KIC 009139163

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 ($S_\oplus$)
009139163-01	OBS	No	0.605153	132.014514	0.0	0.693	8.0	0.0	1.52	6405	0.00	14856.05
009139163-02	OBS	No	172.899038	154.478118	53.7	8.601	7.5	6.7	1.52	6405	1.27	7.89

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009139163-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA_TRACKER—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—CENT_SATURATED
009139163-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—TRANS_GAPPED—MOD_NONUNIQ_ALT—CENT_SATURATED

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.

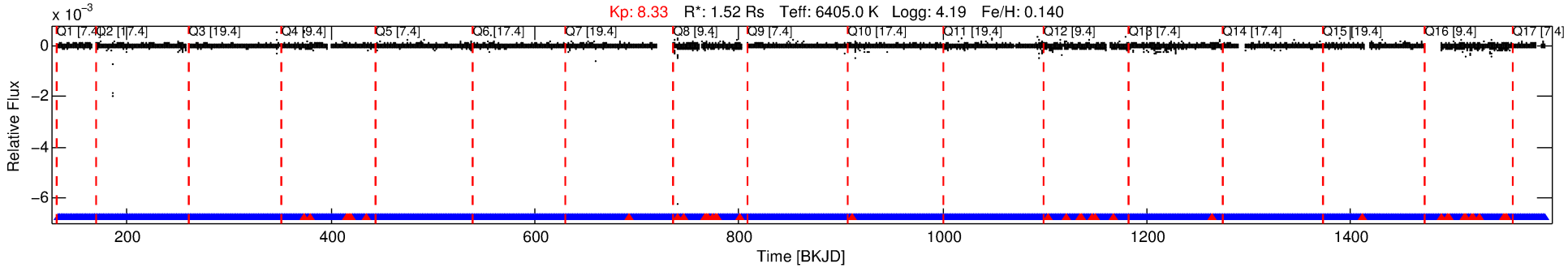
Ephemeris Match Information For 009139163-01

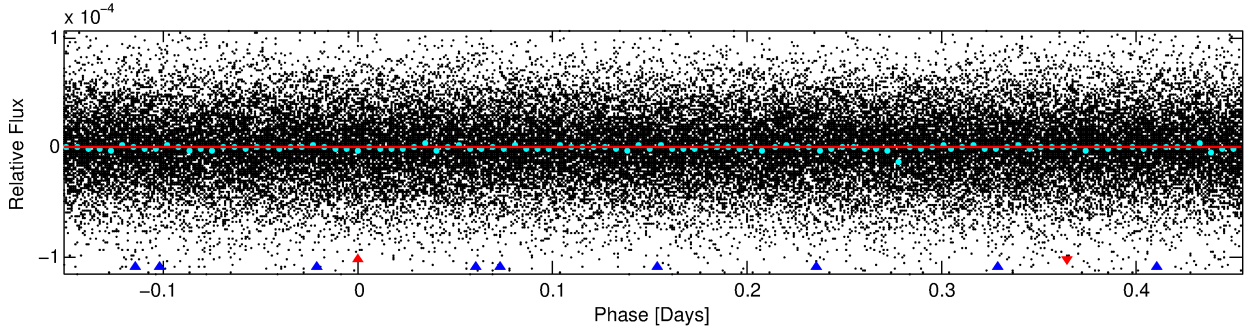
No Significant Match Found

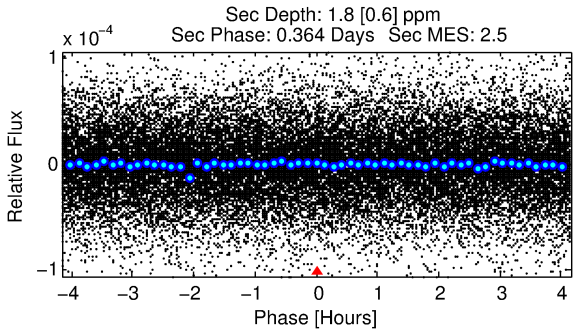
DV One-Page Summary

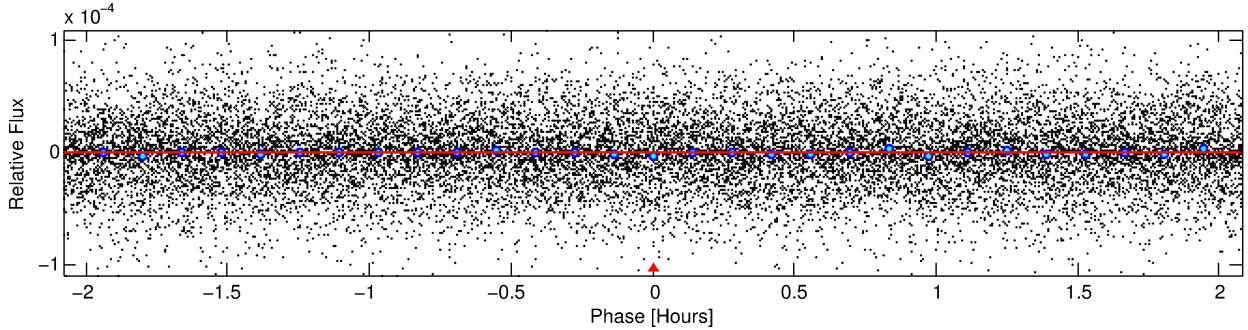
KIC: 9139163 Candidate: 1 of 2 Period: 0.605 d

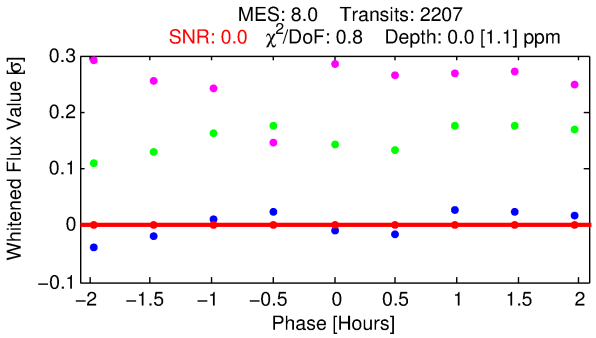
Kp: 8.33 R*: 1.52 Rs Teff: 6405.0 K Logg: 4.19 Fe/H: 0.140

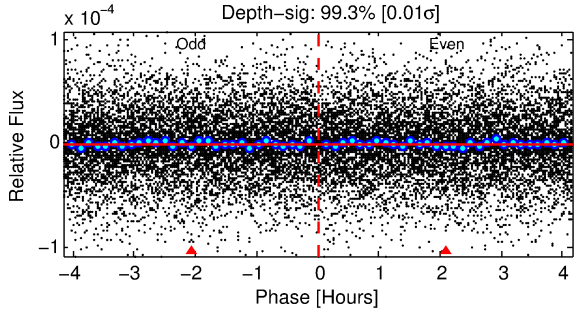


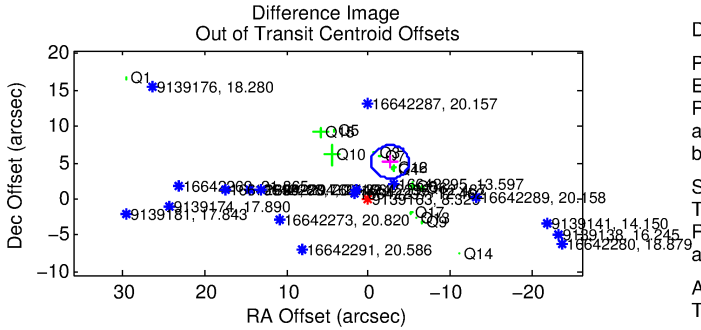












DV Fit Results:

Period = 0.60515 [0.58920] d
Epoch = 132.0145 [74.0367] BKJD
Rp/R* = 0.0000 [0.0642]
a/R* = 1.24 [492.48]
b = 0.99 [32.70]

Seff = 14856.05 [19373.40]
Teq = 2815 [918] K
Rp = 0.00 [10.65] Re
a = 0.0153 [0.0100] AU

Ag = 37572.47 [319583712.60] [0.00σ]
Teffp = 60598 [128872427] K [0.00σ]

DV Diagnostic Results:

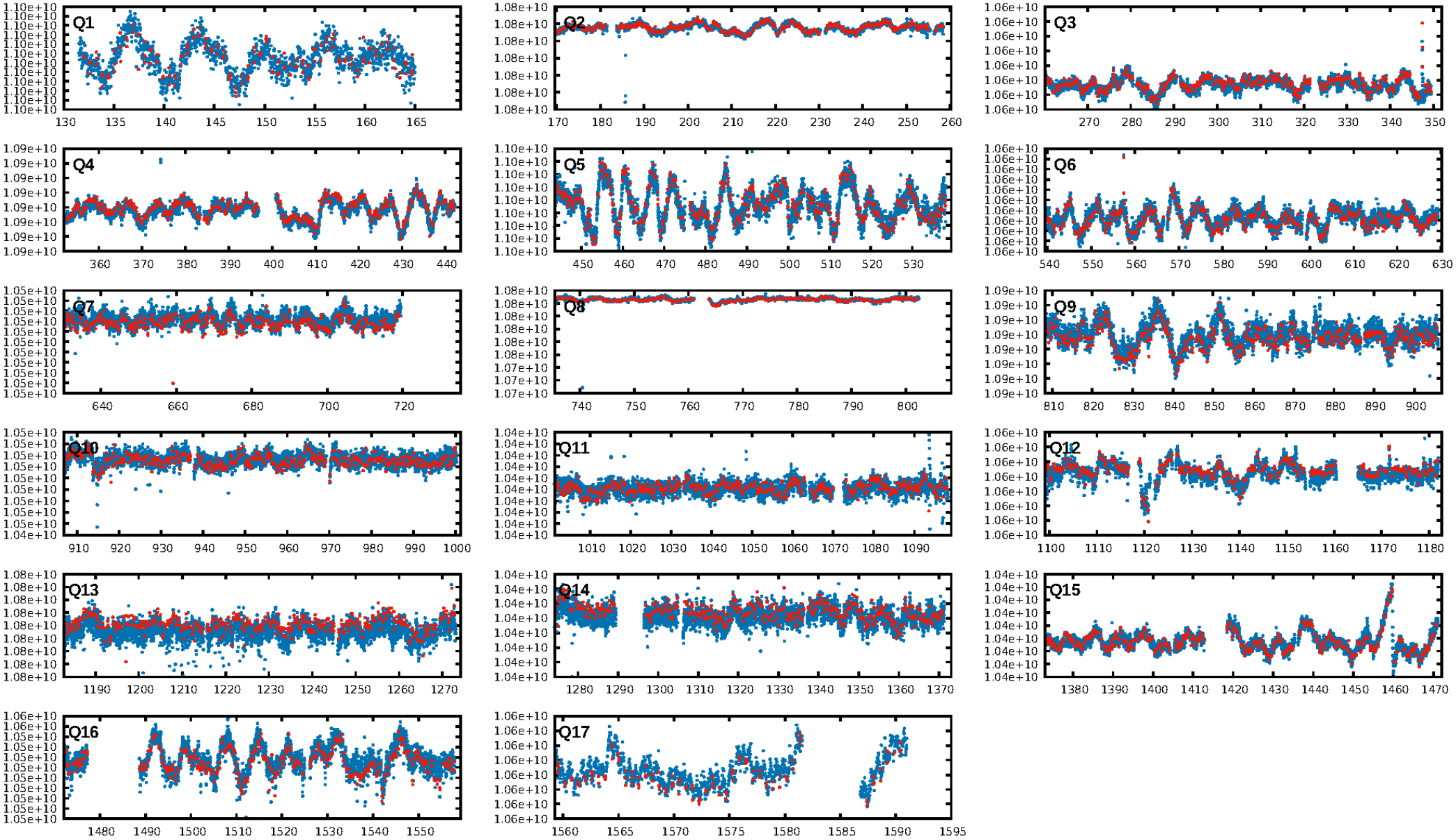
ShortPeriod−sig: N/A
LongPeriod−sig: 100.0% [479.19σ]
ModelChiSquare2−sig: N/A
ModelChiSquareGof−sig: N/A
Bootstrap−pfa: 1.67e−12
RollingBand−fgt: 0.98 [2068/2107]
GhostDiagnostic−chr: N/A

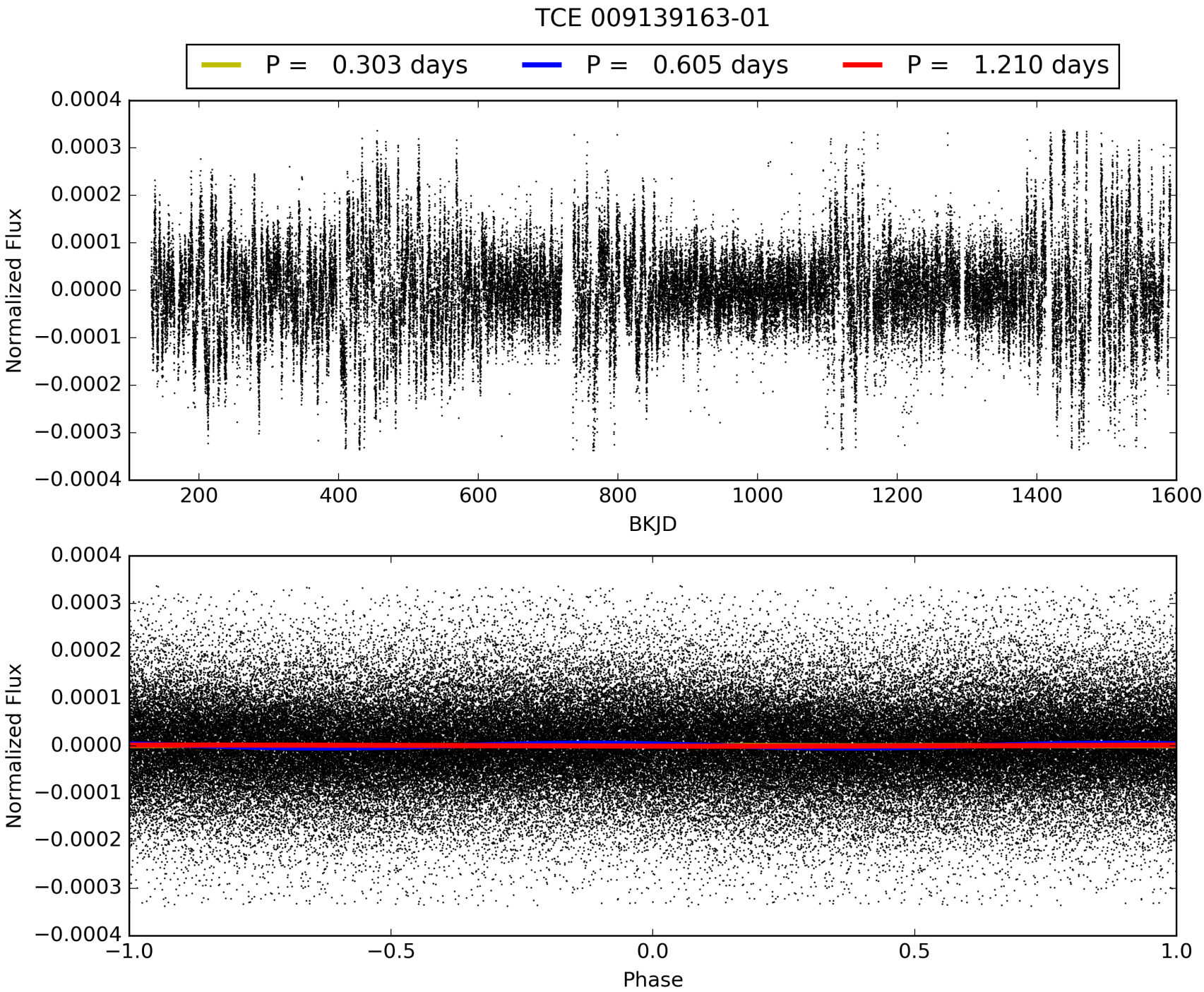
Centroid−sig: N/A
Centroid−so: N/A
OotOffset−rm: 5.740 arcsec [7.52σ]
KicOffset−rm: 5.594 arcsec [2.58σ]
OotOffset−st: 3/3/4/5 [15]
KicOffset−st: 3/3/4/5 [15]
DiffImageQuality−fgm: 0.07 [1/15]
DiffImageOverlap−fno: 1.00 [17/17]

Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01−Feb−2016 19:17:49 Z

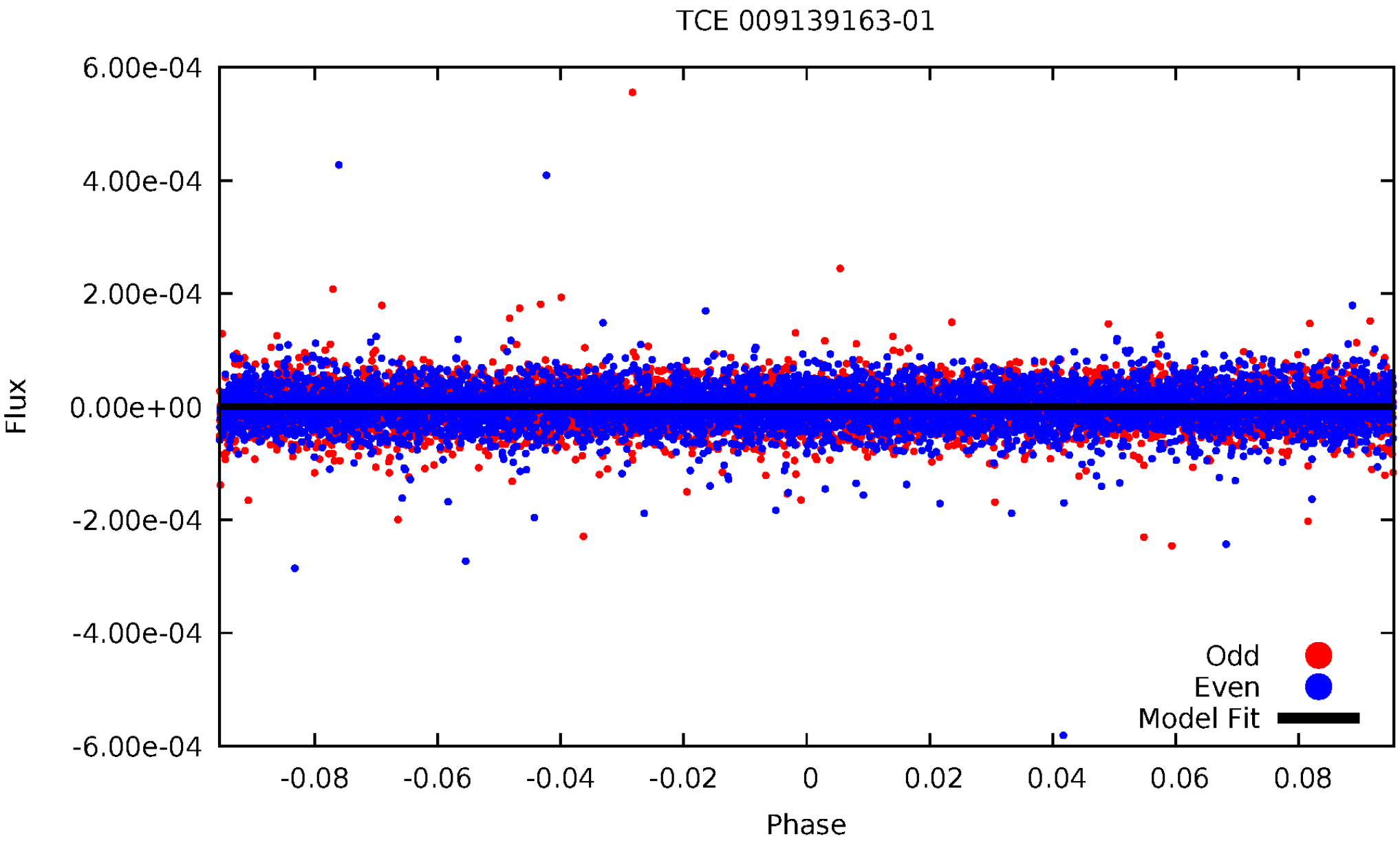
This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

TCE 009139163-01, PDC Light Curves

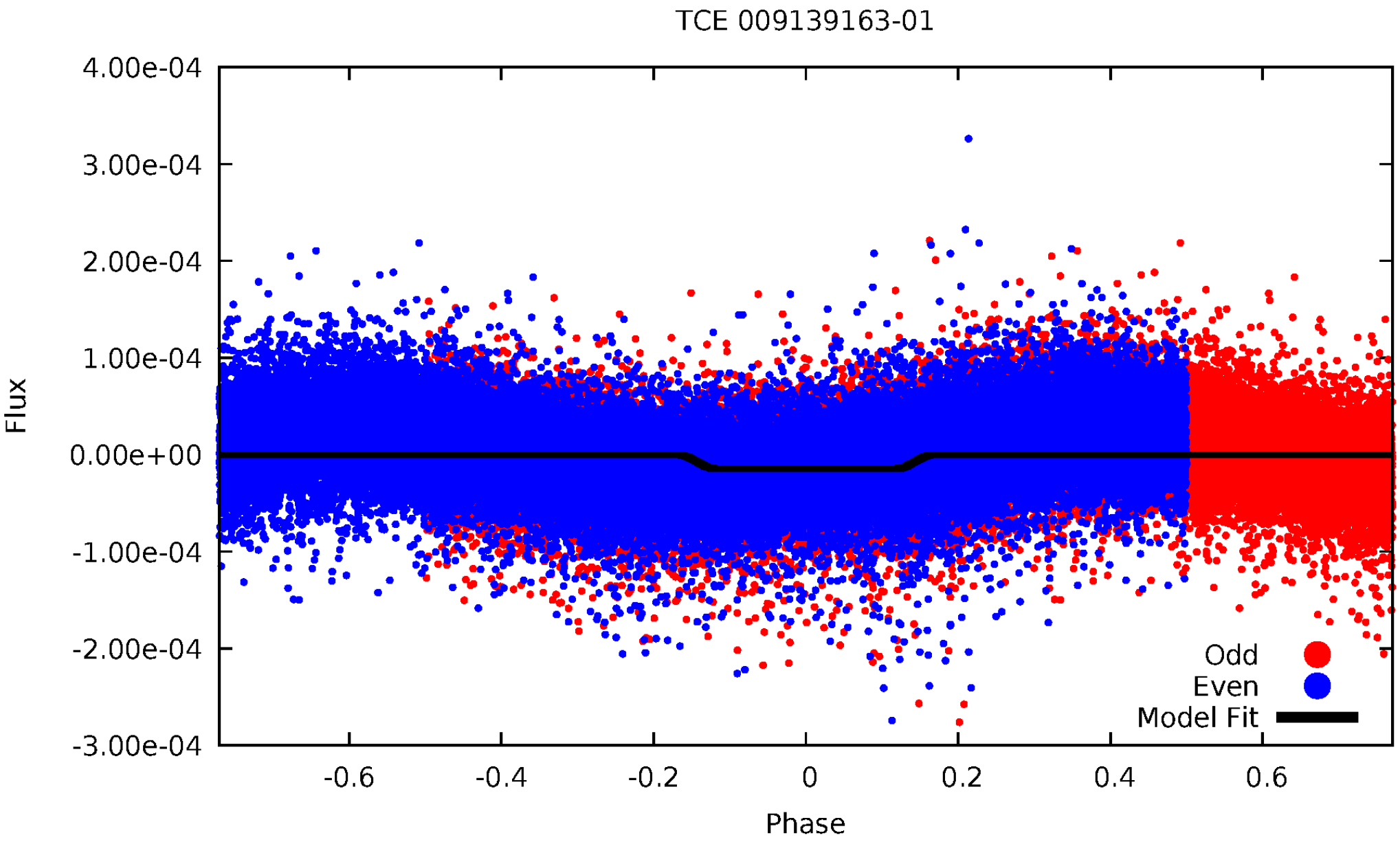



TCE 009139163-01
P = 0.303 days
P = 0.605 days
P = 1.210 days
Normalized Flux
BKJD
Normalized Flux
Phase

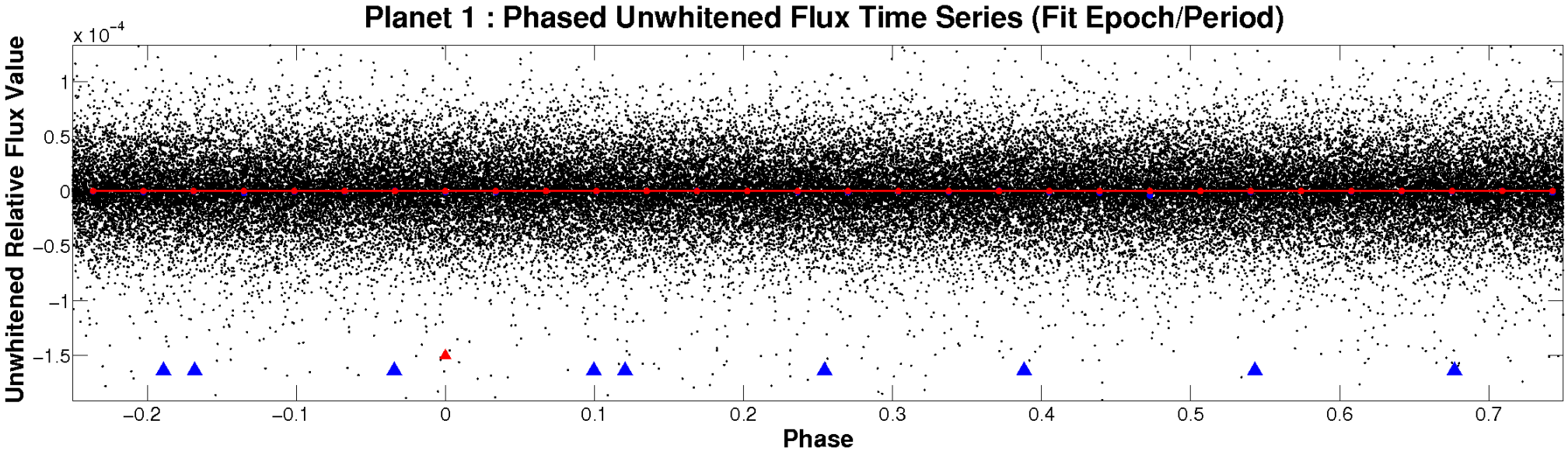
DV Odd/Even

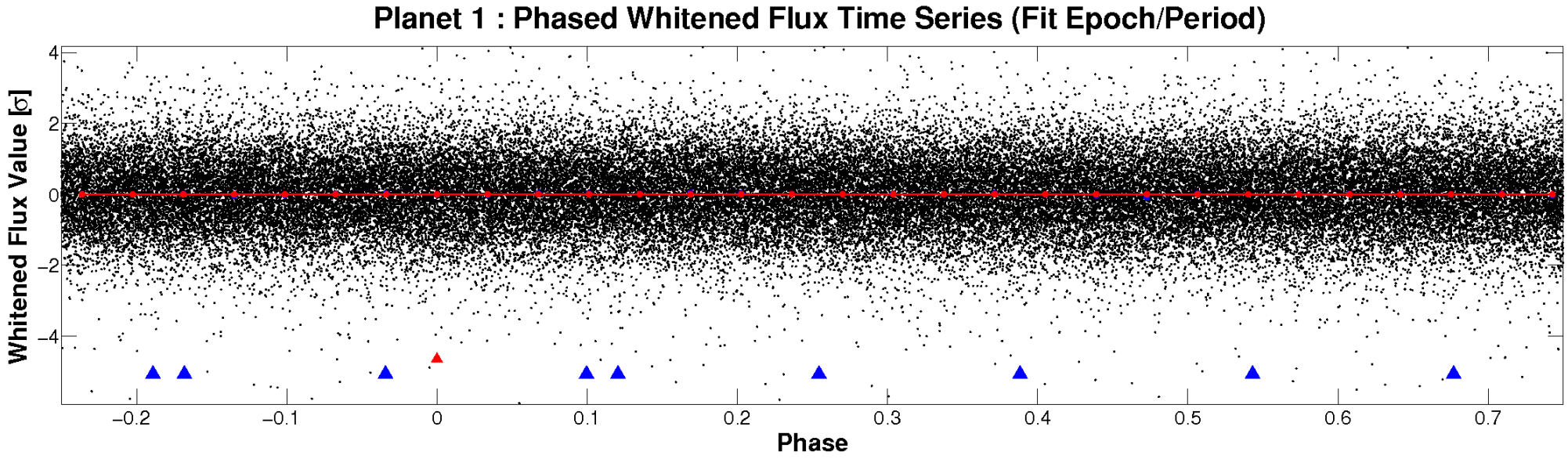

TCE 009139163-01
6.00e-04
4.00e-04
2.00e-04
0.00e+00
-2.00e-04
-4.00e-04
-6.00e-04
Flux
-0.08
-0.06
-0.04
-0.02
0
0.02
0.04
0.06
0.08
Phase
Odd
Even
Model Fit

ALT Odd/Even


TCE 009139163-01
4.00e-04
3.00e-04
2.00e-04
1.00e-04
0.00e+00
-1.00e-04
-2.00e-04
-3.00e-04
Flux
-0.6
-0.4
-0.2
0
0.2
0.4
0.6
Phase
Odd
Even
Model Fit

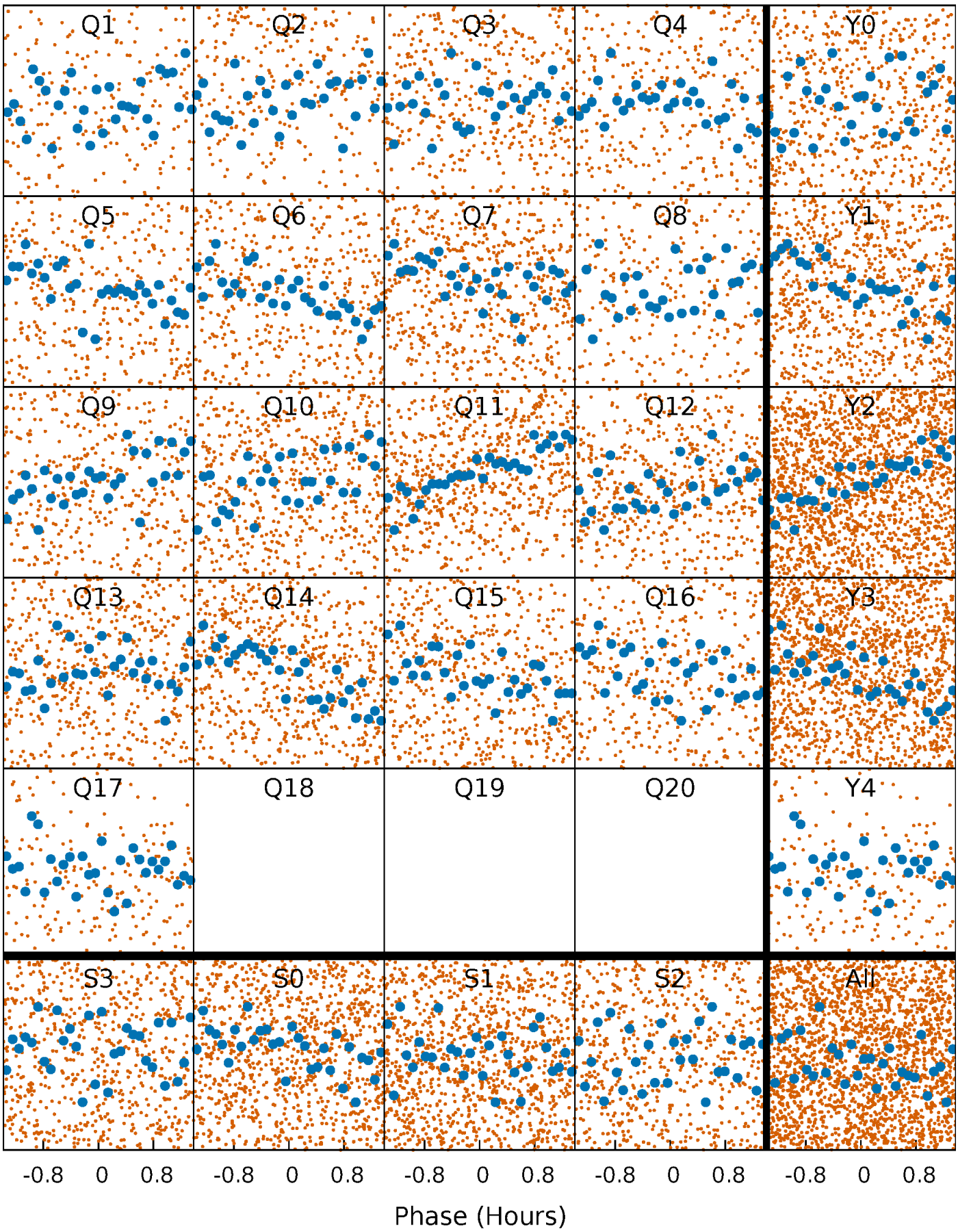
Non-Whitened Vs. Whitened Light Curve





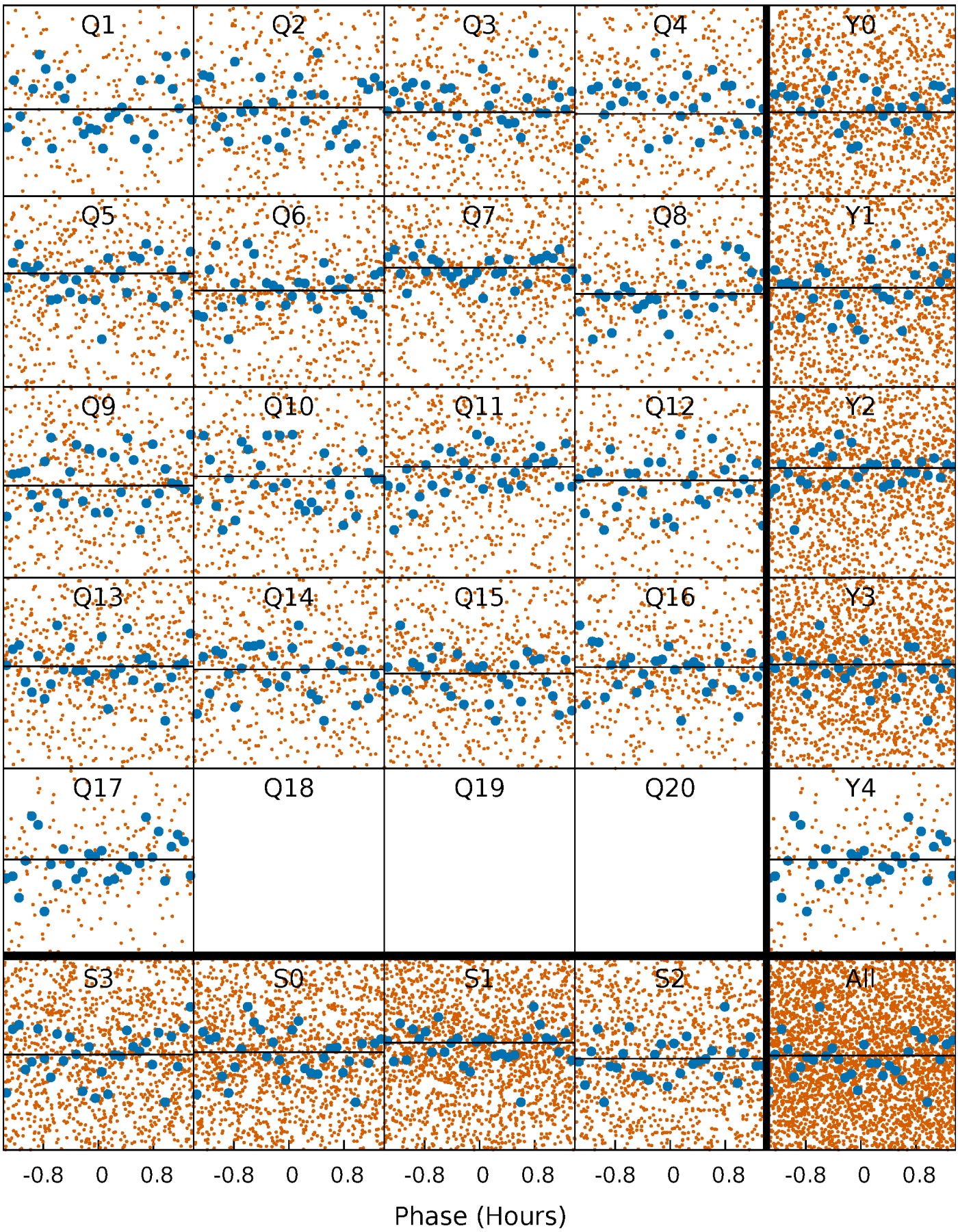
PDC Quarter-Phased Transit Curves

TCE 009139163-01 P= 0.605153 Days T_0=132.014514 (BKJD)



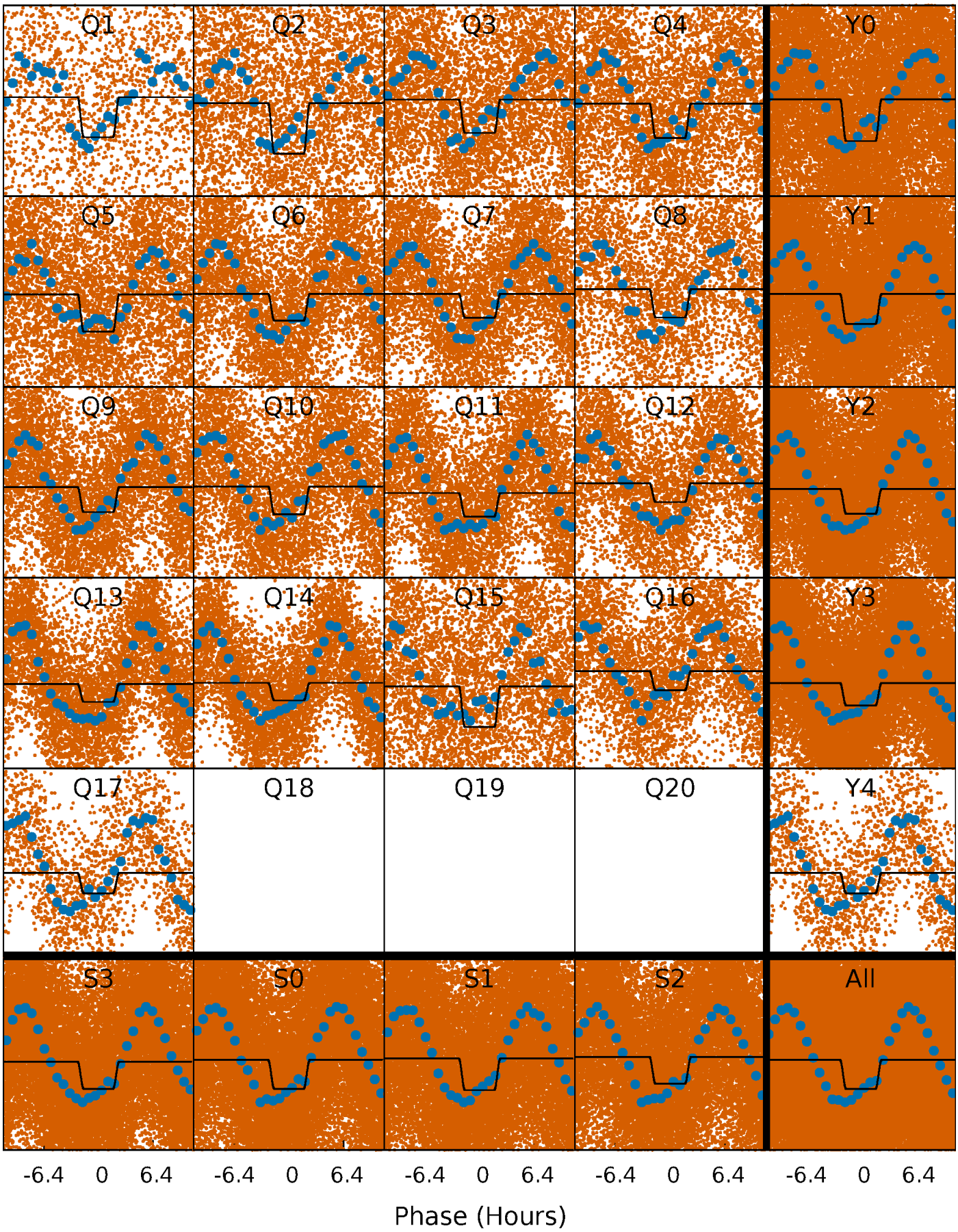
DV Quarter-Phased Transit Curves

TCE 009139163-01 P= 0.605153 Days T_0=132.014514 (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

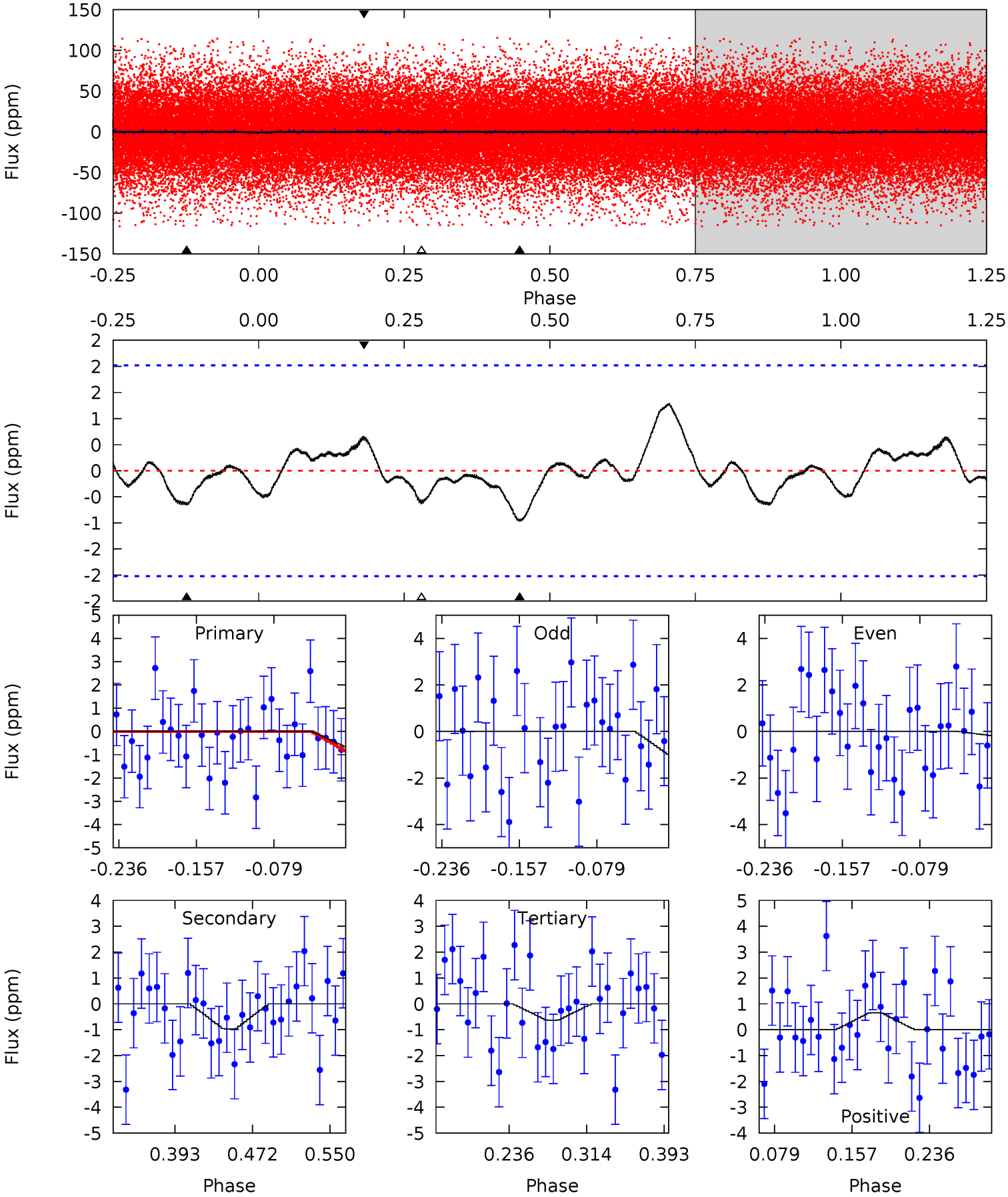
TCE 009139163-01 P= 0.604771 Days T_0=131.870441 (BKJD)



DV Model-Shift Uniqueness Test

009139163-01, P = 0.605153 Days, E = 131.409361 Days

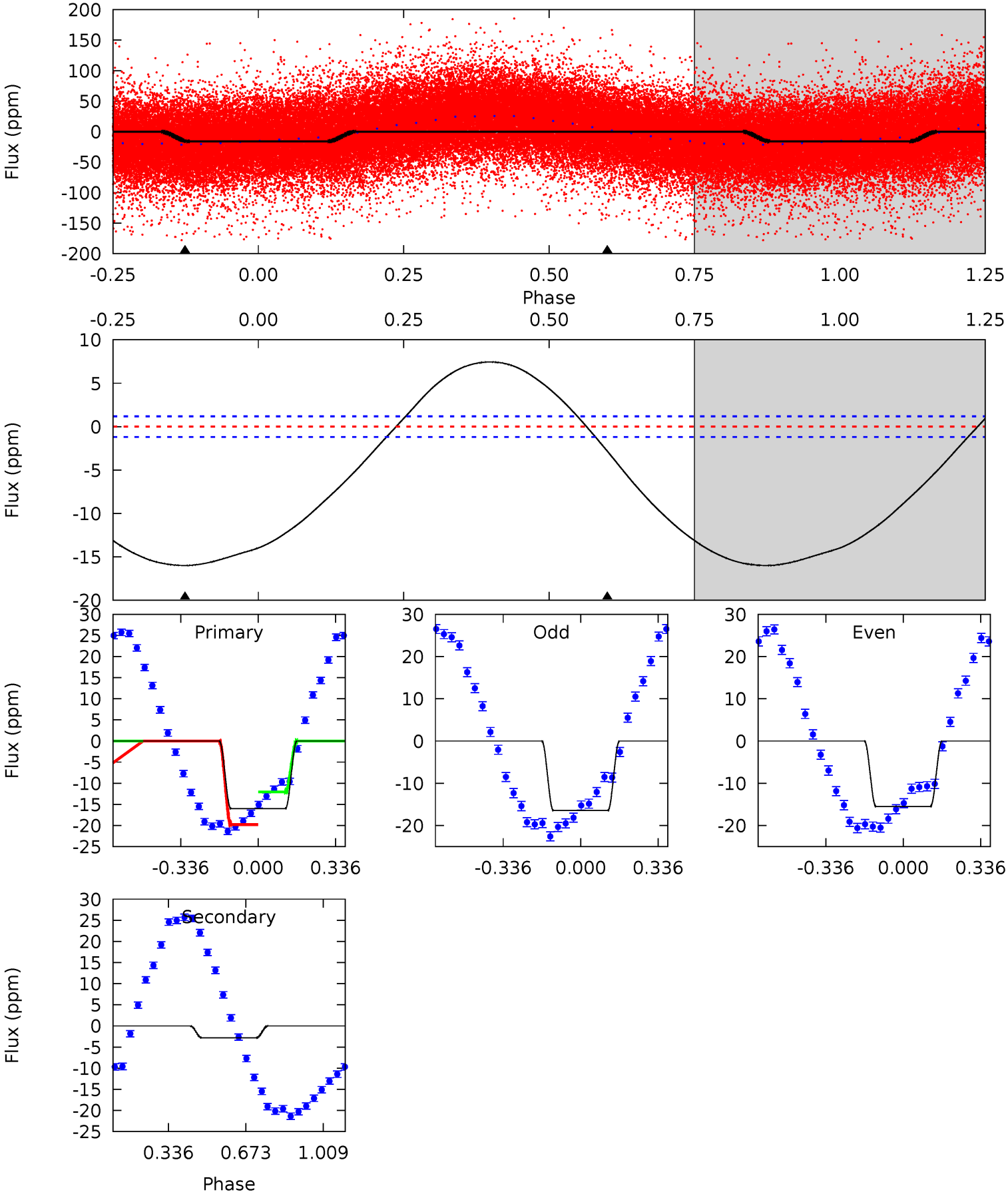
Pri	Sec	Ter	Pos	FA_1	FA_2	F_{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
1.51	2.22	1.45	1.50	4.62	1.76	0.92	0.06	0.01	0.77	0.72	0.94	0	0.57	0.70



Alt Model-Shift Uniqueness Test

009139163-01, P = 0.604771 Days, E = 131.265670 Days

Pri	Sec	Ter	Pos	FA_1	FA_2	F_{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
57.9	10.2	0	0	4.30	0.96	7.67	57.9	57.9	10.2	10.2	1.70	1.07	0.32	14.6



Stellar Parameters For KIC 009139163

	$T_{\rm eff}(K)$	$\log(g)$	[Fe/H]	R ($R_\odot$)	$M(M_\odot)$	$p_\star$ (g·cm^{-3})
	6405^{+76}_{-95}	$4.191^{+0.060}_{-0.054}$	$0.140^{+0.100}_{-0.100}$	$1.521^{+0.131}_{-0.131}$	$1.312^{+0.057}_{-0.057}$	$0.525^{+0.143}_{-0.094}$
	+1%/-1%	+1%/-1%	+71%/-71%	+9%/-9%	+4%/-4%	+27%/-18%
Source	SPE6	AST10	SPE6	DSEP		

KIC = Kepler Input Catalog; PHO = Photometry; SPE = Spectroscopy; AST = Asteroseismology
TRA = Transits; DESP = Dartmouth Models; MULT = Multiple Models

Secondary Eclipse Parameters for KIC 009139163-01 / KOI

Detrend	Depth (ppm)	R_p ($R_\oplus$)	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-1±0	$7.20^{+8.31}_{-4.83}$	3718^{+1488}_{-639}	-3461^{+398}_{-962}	$0.002^{+0.023}_{-0.002}$
Alt.	-3±0	$7.45^{+7.85}_{-5.08}$	3639^{+1390}_{-621}	-3388^{+463}_{-921}	$0.008^{+0.085}_{-0.007}$

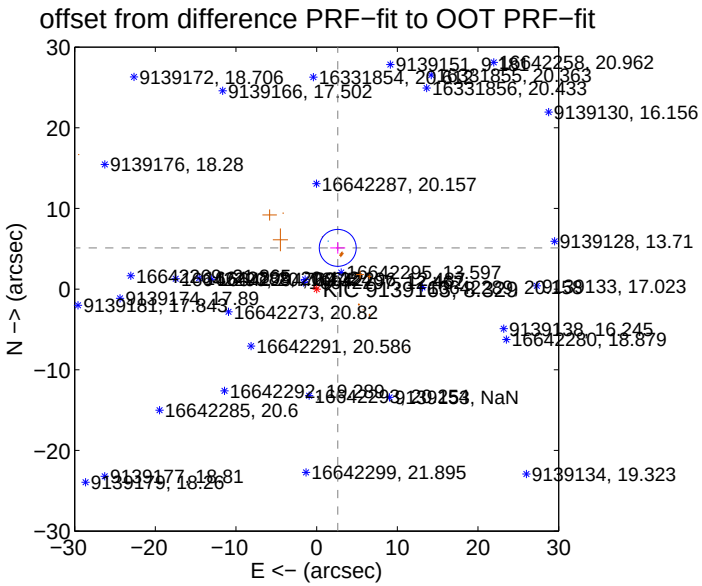
T_{max} = Theoretical Maximum Planetary Temperature
T_{obs} = Observed Planetary Temperature (Assuming A=0.3)
A_{obs} = Observed Albedo (Assuming T=0)

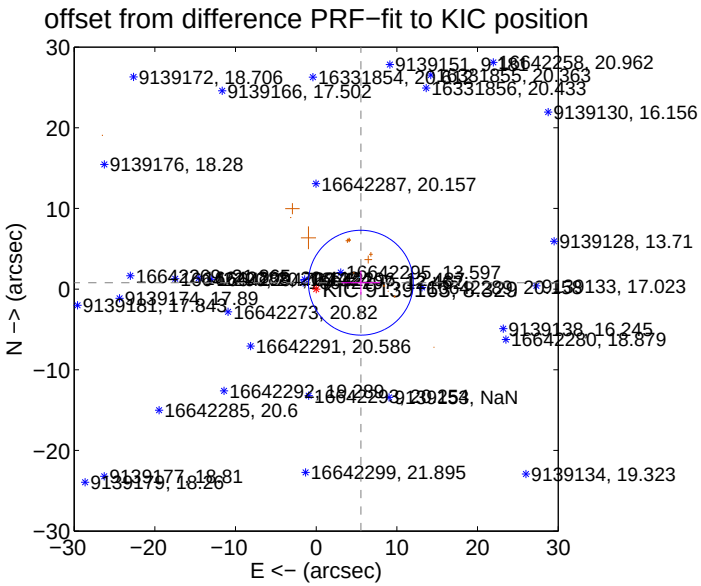
If a secondary eclipse is present, the system is likely an EB if $T_{obs} \gg T_{max}$ AND $A_{obs} \gg 1.0$

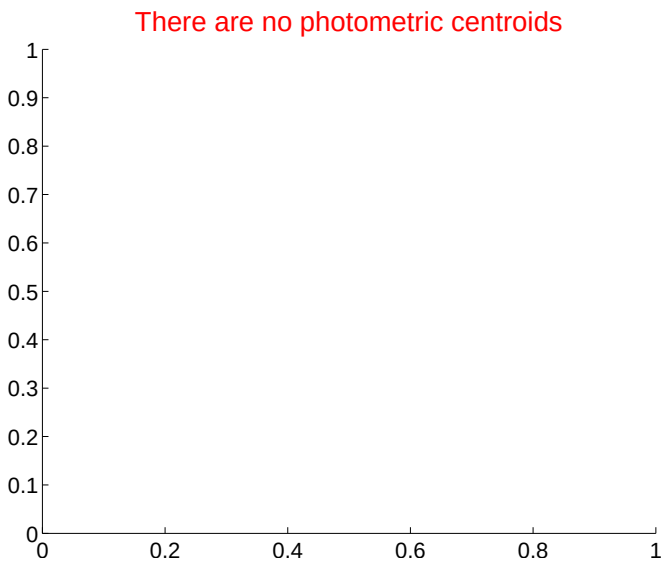
DV Centroid Data

Supplemental centroid analysis for 009139163-01. Kepler magnitude: 8.33. Transit SNR 0.00
There are 1 quarters with good PRF difference image offsets
The OOT PRF centroid is offset from the target star catalog position by about 3.93 arcsec so the offset from difference PRF-fit to OOT-fit may be invalid.

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	5.740 ± 0.763	7.52	-2.614 ± 0.927	5.111 ± 0.714
PRF-fit source offset from KIC position	5.594 ± 2.167	2.58	-5.537 ± 2.387	0.793 ± 1.485
photometric centroid source offset	—	—	—	—

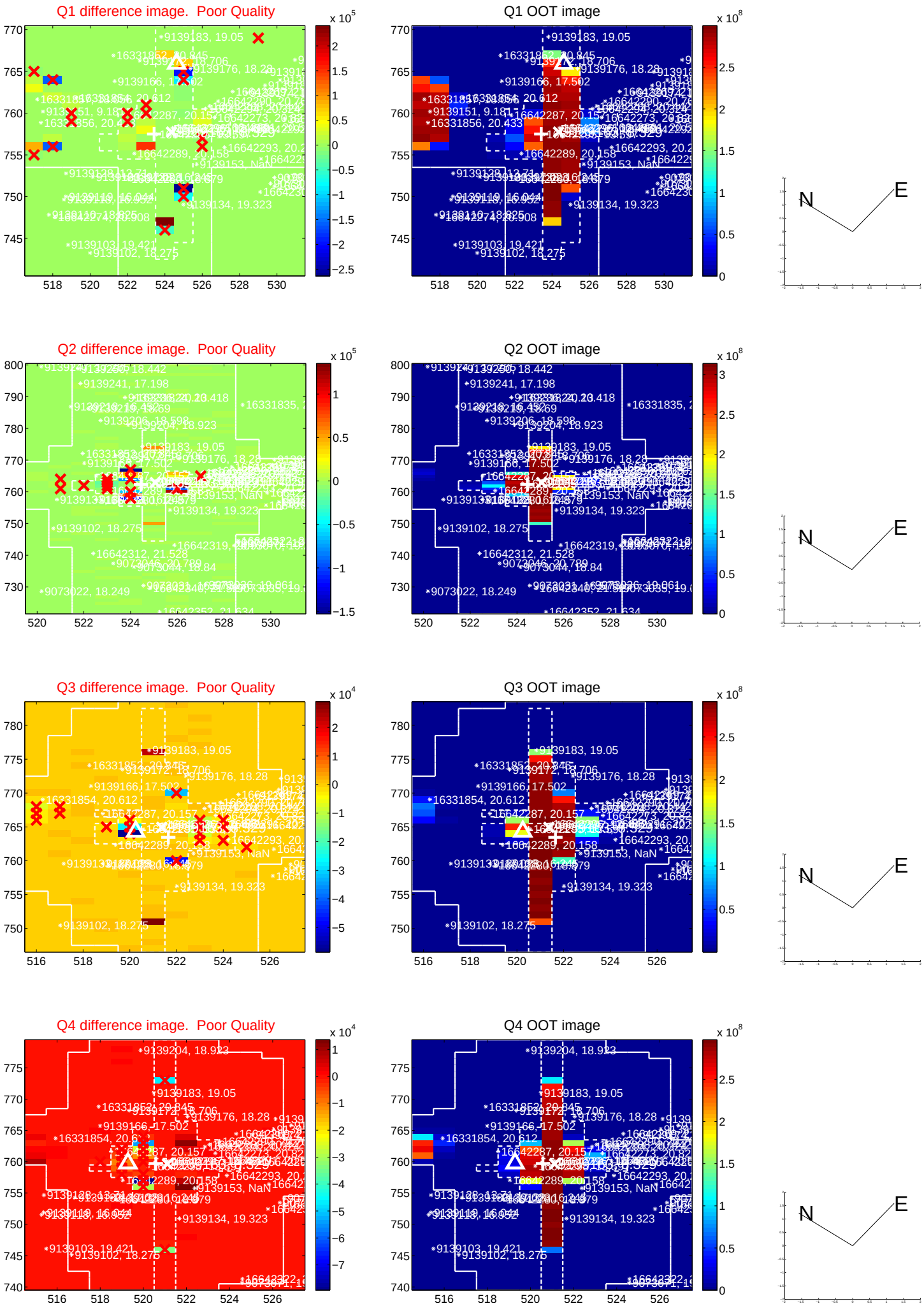




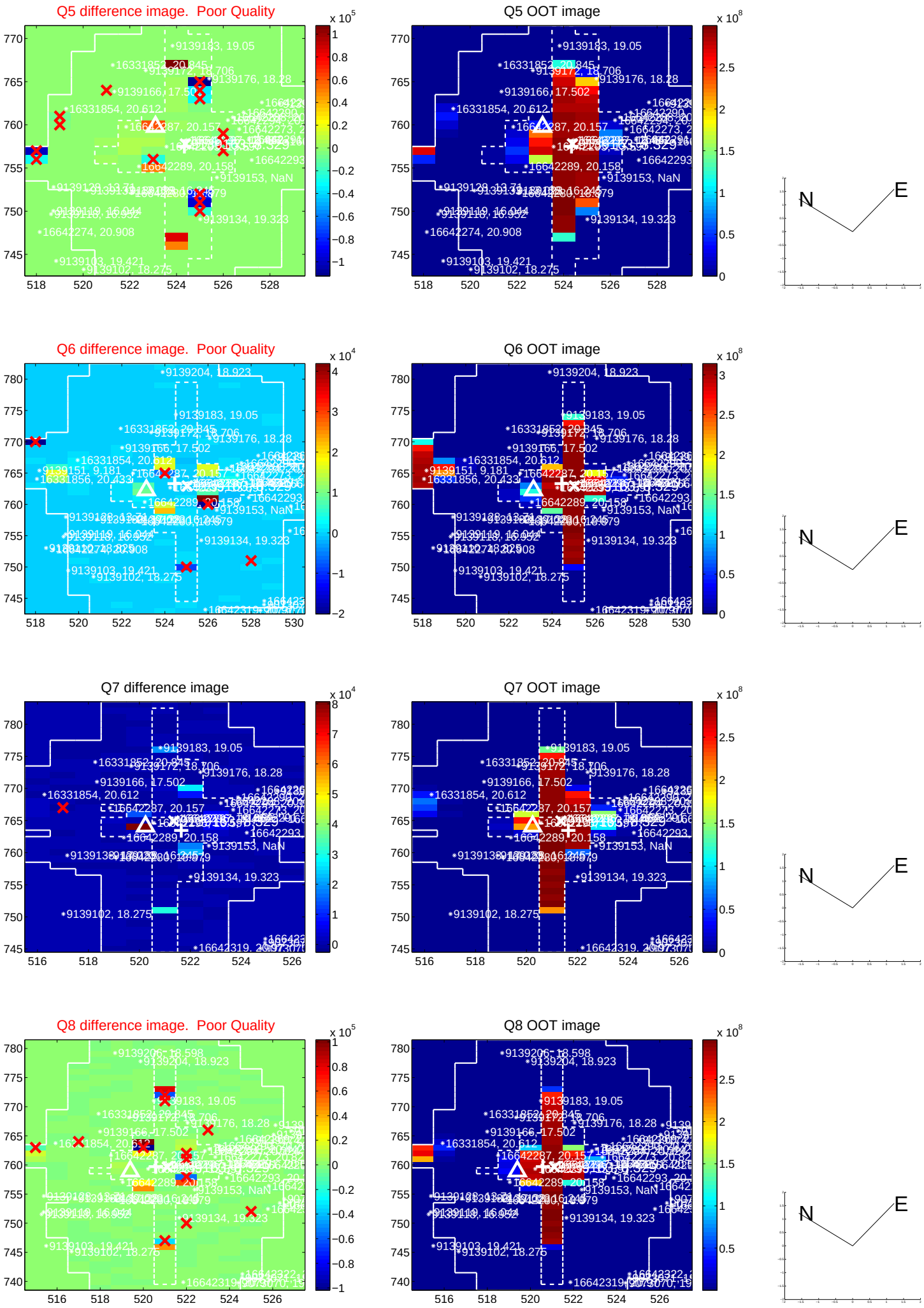


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one-σ uncertainty. Blue circle: three-σ. Red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

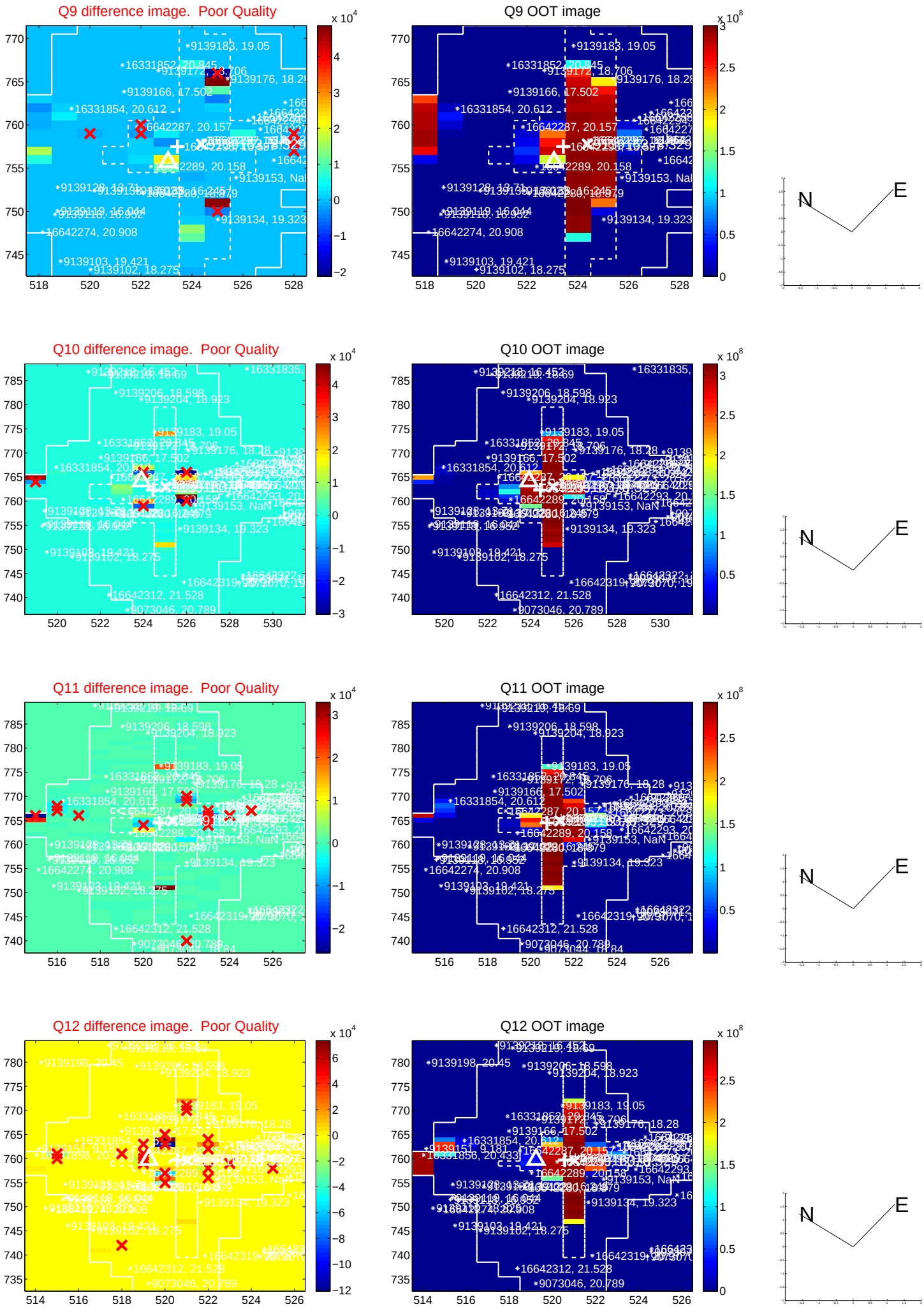
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.



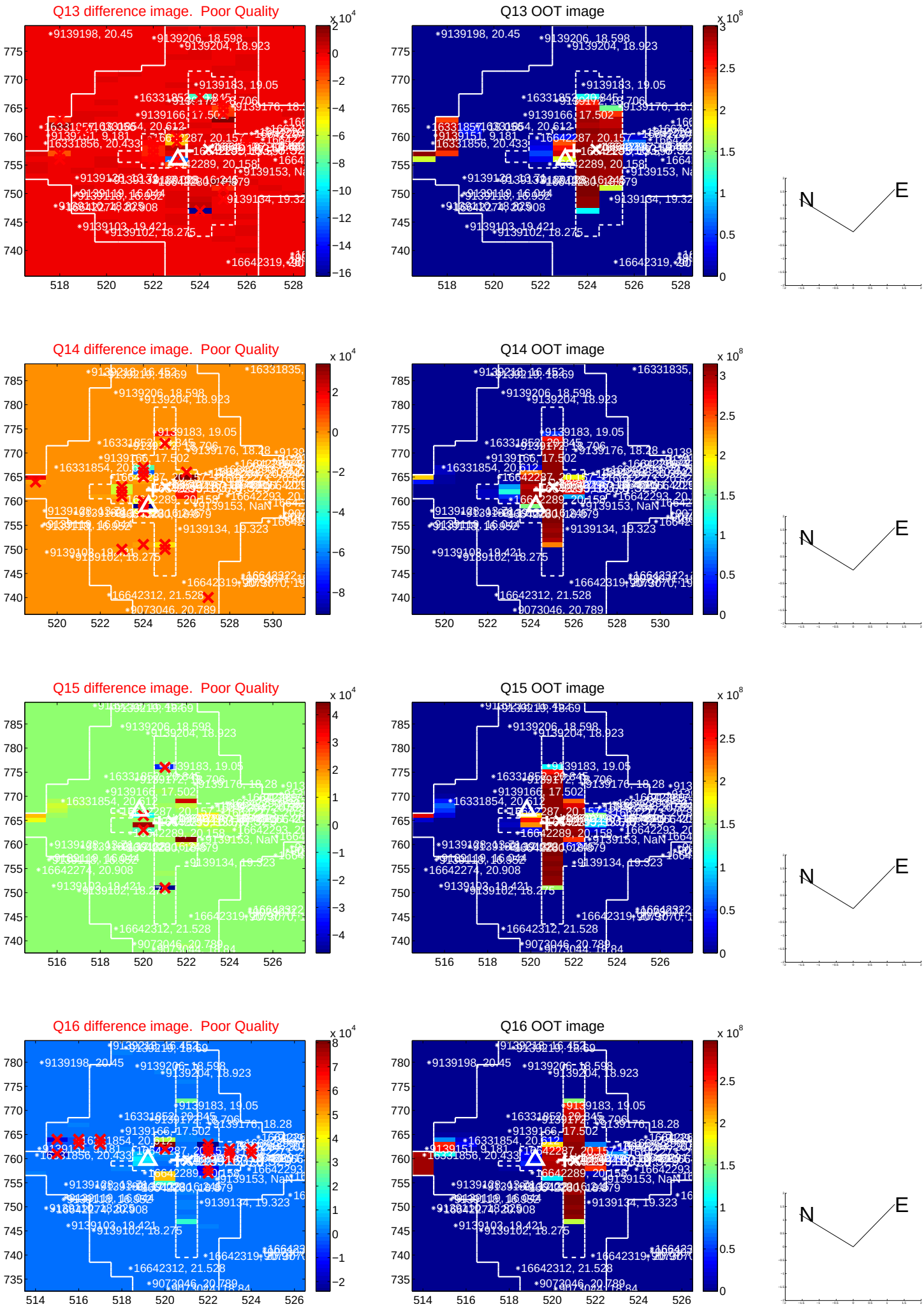
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ✕: large negative pixel value.



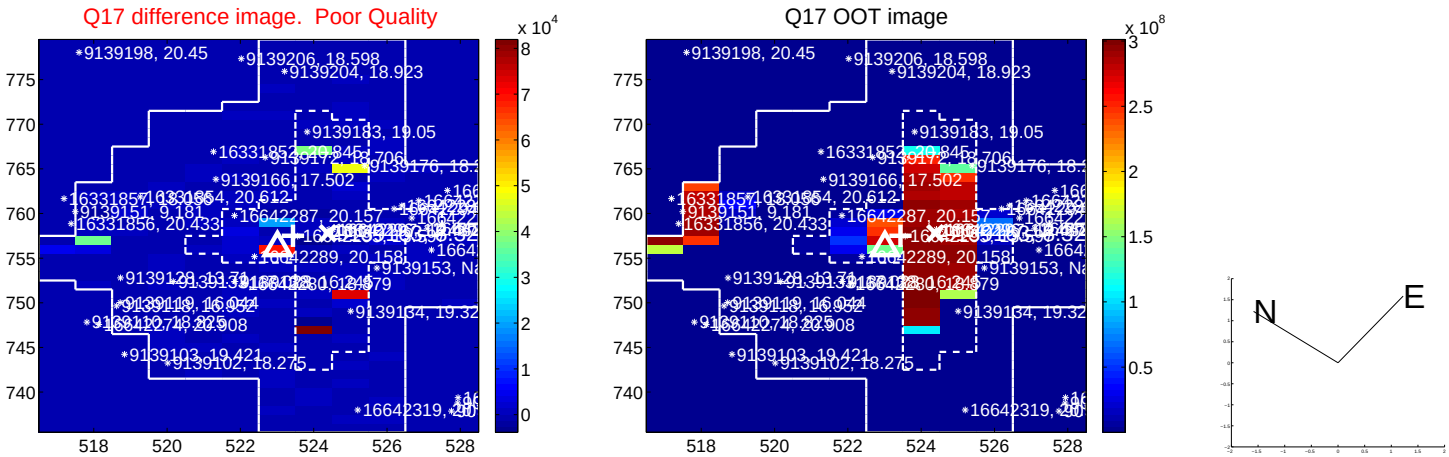
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.



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

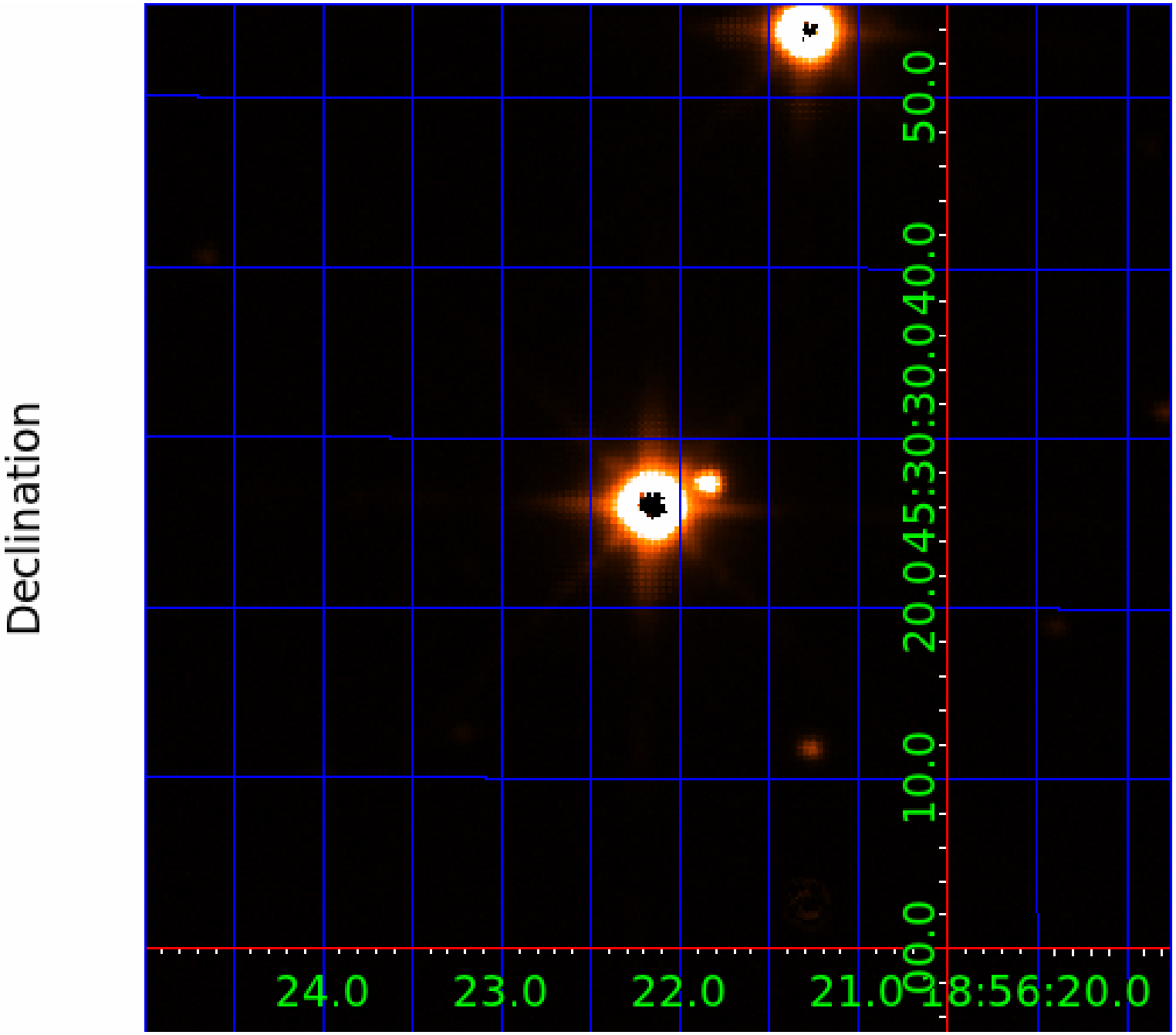


white ×: KIC target position; +: OOT centroid; △: difference centroid. red ✕: large negative pixel value.



folded centroid time series figure for this object.

UKIRT Image


Declination
50.0
40.0
30.0
45:30:
20.0
10.0
00.0
24.0
23.0
22.0
21.0
18:56:20.0

KIC 009139163

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 ($S_\oplus$)
009139163-01	OBS	No	0.605153	132.014514	0.0	0.693	8.0	0.0	1.52	6405	0.00	14856.05
009139163-02	OBS	No	172.899038	154.478118	53.7	8.601	7.5	6.7	1.52	6405	1.27	7.89

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009139163-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA_TRACKER—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—CENT_SATURATED
009139163-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—TRANS_GAPPED—MOD_NONUNIQ_ALT—CENT_SATURATED

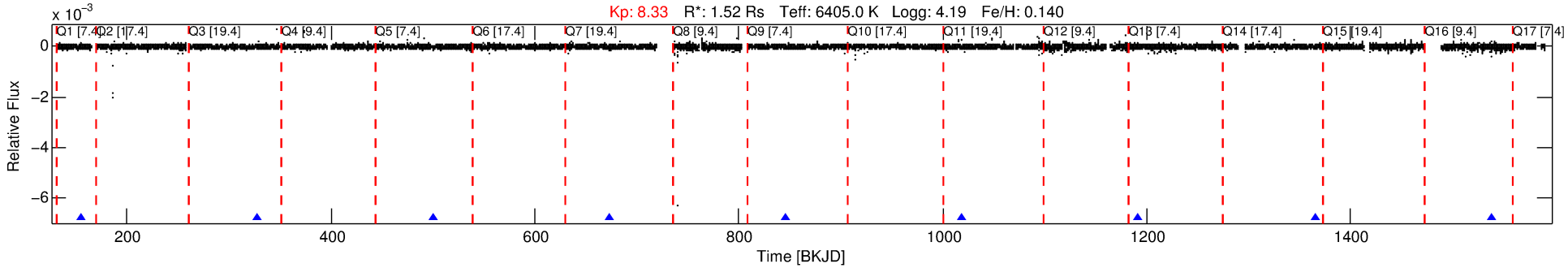
Notes: OBS = Observed. INJ = Injected. INV = Inverted. SCR = Scrambled.
N = Not Transit-Like. S = Stellar Eclipse. C = Centroid Offset. E = Ephemeris Match.
See `http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col` for comment definitions.

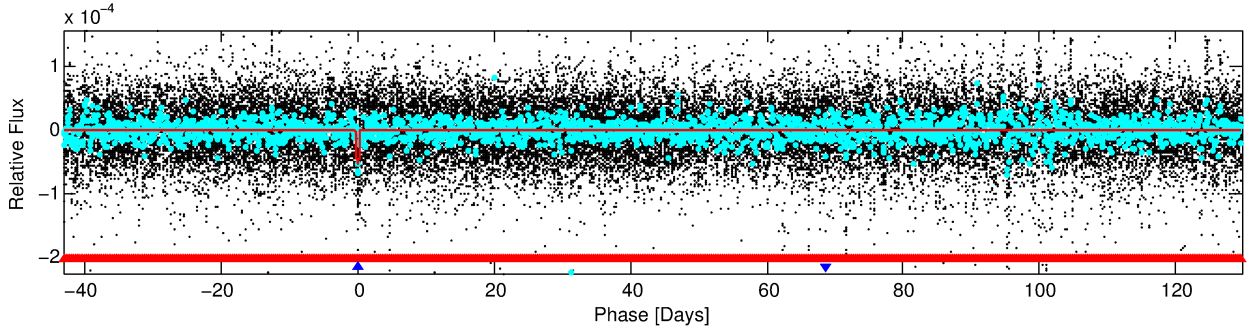
Ephemeris Match Information For 009139163-02

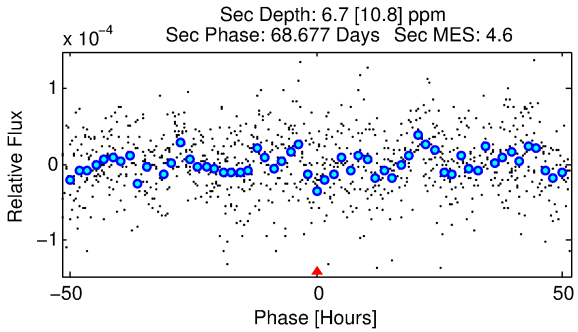
No Significant Match Found

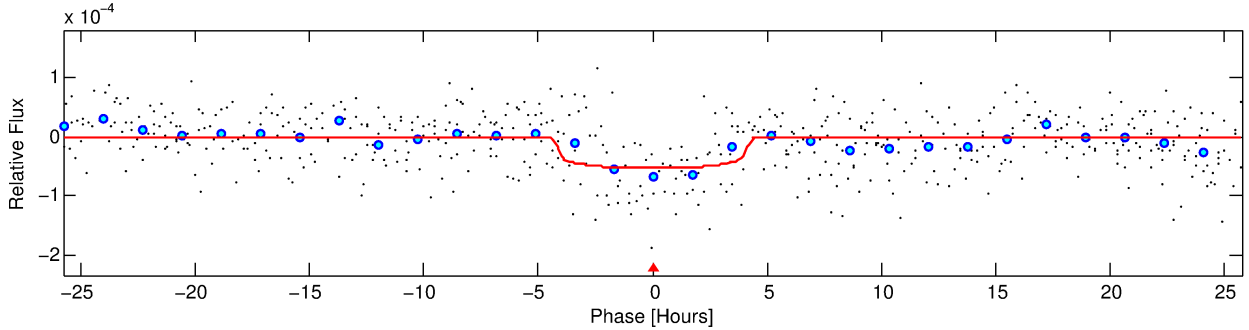
DV One-Page Summary

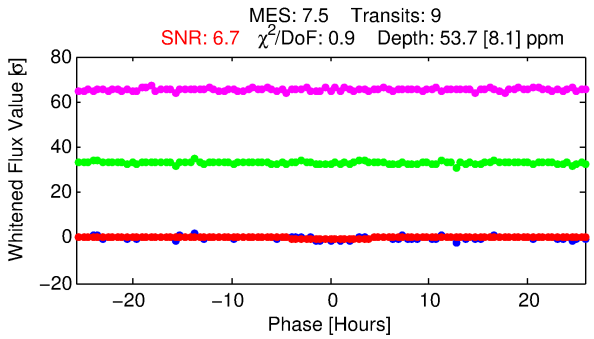
KIC: 9139163 Candidate: 2 of 2 Period: 172.899 d

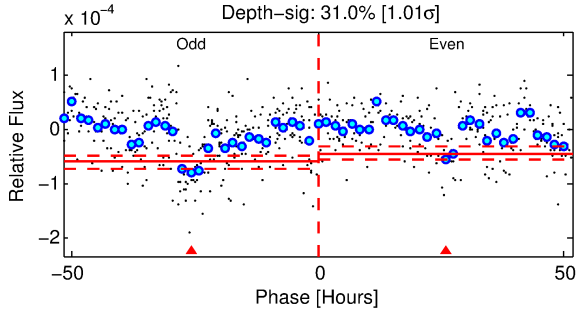


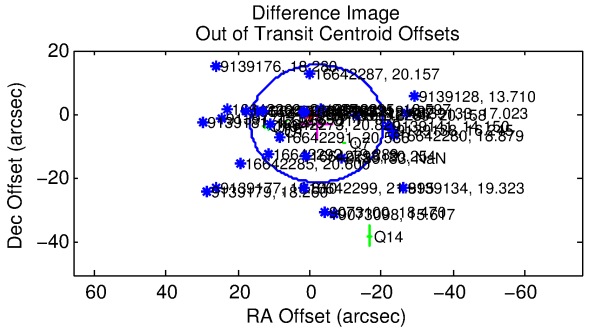












DV Fit Results:

Period = 172.89904 [0.00247] d
Epoch = 154.4781 [0.0119] BKJD
Rp/R* = 0.0077 [0.0018]
a/R* = 79.31 [93.86]
b = 0.87 [0.35]

Seff = 7.89 [0.98]
Teq = 427 [13] K
Rp = 1.27 [0.32] Re
a = 0.6647 [0.0489] AU

Ag = 1001.41 [1683.63] [0.59σ]
Teffp = 3718 [1560] K [2.11σ]

DV Diagnostic Results:

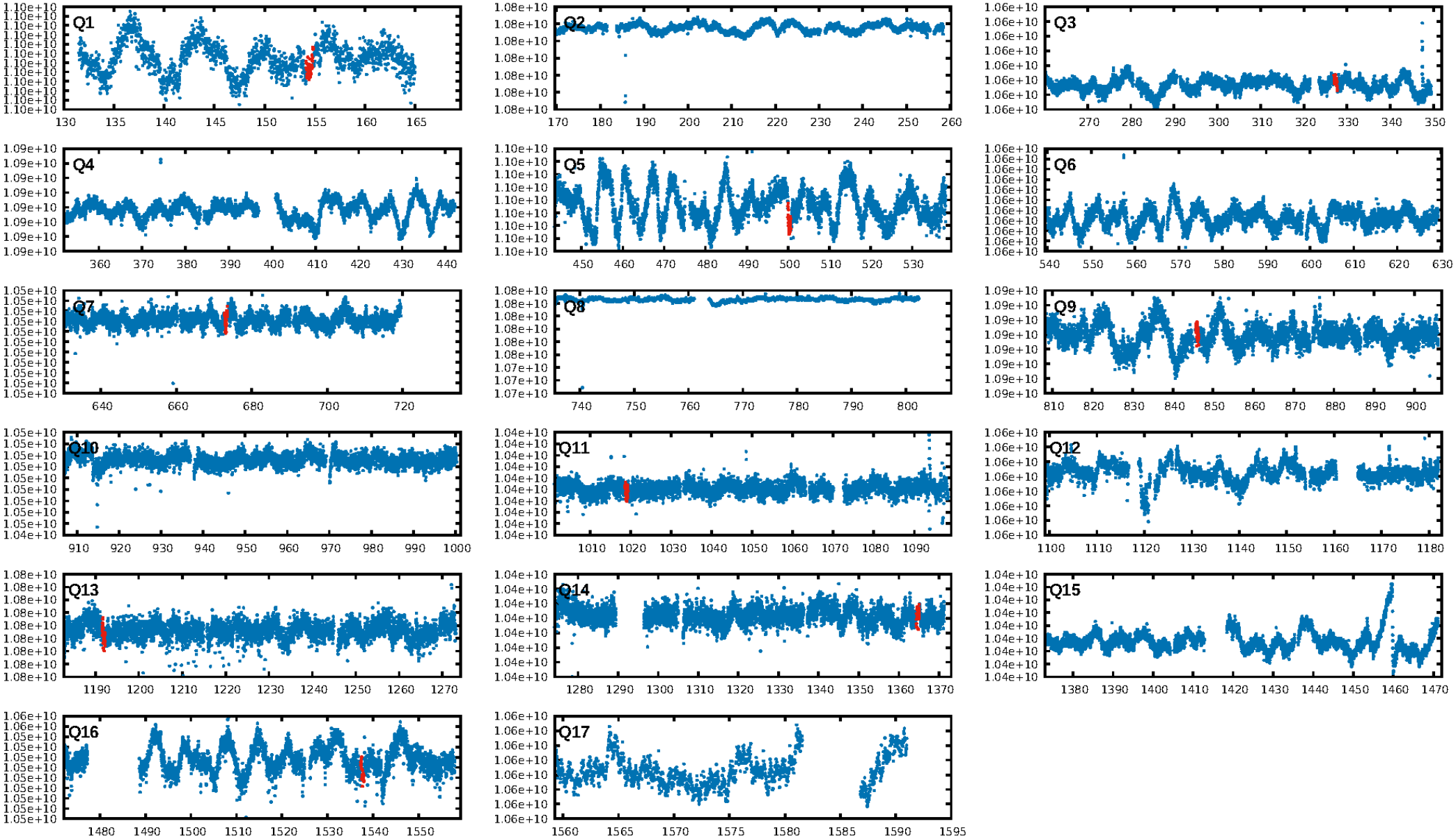
ShortPeriod−sig: 100.0% [479.19σ]
LongPeriod−sig: N/A
ModelChiSquare2−sig: 0.7%
ModelChiSquareGof−sig: 100.0%
Bootstrap−pfa: 1.57e−09
RollingBand−fgt: 1.00 [8/8]
GhostDiagnostic−chr: N/A

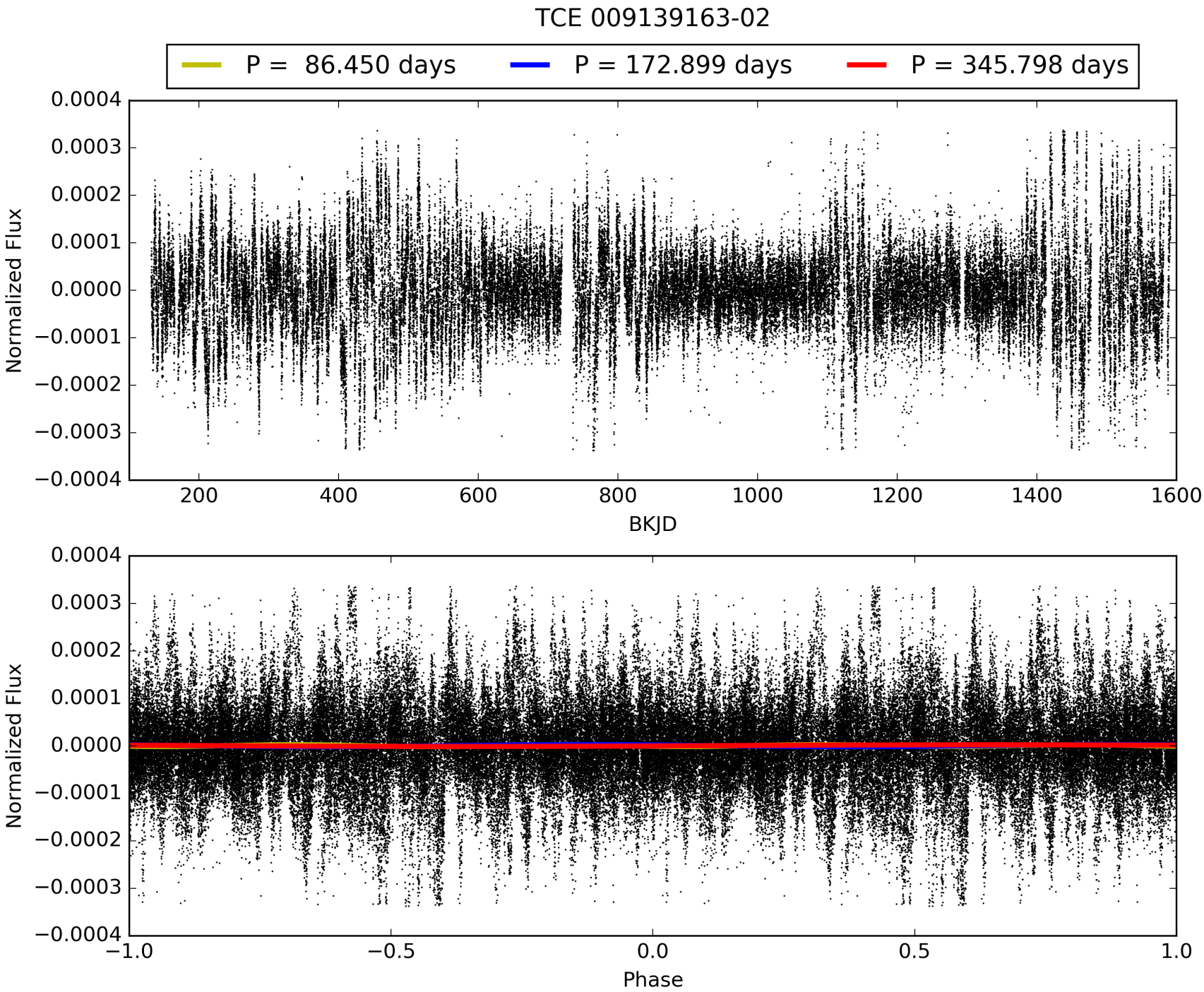
Centroid−sig: 87.2%
Centroid−so: 1.234 arcsec [0.39σ]
OotOffset−rm: 3.372 arcsec [0.55σ]
KicOffset−rm: 5.413 arcsec [1.26σ]
OotOffset−st: 1/3/1/2 [7]
KicOffset−st: 1/3/1/2 [7]
DiffImageQuality−fgm: 0.00 [0/7]
DiffImageOverlap−fno: 0.00 [0/8]

Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01−Feb−2016 19:17:57 Z

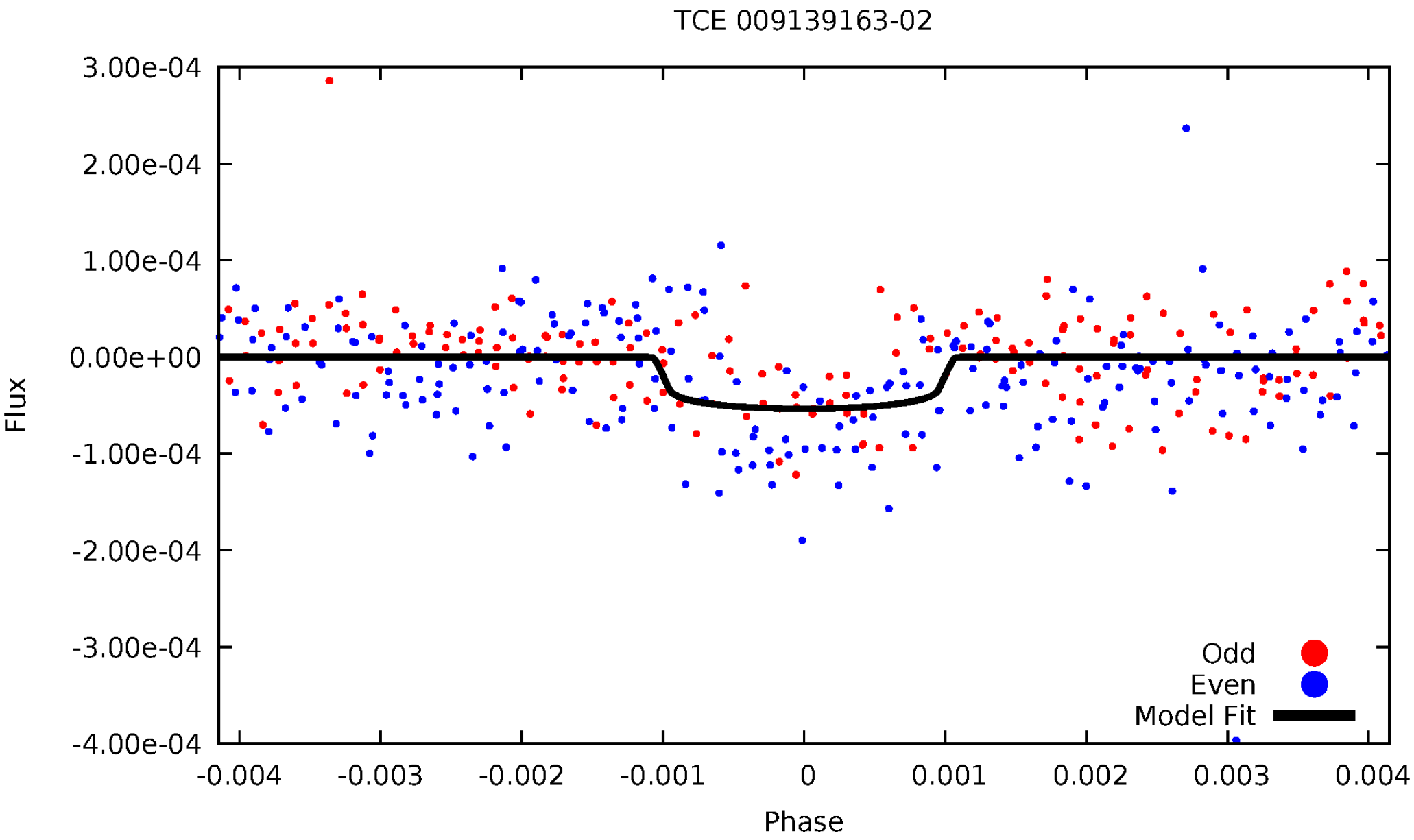
This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

TCE 009139163-02, PDC Light Curves

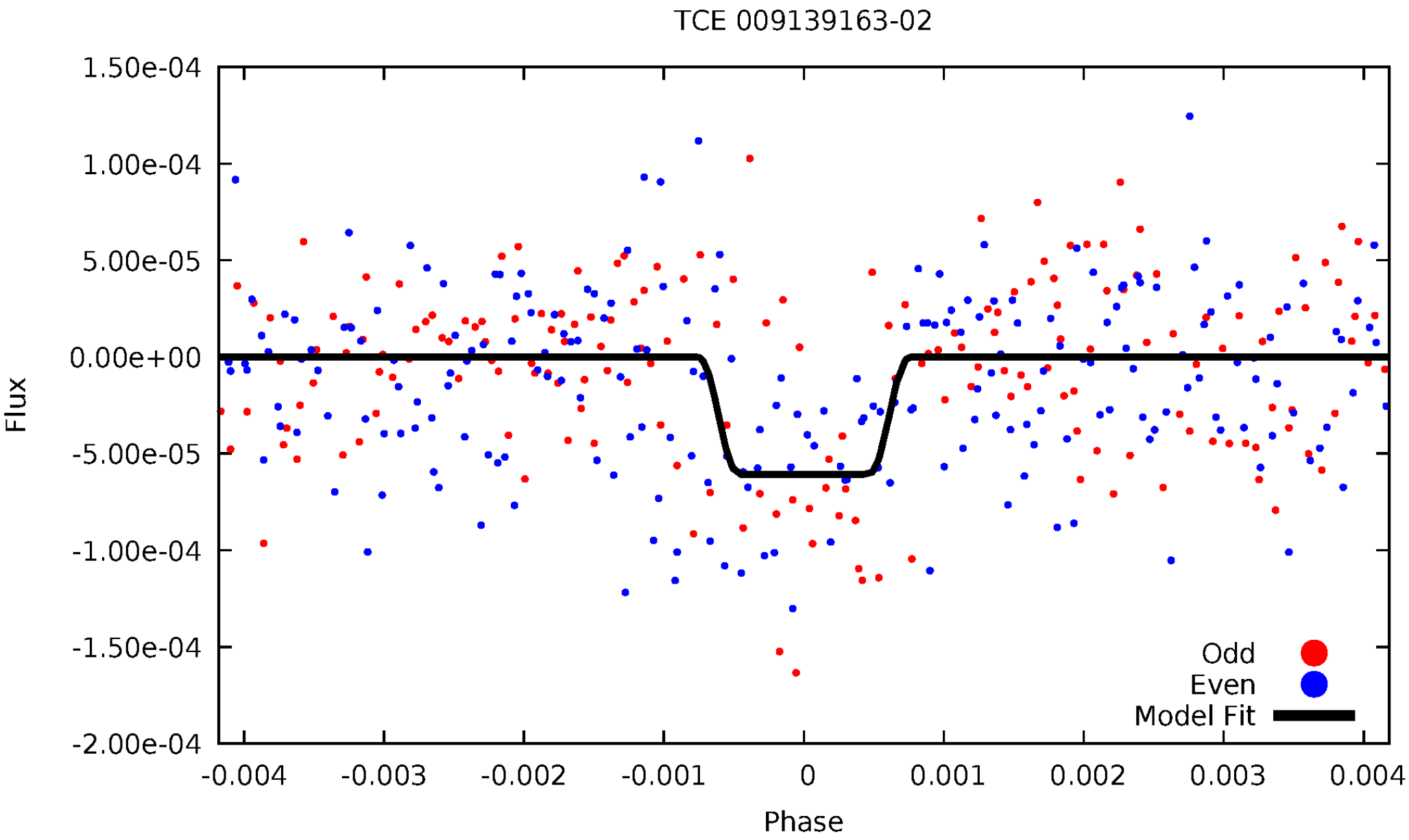



TCE 009139163-02
P = 86.450 days
P = 172.899 days
P = 345.798 days
Normalized Flux
BKJD
Normalized Flux
Phase

DV Odd/Even


TCE 009139163-02
3.00e-04
2.00e-04
1.00e-04
0.00e+00
-1.00e-04
-2.00e-04
-3.00e-04
-4.00e-04
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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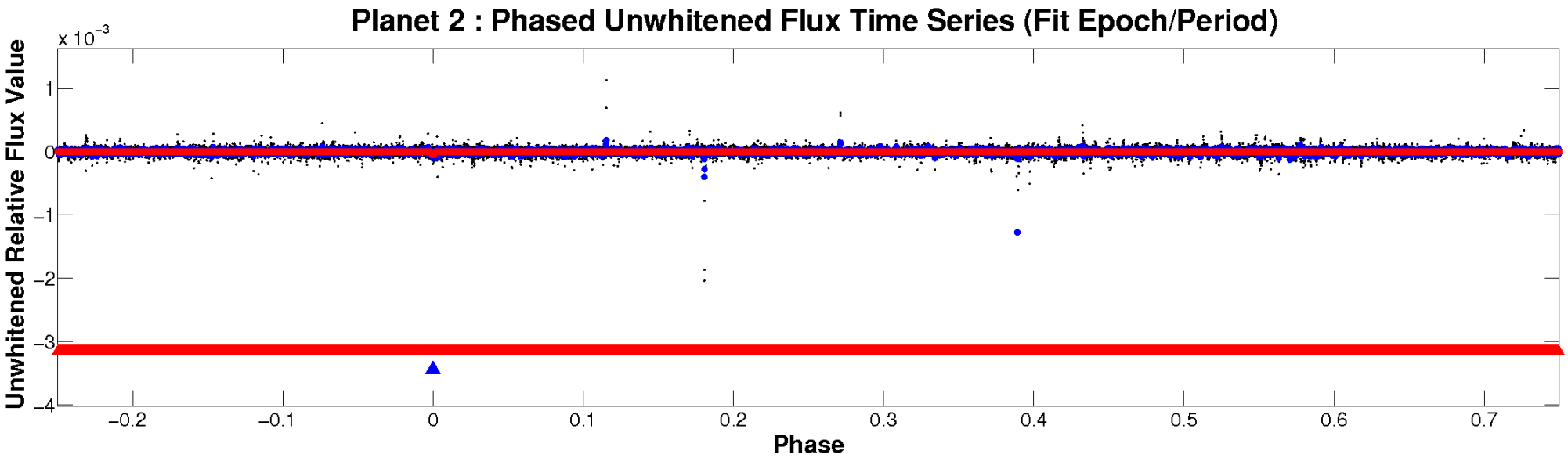
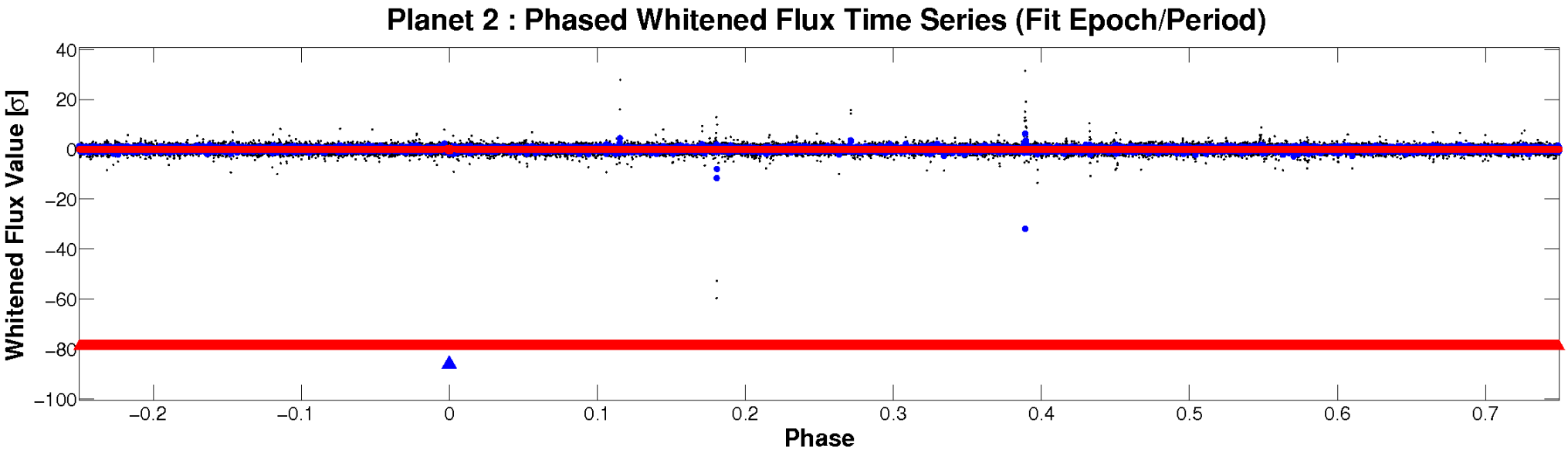
5.00e-05
0.00e+00
-5.00e-05
-1.00e-04
-1.50e-04
-2.00e-04
Flux
-0.004
-0.003
-0.002
-0.001
0
0.001
0.002
0.003
0.004
Phase
Odd
Even
Model Fit

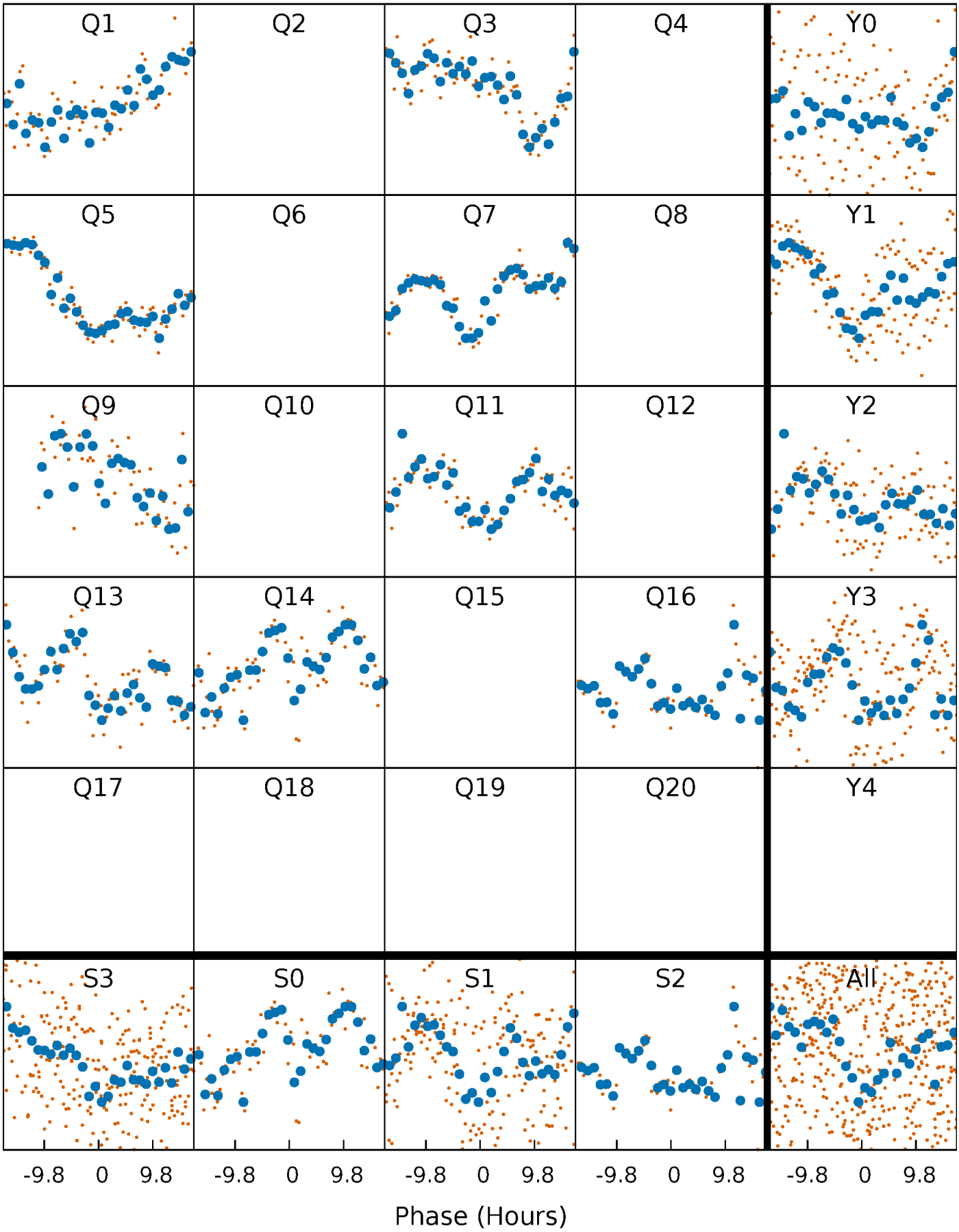
Non-Whitened Vs. Whitened Light Curve





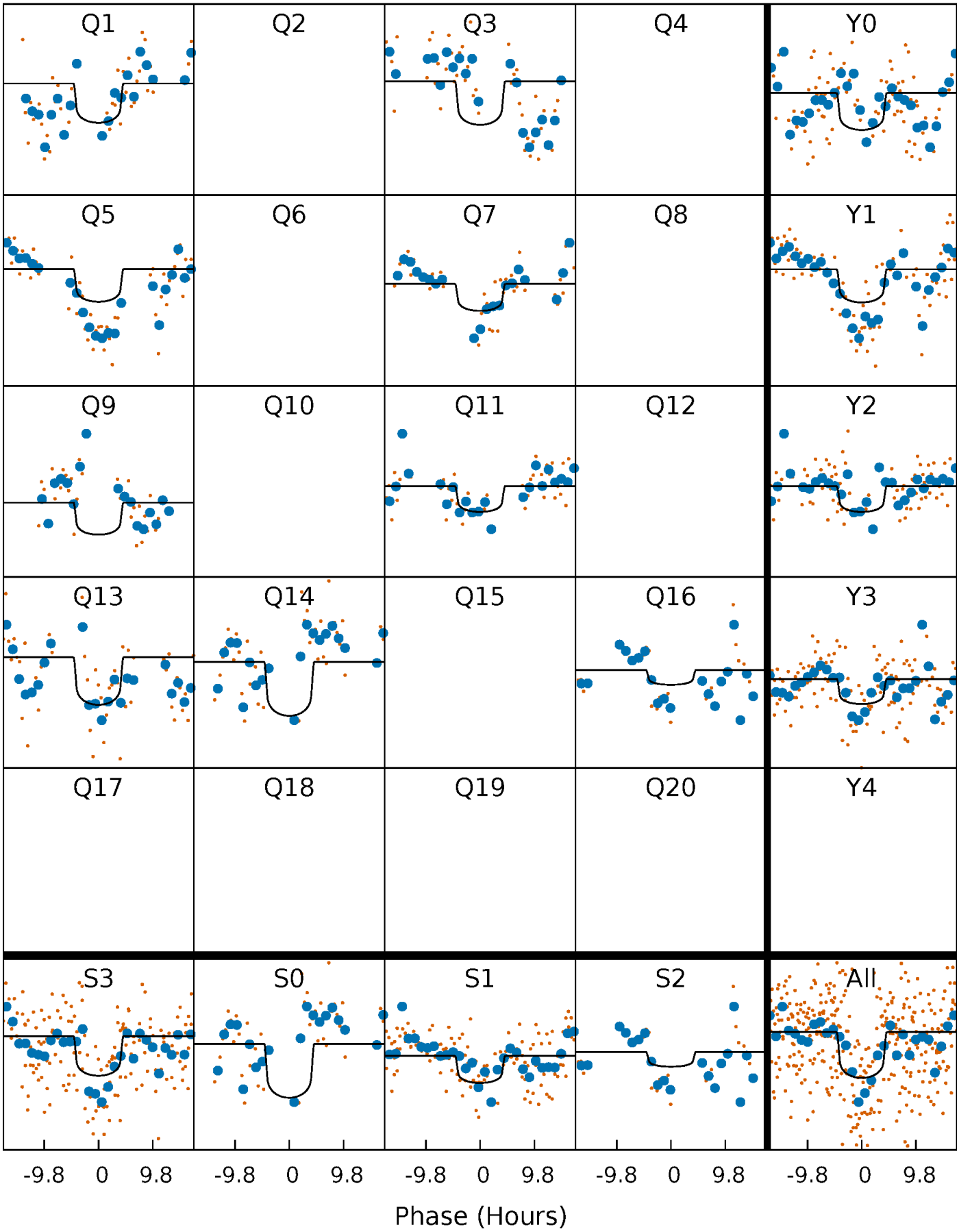
PDC Quarter-Phased Transit Curves

TCE 009139163-02 P=172.899038 Days T_0=154.478118 (BKJD)



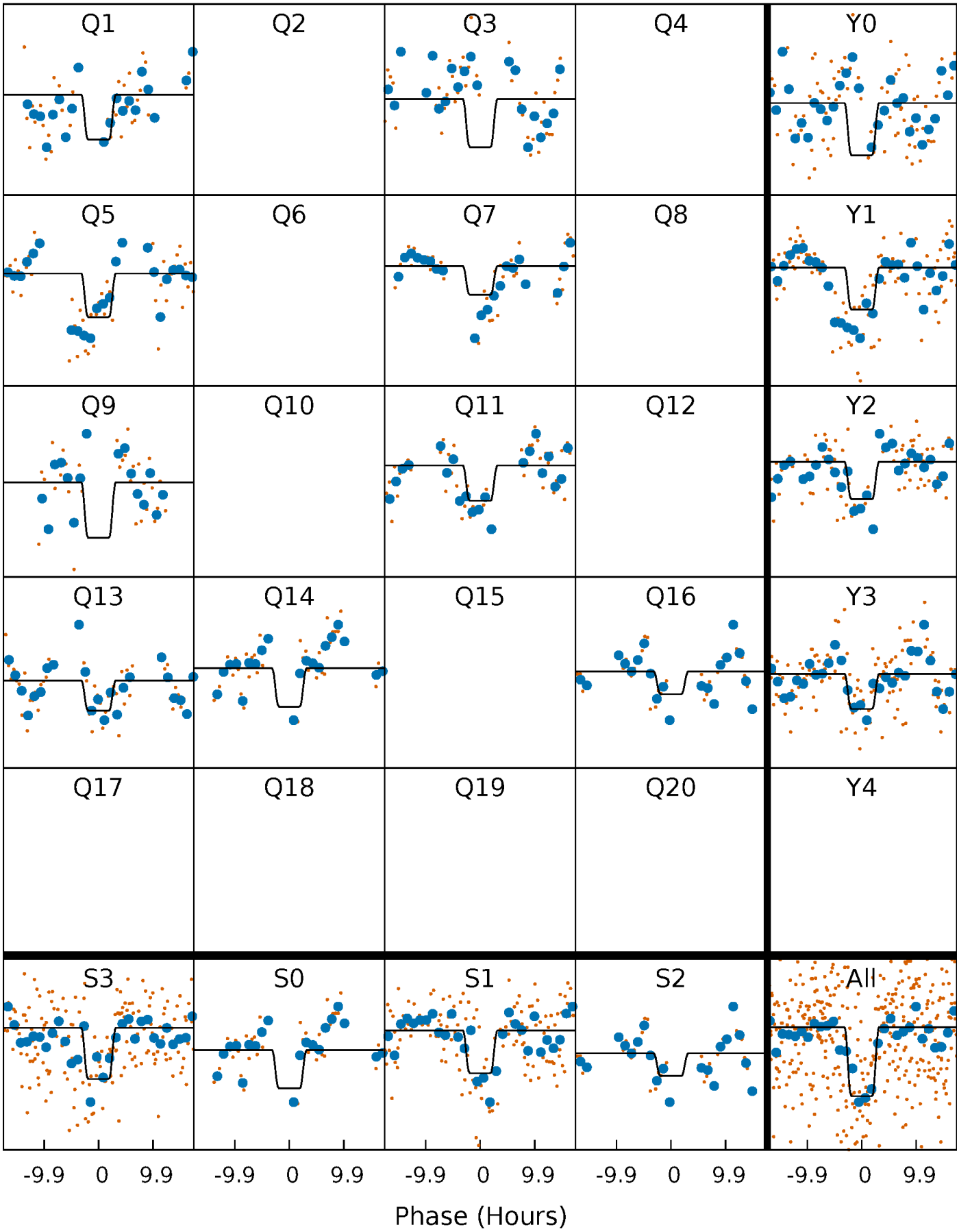
DV Quarter-Phased Transit Curves

TCE 009139163-02 P=172.899038 Days T_0=154.478118 (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

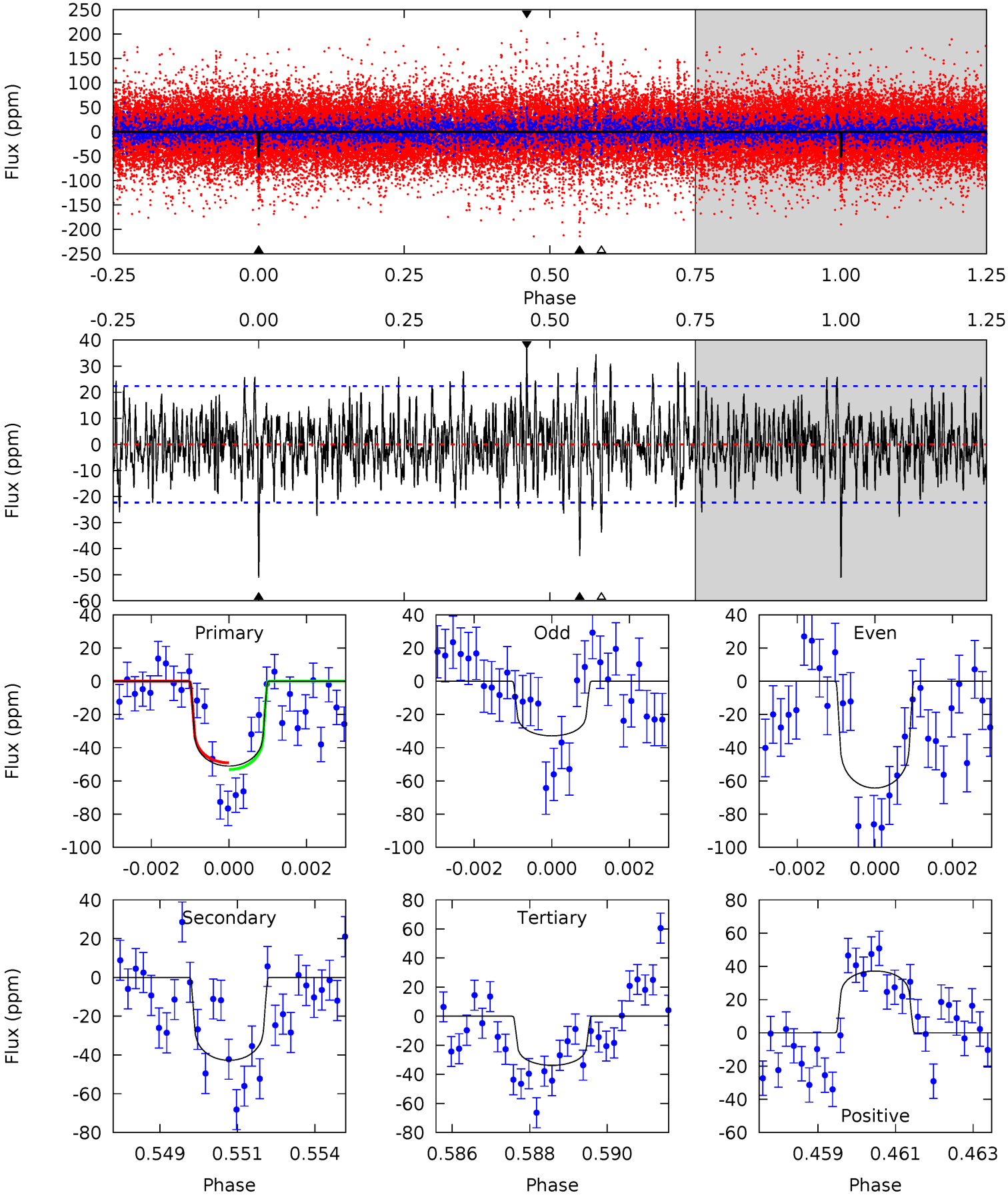
TCE 009139163-02 P=172.901426 Days T_0=154.470749 (BKJD)



DV Model-Shift Uniqueness Test

009139163-02, P = 172.899038 Days, E = 154.478118 Days

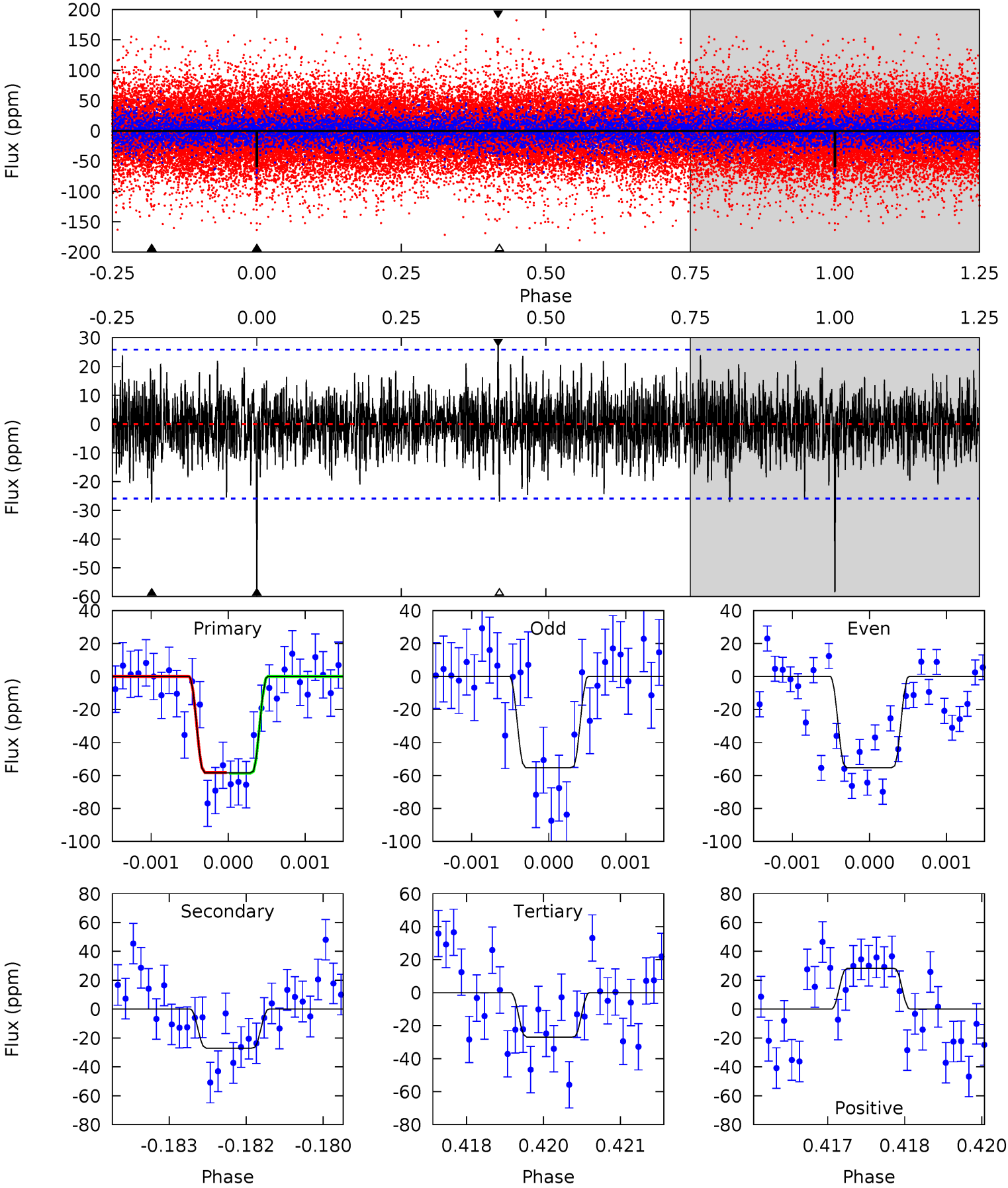
Pri	Sec	Ter	Pos	FA_1	FA_2	F_{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
12.1	10.2	8.03	8.85	5.31	3.07	2.28	4.11	3.30	2.14	1.33	3.69	0.83	0.42	0.48



Alt Model-Shift Uniqueness Test

009139163-02, P = 172.901426 Days, E = 154.470749 Days

Pri	Sec	Ter	Pos	FA_1	FA_2	F_{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
12.2	5.62	5.60	5.89	5.38	3.18	1.55	6.55	6.27	0.01	-0.27	0.00	0.65	0.33	0.04



Stellar Parameters For KIC 009139163

	$T_{\rm eff}(K)$	$\log(g)$	[Fe/H]	R ($R_\odot$)	$M(M_\odot)$	$p_\star$ (g·cm^{-3})
	6405^{+76}_{-95}	$4.191^{+0.060}_{-0.054}$	$0.140^{+0.100}_{-0.100}$	$1.521^{+0.131}_{-0.131}$	$1.312^{+0.057}_{-0.057}$	$0.525^{+0.143}_{-0.094}$
	+1%/-1%	+1%/-1%	+71%/-71%	+9%/-9%	+4%/-4%	+27%/-18%
Source	SPE6	AST10	SPE6	DSEP		

KIC = Kepler Input Catalog; PHO = Photometry; SPE = Spectroscopy; AST = Asteroseismology
TRA = Transits; DESP = Dartmouth Models; MULT = Multiple Models

Secondary Eclipse Parameters for KIC 009139163-02 / KOI

Detrend	Depth (ppm)	R_p ($R_\oplus$)	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-43±4	$1.25^{+0.31}_{-0.30}$	597^{+15}_{-16}	5956^{+855}_{-597}	6566^{+4746}_{-2373}
Alt.	-27±5	$1.31^{+0.31}_{-0.33}$	596^{+16}_{-14}	5243^{+763}_{-482}	3865^{+3138}_{-1464}

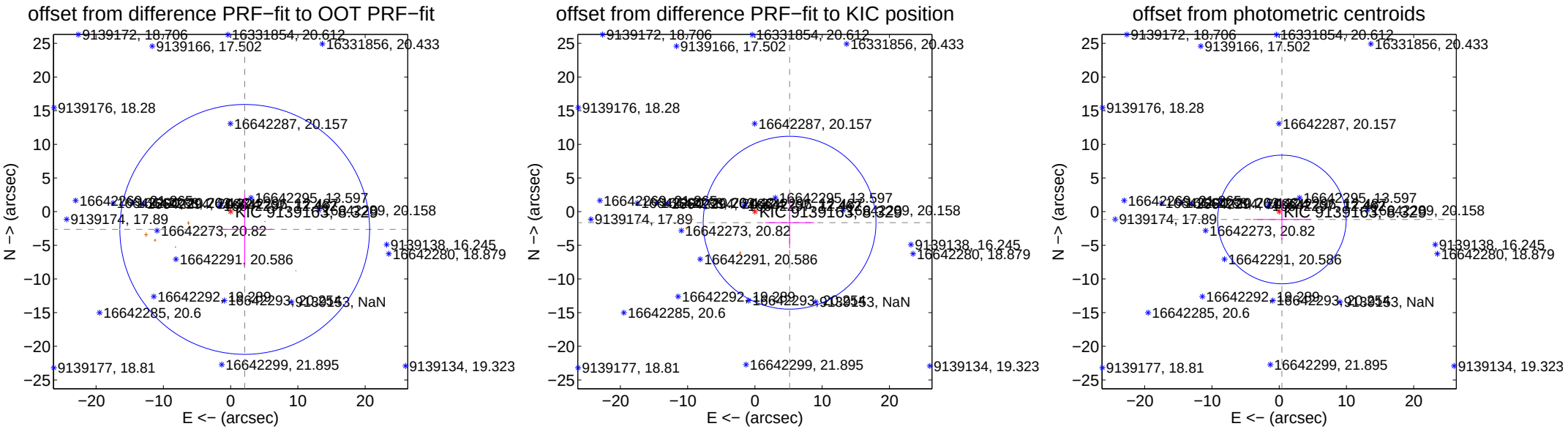
T_{max} = Theoretical Maximum Planetary Temperature
T_{obs} = Observed Planetary Temperature (Assuming A=0.3)
A_{obs} = Observed Albedo (Assuming T=0)

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

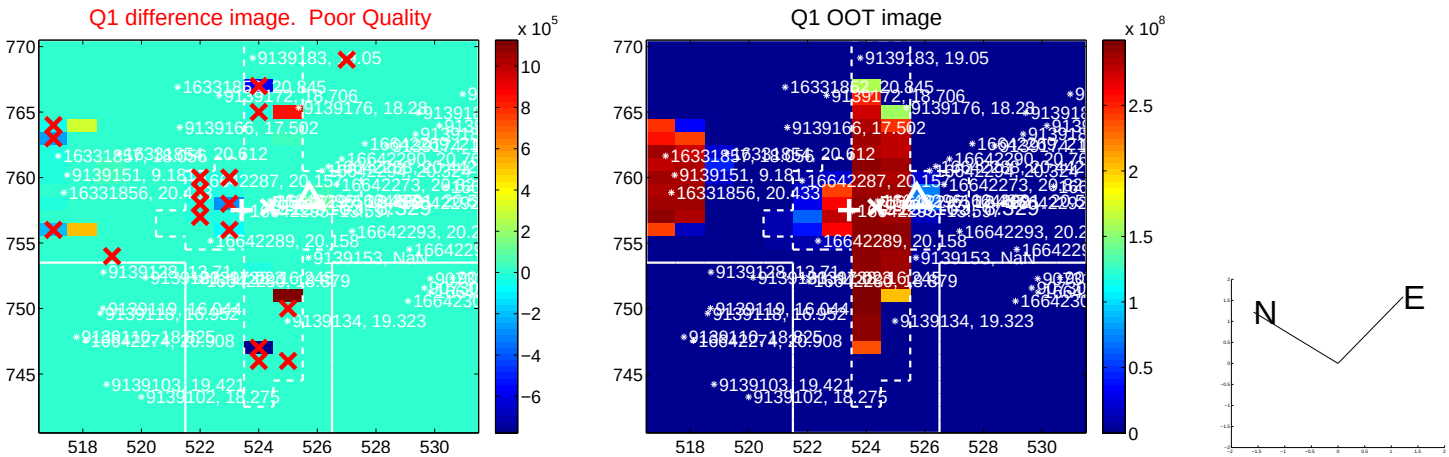
Supplemental centroid analysis for 009139163-02. Kepler magnitude: 8.33. Transit SNR 6.71
There are 0 quarters with good PRF difference image offsets
The OOT PRF centroid is offset from the target star catalog position by about 2.05 arcsec so the offset from difference PRF-fit to OOT-fit may be invalid.

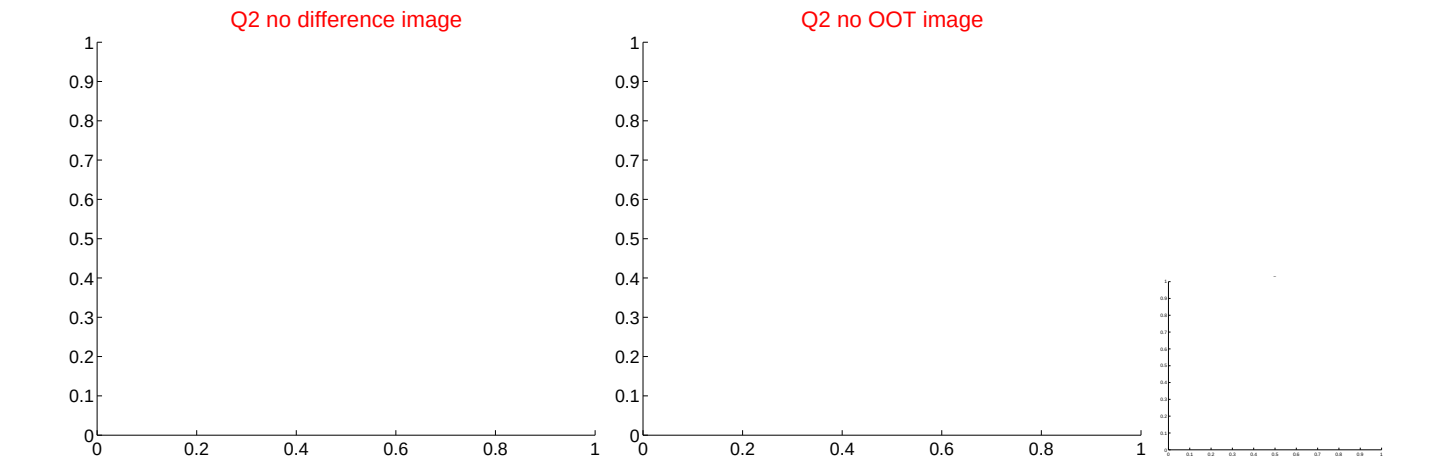
	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	3.372 ± 6.187	0.55	-2.098 ± 4.135	-2.640 ± 5.214
PRF-fit source offset from KIC position	5.413 ± 4.280	1.26	-5.157 ± 3.637	-1.643 ± 3.787
photometric centroid source offset	1.23 ± 3.18	0.39	-0.41 ± 4.31	-1.16 ± 3.02

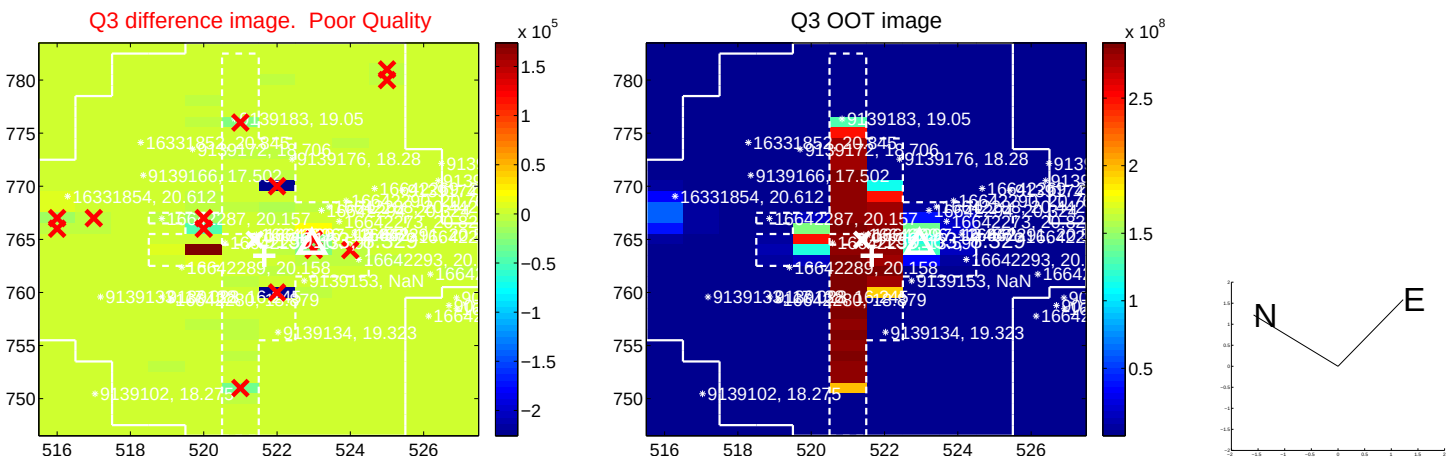


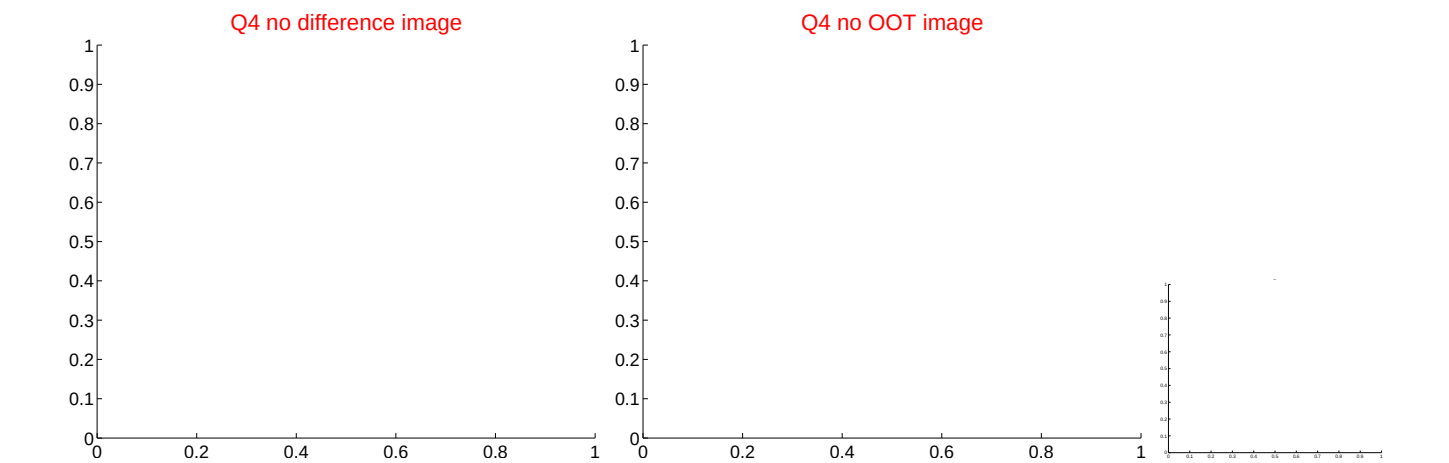
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one-σ uncertainty. Blue circle: three-σ. Red *: target star. Blue *: Other stars. Text next to a star gives its KIC ID and kepmag. KIC IDs $> 15,000,000$ are from the UKIRT catalog.

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

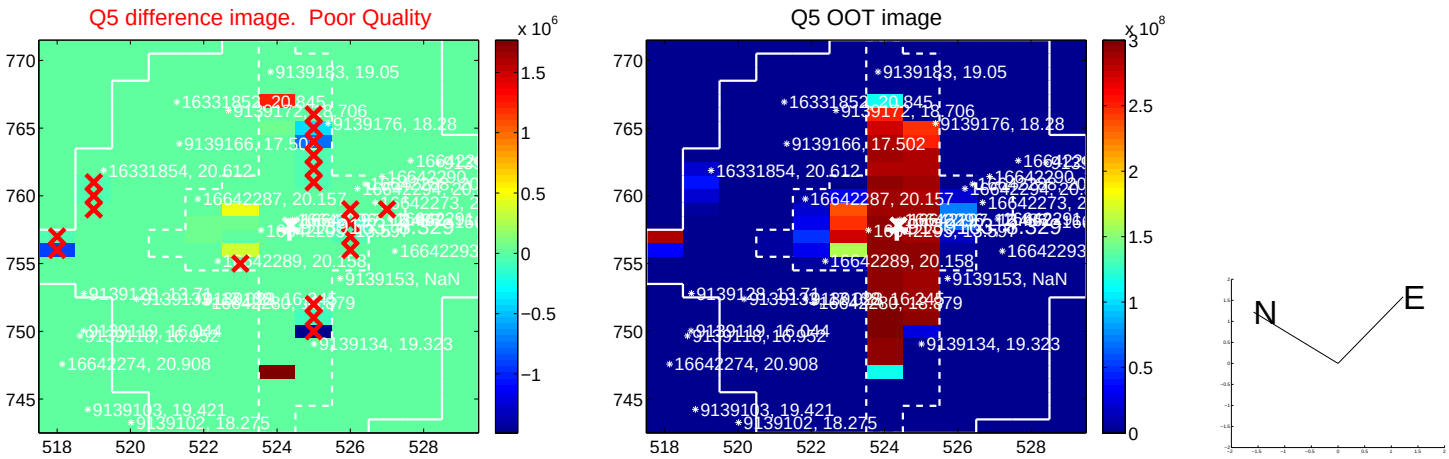


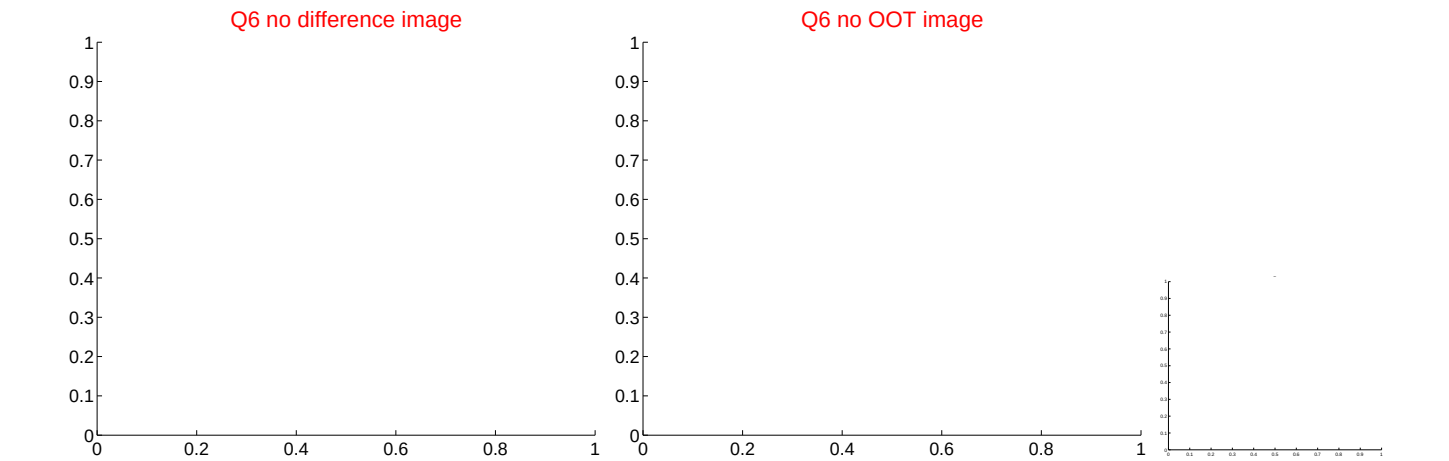


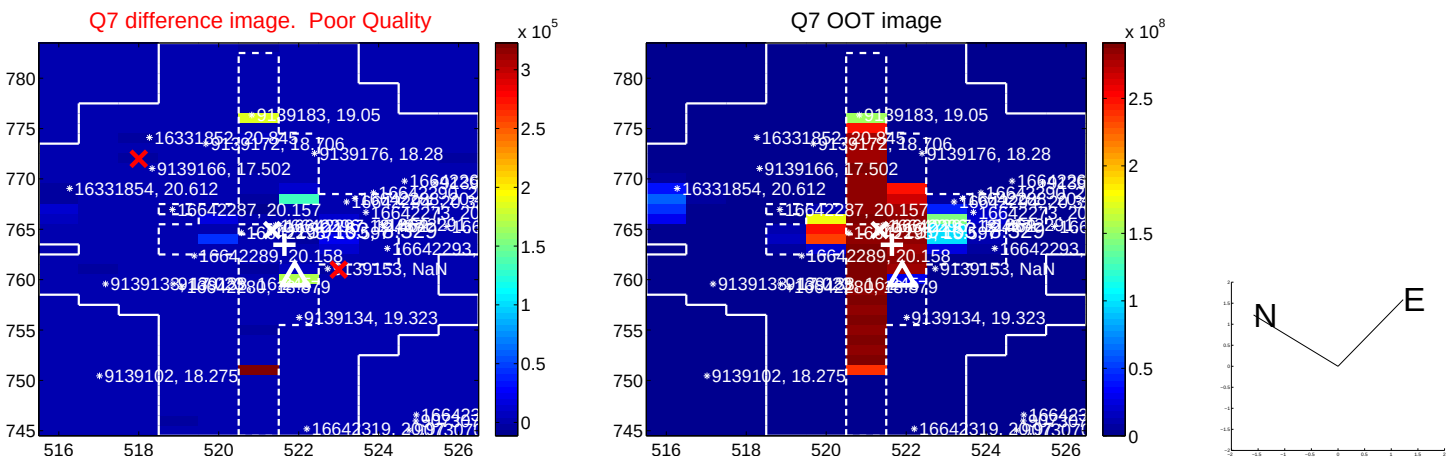


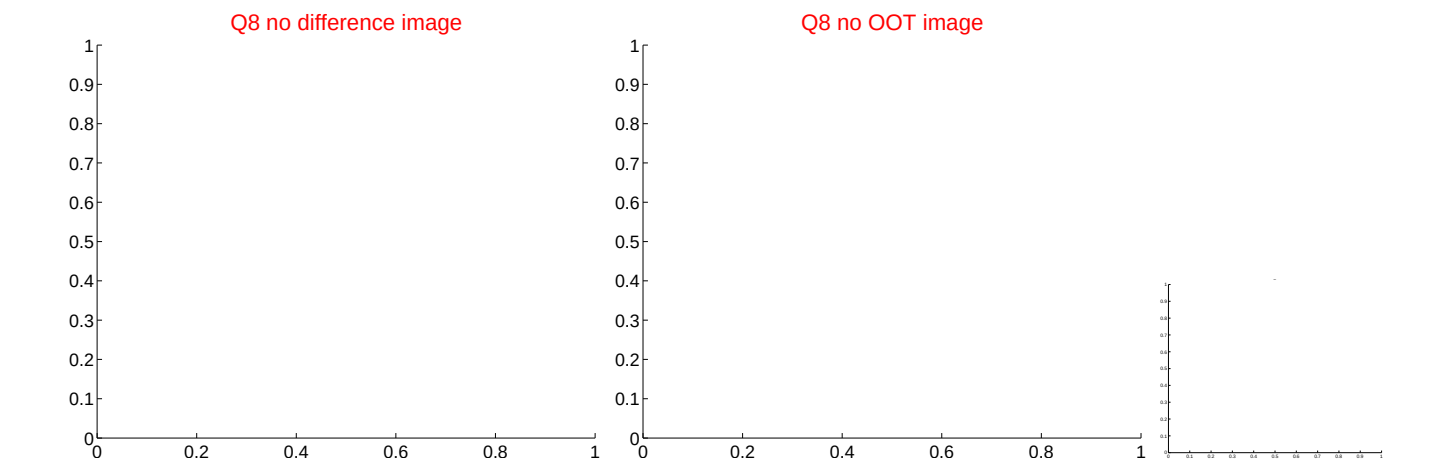


white ×: KIC target position; +: OOT centroid; △: difference centroid. red ✕: large negative pixel value.

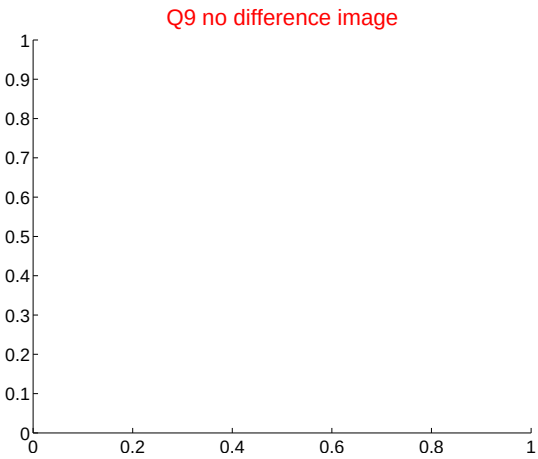


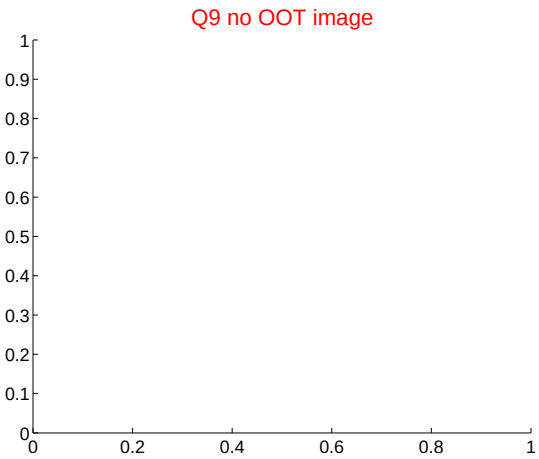


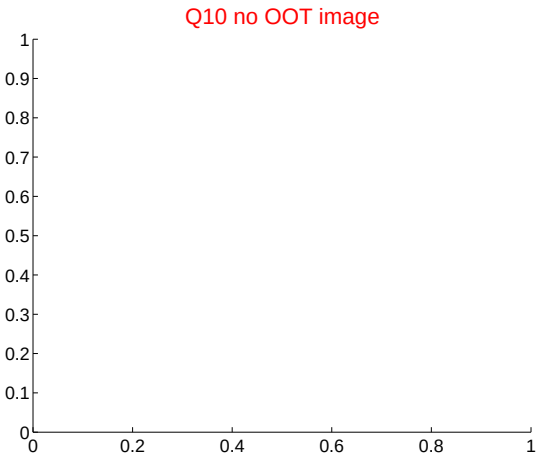


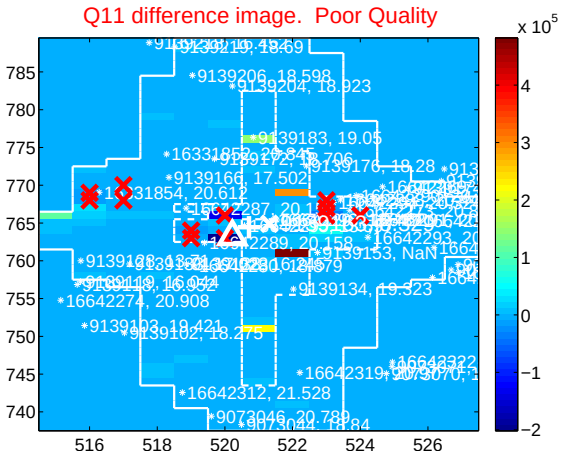


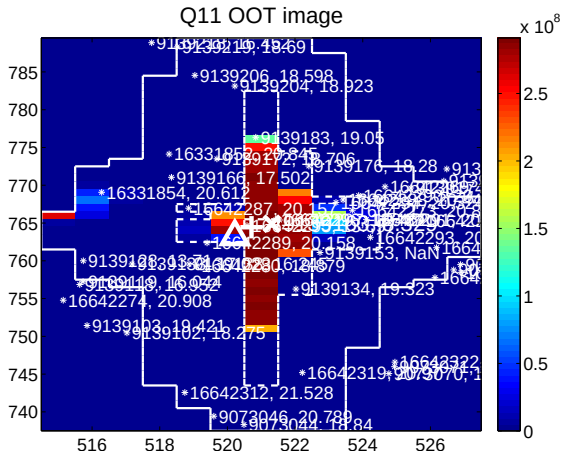
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ✕: large negative pixel value.

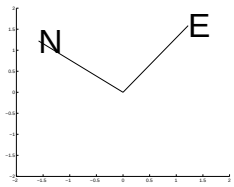


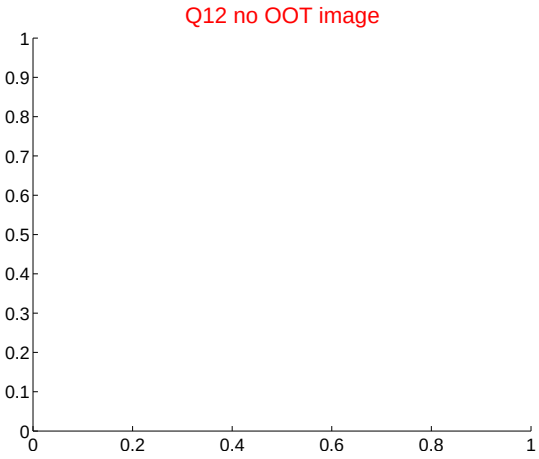




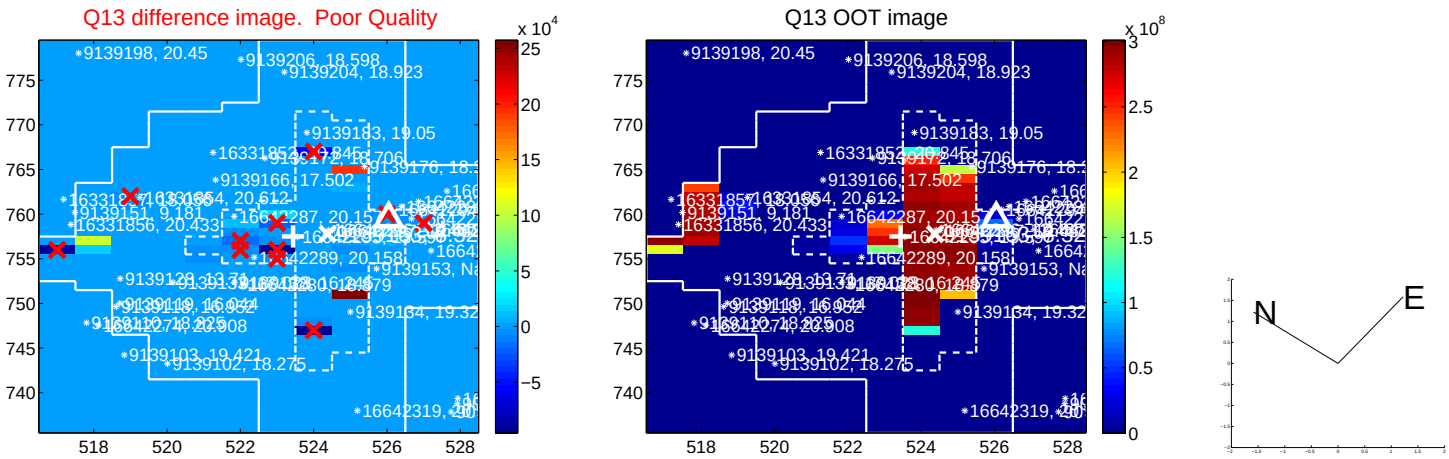


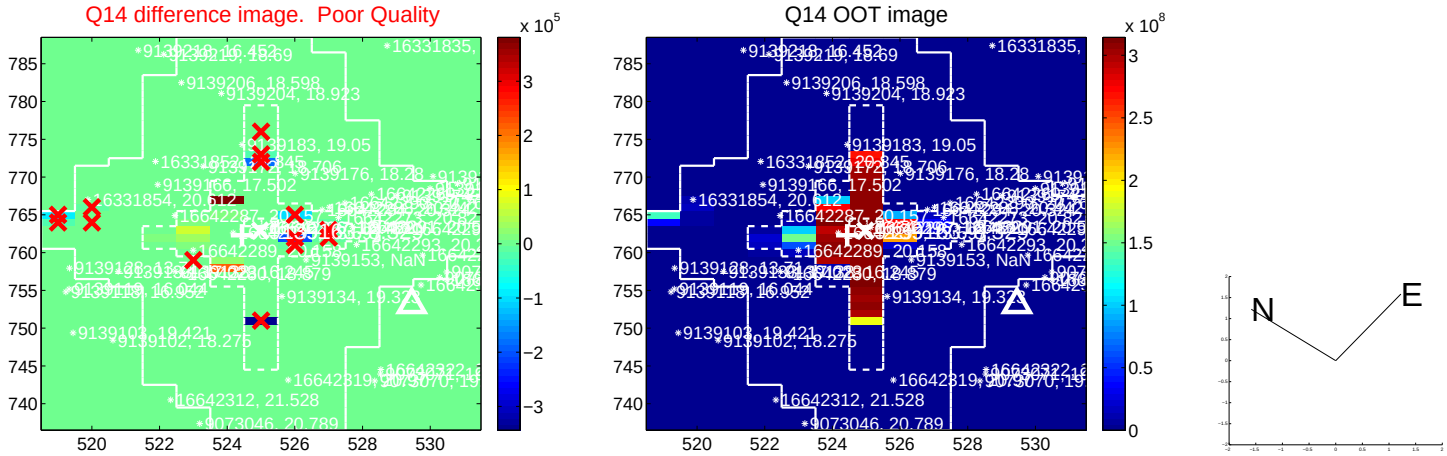


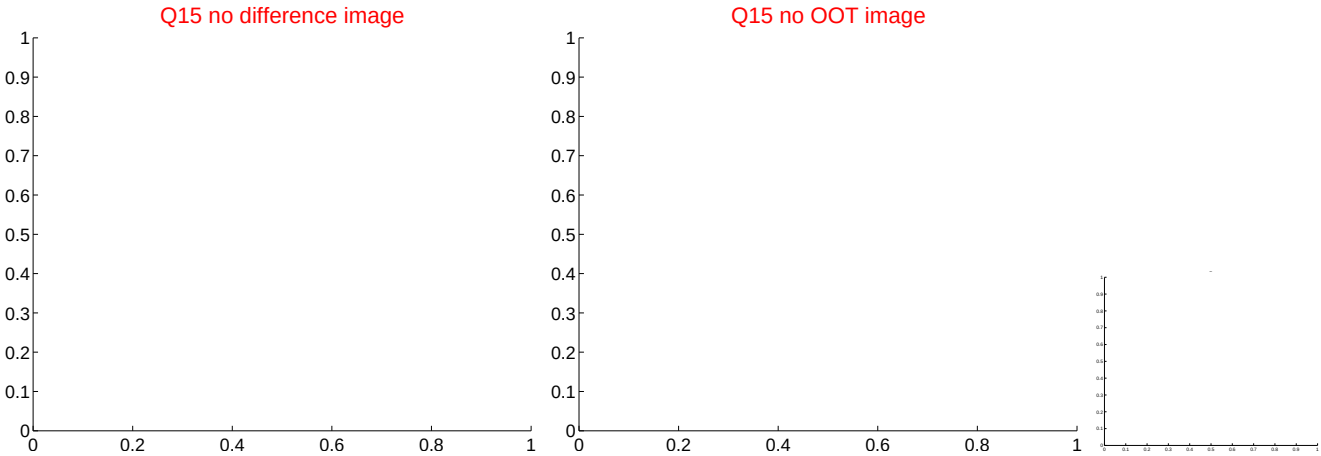


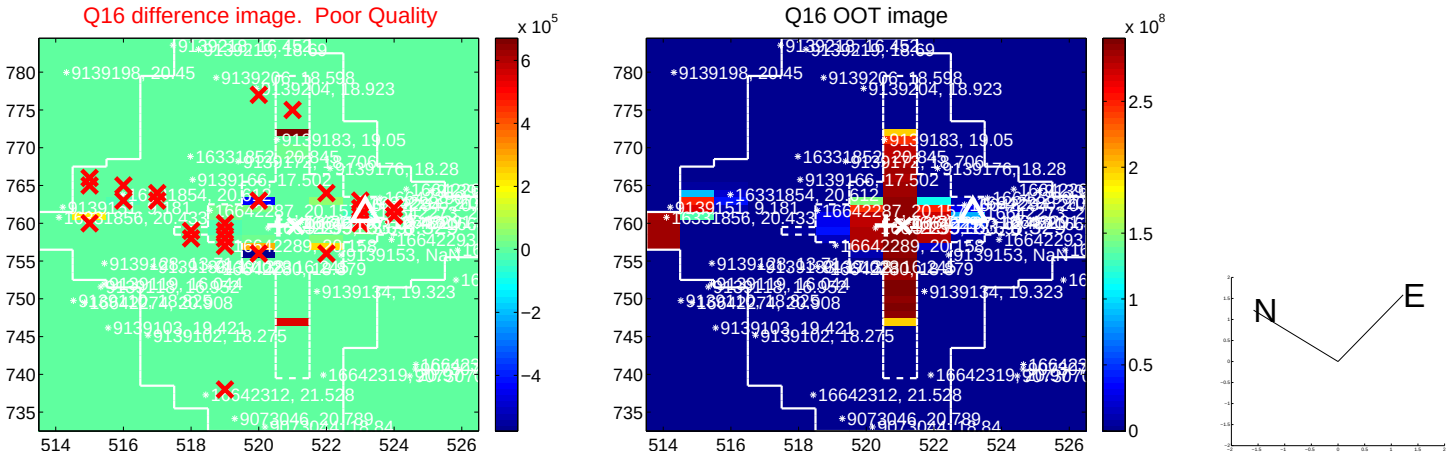


white ×: KIC target position; +: OOT centroid; △: difference centroid. red ✕: large negative pixel value.

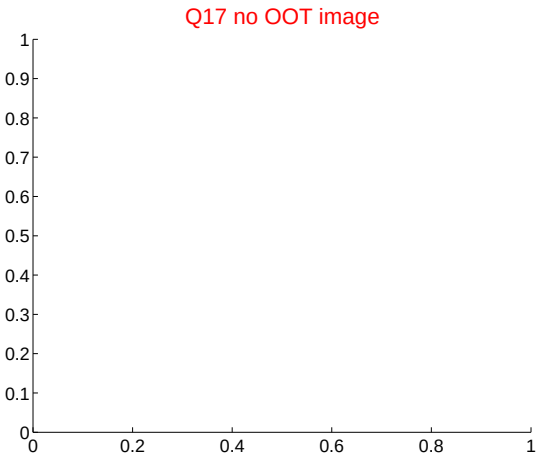


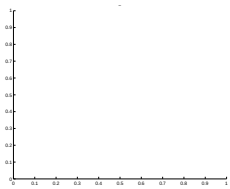


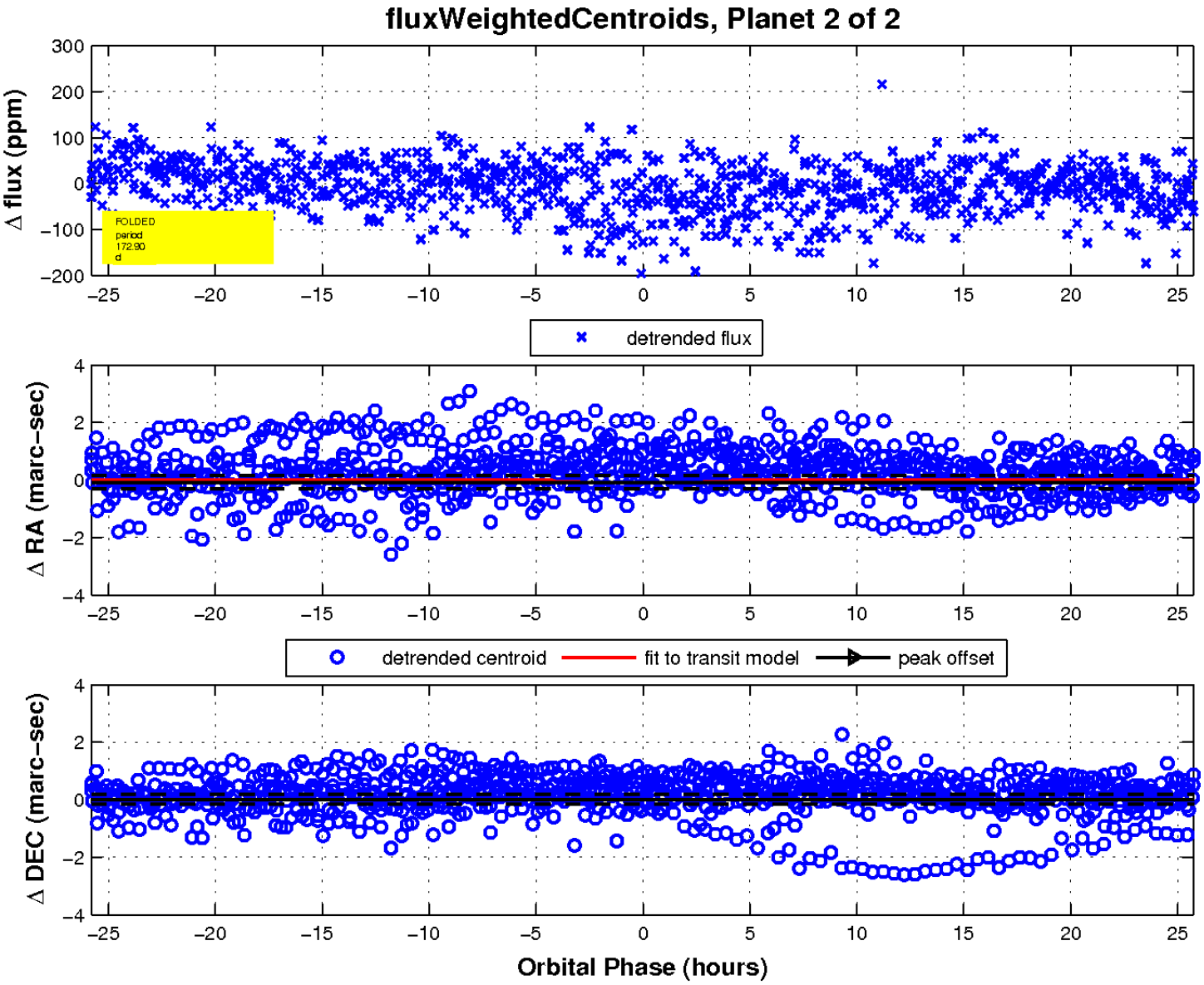




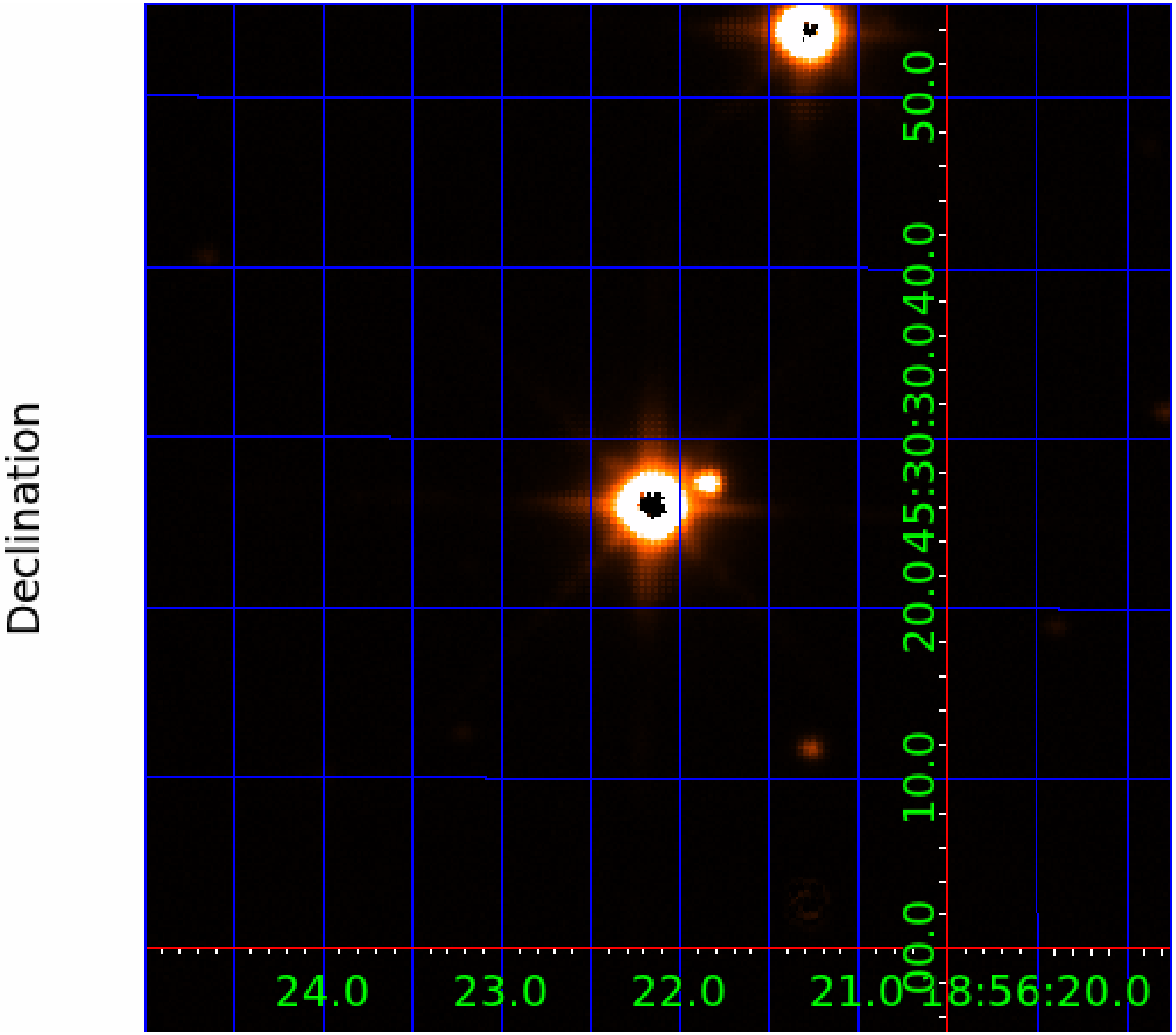
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.







UKIRT Image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