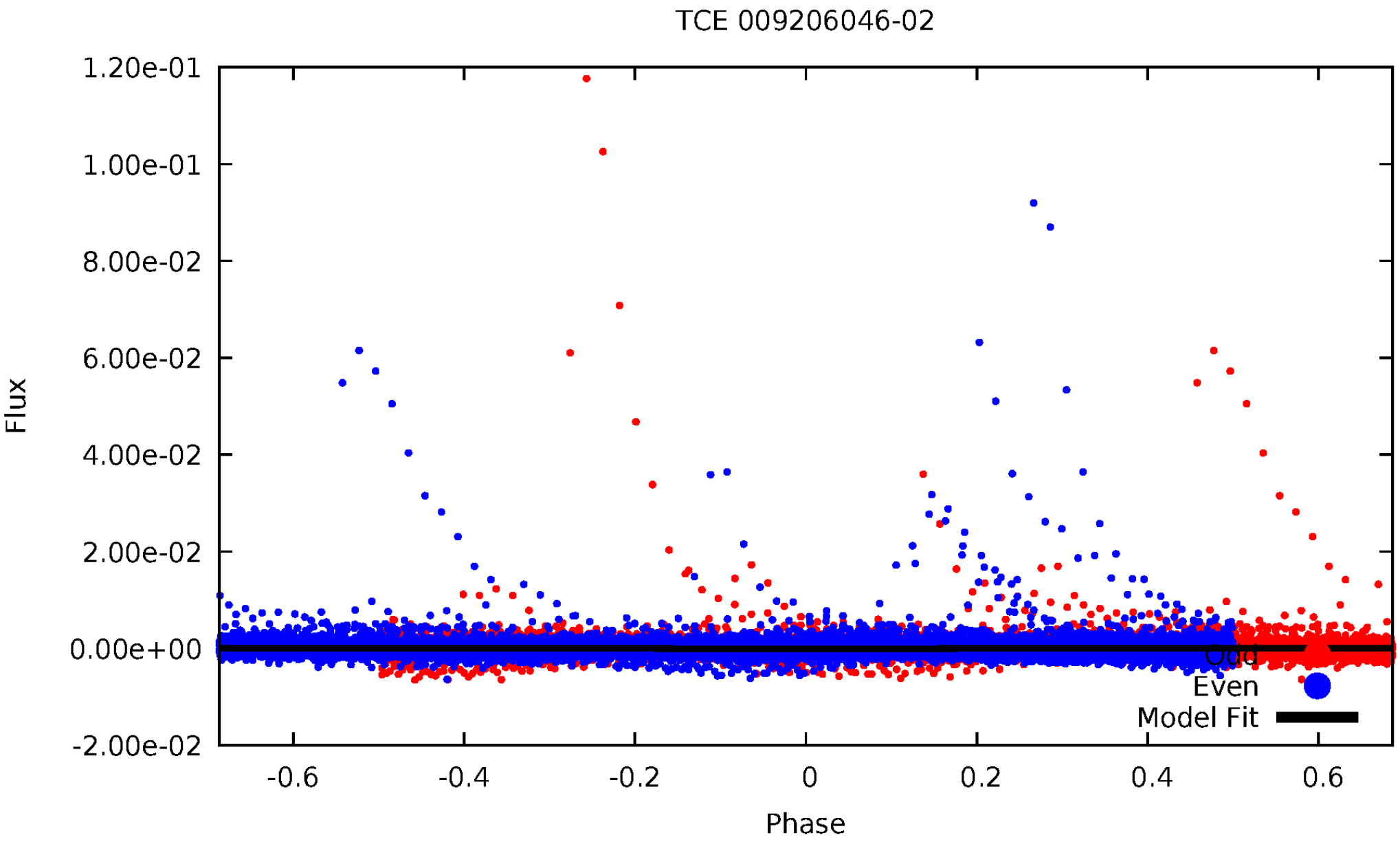
This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

TCE 009206046-02, PDC Light Curves

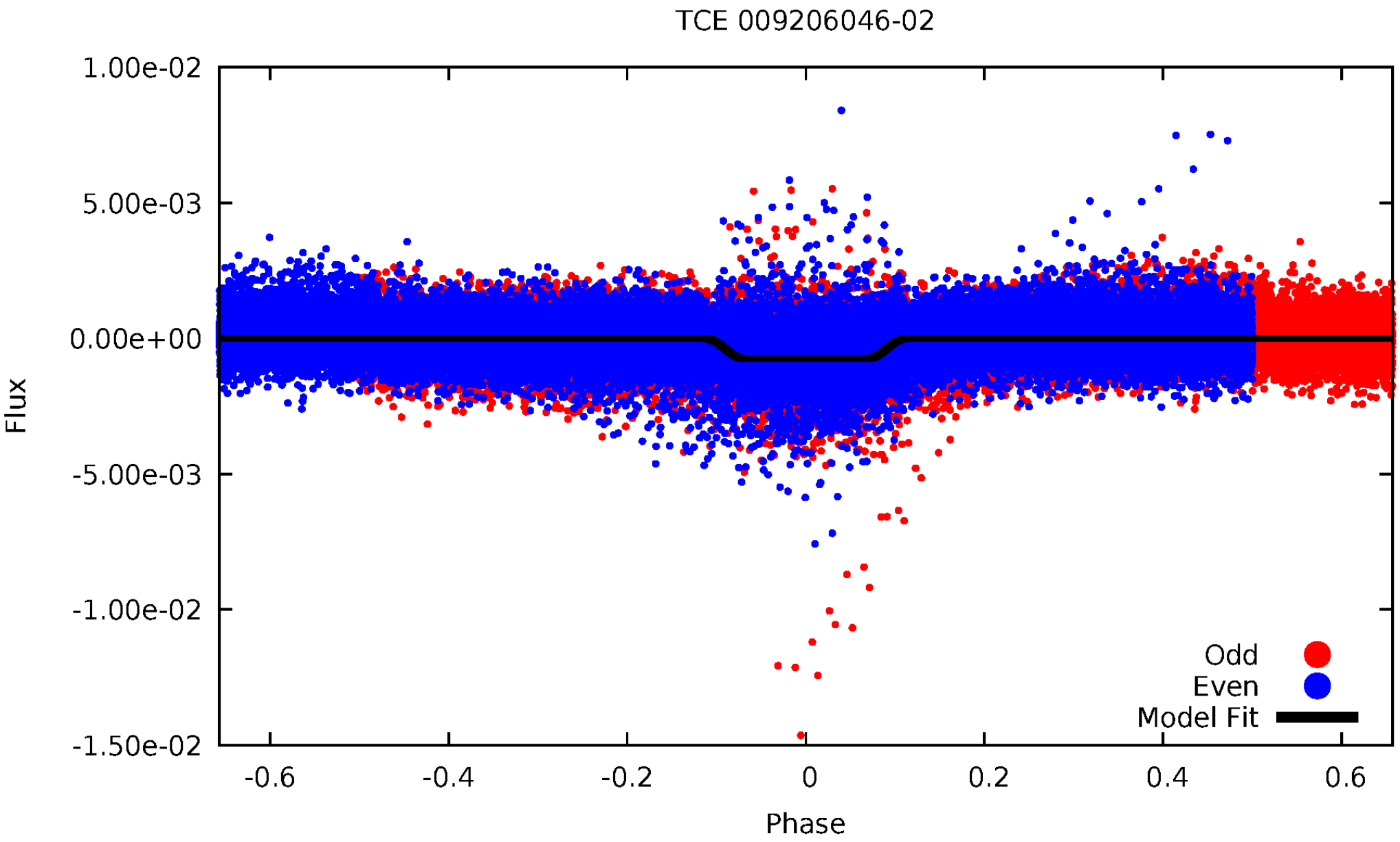



TCE 009206046-02
P = 0.530 days
P = 1.060 days
P = 2.120 days
Normalized Flux
BKJD
Normalized Flux
Phase

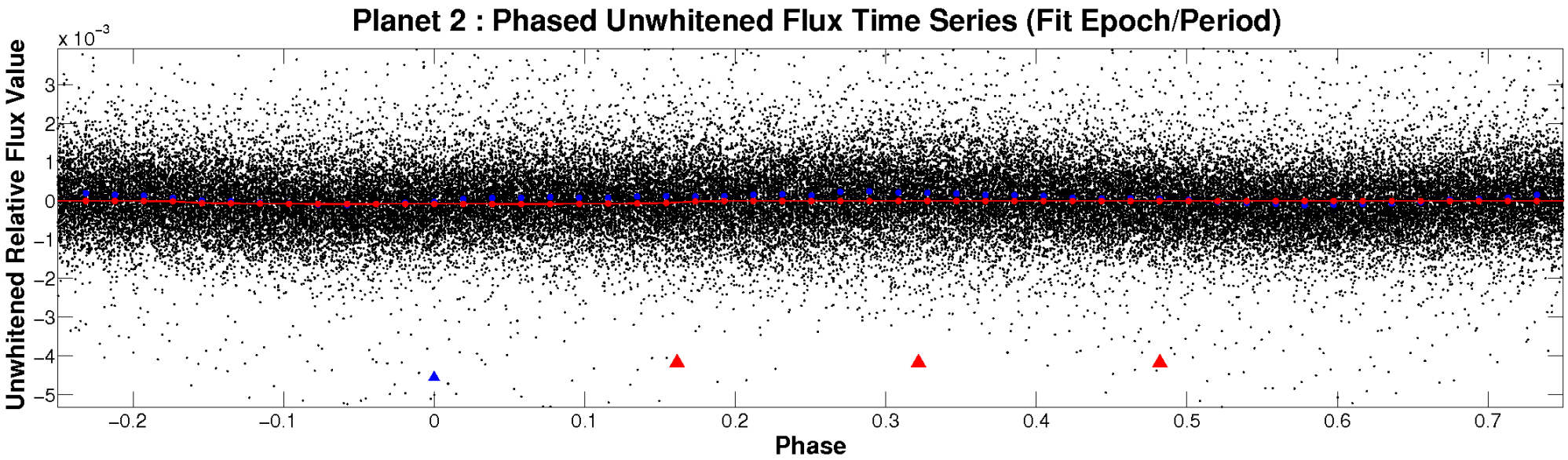
DV Odd/Even

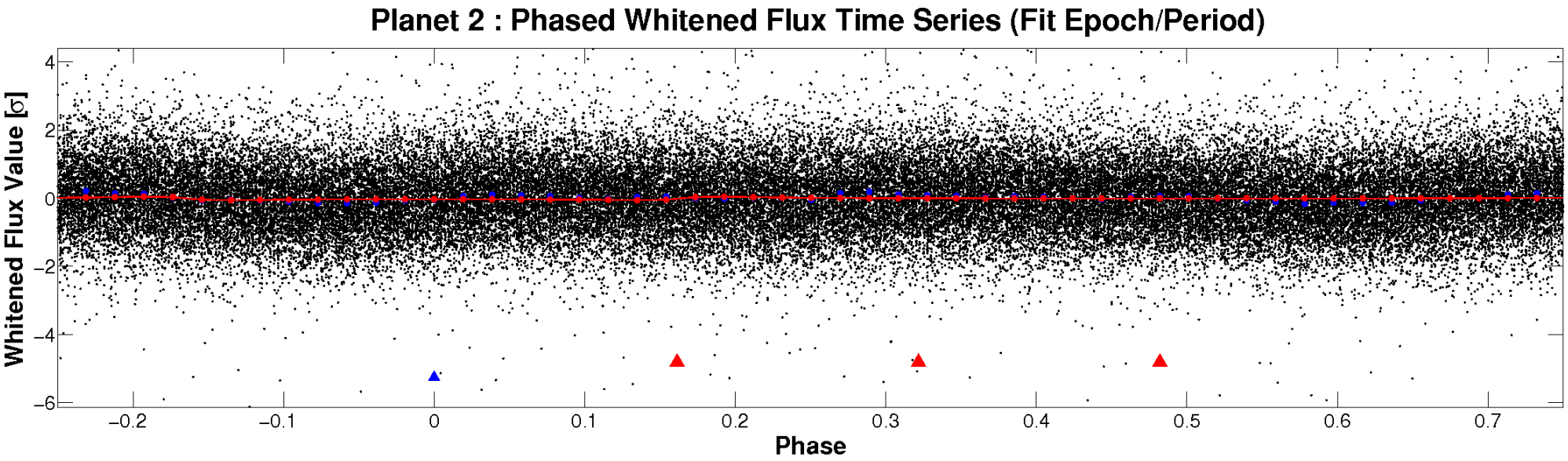

TCE 009206046-02
1.20e-01
1.00e-01
8.00e-02
6.00e-02
4.00e-02
2.00e-02
0.00e+00
-2.00e-02
Flux
-0.6
-0.4
-0.2
0
0.2
0.4
0.6
Phase
Odd
Even
Model Fit

ALT Odd/Even


TCE 009206046-02
1.00e-02
5.00e-03
0.00e+00
-5.00e-03
-1.00e-02
-1.50e-02
Flux
-0.6
-0.4
-0.2
0
0.2
0.4
0.6
Phase
Odd
Even
Model Fit

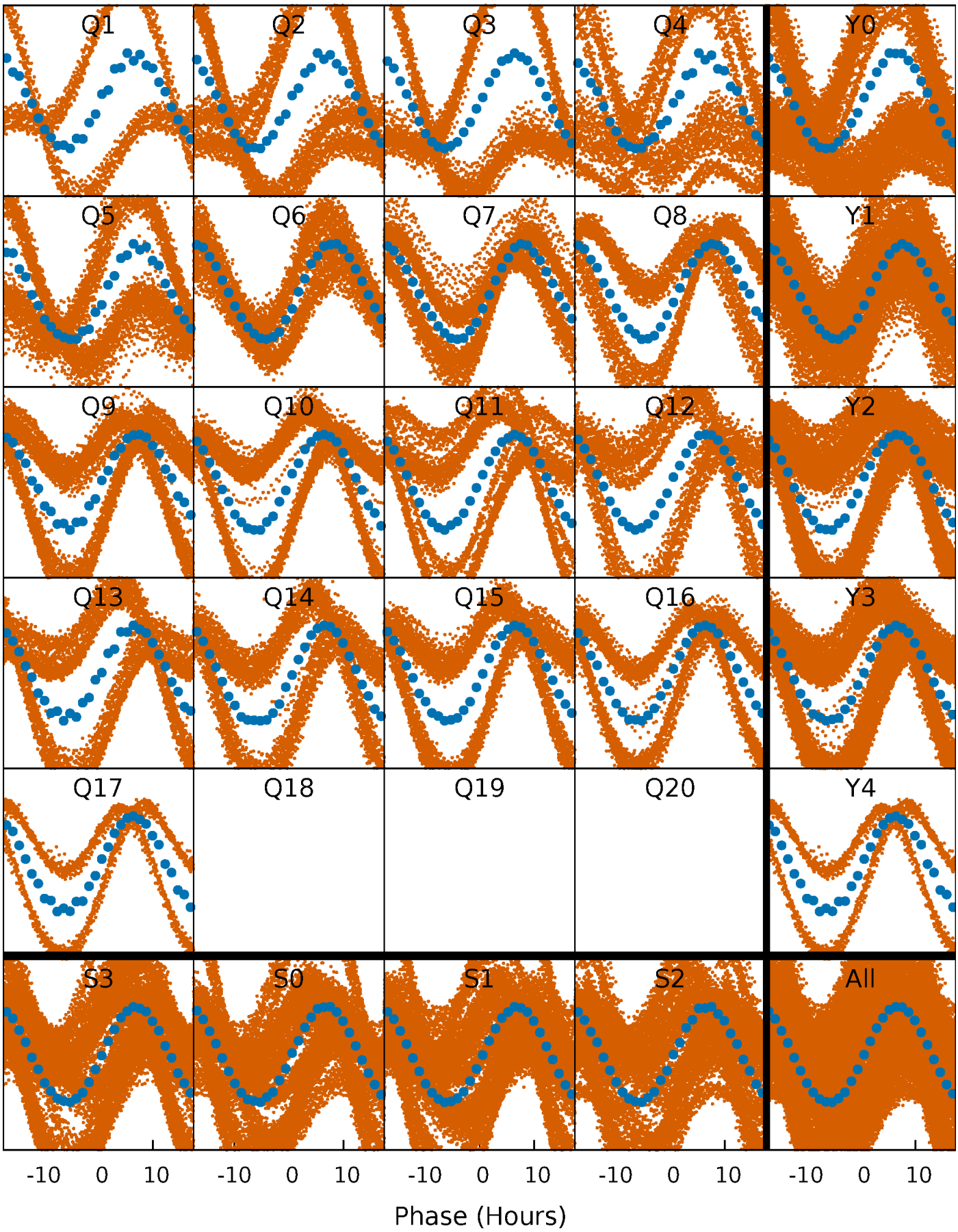
Non-Whitened Vs. Whitened Light Curve





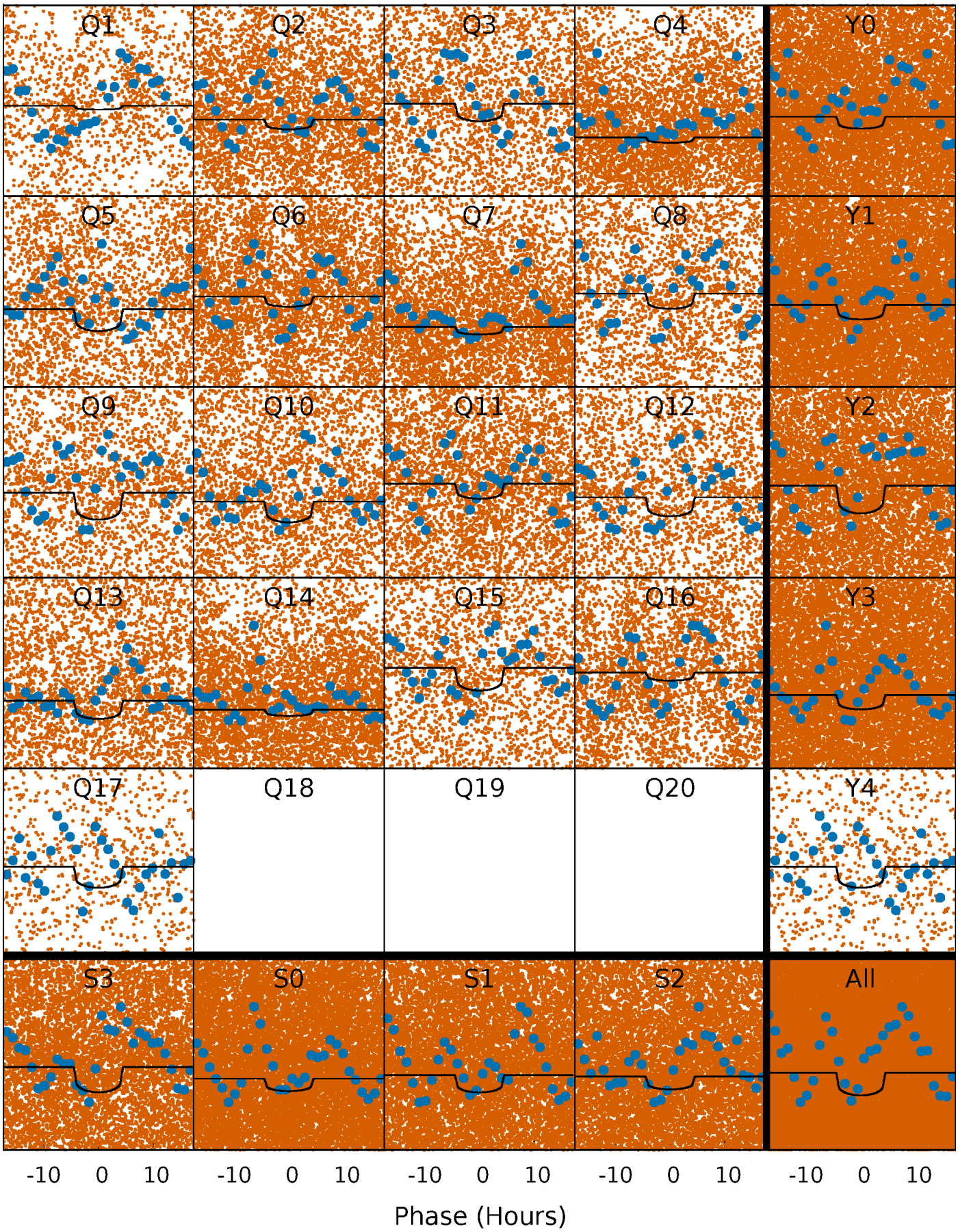
PDC Quarter-Phased Transit Curves

TCE 009206046-02 P= 1.060030 Days T_0=131.550542 (BKJD)



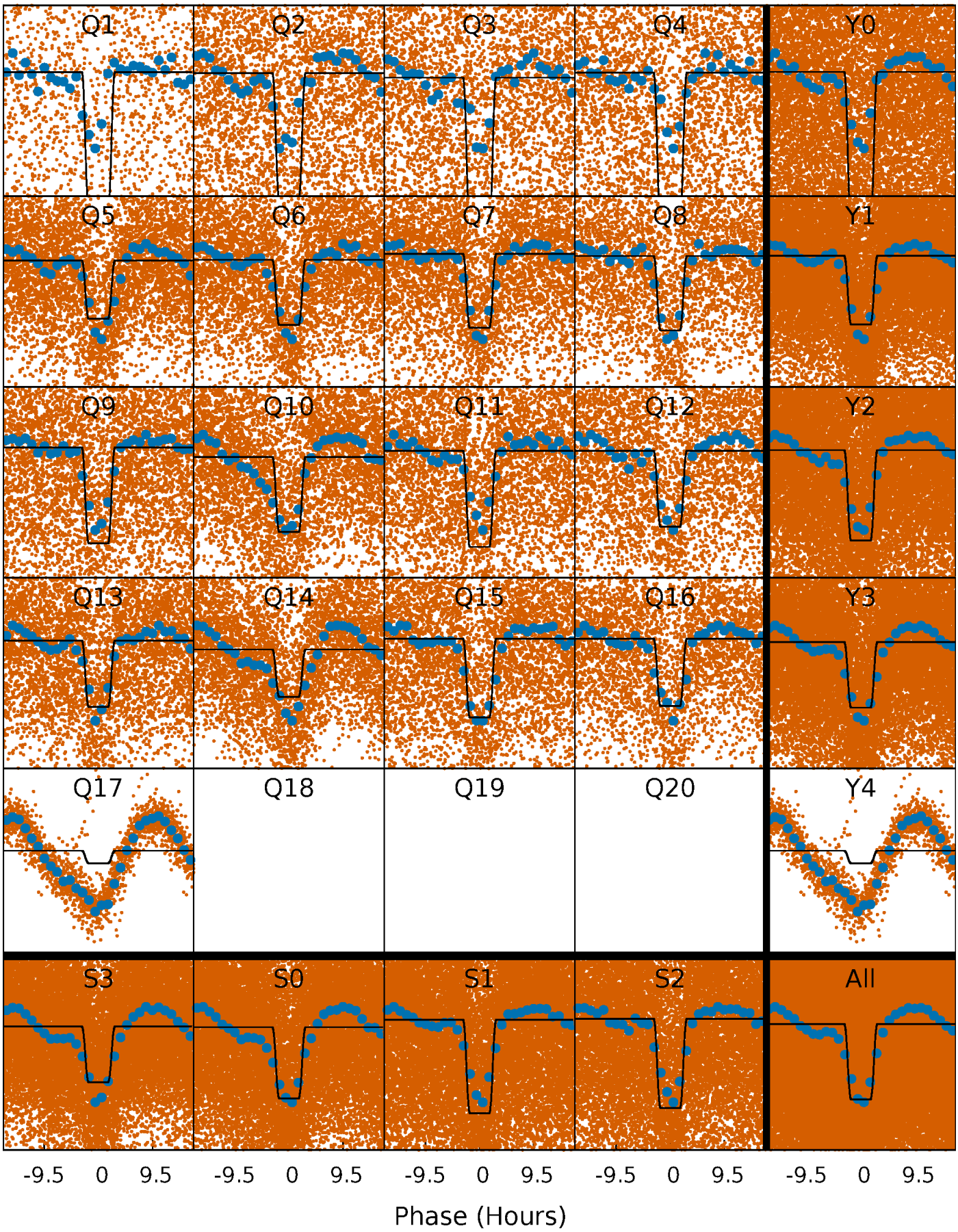
DV Quarter-Phased Transit Curves

TCE 009206046-02 P= 1.060030 Days T_0=131.550542 (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

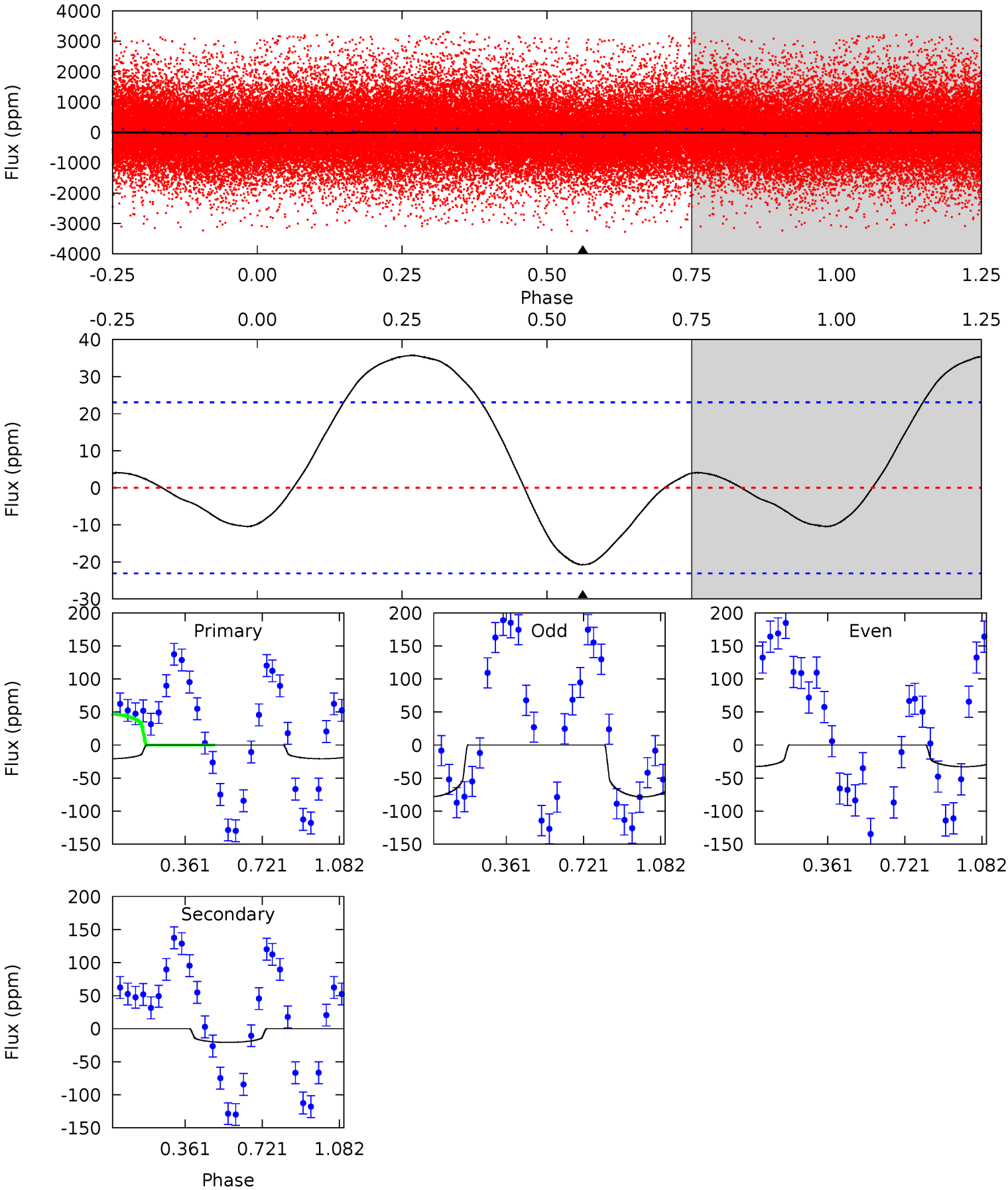
TCE 009206046-02 P= 1.059966 Days T_0=131.506158 (BKJD)



DV Model-Shift Uniqueness Test

009206046-02, P = 1.060030 Days, E = 130.490512 Days

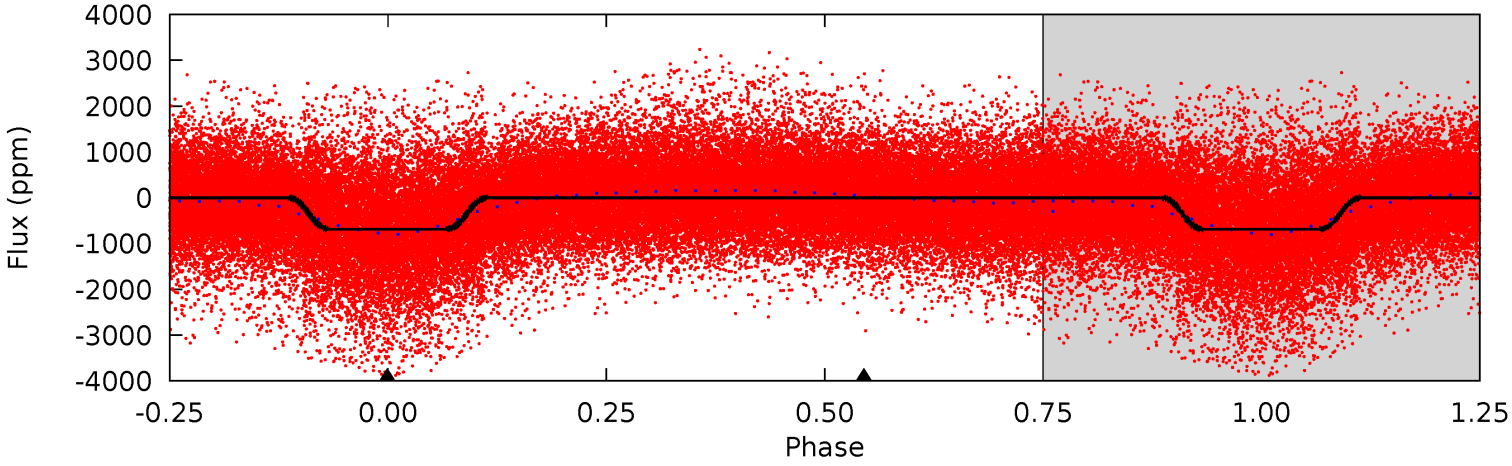
Pri	Sec	Ter	Pos	FA_1	FA_2	F_{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
3.86	3.86	0	0	4.29	0.91	2.74	3.86	3.86	3.86	3.86	4.30	-1.07	0.63	4.29

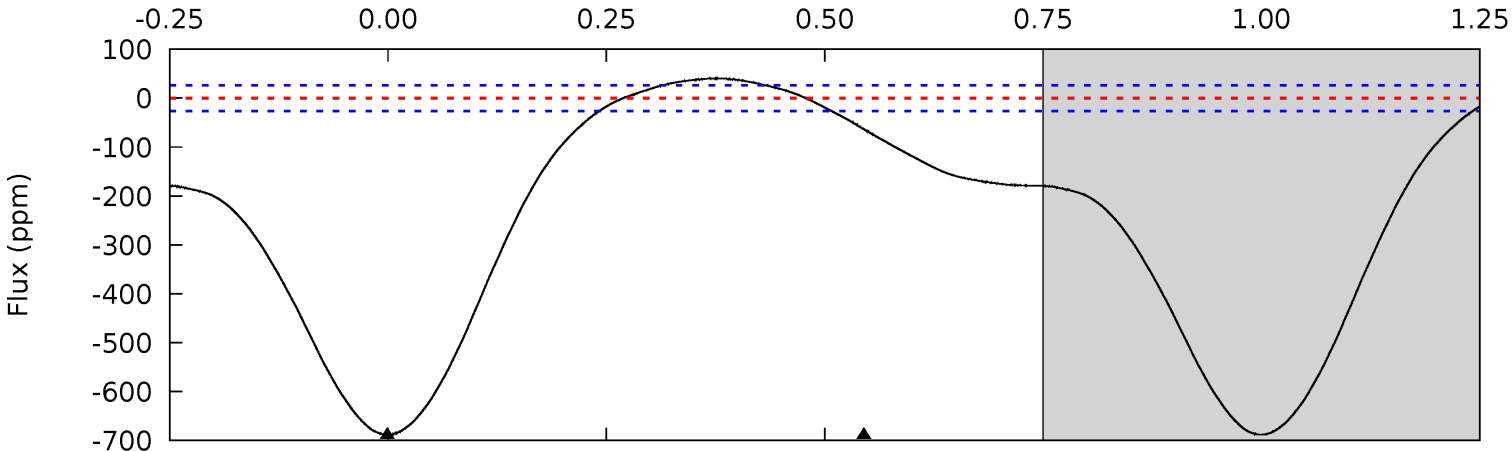


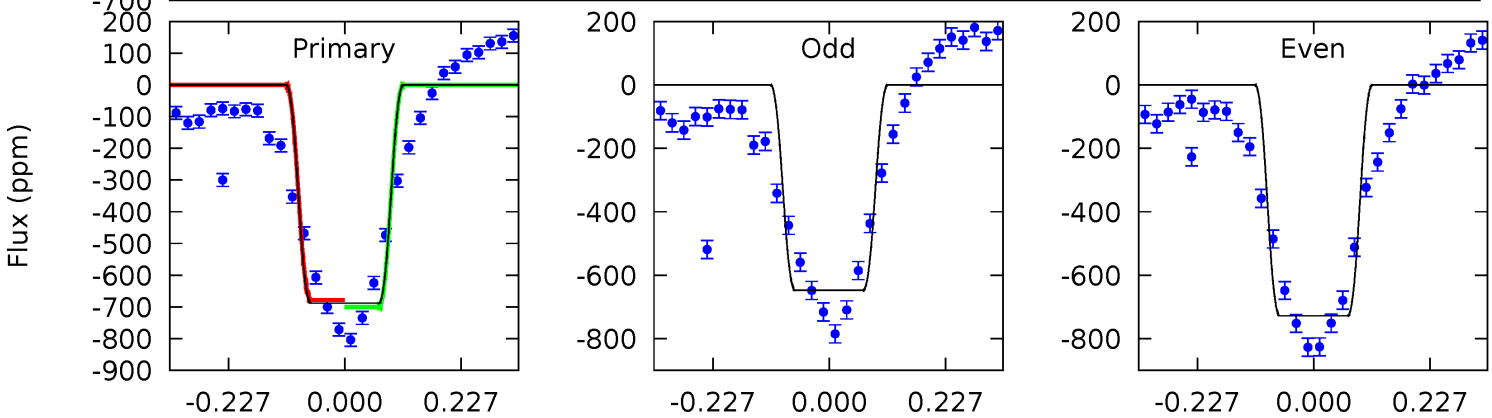
Alt Model-Shift Uniqueness Test

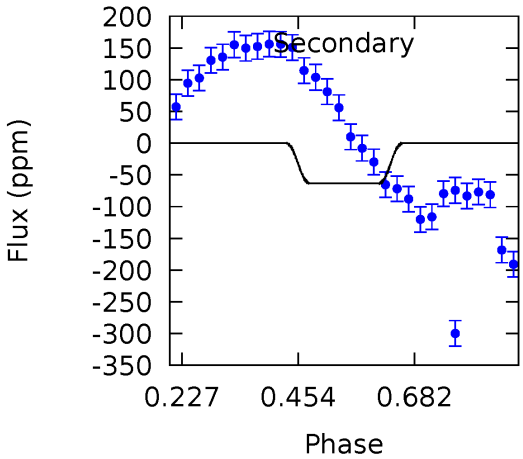
009206046-02, P = 1.059966 Days, E = 131.506158 Days

Pri	Sec	Ter	Pos	FA_1	FA_2	F_{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
114.2	10.6	0	0	4.39	1.21	7.28	114.2	114.2	10.6	10.6	6.66	1.05	0.06	1.79









Stellar Parameters For KIC 009206046

	$T_{\rm eff}(K)$	$\log(g)$	[Fe/H]	R ($R_\odot$)	$M(M_\odot)$	$p_\star$ (g·cm^{-3})
	7511^{+233}_{-311}	$4.000^{+0.267}_{-0.144}$	$-0.400^{+0.250}_{-0.350}$	$2.034^{+0.520}_{-0.693}$	$1.509^{+0.198}_{-0.272}$	$0.252^{+0.457}_{-0.109}$
	+3%/-4%	+7%/-4%	+62%/-87%	+26%/-34%	+13%/-18%	+181%/-43%
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 009206046-02 / KOI

Detrend	Depth (ppm)	R_p ($R_\oplus$)	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-21±5	$1.86^{+1.30}_{-1.05}$	4262^{+322}_{-356}	5069^{+2901}_{-1331}	$1.702^{+6.571}_{-1.121}$
Alt.	-64±6	$5.93^{+1.59}_{-1.63}$	4256^{+338}_{-377}	3666^{+606}_{-890}	$0.546^{+0.450}_{-0.216}$

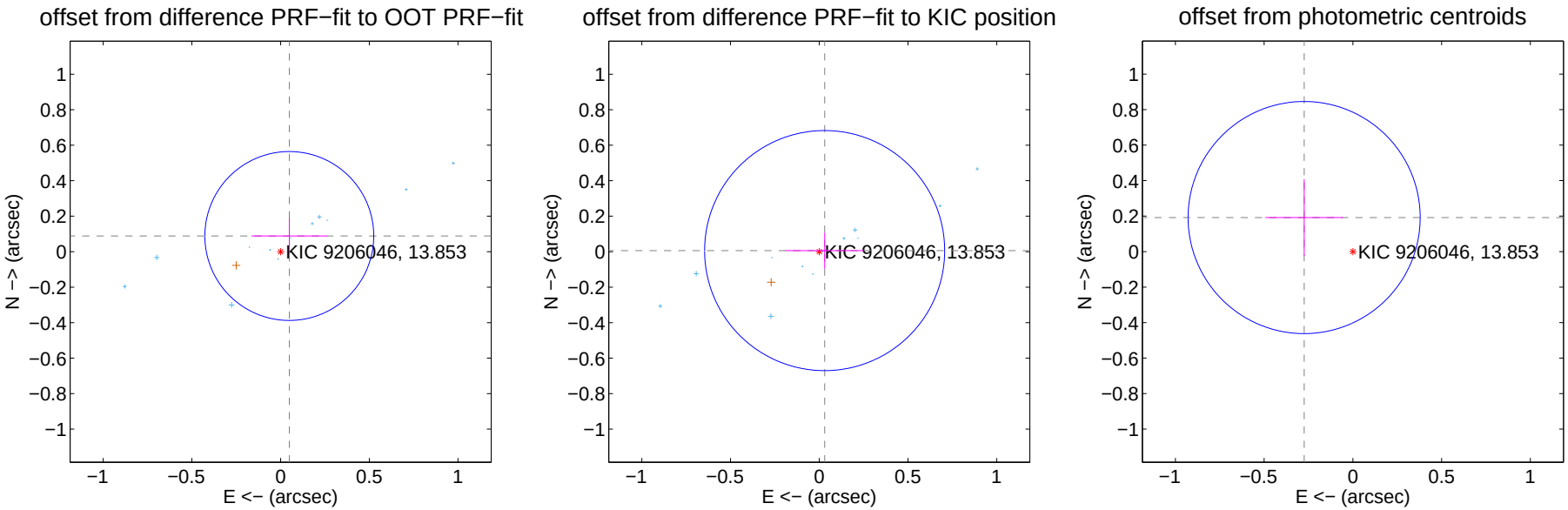
T_{max} = Theoretical Maximum Planetary Temperature
T_{obs} = Observed Planetary Temperature (Assuming A=0.3)
A_{obs} = Observed Albedo (Assuming T=0)

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

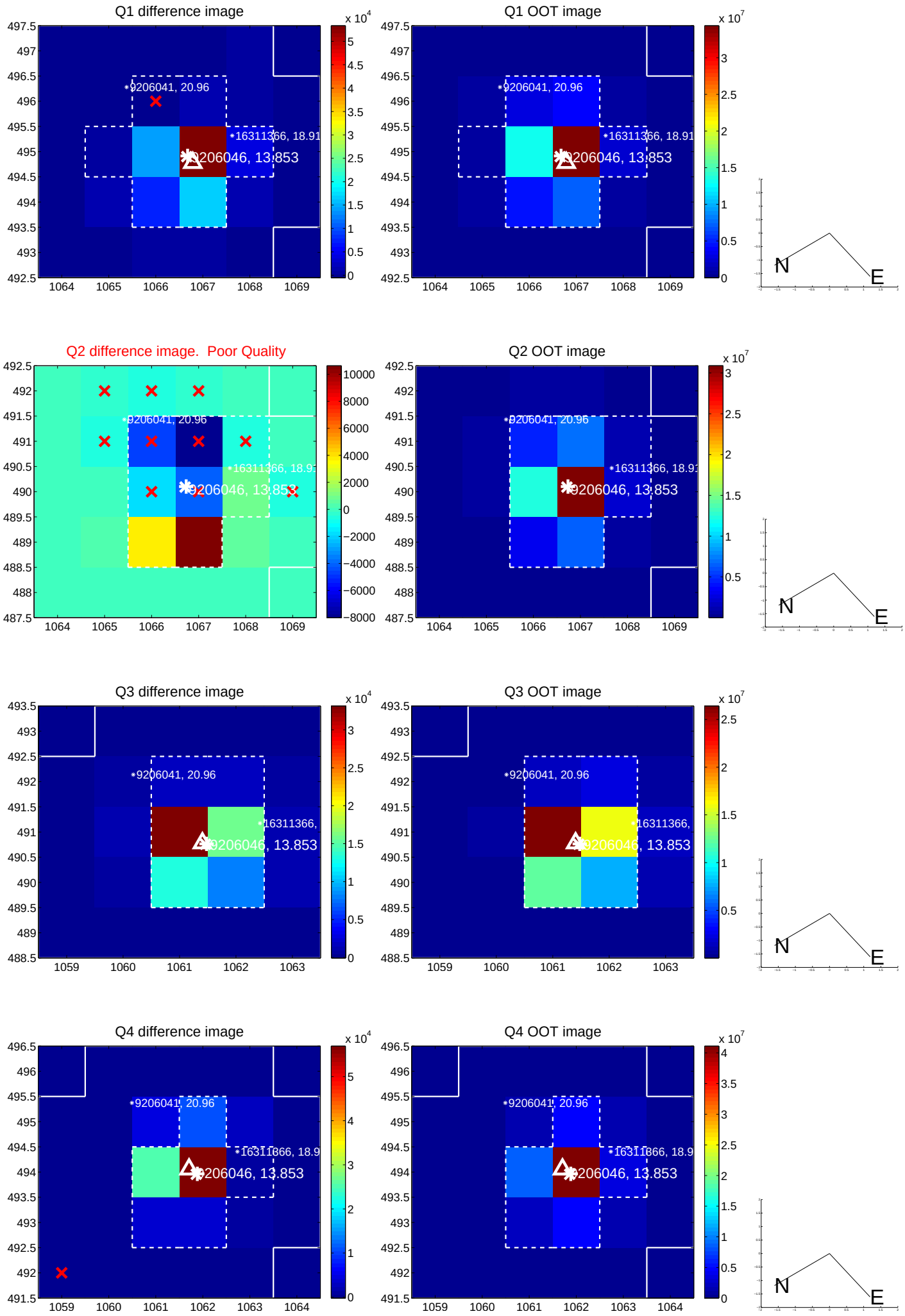
Supplemental centroid analysis for 009206046-02. Kepler magnitude: 13.85. Transit SNR 6.82
There are 13 quarters with good PRF difference image offsets
The direct PRF centroid is offset from the target star catalog position by about 0.10 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.101 ± 0.159	0.64	-0.049 ± 0.213	0.088 ± 0.104
PRF-fit source offset from KIC position	0.031 ± 0.226	0.14	-0.030 ± 0.222	0.006 ± 0.101
photometric centroid source offset	0.34 ± 0.22	1.54	0.27 ± 0.22	0.19 ± 0.22

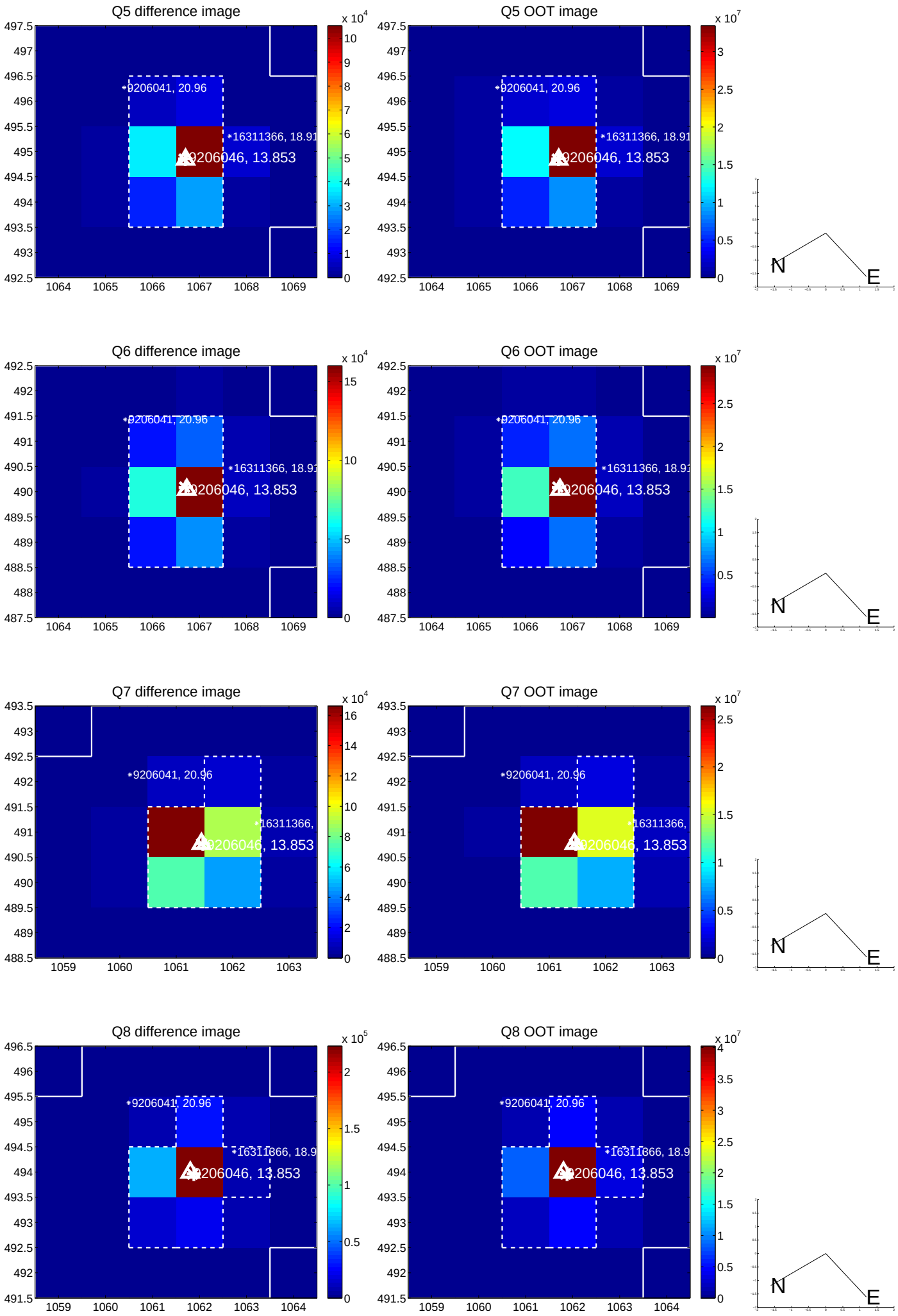


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one-σ uncertainty. Blue circle: three-σ. Red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

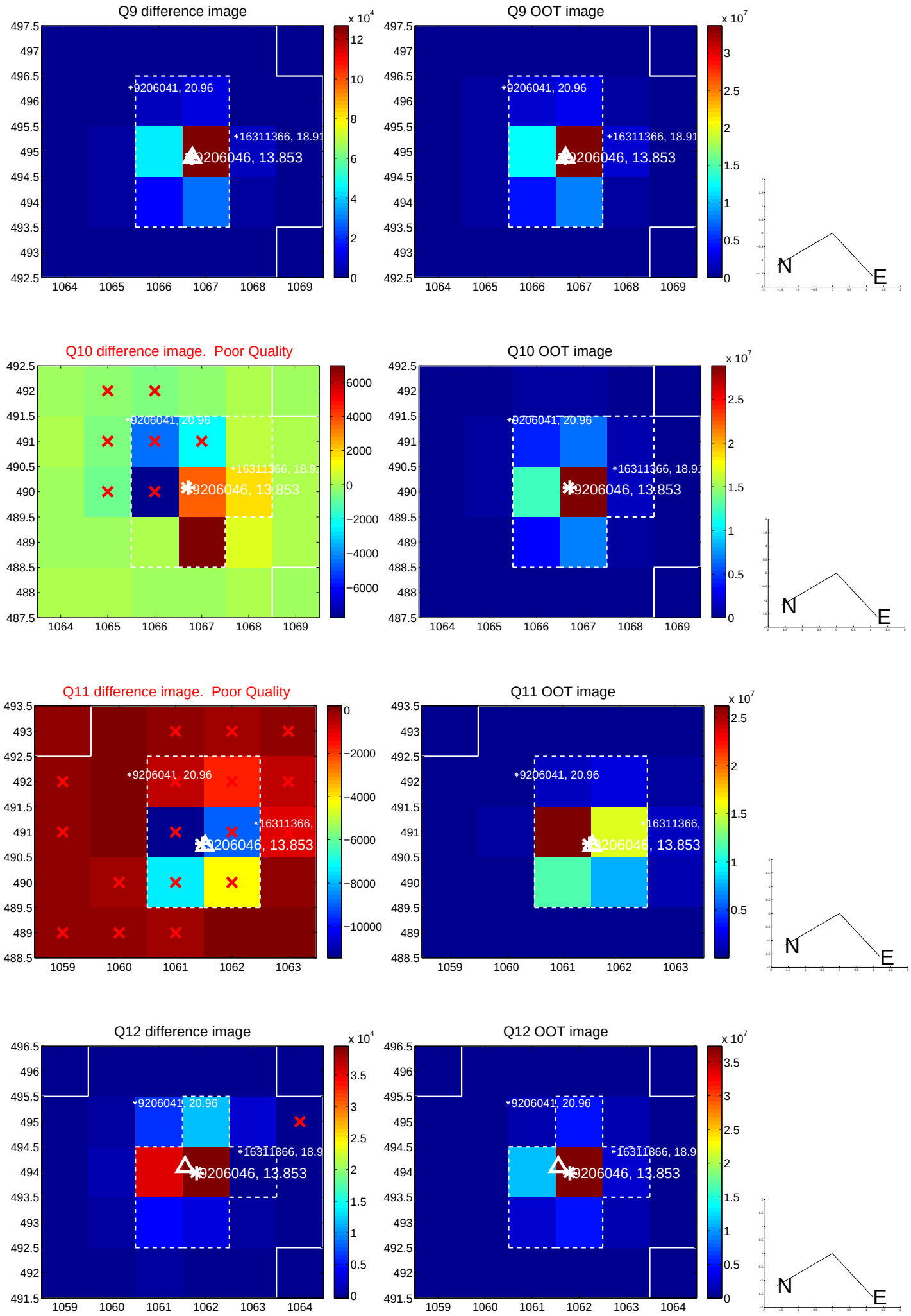
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.



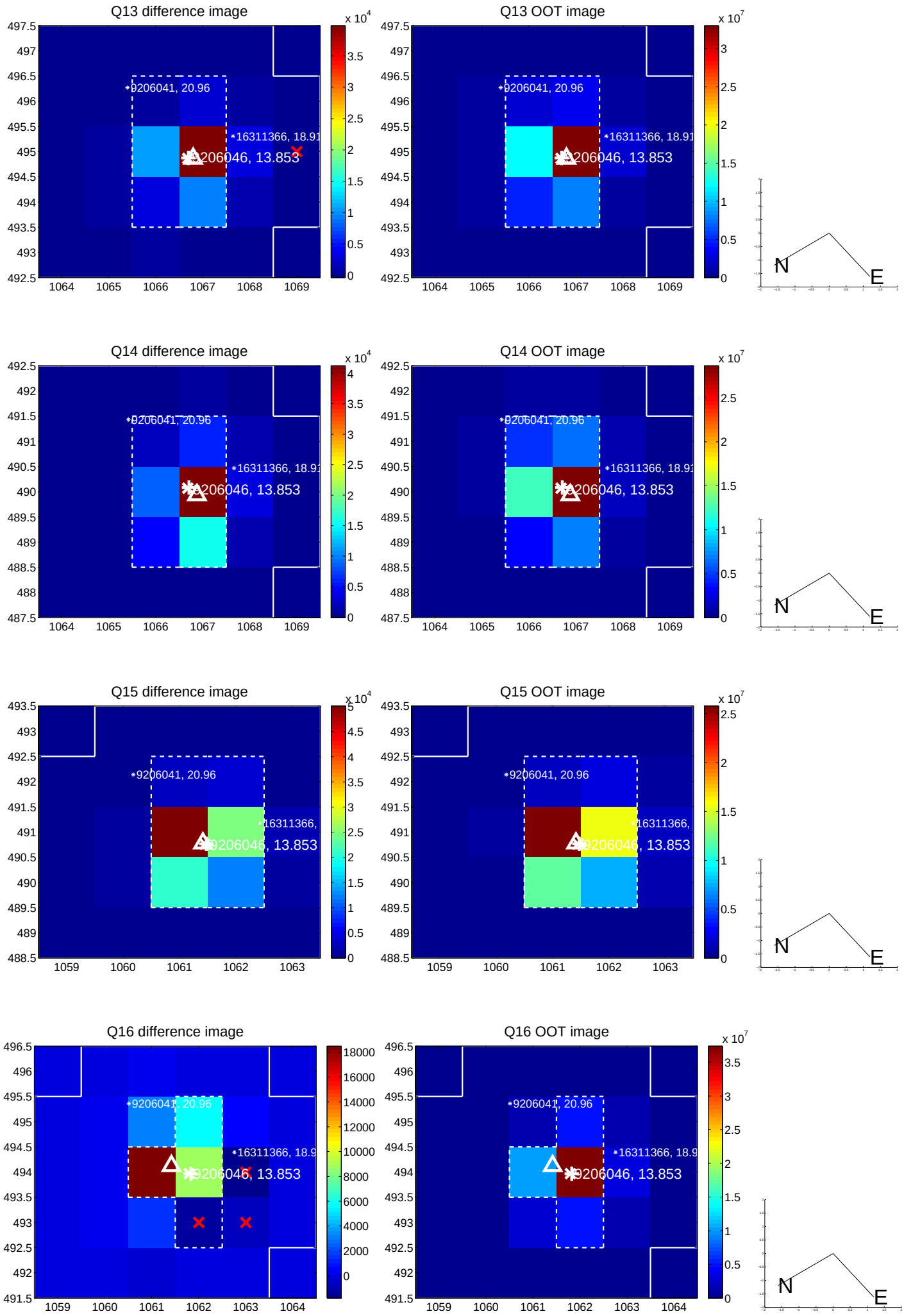
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.



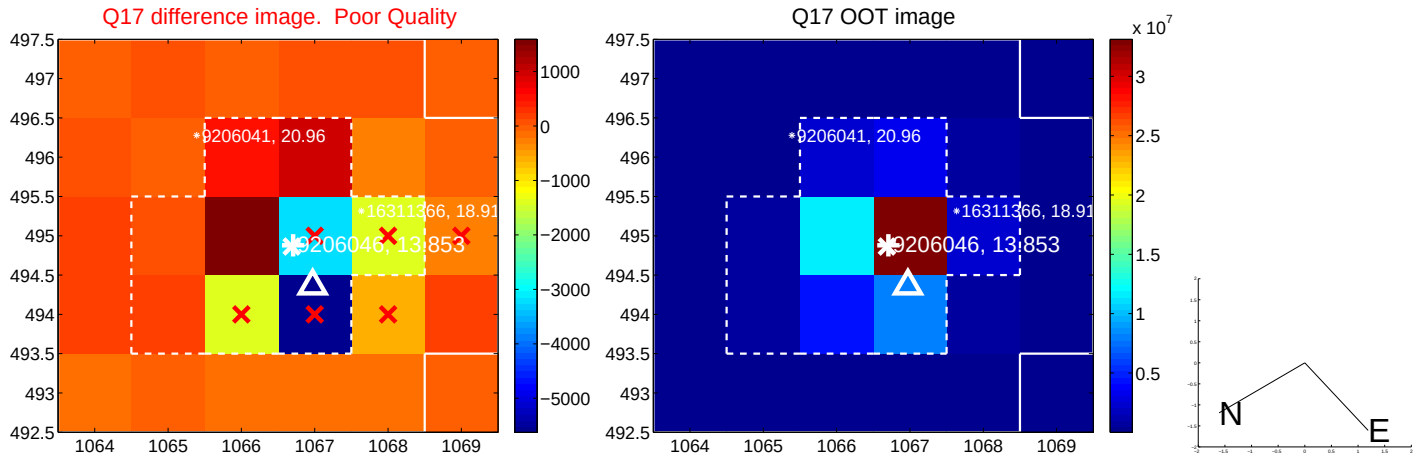
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.

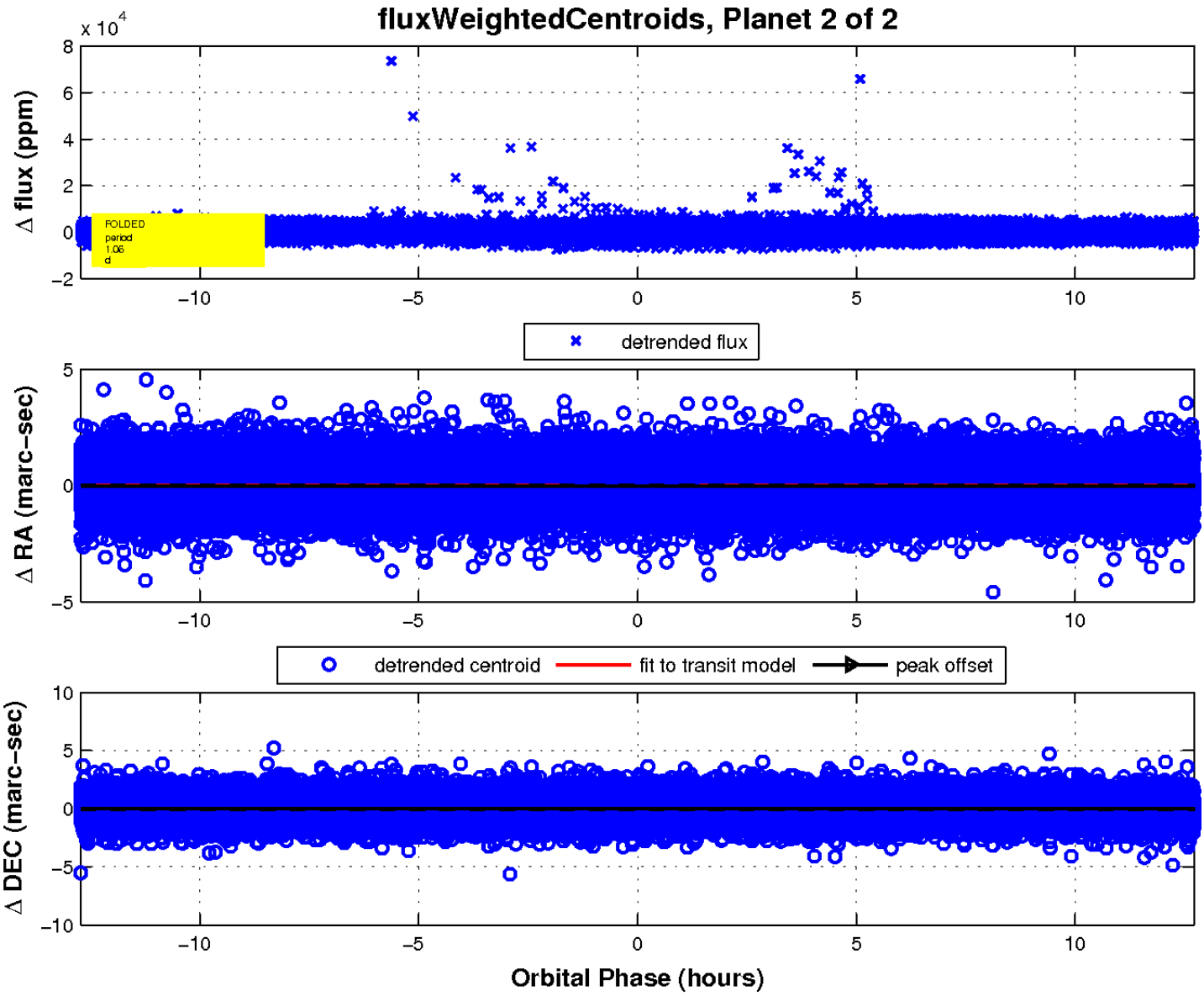


white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.

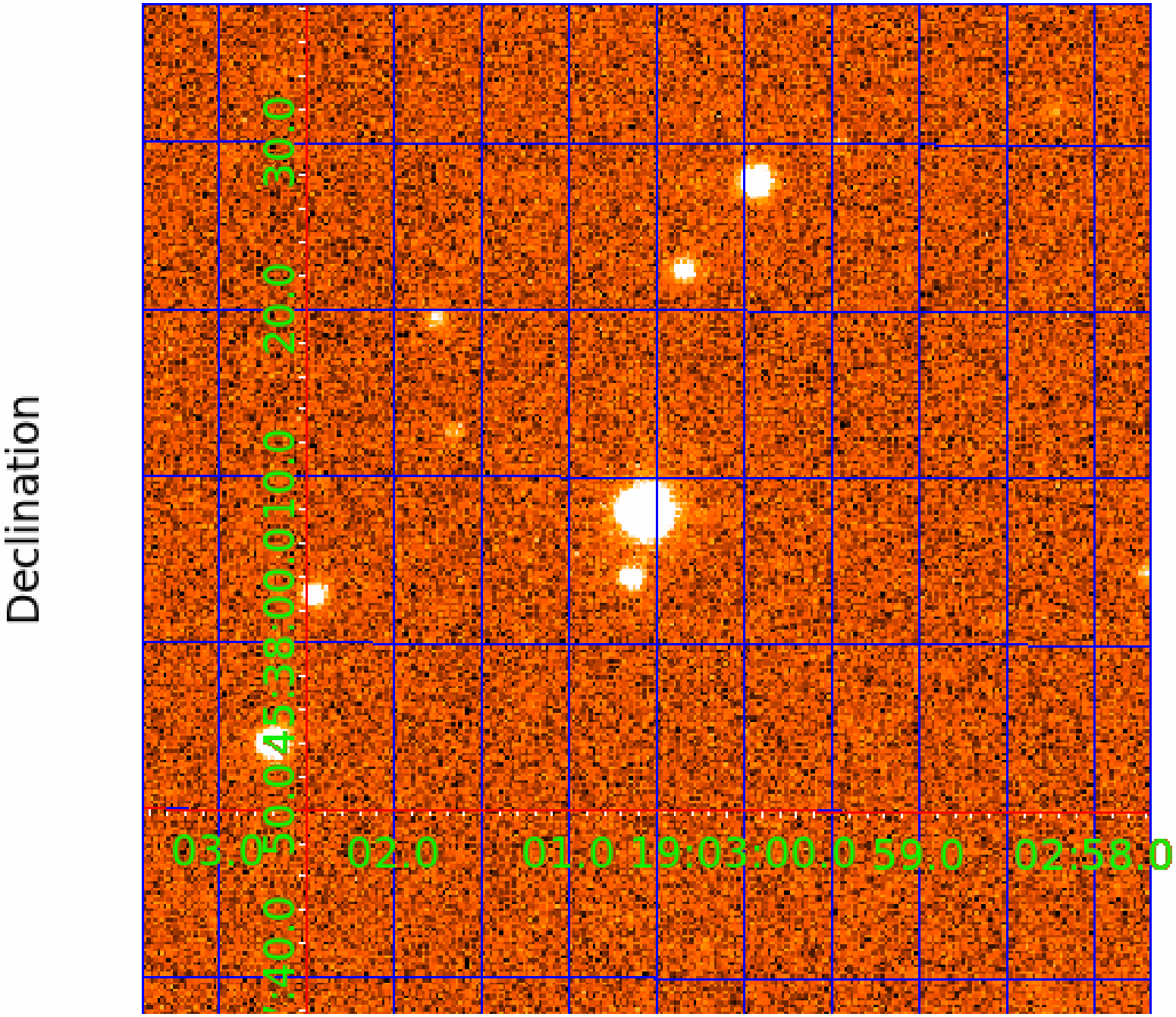


white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.





UKIRT Image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