KIC 009202990

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 ($S_\oplus$)
009202990-01	OBS	No	429.776705	459.610159	61003.3	24.263	10.3	8.9	3.22	9669	133.34	33.84
009202990-02	OBS	No	344.596498	339.491084	58520.3	23.043	8.4	10.7	3.22	9669	86.12	45.43

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009202990-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_SKYE—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS
009202990-02	OBS	FP	0.00	1	0	0	0	LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS

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.

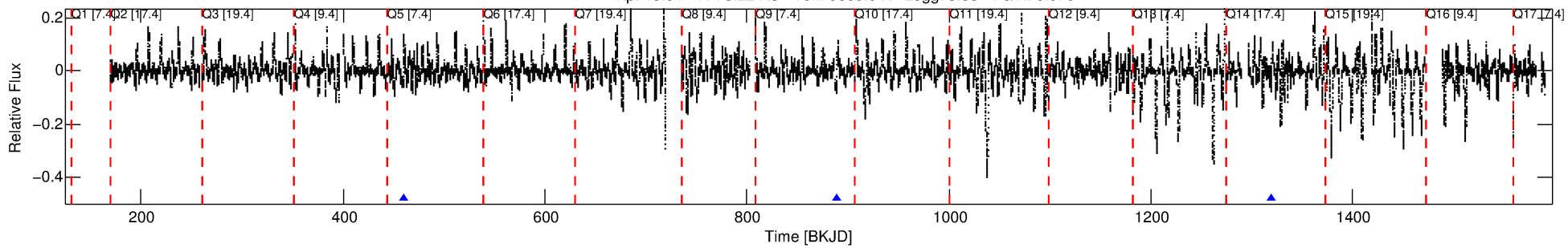
Ephemeris Match Information For 009202990-01

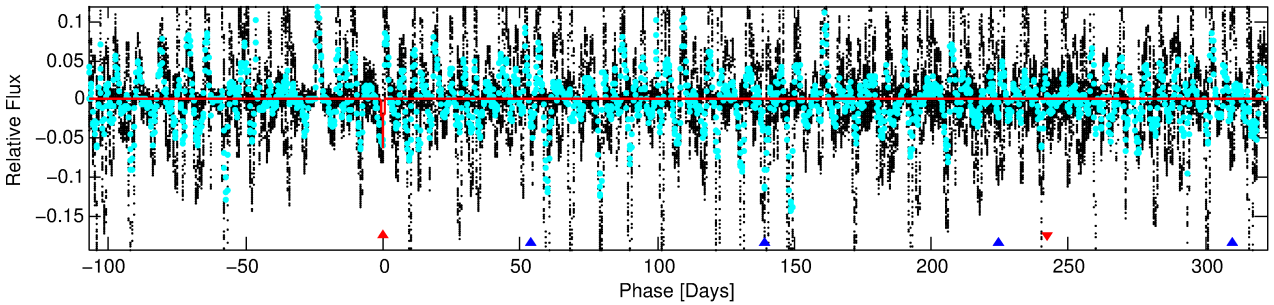
No Significant Match Found

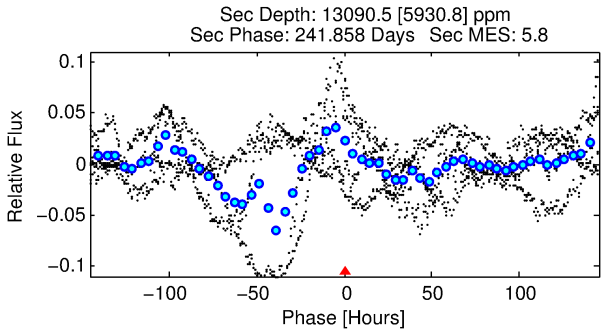
DV One-Page Summary

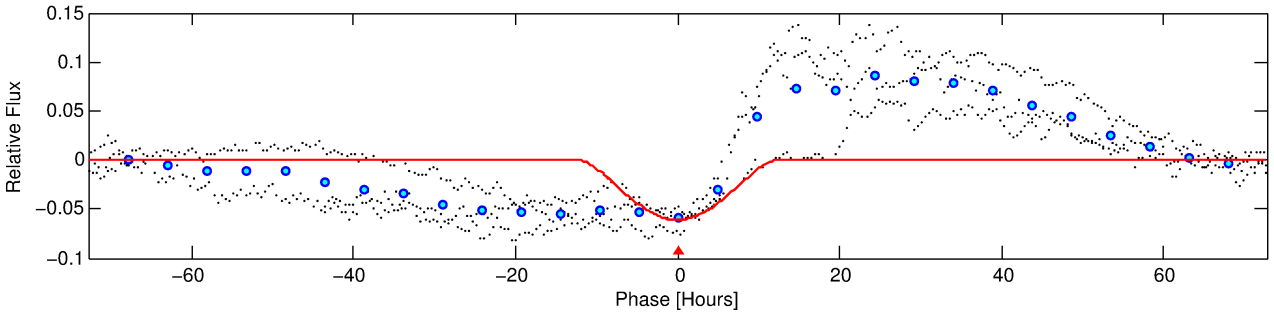
KIC: 9202990 Candidate: 1 of 2 Period: 429.777 d

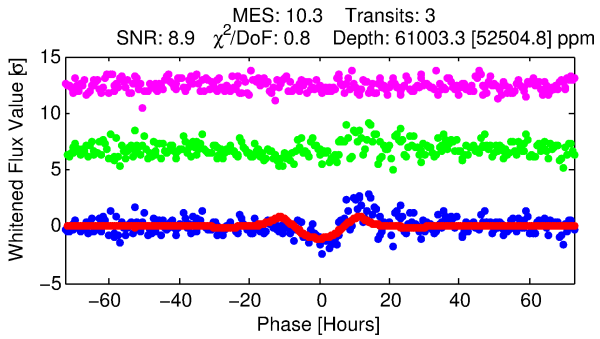
Kp: 15.04 R*: 3.22 Rs Teff: 9669.0 K Logg: 3.85 Fe/H: 0.070

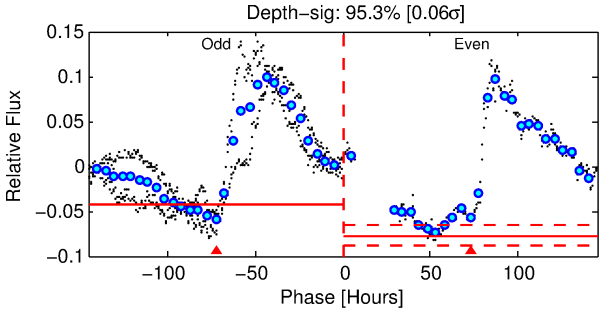


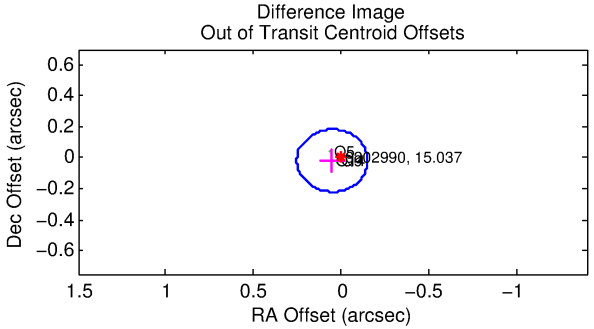












DV Fit Results:

Period = 429.77670 [0.02065] d
Epoch = 459.6102 [0.0270] BKJD
Rp/R* = 0.3794 [1.1437]
a/R* = 128.57 [5.73]
b = 1.00 [1.33]

Seff = 33.84 [22.06]
Teq = 615 [100] K
Rp = 133.34 [406.89] Re
a = 1.5495 [0.6408] AU

Ag = 972.55 [5912.00] [0.16σ]
Teffp = 5310 [8031] K [0.58σ]

DV Diagnostic Results:

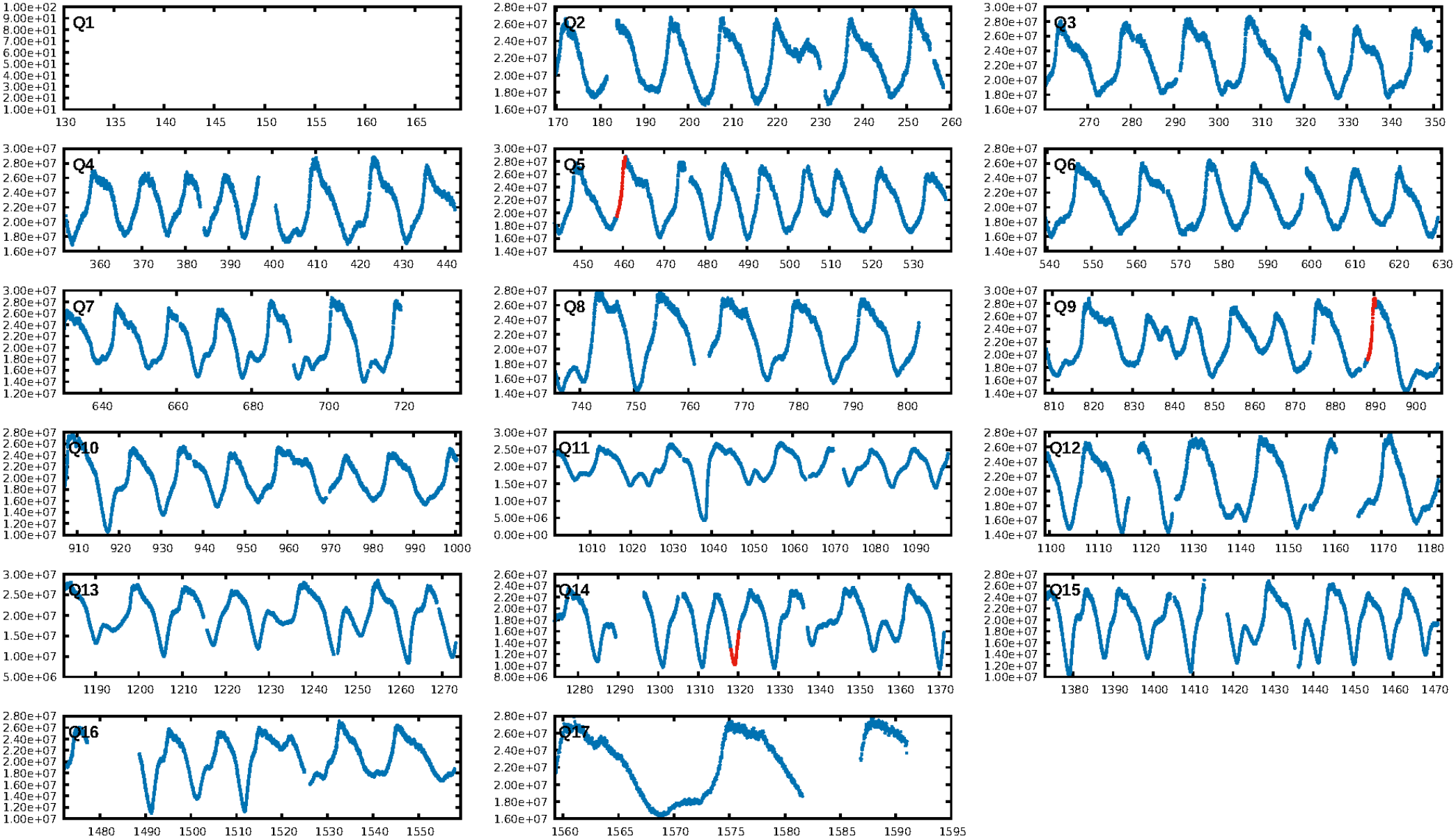
ShortPeriod−sig: 100.0% [61.09σ]
LongPeriod−sig: N/A
ModelChiSquare2−sig: 7.3%
ModelChiSquareGof−sig: 100.0%
Bootstrap−pfa: 9.50e−10
RollingBand−fgt: 1.00 [3/3]
GhostDiagnostic−chr: 0.2619

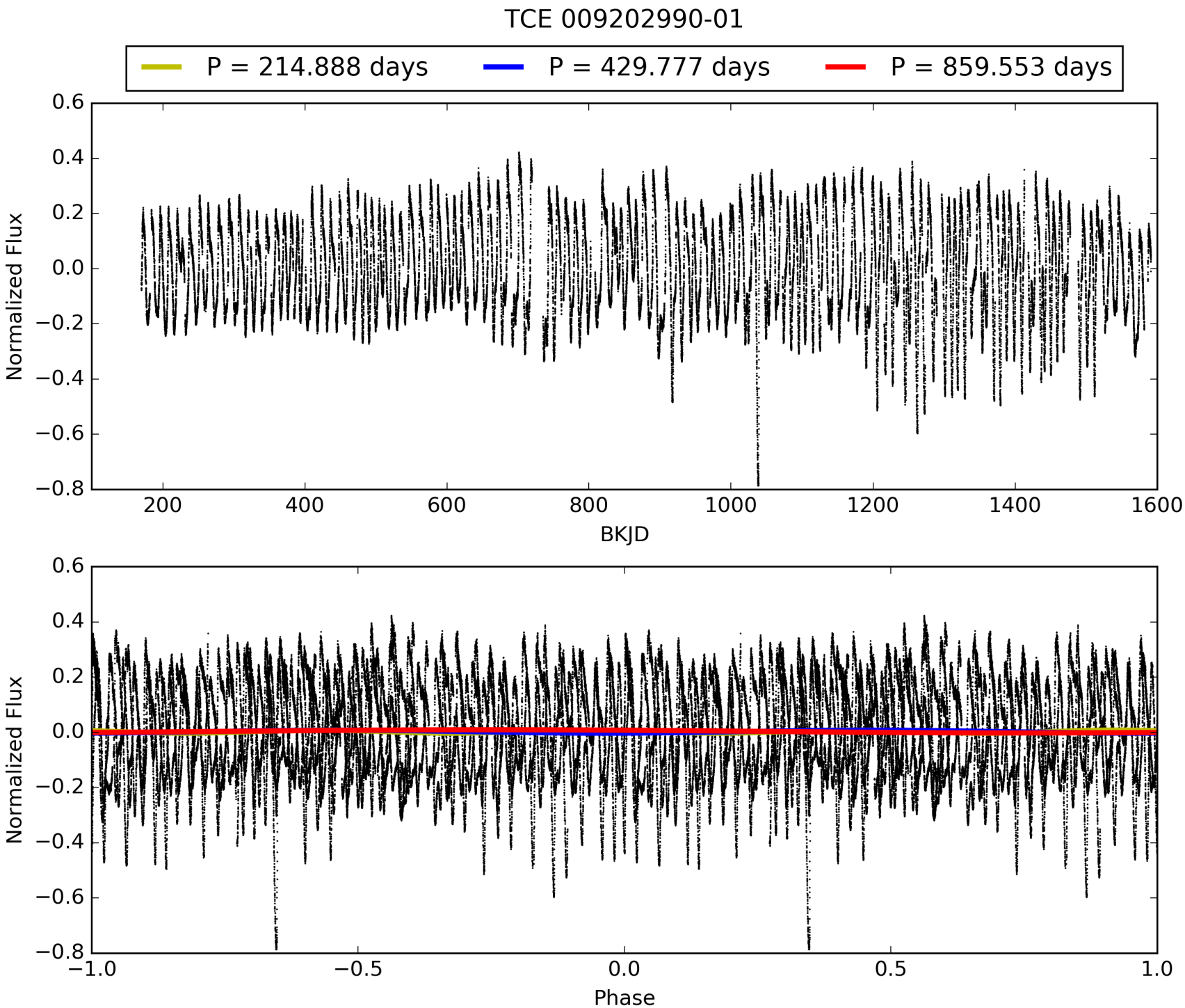
Centroid−sig: 1.7%
Centroid−so: 0.125 arcsec [4.96σ]
OotOffset−rm: 0.055 arcsec [0.82σ]
KicOffset−rm: 0.033 arcsec [0.43σ]
OotOffset−st: 1/0/0/2 [3]
KicOffset−st: 1/0/0/2 [3]
DiffImageQuality−fgm: 1.00 [3/3]
DiffImageOverlap−fno: 1.00 [3/3]

Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01−Feb−2016 09:34:05 Z

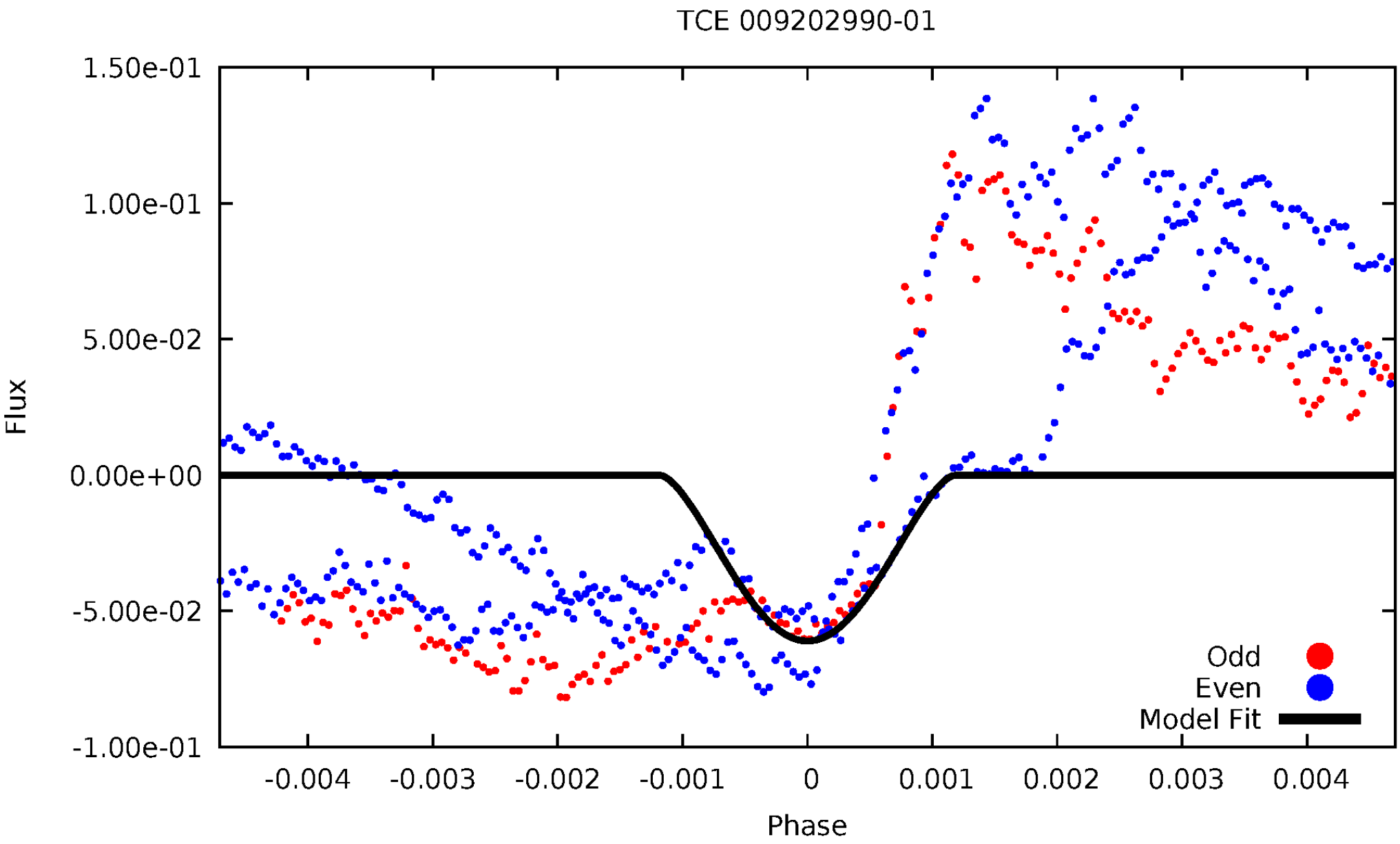
This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

TCE 009202990-01, PDC Light Curves

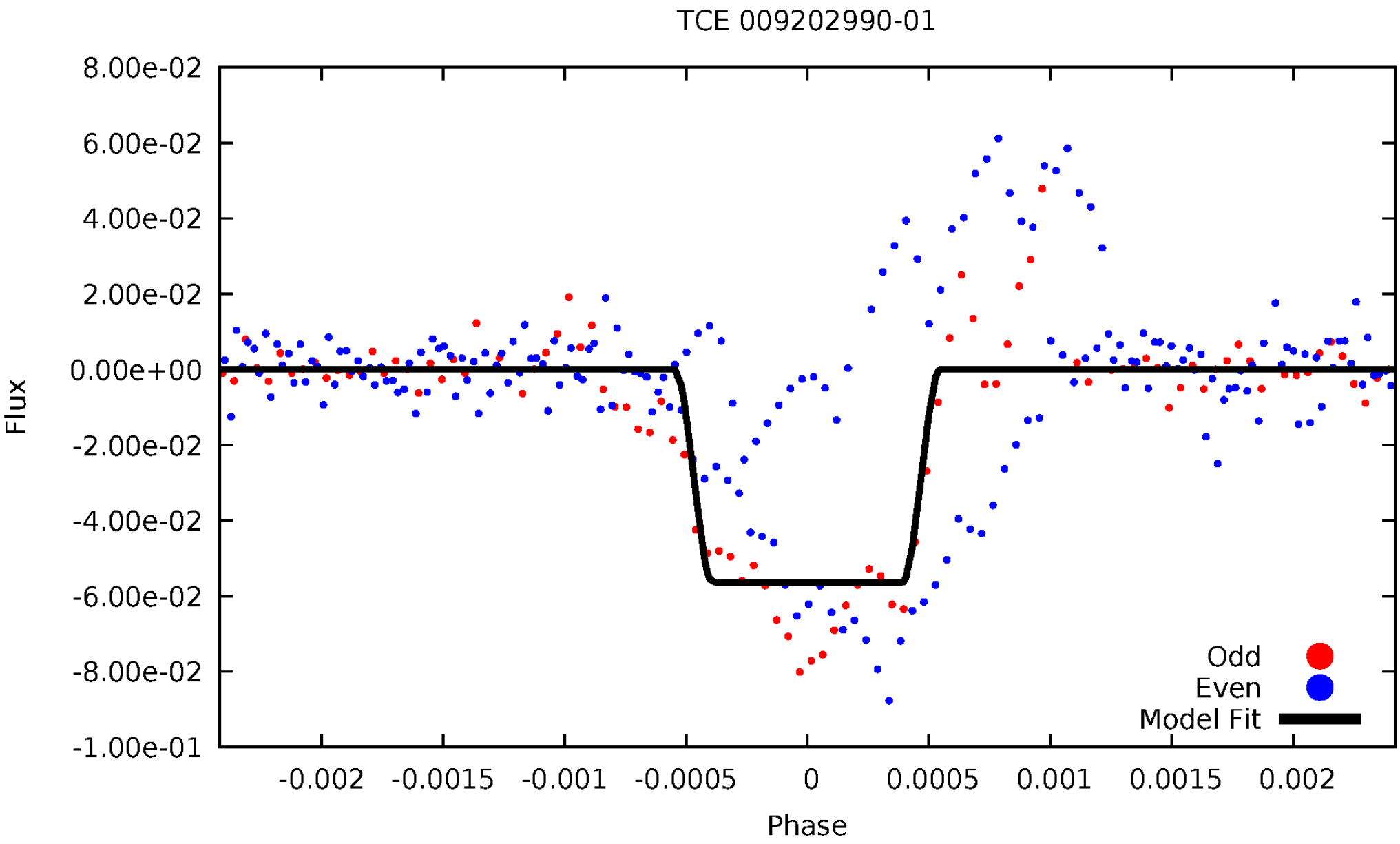



TCE 009202990-01
P = 214.888 days
P = 429.777 days
P = 859.553 days
Normalized Flux
BKJD
Normalized Flux
Phase

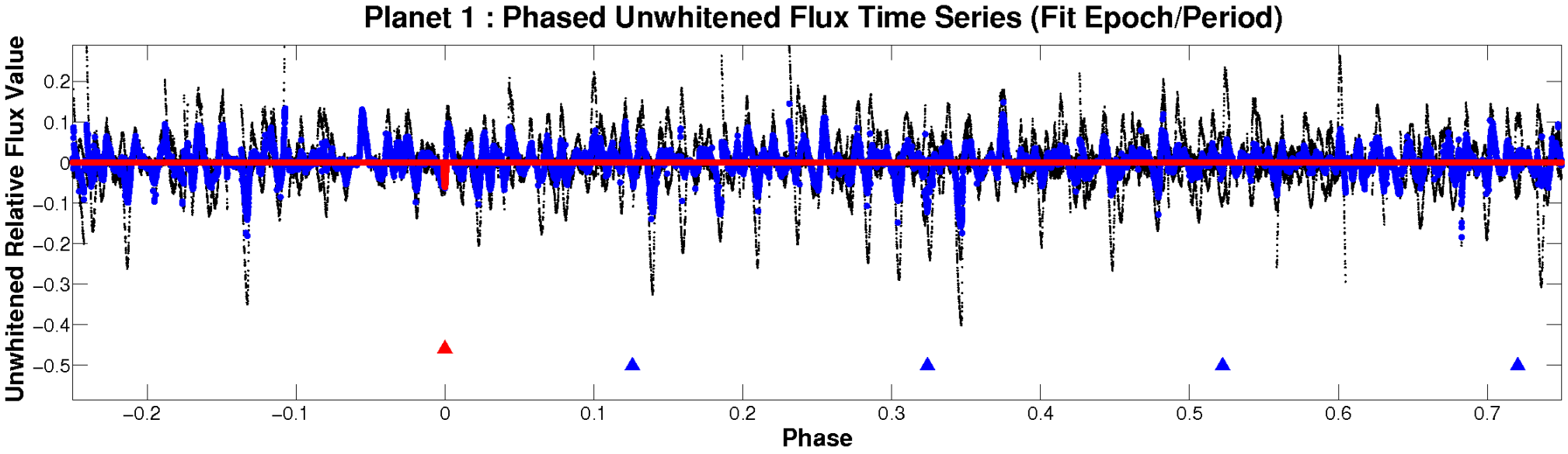
DV Odd/Even

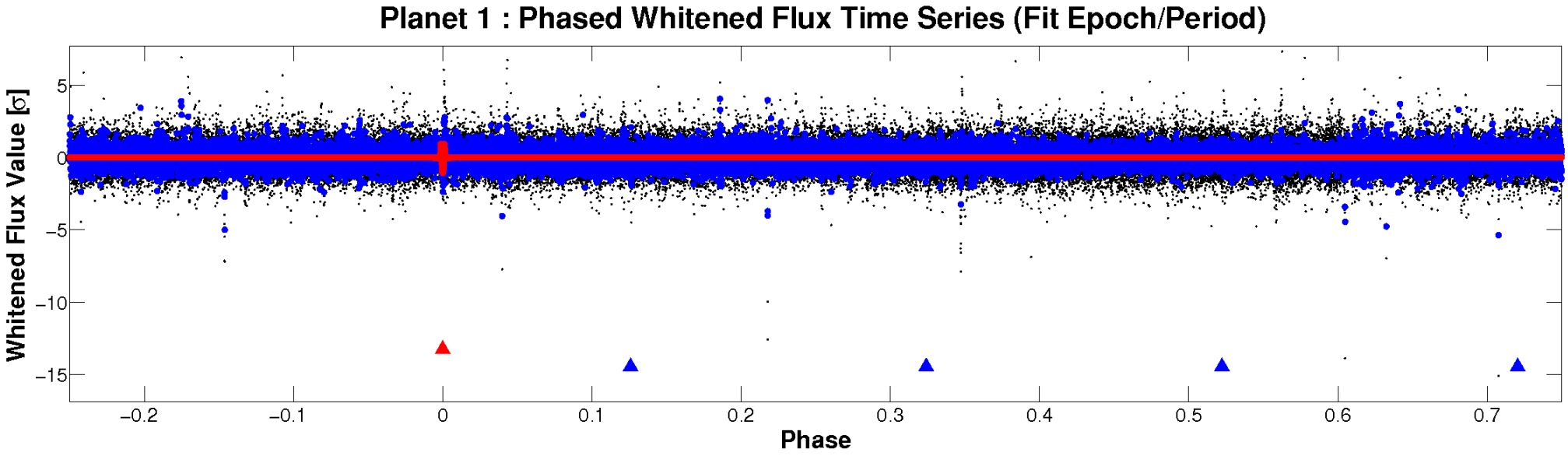

TCE 009202990-01
1.50e-01
1.00e-01
5.00e-02
0.00e+00
-5.00e-02
-1.00e-01
Flux
-0.004
-0.003
-0.002
-0.001
0
0.001
0.002
0.003
0.004
Phase
Odd
Even
Model Fit

ALT Odd/Even


TCE 009202990-01
8.00e-02
6.00e-02
4.00e-02
2.00e-02
0.00e+00
-2.00e-02
-4.00e-02
-6.00e-02
-8.00e-02
-1.00e-01
Flux
-0.002
-0.0015
-0.001
-0.0005
0
0.0005
0.001
0.0015
0.002
Phase
Odd
Even
Model Fit

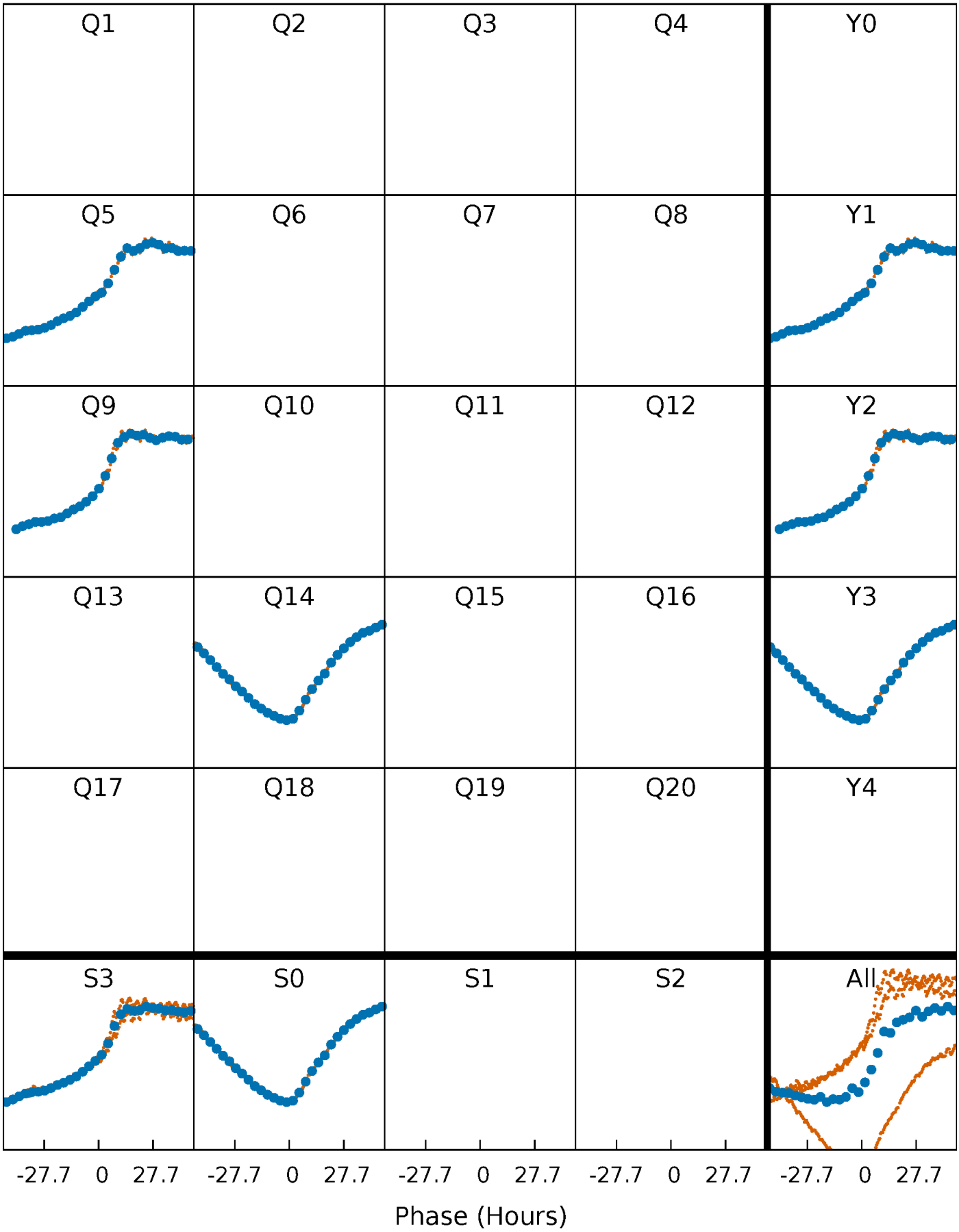
Non-Whitened Vs. Whitened Light Curve





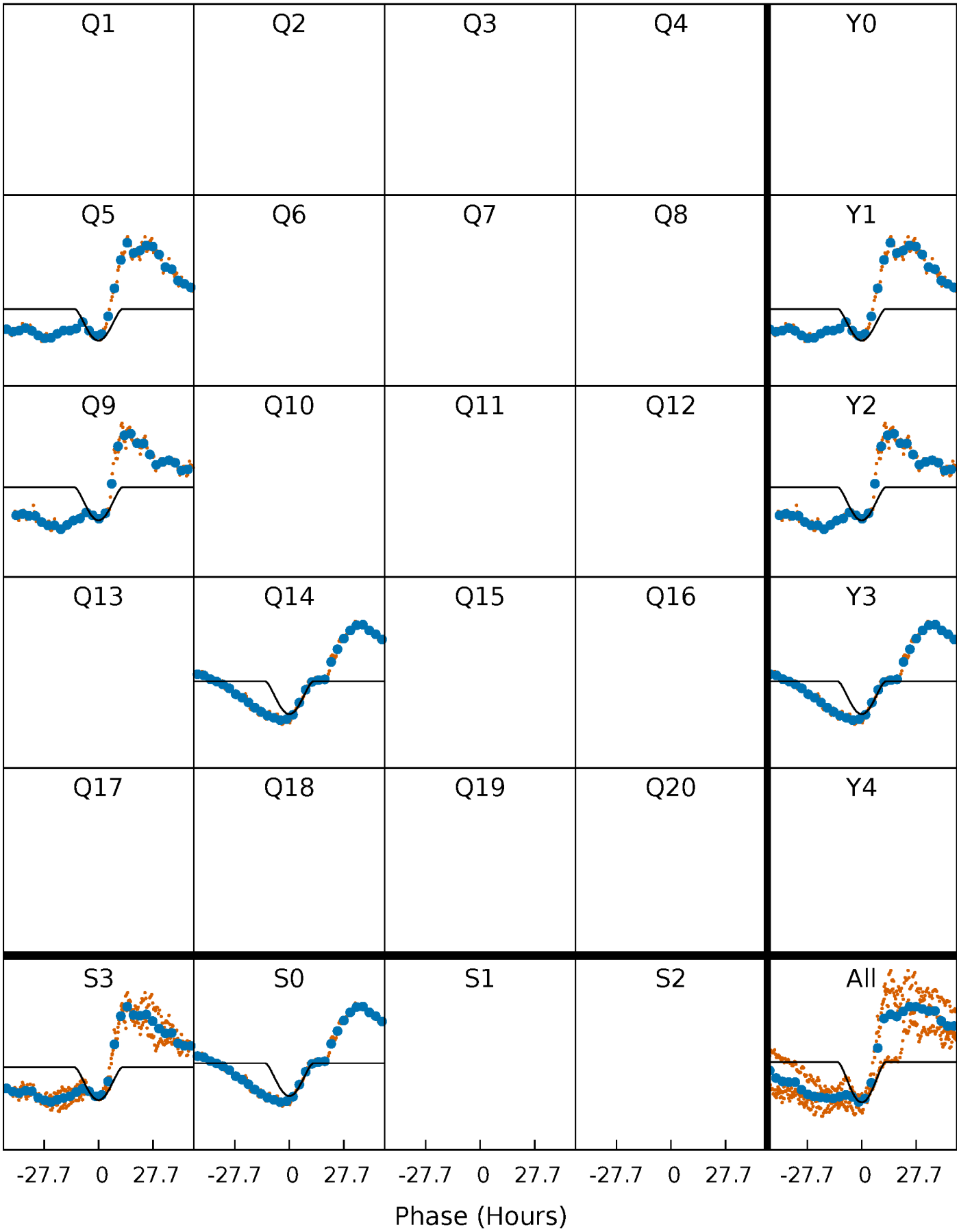
PDC Quarter-Phased Transit Curves

TCE 009202990-01 P=429.776705 Days T_0=459.610159 (BKJD)



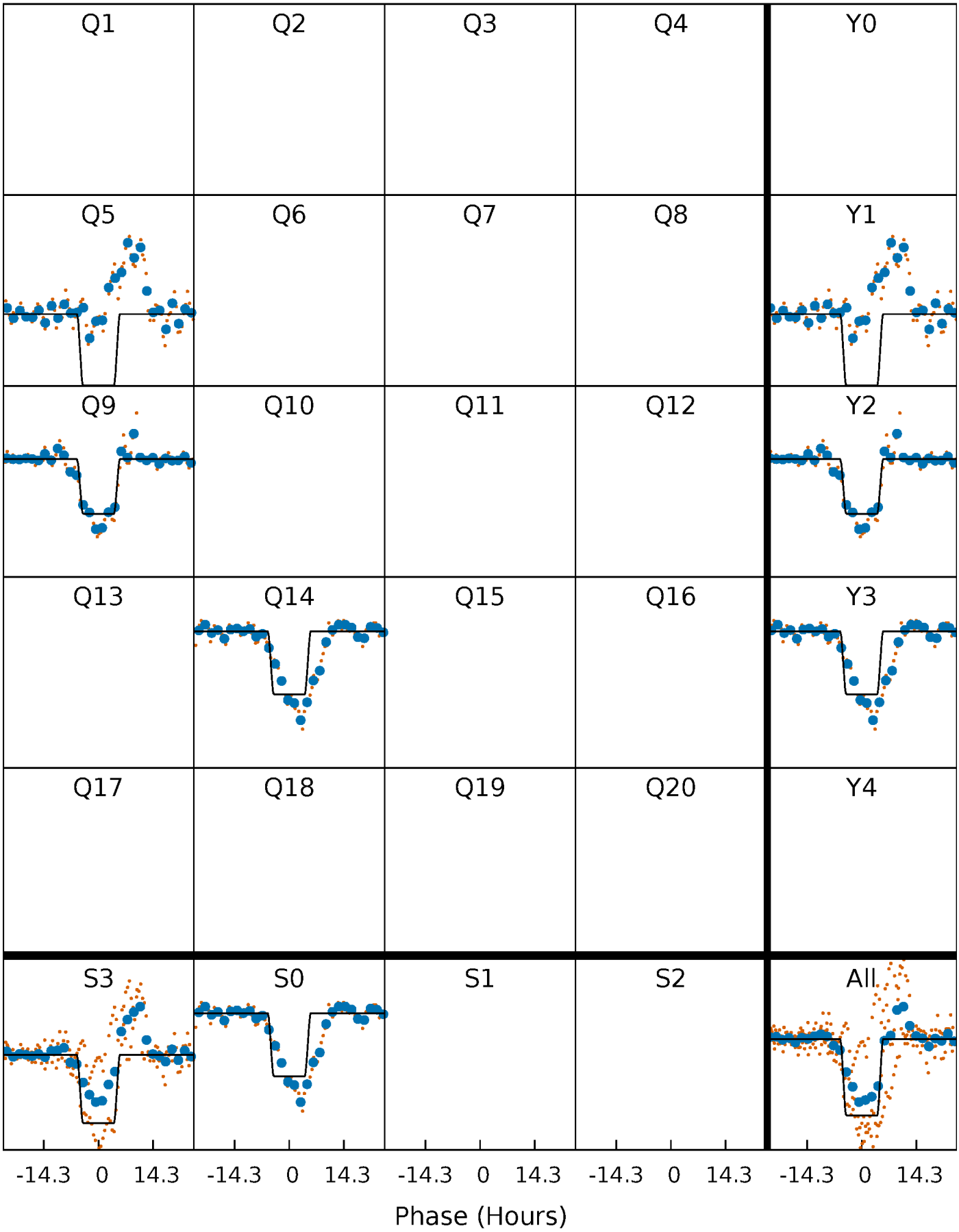
DV Quarter-Phased Transit Curves

TCE 009202990-01 P=429.776705 Days T_0=459.610159 (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

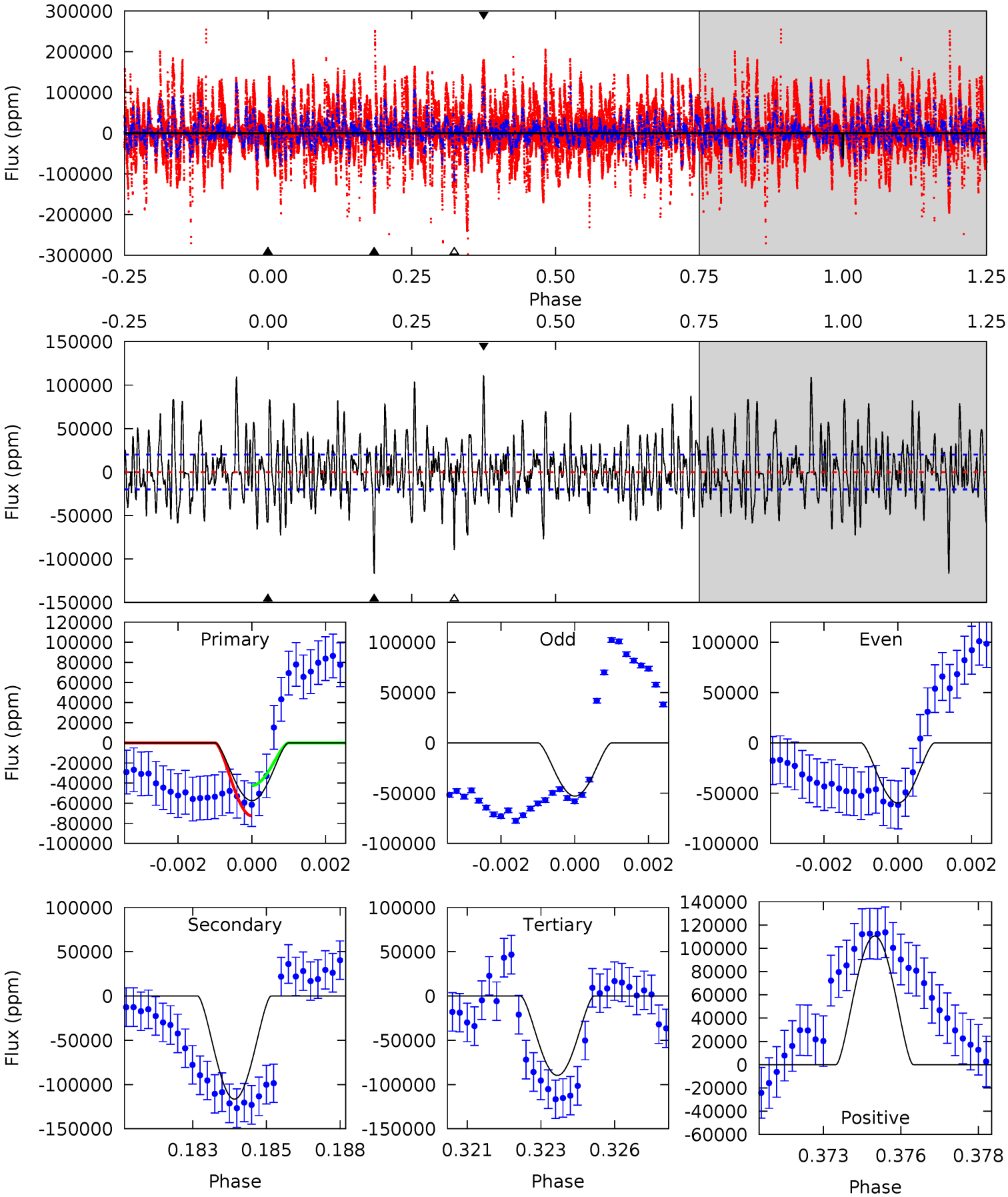
TCE 009202990-01 P=429.683711 Days T_0=459.766141 (BKJD)



DV Model-Shift Uniqueness Test

009202990-01, P = 429.776705 Days, E = 29.833454 Days

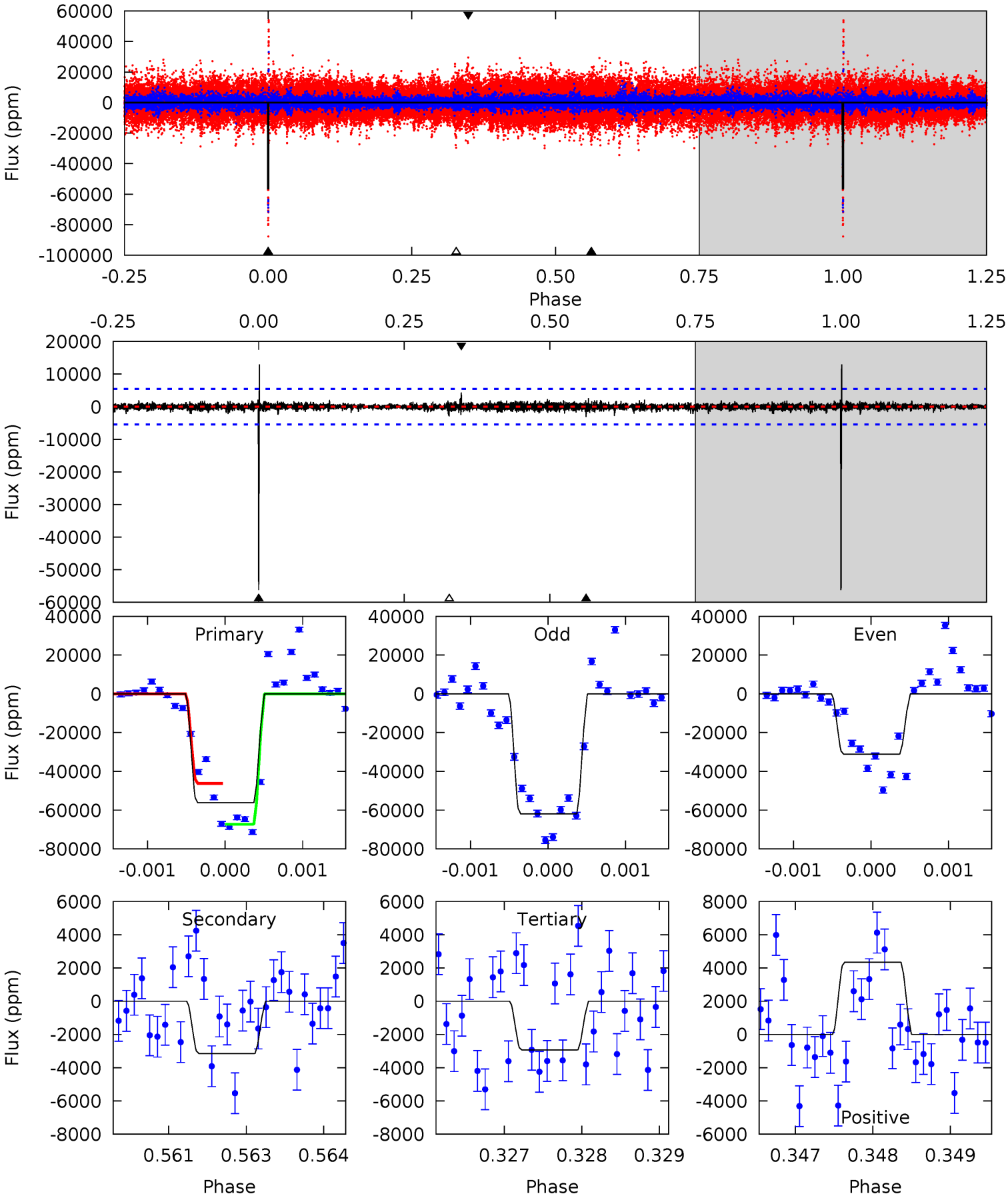
Pri	Sec	Ter	Pos	FA_1	FA_2	F_{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
15.2	30.8	23.7	29.2	5.30	3.04	7.30	-8.54	-14.0	7.08	1.58	0.72	1.08	0.49	4.03



Alt Model-Shift Uniqueness Test

009202990-01, P = 429.683711 Days, E = 30.082430 Days

Pri	Sec	Ter	Pos	FA_1	FA_2	F_{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
56.1	3.14	2.92	4.34	5.44	3.27	0.59	53.2	51.8	0.22	-1.20	17.4	0.67	0.19	0



Stellar Parameters For KIC 009202990

	$T_{\rm eff}(K)$	$\log(g)$	[Fe/H]	R ($R_\odot$)	$M(M_\odot)$	$p_\star$ (g·cm^{-3})
	9669^{+272}_{-467}	$3.851^{+0.350}_{-0.150}$	$0.070^{+0.150}_{-0.650}$	$3.221^{+0.818}_{-1.519}$	$2.688^{+0.318}_{-0.954}$	$0.113^{+0.396}_{-0.051}$
	+3%/-5%	+9%/-4%	+214%/-929%	+25%/-47%	+12%/-35%	+350%/-45%
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 009202990-01 / KOI

Detrend	Depth (ppm)	R_p ($R_\oplus$)	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-116526±3781	$294.99^{+335.65}_{-192.25}$	843^{+71}_{-97}	5524^{+4938}_{-1335}	1968^{+14817}_{-1531}
Alt.	-3146±1002	$269.83^{+305.94}_{-185.92}$	843^{+73}_{-97}	2976^{+1394}_{-547}	53^{+494}_{-42}

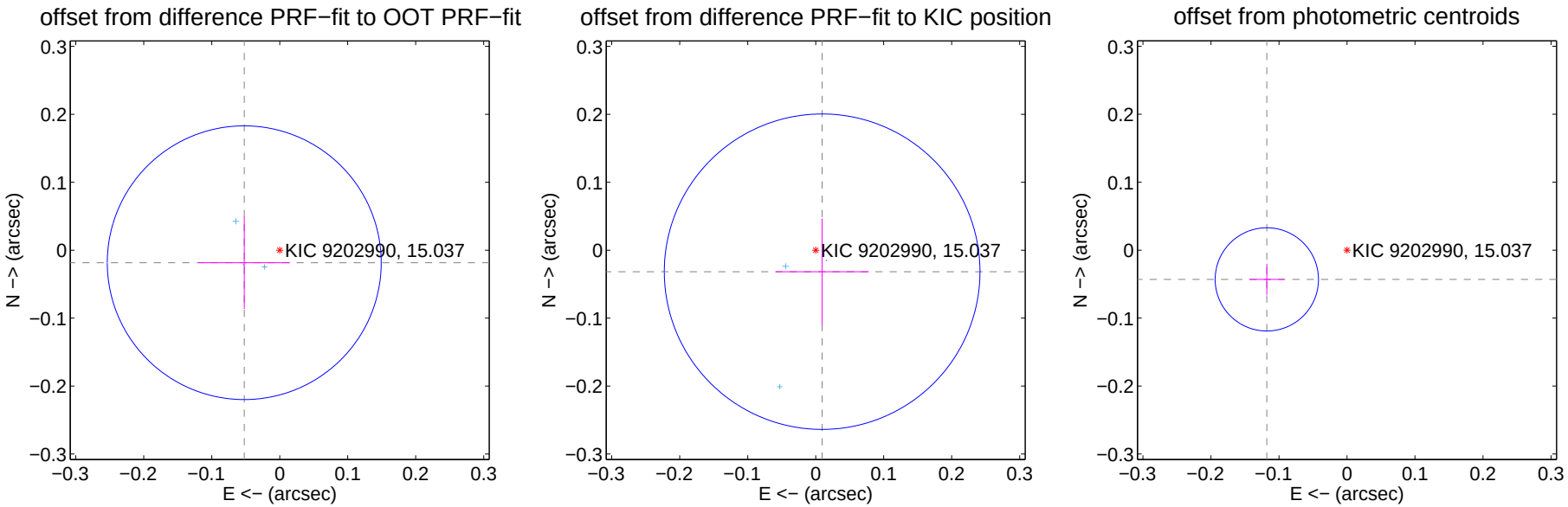
T_{max} = Theoretical Maximum Planetary Temperature
T_{obs} = Observed Planetary Temperature (Assuming A=0.3)
A_{obs} = Observed Albedo (Assuming T=0)

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

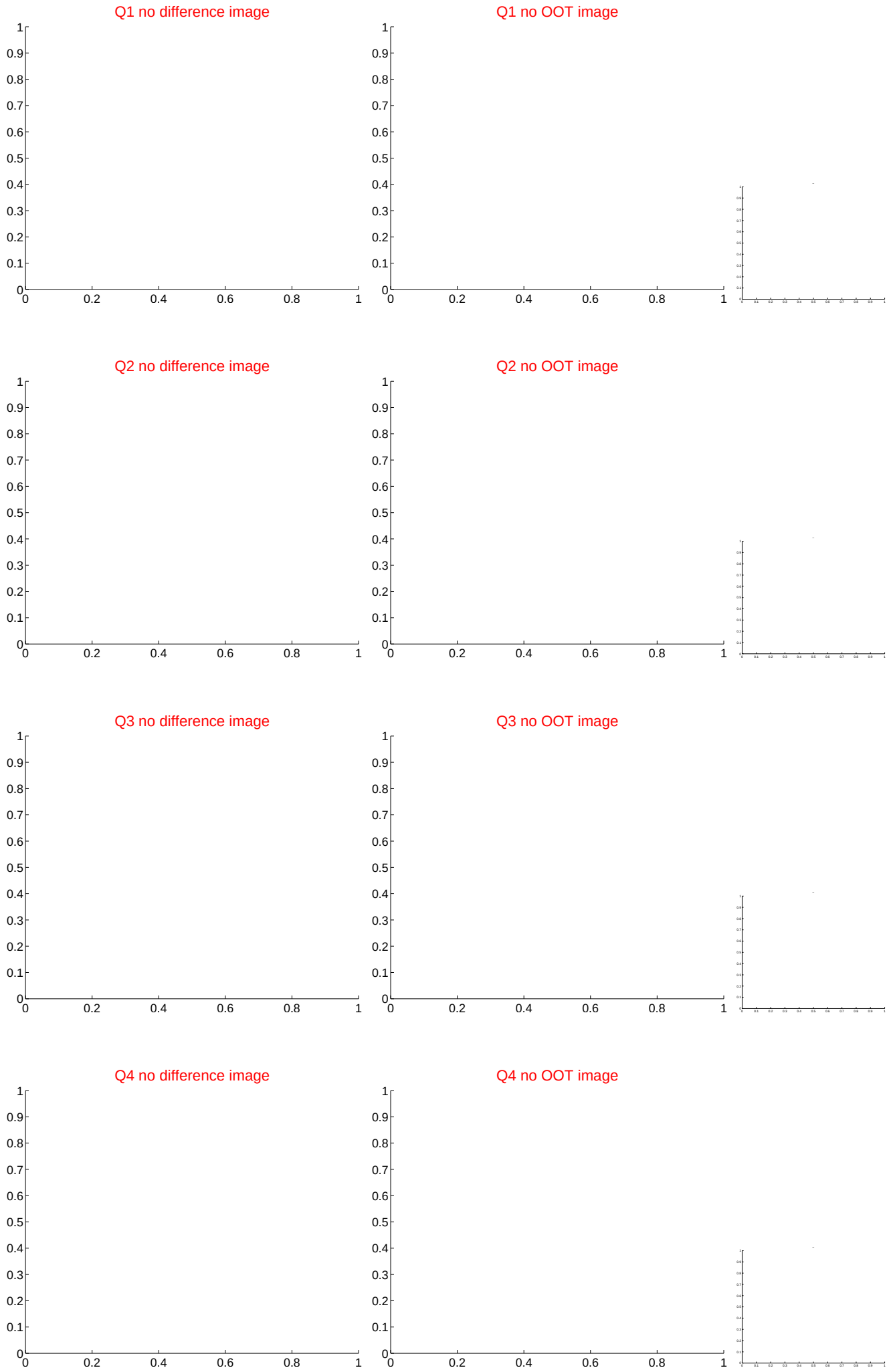
Supplemental centroid analysis for 009202990-01. Kepler magnitude: 15.04. Transit SNR 8.88
There are 3 quarters with good PRF difference image offsets
The direct PRF centroid is offset from the target star catalog position by about 0.07 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.055 ± 0.067	0.82	0.052 ± 0.067	-0.018 ± 0.068
PRF-fit source offset from KIC position	0.033 ± 0.077	0.43	-0.009 ± 0.068	-0.032 ± 0.078
photometric centroid source offset	0.13 ± 0.03	4.96	0.12 ± 0.03	-0.04 ± 0.02

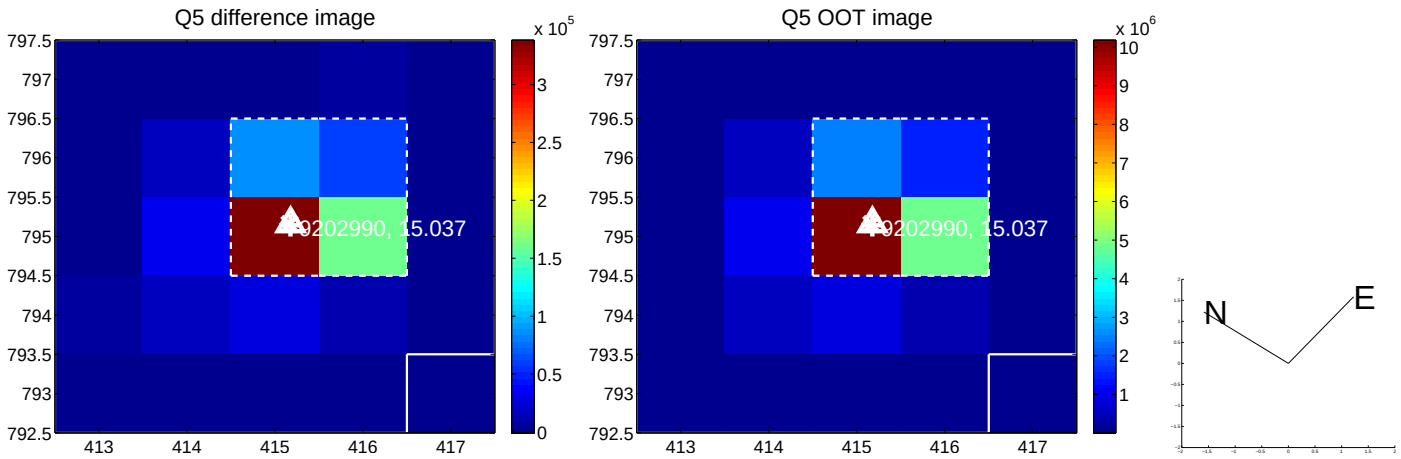


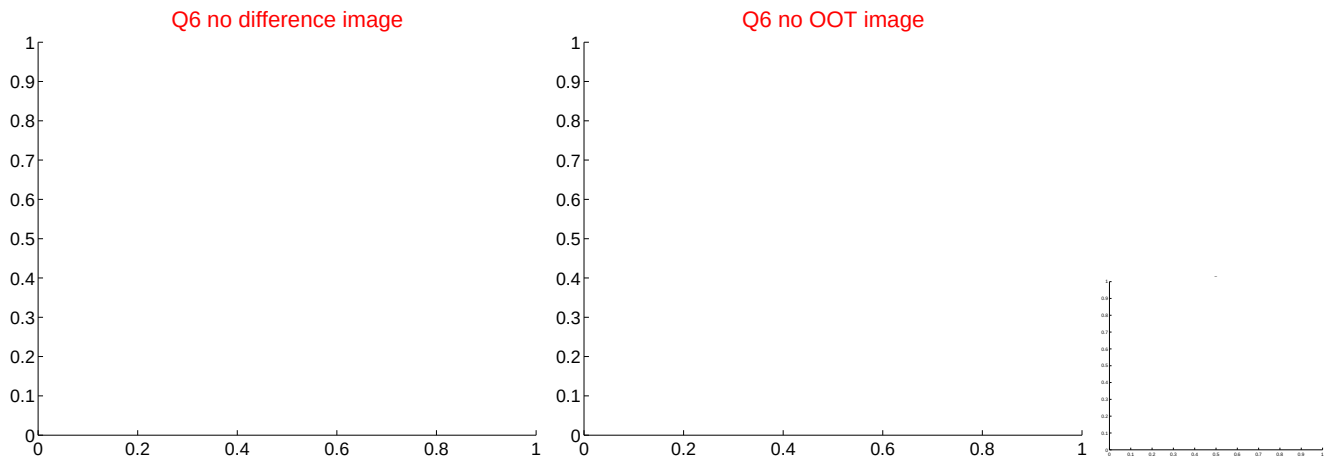
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one-σ uncertainty. Blue circle: three-σ. Red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

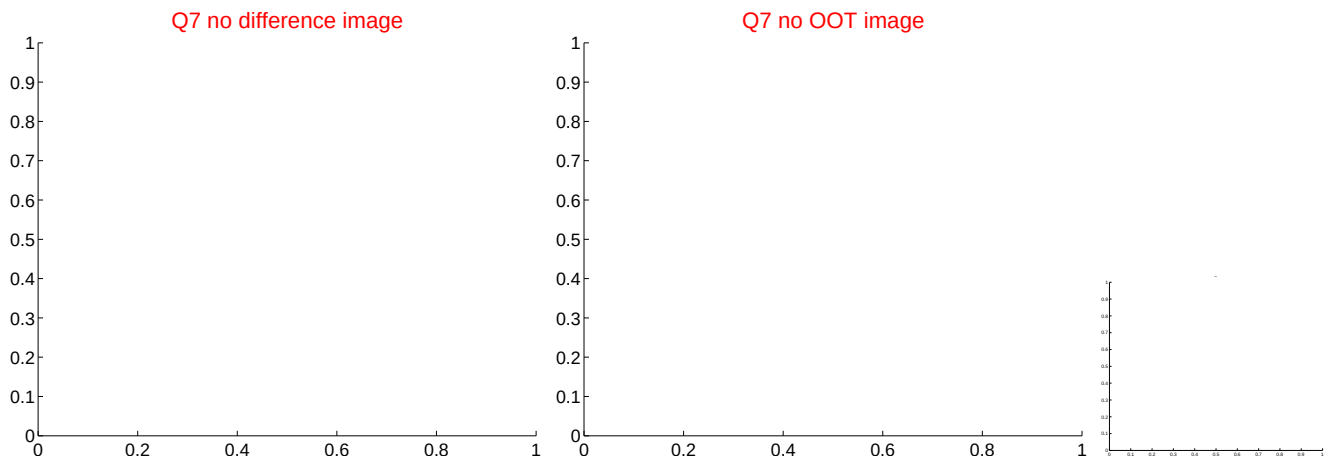
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.

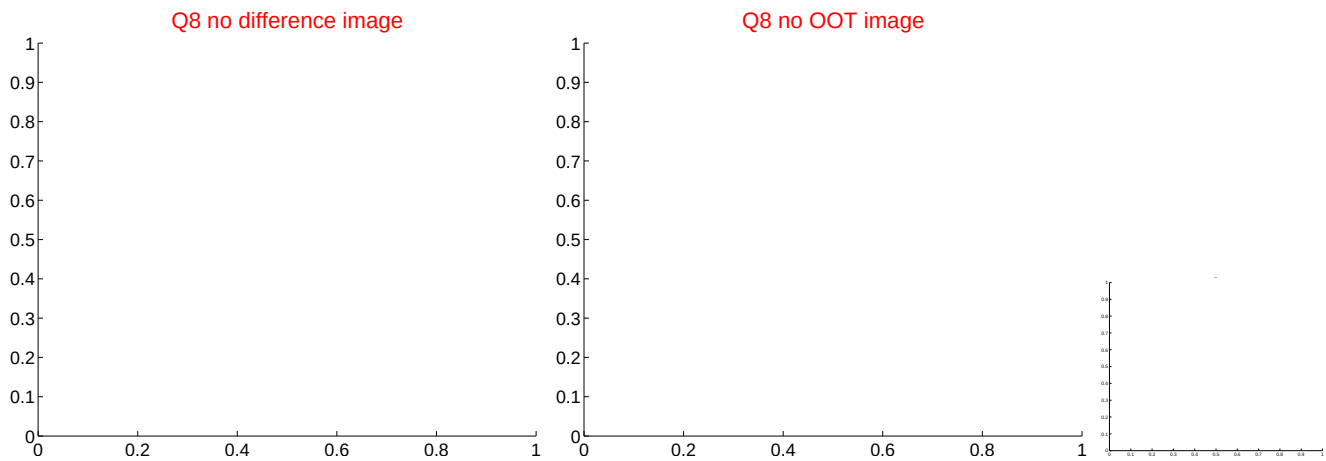


white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.

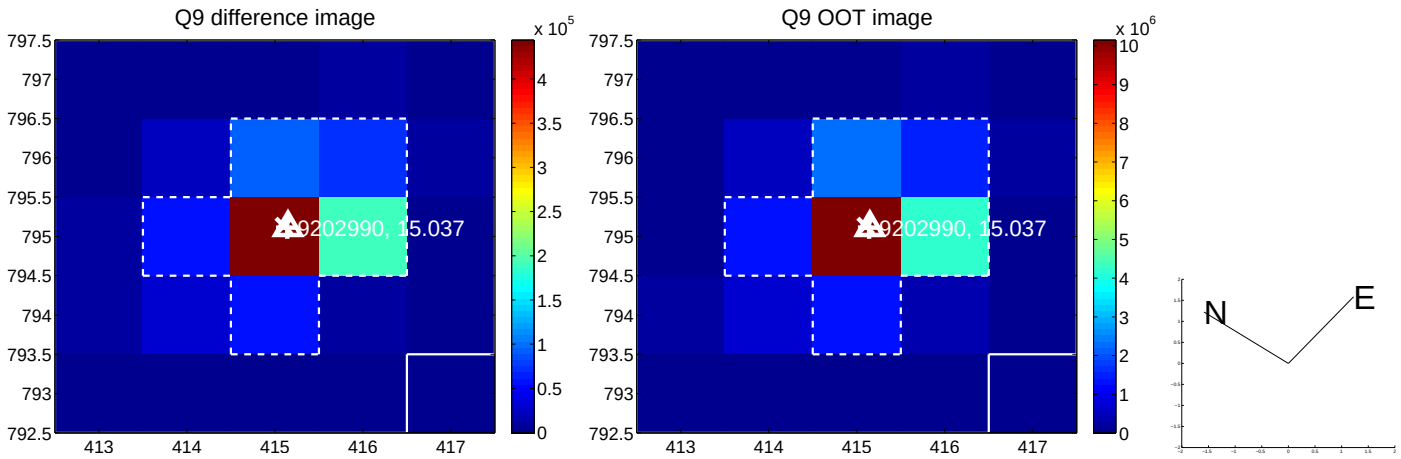


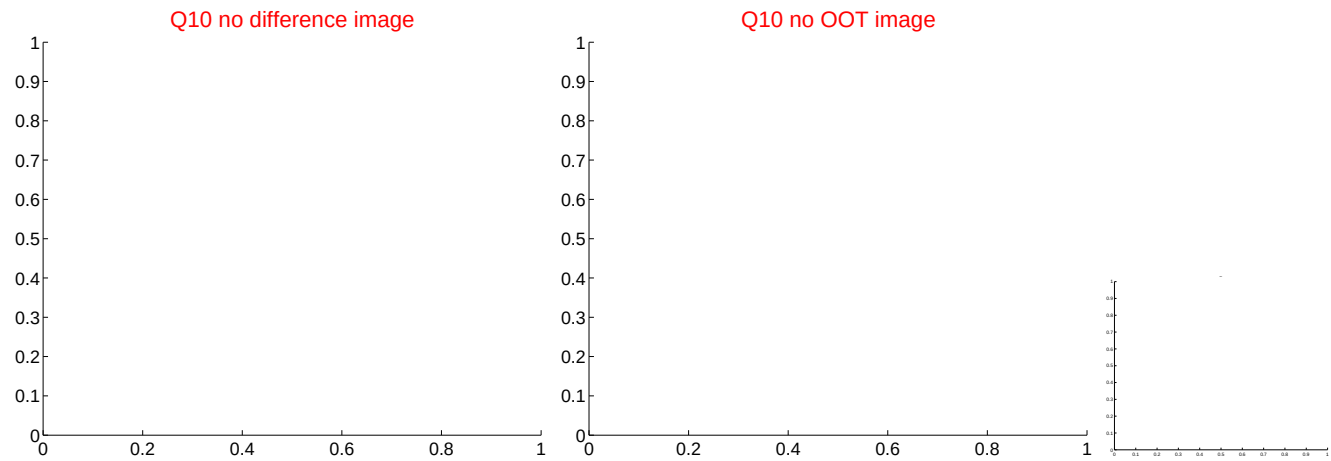


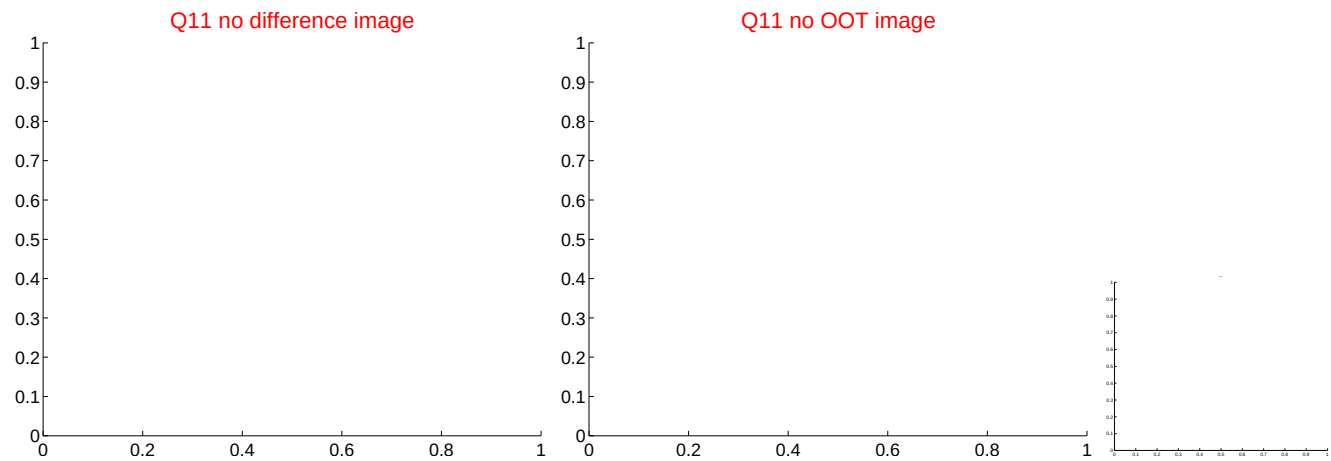


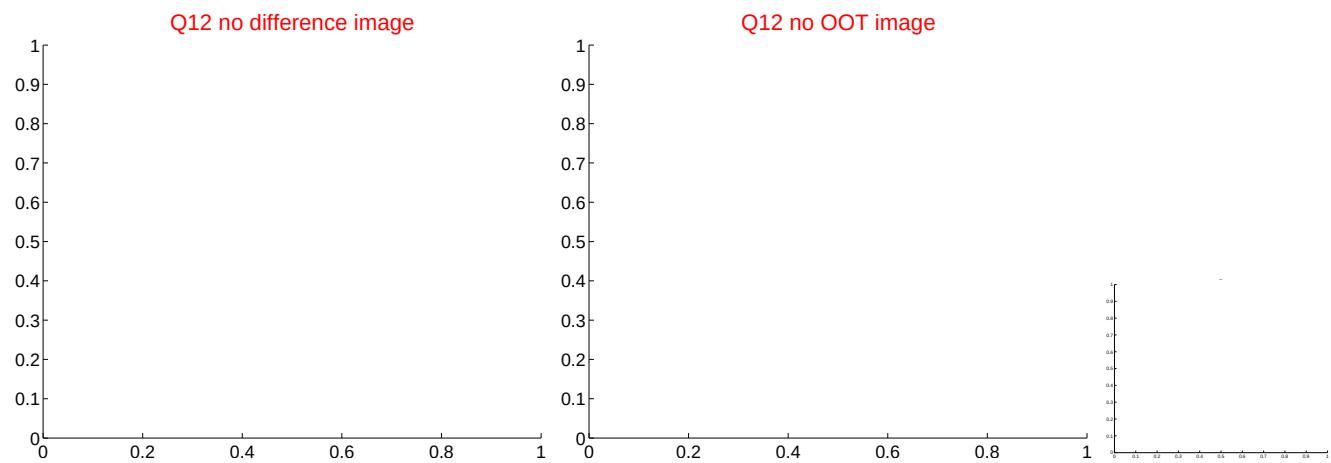


white ×: KIC target position; +: OOT centroid; △: difference centroid. red ✕: large negative pixel value.

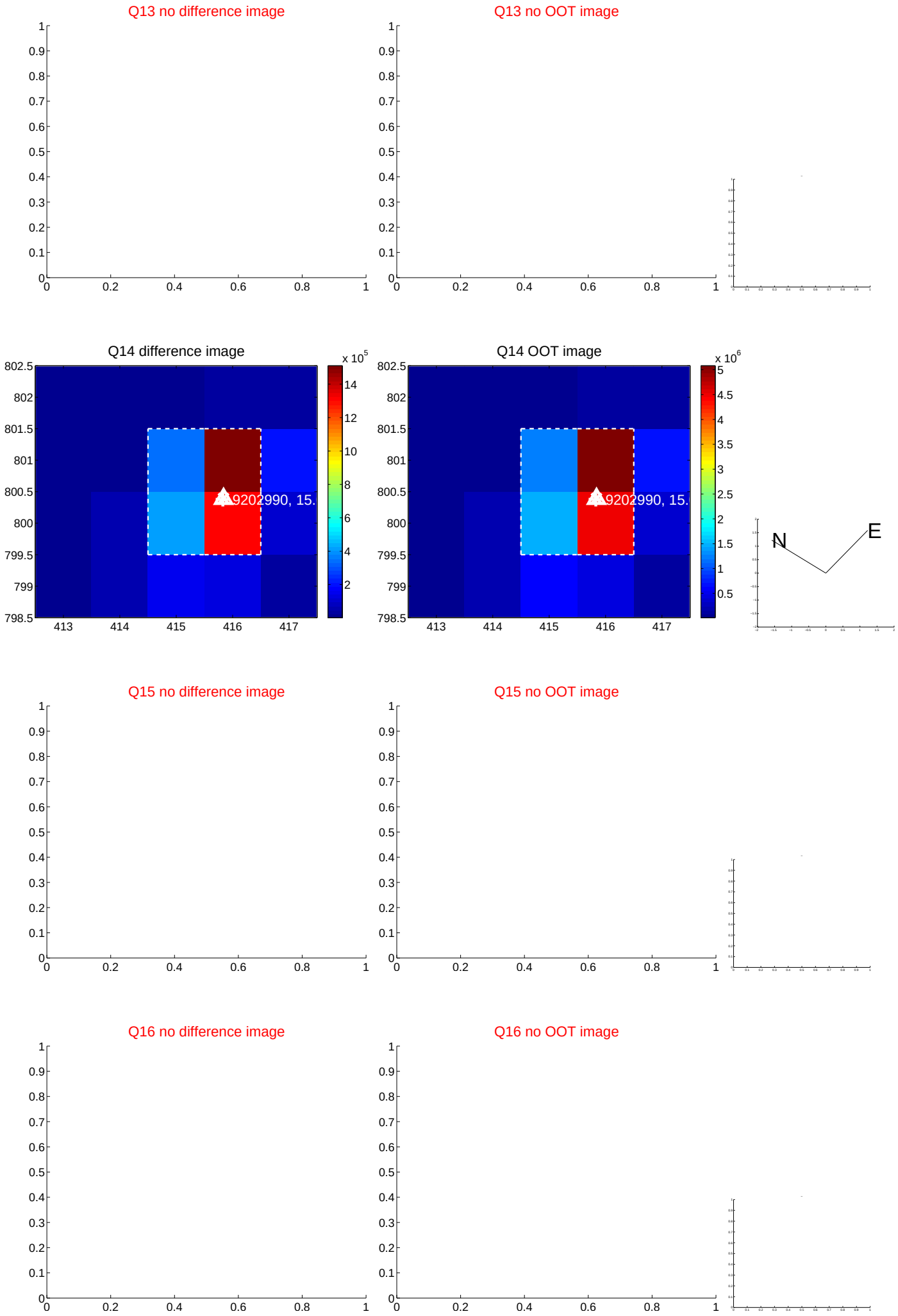




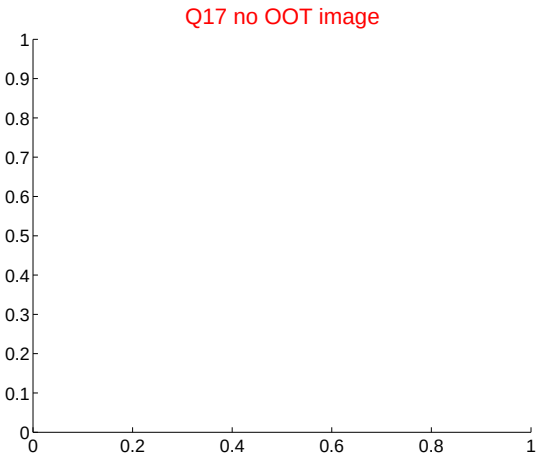


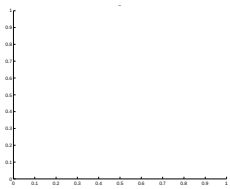


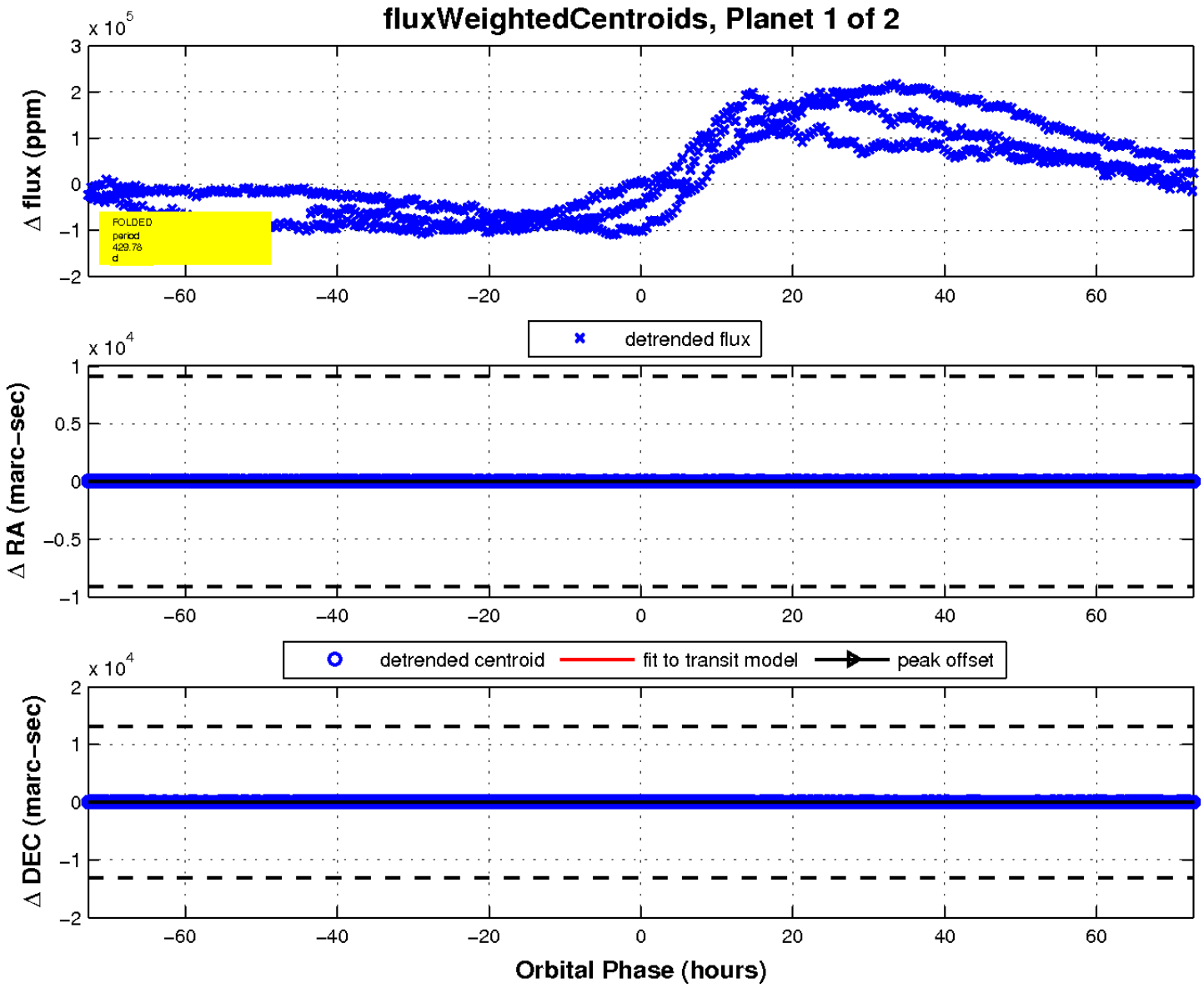
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.



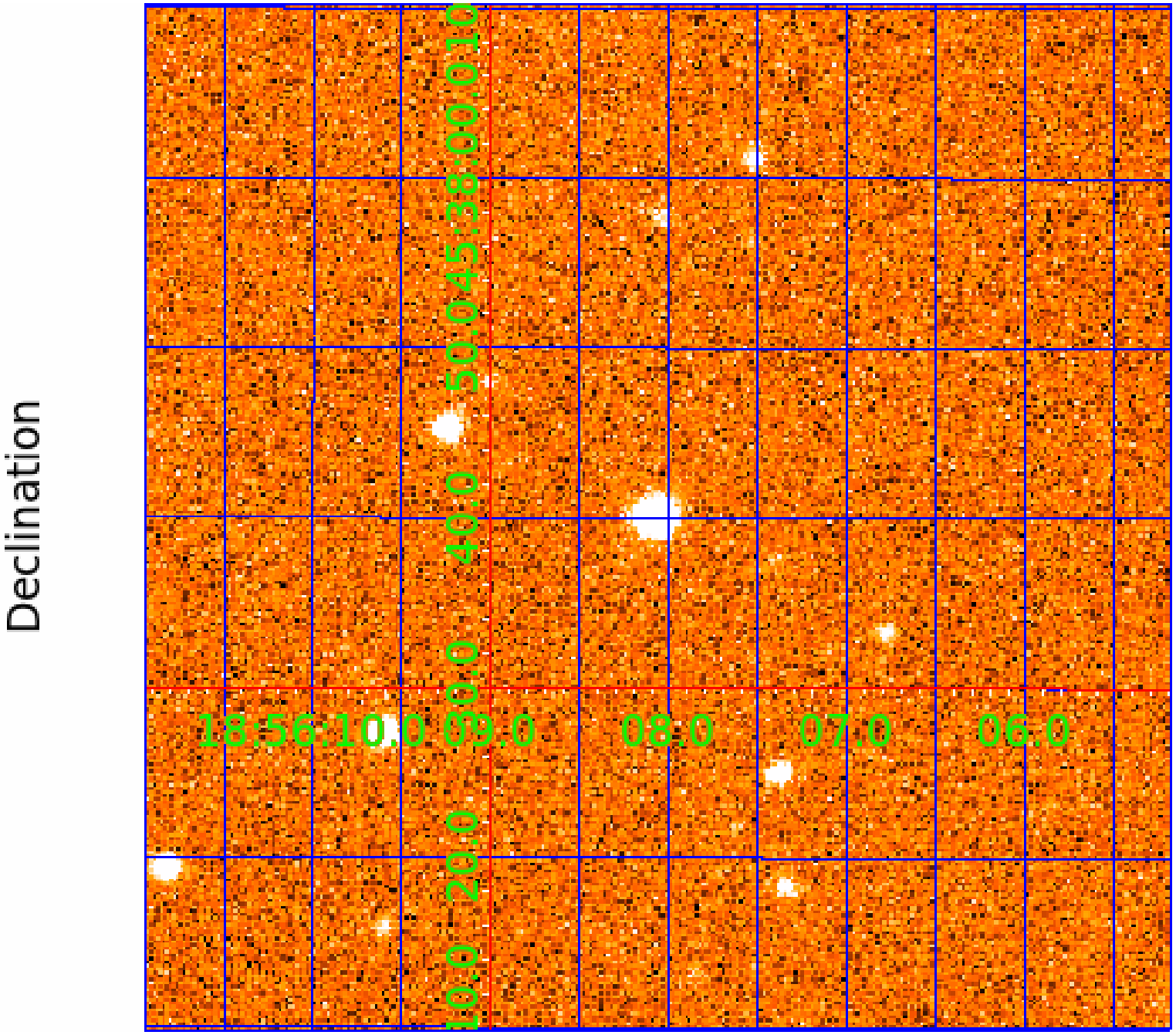
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.







UKIRT Image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18:56:10.0
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08.0
07.0
06.0

KIC 009202990

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 ($S_\oplus$)
009202990-01	OBS	No	429.776705	459.610159	61003.3	24.263	10.3	8.9	3.22	9669	133.34	33.84
009202990-02	OBS	No	344.596498	339.491084	58520.3	23.043	8.4	10.7	3.22	9669	86.12	45.43

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009202990-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_SKYE—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS
009202990-02	OBS	FP	0.00	1	0	0	0	LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS

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.

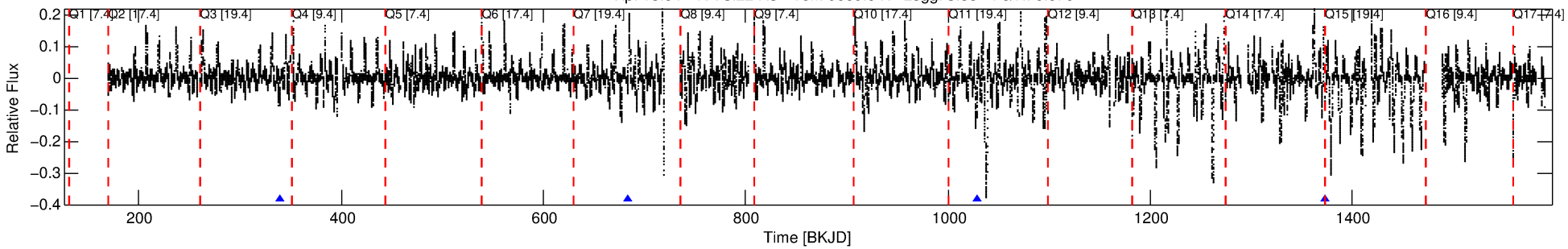
Ephemeris Match Information For 009202990-02

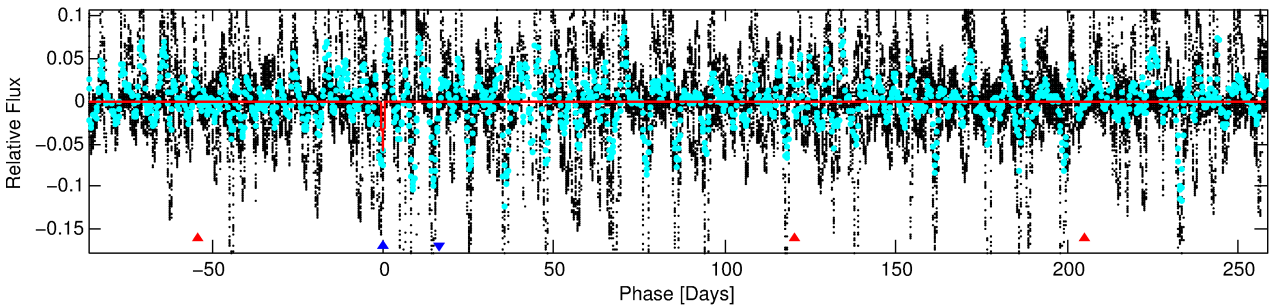
No Significant Match Found

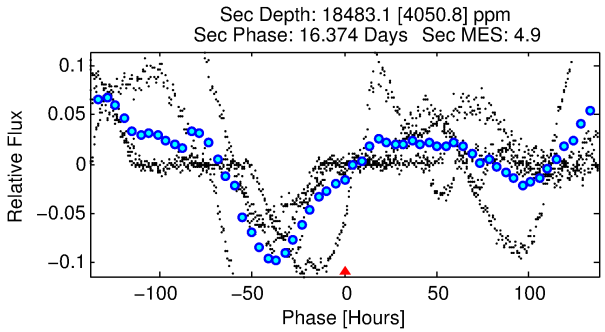
DV One-Page Summary

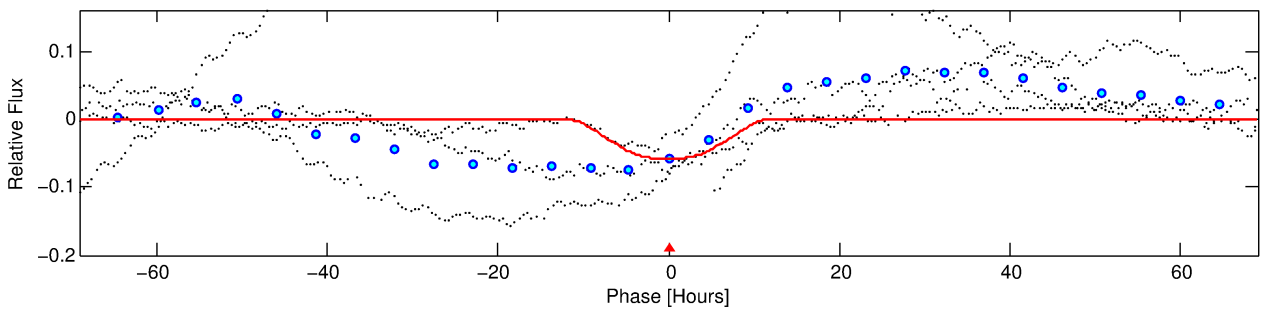
KIC: 9202990 Candidate: 2 of 2 Period: 344.596 d

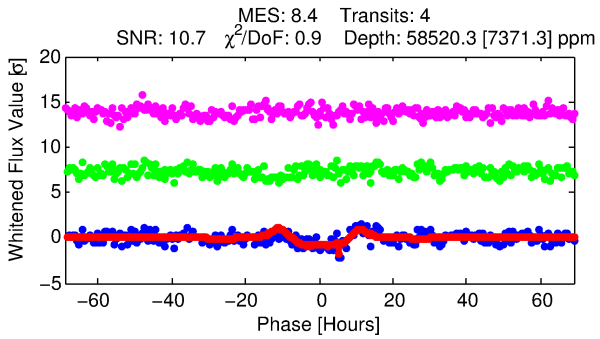
Kp: 15.04 R*: 3.22 Rs Teff: 9669.0 K Logg: 3.85 Fe/H: 0.070

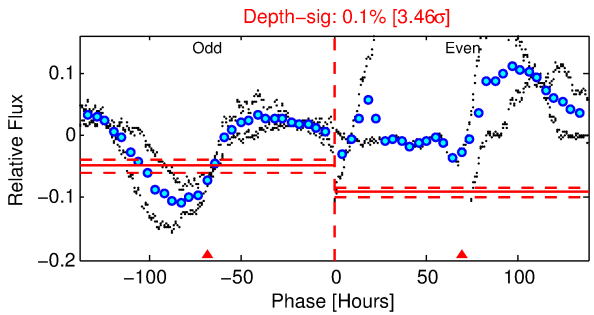


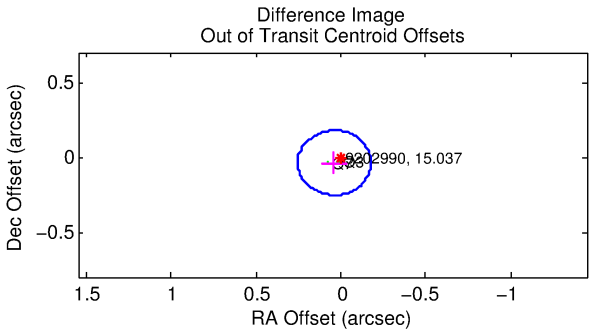












DV Fit Results:

Period = 344.59650 [0.01449] d
Epoch = 339.4911 [0.0229] BKJD
Rp/R* = 0.2450 [0.0205]
a/R* = 112.58 [5.87]
b = 0.76 [0.05]

Seff = 45.43 [29.61]
Teq = 662 [108] K
Rp = 86.12 [41.25] Re
a = 1.3373 [0.5530] AU

Ag = 2451.81 [1669.43] [1.47σ]
Teffp = 7202 [606] K [10.62σ]

DV Diagnostic Results:

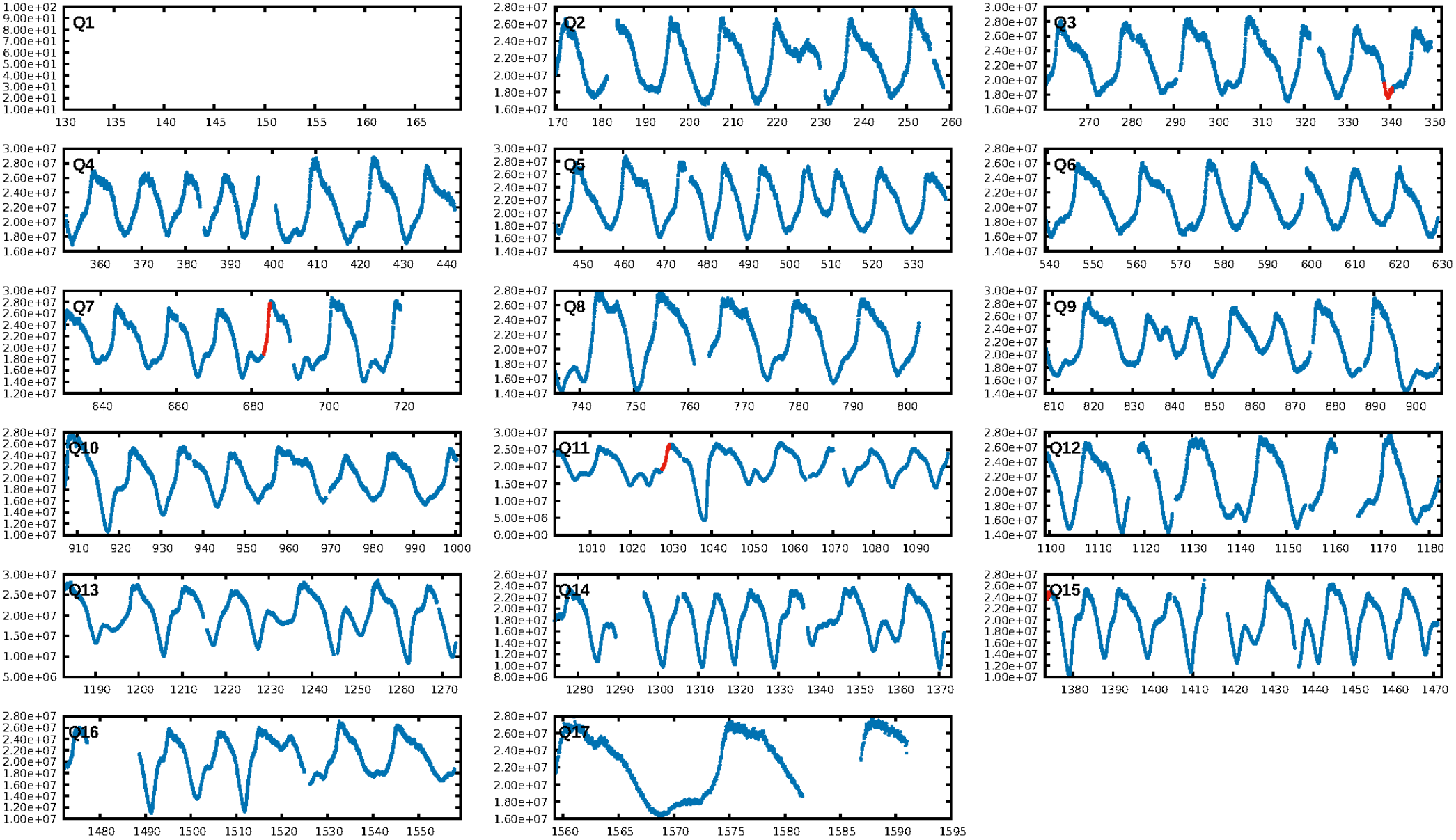
ShortPeriod−sig: N/A
LongPeriod−sig: 100.0% [61.09σ]
ModelChiSquare2−sig: 46.4%
ModelChiSquareGof−sig: 100.0%
Bootstrap−pfa: 8.01e−09
RollingBand−fgt: 1.00 [4/4]
GhostDiagnostic−chr: 1.776

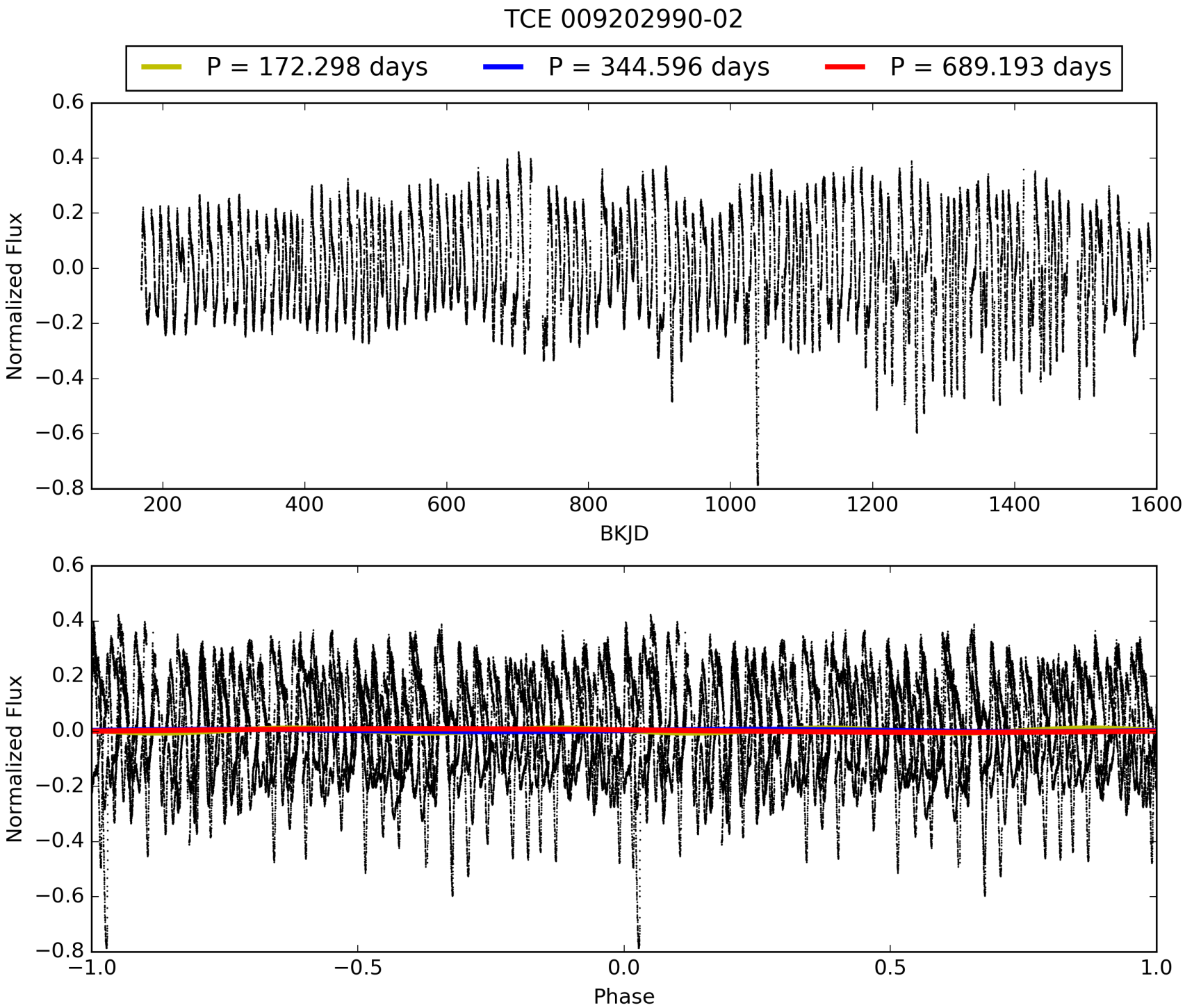
Centroid−sig: 16.7%
Centroid−so: 0.114 arcsec [3.33σ]
OotOffset−rm: 0.055 arcsec [0.77σ]
KicOffset−rm: 0.035 arcsec [0.47σ]
OotOffset−st: 0/2/0/0 [2]
KicOffset−st: 0/2/0/0 [2]
DiffImageQuality−fgm: 1.00 [2/2]
DiffImageOverlap−fno: 1.00 [2/2]

Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01−Feb−2016 09:34:12 Z

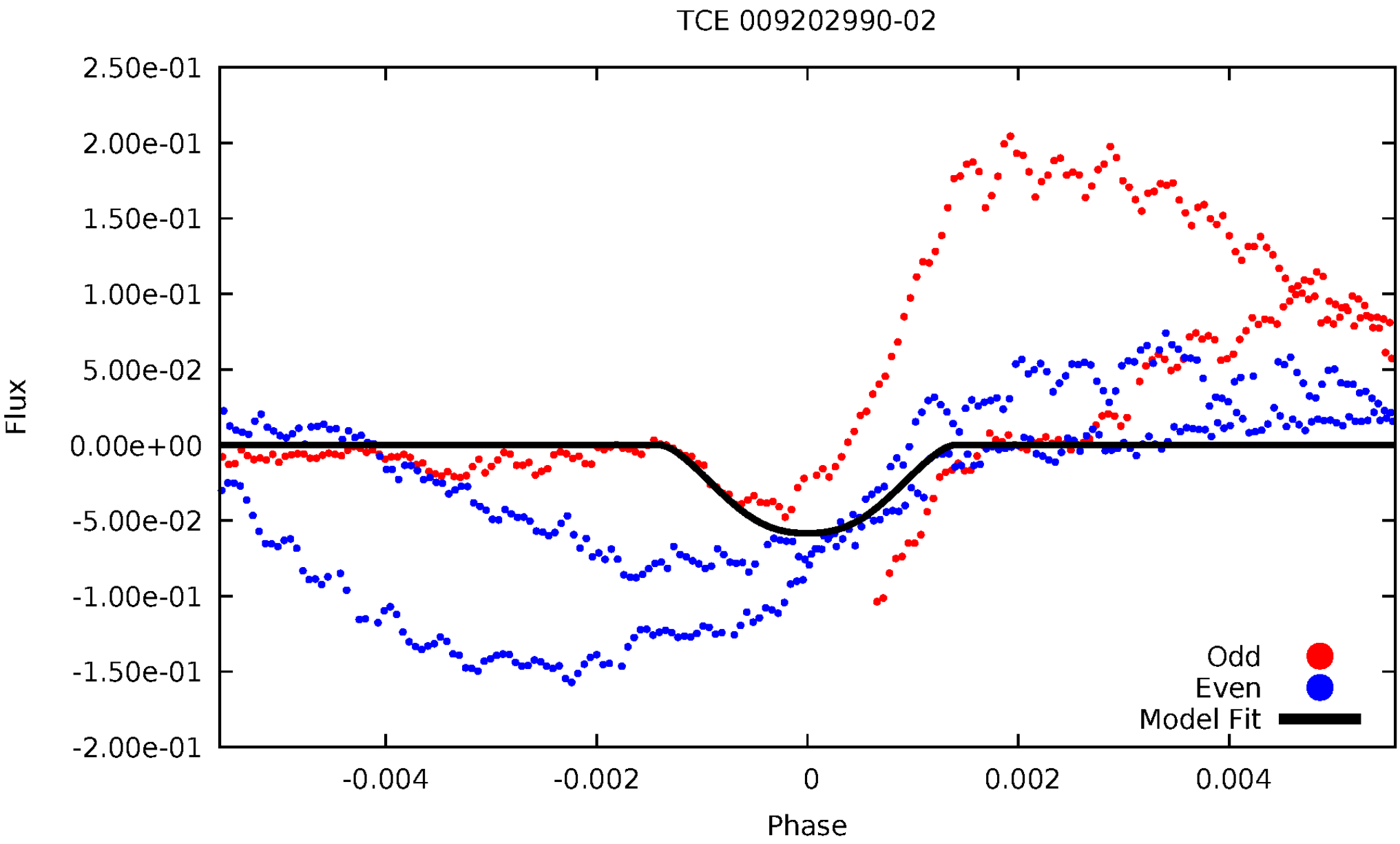
This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

TCE 009202990-02, PDC Light Curves

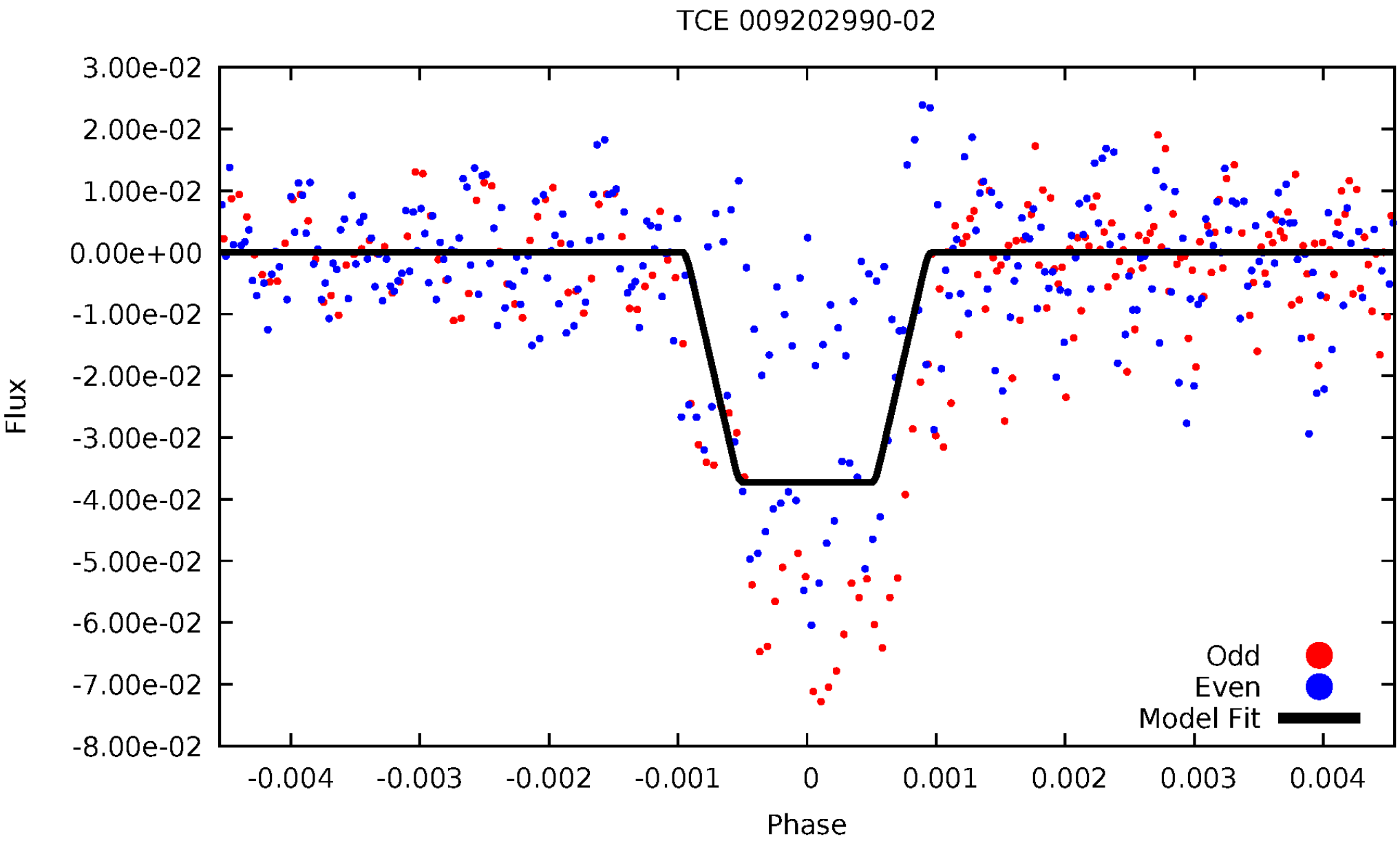



TCE 009202990-02
P = 172.298 days
P = 344.596 days
P = 689.193 days
Normalized Flux
BKJD
Normalized Flux
Phase

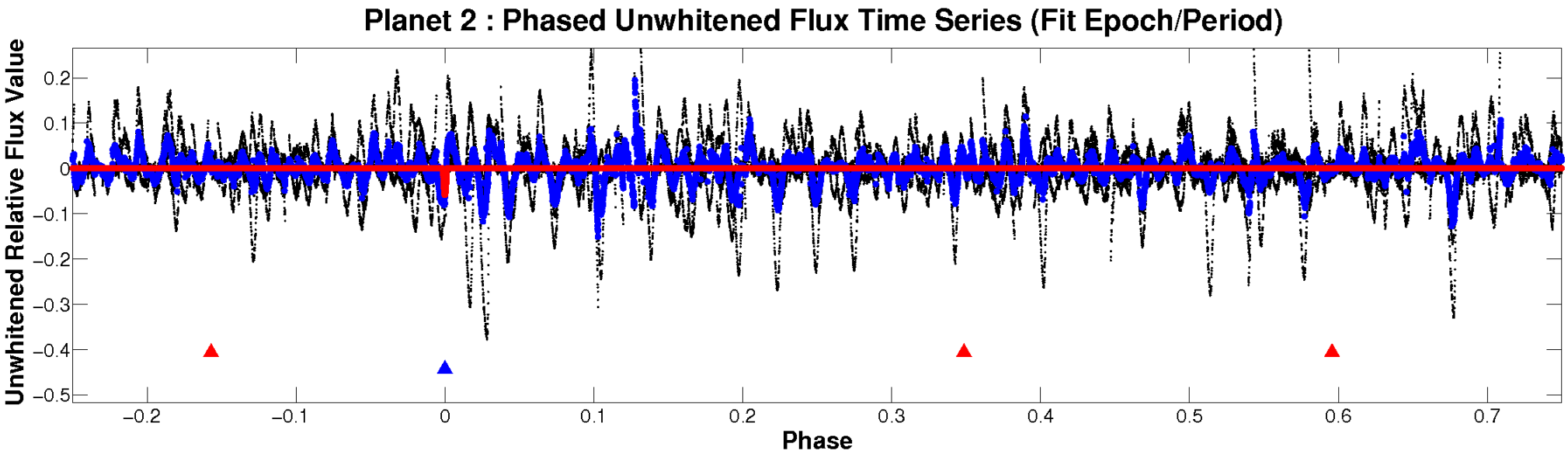
DV Odd/Even

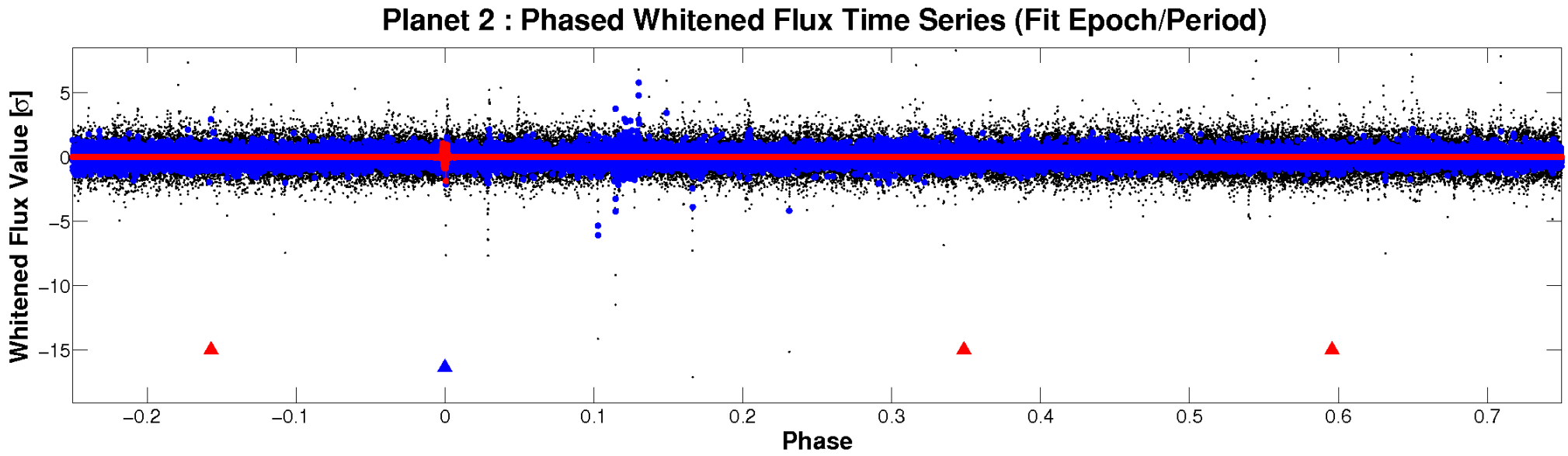

TCE 009202990-02
2.50e-01
2.00e-01
1.50e-01
1.00e-01
5.00e-02
0.00e+00
-5.00e-02
-1.00e-01
-1.50e-01
-2.00e-01
Flux
-0.004
-0.002
0
0.002
0.004
Phase
Odd
Even
Model Fit

ALT Odd/Even


TCE 009202990-02
3.00e-02
2.00e-02
1.00e-02
0.00e+00
-1.00e-02
-2.00e-02
-3.00e-02
-4.00e-02
-5.00e-02
-6.00e-02
-7.00e-02
-8.00e-02
Flux
-0.004
-0.003
-0.002
-0.001
0
0.001
0.002
0.003
0.004
Phase
Odd
Even
Model Fit

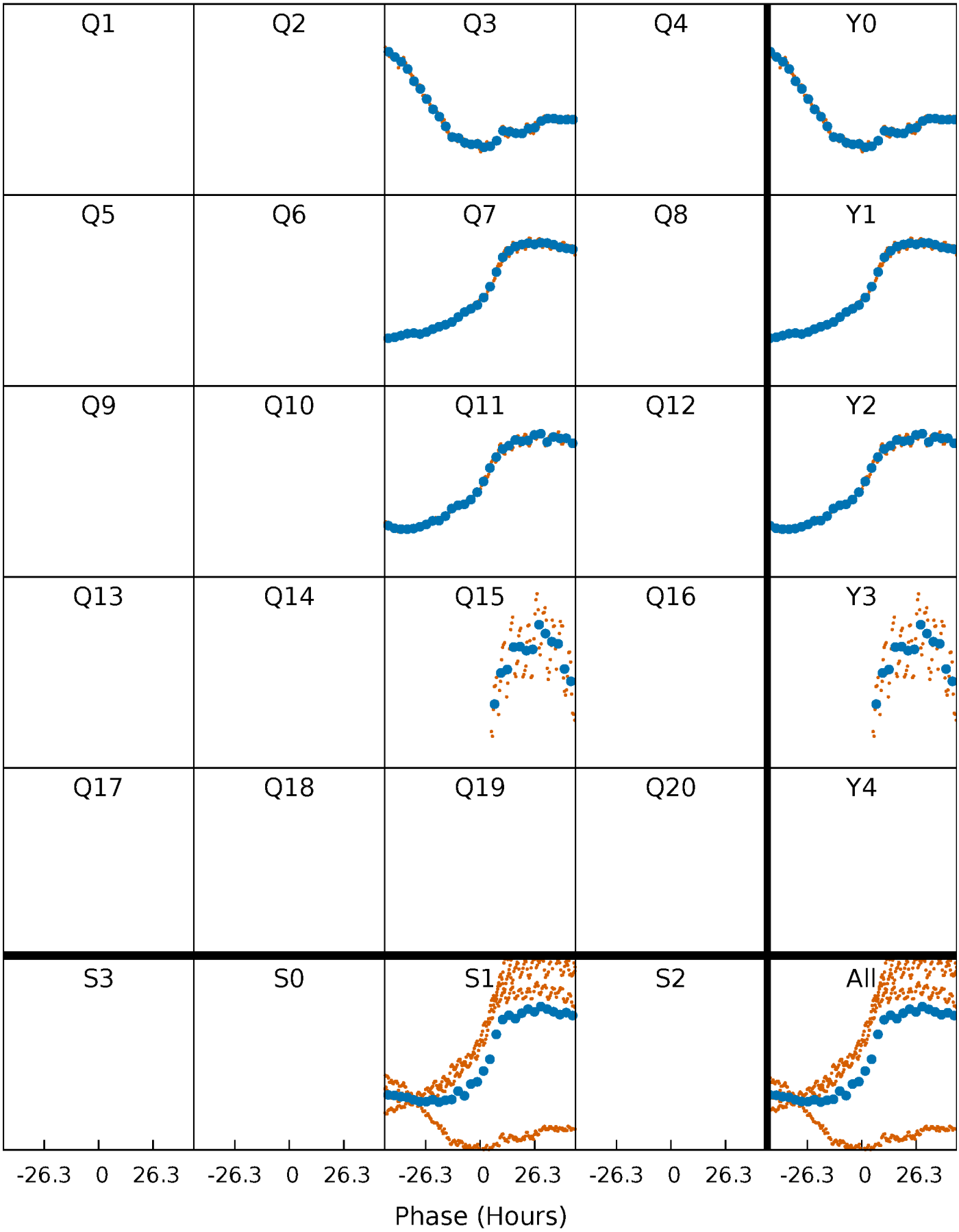
Non-Whitened Vs. Whitened Light Curve





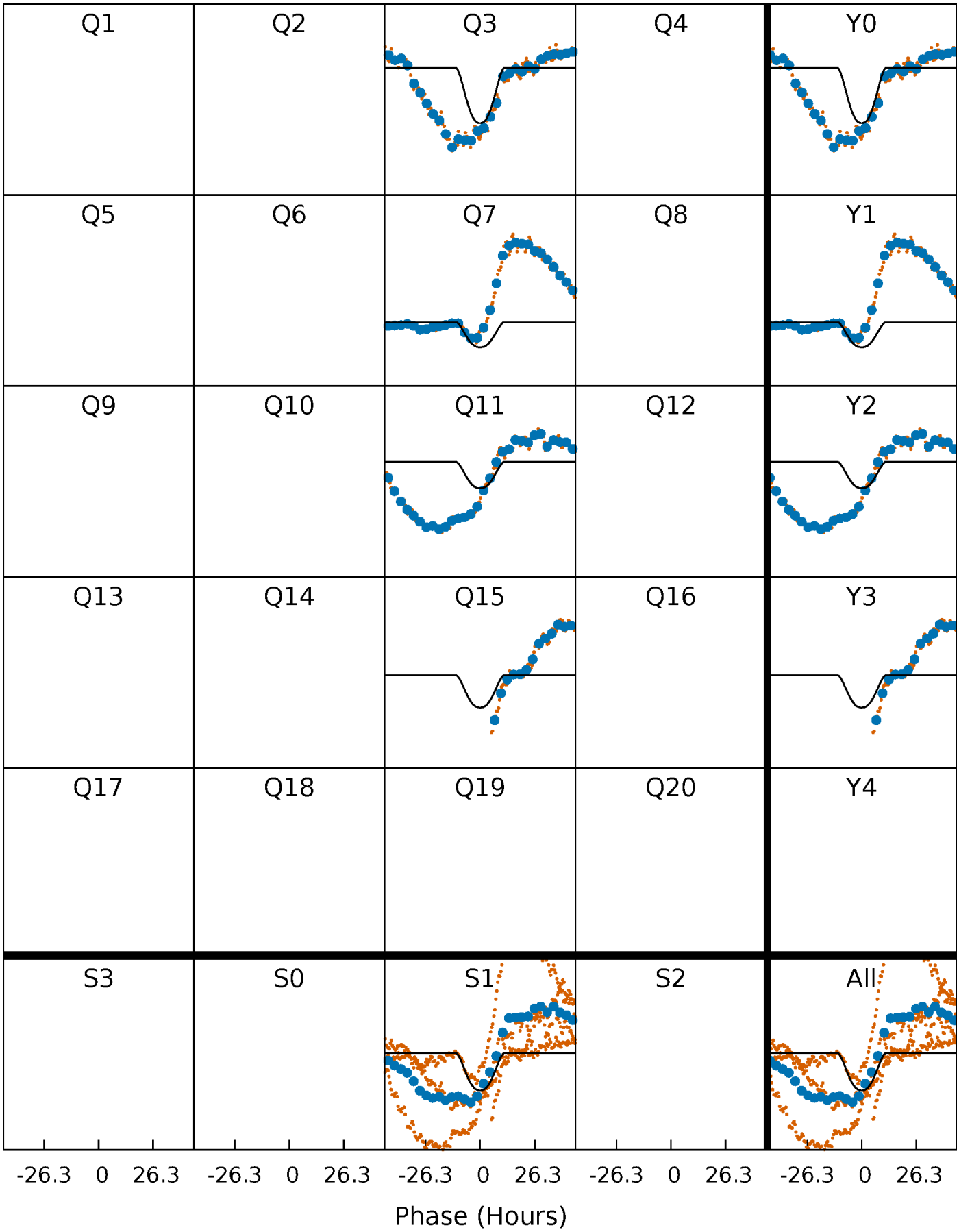
PDC Quarter-Phased Transit Curves

TCE 009202990-02 P=344.596498 Days T_0=339.491084 (BKJD)



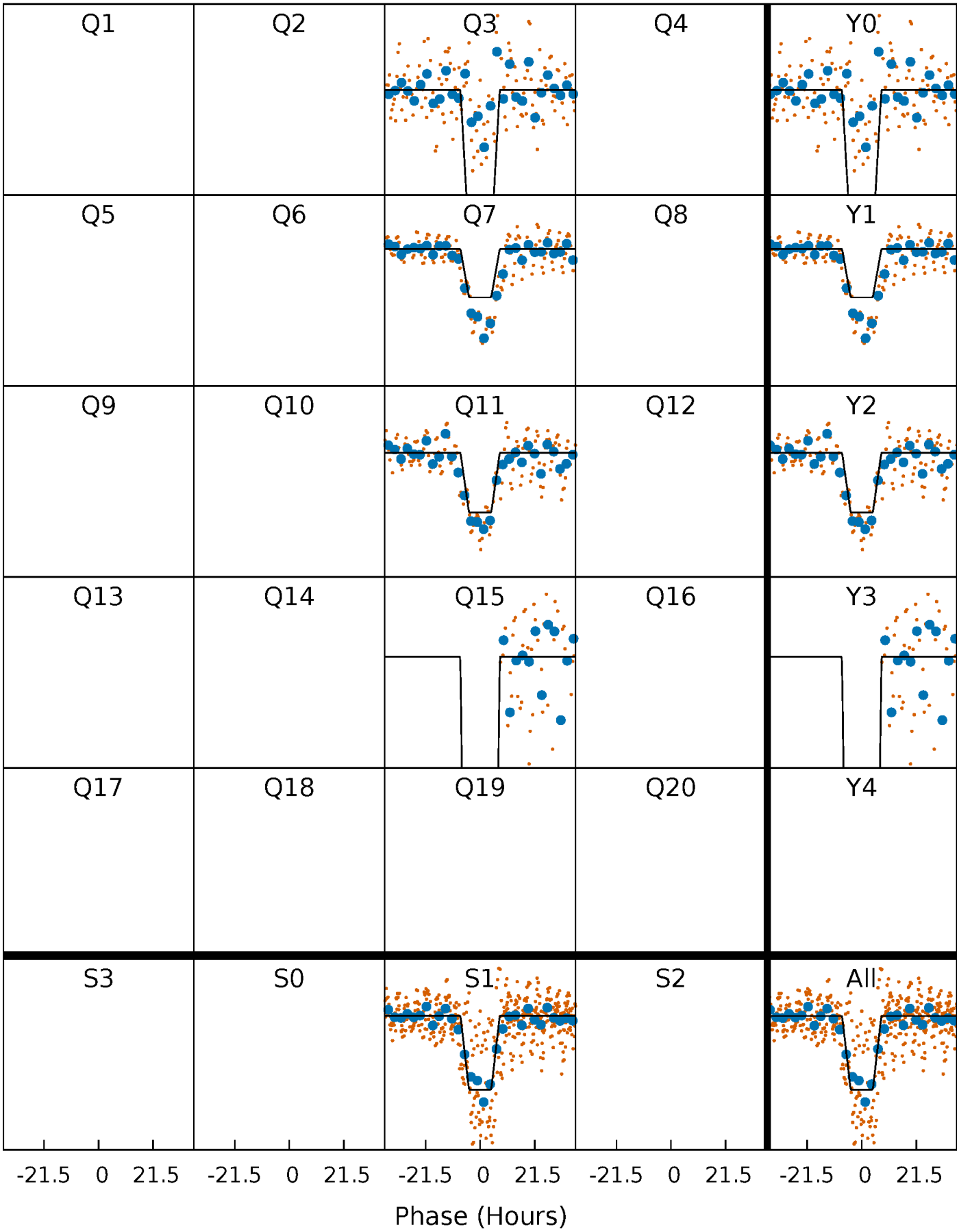
DV Quarter-Phased Transit Curves

TCE 009202990-02 P=344.596498 Days T_0=339.491084 (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

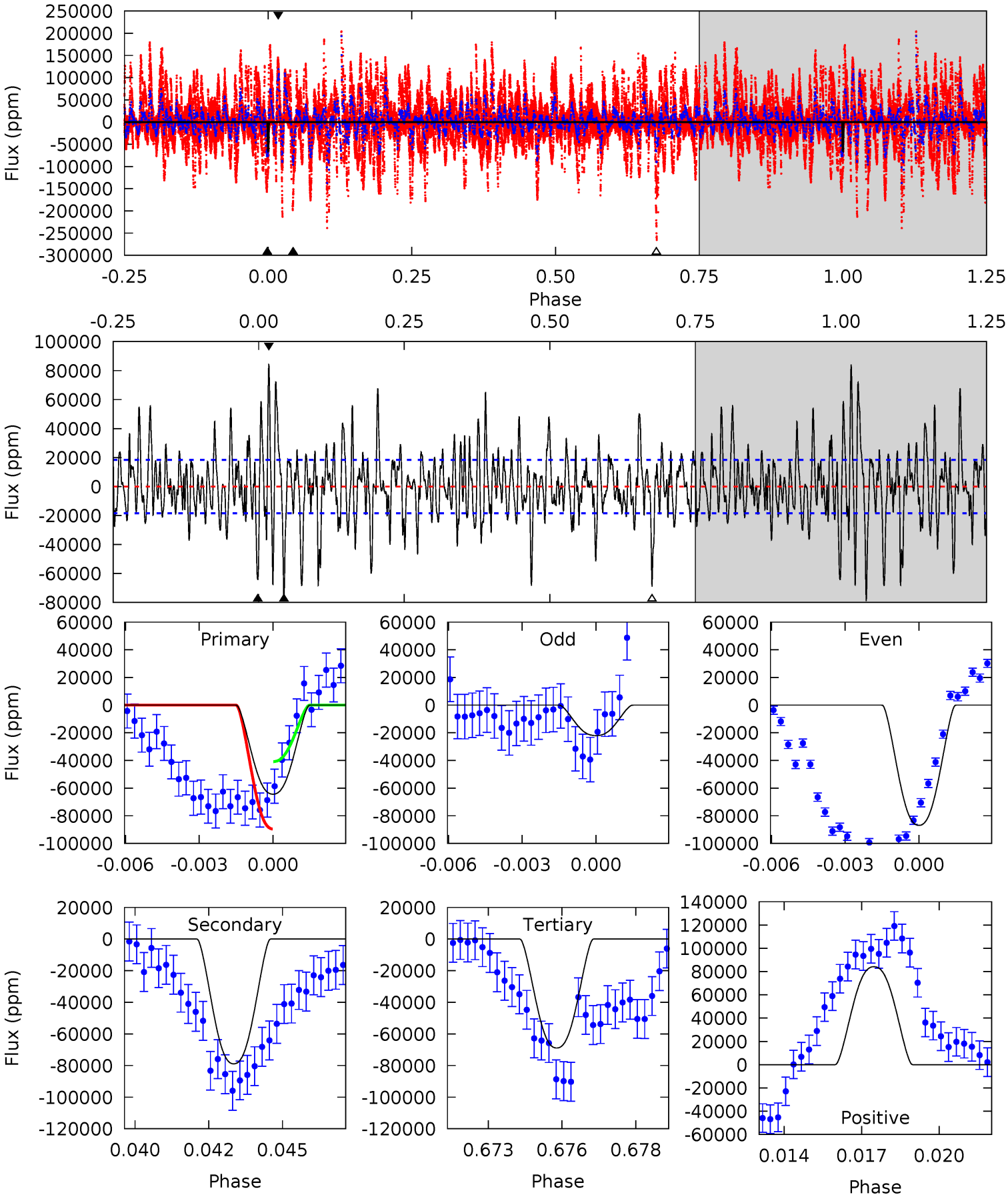
TCE 009202990-02 P=344.516633 Days T_0=339.624877 (BKJD)



DV Model-Shift Uniqueness Test

009202990-02, P = 344.596498 Days, E = 339.491084 Days

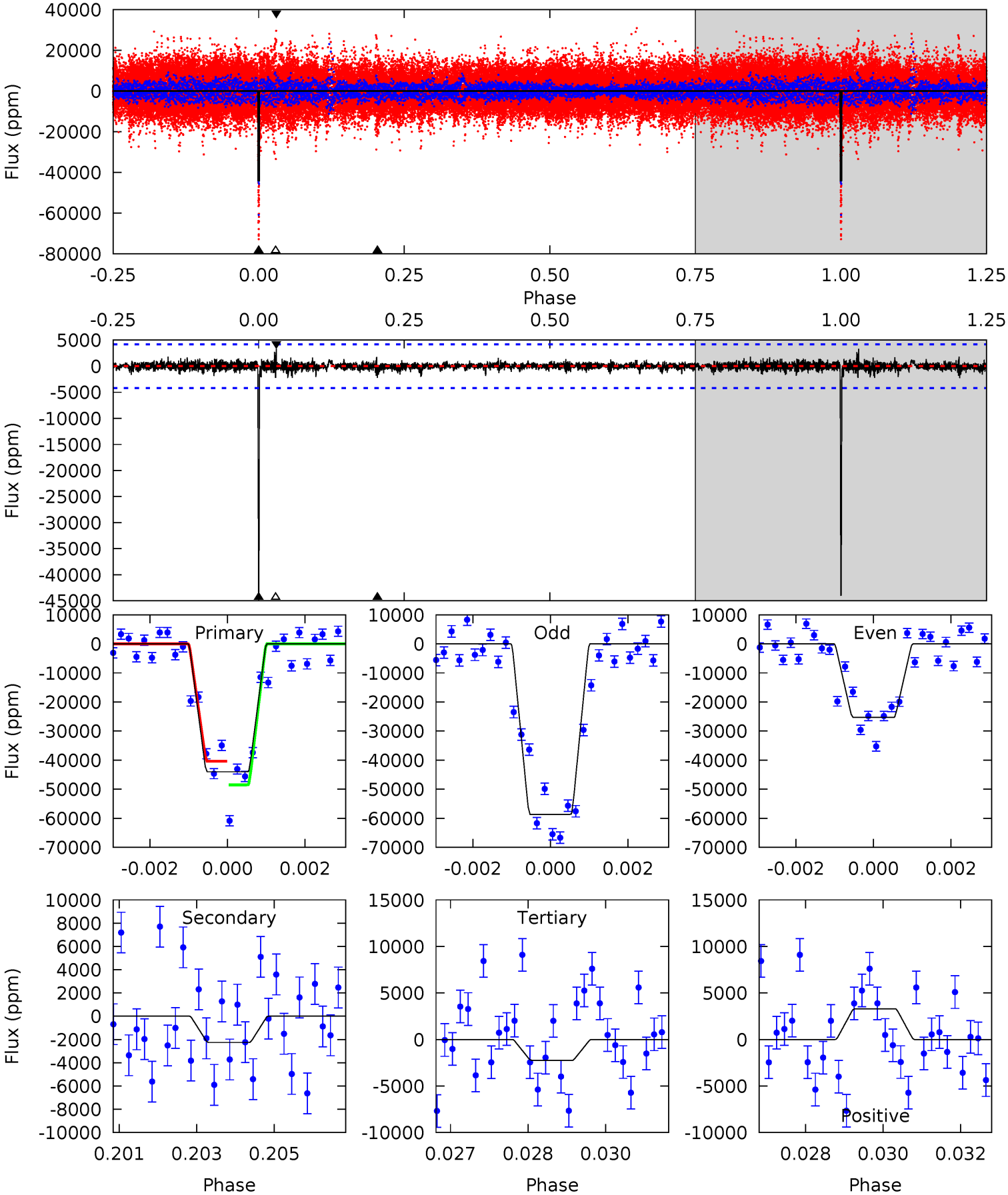
Pri	Sec	Ter	Pos	FA_1	FA_2	F_{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
18.4	22.6	19.7	24.1	5.26	2.99	5.81	-1.30	-5.67	2.87	-1.51	7.23	0.99	0.52	7.04



Alt Model-Shift Uniqueness Test

009202990-02, P = 344.516633 Days, E = 339.624877 Days

Pri	Sec	Ter	Pos	FA_1	FA_2	F_{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
56.1	2.88	2.86	4.20	5.34	3.11	0.56	53.3	51.9	0.02	-1.32	22.9	0.83	0.07	5.04



Stellar Parameters For KIC 009202990

	$T_{\rm eff}(K)$	$\log(g)$	[Fe/H]	R ($R_\odot$)	$M(M_\odot)$	$p_\star$ (g·cm^{-3})
	9669^{+272}_{-467}	$3.851^{+0.350}_{-0.150}$	$0.070^{+0.150}_{-0.650}$	$3.221^{+0.818}_{-1.519}$	$2.688^{+0.318}_{-0.954}$	$0.113^{+0.396}_{-0.051}$
	+3%/-5%	+9%/-4%	+214%/-929%	+25%/-47%	+12%/-35%	+350%/-45%
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 009202990-02 / KOI

Detrend	Depth (ppm)	R_p ($R_\oplus$)	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-78928±3492	$82.91^{+16.33}_{-18.28}$	906^{+78}_{-100}	10981^{+890}_{-854}	11997^{+6680}_{-3429}
Alt.	-2257±784	$64.99^{+14.00}_{-17.03}$	902^{+76}_{-103}	4577^{+391}_{-397}	518^{+366}_{-218}

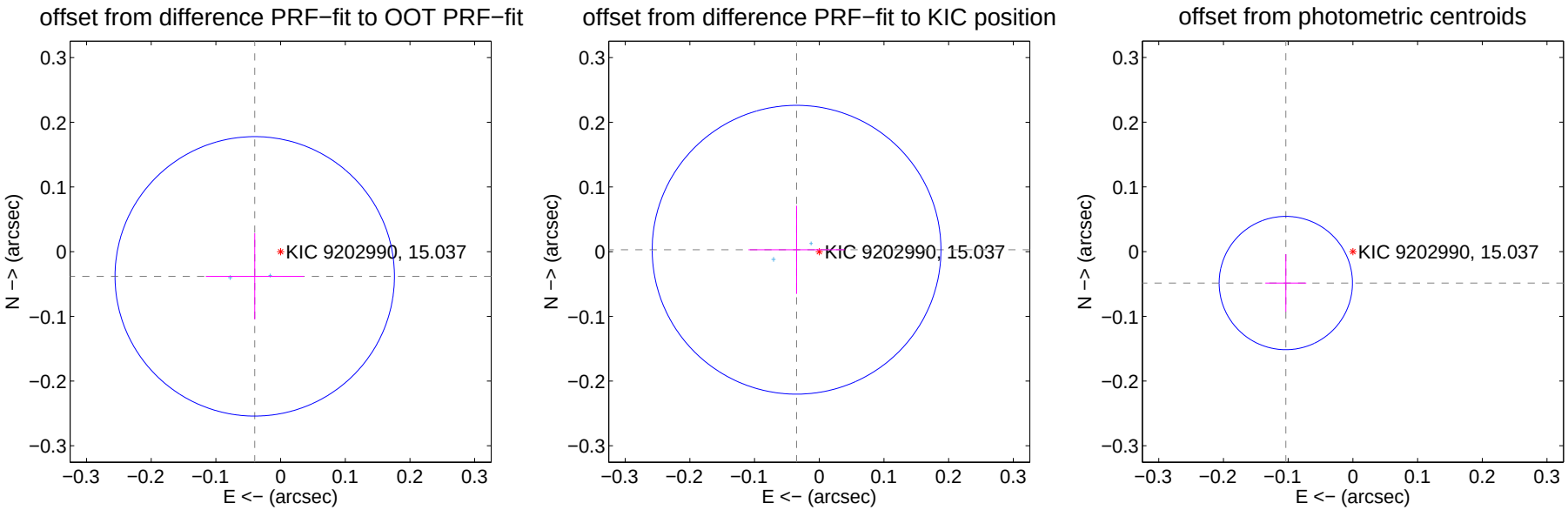
T_{max} = Theoretical Maximum Planetary Temperature
T_{obs} = Observed Planetary Temperature (Assuming A=0.3)
A_{obs} = Observed Albedo (Assuming T=0)

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

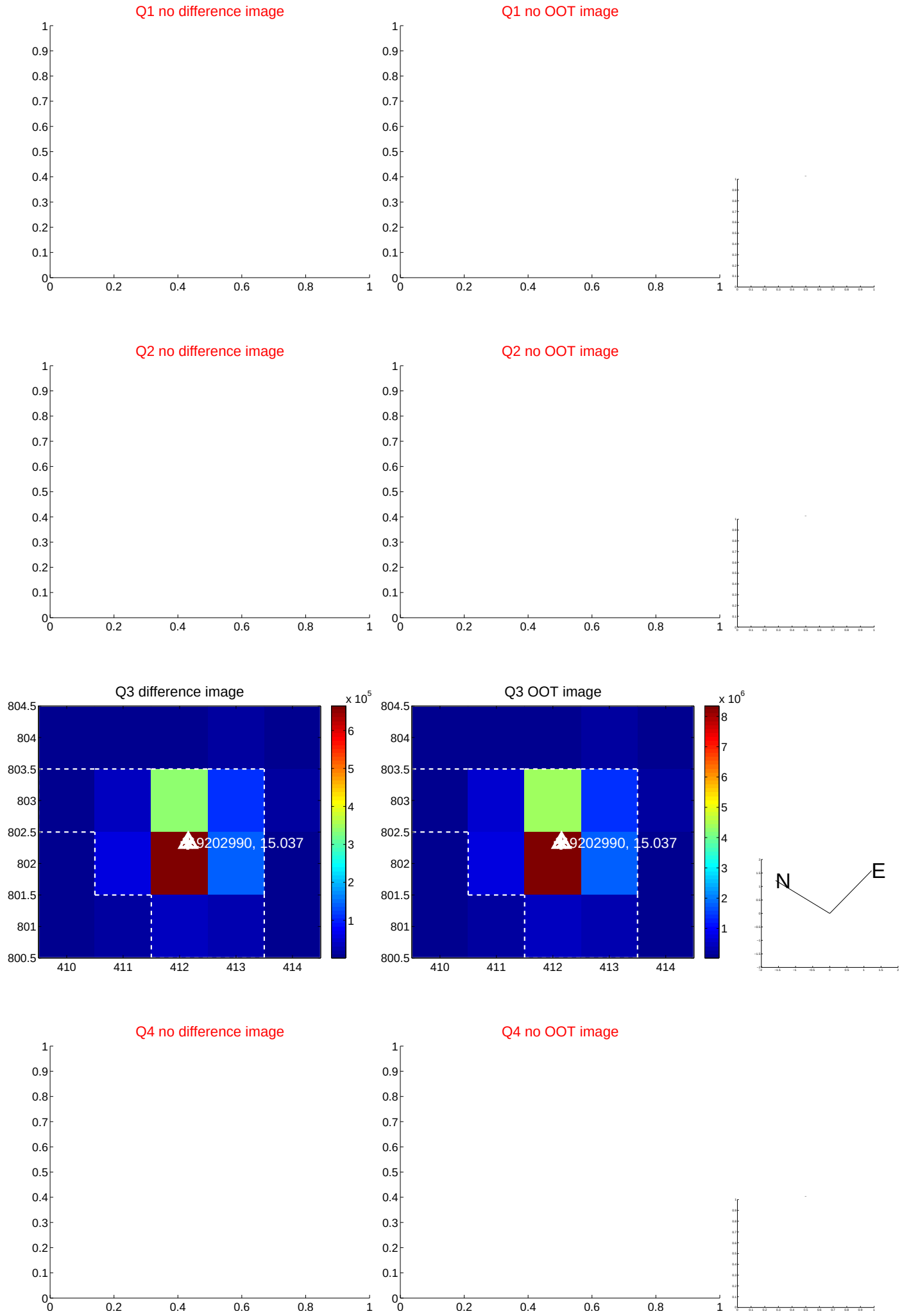
Supplemental centroid analysis for 009202990-02. Kepler magnitude: 15.04. Transit SNR 10.70
There are 2 quarters with good PRF difference image offsets
The direct PRF centroid is offset from the target star catalog position by about 0.03 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.055 ± 0.072	0.77	0.040 ± 0.076	-0.038 ± 0.067
PRF-fit source offset from KIC position	0.035 ± 0.074	0.47	0.035 ± 0.074	0.003 ± 0.068
photometric centroid source offset	0.11 ± 0.03	3.33	0.10 ± 0.03	-0.05 ± 0.04

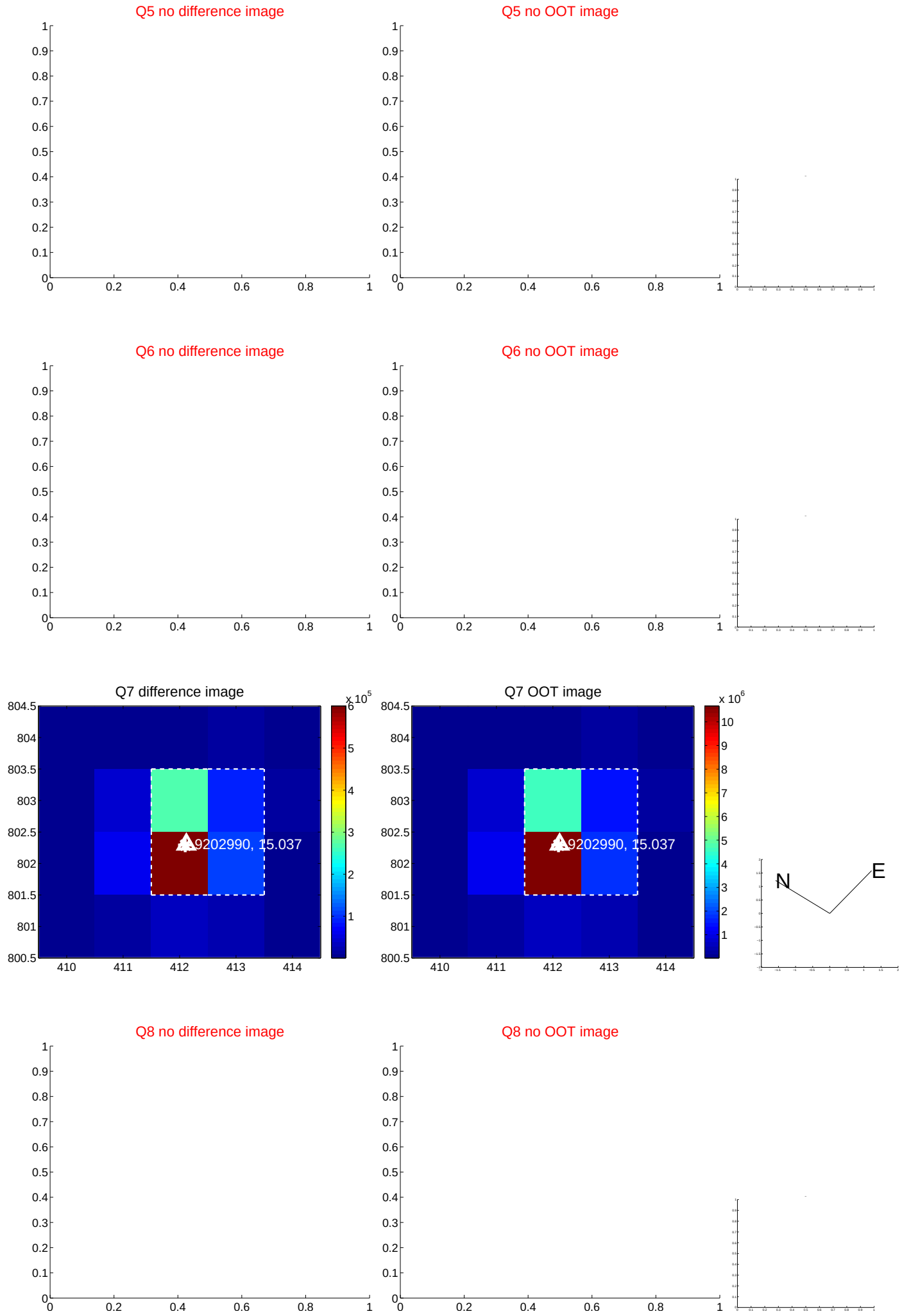


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one-σ uncertainty. Blue circle: three-σ. Red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

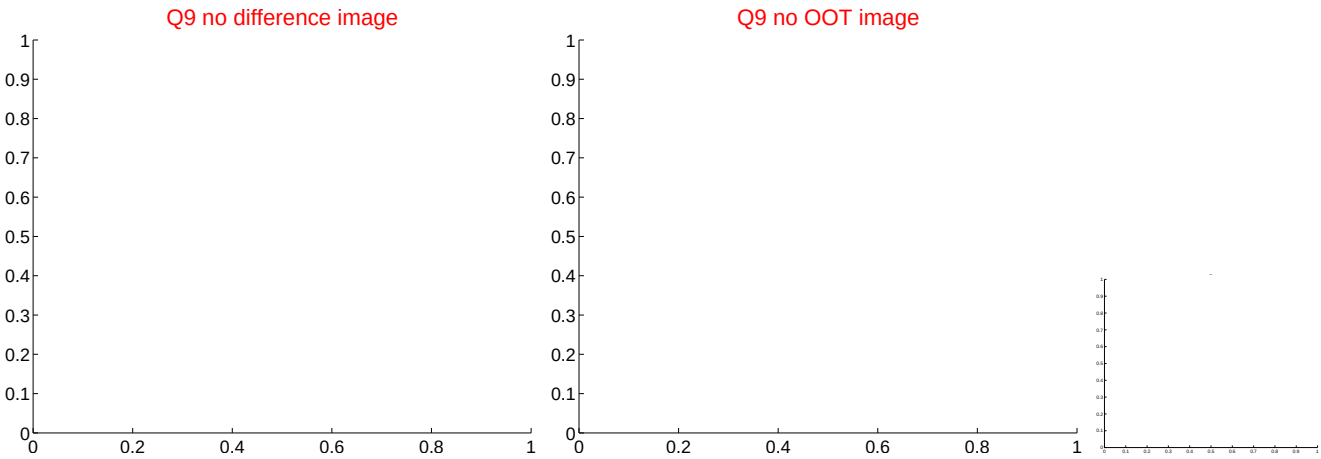
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.

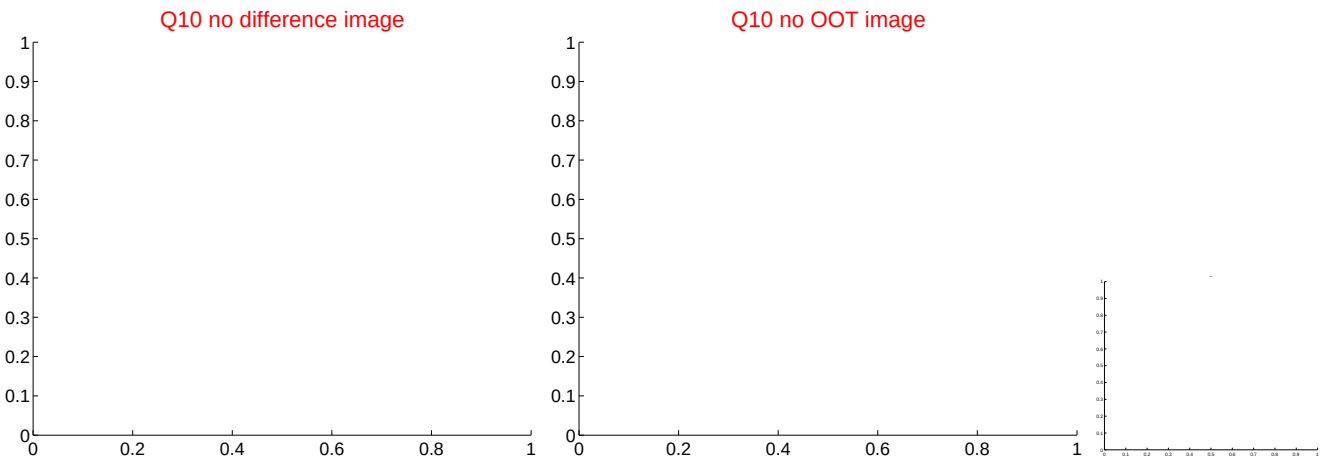


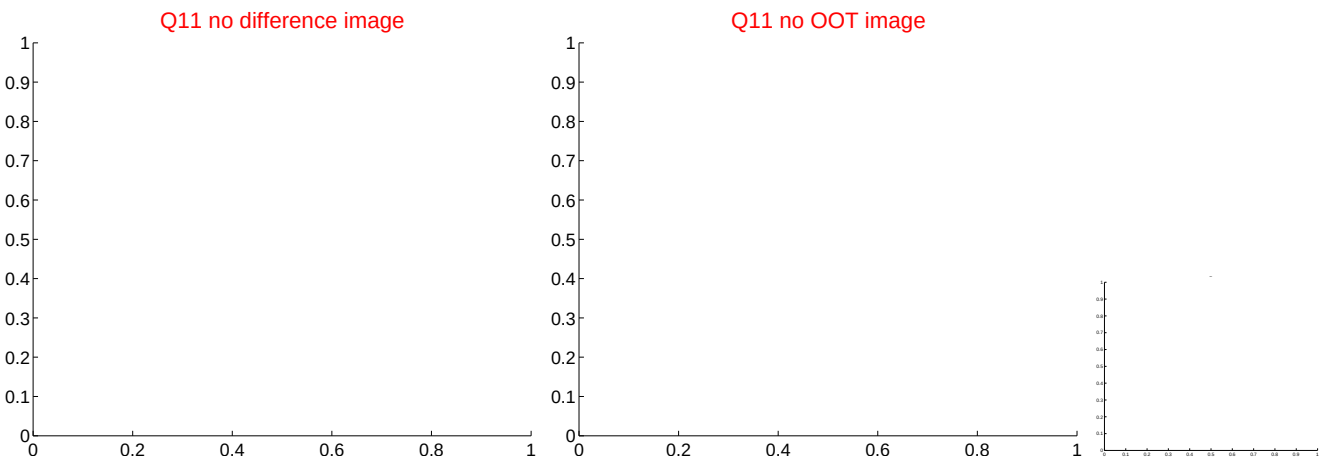
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.

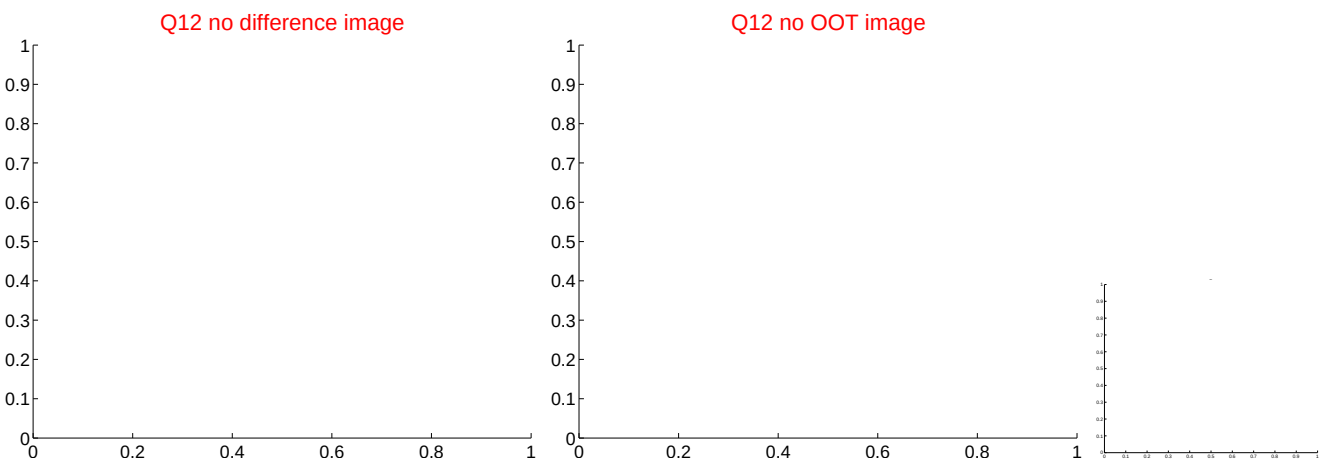


white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.

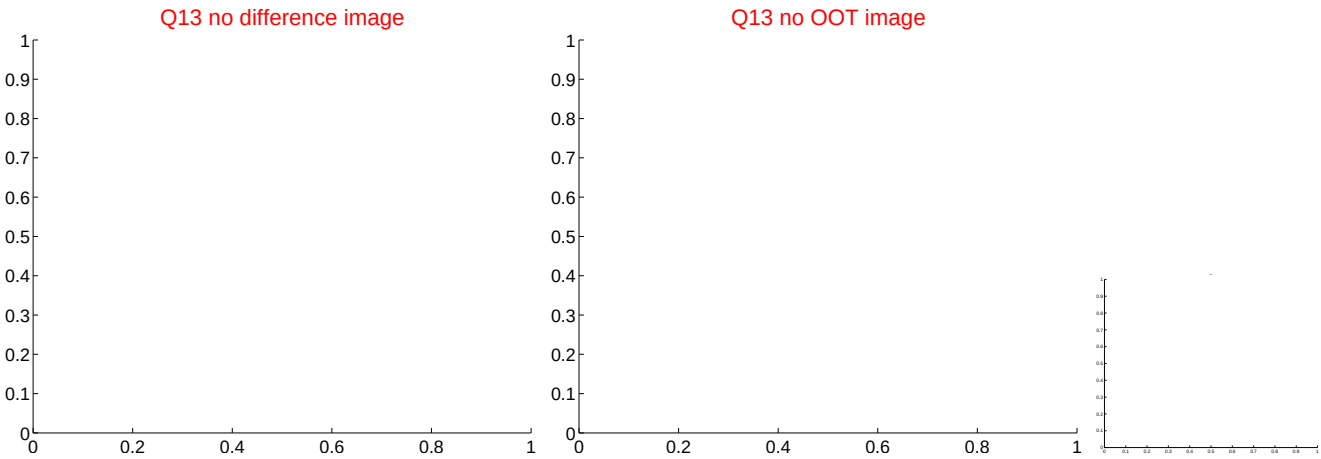


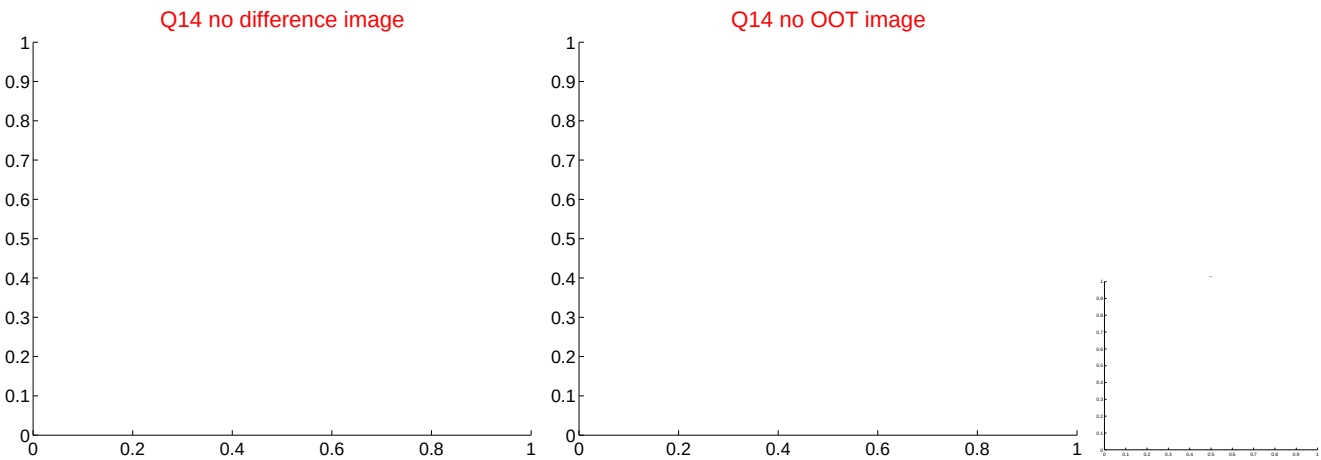


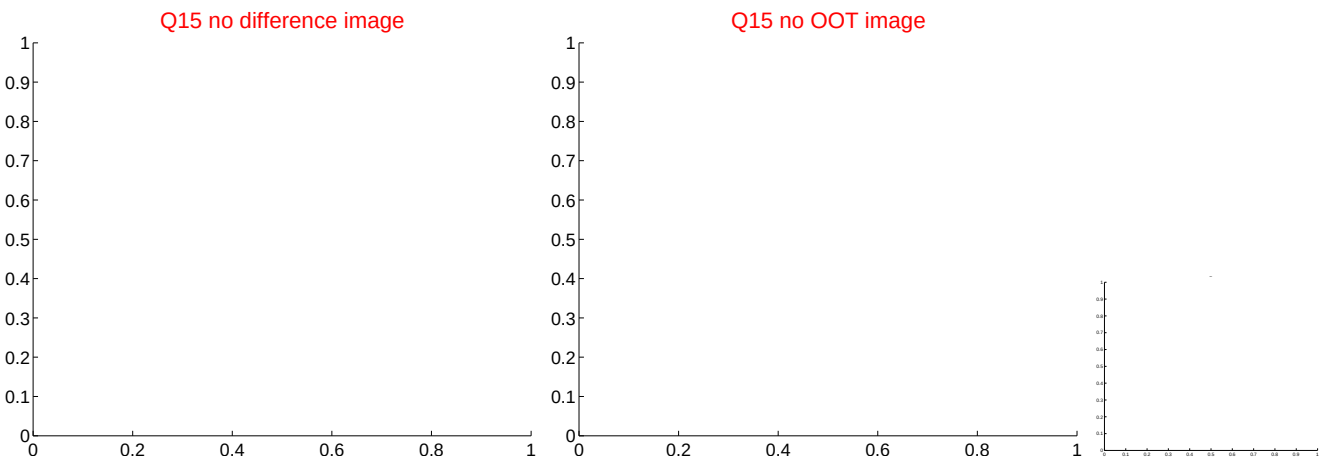


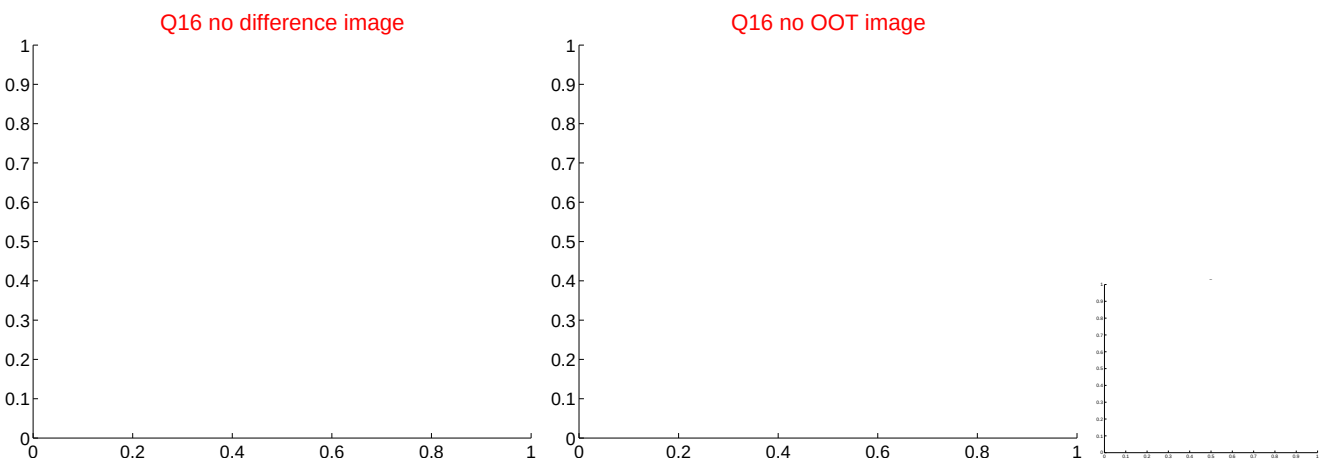


white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.

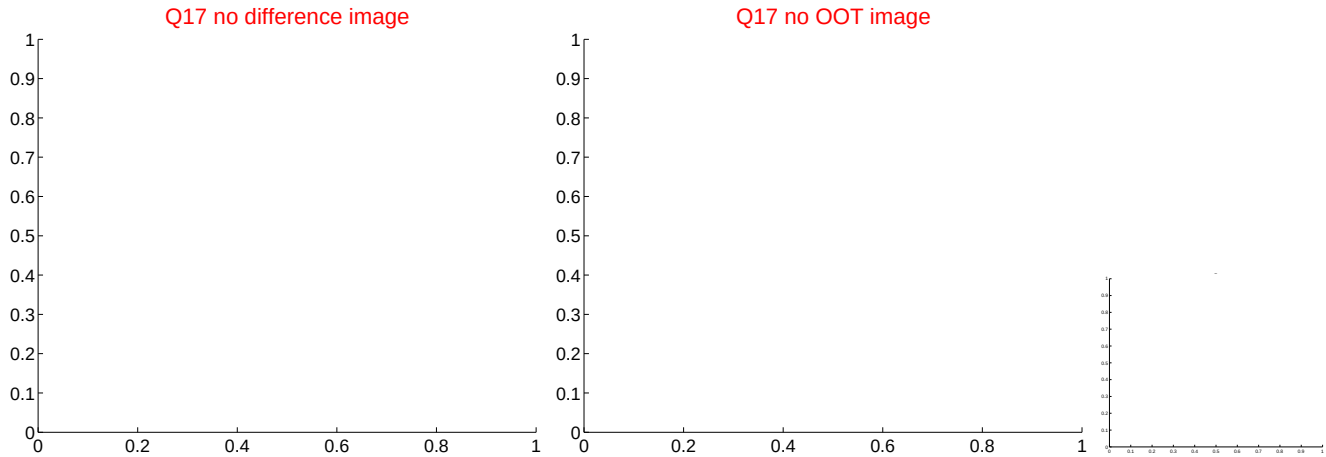


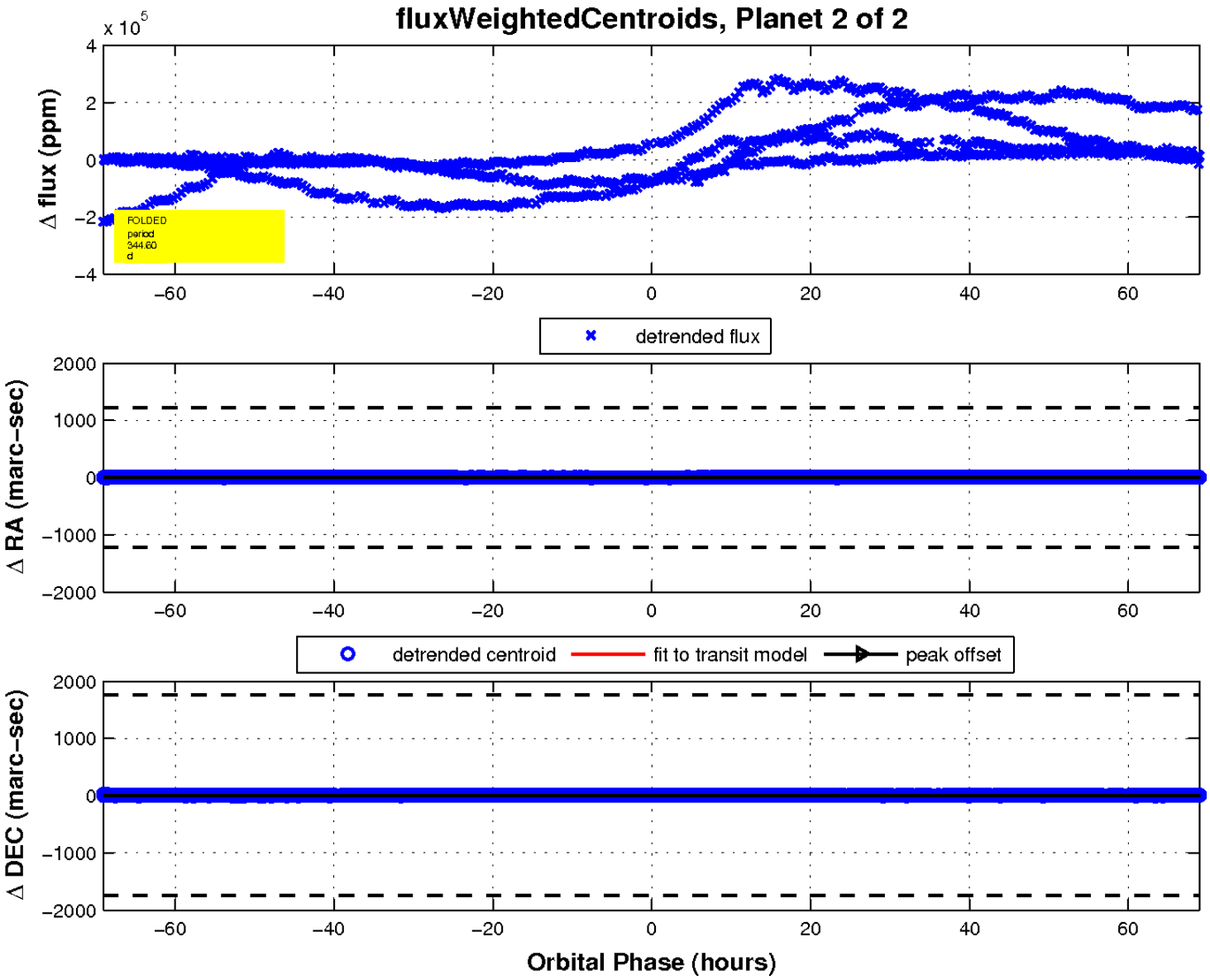




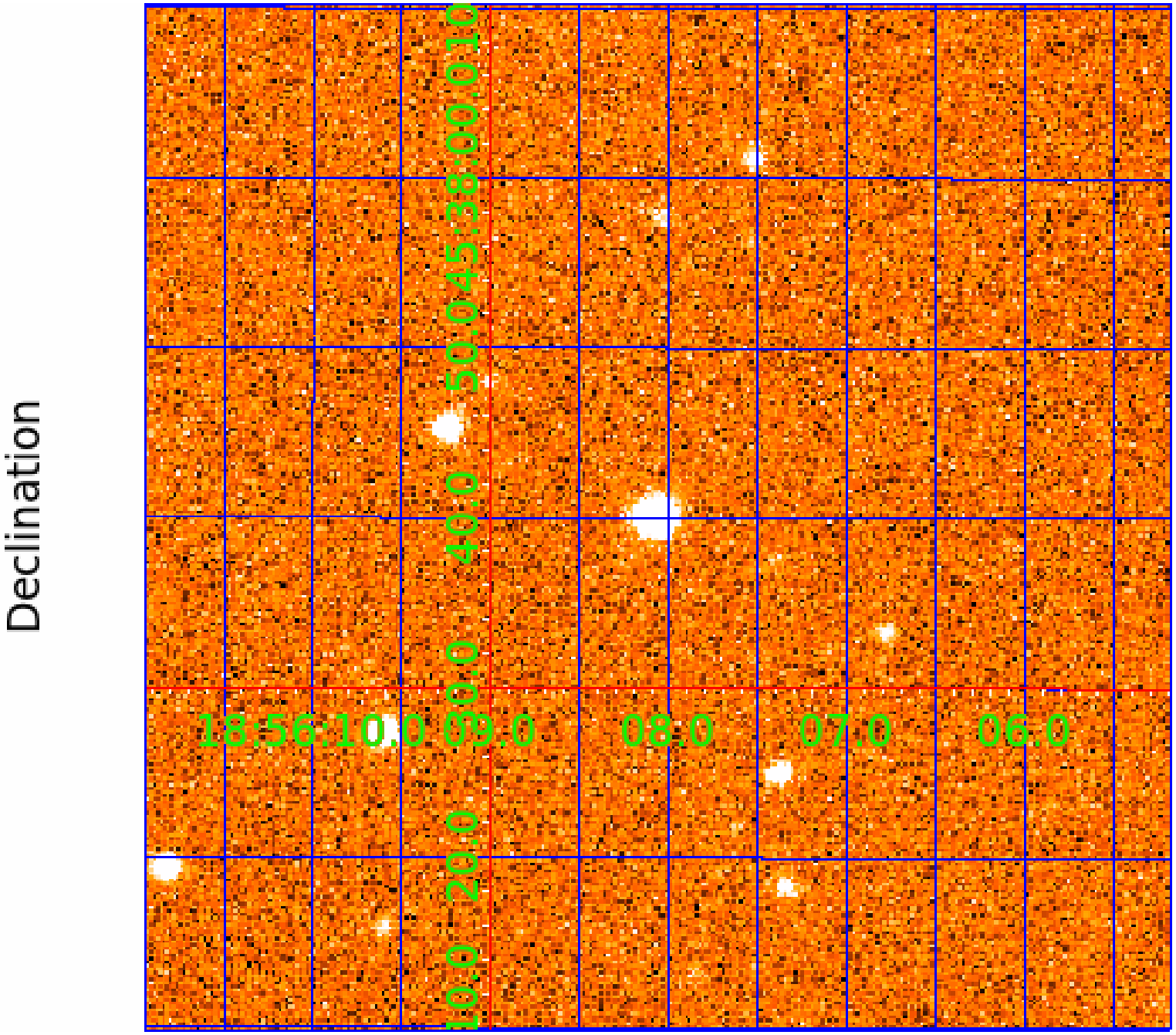


white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.





UKIRT Image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