KIC 008964050

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 ($S_\oplus$)
008964050-01	OBS	No	1.417975	132.639332	31.5	5.186	8.2	9.7	0.76	4839	0.54	570.97
008964050-02	OBS	No	531.618160	326.419536	597.4	20.182	21.8	8.9	0.76	4839	2.43	0.21

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008964050-01	OBS	FP	0.00	1	0	0	0	LPP_DV
008964050-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS

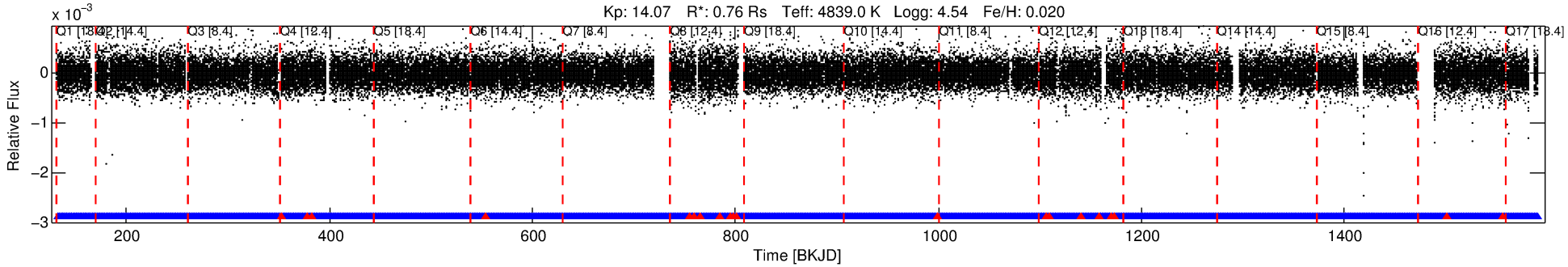
Notes: OBS = Observed. INJ = Injected. INV = Inverted. SCR = Scrambled.
N = Not Transit-Like. S = Stellar Eclipse. C = Centroid Offset. E = Ephemeris Match.
See `http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col` for comment definitions.

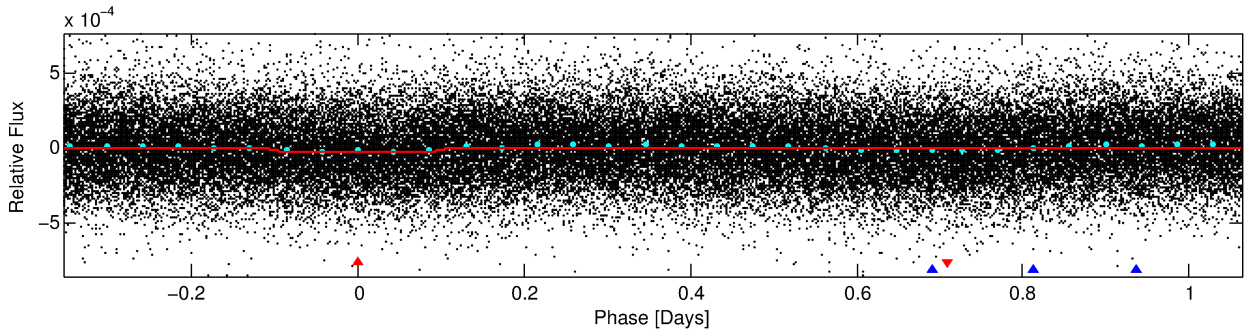
Ephemeris Match Information For 008964050-01

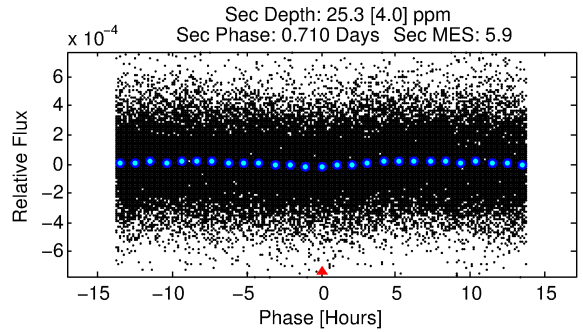
No Significant Match Found

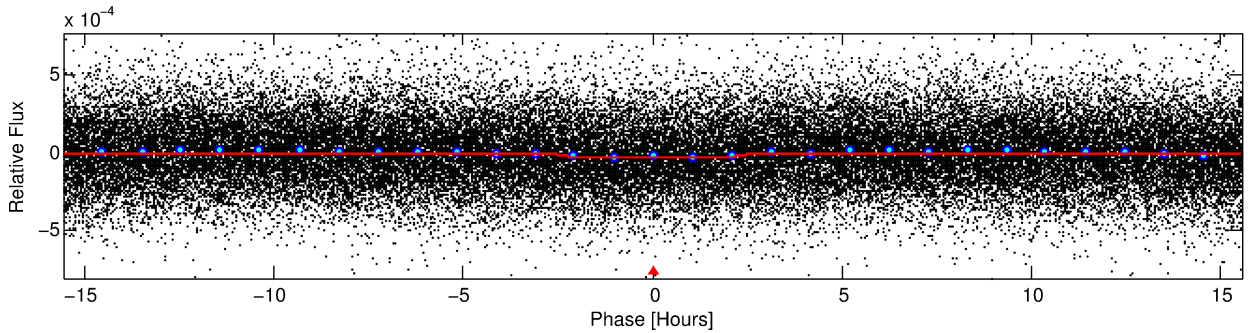
DV One-Page Summary

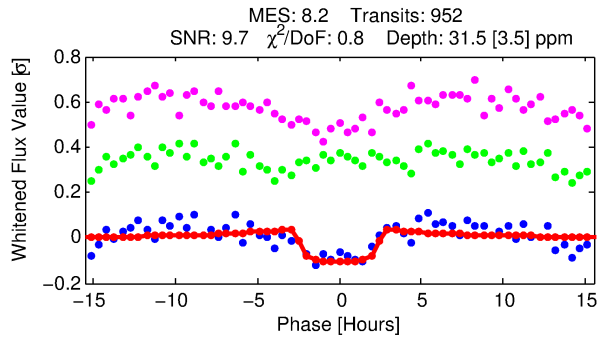
KIC: 8964050 Candidate: 1 of 2 Period: 1.418 d

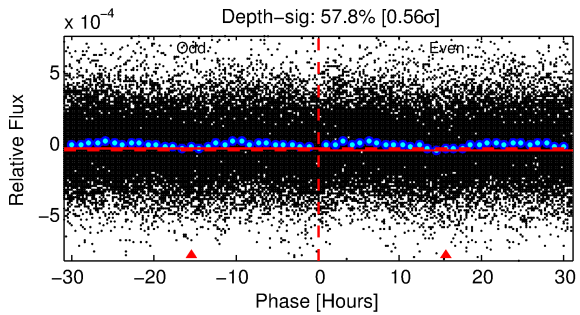


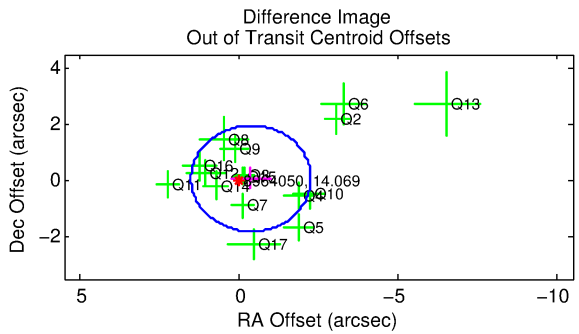












DV Fit Results:

Period = 1.41797 [0.00002] d
Epoch = 132.6393 [0.0050] BKJD
Rp/R* = 0.0065 [0.0028]
a/R* = 1.27 [0.87]
b = 0.92 [0.30]

Seff = 570.97 [99.26]
Teq = 1246 [54] K
Rp = 0.54 [0.24] Re
a = 0.0223 [0.0019] AU

Ag = 23.93 [21.18] [1.08σ]
Teffp = 4263 [942] K [3.20σ]

DV Diagnostic Results:

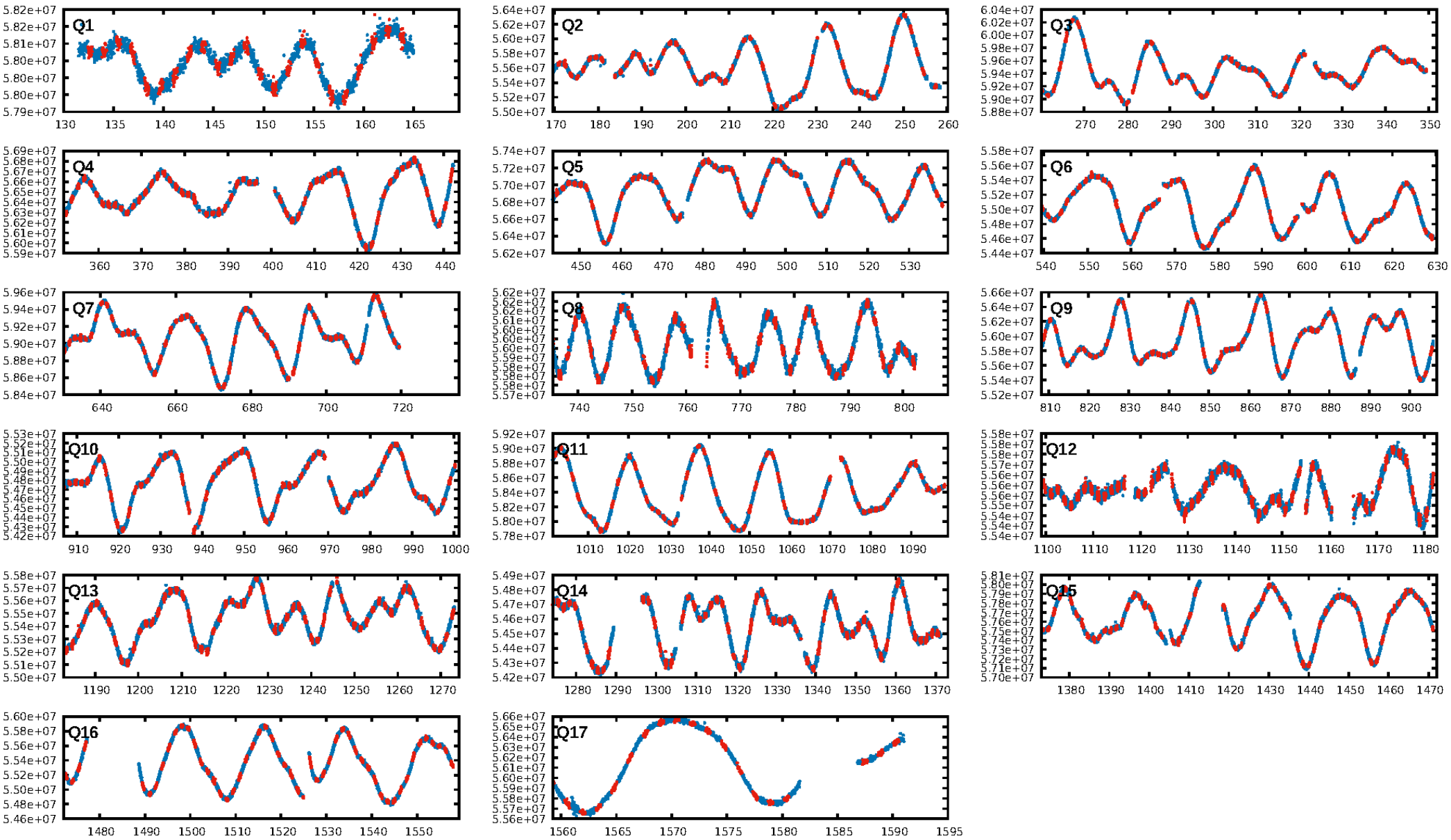
ShortPeriod−sig: N/A
LongPeriod−sig: 100.0% [610.65σ]
ModelChiSquare2−sig: N/A
ModelChiSquareGof−sig: N/A
Bootstrap−pfa: 1.37e−15
RollingBand−fgt: 0.98 [891/911]
GhostDiagnostic−chr: 1.82

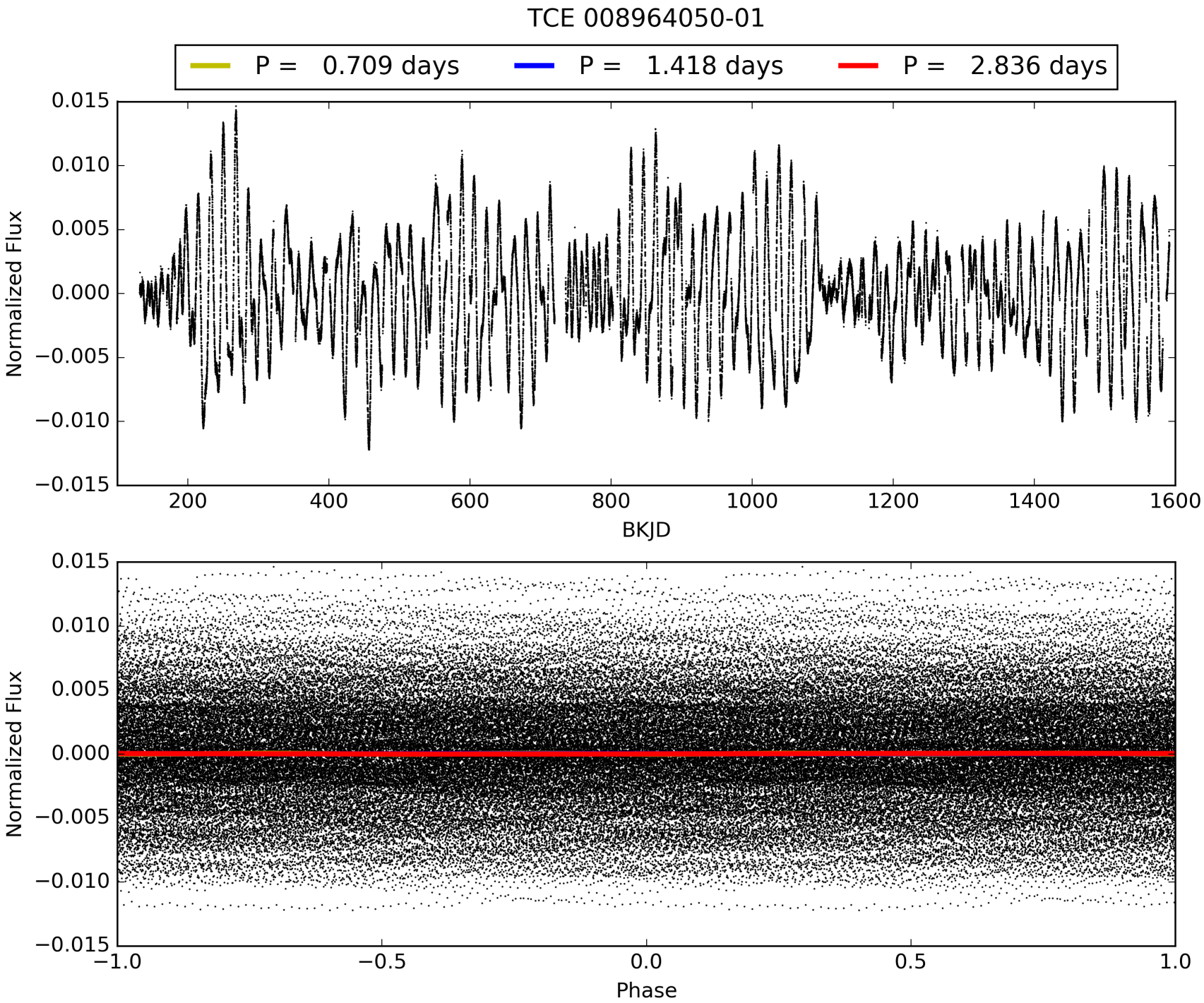
Centroid−sig: 8.1%
Centroid−so: 1.311 arcsec [1.15σ]
OotOffset−rm: 0.383 arcsec [0.61σ]
KicOffset−rm: 0.337 arcsec [0.59σ]
OotOffset−st: 4/4/4/4 [16]
KicOffset−st: 4/4/4/4 [16]
DiffImageQuality−fgm: 0.88 [14/16]
DiffImageOverlap−fno: 1.00 [17/17]

Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31−Jan−2016 10:05:44 Z

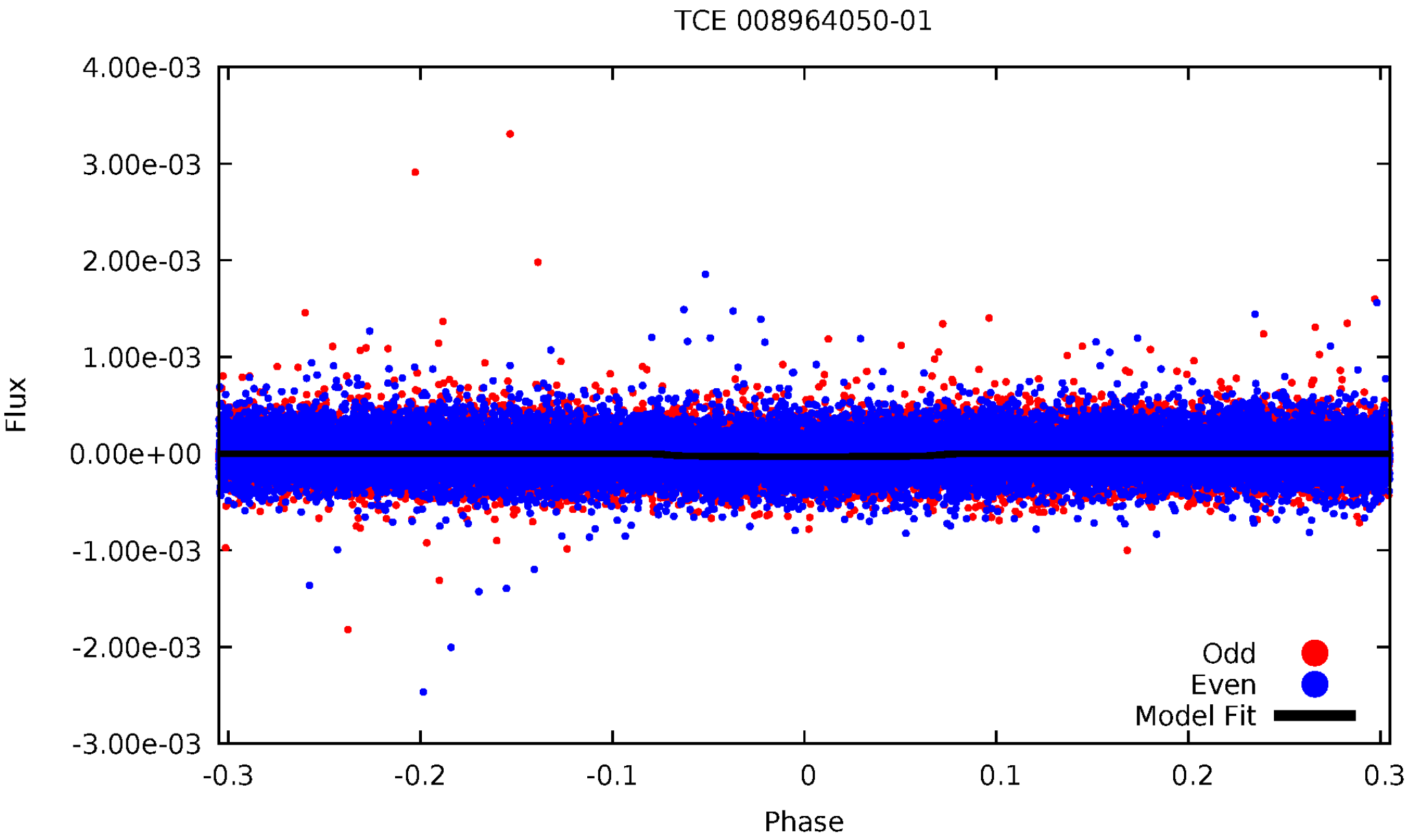
This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

TCE 008964050-01, PDC Light Curves

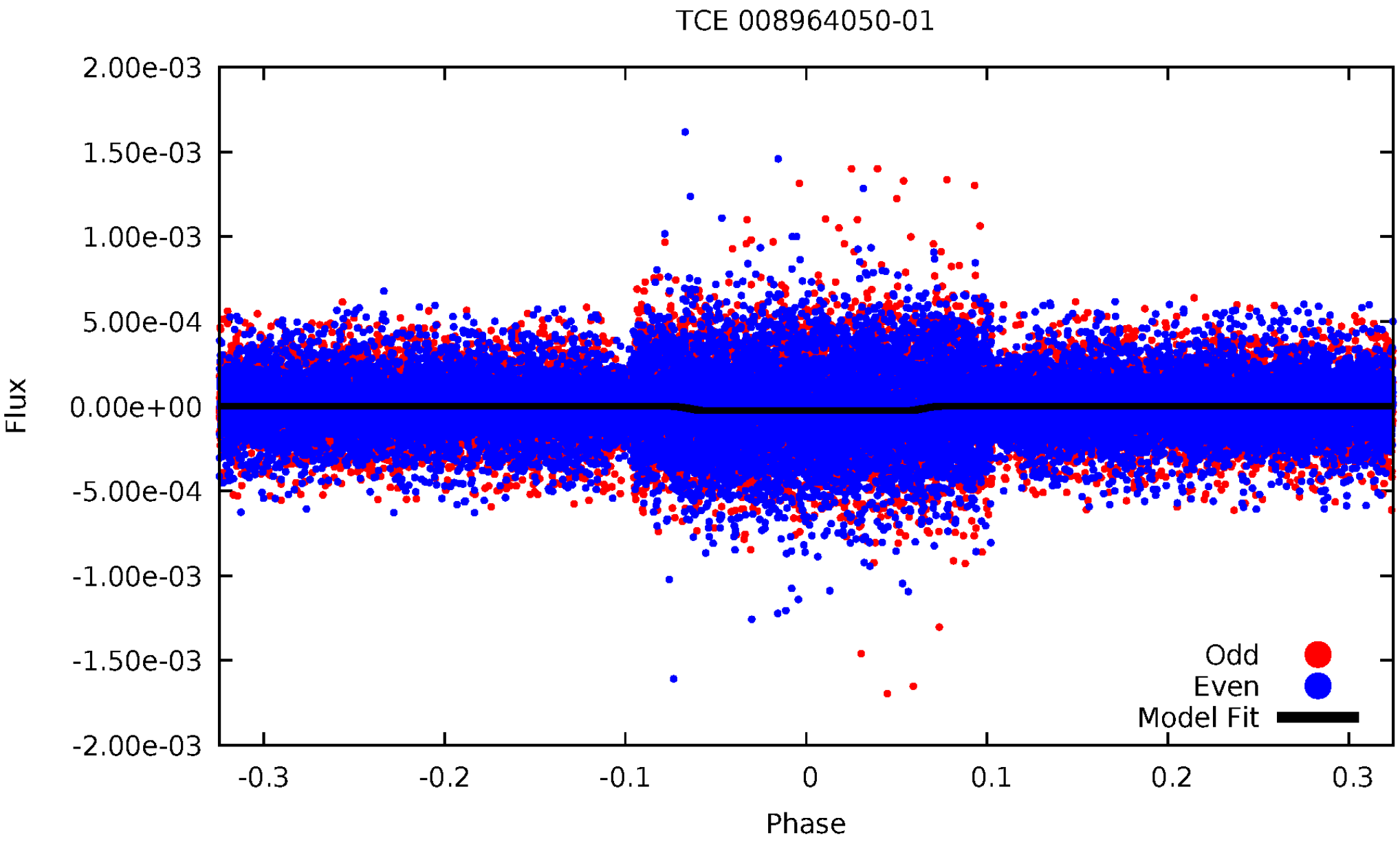



TCE 008964050-01
P = 0.709 days
P = 1.418 days
P = 2.836 days
Normalized Flux
BKJD
Normalized Flux
Phase

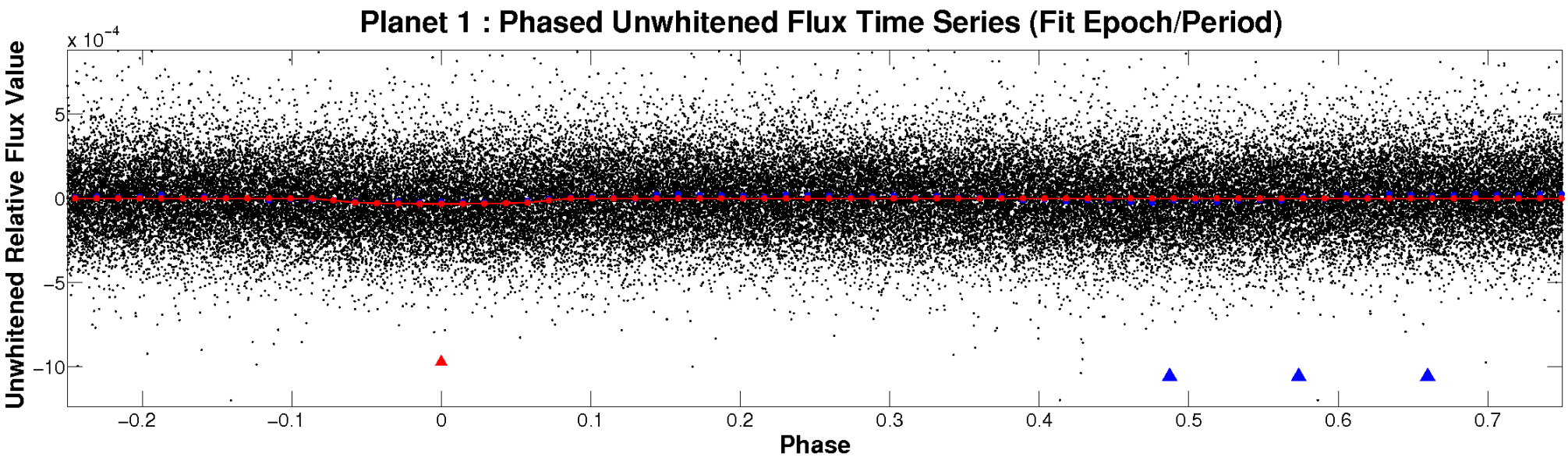
DV Odd/Even

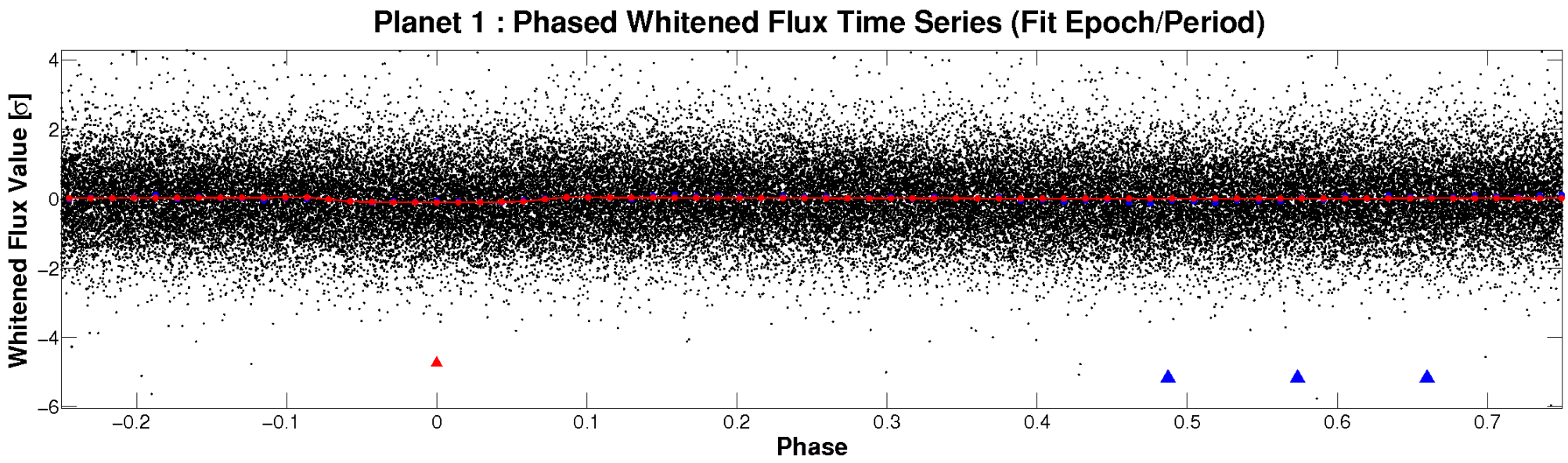

TCE 008964050-01
4.00e-03
3.00e-03
2.00e-03
1.00e-03
0.00e+00
-1.00e-03
-2.00e-03
-3.00e-03
Flux
-0.3
-0.2
-0.1
0
0.1
0.2
0.3
Phase
Odd
Even
Model Fit

ALT Odd/Even


TCE 008964050-01
2.00e-03
1.50e-03
1.00e-03
5.00e-04
0.00e+00
-5.00e-04
-1.00e-03
-1.50e-03
-2.00e-03
Flux
-0.3
-0.2
-0.1
0
0.1
0.2
0.3
Phase
Odd
Even
Model Fit

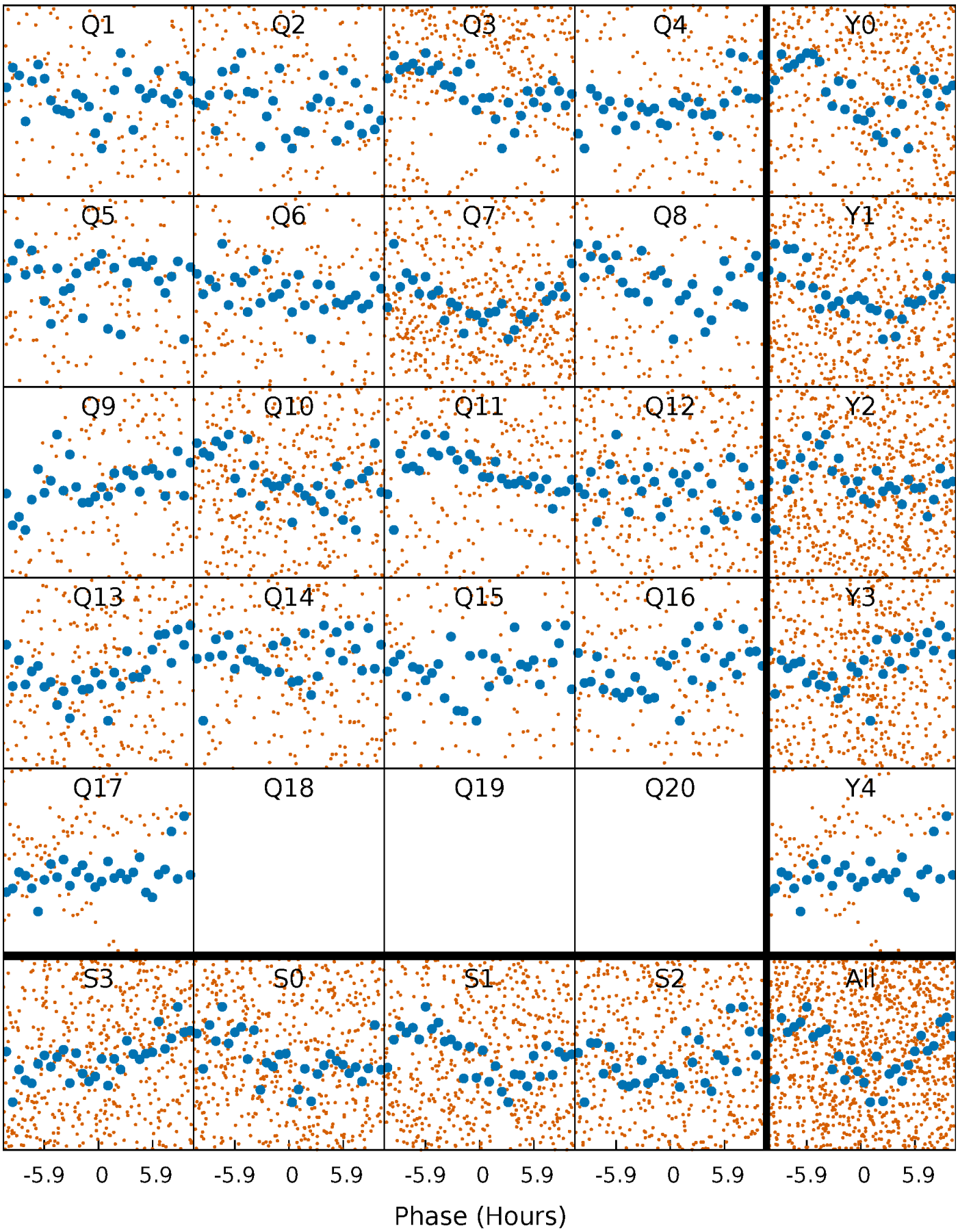
Non-Whitened Vs. Whitened Light Curve





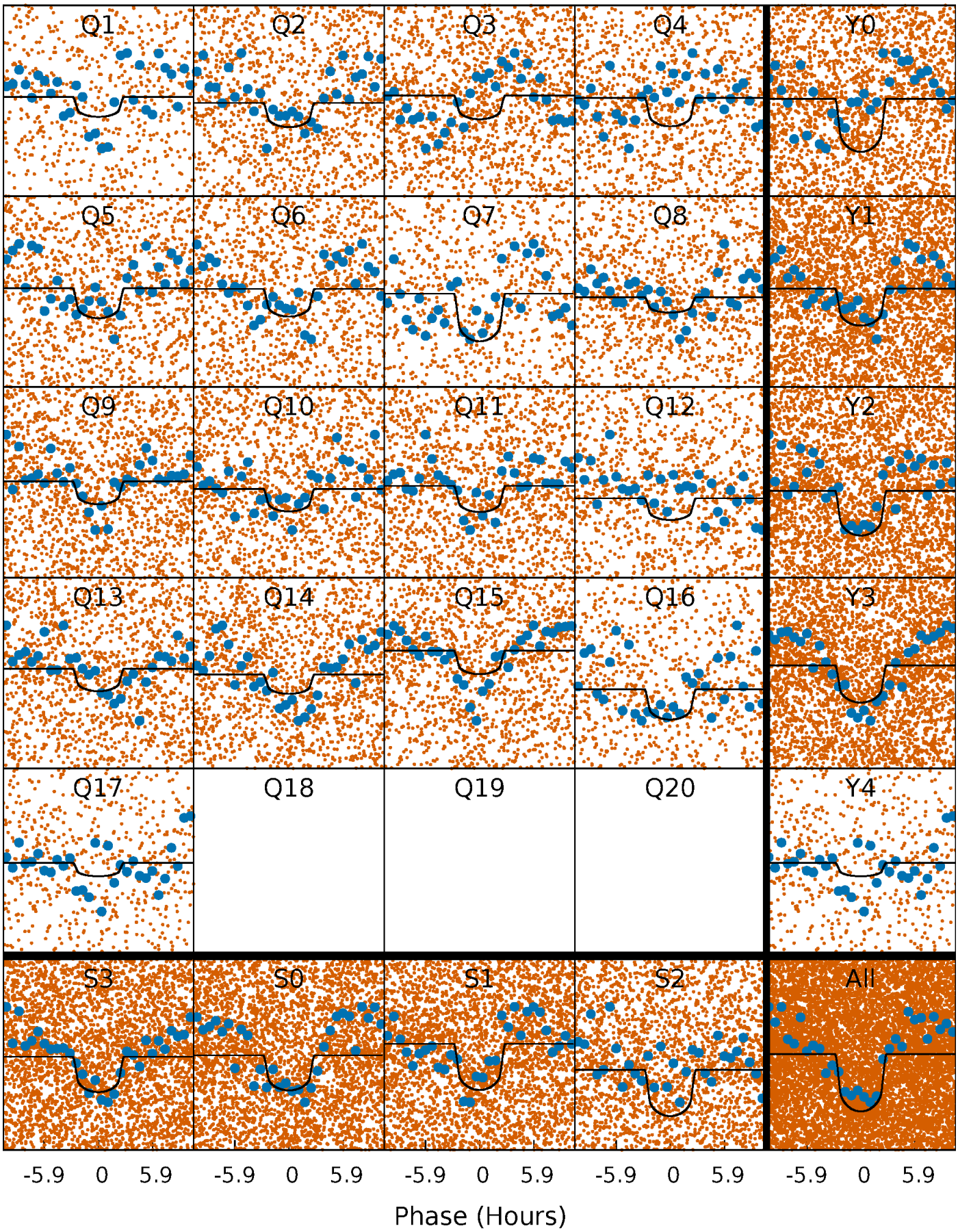
PDC Quarter-Phased Transit Curves

TCE 008964050-01 P= 1.417975 Days T_0=132.639332 (BKJD)



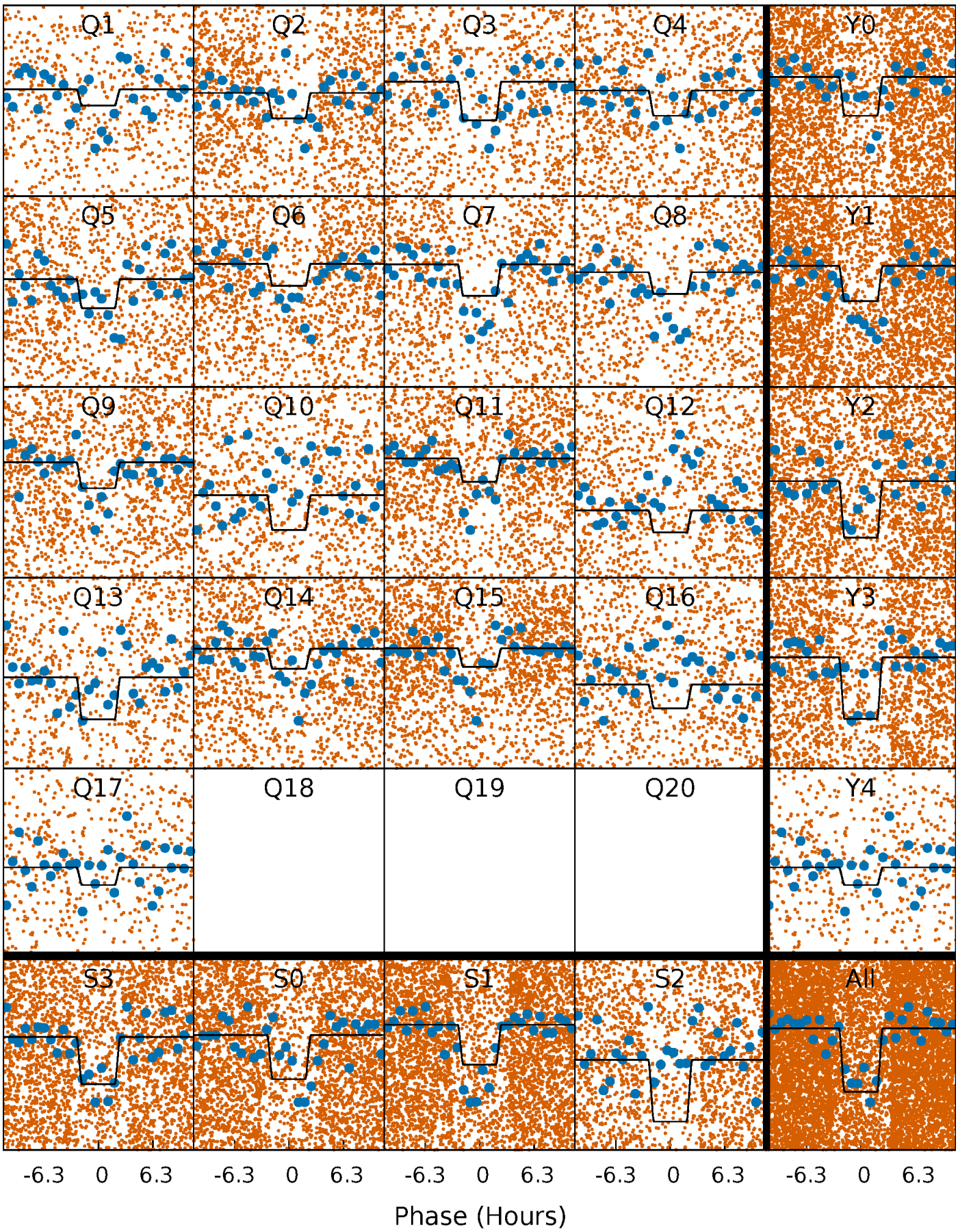
DV Quarter-Phased Transit Curves

TCE 008964050-01 P= 1.417975 Days T_0=132.639332 (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

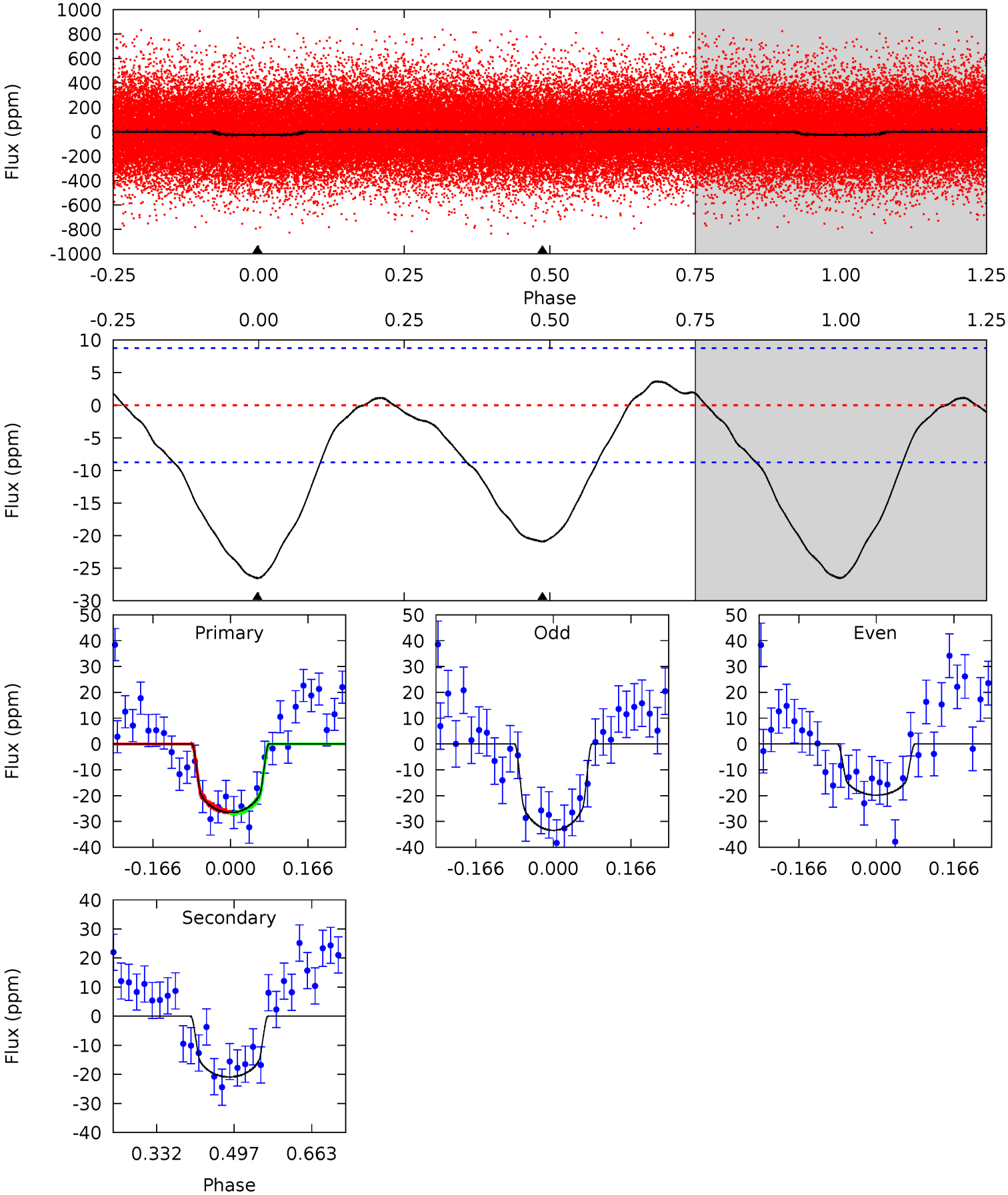
TCE 008964050-01 P= 1.417992 Days T_0=132.630851 (BKJD)



DV Model-Shift Uniqueness Test

008964050-01, P = 1.417975 Days, E = 131.221357 Days

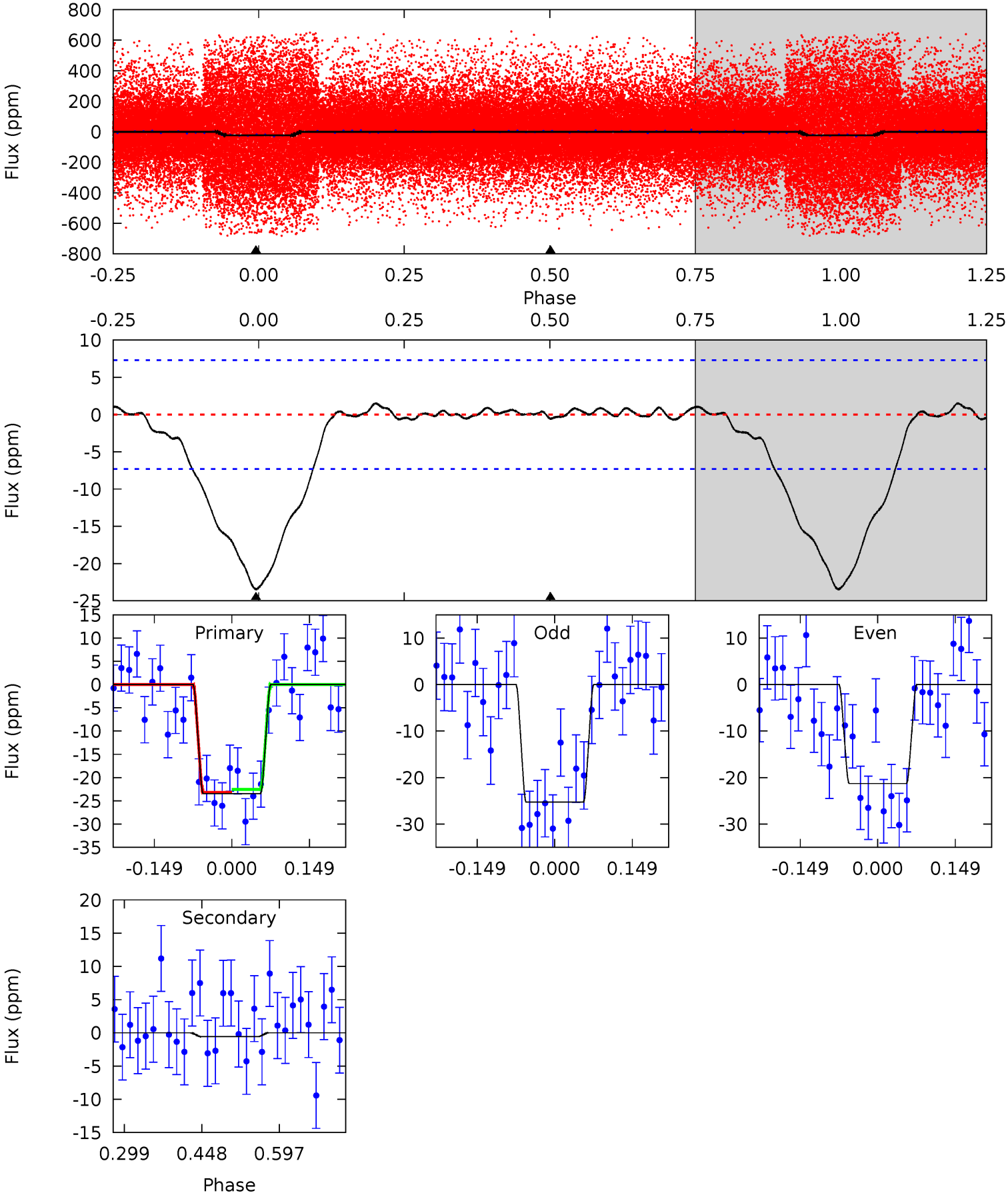
Pri	Sec	Ter	Pos	FA_1	FA_2	F_{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
13.5	10.6	0	0	4.46	1.39	1.31	13.5	13.5	10.6	10.6	3.47	1.02	0.12	0.23



Alt Model-Shift Uniqueness Test

008964050-01, P = 1.417992 Days, E = 131.212859 Days

Pri	Sec	Ter	Pos	FA_1	FA_2	F_{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
14.4	0.35	0	0	4.48	1.44	0.52	14.4	14.4	0.35	0.35	1.22	1.31	0.06	0.19



Stellar Parameters For KIC 008964050

	$T_{\rm eff}(K)$	$\log(g)$	[Fe/H]	R ($R_\odot$)	$M(M_\odot)$	$p_\star$ (g·cm^{-3})
	4839^{+145}_{-130}	$4.543^{+0.071}_{-0.058}$	$0.020^{+0.250}_{-0.300}$	$0.761^{+0.059}_{-0.072}$	$0.738^{+0.082}_{-0.054}$	$2.358^{+0.701}_{-0.417}$
	+3%/-3%	+2%/-1%	+1250%/-1500%	+8%/-9%	+11%/-7%	+30%/-18%
Source	PHO1	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 008964050-01 / KOI

Detrend	Depth (ppm)	R_p ($R_\oplus$)	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-21±2	$0.53^{+0.24}_{-0.23}$	1740^{+67}_{-62}	4217^{+1110}_{-532}	20^{+41}_{-10}
Alt.	-1±2	$0.42^{+0.24}_{-0.21}$	1738^{+66}_{-62}	2344^{+1015}_{-5304}	$0.666^{+4.955}_{-2.497}$

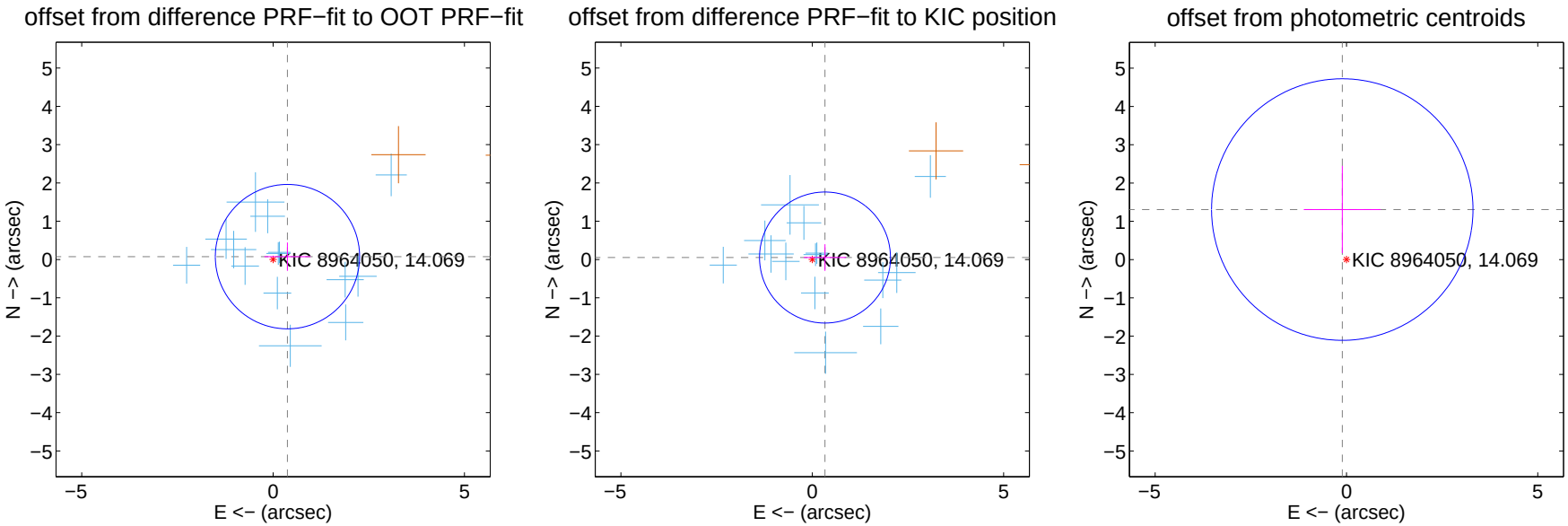
T_{max} = Theoretical Maximum Planetary Temperature
T_{obs} = Observed Planetary Temperature (Assuming A=0.3)
A_{obs} = Observed Albedo (Assuming T=0)

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

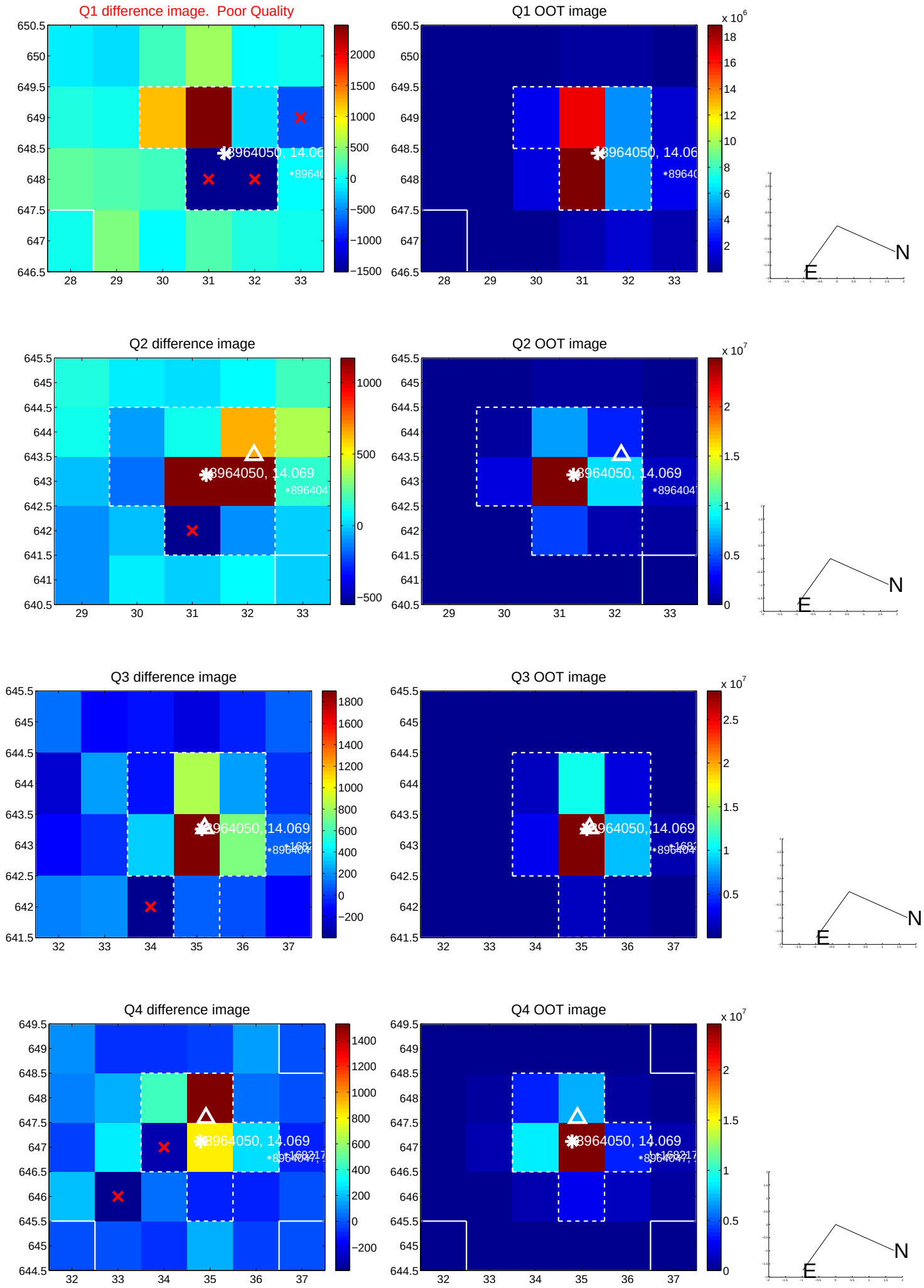
Supplemental centroid analysis for 008964050-01. Kepler magnitude: 14.07. Transit SNR 9.67
There are 14 quarters with good PRF difference image offsets
The direct PRF centroid is offset from the target star catalog position by about 0.21 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.383 ± 0.628	0.61	-0.376 ± 0.603	0.075 ± 0.370
PRF-fit source offset from KIC position	0.337 ± 0.570	0.59	-0.333 ± 0.553	0.051 ± 0.348
photometric centroid source offset	1.31 ± 1.14	1.15	0.11 ± 1.01	1.31 ± 1.14



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.



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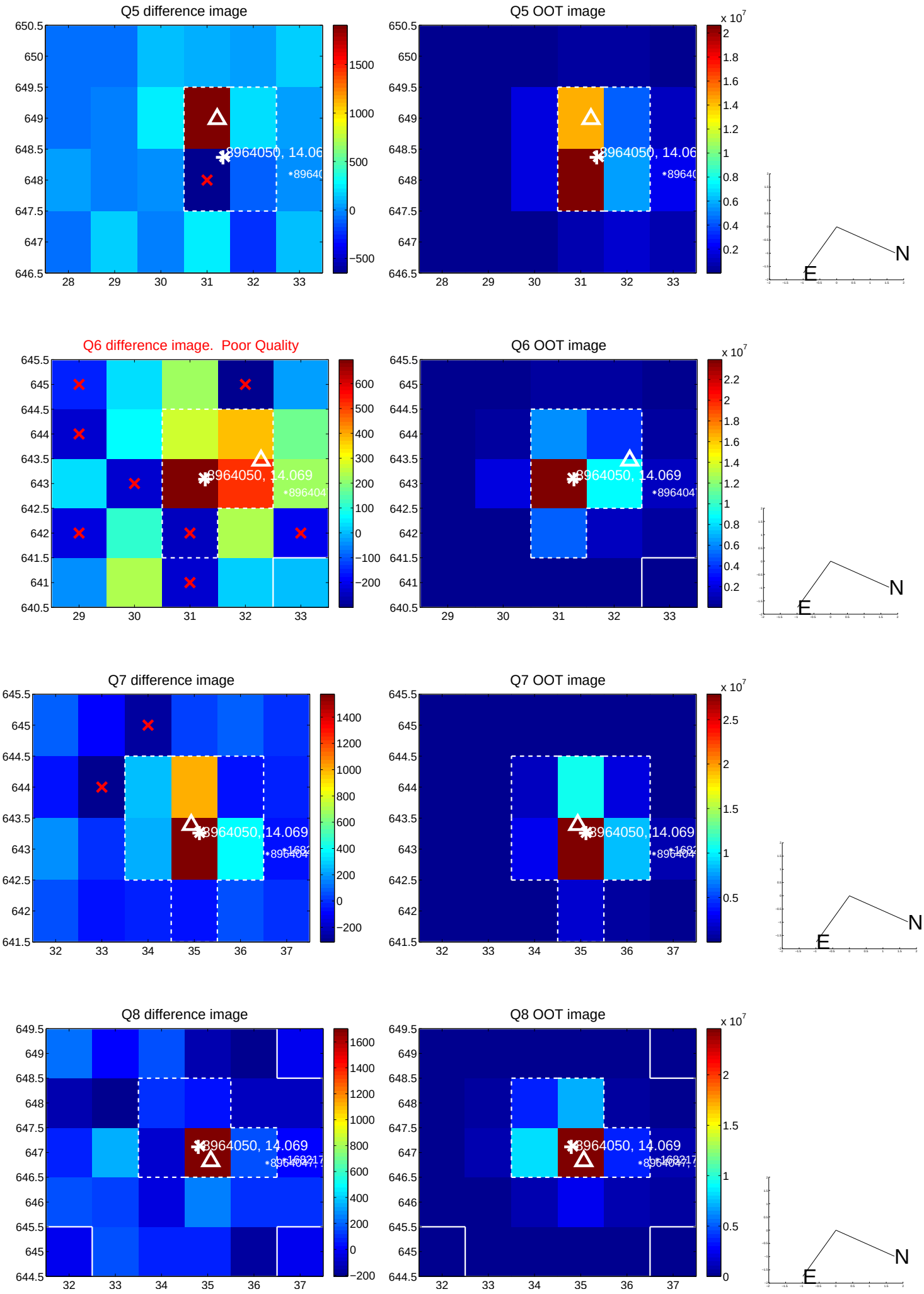

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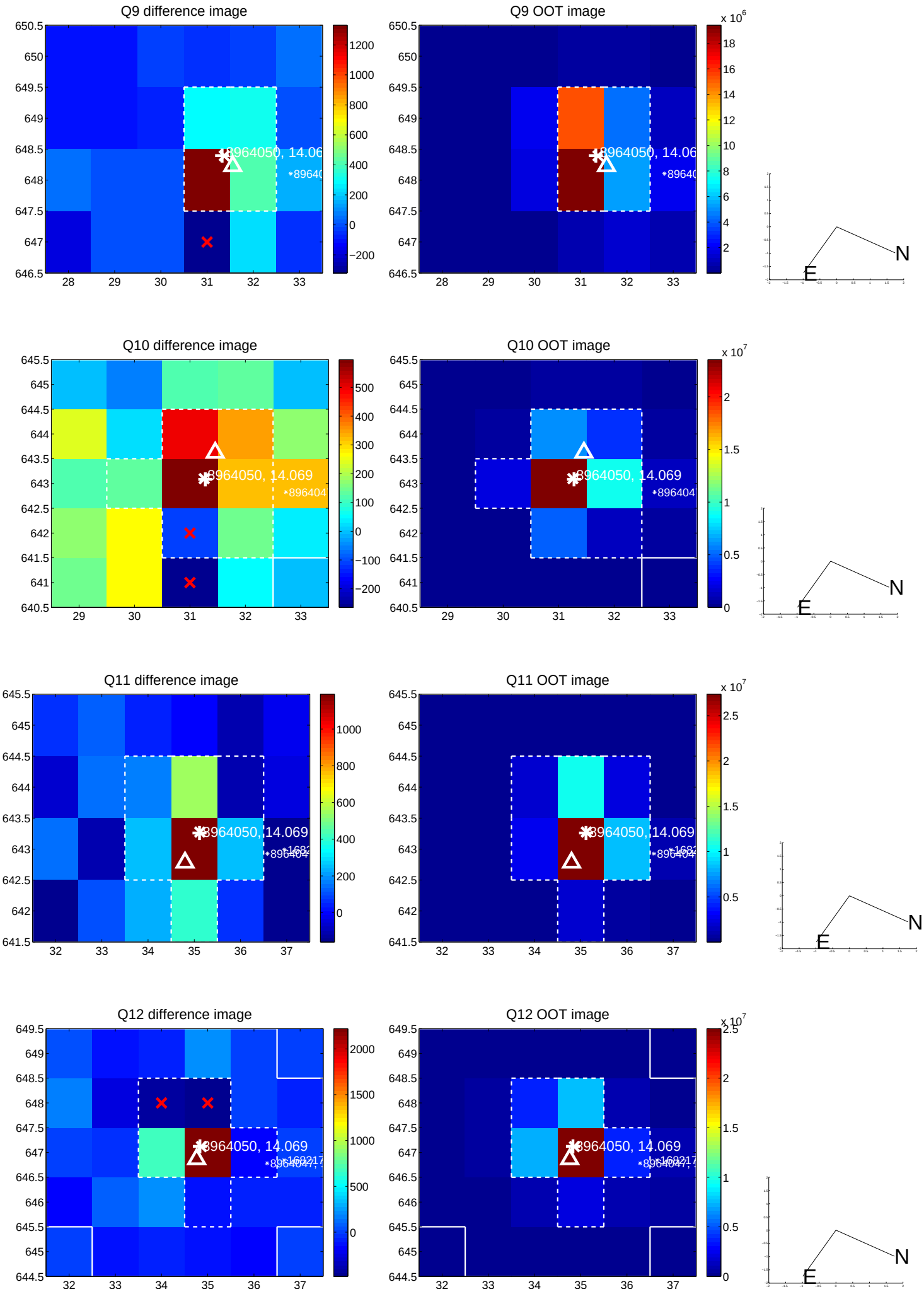
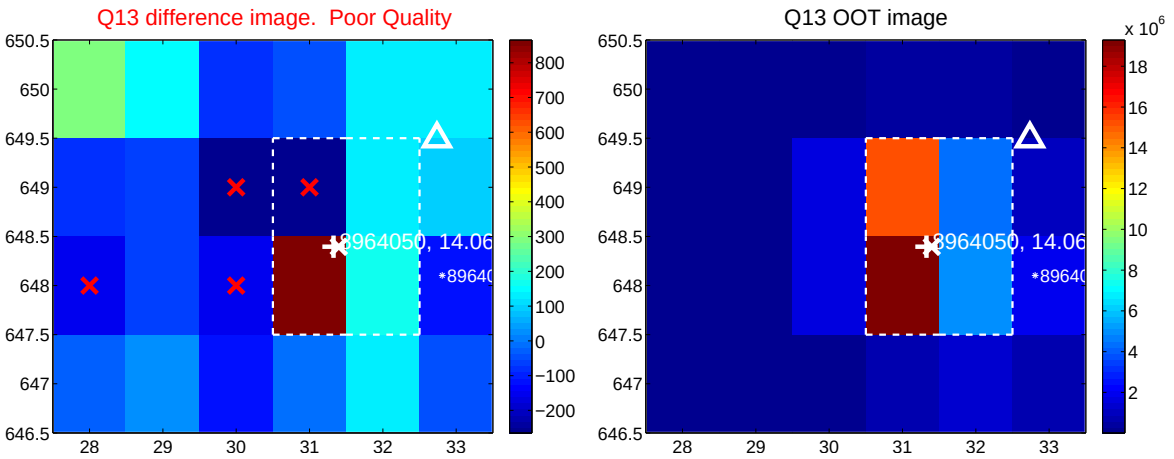
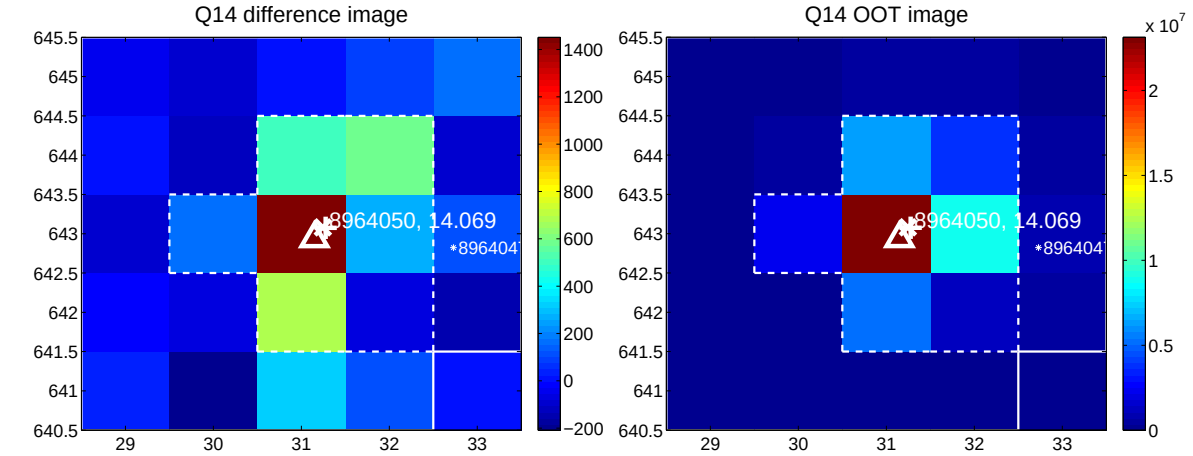
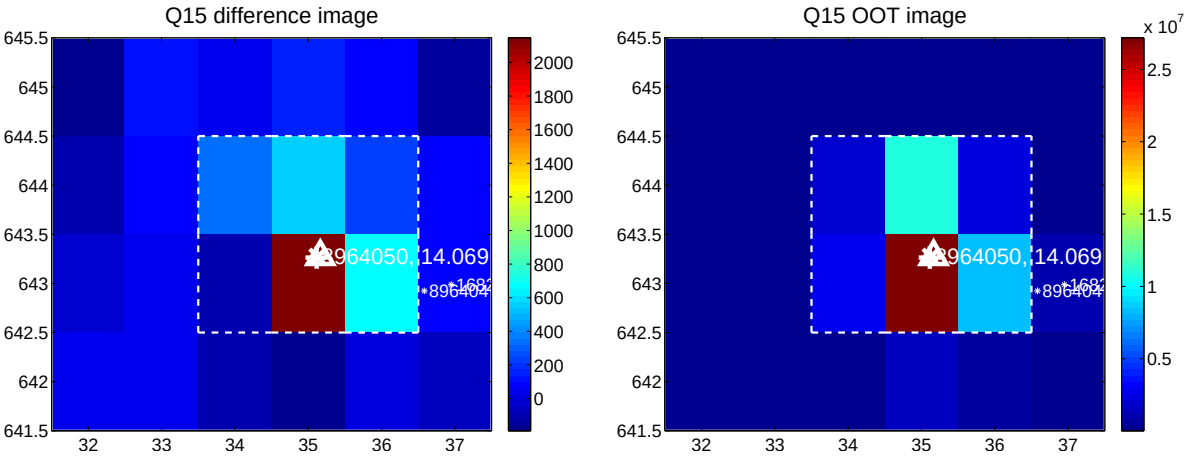
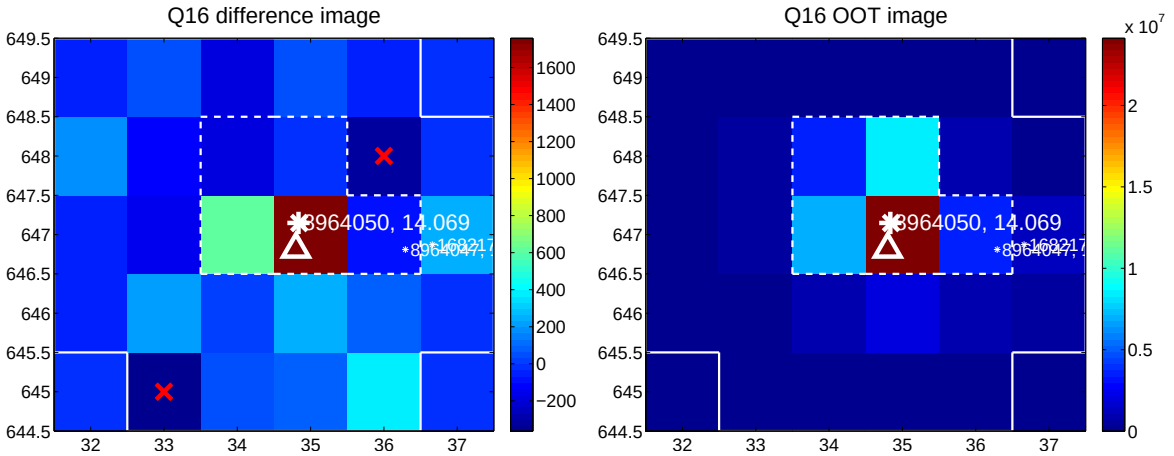


white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.









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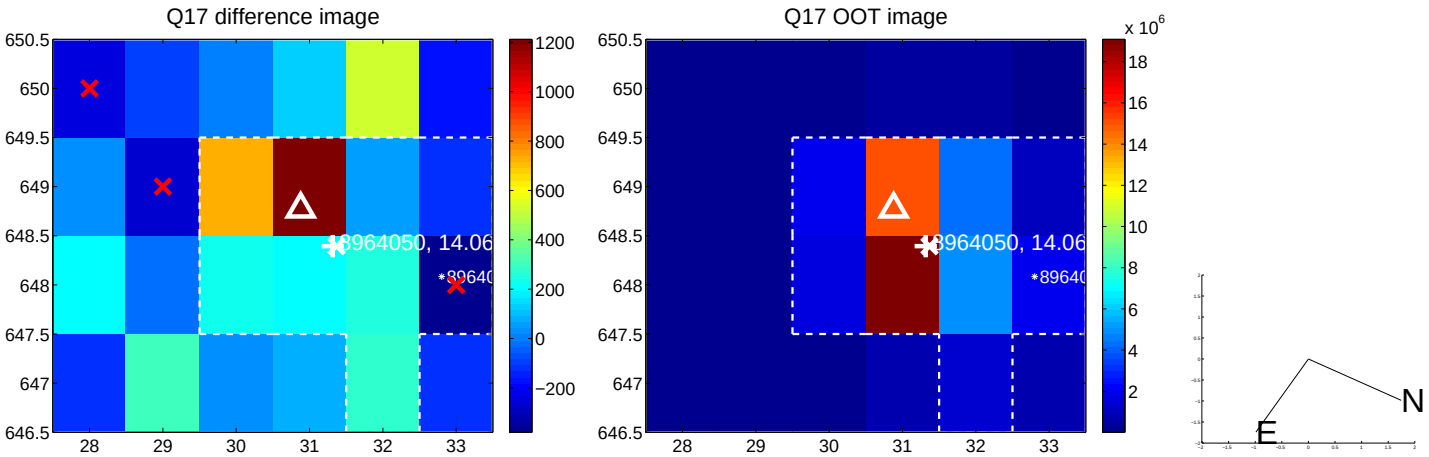
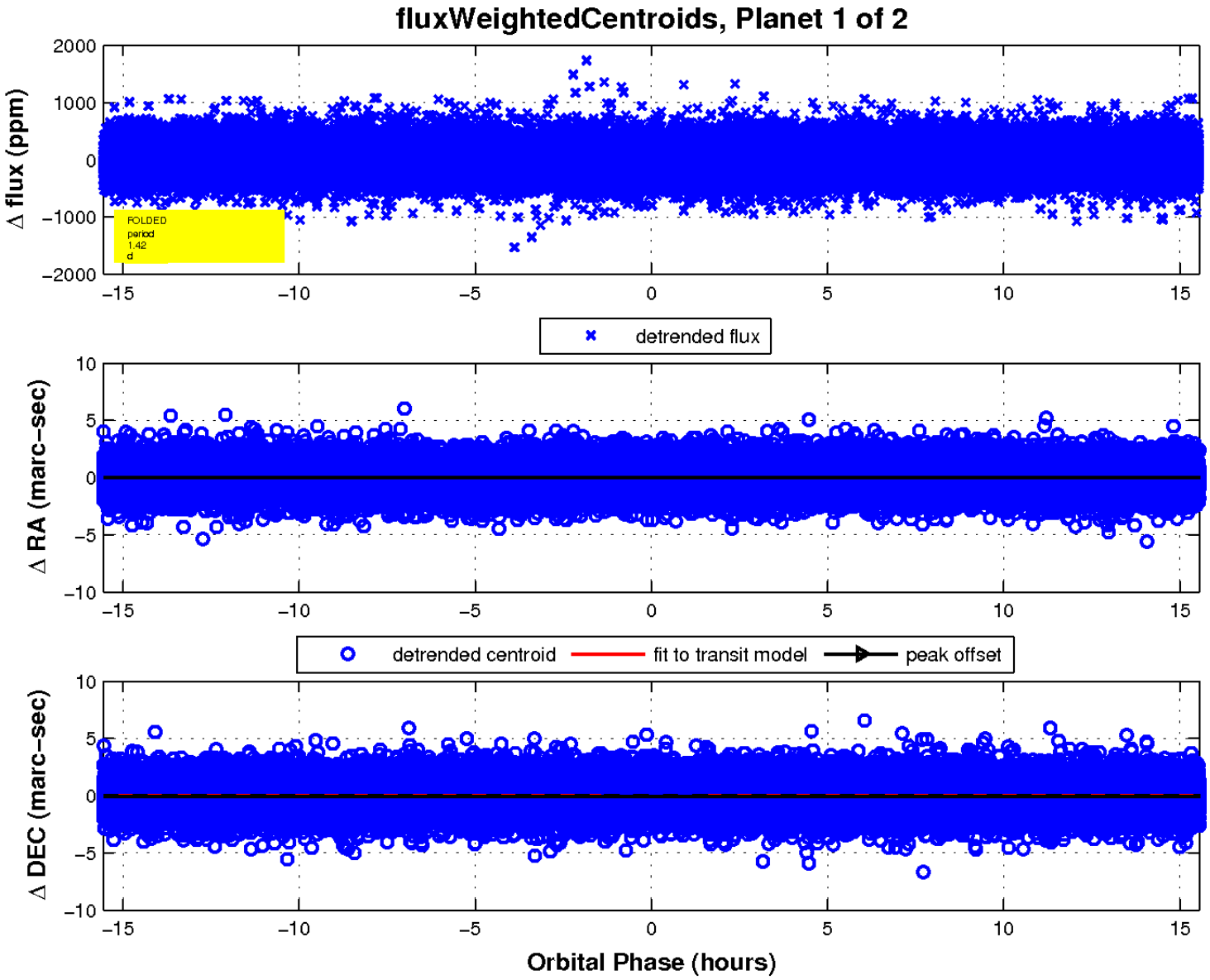
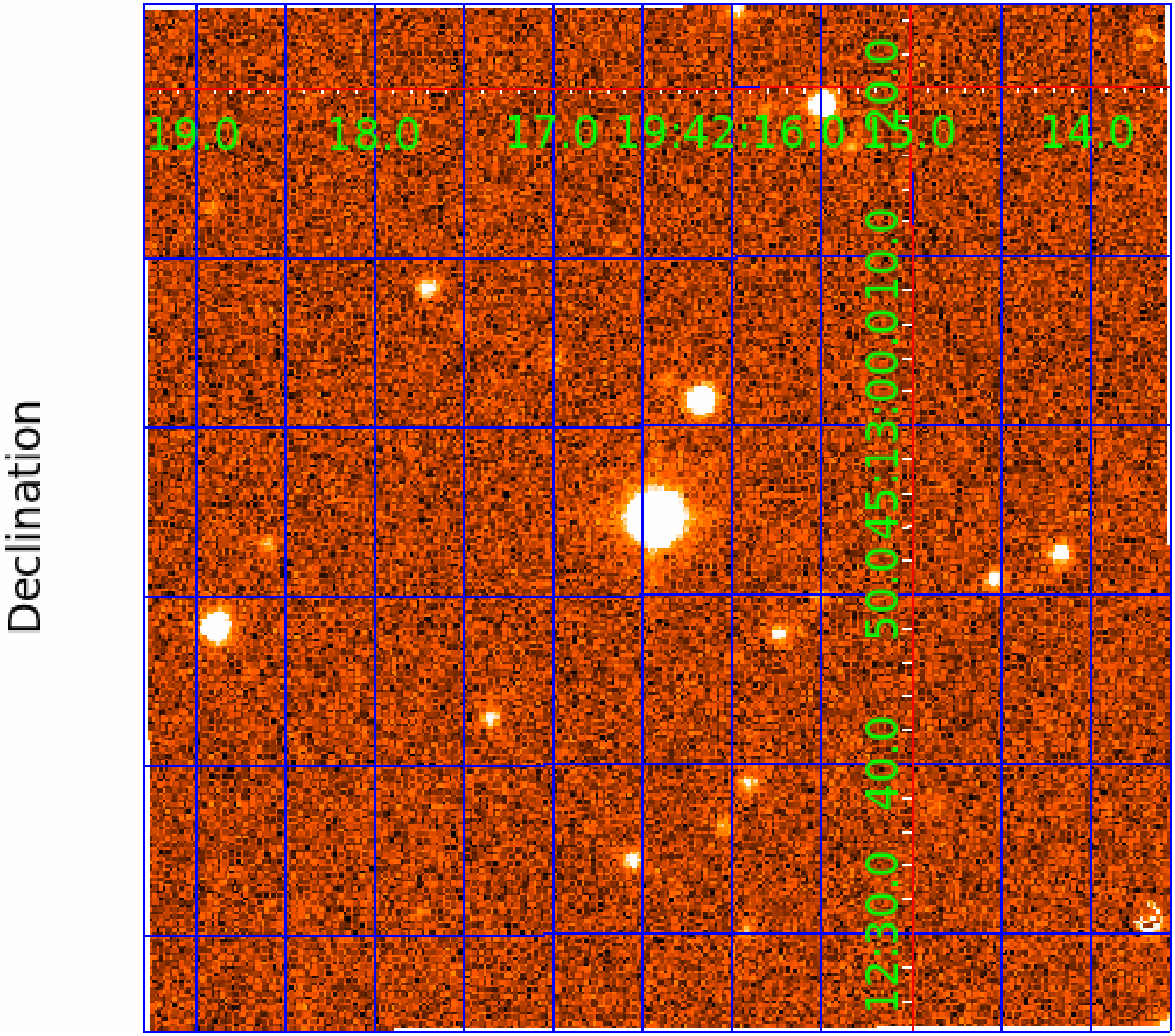




UKIRT Image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18.0
17.0
19:42:16.0
15.0
14.0
12:30.0
40.0
50.0
45:13:00.0
10.0
20.0

KIC 008964050

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 ($S_\oplus$)
008964050-01	OBS	No	1.417975	132.639332	31.5	5.186	8.2	9.7	0.76	4839	0.54	570.97
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Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008964050-01	OBS	FP	0.00	1	0	0	0	LPP_DV
008964050-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS

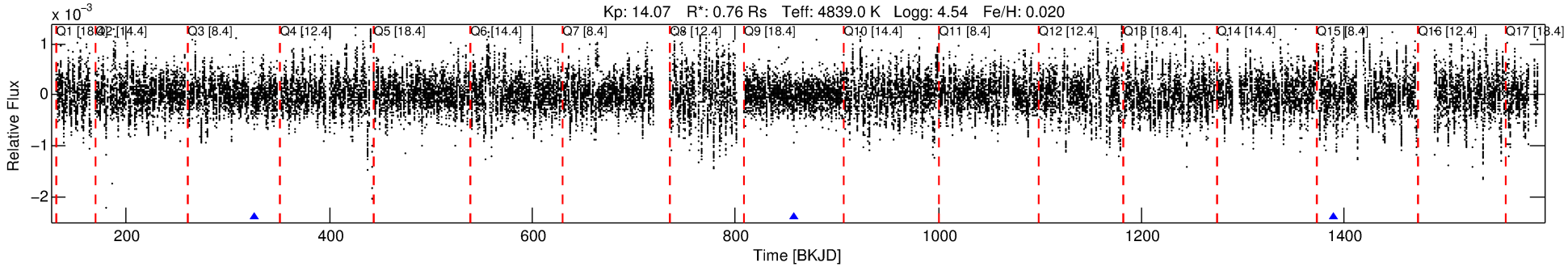
Notes: OBS = Observed. INJ = Injected. INV = Inverted. SCR = Scrambled.
N = Not Transit-Like. S = Stellar Eclipse. C = Centroid Offset. E = Ephemeris Match.
See `http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col` for comment definitions.

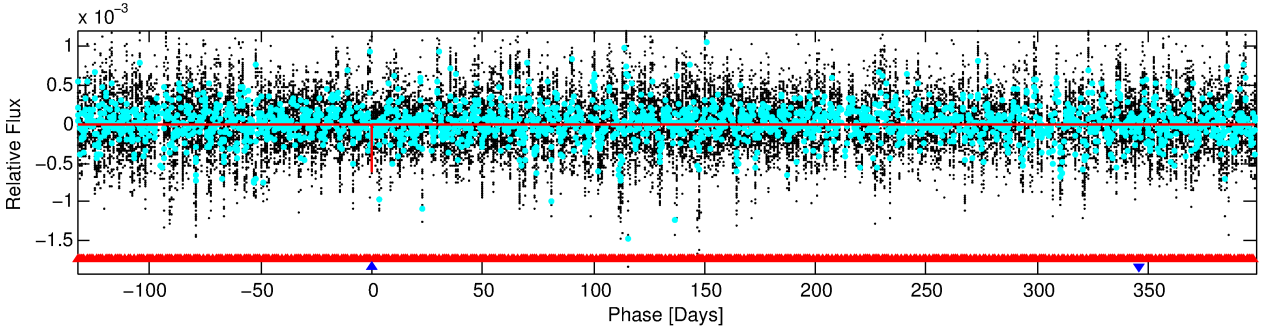
Ephemeris Match Information For 008964050-02

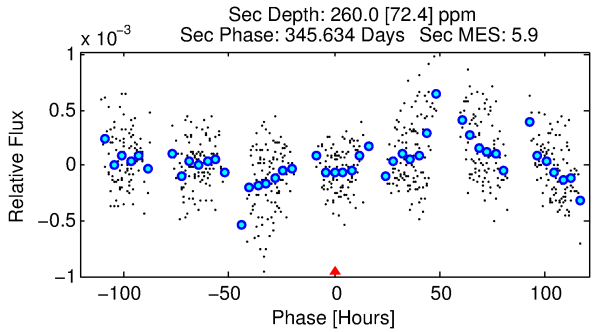
No Significant Match Found

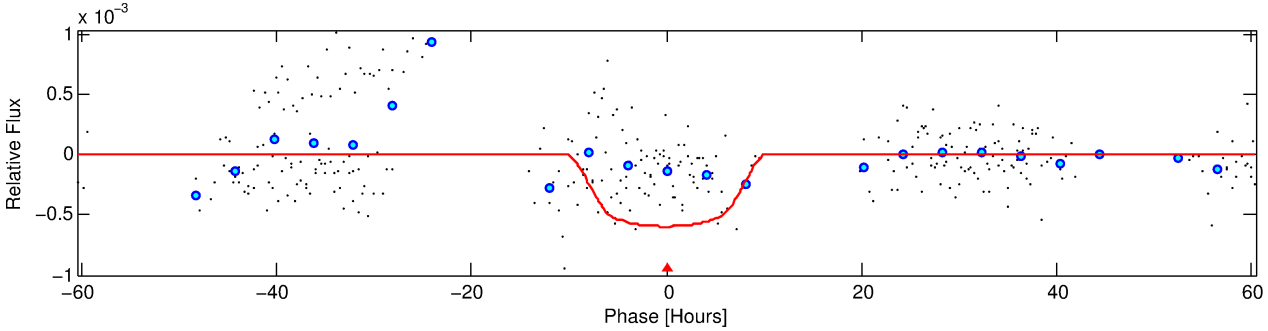
DV One-Page Summary

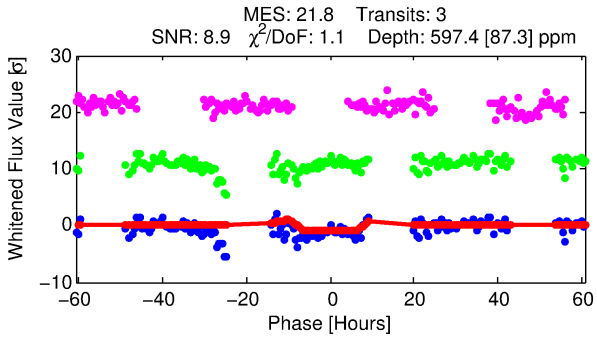
KIC: 8964050 Candidate: 2 of 2 Period: 531.618 d

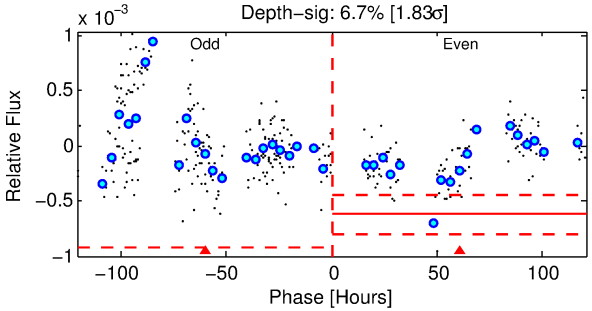


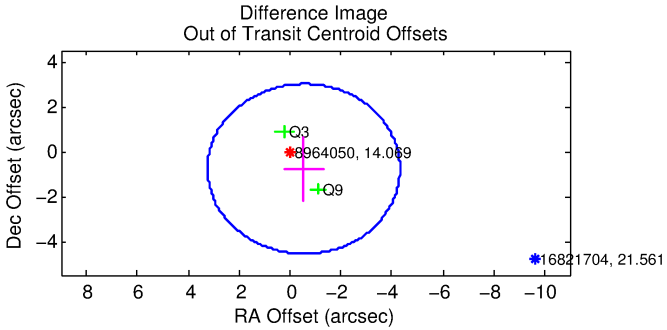












DV Fit Results:

Period = 531.61816 [0.02747] d
Epoch = 326.4195 [0.0434] BKJD
Rp/R* = 0.0293 [0.0027]
a/R* = 83.34 [16.85]
b = 0.94 [0.02]

Seff = 0.21 [0.04]
Teq = 173 [8] K
Rp = 2.43 [0.32] Re
a = 1.1606 [0.0967] AU

Ag = 32638.56 [11630.19] [2.81σ]
Teffp = 3592 [318] K [10.75σ]

DV Diagnostic Results:

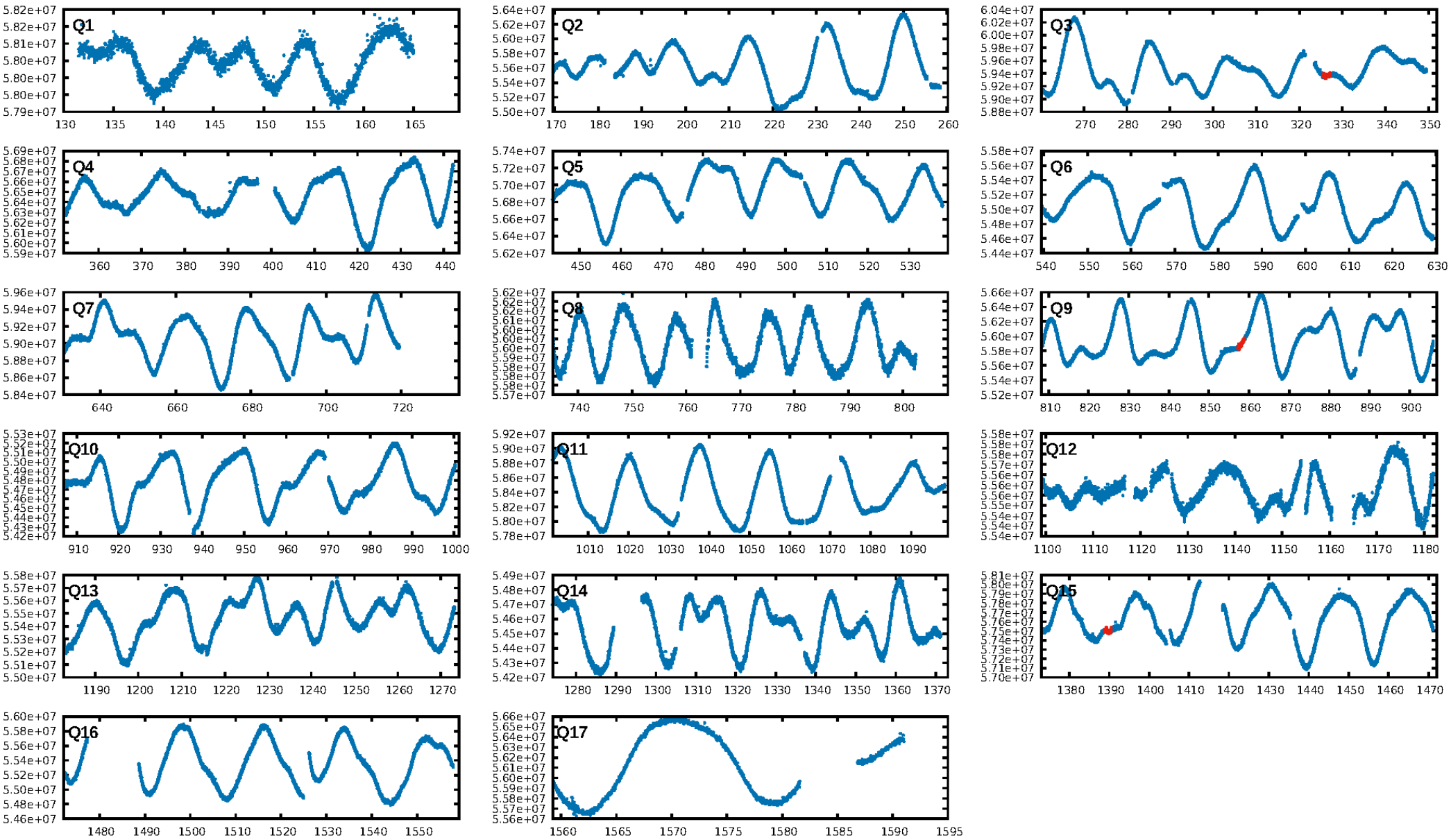
ShortPeriod−sig: 100.0% [610.65σ]
LongPeriod−sig: N/A
ModelChiSquare2−sig: 0.0%
ModelChiSquareGof−sig: 100.0%
Bootstrap−pfa: 4.52e−37
RollingBand−fgt: 1.00 [3/3]
GhostDiagnostic−chr: 0.4876

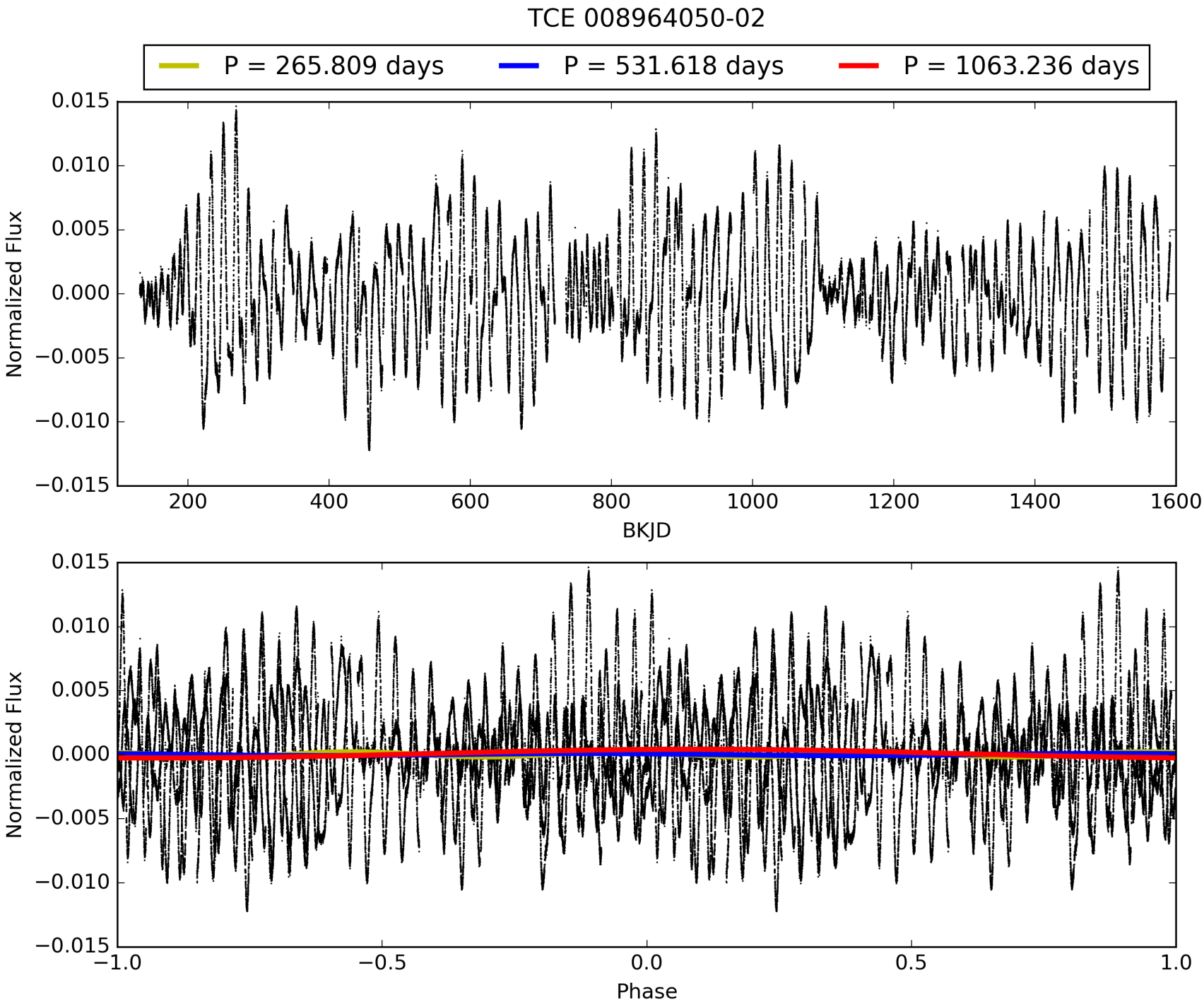
Centroid−sig: 0.0%
Centroid−so: 2.266 arcsec [2.88σ]
OotOffset−rm: 0.951 arcsec [0.75σ]
KicOffset−rm: 1.018 arcsec [0.72σ]
OotOffset−st: 0/1/0/1 [2]
KicOffset−st: 0/1/0/1 [2]
DiffImageQuality−fgm: 1.00 [2/2]
DiffImageOverlap−fno: 0.00 [0/3]

Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31−Jan−2016 10:05:56 Z

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

TCE 008964050-02, PDC Light Curves

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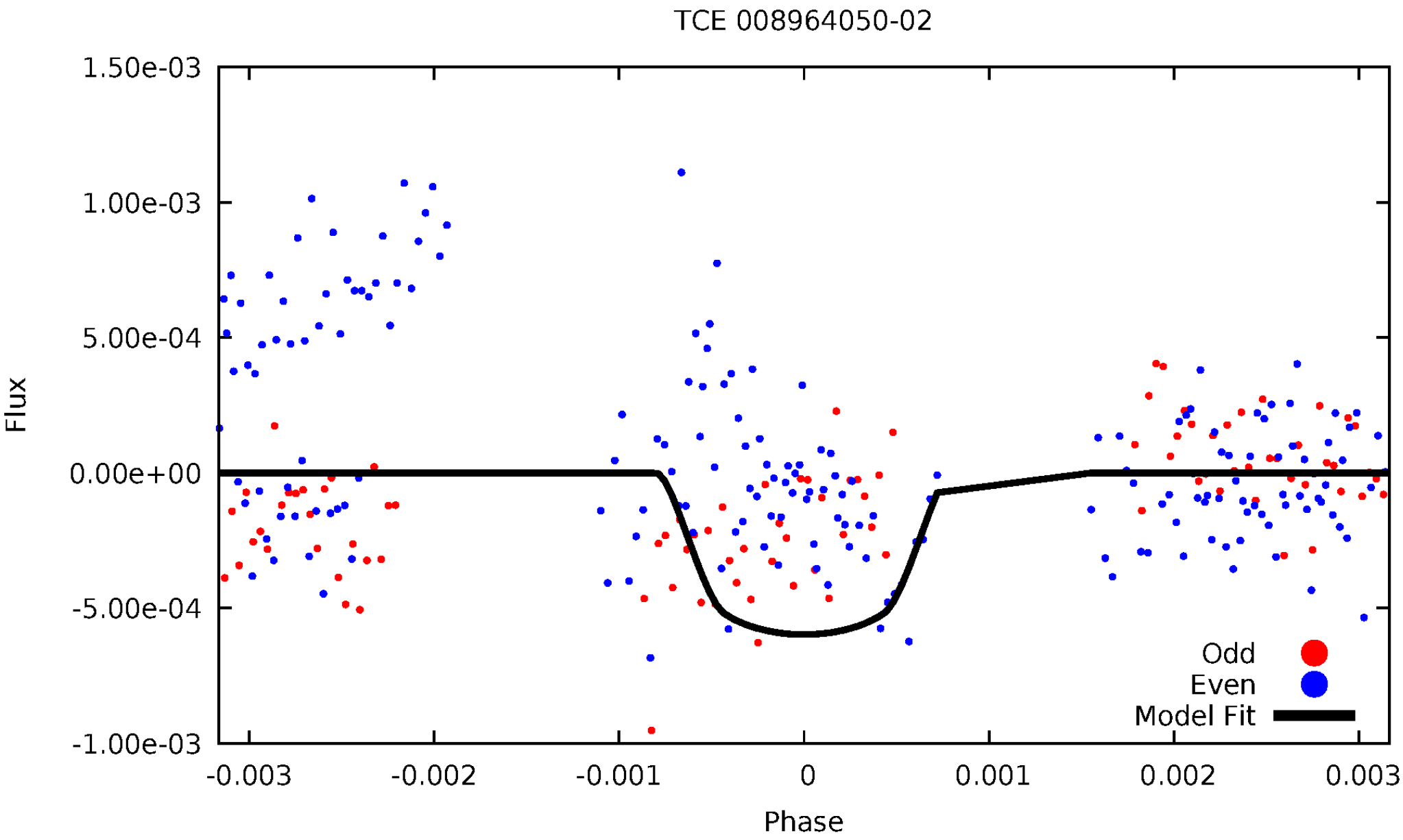
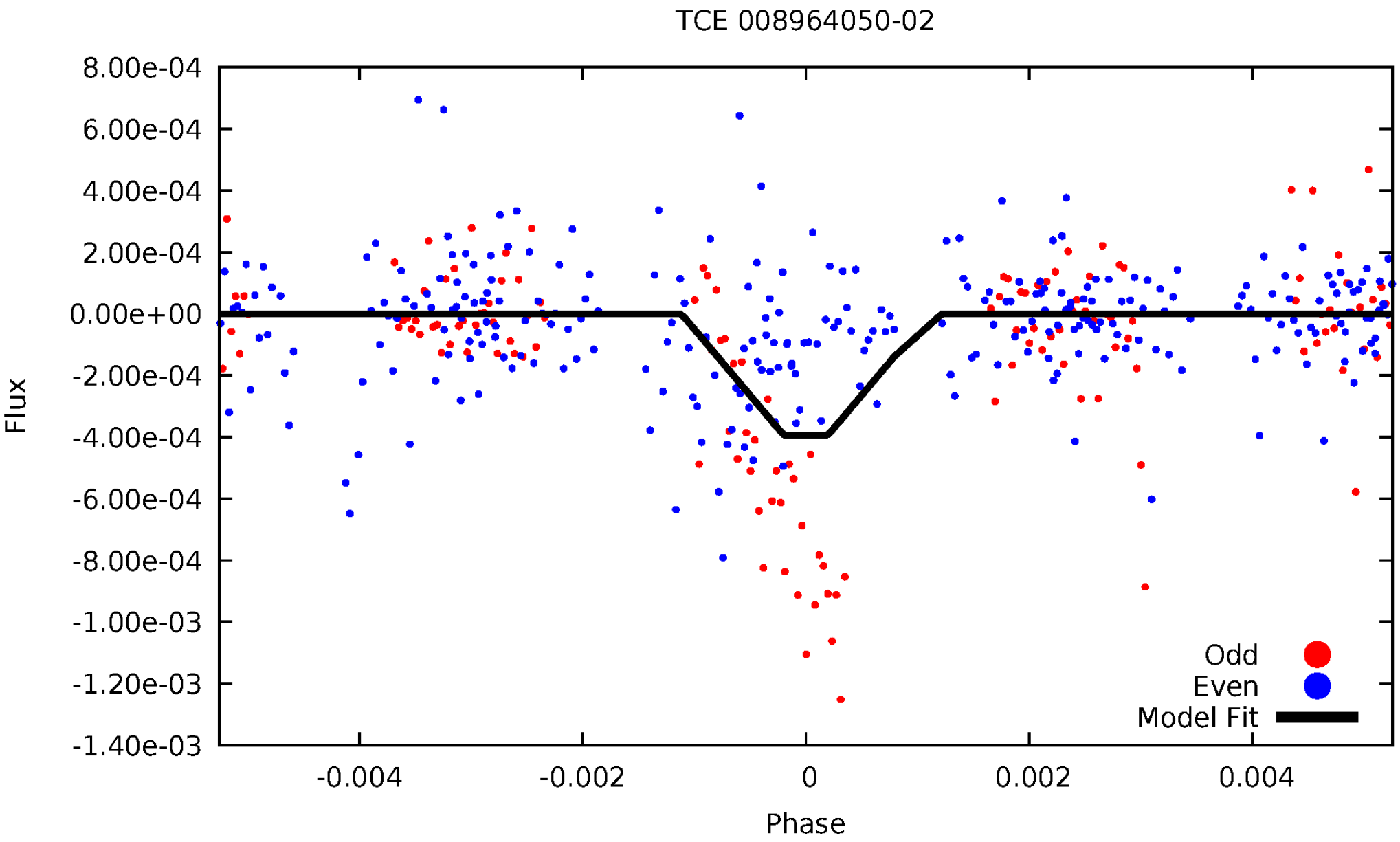
P = 265.809 days
P = 531.618 days
P = 1063.236 days
Normalized Flux
BKJD
Normalized Flux
Phase

DV Odd/Even


TCE 008964050-02
1.50e-03
1.00e-03
5.00e-04
0.00e+00
-5.00e-04
-1.00e-03
Flux
-0.003
-0.002
-0.001
0
0.001
0.002
0.003
Phase
Odd
Even
Model Fit

ALT Odd/Even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6.00e-04
4.00e-04
2.00e-04
0.00e+00
-2.00e-04
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-6.00e-04
-8.00e-04
-1.00e-03
-1.20e-03
-1.40e-03
Flux
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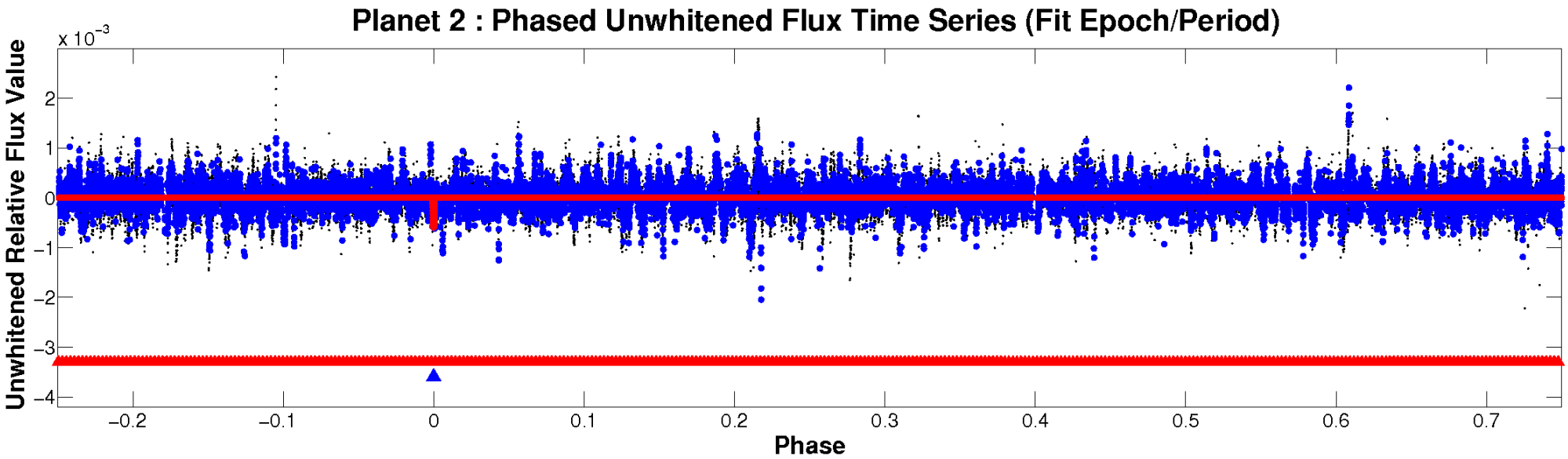
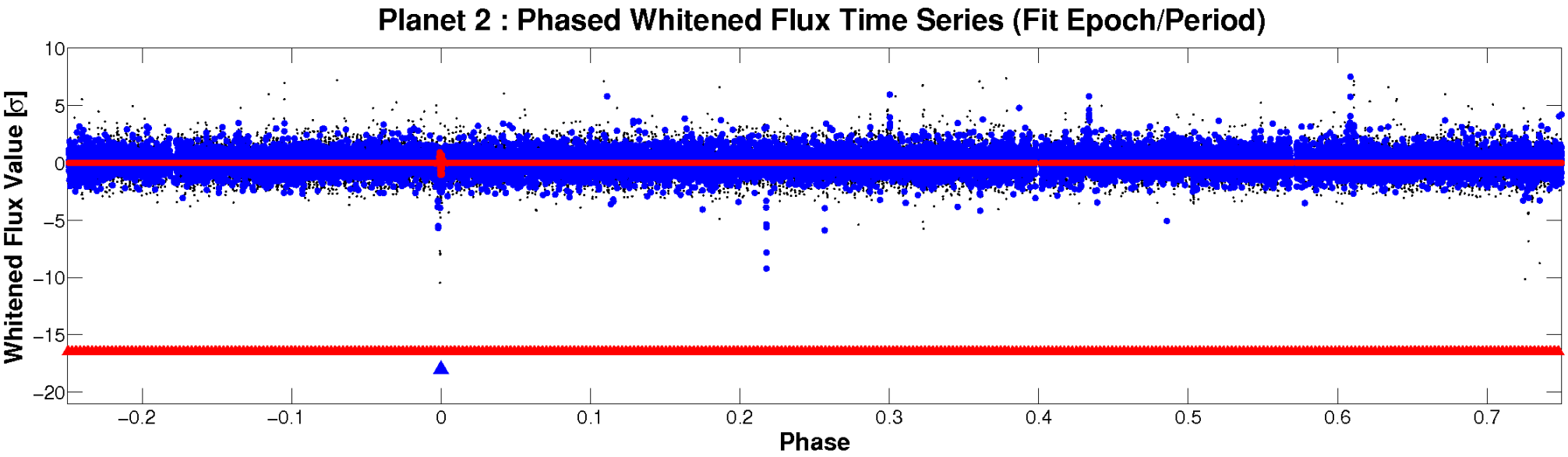
-0.002
0
0.002
0.004
Phase
Odd
Even
Model Fit

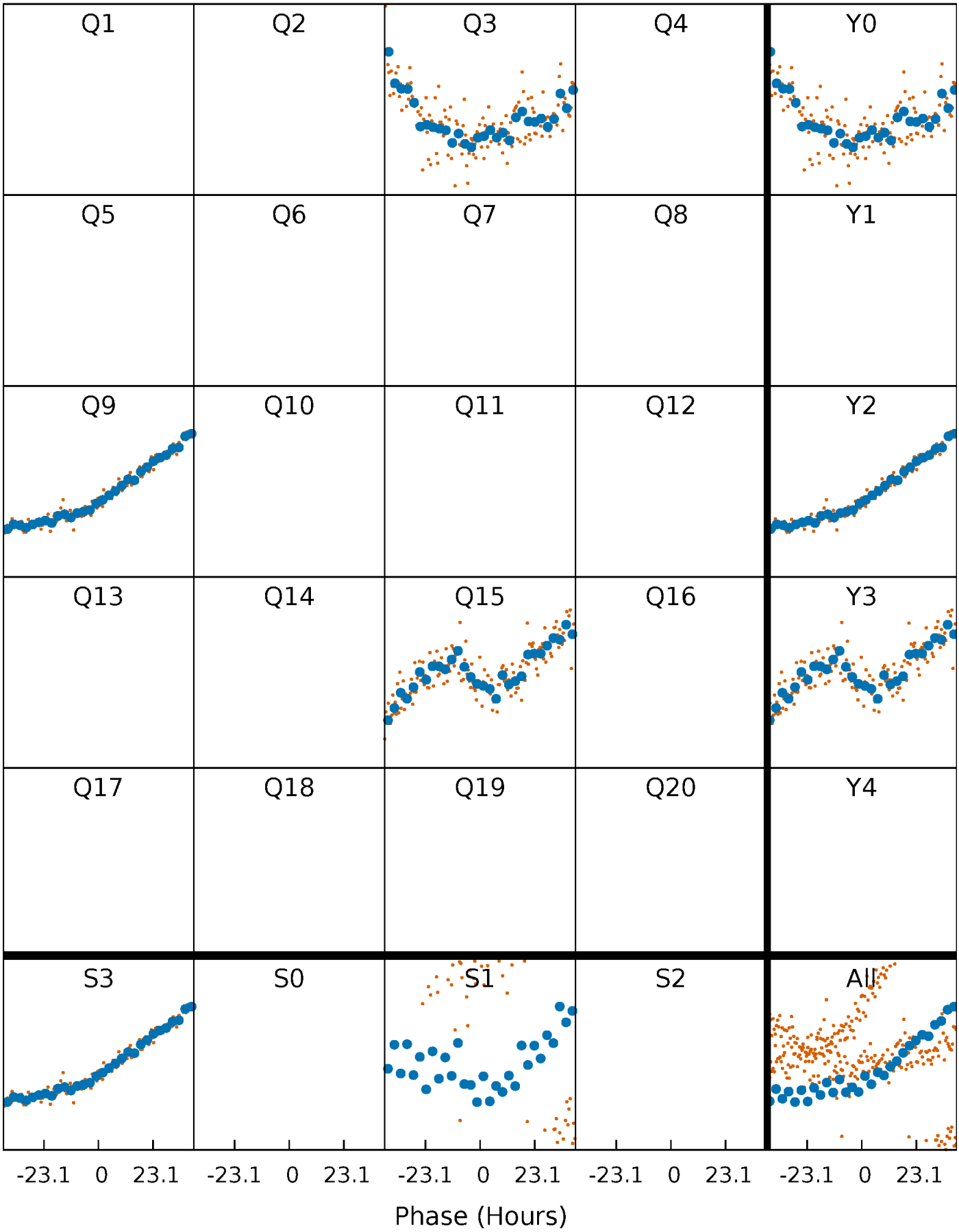
Non-Whitened Vs. Whitened Light Curve





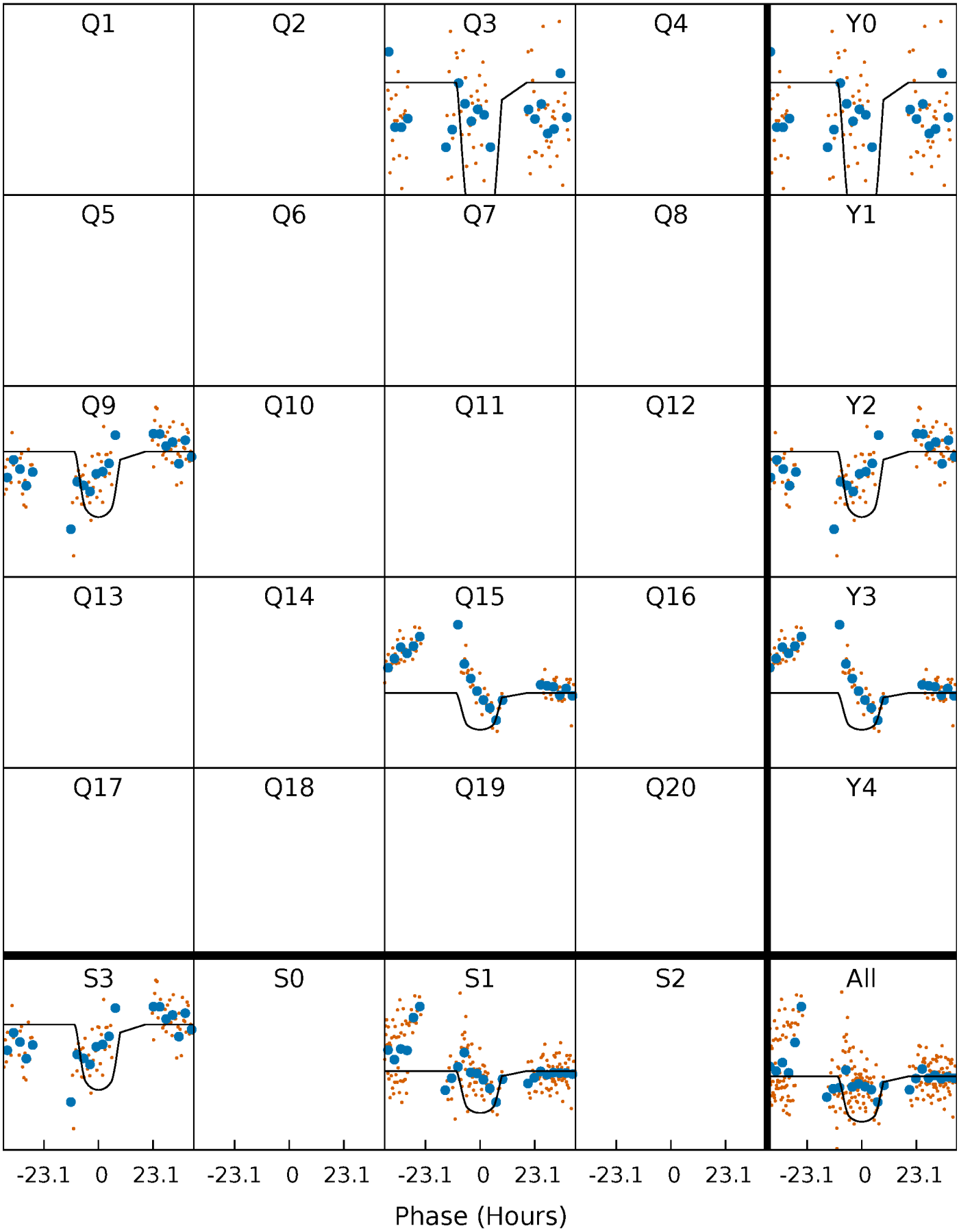
PDC Quarter-Phased Transit Curves

TCE 008964050-02 P=531.618160 Days T_0=326.419536 (BKJD)



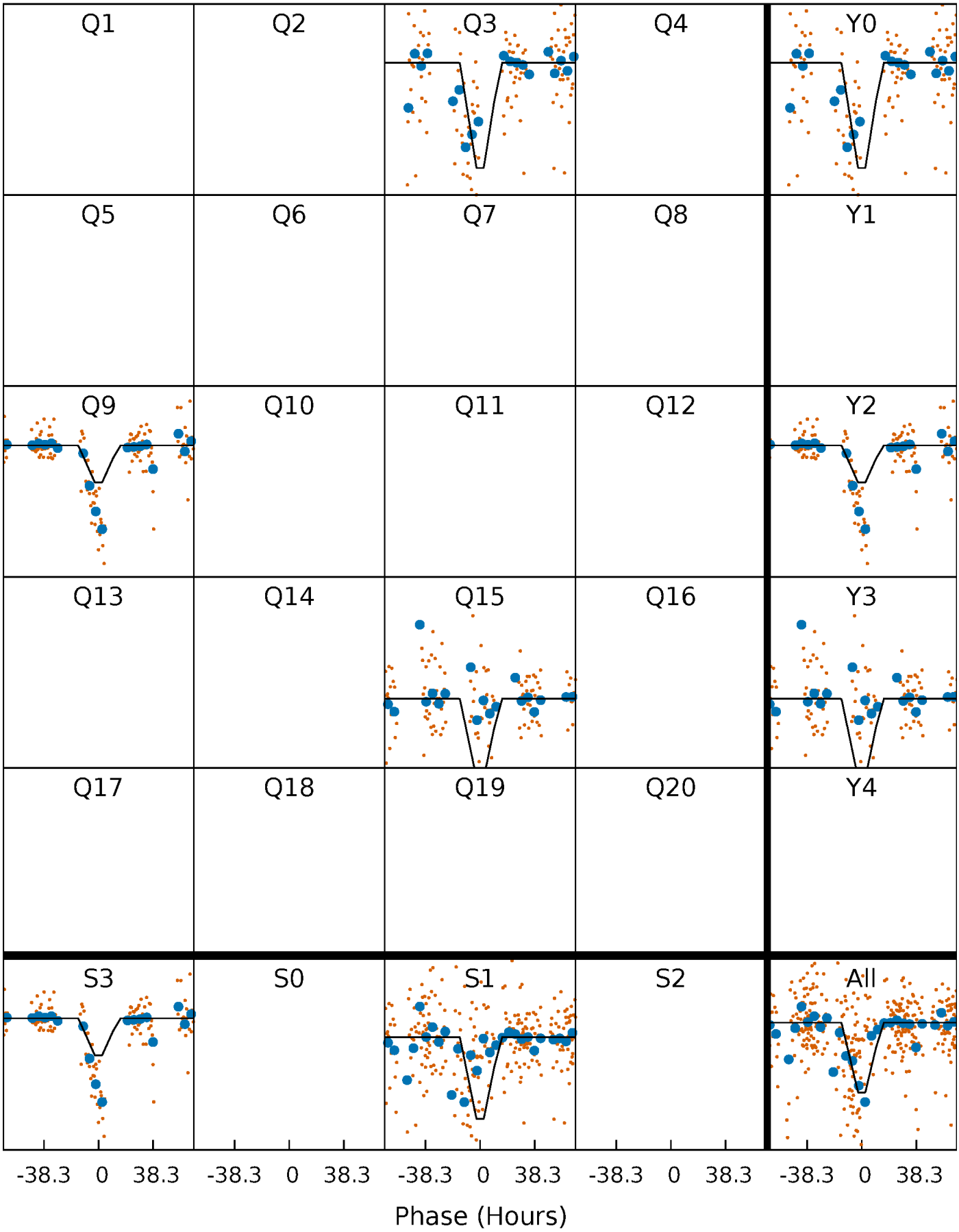
DV Quarter-Phased Transit Curves

TCE 008964050-02 P=531.618160 Days T_0=326.419536 (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

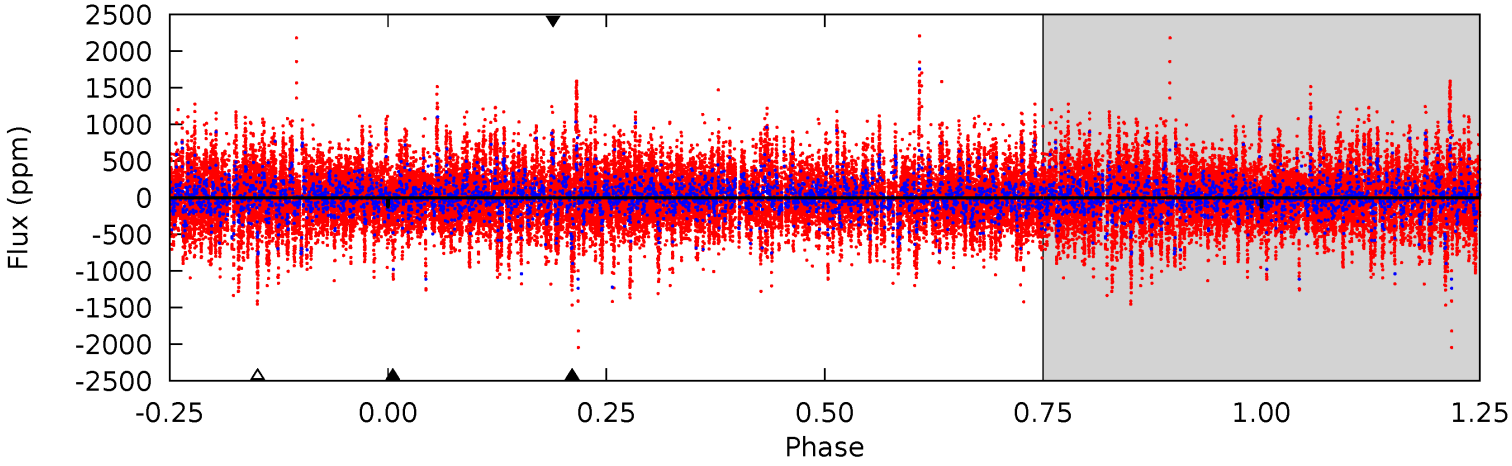
TCE 008964050-02 P=531.510952 Days T_0=326.596459 (BKJD)

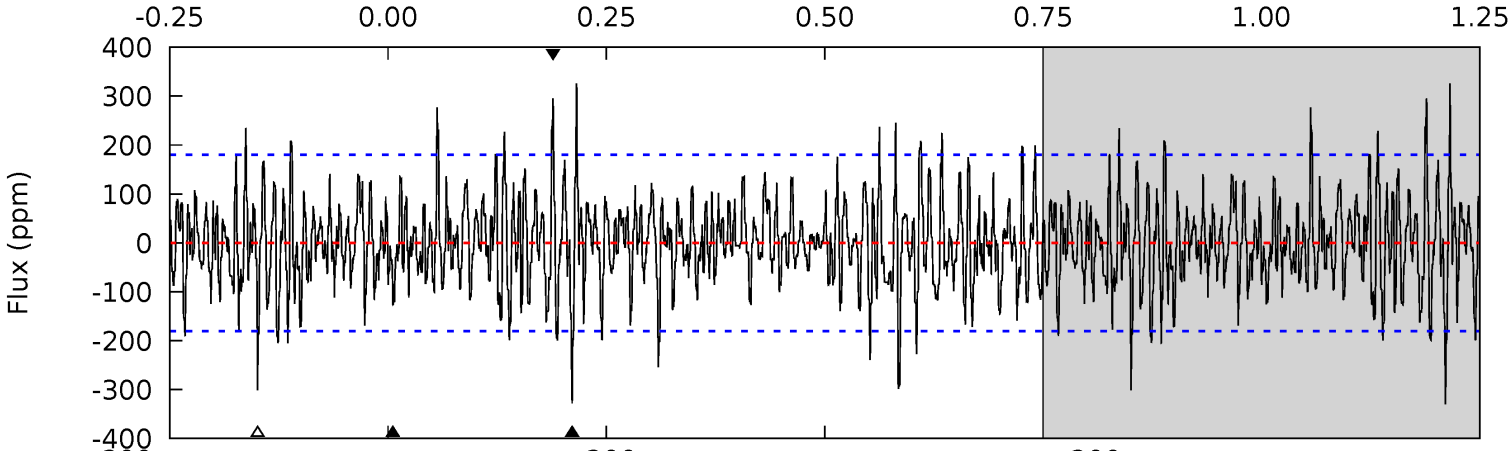


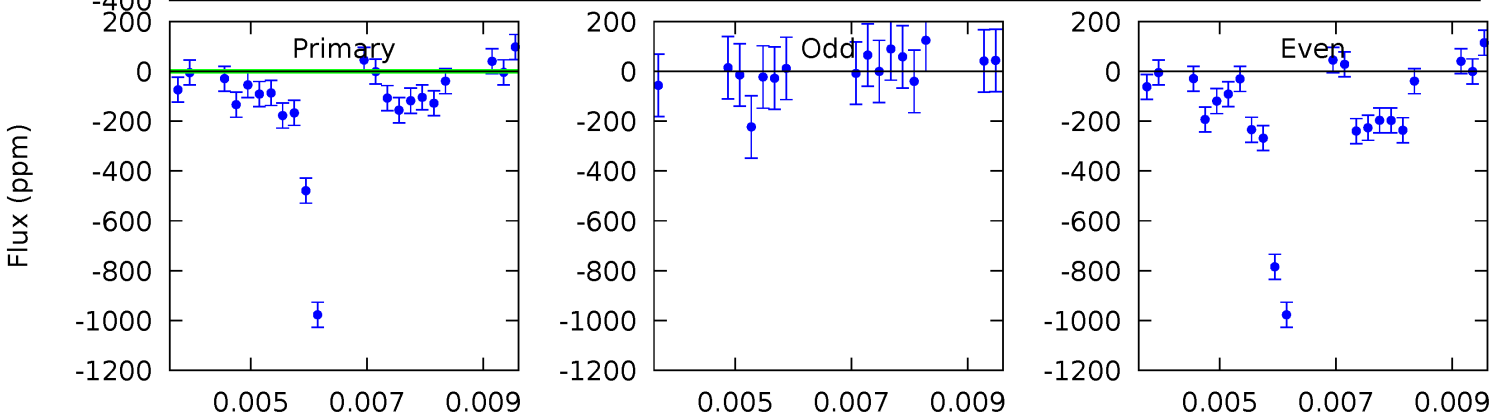
DV Model-Shift Uniqueness Test

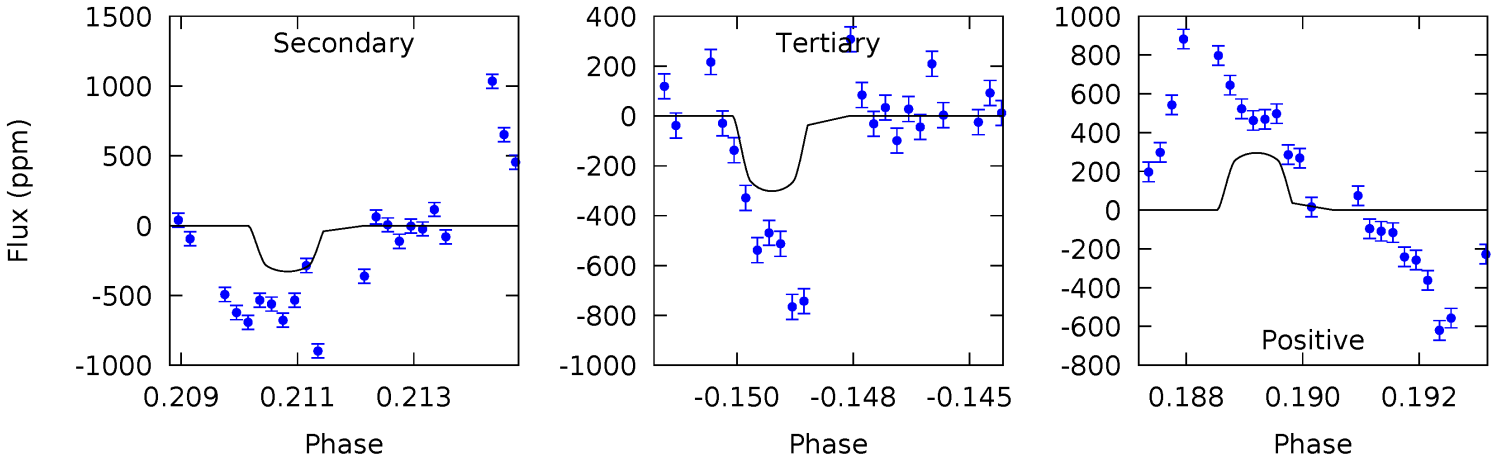
008964050-02, P = 531.618160 Days, E = 326.419536 Days

Pri	Sec	Ter	Pos	FA_1	FA_2	F_{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
3.70	9.65	8.86	8.67	5.30	3.04	2.37	-5.17	-4.98	0.79	0.98	2.50	0.86	0.50	1.61





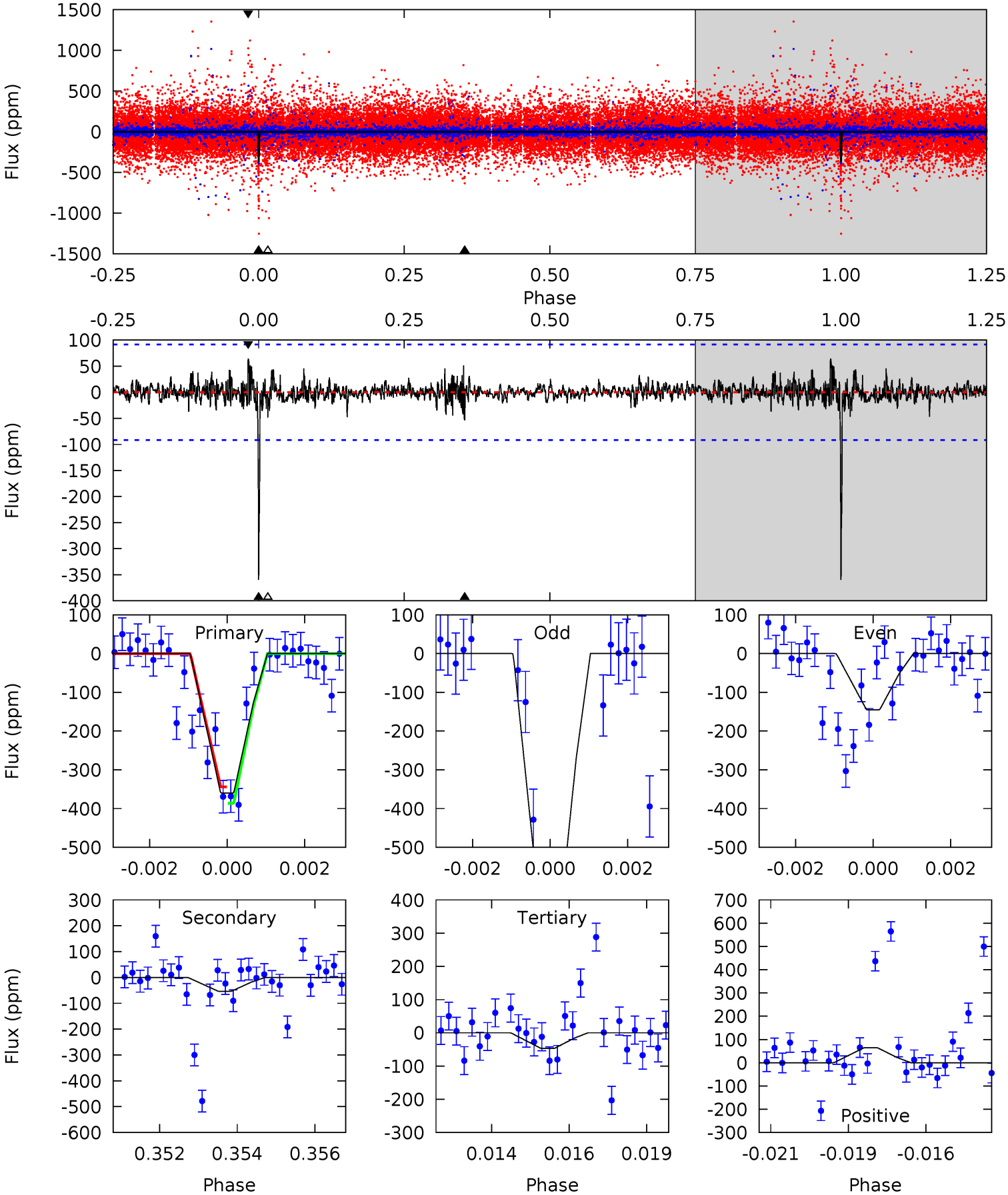




Alt Model-Shift Uniqueness Test

008964050-02, P = 531.510952 Days, E = 326.596459 Days

Pri	Sec	Ter	Pos	FA_1	FA_2	F_{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
20.8	3.09	2.72	3.73	5.30	3.04	0.68	18.1	17.1	0.37	-0.65	17.2	1.07	0.15	1.16



Stellar Parameters For KIC 008964050

	$T_{\rm eff}(K)$	$\log(g)$	[Fe/H]	R ($R_\odot$)	$M(M_\odot)$	$p_\star$ (g·cm^{-3})
	4839^{+145}_{-130}	$4.543^{+0.071}_{-0.058}$	$0.020^{+0.250}_{-0.300}$	$0.761^{+0.059}_{-0.072}$	$0.738^{+0.082}_{-0.054}$	$2.358^{+0.701}_{-0.417}$
	+3%/-3%	+2%/-1%	+1250%/-1500%	+8%/-9%	+11%/-7%	+30%/-18%
Source	PHO1	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 008964050-02 / KOI

Detrend	Depth (ppm)	R_p ($R_\oplus$)	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-328±34	$2.43^{+0.24}_{-0.25}$	242^{+9}_{-9}	4040^{+195}_{-169}	41497^{+11136}_{-7840}
Alt.	-53±17	$1.64^{+0.27}_{-0.25}$	241^{+9}_{-9}	3401^{+240}_{-244}	14867^{+7985}_{-5754}

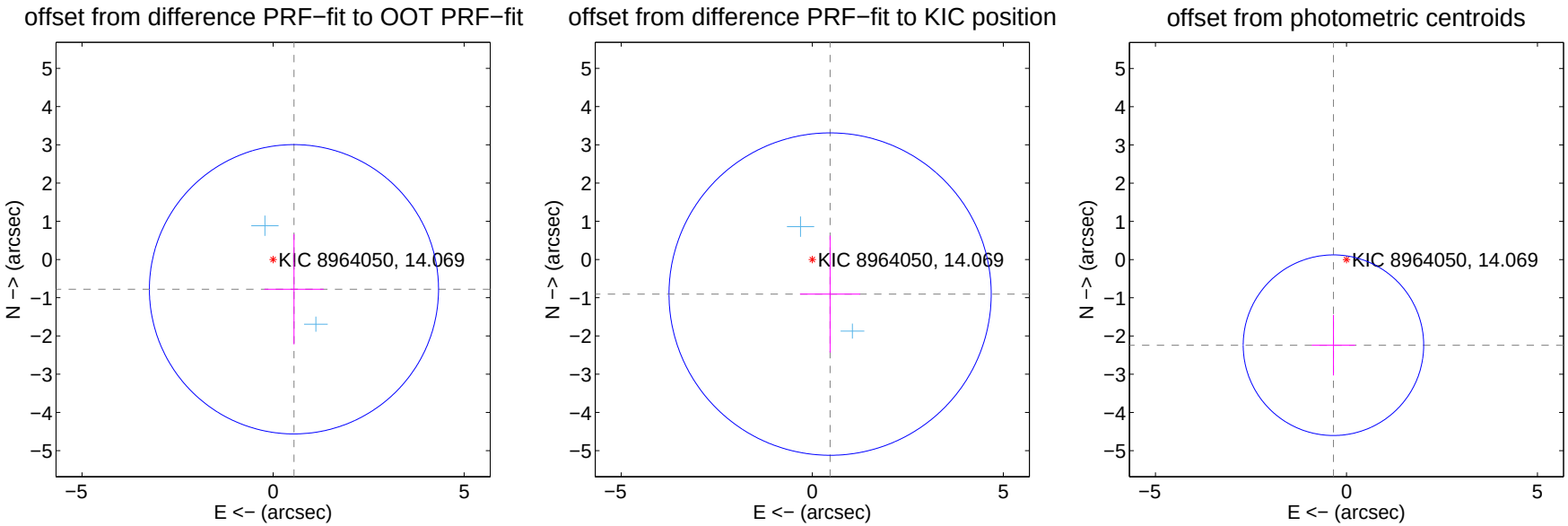
T_{max} = Theoretical Maximum Planetary Temperature
T_{obs} = Observed Planetary Temperature (Assuming A=0.3)
A_{obs} = Observed Albedo (Assuming T=0)

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

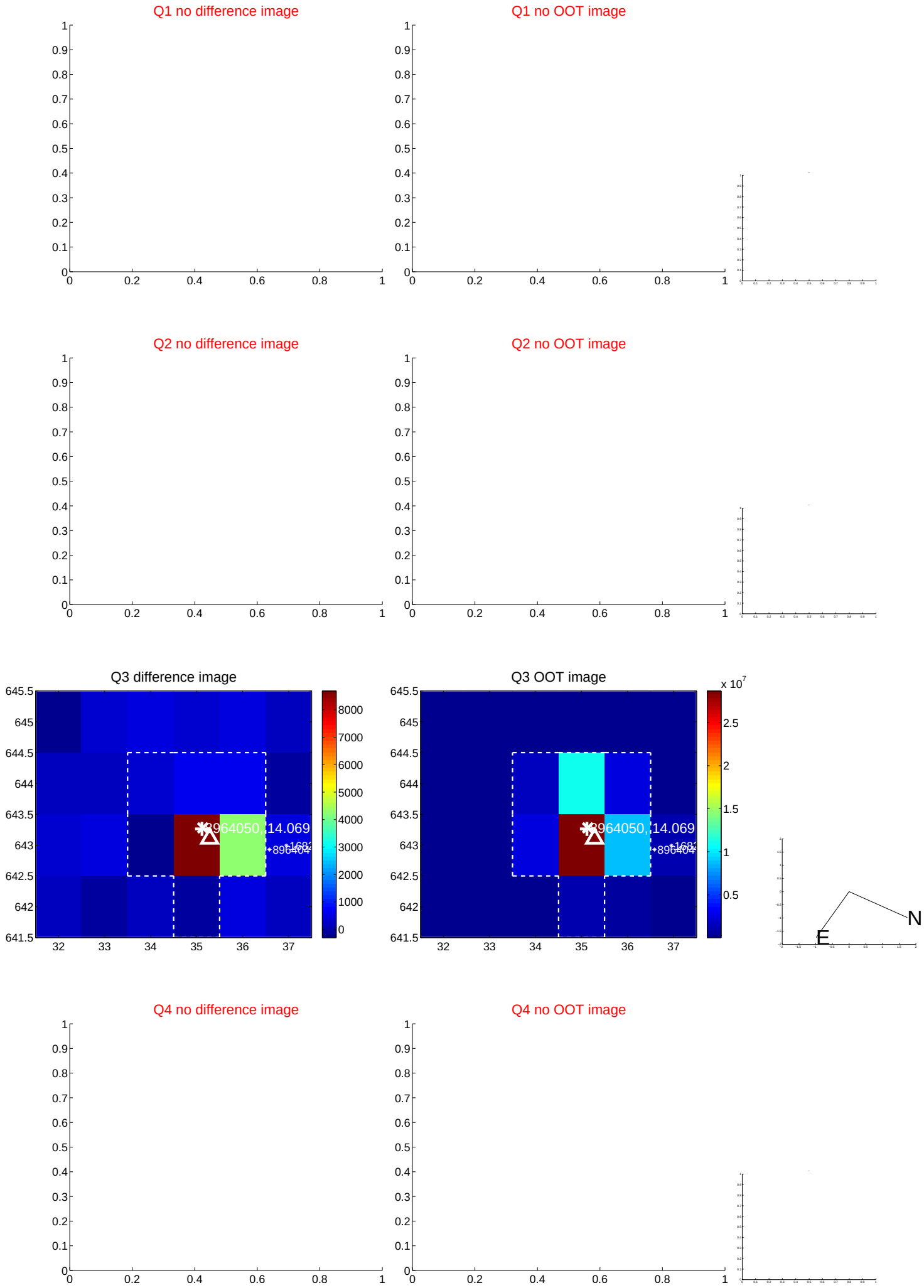
Supplemental centroid analysis for 008964050-02. Kepler magnitude: 14.07. Transit SNR 8.85
There are 2 quarters with good PRF difference image offsets
The direct PRF centroid is offset from the target star catalog position by about 0.19 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.951 ± 1.261	0.75	-0.546 ± 0.775	-0.779 ± 1.441
PRF-fit source offset from KIC position	1.018 ± 1.405	0.72	-0.467 ± 0.788	-0.904 ± 1.528
photometric centroid source offset	2.27 ± 0.79	2.88	0.34 ± 0.57	-2.24 ± 0.79

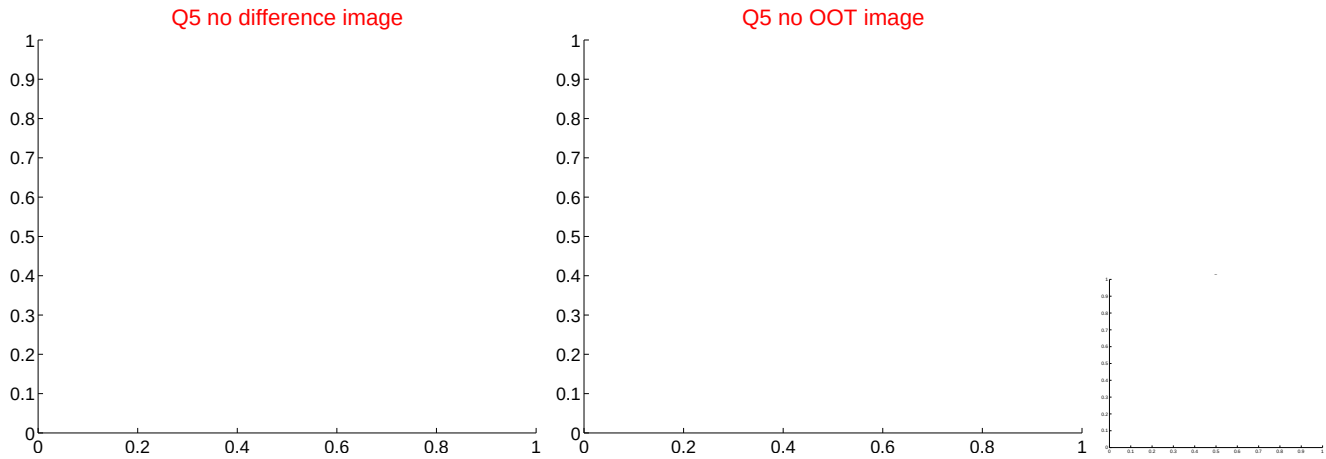


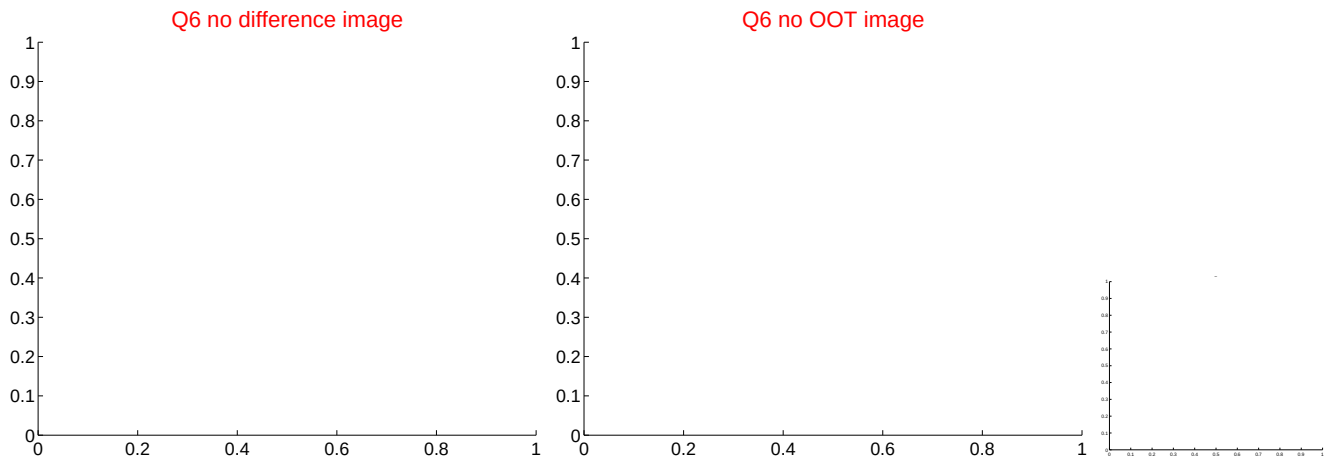
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one-σ uncertainty. Blue circle: three-σ. Red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

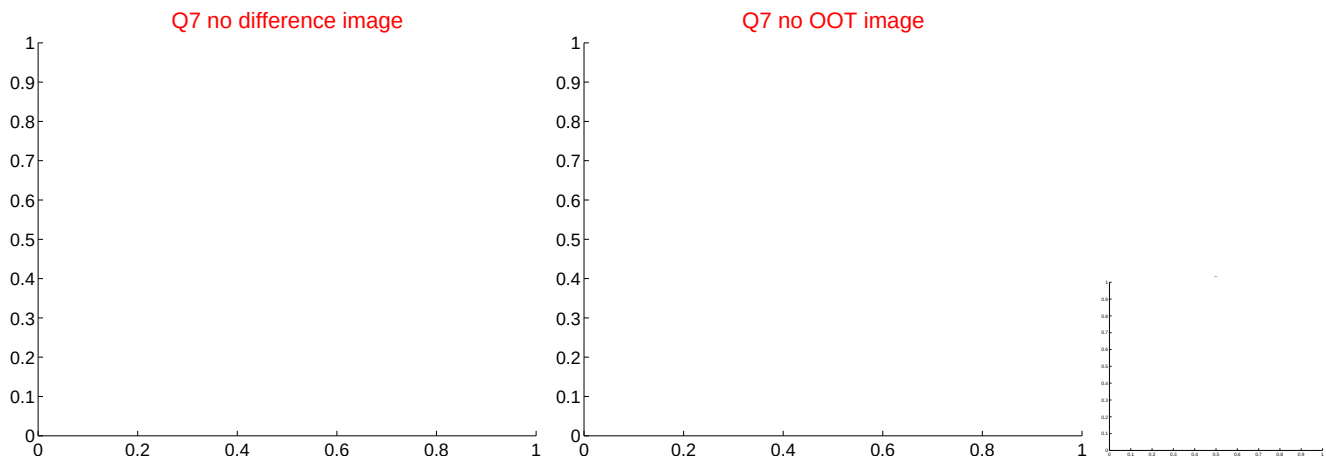
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.

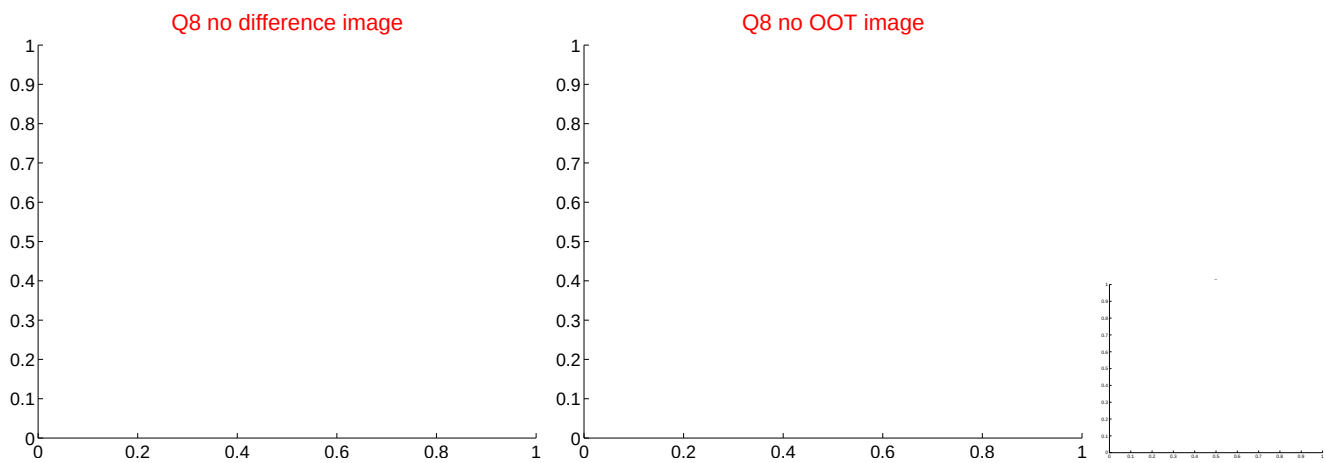


white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.

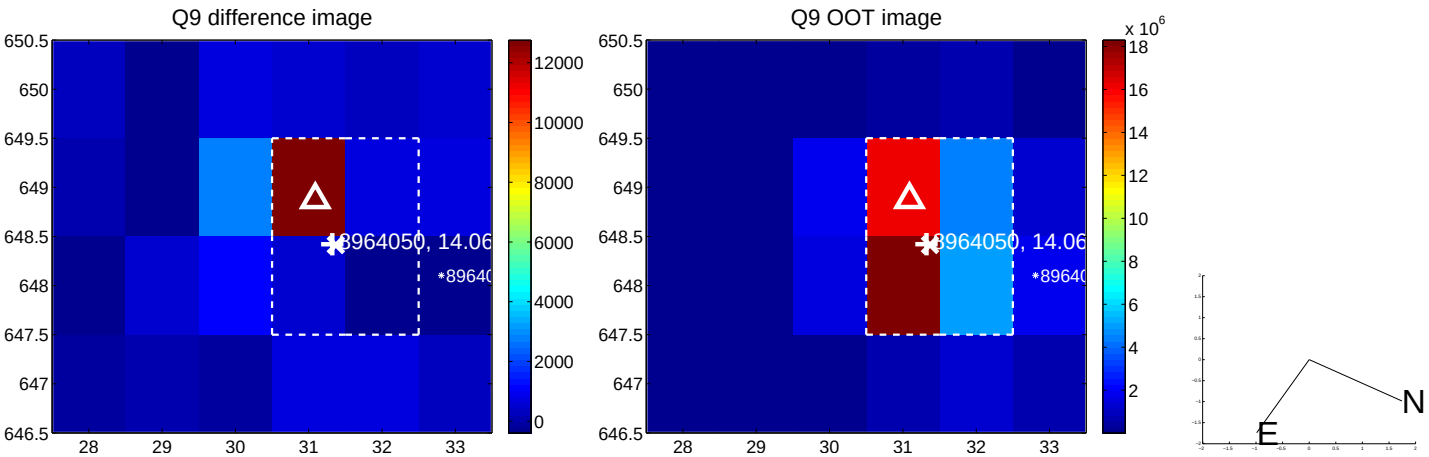


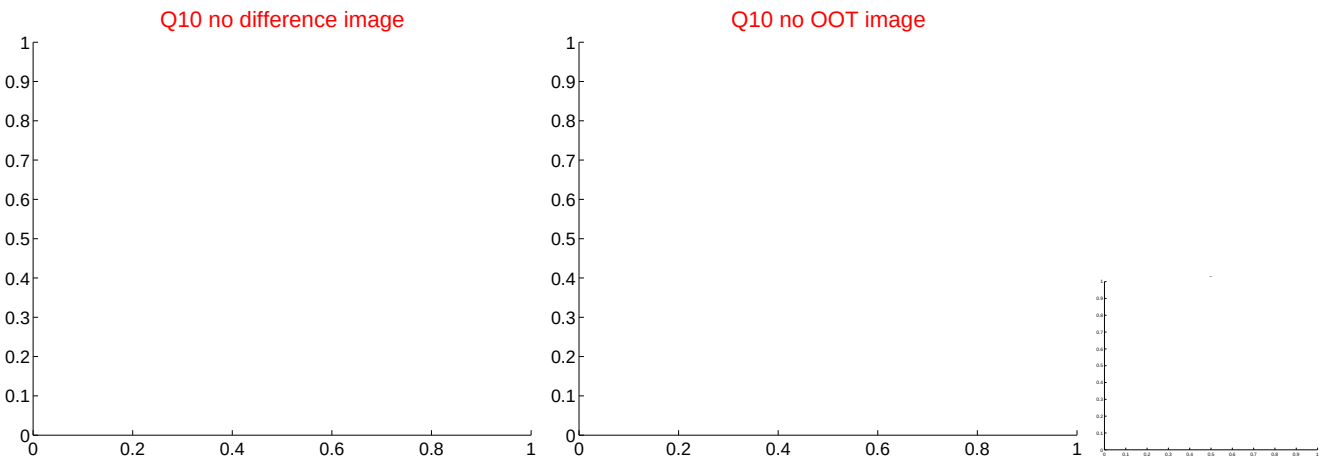


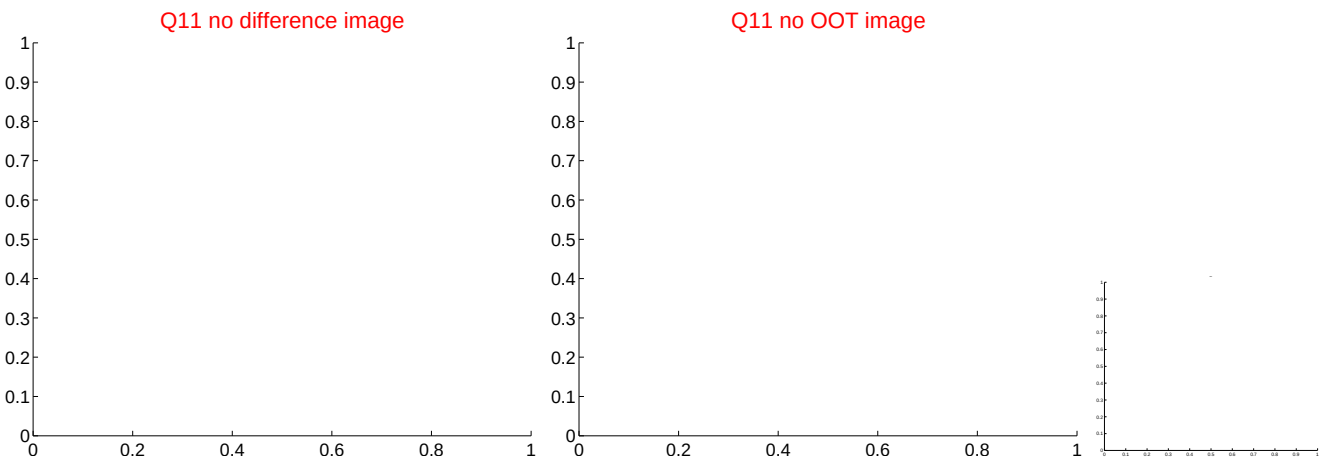


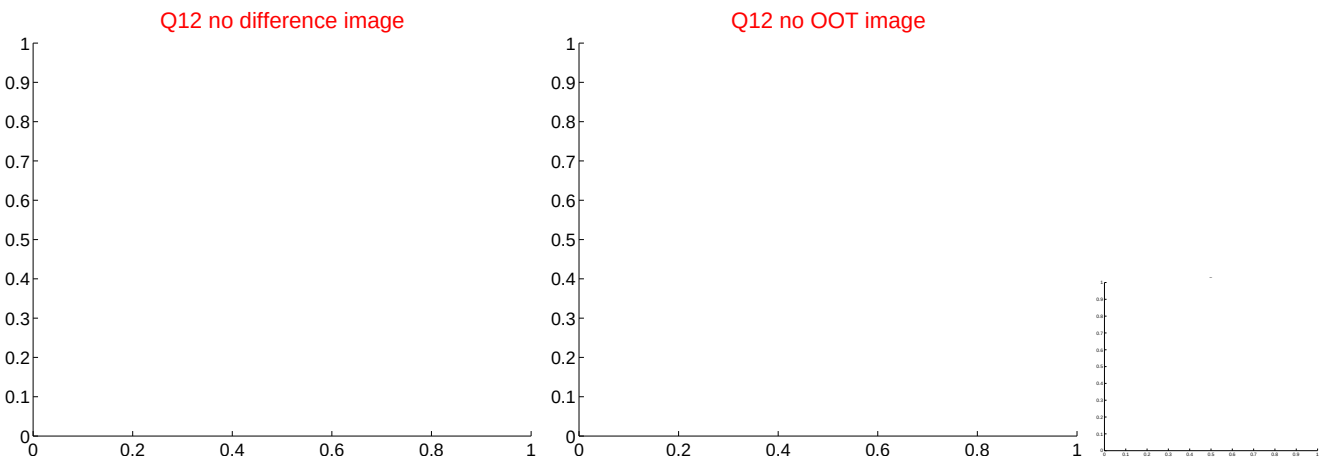


white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.

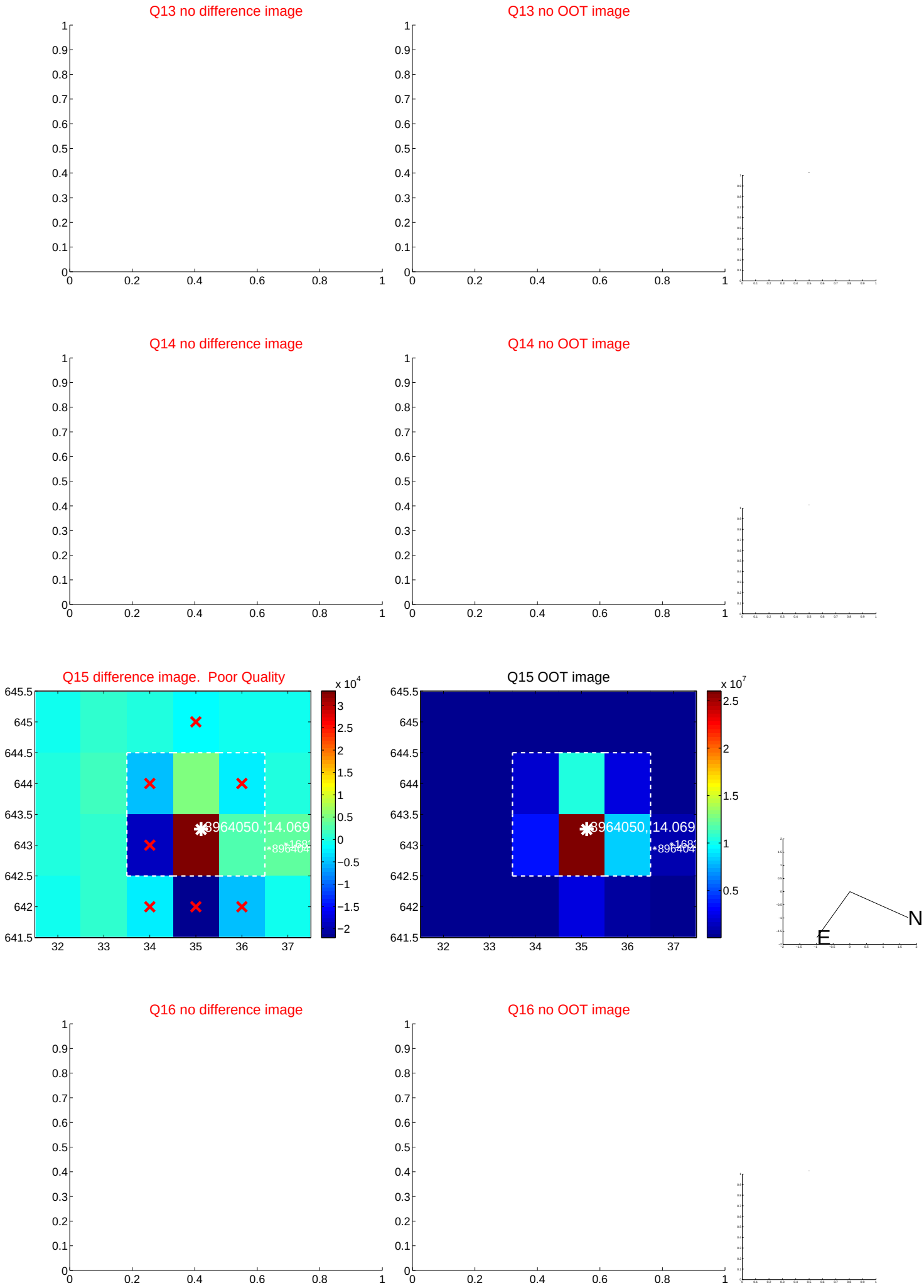




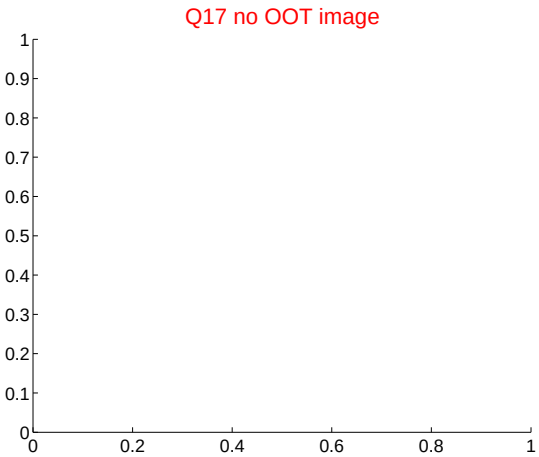


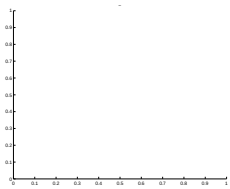


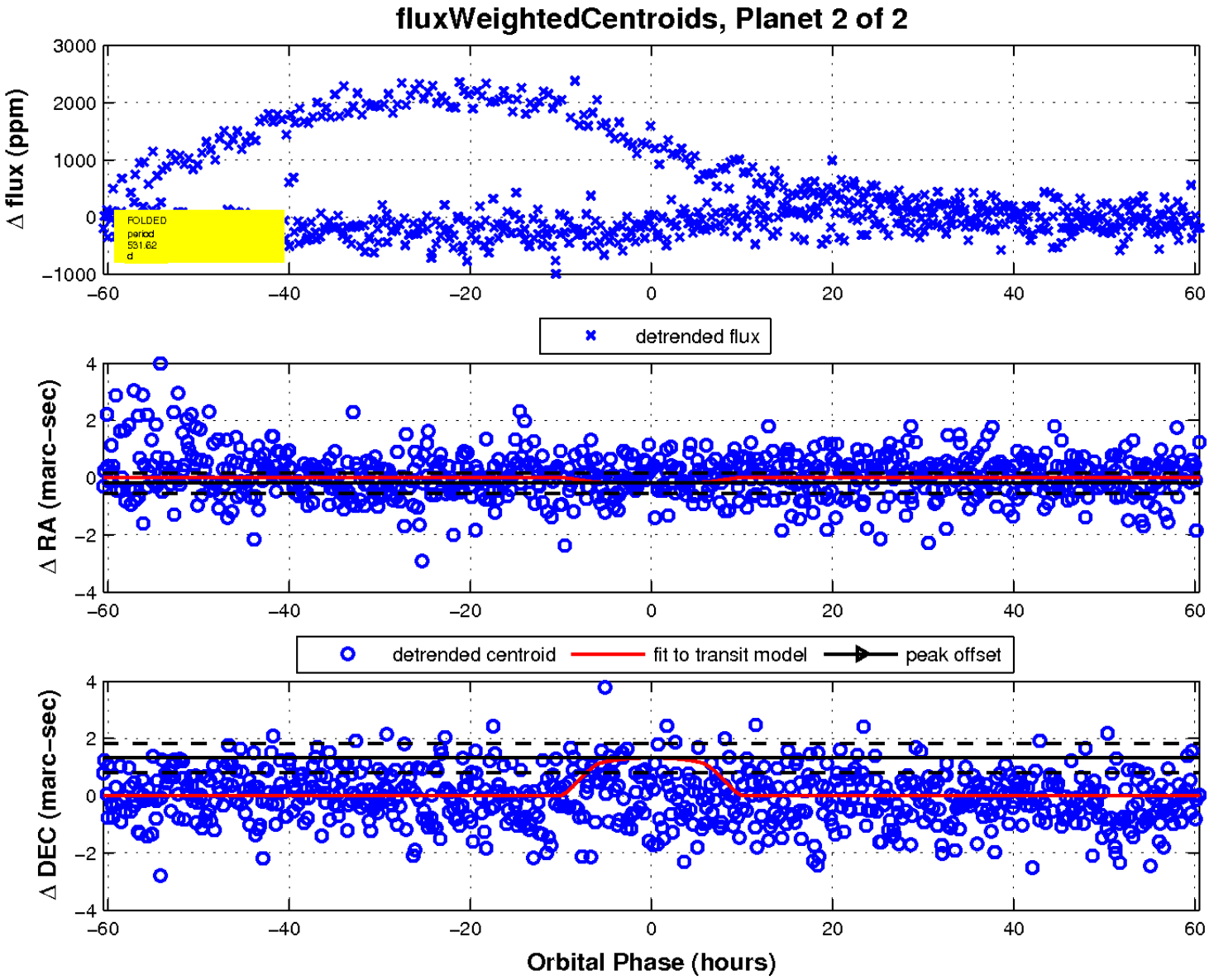
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.



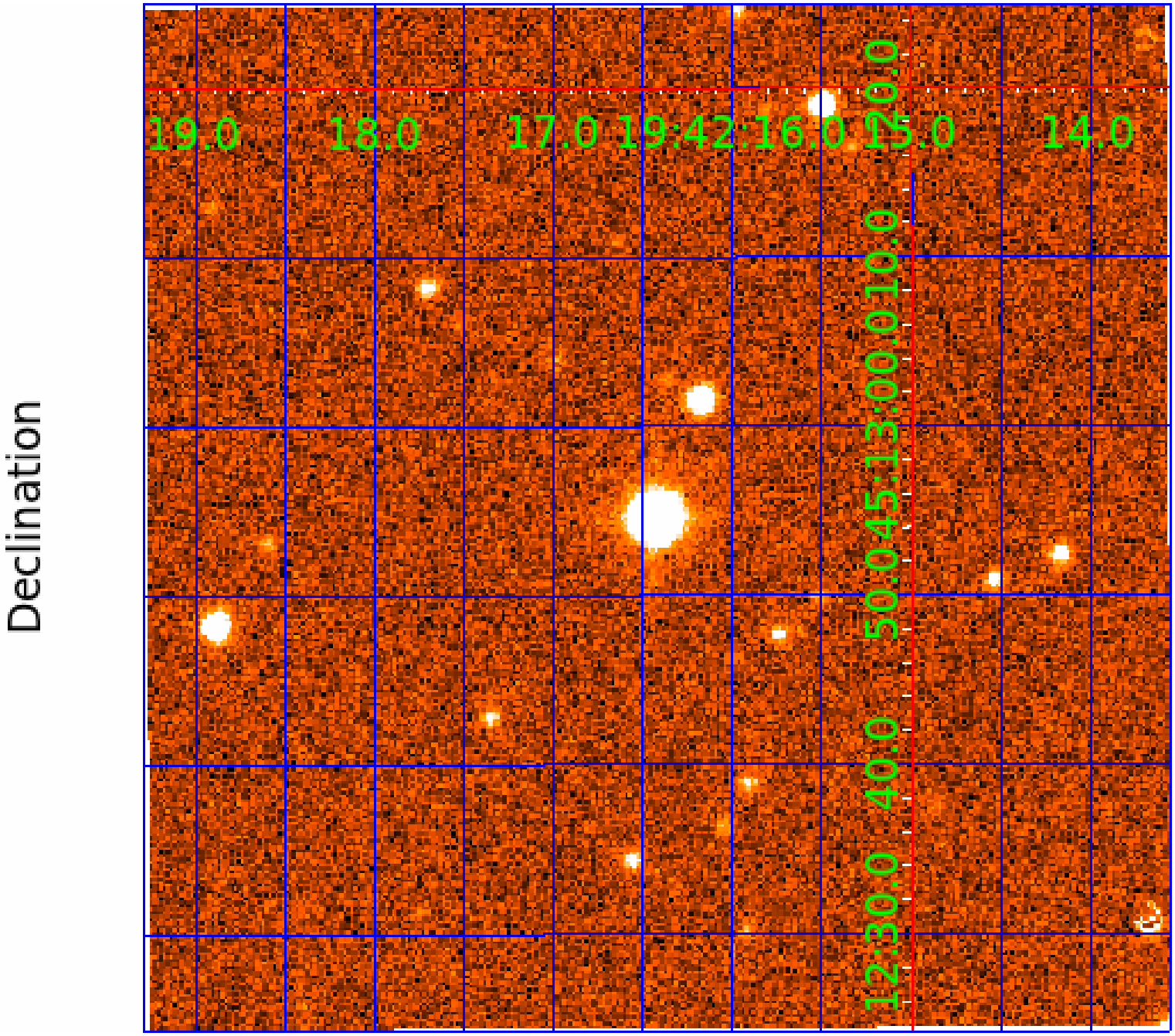
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.







UKIRT Image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