KIC 009114508

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 ($S_\oplus$)
009114508-01	OBS	No	196.910850	254.538746	2537.5	3.422	16.4	5.8	0.65	4070	3.38	0.31
009114508-02	OBS	No	365.013854	229.739206	3056.3	2.416	12.8	6.6	0.65	4070	3.67	0.14
009114508-03	OBS	No	328.229587	159.997728	3398.6	6.714	11.7	7.3	0.65	4070	3.75	0.16
009114508-04	OBS	8178.01	256.604646	141.339536	1553.6	15.000	9.1	-1.0	0.65	4070	2.44	0.22

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009114508-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_SKYE—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
009114508-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_POS_DV—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
009114508-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
009114508-04	OBS	FP	0.00	1	0	0	0	ALL_TRANS_CHASES—INCONSISTENT_TRANS—CENT_NOFITS

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.

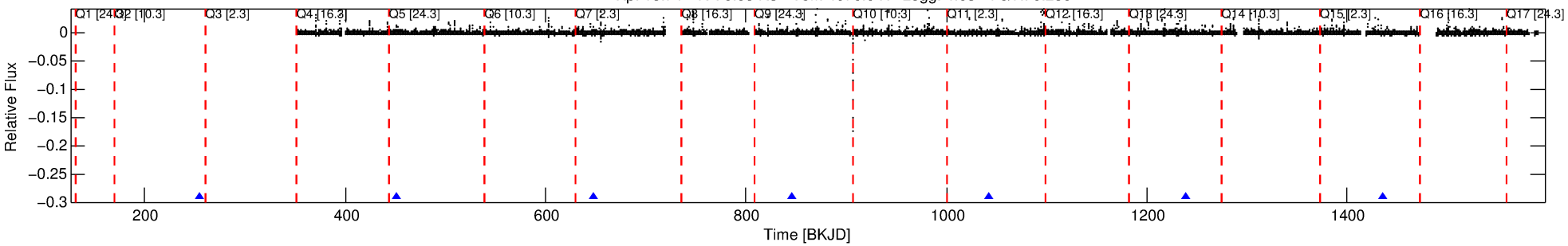
Ephemeris Match Information For 009114508-01

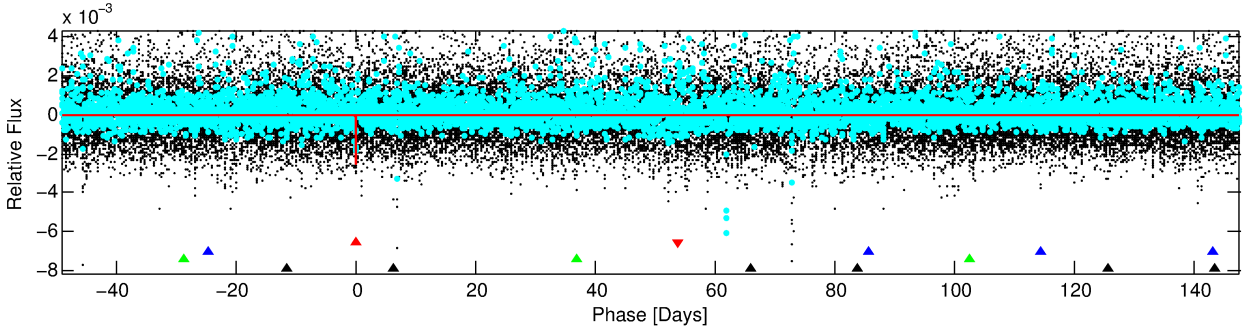
No Significant Match Found

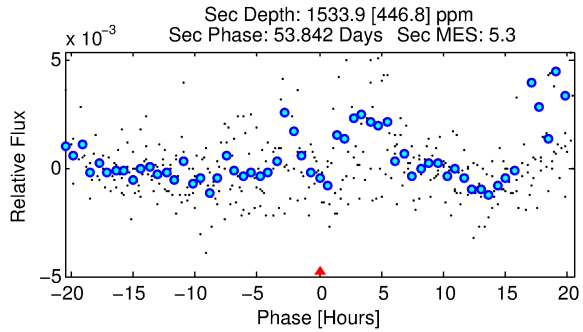
DV One-Page Summary

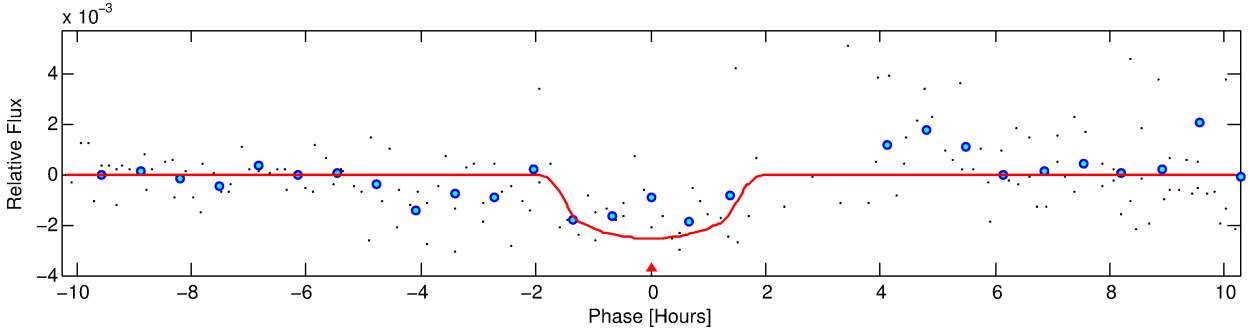
KIC: 9114508 Candidate: 1 of 4 Period: 196.911 d

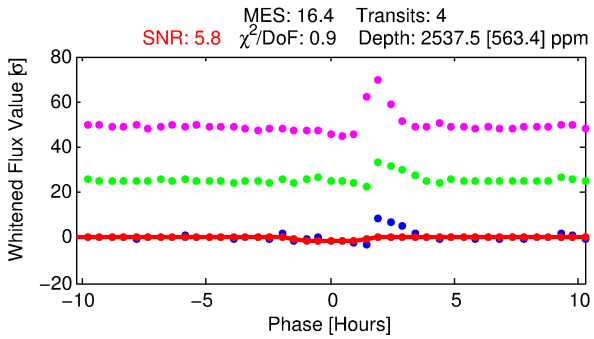
Kp: 15.74 R*: 0.65 Rs Teff: 4070.0 K Logg: 4.63 Fe/H: 0.280

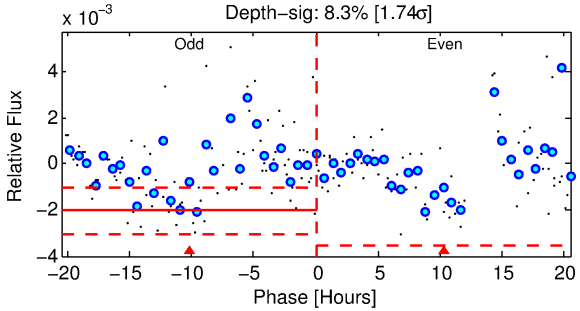


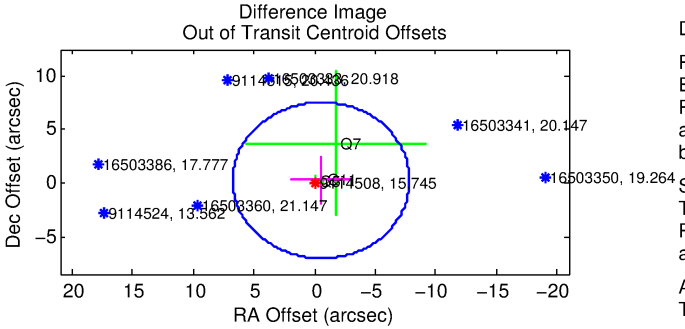












DV Fit Results:

Period = 196.91085 [0.00340] d
Epoch = 254.5387 [0.0117] BKJD
Rp/R* = 0.0480 [0.0876]
a/R* = 368.64 [2049.17]
b = 0.63 [5.52]

Seff = 0.31 [0.06]
Teq = 191 [9] K
Rp = 3.38 [6.18] Re
a = 0.5728 [0.0437] AU

Ag = 24193.03 [88618.85] [0.27σ]
Teffp = 3677 [3368] K [1.03σ]

DV Diagnostic Results:

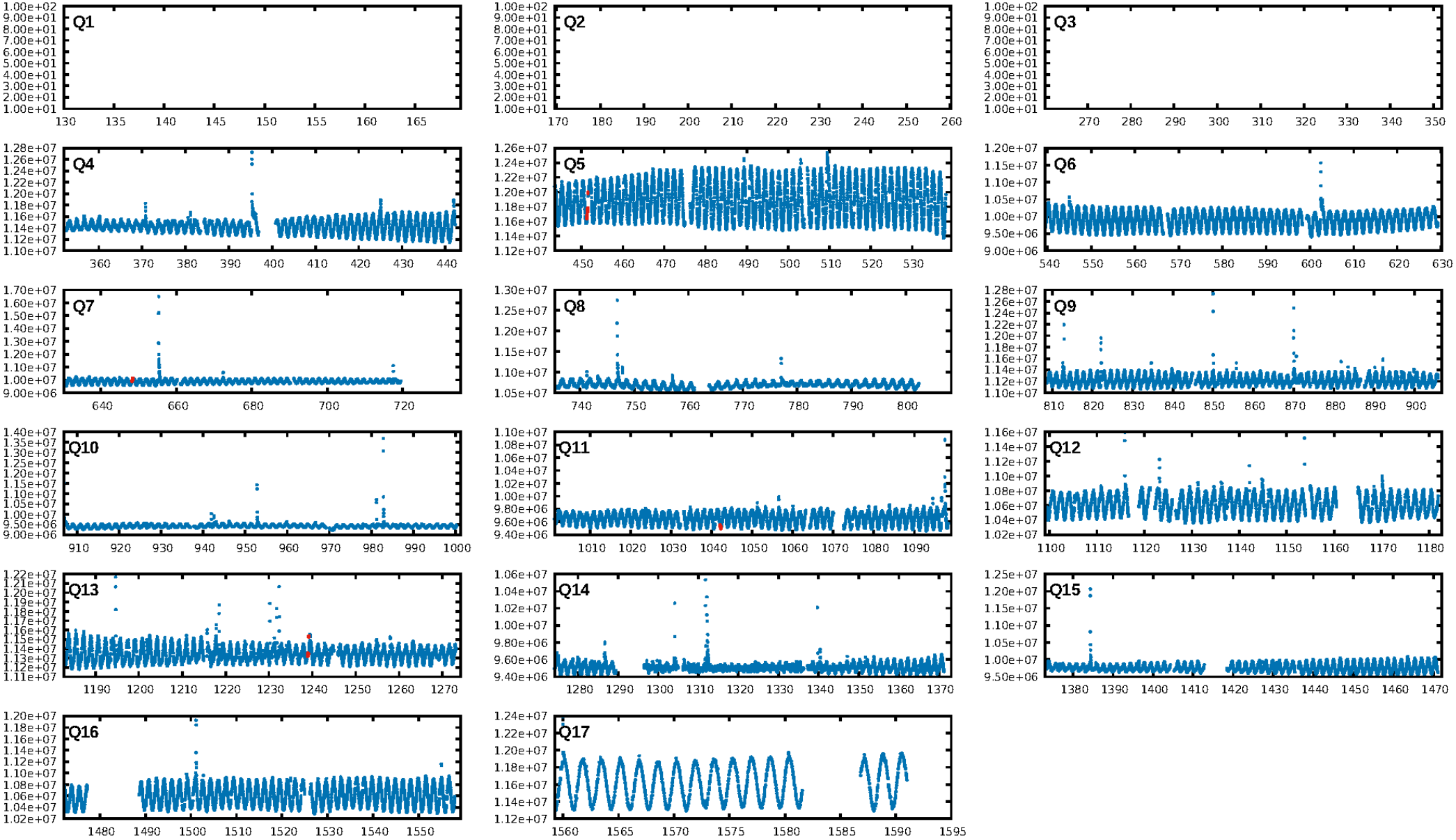
ShortPeriod−sig: N/A
LongPeriod−sig: 100.0% [93.12σ]
ModelChiSquare2−sig: 28.7%
ModelChiSquareGof−sig: 93.0%
Bootstrap−pfa: 2.54e−21
RollingBand−fgt: 1.00 [4/4]
GhostDiagnostic−chr: 2.886

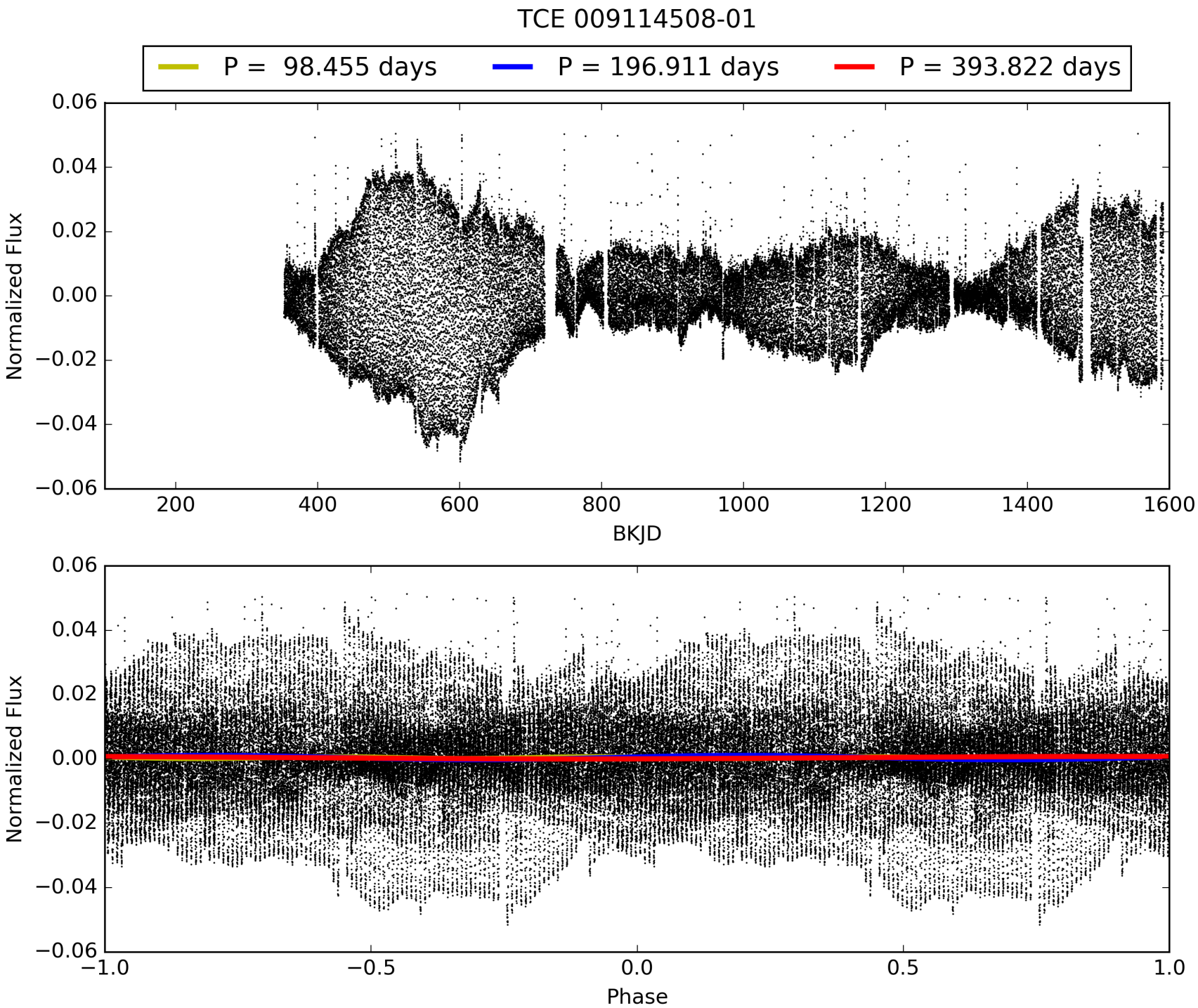
Centroid−sig: 27.9%
Centroid−so: 1.115 arcsec [0.86σ]
OotOffset−rm: 0.600 arcsec [0.25σ]
KicOffset−rm: 0.081 arcsec [0.04σ]
OotOffset−st: 0/2/0/1 [3]
KicOffset−st: 0/2/0/1 [3]
DiffImageQuality−fgm: 0.67 [2/3]
DiffImageOverlap−fno: 1.00 [4/4]

Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31−Jan−2016 17:02:20 Z

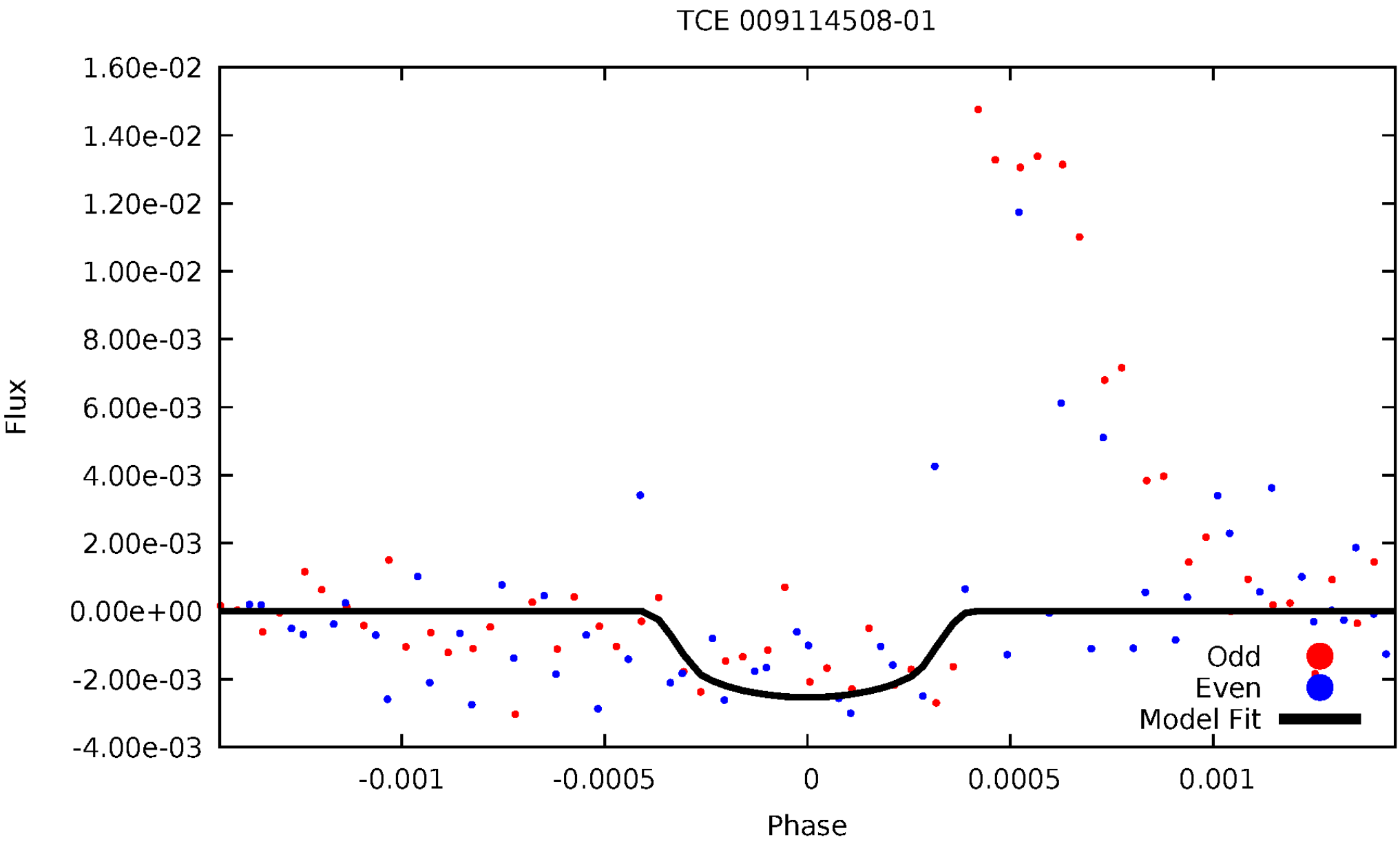
This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

TCE 009114508-01, PDC Light Curves




TCE 009114508-01
P = 98.455 days
P = 196.911 days
P = 393.822 days
Normalized Flux
BKJD
Normalized Flux
Phase

DV Odd/Even


TCE 009114508-01
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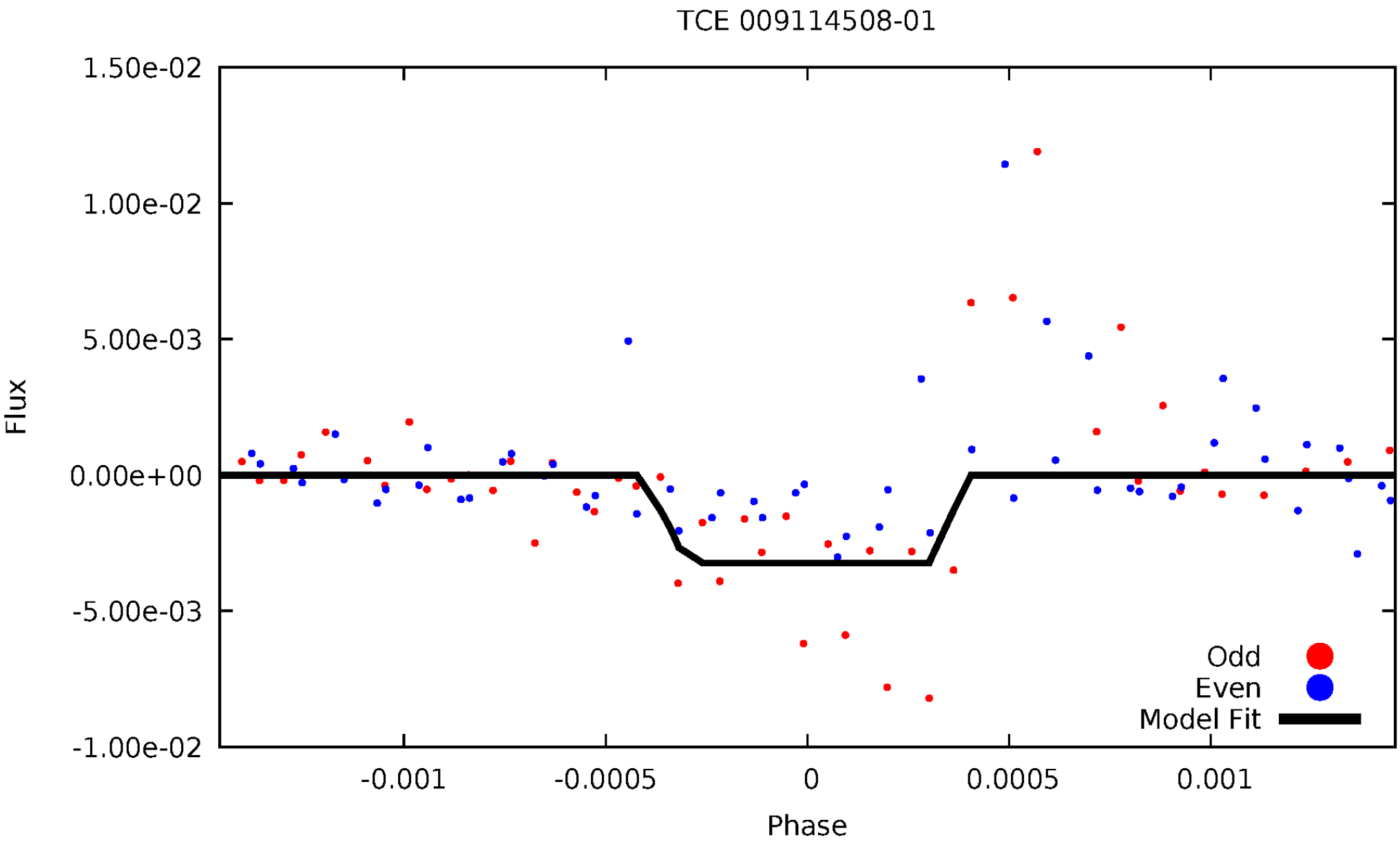
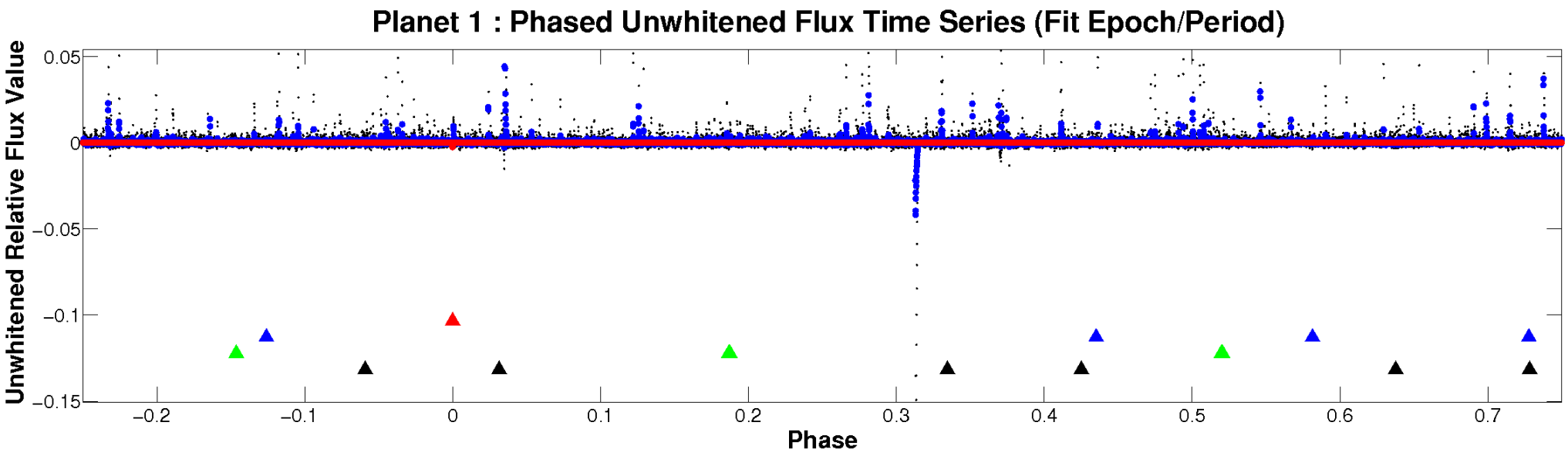
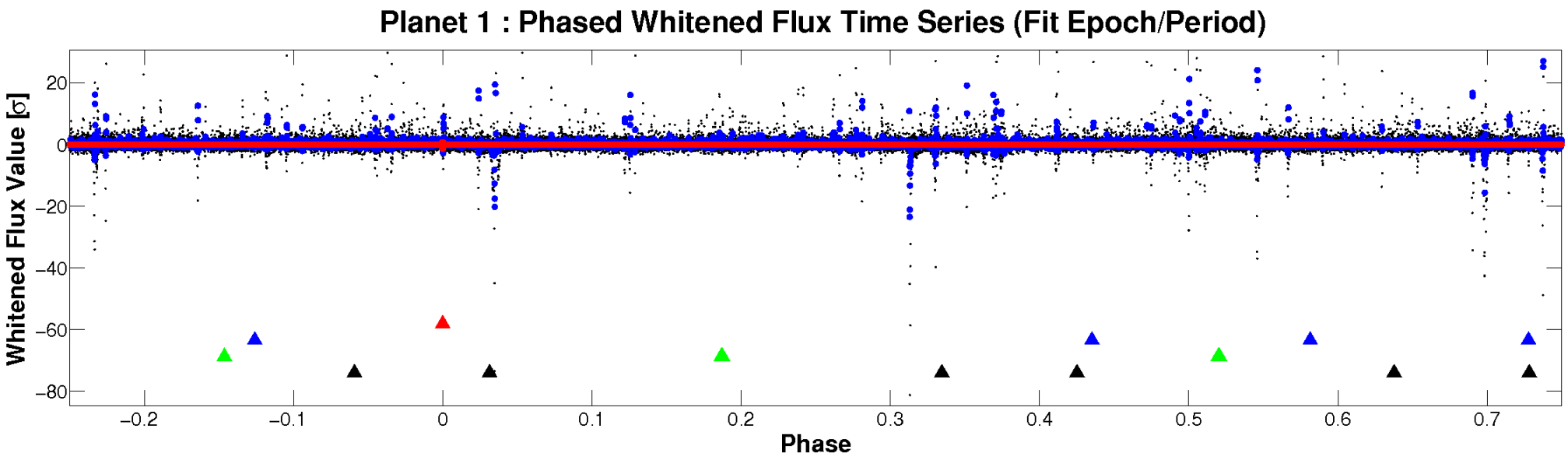
1.40e-02
1.20e-02
1.00e-02
8.00e-03
6.00e-03
4.00e-03
2.00e-03
0.00e+00
-2.00e-03
-4.00e-03
Flux
-0.001
-0.0005
0
0.0005
0.001
Phase
Odd
Even
Model Fit

ALT Odd/Even


TCE 009114508-01
1.50e-02
1.00e-02
5.00e-03
0.00e+00
-5.00e-03
-1.00e-02
Flux
-0.001
-0.0005
0
0.0005
0.001
Phase
Odd
Even
Model Fit

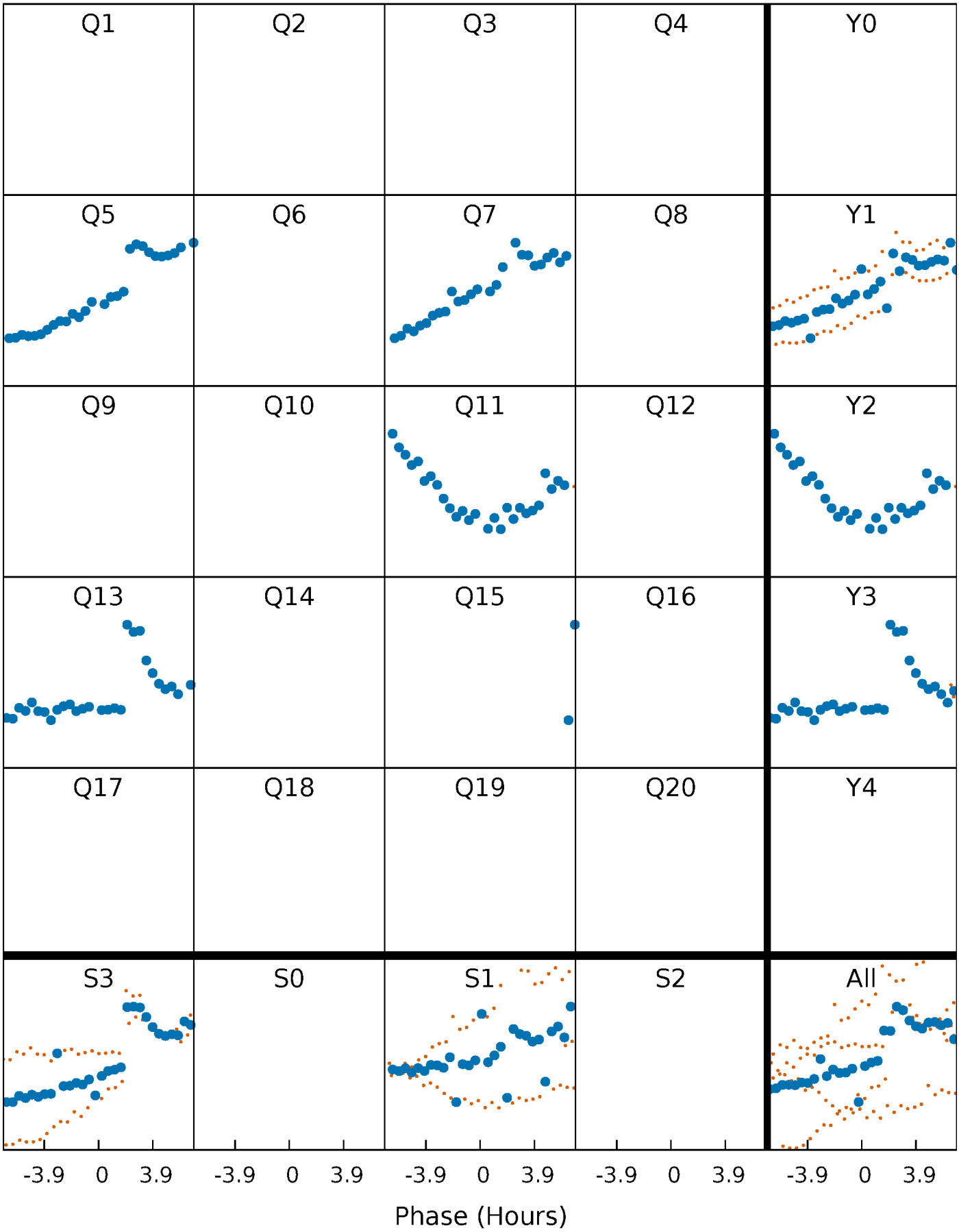
Non-Whitened Vs. Whitened Light Curve





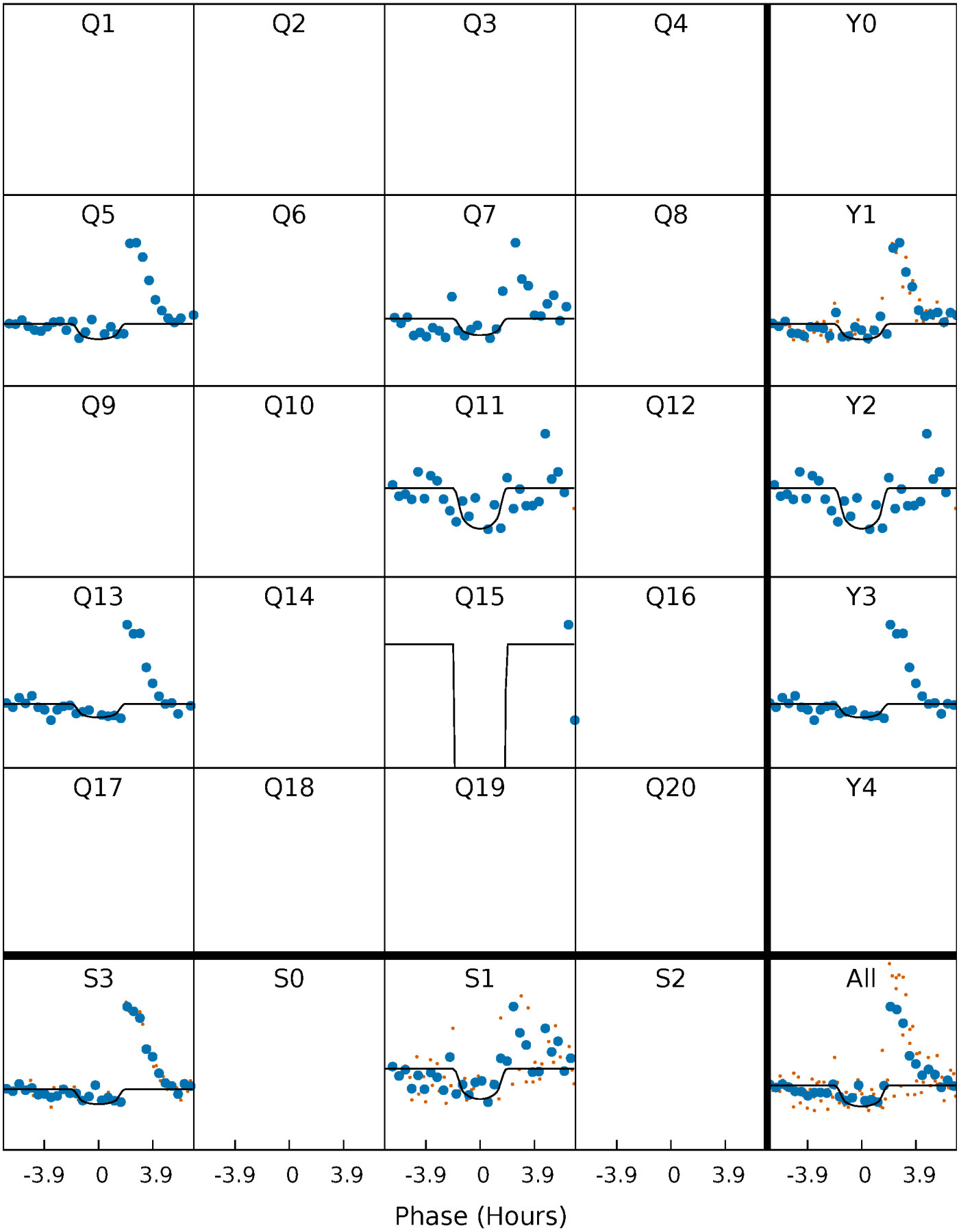
PDC Quarter-Phased Transit Curves

TCE 009114508-01 P=196.910850 Days T_0=254.538746 (BKJD)



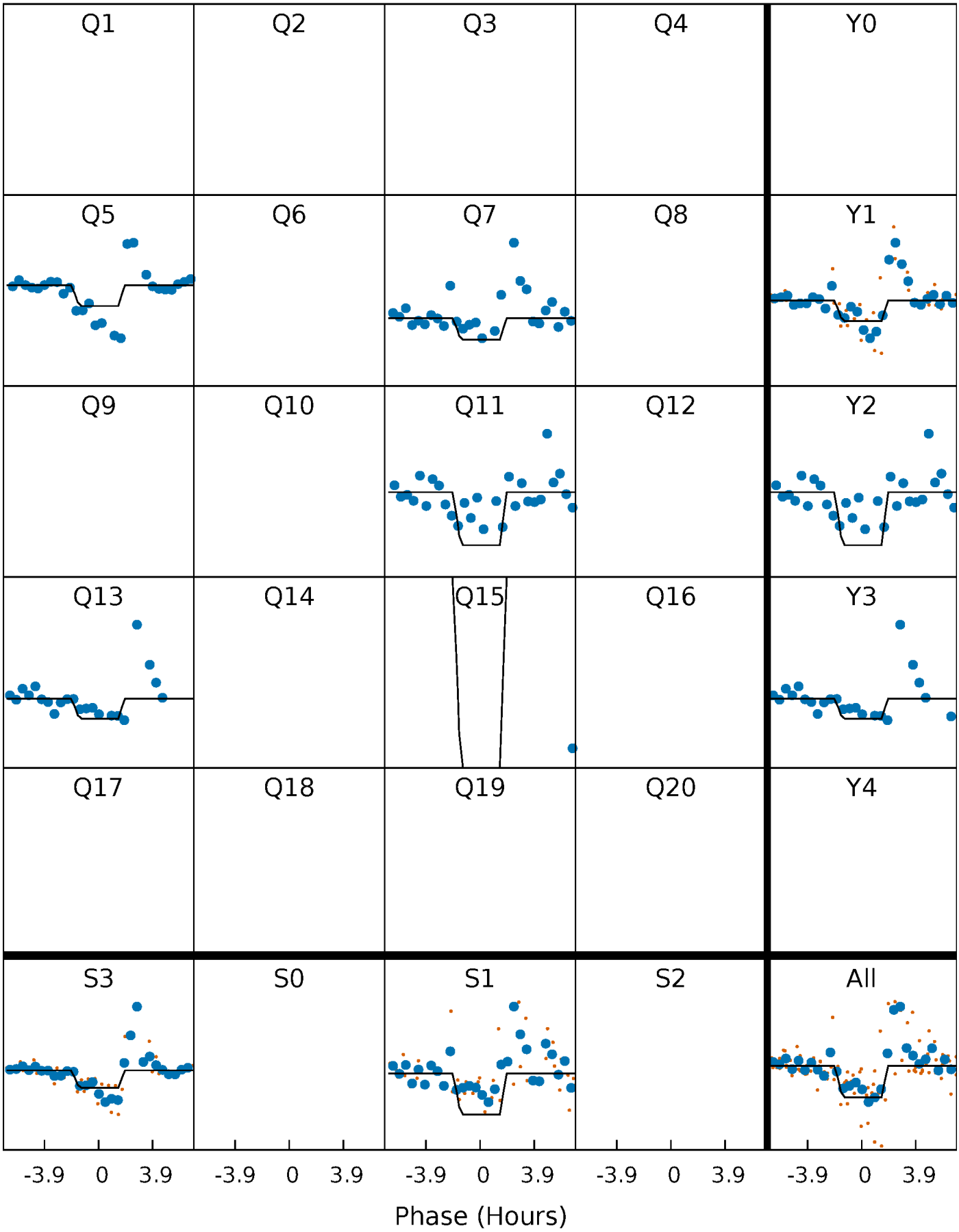
DV Quarter-Phased Transit Curves

TCE 009114508-01 P=196.910850 Days T_0=254.538746 (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

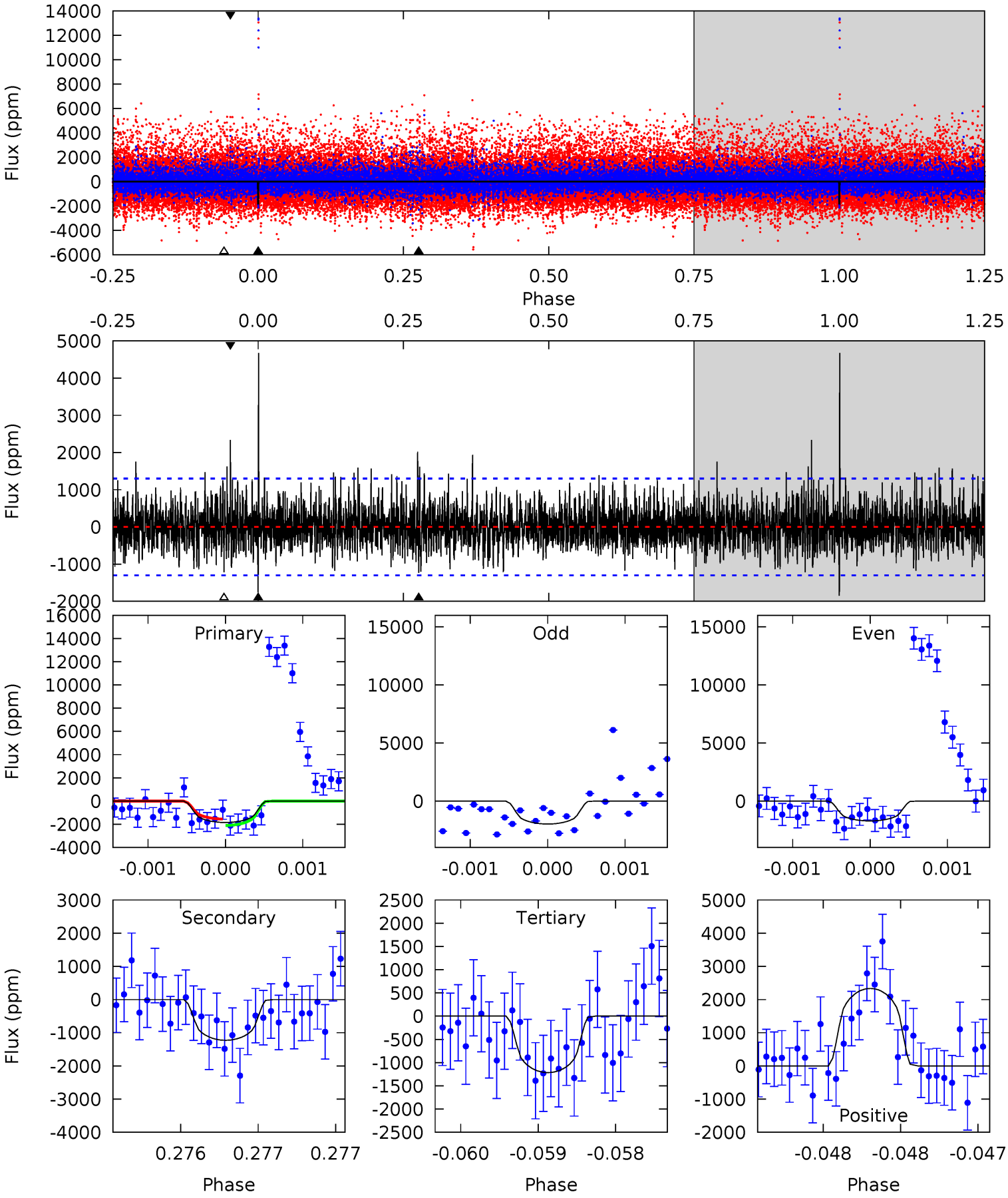
TCE 009114508-01 P=196.905811 Days T_0=254.555116 (BKJD)



DV Model-Shift Uniqueness Test

009114508-01, P = 196.910850 Days, E = 254.538746 Days

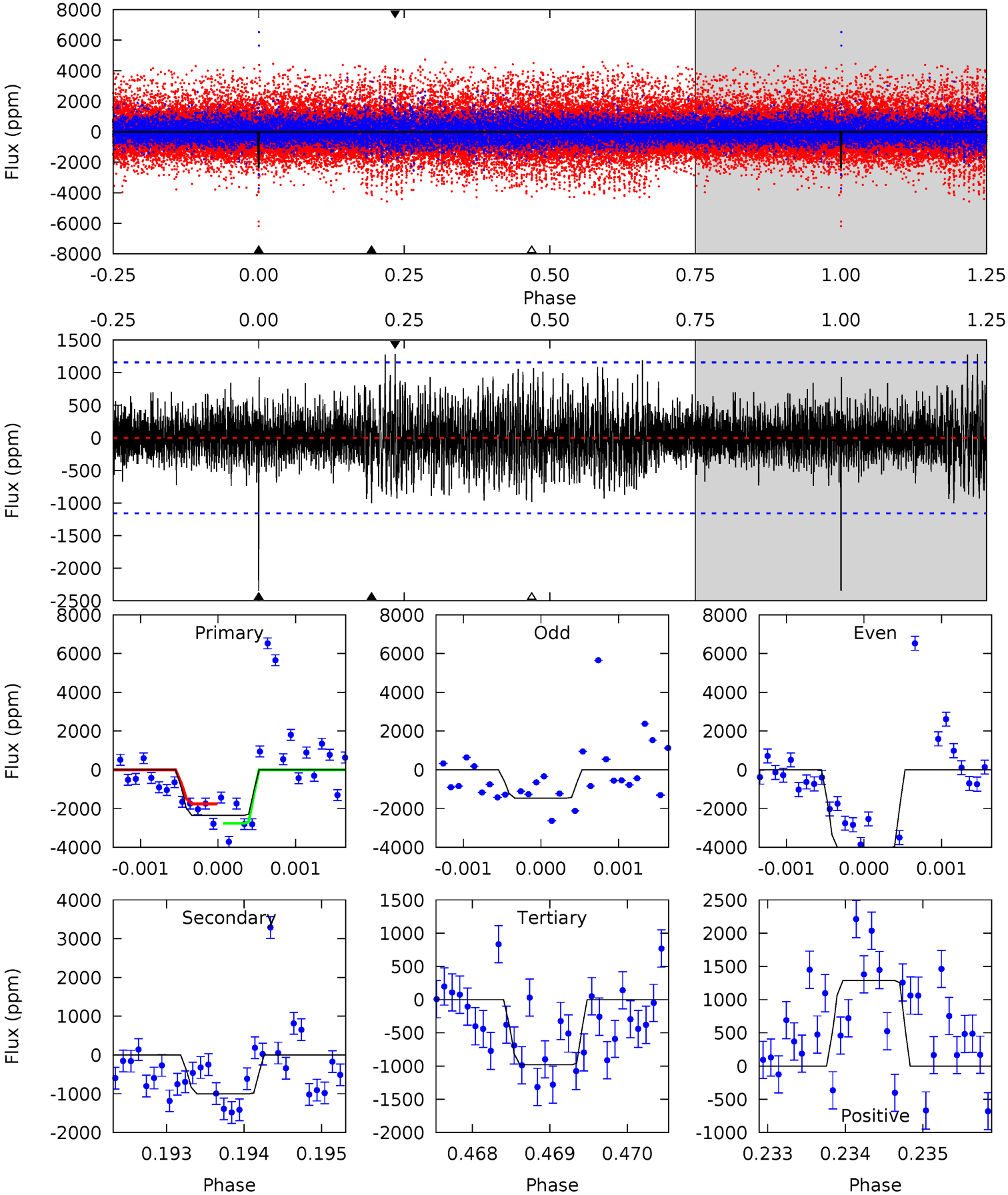
Pri	Sec	Ter	Pos	FA_1	FA_2	F_{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
7.81	5.20	5.14	9.87	5.50	3.37	1.78	2.67	-2.06	0.05	-4.68	0.54	0.99	0.72	1.18



Alt Model-Shift Uniqueness Test

009114508-01, P = 196.905811 Days, E = 254.555116 Days

Pri	Sec	Ter	Pos	FA_1	FA_2	F_{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
11.2	4.77	4.66	6.11	5.50	3.36	1.39	6.50	5.05	0.11	-1.34	6.32	1.39	0.35	2.31



Stellar Parameters For KIC 009114508

	$T_{\rm eff}(K)$	$\log(g)$	[Fe/H]	R ($R_\odot$)	$M(M_\odot)$	$p_\star$ (g·cm^{-3})
	4070^{+142}_{-156}	$4.628^{+0.056}_{-0.016}$	$0.280^{+0.200}_{-0.300}$	$0.646^{+0.026}_{-0.061}$	$0.645^{+0.038}_{-0.057}$	$3.375^{+0.859}_{-0.263}$
	+3%/-4%	+1%/-0%	+71%/-107%	+4%/-9%	+6%/-9%	+25%/-8%
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 009114508-01 / KOI

Detrend	Depth (ppm)	R_p ($R_\oplus$)	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-1228±236	$5.98^{+4.80}_{-3.98}$	264^{+10}_{-10}	3062^{+1290}_{-467}	6340^{+47125}_{-4529}
Alt.	-1004±211	$5.79^{+5.32}_{-3.57}$	265^{+11}_{-11}	2974^{+1106}_{-463}	5332^{+32434}_{-3909}

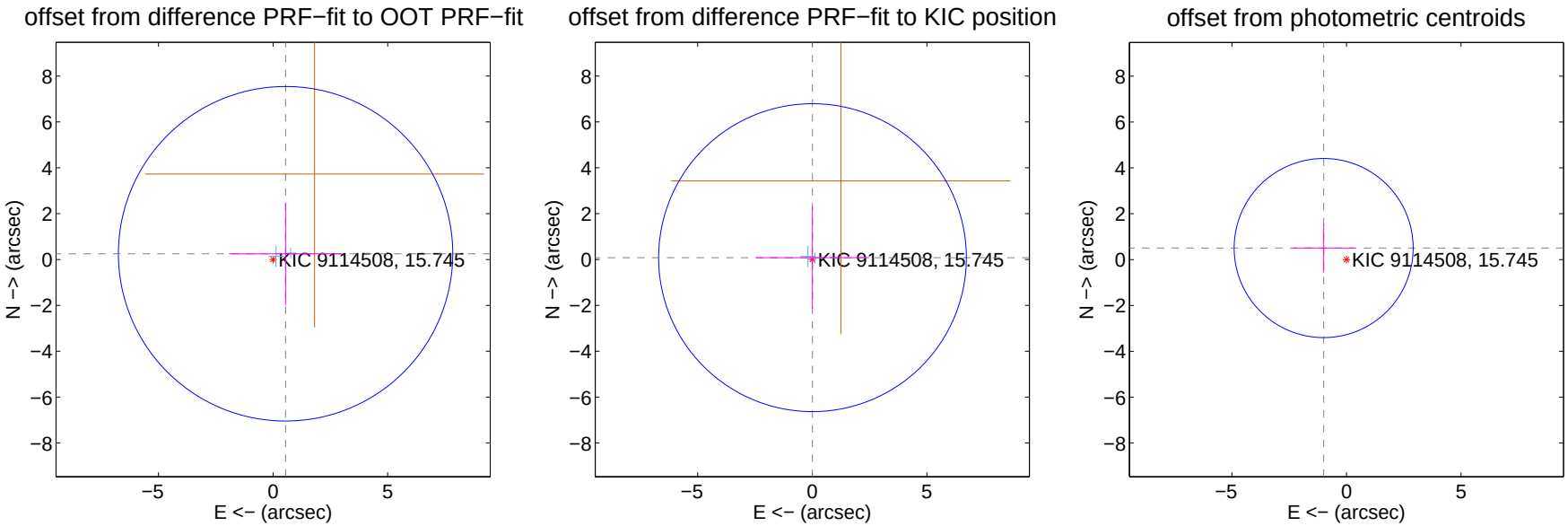
T_{max} = Theoretical Maximum Planetary Temperature
T_{obs} = Observed Planetary Temperature (Assuming A=0.3)
A_{obs} = Observed Albedo (Assuming T=0)

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

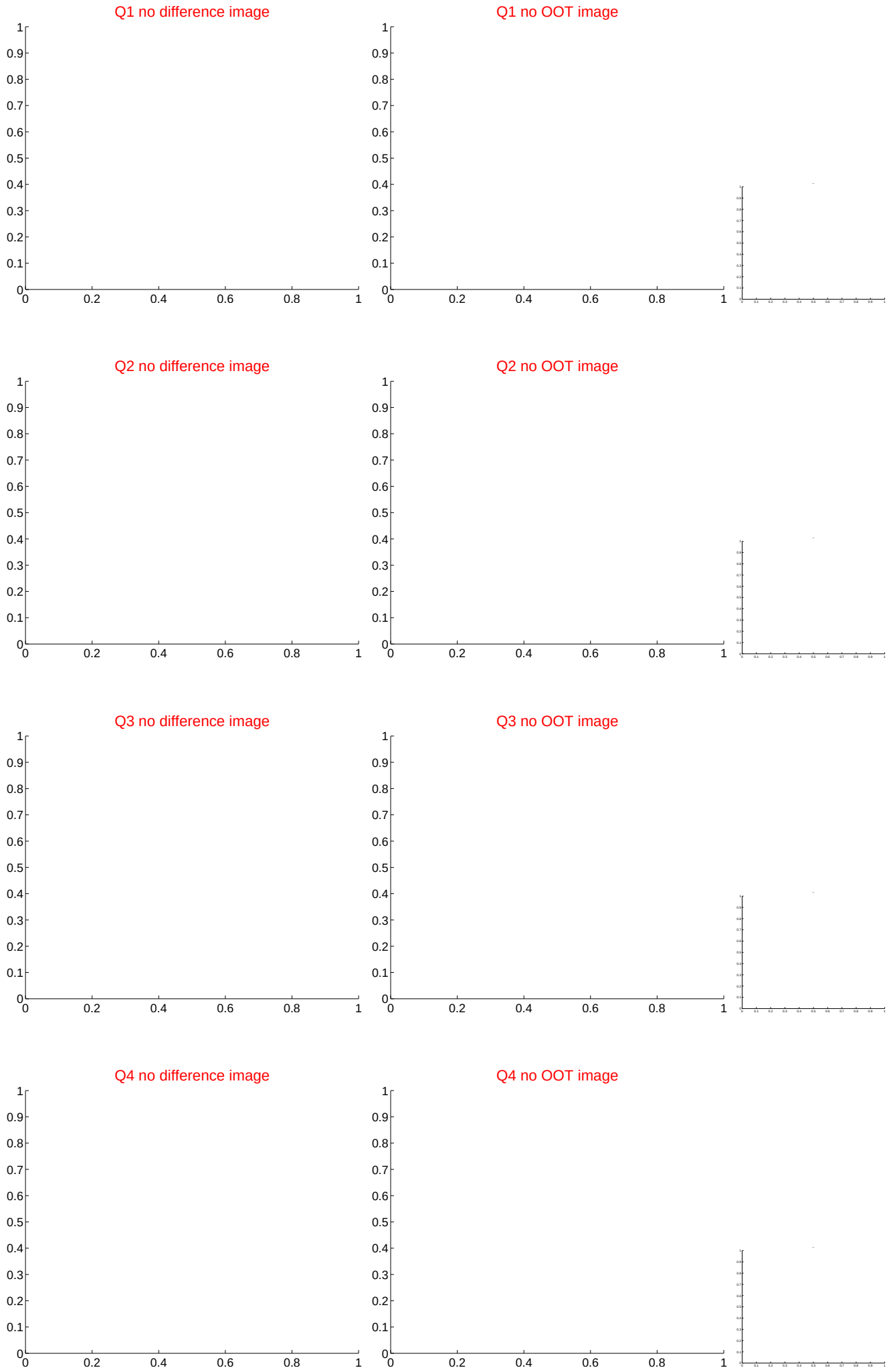
Supplemental centroid analysis for 009114508-01. Kepler magnitude: 15.74. Transit SNR 5.78
There are 2 quarters with good PRF difference image offsets
The direct PRF centroid is offset from the target star catalog position by about 0.69 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.600 ± 2.431	0.25	-0.545 ± 2.471	0.250 ± 2.235
PRF-fit source offset from KIC position	0.081 ± 2.238	0.04	-0.009 ± 2.471	0.080 ± 2.235
photometric centroid source offset	1.11 ± 1.30	0.86	1.00 ± 1.36	0.50 ± 1.06

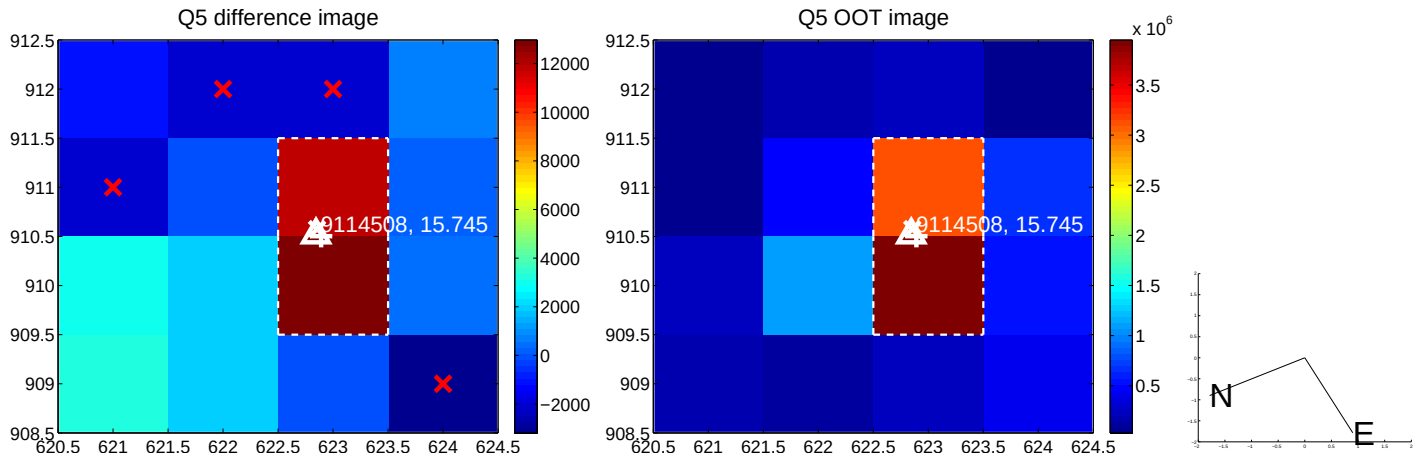


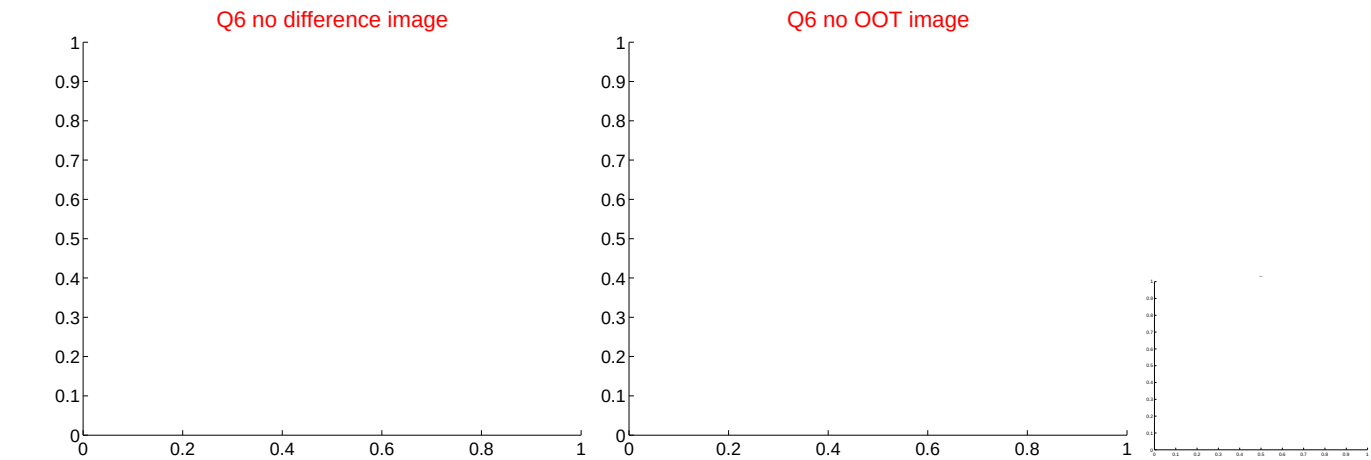
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one-σ uncertainty. Blue circle: three-σ. Red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

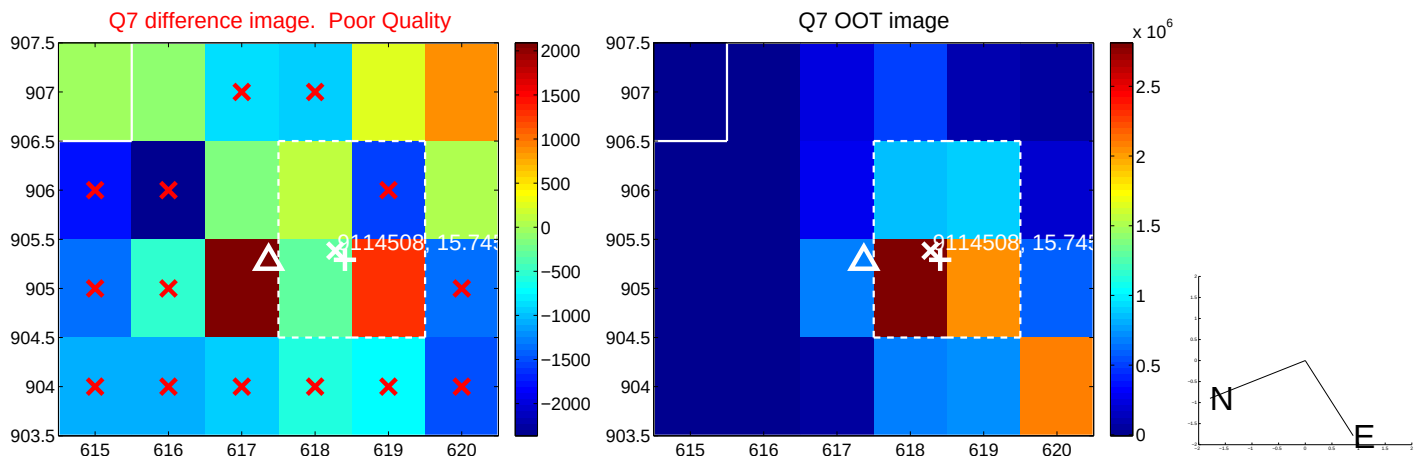
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.

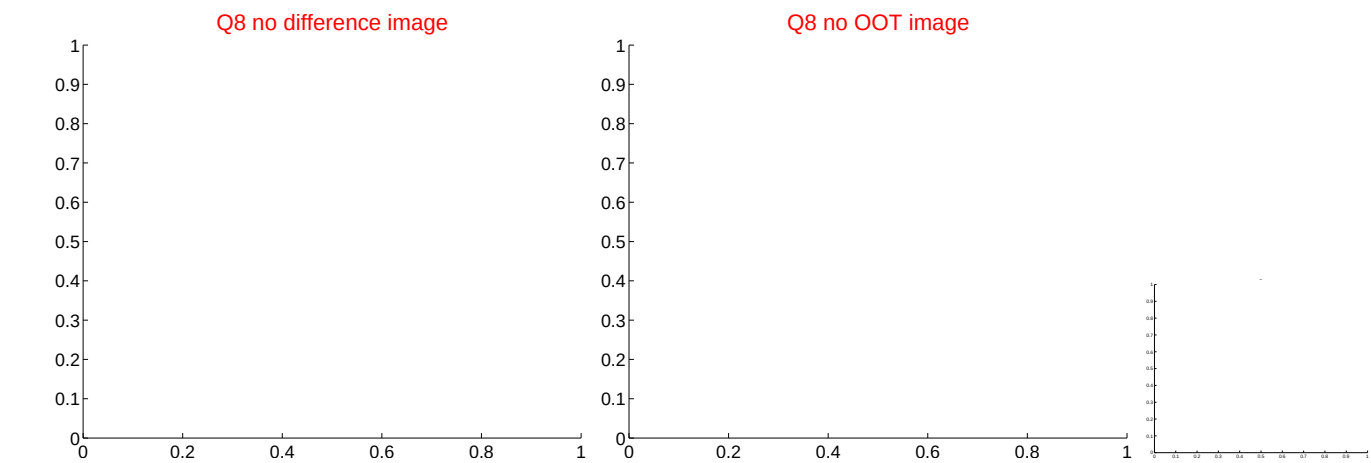


white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.

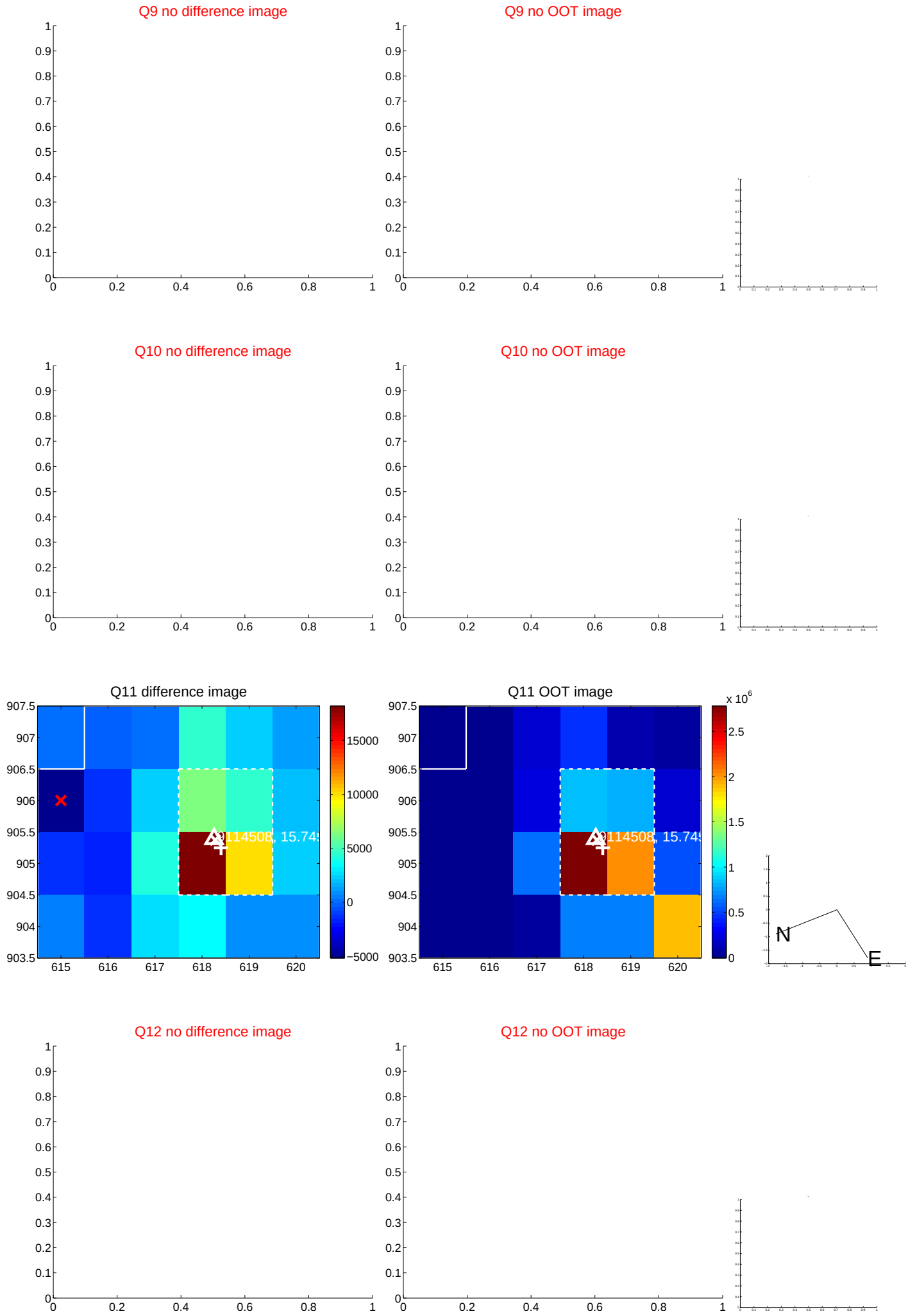




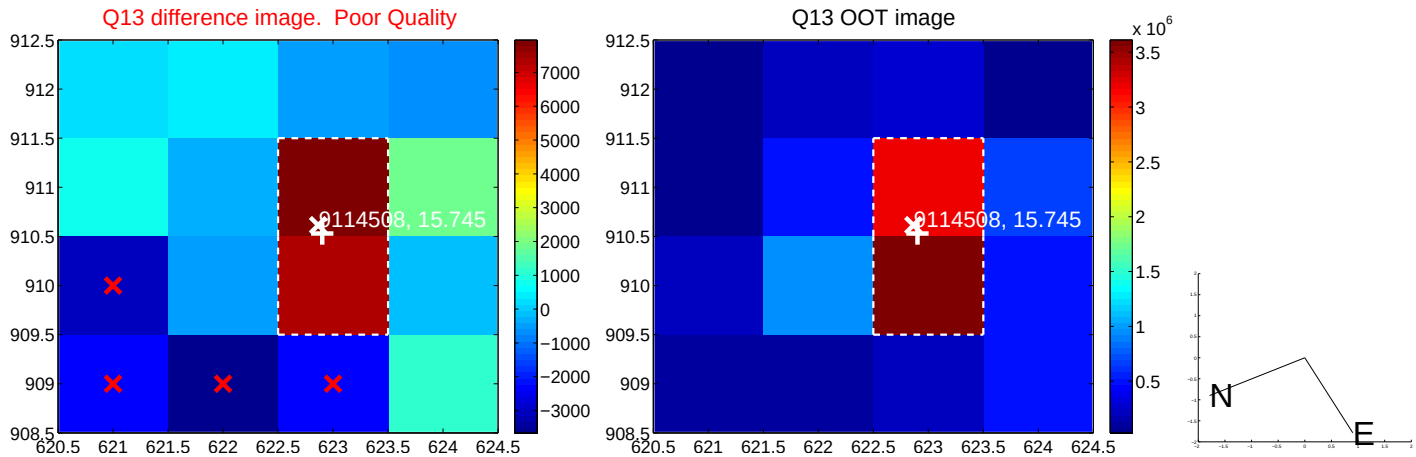


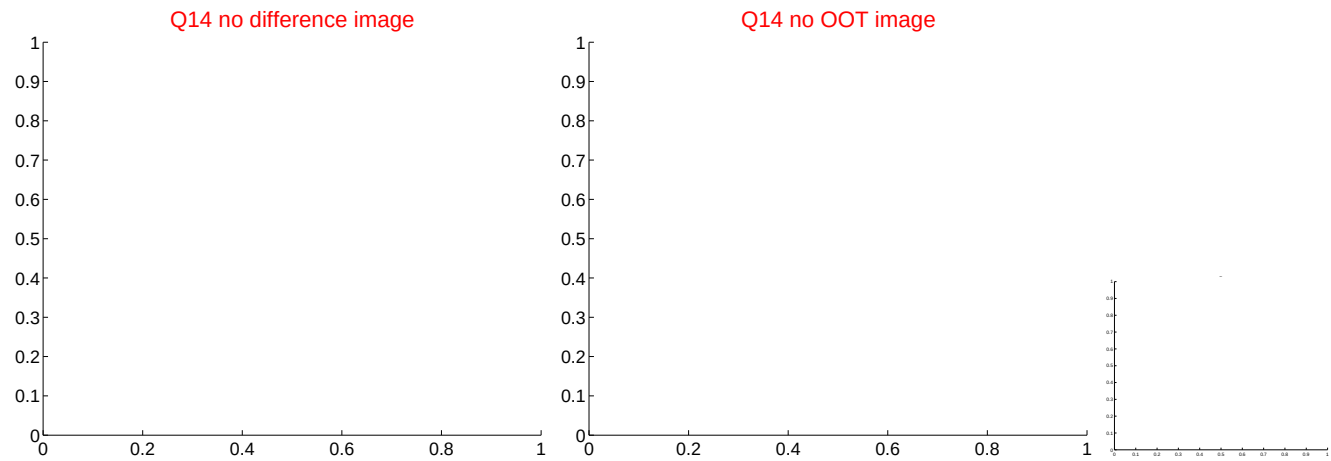


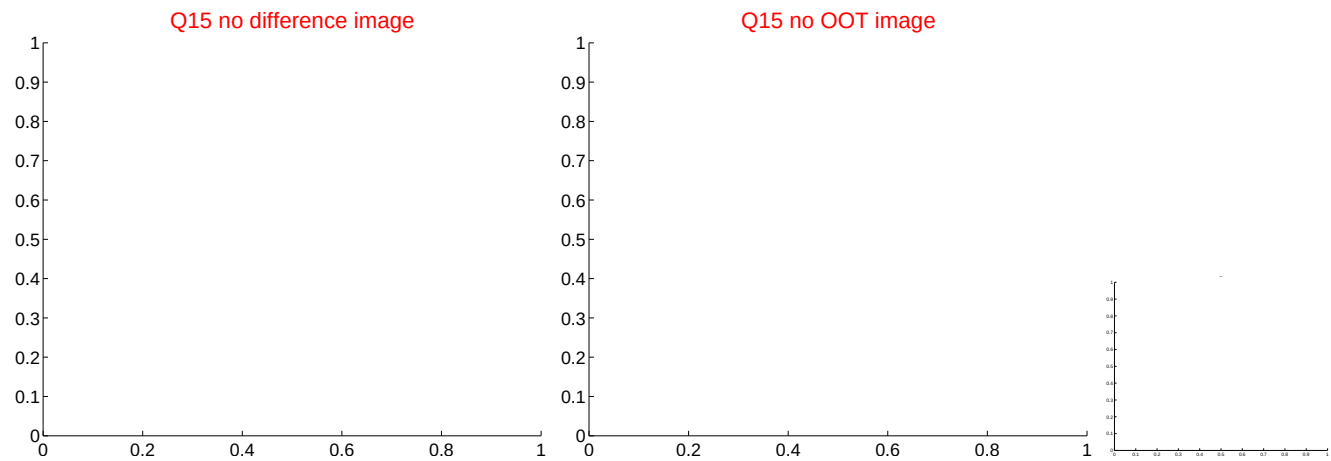
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.

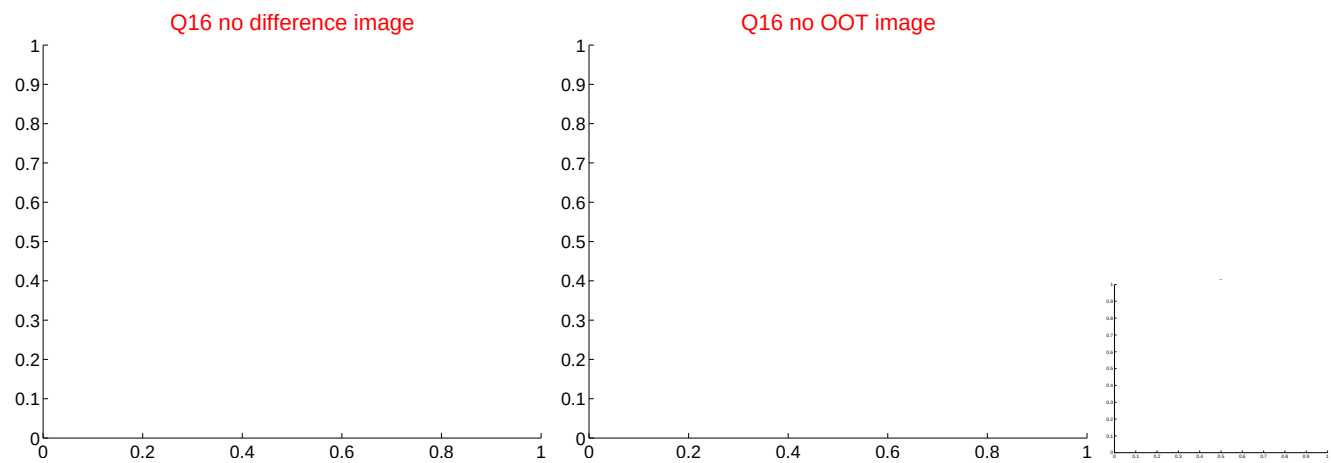


white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.

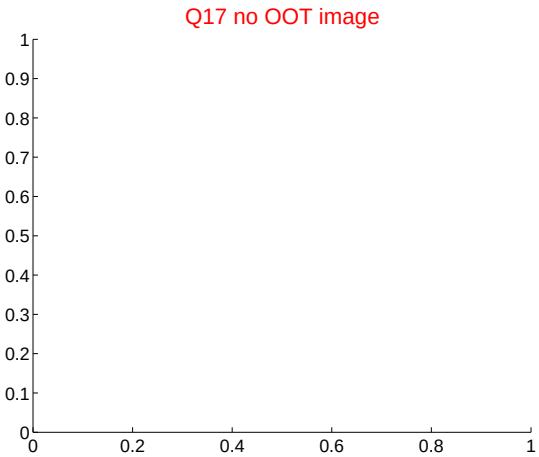


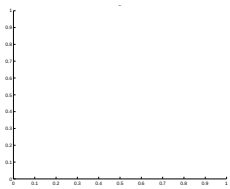


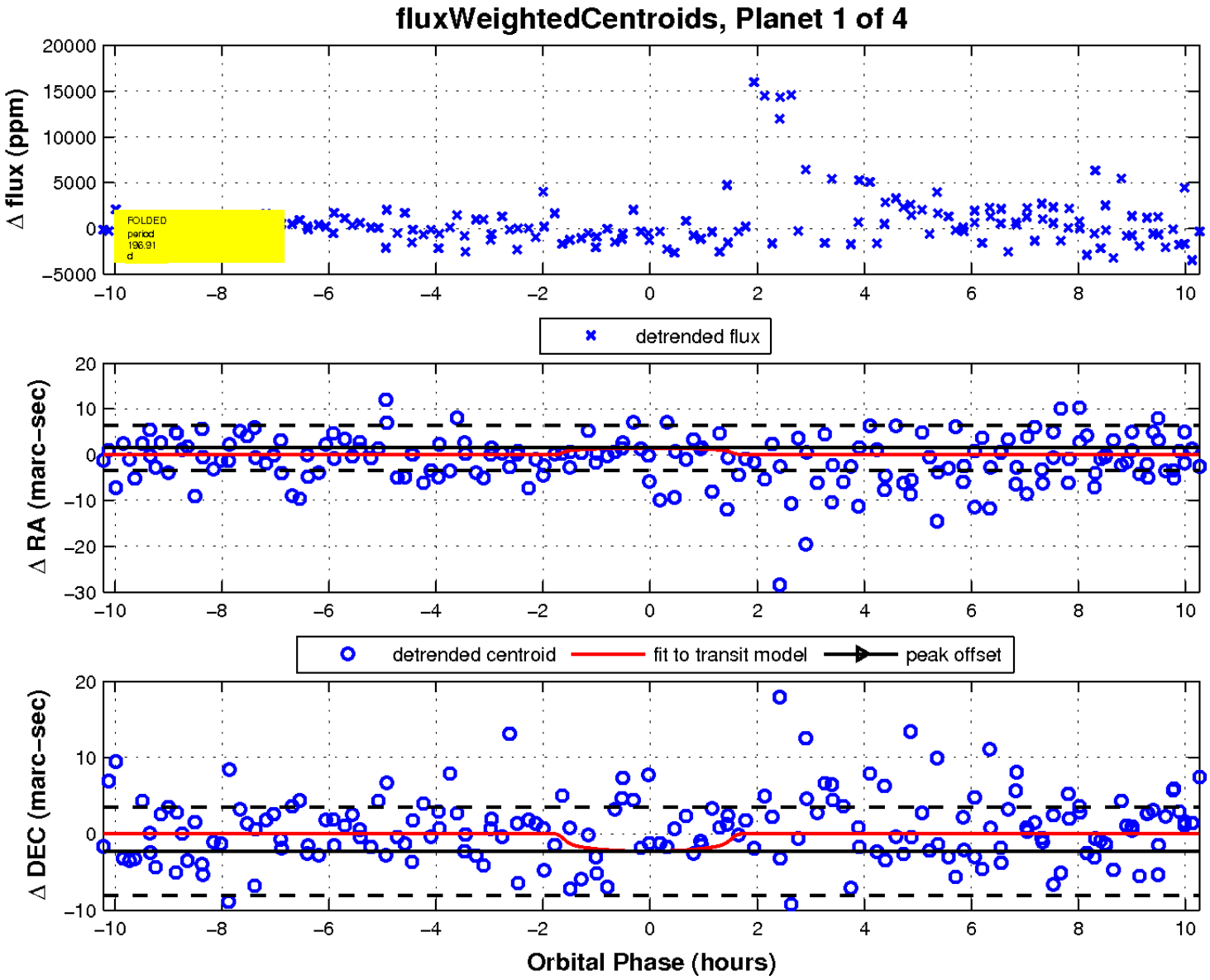




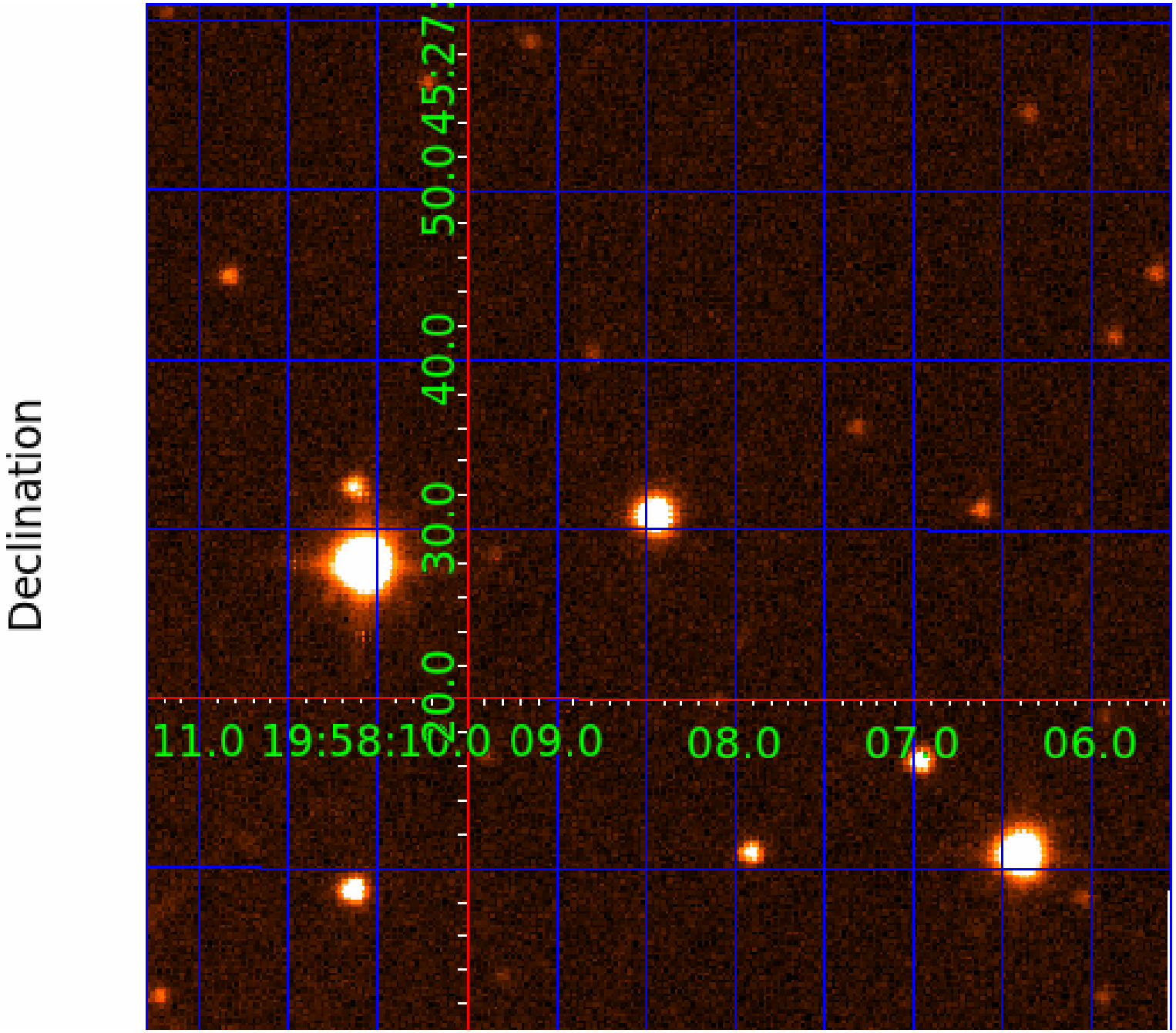
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.







UKIRT Image



KIC 009114508

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 ($S_\oplus$)
009114508-01	OBS	No	196.910850	254.538746	2537.5	3.422	16.4	5.8	0.65	4070	3.38	0.31
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009114508-03	OBS	No	328.229587	159.997728	3398.6	6.714	11.7	7.3	0.65	4070	3.75	0.16
009114508-04	OBS	8178.01	256.604646	141.339536	1553.6	15.000	9.1	-1.0	0.65	4070	2.44	0.22

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009114508-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_SKYE—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
009114508-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_POS_DV—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
009114508-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
009114508-04	OBS	FP	0.00	1	0	0	0	ALL_TRANS_CHASES—INCONSISTENT_TRANS—CENT_NOFITS

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.

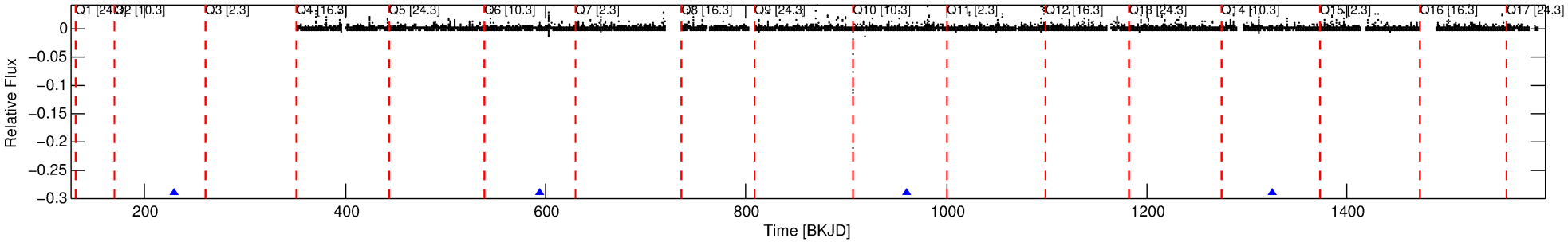
Ephemeris Match Information For 009114508-02

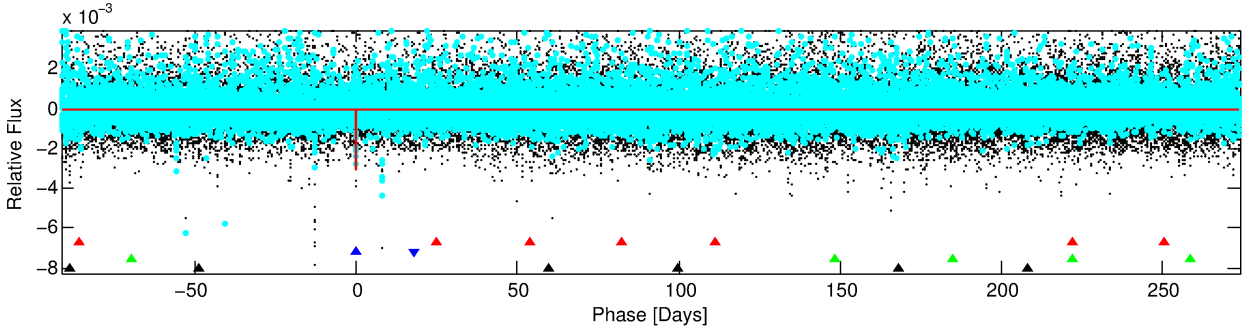
No Significant Match Found

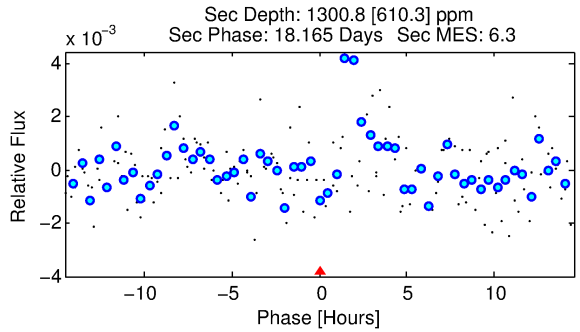
DV One-Page Summary

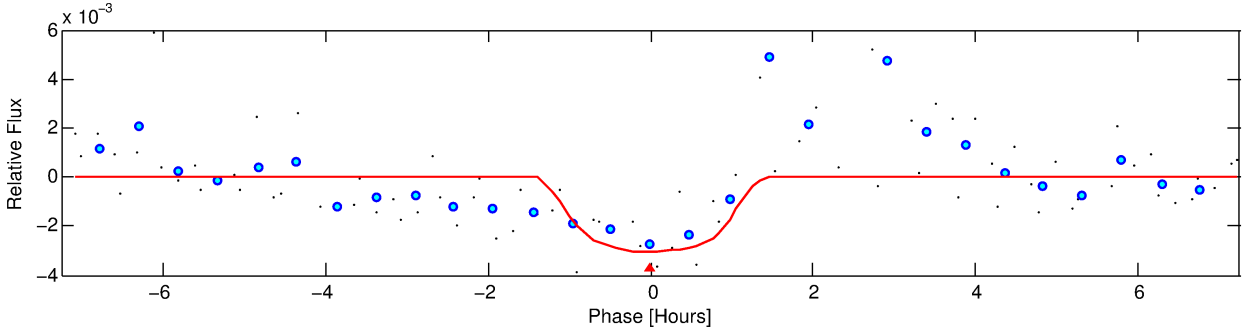
KIC: 9114508 Candidate: 2 of 4 Period: 365.014 d

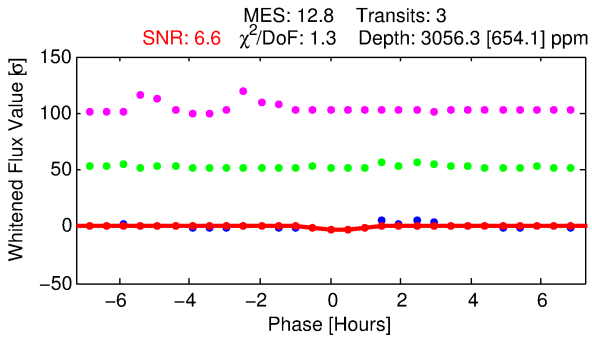
Kp: 15.74 R*: 0.65 Rs Teff: 4070.0 K Logg: 4.63 Fe/H: 0.280

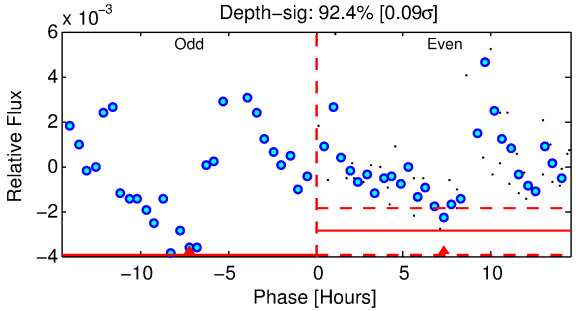


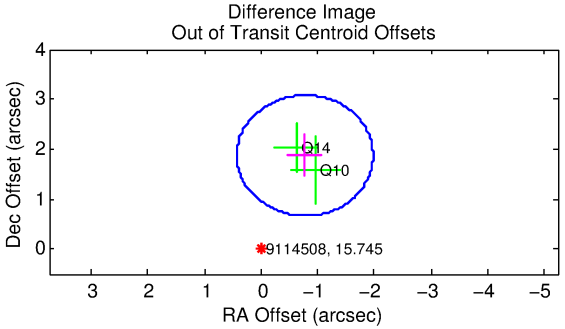












DV Fit Results:

Period = 365.01385 [0.00619] d
Epoch = 229.7392 [0.0127] BKJD
Rp/R* = 0.0520 [0.1207]
a/R* = 1010.46 [7001.18]
b = 0.58 [8.10]

Seff = 0.14 [0.03]
Teq = 155 [7] K
Rp = 3.67 [8.51] Re
a = 0.8644 [0.0659] AU

Ag = 39775.86 [185551.20] [0.21σ]
Teffp = 3389 [3954] K [0.82σ]

DV Diagnostic Results:

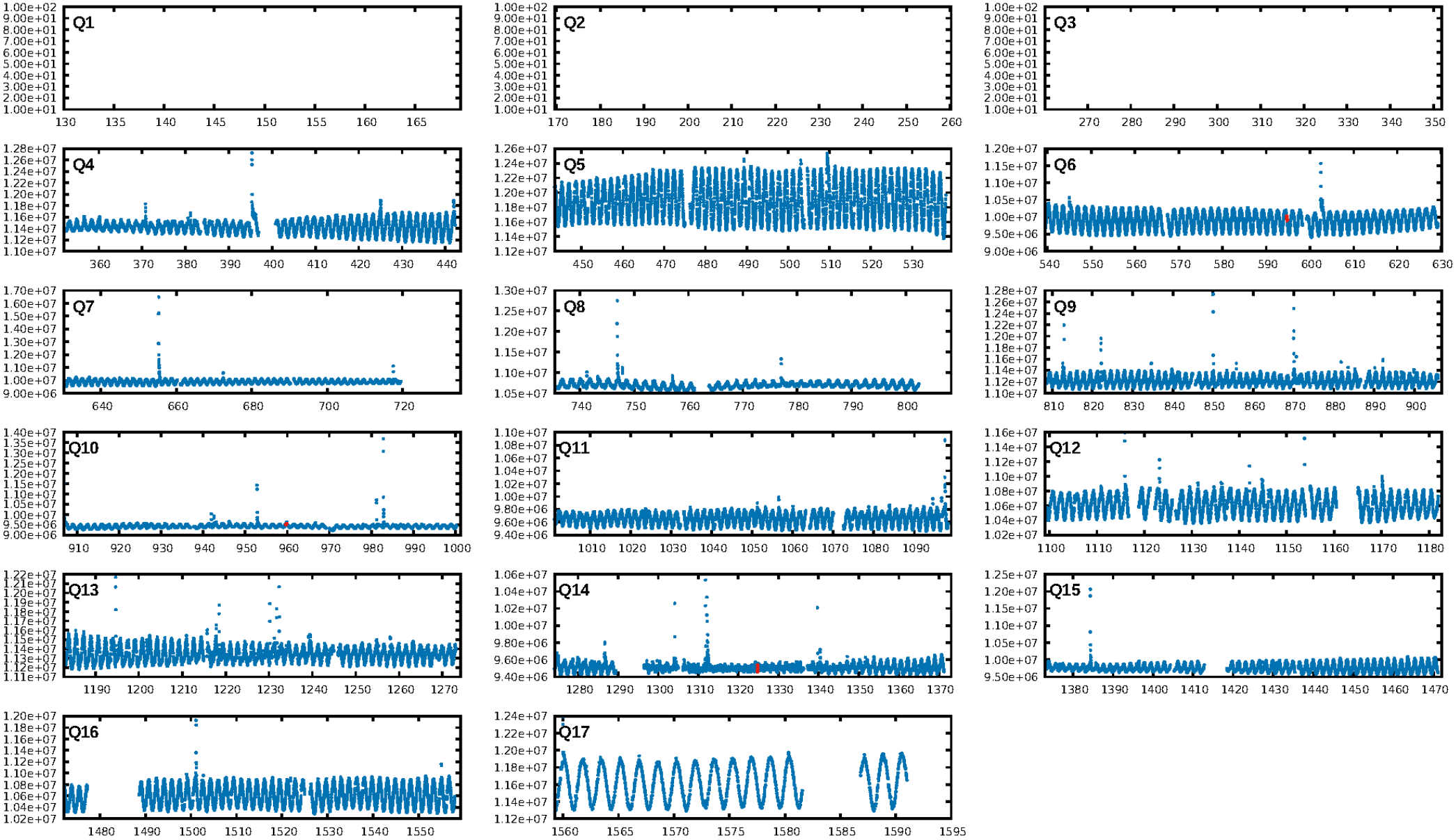
ShortPeriod−sig: 100.0% [123.73σ]
LongPeriod−sig: N/A
ModelChiSquare2−sig: 32.4%
ModelChiSquareGof−sig: 73.8%
Bootstrap−pfa: 6.55e−13
RollingBand−fgt: 1.00 [3/3]
GhostDiagnostic−chr: 0.9176

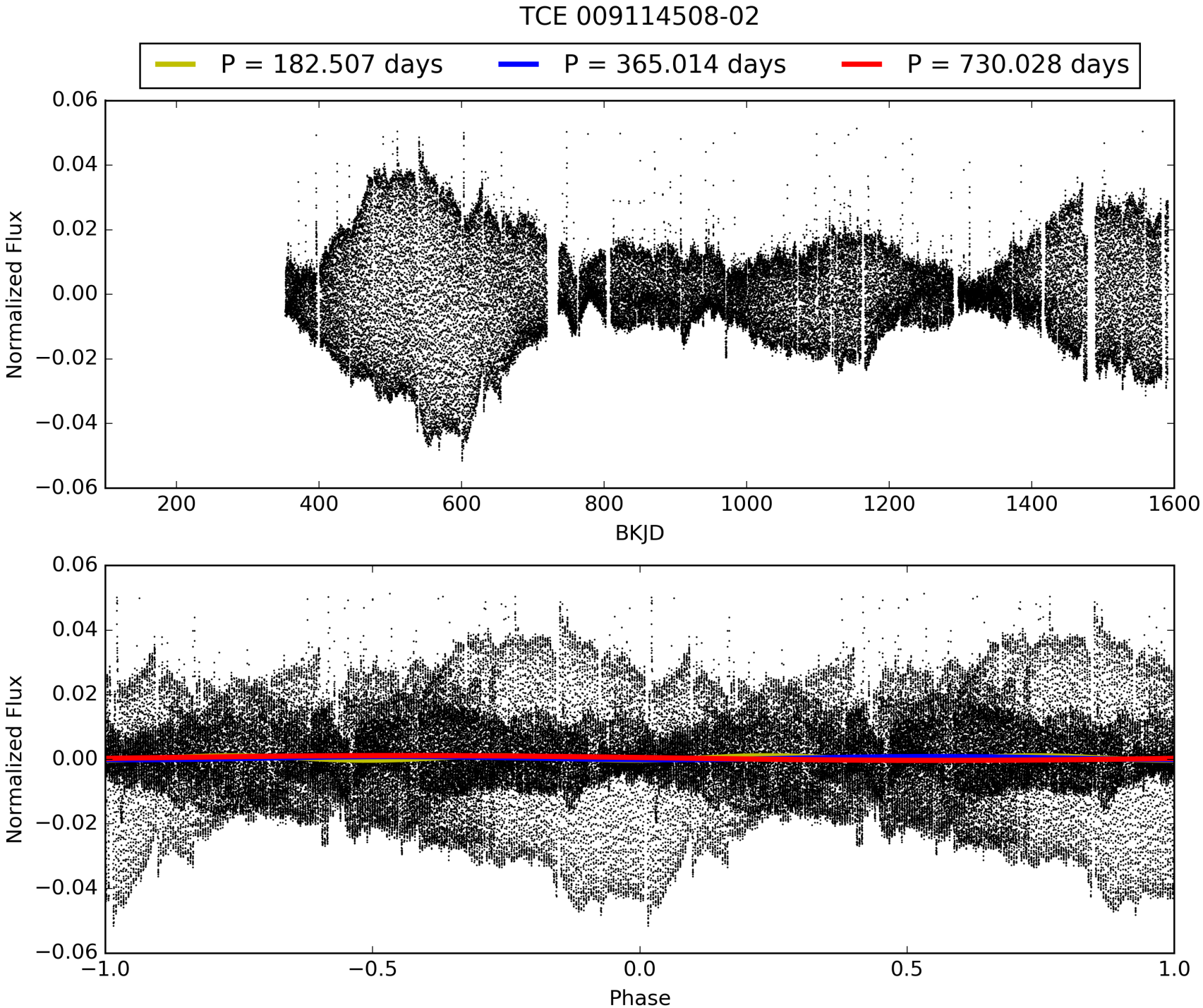
Centroid−sig: 3.0%
Centroid−so: 0.608 arcsec [0.49σ]
OotOffset−rm: 2.025 arcsec [5.04σ]
KicOffset−rm: 1.525 arcsec [3.65σ]
OotOffset−st: 2/0/0/0 [2]
KicOffset−st: 2/0/0/0 [2]
DiffImageQuality−fgm: 1.00 [2/2]
DiffImageOverlap−fno: 1.00 [3/3]

Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31−Jan−2016 17:02:38 Z

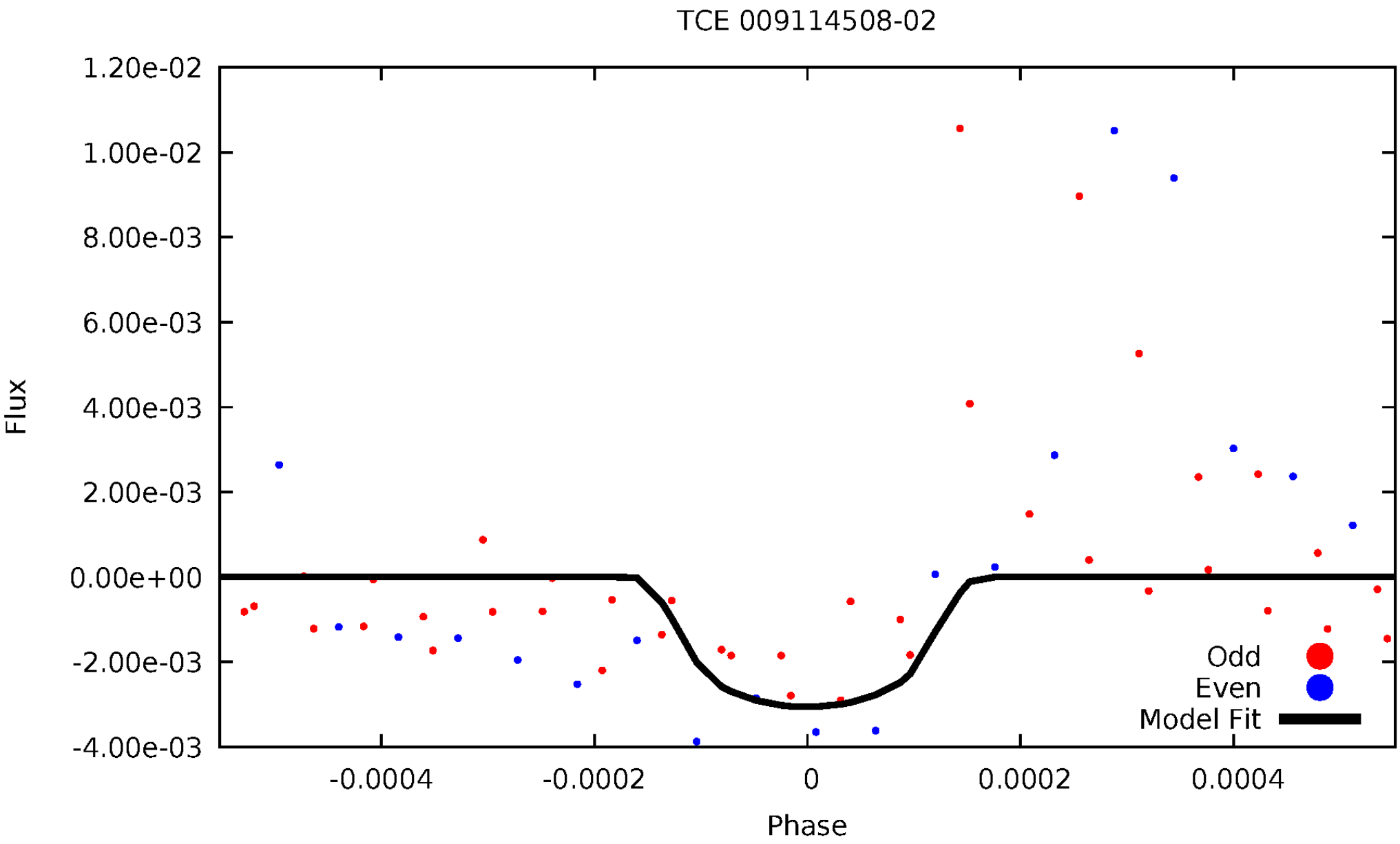
This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

TCE 009114508-02, PDC Light Curves

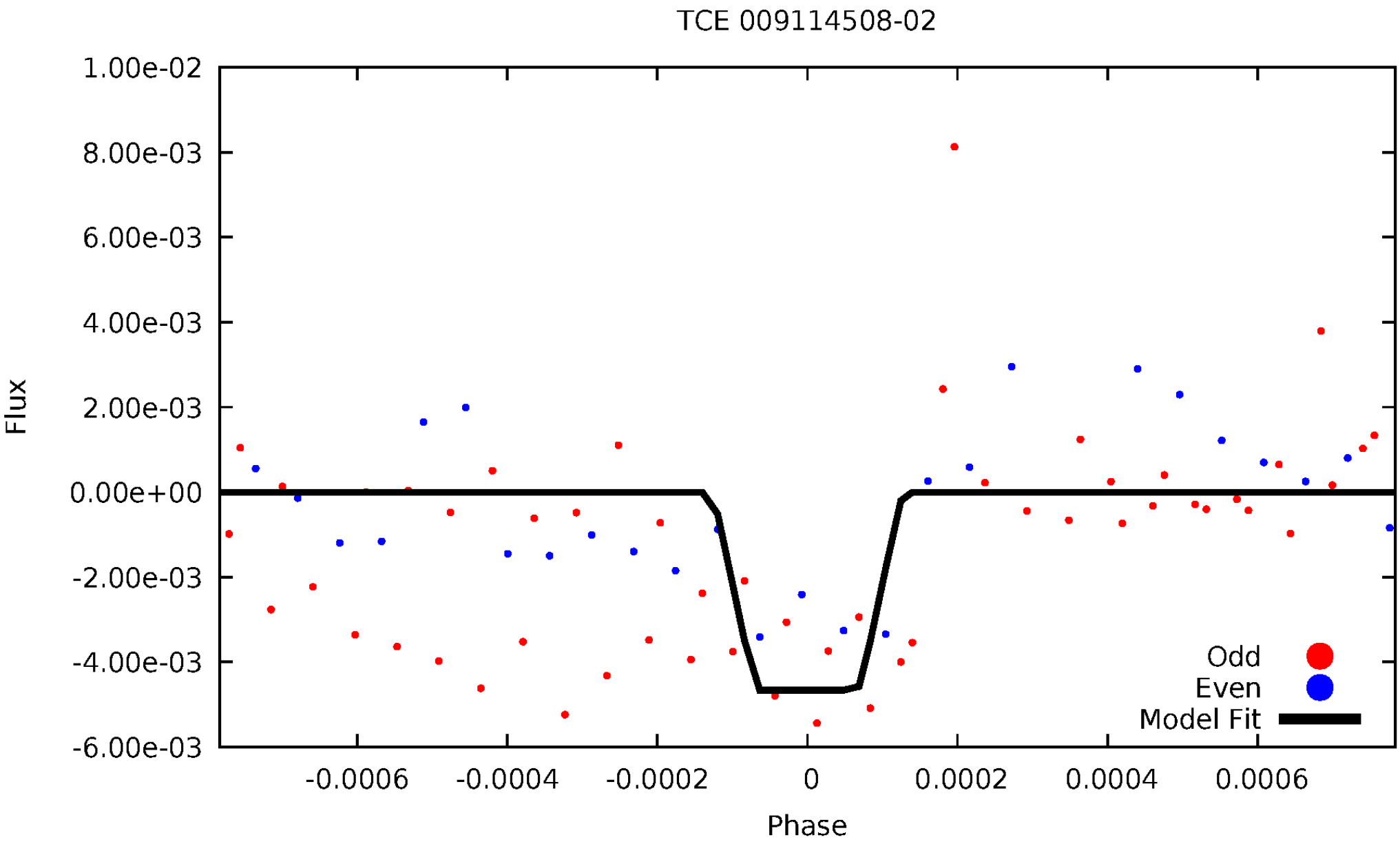



TCE 009114508-02
P = 182.507 days
P = 365.014 days
P = 730.028 days
Normalized Flux
BKJD
Normalized Flux
Phase

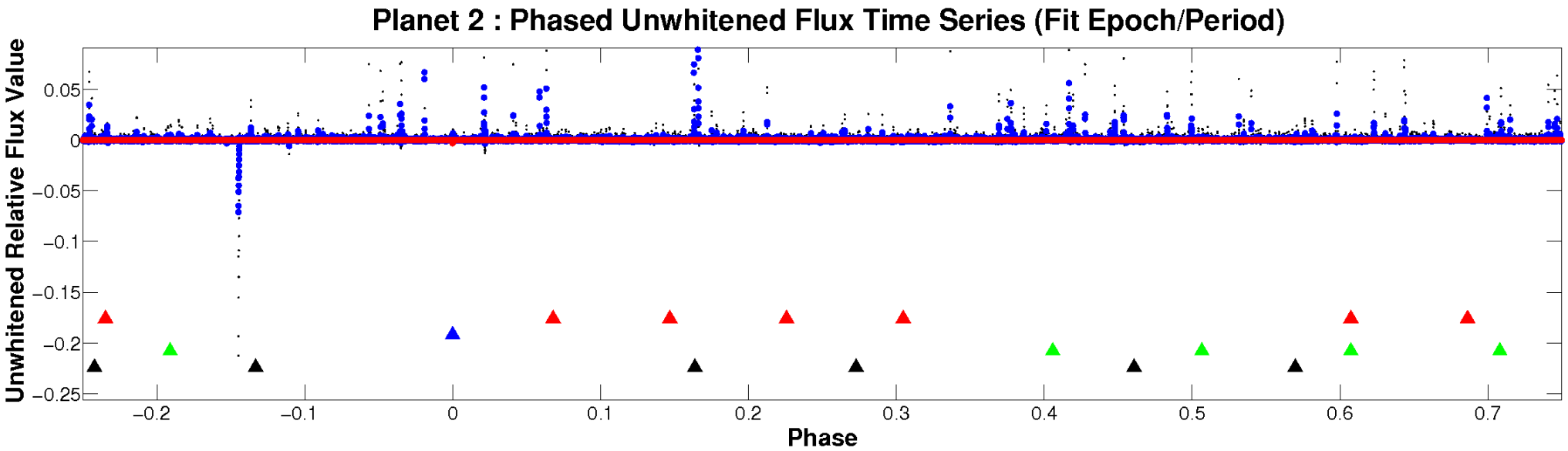
DV Odd/Even

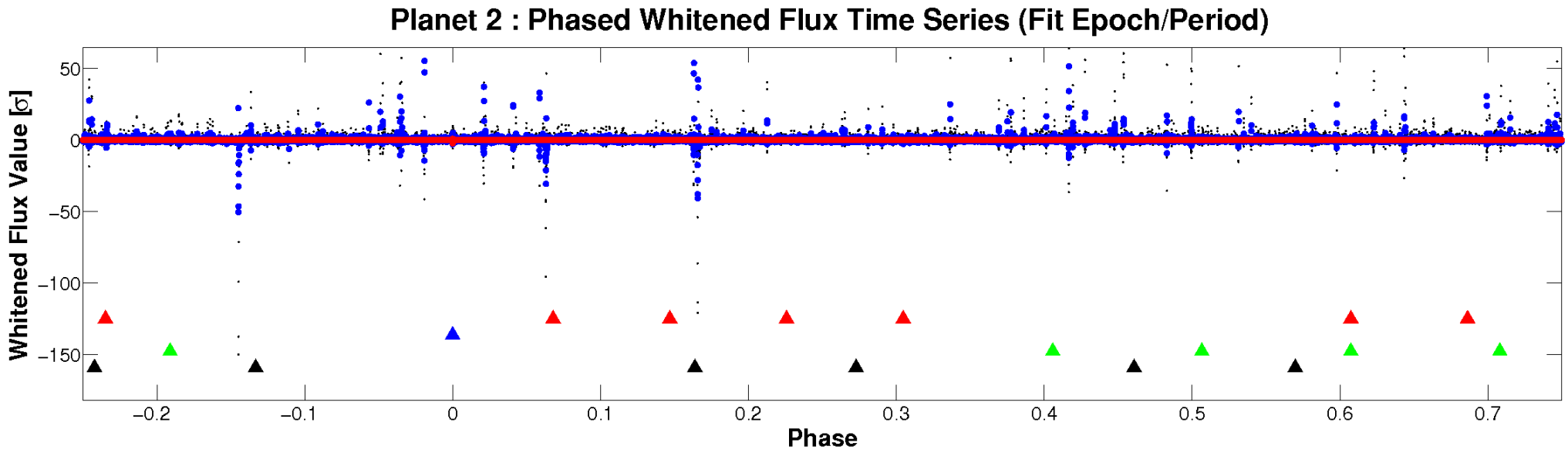

TCE 009114508-02
1.20e-02
1.00e-02
8.00e-03
6.00e-03
4.00e-03
2.00e-03
0.00e+00
-2.00e-03
-4.00e-03
Flux
-0.0004
-0.0002
0
0.0002
0.0004
Phase
Odd
Even
Model Fit

ALT Odd/Even


TCE 009114508-02
1.00e-02
8.00e-03
6.00e-03
4.00e-03
2.00e-03
0.00e+00
-2.00e-03
-4.00e-03
-6.00e-03
Flux
-0.0006
-0.0004
-0.0002
0
0.0002
0.0004
0.0006
Phase
Odd
Even
Model Fit

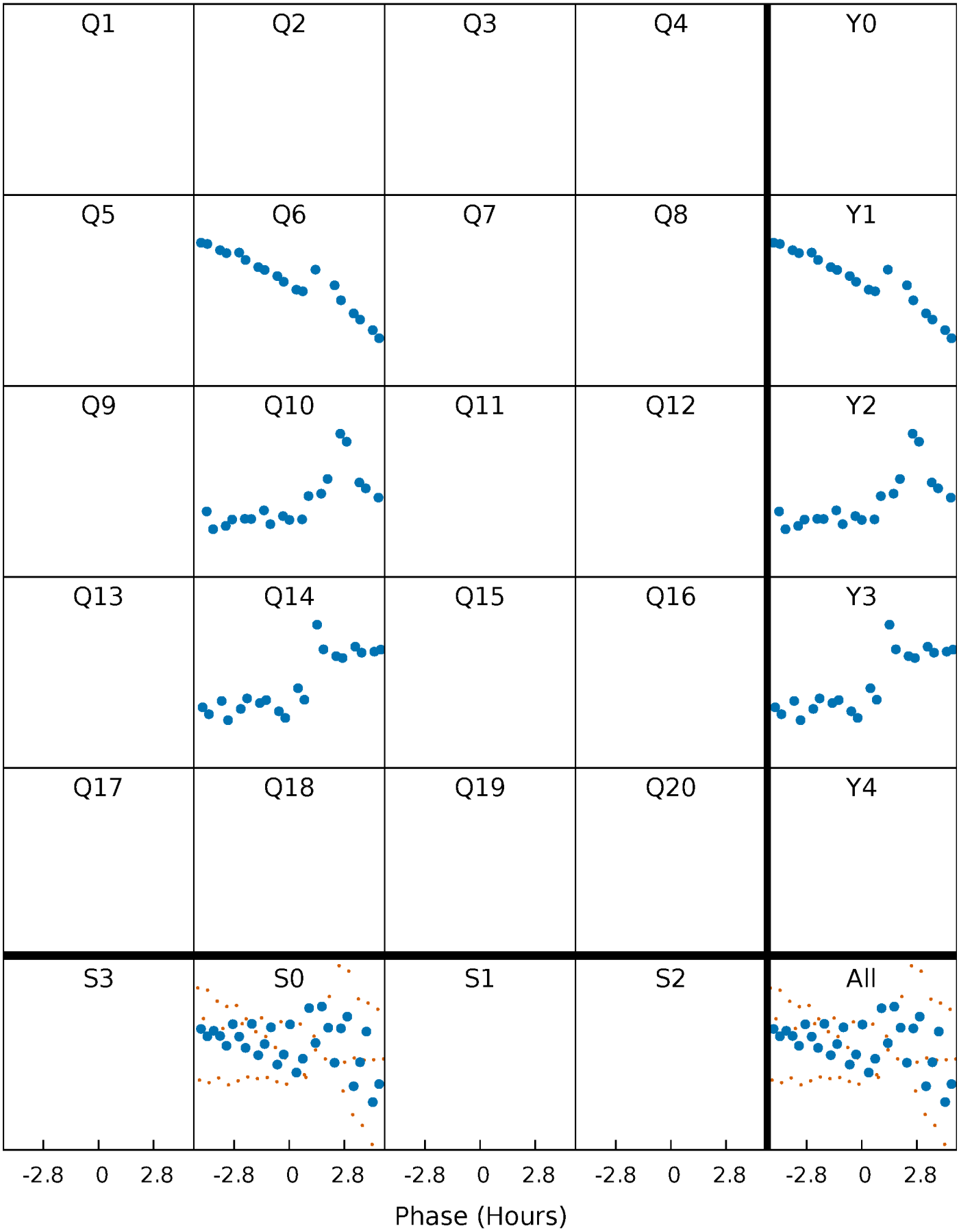
Non-Whitened Vs. Whitened Light Curve





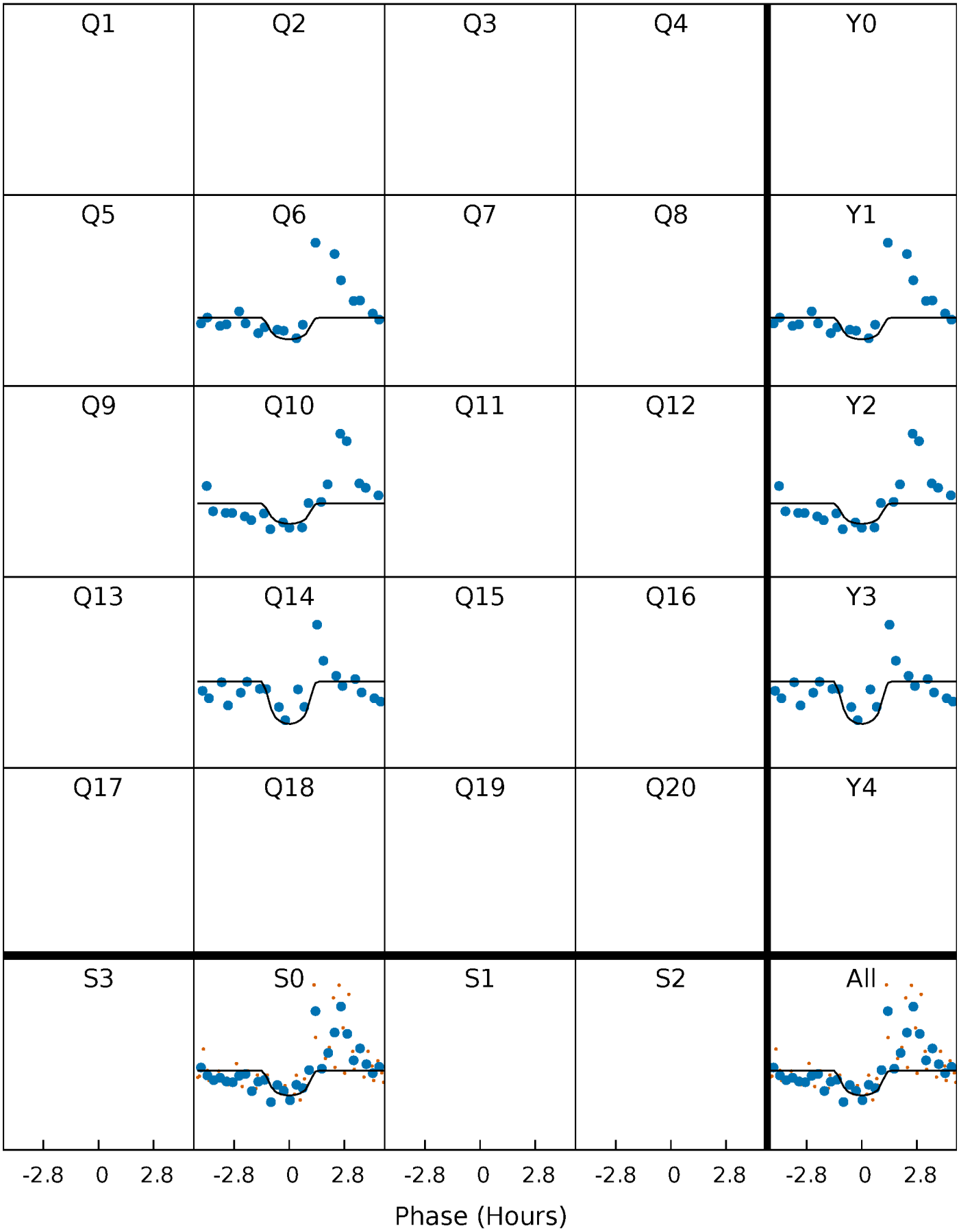
PDC Quarter-Phased Transit Curves

TCE 009114508-02 P=365.013854 Days T_0=229.739206 (BKJD)



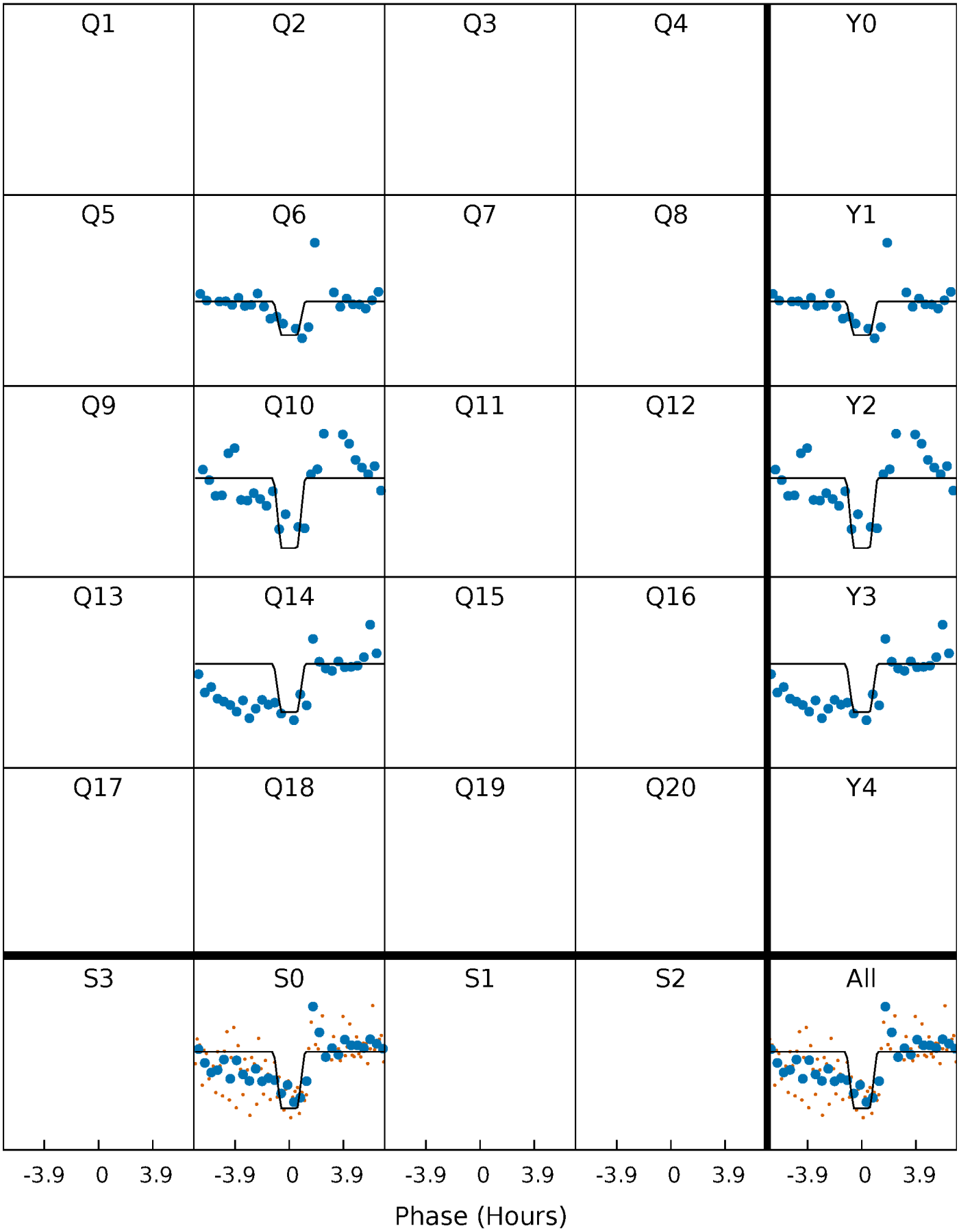
DV Quarter-Phased Transit Curves

TCE 009114508-02 P=365.013854 Days T_0=229.739206 (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

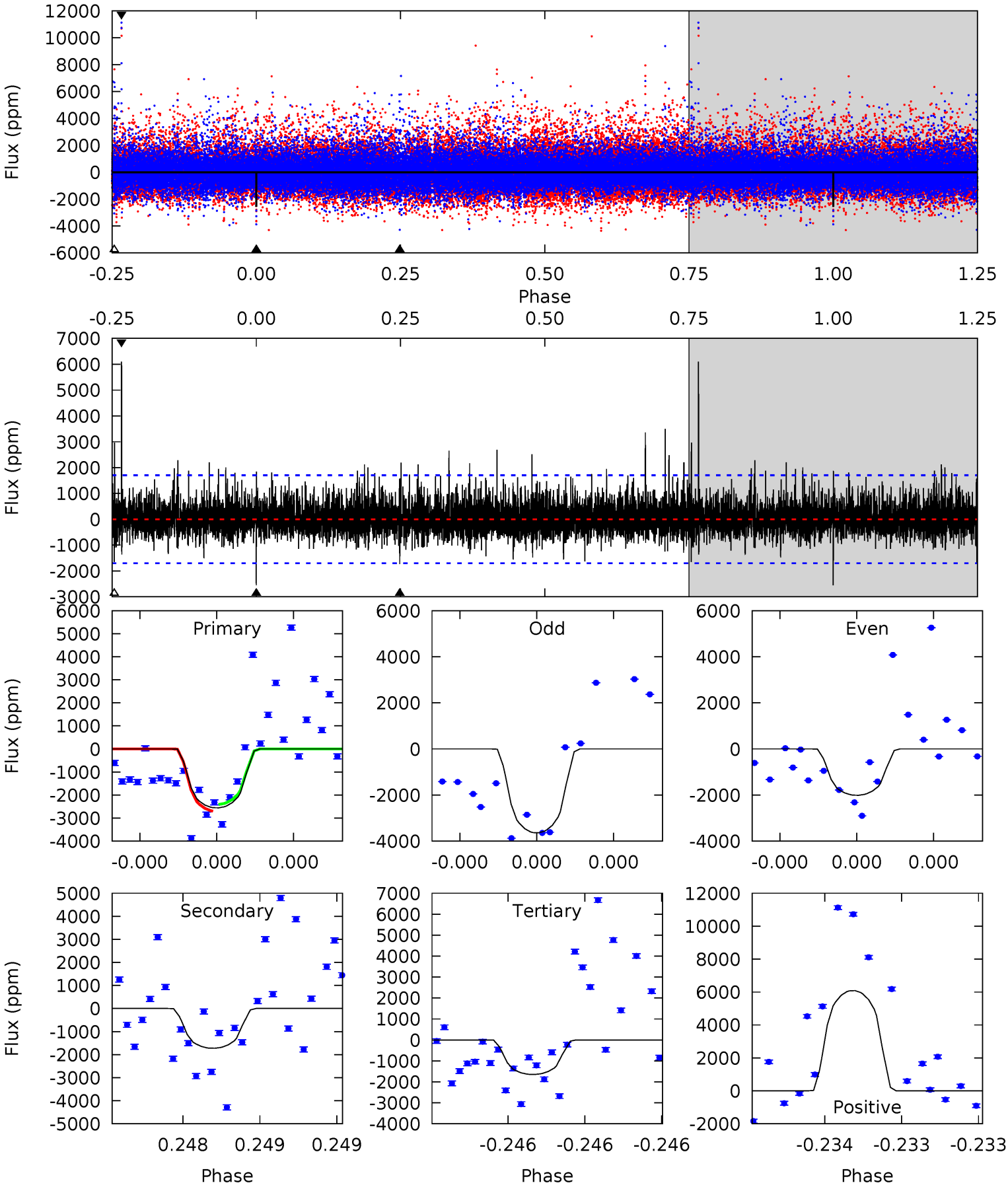
TCE 009114508-02 P=365.018305 Days T_0=229.715559 (BKJD)



DV Model-Shift Uniqueness Test

009114508-02, P = 365.013854 Days, E = 229.739206 Days

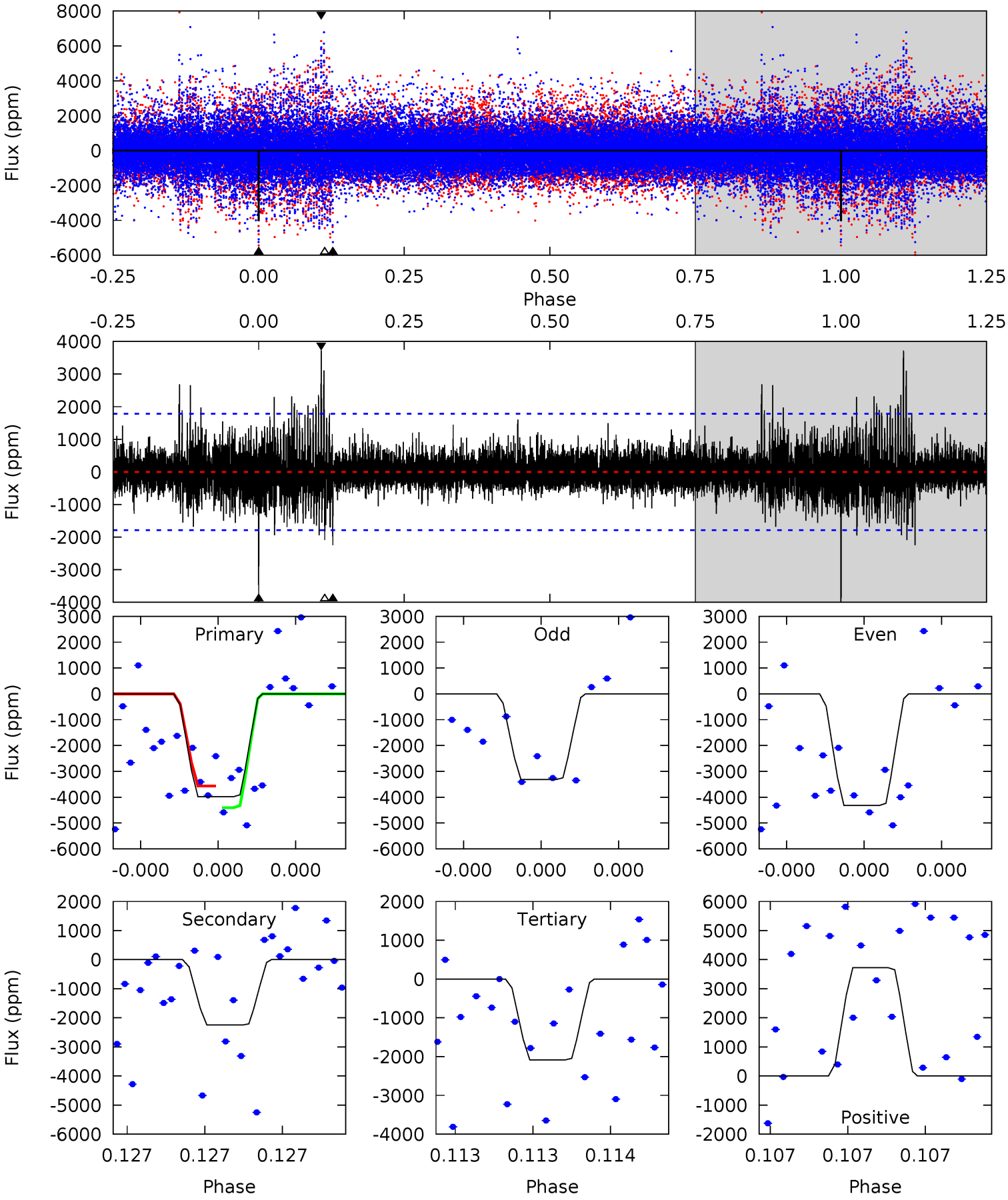
Pri	Sec	Ter	Pos	FA_1	FA_2	F_{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
8.50	5.74	5.48	20.2	5.65	3.60	1.60	3.03	-11.7	0.26	-14.5	0.93	1.28	0.70	0.48



Alt Model-Shift Uniqueness Test

009114508-02, P = 365.018305 Days, E = 229.715559 Days

Pri	Sec	Ter	Pos	FA_1	FA_2	F_{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
12.7	7.18	6.65	11.9	5.70	3.67	1.41	6.06	0.83	0.53	-4.70	1.42	1.02	0.48	1.33



Stellar Parameters For KIC 009114508

	$T_{\rm eff}(K)$	$\log(g)$	[Fe/H]	R ($R_\odot$)	$M(M_\odot)$	$p_\star$ (g·cm^{-3})
	4070^{+142}_{-156}	$4.628^{+0.056}_{-0.016}$	$0.280^{+0.200}_{-0.300}$	$0.646^{+0.026}_{-0.061}$	$0.645^{+0.038}_{-0.057}$	$3.375^{+0.859}_{-0.263}$
	+3%/-4%	+1%/-0%	+71%/-107%	+4%/-9%	+6%/-9%	+25%/-8%
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 009114508-02 / KOI

Detrend	Depth (ppm)	R_p ($R_\oplus$)	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-1726±301	$6.93^{+7.04}_{-4.86}$	215^{+9}_{-9}	3050^{+1604}_{-502}	$14209^{+146558}_{-10708}$
Alt.	-2249±313	$8.30^{+6.90}_{-5.29}$	215^{+8}_{-8}	3044^{+1191}_{-464}	13886^{+91128}_{-9890}

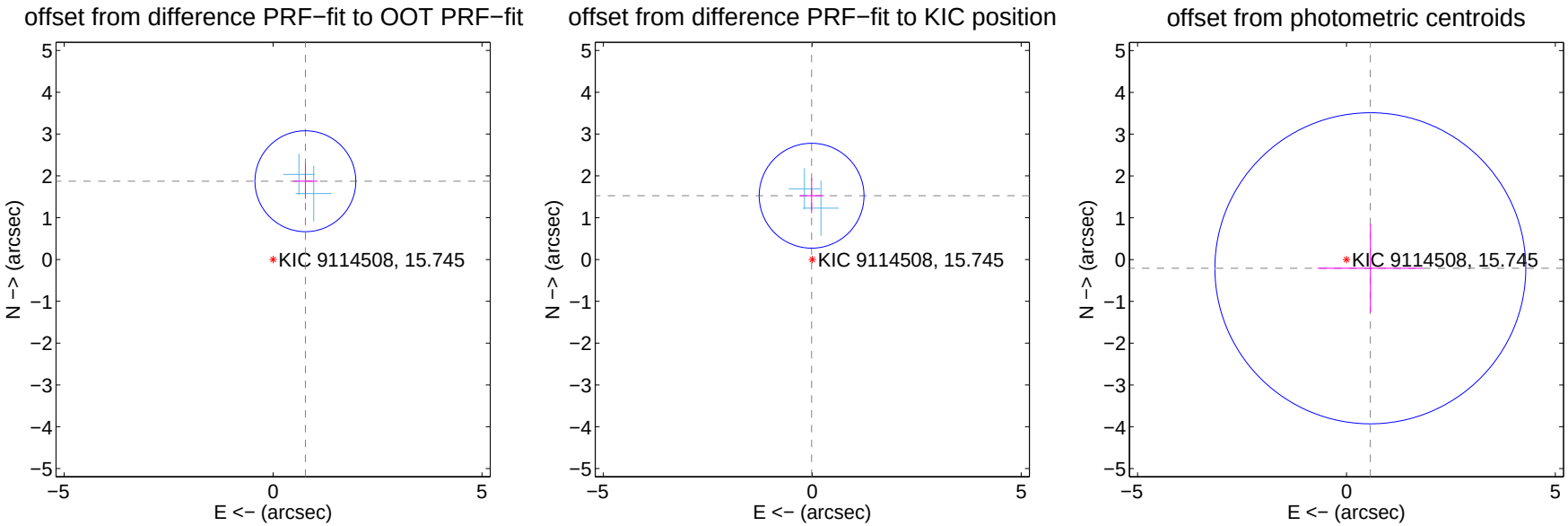
T_{max} = Theoretical Maximum Planetary Temperature
T_{obs} = Observed Planetary Temperature (Assuming A=0.3)
A_{obs} = Observed Albedo (Assuming T=0)

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

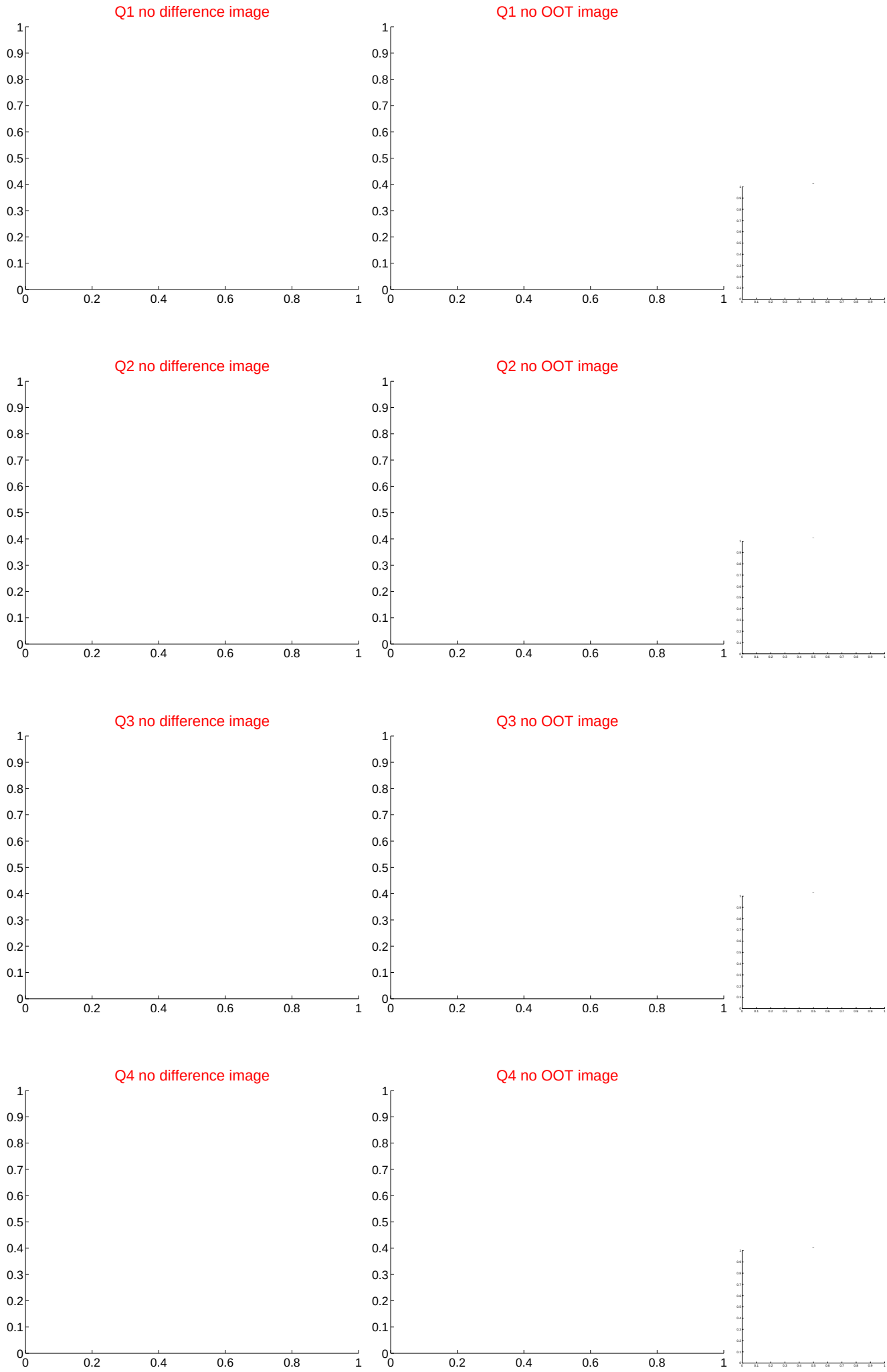
Supplemental centroid analysis for 009114508-02. Kepler magnitude: 15.74. Transit SNR 6.57
There are 2 quarters with good PRF difference image offsets
The direct PRF centroid is offset from the target star catalog position by about 0.88 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	2.025 ± 0.402	5.04	-0.773 ± 0.292	1.872 ± 0.418
PRF-fit source offset from KIC position	1.525 ± 0.418	3.65	0.016 ± 0.292	1.525 ± 0.418
photometric centroid source offset	0.61 ± 1.24	0.49	-0.57 ± 1.26	-0.21 ± 1.06

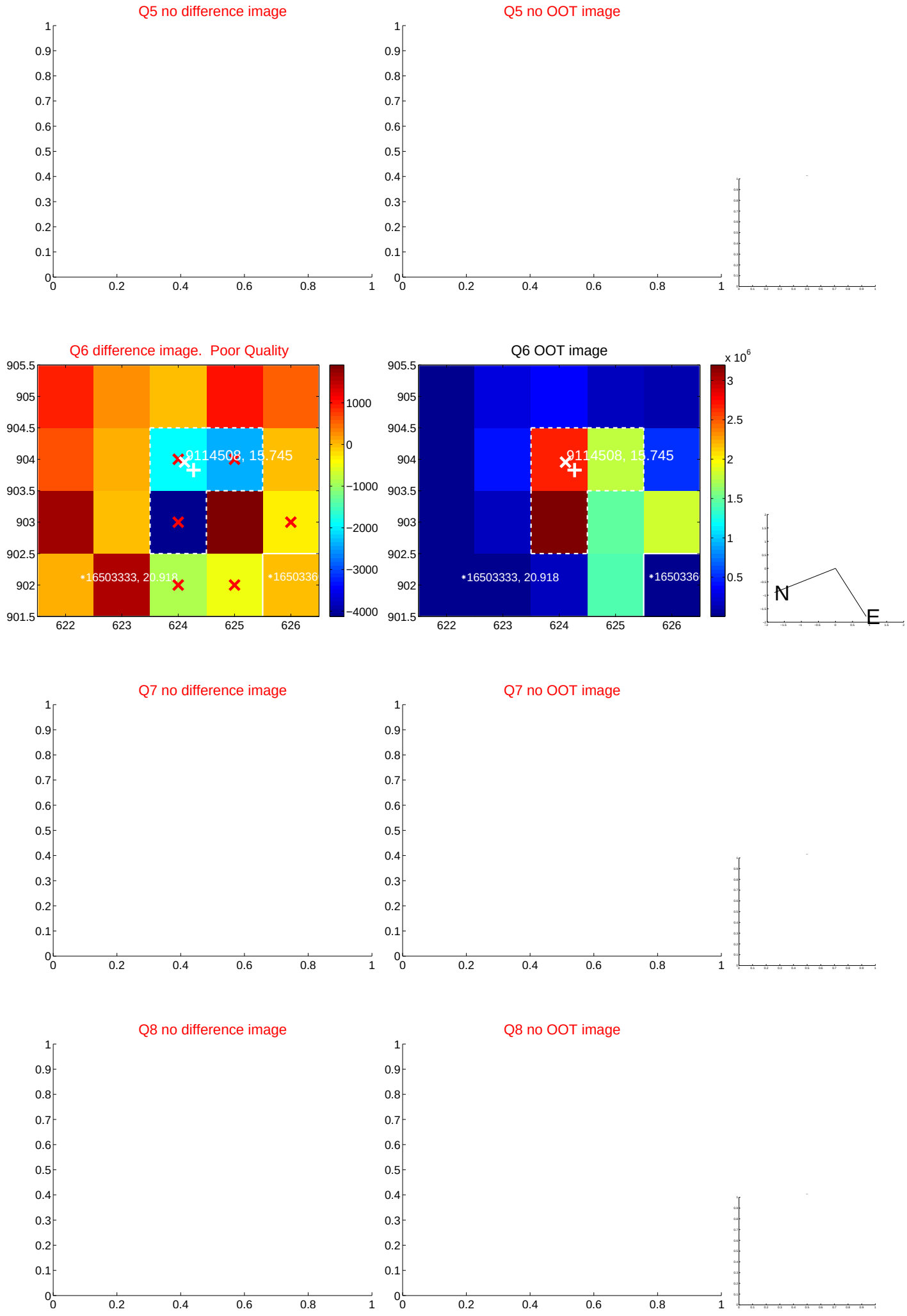


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one-σ uncertainty. Blue circle: three-σ. Red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

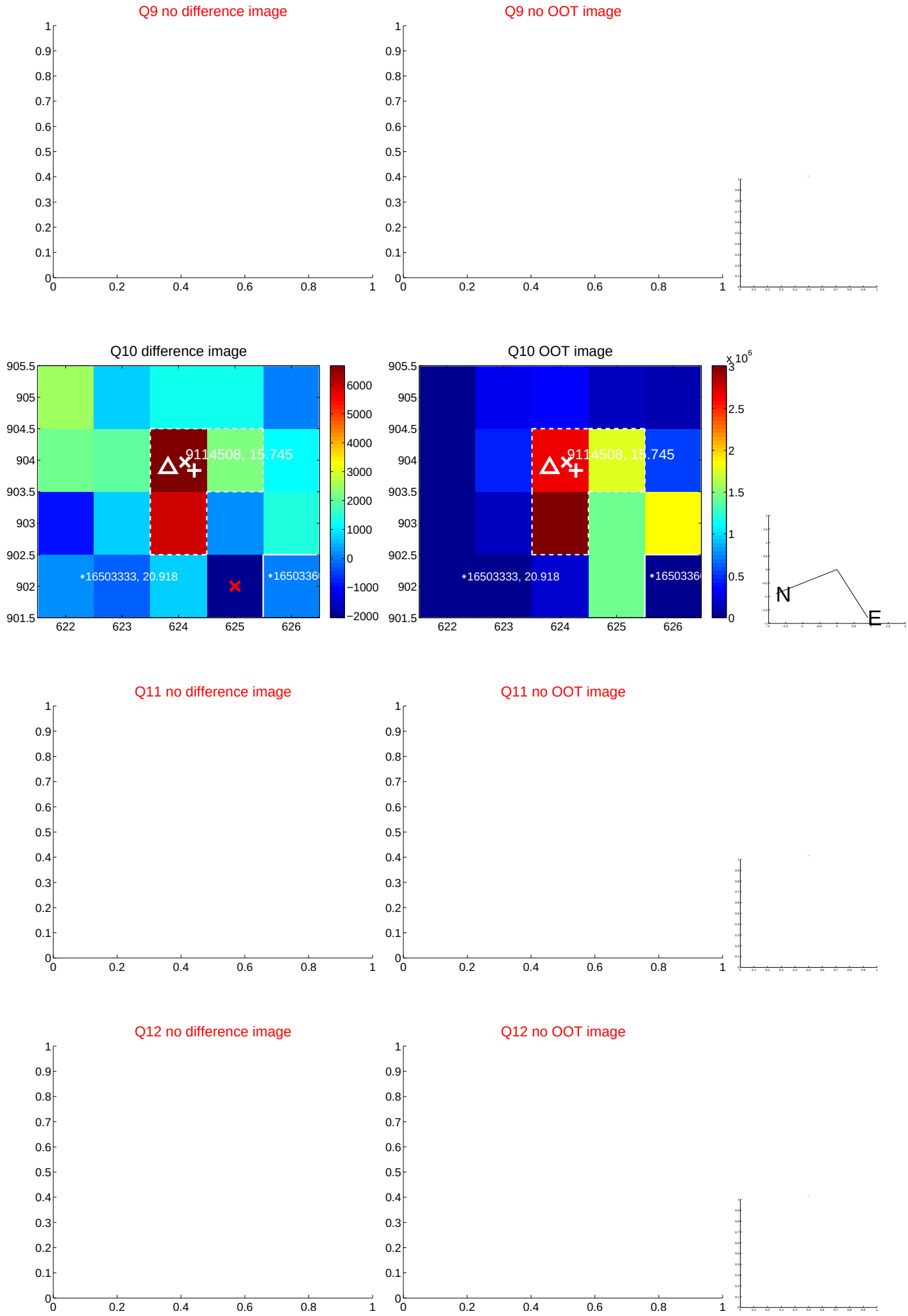
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.



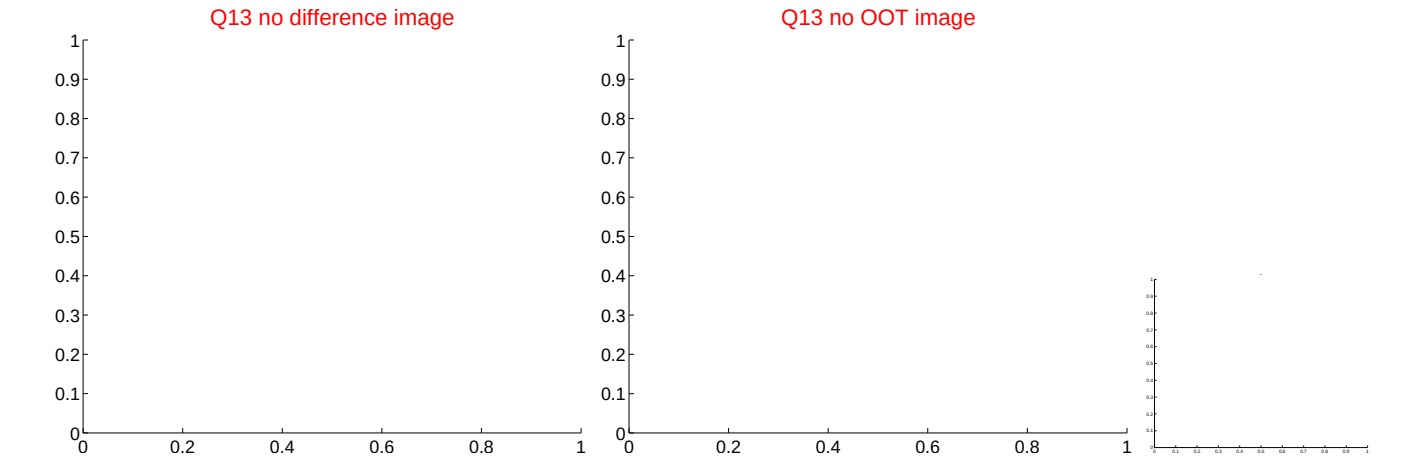
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.

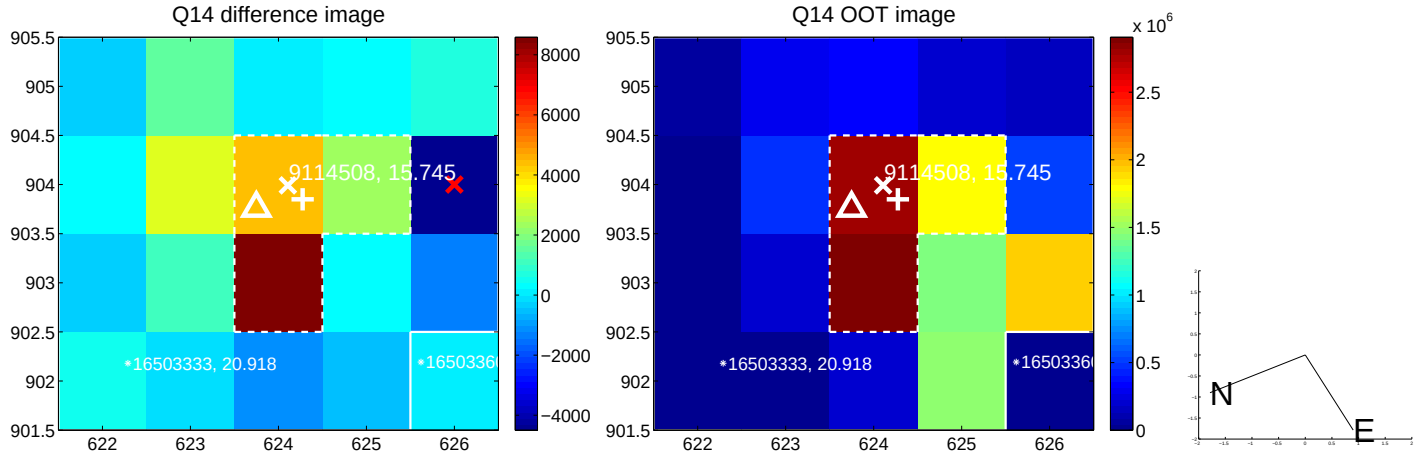


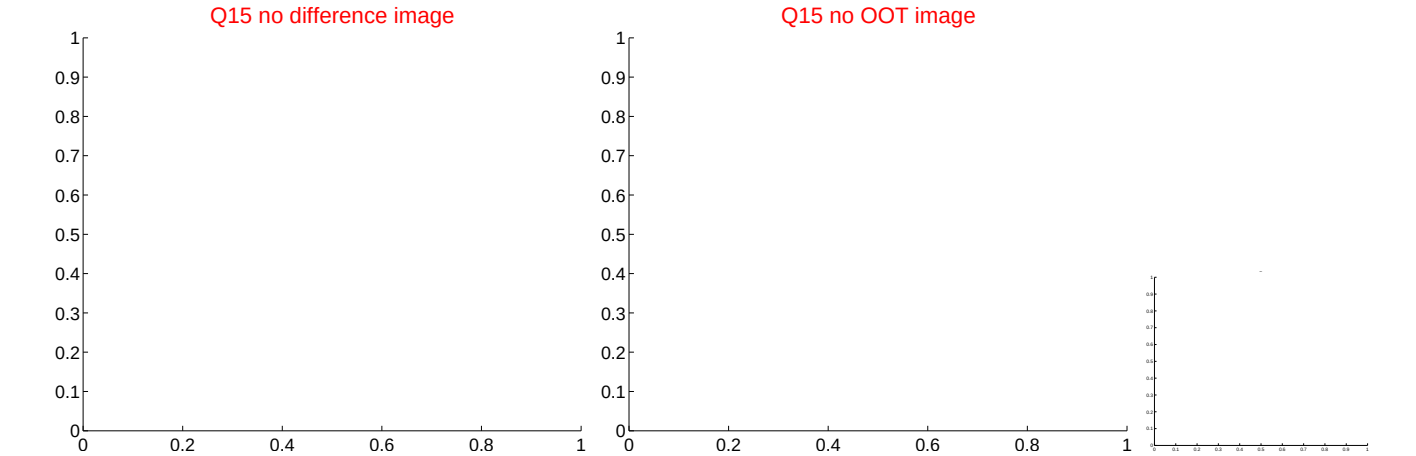
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.

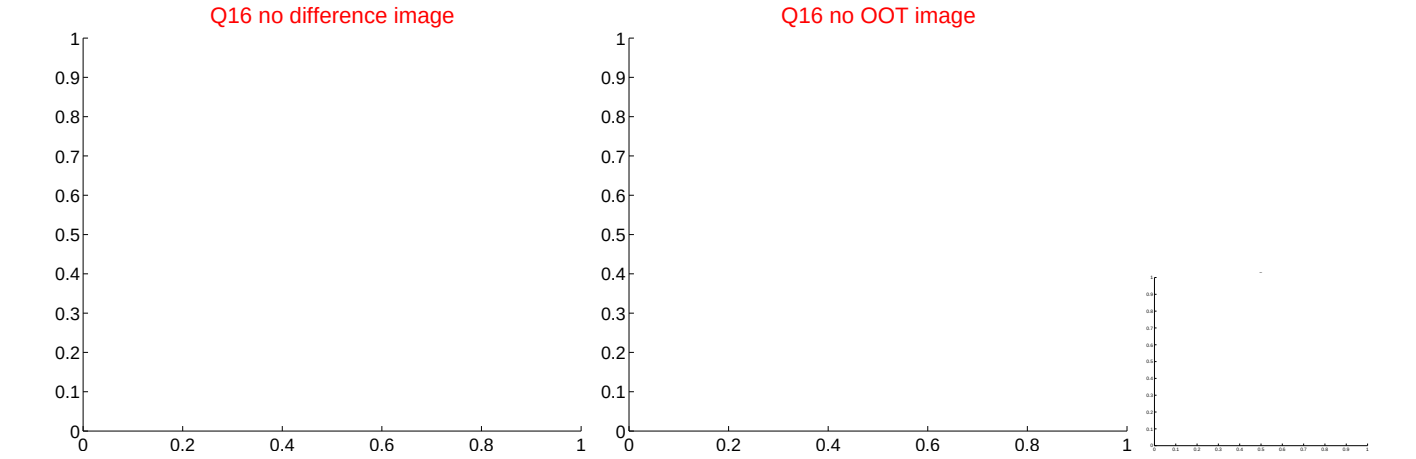


white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.

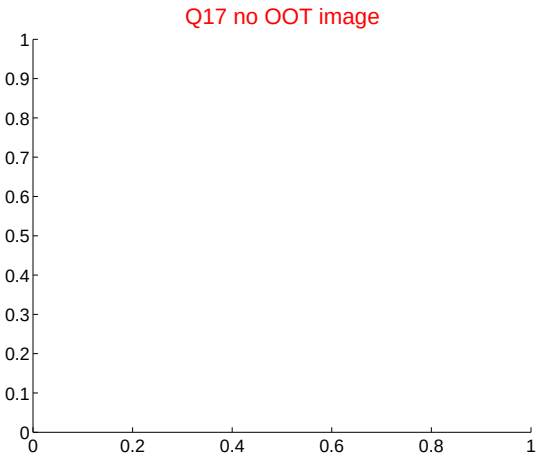


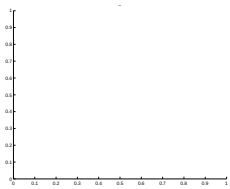


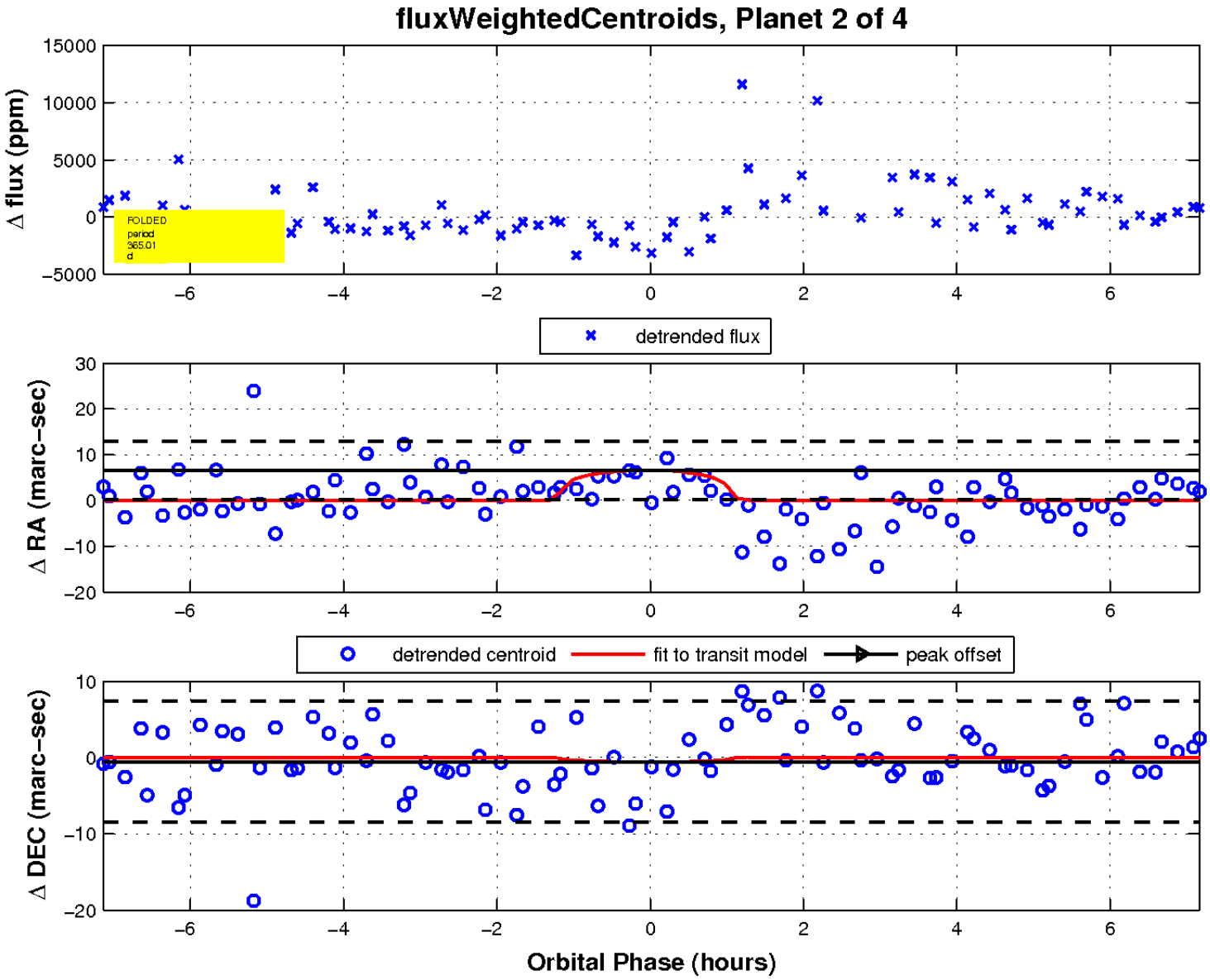




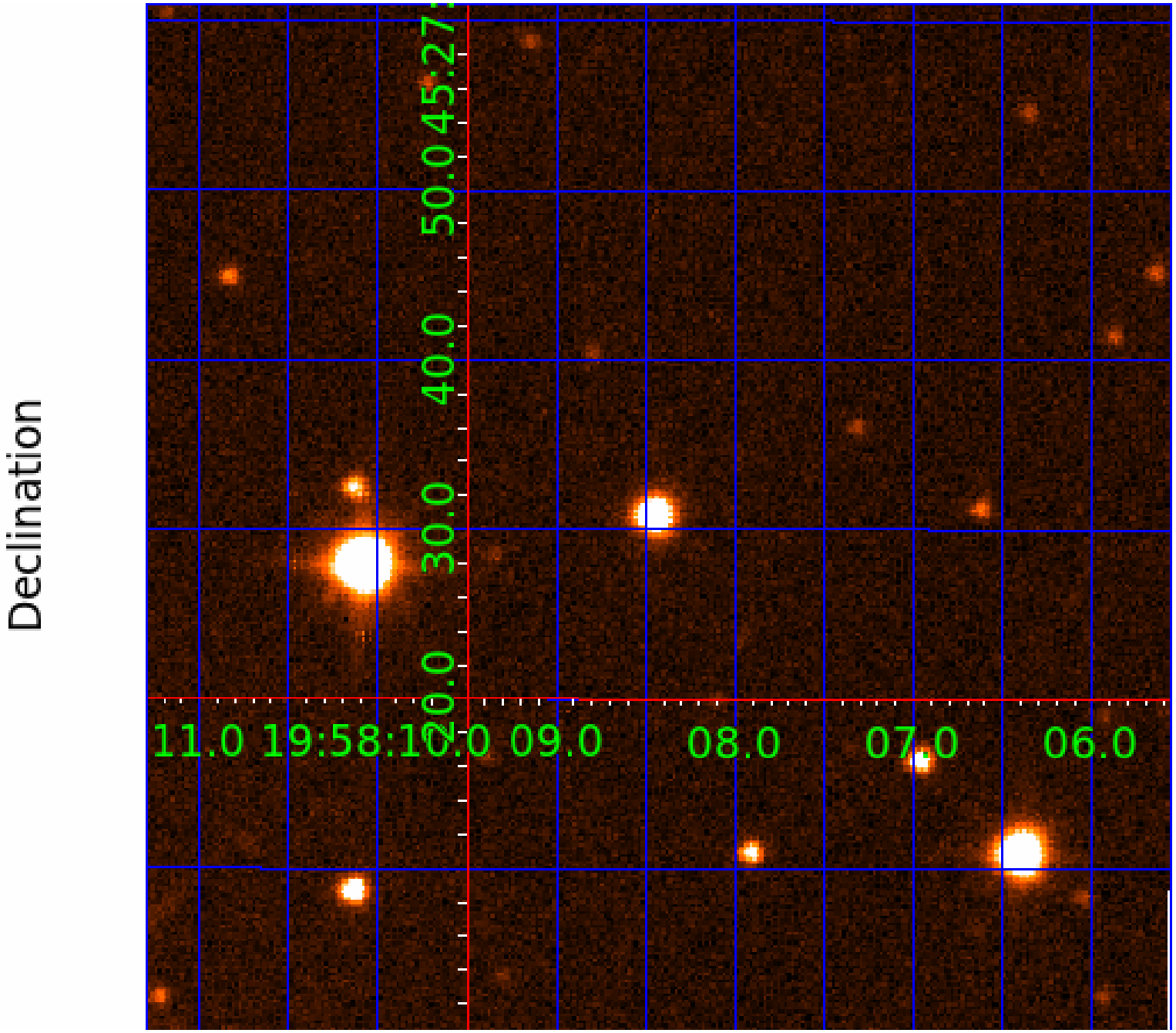
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.







UKIRT Image



KIC 009114508

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 ($S_\oplus$)
009114508-01	OBS	No	196.910850	254.538746	2537.5	3.422	16.4	5.8	0.65	4070	3.38	0.31
009114508-02	OBS	No	365.013854	229.739206	3056.3	2.416	12.8	6.6	0.65	4070	3.67	0.14
009114508-03	OBS	No	328.229587	159.997728	3398.6	6.714	11.7	7.3	0.65	4070	3.75	0.16
009114508-04	OBS	8178.01	256.604646	141.339536	1553.6	15.000	9.1	-1.0	0.65	4070	2.44	0.22

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009114508-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_SKYE—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
009114508-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_POS_DV—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
009114508-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
009114508-04	OBS	FP	0.00	1	0	0	0	ALL_TRANS_CHASES—INCONSISTENT_TRANS—CENT_NOFITS

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.

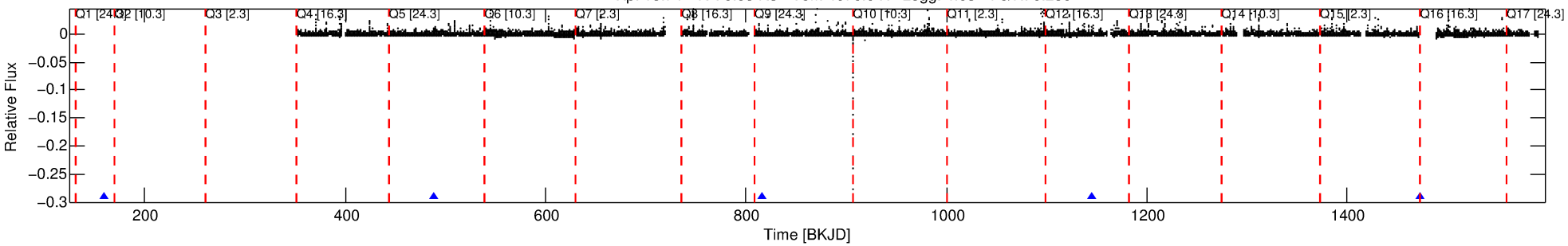
Ephemeris Match Information For 009114508-03

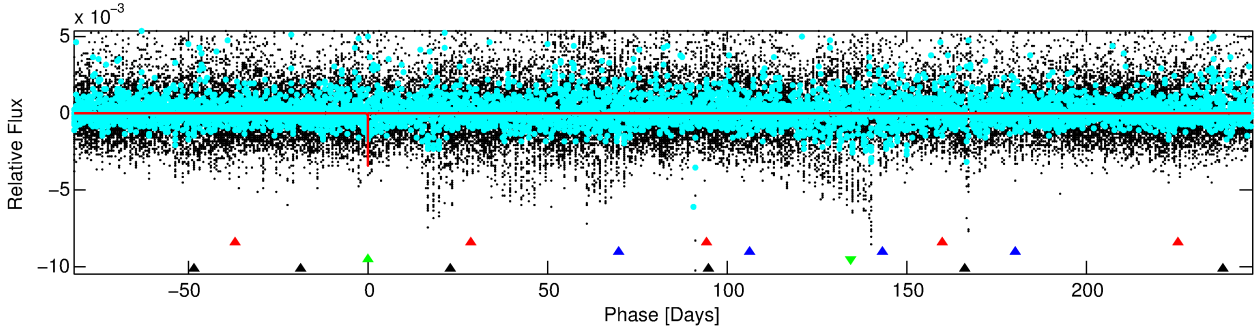
No Significant Match Found

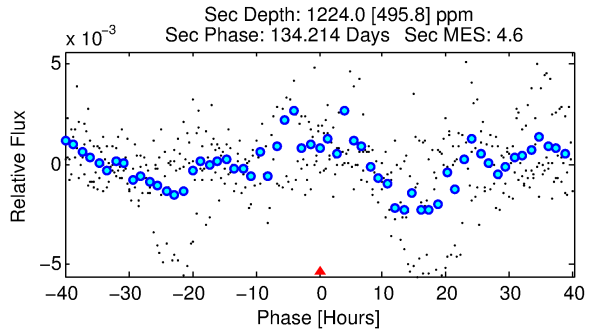
DV One-Page Summary

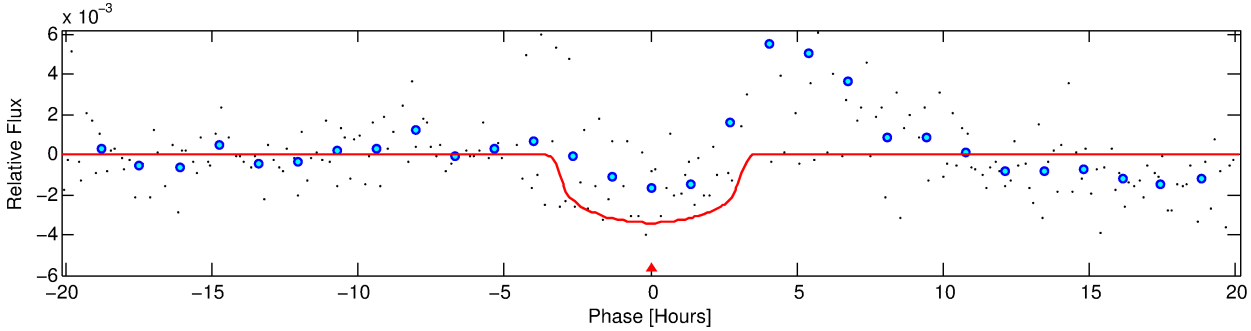
KIC: 9114508 Candidate: 3 of 4 Period: 328.230 d

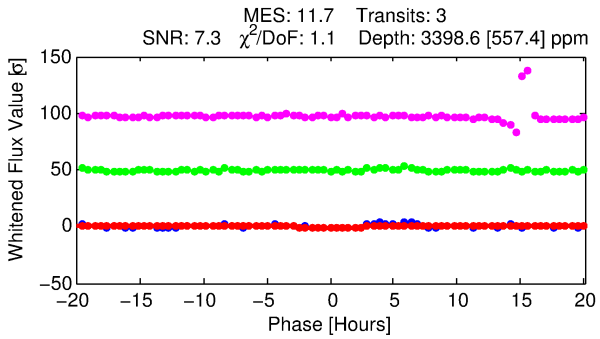
Kp: 15.74 R*: 0.65 Rs Teff: 4070.0 K Logg: 4.63 Fe/H: 0.280

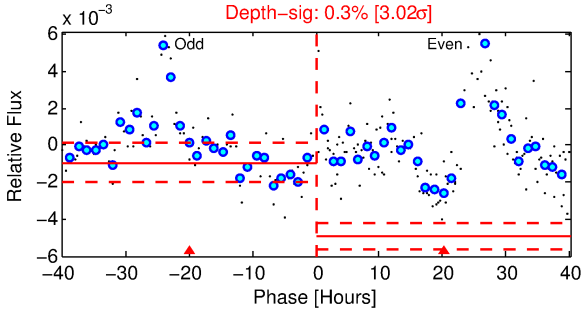


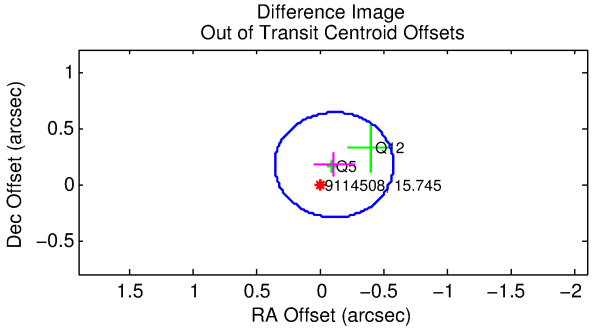












DV Fit Results:

Period = 328.22959 [0.00783] d
Epoch = 159.9977 [0.0154] BKJD
Rp/R* = 0.0532 [0.0420]
a/R* = 352.83 [817.59]
b = 0.47 [4.00]

Seff = 0.16 [0.03]
Teq = 161 [8] K
Rp = 3.75 [2.98] Re
a = 0.8053 [0.0614] AU

Ag = 31063.20 [50760.78] [0.61σ]
Teffp = 3301 [1352] K [2.32σ]

DV Diagnostic Results:

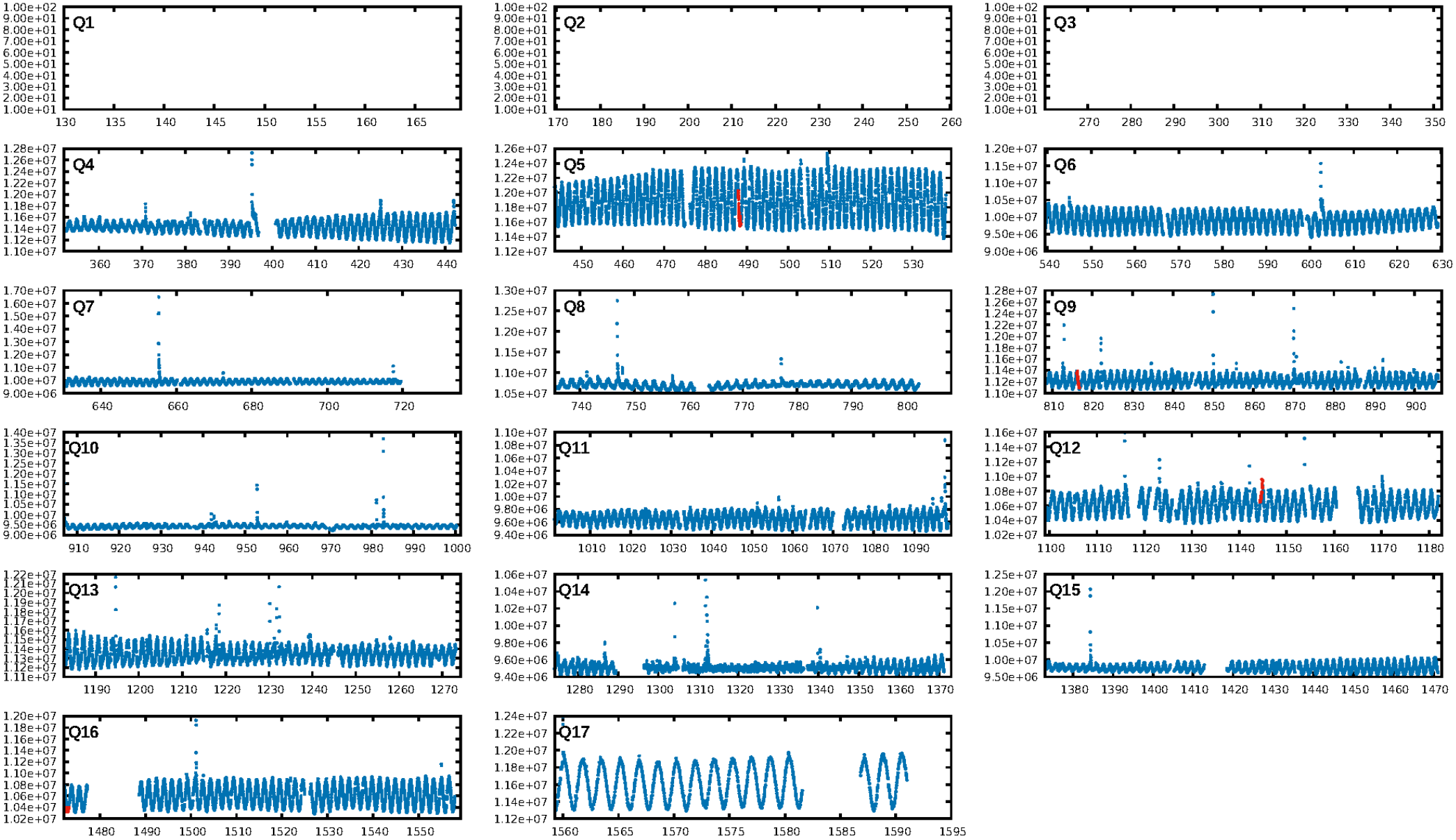
ShortPeriod−sig: 100.0% [104.60σ]
LongPeriod−sig: 100.0% [123.73σ]
ModelChiSquare2−sig: 1.0%
ModelChiSquareGof−sig: 95.1%
Bootstrap−pfa: 1.54e−12
RollingBand−fgt: 1.00 [3/3]
GhostDiagnostic−chr: 3.457

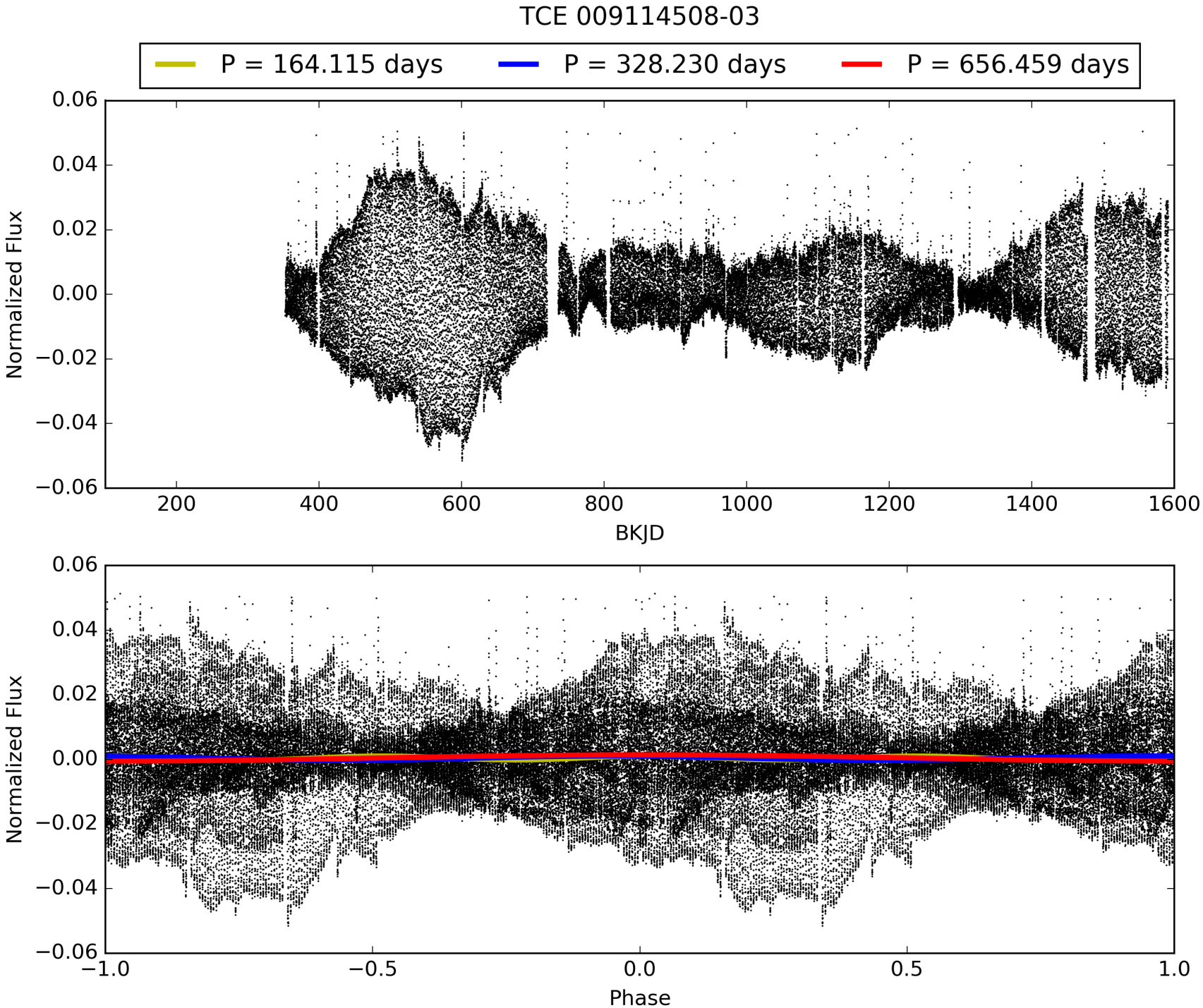
Centroid−sig: 14.1%
Centroid−so: 0.799 arcsec [0.87σ]
OotOffset−rm: 0.204 arcsec [1.31σ]
KicOffset−rm: 0.260 arcsec [2.24σ]
OotOffset−st: 0/0/1/1 [2]
KicOffset−st: 0/0/1/1 [2]
DiffImageQuality−fgm: 0.50 [1/2]
DiffImageOverlap−fno: 1.00 [3/3]

Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31−Jan−2016 17:02:47 Z

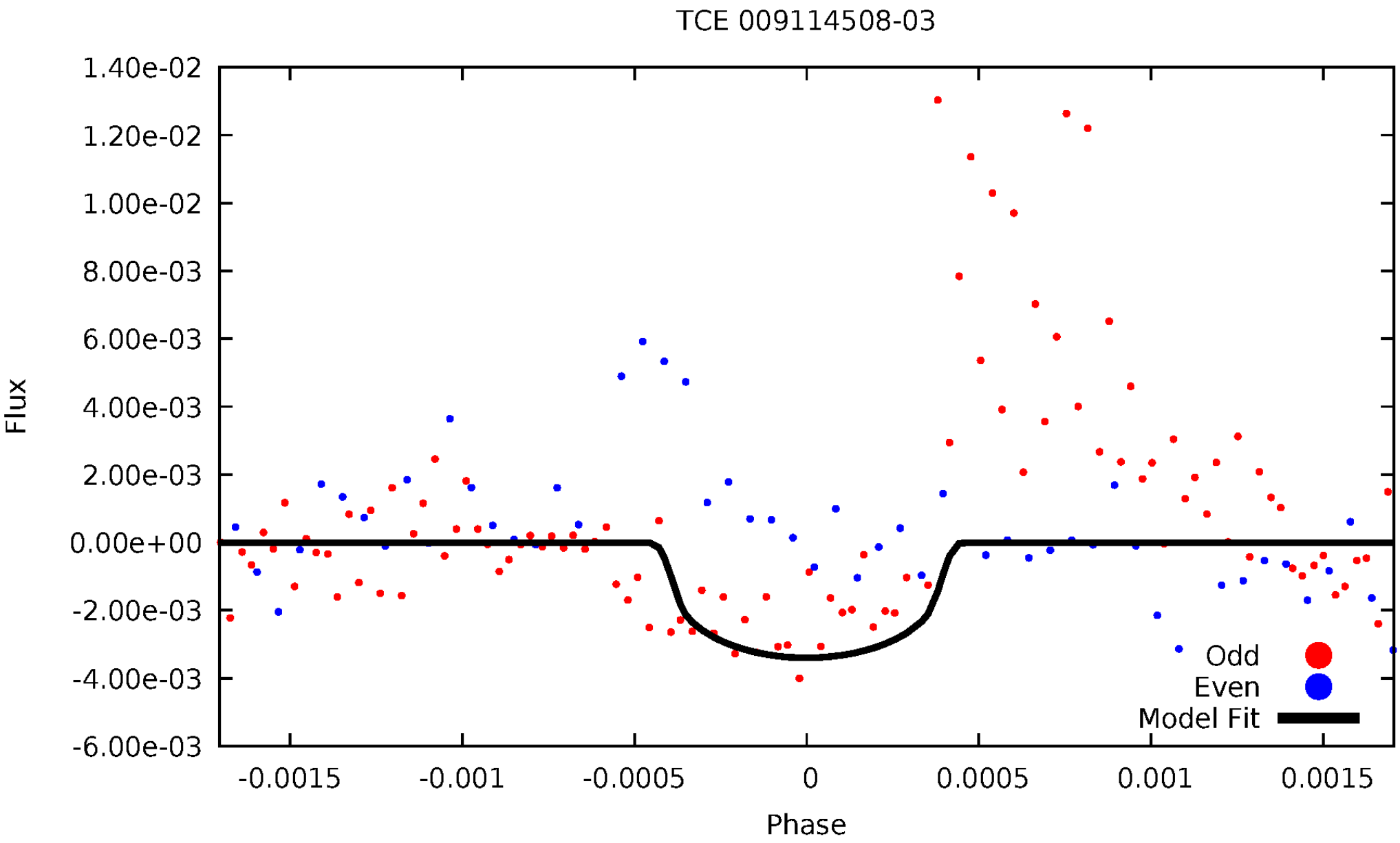
This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

TCE 009114508-03, PDC Light Curves

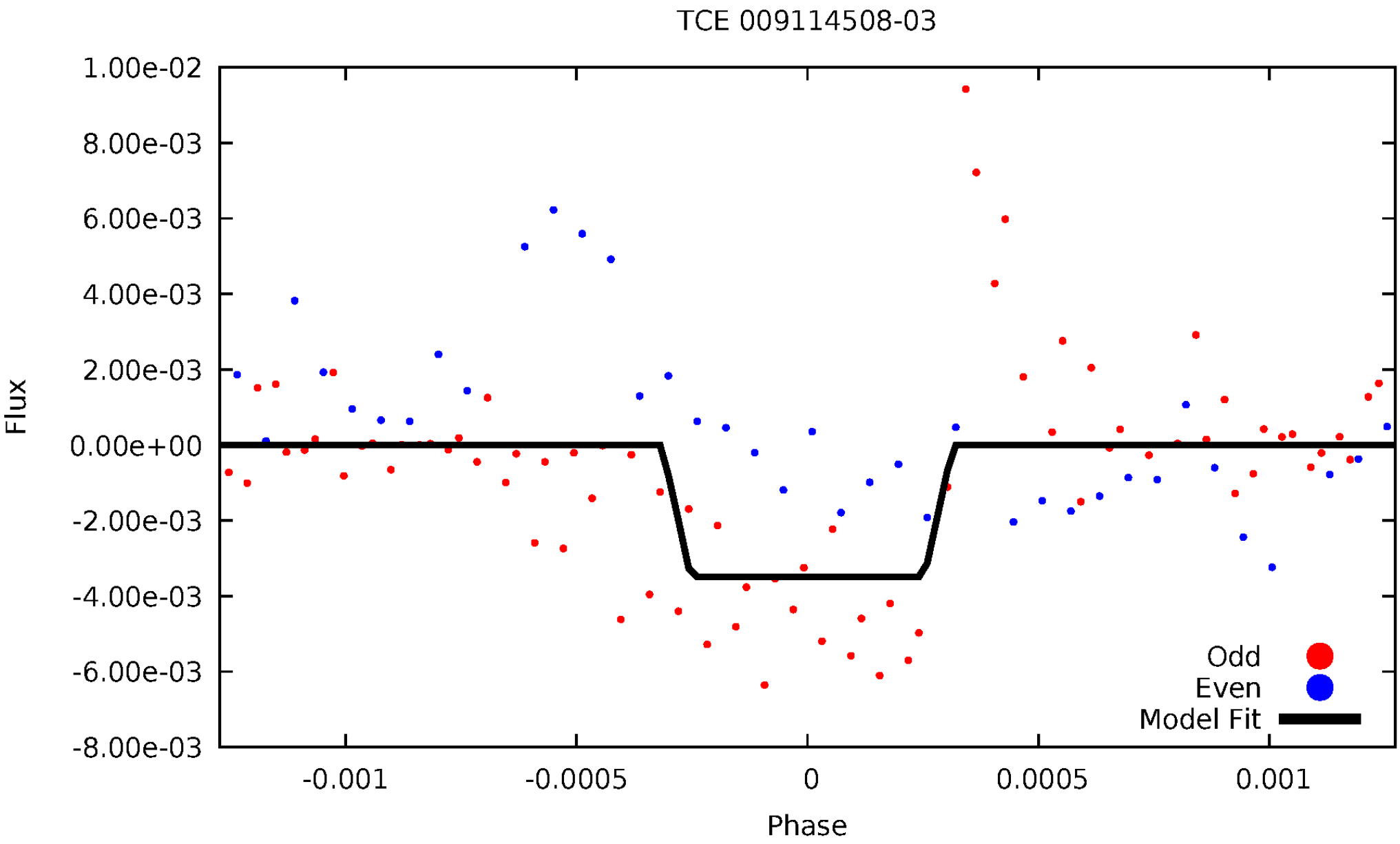



TCE 009114508-03
P = 164.115 days
P = 328.230 days
P = 656.459 days
Normalized Flux
BKJD
Normalized Flux
Phase

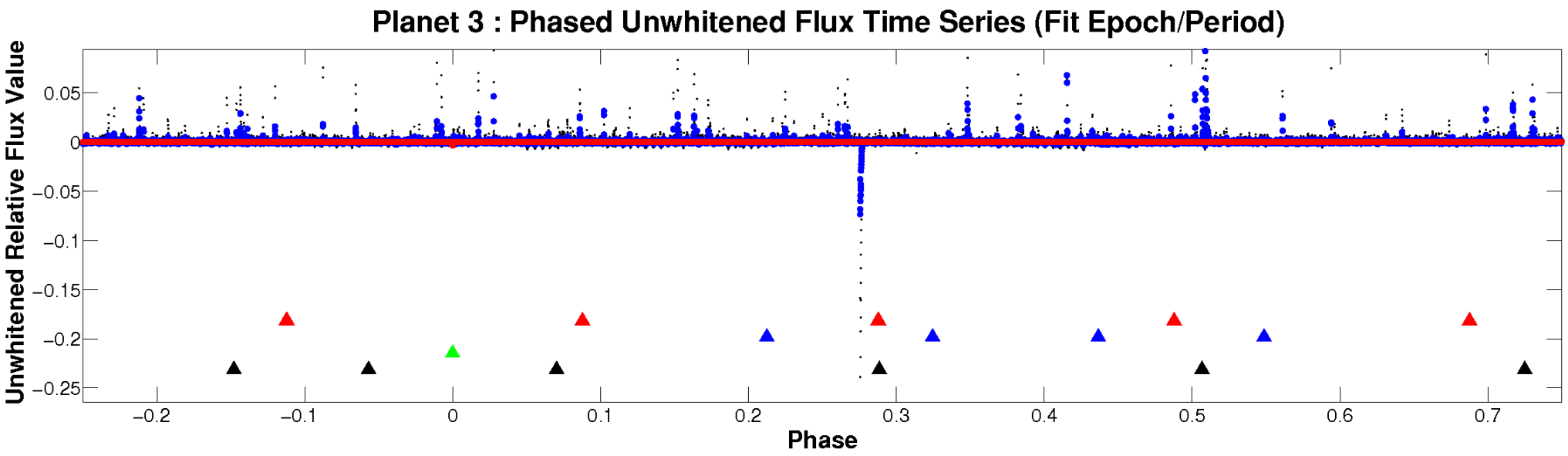
DV Odd/Even

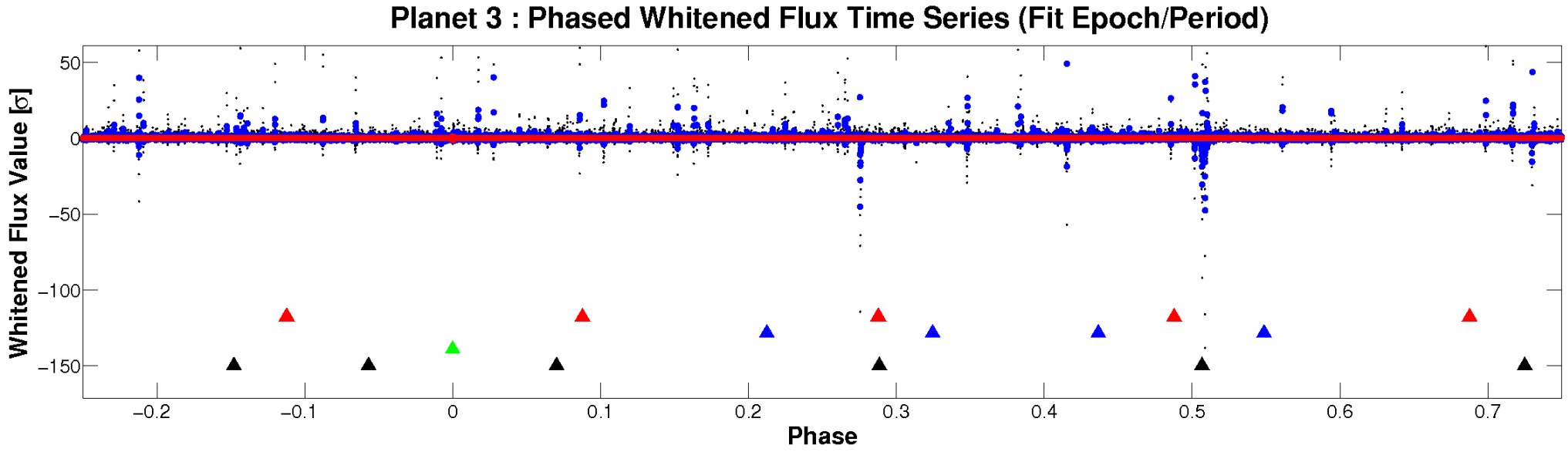

TCE 009114508-03
1.40e-02
1.20e-02
1.00e-02
8.00e-03
6.00e-03
4.00e-03
2.00e-03
0.00e+00
-2.00e-03
-4.00e-03
-6.00e-03
Flux
-0.0015
-0.001
-0.0005
0
0.0005
0.001
0.0015
Phase
Odd
Even
Model Fit

ALT Odd/Even


TCE 009114508-03
1.00e-02
8.00e-03
6.00e-03
4.00e-03
2.00e-03
0.00e+00
-2.00e-03
-4.00e-03
-6.00e-03
-8.00e-03
Flux
-0.001
-0.0005
0
0.0005
0.001
Phase
Odd
Even
Model Fit

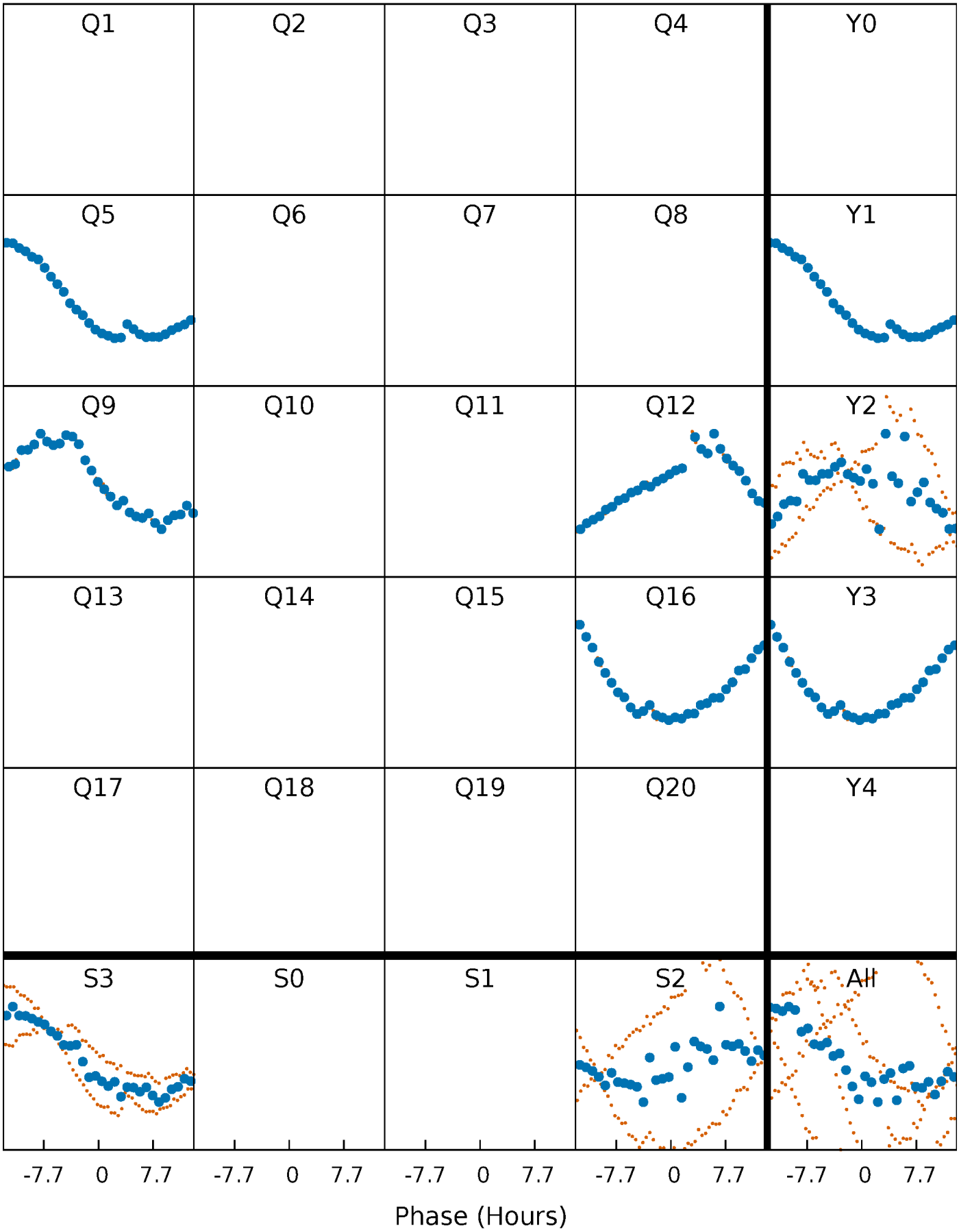
Non-Whitened Vs. Whitened Light Curve





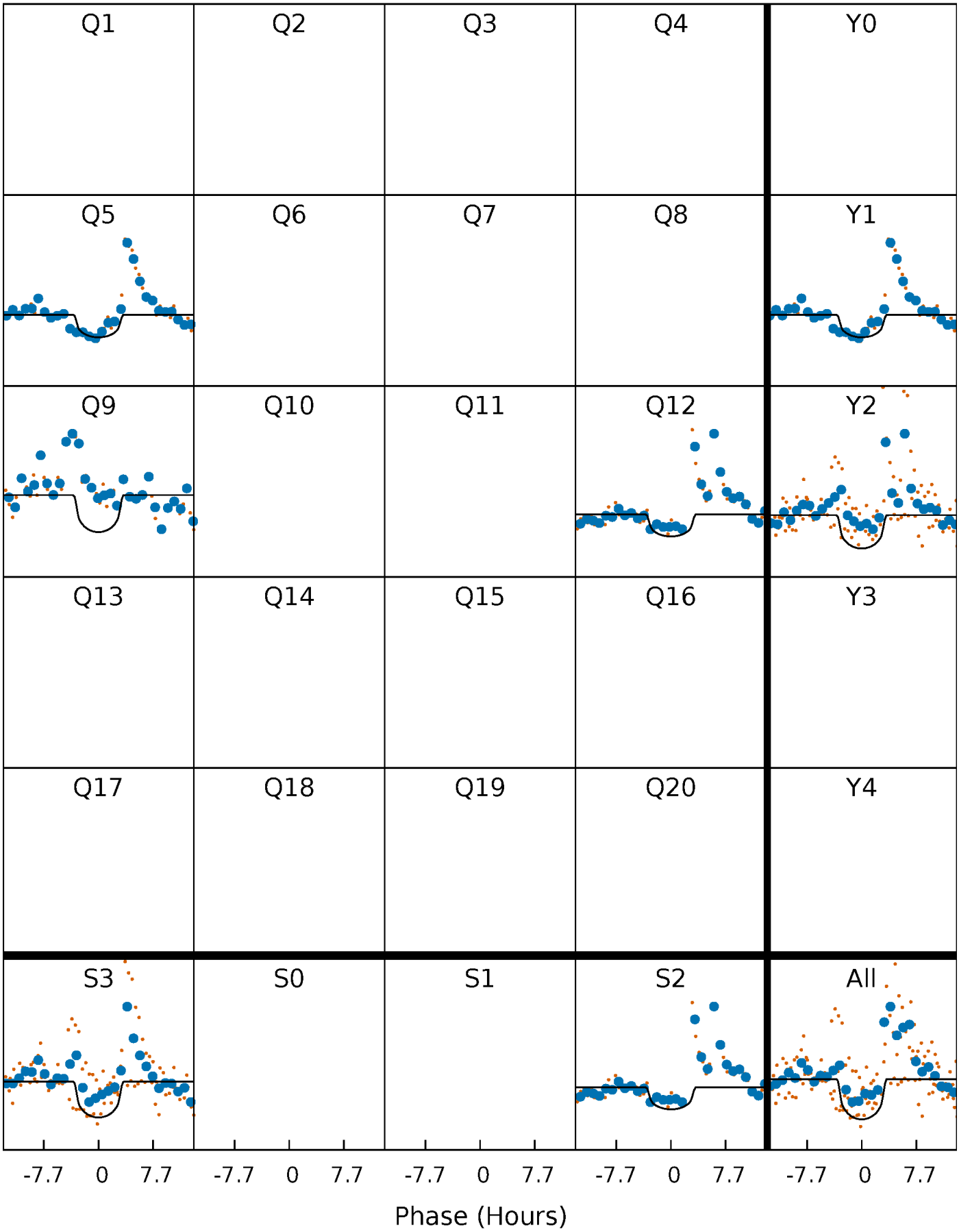
PDC Quarter-Phased Transit Curves

TCE 009114508-03 P=328.229587 Days T_0=159.997728 (BKJD)



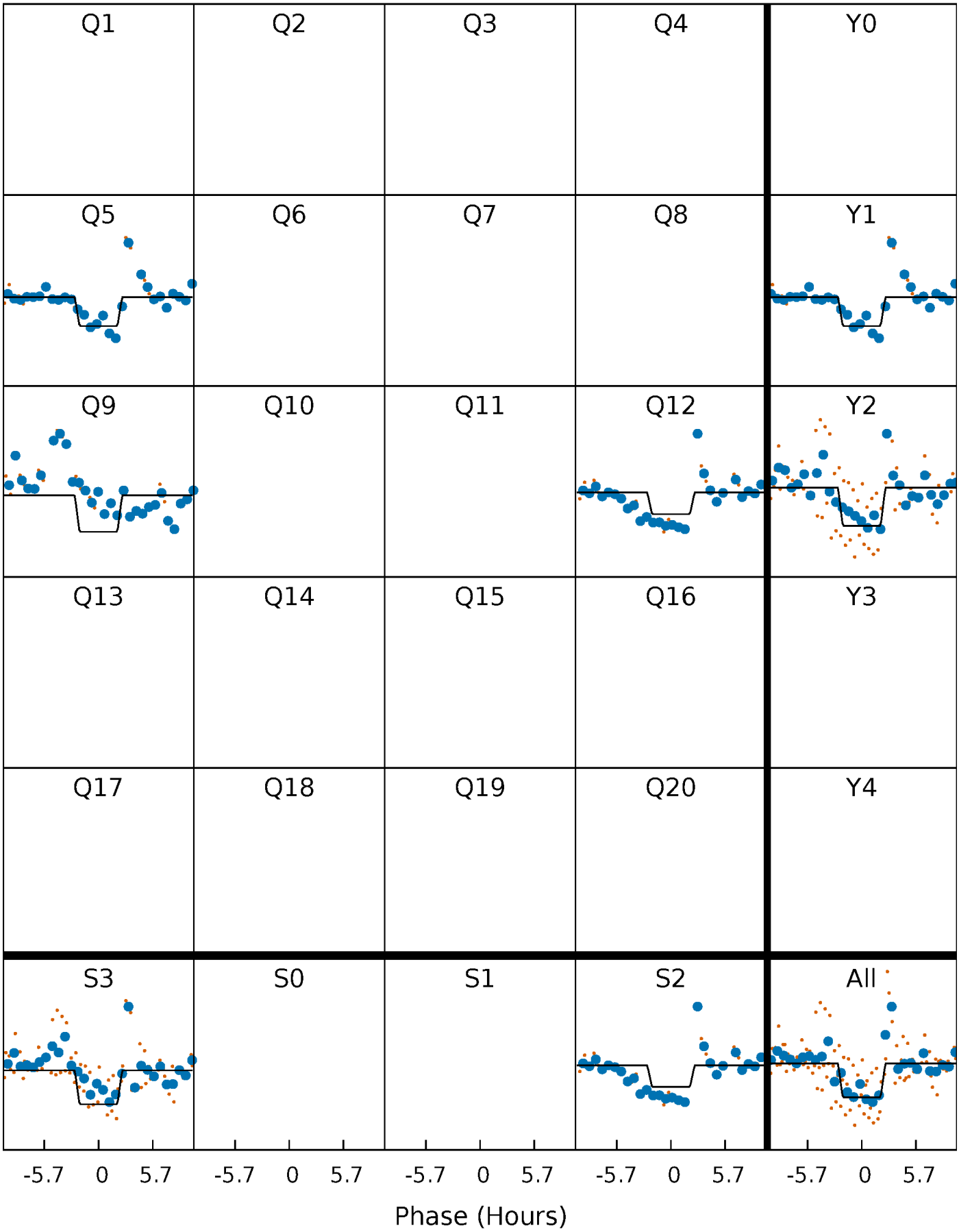
DV Quarter-Phased Transit Curves

TCE 009114508-03 P=328.229587 Days T_0=159.997728 (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

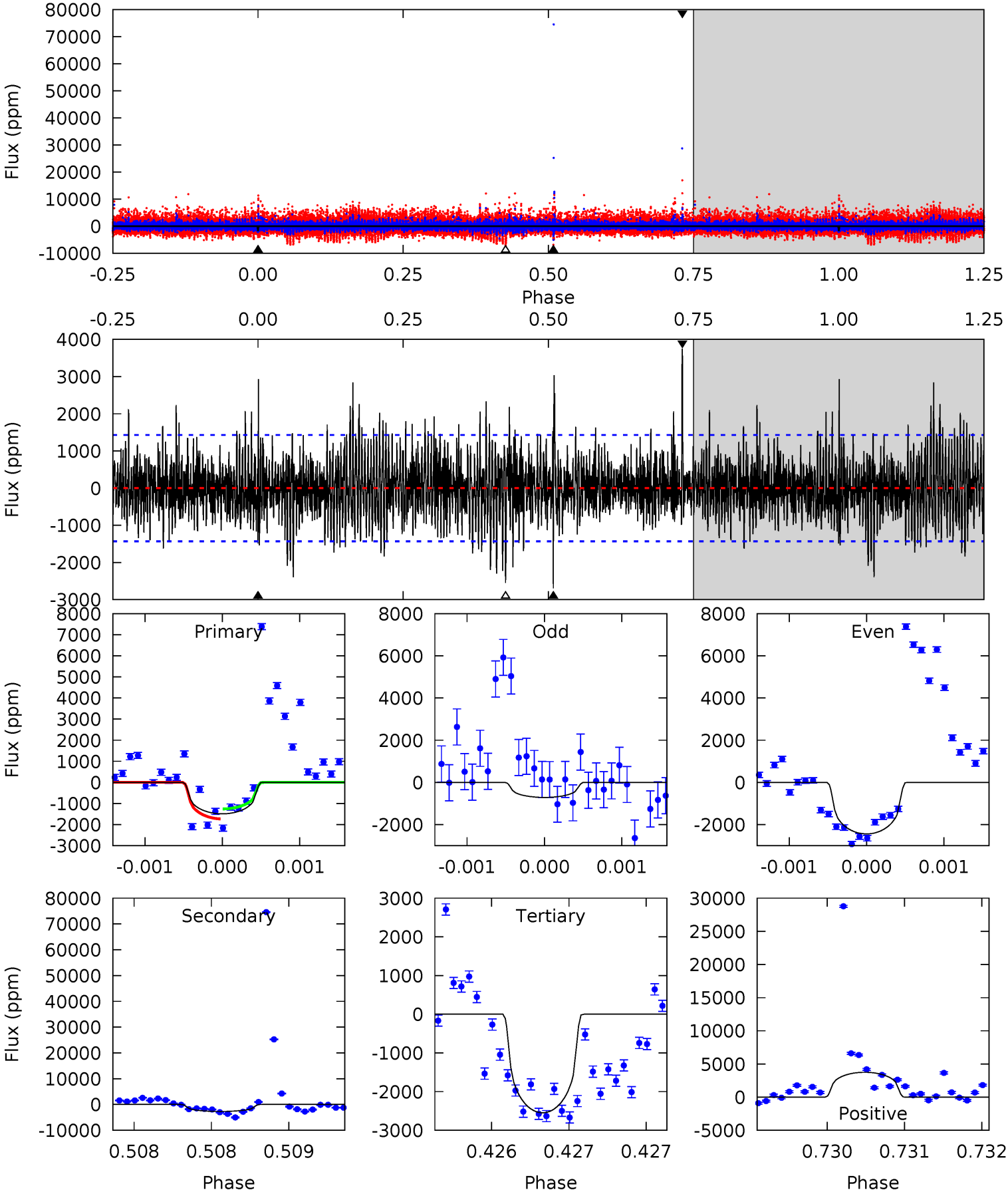
TCE 009114508-03 P=328.217463 Days T_0=160.046413 (BKJD)



DV Model-Shift Uniqueness Test

009114508-03, P = 328.229587 Days, E = 159.997728 Days

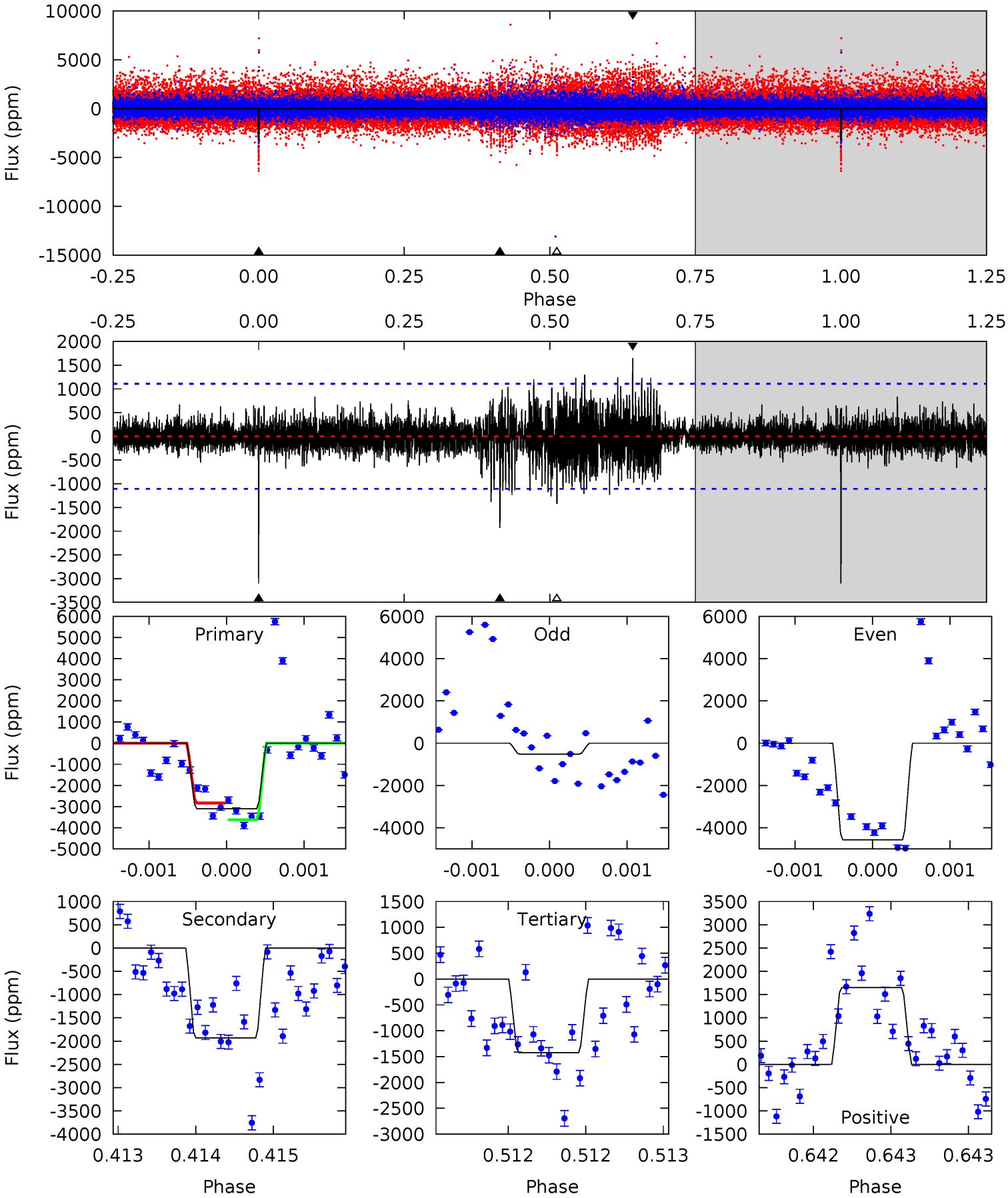
Pri	Sec	Ter	Pos	FA_1	FA_2	F_{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
5.70	10.3	9.74	14.3	5.47	3.32	2.45	-4.03	-8.63	0.57	-4.03	1.82	0.80	0.58	0.91



Alt Model-Shift Uniqueness Test

009114508-03, P = 328.217463 Days, E = 160.046413 Days

Pri	Sec	Ter	Pos	FA_1	FA_2	F_{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
15.5	9.65	7.11	8.24	5.53	3.42	1.48	8.38	7.25	2.54	1.41	7.93	0.92	0.35	1.97



Stellar Parameters For KIC 009114508

	$T_{\rm eff}(K)$	$\log(g)$	[Fe/H]	R ($R_\odot$)	$M(M_\odot)$	$p_\star$ (g·cm^{-3})
	4070^{+142}_{-156}	$4.628^{+0.056}_{-0.016}$	$0.280^{+0.200}_{-0.300}$	$0.646^{+0.026}_{-0.061}$	$0.645^{+0.038}_{-0.057}$	$3.375^{+0.859}_{-0.263}$
	+3%/-4%	+1%/-0%	+71%/-107%	+4%/-9%	+6%/-9%	+25%/-8%
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 009114508-03 / KOI

Detrend	Depth (ppm)	R_p ($R_\oplus$)	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-2696±262	$4.39^{+2.65}_{-2.41}$	223^{+8}_{-10}	3785^{+1419}_{-542}	$50217^{+193705}_{-30670}$
Alt.	-1933±200	$4.42^{+2.81}_{-2.49}$	223^{+9}_{-9}	3594^{+1274}_{-514}	$36384^{+152202}_{-22977}$

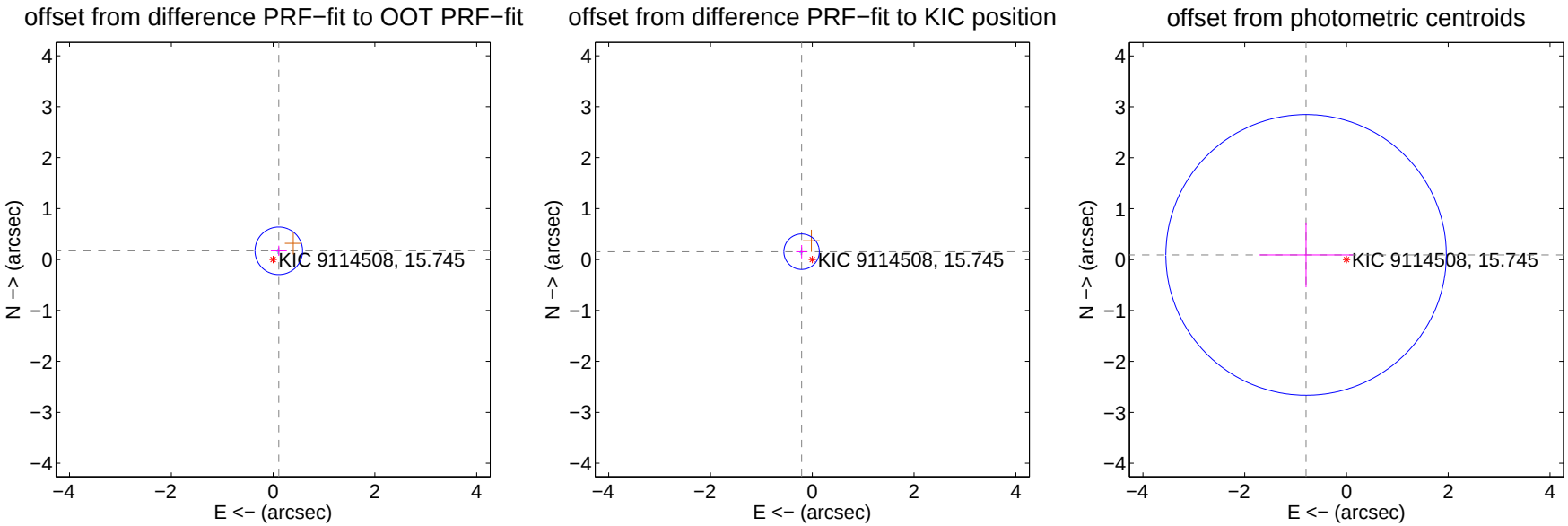
T_{max} = Theoretical Maximum Planetary Temperature
T_{obs} = Observed Planetary Temperature (Assuming A=0.3)
A_{obs} = Observed Albedo (Assuming T=0)

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

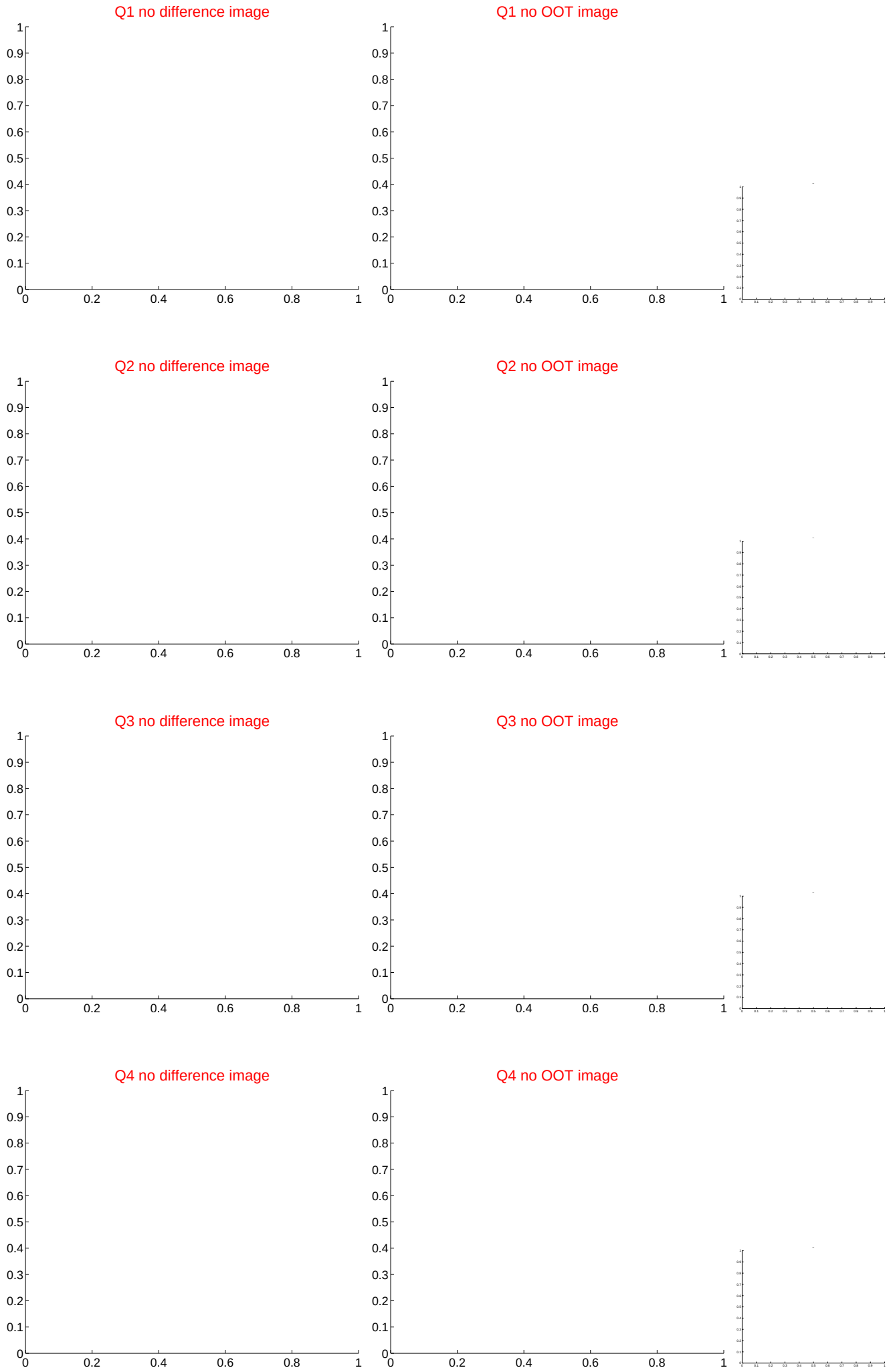
Supplemental centroid analysis for 009114508-03. Kepler magnitude: 15.74. Transit SNR 7.27
There are 1 quarters with good PRF difference image offsets
The direct PRF centroid is offset from the target star catalog position by about 0.42 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.204 ± 0.156	1.31	-0.112 ± 0.158	0.171 ± 0.100
PRF-fit source offset from KIC position	0.260 ± 0.116	2.24	0.210 ± 0.108	0.153 ± 0.130
photometric centroid source offset	0.80 ± 0.92	0.87	0.79 ± 0.92	0.09 ± 0.64

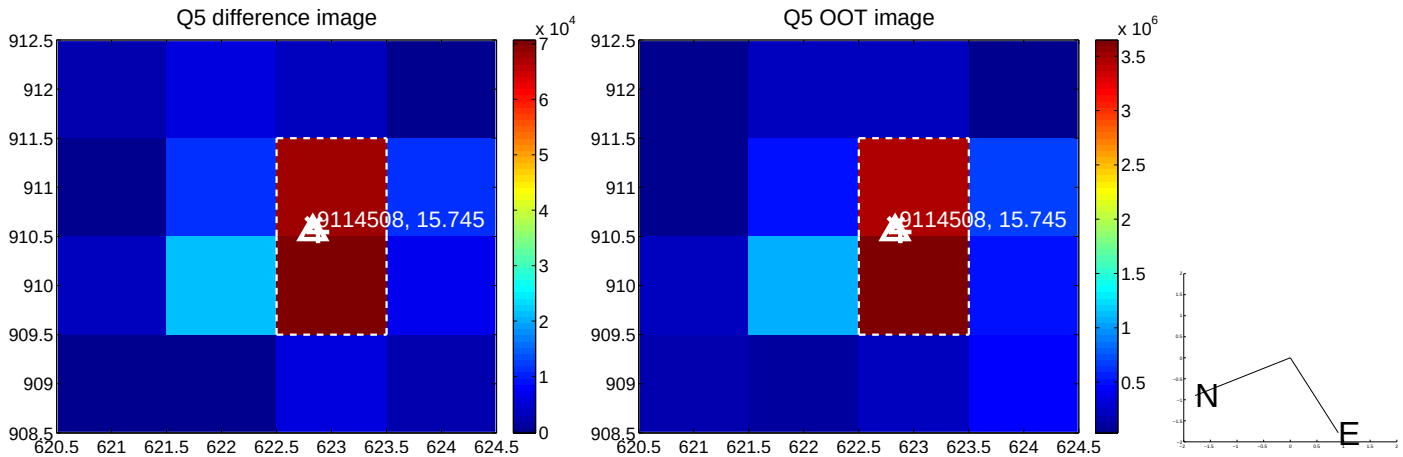


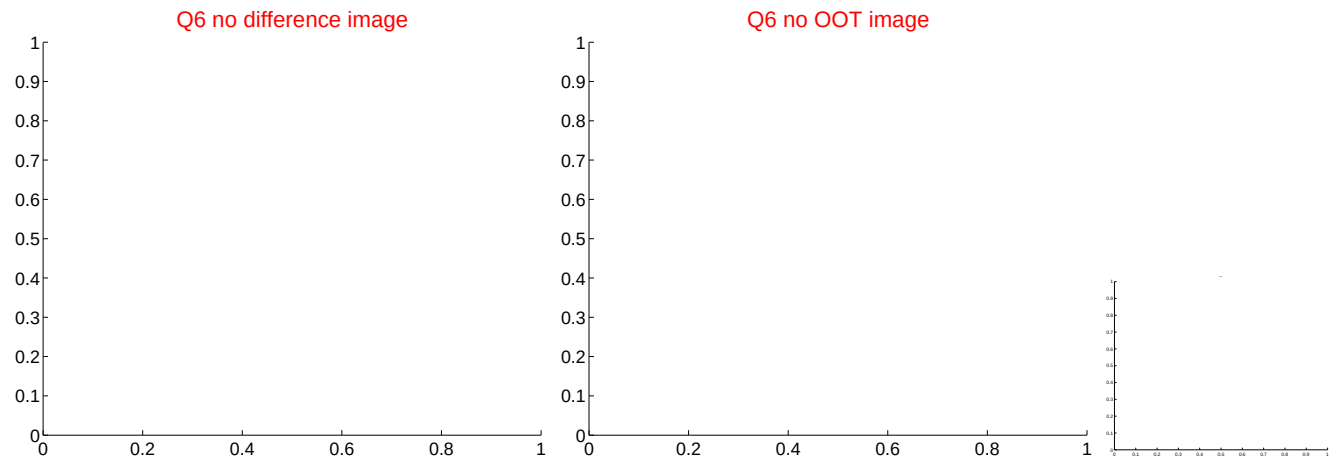
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one-σ uncertainty. Blue circle: three-σ. Red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

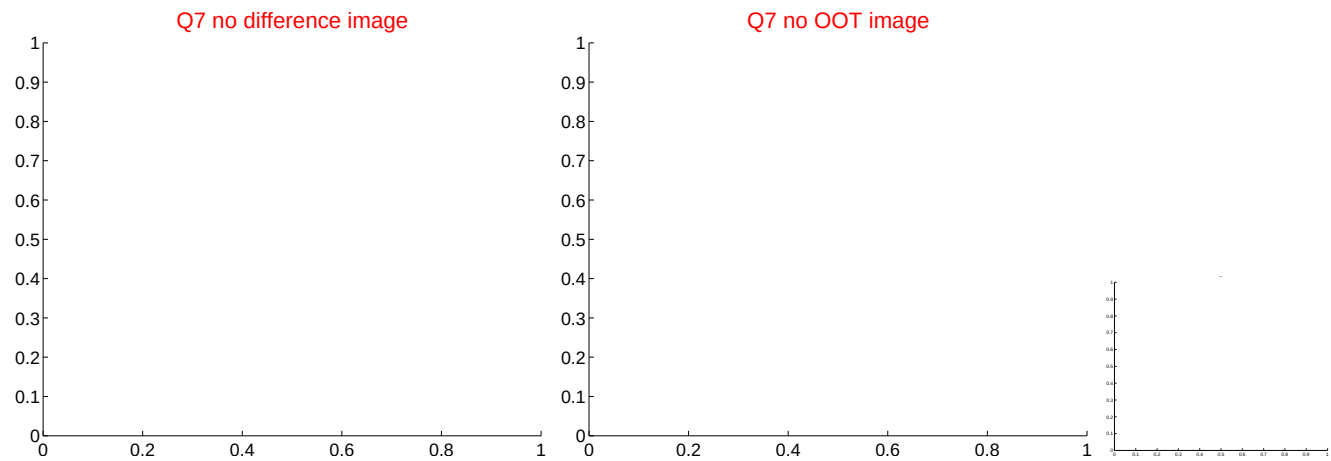
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.

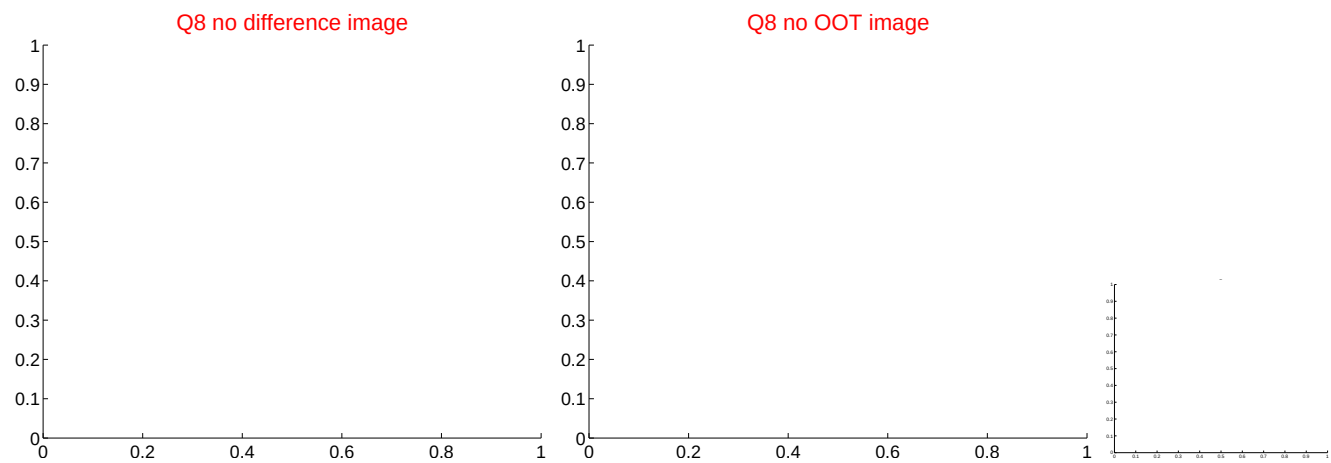


white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.

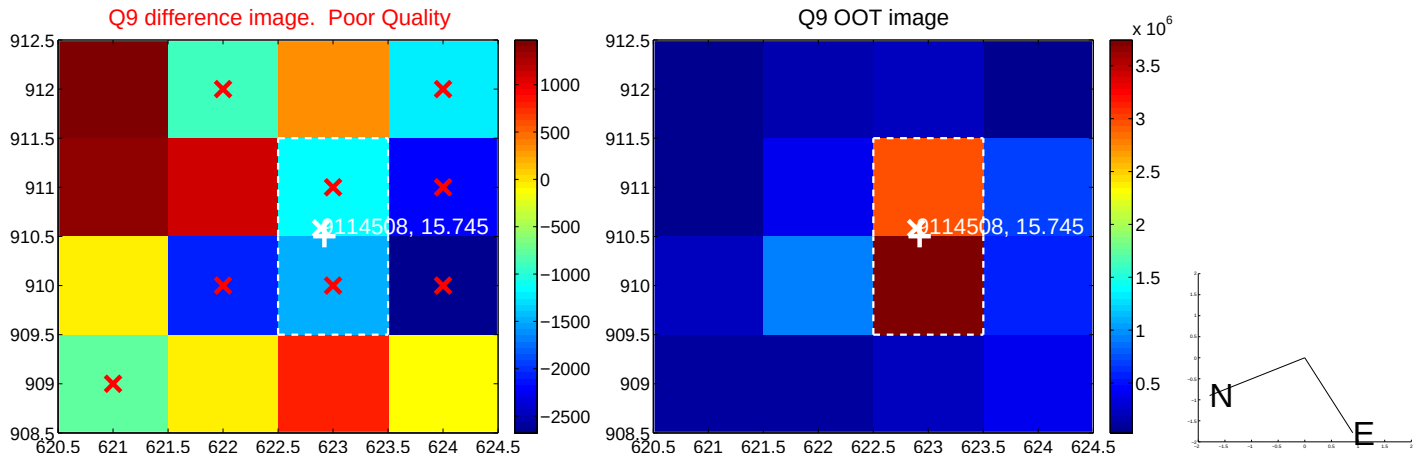


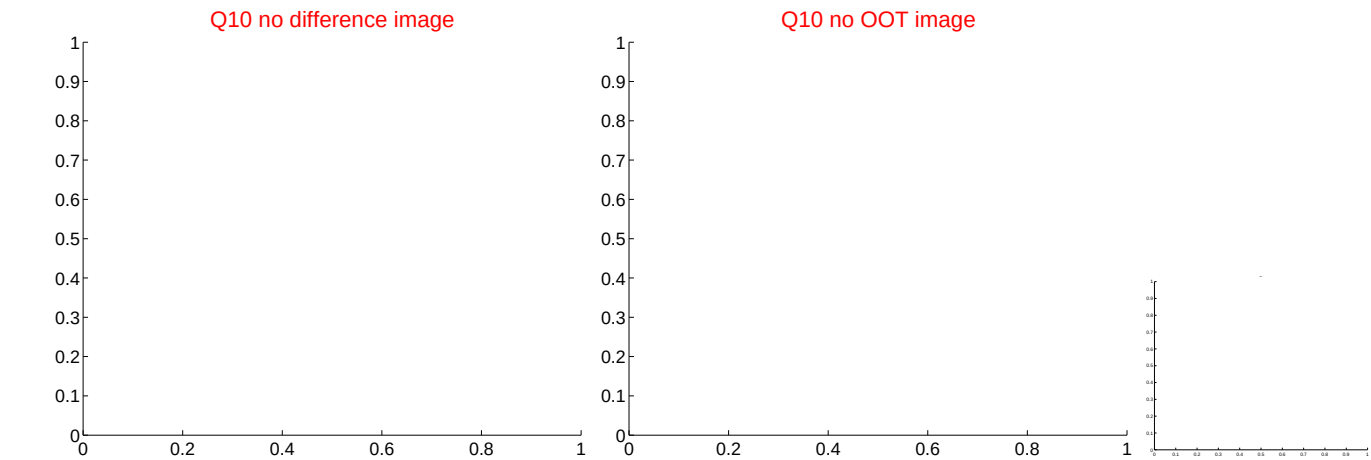


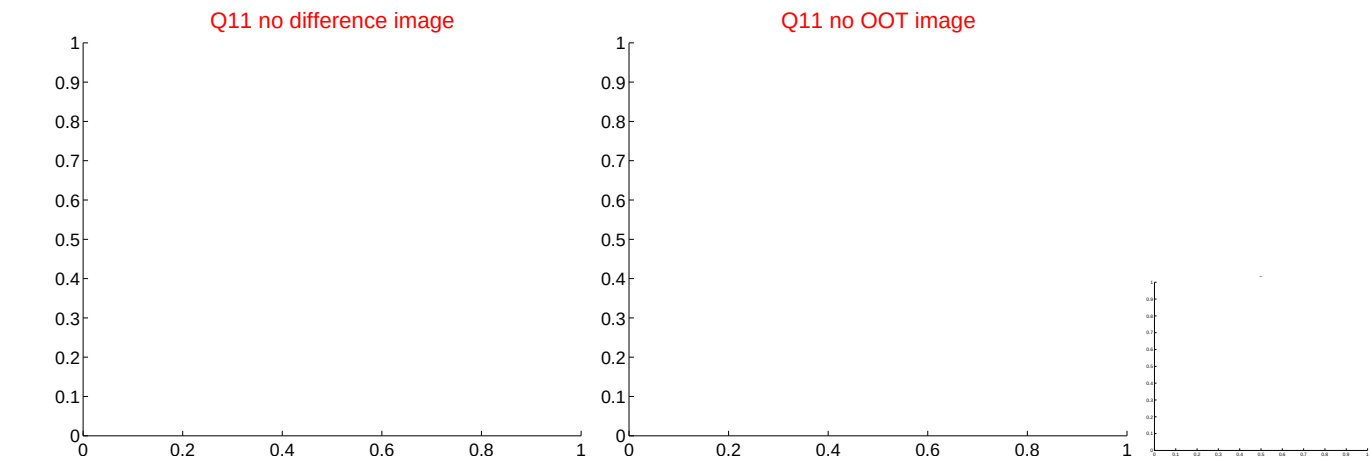


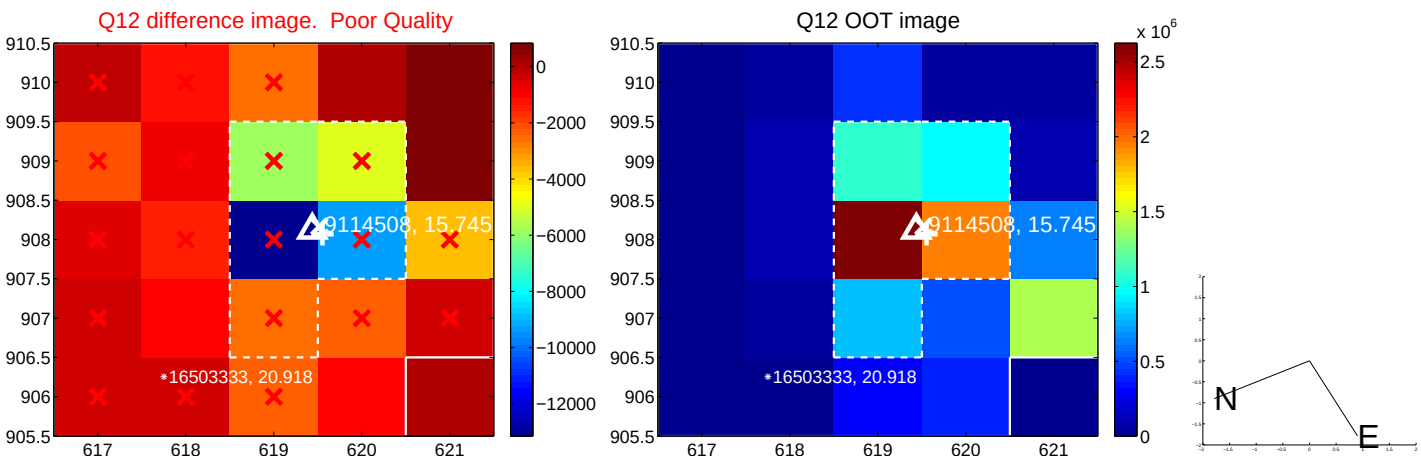


white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.

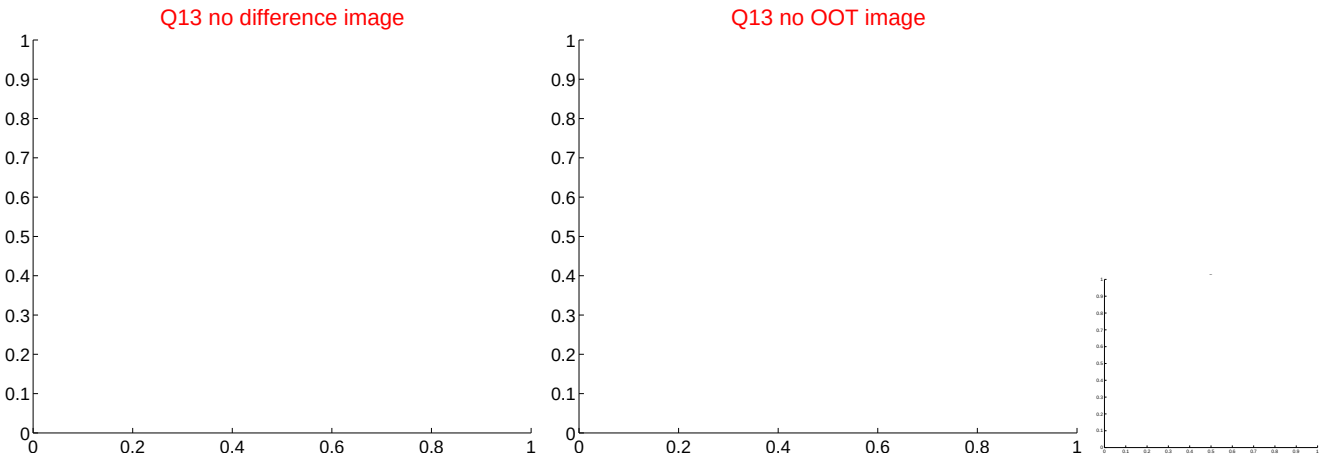


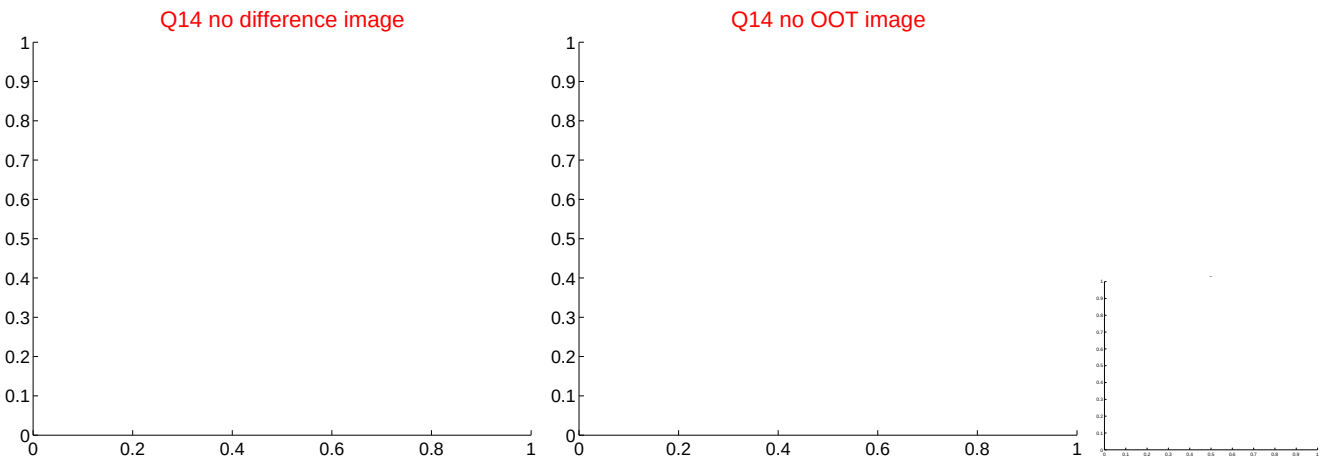


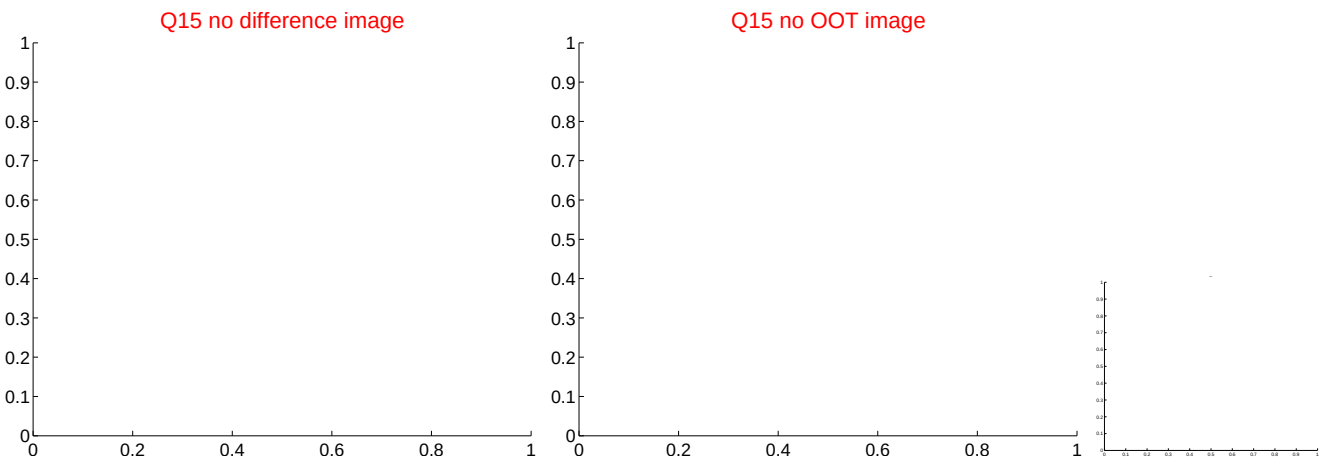


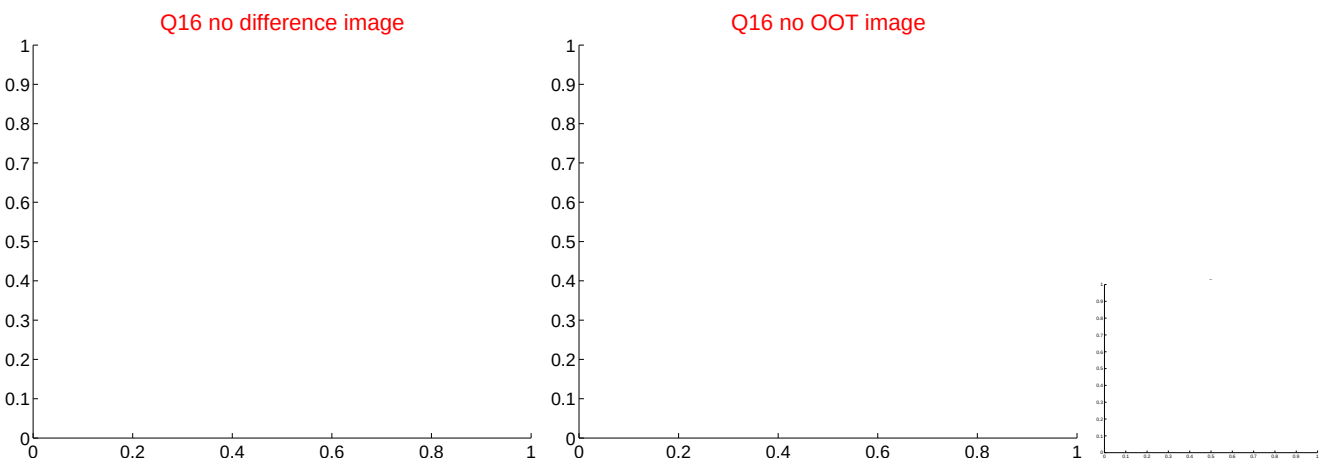


white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.

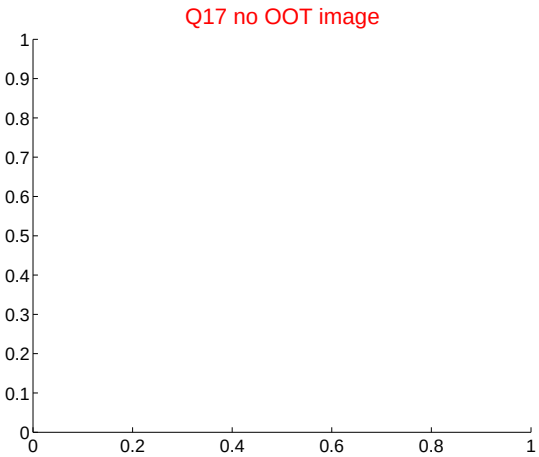


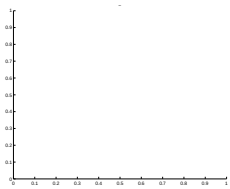


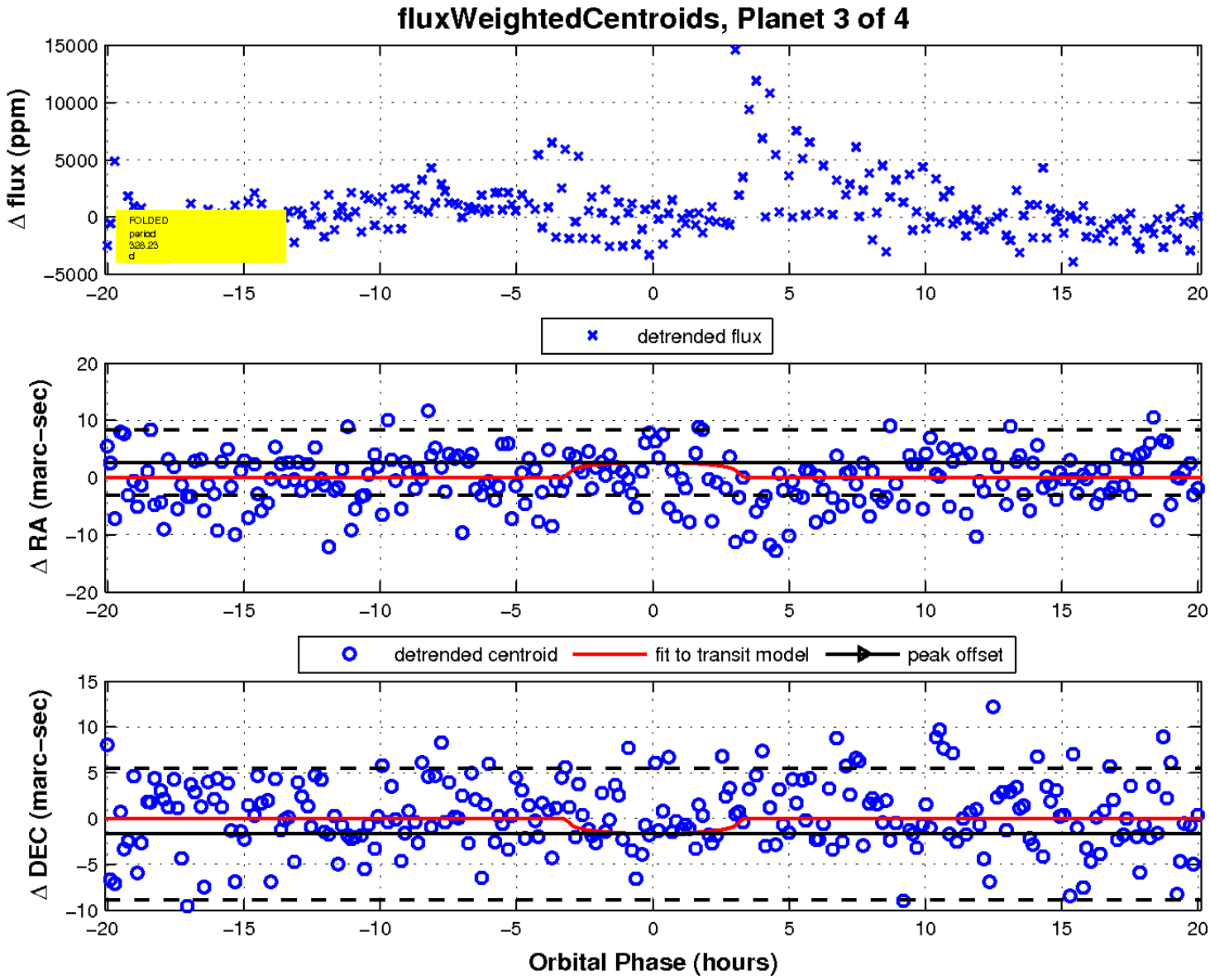




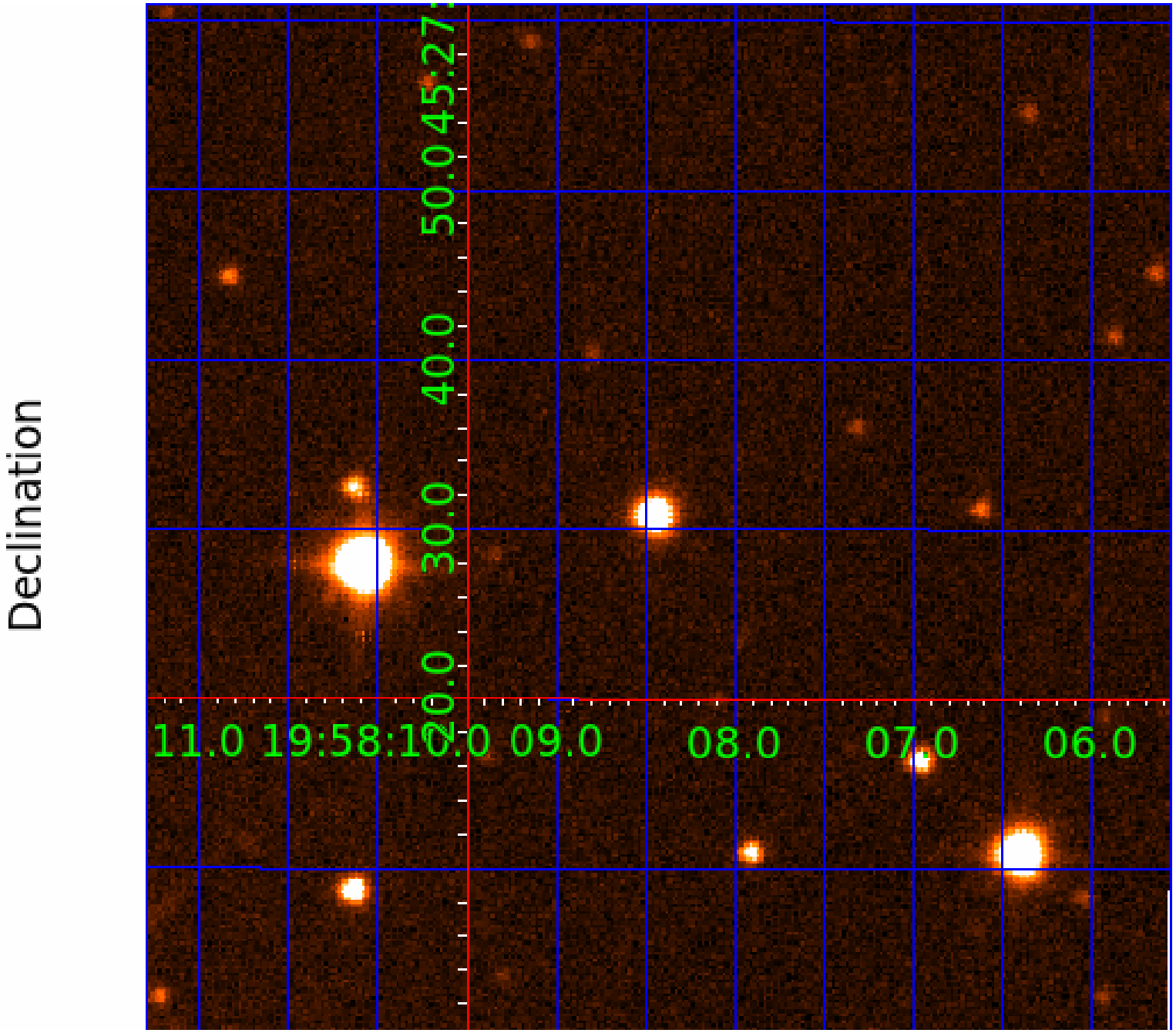
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.







UKIRT Image



KIC 009114508

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 ($S_\oplus$)
009114508-01	OBS	No	196.910850	254.538746	2537.5	3.422	16.4	5.8	0.65	4070	3.38	0.31
009114508-02	OBS	No	365.013854	229.739206	3056.3	2.416	12.8	6.6	0.65	4070	3.67	0.14
009114508-03	OBS	No	328.229587	159.997728	3398.6	6.714	11.7	7.3	0.65	4070	3.75	0.16
009114508-04	OBS	8178.01	256.604646	141.339536	1553.6	15.000	9.1	-1.0	0.65	4070	2.44	0.22

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009114508-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_SKYE—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
009114508-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_POS_DV—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
009114508-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
009114508-04	OBS	FP	0.00	1	0	0	0	ALL_TRANS_CHASES—INCONSISTENT_TRANS—CENT_NOFITS

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.

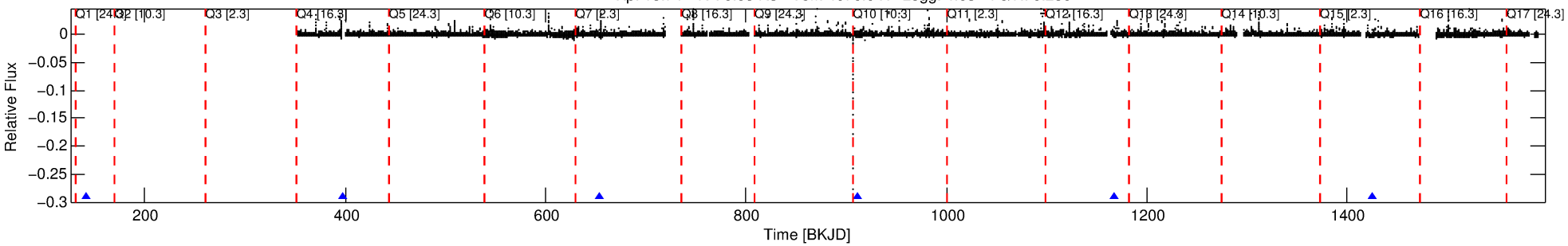
Ephemeris Match Information For 009114508-04

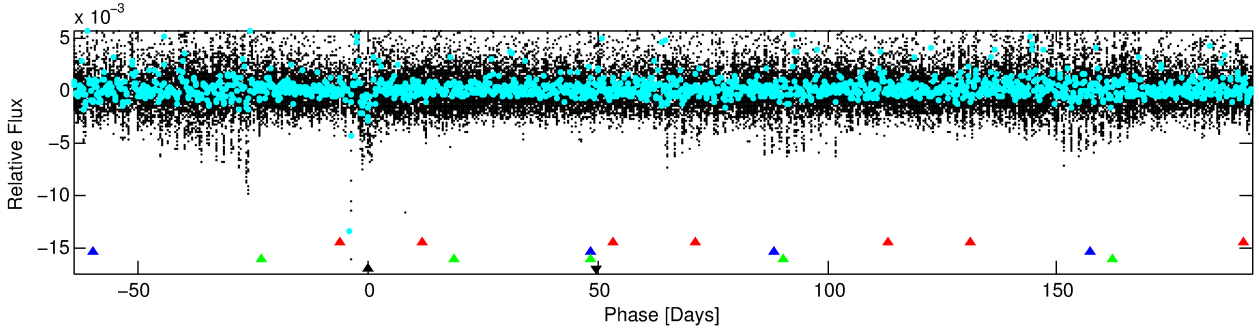
No Significant Match Found

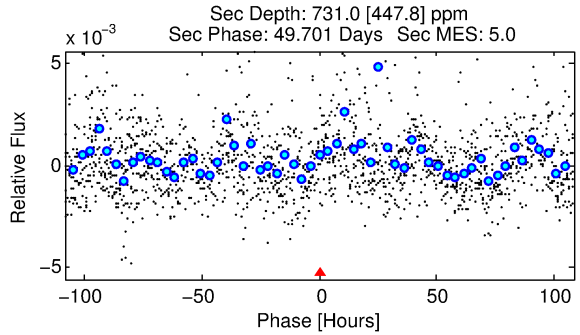
DV One-Page Summary

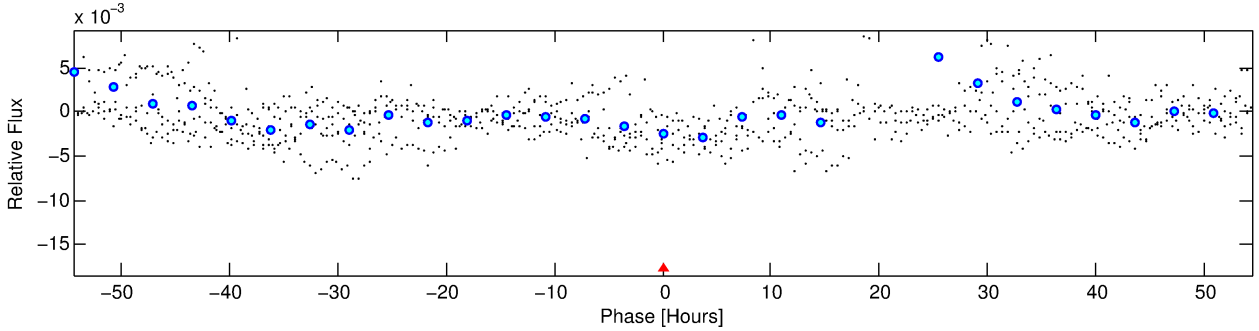
KIC: 9114508 Candidate: 4 of 4 Period: 256.605 d

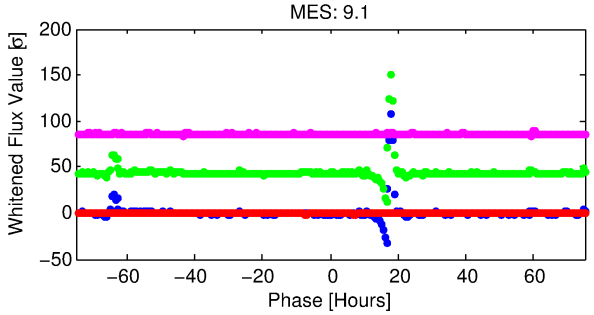
Kp: 15.74 R*: 0.65 Rs Teff: 4070.0 K Logg: 4.63 Fe/H: 0.280

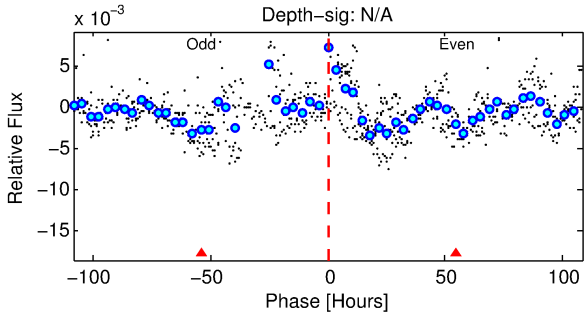


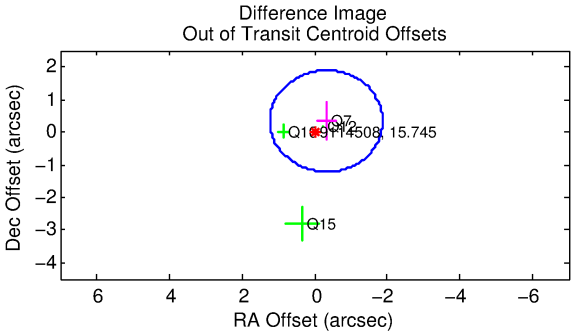












TPS TCE Results:

Period = 256.60465 d
Epoch = 141.3395 BKJD

DV fit results are unavailable

DV Diagnostic Results:

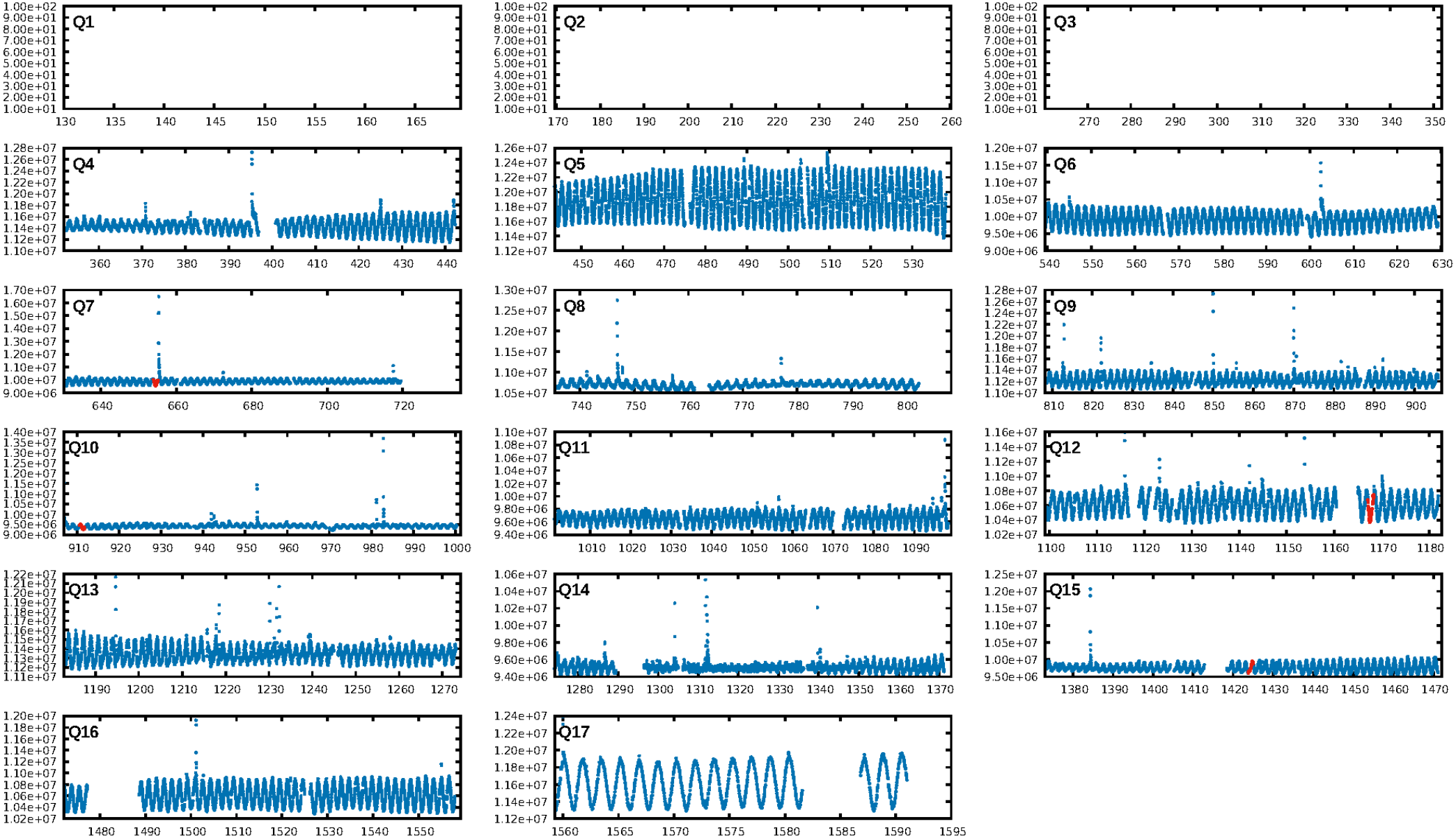
ShortPeriod−sig: 100.0% [93.12σ]
LongPeriod−sig: 100.0% [104.60σ]
ModelChiSquare2−sig: N/A
ModelChiSquareGof−sig: N/A
Bootstrap−pfa: 6.89e−11
RollingBand−fgt: 1.00 [4/4]
GhostDiagnostic−chr: 2.935

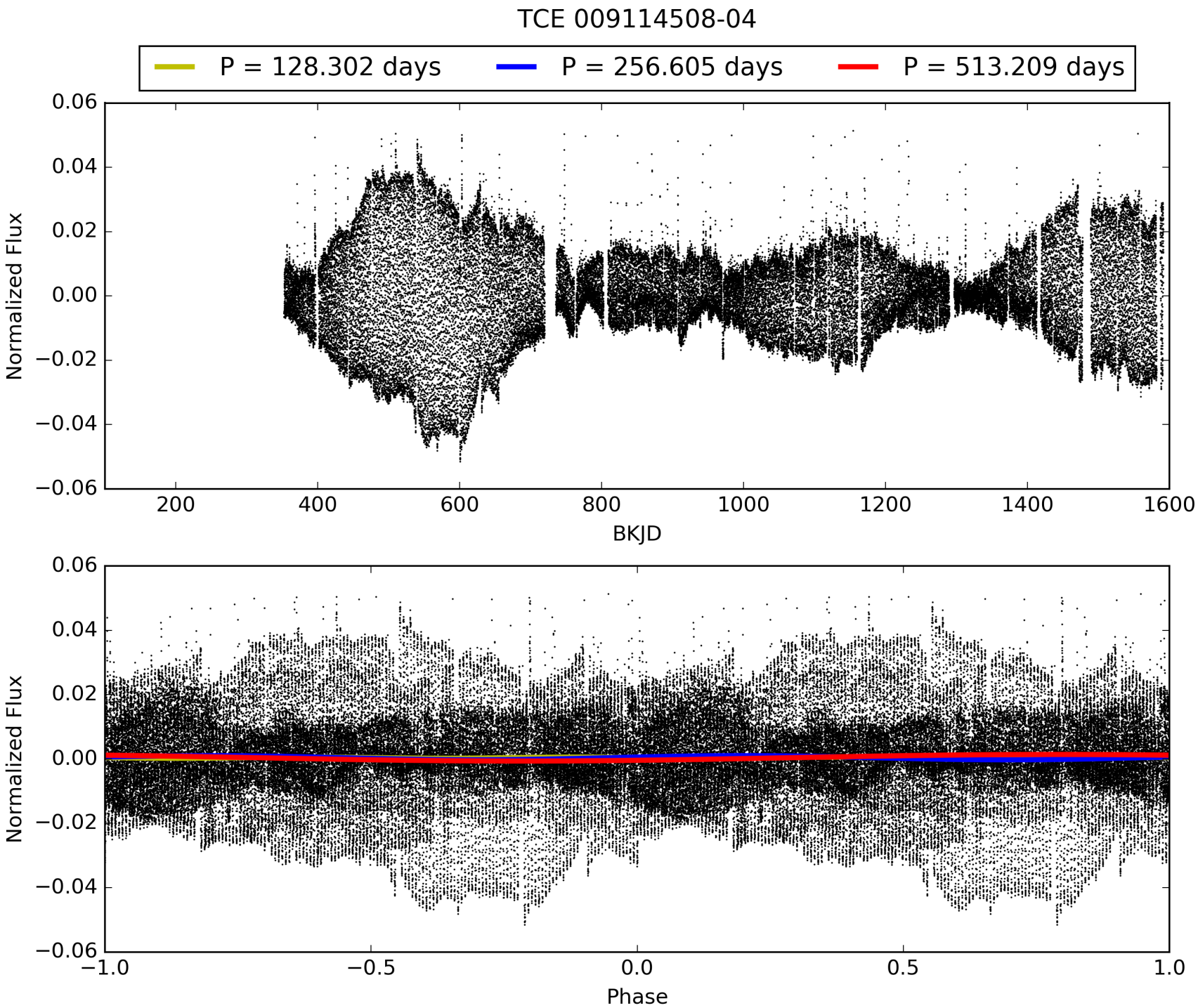
Centroid−sig: 61.4%
Centroid−so: 1.819 arcsec [5.72σ]
OotOffset−rm: 0.467 arcsec [0.90σ]
KicOffset−rm: 0.224 arcsec [0.49σ]
OotOffset−st: 1/2/1/0 [4]
KicOffset−st: 1/2/1/0 [4]
DiffImageQuality−fgm: 0.75 [3/4]
DiffImageOverlap−fno: 1.00 [4/4]

Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31−Jan−2016 17:02:53 Z

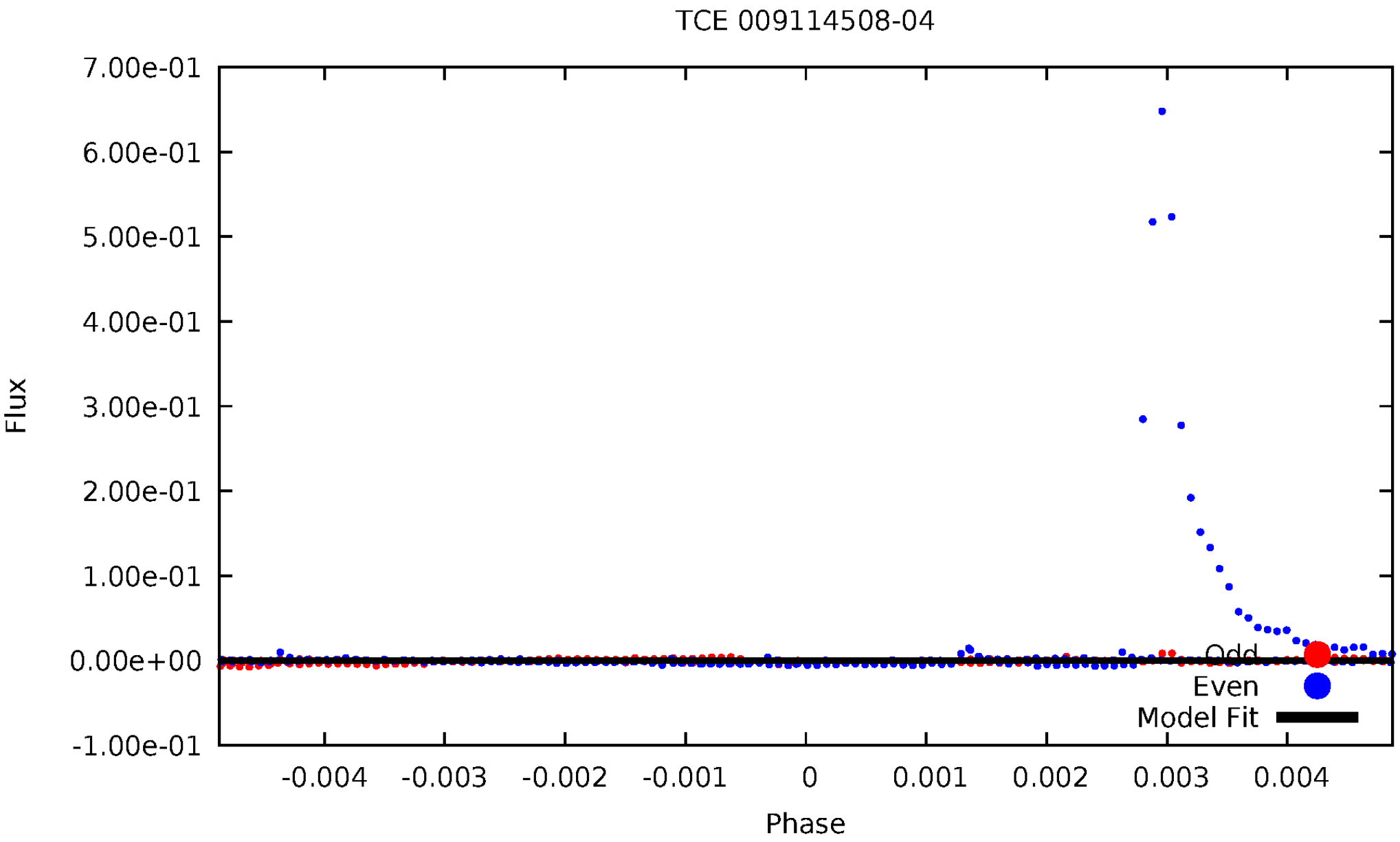
This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

TCE 009114508-04, PDC Light Curves

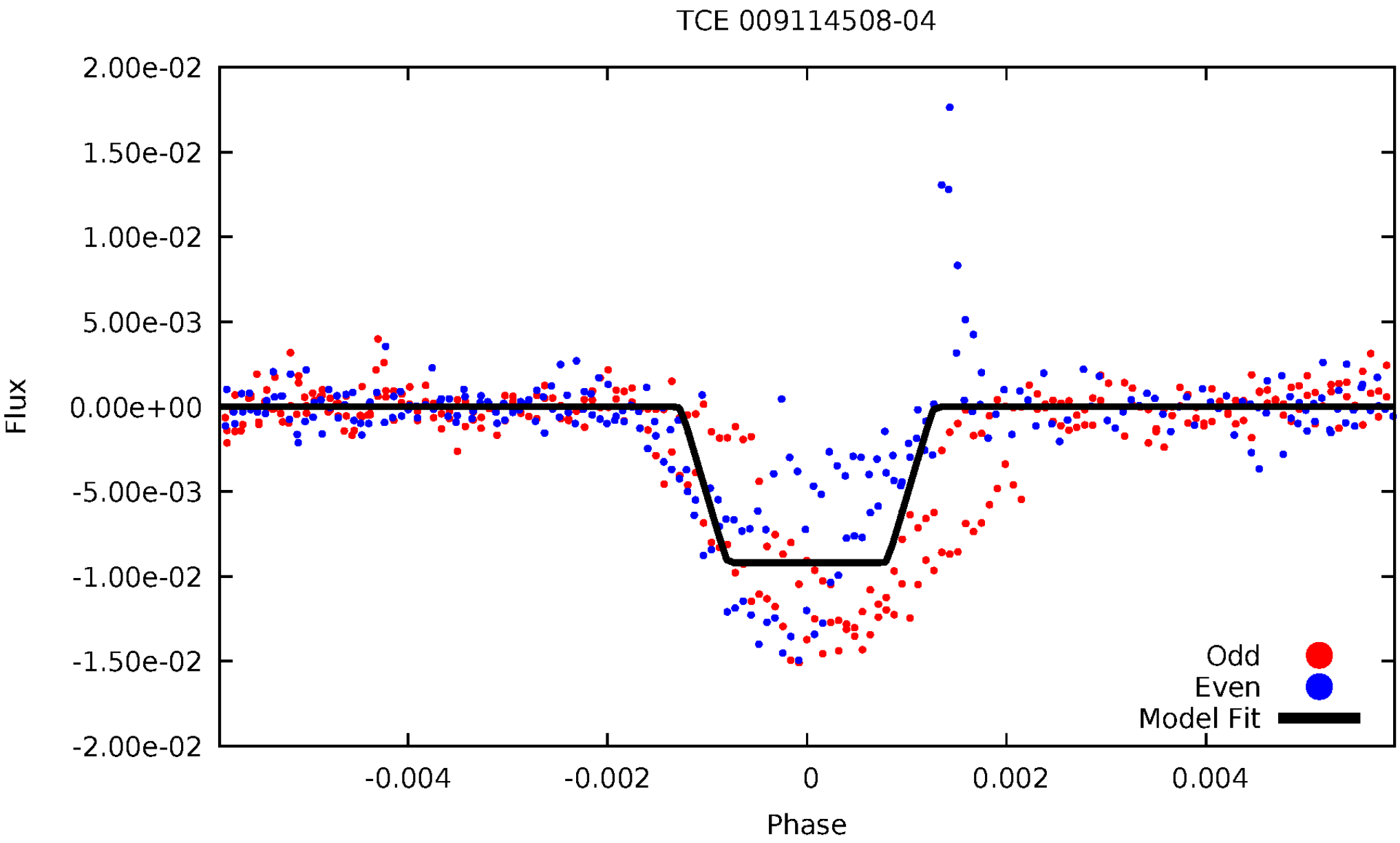



TCE 009114508-04
P = 128.302 days
P = 256.605 days
P = 513.209 days
Normalized Flux
BKJD
Normalized Flux
Phase

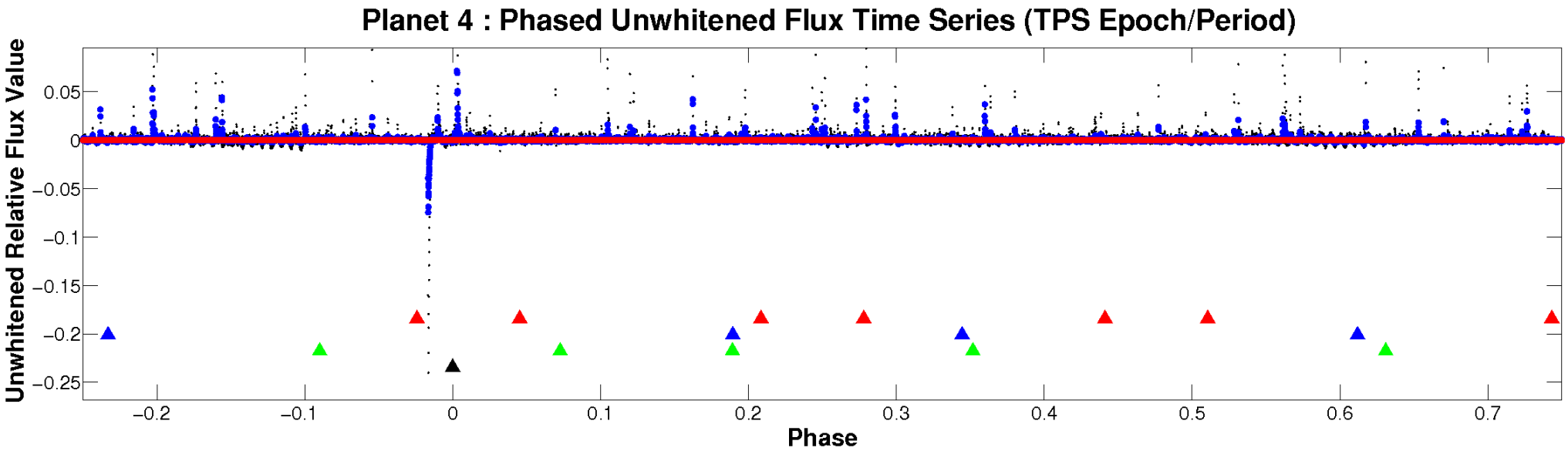
DV Odd/Even

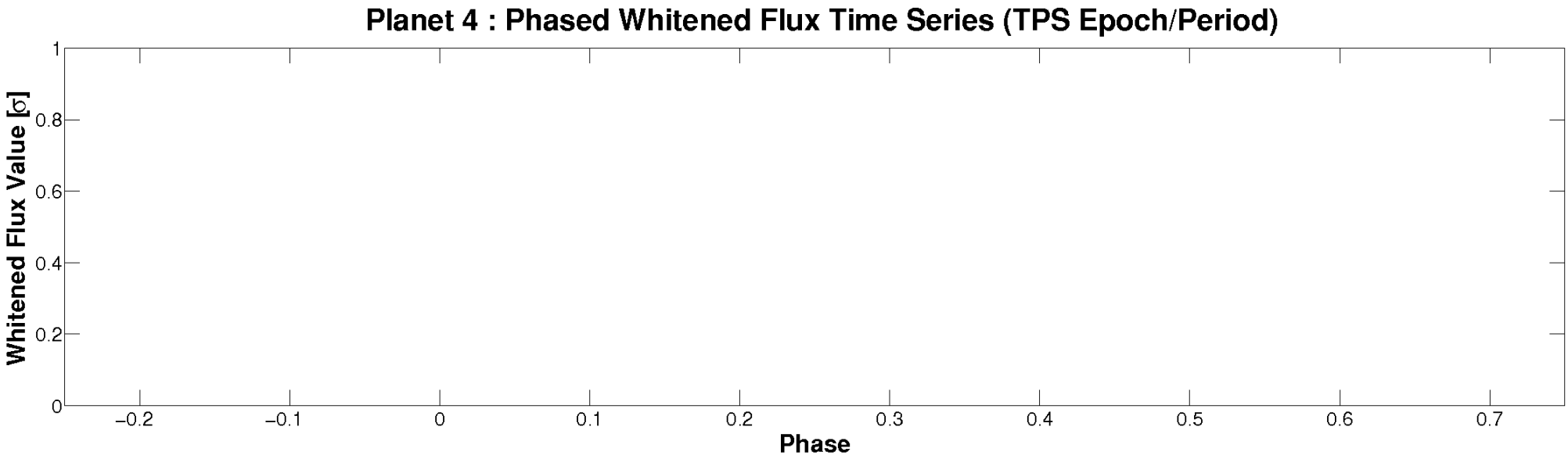

TCE 009114508-04
7.00e-01
6.00e-01
5.00e-01
4.00e-01
3.00e-01
2.00e-01
1.00e-01
0.00e+00
-1.00e-01
Flux
-0.004
-0.003
-0.002
-0.001
0
0.001
0.002
0.003
0.004
Phase
Odd
Even
Model Fit

ALT Odd/Even


TCE 009114508-04
2.00e-02
1.50e-02
1.00e-02
5.00e-03
0.00e+00
-5.00e-03
-1.00e-02
-1.50e-02
-2.00e-02
Flux
-0.004
-0.002
0
0.002
0.004
Phase
Odd
Even
Model Fit

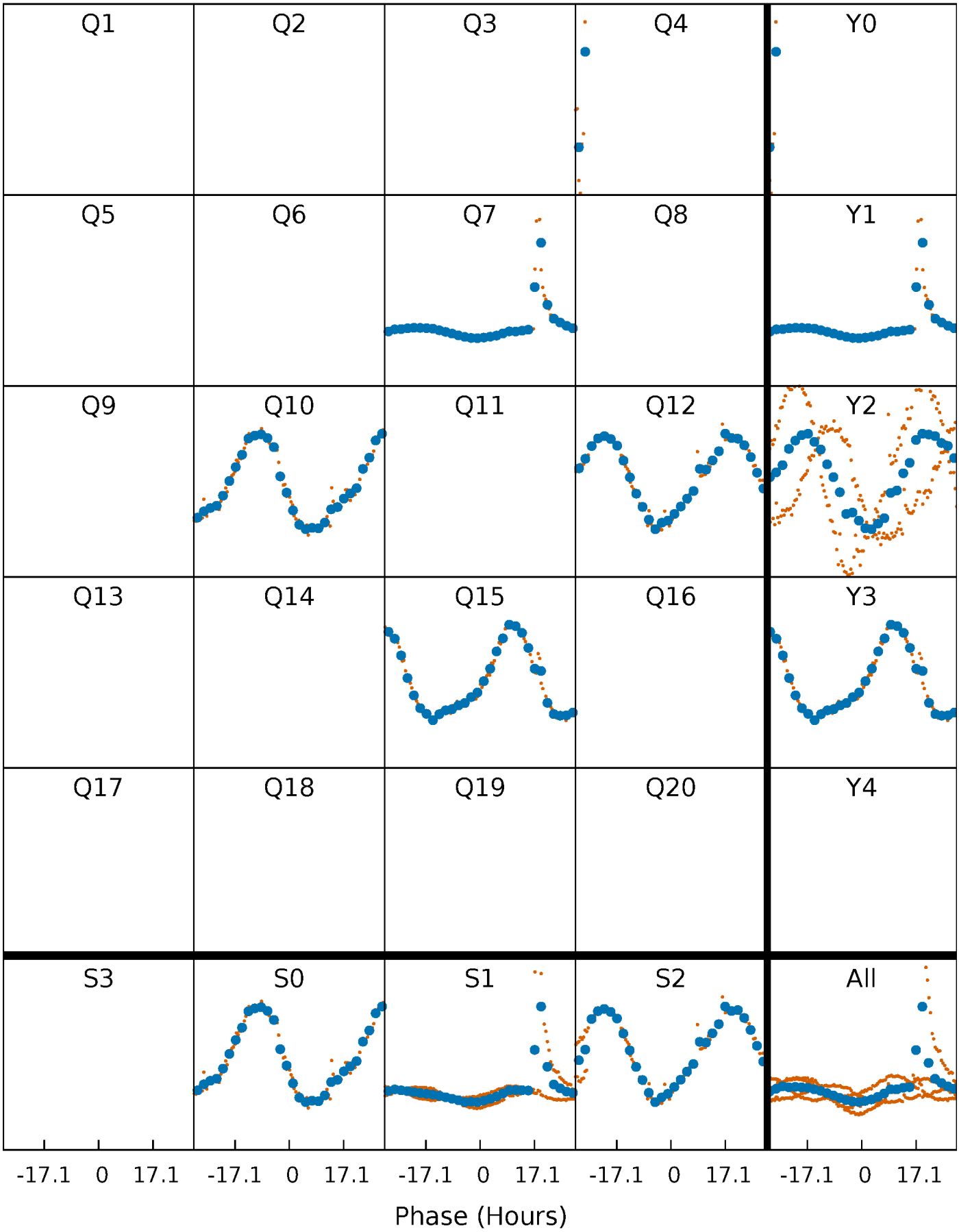
Non-Whitened Vs. Whitened Light Curve





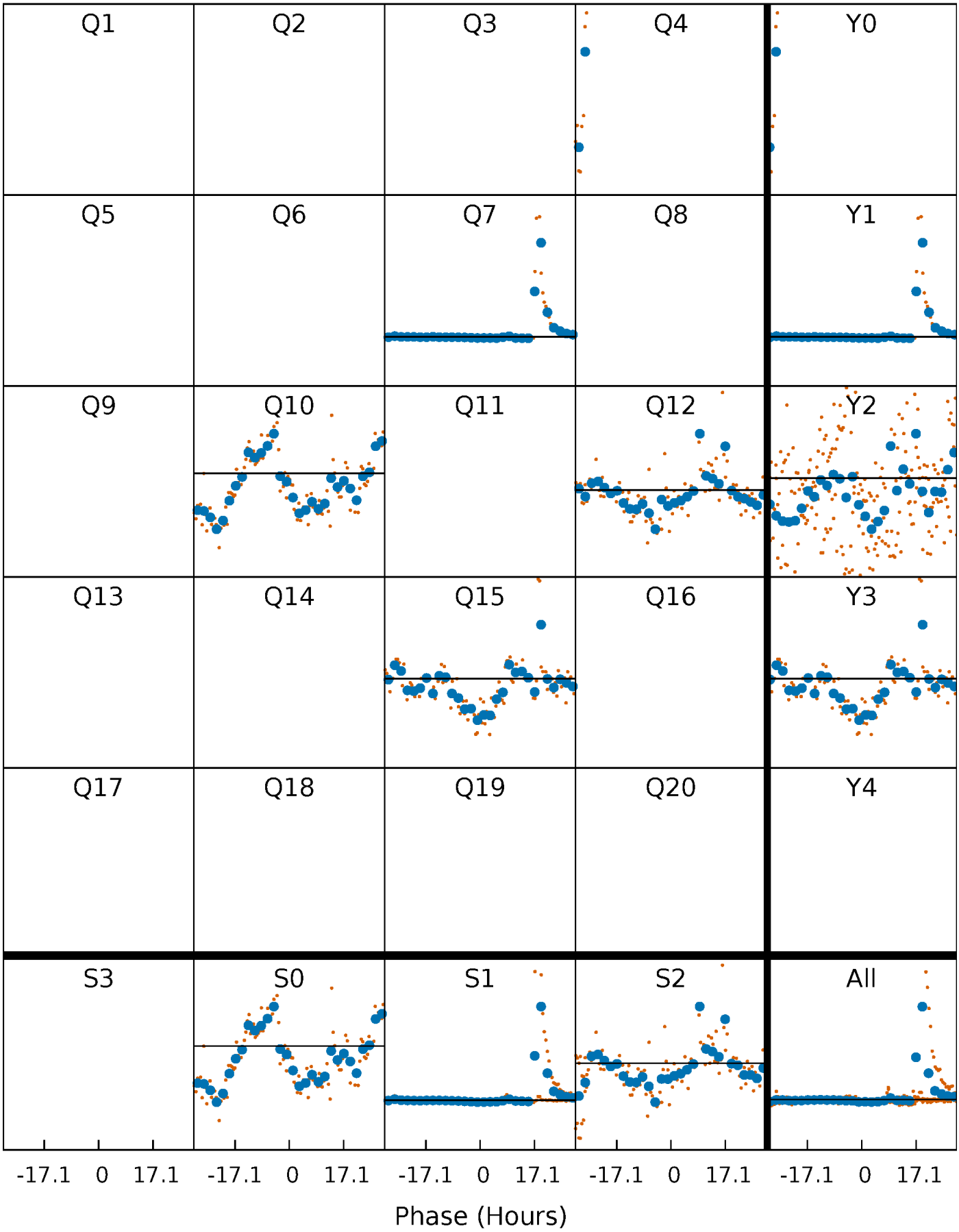
PDC Quarter-Phased Transit Curves

TCE 009114508-04 P=256.604647 Days T_0=141.339536 (BKJD)



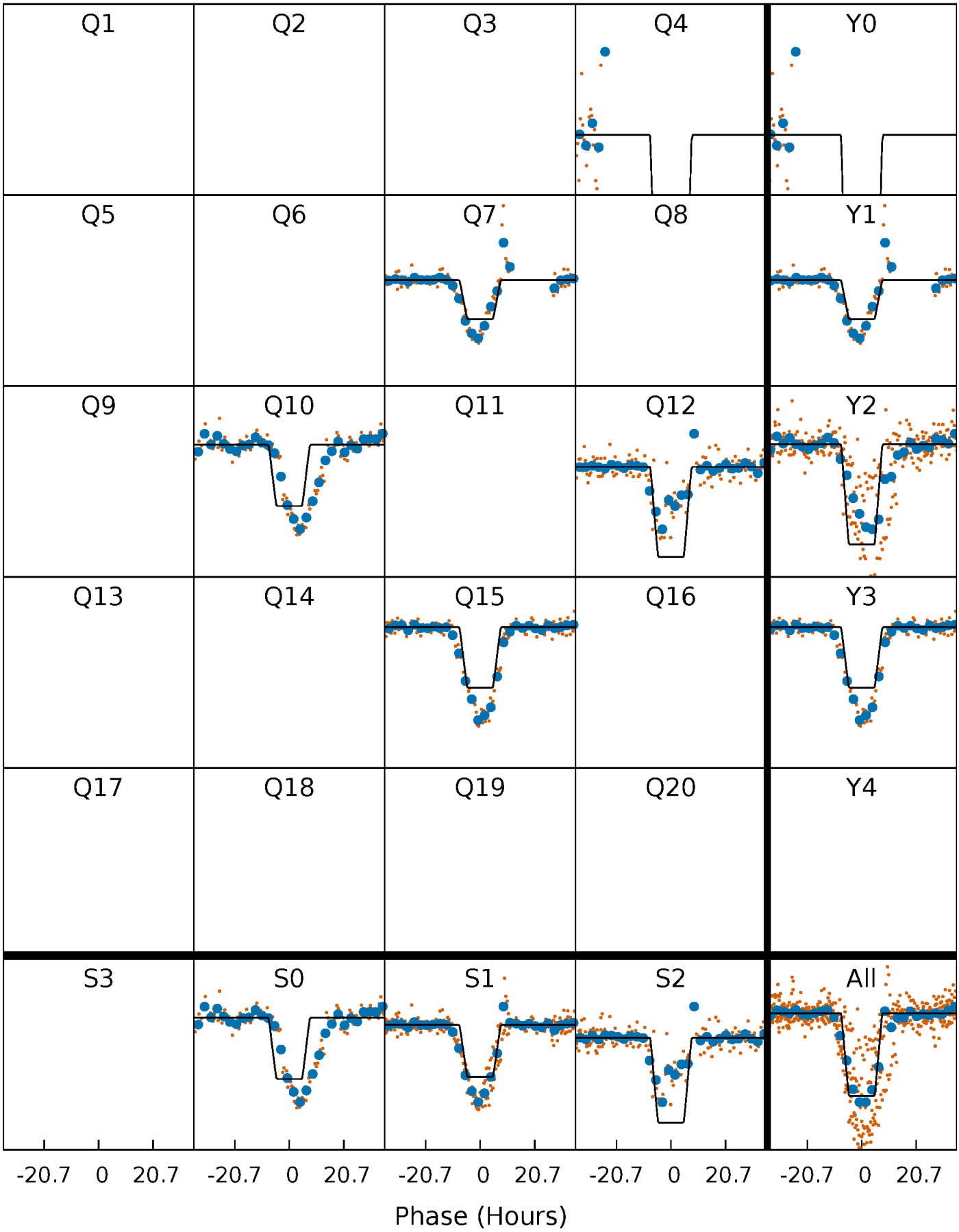
DV Quarter-Phased Transit Curves

TCE 009114508-04 P=256.604647 Days T_0=141.339536 (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

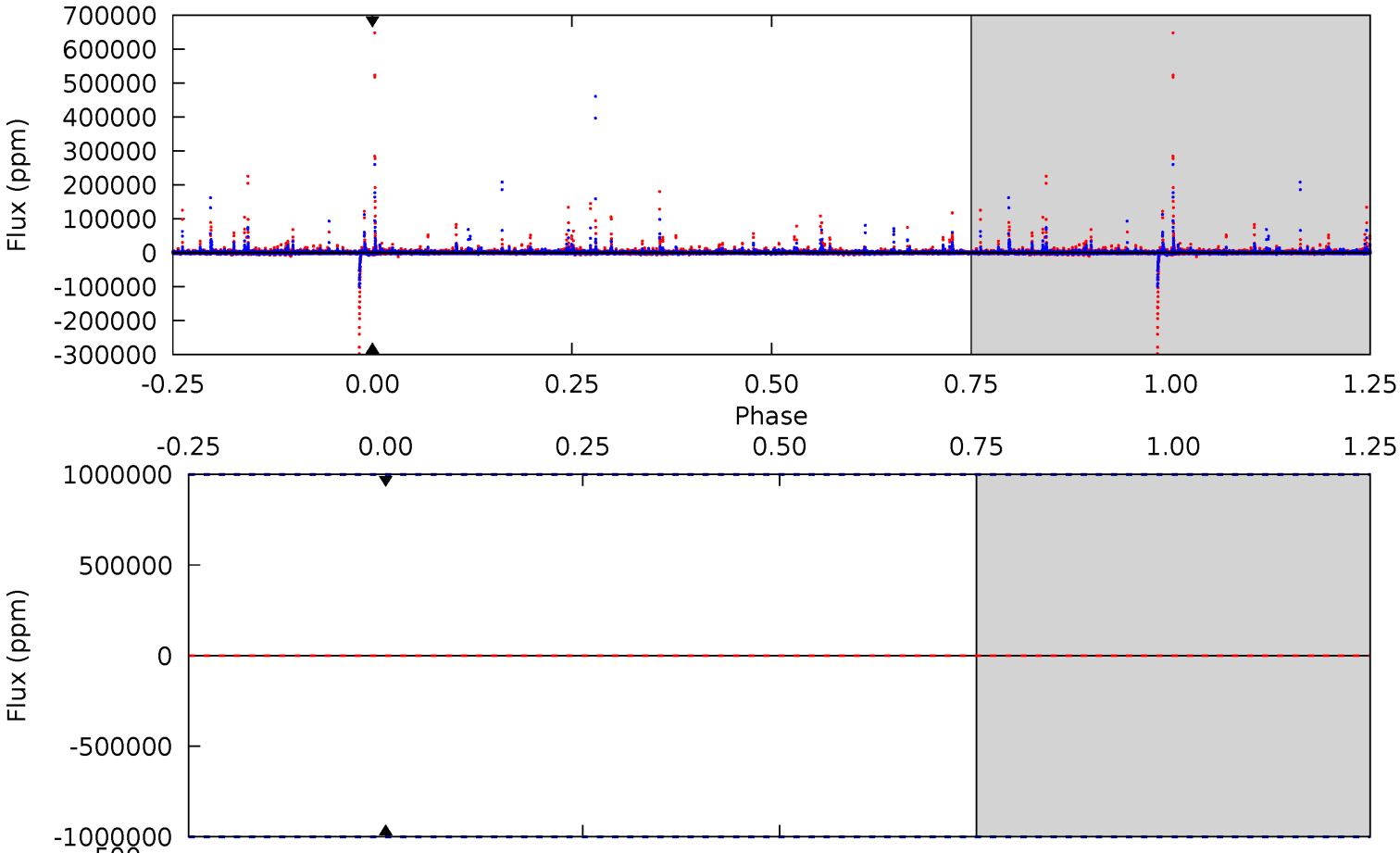
TCE 009114508-04 P=256.604647 Days T_0=141.323378 (BKJD)

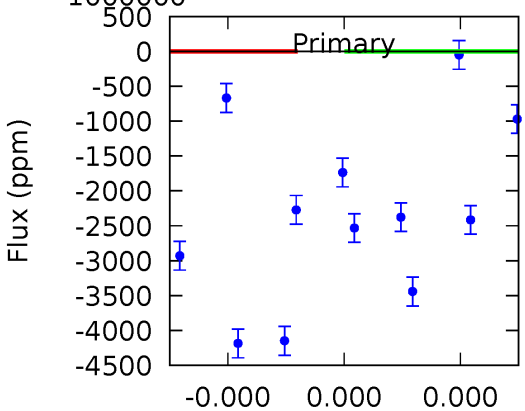


DV Model-Shift Uniqueness Test

009114508-04, P = 256.604647 Days, E = 141.339536 Days

Pri	Sec	Ter	Pos	FA_1	FA_2	F_{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
0	0	0	0	1.00	1.00	1.00	0	0	0	0	0	0	0	0

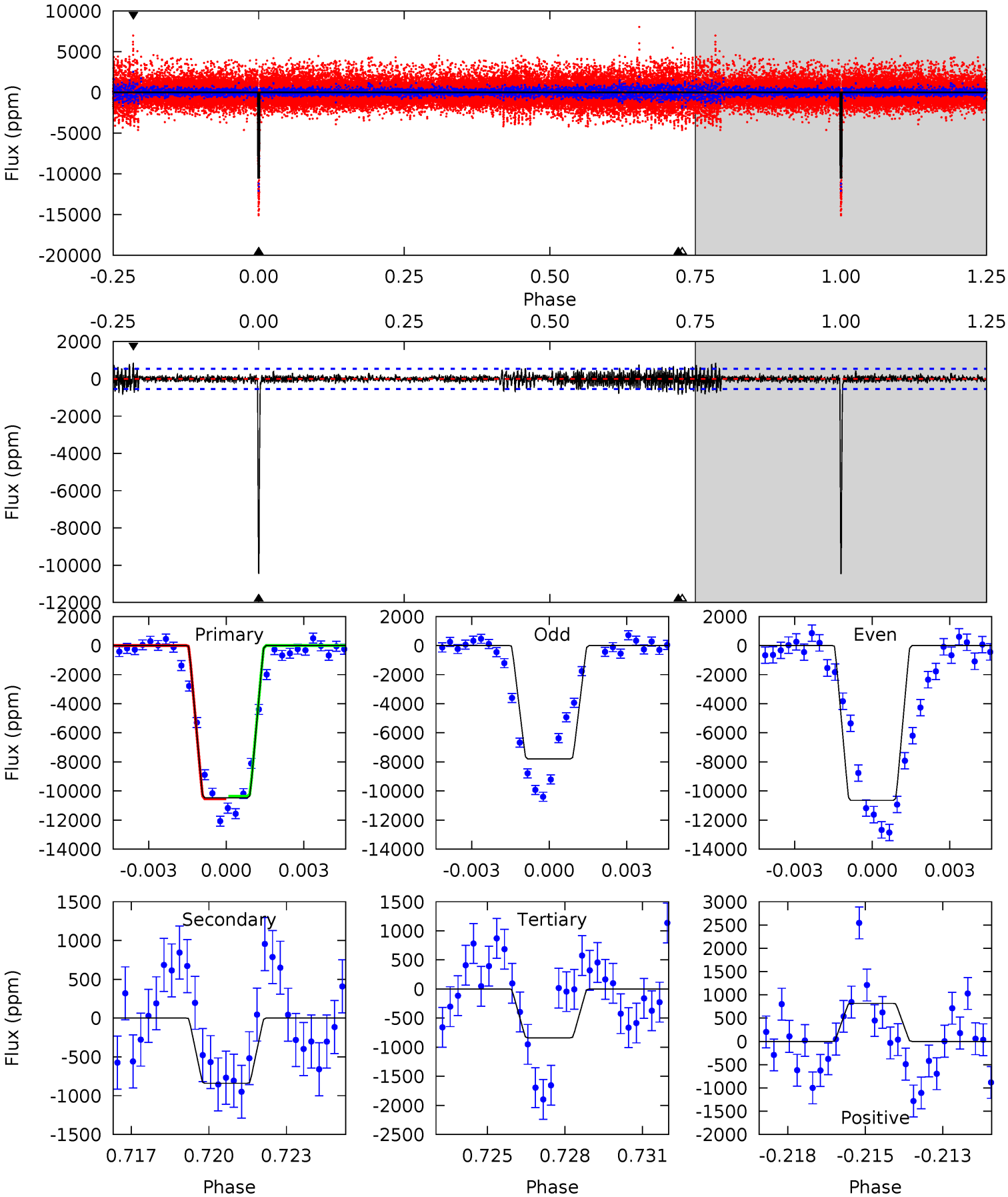




Alt Model-Shift Uniqueness Test

009114508-04, P = 256.604647 Days, E = 141.323378 Days

Pri	Sec	Ter	Pos	FA_1	FA_2	F_{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
102.6	8.23	8.21	8.01	5.28	3.01	1.86	94.4	94.6	0.02	0.22	14.8	0.93	0.07	0.82



Stellar Parameters For KIC 009114508

	$T_{\rm eff}(K)$	$\log(g)$	[Fe/H]	R ($R_\odot$)	$M(M_\odot)$	$p_\star$ (g·cm^{-3})
	4070^{+142}_{-156}	$4.628^{+0.056}_{-0.016}$	$0.280^{+0.200}_{-0.300}$	$0.646^{+0.026}_{-0.061}$	$0.645^{+0.038}_{-0.057}$	$3.375^{+0.859}_{-0.263}$
	+3%/-4%	+1%/-0%	+71%/-107%	+4%/-9%	+6%/-9%	+25%/-8%
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 009114508-04 / KOI 8178.01

Detrend	Depth (ppm)	R_p ($R_\oplus$)	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	0±1000000	$5.89^{+5.35}_{-4.02}$	241^{+9}_{-9}	3559^{+6057}_{-11302}	$26612^{+1710332}_{-898379}$
Alt.	-840±102	$8.20^{+6.16}_{-5.12}$	242^{+9}_{-10}	2657^{+883}_{-345}	3207^{+20252}_{-2180}

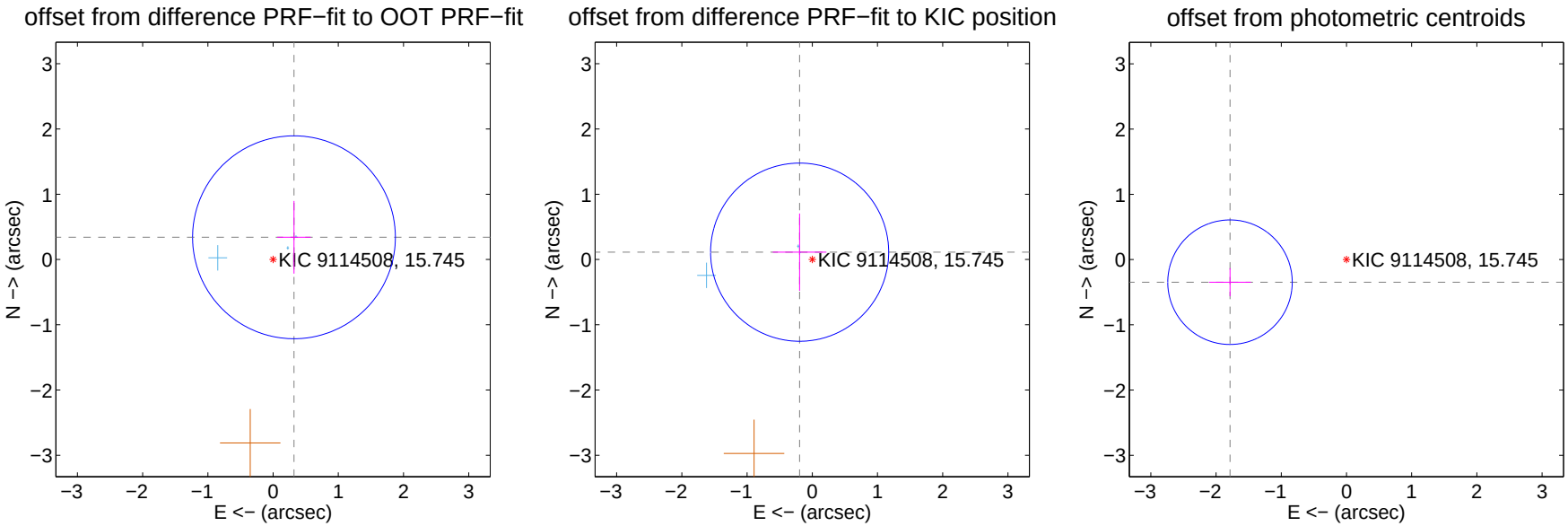
T_{max} = Theoretical Maximum Planetary Temperature
T_{obs} = Observed Planetary Temperature (Assuming A=0.3)
A_{obs} = Observed Albedo (Assuming T=0)

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

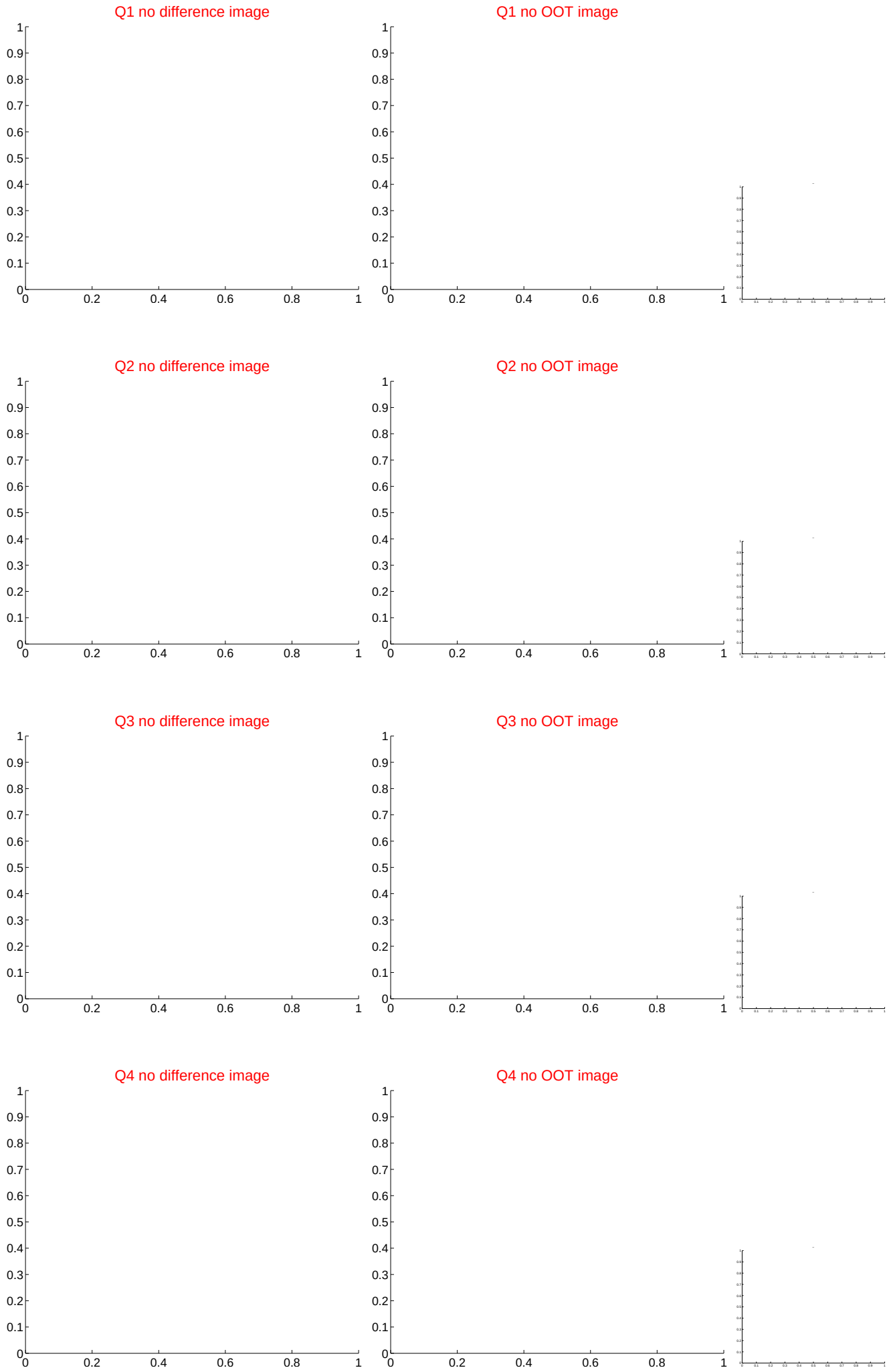
Supplemental centroid analysis for 009114508-04. Kepler magnitude: 15.74. Transit SNR -1.00
There are 3 quarters with good PRF difference image offsets
The direct PRF centroid is offset from the target star catalog position by about 0.57 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.467 ± 0.518	0.90	-0.320 ± 0.257	0.340 ± 0.557
PRF-fit source offset from KIC position	0.224 ± 0.455	0.49	0.194 ± 0.411	0.112 ± 0.592
photometric centroid source offset	1.82 ± 0.32	5.72	1.79 ± 0.32	-0.35 ± 0.22

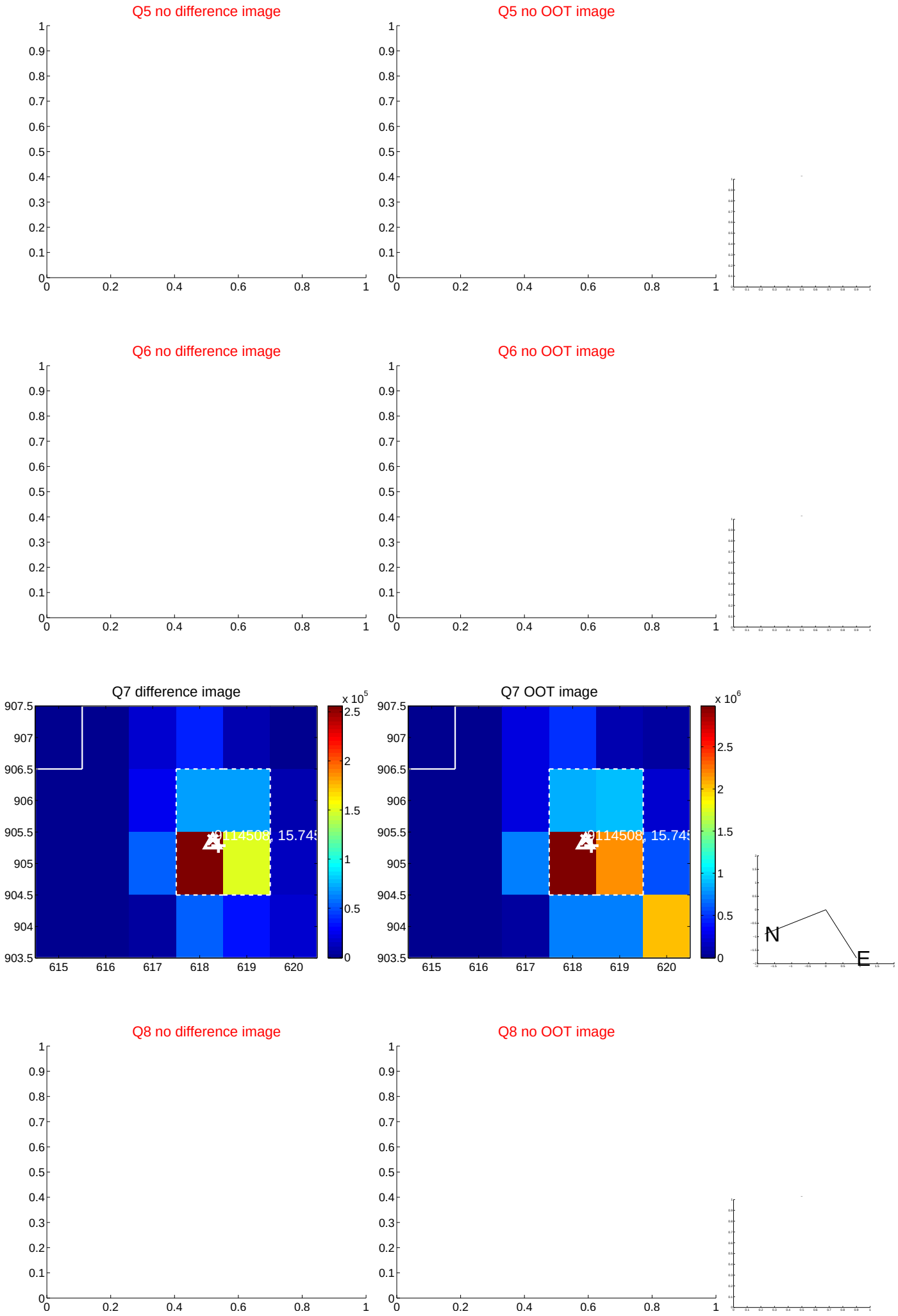


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one-σ uncertainty. Blue circle: three-σ. Red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

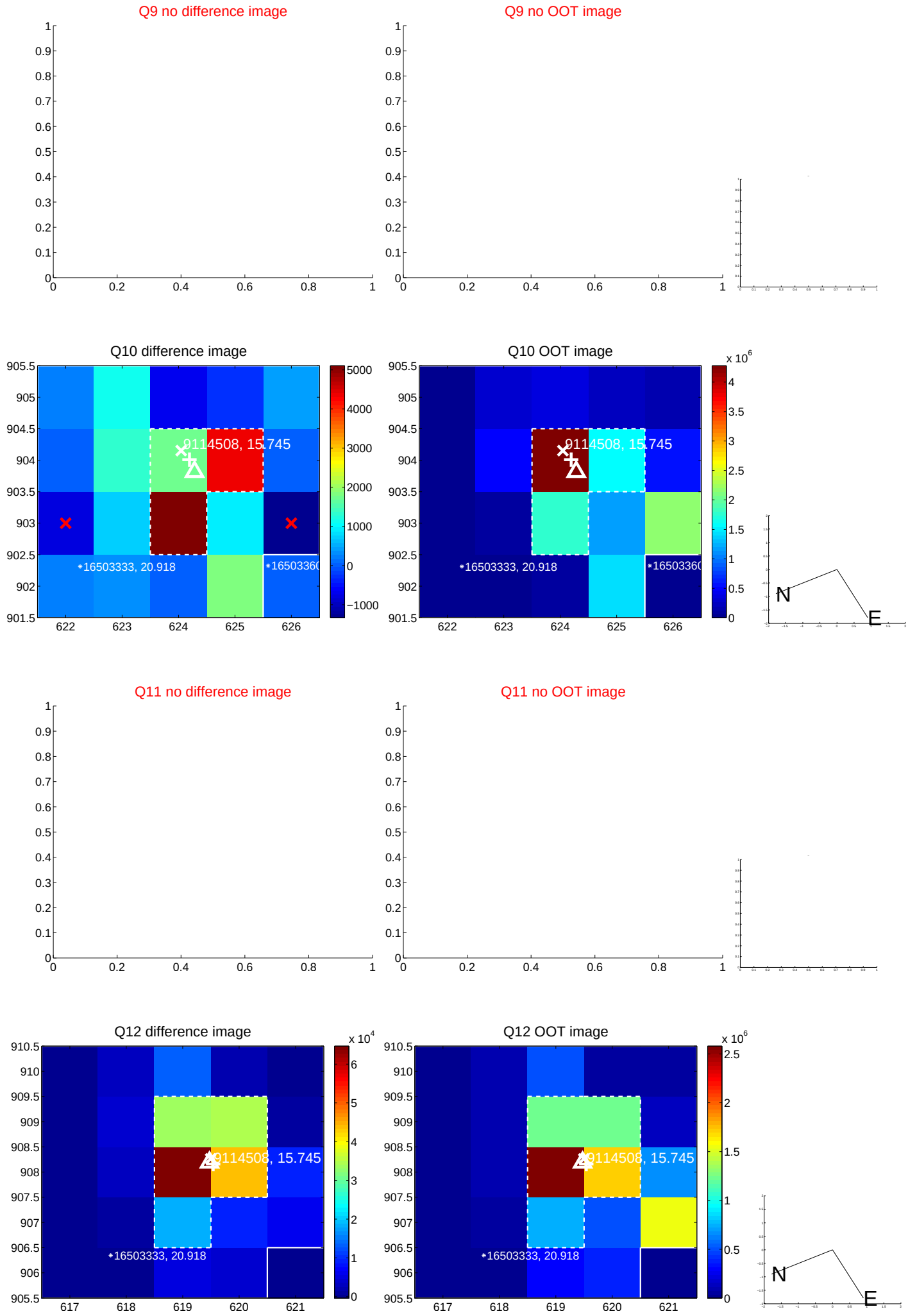
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.



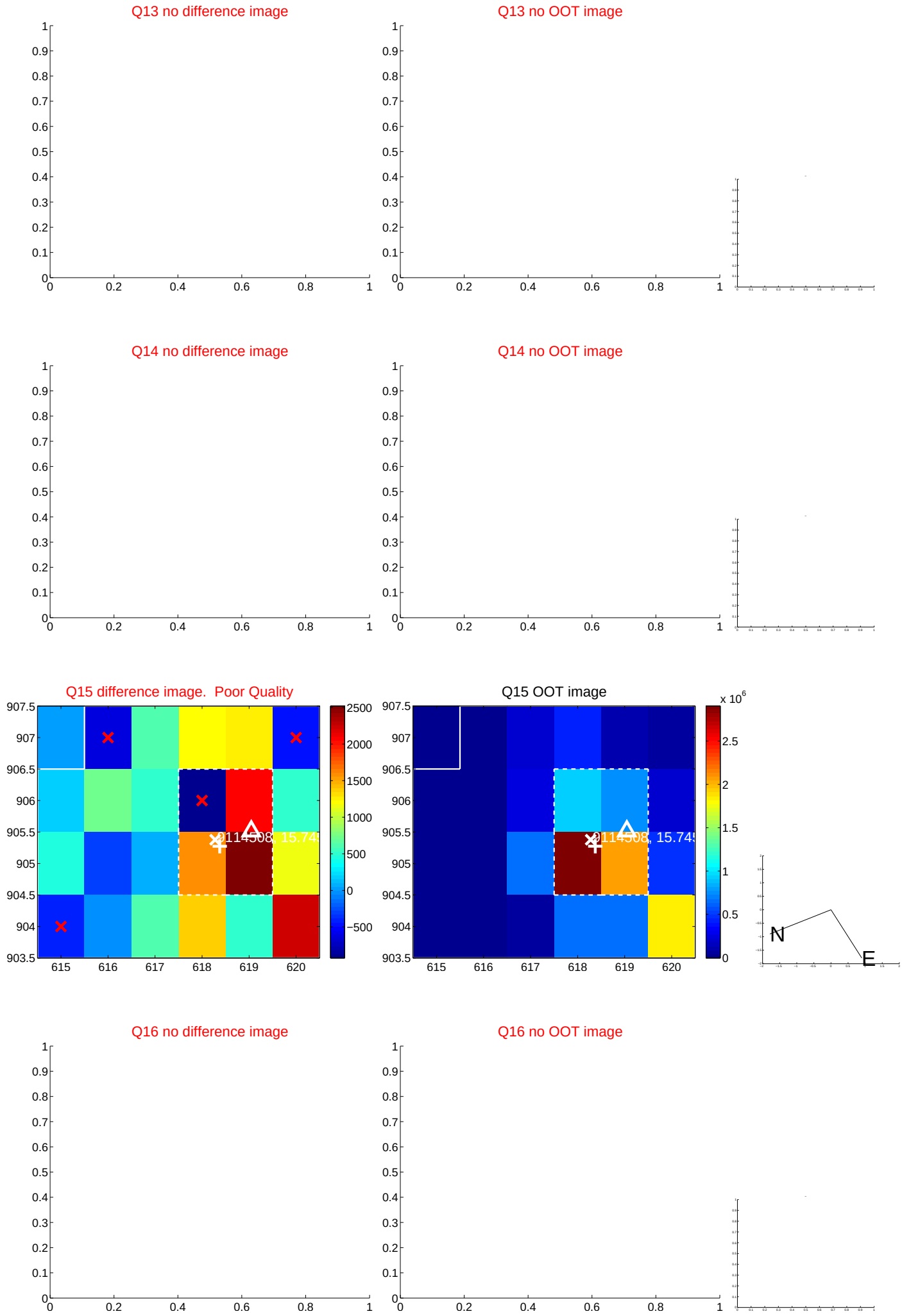
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.



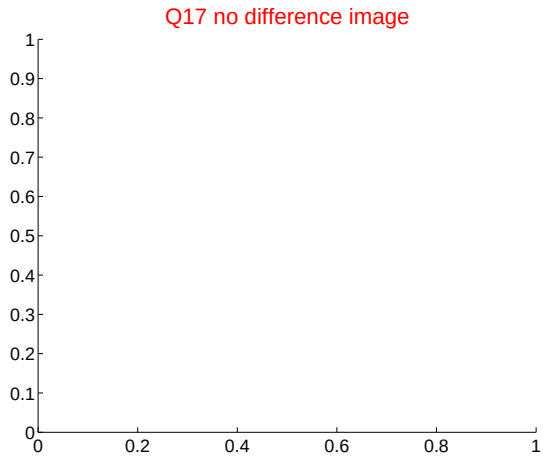
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.

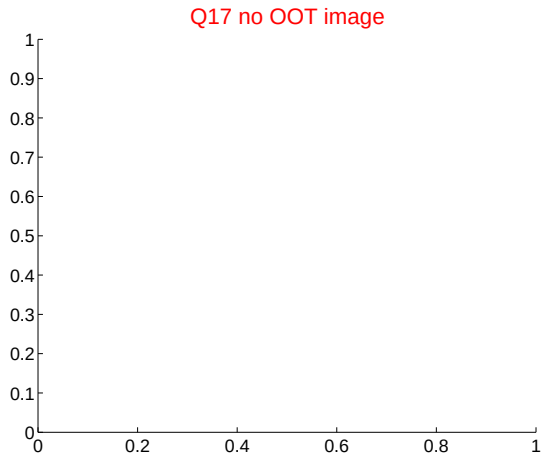


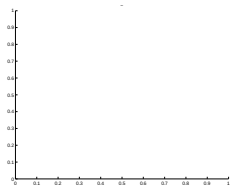
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.

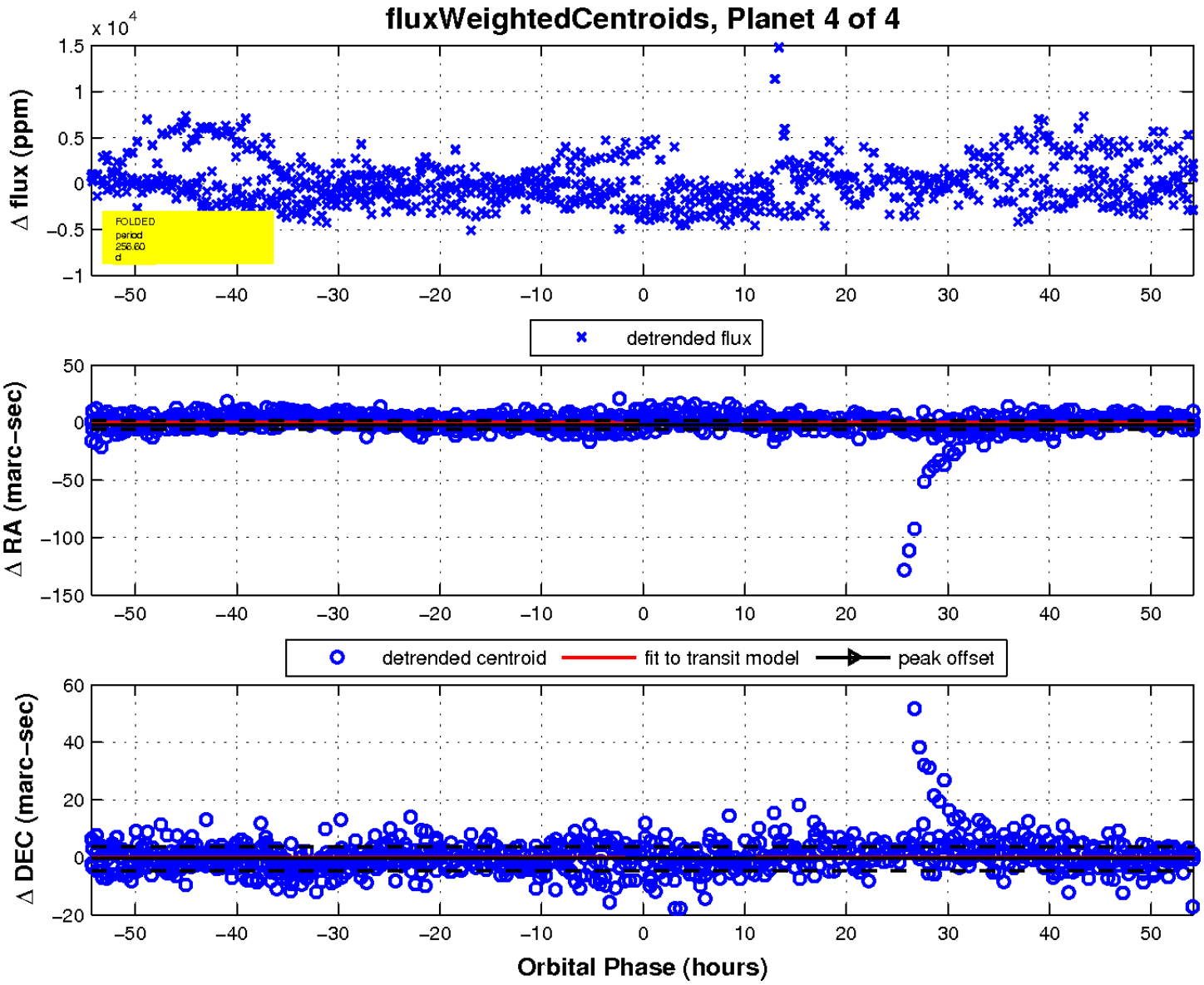
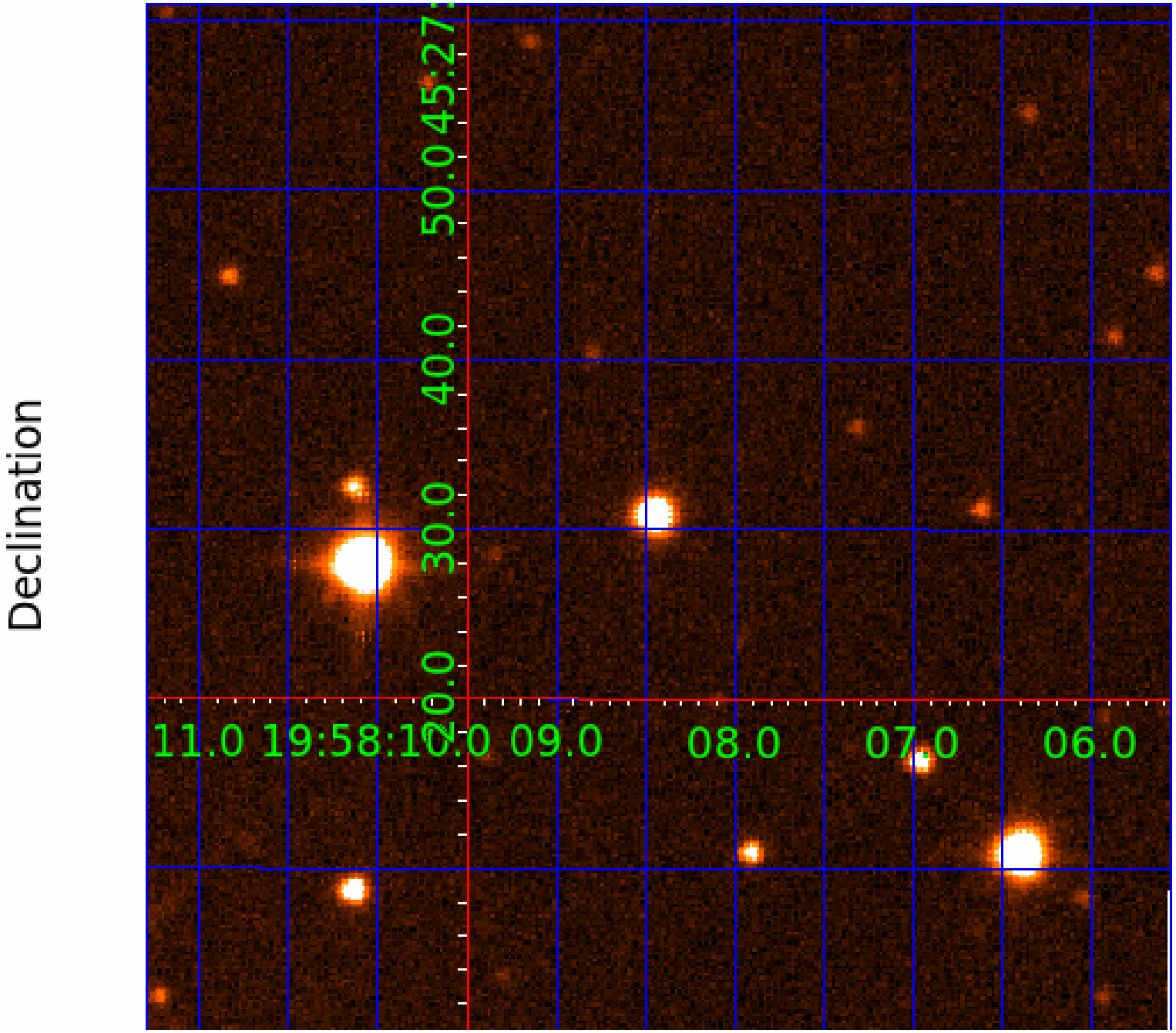


white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.









UKIRT Image