KIC 006593734

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 ($S_\oplus$)
006593734-01	OBS	4722.01	0.586751	131.758460	96.8	0.994	10.3	12.7	0.94	5942	1.10	5122.57
006593734-02	OBS	No	0.586746	132.050021	55.0	1.123	8.1	8.1	0.94	5942	0.83	5122.64

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
006593734-01	OBS	FP	0.00	1	0	1	0	MOD_NONUNIQ_ALT—CENT_RESOLVED_OFFSET
006593734-02	OBS	FP	0.00	1	0	1	0	LPP_DV—MOD_NONUNIQ_ALT—SAME_NTL_PERIOD—CENT_RESOLVED_OFFSET

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.

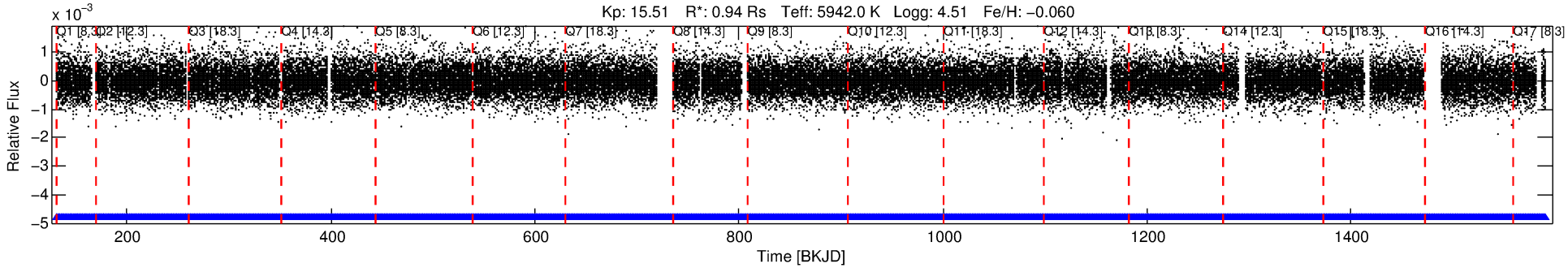
Ephemeris Match Information For 006593734-01

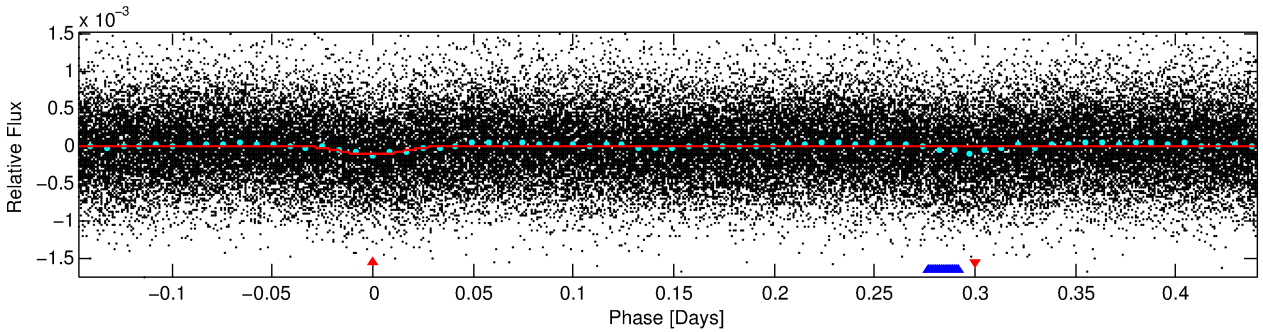
No Significant Match Found

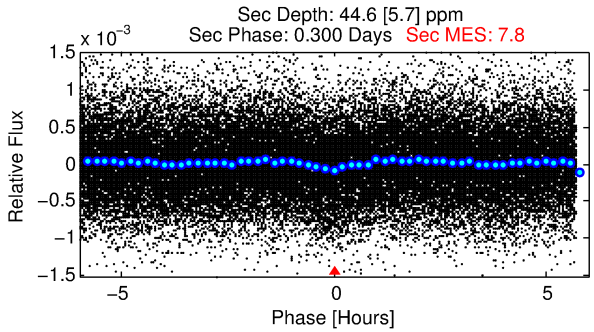
DV One-Page Summary

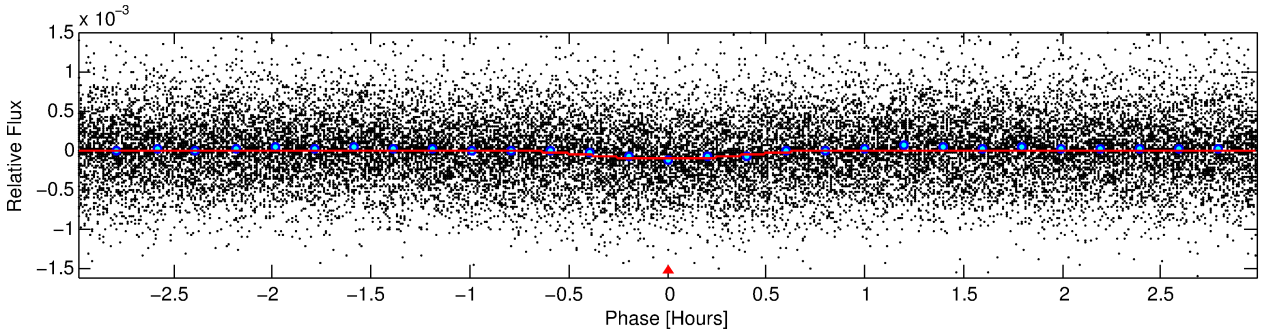
KIC: 6593734 Candidate: 1 of 2 Period: 0.587 d
KOI: K04722.01 Corr: 0.758

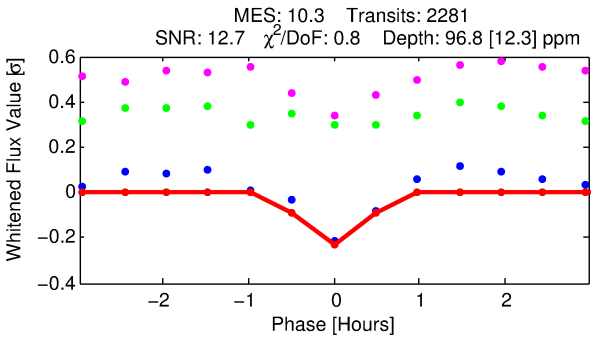
Kp: 15.51 R*: 0.94 Rs Teff: 5942.0 K Logg: 4.51 Fe/H: −0.060

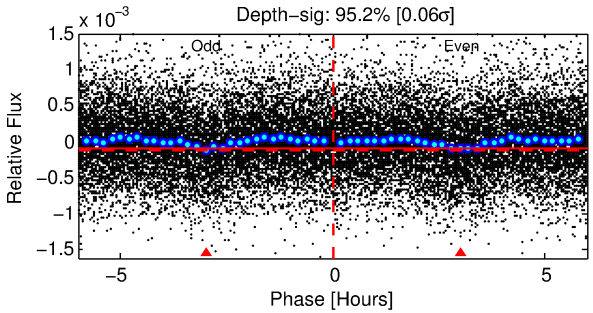


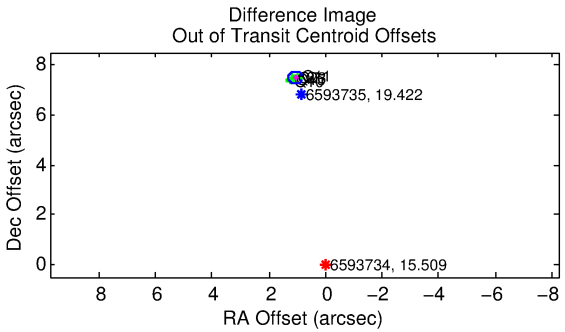












DV Fit Results:

Period = 0.58675 [0.00001] d
Epoch = 131.7585 [0.0014] BKJD
Rp/R* = 0.0108 [0.0050]
a/R* = 2.27 [4.21]
b = 0.90 [0.49]

Seff = 5122.57 [1813.43]
Teq = 2157 [191] K
Rp = 1.10 [0.58] Re
a = 0.0139 [0.0030] AU

Ag = 3.88 [3.83] [0.75σ]
Teffp = 4681 [1099] K [2.26σ]

DV Diagnostic Results:

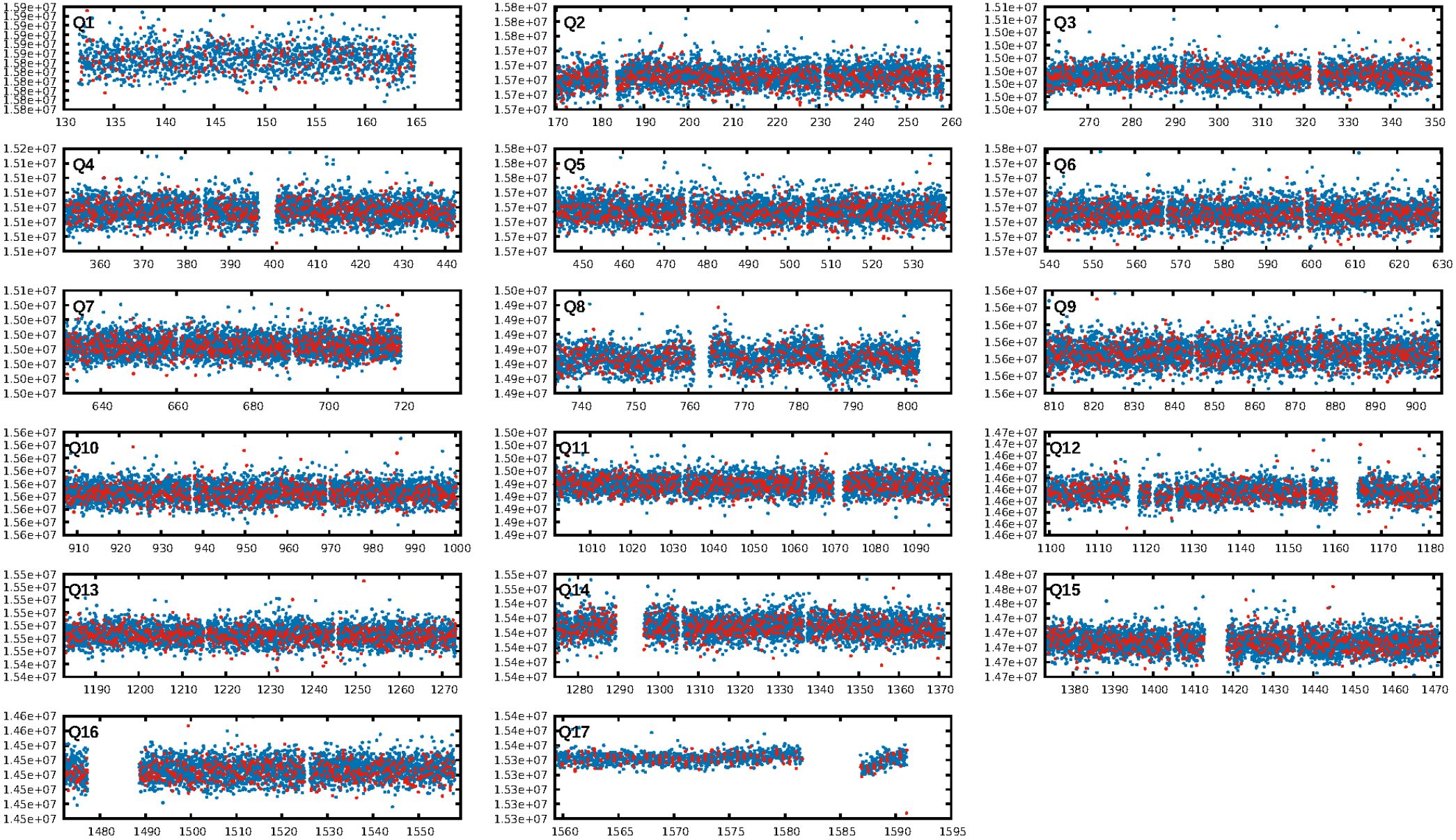
ShortPeriod−sig: 0.0% [0.00σ]
LongPeriod−sig: N/A
ModelChiSquare2−sig: N/A
ModelChiSquareGof−sig: N/A
Bootstrap−pfa: 2.33e−23
RollingBand−fgt: 1.00 [2177/2177]
GhostDiagnostic−chr: −1.134

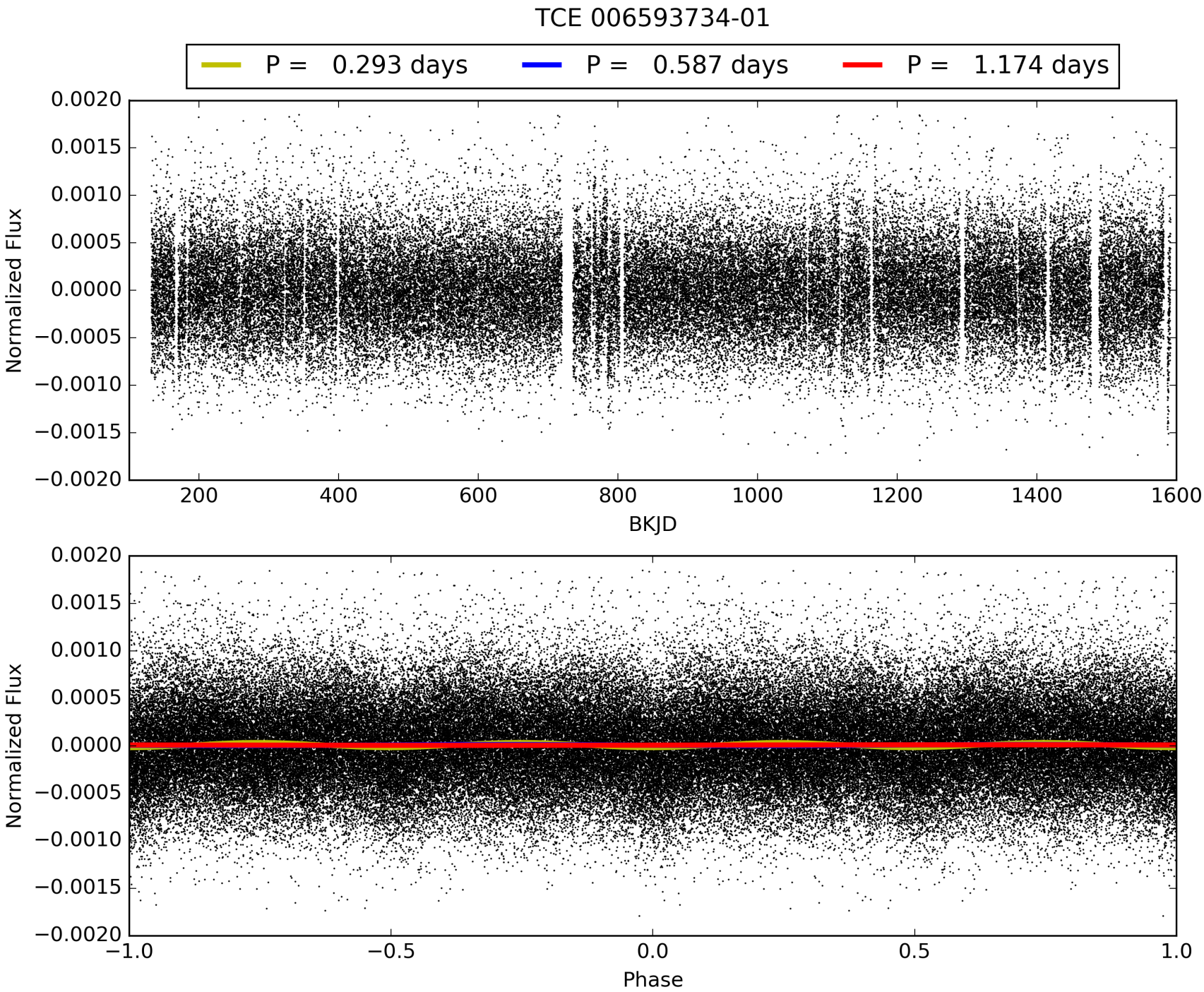
Centroid−sig: 0.0%
Centroid−so: 8.109 arcsec [6.75σ]
OotOffset−rm: 7.560 arcsec [90.17σ]
KicOffset−rm: 7.474 arcsec [89.14σ]
OotOffset−st: 1/4/0/0 [5]
KicOffset−st: 1/4/0/0 [5]
DiffImageQuality−fgm: 1.00 [5/5]
DiffImageOverlap−fno: 1.00 [17/17]

Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01−Feb−2016 06:40:31 Z

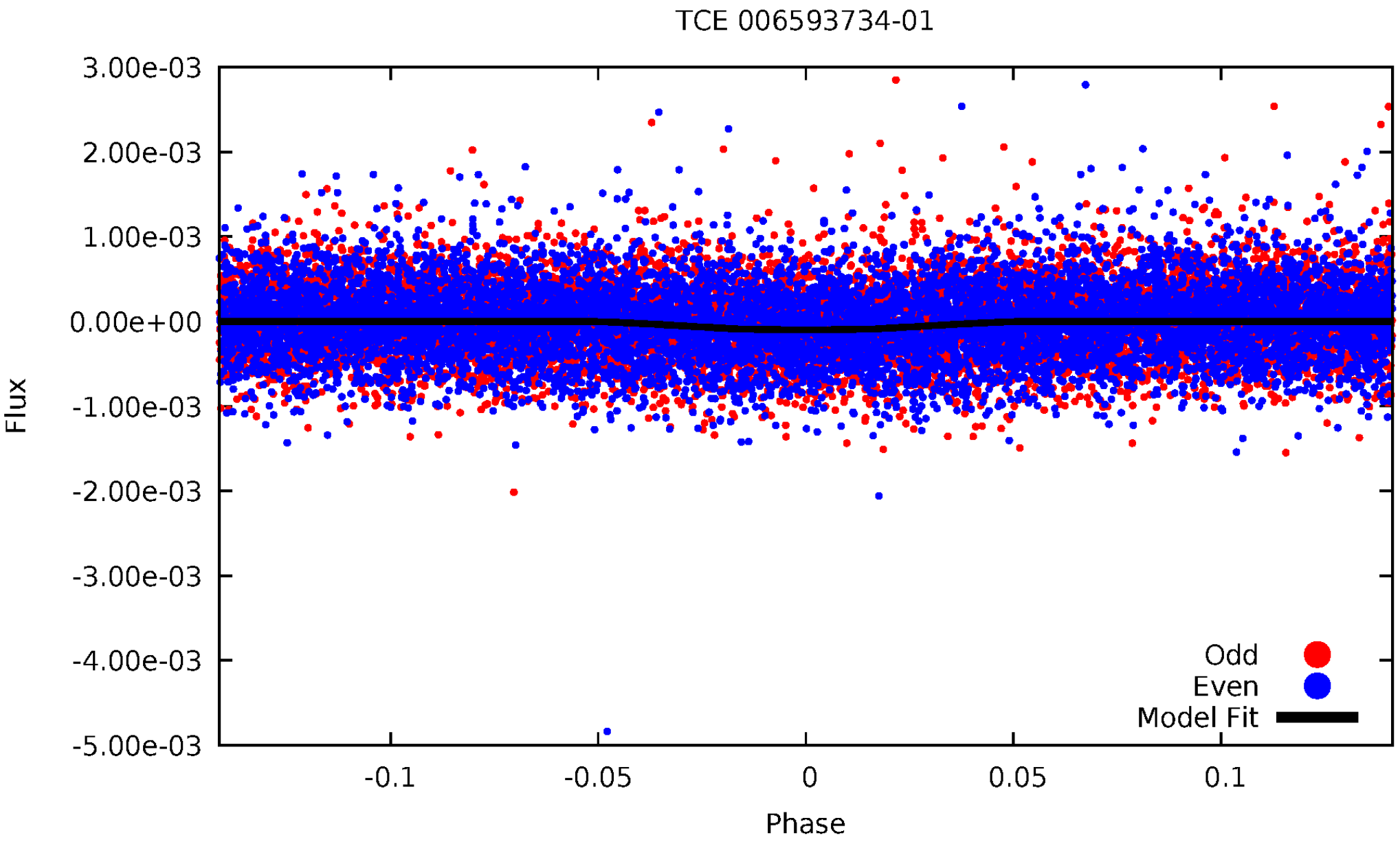
This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

TCE 006593734-01, PDC Light Curves

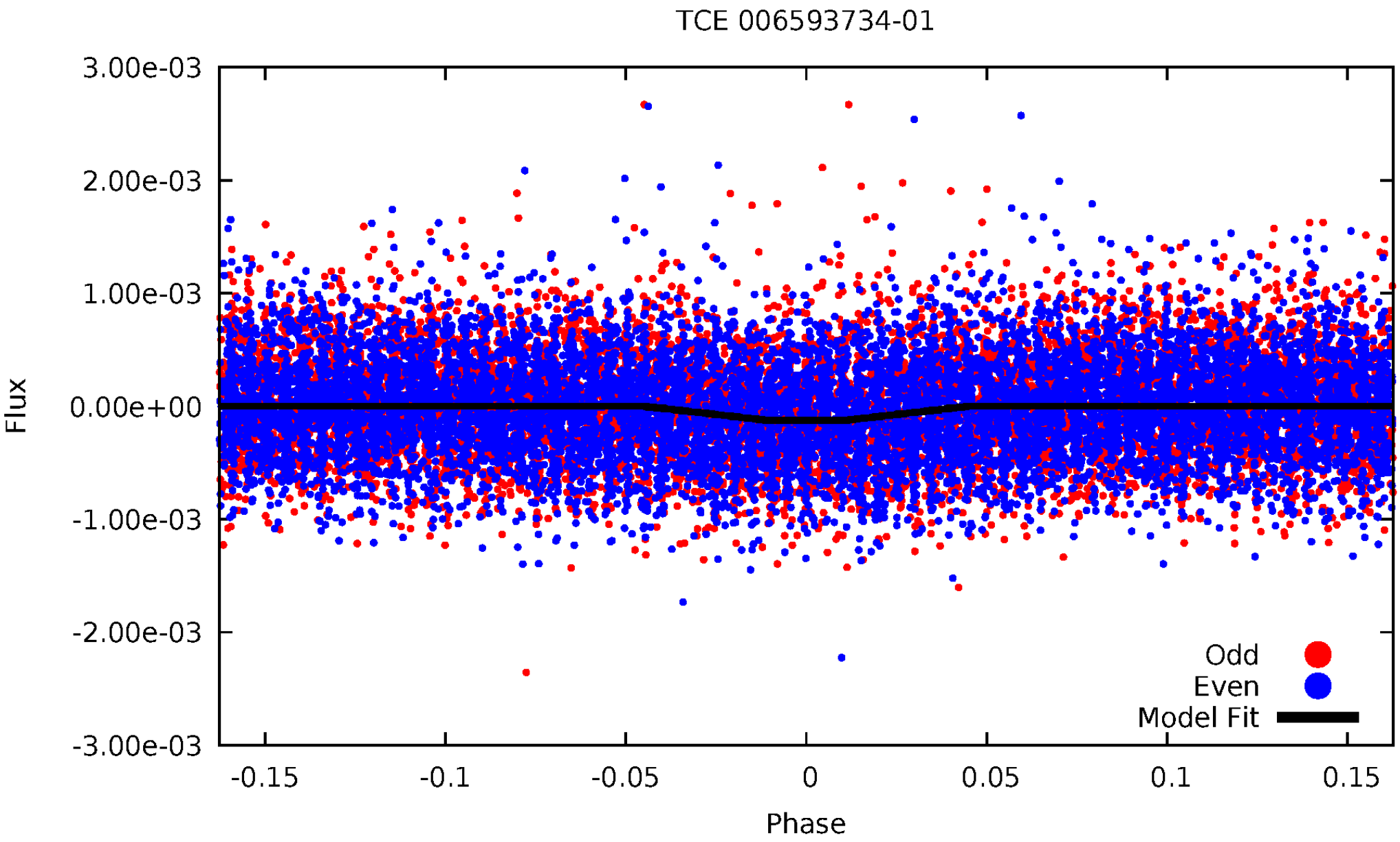



TCE 006593734-01
P = 0.293 days
P = 0.587 days
P = 1.174 days
Normalized Flux
BKJD
Normalized Flux
Phase

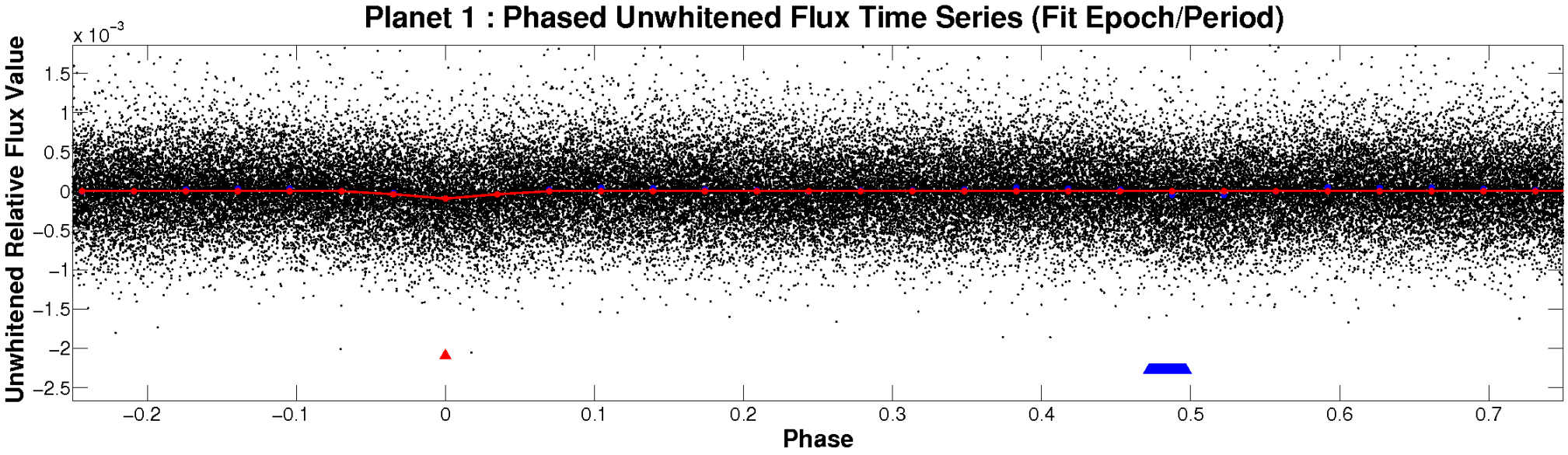
DV Odd/Even

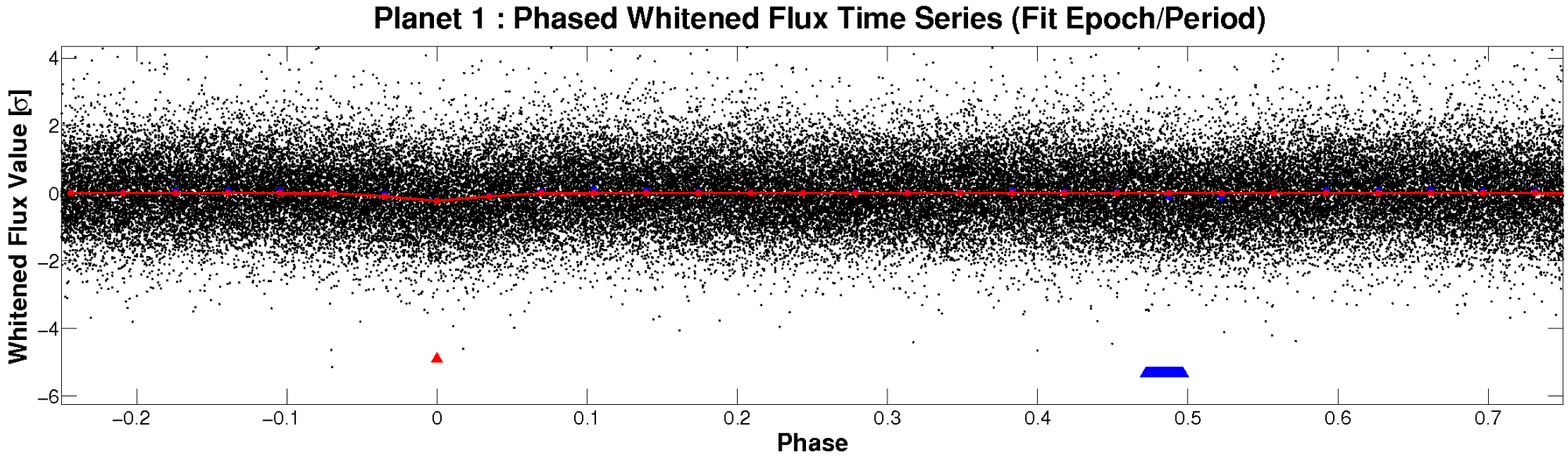

TCE 006593734-01
3.00e-03
2.00e-03
1.00e-03
0.00e+00
-1.00e-03
-2.00e-03
-3.00e-03
-4.00e-03
-5.00e-03
Flux
-0.1
-0.05
0
0.05
0.1
Phase
Odd
Even
Model Fit

ALT Odd/Even


TCE 006593734-01
3.00e-03
2.00e-03
1.00e-03
0.00e+00
-1.00e-03
-2.00e-03
-3.00e-03
Flux
-0.15
-0.1
-0.05
0
0.05
0.1
0.15
Phase
Odd
Even
Model Fit

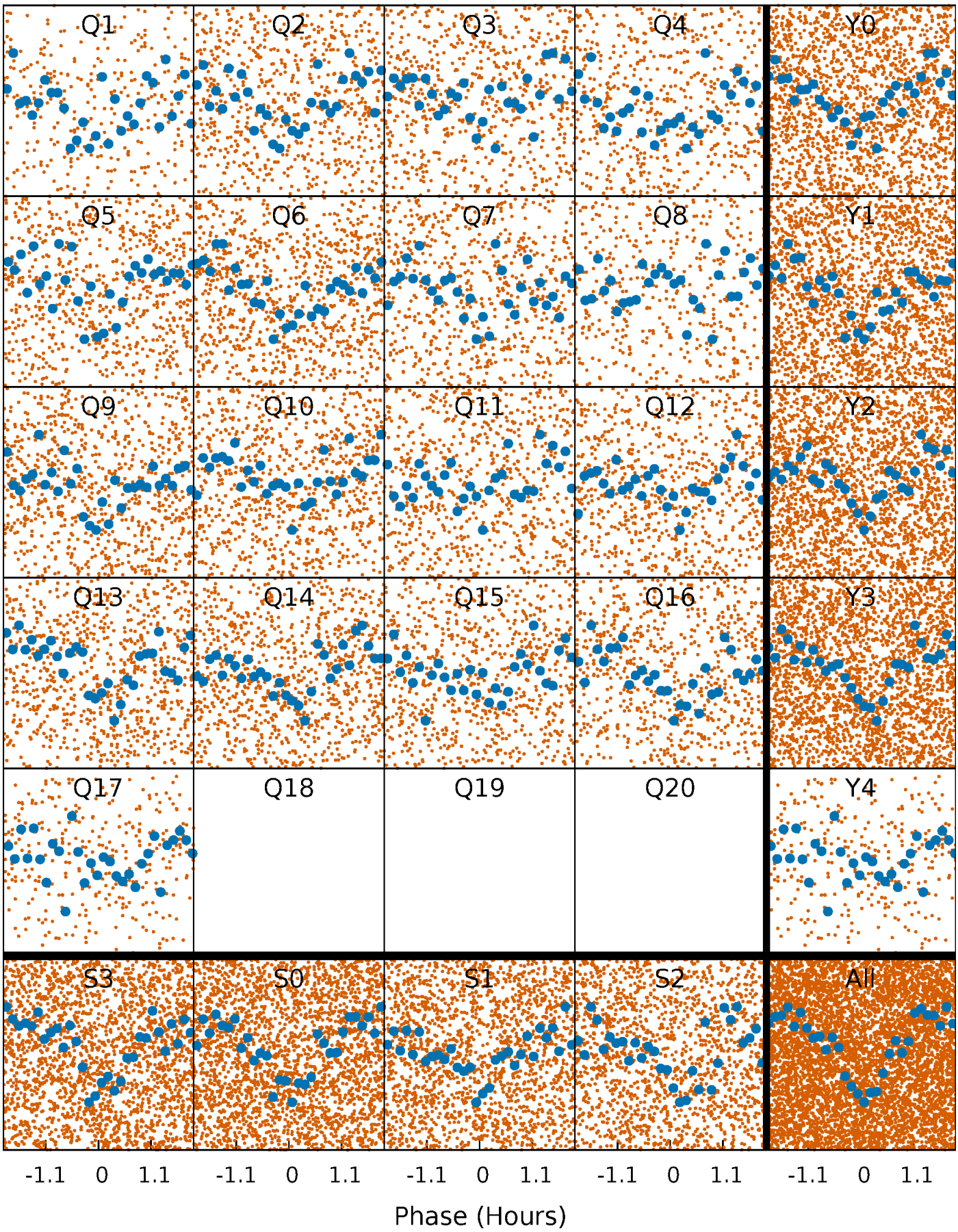
Non-Whitened Vs. Whitened Light Curve





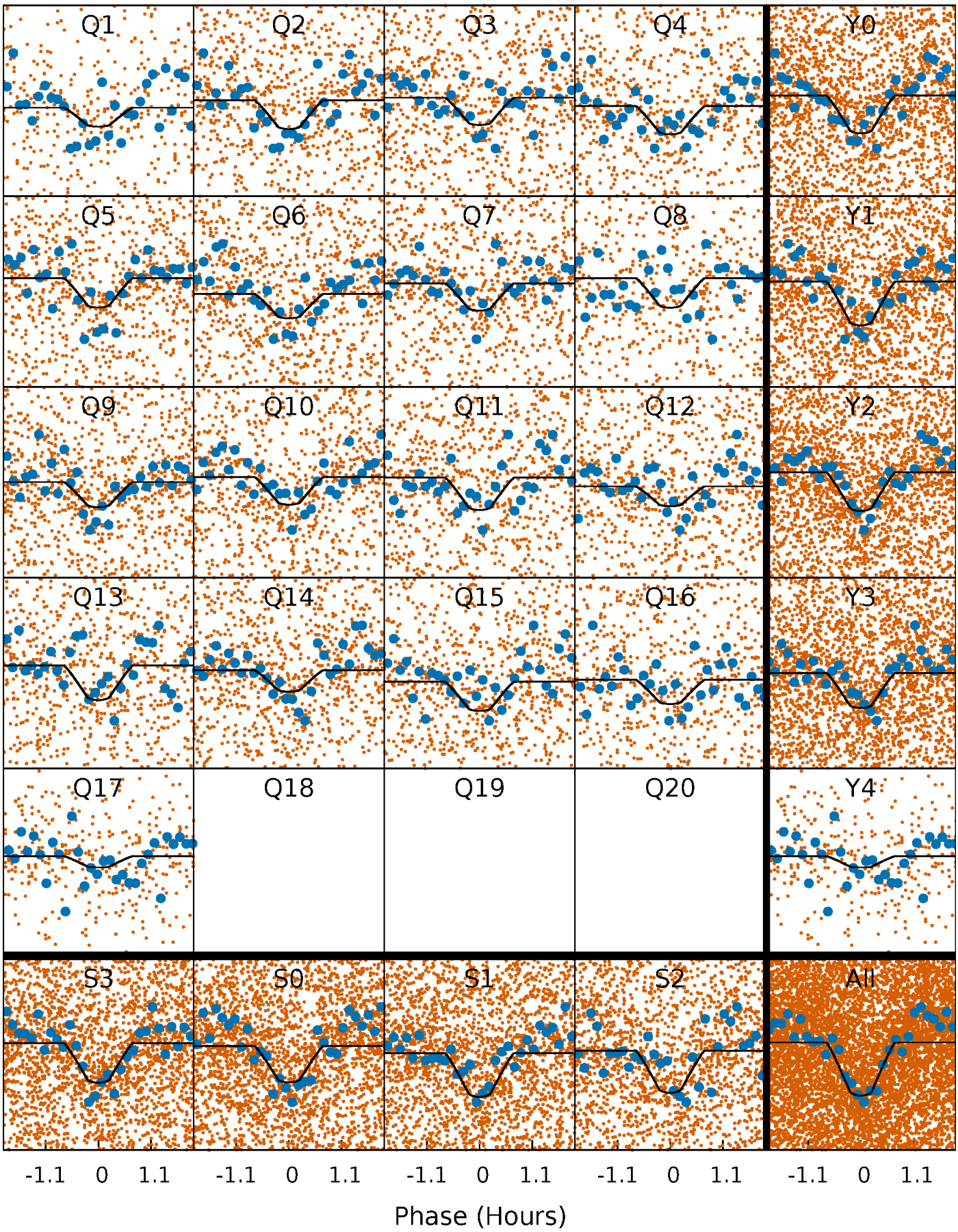
PDC Quarter-Phased Transit Curves

TCE 006593734-01 P= 0.586751 Days T_0=131.758460 (BKJD)



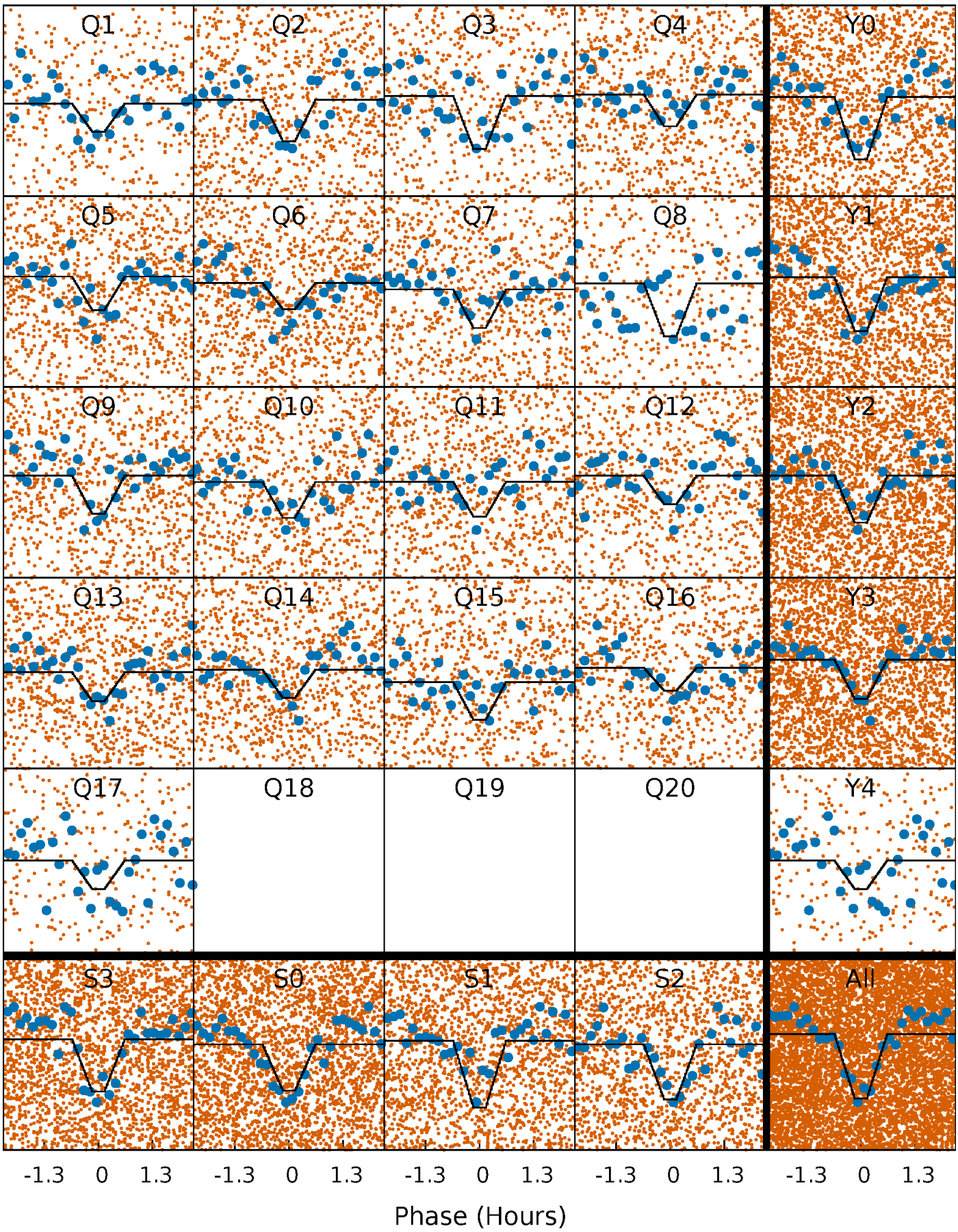
DV Quarter-Phased Transit Curves

TCE 006593734-01 P= 0.586751 Days T_0=131.758460 (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

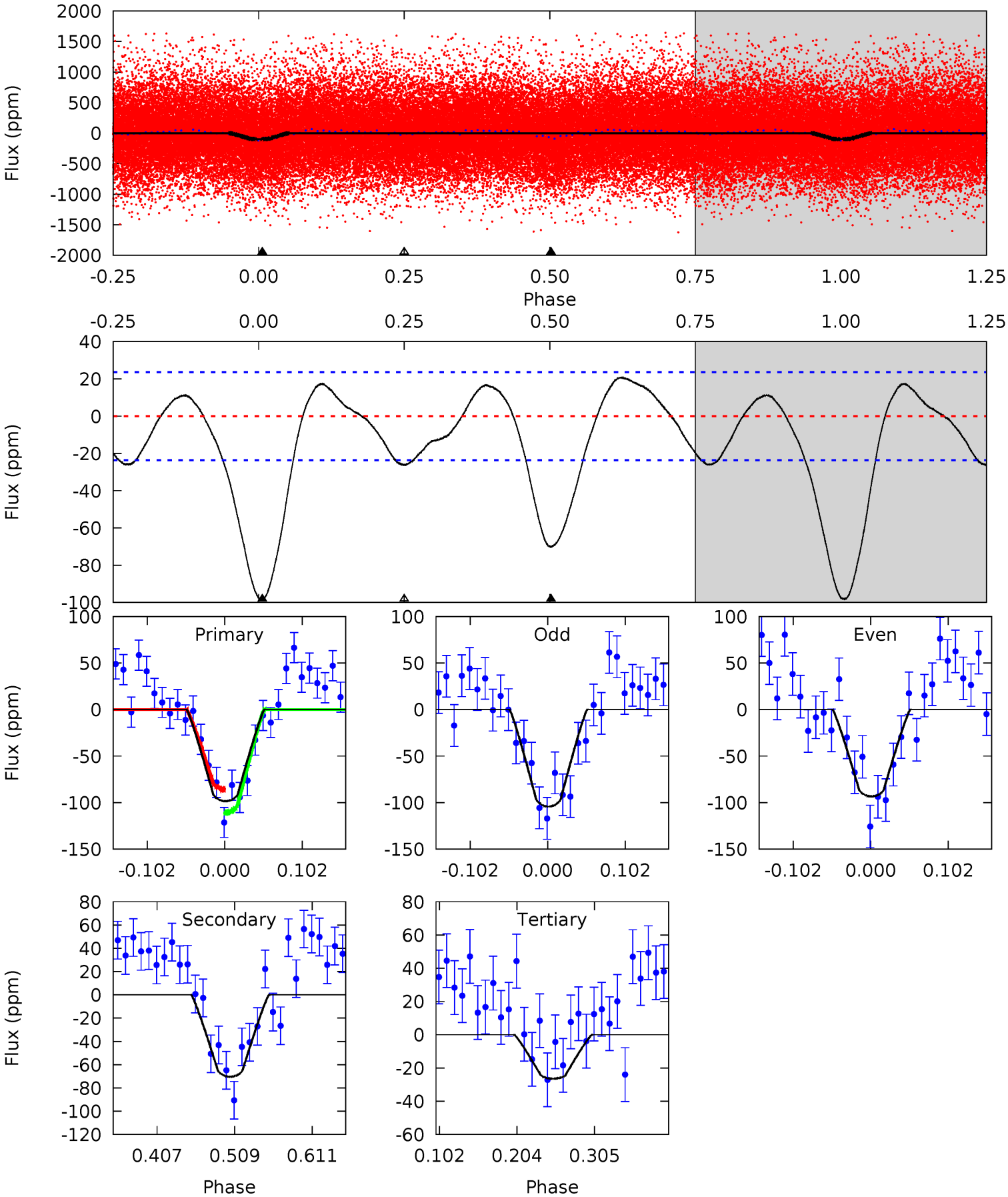
TCE 006593734-01 P= 0.586754 Days T_0=131.758132 (BKJD)



DV Model-Shift Uniqueness Test

006593734-01, P = 0.586751 Days, E = 131.171709 Days

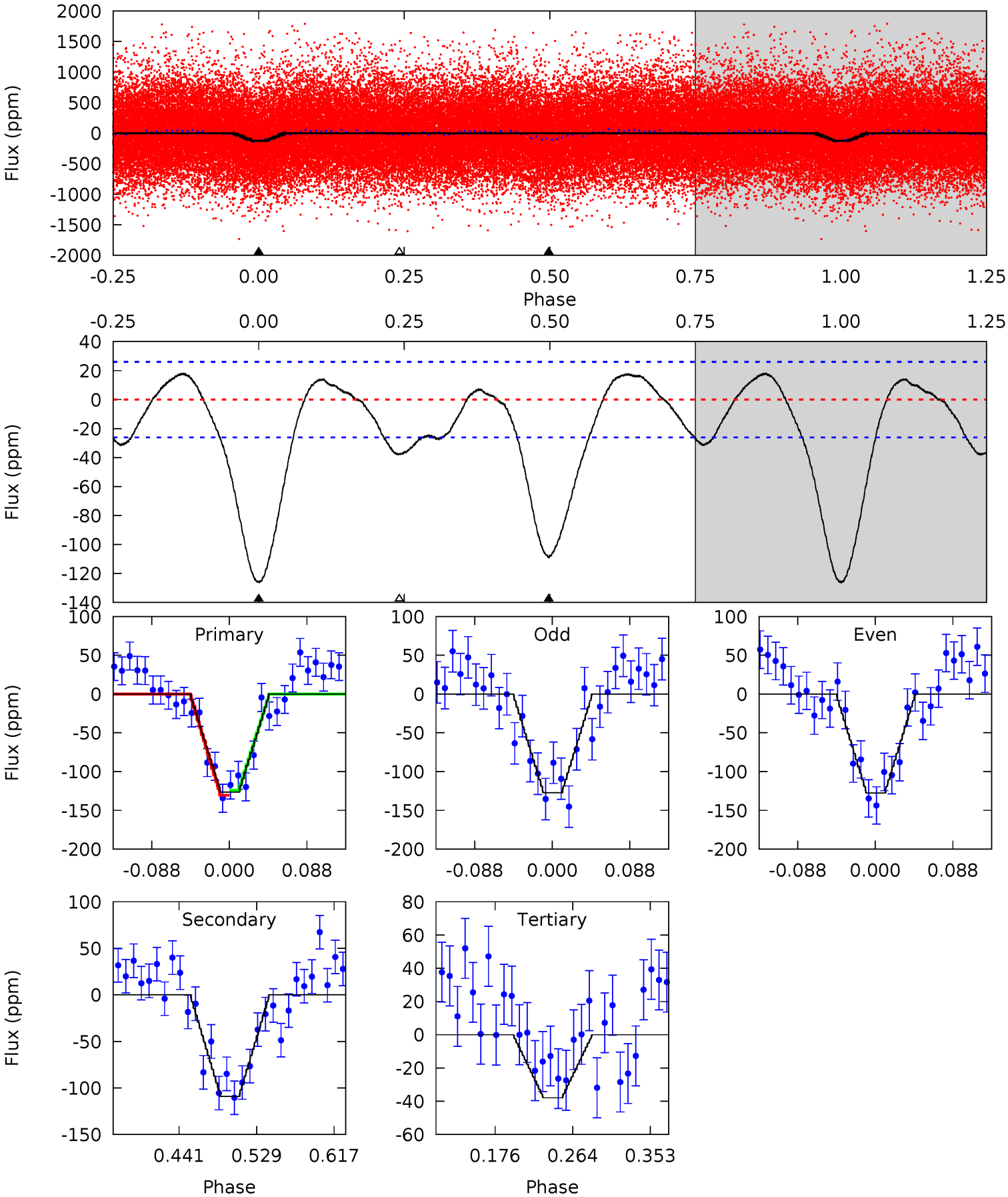
Pri	Sec	Ter	Pos	FA_1	FA_2	F_{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
19.0	13.6	5.10	0	4.56	1.64	2.79	13.9	19.0	8.49	13.6	1.05	0.96	0.18	2.41



Alt Model-Shift Uniqueness Test

006593734-01, P = 0.586754 Days, E = 131.171378 Days

Pri	Sec	Ter	Pos	FA_1	FA_2	F_{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
22.2	19.2	6.67	0	4.59	1.71	2.99	15.6	22.2	12.5	19.2	0.03	0.95	0.12	0.56



Stellar Parameters For KIC 006593734

	$T_{\rm eff}(K)$	$\log(g)$	[Fe/H]	R ($R_\odot$)	$M(M_\odot)$	$p_\star$ (g·cm^{-3})
	5942^{+160}_{-196}	$4.506^{+0.046}_{-0.184}$	$-0.060^{+0.250}_{-0.300}$	$0.938^{+0.236}_{-0.101}$	$1.028^{+0.119}_{-0.132}$	$1.756^{+0.418}_{-0.833}$
	+3%/-3%	+1%/-4%	+417%/-500%	+25%/-11%	+12%/-13%	+24%/-47%
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 006593734-01 / KOI 4722.01

Detrend	Depth (ppm)	R_p ($R_\oplus$)	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-70±5	$1.14^{+0.57}_{-0.53}$	3082^{+191}_{-141}	5254^{+1834}_{-850}	$5.768^{+13.356}_{-3.252}$
Alt.	-109±6	$1.19^{+0.60}_{-0.53}$	3080^{+201}_{-141}	5714^{+2149}_{-951}	$8.021^{+17.438}_{-4.484}$

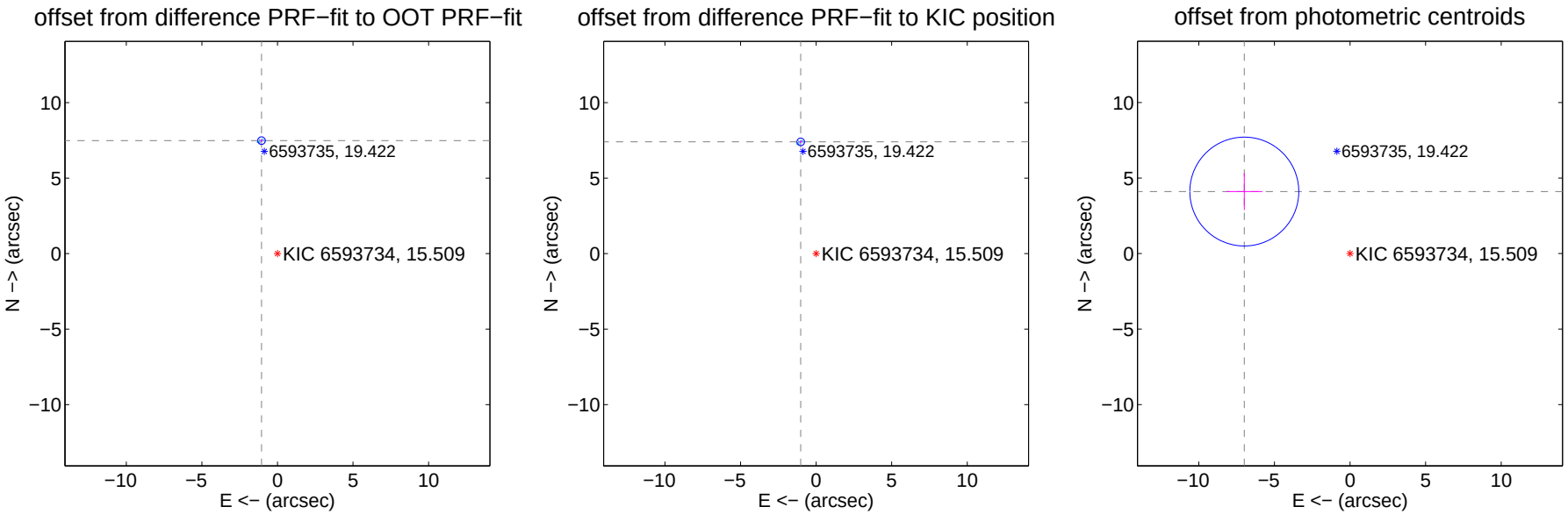
T_{max} = Theoretical Maximum Planetary Temperature
T_{obs} = Observed Planetary Temperature (Assuming A=0.3)
A_{obs} = Observed Albedo (Assuming T=0)

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

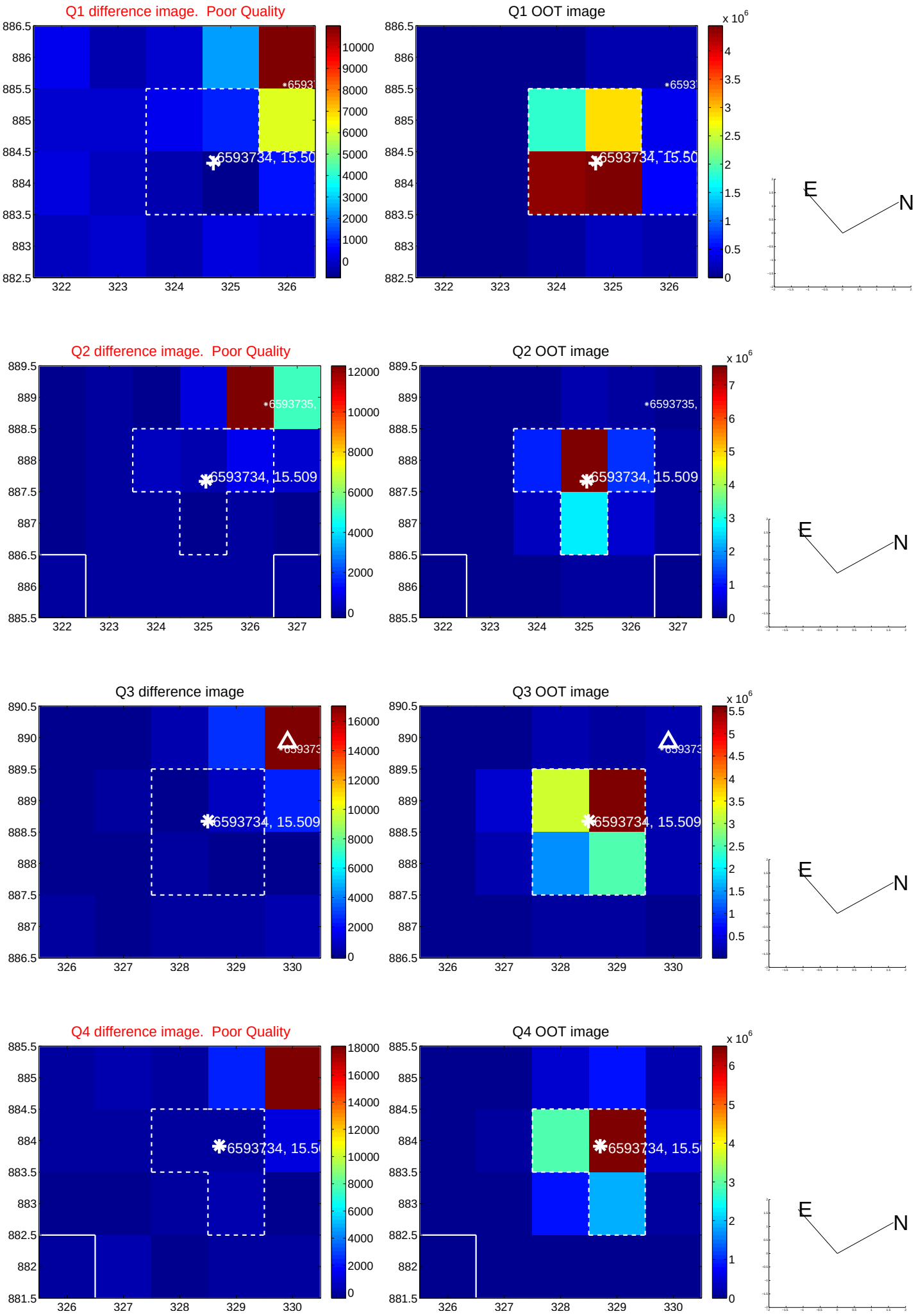
Supplemental centroid analysis for 006593734-01. Kepler magnitude: 15.51. Transit SNR 12.72
There are 5 quarters with good PRF difference image offsets
The direct PRF centroid is offset from the target star catalog position by about 0.11 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	7.560 ± 0.084	90.17	1.053 ± 0.085	7.487 ± 0.084
PRF-fit source offset from KIC position	7.474 ± 0.084	89.14	1.018 ± 0.085	7.404 ± 0.084
photometric centroid source offset	8.11 ± 1.20	6.75	6.99 ± 1.19	4.11 ± 1.22

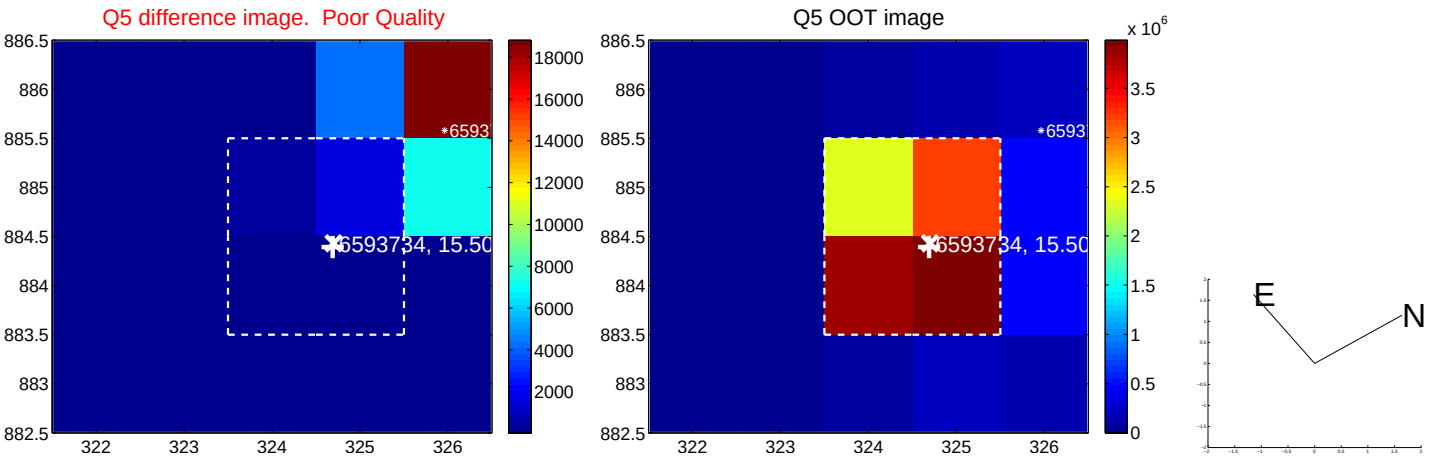


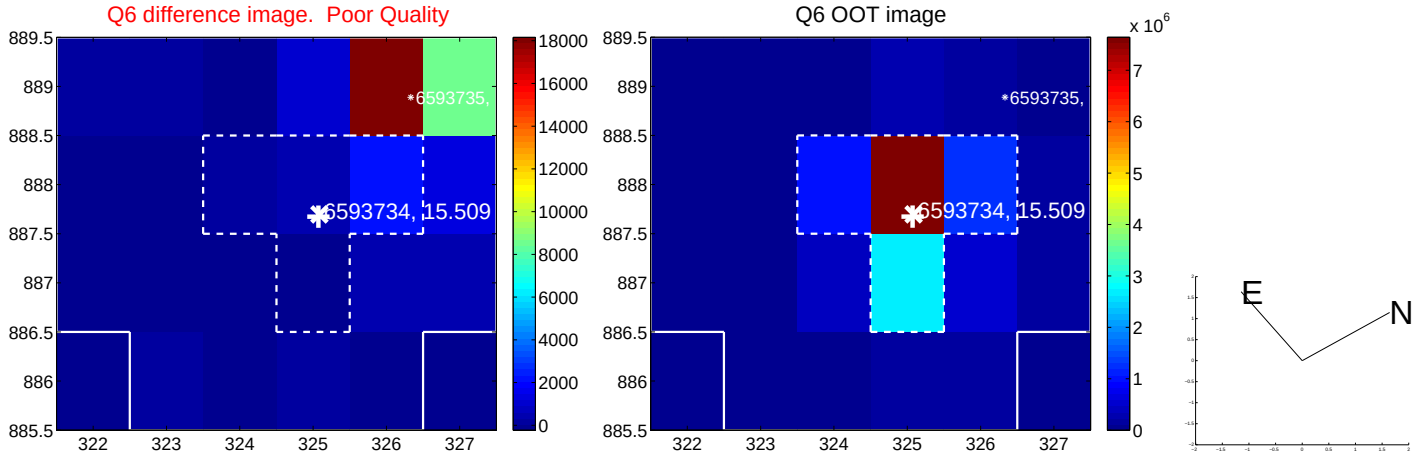
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one-σ uncertainty. Blue circle: three-σ. Red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

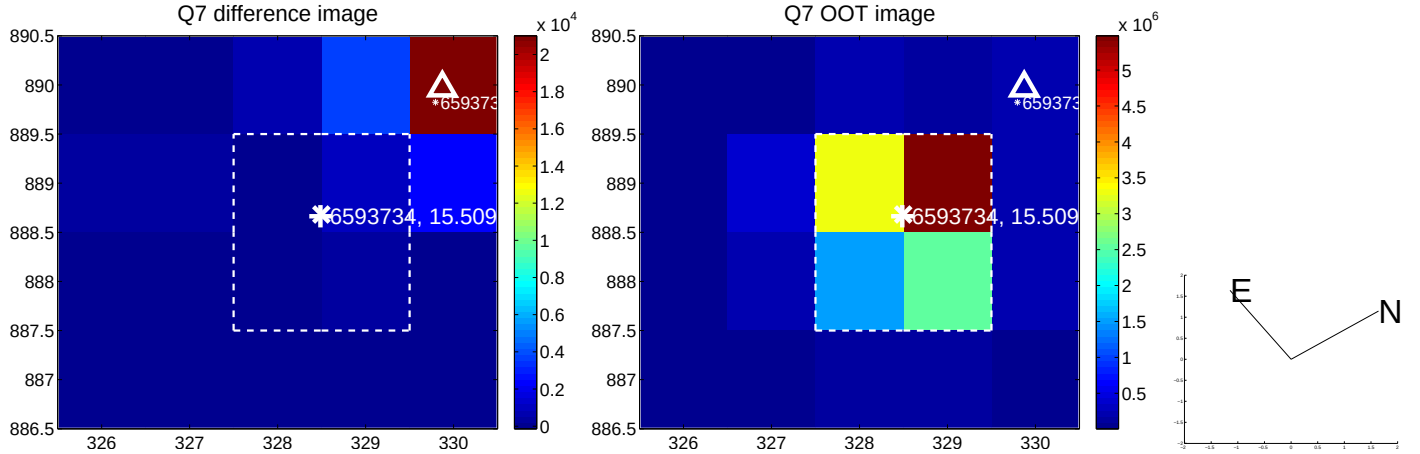
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.

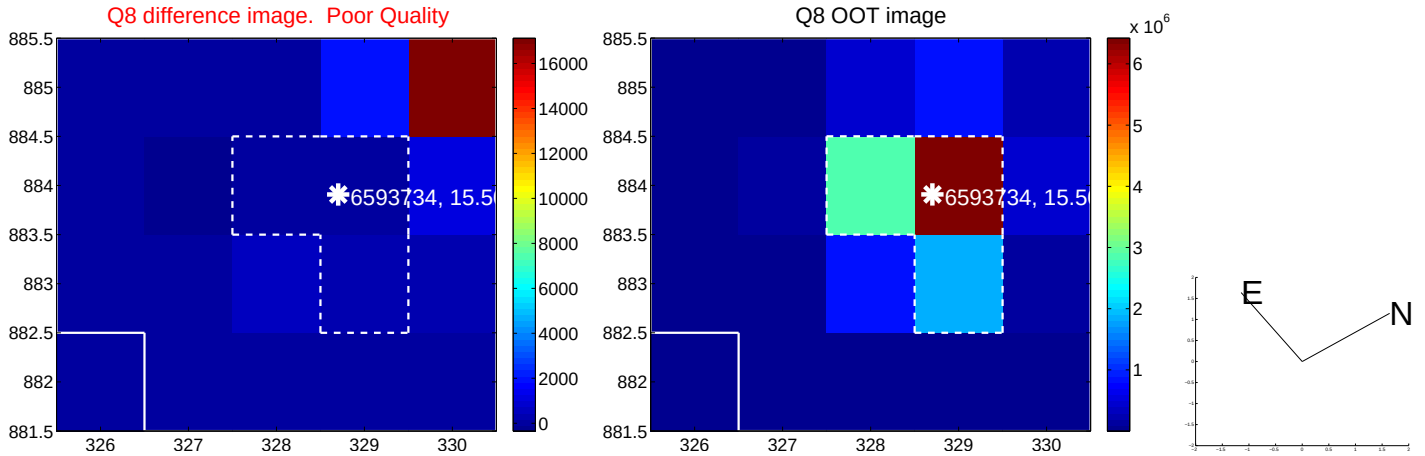


white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.

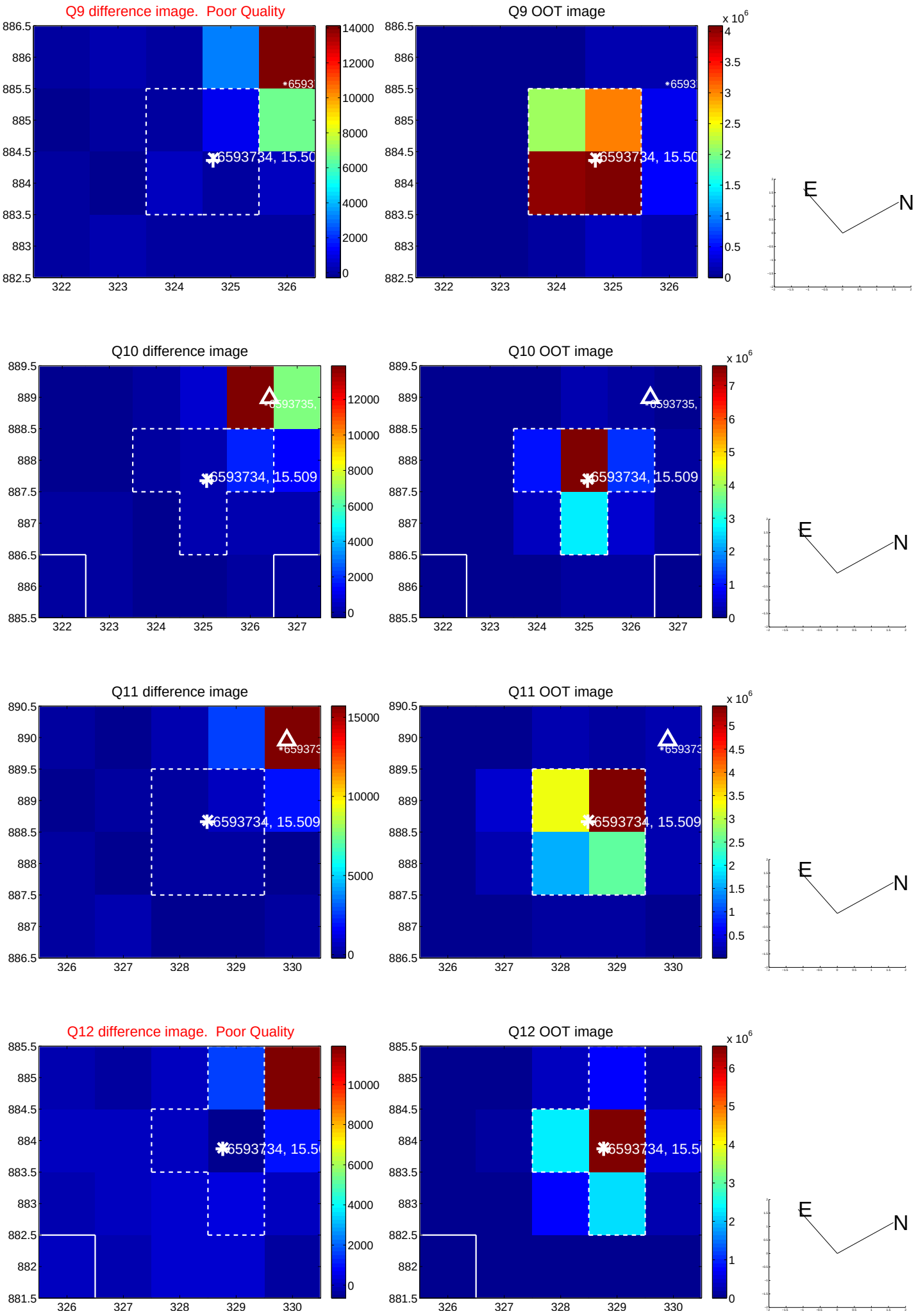




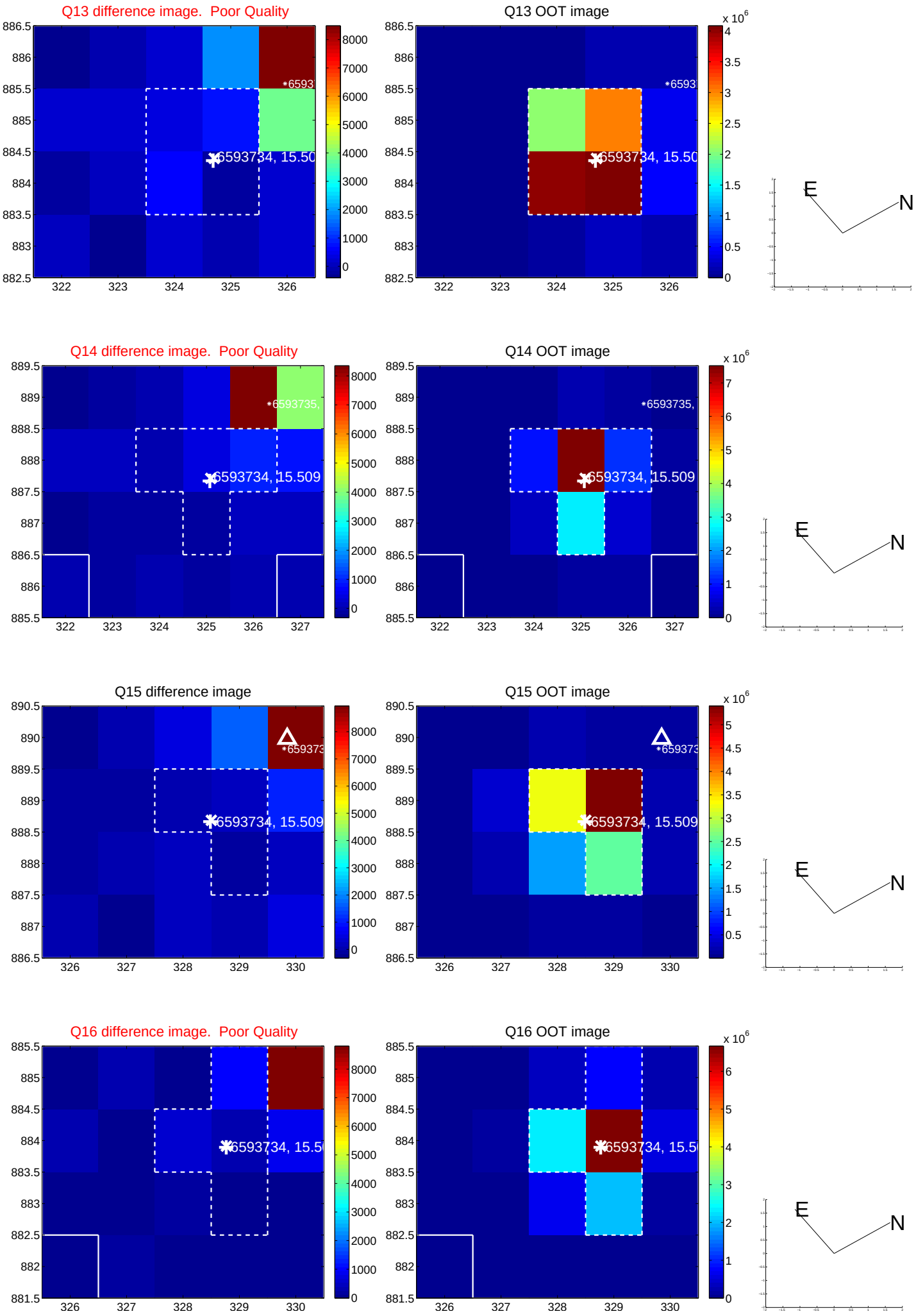




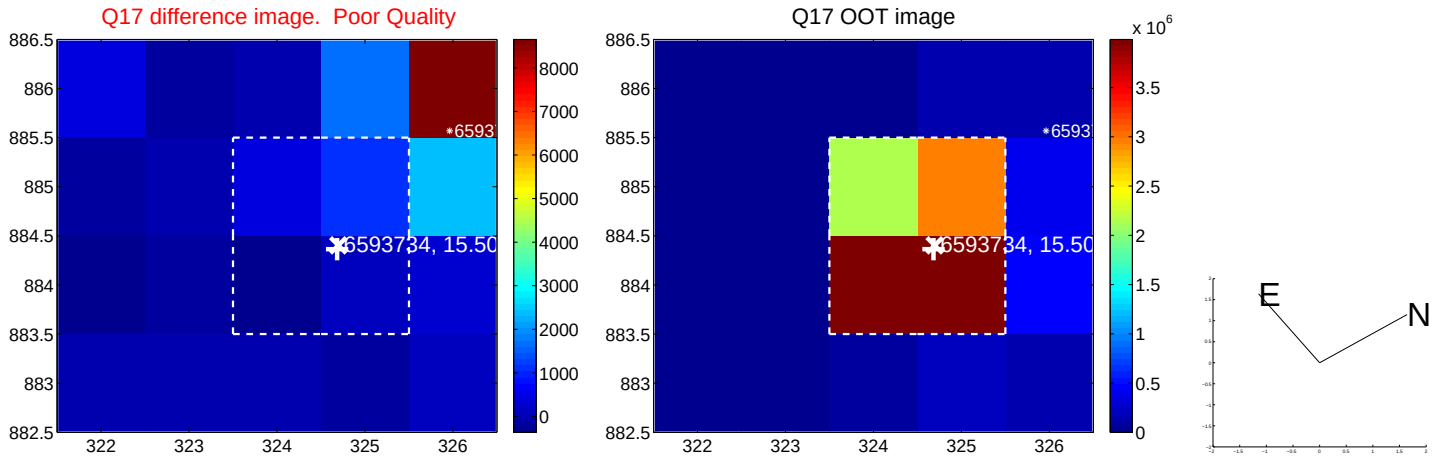
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.

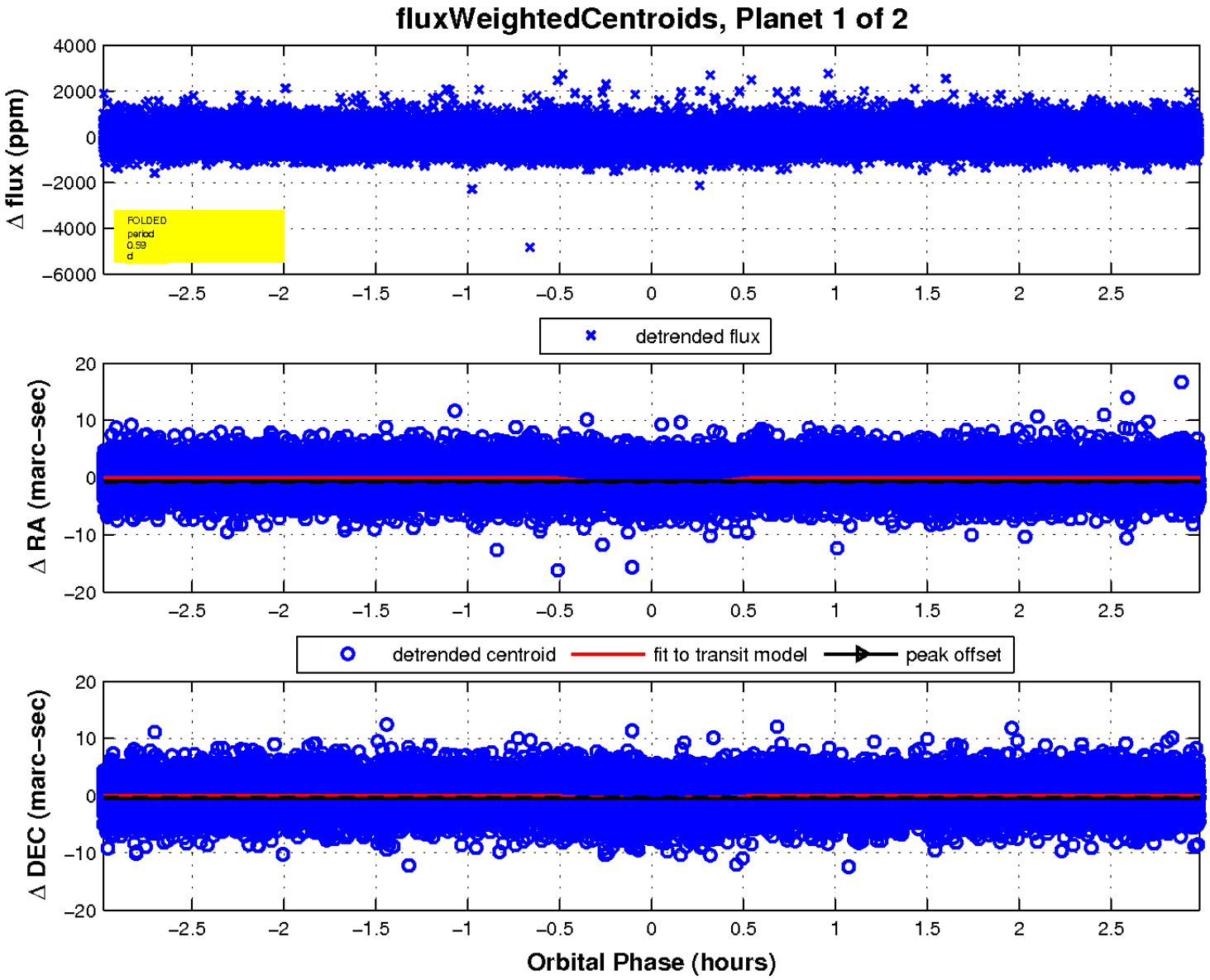


white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.

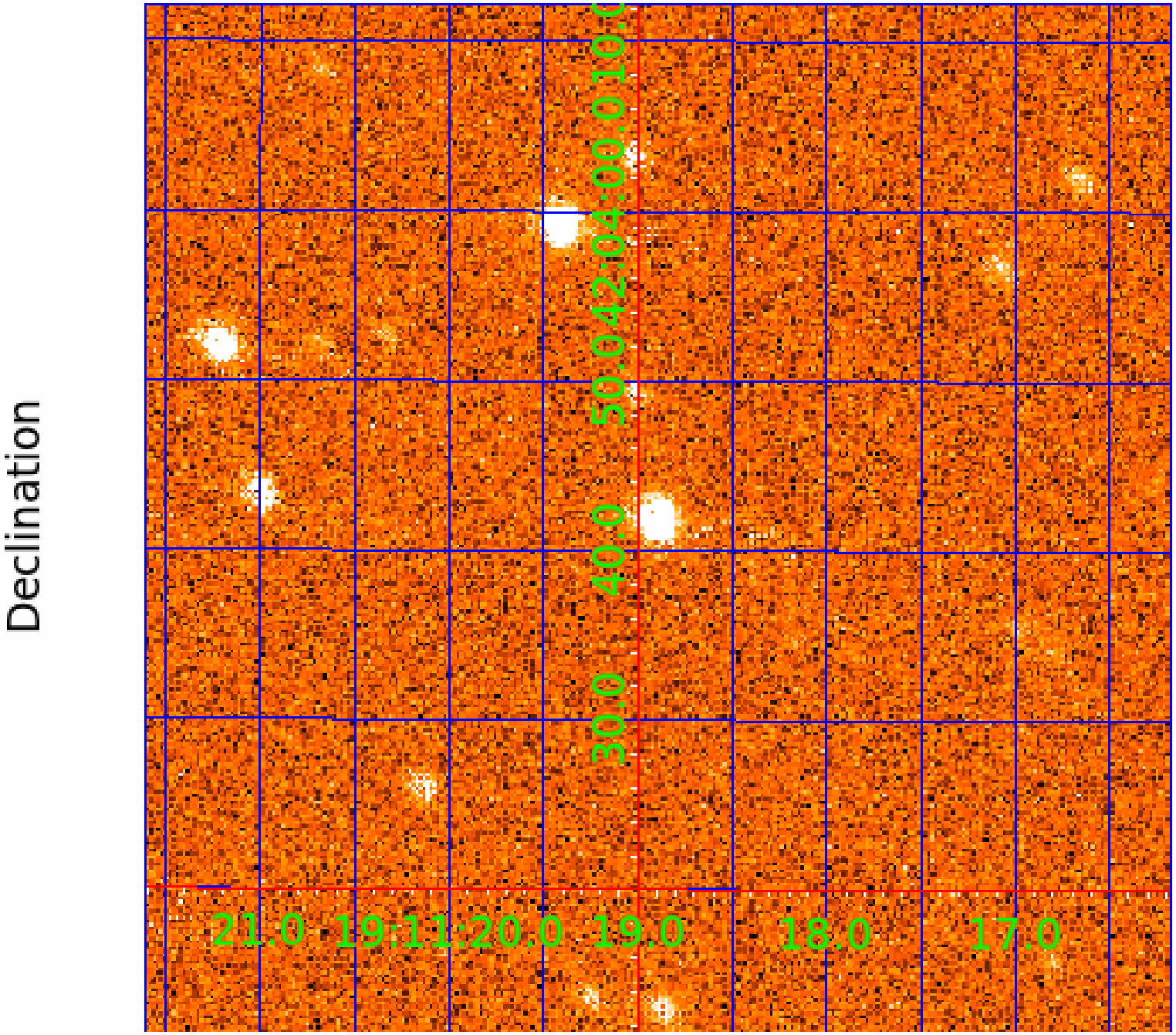


white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.





UKIRT Image



KIC 006593734

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 ($S_\oplus$)
006593734-01	OBS	4722.01	0.586751	131.758460	96.8	0.994	10.3	12.7	0.94	5942	1.10	5122.57
006593734-02	OBS	No	0.586746	132.050021	55.0	1.123	8.1	8.1	0.94	5942	0.83	5122.64

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
006593734-01	OBS	FP	0.00	1	0	1	0	MOD_NONUNIQ_ALT—CENT_RESOLVED_OFFSET
006593734-02	OBS	FP	0.00	1	0	1	0	LPP_DV—MOD_NONUNIQ_ALT—SAME_NTL_PERIOD—CENT_RESOLVED_OFFSET

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.

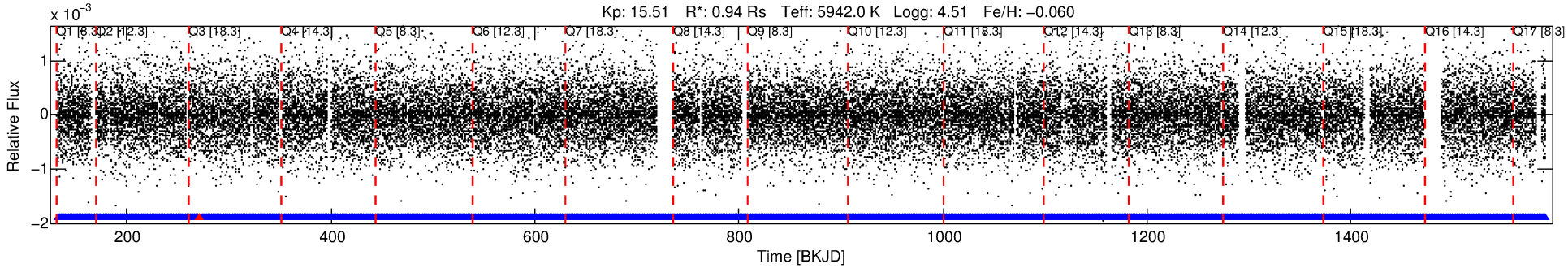
Ephemeris Match Information For 006593734-02

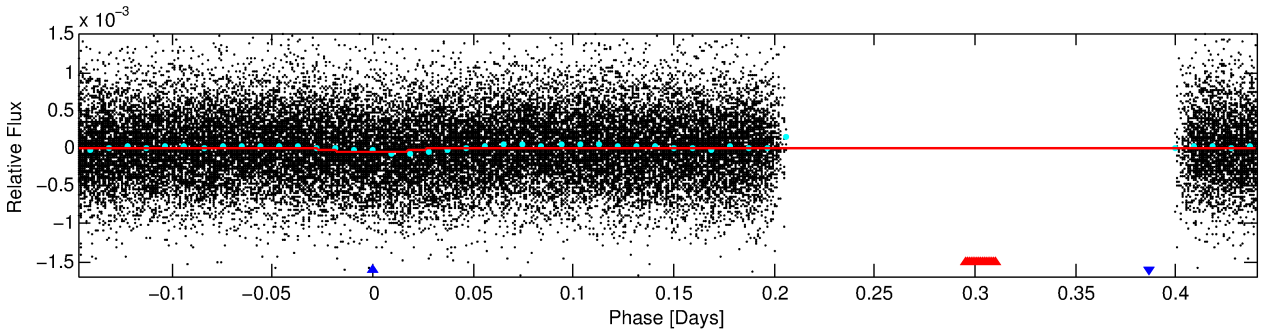
No Significant Match Found

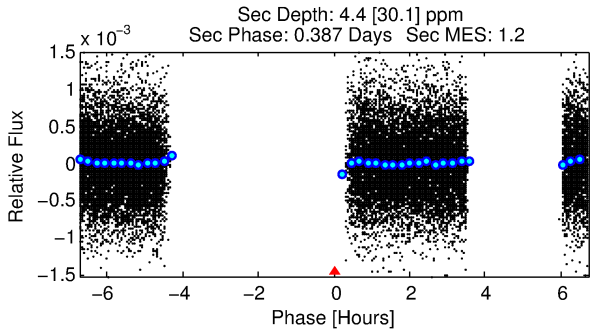
DV One-Page Summary

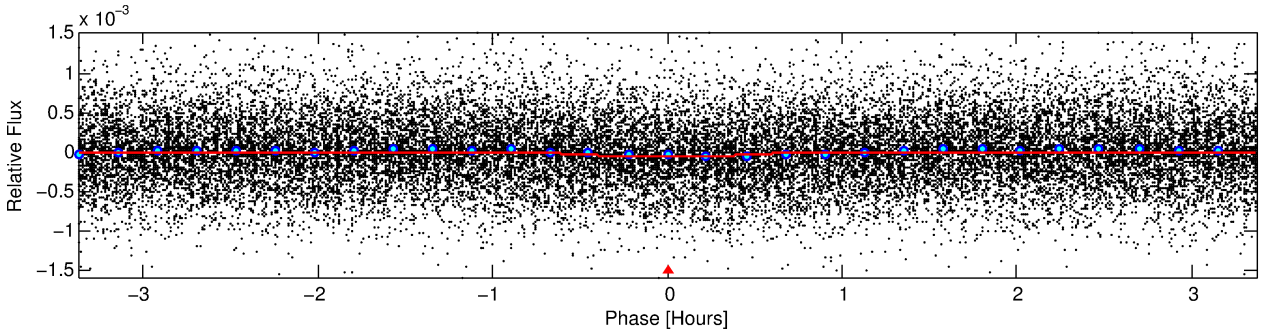
KIC: 6593734 Candidate: 2 of 2 Period: 0.587 d
KOI: K04722 Corr: No Ephemeris Match

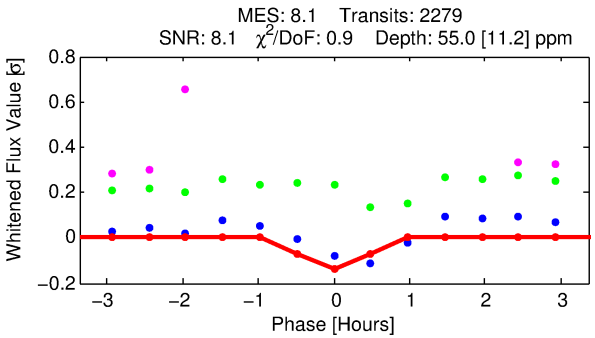
Kp: 15.51 R*: 0.94 Rs Teff: 5942.0 K Logg: 4.51 Fe/H: −0.060

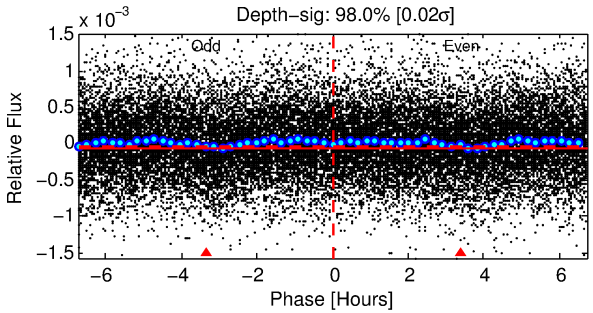


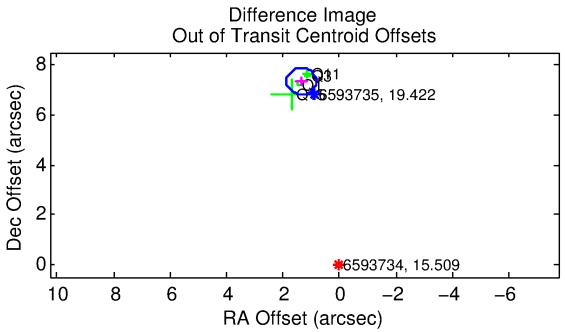












DV Fit Results:

Period = 0.58675 [0.00002] d
Epoch = 132.0500 [0.0025] BKJD
Rp/R* = 0.0081 [0.0047]
a/R* = 2.02 [4.41]
b = 0.90 [0.60]

Seff = 5122.64 [1813.45]
Teq = 2157 [191] K
Rp = 0.83 [0.53] Re
a = 0.0139 [0.0030] AU

Ag = 0.67 [4.67] [−0.07σ]
Teffp = 3014 [5277] K [0.16σ]

DV Diagnostic Results:

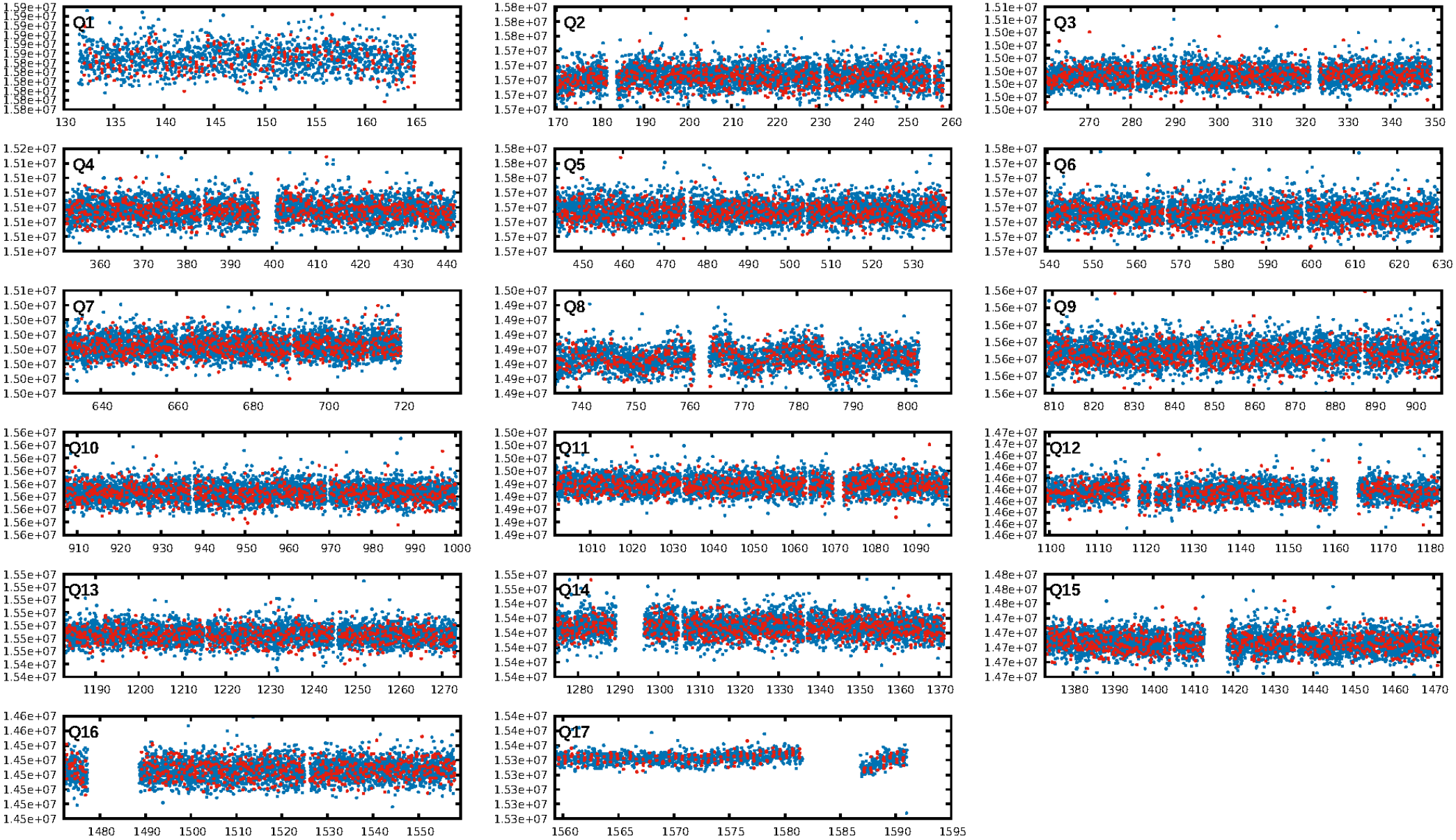
ShortPeriod−sig: N/A
LongPeriod−sig: 0.0% [0.00σ]
ModelChiSquare2−sig: N/A
ModelChiSquareGof−sig: N/A
Bootstrap−pfa: 2.14e−15
RollingBand−fgt: 1.00 [2176/2177]
GhostDiagnostic−chr: 5.395

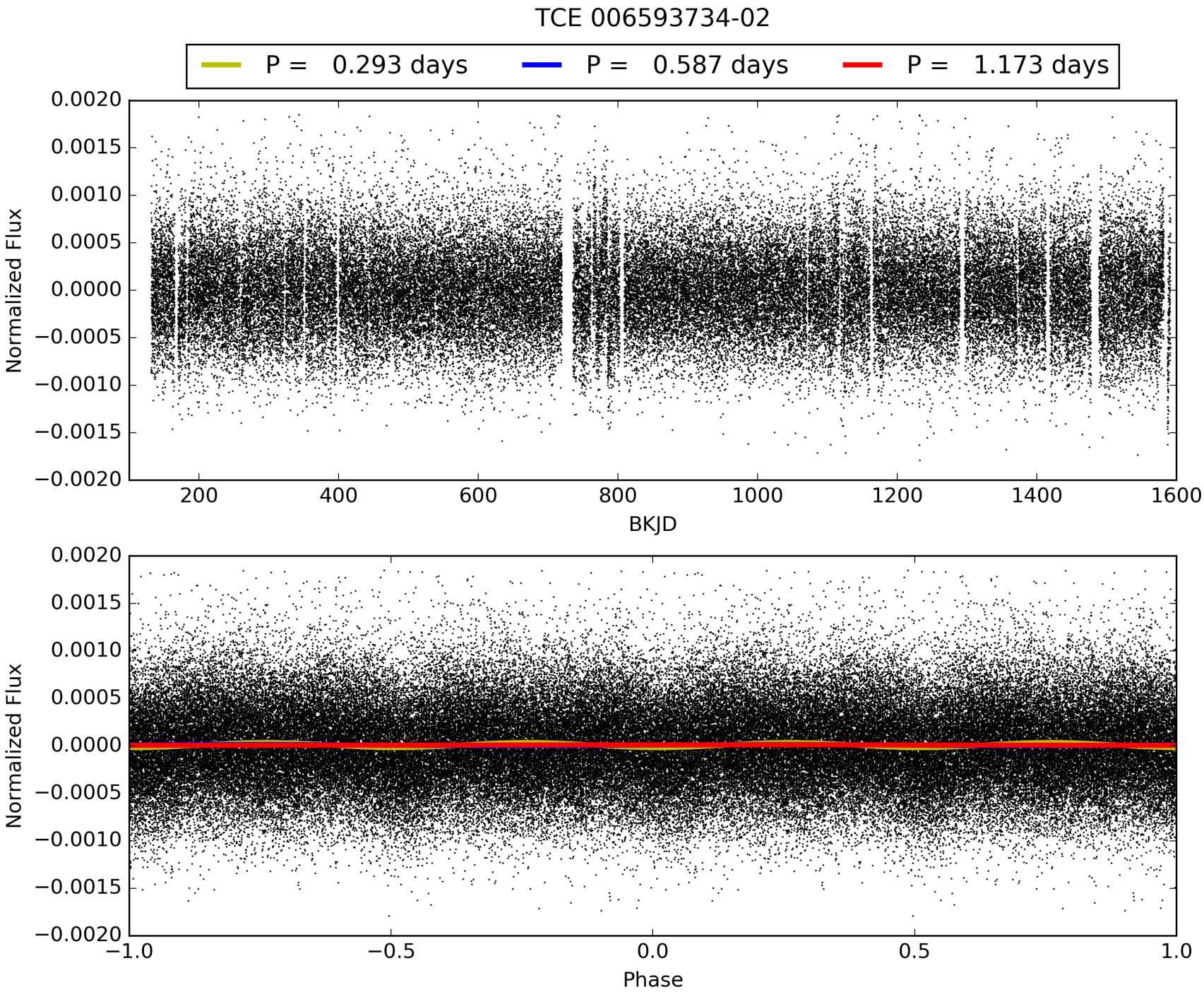
Centroid−sig: 0.0%
Centroid−so: 11.501 arcsec [5.78σ]
OotOffset−rm: 7.470 arcsec [42.17σ]
KicOffset−rm: 7.342 arcsec [41.24σ]
OotOffset−st: 0/3/0/1 [4]
KicOffset−st: 0/3/0/1 [4]
DiffImageQuality−fgm: 1.00 [4/4]
DiffImageOverlap−fno: 1.00 [17/17]

Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 −− Date Generated: 01−Feb−2016 06:40:42 Z

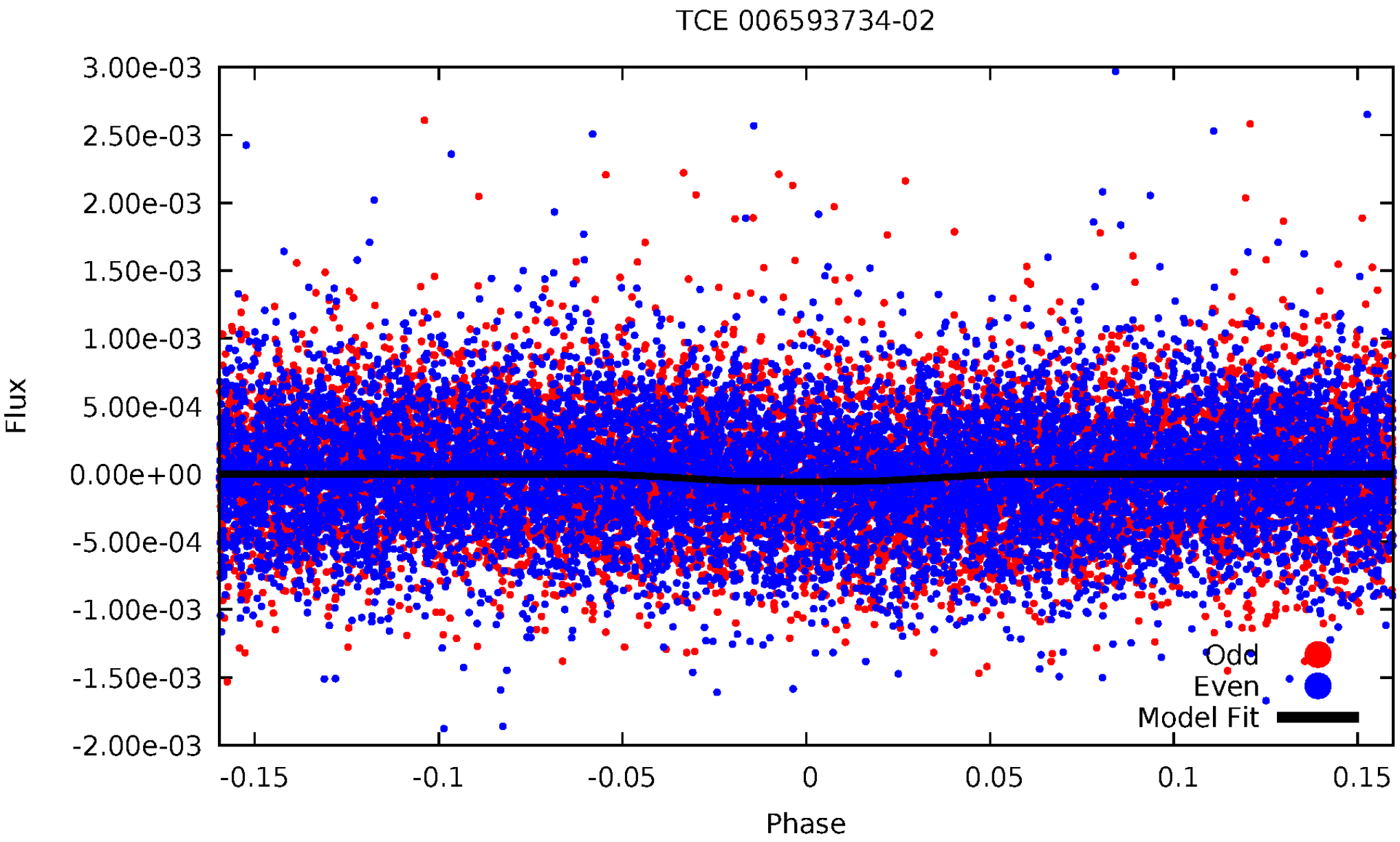
This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

TCE 006593734-02, PDC Light Curves

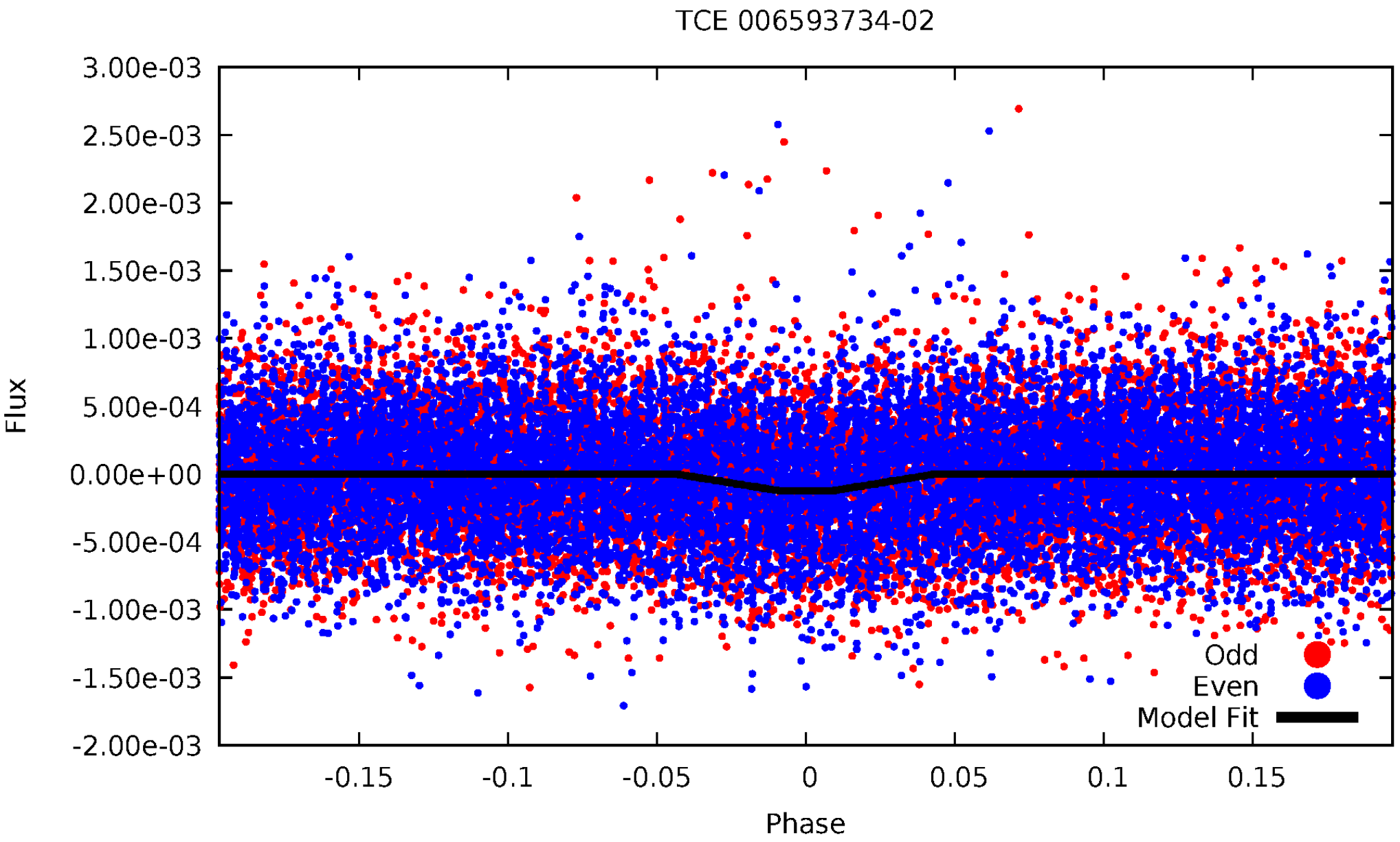



TCE 006593734-02
P = 0.293 days
P = 0.587 days
P = 1.173 days
Normalized Flux
BKJD
Normalized Flux
Phase

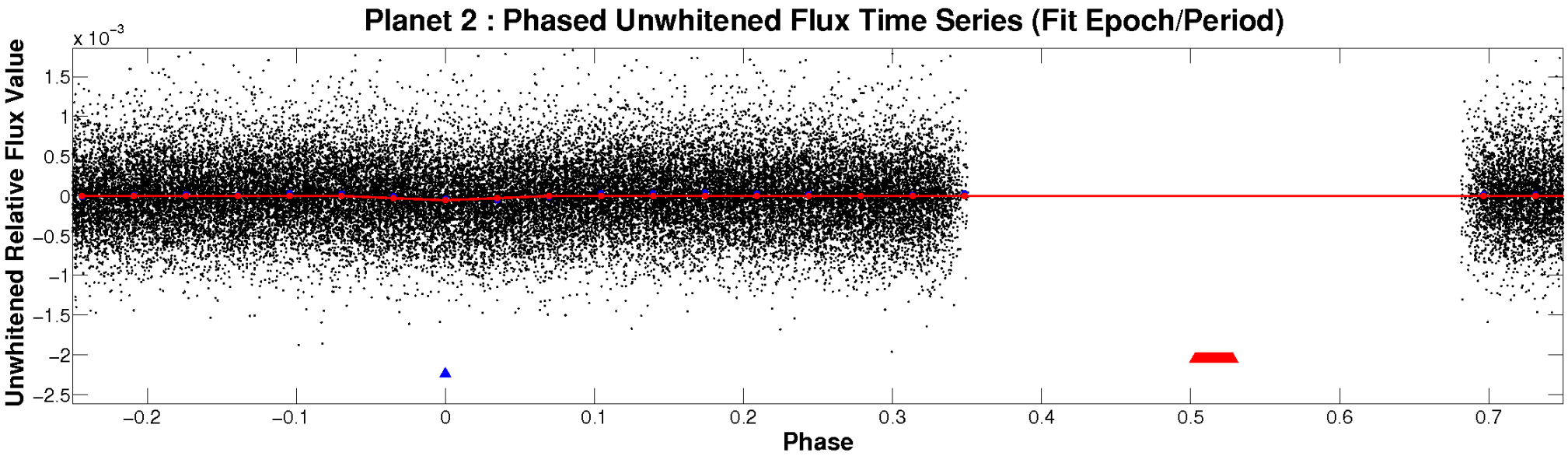
DV Odd/Even

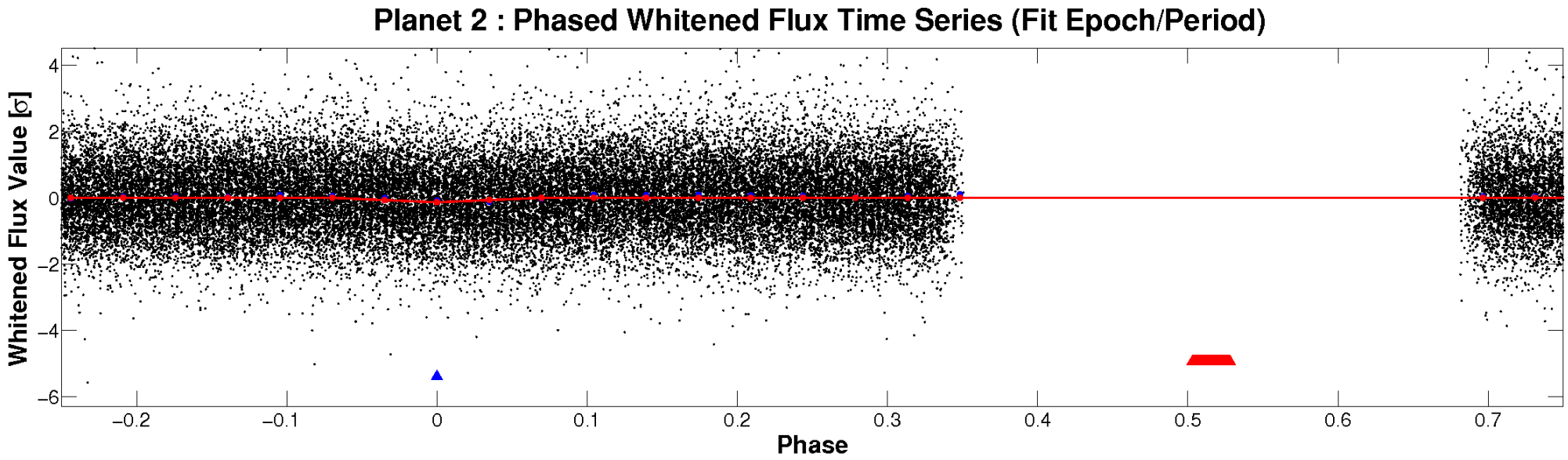

TCE 006593734-02
3.00e-03
2.50e-03
2.00e-03
1.50e-03
1.00e-03
5.00e-04
0.00e+00
-5.00e-04
-1.00e-03
-1.50e-03
-2.00e-03
Flux
-0.15
-0.1
-0.05
0
0.05
0.1
0.15
Phase
Odd
Even
Model Fit

ALT Odd/Even


TCE 006593734-02
3.00e-03
2.50e-03
2.00e-03
1.50e-03
1.00e-03
5.00e-04
0.00e+00
-5.00e-04
-1.00e-03
-1.50e-03
-2.00e-03
Flux
-0.15
-0.1
-0.05
0
0.05
0.1
0.15
Phase
Odd
Even
Model Fit

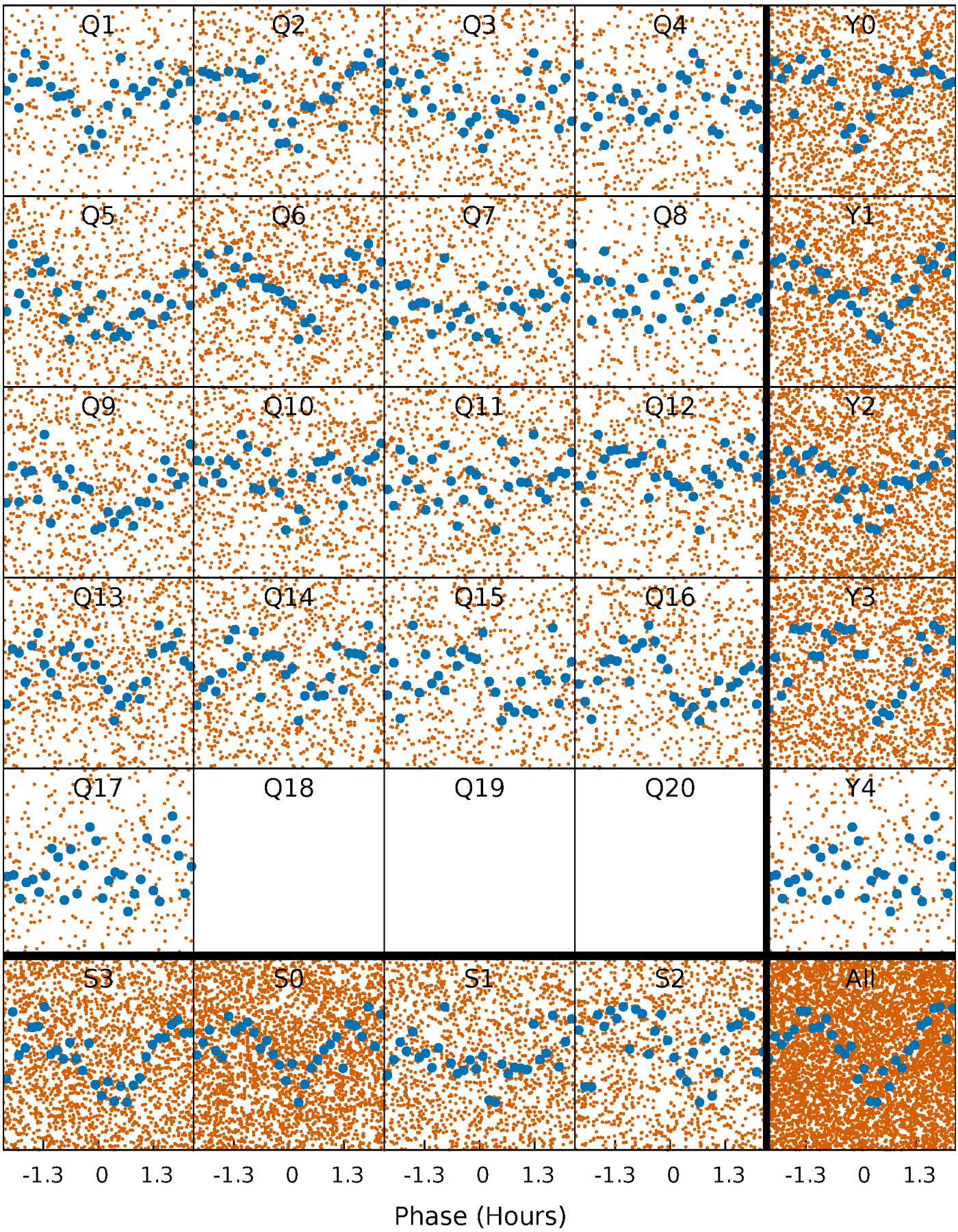
Non-Whitened Vs. Whitened Light Curve





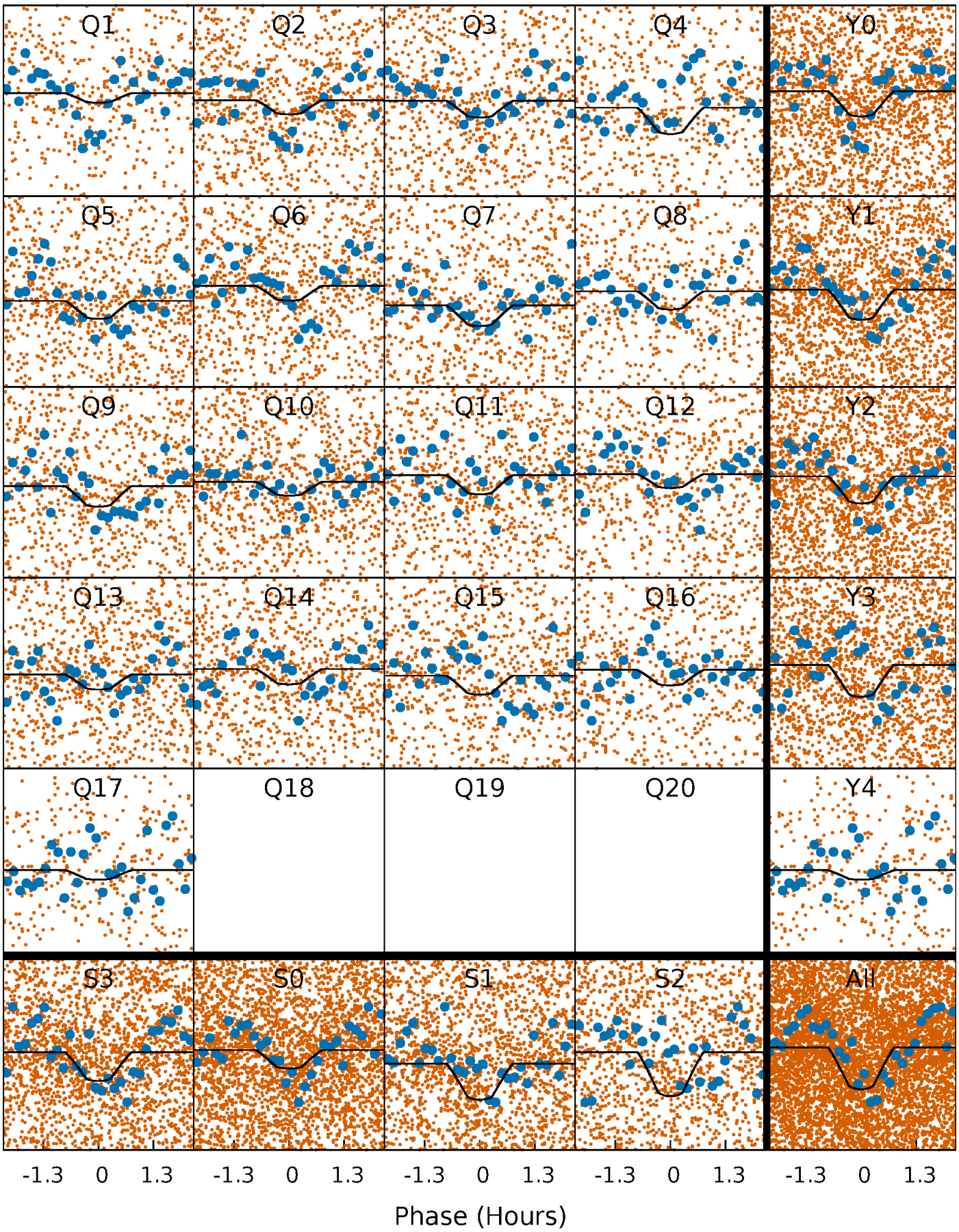
PDC Quarter-Phased Transit Curves

TCE 006593734-02 P= 0.586746 Days T_0=132.050021 (BKJD)



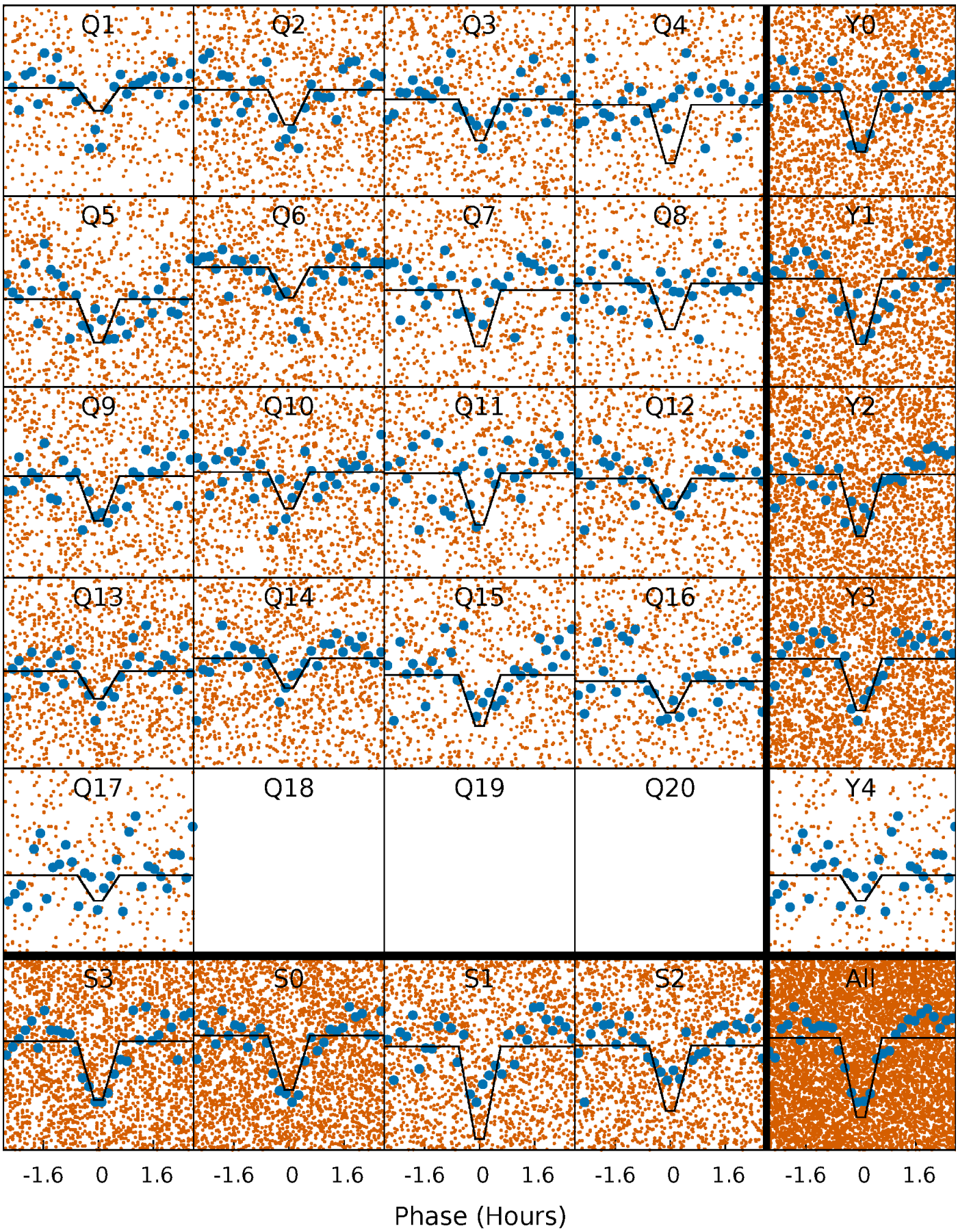
DV Quarter-Phased Transit Curves

TCE 006593734-02 P= 0.586746 Days T_0=132.050021 (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

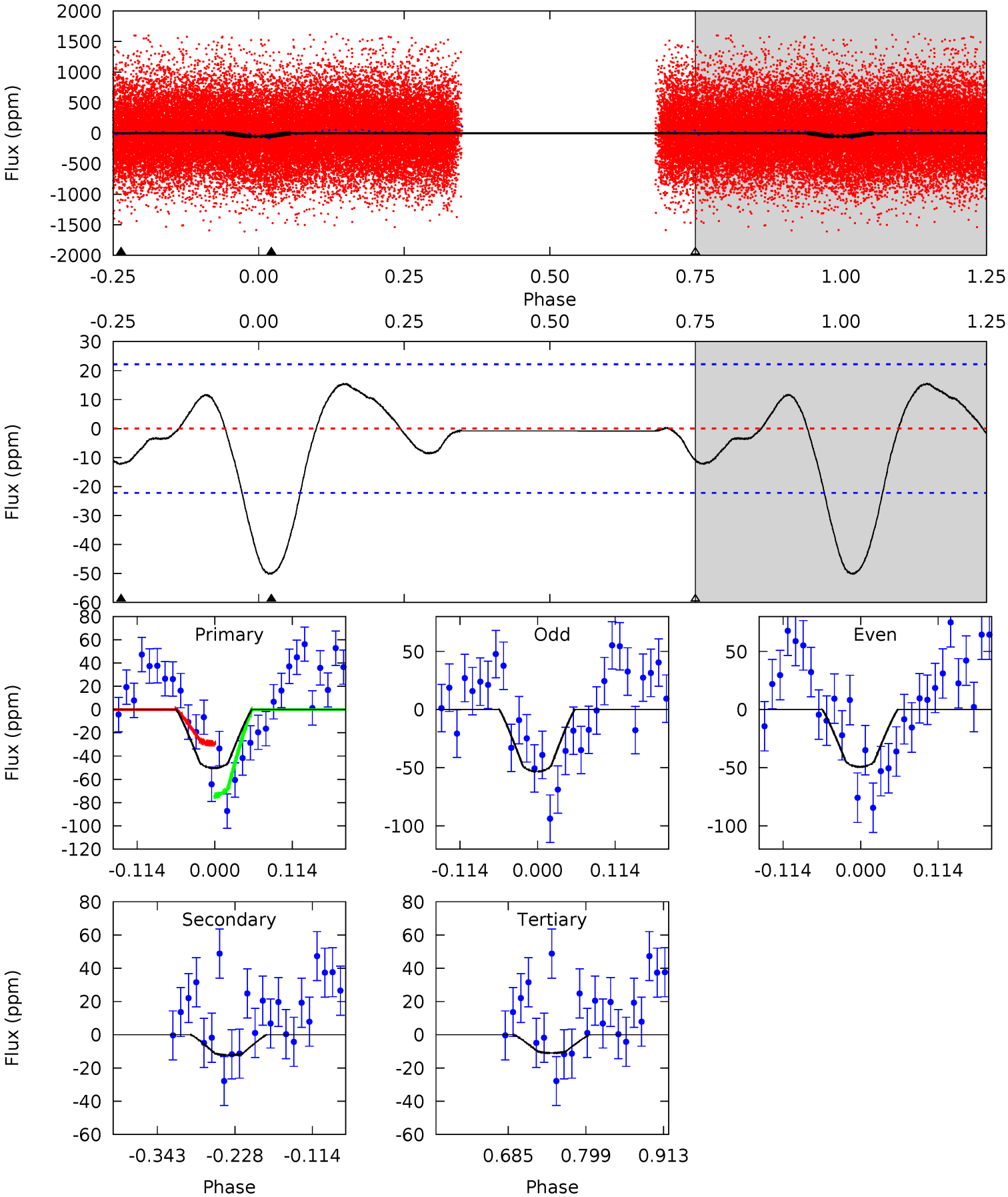
TCE 006593734-02 P= 0.586759 Days T_0=132.045605 (BKJD)



DV Model-Shift Uniqueness Test

006593734-02, P = 0.586746 Days, E = 131.463275 Days

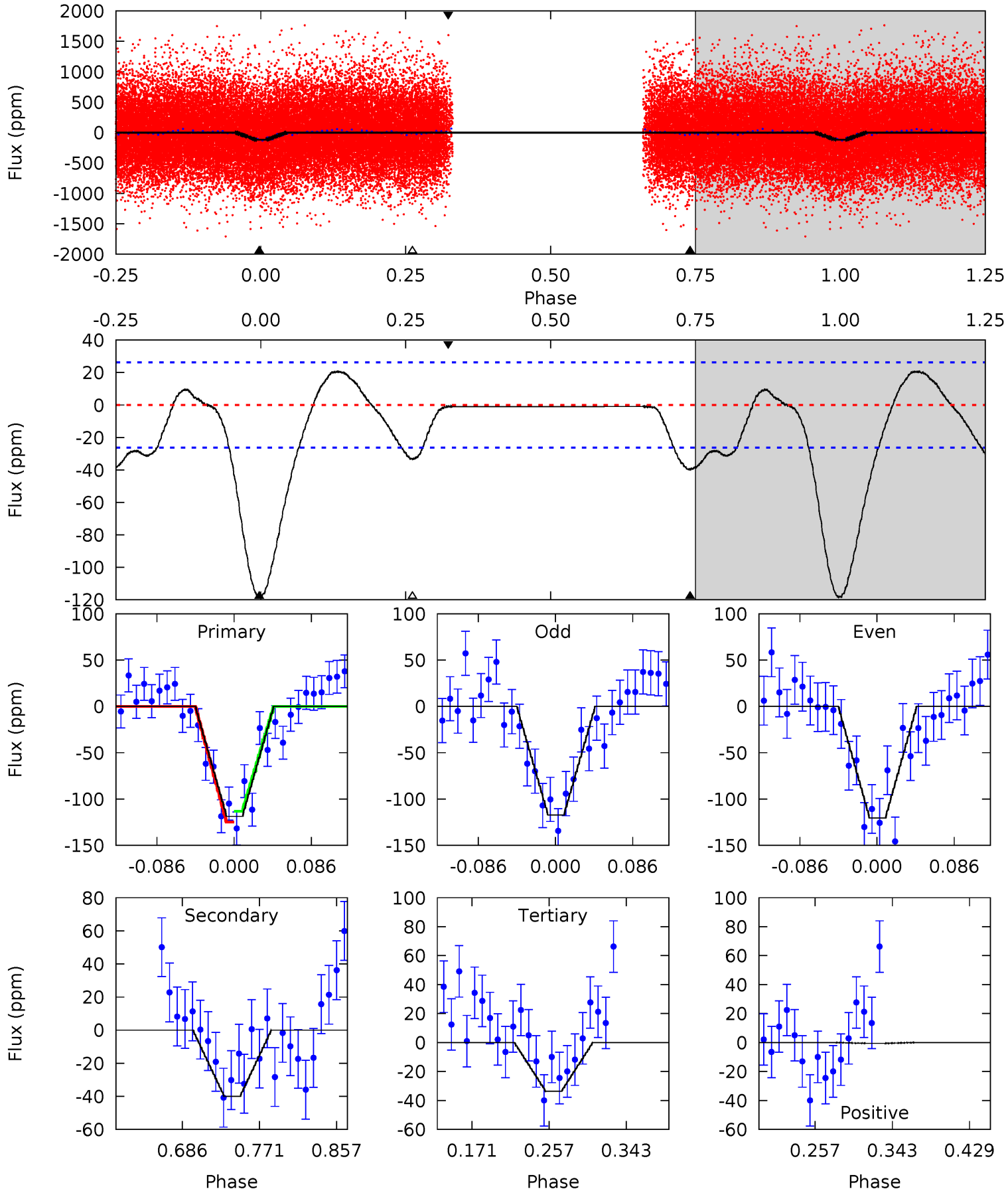
Pri	Sec	Ter	Pos	FA_1	FA_2	F_{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
10.3	2.51	2.25	0	4.54	1.58	1.64	8.02	10.3	0.26	2.51	0.41	0.93	0.24	4.59



Alt Model-Shift Uniqueness Test

006593734-02, P = 0.586759 Days, E = 131.458846 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	7.01	5.89	-0.10	4.60	1.72	2.73	14.9	20.9	1.12	7.11	0.29	0.98	0.15	1.03



Stellar Parameters For KIC 006593734

	$T_{\rm eff}(K)$	$\log(g)$	[Fe/H]	R ($R_\odot$)	$M(M_\odot)$	$p_\star$ (g·cm^{-3})
	5942^{+160}_{-196}	$4.506^{+0.046}_{-0.184}$	$-0.060^{+0.250}_{-0.300}$	$0.938^{+0.236}_{-0.101}$	$1.028^{+0.119}_{-0.132}$	$1.756^{+0.418}_{-0.833}$
	+3%/-3%	+1%/-4%	+417%/-500%	+25%/-11%	+12%/-13%	+24%/-47%
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 006593734-02 / KOI

Detrend	Depth (ppm)	R_p ($R_\oplus$)	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-12±5	$0.90^{+0.51}_{-0.46}$	3073^{+181}_{-134}	3938^{+1453}_{-891}	$1.499^{+4.803}_{-0.973}$
Alt.	-40±6	$1.18^{+0.58}_{-0.51}$	3082^{+186}_{-144}	4558^{+1336}_{-688}	$3.088^{+6.072}_{-1.731}$

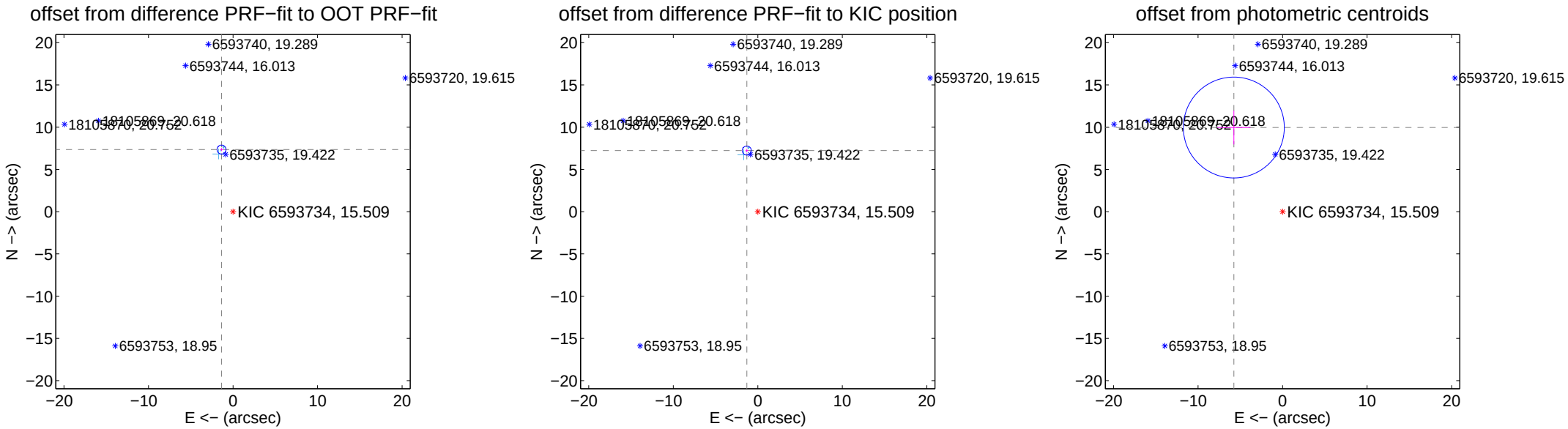
T_{max} = Theoretical Maximum Planetary Temperature
T_{obs} = Observed Planetary Temperature (Assuming A=0.3)
A_{obs} = Observed Albedo (Assuming T=0)

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

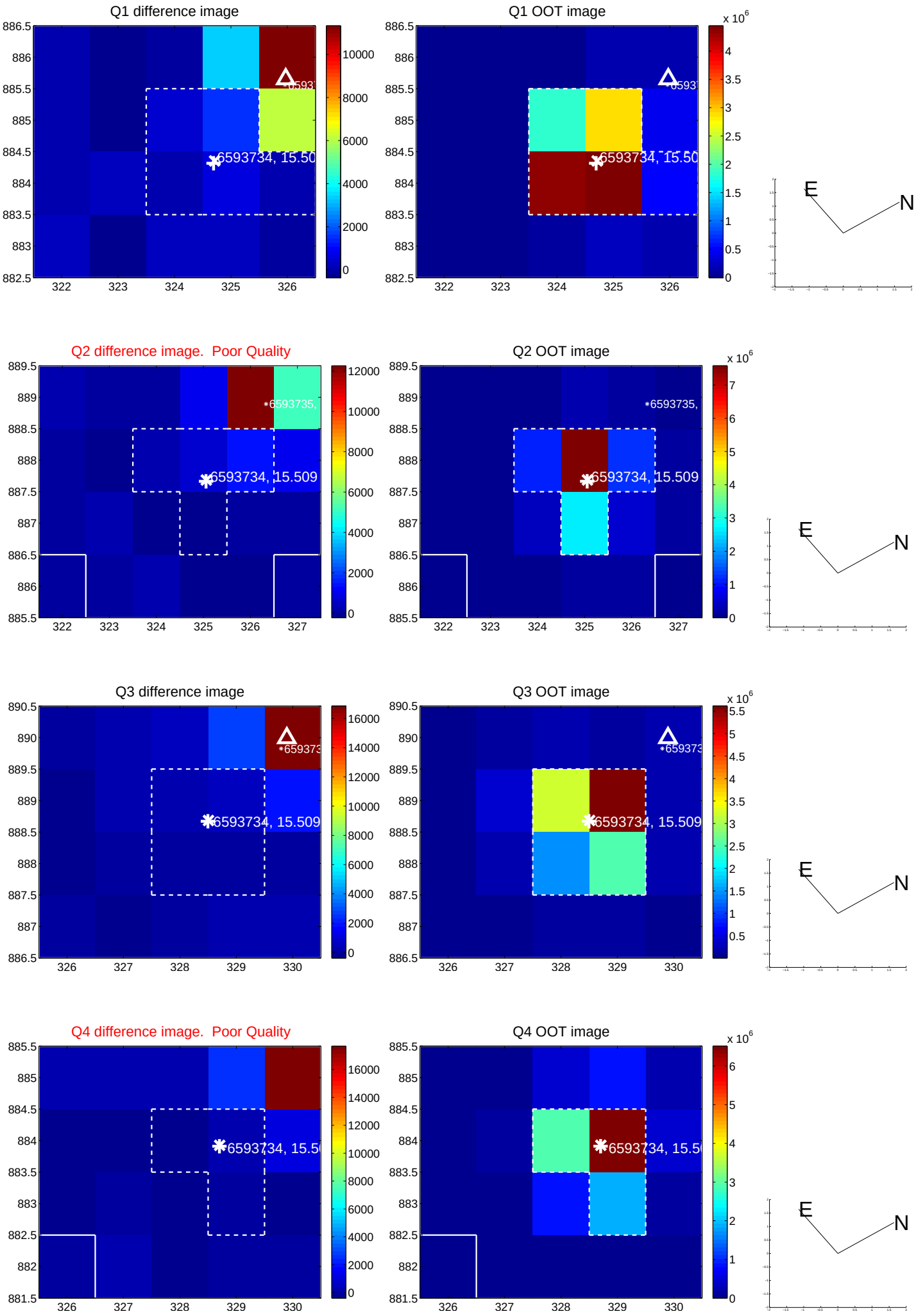
Supplemental centroid analysis for 006593734-02. Kepler magnitude: 15.51. Transit SNR 8.07
There are 4 quarters with good PRF difference image offsets
The direct PRF centroid is offset from the target star catalog position by about 0.11 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	7.470 ± 0.177	42.17	1.359 ± 0.197	7.345 ± 0.176
PRF-fit source offset from KIC position	7.342 ± 0.178	41.24	1.298 ± 0.155	7.226 ± 0.204
photometric centroid source offset	11.50 ± 1.99	5.78	5.76 ± 1.96	9.95 ± 2.00

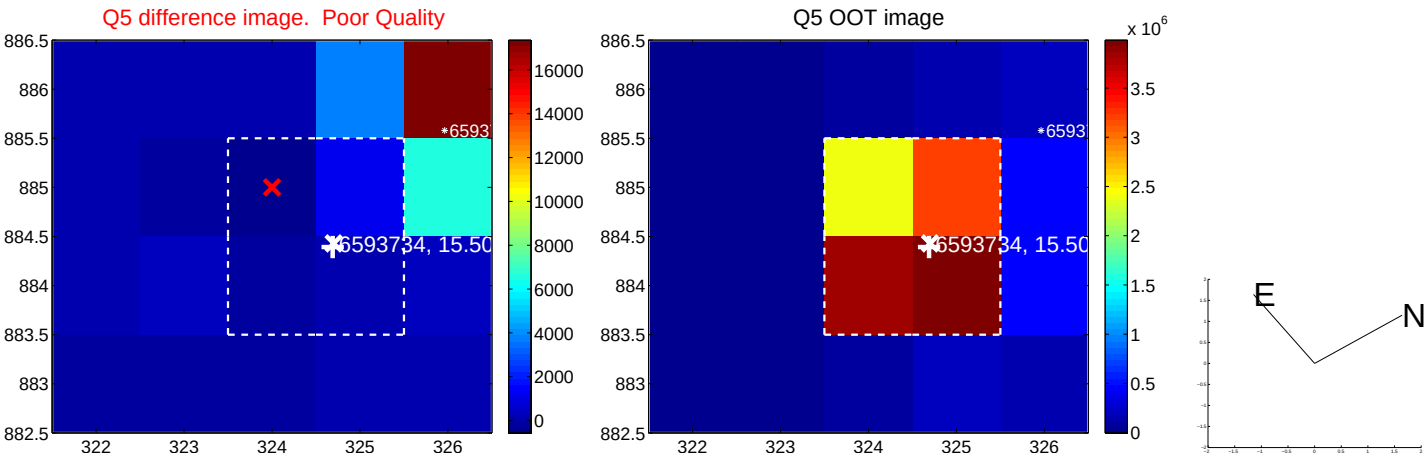


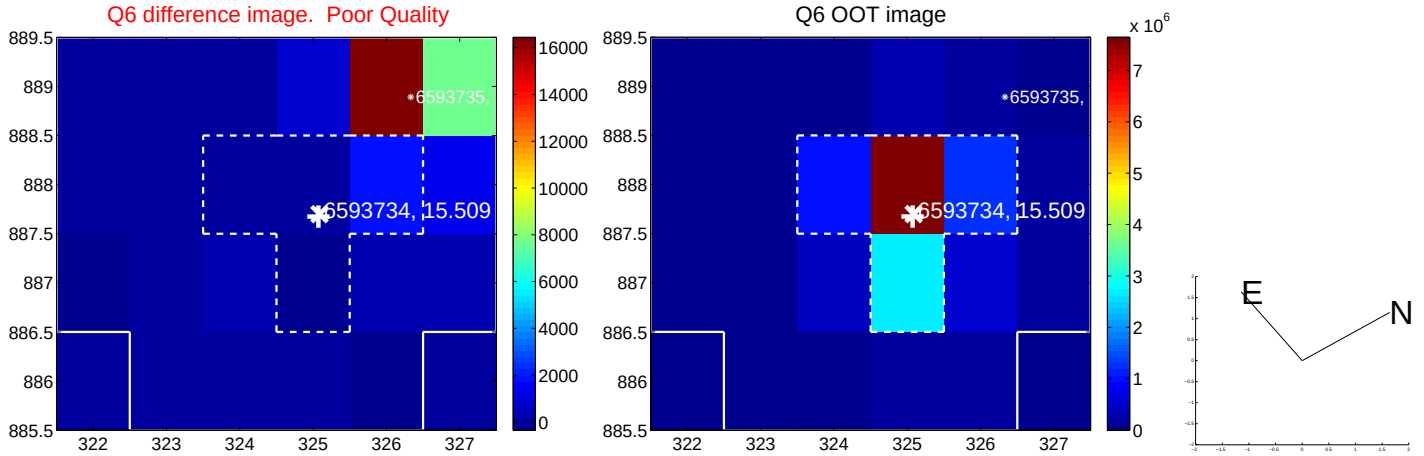
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one-σ uncertainty. Blue circle: three-σ. Red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

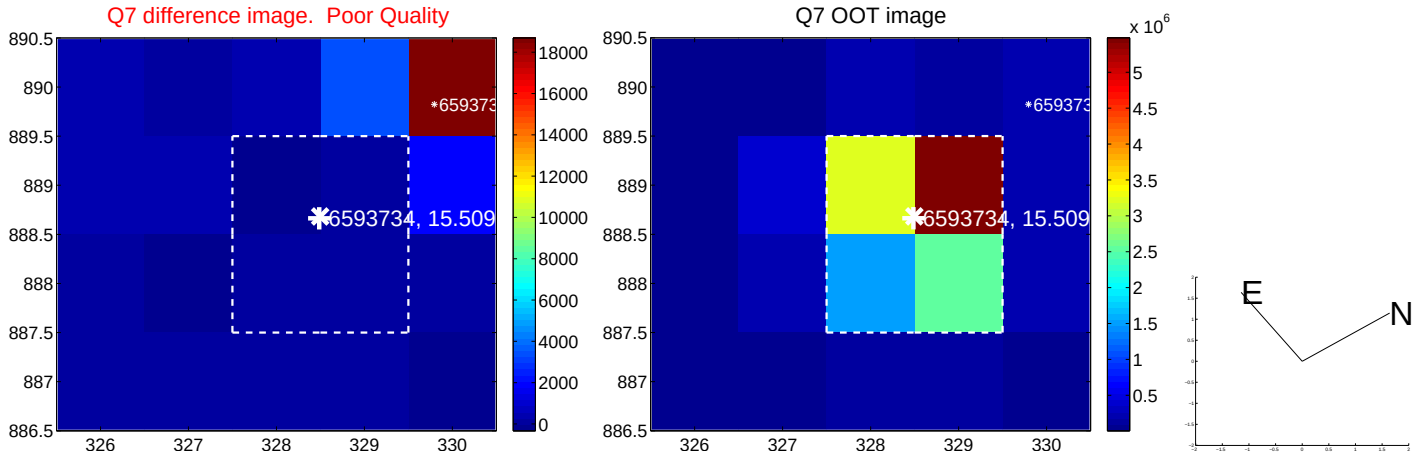
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.

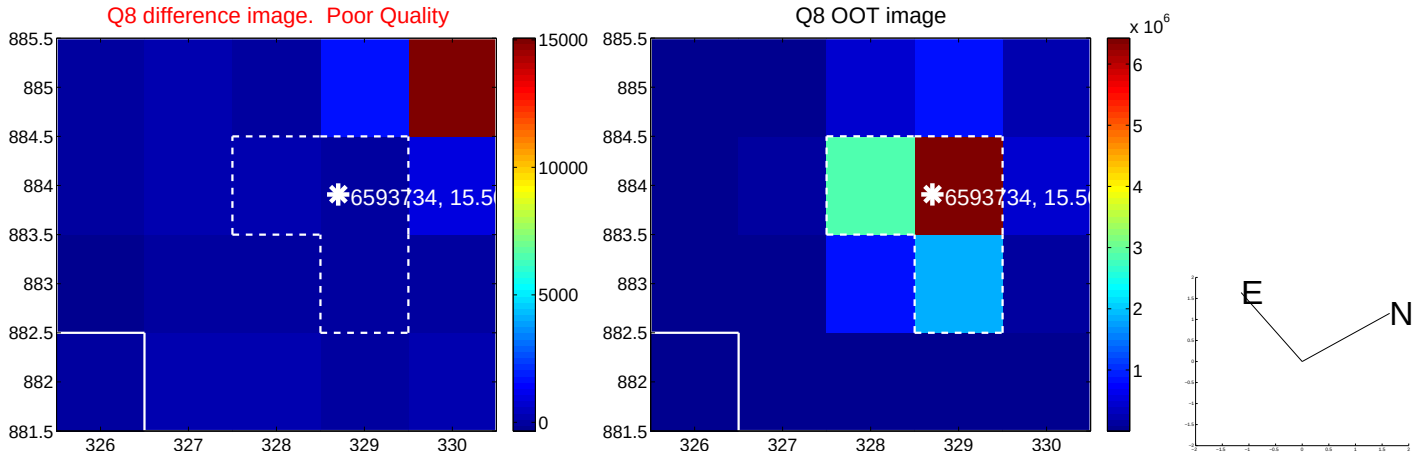


white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.

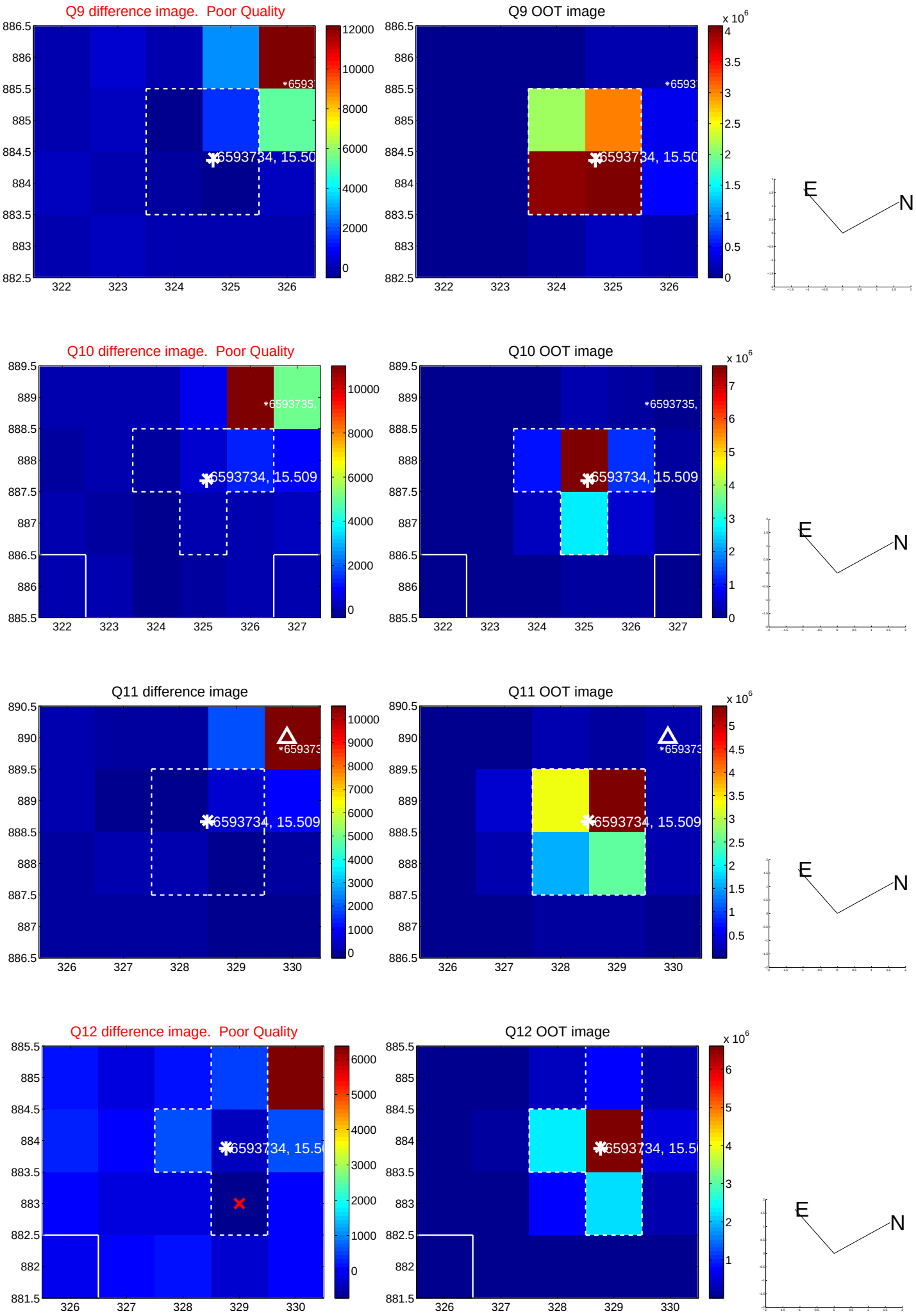




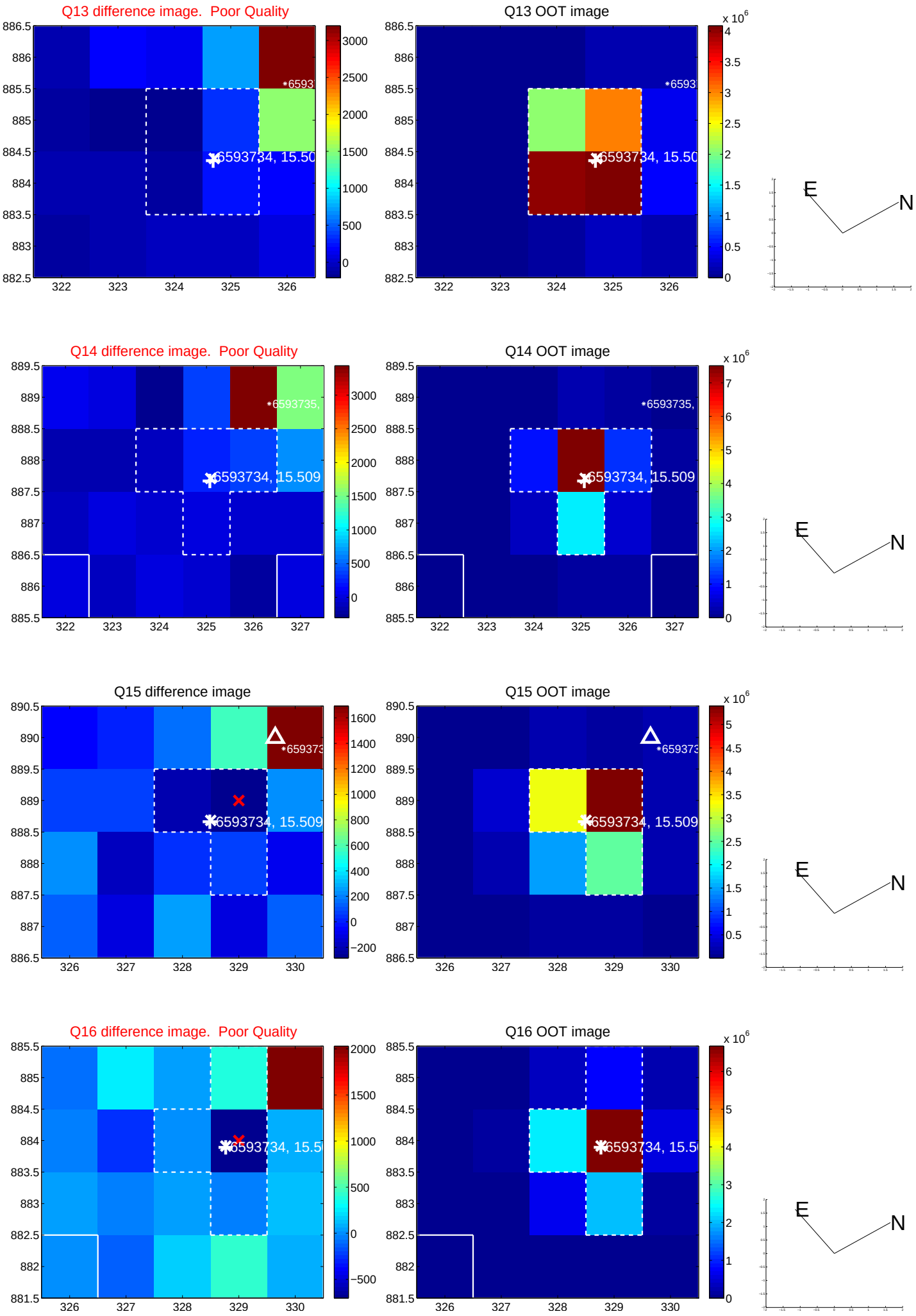




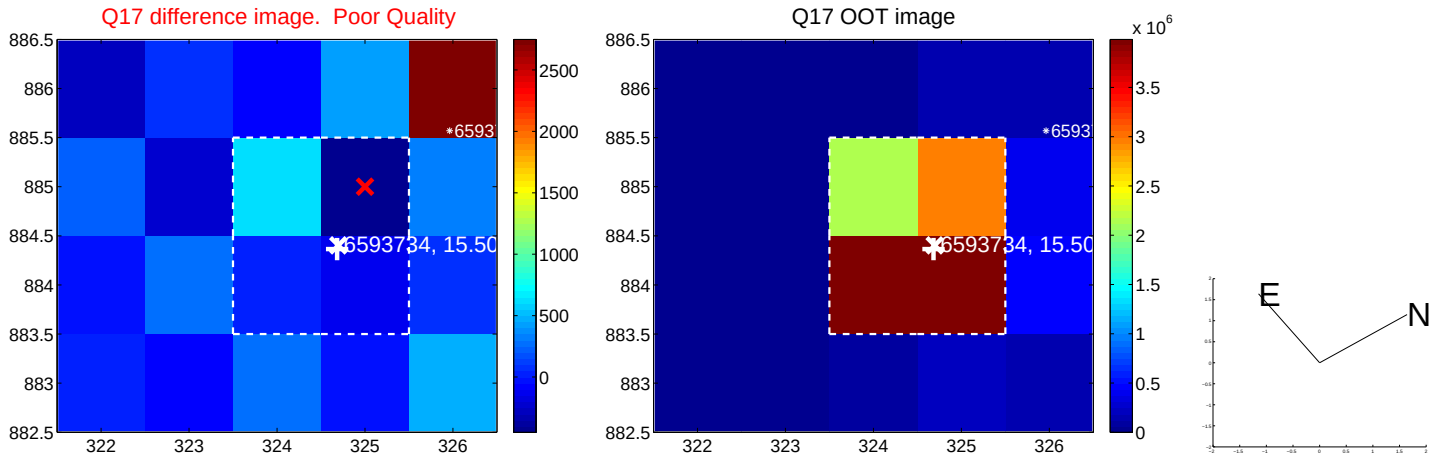
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.

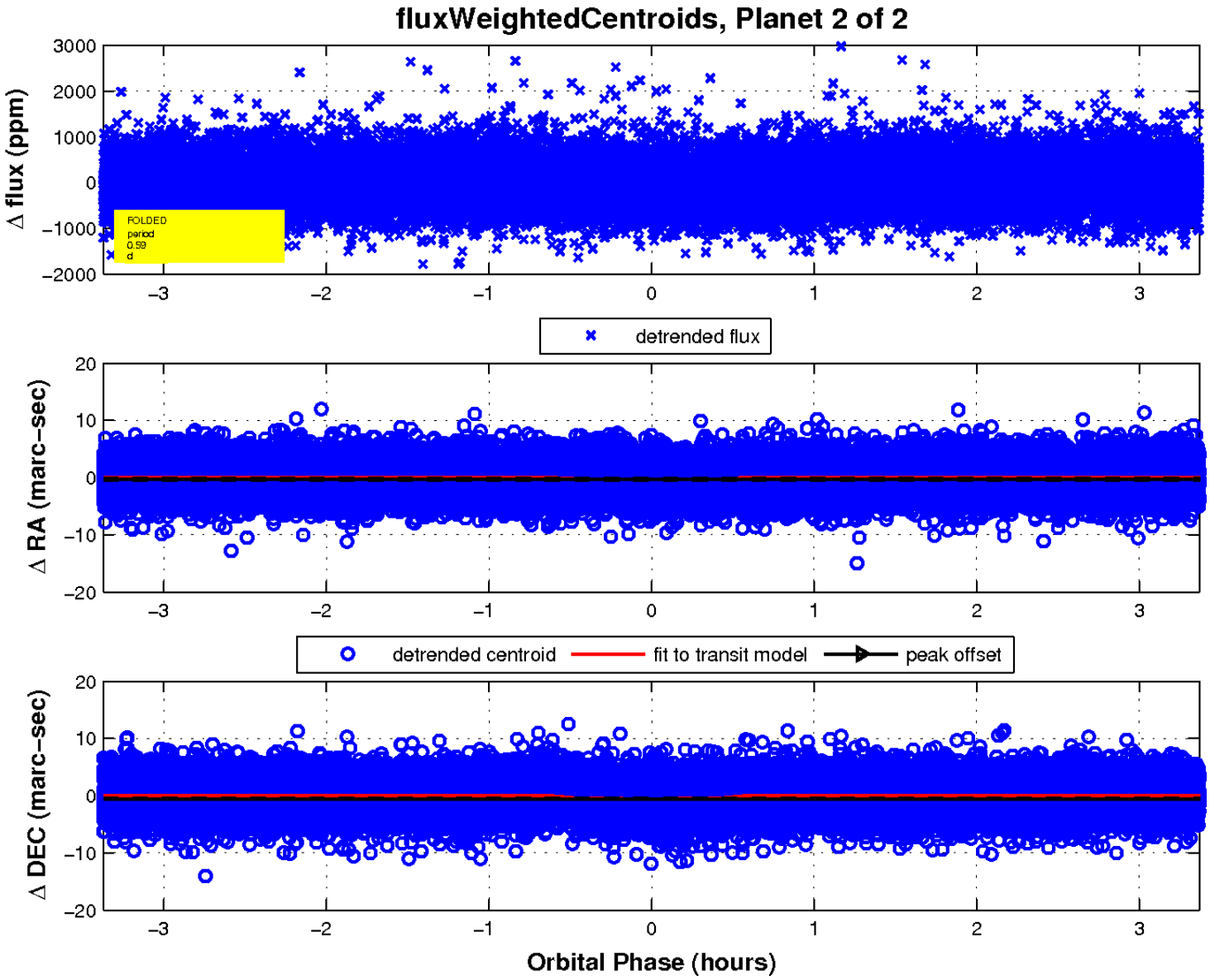
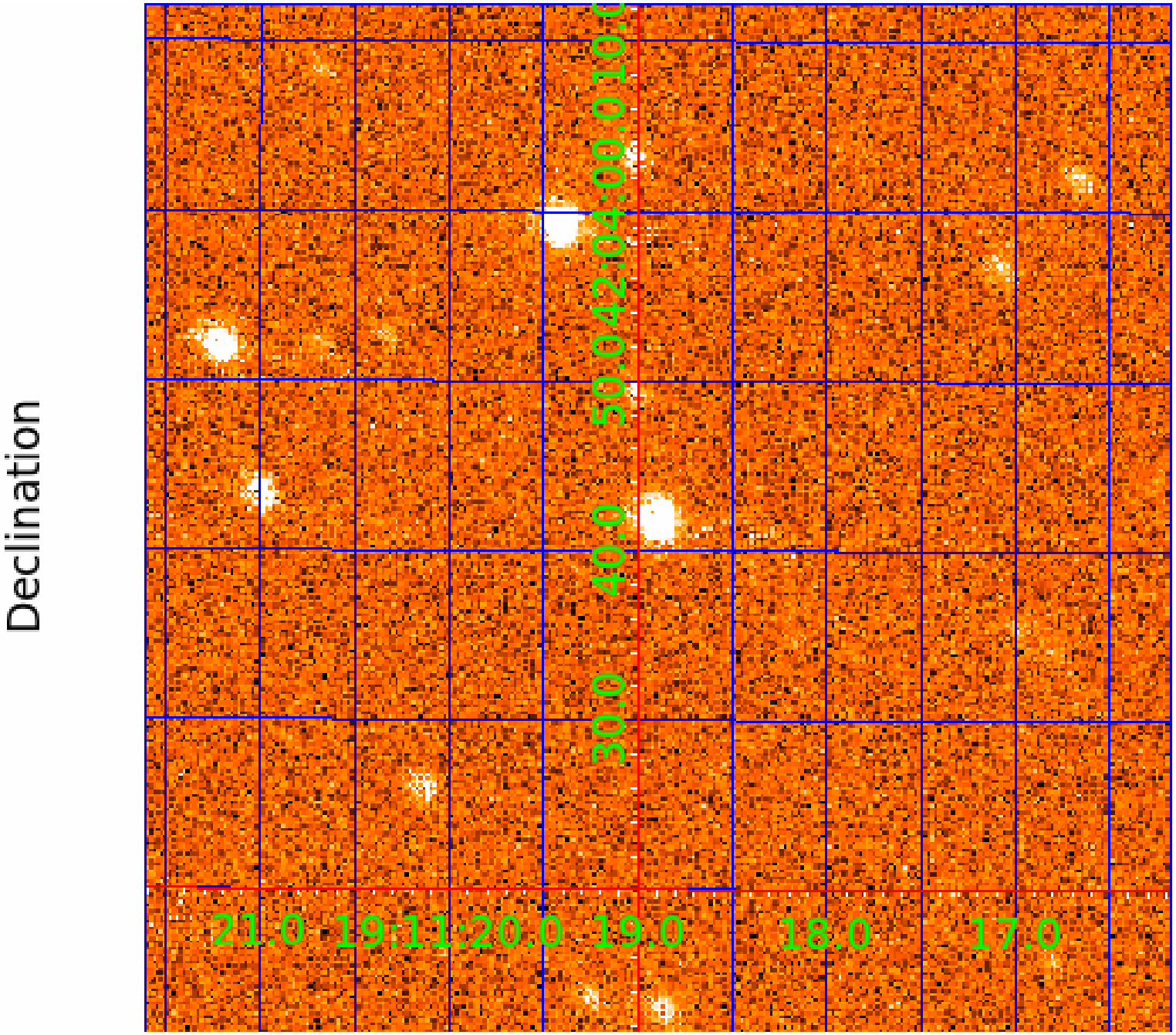


white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.



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





UKIRT Image