KIC 005213157

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 ($S_\oplus$)
005213157-01	OBS	No	1.054268	132.444354	1.0	1.001	9.8	0.3	3.10	8485	0.36	67727.91
005213157-02	OBS	No	1.054363	131.572886	35.7	2.607	11.7	8.1	3.10	8485	2.14	67719.79
005213157-03	OBS	No	1.054343	131.811329	63.7	6.166	12.2	10.3	3.10	8485	2.88	67721.51
005213157-04	OBS	No	29.566187	155.823141	31.9	1.698	10.2	0.4	3.10	8485	1.88	794.89
005213157-05	OBS	No	17.086395	139.313242	1.0	11.298	11.1	0.0	3.10	8485	0.39	1651.34
005213157-06	OBS	No	2.107737	132.063277	269.3	3.000	11.8	-1.0	3.10	8485	5.16	26891.43
005213157-07	OBS	No	19.289356	148.055366	142.9	12.500	11.4	-1.0	3.10	8485	3.75	1404.79

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005213157-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA_TRACKER—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
005213157-02	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—SAME_NTL_PERIOD
005213157-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA—LPP_DV—LPP_ALT—SAME_NTL_PERIOD
005213157-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_TRACKER—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
005213157-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_TRACKER—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
005213157-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—NO_FITS—CENT_NOFITS
005213157-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_NOFITS

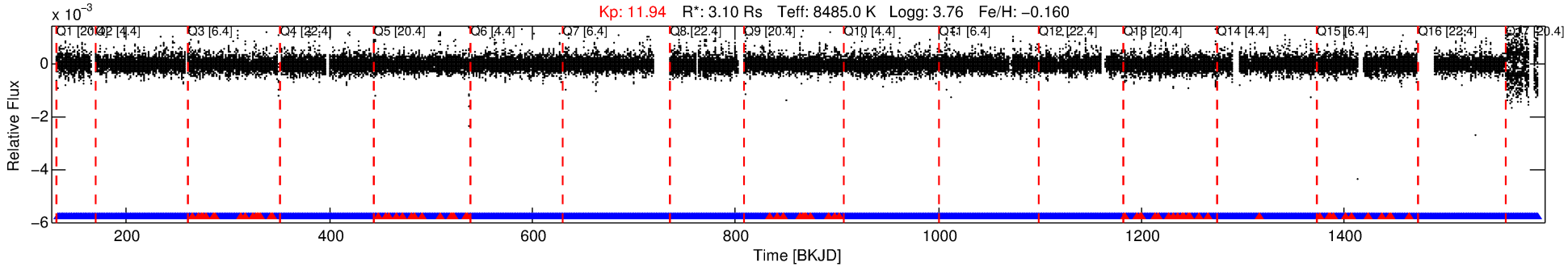
Notes: OBS = Observed. INJ = Injected. INV = Inverted. SCR = Scrambled.
N = Not Transit-Like. S = Stellar Eclipse. C = Centroid Offset. E = Ephemeris Match.
See `http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col` for comment definitions.

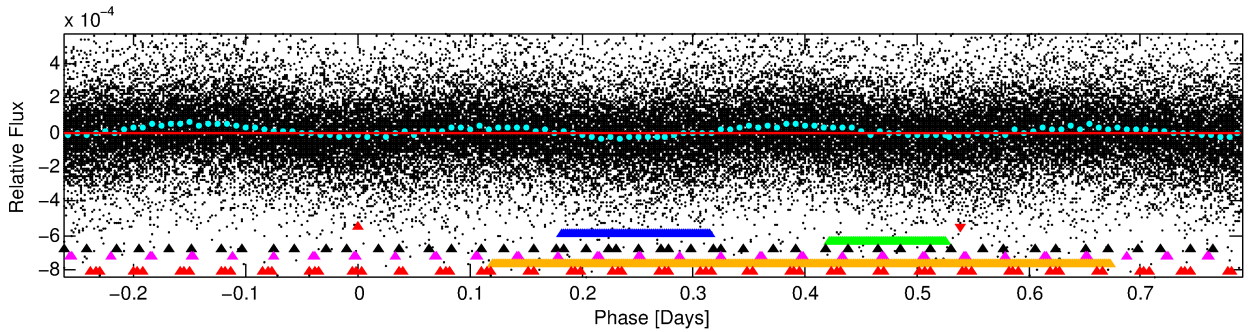
Ephemeris Match Information For 005213157-01

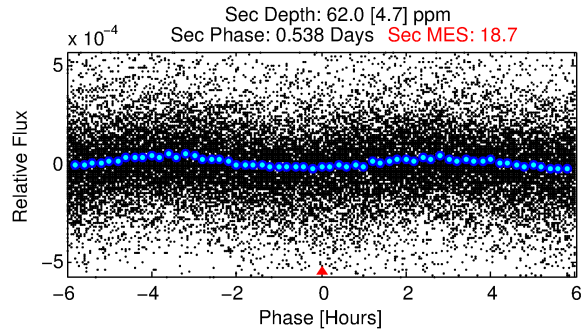
No Significant Match Found

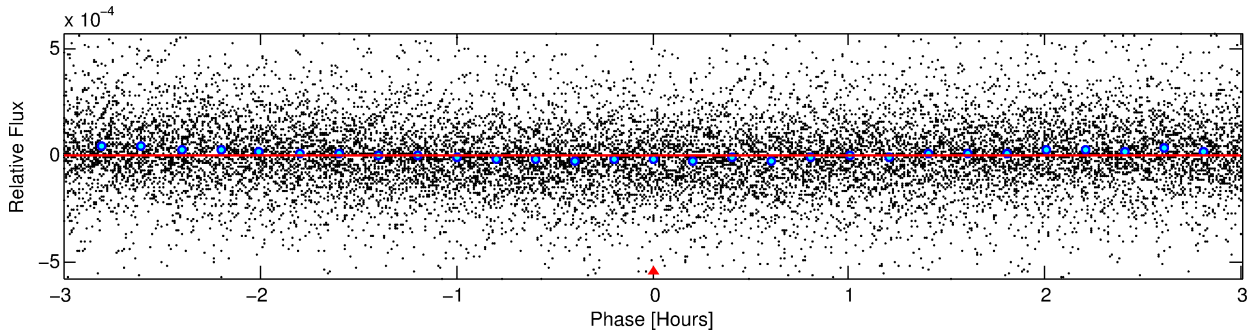
DV One-Page Summary

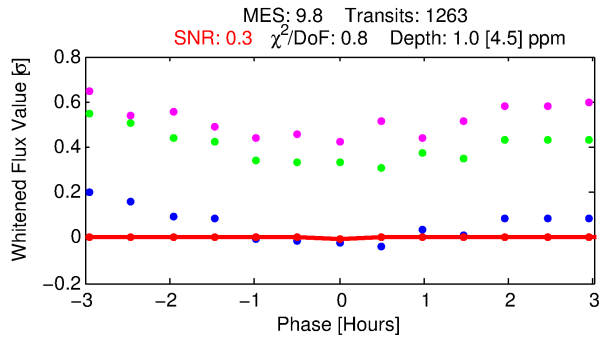
KIC: 5213157 Candidate: 1 of 7 Period: 1.054 d

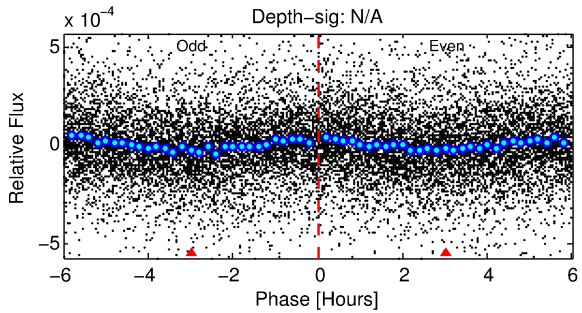


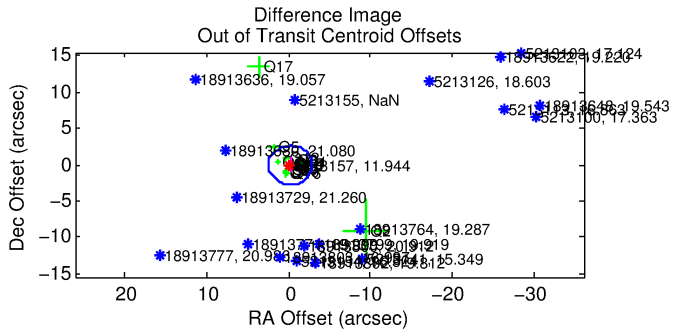












DV Fit Results:

Period = 1.05427 [0.00031] d
Epoch = 132.4444 [0.0395] BKJD
Rp/R* = 0.0011 [0.0025]
a/R* = 3.72 [14.53]
b = 0.90 [0.93]

Seff = 67727.91 [47036.93]
Teq = 4114 [714] K
Rp = 0.36 [0.85] Re
a = 0.0256 [0.0109] AU

Ag = 169.94 [789.99] [0.21σ]
Teffp = 22963 [26426] K [0.71σ]

DV Diagnostic Results:

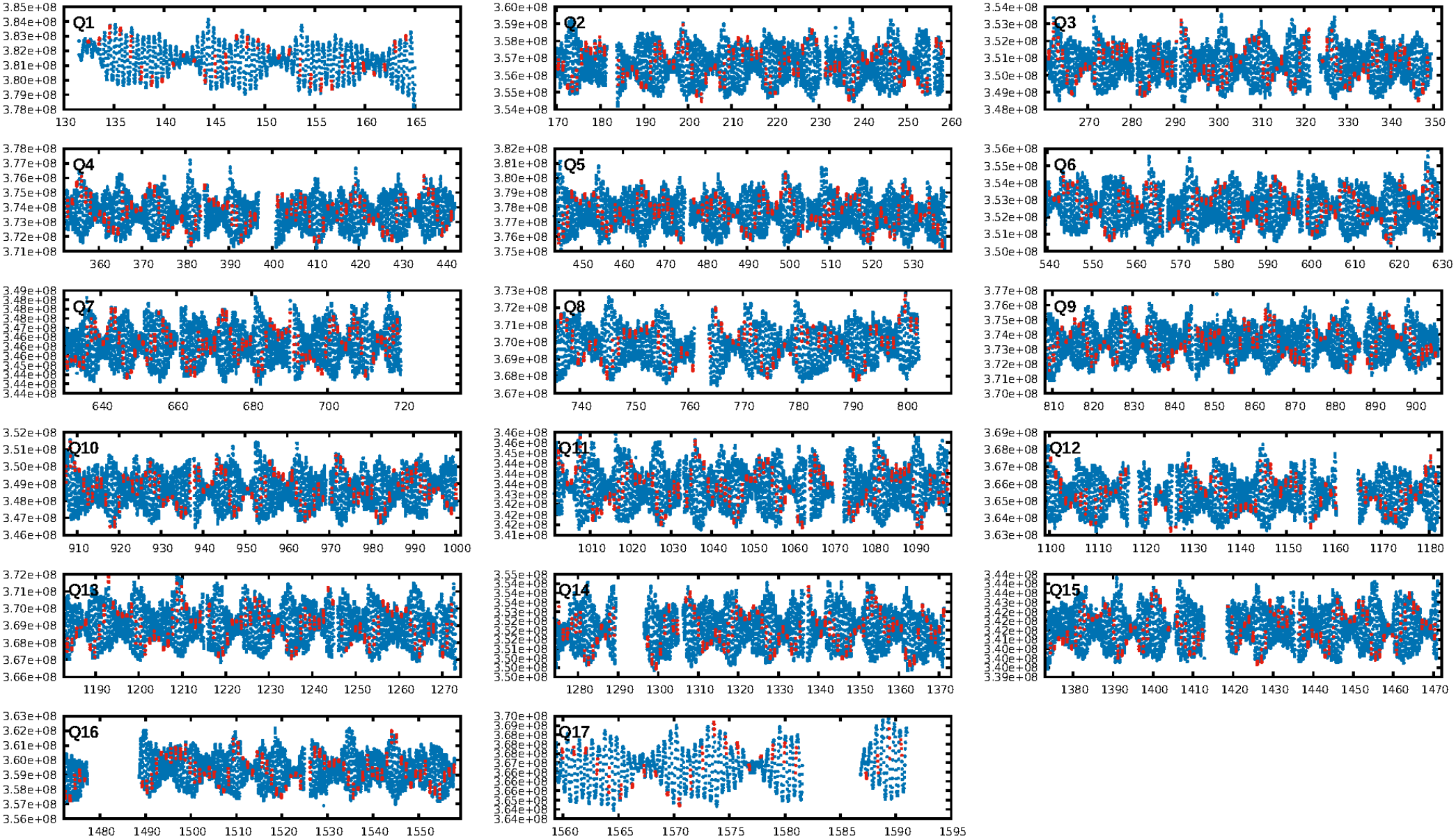
ShortPeriod−sig: N/A
LongPeriod−sig: 0.0% [0.00σ]
ModelChiSquare2−sig: N/A
ModelChiSquareGof−sig: N/A
Bootstrap−pfa: N/A
RollingBand−fgt: 0.94 [1137/1207]
GhostDiagnostic−chr: N/A

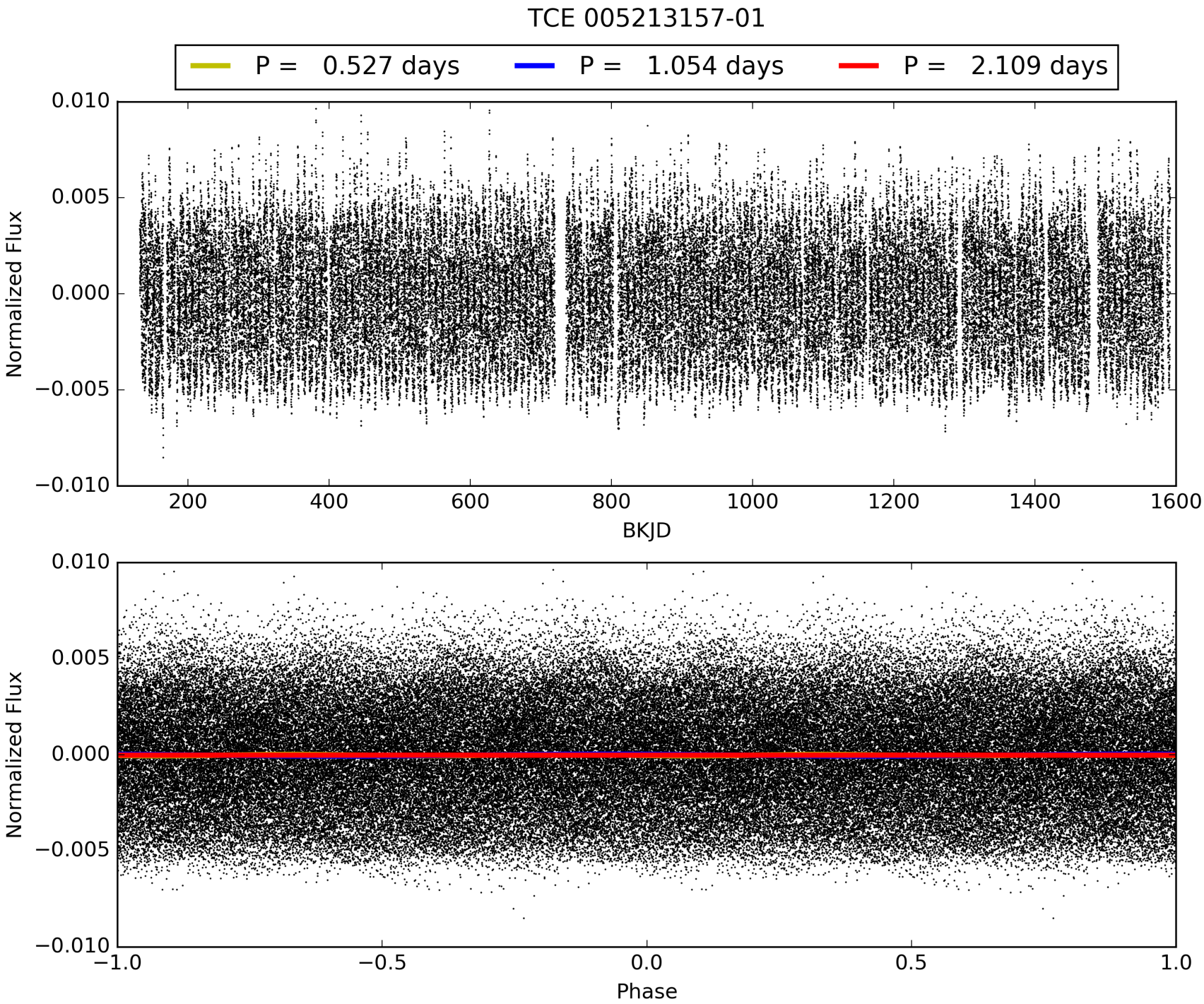
Centroid−sig: N/A
Centroid−so: N/A
OotOffset−rm: 0.234 arcsec [0.26σ]
KicOffset−rm: 0.292 arcsec [0.29σ]
OotOffset−st: 4/4/4/5 [17]
KicOffset−st: 4/4/4/5 [17]
DiffImageQuality−fgm: 0.65 [11/17]
DiffImageOverlap−fno: 0.35 [6/17]

Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30−Jan−2016 16:39:54 Z

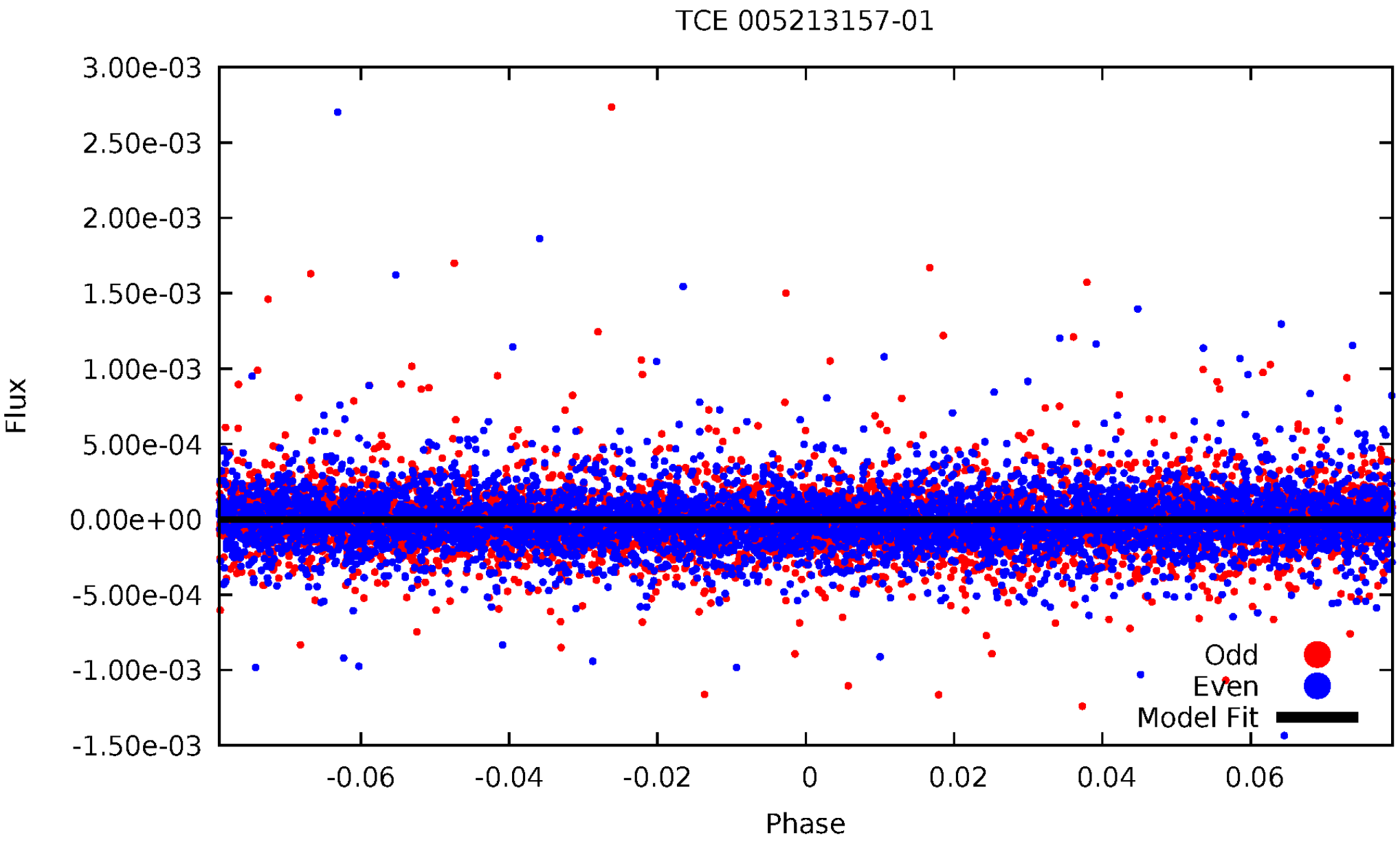
This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

TCE 005213157-01, PDC Light Curves

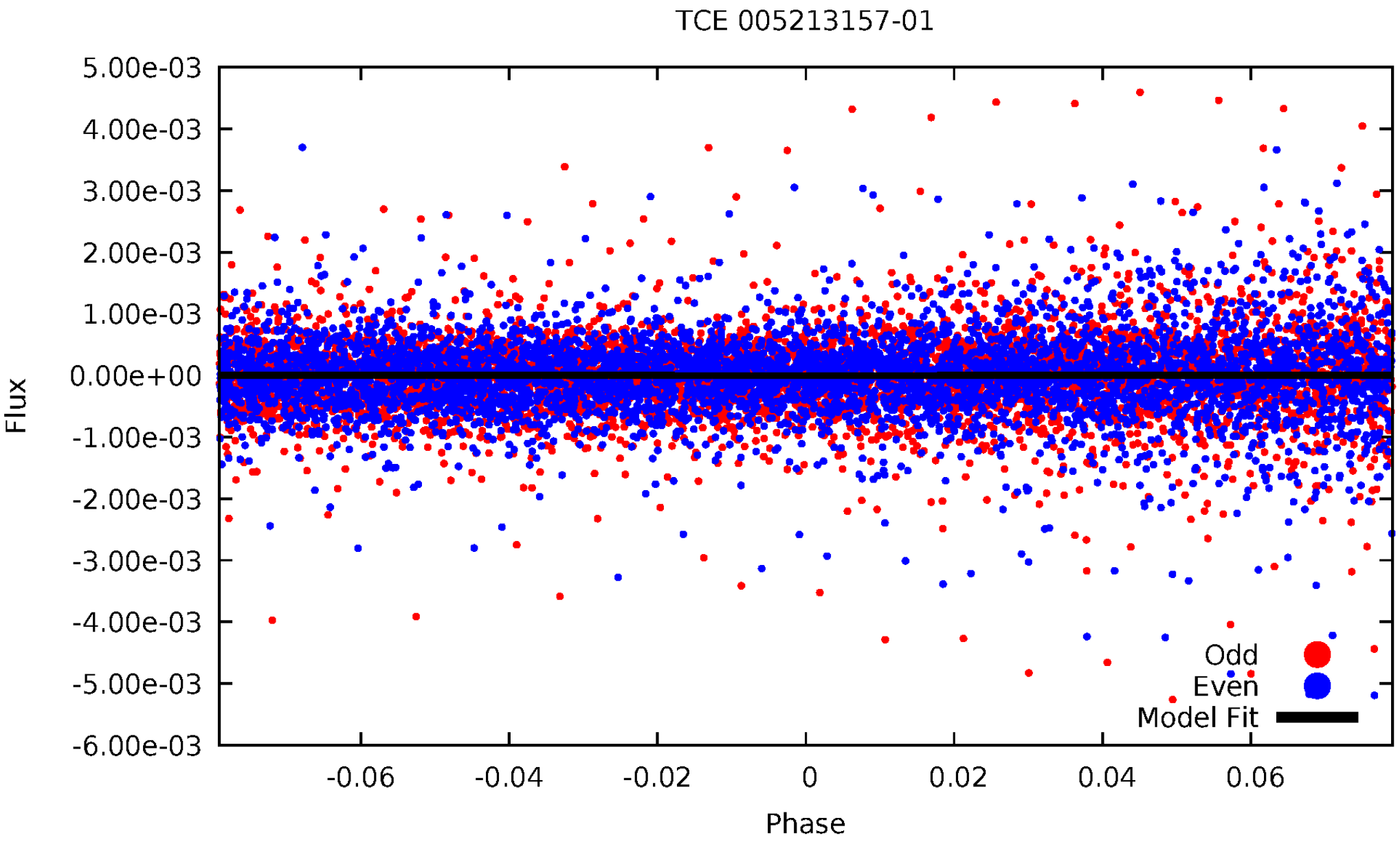



TCE 005213157-01
P = 0.527 days
P = 1.054 days
P = 2.109 days
Normalized Flux
0.010
0.005
0.000
−0.005
−0.010
200
400
600
800
1000
1200
1400
1600
BKJD
Normalized Flux
0.010
0.005
0.000
−0.005
−0.010
−1.0
−0.5
0.0
0.5
1.0
Phase

DV Odd/Even


TCE 005213157-01
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
Flux
-0.06
-0.04
-0.02
0
0.02
0.04
0.06
Phase
Odd
Even
Model Fit

ALT Odd/Even


TCE 005213157-01
5.00e-03
4.00e-03
3.00e-03
2.00e-03
1.00e-03
0.00e+00
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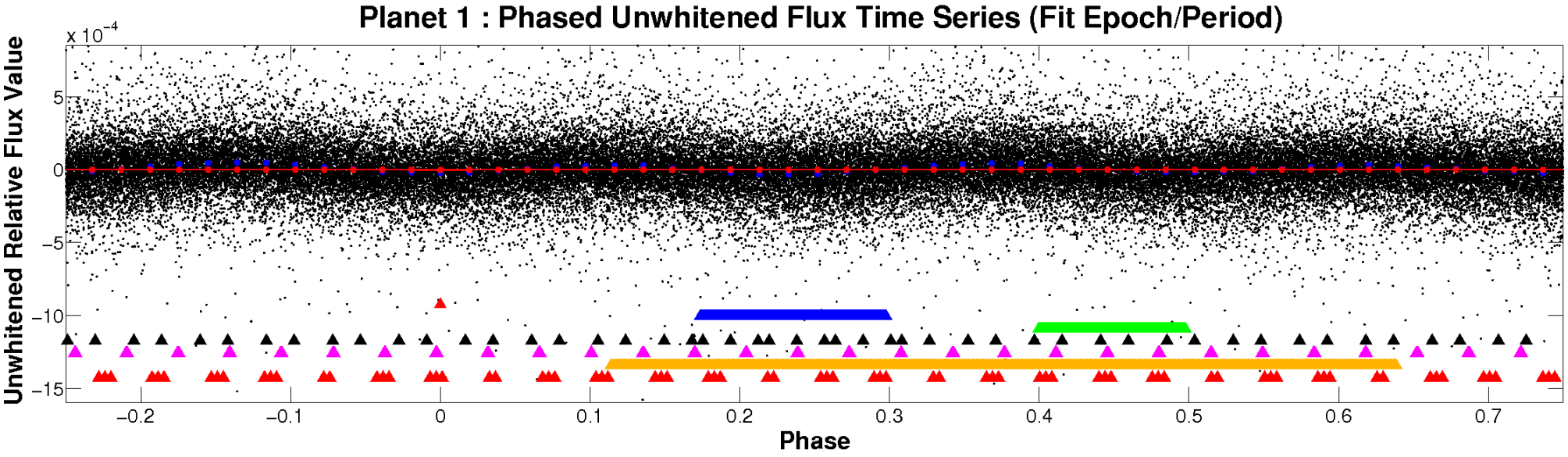
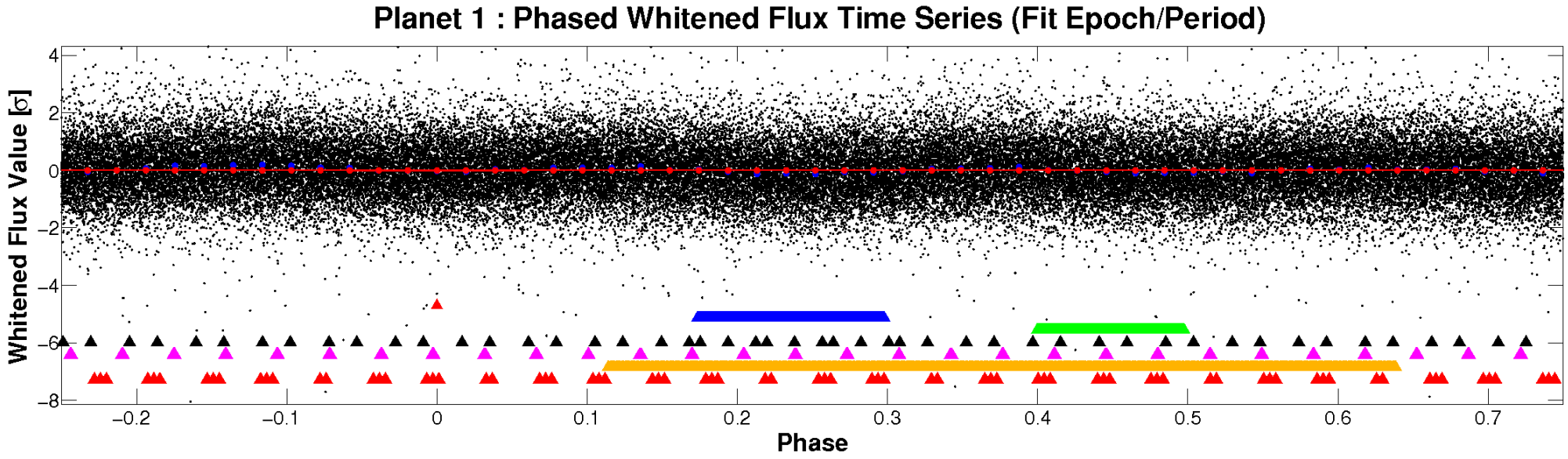
-2.00e-03
-3.00e-03
-4.00e-03
-5.00e-03
-6.00e-03
Flux
-0.06
-0.04
-0.02
0
0.02
0.04
0.06
Phase
Odd
Even
Model Fit

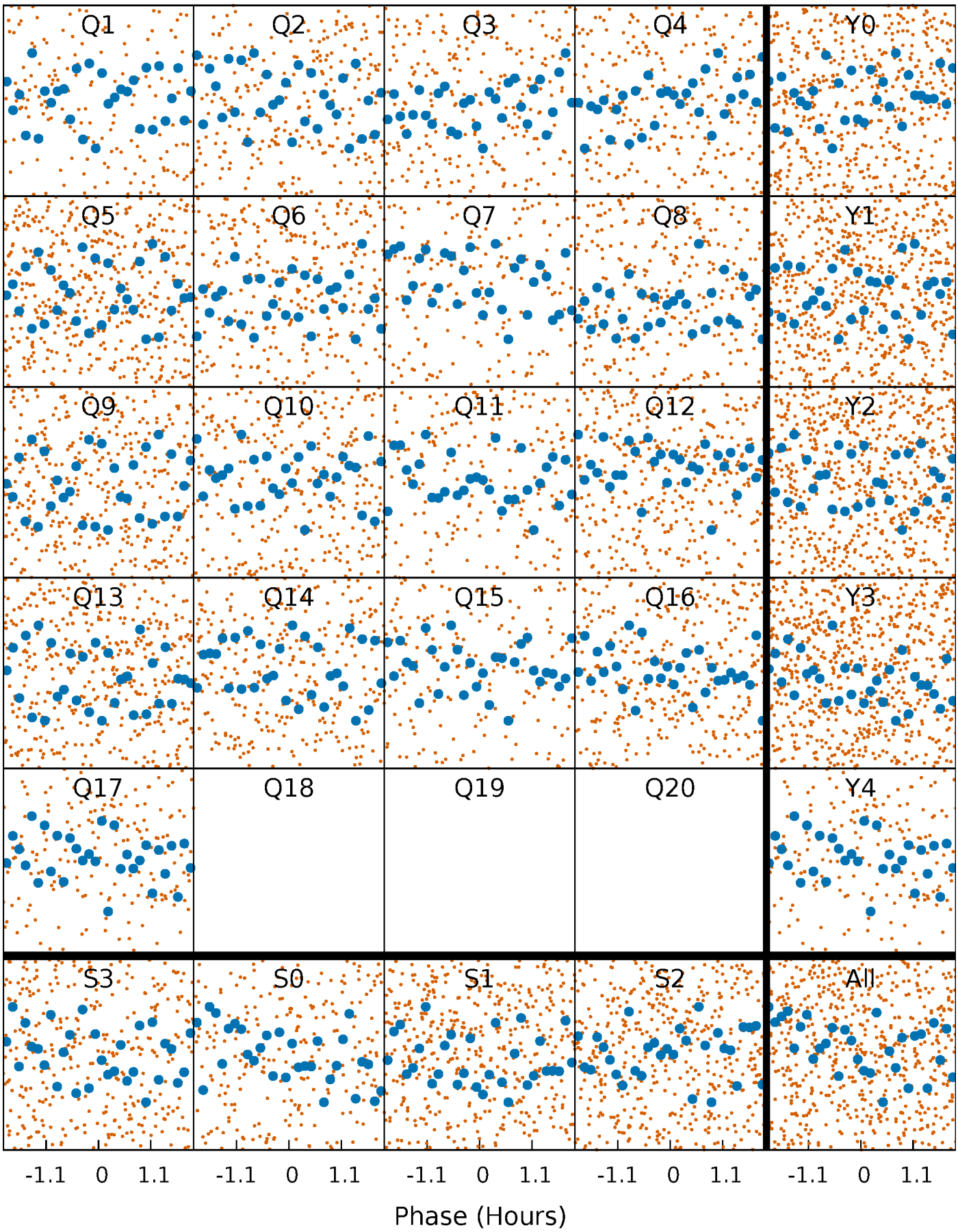
Non-Whitened Vs. Whitened Light Curve





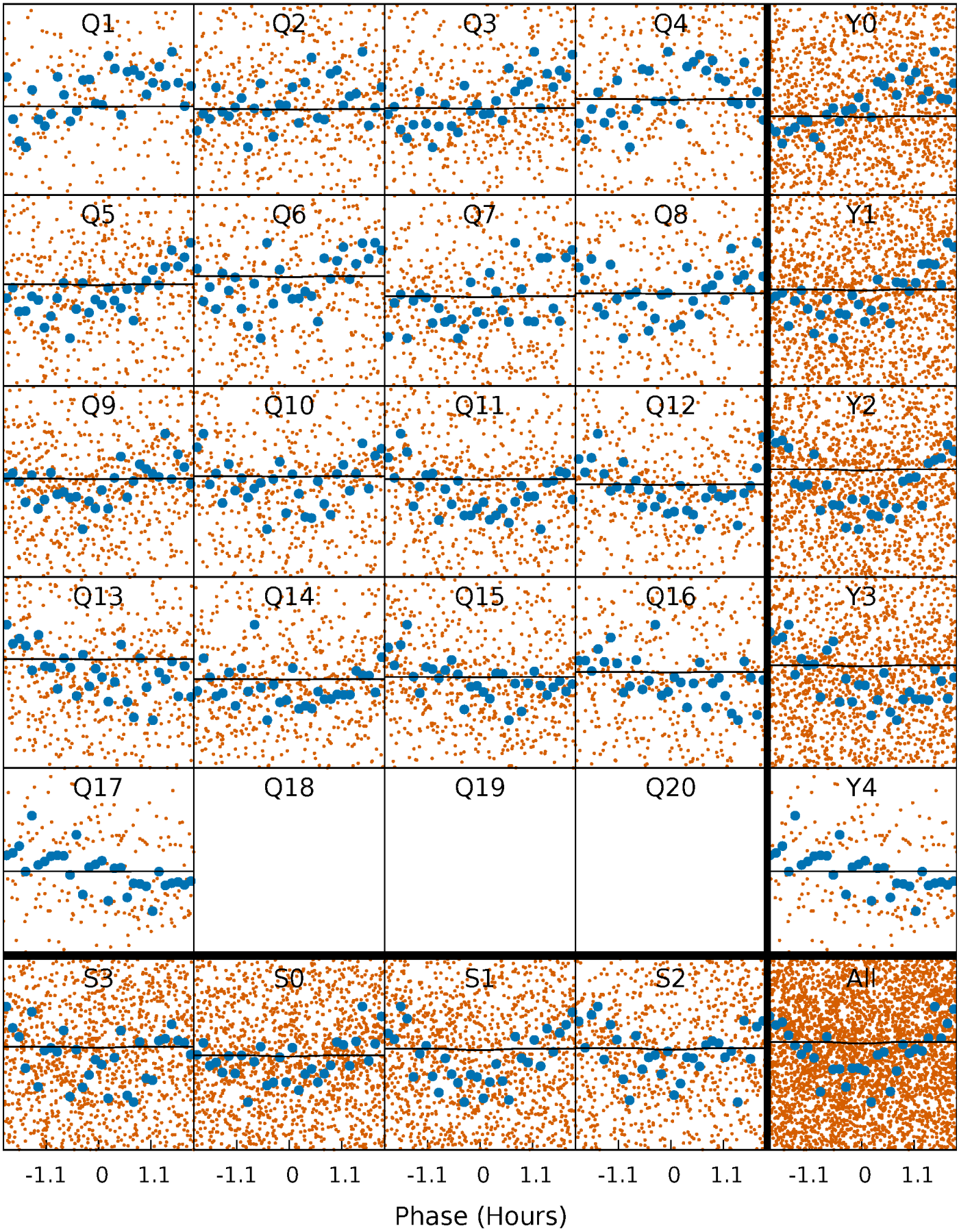
PDC Quarter-Phased Transit Curves

TCE 005213157-01 P= 1.054268 Days T_0=132.444354 (BKJD)



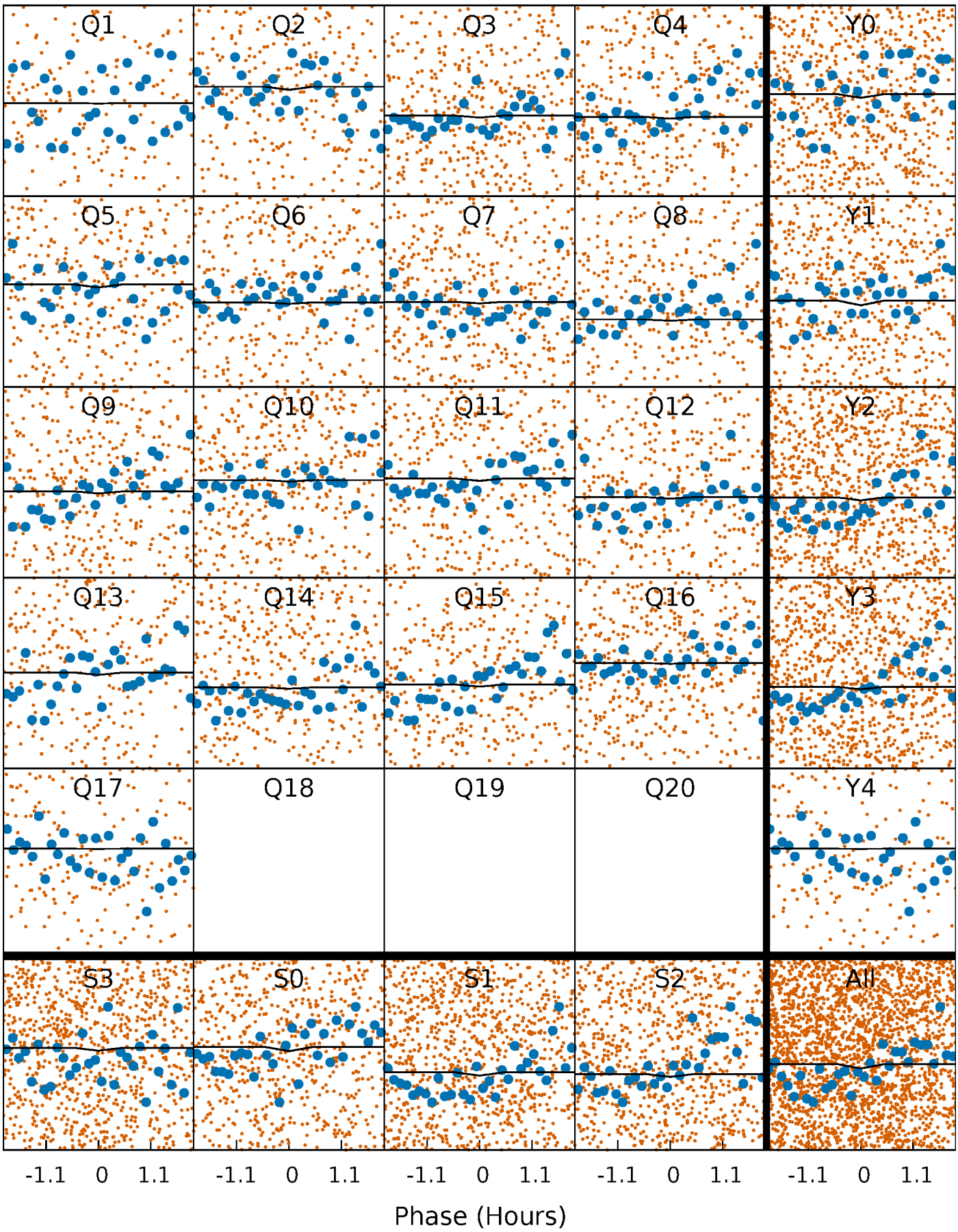
DV Quarter-Phased Transit Curves

TCE 005213157-01 P= 1.054268 Days T_0=132.444354 (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

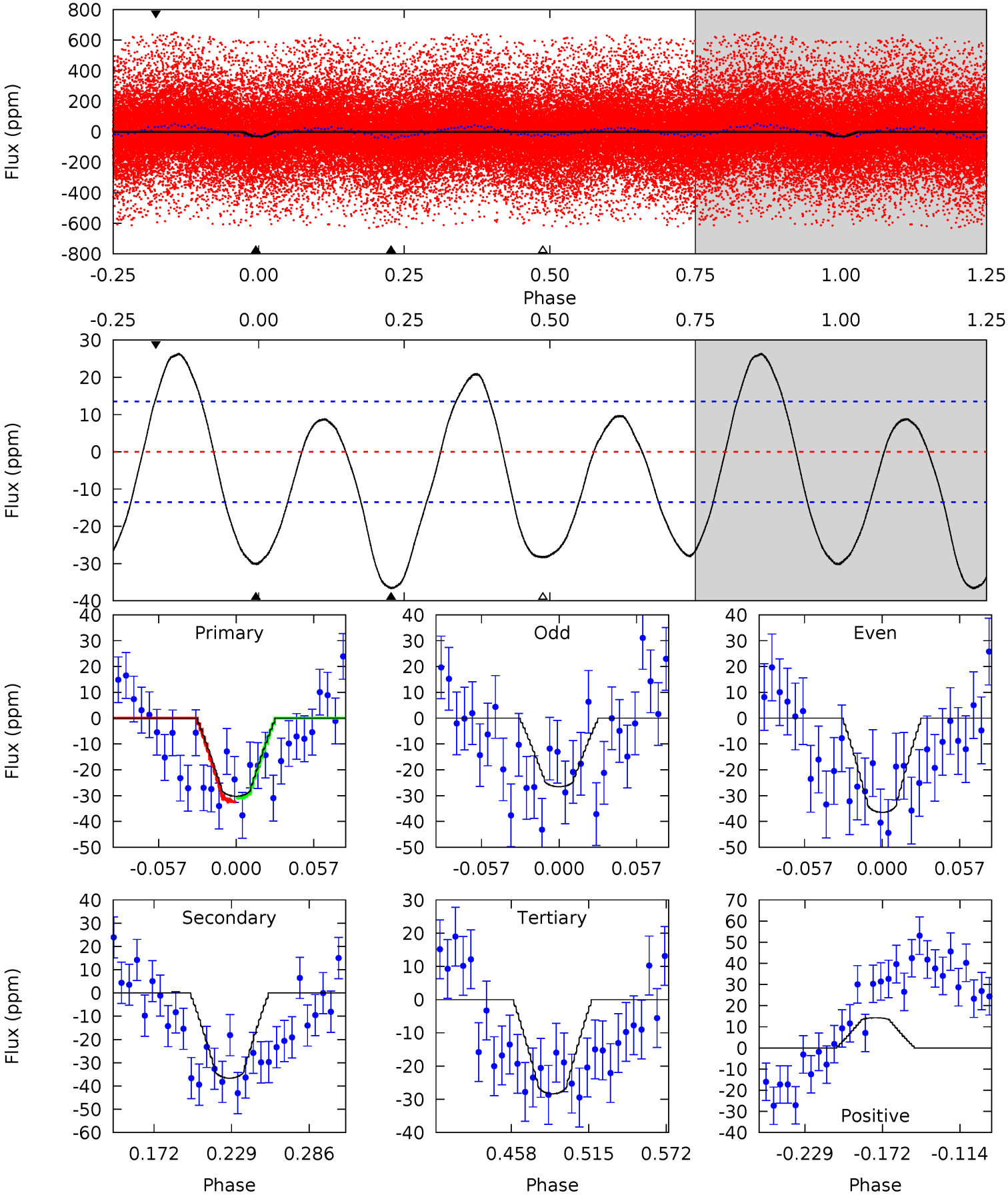
TCE 005213157-01 P= 1.054348 Days T_0=132.429386 (BKJD)



DV Model-Shift Uniqueness Test

005213157-01, P = 1.054268 Days, E = 131.390086 Days

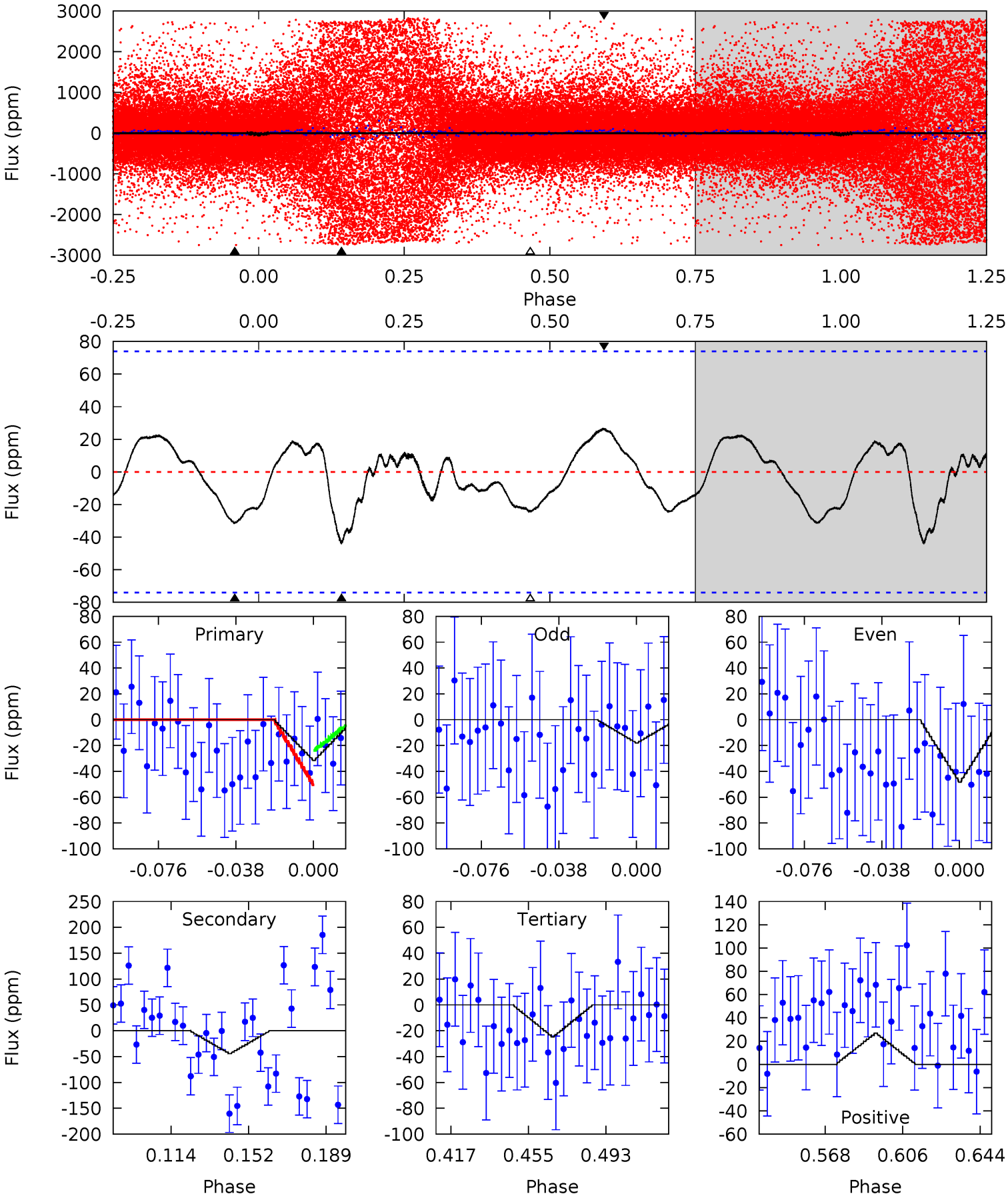
Pri	Sec	Ter	Pos	FA_1	FA_2	F_{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
10.5	12.7	9.84	4.95	4.68	1.90	5.50	0.65	5.53	2.87	7.75	1.74	0.80	0.42	0.27



Alt Model-Shift Uniqueness Test

005213157-01, P = 1.054348 Days, E = 131.375038 Days

Pri	Sec	Ter	Pos	FA_1	FA_2	F_{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
2.03	2.86	1.60	1.73	4.76	2.08	0.93	0.43	0.30	1.26	1.13	1.00	4.04	0.38	0.70



Stellar Parameters For KIC 005213157

	$T_{\rm eff}(K)$	$\log(g)$	[Fe/H]	R ($R_\odot$)	M($M_\odot$)	$p_\star$ (g·cm^{-3})
	8485^{+235}_{-369}	$3.762^{+0.392}_{-0.140}$	$-0.160^{+0.400}_{-0.350}$	$3.096^{+0.929}_{-1.393}$	$2.024^{+0.395}_{-0.439}$	$0.096^{+0.363}_{-0.043}$
	+3%/-4%	+10%/-4%	+250%/-219%	+30%/-45%	+20%/-22%	+378%/-45%
Source	KIC0	KIC0	KIC0	DSEP		

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

Secondary Eclipse Parameters for KIC 005213157-01 / KOI

Detrend	Depth (ppm)	R_p ($R_\oplus$)	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-37±3	$0.67^{+0.63}_{-0.44}$	5571^{+512}_{-597}	20302^{+79078}_{-9308}	29^{+223}_{-22}
Alt.	-44±16	$0.92^{+0.79}_{-0.58}$	5573^{+507}_{-633}	15291^{+44747}_{-6063}	18^{+112}_{-13}

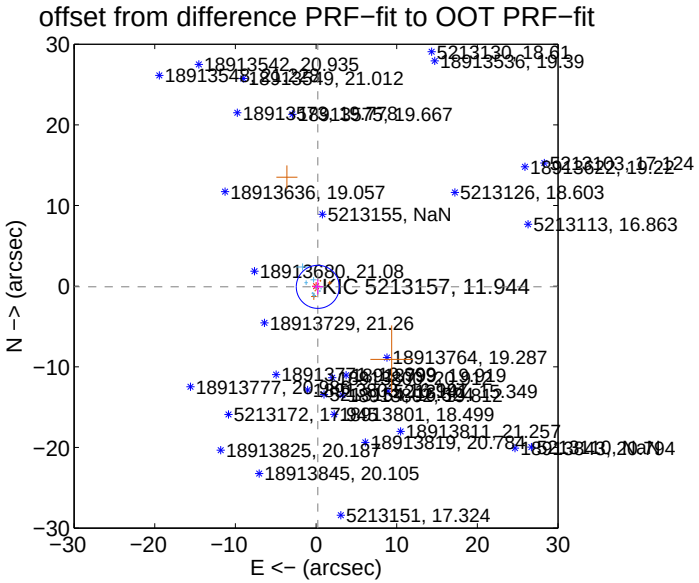
T_{max} = Theoretical Maximum Planetary Temperature
T_{obs} = Observed Planetary Temperature (Assuming A=0.3)
A_{obs} = Observed Albedo (Assuming T=0)

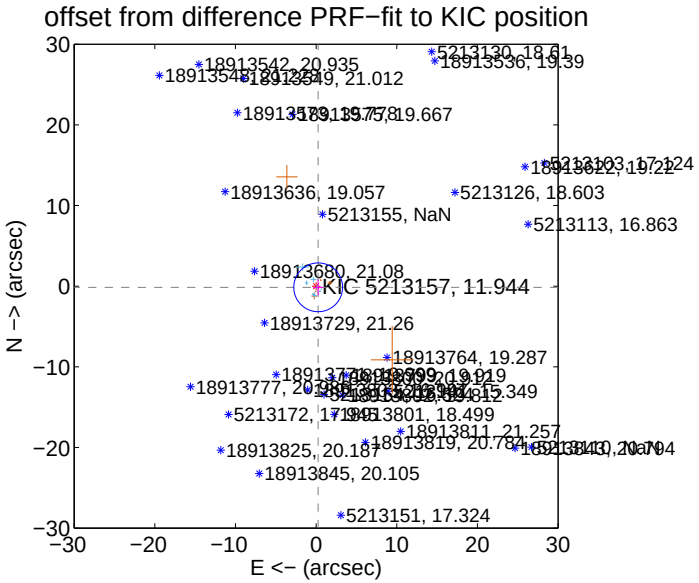
If a secondary eclipse is present, the system is likely an EB if $T_{obs} \gg T_{max}$ AND $A_{obs} \gg 1.0$

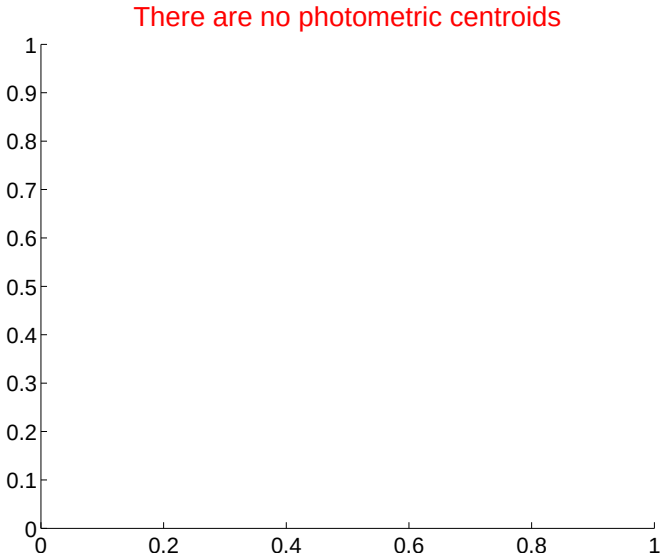
DV Centroid Data

Supplemental centroid analysis for 005213157-01. Kepler magnitude: 11.94. Transit SNR 0.30
There are 11 quarters with good PRF difference image offsets
The direct PRF centroid is offset from the target star catalog position by about 0.04 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.234 ± 0.890	0.26	-0.218 ± 0.637	-0.085 ± 0.934
PRF-fit source offset from KIC position	0.292 ± 1.008	0.29	-0.255 ± 0.652	-0.142 ± 0.995
photometric centroid source offset	—	—	—	—

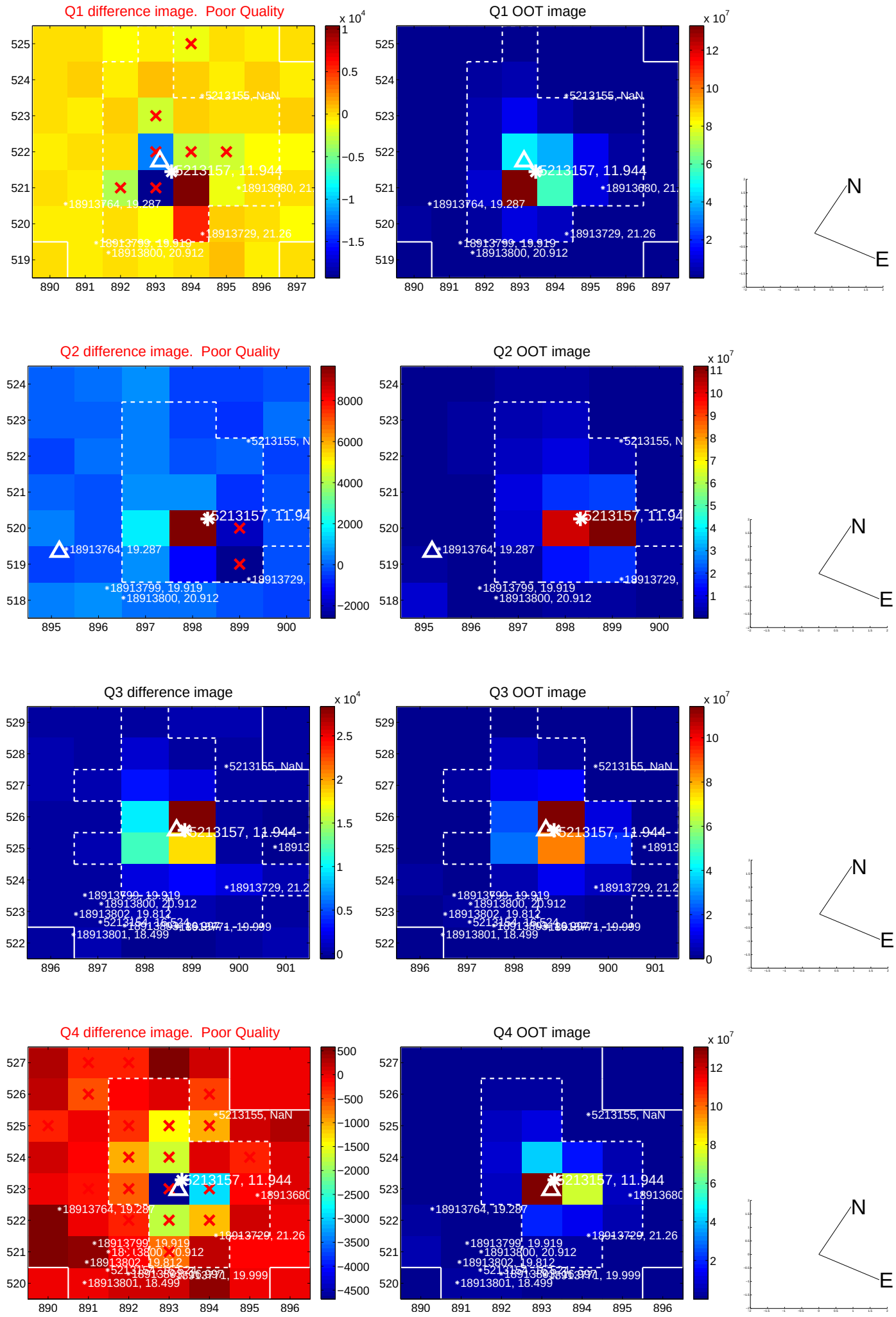




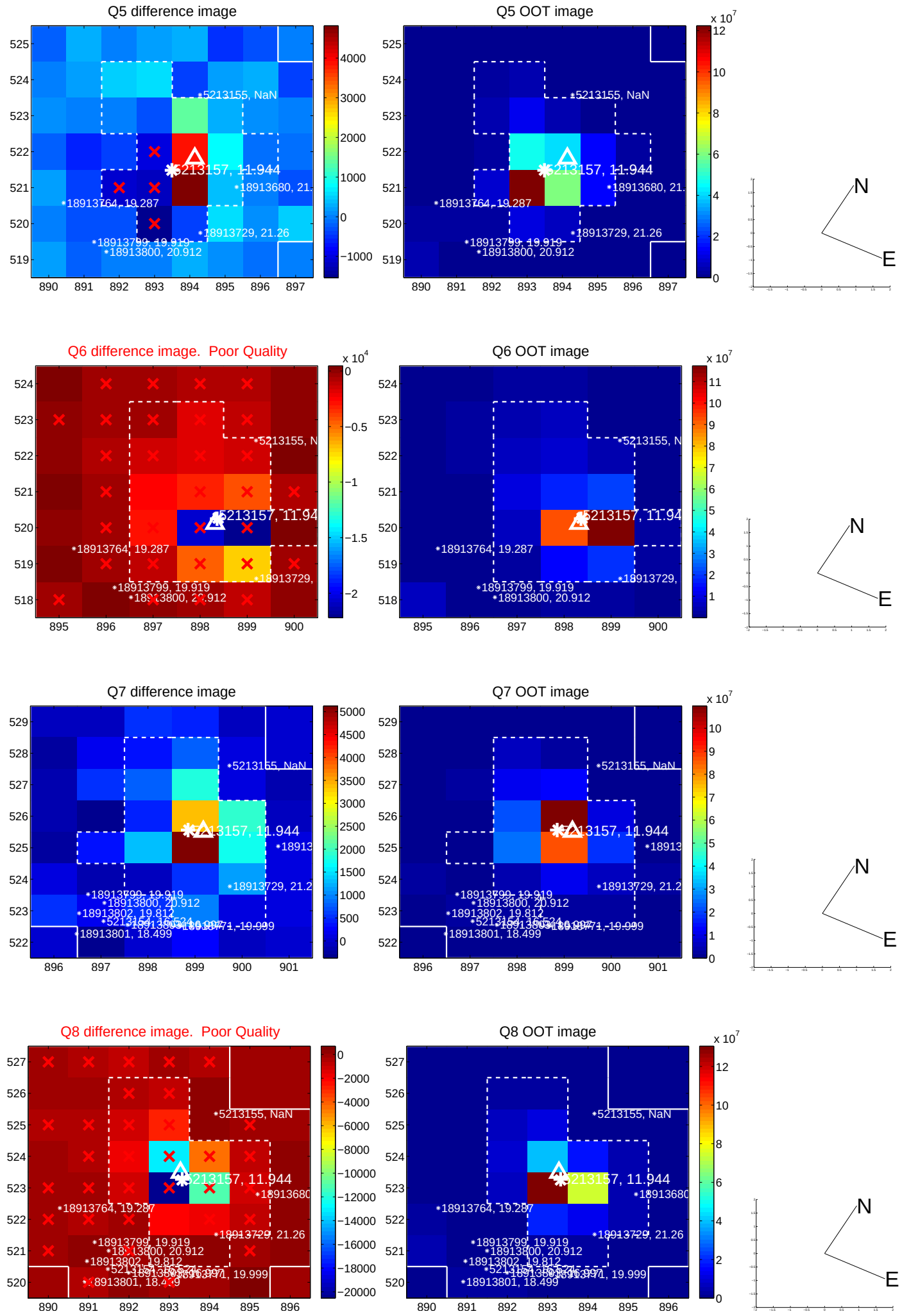


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one-σ uncertainty. Blue circle: three-σ. Red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



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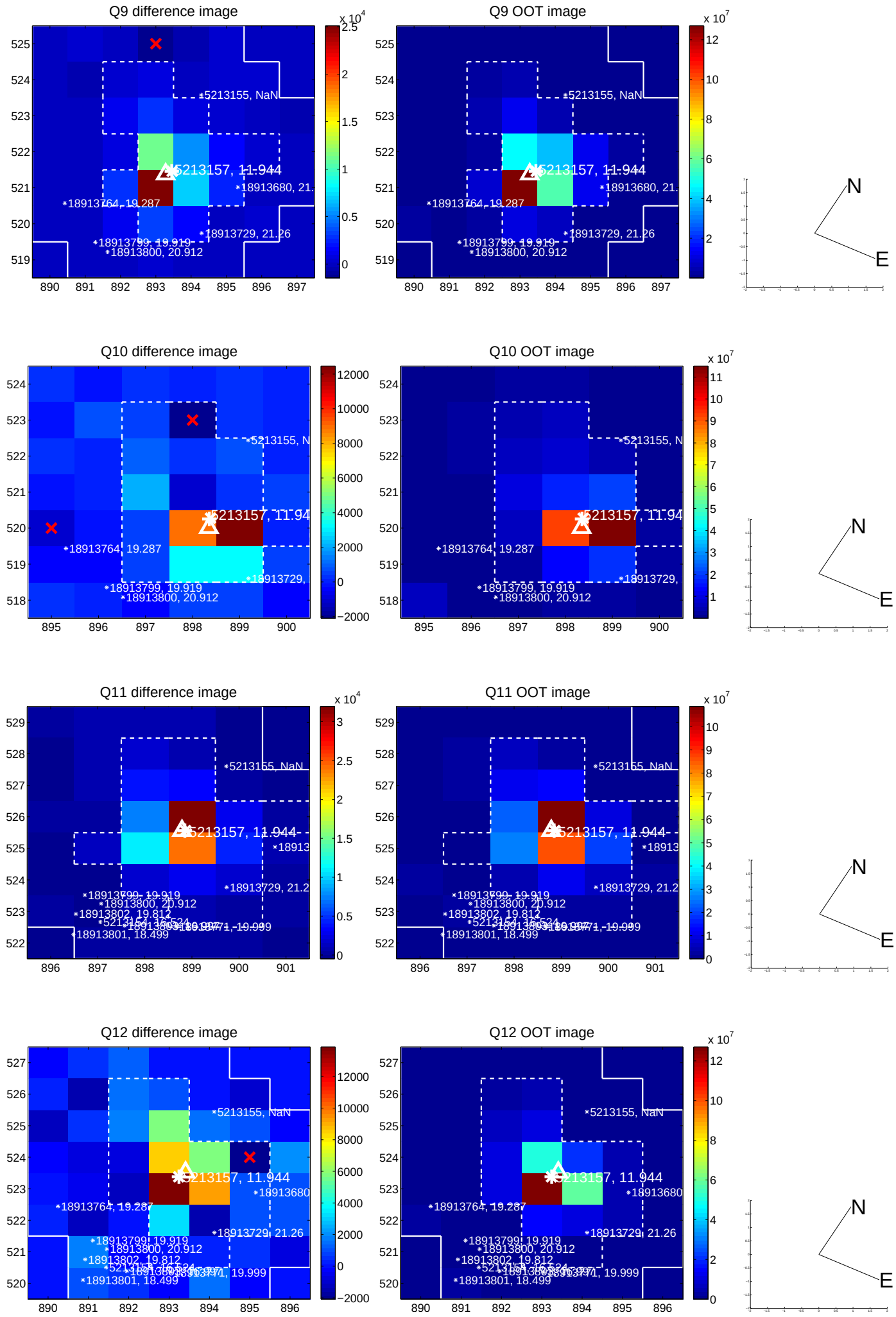

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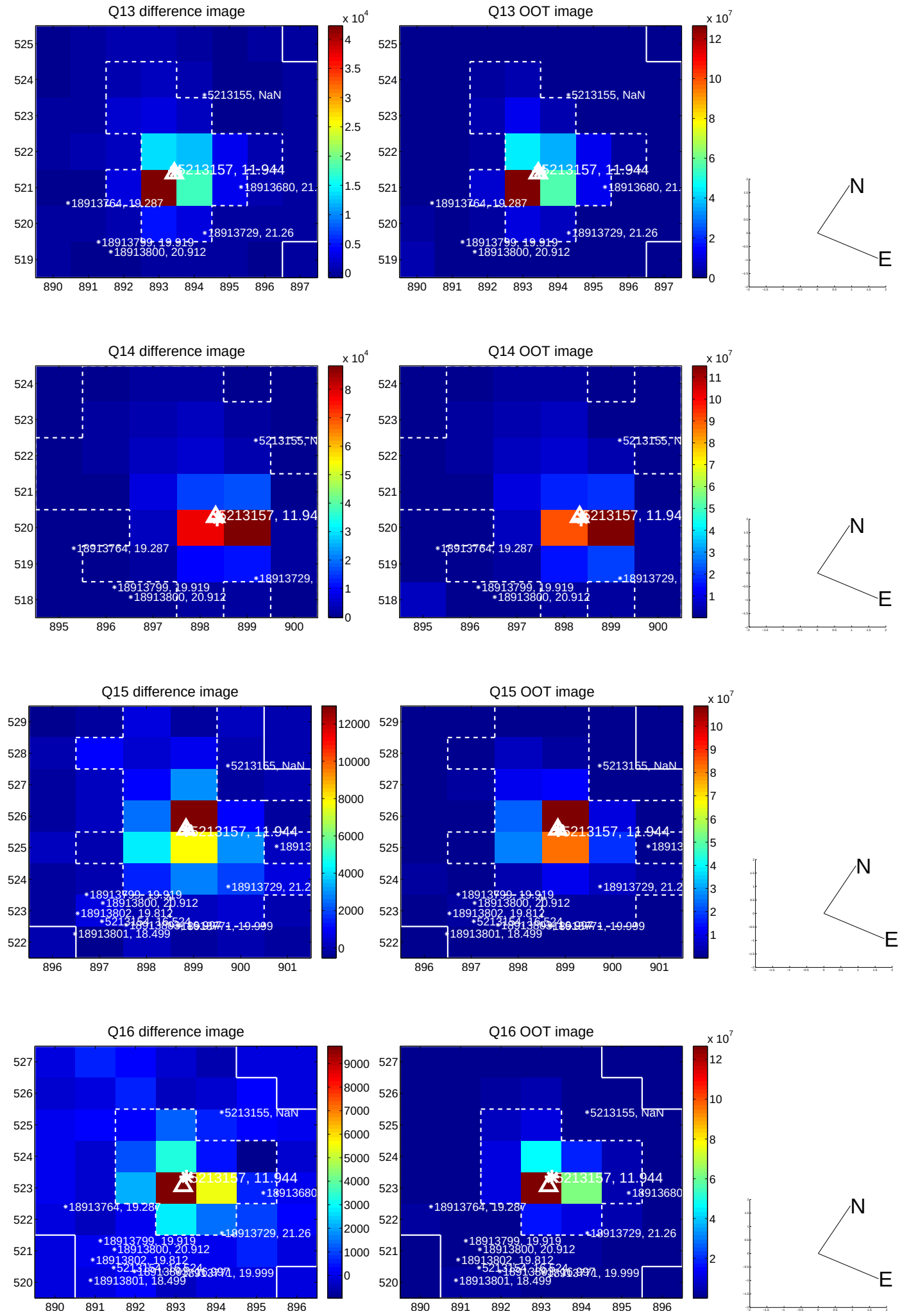

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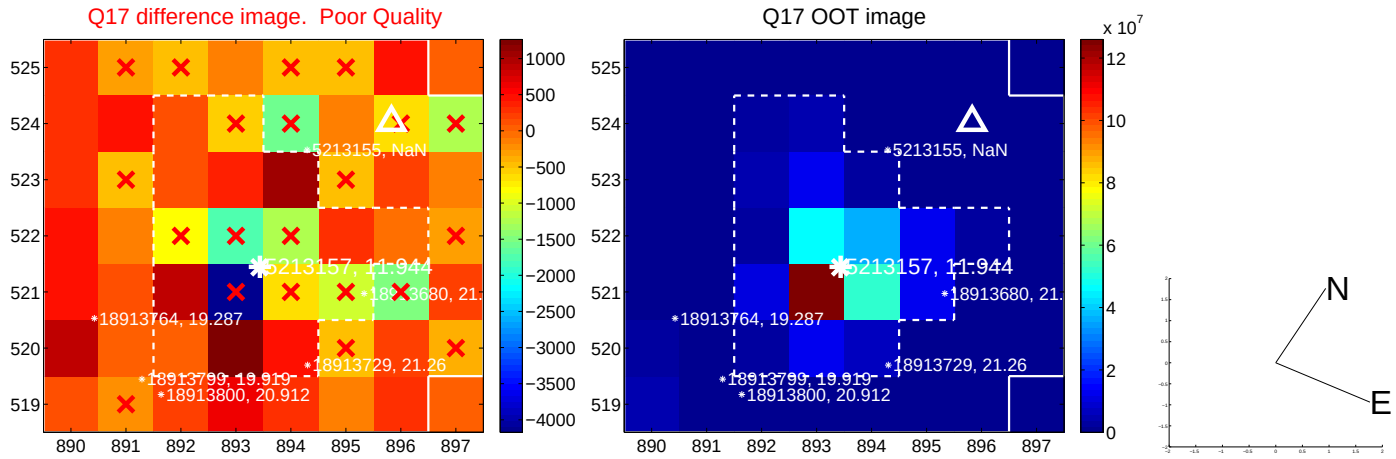
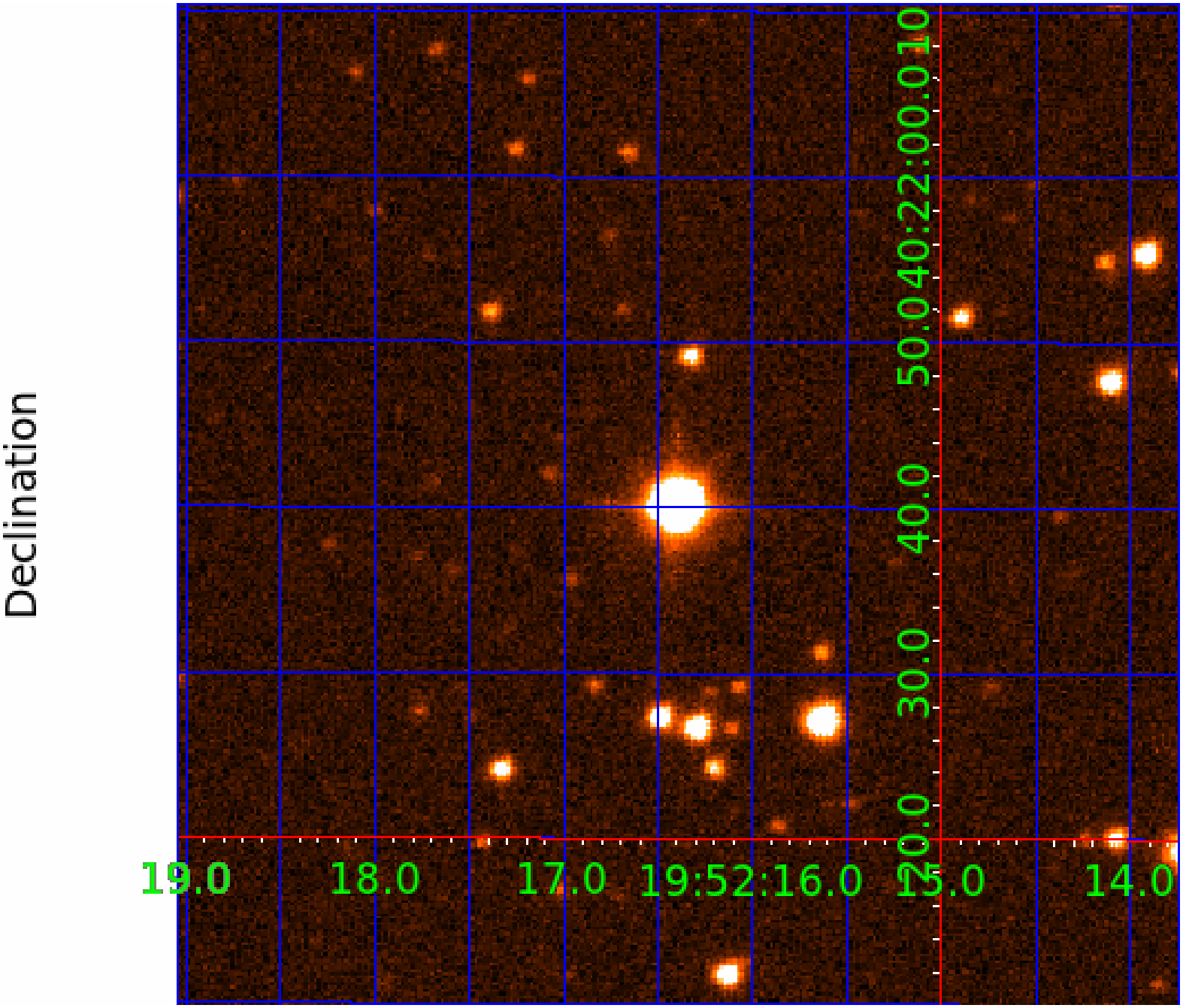


folded centroid time series figure for this object.

UKIRT Image


Declination
22:00:01.0
50.0
40.0
30.0
20.0
19.0
18.0
17.0
19:52:16.0
15.0
14.0

KIC 005213157

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 ($S_\oplus$)
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Robovetter Results

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005213157-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA_TRACKER—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
005213157-02	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—SAME_NTL_PERIOD
005213157-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA—LPP_DV—LPP_ALT—SAME_NTL_PERIOD
005213157-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_TRACKER—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
005213157-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_TRACKER—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
005213157-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—NO_FITS—CENT_NOFITS
005213157-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_NOFITS

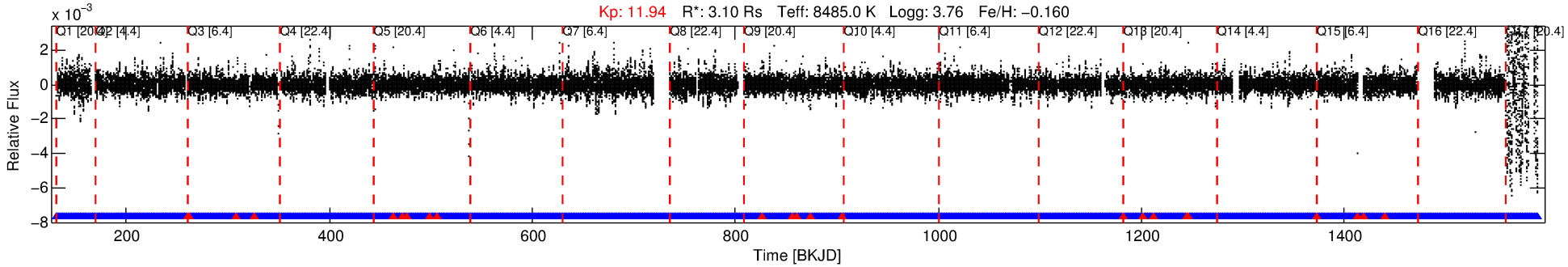
Notes: OBS = Observed. INJ = Injected. INV = Inverted. SCR = Scrambled.
N = Not Transit-Like. S = Stellar Eclipse. C = Centroid Offset. E = Ephemeris Match.
See `http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col` for comment definitions.

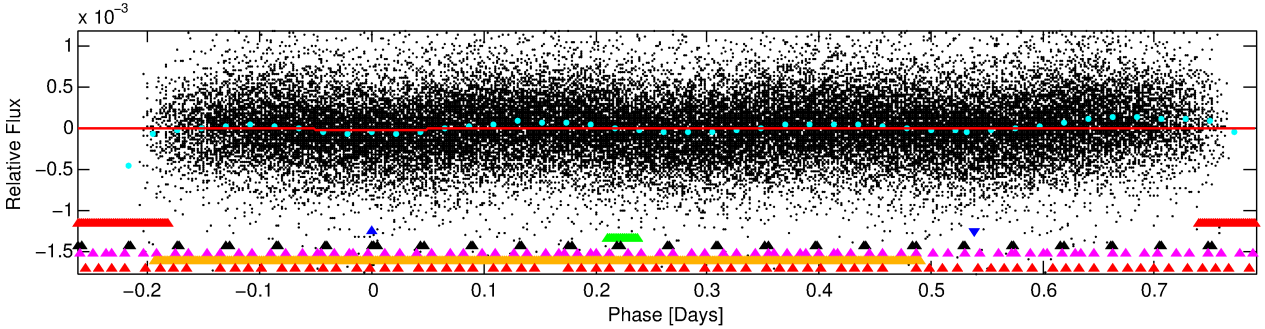
Ephemeris Match Information For 005213157-02

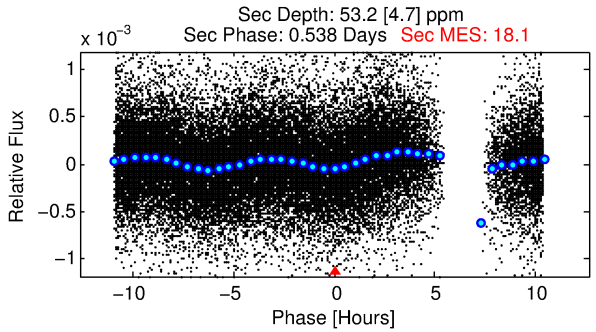
No Significant Match Found

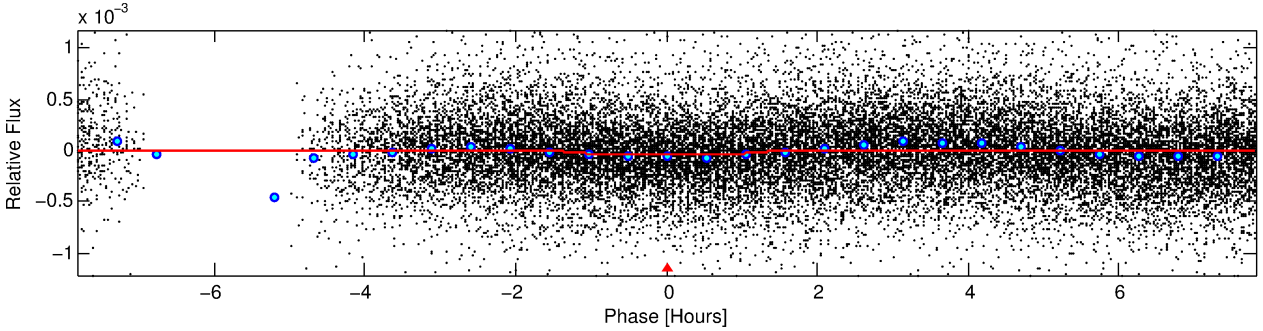
DV One-Page Summary

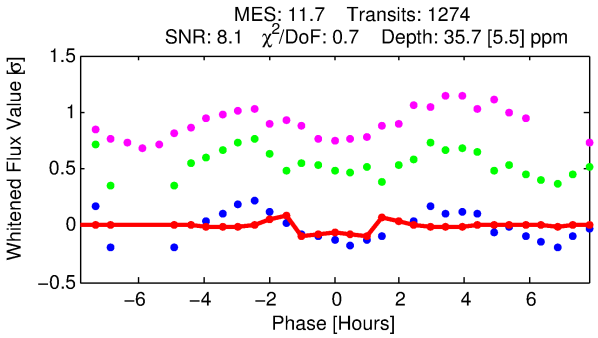
KIC: 5213157 Candidate: 2 of 7 Period: 1.054 d

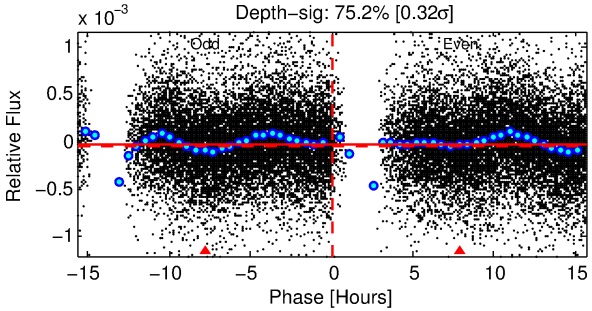


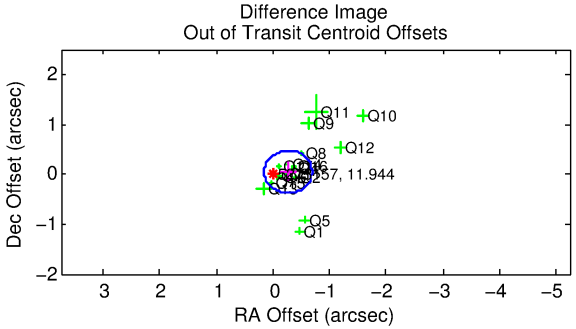












DV Fit Results:

Period = 1.05436 [0.00001] d
Epoch = 131.5729 [0.0016] BKJD
Rp/R* = 0.0063 [0.0010]
a/R* = 1.70 [0.97]
b = 0.90 [0.20]

Seff = 67719.79 [47031.28]
Teq = 4113 [714] K
Rp = 2.14 [1.02] Re
a = 0.0256 [0.0109] AU

Ag = 4.20 [3.12] [1.02σ]
Teffp = 9102 [823] K [4.58σ]

DV Diagnostic Results:

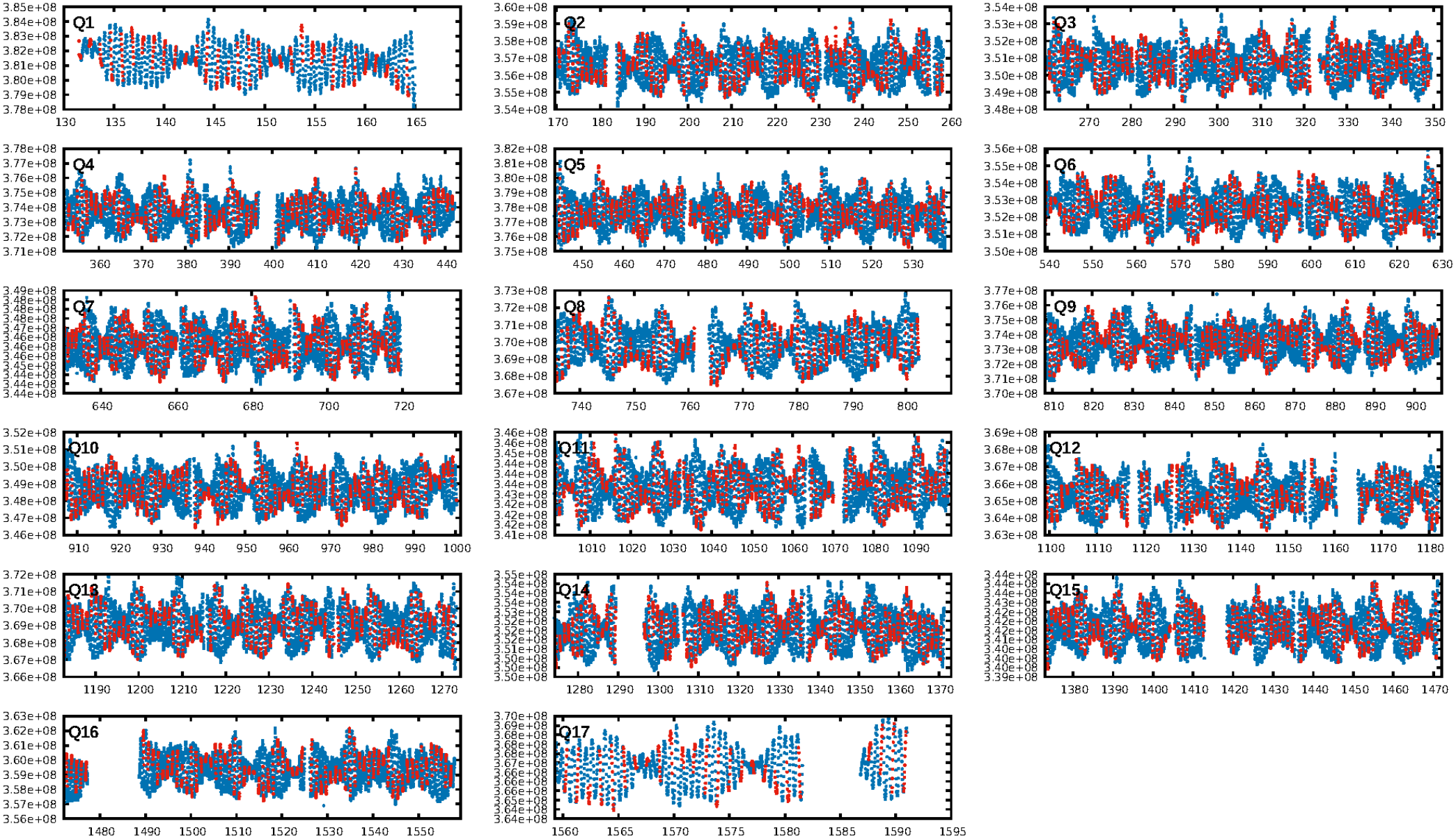
ShortPeriod−sig: 0.0% [0.00σ]
LongPeriod−sig: 100.0% [6.36σ]
ModelChiSquare2−sig: N/A
ModelChiSquareGof−sig: N/A
Bootstrap−pfa: N/A
RollingBand−fgt: 0.98 [1194/1217]
GhostDiagnostic−chr: 0.4863

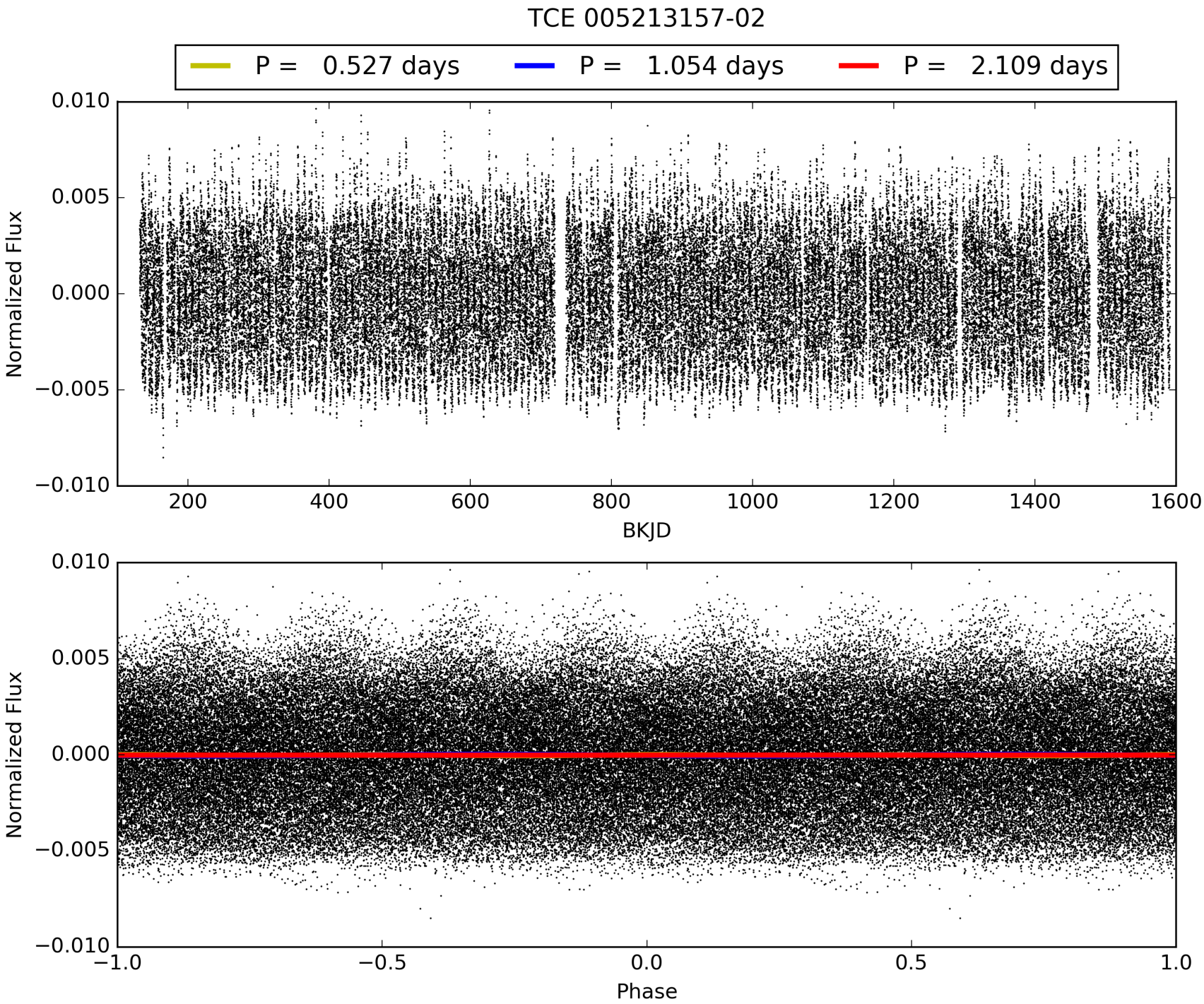
Centroid−sig: 3.0%
Centroid−so: 0.540 arcsec [1.07σ]
OotOffset−rm: 0.269 arcsec [1.90σ]
KicOffset−rm: 0.310 arcsec [2.60σ]
OotOffset−st: 4/4/4/5 [17]
KicOffset−st: 4/4/4/5 [17]
DiffImageQuality−fgm: 0.59 [10/17]
DiffImageOverlap−fno: 0.00 [0/17]

Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30−Jan−2016 16:40:03 Z

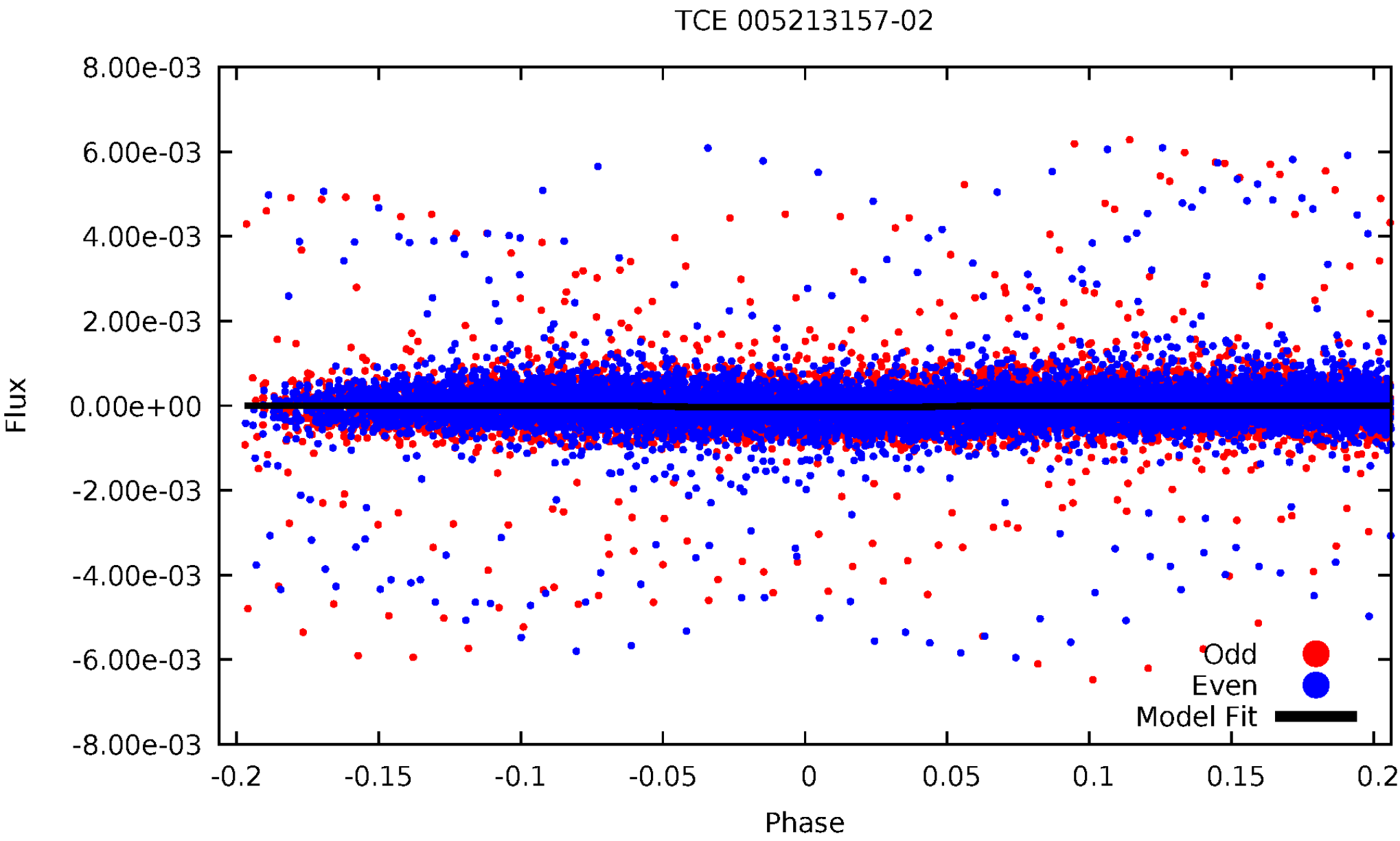
This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

TCE 005213157-02, PDC Light Curves

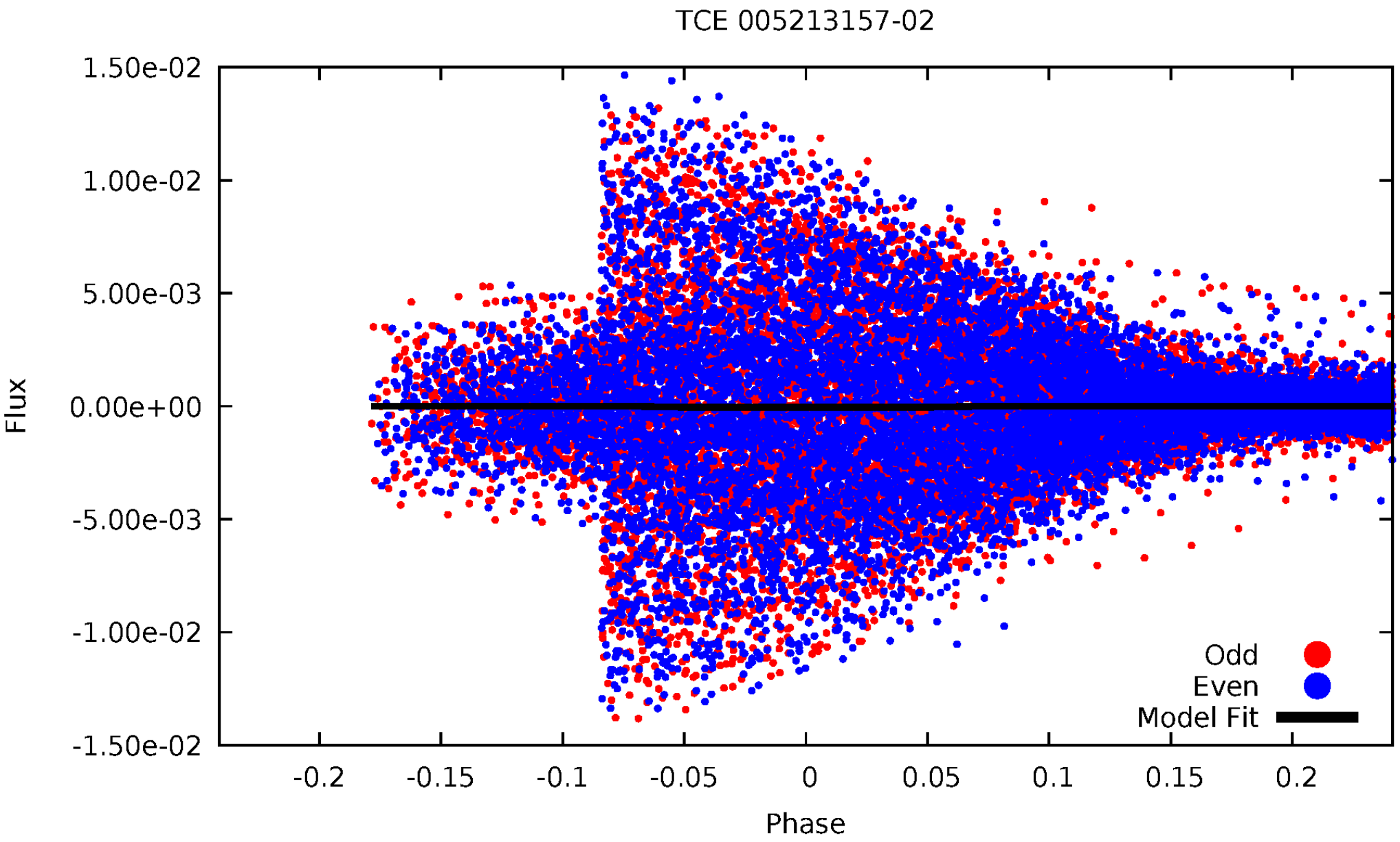



TCE 005213157-02
P = 0.527 days
P = 1.054 days
P = 2.109 days
Normalized Flux
0.010
0.005
0.000
−0.005
−0.010
200
400
600
800
1000
1200
1400
1600
BKJD
Normalized Flux
0.010
0.005
0.000
−0.005
−0.010
−1.0
−0.5
0.0
0.5
1.0
Phase

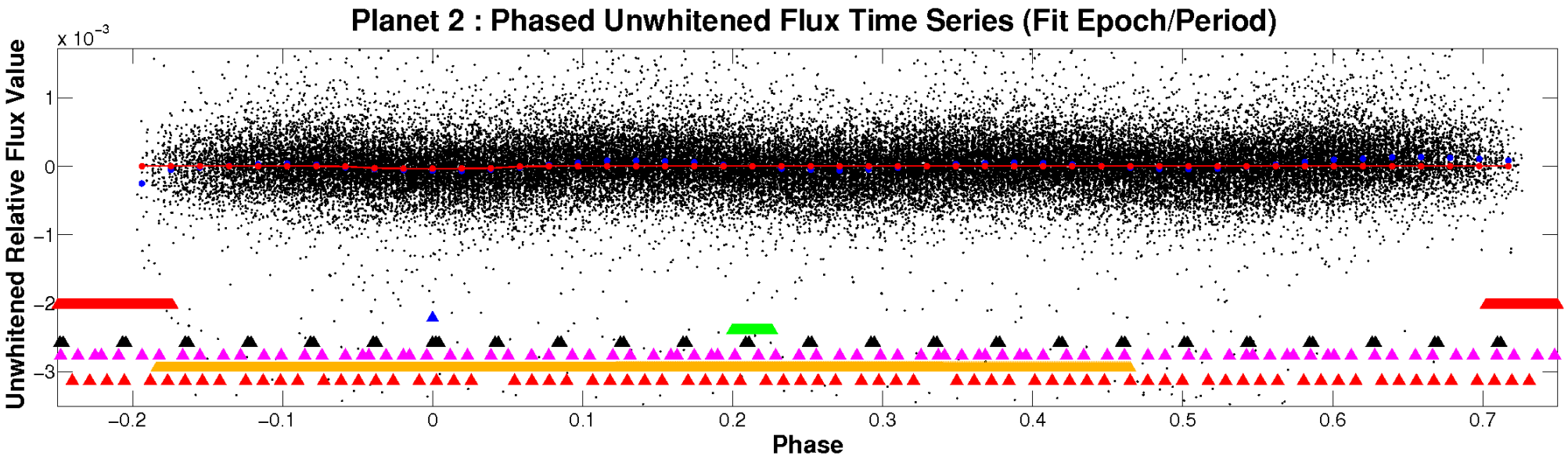
DV Odd/Even

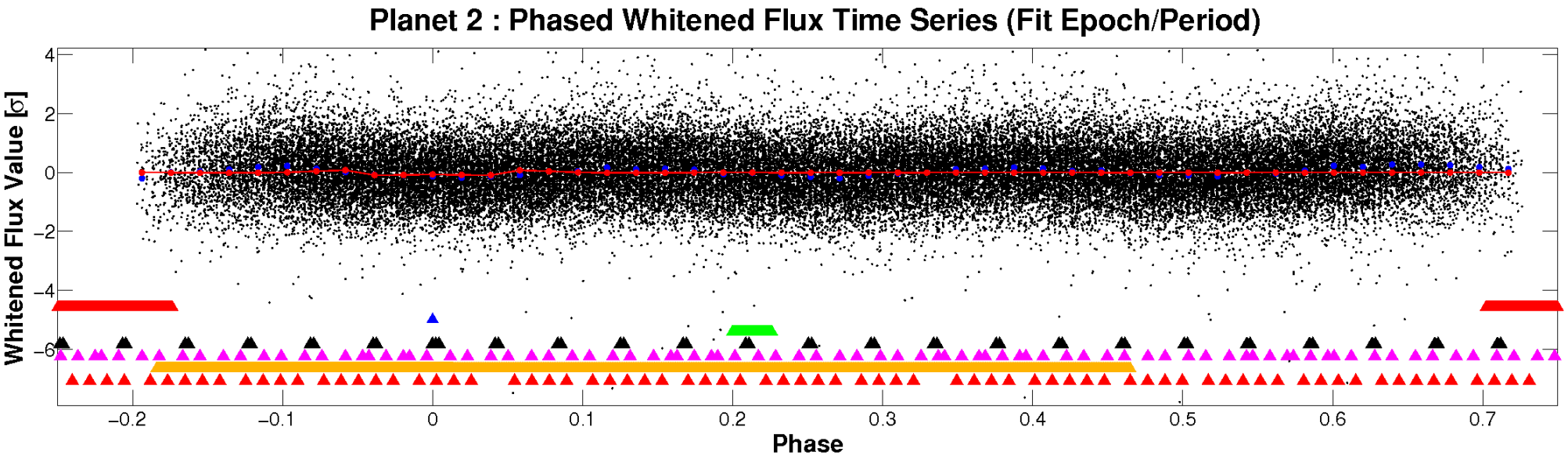

TCE 005213157-02
8.00e-03
6.00e-03
4.00e-03
2.00e-03
0.00e+00
-2.00e-03
-4.00e-03
-6.00e-03
-8.00e-03
Flux
-0.2
-0.15
-0.1
-0.05
0
0.05
0.1
0.15
0.2
Phase
Odd
Even
Model Fit

ALT Odd/Even


TCE 005213157-02
1.50e-02
1.00e-02
5.00e-03
0.00e+00
-5.00e-03
-1.00e-02
-1.50e-02
Flux
-0.2
-0.15
-0.1
-0.05
0
0.05
0.1
0.15
0.2
Phase
Odd
Even
Model Fit

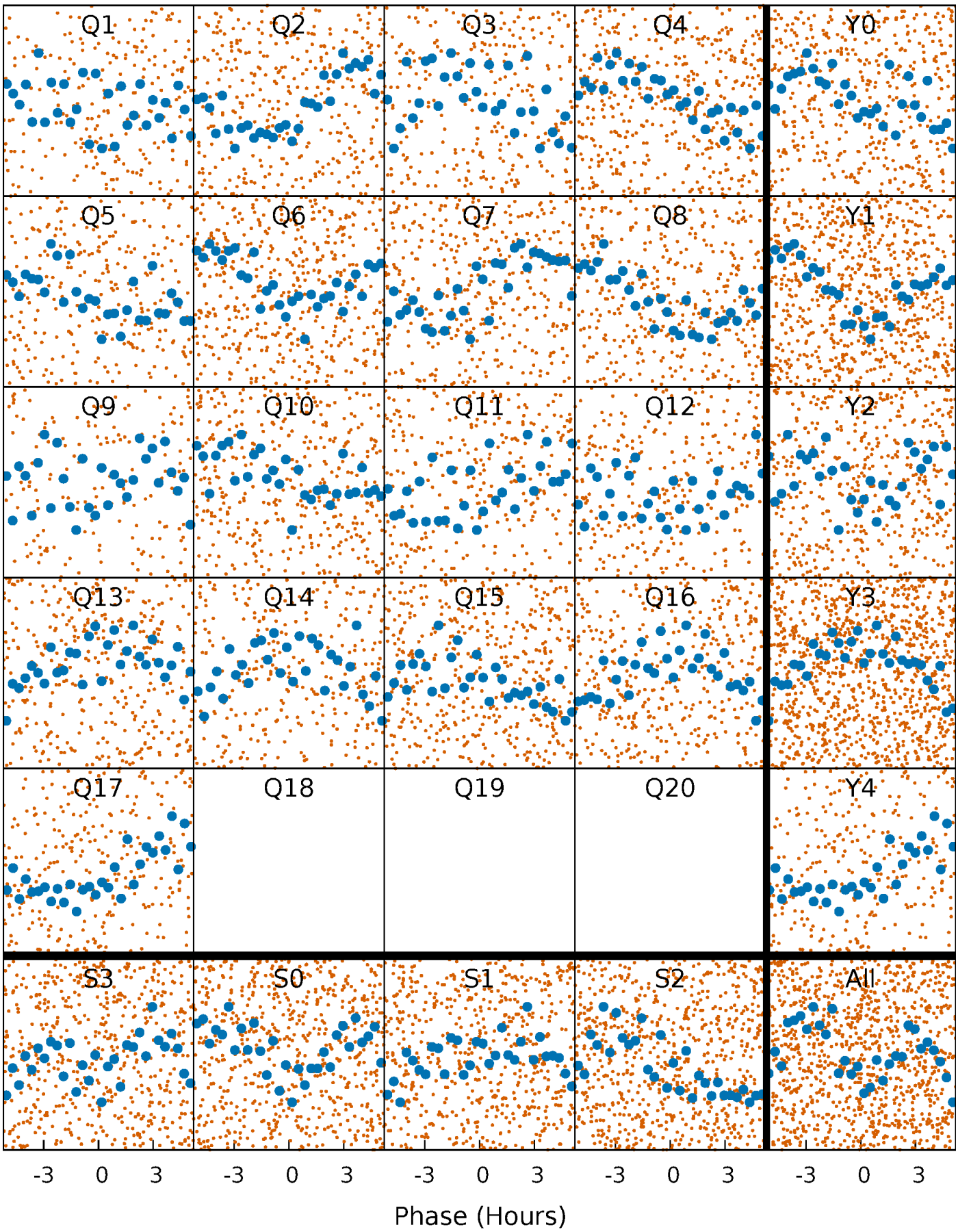
Non-Whitened Vs. Whitened Light Curve





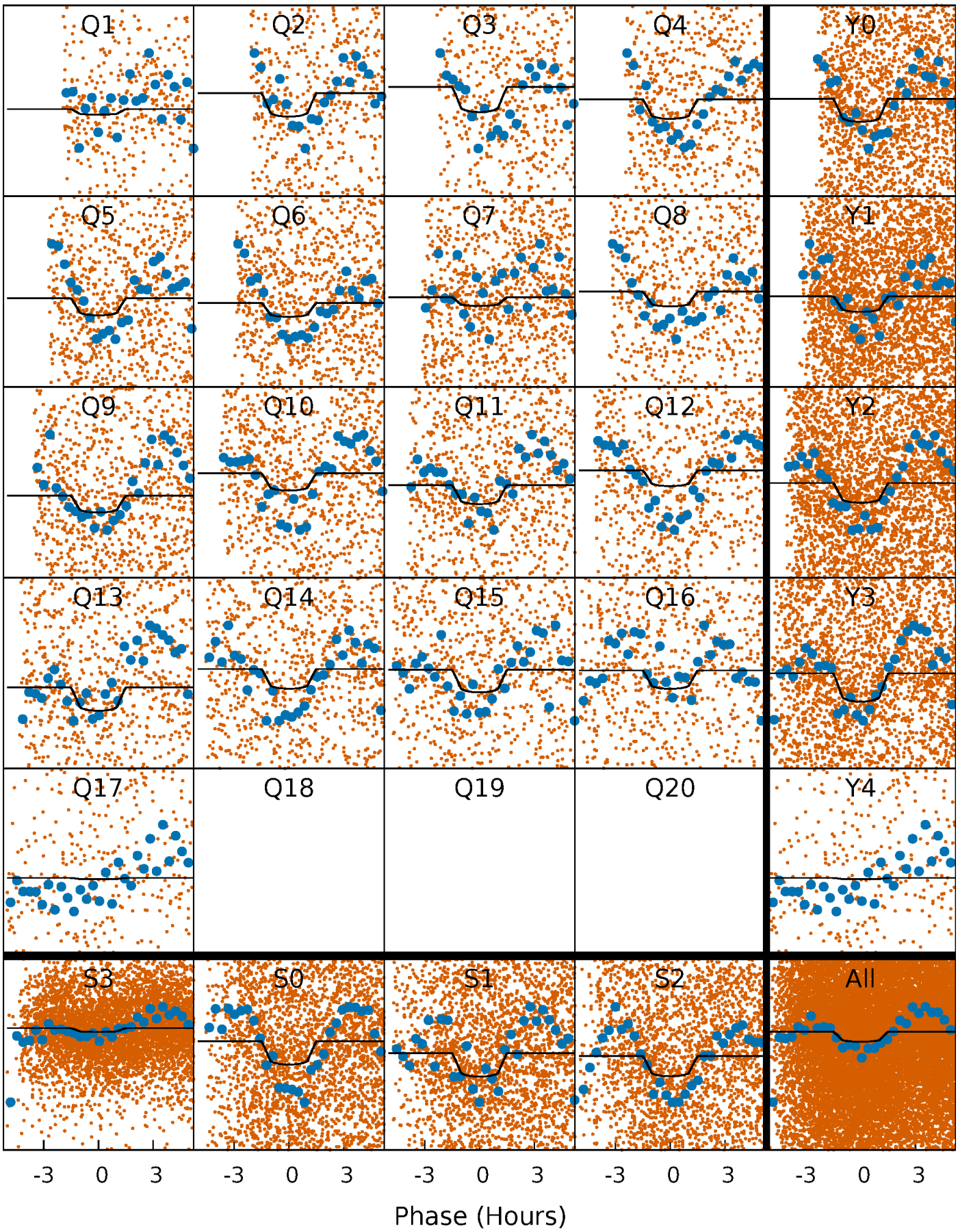
PDC Quarter-Phased Transit Curves

TCE 005213157-02 P= 1.054363 Days T_0=131.572886 (BKJD)



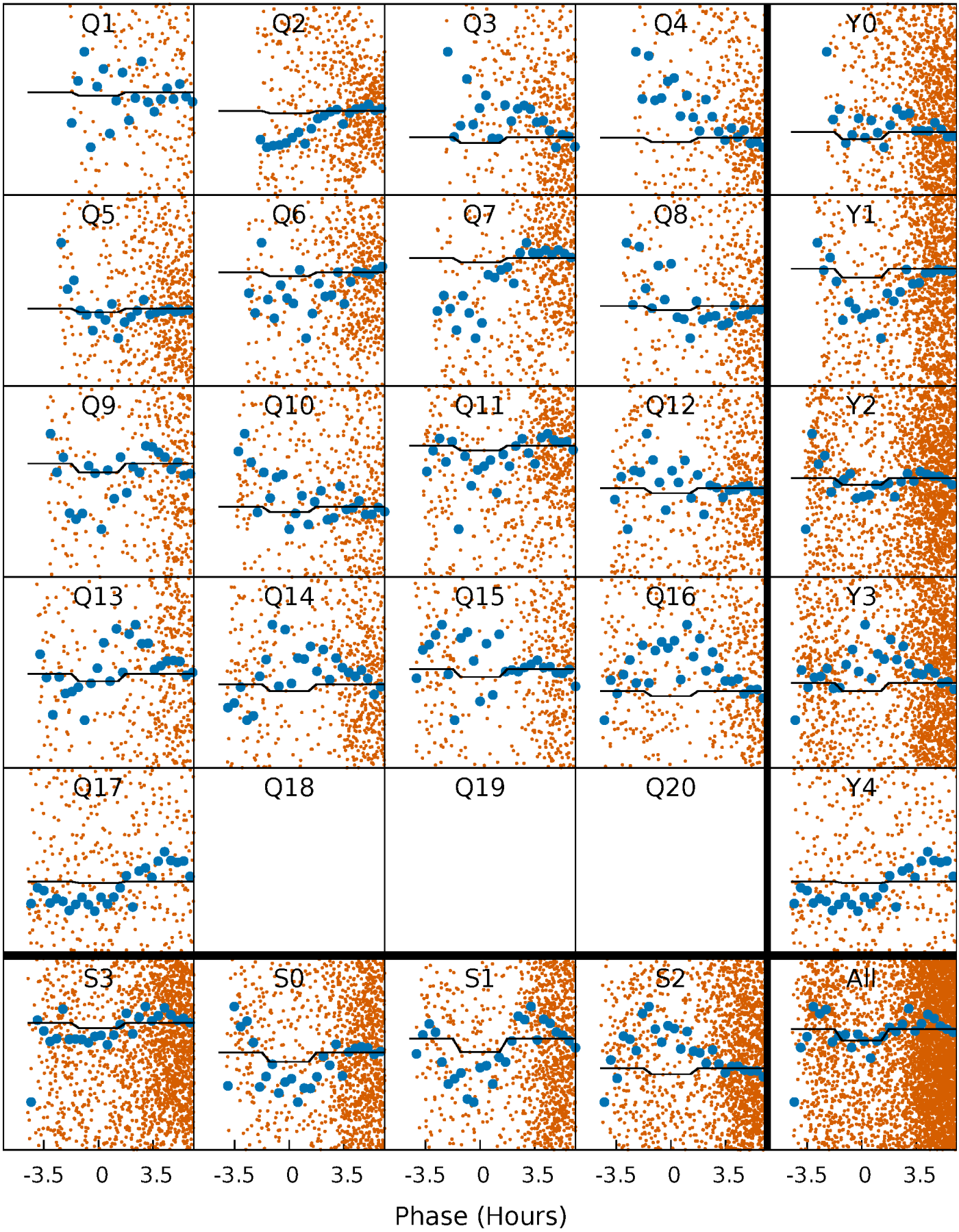
DV Quarter-Phased Transit Curves

TCE 005213157-02 P= 1.054363 Days T_0=131.572886 (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

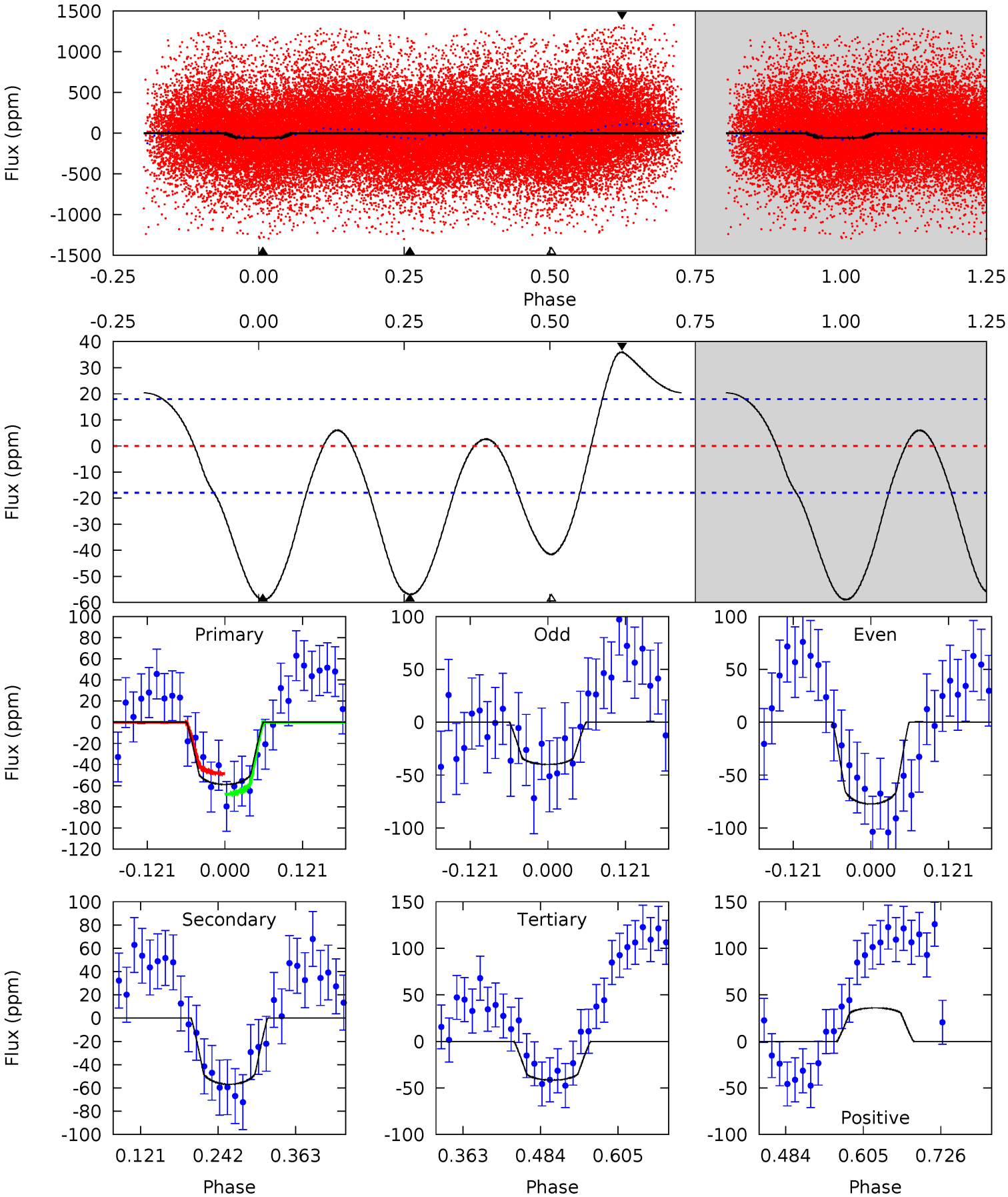
TCE 005213157-02 P= 1.054348 Days T_0=131.573034 (BKJD)



DV Model-Shift Uniqueness Test

005213157-02, P = 1.054363 Days, E = 130.518523 Days

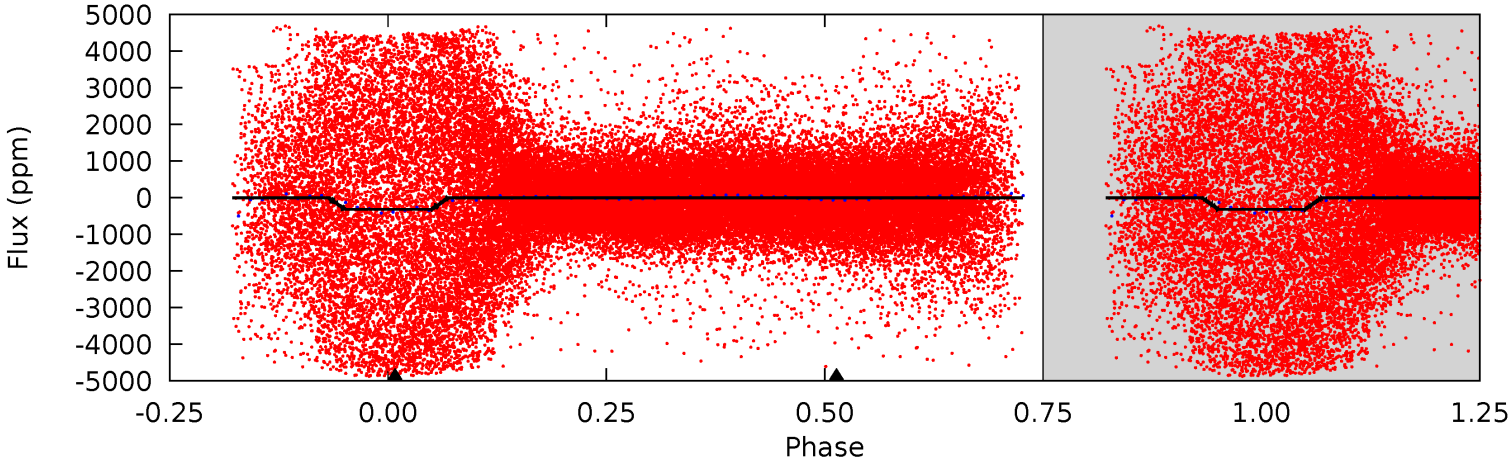
Pri	Sec	Ter	Pos	FA_1	FA_2	F_{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
14.8	14.3	10.5	9.06	4.52	1.55	6.25	4.35	5.76	3.85	5.26	4.78	1.14	0.38	2.46

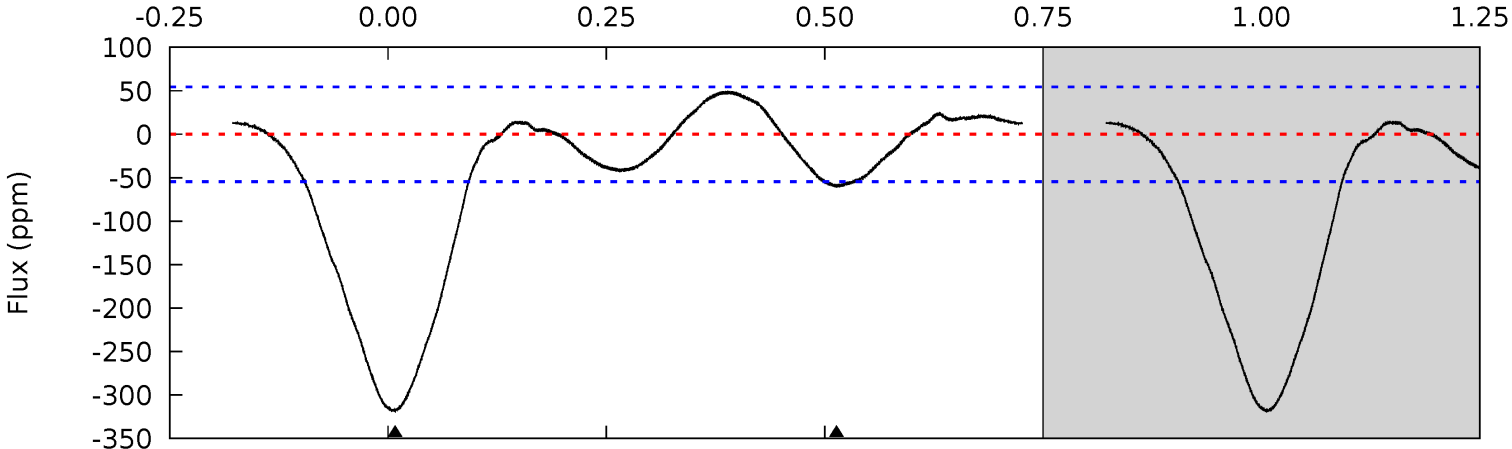


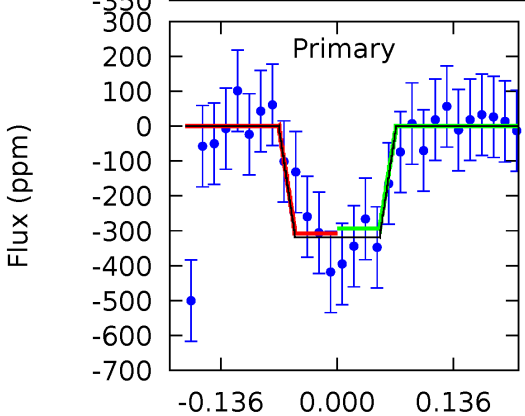
Alt Model-Shift Uniqueness Test

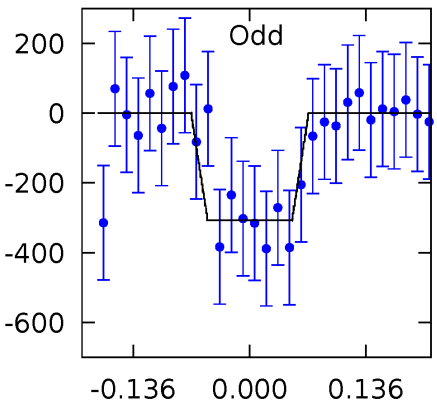
005213157-02, P = 1.054348 Days, E = 130.518686 Days

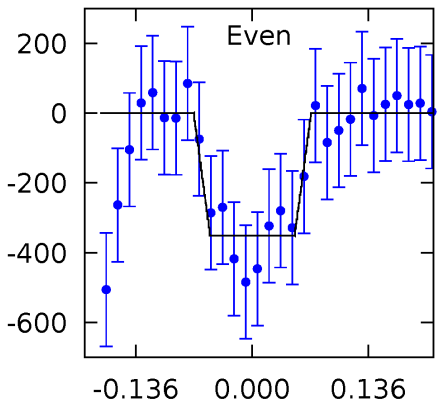
Pri	Sec	Ter	Pos	FA_1	FA_2	F_{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
26.3	4.91	0	0	4.50	1.49	2.04	26.3	26.3	4.91	4.91	1.82	0.32	0.13	0

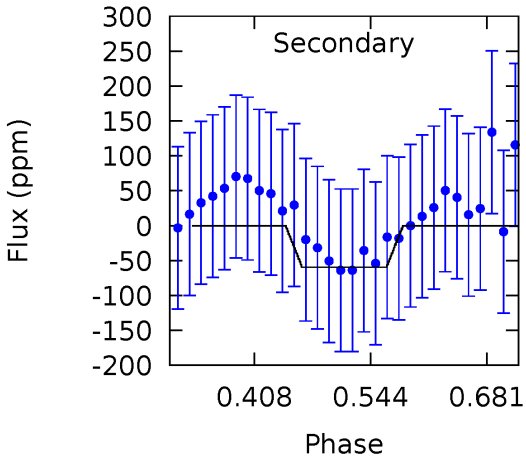












Stellar Parameters For KIC 005213157

	$T_{\rm eff}(K)$	$\log(g)$	[Fe/H]	R ($R_\odot$)	M($M_\odot$)	$p_\star$ (g·cm^{-3})
	8485^{+235}_{-369}	$3.762^{+0.392}_{-0.140}$	$-0.160^{+0.400}_{-0.350}$	$3.096^{+0.929}_{-1.393}$	$2.024^{+0.395}_{-0.439}$	$0.096^{+0.363}_{-0.043}$
	+3%/-4%	+10%/-4%	+250%/-219%	+30%/-45%	+20%/-22%	+378%/-45%
Source	KIC0	KIC0	KIC0	DSEP		

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

Secondary Eclipse Parameters for KIC 005213157-02 / KOI

Detrend	Depth (ppm)	R_p ($R_\oplus$)	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-57±4	$1.99^{+0.58}_{-0.47}$	5616^{+450}_{-652}	9244^{+1437}_{-956}	$5.114^{+3.793}_{-1.949}$
Alt.	-60±12	$2.12^{+0.55}_{-0.56}$	5580^{+472}_{-652}	9041^{+1512}_{-1121}	$4.769^{+3.813}_{-1.864}$

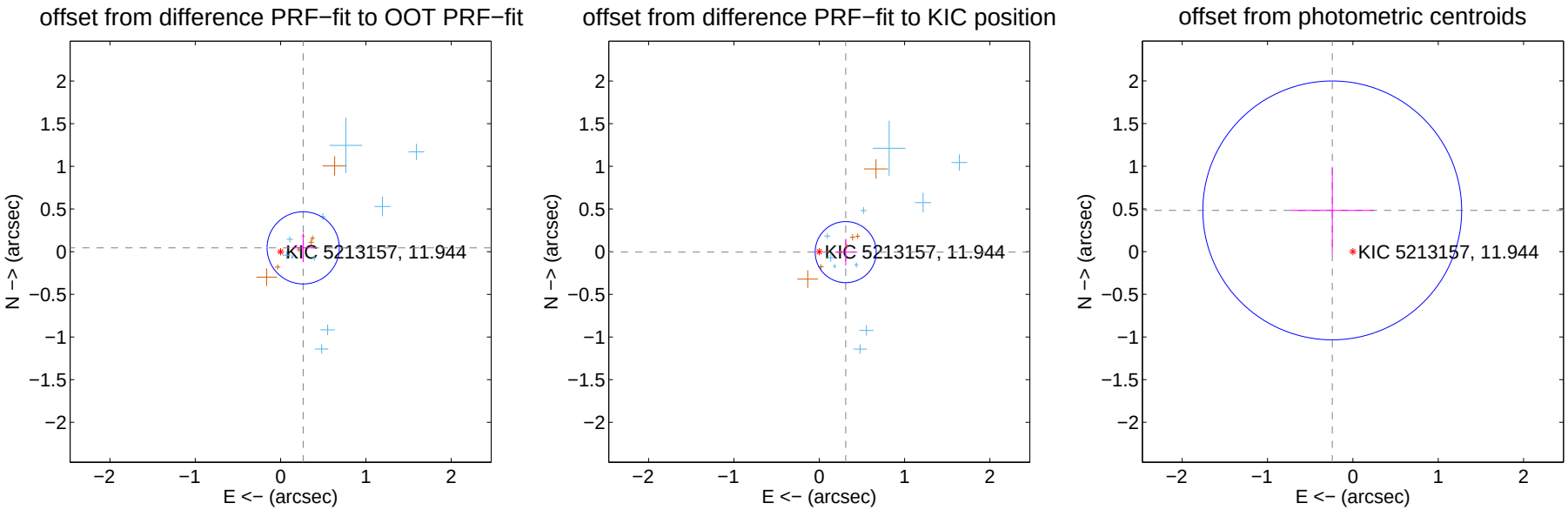
T_{max} = Theoretical Maximum Planetary Temperature
T_{obs} = Observed Planetary Temperature (Assuming A=0.3)
A_{obs} = Observed Albedo (Assuming T=0)

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

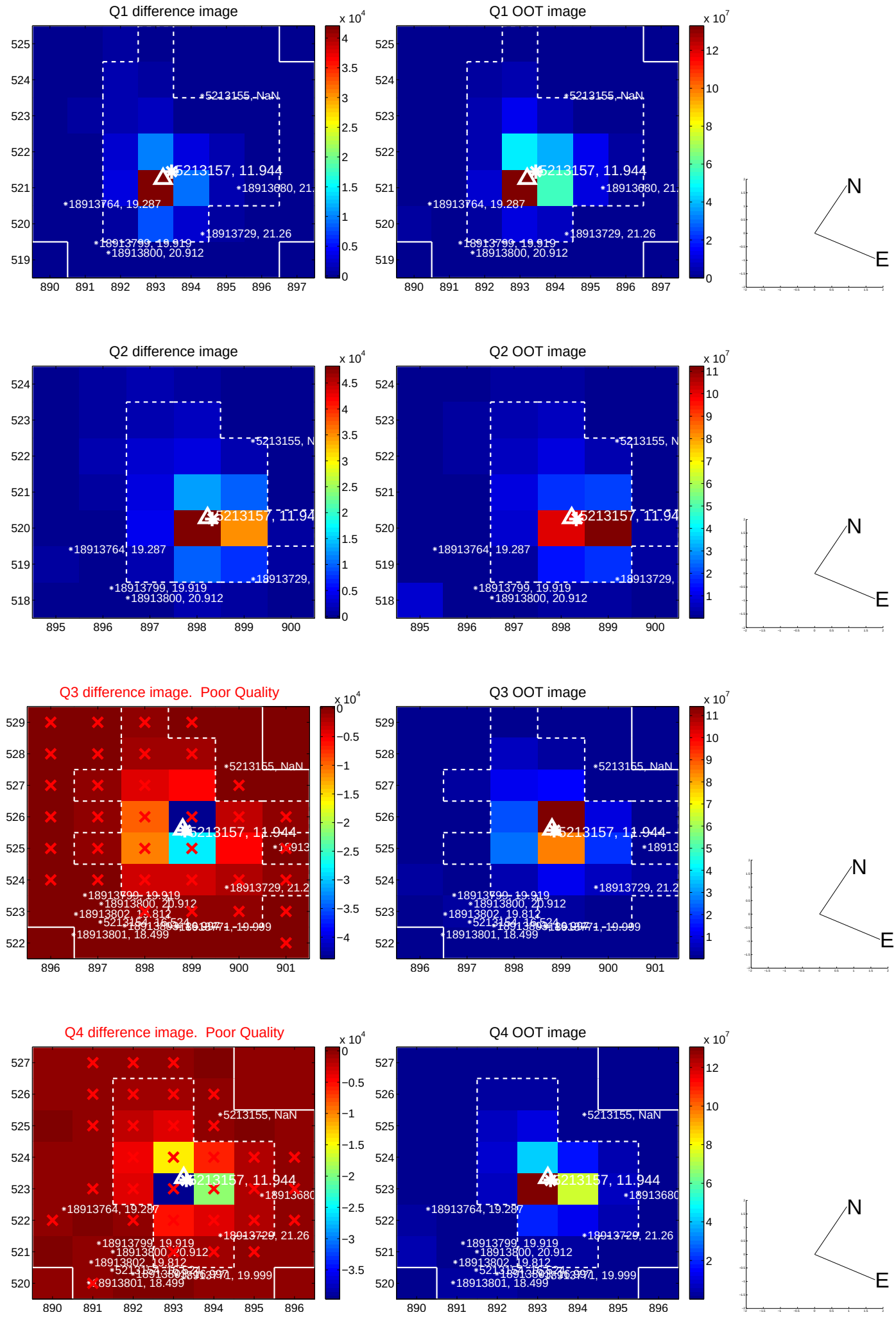
Supplemental centroid analysis for 005213157-02. Kepler magnitude: 11.94. Transit SNR 8.10
There are 10 quarters with good PRF difference image offsets
The direct PRF centroid is offset from the target star catalog position by about 0.04 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.269 ± 0.141	1.90	-0.265 ± 0.128	0.045 ± 0.168
PRF-fit source offset from KIC position	0.310 ± 0.119	2.60	-0.310 ± 0.120	-0.005 ± 0.156
photometric centroid source offset	0.54 ± 0.51	1.07	0.24 ± 0.49	0.48 ± 0.51

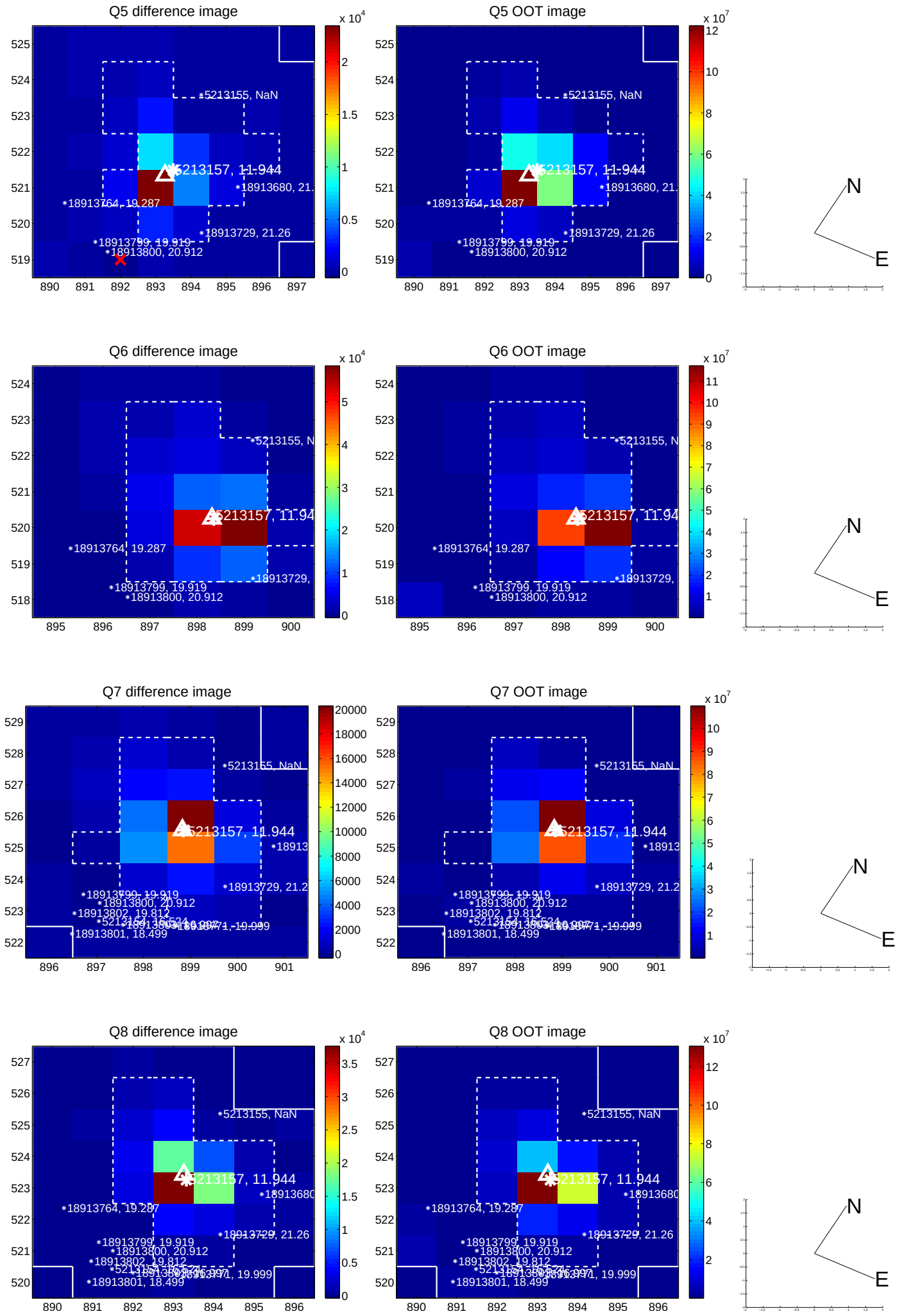


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one-σ uncertainty. Blue circle: three-σ. Red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

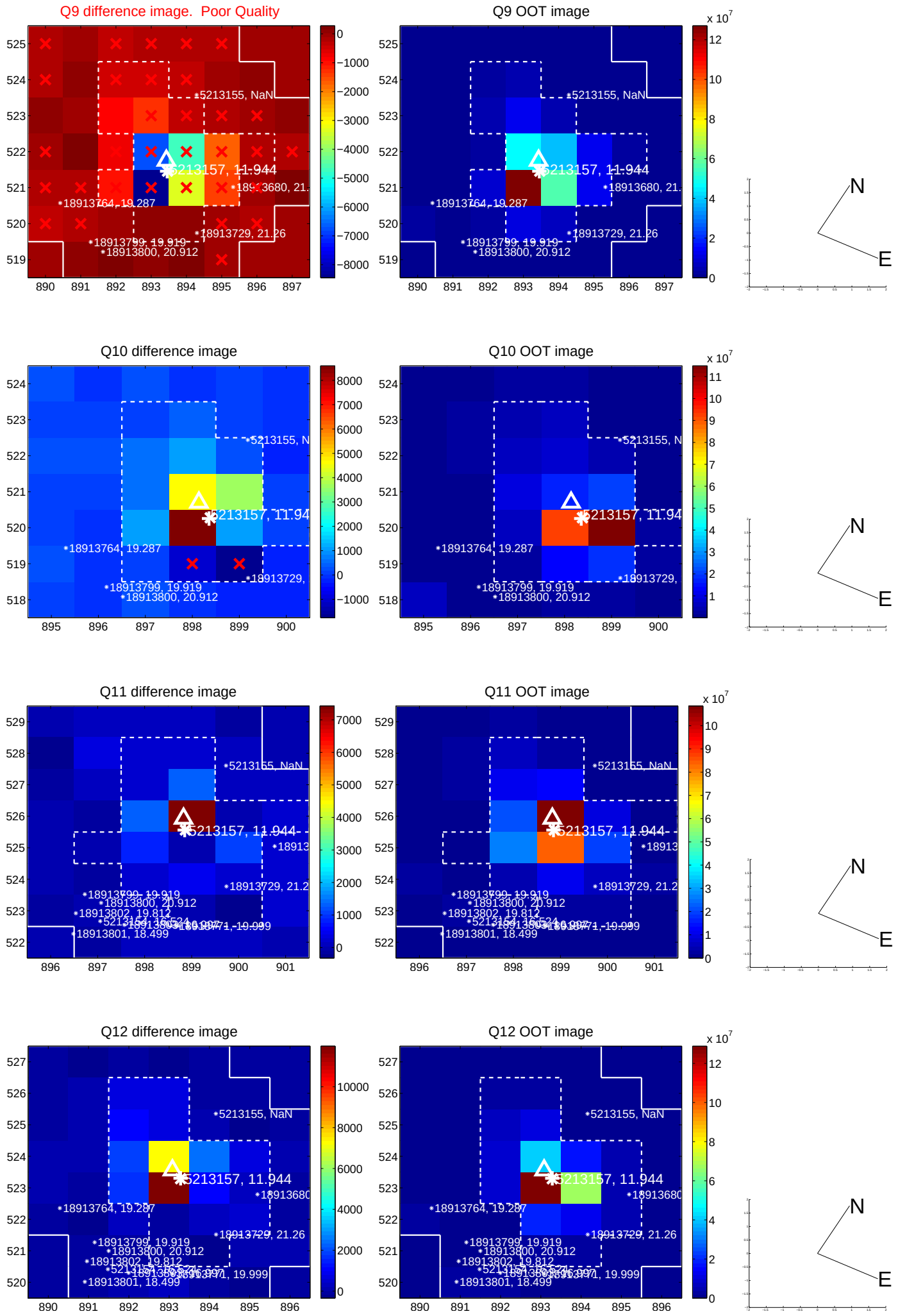
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.



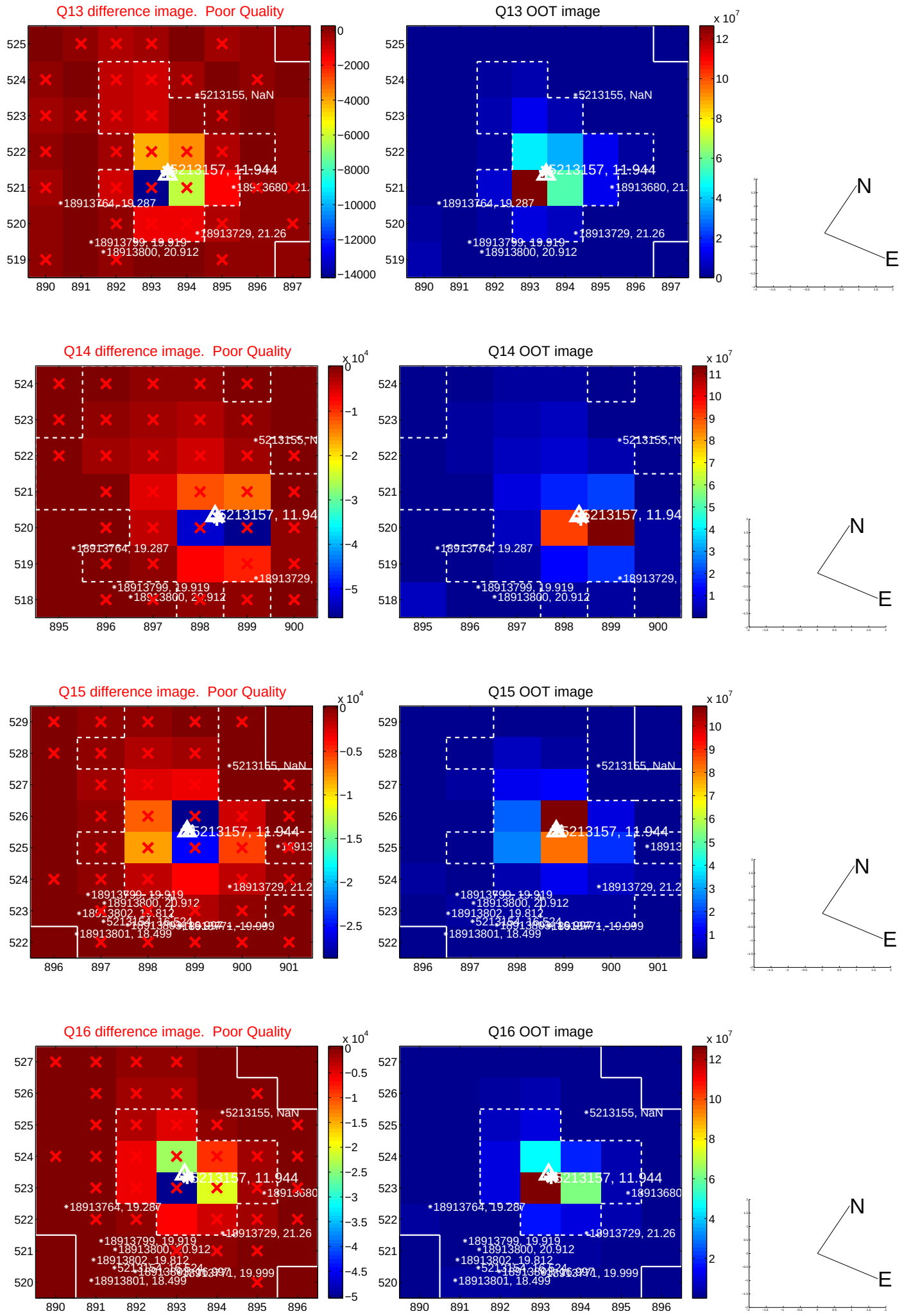
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ✕: large negative pixel value.



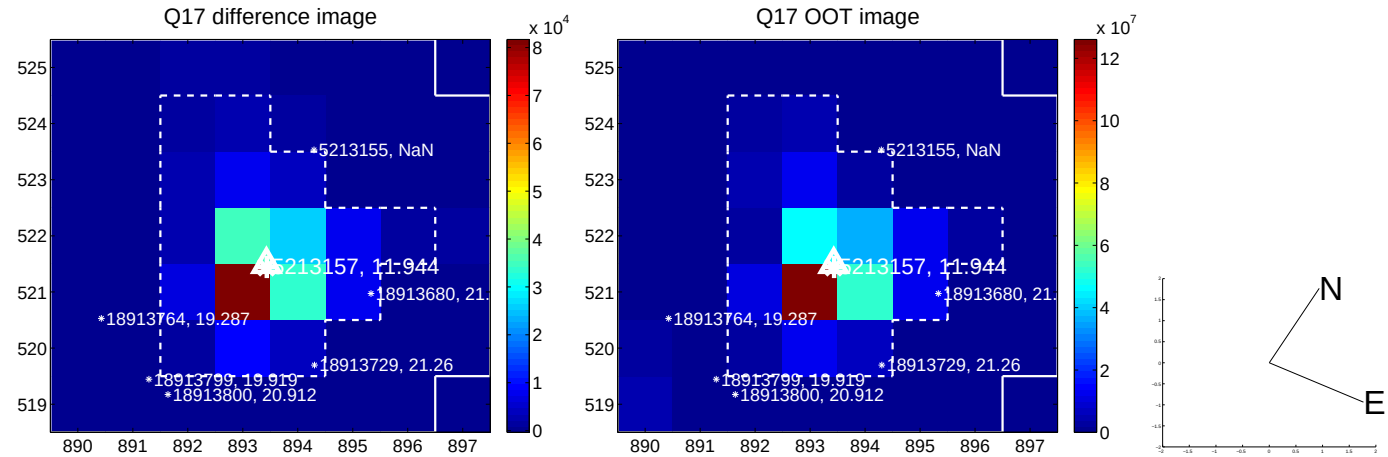
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.

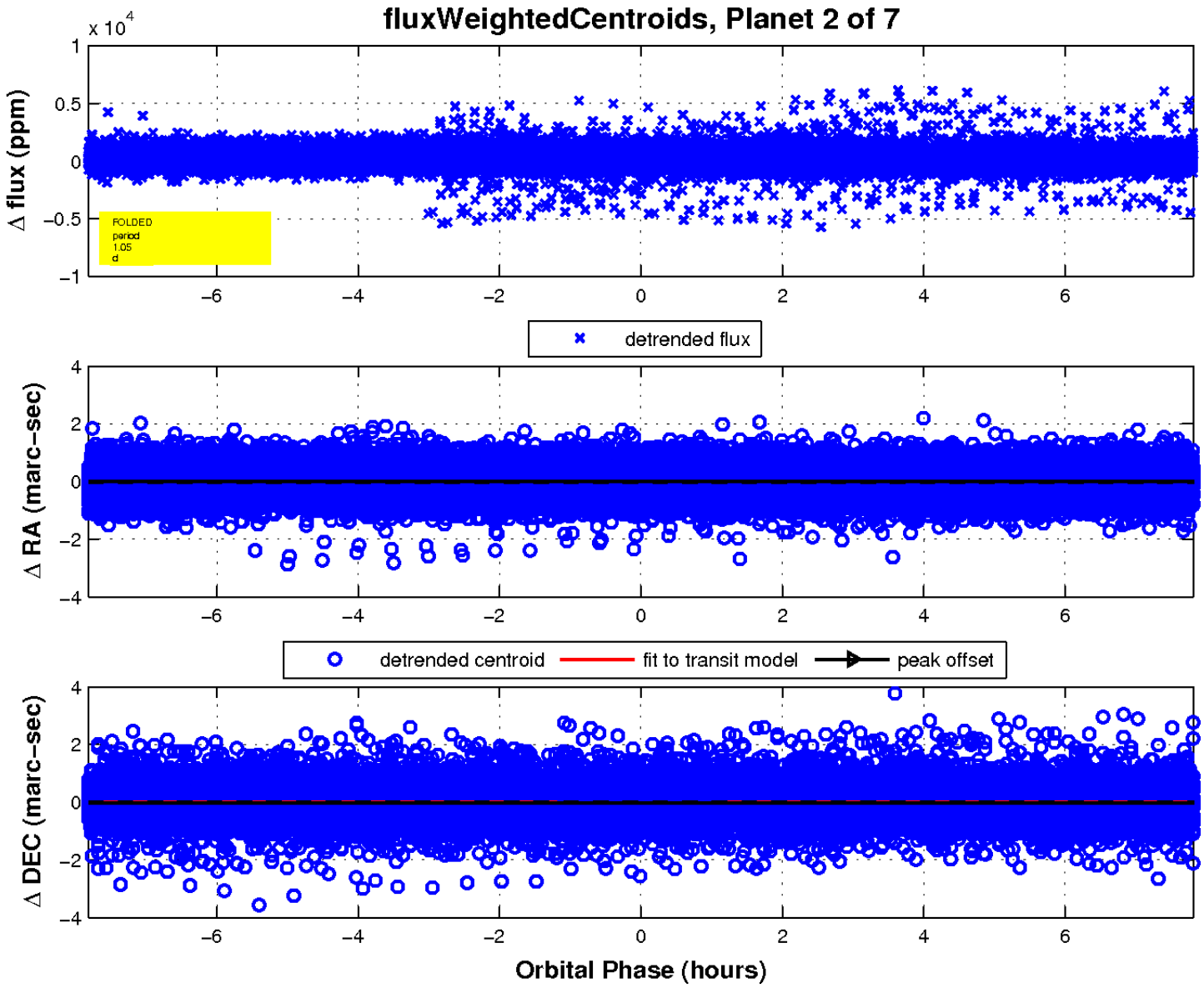


white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.

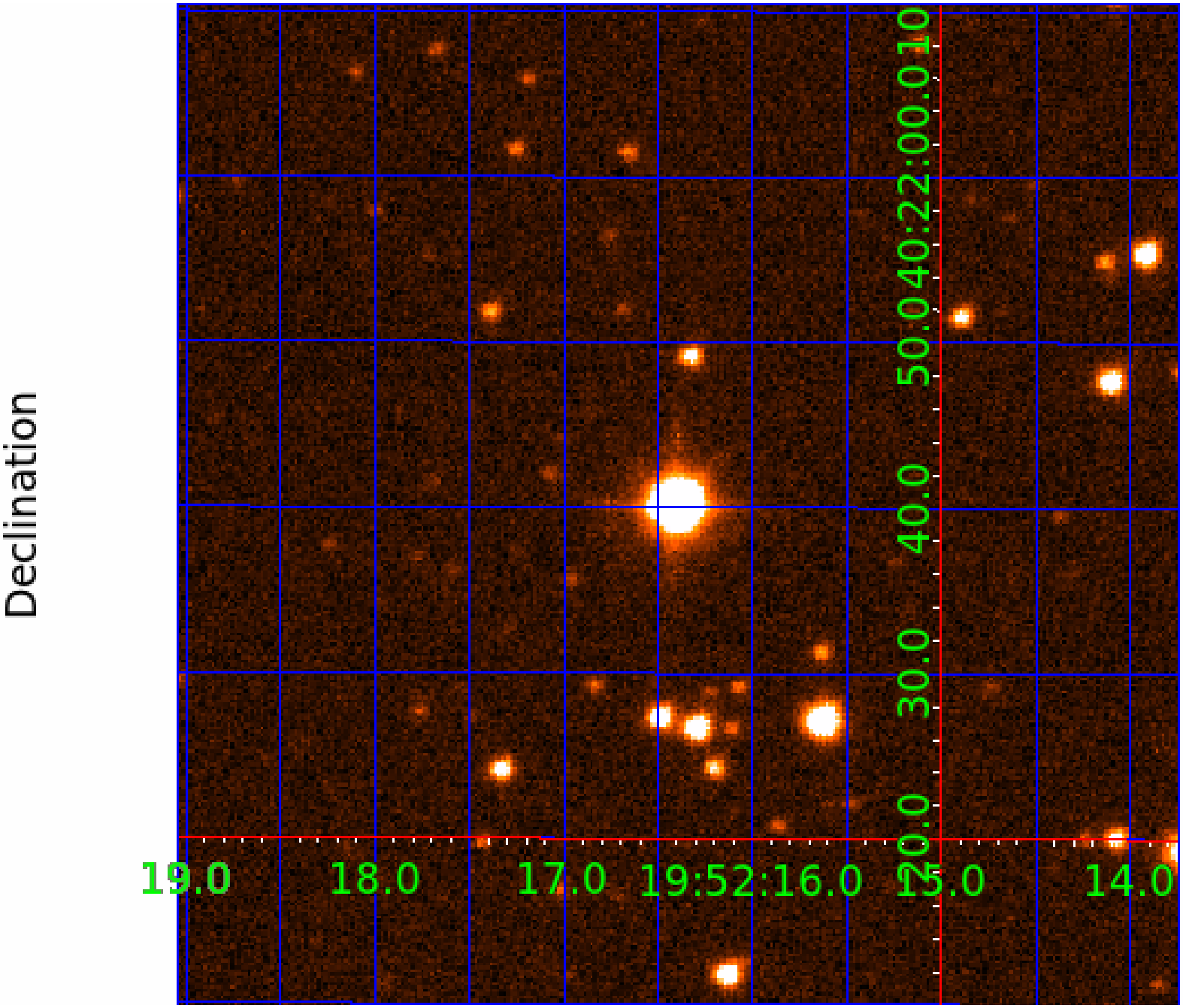


white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.





UKIRT Image


Declination
22:00:01.0
50.0
40.0
30.0
20.0
19.0
18.0
17.0
19:52:16.0
15.0
14.0

KIC 005213157

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 ($S_\oplus$)
005213157-01	OBS	No	1.054268	132.444354	1.0	1.001	9.8	0.3	3.10	8485	0.36	67727.91
005213157-02	OBS	No	1.054363	131.572886	35.7	2.607	11.7	8.1	3.10	8485	2.14	67719.79
005213157-03	OBS	No	1.054343	131.811329	63.7	6.166	12.2	10.3	3.10	8485	2.88	67721.51
005213157-04	OBS	No	29.566187	155.823141	31.9	1.698	10.2	0.4	3.10	8485	1.88	794.89
005213157-05	OBS	No	17.086395	139.313242	1.0	11.298	11.1	0.0	3.10	8485	0.39	1651.34
005213157-06	OBS	No	2.107737	132.063277	269.3	3.000	11.8	-1.0	3.10	8485	5.16	26891.43
005213157-07	OBS	No	19.289356	148.055366	142.9	12.500	11.4	-1.0	3.10	8485	3.75	1404.79

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005213157-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA_TRACKER—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
005213157-02	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—SAME_NTL_PERIOD
005213157-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA—LPP_DV—LPP_ALT—SAME_NTL_PERIOD
005213157-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_TRACKER—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
005213157-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_TRACKER—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
005213157-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—NO_FITS—CENT_NOFITS
005213157-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_NOFITS

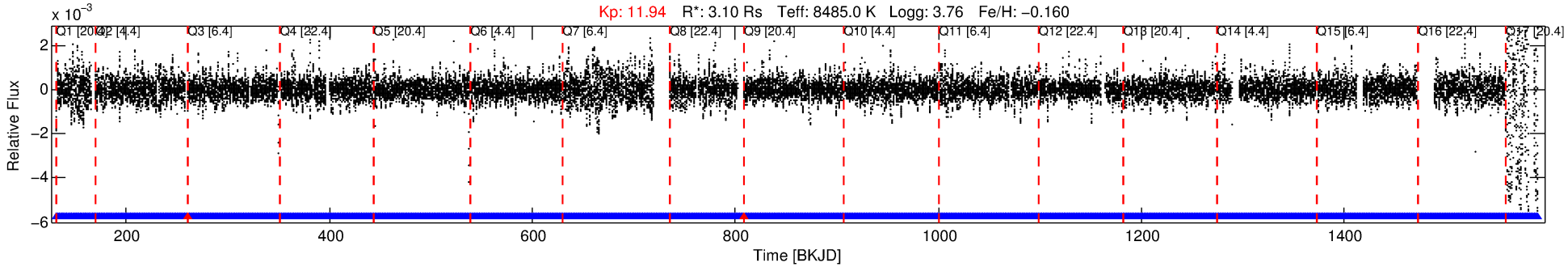
Notes: OBS = Observed. INJ = Injected. INV = Inverted. SCR = Scrambled.
N = Not Transit-Like. S = Stellar Eclipse. C = Centroid Offset. E = Ephemeris Match.
See `http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col` for comment definitions.

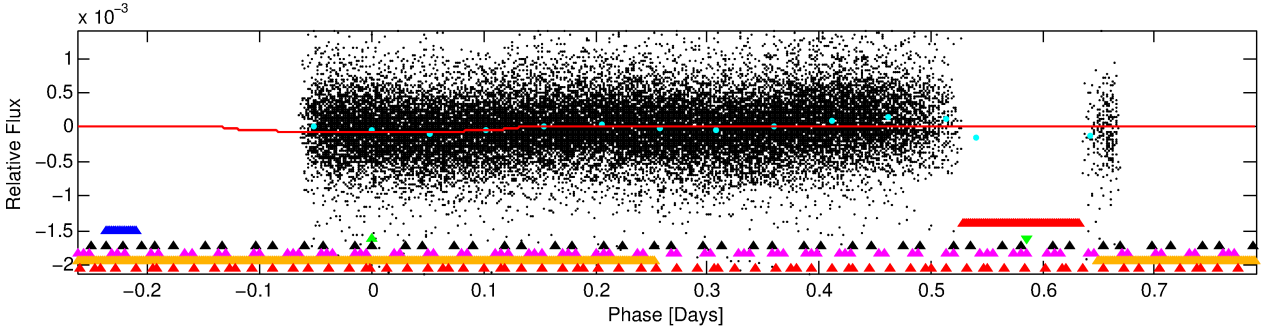
Ephemeris Match Information For 005213157-03

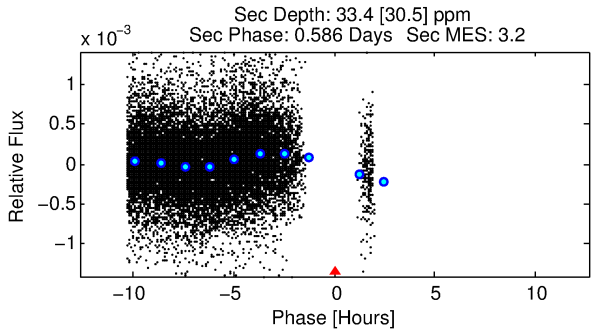
No Significant Match Found

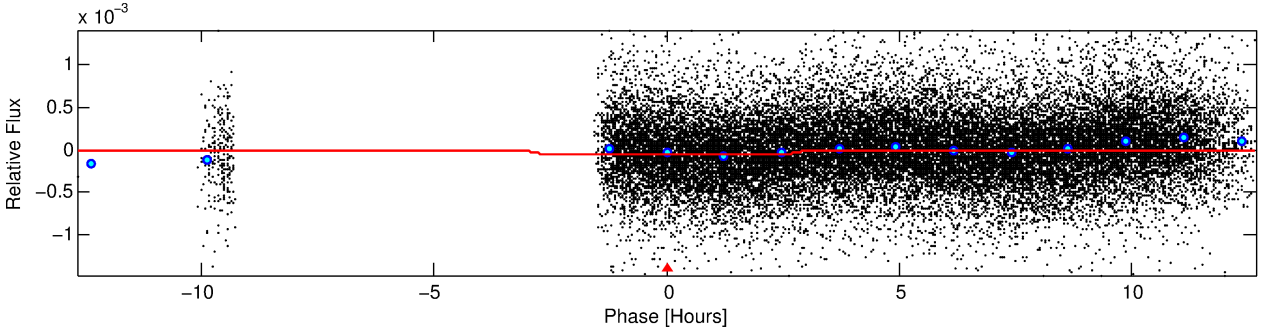
DV One-Page Summary

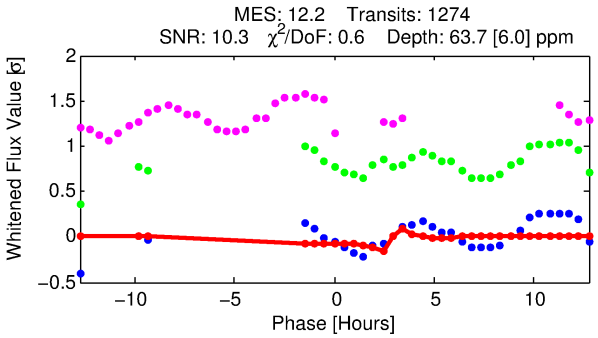
KIC: 5213157 Candidate: 3 of 7 Period: 1.054 d

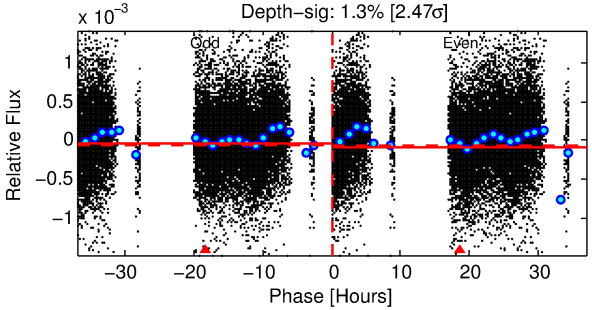


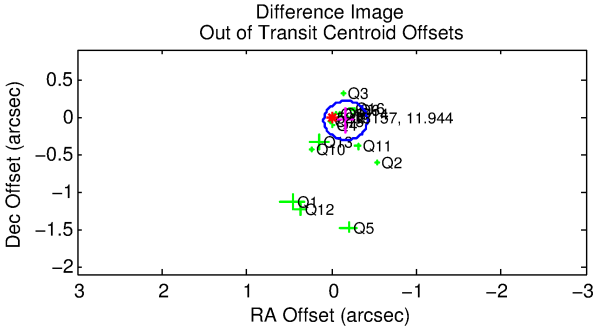












DV Fit Results:

Period = 1.05434 [0.00001] d
Epoch = 131.8113 [0.0136] BKJD
Rp/R* = 0.0085 [0.0011]
a/R* = 1.11 [0.19]
b = 0.91 [0.16]

Seff = 67721.51 [47032.47]
Teq = 4113 [714] K
Rp = 2.88 [1.35] Re
a = 0.0256 [0.0109] AU

Ag = 1.45 [1.69] [0.27σ]
Teffp = 6982 [1691] K [1.56σ]

DV Diagnostic Results:

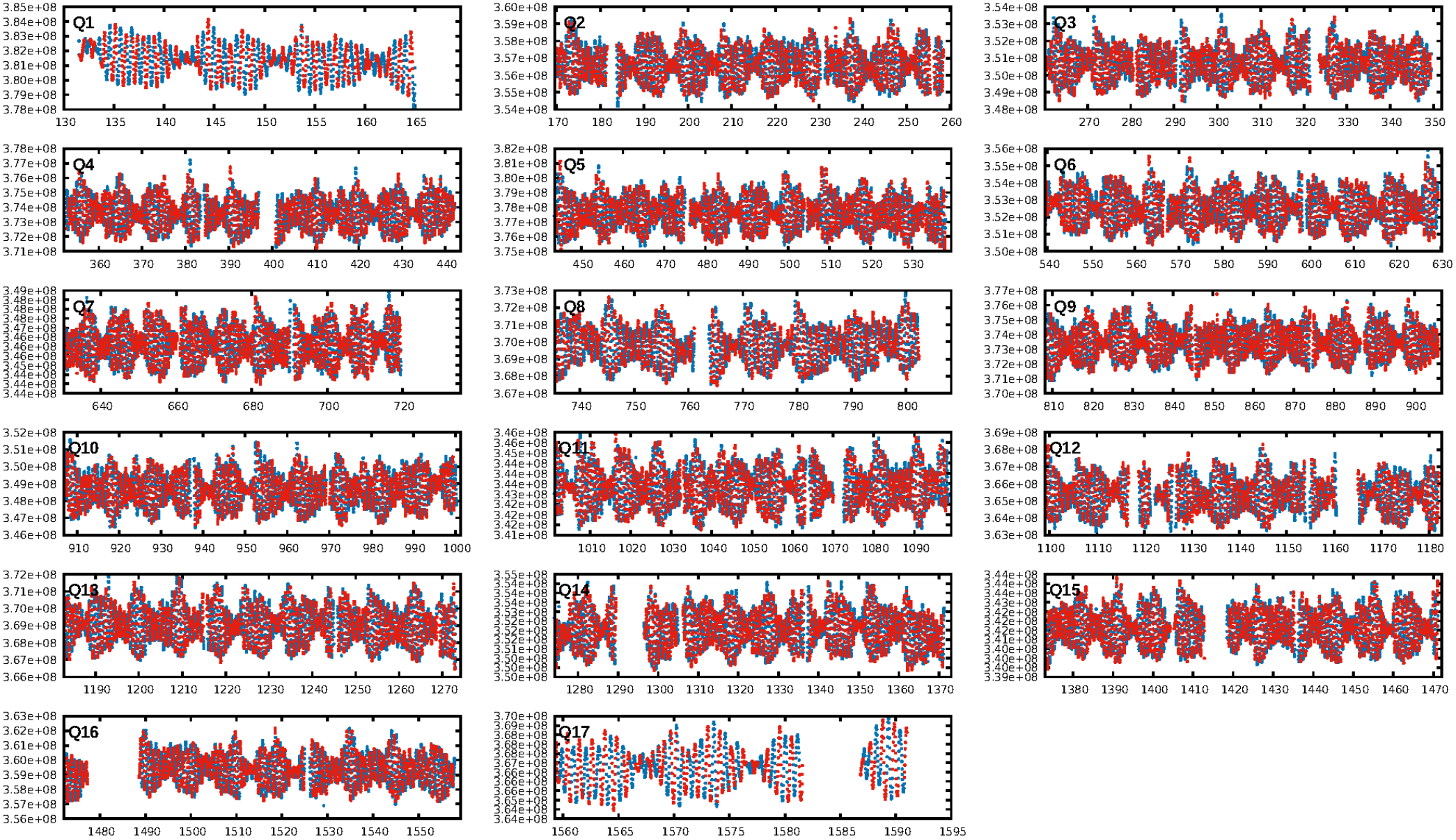
ShortPeriod−sig: 0.0% [0.00σ]
LongPeriod−sig: 0.0% [0.00σ]
ModelChiSquare2−sig: N/A
ModelChiSquareGof−sig: N/A
Bootstrap−pfa: N/A
RollingBand−fgt: 1.00 [1213/1215]
GhostDiagnostic−chr: 1.013

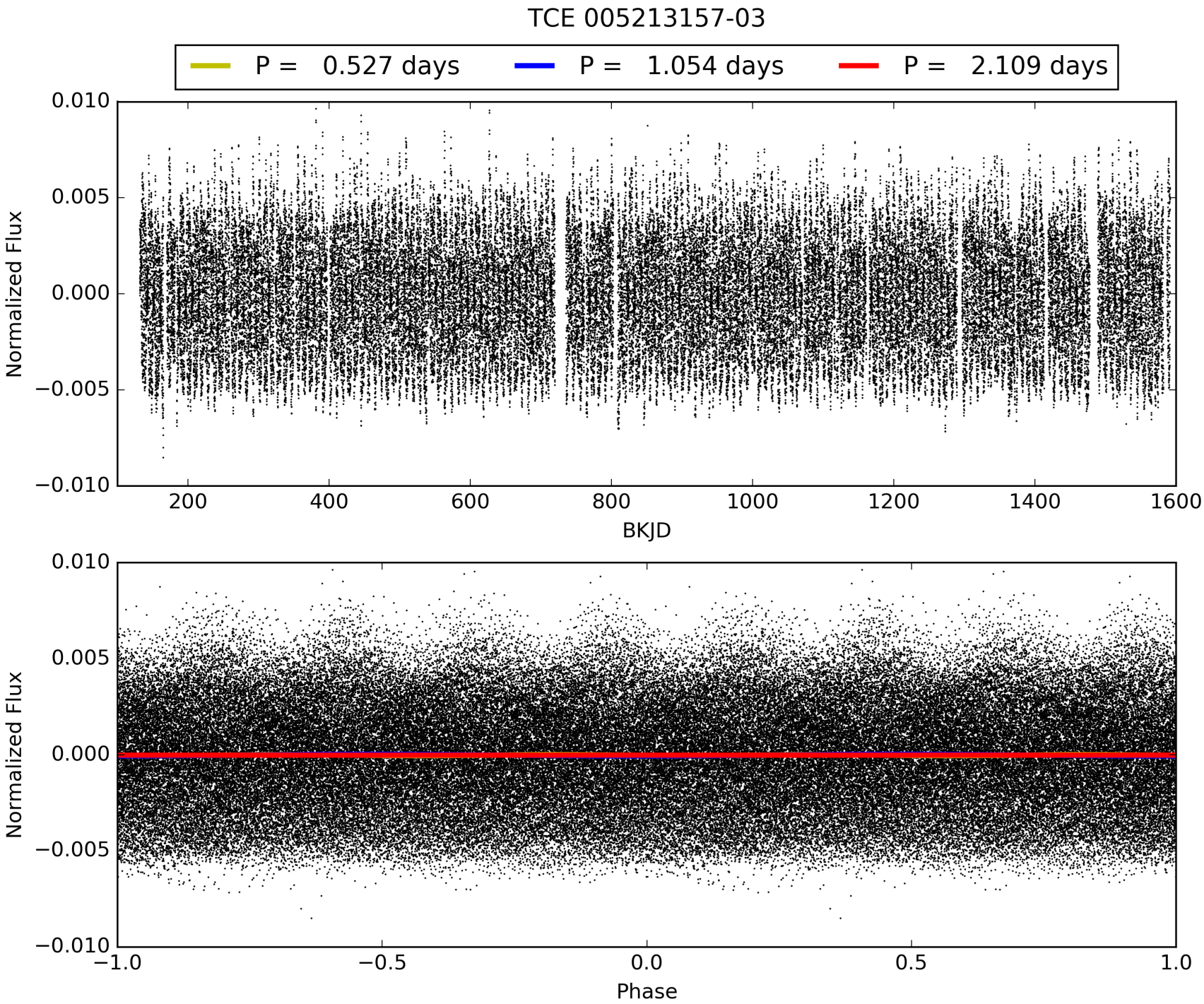
Centroid−sig: 1.4%
Centroid−so: 0.310 arcsec [1.61σ]
OotOffset−rm: 0.174 arcsec [2.02σ]
KicOffset−rm: 0.232 arcsec [2.61σ]
OotOffset−st: 4/4/3/5 [16]
KicOffset−st: 4/4/3/5 [16]
DiffImageQuality−fgm: 0.69 [11/16]
DiffImageOverlap−fno: 0.00 [0/17]

Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30−Jan−2016 16:40:15 Z

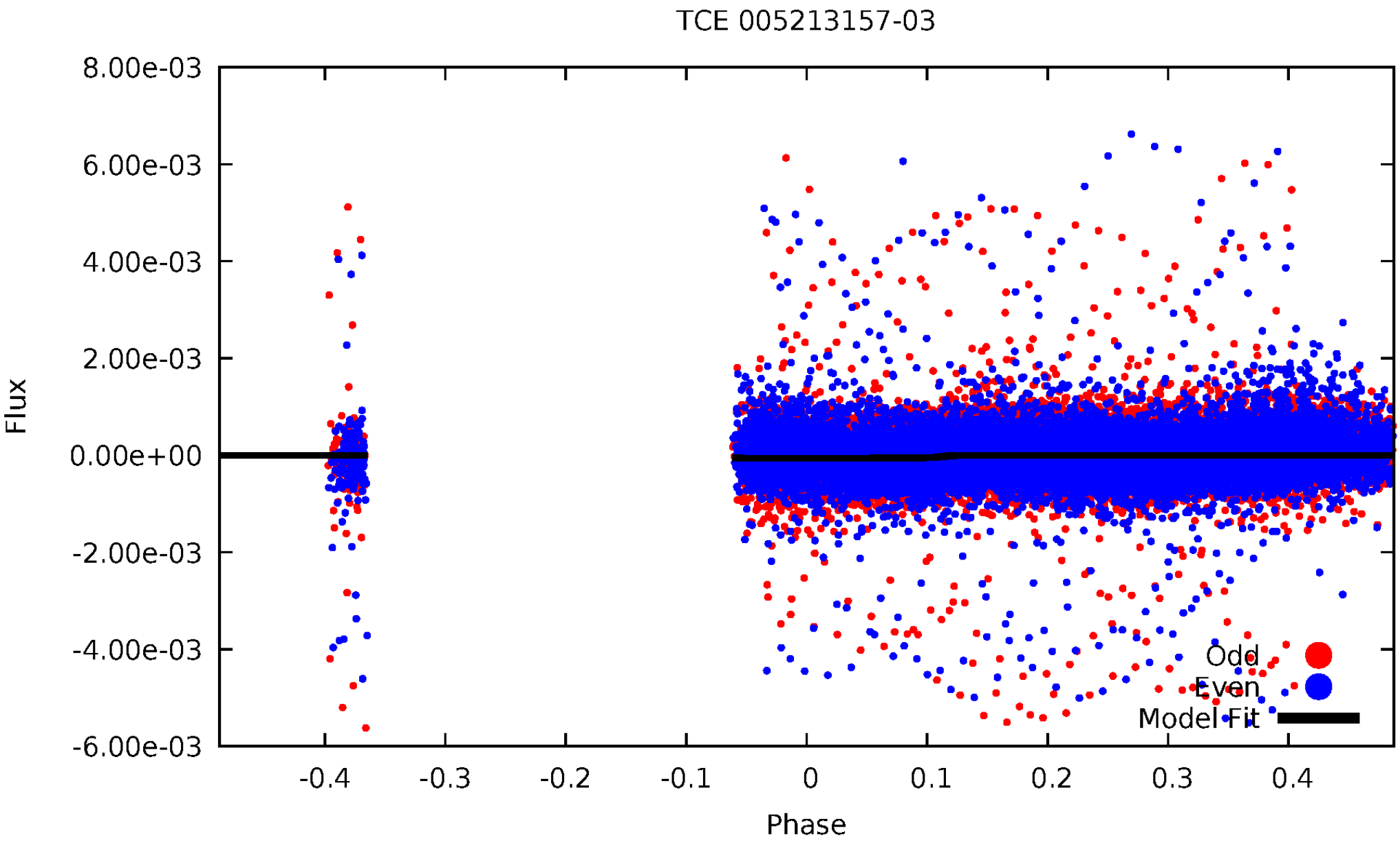
This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

TCE 005213157-03, PDC Light Curves

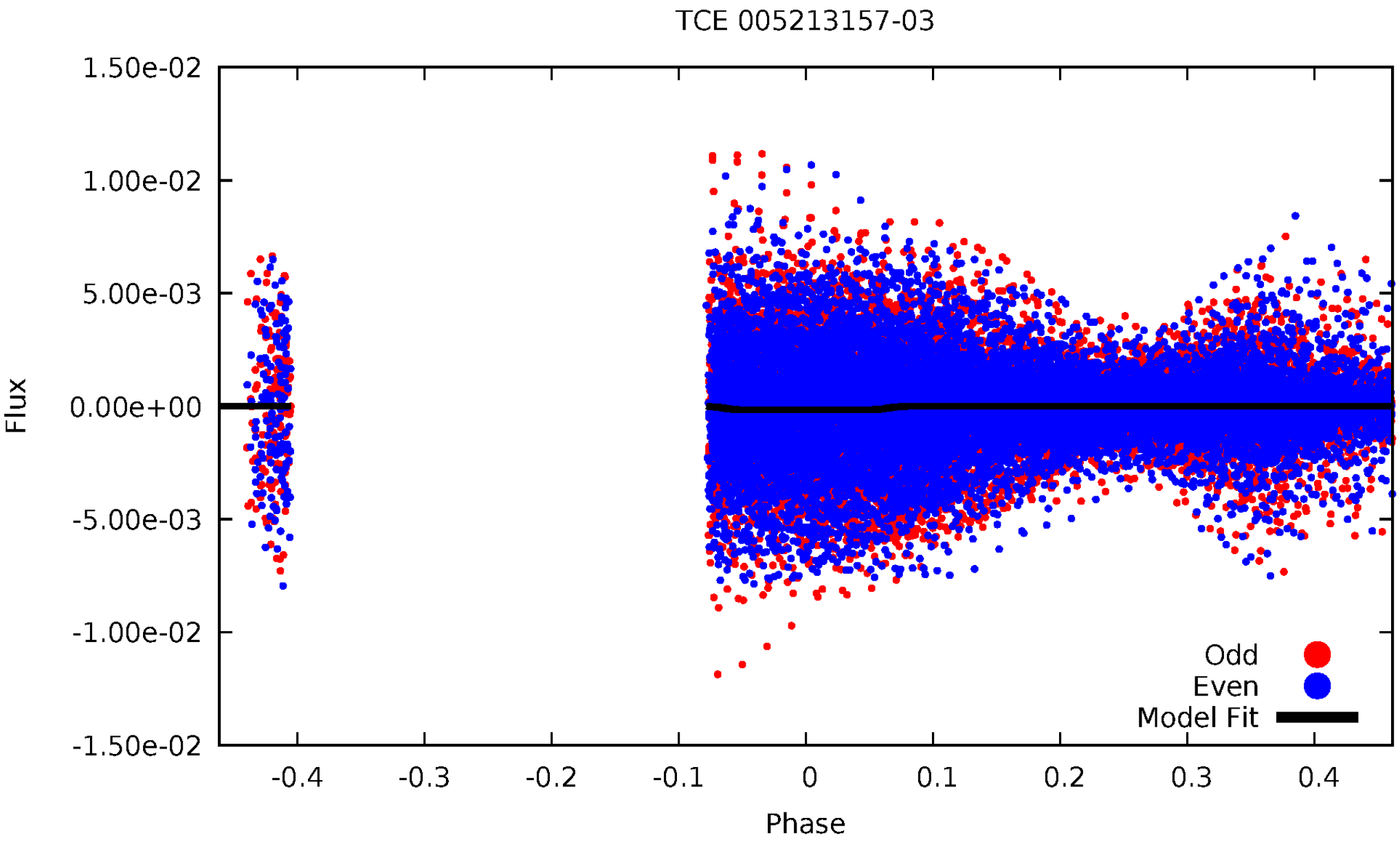



TCE 005213157-03
P = 0.527 days
P = 1.054 days
P = 2.109 days
Normalized Flux
0.010
0.005
0.000
−0.005
−0.010
200
400
600
800
1000
1200
1400
1600
BKJD
Normalized Flux
0.010
0.005
0.000
−0.005
−0.010
−1.0
−0.5
0.0
0.5
1.0
Phase

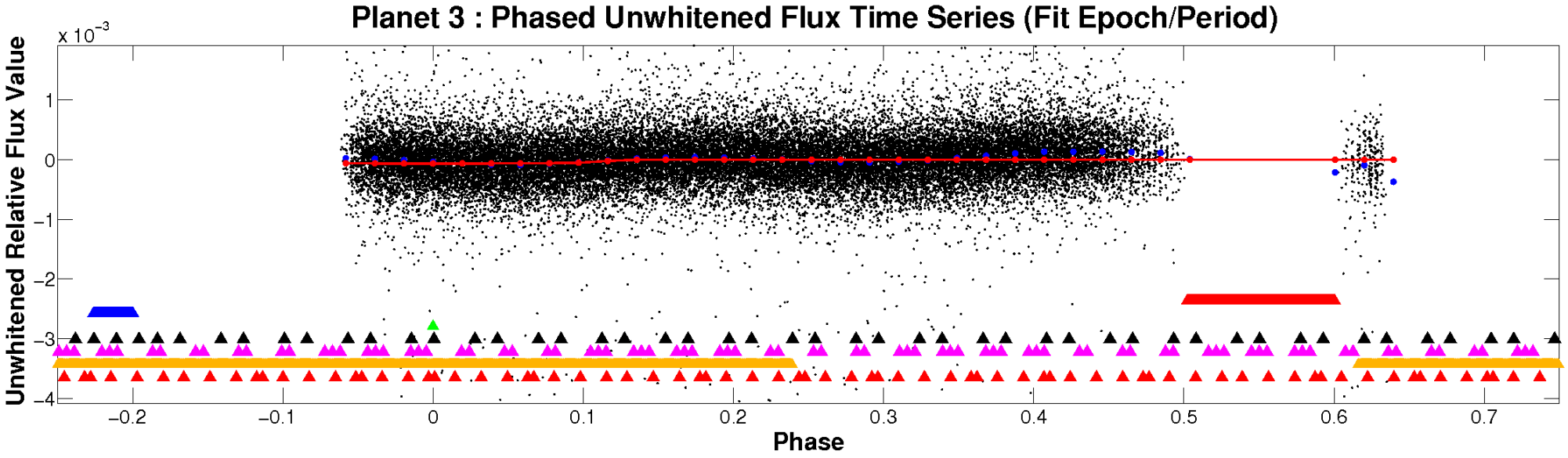
DV Odd/Even

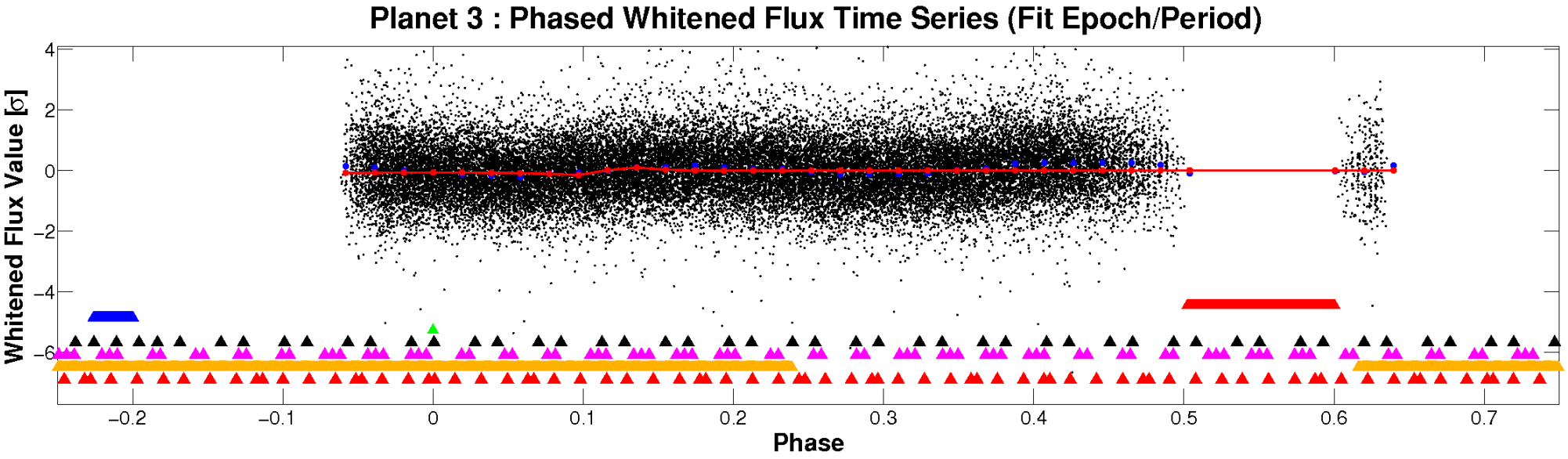

TCE 005213157-03
8.00e-03
6.00e-03
4.00e-03
2.00e-03
0.00e+00
-2.00e-03
-4.00e-03
-6.00e-03
Flux
-0.4
-0.3
-0.2
-0.1
0
0.1
0.2
0.3
0.4
Phase
Odd
Even
Model Fit

ALT Odd/Even


TCE 005213157-03
1.50e-02
1.00e-02
5.00e-03
0.00e+00
-5.00e-03
-1.00e-02
-1.50e-02
Flux
-0.4
-0.3
-0.2
-0.1
0
0.1
0.2
0.3
0.4
Phase
Odd
Even
Model Fit

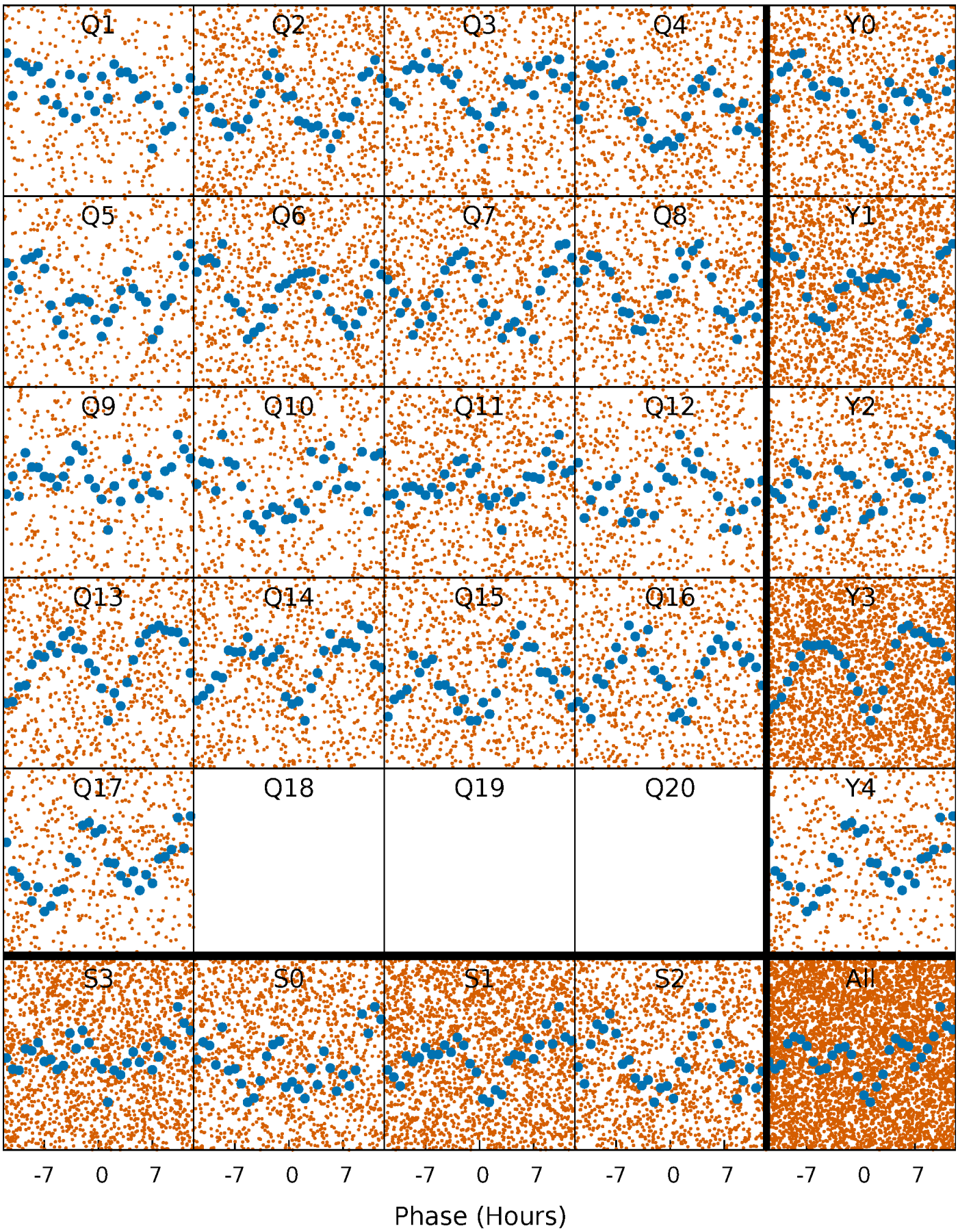
Non-Whitened Vs. Whitened Light Curve





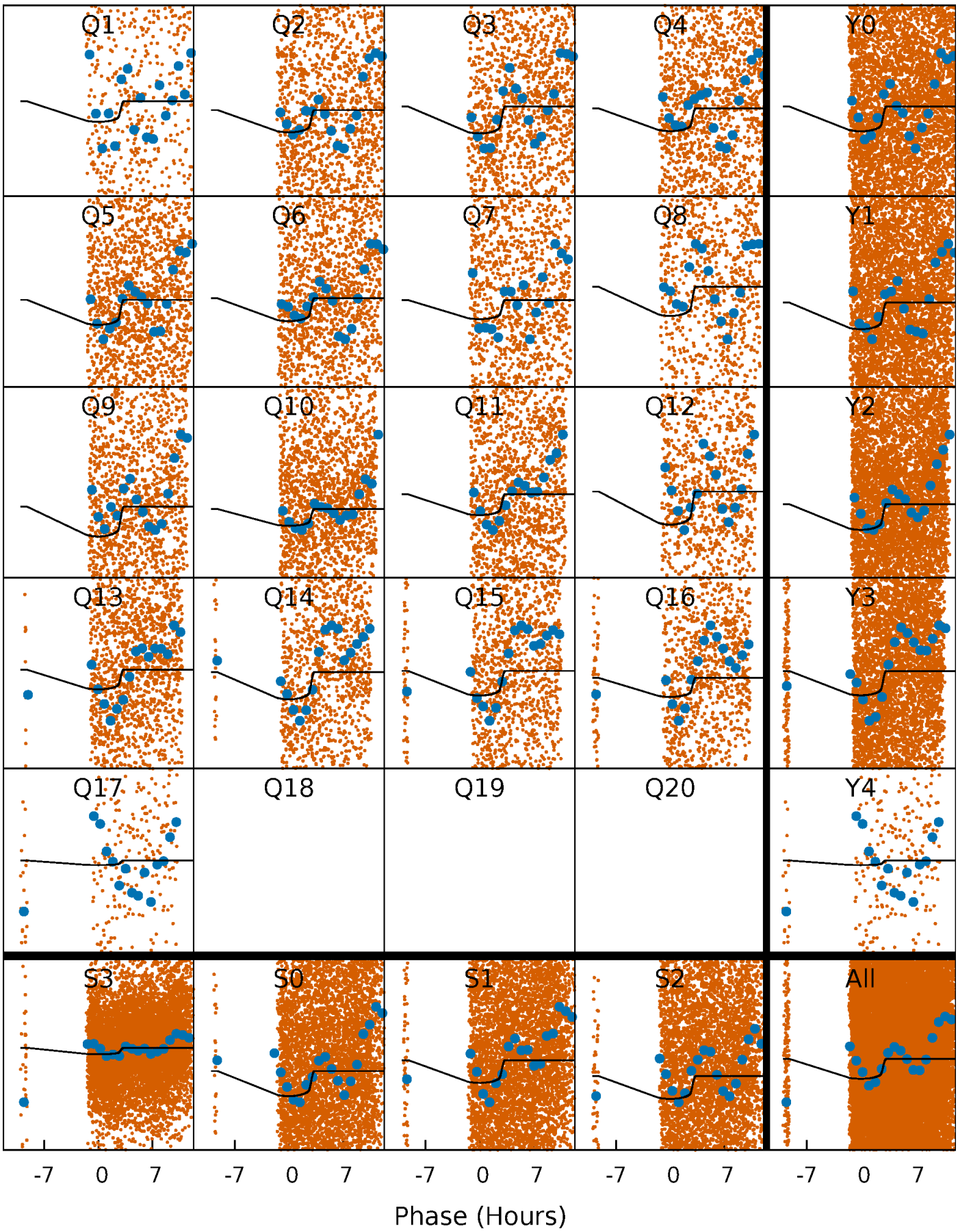
PDC Quarter-Phased Transit Curves

TCE 005213157-03 P= 1.054343 Days T_0=131.811329 (BKJD)



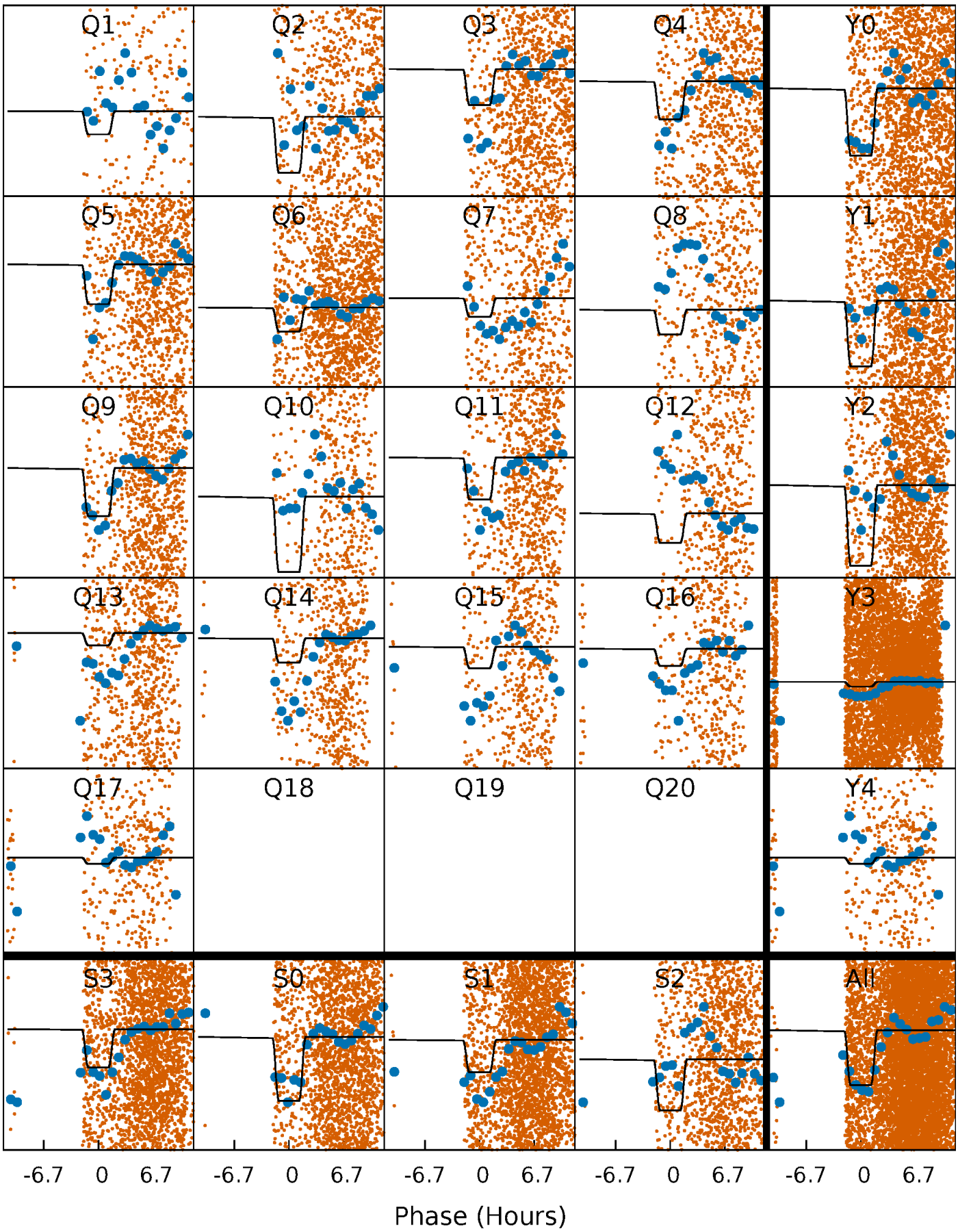
DV Quarter-Phased Transit Curves

TCE 005213157-03 P= 1.054343 Days T_0=131.811329 (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

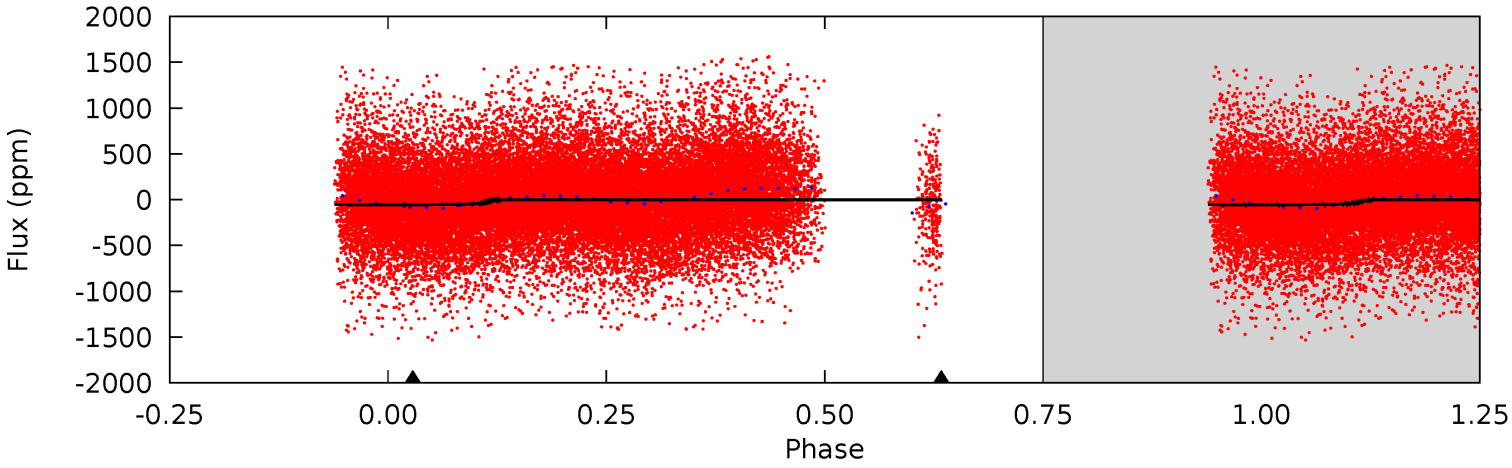
TCE 005213157-03 P= 1.054369 Days T_0=131.819794 (BKJD)

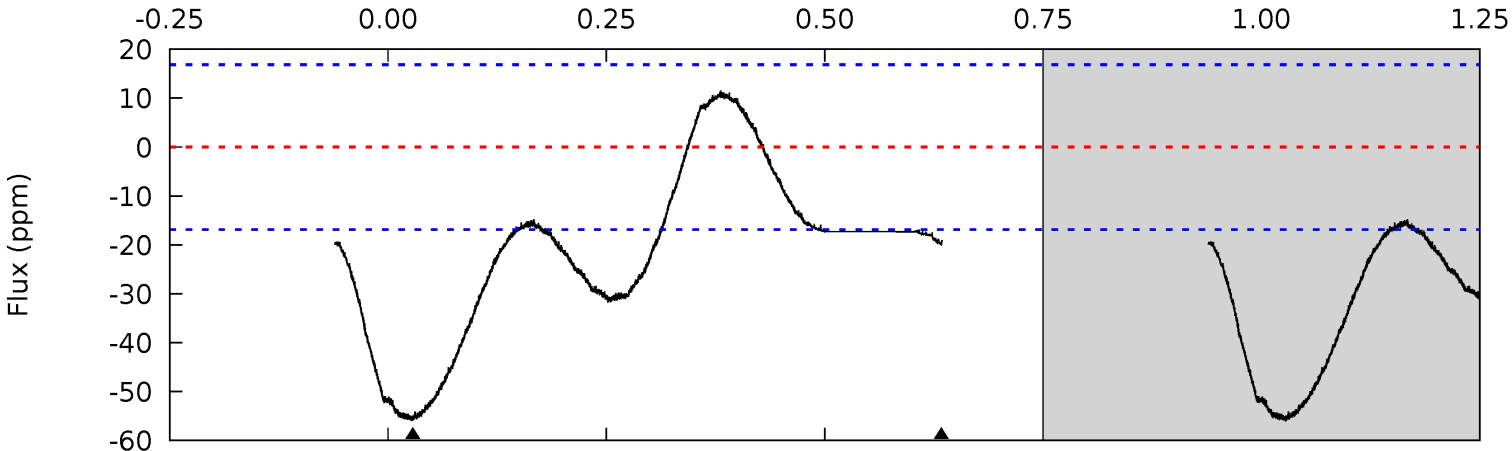


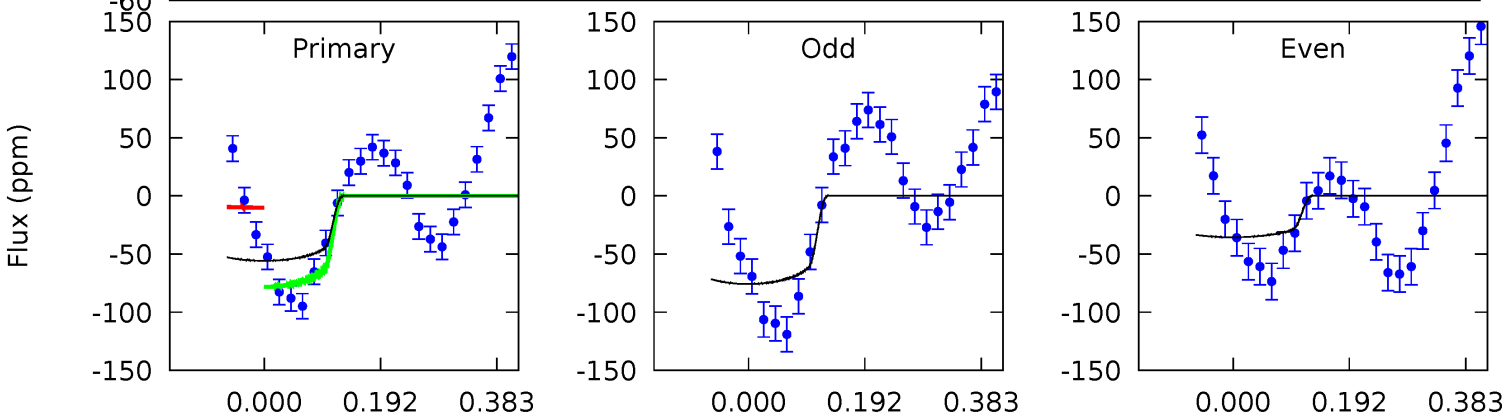
DV Model-Shift Uniqueness Test

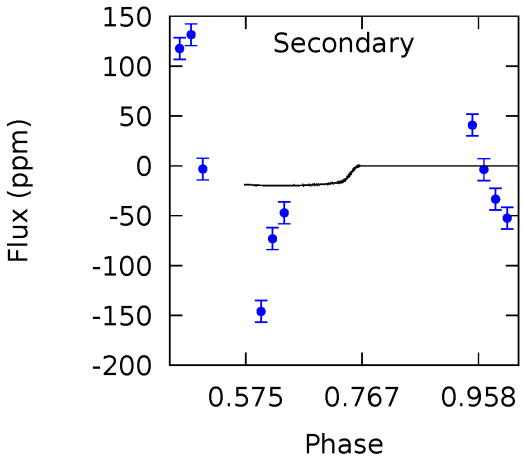
005213157-03, P = 1.054343 Days, E = 130.756986 Days

Pri	Sec	Ter	Pos	FA_1	FA_2	F_{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
14.6	5.22	0	0	4.43	1.31	2.99	14.6	14.6	5.22	5.22	5.33	0.92	0.17	8.91





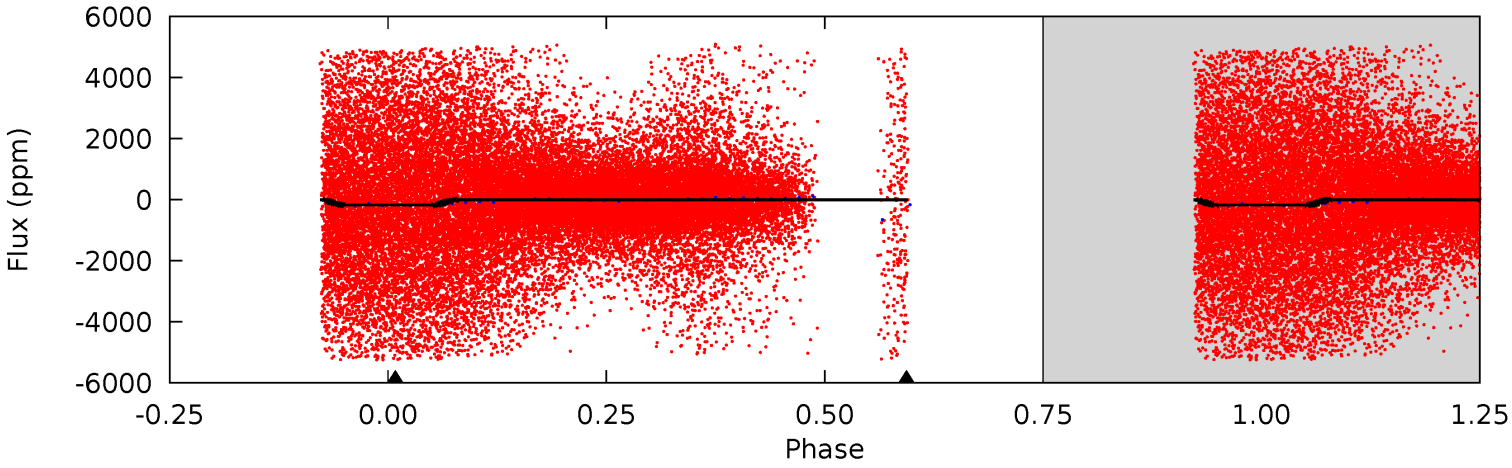


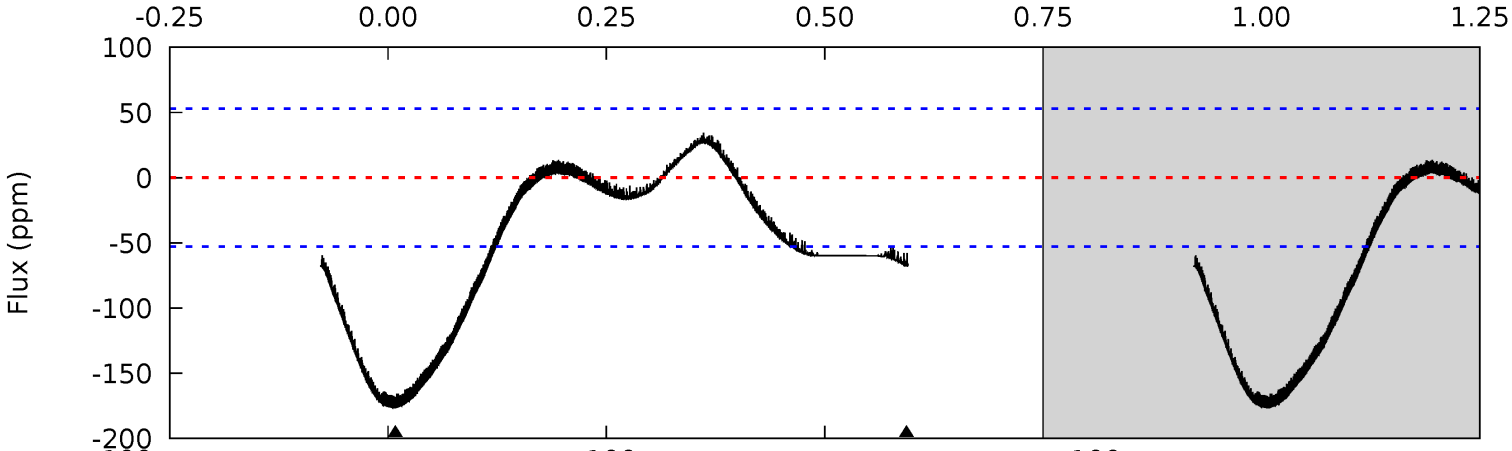


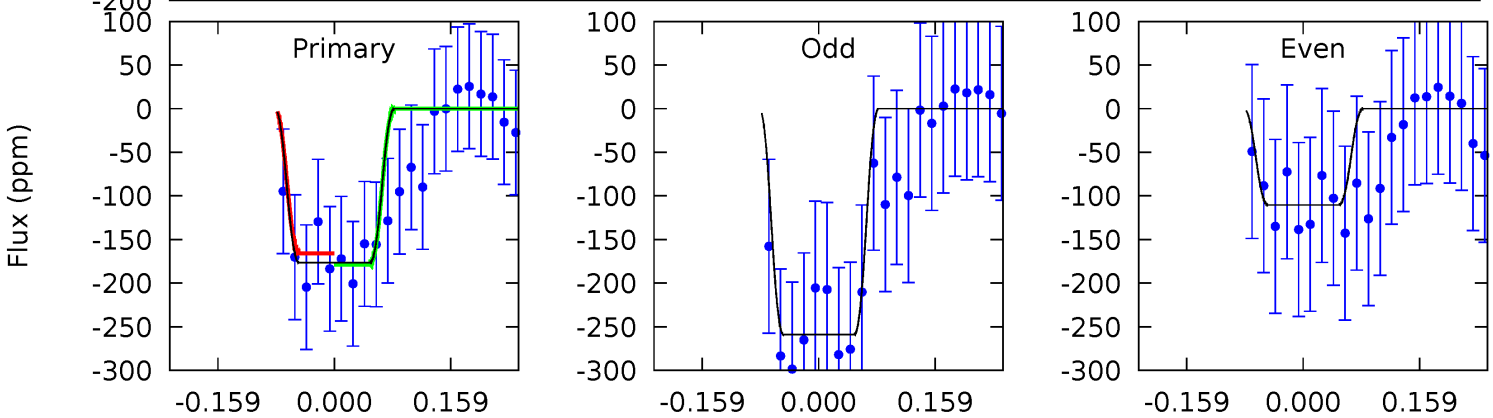
Alt Model-Shift Uniqueness Test

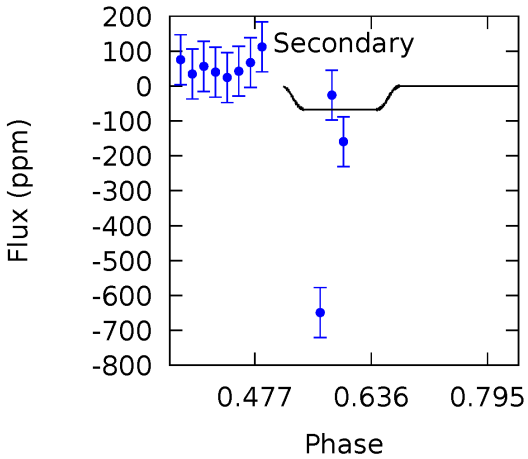
005213157-03, P = 1.054369 Days, E = 130.765425 Days

Pri	Sec	Ter	Pos	FA_1	FA_2	F_{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
14.9	5.73	0	0	4.47	1.41	1.21	14.9	14.9	5.73	5.73	6.32	0.95	0.16	0.30









Stellar Parameters For KIC 005213157

	$T_{\rm eff}(K)$	$\log(g)$	[Fe/H]	R ($R_\odot$)	$M(M_\odot)$	$p_\star$ (g·cm^{-3})
	8485^{+235}_{-369}	$3.762^{+0.392}_{-0.140}$	$-0.160^{+0.400}_{-0.350}$	$3.096^{+0.929}_{-1.393}$	$2.024^{+0.395}_{-0.439}$	$0.096^{+0.363}_{-0.043}$
	+3%/-4%	+10%/-4%	+250%/-219%	+30%/-45%	+20%/-22%	+378%/-45%
Source	KIC0	KIC0	KIC0	DSEP		

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

Secondary Eclipse Parameters for KIC 005213157-03 / KOI

Detrend	Depth (ppm)	R_p ($R_\oplus$)	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-20±4	$2.74^{+0.67}_{-0.71}$	5563^{+502}_{-698}	5353^{+621}_{-681}	$0.949^{+0.770}_{-0.348}$
Alt.	-68±12	$4.05^{+0.87}_{-0.96}$	5594^{+442}_{-655}	6214^{+562}_{-510}	$1.519^{+1.030}_{-0.490}$

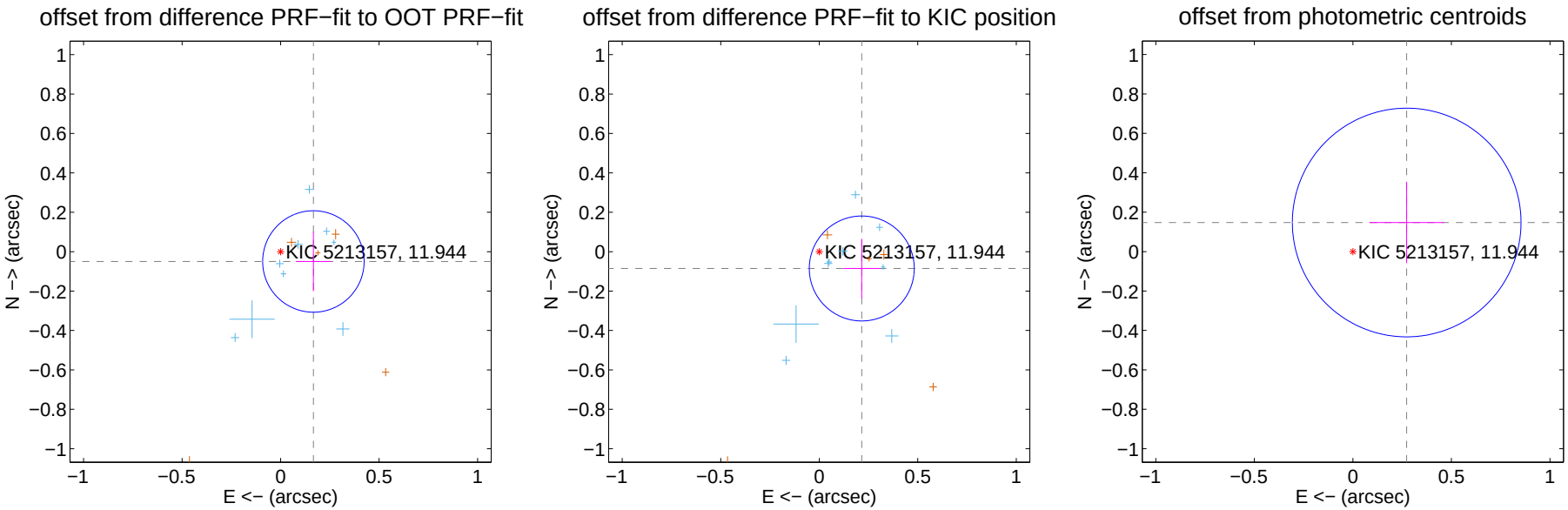
T_{max} = Theoretical Maximum Planetary Temperature
T_{obs} = Observed Planetary Temperature (Assuming A=0.3)
A_{obs} = Observed Albedo (Assuming T=0)

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

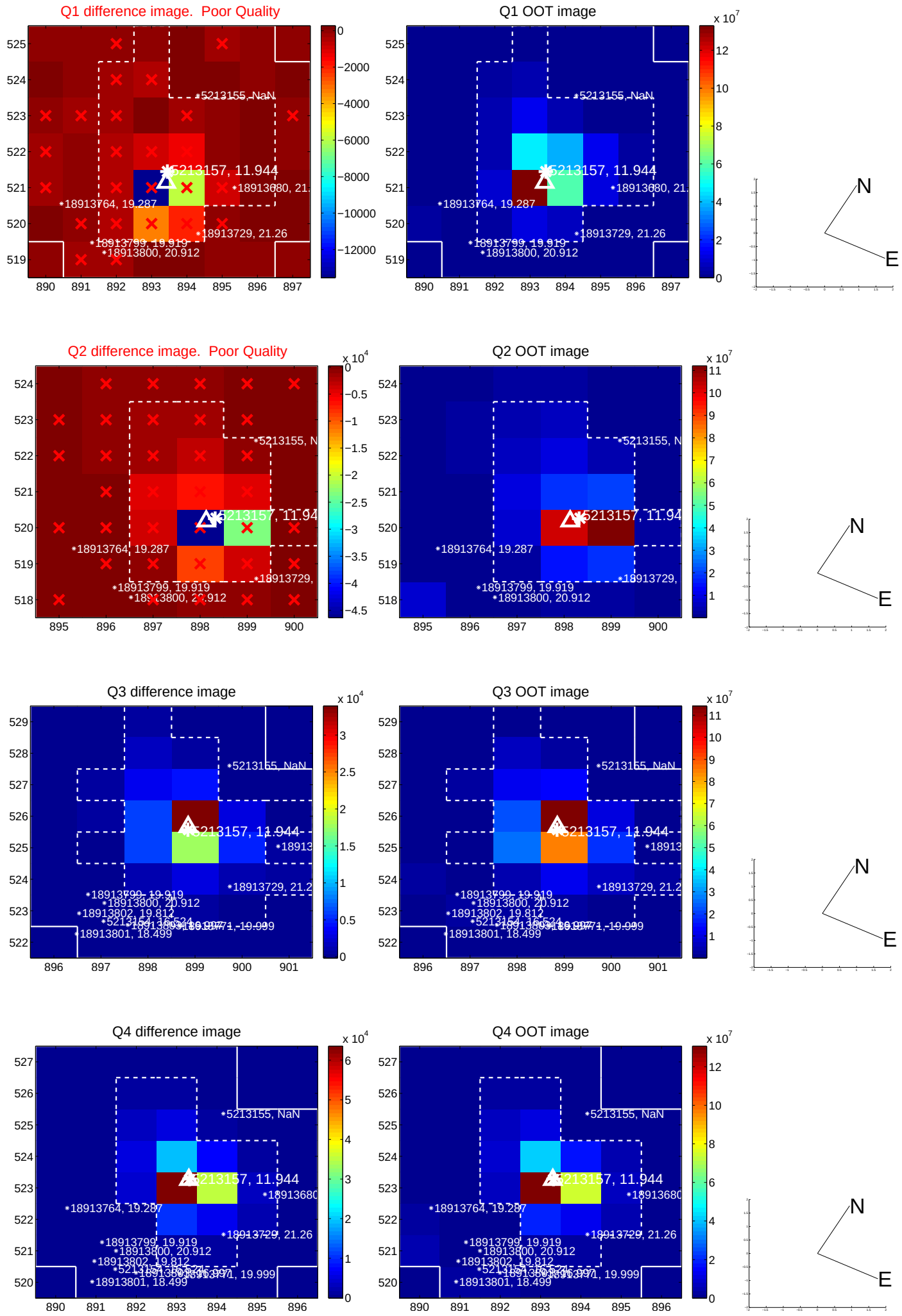
Supplemental centroid analysis for 005213157-03. Kepler magnitude: 11.94. Transit SNR 10.32
There are 11 quarters with good PRF difference image offsets
The direct PRF centroid is offset from the target star catalog position by about 0.04 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.174 ± 0.086	2.02	-0.166 ± 0.089	-0.050 ± 0.151
PRF-fit source offset from KIC position	0.232 ± 0.089	2.61	-0.216 ± 0.093	-0.085 ± 0.151
photometric centroid source offset	0.31 ± 0.19	1.61	-0.27 ± 0.19	0.15 ± 0.21

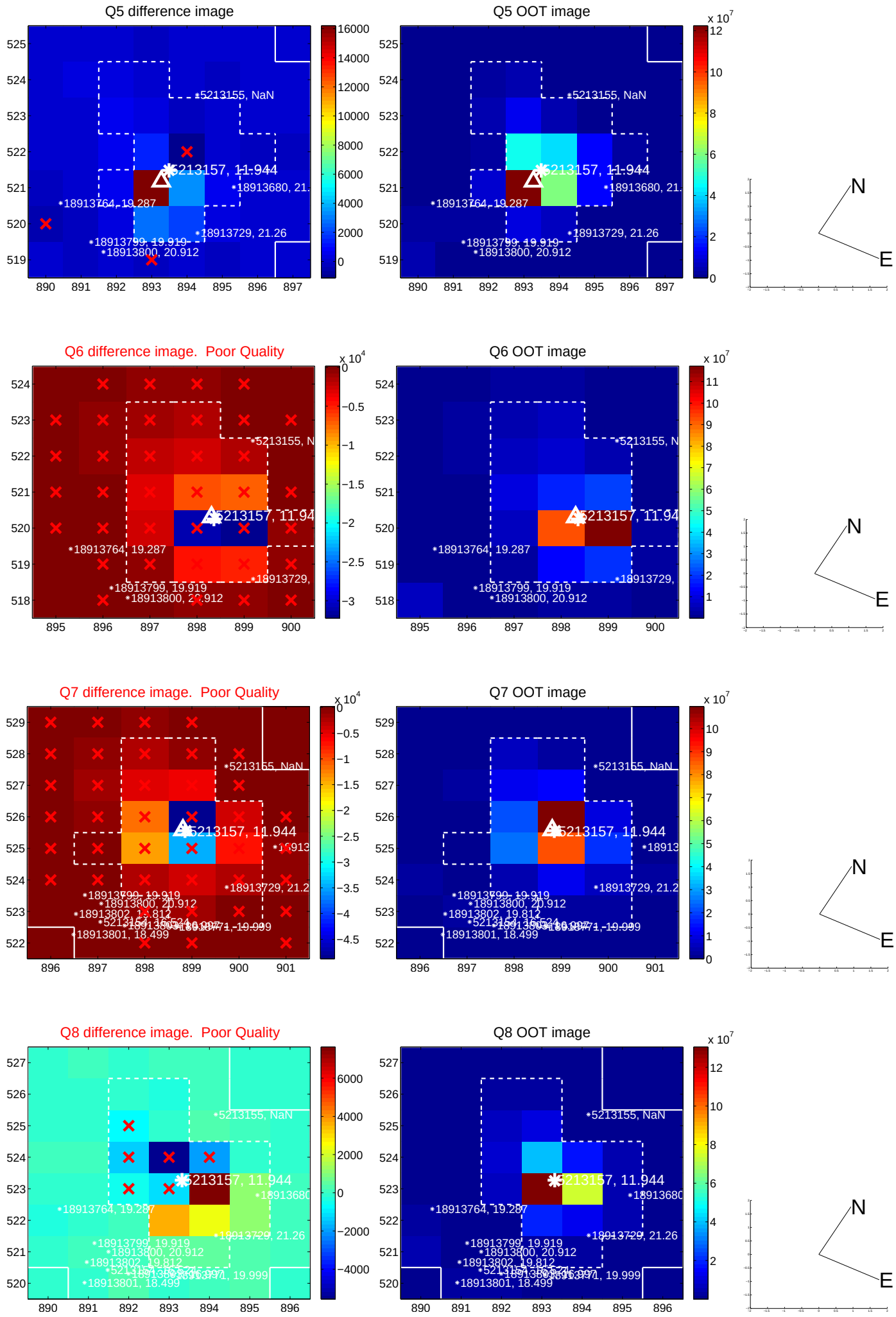


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one-σ uncertainty. Blue circle: three-σ. Red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

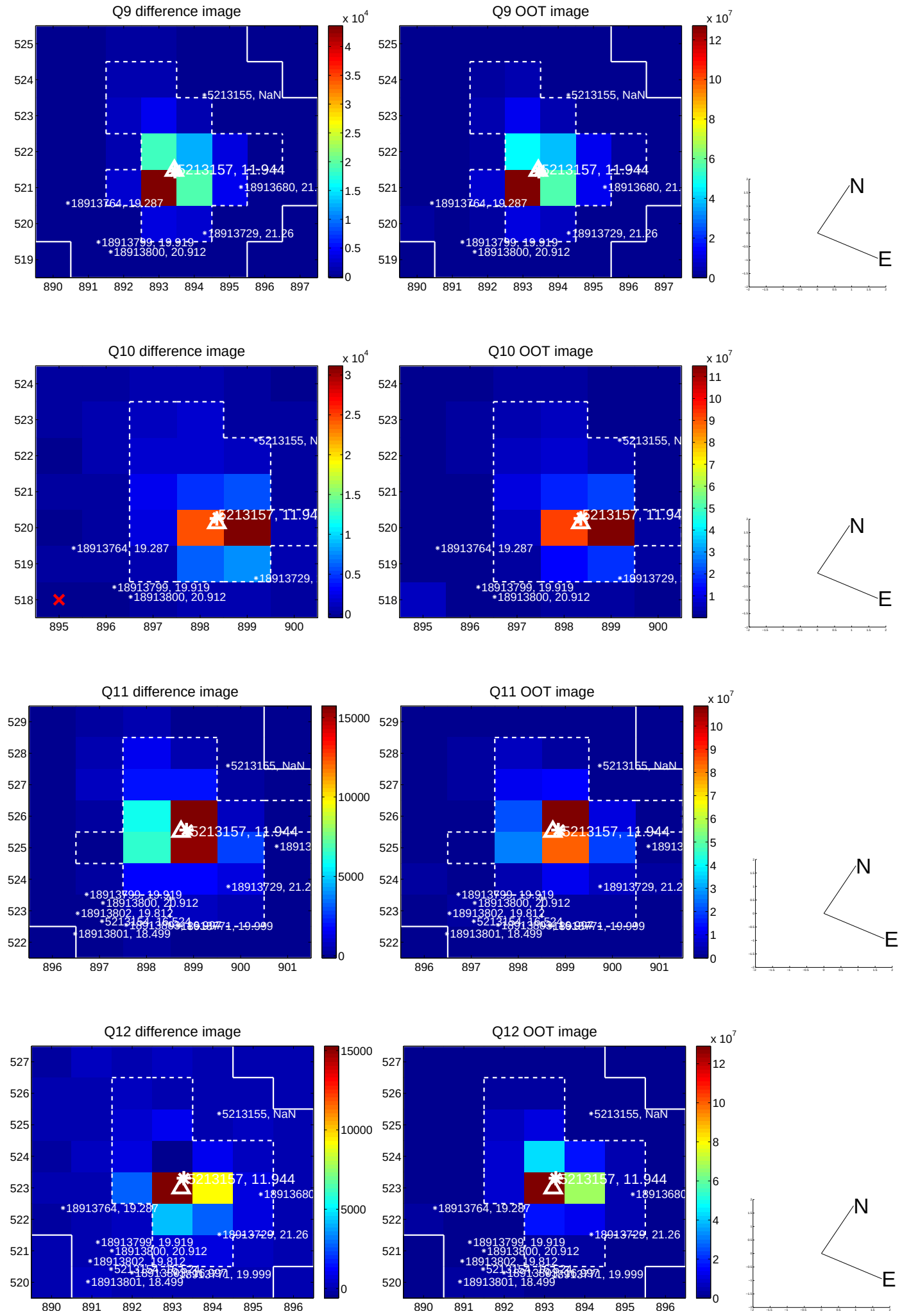
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.



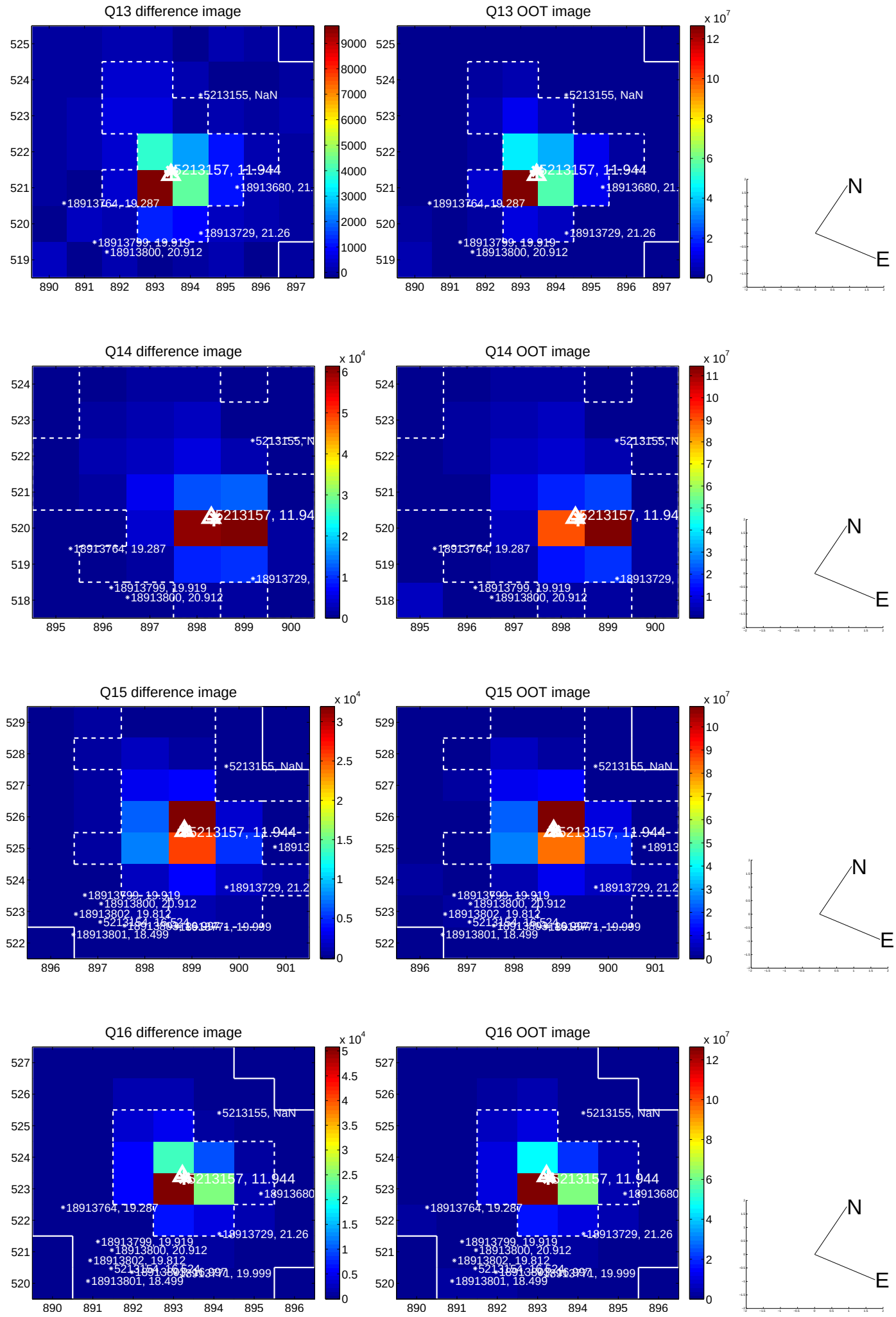
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.



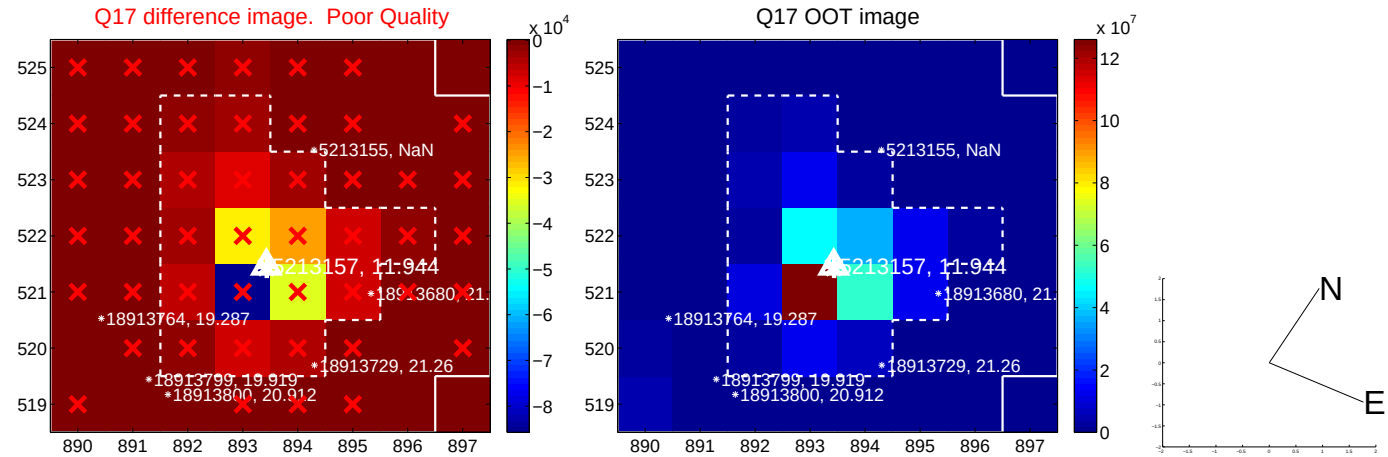
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.

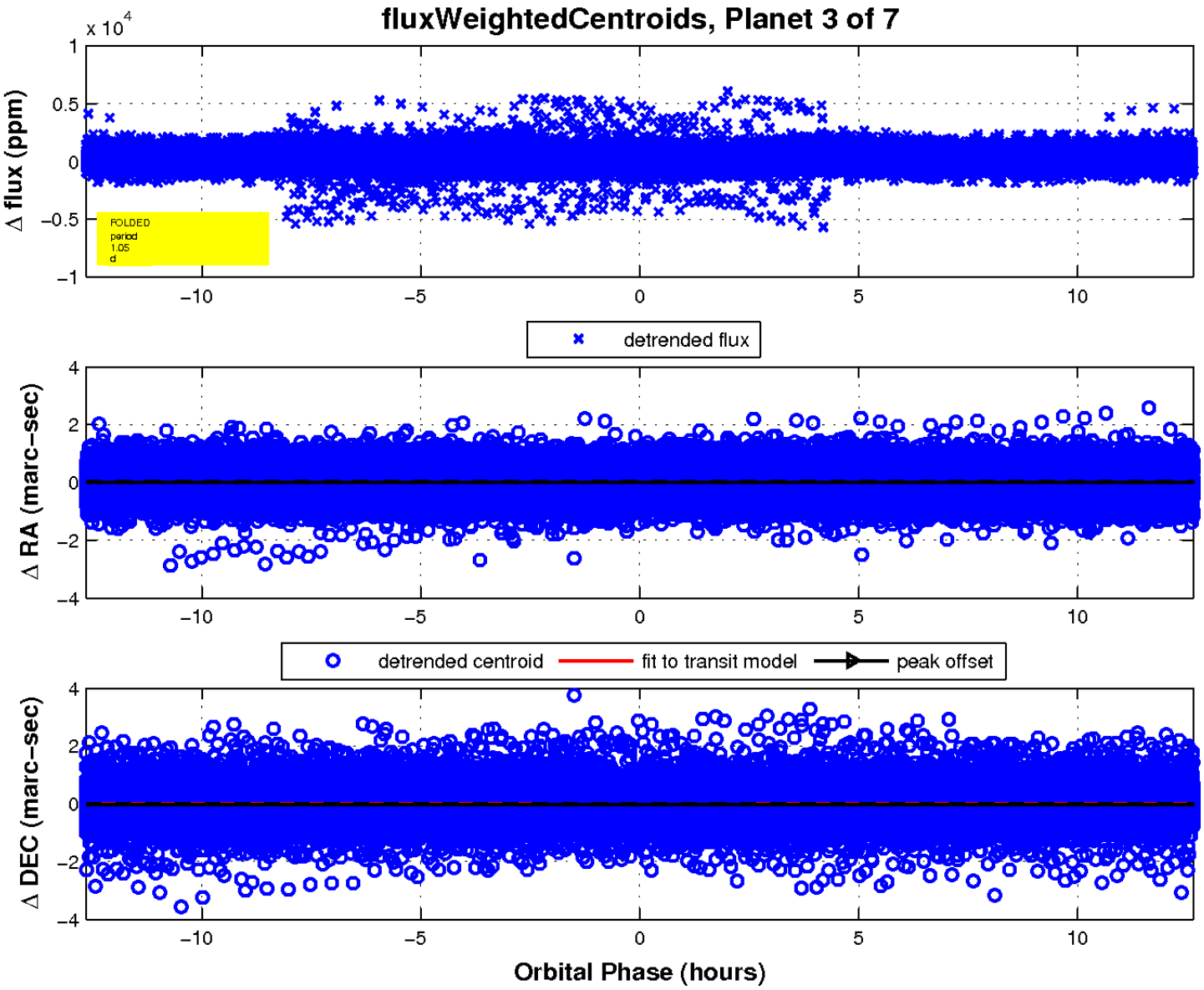


white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.

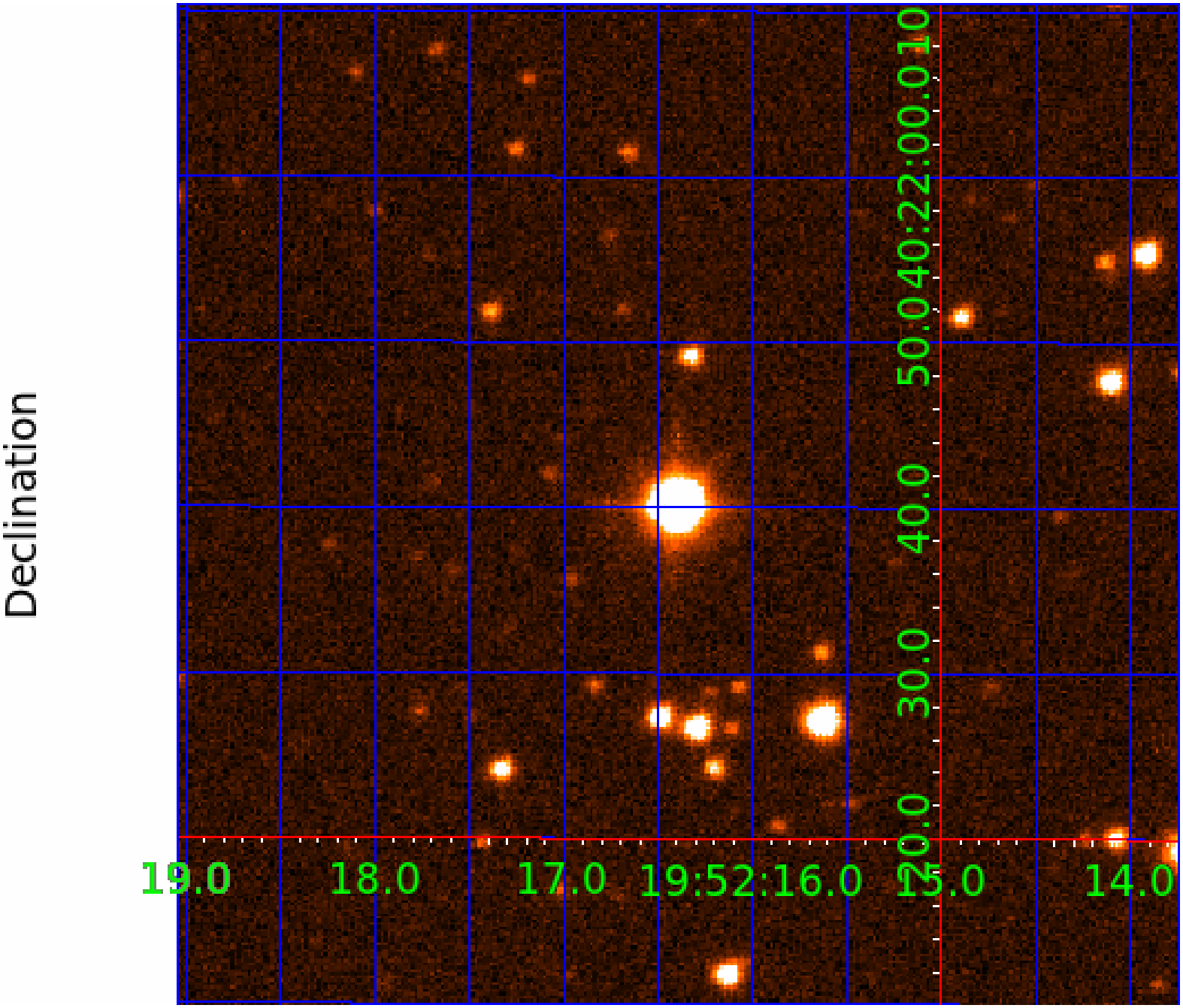


white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.





UKIRT Image


Declination
22:00:01.0
50.0
40.0
30.0
20.0
19.0
18.0
17.0
19:52:16.0
15.0
14.0

KIC 005213157

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 ($S_\oplus$)
005213157-01	OBS	No	1.054268	132.444354	1.0	1.001	9.8	0.3	3.10	8485	0.36	67727.91
005213157-02	OBS	No	1.054363	131.572886	35.7	2.607	11.7	8.1	3.10	8485	2.14	67719.79
005213157-03	OBS	No	1.054343	131.811329	63.7	6.166	12.2	10.3	3.10	8485	2.88	67721.51
005213157-04	OBS	No	29.566187	155.823141	31.9	1.698	10.2	0.4	3.10	8485	1.88	794.89
005213157-05	OBS	No	17.086395	139.313242	1.0	11.298	11.1	0.0	3.10	8485	0.39	1651.34
005213157-06	OBS	No	2.107737	132.063277	269.3	3.000	11.8	-1.0	3.10	8485	5.16	26891.43
005213157-07	OBS	No	19.289356	148.055366	142.9	12.500	11.4	-1.0	3.10	8485	3.75	1404.79

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005213157-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA_TRACKER—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
005213157-02	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—SAME_NTL_PERIOD
005213157-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA—LPP_DV—LPP_ALT—SAME_NTL_PERIOD
005213157-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_TRACKER—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
005213157-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_TRACKER—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
005213157-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—NO_FITS—CENT_NOFITS
005213157-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_NOFITS

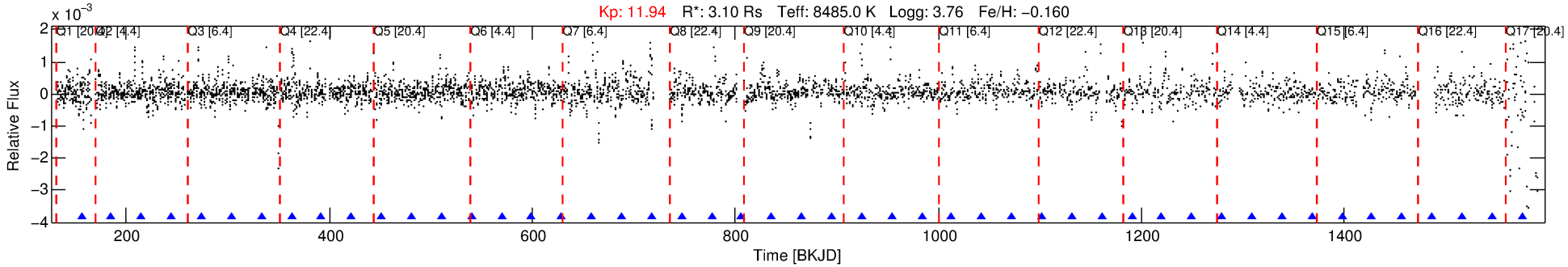
Notes: OBS = Observed. INJ = Injected. INV = Inverted. SCR = Scrambled.
N = Not Transit-Like. S = Stellar Eclipse. C = Centroid Offset. E = Ephemeris Match.
See `http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col` for comment definitions.

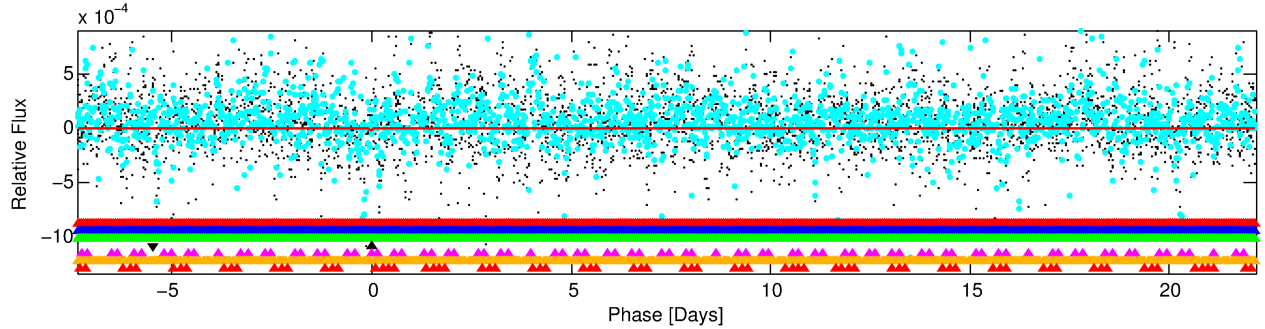
Ephemeris Match Information For 005213157-04

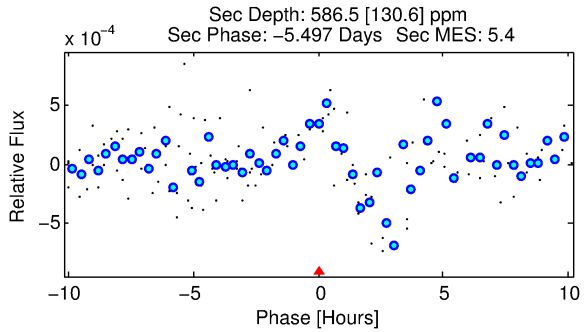
No Significant Match Found

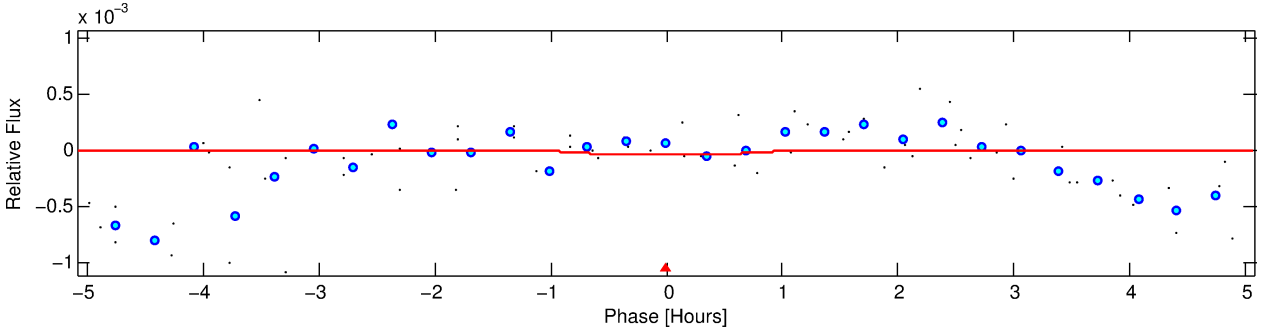
DV One-Page Summary

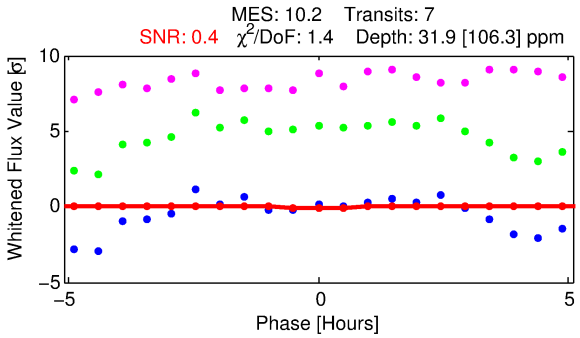
KIC: 5213157 Candidate: 4 of 7 Period: 29.566 d

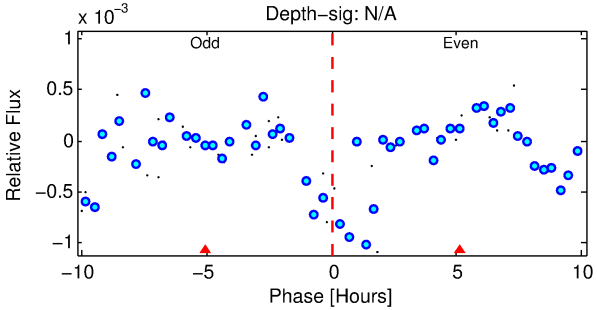


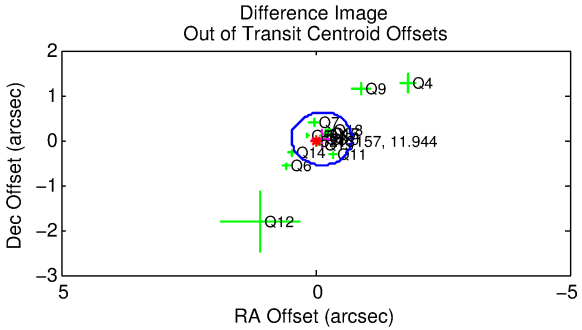












DV Fit Results:

Period = 29.56619 [0.00589] d
Epoch = 155.8231 [0.1865] BKJD
Rp/R* = 0.0056 [0.0472]
a/R* = 95.62 [4565.71]
b = 0.70 [36.95]

Seff = 794.89 [552.05]
Teq = 1354 [235] K
Rp = 1.88 [15.98] Re
a = 0.2366 [0.1005] AU

Ag = 5107.47 [86720.92] [0.06σ]
Teffp = 17697 [75065] K [0.22σ]

DV Diagnostic Results:

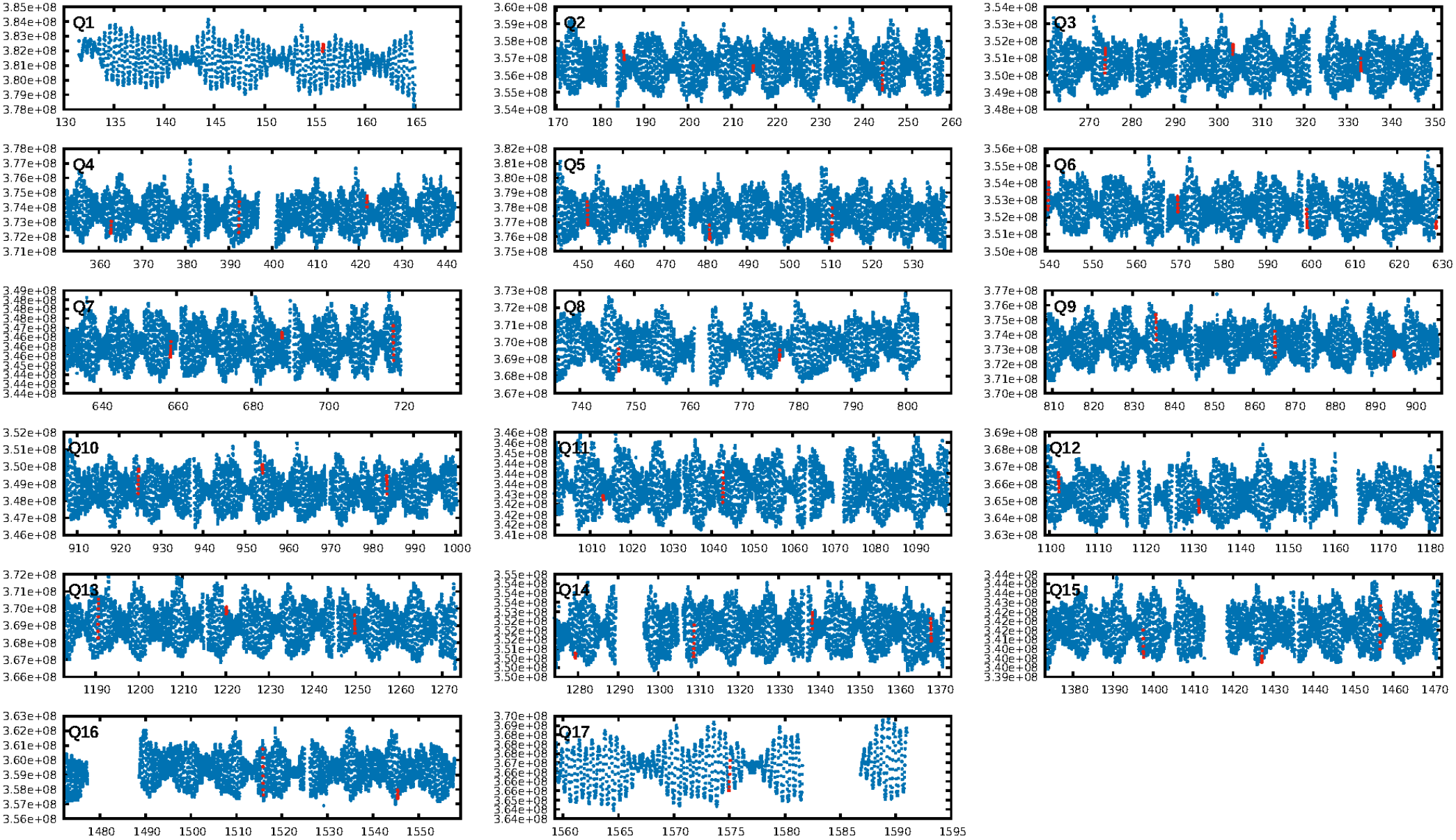
ShortPeriod−sig: 100.0% [19.55σ]
LongPeriod−sig: N/A
ModelChiSquare2−sig: 82.5%
ModelChiSquareGof−sig: 100.0%
Bootstrap−pfa: N/A
RollingBand−fgt: 1.00 [7/7]
GhostDiagnostic−chr: −1.196

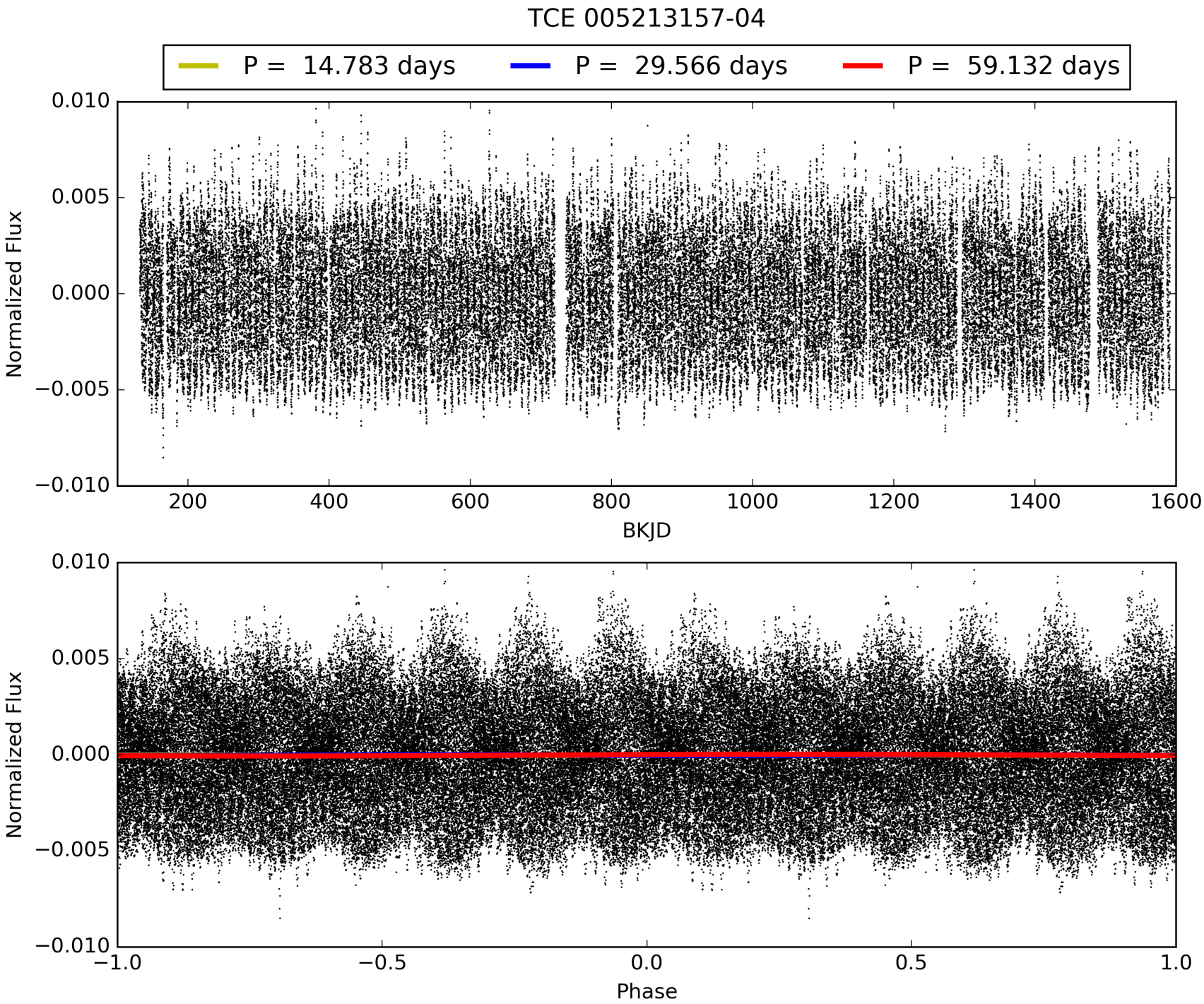
Centroid−sig: 12.4%
Centroid−so: 5.203 arcsec [1.44σ]
OotOffset−rm: 0.125 arcsec [0.63σ]
KicOffset−rm: 0.169 arcsec [0.89σ]
OotOffset−st: 3/4/4/5 [16]
KicOffset−st: 3/4/4/5 [16]
DiffImageQuality−fgm: 0.44 [7/16]
DiffImageOverlap−fno: 0.00 [0/17]

Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30−Jan−2016 16:40:21 Z

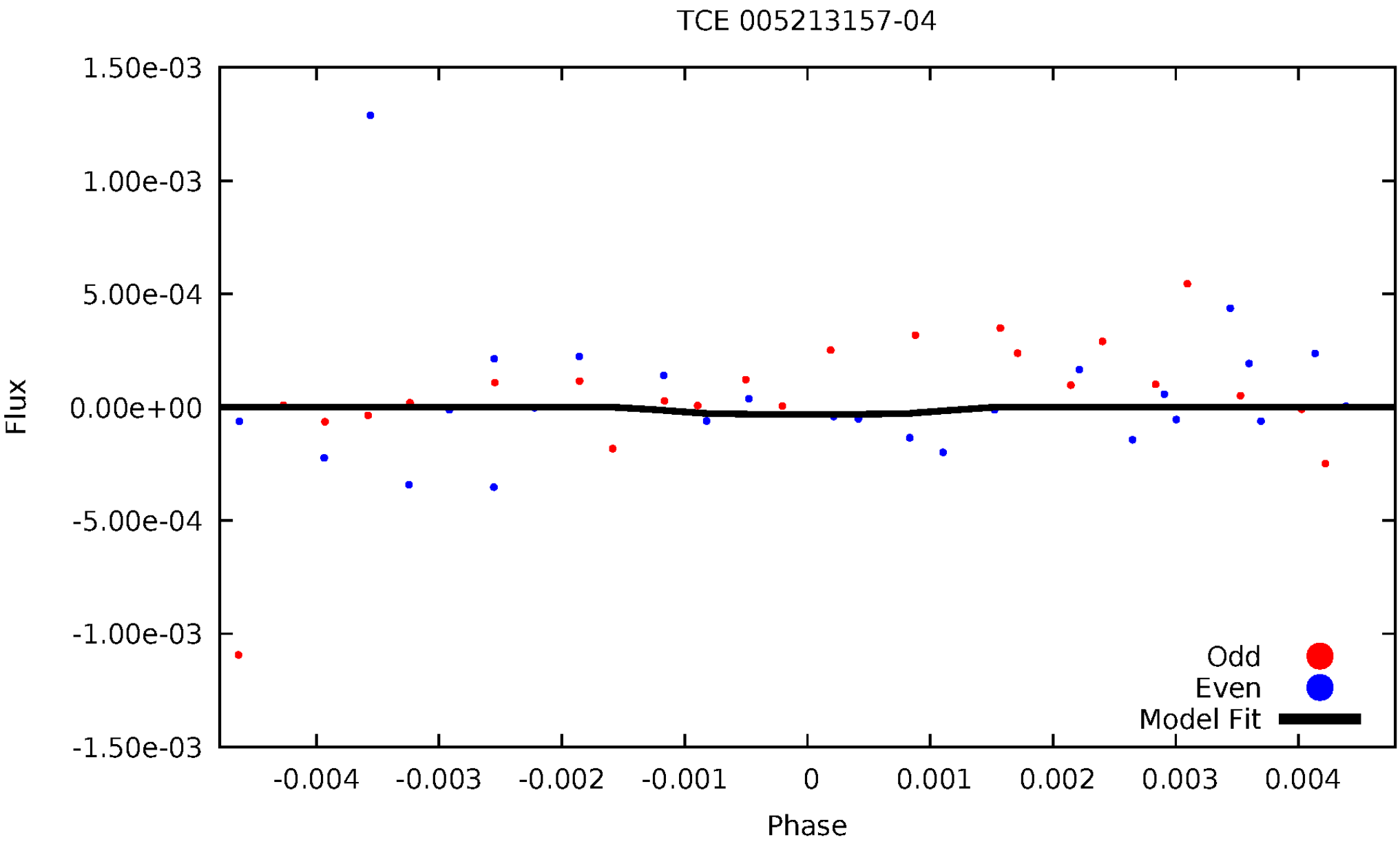
This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

TCE 005213157-04, PDC Light Curves

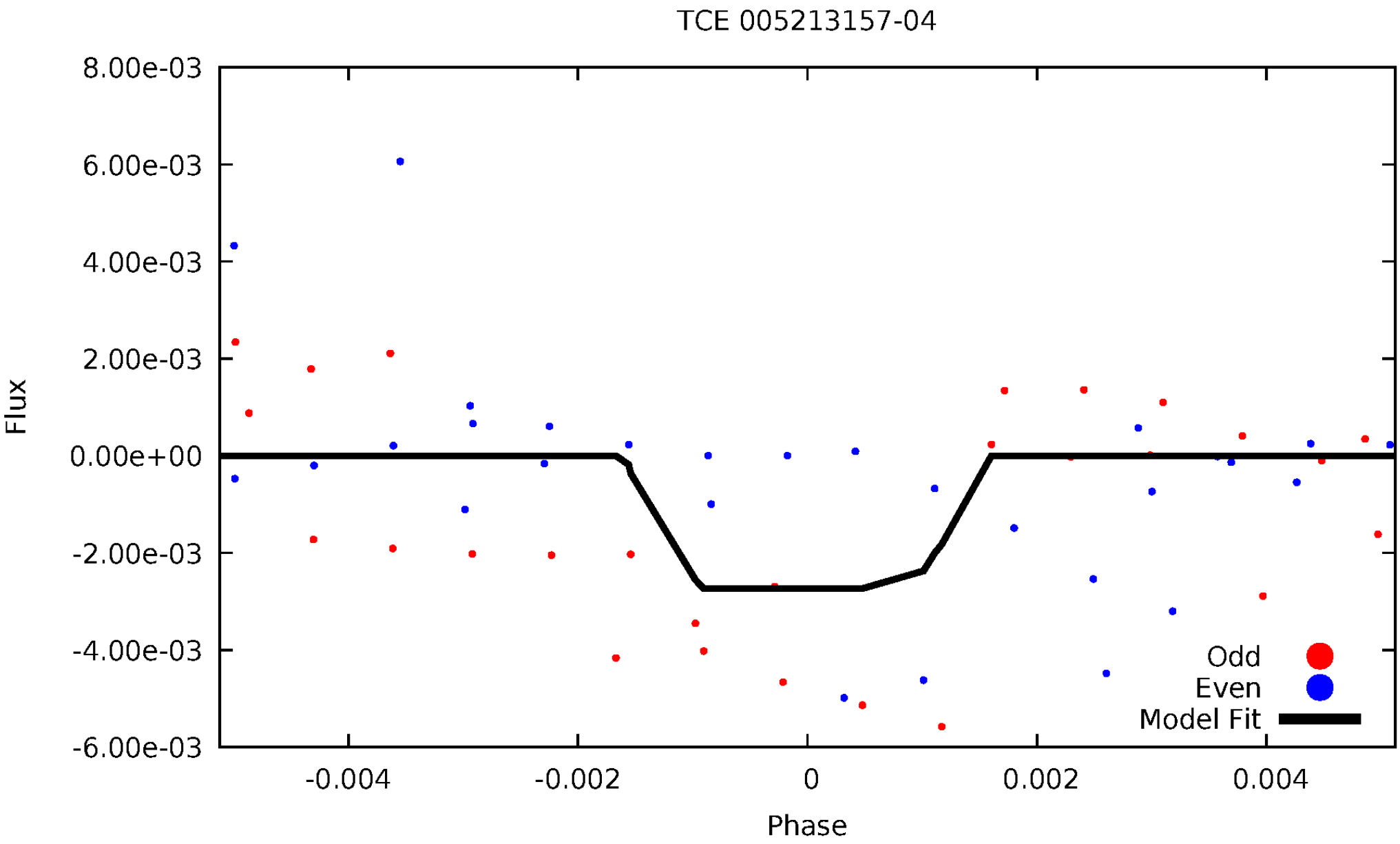



TCE 005213157-04
P = 14.783 days
P = 29.566 days
P = 59.132 days
Normalized Flux
0.010
0.005
0.000
−0.005
−0.010
200
400
600
800
1000
1200
1400
1600
BKJD
Normalized Flux
0.010
0.005
0.000
−0.005
−0.010
−1.0
−0.5
0.0
0.5
1.0
Phase

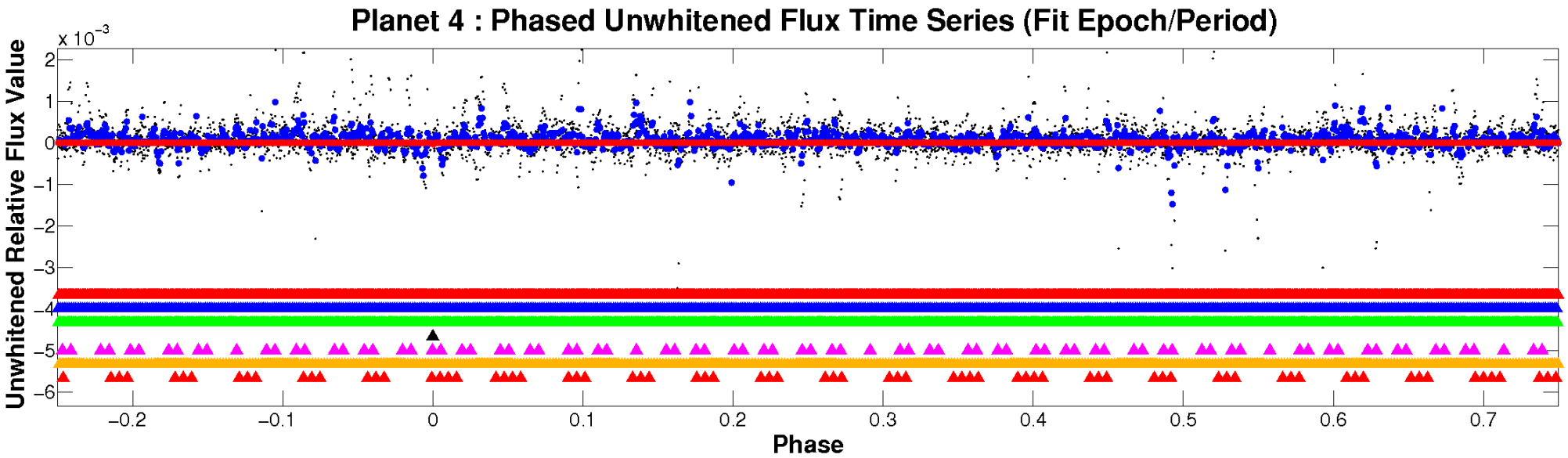
DV Odd/Even

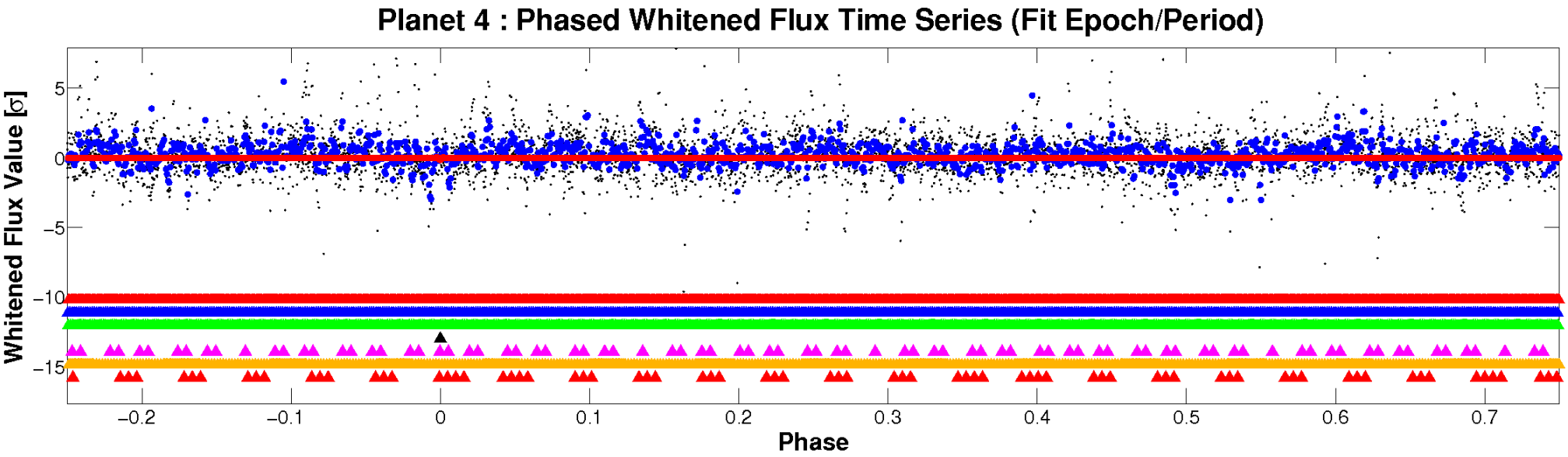

TCE 005213157-04
1.50e-03
1.00e-03
5.00e-04
0.00e+00
-5.00e-04
-1.00e-03
-1.50e-03
Flux
-0.004
-0.003
-0.002
-0.001
0
0.001
0.002
0.003
0.004
Phase
Odd
Even
Model Fit

ALT Odd/Even


TCE 005213157-04
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
-0.004
-0.002
0
0.002
0.004
Phase
Odd
Even
Model Fit

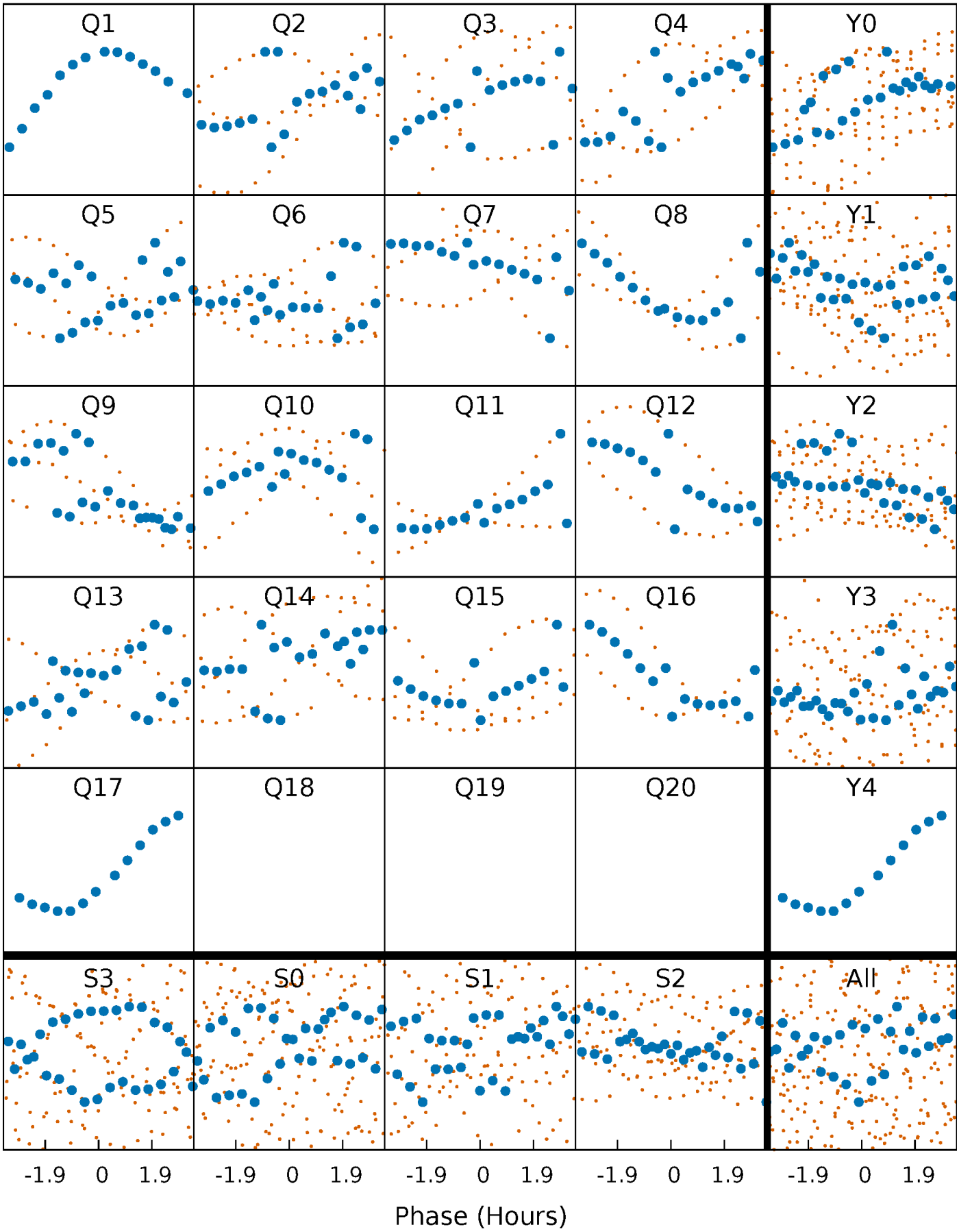
Non-Whitened Vs. Whitened Light Curve





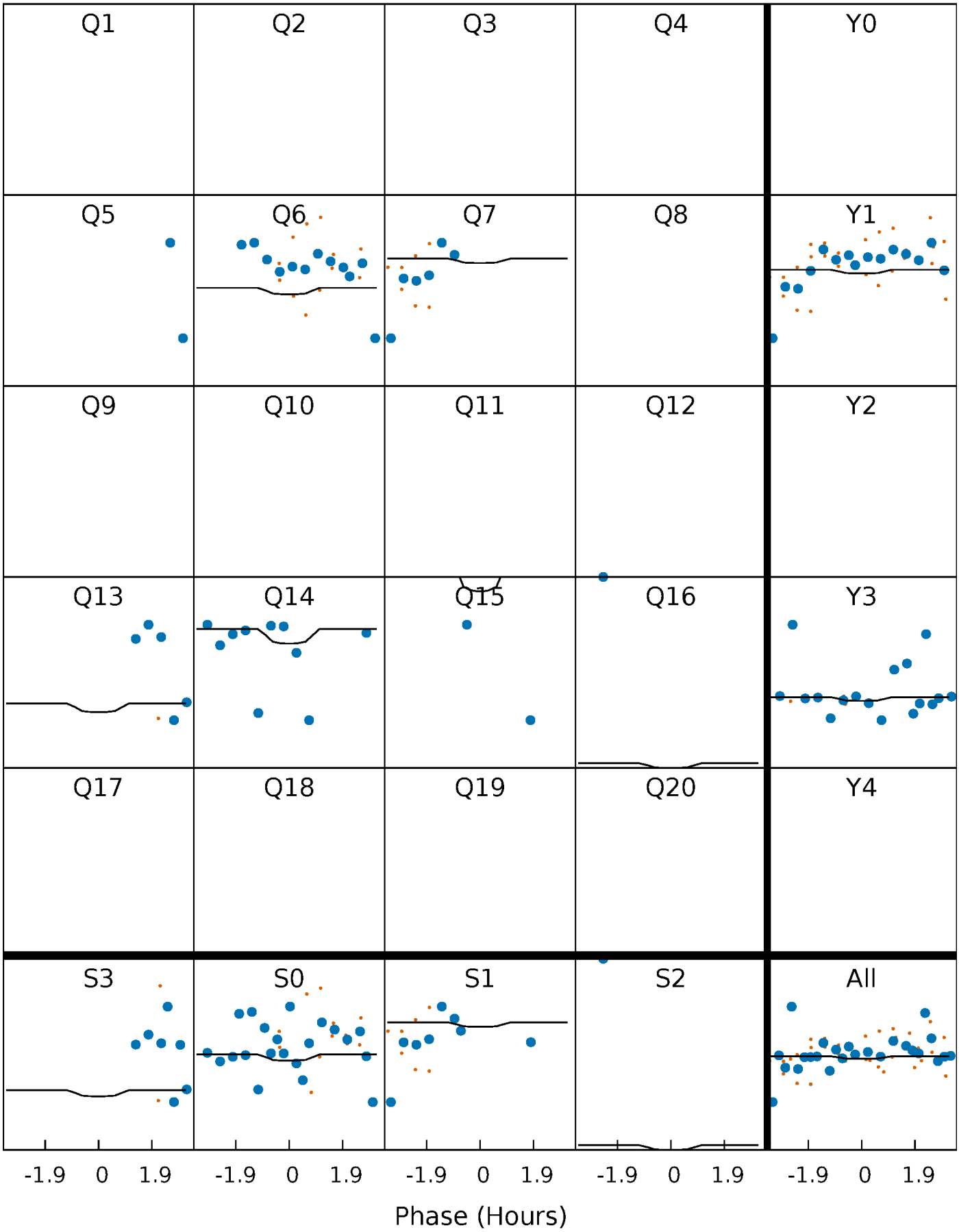
PDC Quarter-Phased Transit Curves

TCE 005213157-04 P= 29.566187 Days T_0=155.823141 (BKJD)



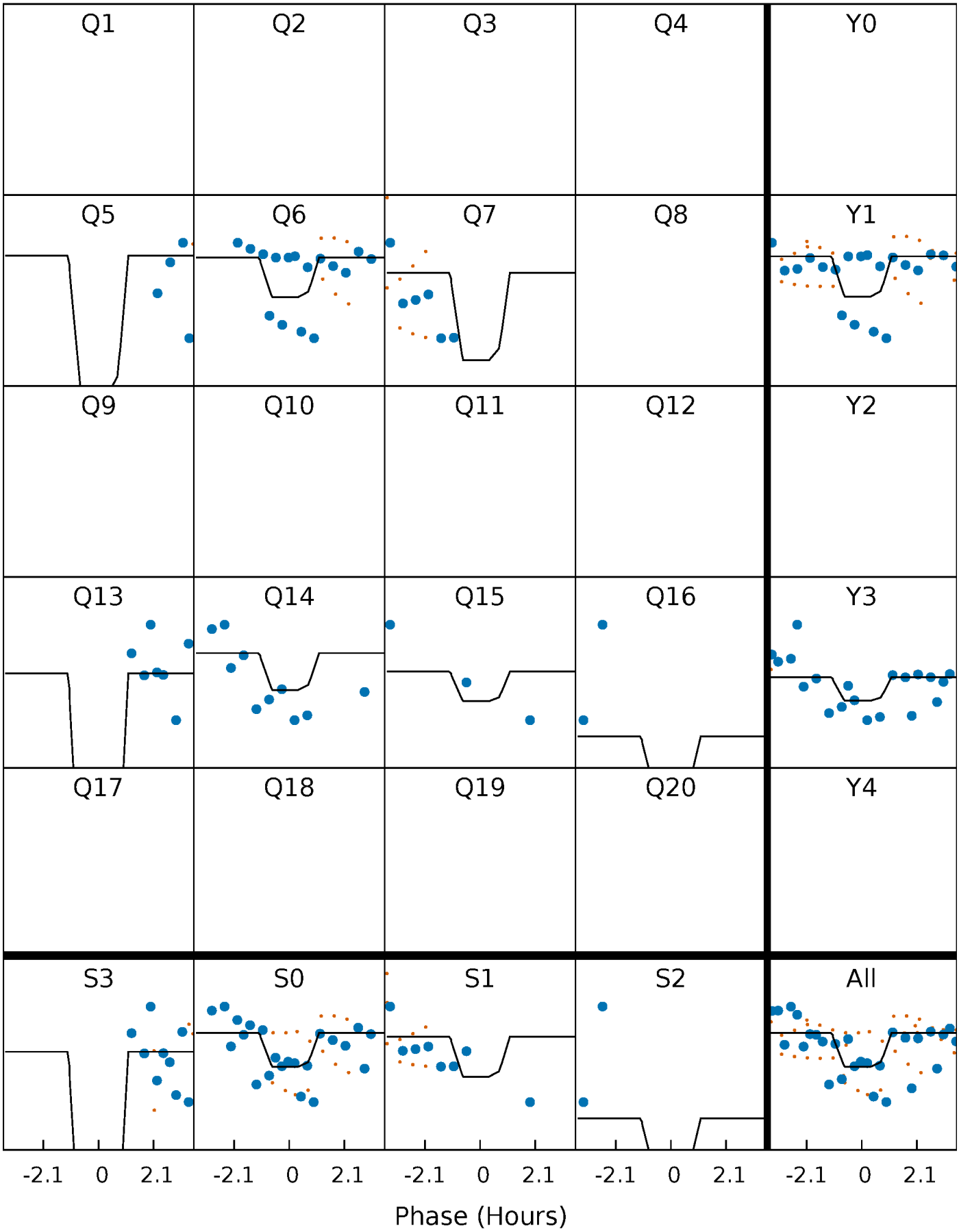
DV Quarter-Phased Transit Curves

TCE 005213157-04 P= 29.566187 Days T_0=155.823141 (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

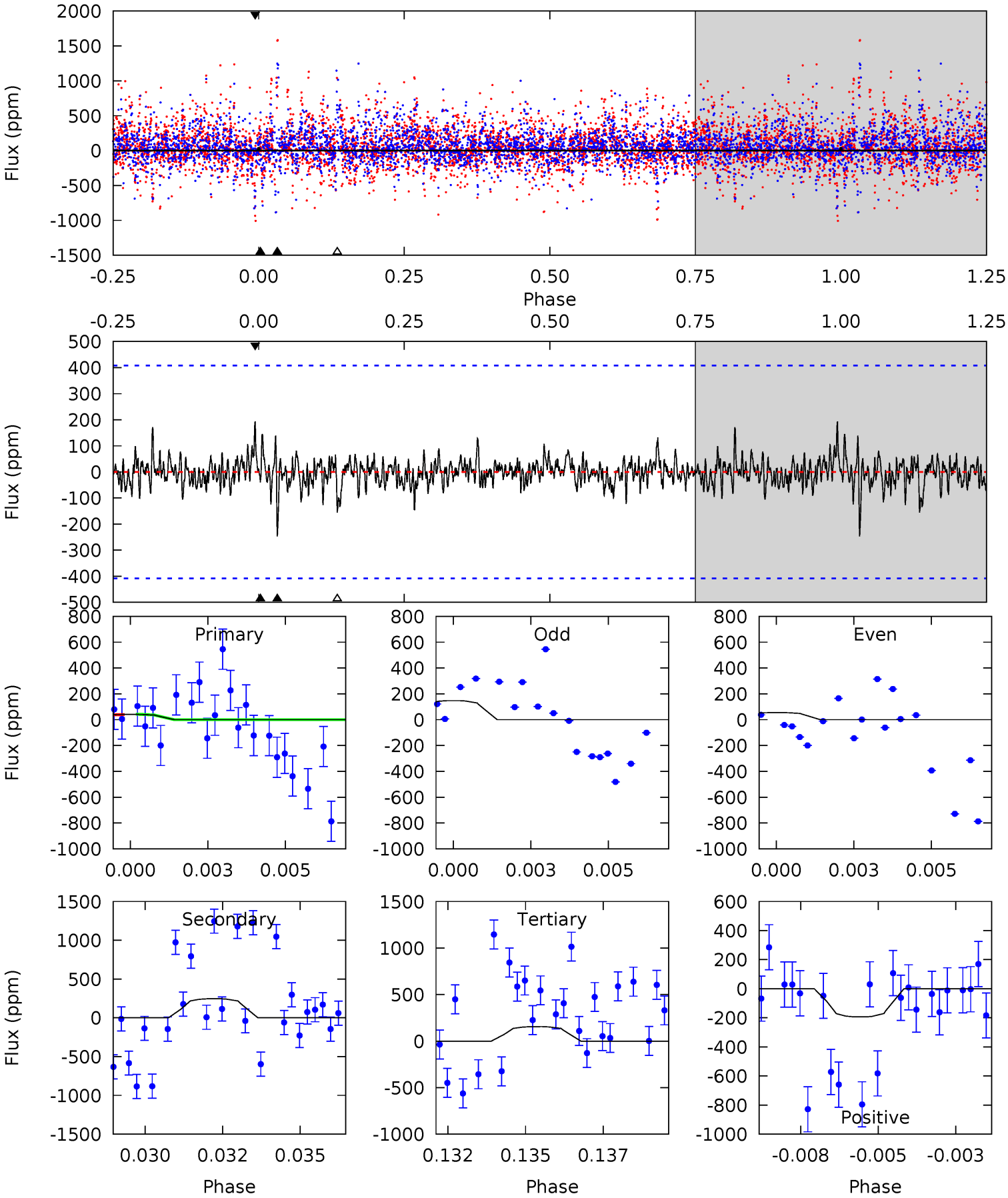
TCE 005213157-04 P= 29.565793 Days T_0=155.840924 (BKJD)



DV Model-Shift Uniqueness Test

005213157-04, P = 29.566187 Days, E = 126.256954 Days

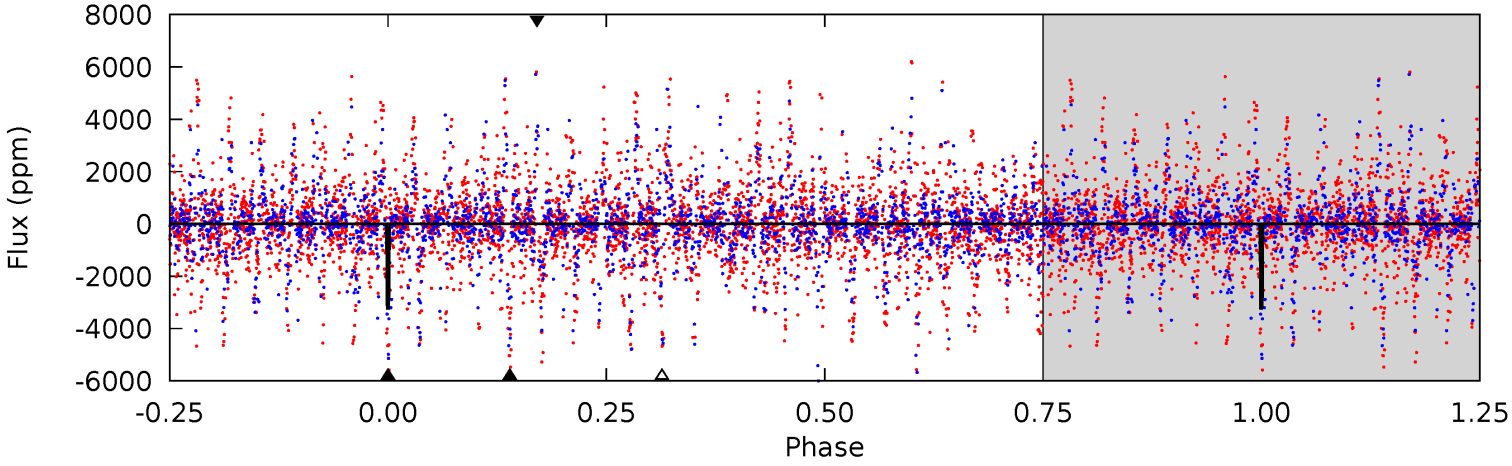
Pri	Sec	Ter	Pos	FA_1	FA_2	F_{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
0.52	3.19	2.00	2.50	5.27	3.00	0.54	-1.48	-1.98	1.19	0.69	0.54	2.27	0.44	0.01

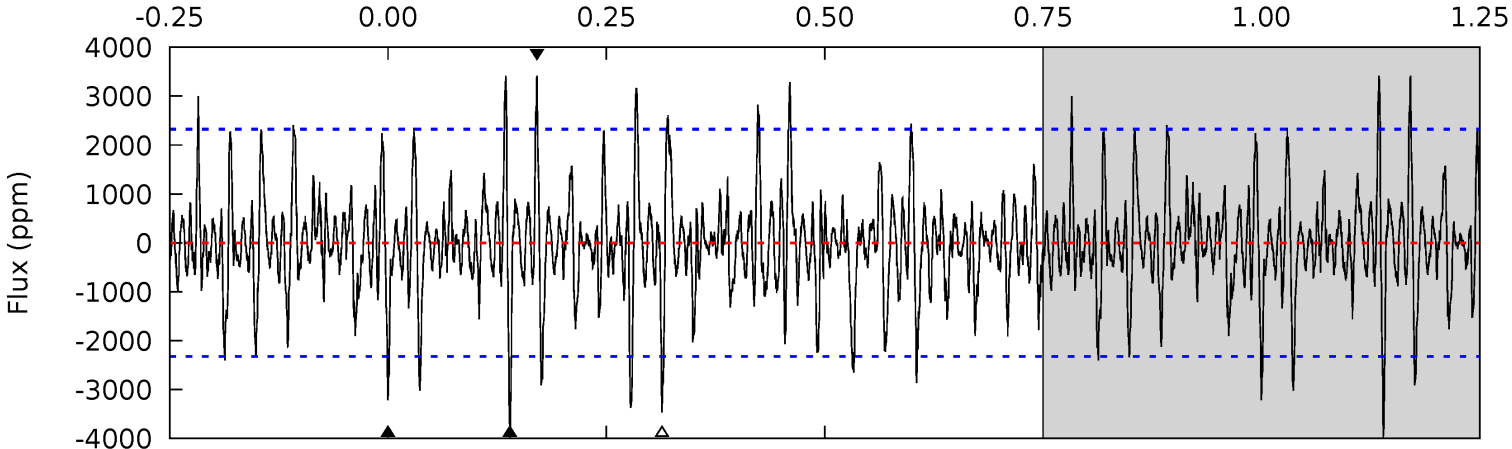


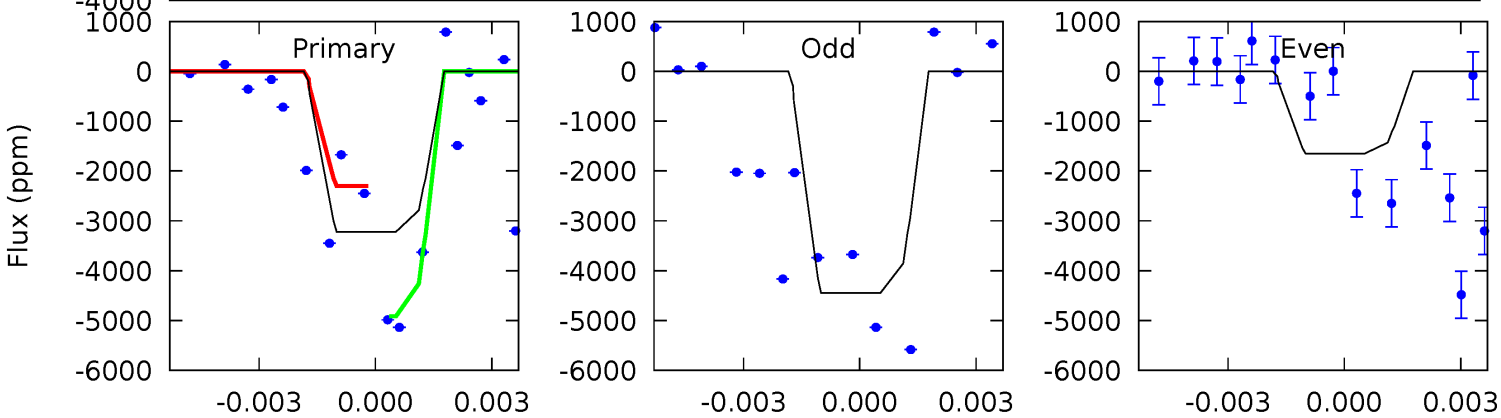
Alt Model-Shift Uniqueness Test

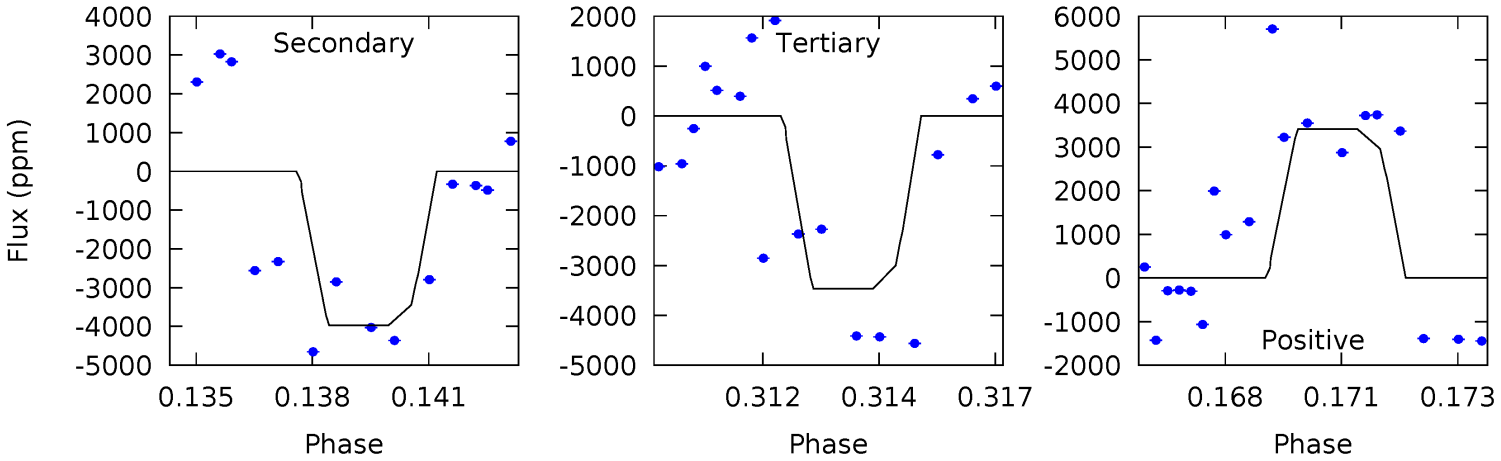
005213157-04, P = 29.565793 Days, E = 126.275131 Days

Pri	Sec	Ter	Pos	FA_1	FA_2	F_{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
7.31	9.02	7.87	7.75	5.27	3.00	1.90	-0.56	-0.45	1.15	1.27	3.18	0.86	0.46	2.89









Stellar Parameters For KIC 005213157

	$T_{\rm eff}(K)$	$\log(g)$	[Fe/H]	R ($R_\odot$)	M($M_\odot$)	$p_\star$ (g·cm^{-3})
	8485^{+235}_{-369}	$3.762^{+0.392}_{-0.140}$	$-0.160^{+0.400}_{-0.350}$	$3.096^{+0.929}_{-1.393}$	$2.024^{+0.395}_{-0.439}$	$0.096^{+0.363}_{-0.043}$
	+3%/-4%	+10%/-4%	+250%/-219%	+30%/-45%	+20%/-22%	+378%/-45%
Source	KIC0	KIC0	KIC0	DSEP		

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

Secondary Eclipse Parameters for KIC 005213157-04 / KOI

Detrend	Depth (ppm)	R_p ($R_\oplus$)	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-247±77	$9.97^{+10.91}_{-7.24}$	1824^{+171}_{-221}	5645^{+6618}_{-1527}	71^{+959}_{-55}
Alt.	-3973±440	$18.66^{+15.80}_{-11.41}$	1835^{+166}_{-198}	8715^{+11529}_{-2376}	349^{+1964}_{-246}

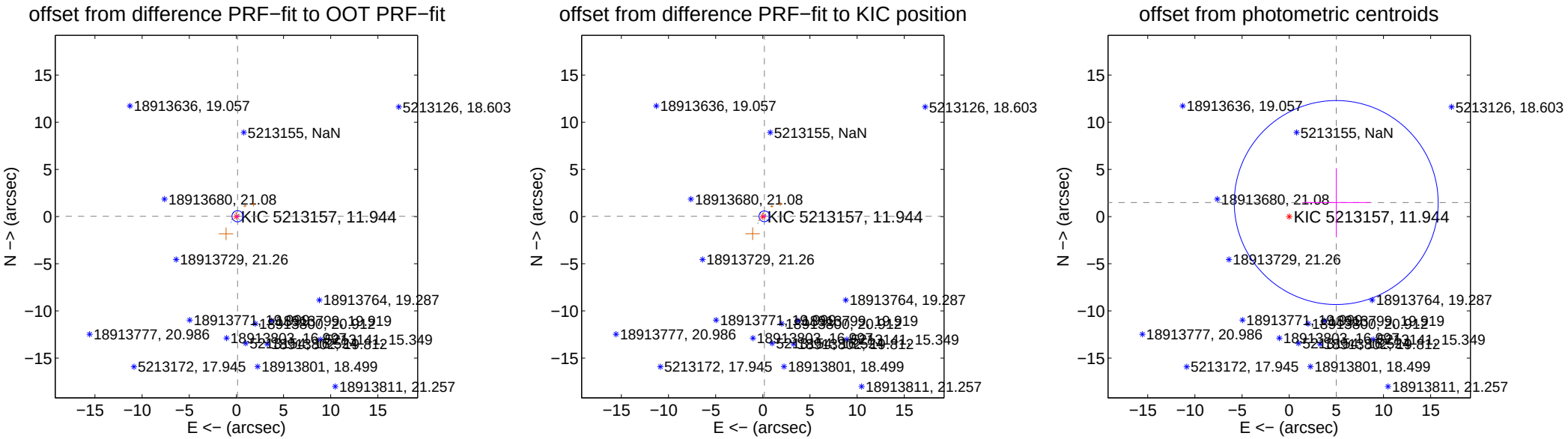
T_{max} = Theoretical Maximum Planetary Temperature
T_{obs} = Observed Planetary Temperature (Assuming A=0.3)
A_{obs} = Observed Albedo (Assuming T=0)

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

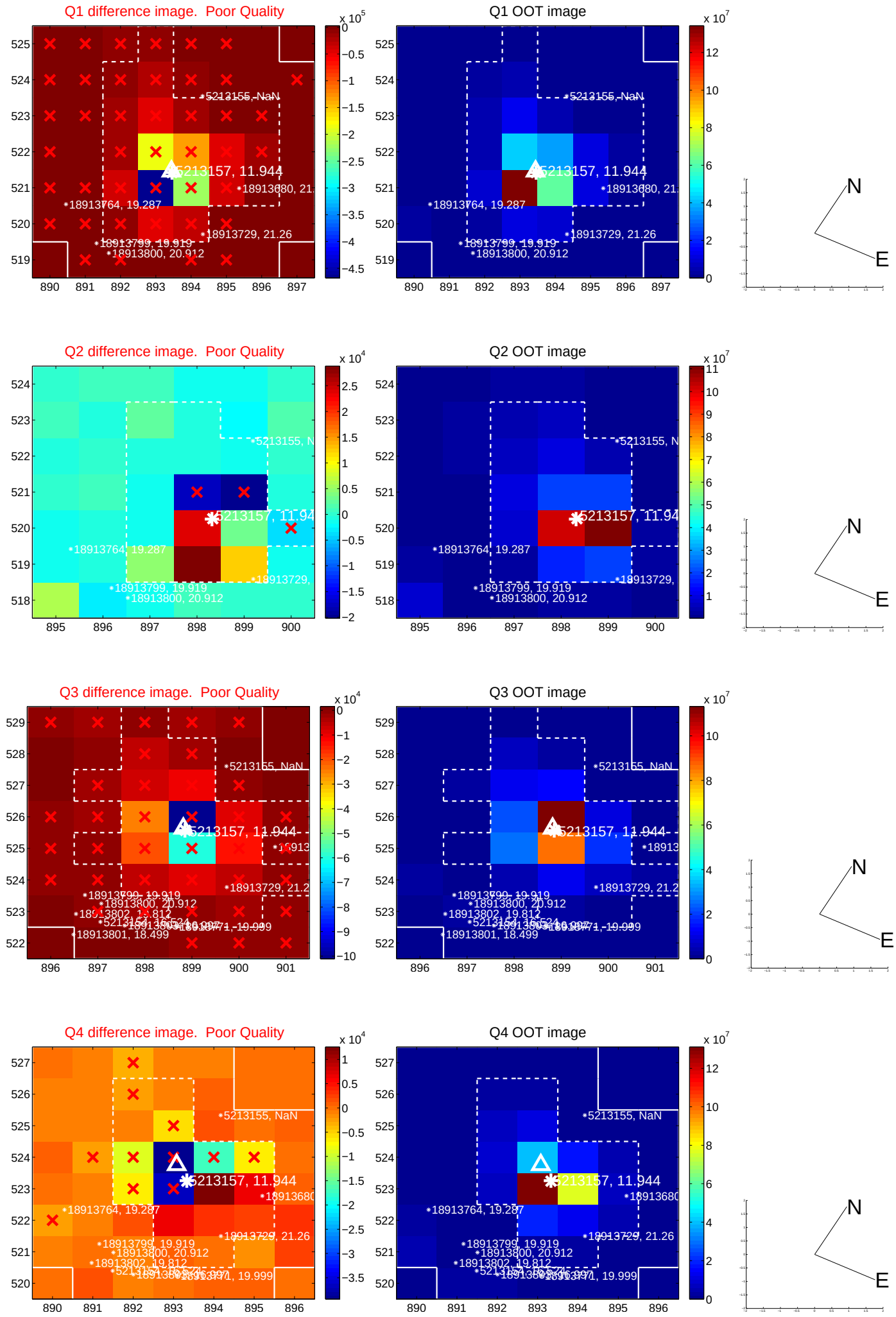
Supplemental centroid analysis for 005213157-04. Kepler magnitude: 11.94. Transit SNR 0.43
There are 7 quarters with good PRF difference image offsets
The direct PRF centroid is offset from the target star catalog position by about 0.04 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.125 ± 0.197	0.63	-0.120 ± 0.166	0.034 ± 0.176
PRF-fit source offset from KIC position	0.169 ± 0.190	0.89	-0.167 ± 0.167	0.028 ± 0.190
photometric centroid source offset	5.20 ± 3.60	1.44	-4.99 ± 3.60	1.49 ± 3.63

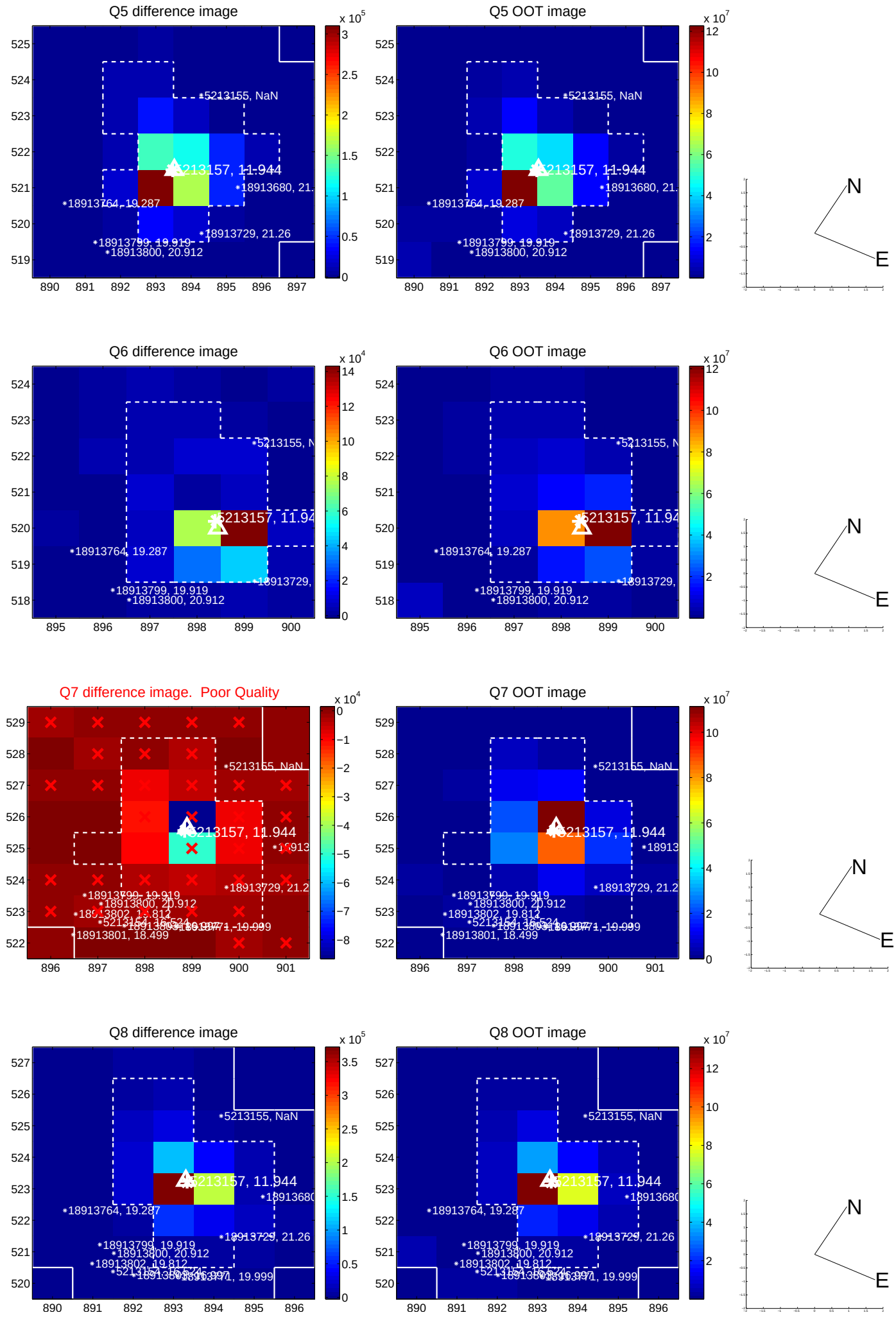


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one-σ uncertainty. Blue circle: three-σ. Red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

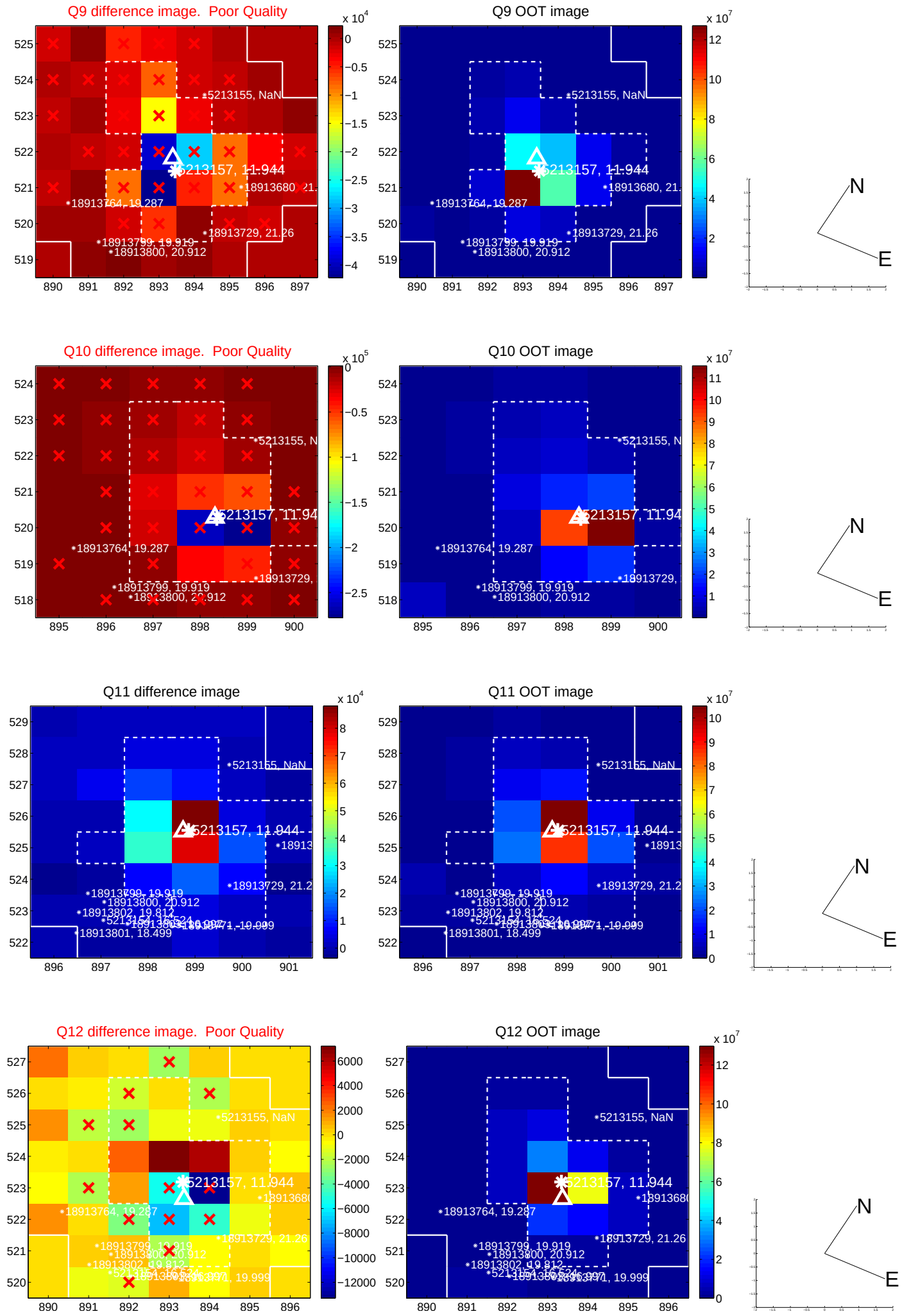
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.



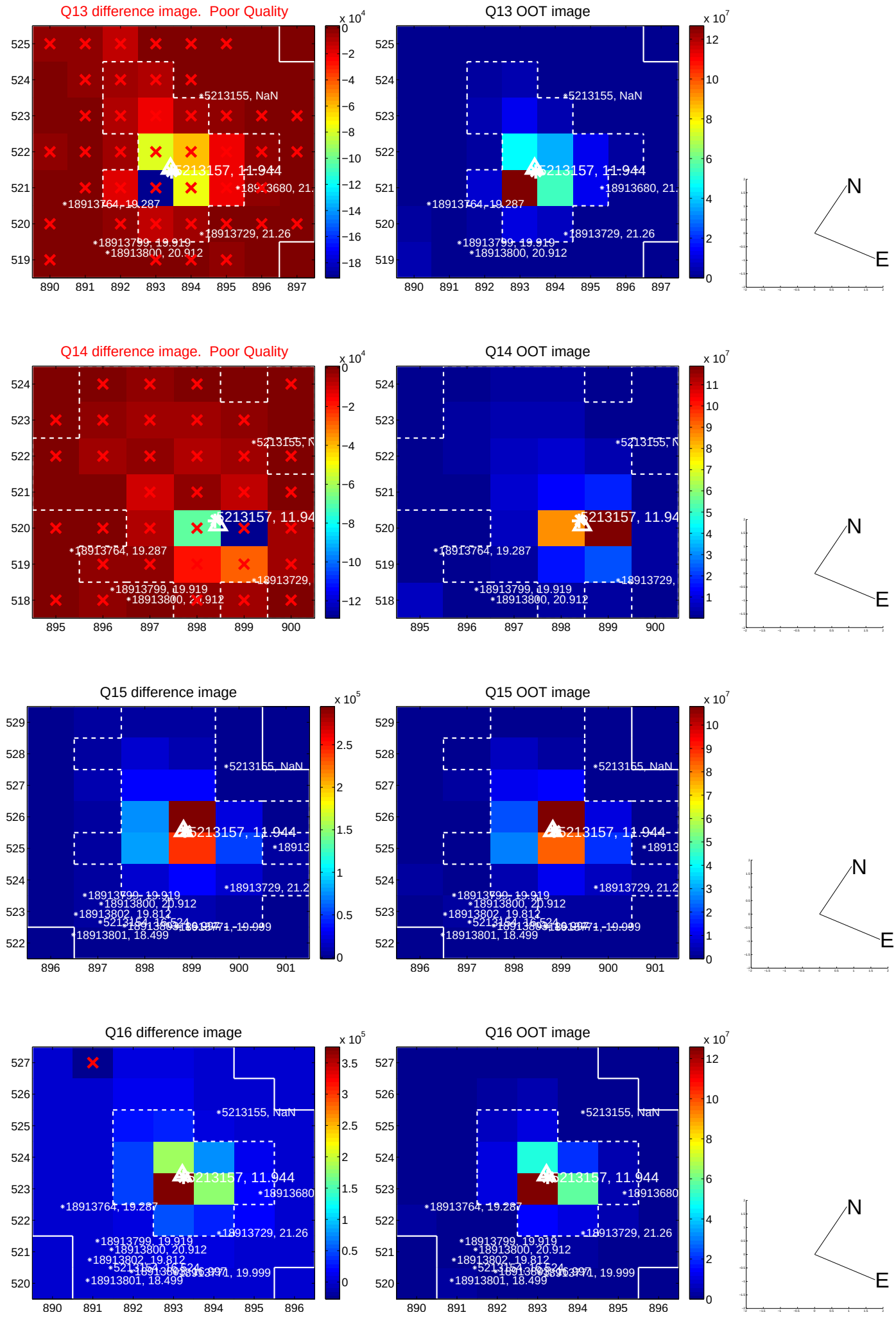
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.



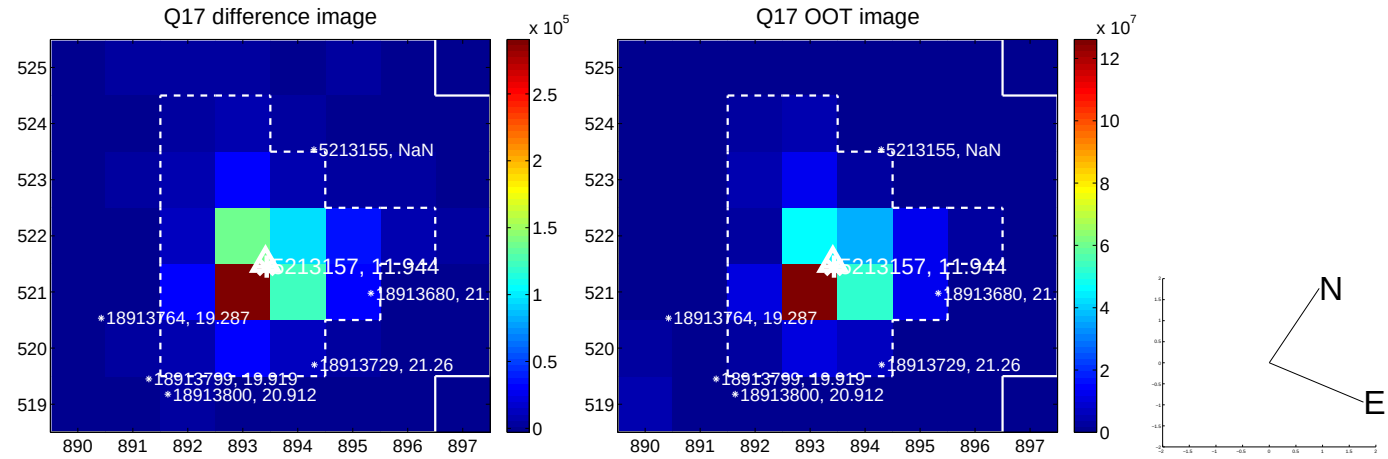
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.

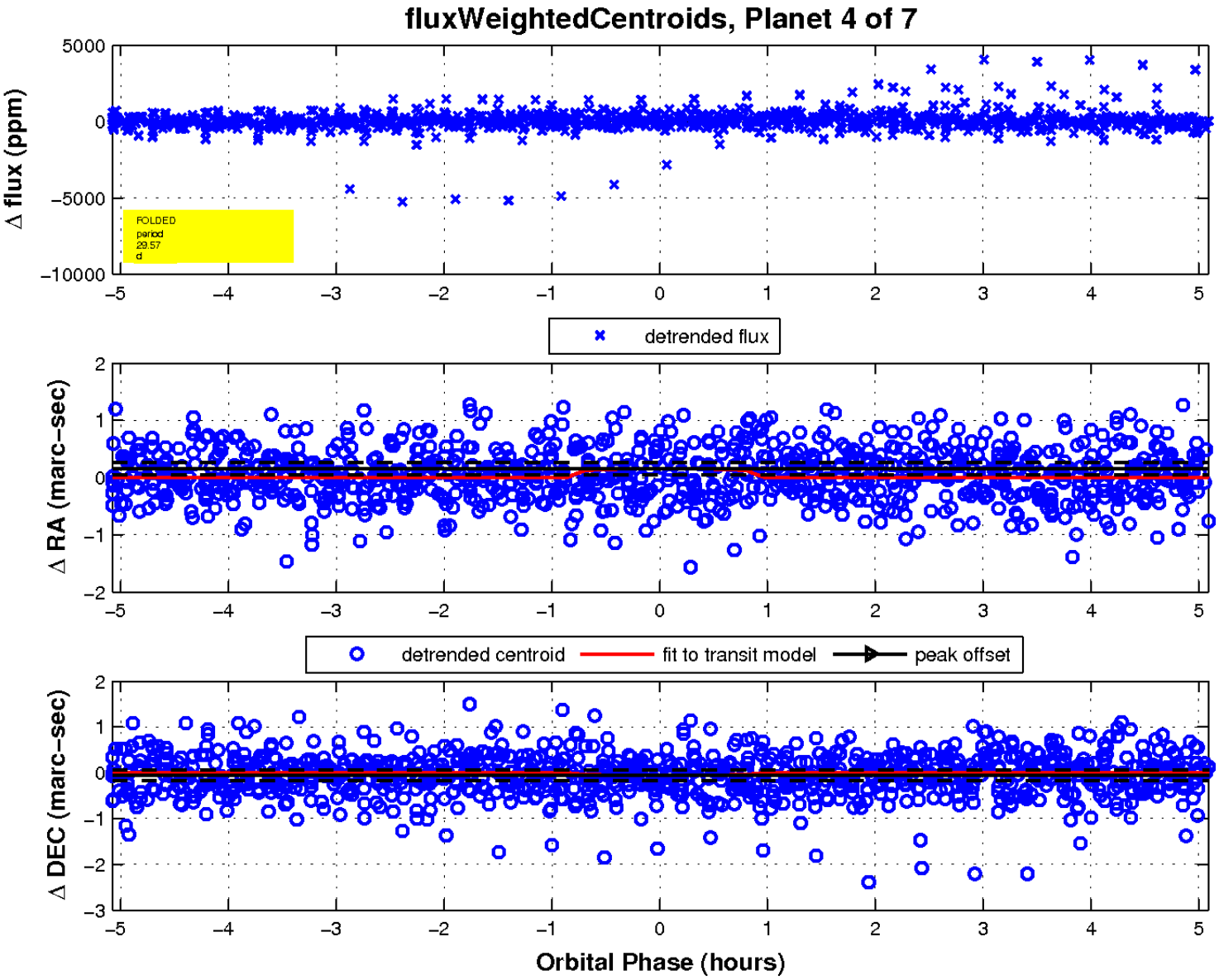


white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.

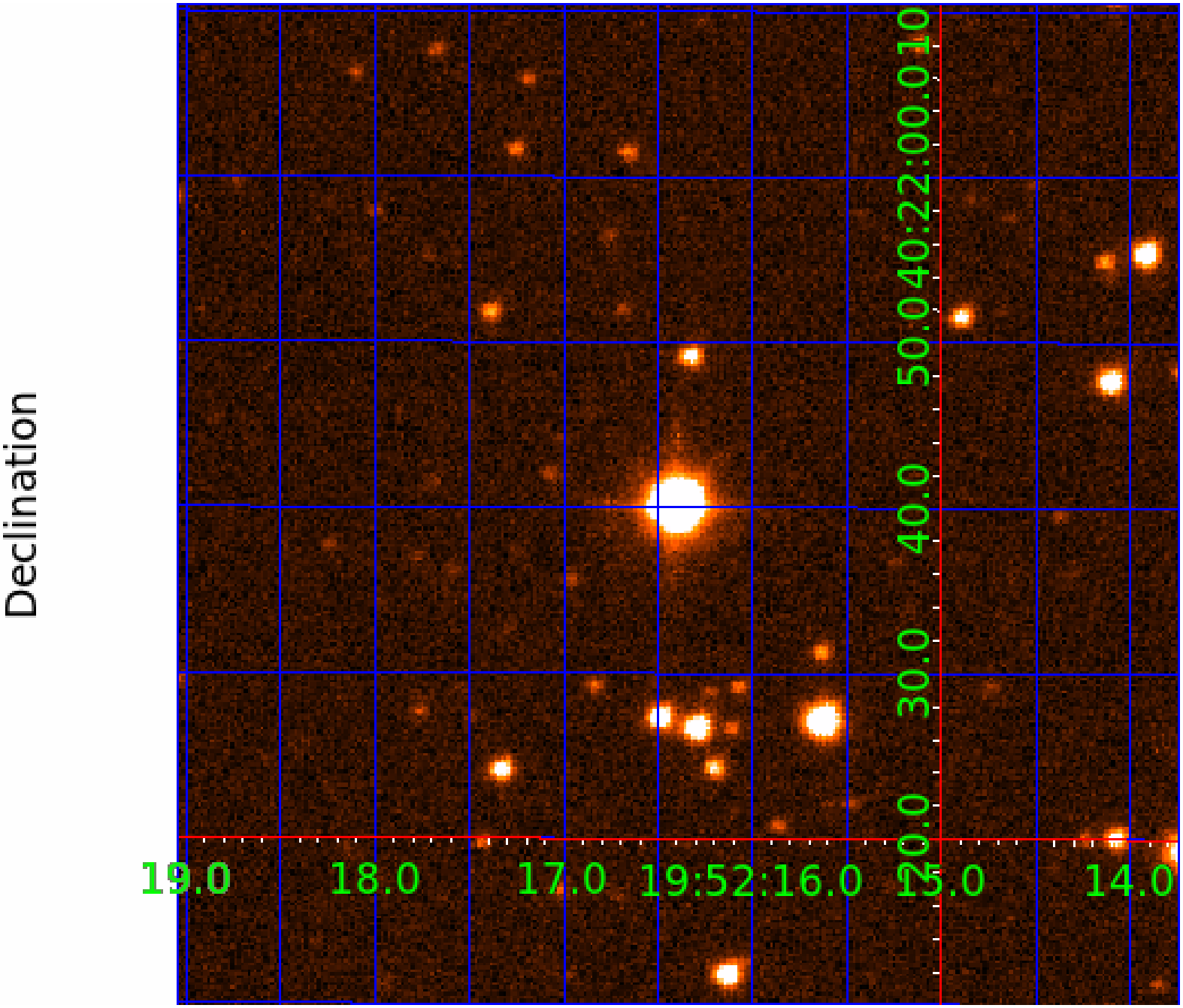


white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.





UKIRT Image


Declination
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50.0
40.0
30.0
20.0
19.0
18.0
17.0
19:52:16.0
15.0
14.0

KIC 005213157

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 ($S_\oplus$)
005213157-01	OBS	No	1.054268	132.444354	1.0	1.001	9.8	0.3	3.10	8485	0.36	67727.91
005213157-02	OBS	No	1.054363	131.572886	35.7	2.607	11.7	8.1	3.10	8485	2.14	67719.79
005213157-03	OBS	No	1.054343	131.811329	63.7	6.166	12.2	10.3	3.10	8485	2.88	67721.51
005213157-04	OBS	No	29.566187	155.823141	31.9	1.698	10.2	0.4	3.10	8485	1.88	794.89
005213157-05	OBS	No	17.086395	139.313242	1.0	11.298	11.1	0.0	3.10	8485	0.39	1651.34
005213157-06	OBS	No	2.107737	132.063277	269.3	3.000	11.8	-1.0	3.10	8485	5.16	26891.43
005213157-07	OBS	No	19.289356	148.055366	142.9	12.500	11.4	-1.0	3.10	8485	3.75	1404.79

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005213157-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA_TRACKER—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
005213157-02	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—SAME_NTL_PERIOD
005213157-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA—LPP_DV—LPP_ALT—SAME_NTL_PERIOD
005213157-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_TRACKER—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
005213157-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_TRACKER—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
005213157-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—NO_FITS—CENT_NOFITS
005213157-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_NOFITS

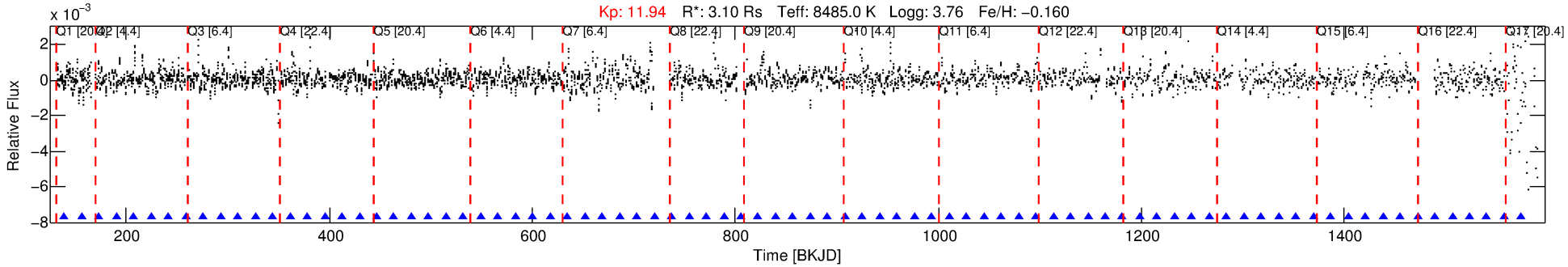
Notes: OBS = Observed. INJ = Injected. INV = Inverted. SCR = Scrambled.
N = Not Transit-Like. S = Stellar Eclipse. C = Centroid Offset. E = Ephemeris Match.
See `http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col` for comment definitions.

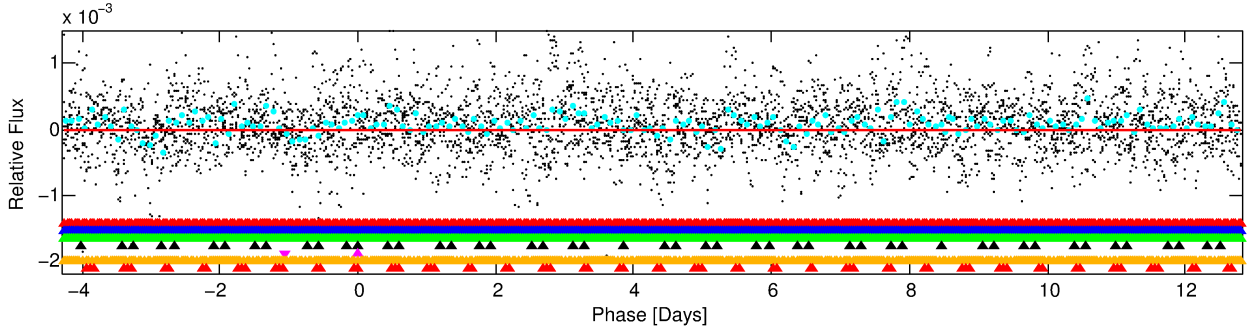
Ephemeris Match Information For 005213157-05

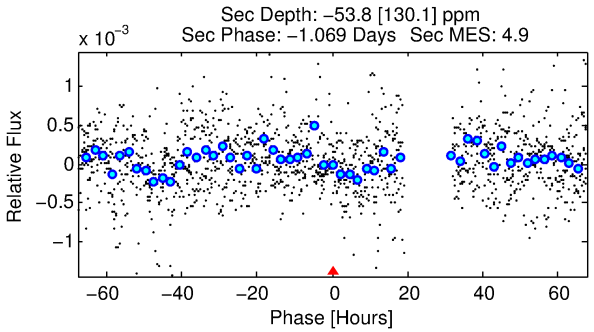
No Significant Match Found

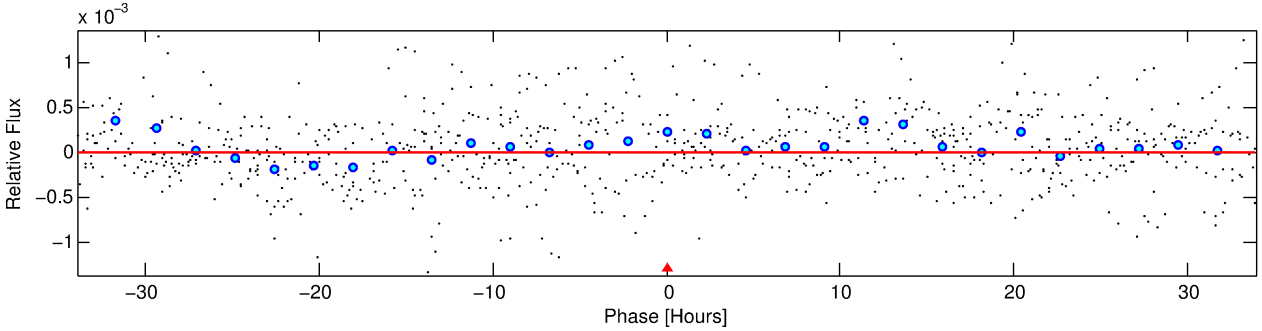
DV One-Page Summary

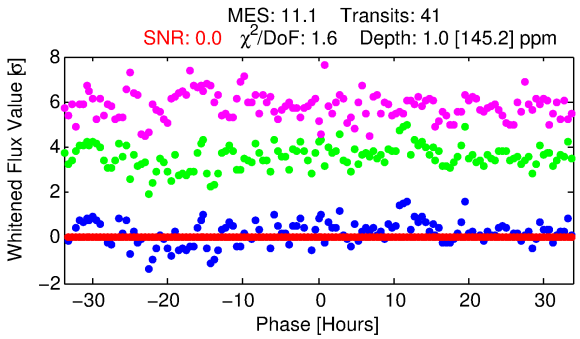
KIC: 5213157 Candidate: 5 of 7 Period: 17.086 d

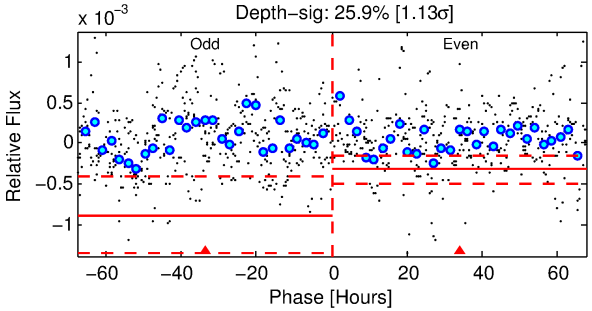


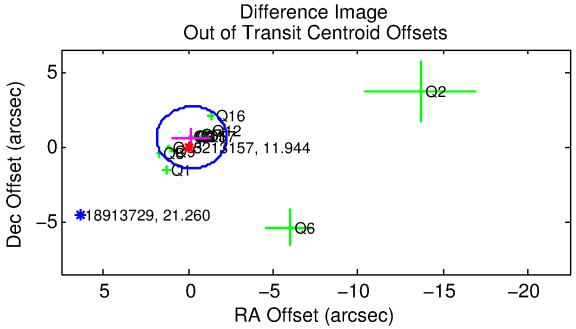












DV Fit Results:

Period = 17.08639 [0.27401] d
Epoch = 139.3132 [40.1981] BKJD
Rp/R* = 0.0011 [0.0939]
a/R* = 2.84 [799.96]
b = 0.97 [23.55]

Seff = 1651.33 [1147.39]
Teq = 1625 [282] K
Rp = 0.39 [31.74] Re
a = 0.1642 [0.0698] AU

Ag = N/A
Teffp = N/A

DV Diagnostic Results:

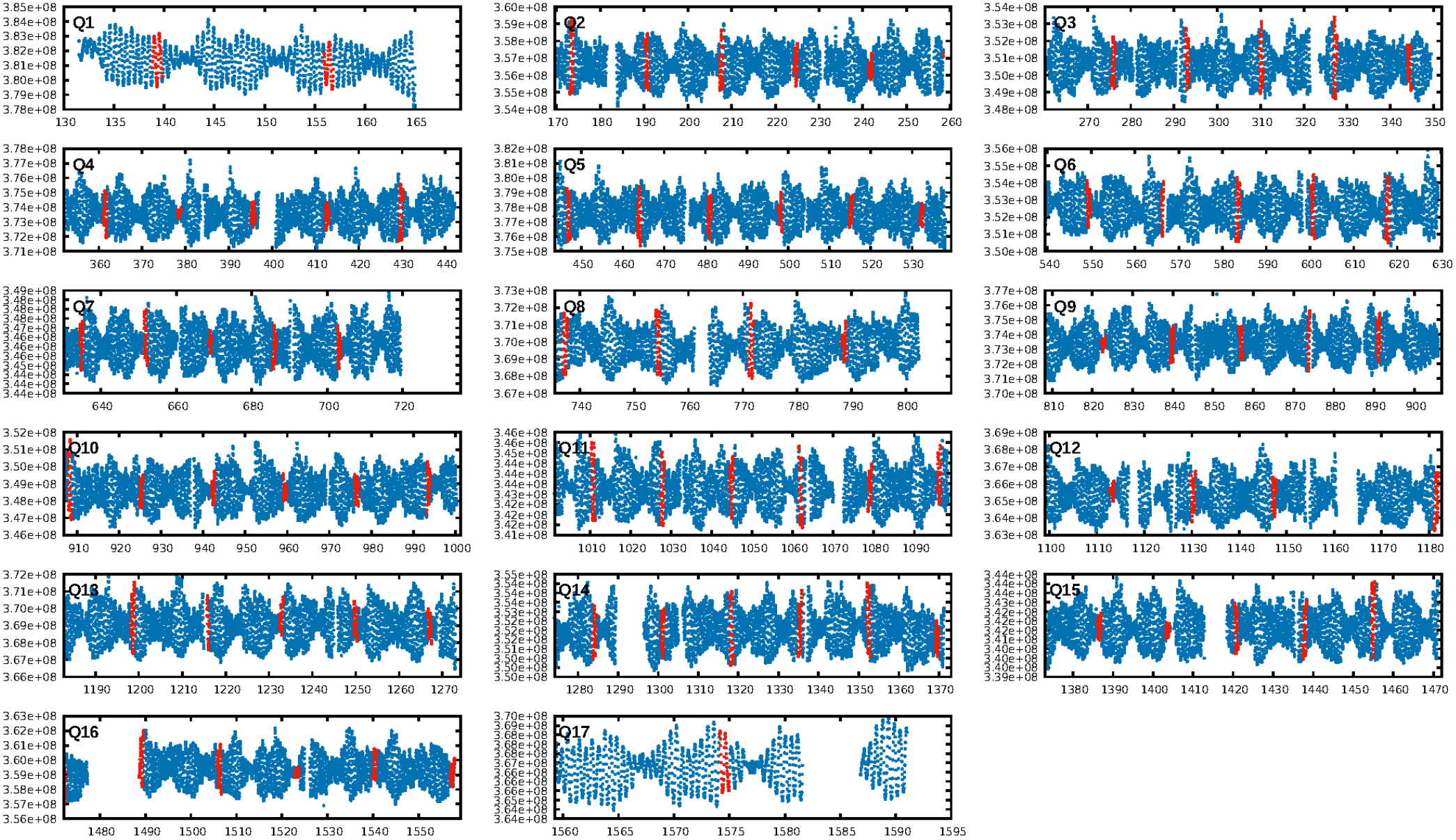
ShortPeriod−sig: 100.0% [30.75σ]
LongPeriod−sig: 99.8% [3.14σ]
ModelChiSquare2−sig: 2.4%
ModelChiSquareGof−sig: 100.0%
Bootstrap−pfa: N/A
RollingBand−fgt: 1.00 [39/39]
GhostDiagnostic−chr: N/A

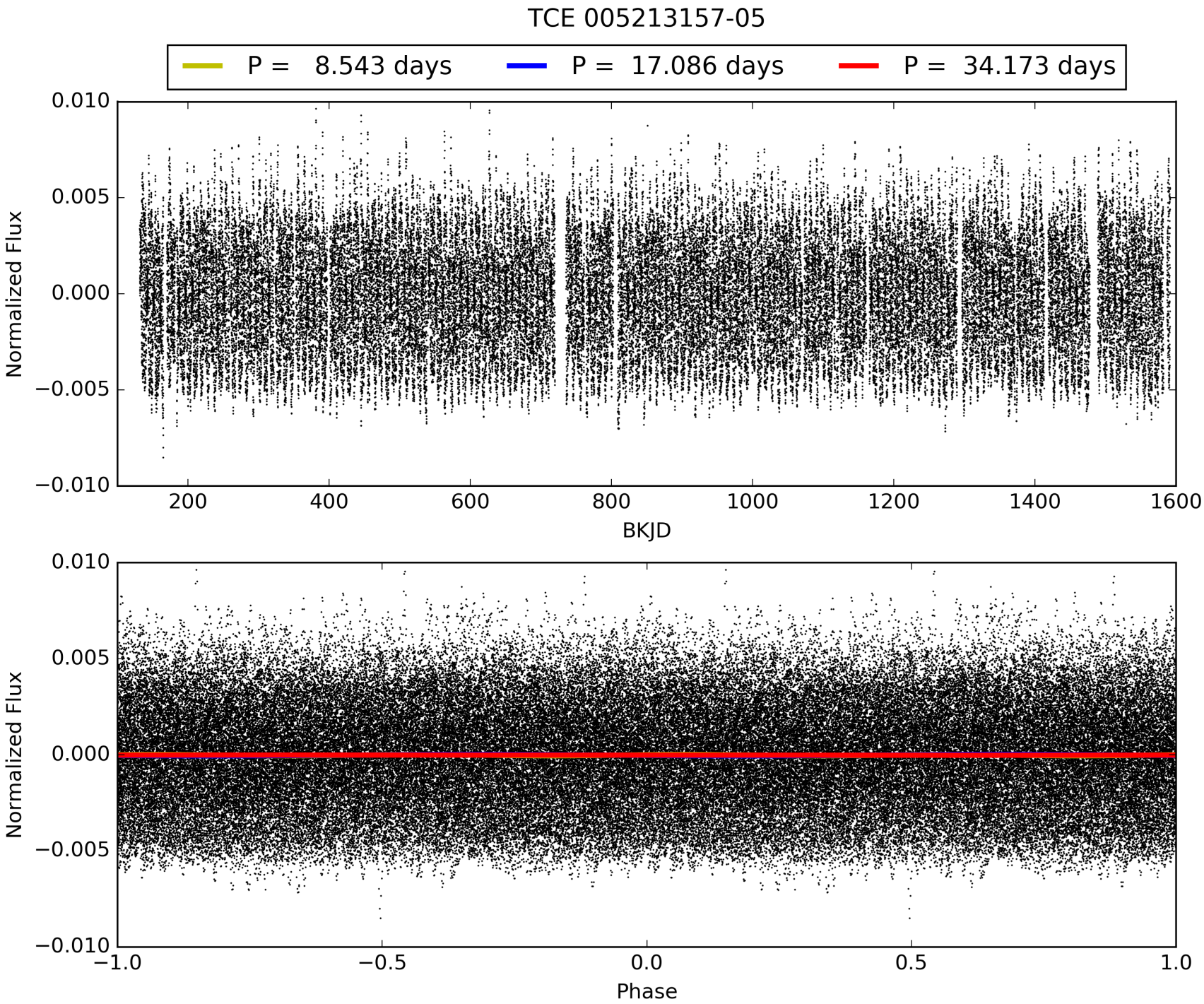
Centroid−sig: N/A
Centroid−so: N/A
OotOffset−rm: 0.647 arcsec [0.94σ]
KicOffset−rm: 0.649 arcsec [0.91σ]
OotOffset−st: 2/4/3/4 [13]
KicOffset−st: 2/4/3/4 [13]
DiffImageQuality−fgm: 0.54 [7/13]
DiffImageOverlap−fno: 0.00 [0/17]

Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30−Jan−2016 16:40:25 Z

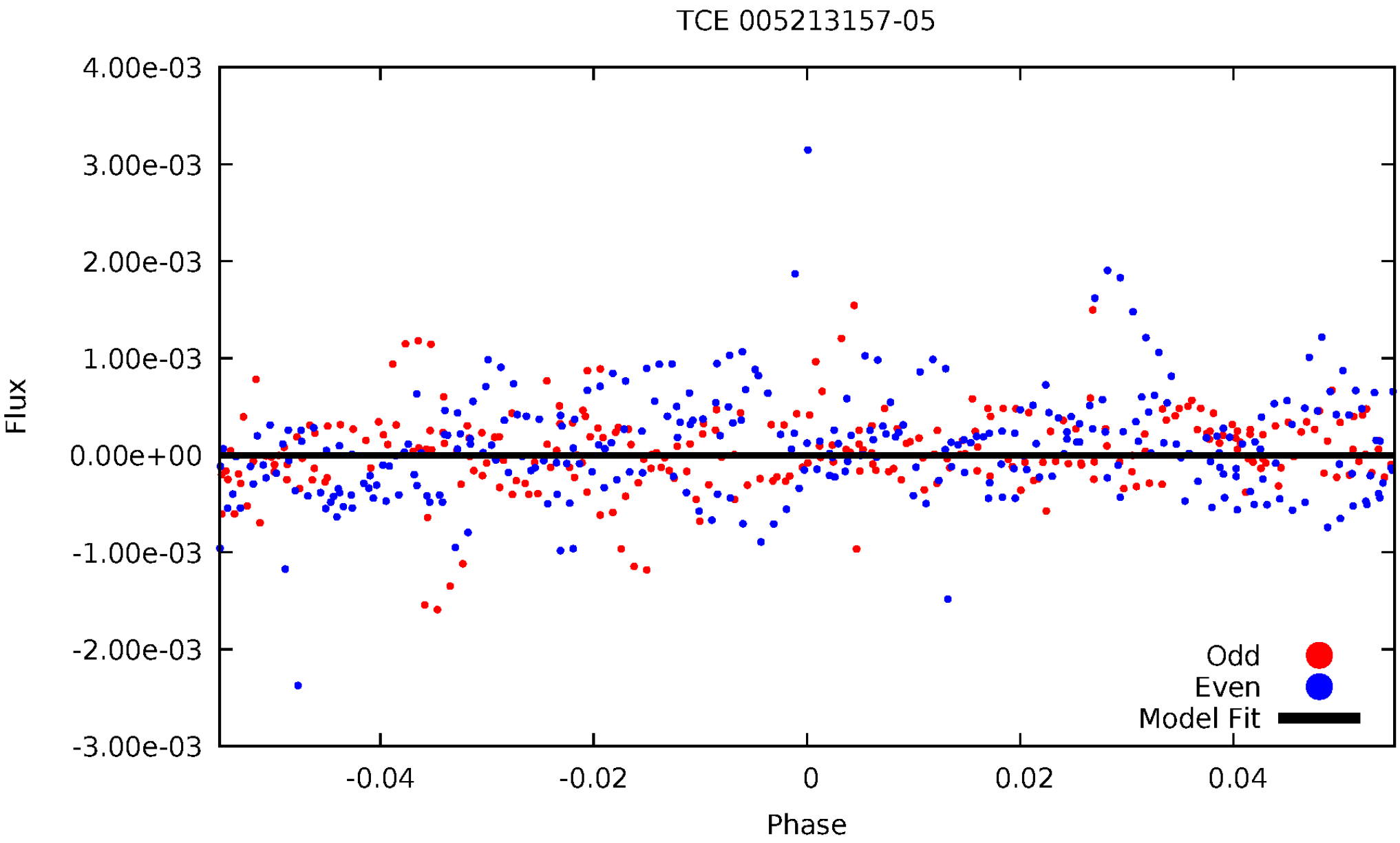
This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

TCE 005213157-05, PDC Light Curves

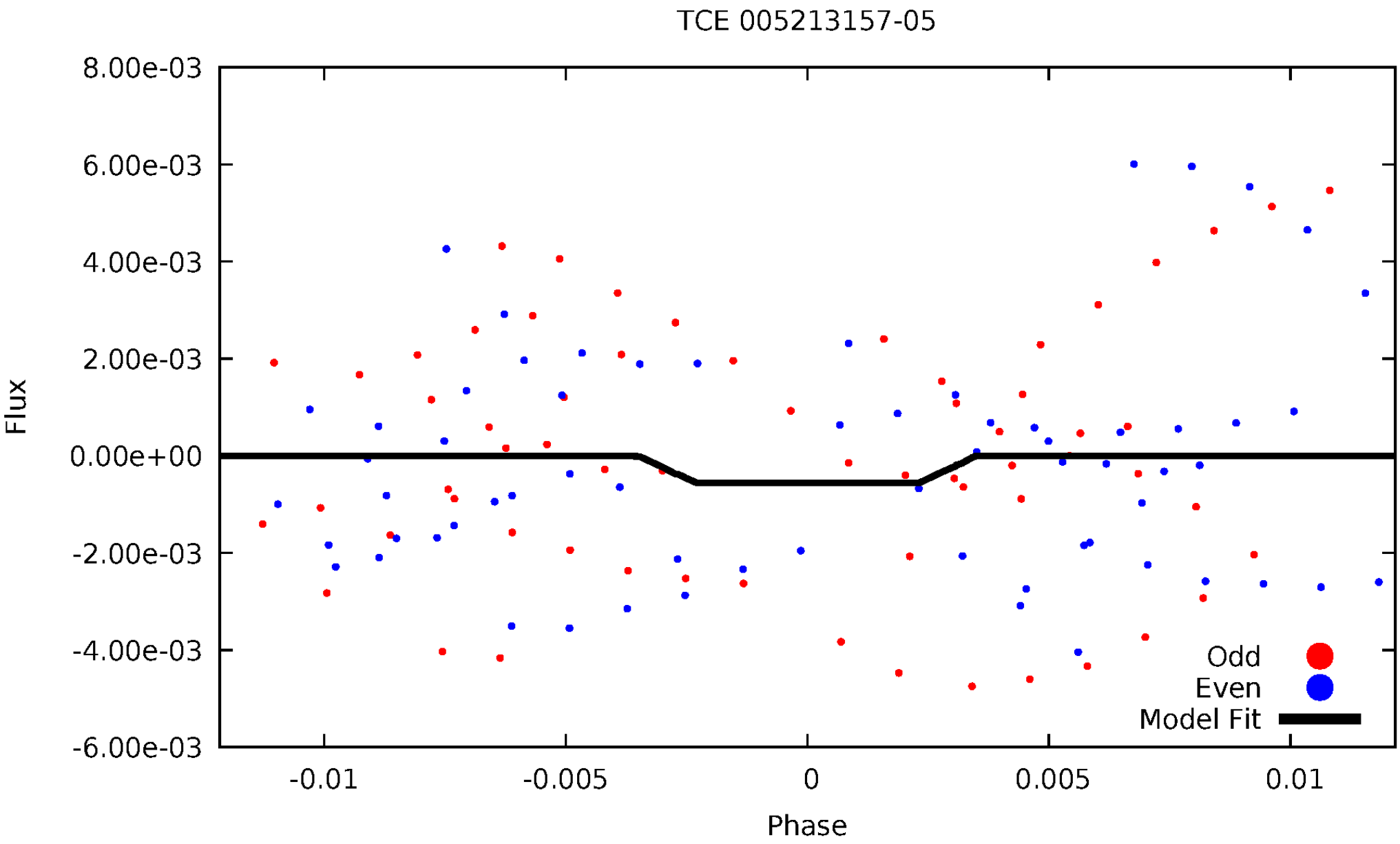



TCE 005213157-05
P = 8.543 days
P = 17.086 days
P = 34.173 days
Normalized Flux
0.010
0.005
0.000
−0.005
−0.010
200
400
600
800
1000
1200
1400
1600
BKJD
Normalized Flux
0.010
0.005
0.000
−0.005
−0.010
−1.0
−0.5
0.0
0.5
1.0
Phase

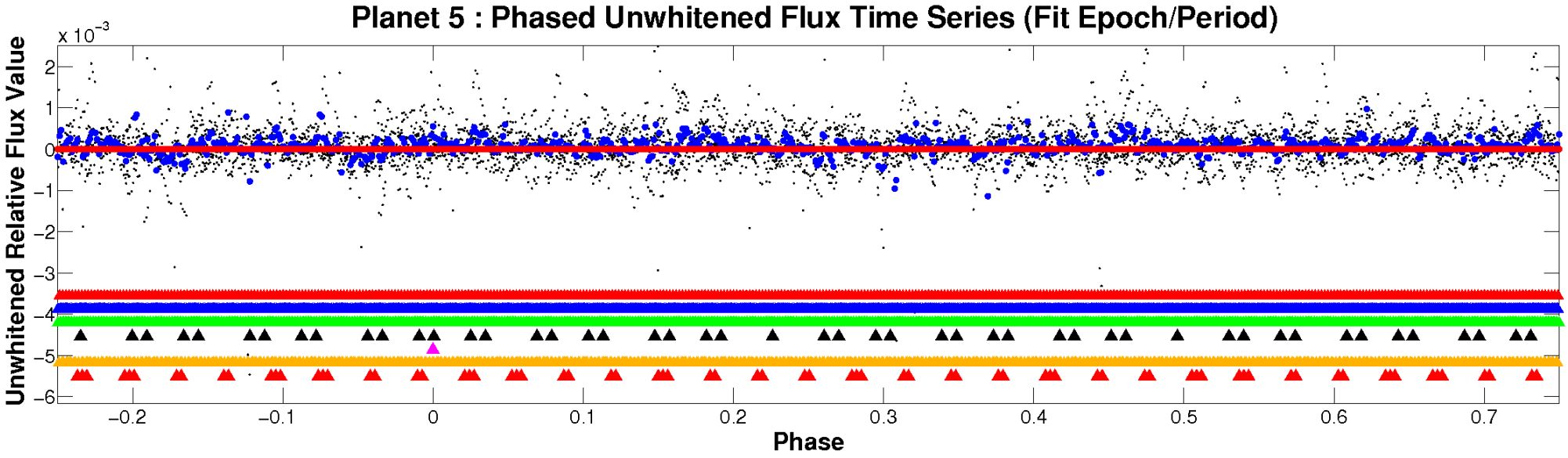
DV Odd/Even

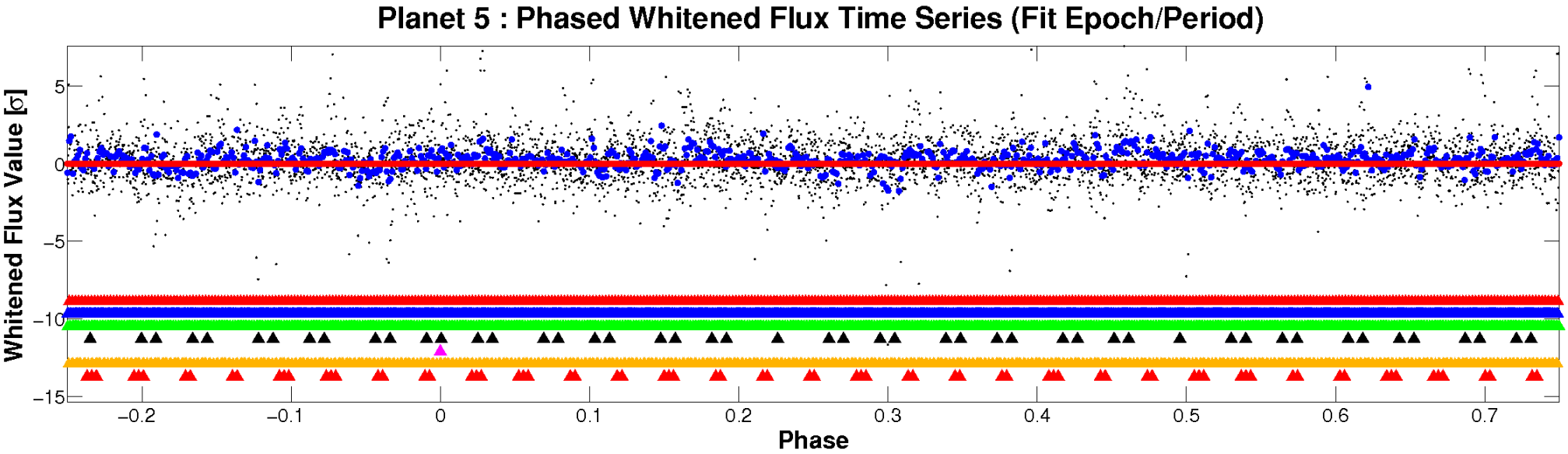

TCE 005213157-05
4.00e-03
3.00e-03
2.00e-03
1.00e-03
0.00e+00
-1.00e-03
-2.00e-03
-3.00e-03
Flux
-0.04
-0.02
0
0.02
0.04
Phase
Odd
Even
Model Fit

ALT Odd/Even


TCE 005213157-05
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
-0.01
-0.005
0
0.005
0.01
Phase
Odd
Even
Model Fit

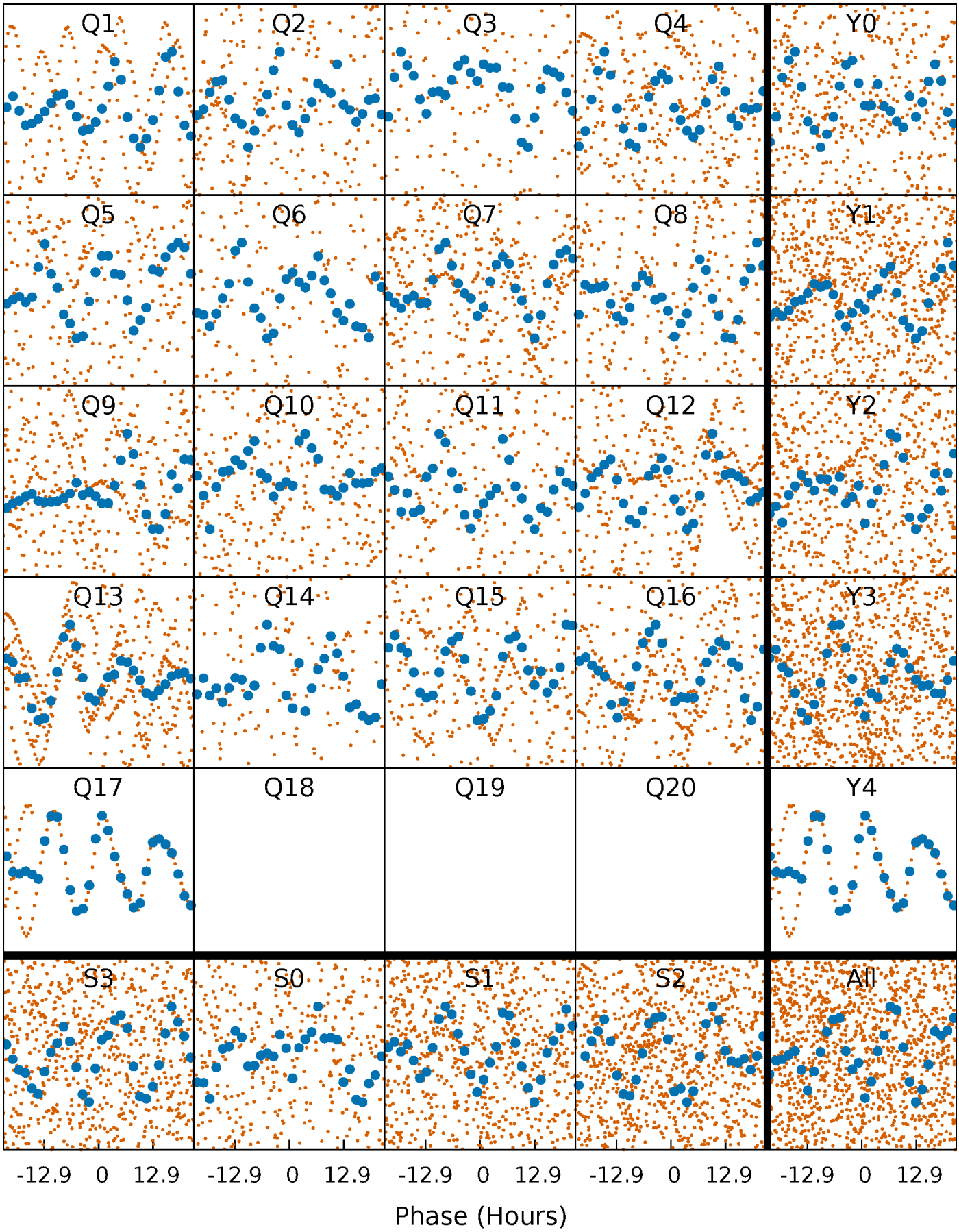
Non-Whitened Vs. Whitened Light Curve





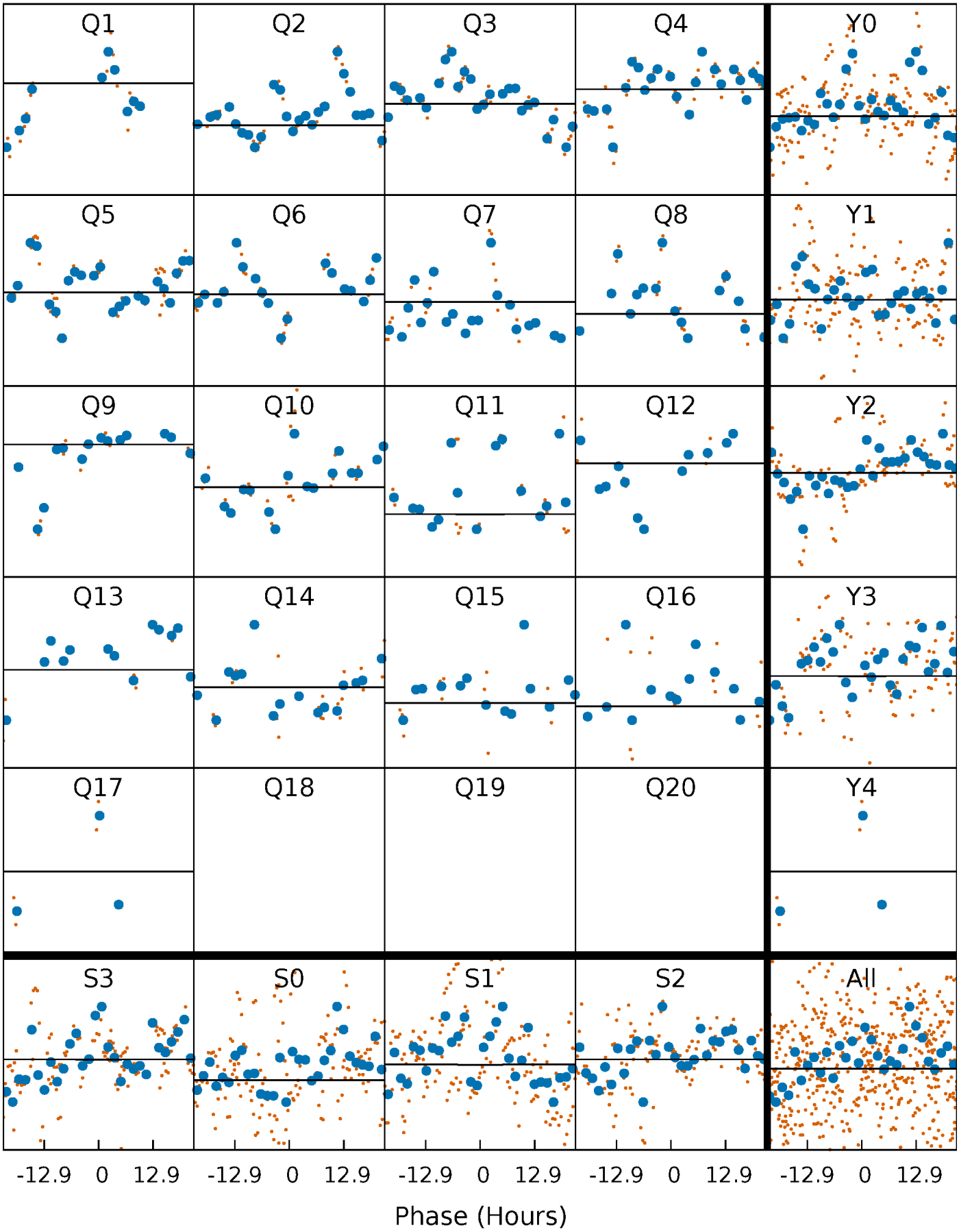
PDC Quarter-Phased Transit Curves

TCE 005213157-05 P= 17.086395 Days T_0=139.313242 (BKJD)



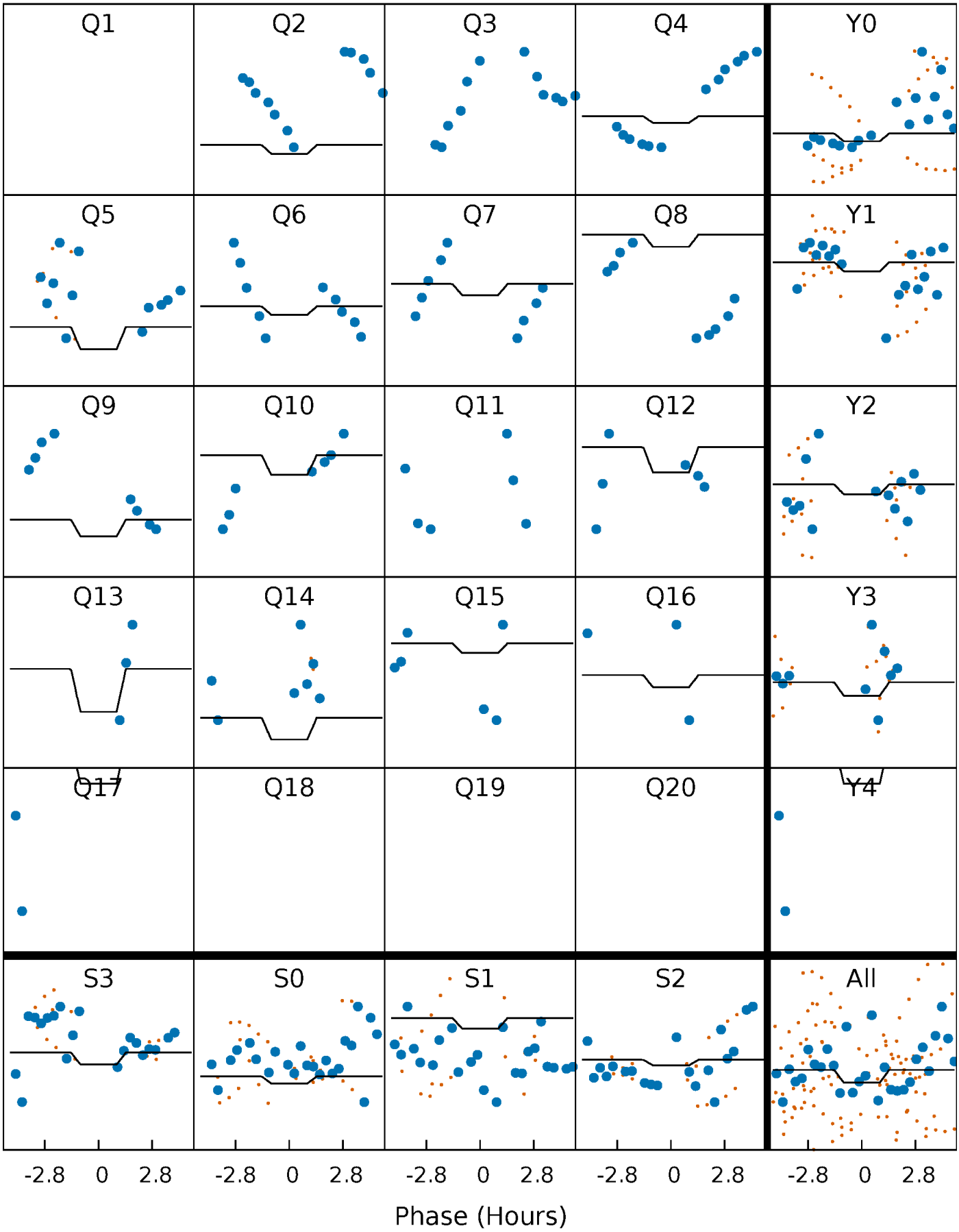
DV Quarter-Phased Transit Curves

TCE 005213157-05 P= 17.086395 Days T_0=139.313242 (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

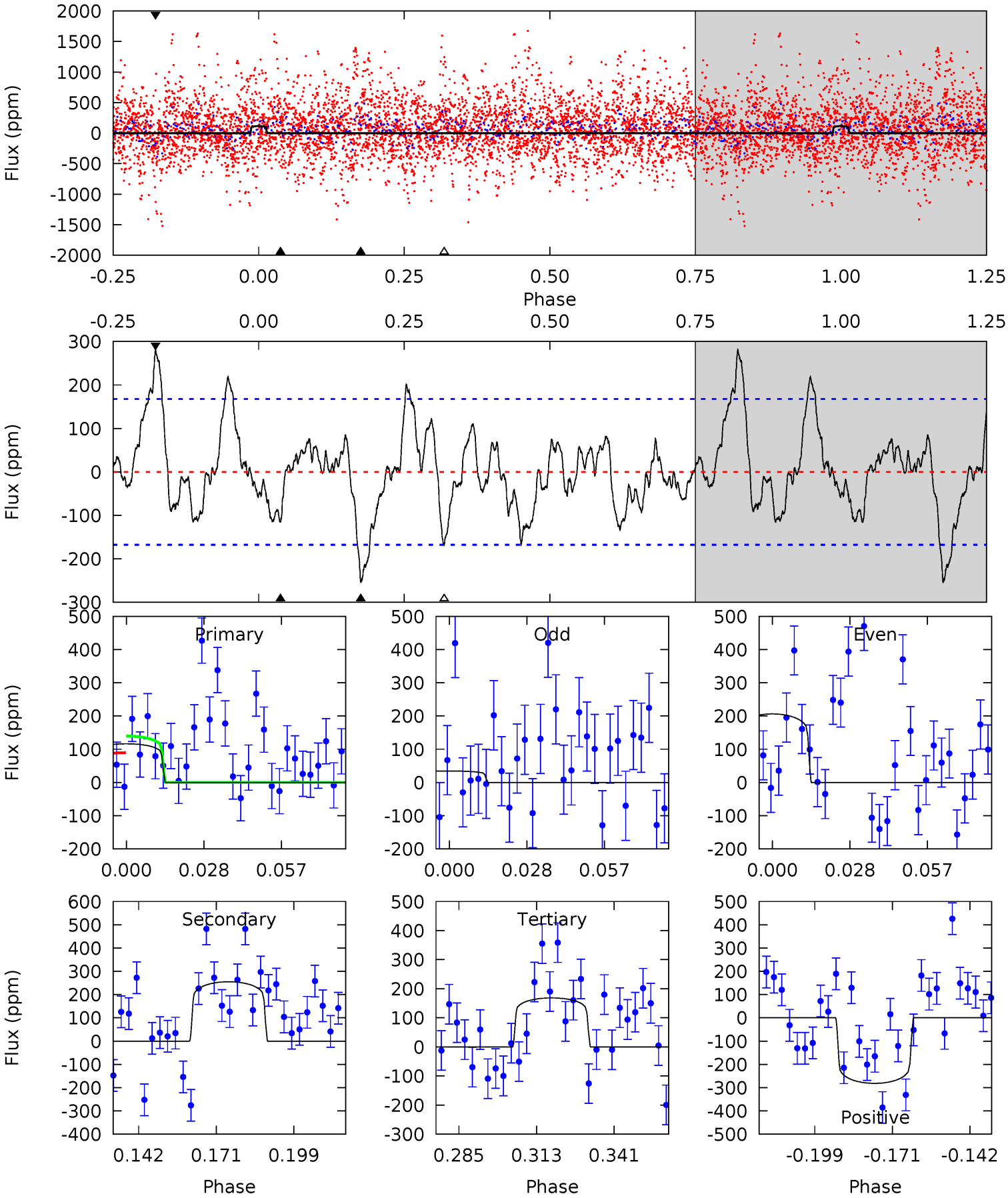
TCE 005213157-05 P= 17.081646 Days T_0=139.062717 (BKJD)



DV Model-Shift Uniqueness Test

005213157-05, P = 17.086395 Days, E = 122.226847 Days

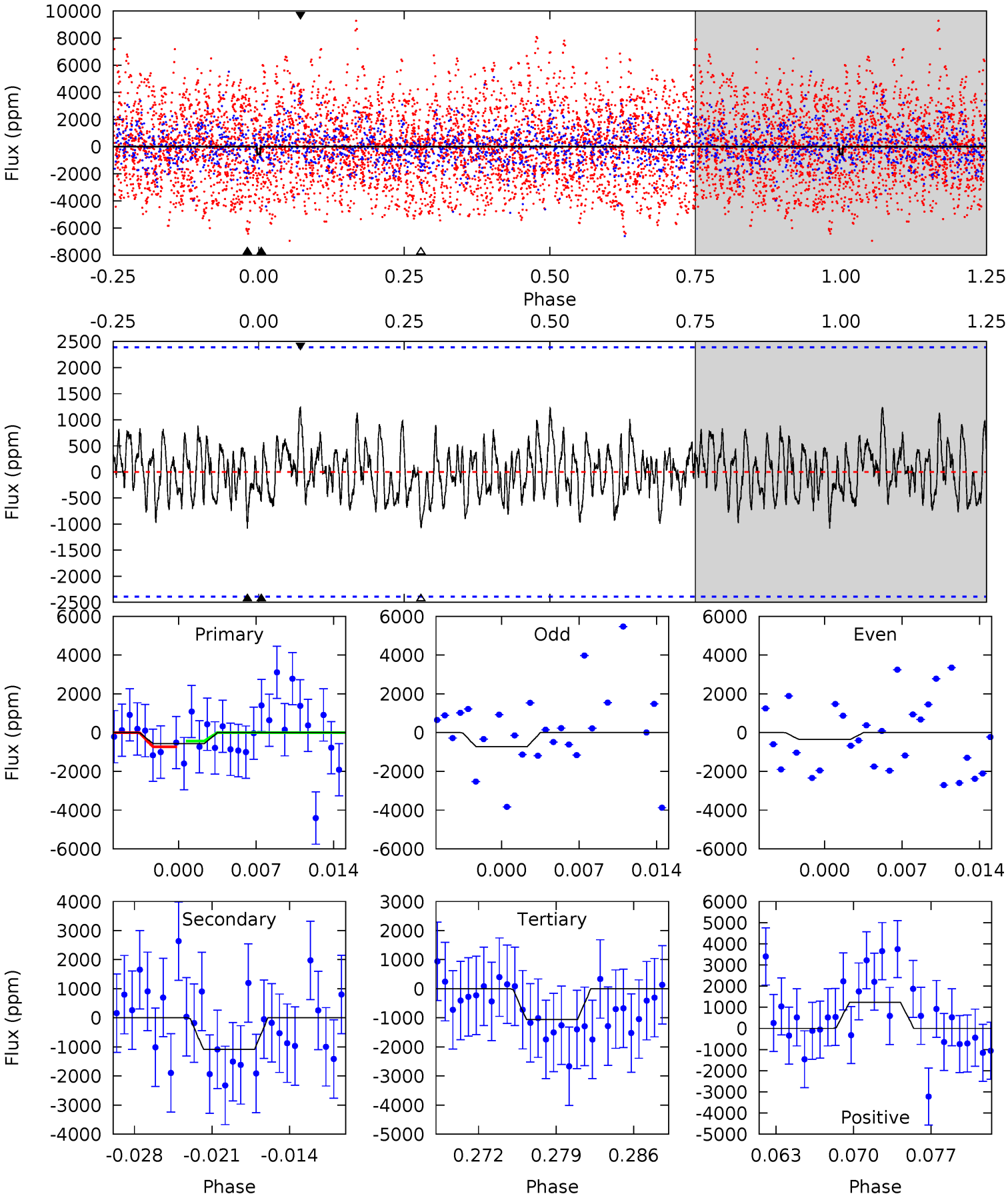
Pri	Sec	Ter	Pos	FA_1	FA_2	F_{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
3.35	7.34	4.85	8.10	4.82	2.19	2.29	-1.50	-4.76	2.49	-0.77	2.43	2.90	0.52	0.74



Alt Model-Shift Uniqueness Test

005213157-05, P = 17.081646 Days, E = 121.981071 Days

Pri	Sec	Ter	Pos	FA_1	FA_2	F_{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
1.21	2.31	2.26	2.63	5.10	2.70	0.90	-1.04	-1.42	0.05	-0.32	0.39	-2.10	0.53	0.31



Stellar Parameters For KIC 005213157

	$T_{\rm eff}(K)$	$\log(g)$	[Fe/H]	R ($R_\odot$)	M($M_\odot$)	$p_\star$ (g·cm^{-3})
	8485^{+235}_{-369}	$3.762^{+0.392}_{-0.140}$	$-0.160^{+0.400}_{-0.350}$	$3.096^{+0.929}_{-1.393}$	$2.024^{+0.395}_{-0.439}$	$0.096^{+0.363}_{-0.043}$
	+3%/-4%	+10%/-4%	+250%/-219%	+30%/-45%	+20%/-22%	+378%/-45%
Source	KIC0	KIC0	KIC0	DSEP		

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

Secondary Eclipse Parameters for KIC 005213157-05 / KOI

Detrend	Depth (ppm)	R_p ($R_\oplus$)	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-255±35	$19.67^{+23.25}_{-14.66}$	2214^{+193}_{-271}	4285^{+3748}_{-1042}	$9.315^{+148.345}_{-7.320}$
Alt.	-1083±469	$23.70^{+23.67}_{-16.46}$	2193^{+195}_{-248}	5316^{+5295}_{-1423}	27^{+290}_{-22}

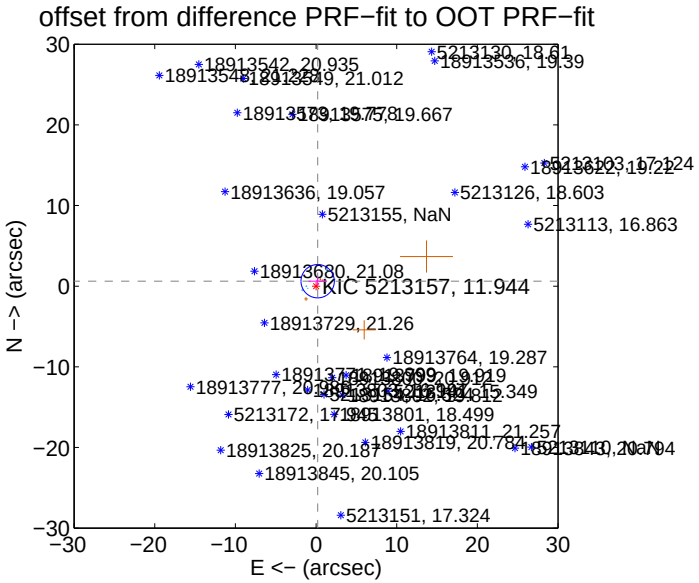
T_{max} = Theoretical Maximum Planetary Temperature
T_{obs} = Observed Planetary Temperature (Assuming A=0.3)
A_{obs} = Observed Albedo (Assuming T=0)

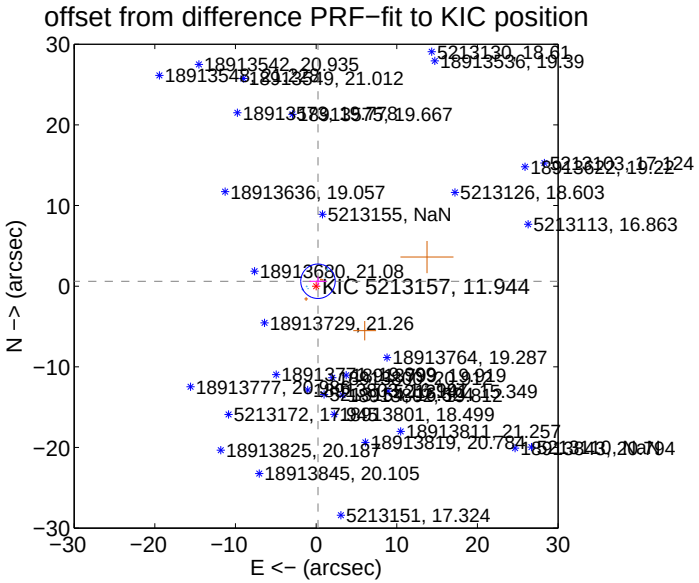
If a secondary eclipse is present, the system is likely an EB if $T_{obs} \gg T_{max}$ AND $A_{obs} \gg 1.0$

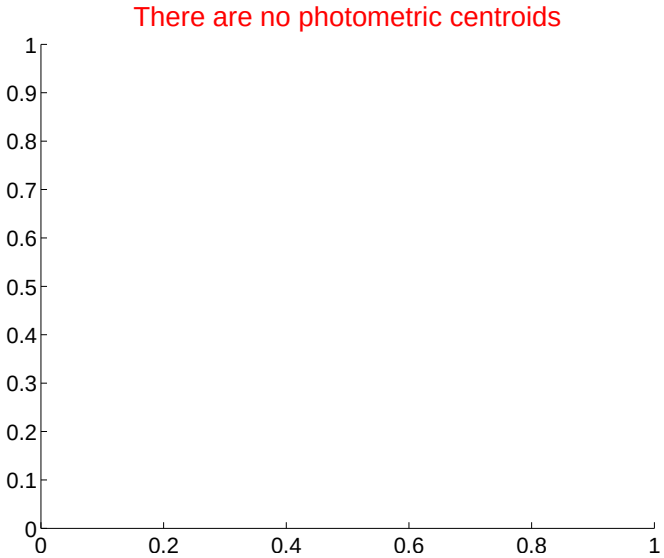
DV Centroid Data

Supplemental centroid analysis for 005213157-05. Kepler magnitude: 11.94. Transit SNR 0.01
There are 7 quarters with good PRF difference image offsets
The direct PRF centroid is offset from the target star catalog position by about 0.04 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.647 ± 0.689	0.94	-0.200 ± 1.116	0.615 ± 0.550
PRF-fit source offset from KIC position	0.649 ± 0.711	0.91	-0.228 ± 1.065	0.607 ± 0.575
photometric centroid source offset	—	—	—	—

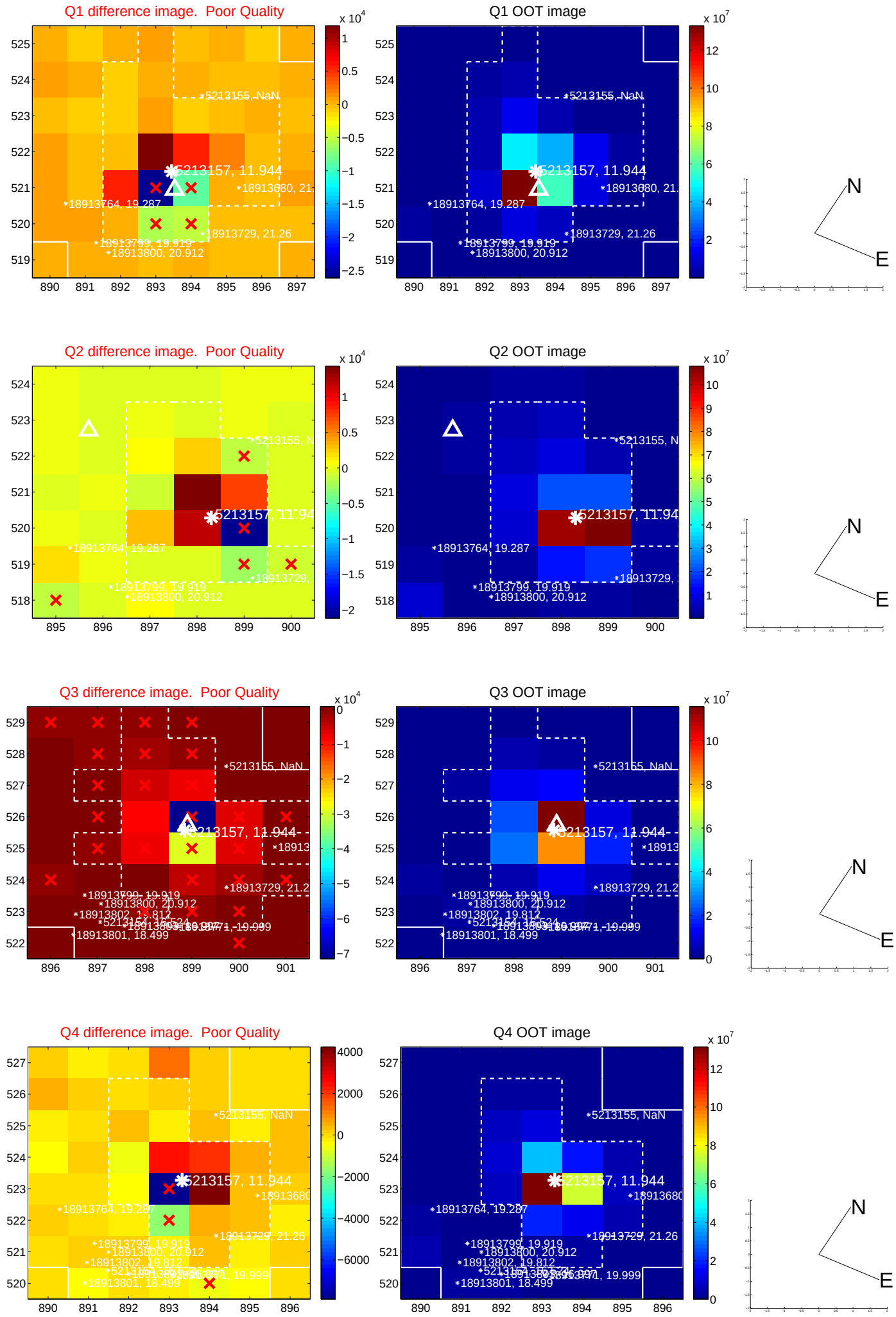




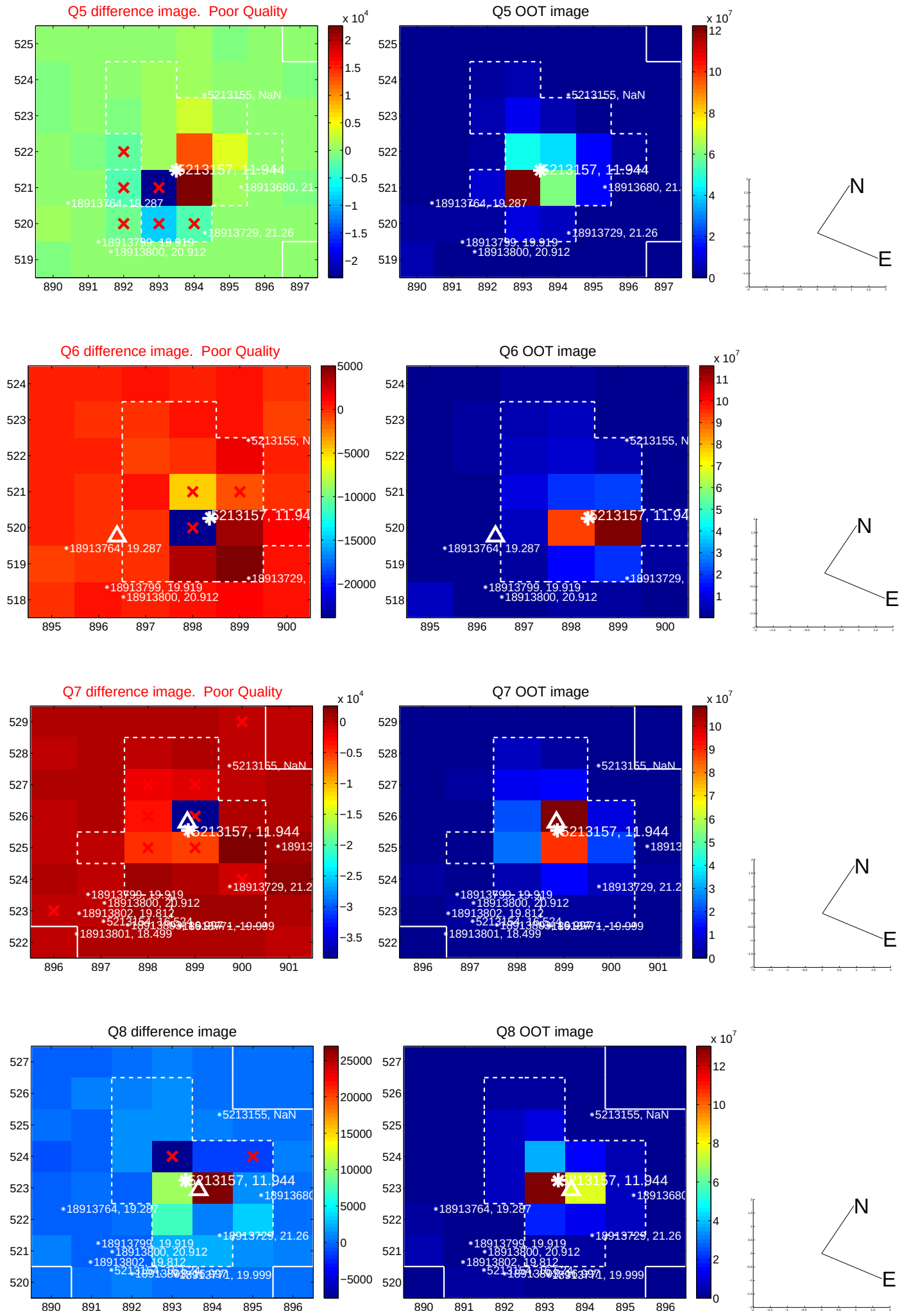


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one-σ uncertainty. Blue circle: three-σ. Red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

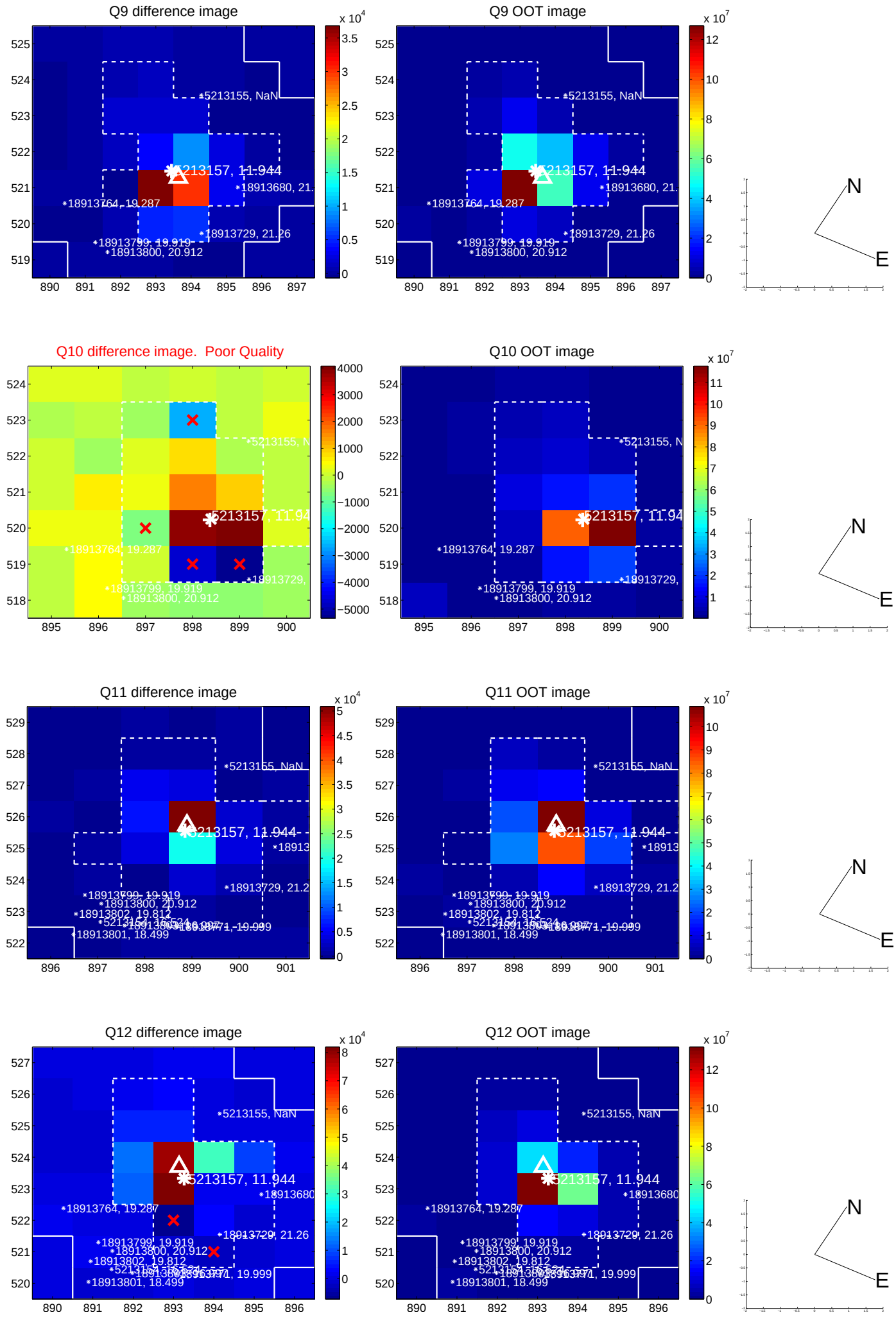
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.



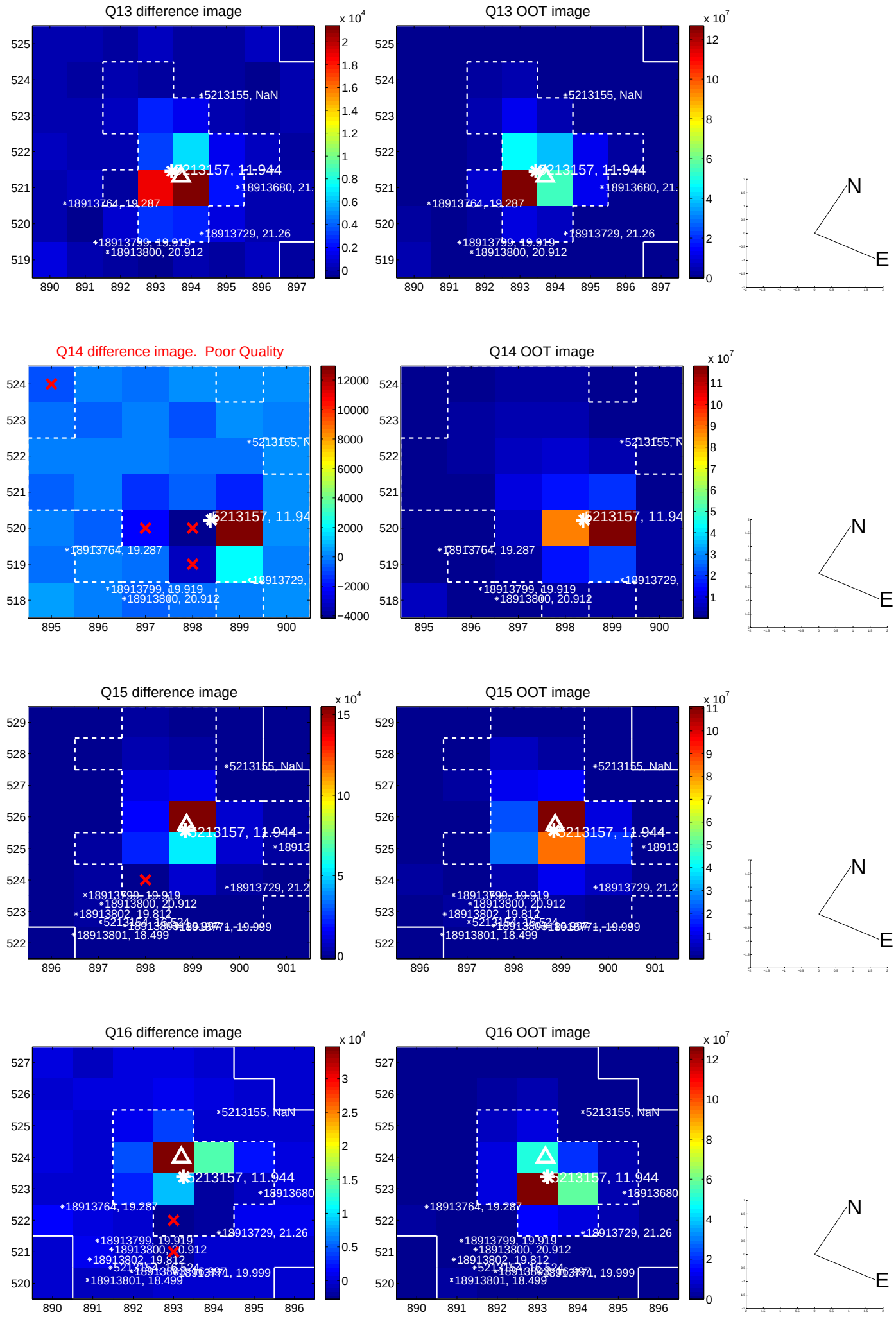
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.



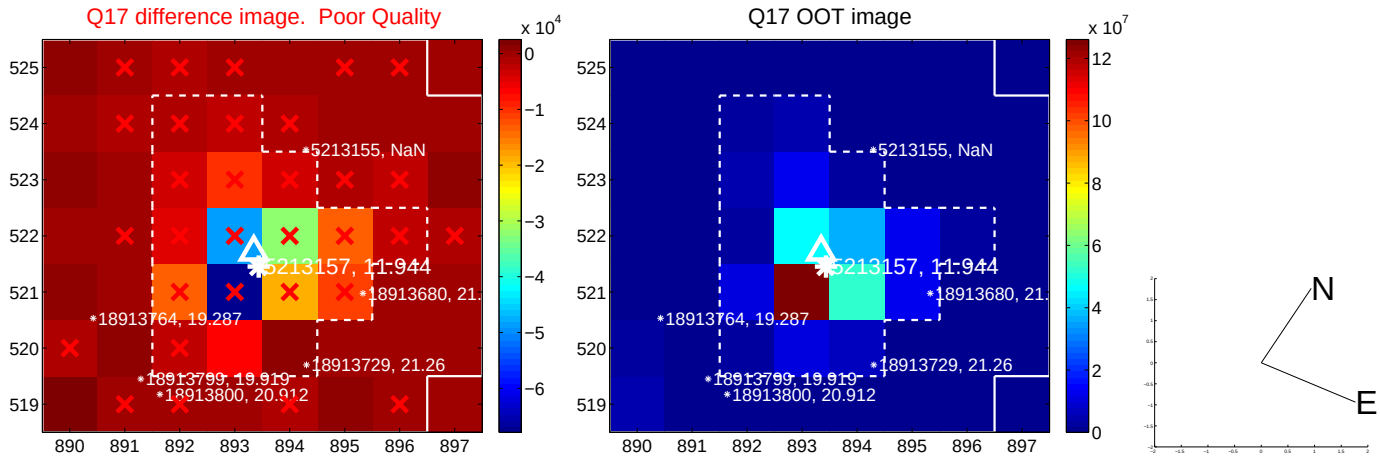
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.



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

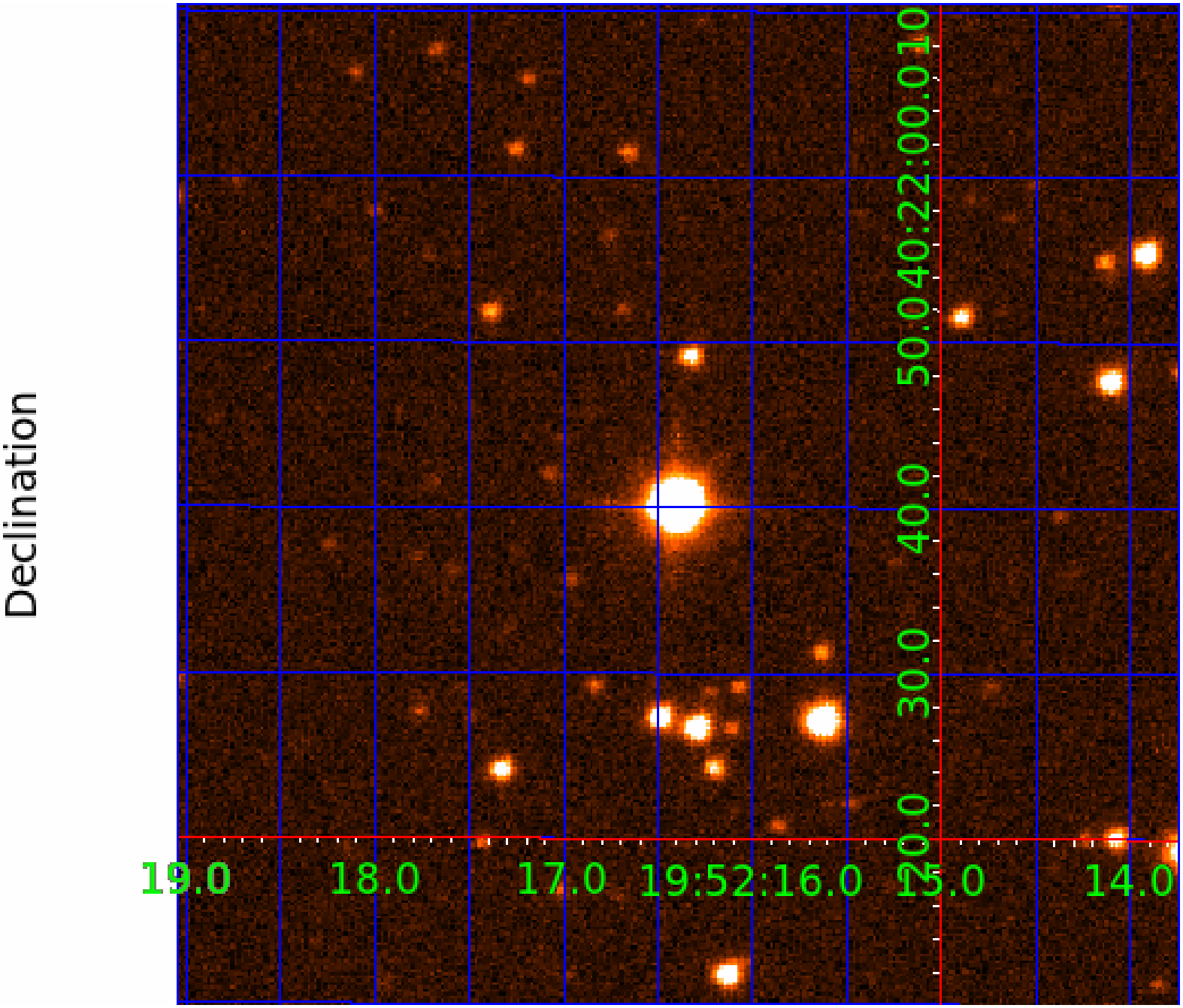


white ×: KIC target position; +: OOT centroid; △: difference centroid. red ✕: large negative pixel value.



olded centroid time series figure for this object.

UKIRT Image


Declination
22:00:01.0
50.0
40.0
30.0
20.0
19.0
18.0
17.0
19:52:16.0
15.0
14.0

KIC 005213157

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 ($S_\oplus$)
005213157-01	OBS	No	1.054268	132.444354	1.0	1.001	9.8	0.3	3.10	8485	0.36	67727.91
005213157-02	OBS	No	1.054363	131.572886	35.7	2.607	11.7	8.1	3.10	8485	2.14	67719.79
005213157-03	OBS	No	1.054343	131.811329	63.7	6.166	12.2	10.3	3.10	8485	2.88	67721.51
005213157-04	OBS	No	29.566187	155.823141	31.9	1.698	10.2	0.4	3.10	8485	1.88	794.89
005213157-05	OBS	No	17.086395	139.313242	1.0	11.298	11.1	0.0	3.10	8485	0.39	1651.34
005213157-06	OBS	No	2.107737	132.063277	269.3	3.000	11.8	-1.0	3.10	8485	5.16	26891.43
005213157-07	OBS	No	19.289356	148.055366	142.9	12.500	11.4	-1.0	3.10	8485	3.75	1404.79

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005213157-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA_TRACKER—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
005213157-02	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—SAME_NTL_PERIOD
005213157-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA—LPP_DV—LPP_ALT—SAME_NTL_PERIOD
005213157-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_TRACKER—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
005213157-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_TRACKER—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
005213157-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—NO_FITS—CENT_NOFITS
005213157-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_NOFITS

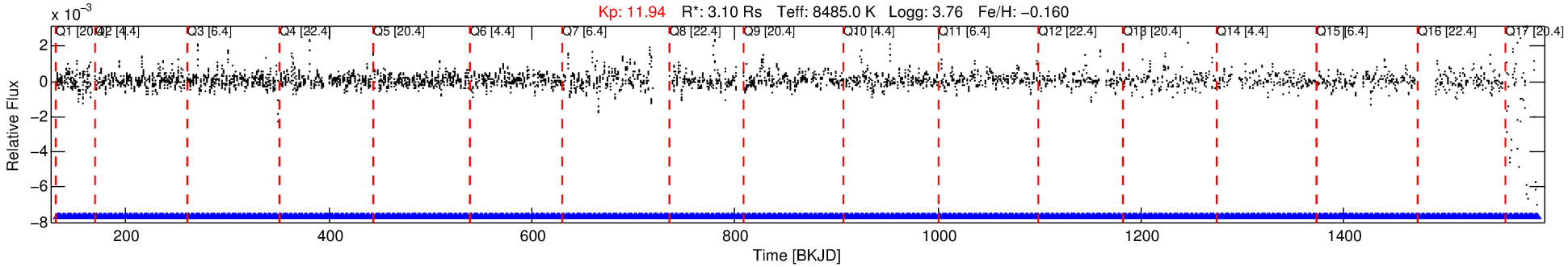
Notes: OBS = Observed. INJ = Injected. INV = Inverted. SCR = Scrambled.
N = Not Transit-Like. S = Stellar Eclipse. C = Centroid Offset. E = Ephemeris Match.
See `http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col` for comment definitions.

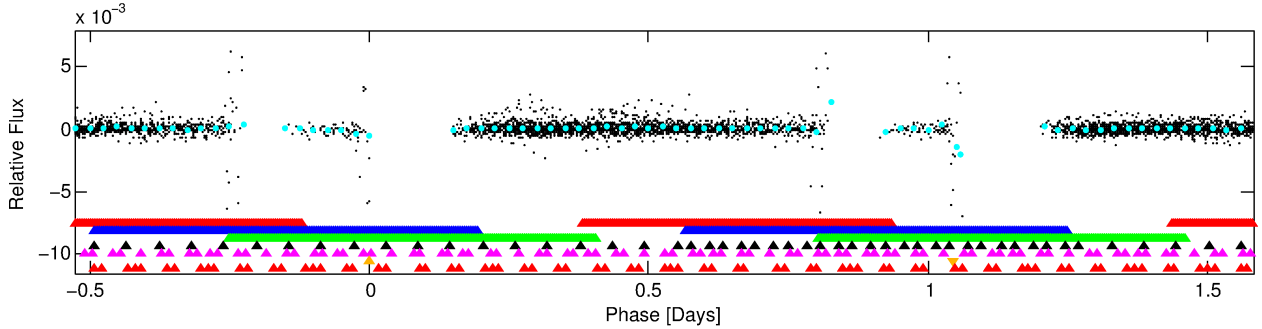
Ephemeris Match Information For 005213157-06

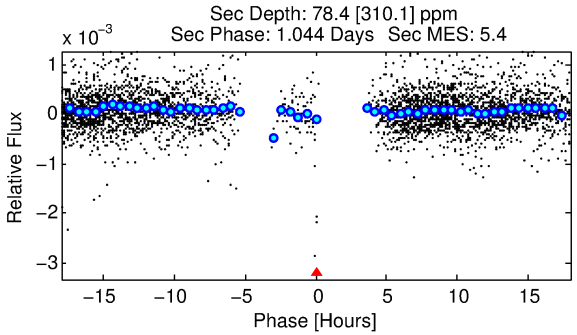
No Significant Match Found

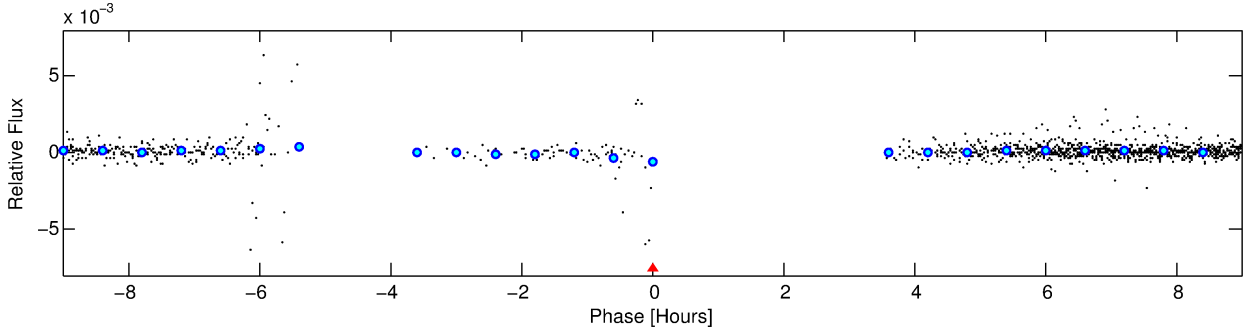
DV One-Page Summary

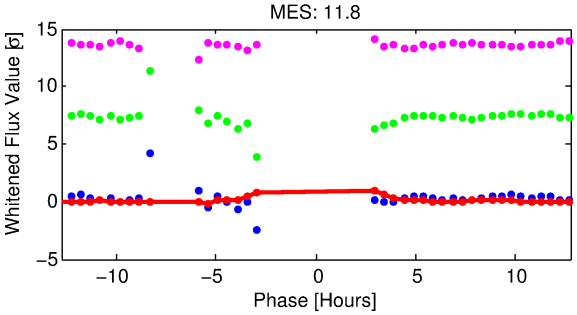
KIC: 5213157 Candidate: 6 of 7 Period: 2.108 d

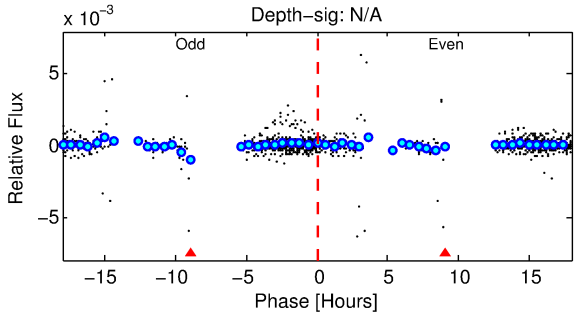












TPS TCE Results:

Period = 2.10774 d
Epoch = 132.0633 BKJD

DV fit results are unavailable

DV Diagnostic Results:

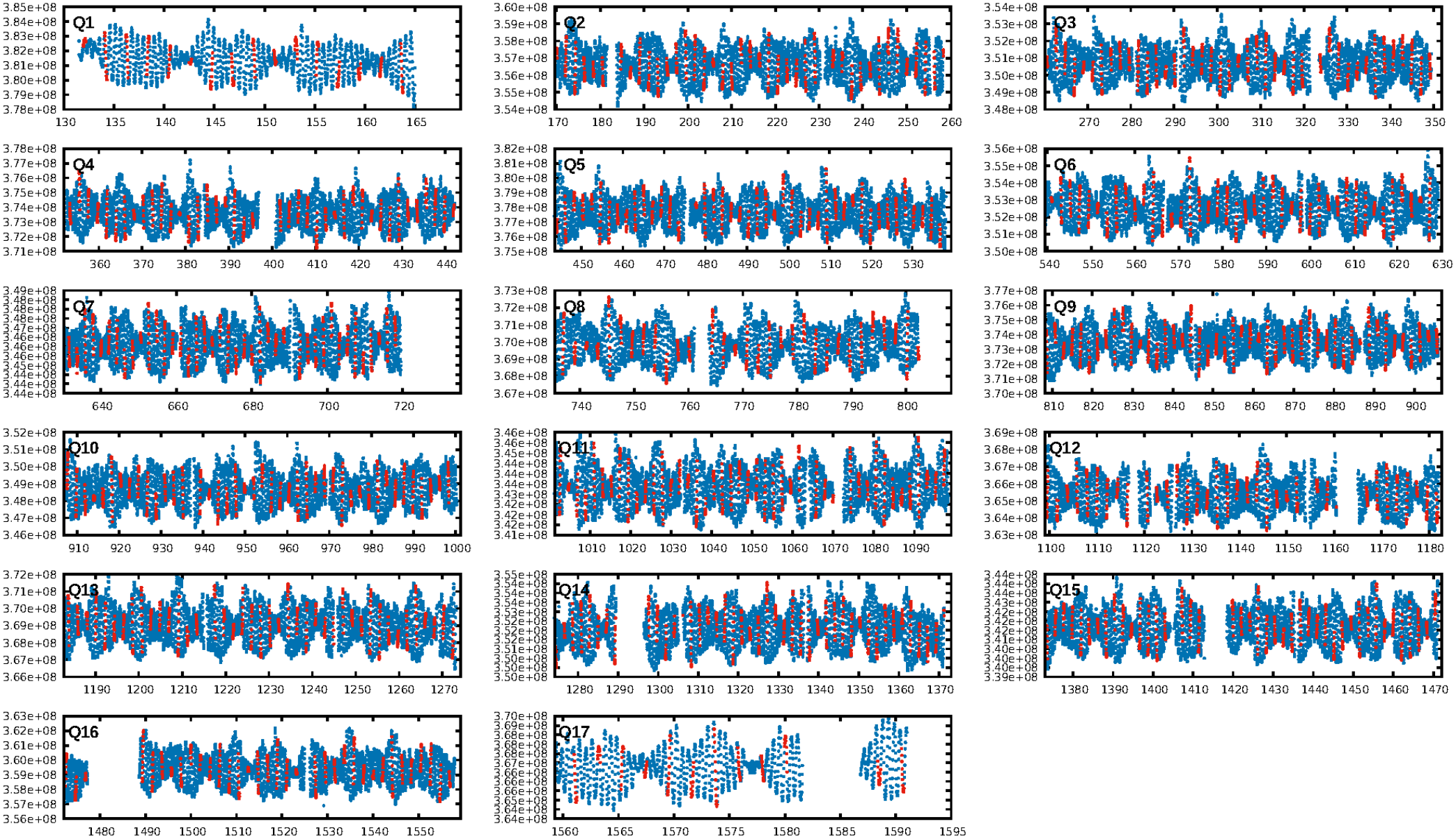
ShortPeriod−sig: 100.0% [6.36σ]
LongPeriod−sig: 100.0% [30.75σ]
ModelChiSquare2−sig: N/A
ModelChiSquareGof−sig: N/A
Bootstrap−pfa: N/A
RollingBand−fgt: N/A
GhostDiagnostic−chr: N/A

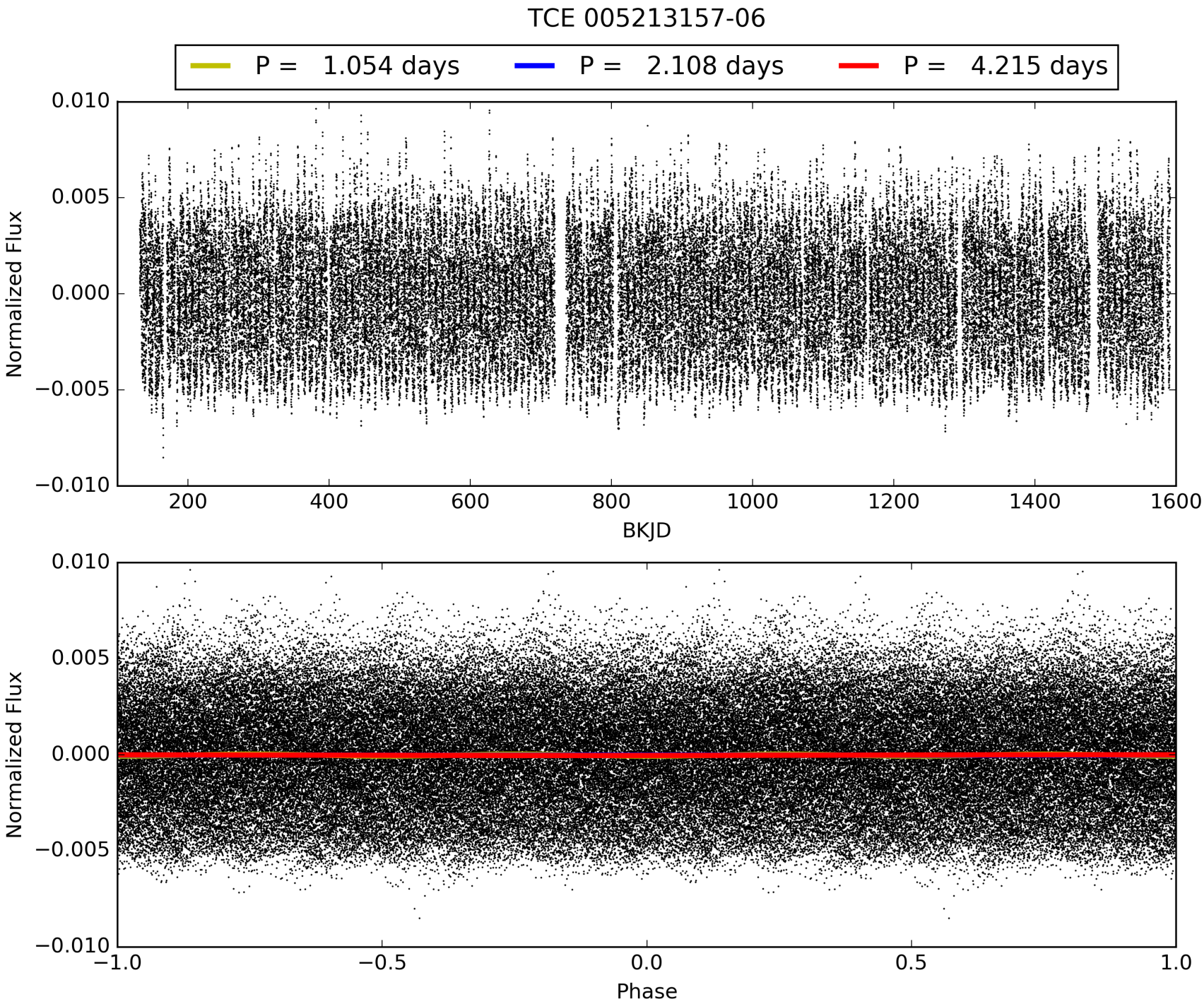
Centroid−sig: N/A
Centroid−so: N/A
OotOffset−rm: N/A
KicOffset−rm: N/A
OotOffset−st: 0/0/0/0 [0]
KicOffset−st: 0/0/0/0 [0]
DiffImageQuality−fgm: N/A
DiffImageOverlap−fno: N/A

Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 −− Date Generated: 30−Jan−2016 16:40:28 Z

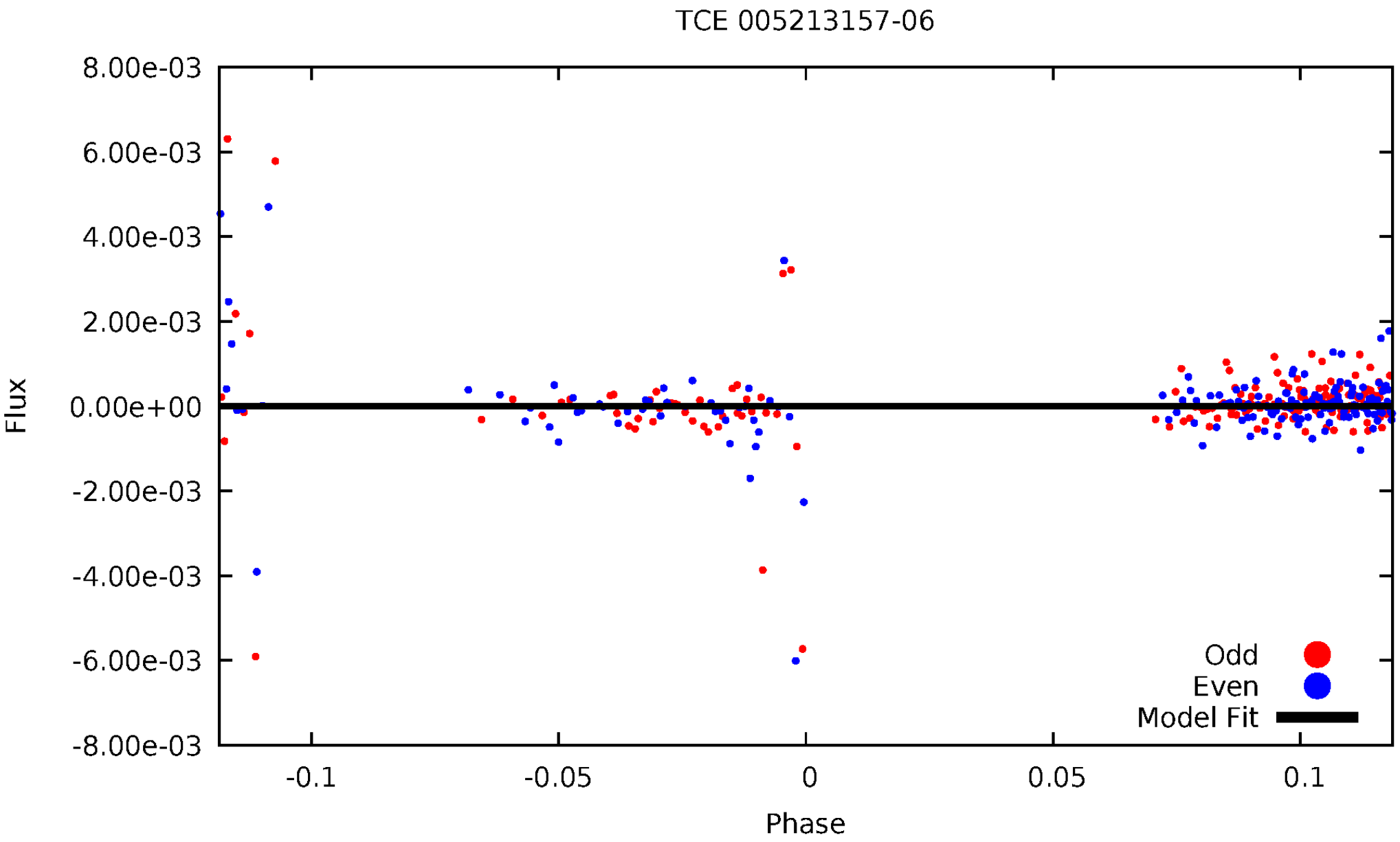
This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

TCE 005213157-06, PDC Light Curves




TCE 005213157-06
P = 1.054 days
P = 2.108 days
P = 4.215 days
Normalized Flux
0.010
0.005
0.000
−0.005
−0.010
200
400
600
800
1000
1200
1400
1600
BKJD
Normalized Flux
0.010
0.005
0.000
−0.005
−0.010
−1.0
−0.5
0.0
0.5
1.0
Phase

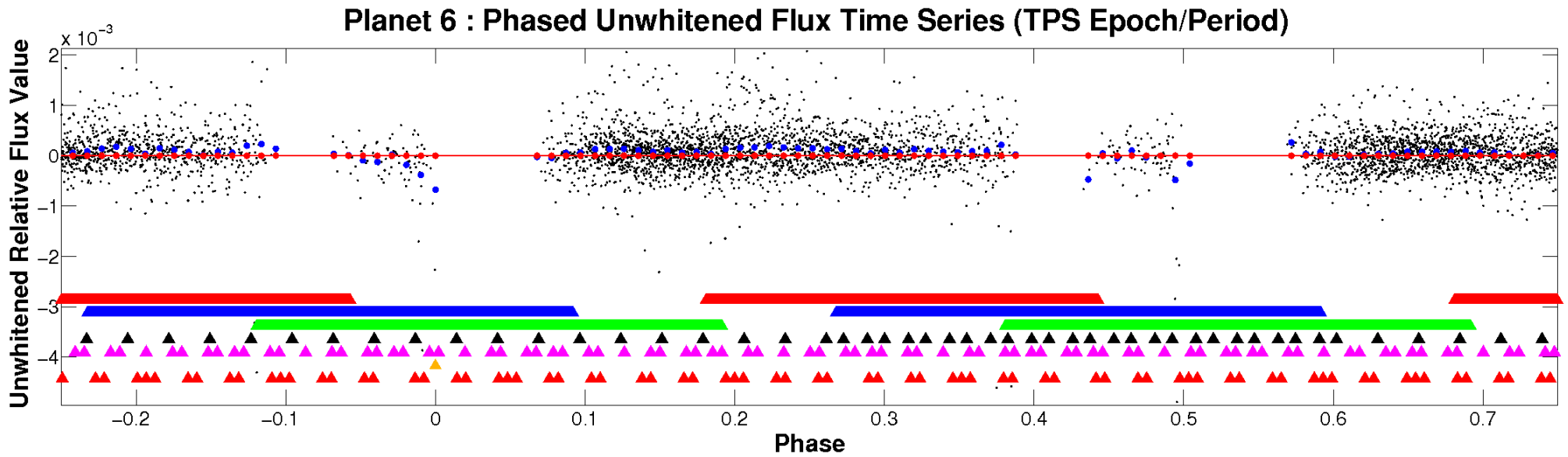
DV Odd/Even

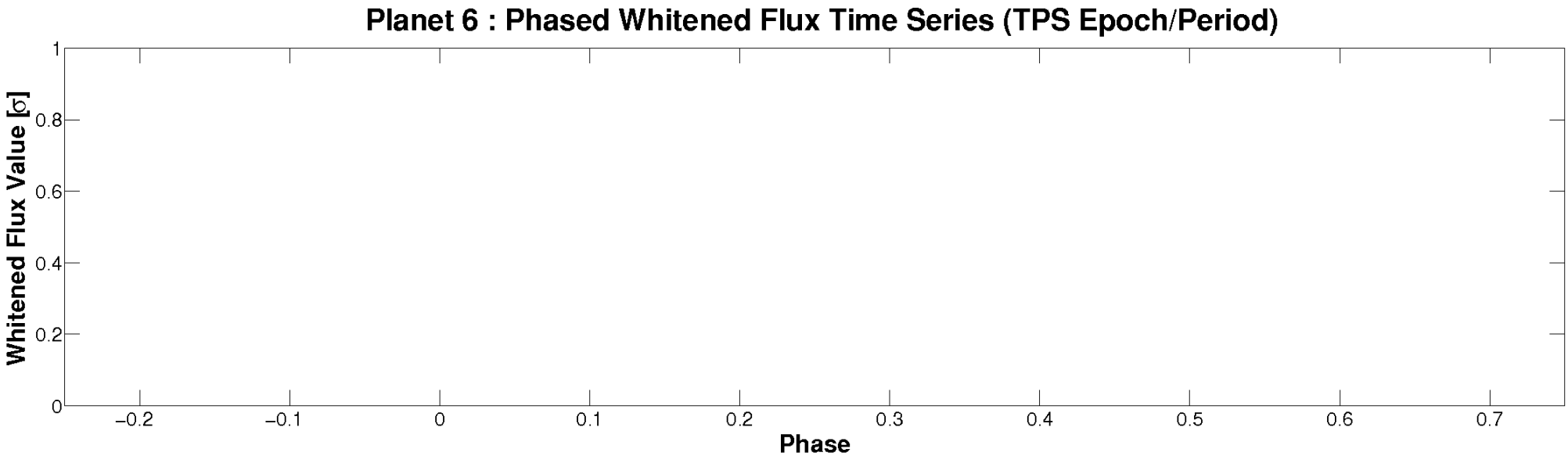

TCE 005213157-06
8.00e-03
6.00e-03
4.00e-03
2.00e-03
0.00e+00
-2.00e-03
-4.00e-03
-6.00e-03
-8.00e-03
Flux
-0.1
-0.05
0
0.05
0.1
Phase
Odd
Even
Model Fit

ALT Odd/Even

This plot does not exist for this TCE.

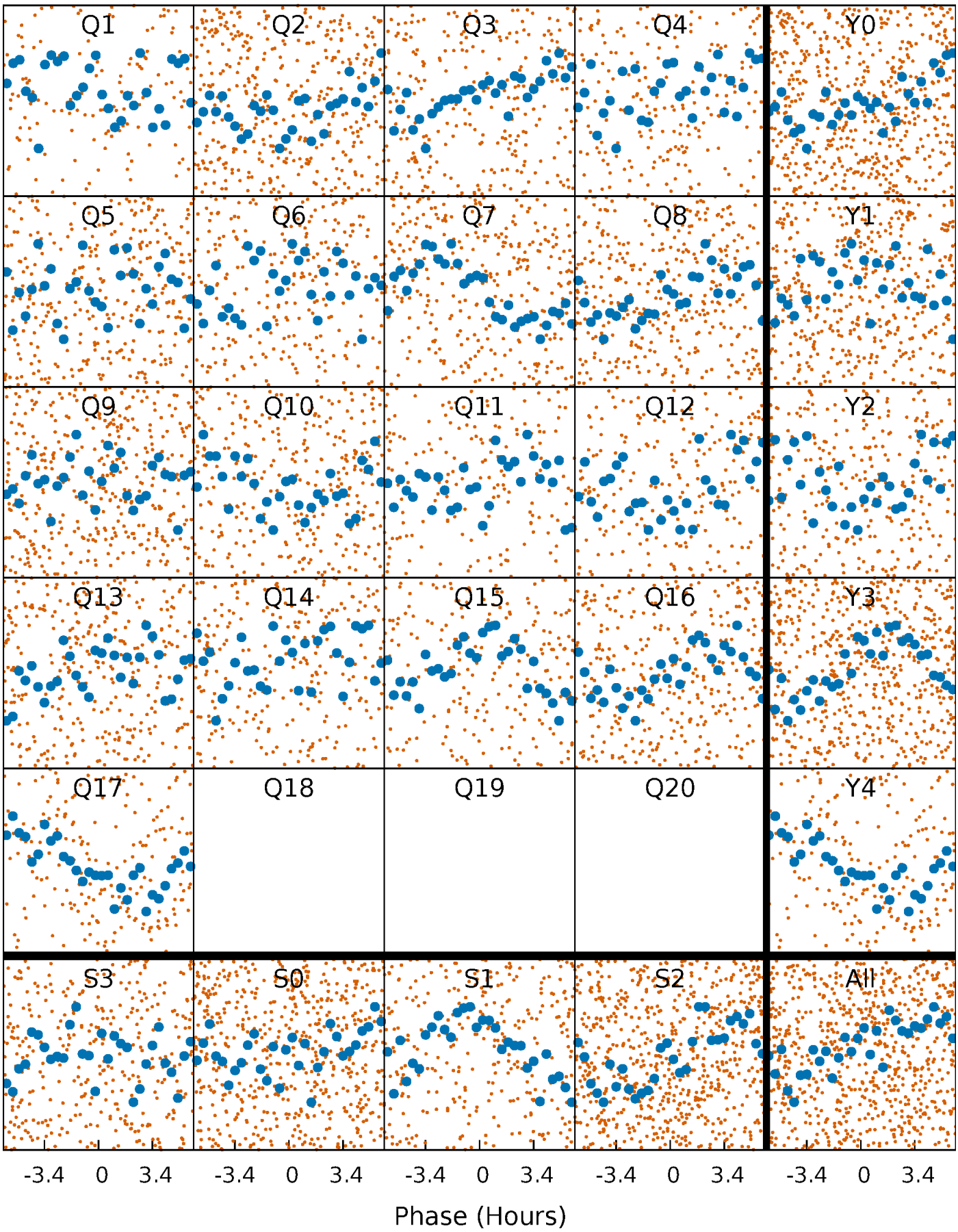
Non-Whitened Vs. Whitened Light Curve





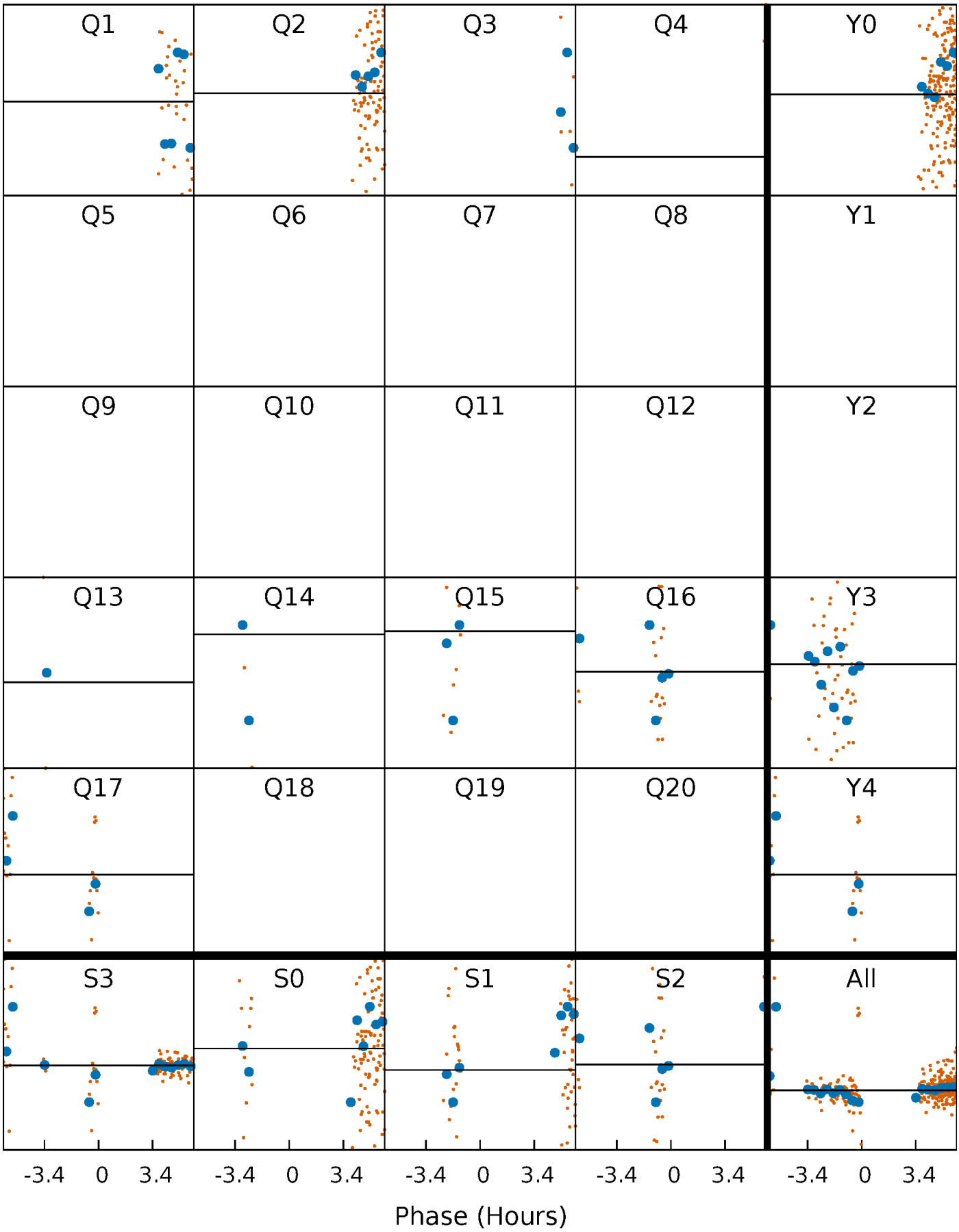
PDC Quarter-Phased Transit Curves

TCE 005213157-06 P= 2.107737 Days T_0=132.063277 (BKJD)



DV Quarter-Phased Transit Curves

TCE 005213157-06 P= 2.107737 Days T_0=132.063277 (BKJD)

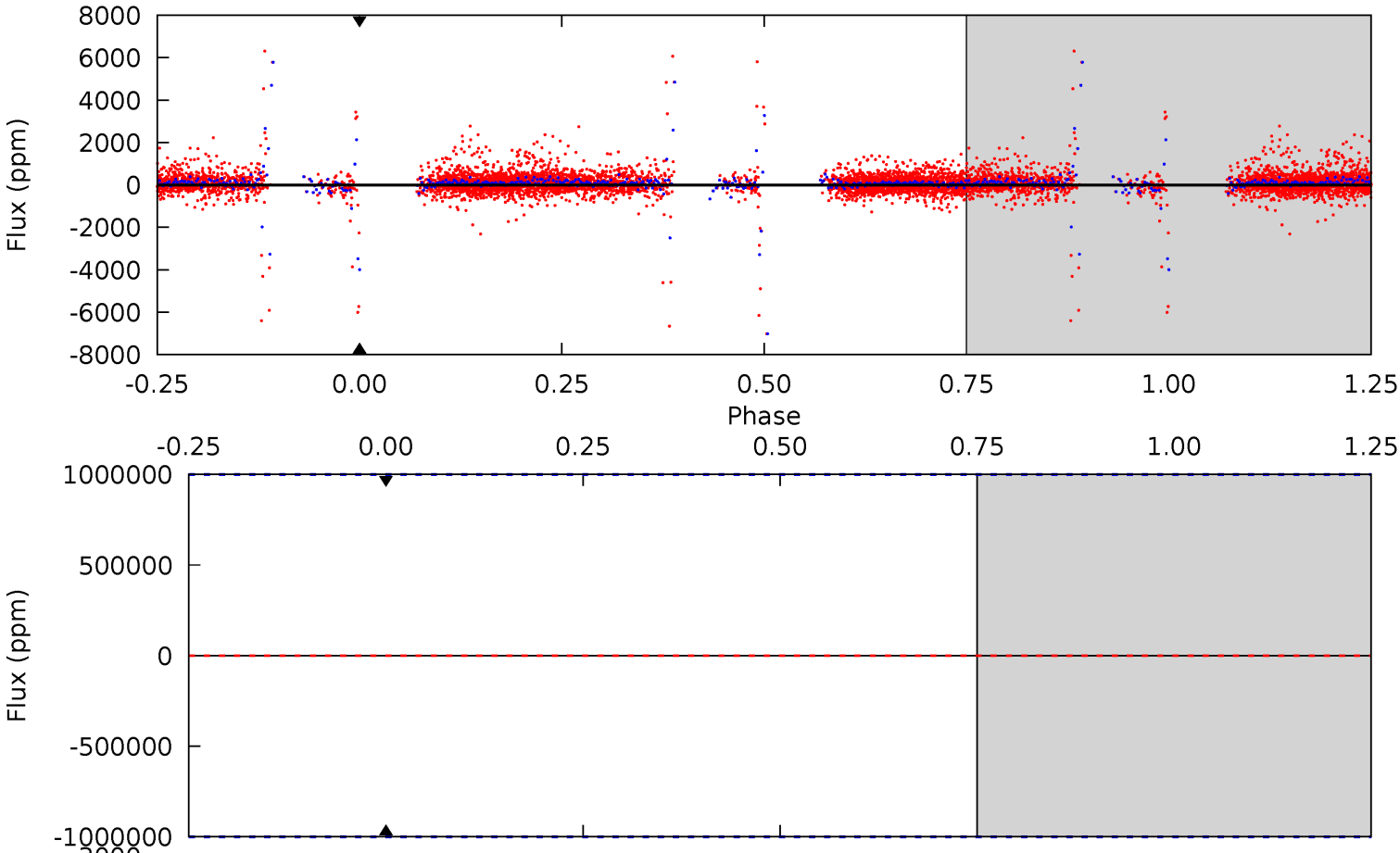


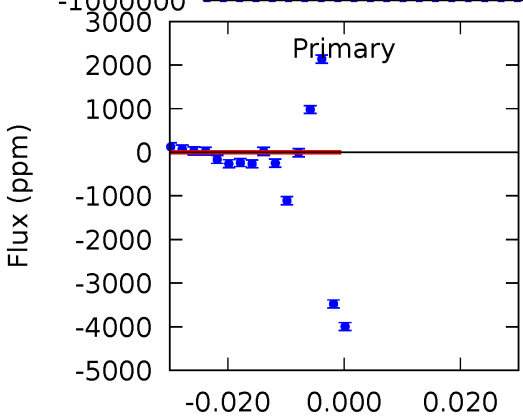
This plot does not exist for this TCE.

DV Model-Shift Uniqueness Test

005213157-06, P = 2.107737 Days, E = 132.063277 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

This plot does not exist for this TCE.

Stellar Parameters For KIC 005213157

	$T_{\rm eff}(K)$	$\log(g)$	[Fe/H]	R ($R_\odot$)	$M(M_\odot)$	$p_\star$ (g·cm^{-3})
	8485^{+235}_{-369}	$3.762^{+0.392}_{-0.140}$	$-0.160^{+0.400}_{-0.350}$	$3.096^{+0.929}_{-1.393}$	$2.024^{+0.395}_{-0.439}$	$0.096^{+0.363}_{-0.043}$
	+3%/-4%	+10%/-4%	+250%/-219%	+30%/-45%	+20%/-22%	+378%/-45%
Source	KIC0	KIC0	KIC0	DSEP		

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

Secondary Eclipse Parameters for KIC 005213157-06 / KOI

Detrend	Depth (ppm)	R_p ($R_\oplus$)	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	0±1000000	$21.87^{+25.57}_{-15.39}$	4418^{+405}_{-489}	3560^{+52141}_{-53325}	$0.535^{+314.765}_{-274.771}$
Alt.	N/A	N/A	N/A	N/A	N/A

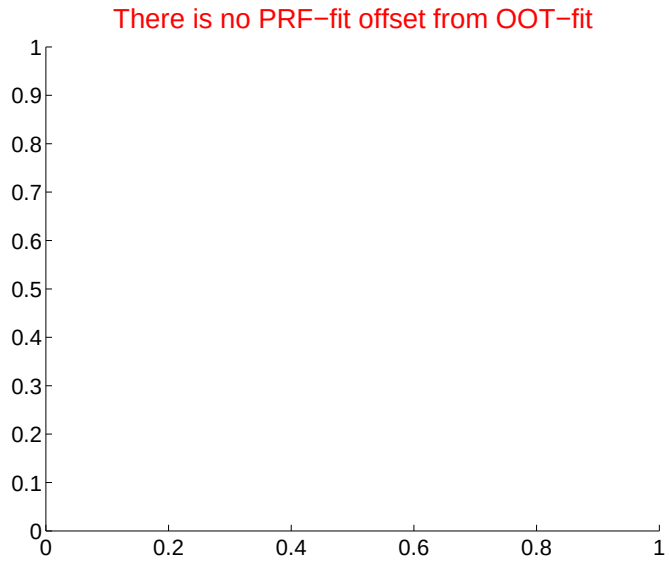
T_{max} = Theoretical Maximum Planetary Temperature
T_{obs} = Observed Planetary Temperature (Assuming A=0.3)
A_{obs} = Observed Albedo (Assuming T=0)

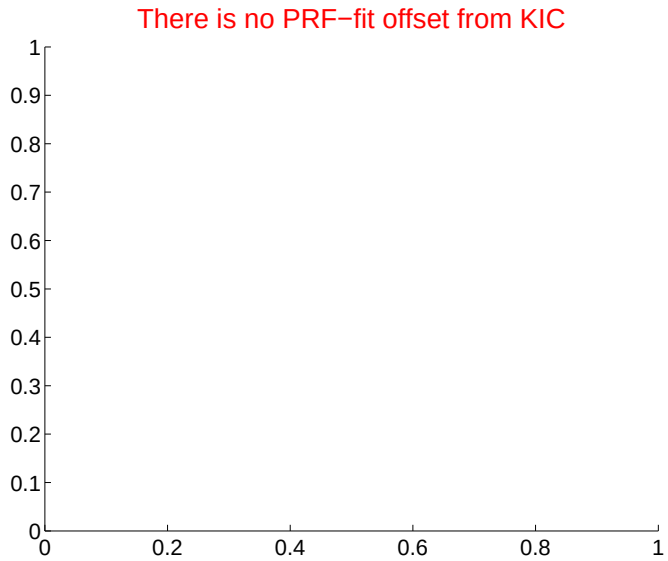
If a secondary eclipse is present, the system is likely an EB if $T_{obs} \gg T_{max}$ AND $A_{obs} \gg 1.0$

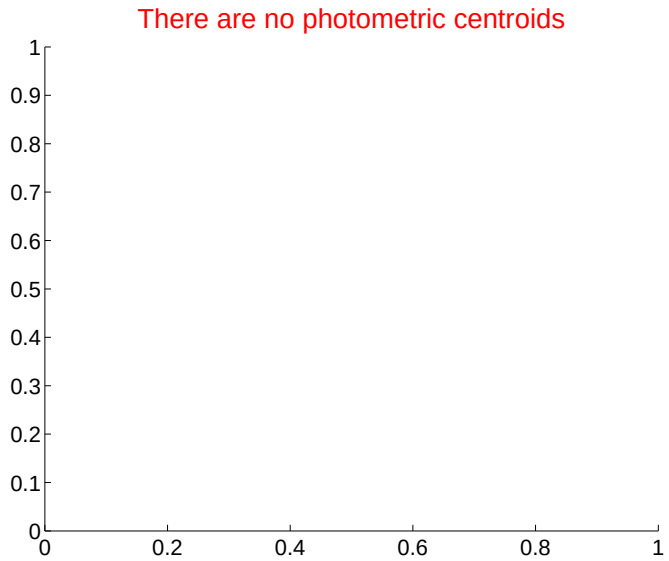
DV Centroid Data

Supplemental centroid analysis for 005213157-06. Kepler magnitude: 11.94. Transit SNR -1.00
There are 0 quarters with good PRF difference image offsets
The direct PRF centroid is offset from the target star catalog position by about NaN arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	—	—	—	—
PRF-fit source offset from KIC position	—	—	—	—
photometric centroid source offset	—	—	—	—

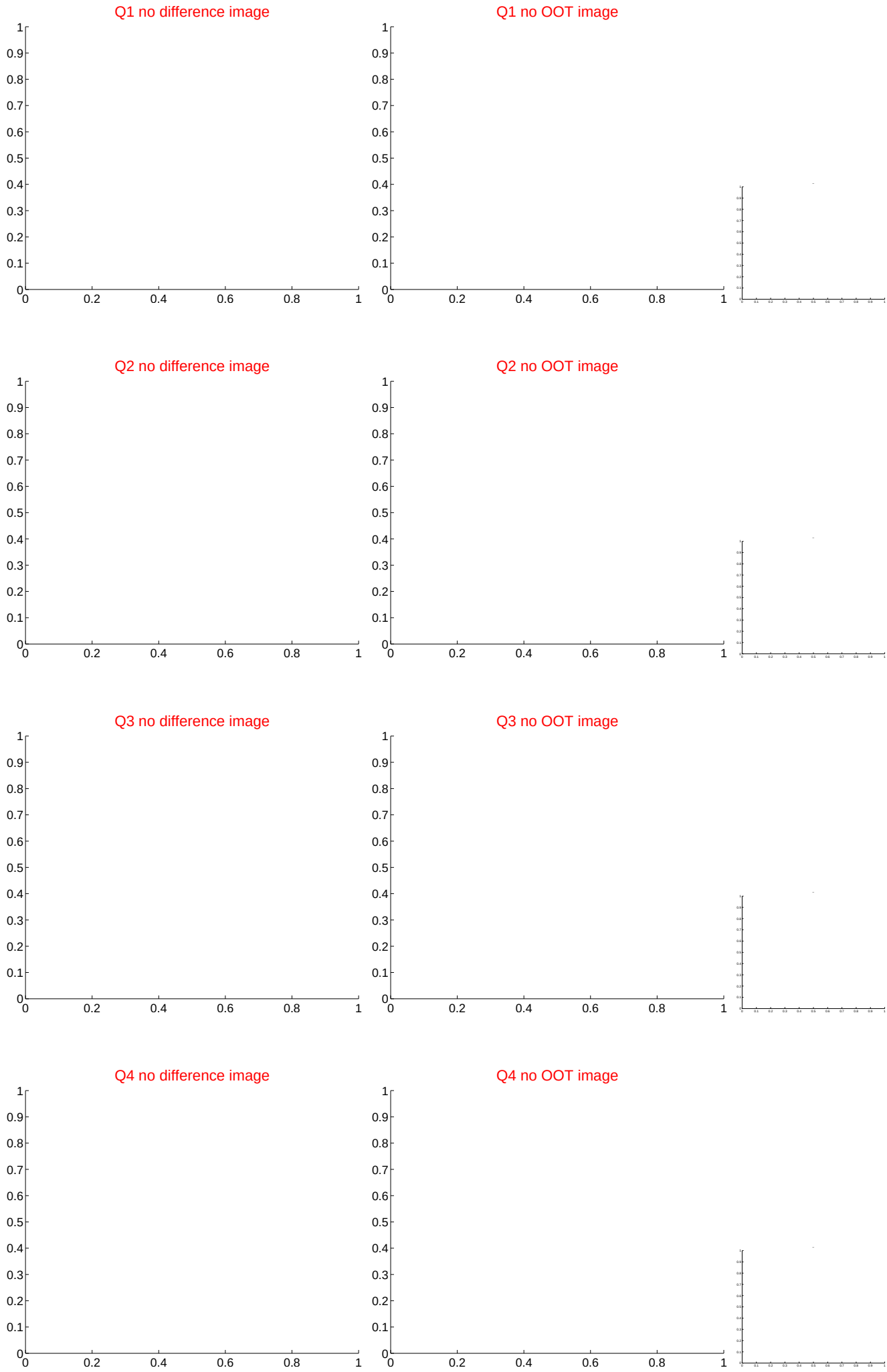




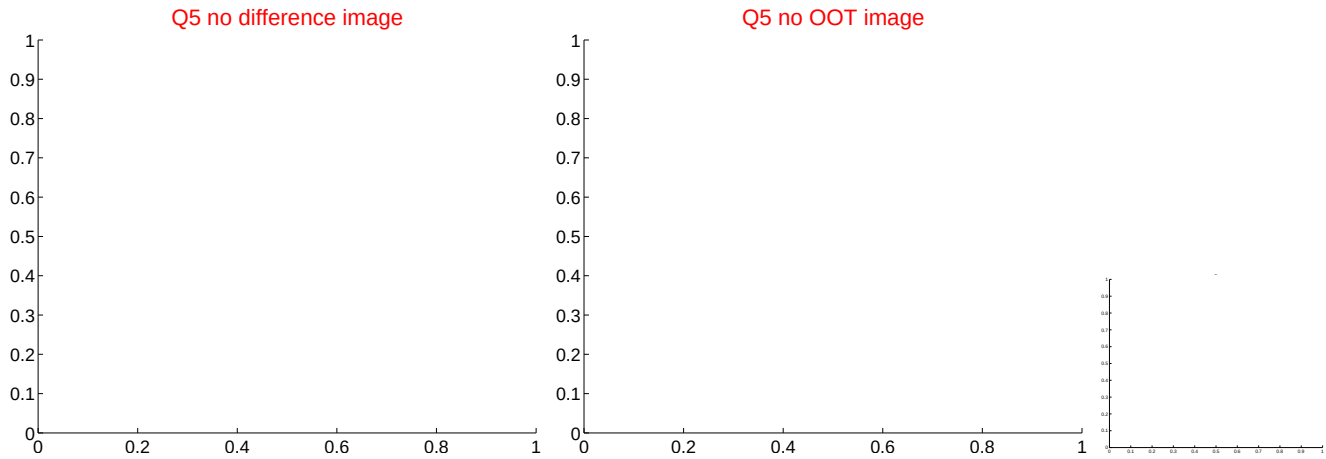


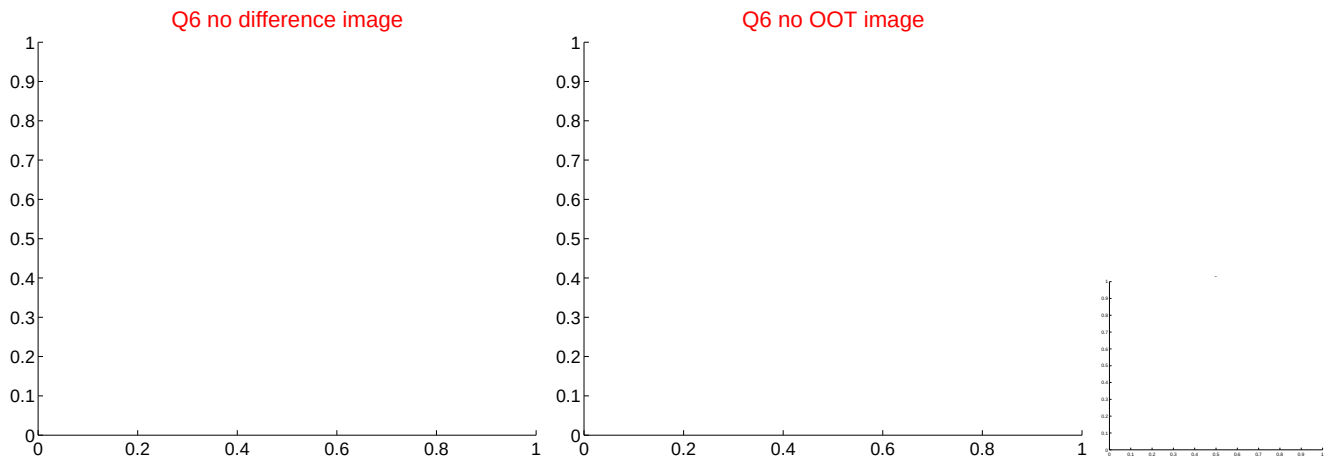
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one-σ uncertainty. Blue circle: three-σ. Red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

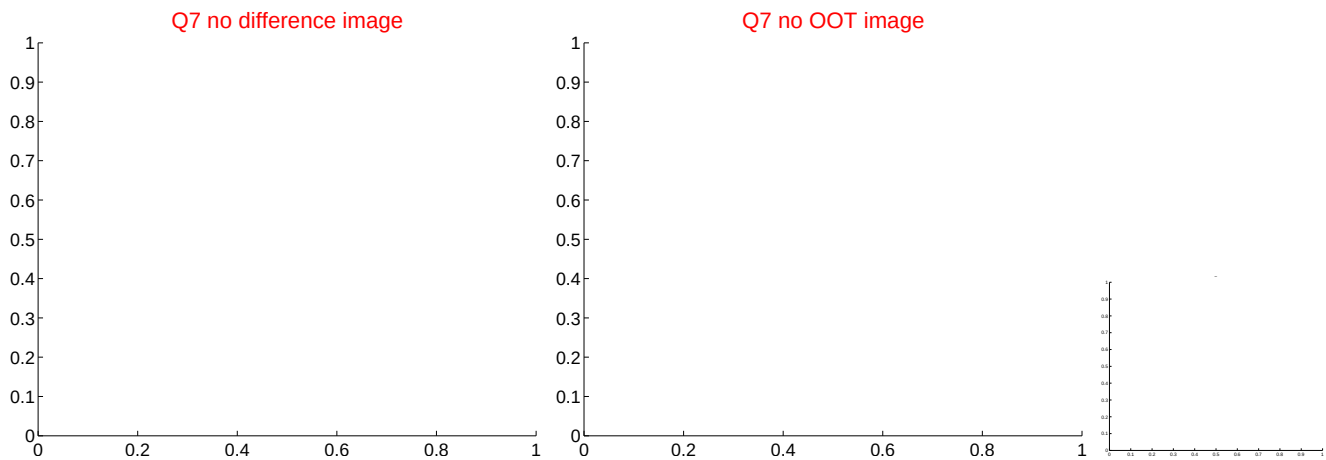
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.

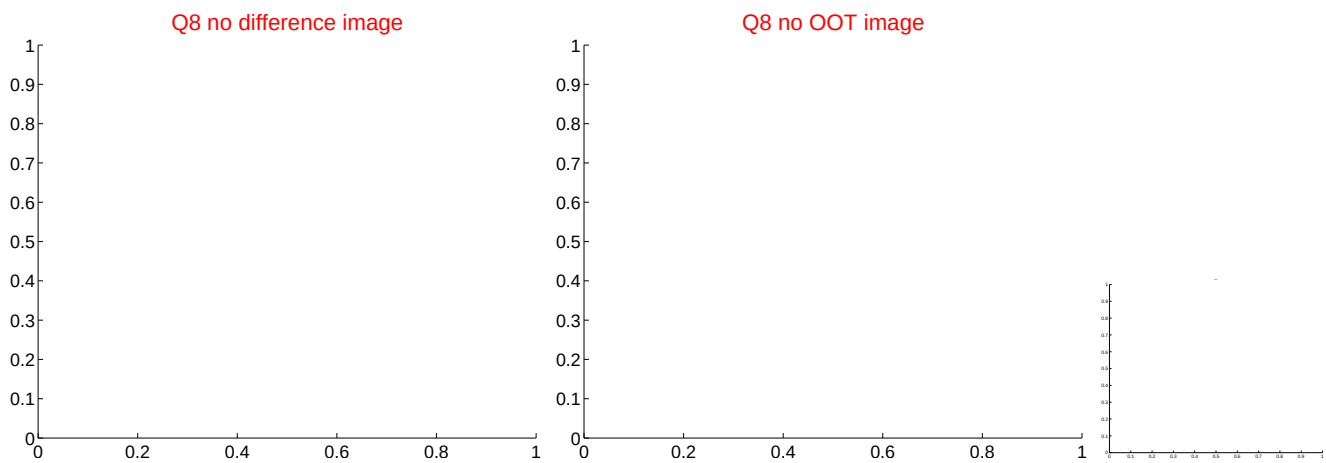


white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.

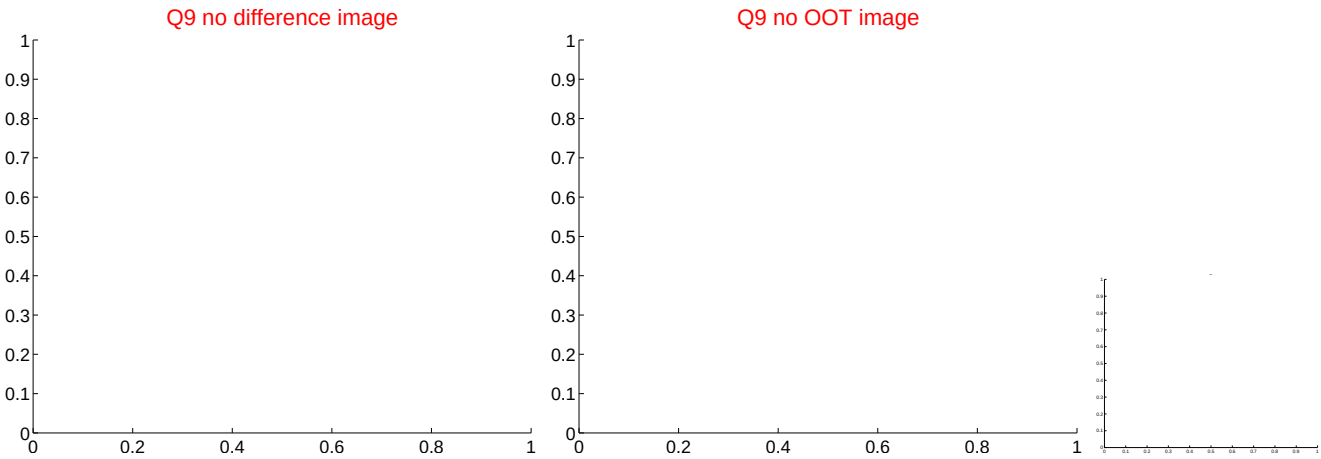


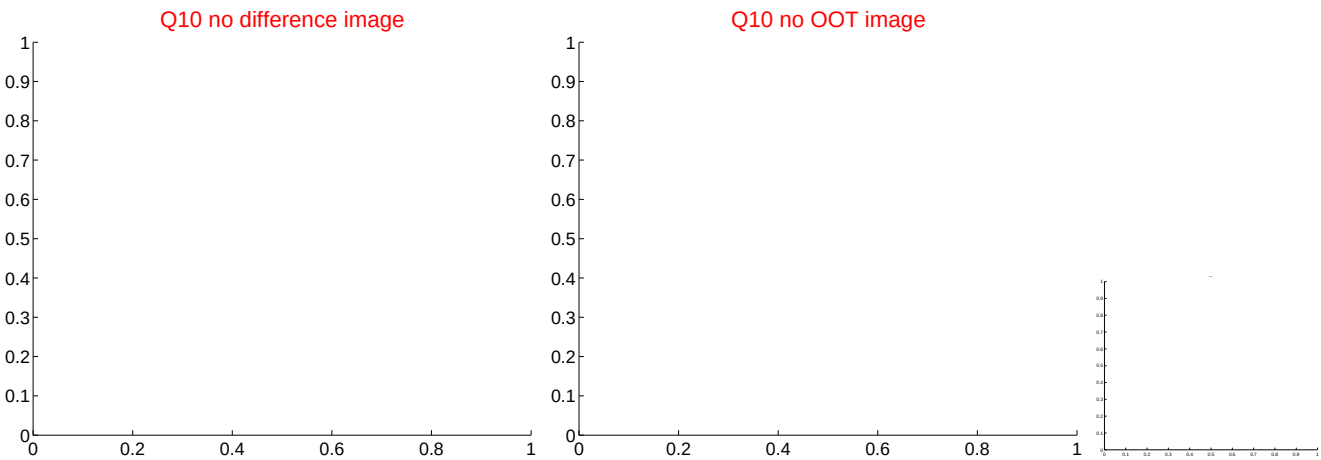


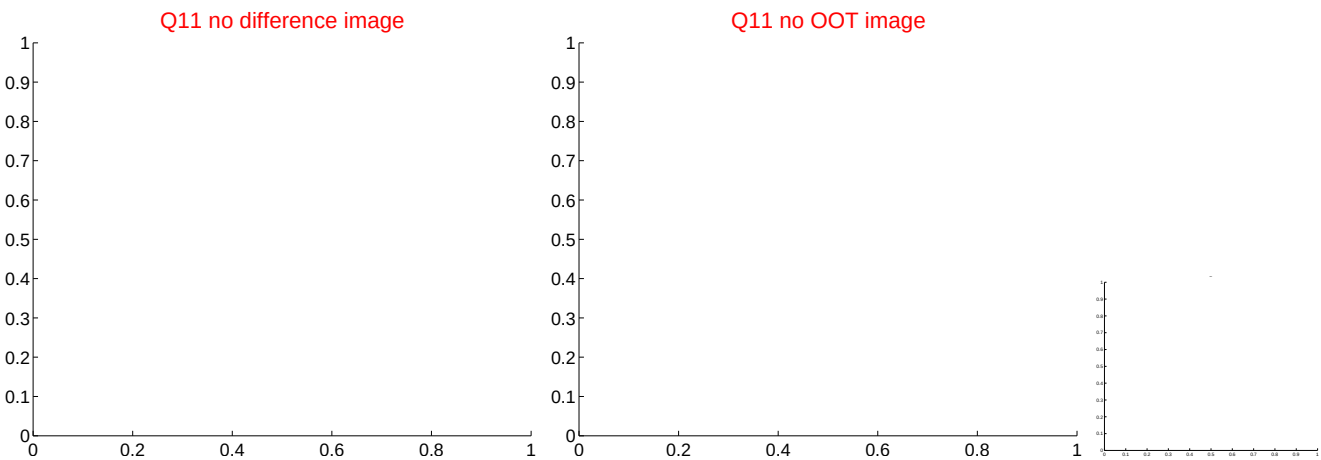


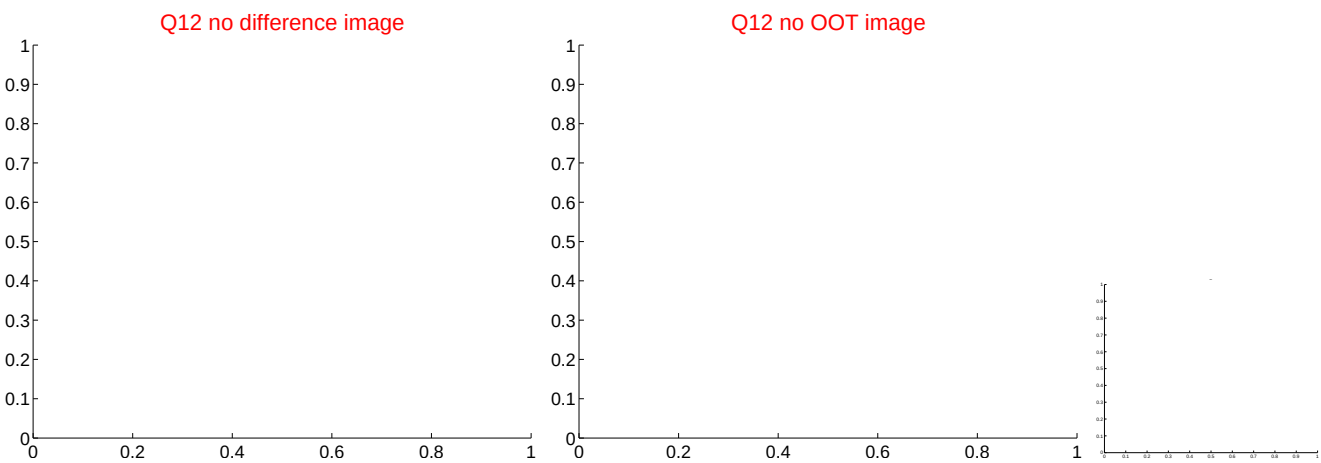


white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.

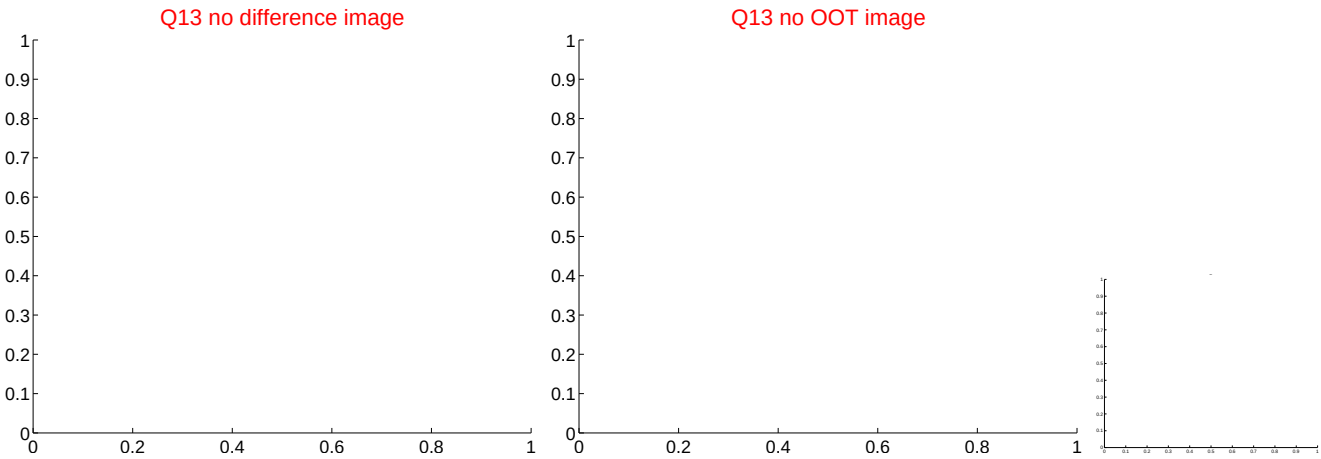


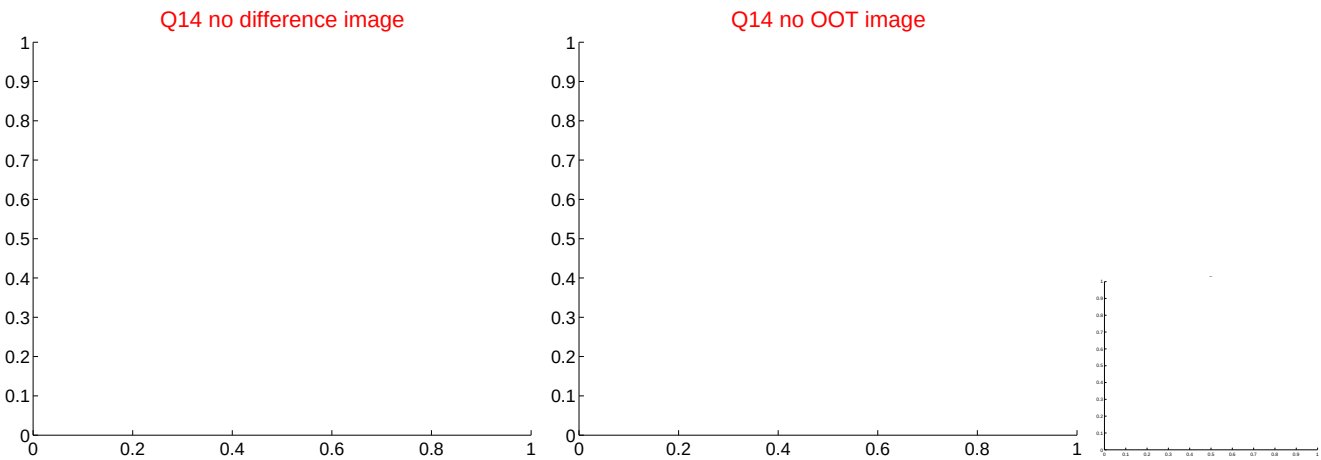


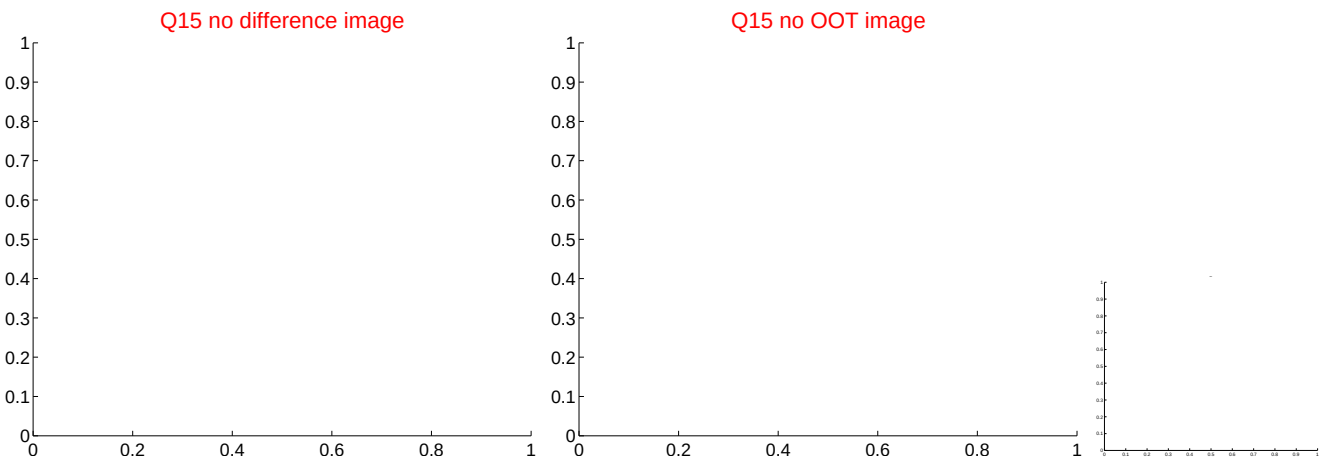


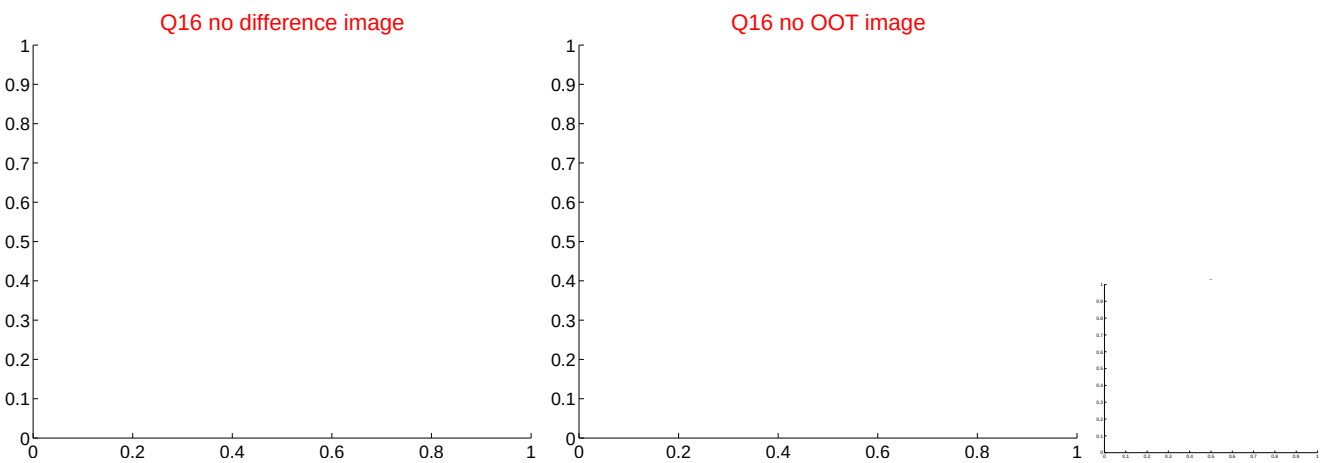


white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.

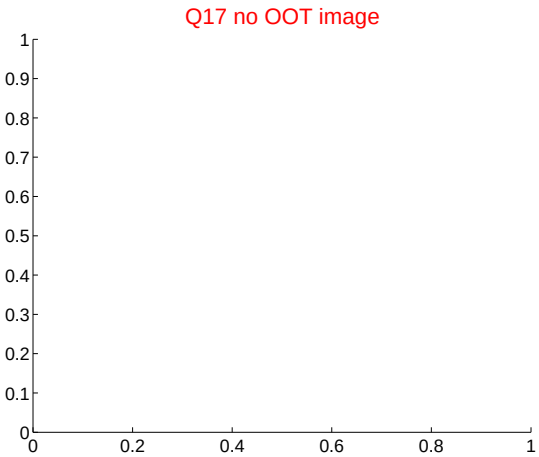


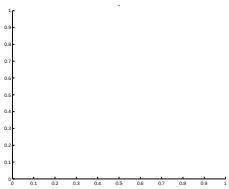






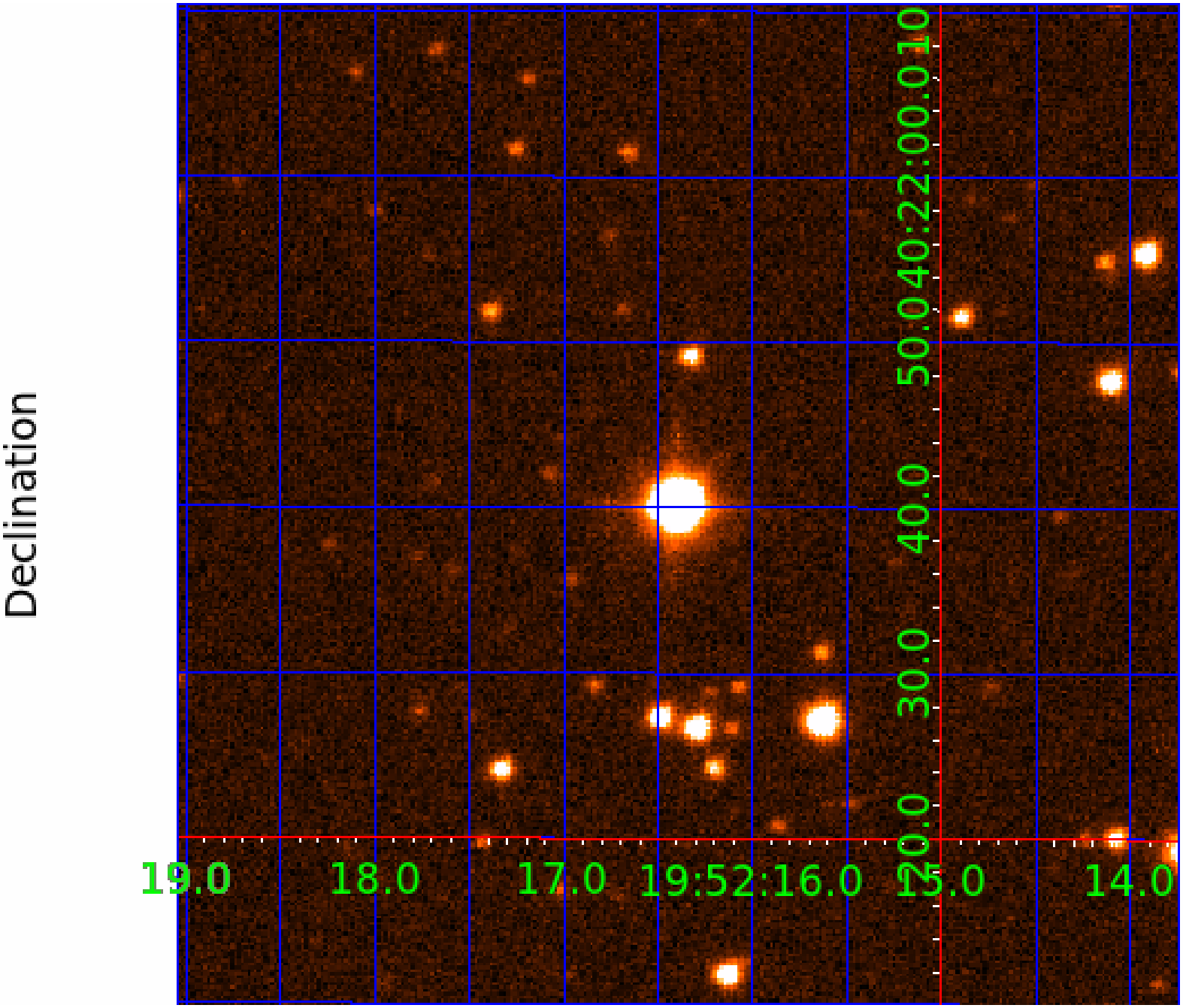
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.





olded centroid time series figure for this object.

UKIRT Image


Declination
22:00:01.0
50.0
40.0
30.0
20.0
19.0
18.0
17.0
19:52:16.0
15.0
14.0

KIC 005213157

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 ($S_\oplus$)
005213157-01	OBS	No	1.054268	132.444354	1.0	1.001	9.8	0.3	3.10	8485	0.36	67727.91
005213157-02	OBS	No	1.054363	131.572886	35.7	2.607	11.7	8.1	3.10	8485	2.14	67719.79
005213157-03	OBS	No	1.054343	131.811329	63.7	6.166	12.2	10.3	3.10	8485	2.88	67721.51
005213157-04	OBS	No	29.566187	155.823141	31.9	1.698	10.2	0.4	3.10	8485	1.88	794.89
005213157-05	OBS	No	17.086395	139.313242	1.0	11.298	11.1	0.0	3.10	8485	0.39	1651.34
005213157-06	OBS	No	2.107737	132.063277	269.3	3.000	11.8	-1.0	3.10	8485	5.16	26891.43
005213157-07	OBS	No	19.289356	148.055366	142.9	12.500	11.4	-1.0	3.10	8485	3.75	1404.79

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005213157-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA_TRACKER—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
005213157-02	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—SAME_NTL_PERIOD
005213157-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA—LPP_DV—LPP_ALT—SAME_NTL_PERIOD
005213157-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_TRACKER—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
005213157-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_TRACKER—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
005213157-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—NO_FITS—CENT_NOFITS
005213157-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_NOFITS

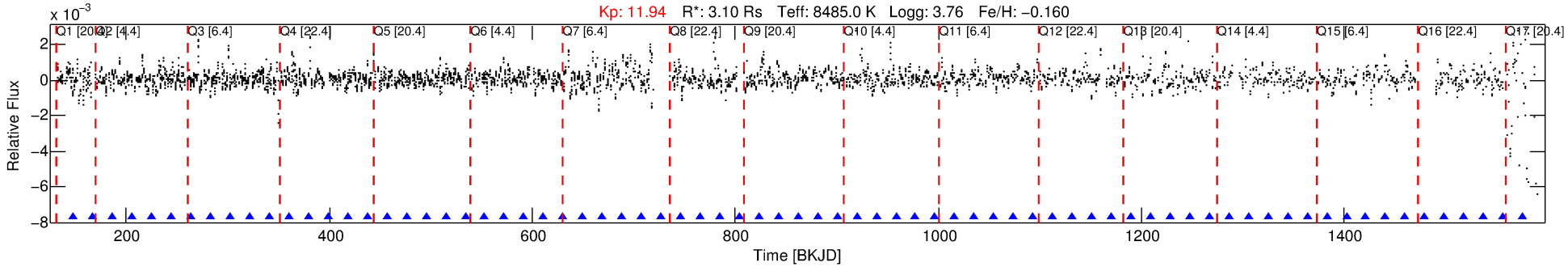
Notes: OBS = Observed. INJ = Injected. INV = Inverted. SCR = Scrambled.
N = Not Transit-Like. S = Stellar Eclipse. C = Centroid Offset. E = Ephemeris Match.
See `http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col` for comment definitions.

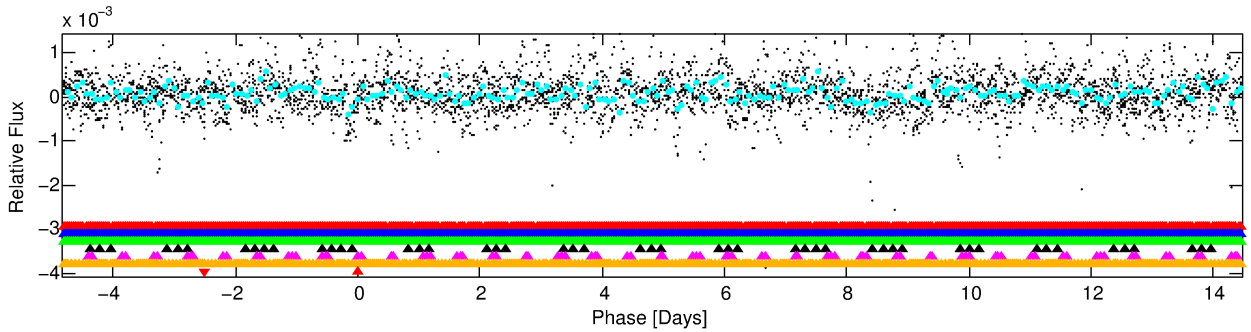
Ephemeris Match Information For 005213157-07

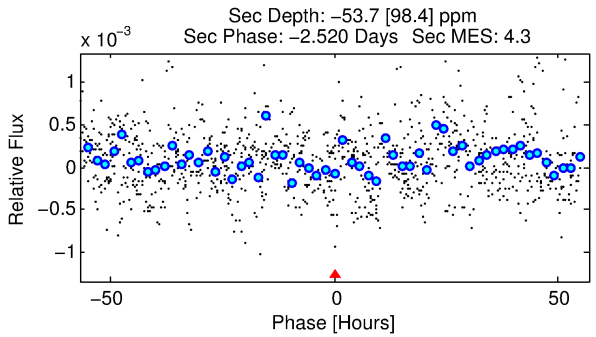
No Significant Match Found

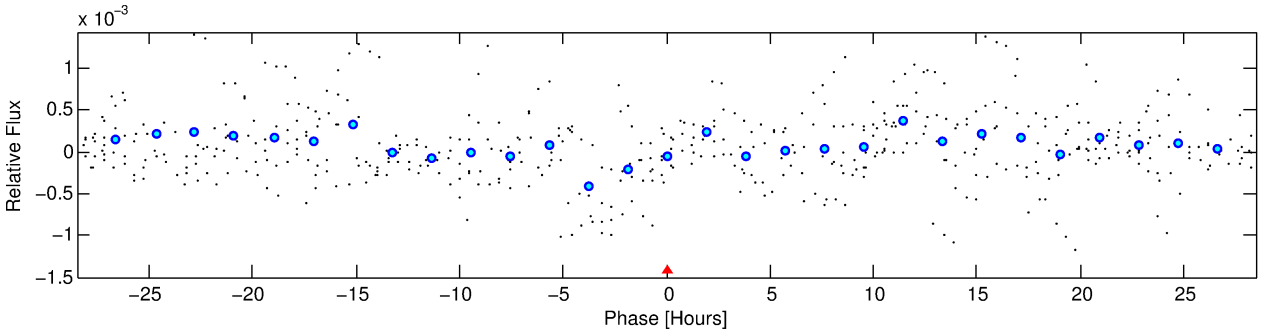
DV One-Page Summary

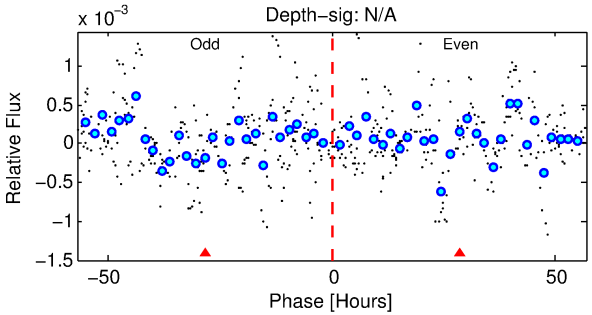
KIC: 5213157 Candidate: 7 of 7 Period: 19.289 d

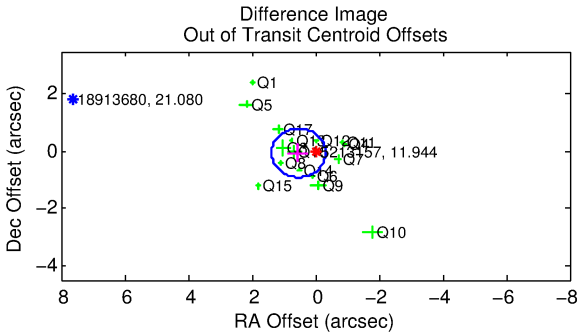












TPS TCE Results:

Period = 19.28936 d
Epoch = 148.0554 BKJD

DV fit results are unavailable

DV Diagnostic Results:

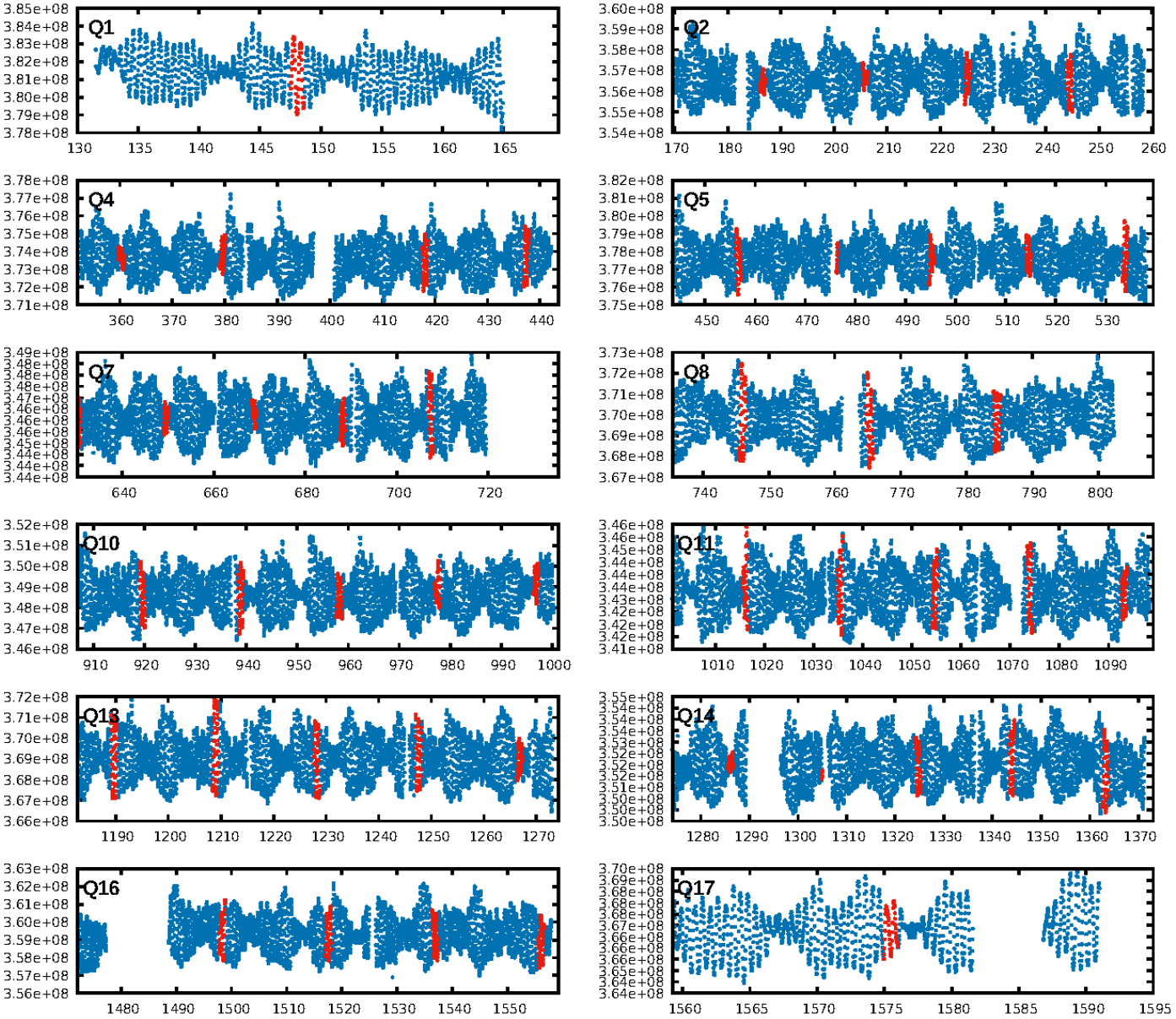
ShortPeriod−sig: 99.8% [3.14σ]
LongPeriod−sig: 100.0% [19.55σ]
ModelChiSquare2−sig: N/A
ModelChiSquareGof−sig: N/A
Bootstrap−pfa: N/A
RollingBand−fgt: 1.00 [27/27]
GhostDiagnostic−chr: 37.85

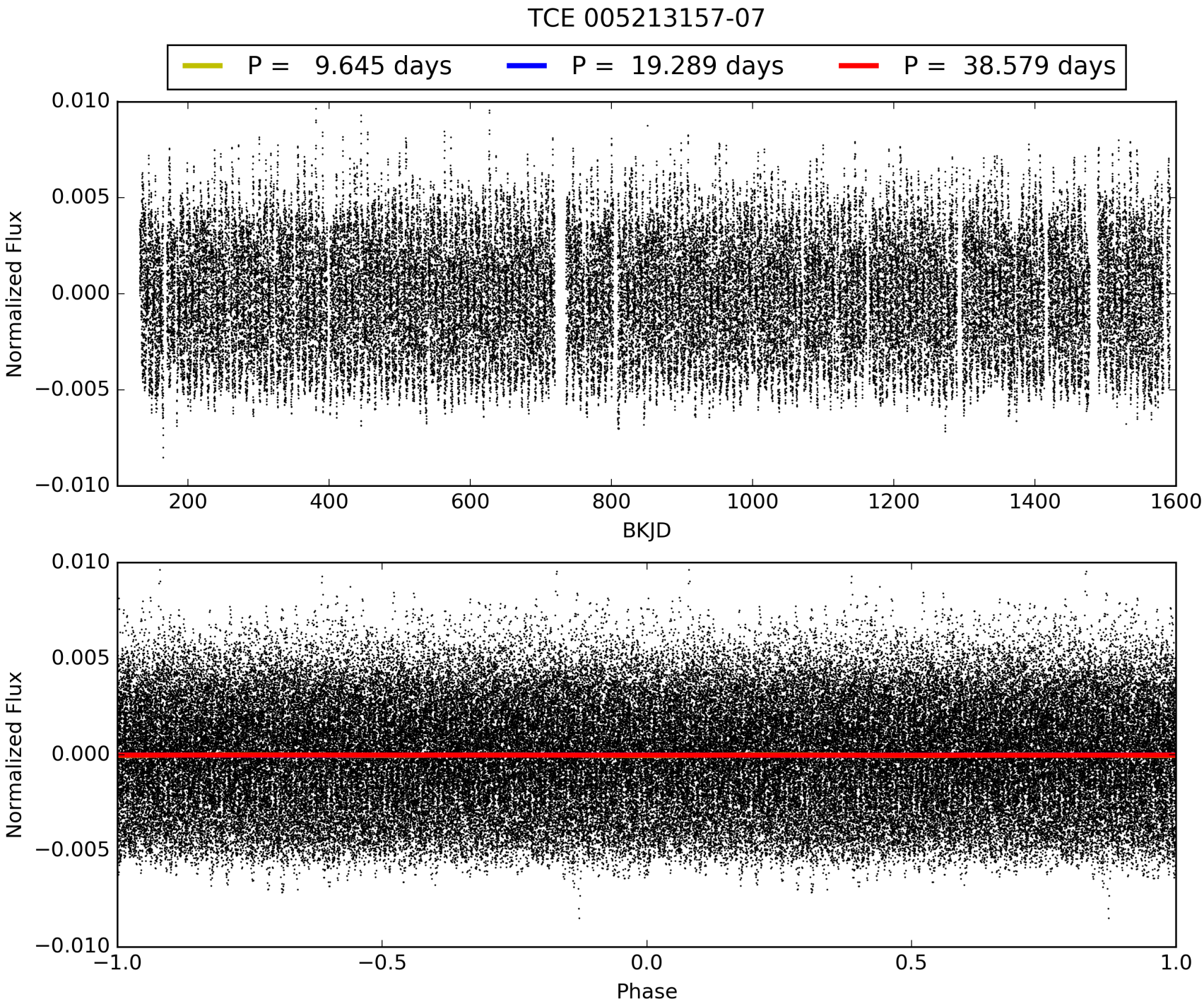
Centroid−sig: 82.9%
Centroid−so: 0.189 arcsec [6.14σ]
OotOffset−rm: 0.541 arcsec [1.91σ]
KicOffset−rm: 0.504 arcsec [2.00σ]
OotOffset−st: 3/4/4/5 [16]
KicOffset−st: 3/4/4/5 [16]
DiffImageQuality−fgm: 0.56 [9/16]
DiffImageOverlap−fno: 0.00 [0/17]

Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30−Jan−2016 16:40:31 Z

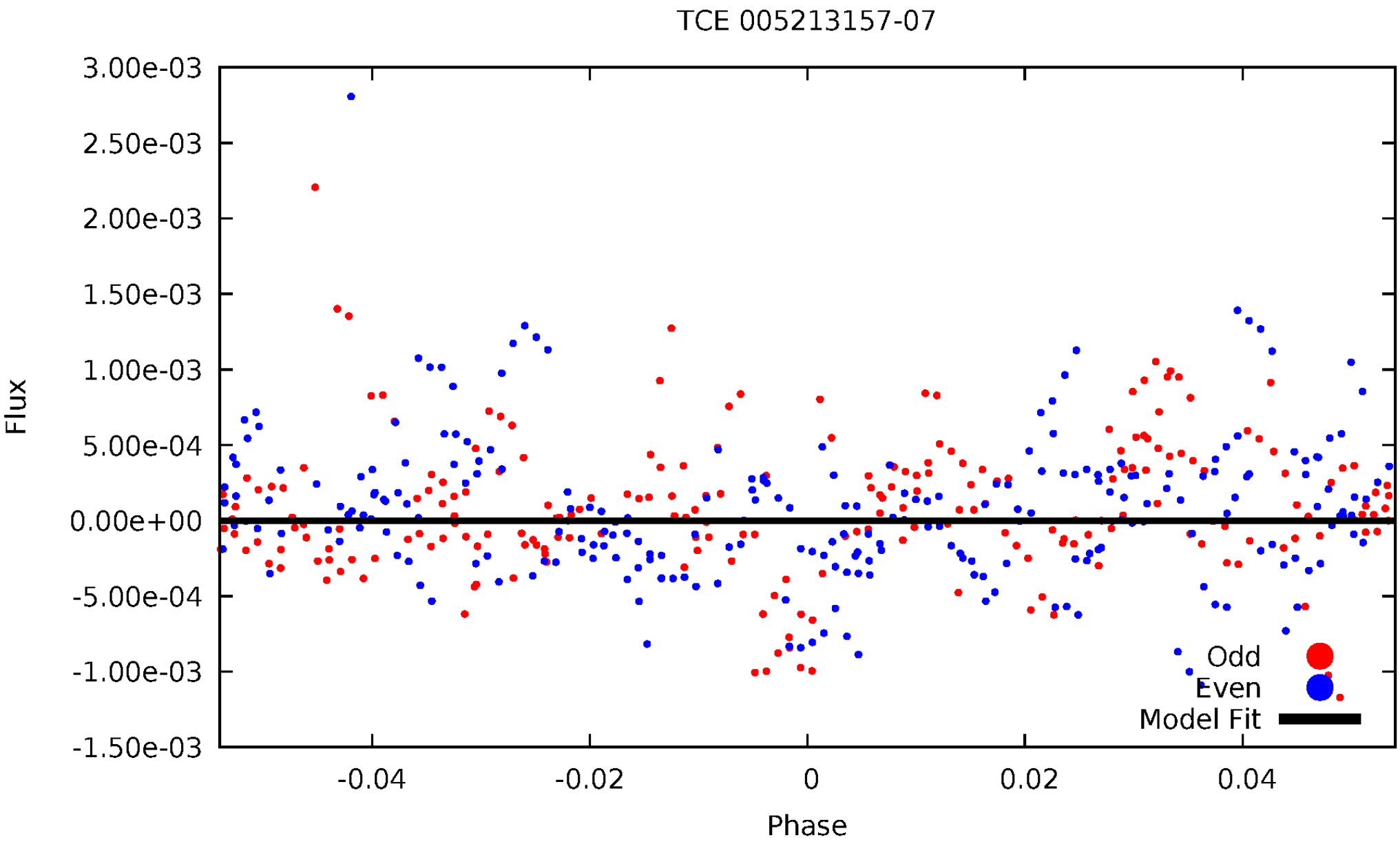
This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

TCE 005213157-07, PDC Light Curves

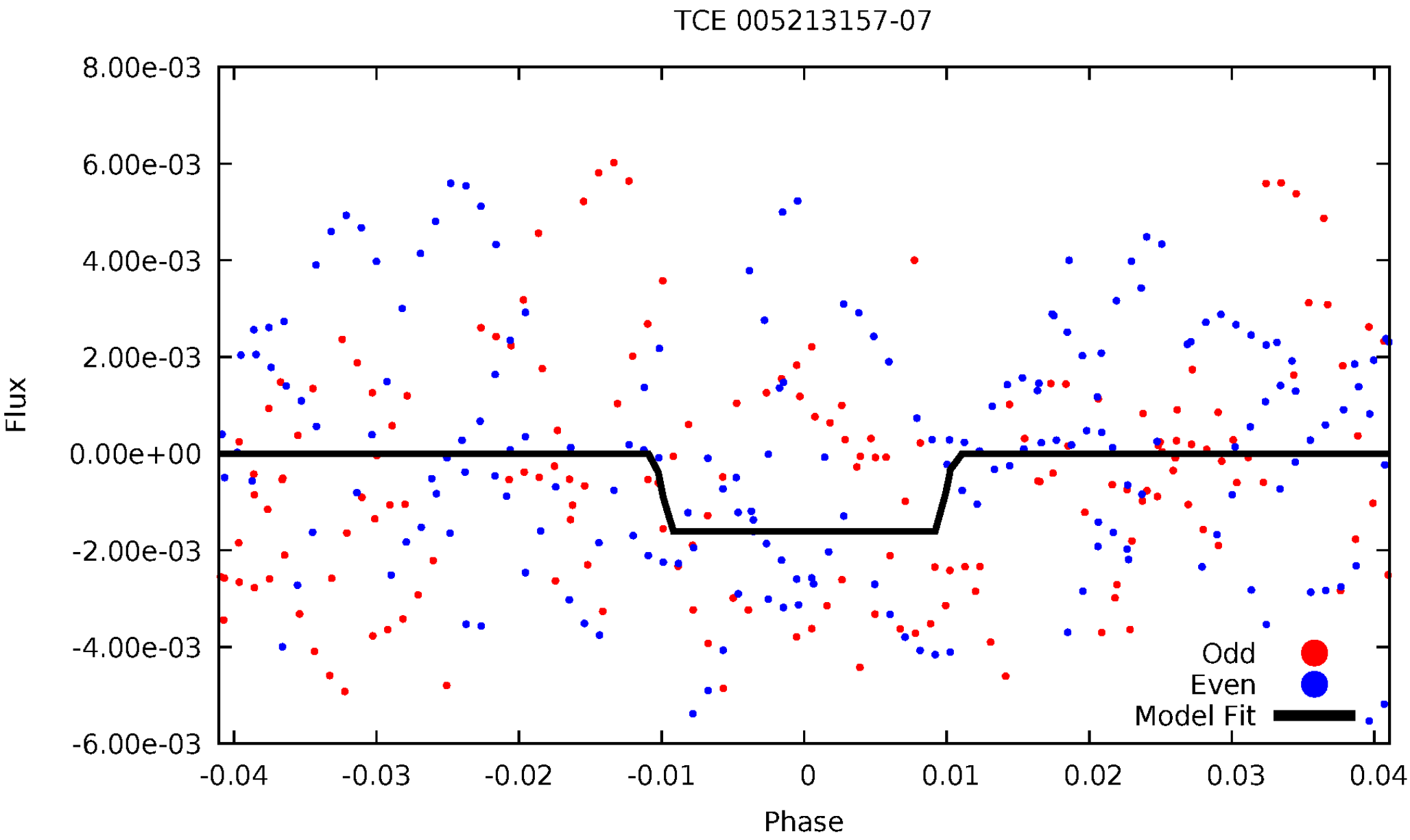



TCE 005213157-07
P = 9.645 days
P = 19.289 days
P = 38.579 days
Normalized Flux
0.010
0.005
0.000
−0.005
−0.010
200
400
600
800
1000
1200
1400
1600
BKJD
Normalized Flux
0.010
0.005
0.000
−0.005
−0.010
−1.0
−0.5
0.0
0.5
1.0
Phase

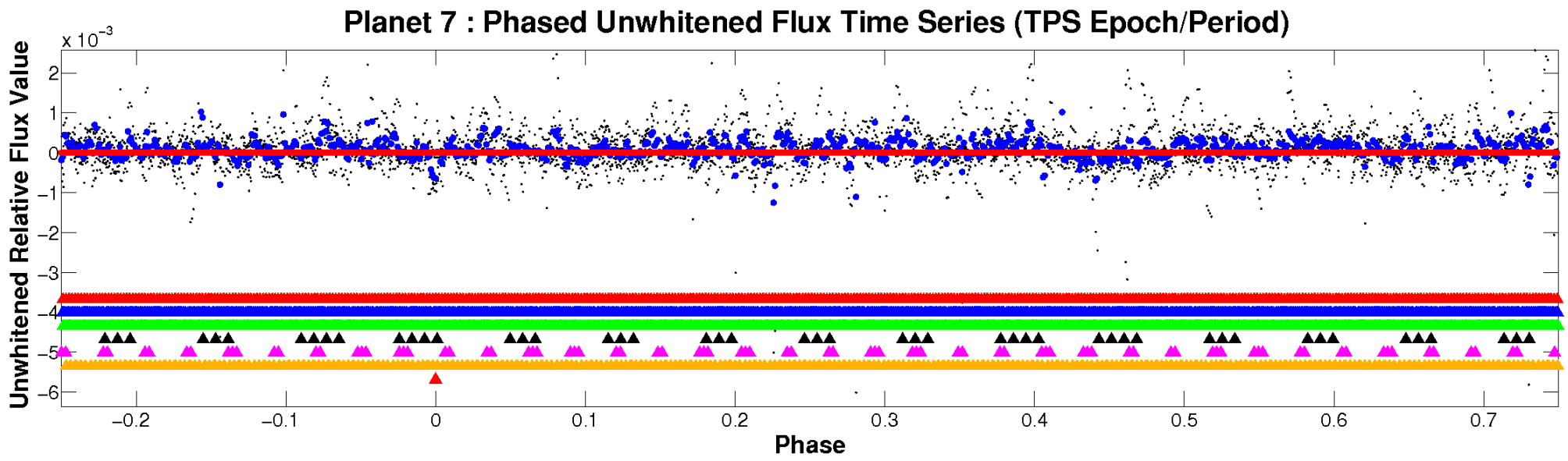
DV Odd/Even

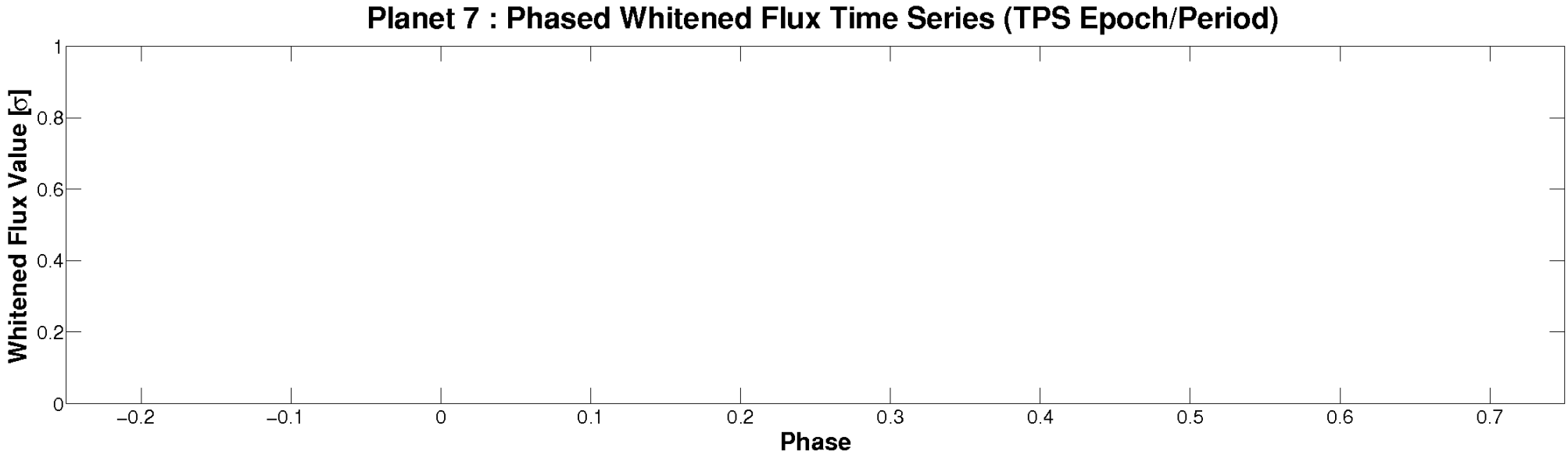

TCE 005213157-07
3.00e-03
2.50e-03
2.00e-03
1.50e-03
1.00e-03
5.00e-04
0.00e+00
-5.00e-04
-1.00e-03
-1.50e-03
Flux
-0.04
-0.02
0
0.02
0.04
Phase
Odd
Even
Model Fit

ALT Odd/Even


TCE 005213157-07
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
-0.04
-0.03
-0.02
-0.01
0
0.01
0.02
0.03
0.04
Phase
Odd
Even
Model Fit

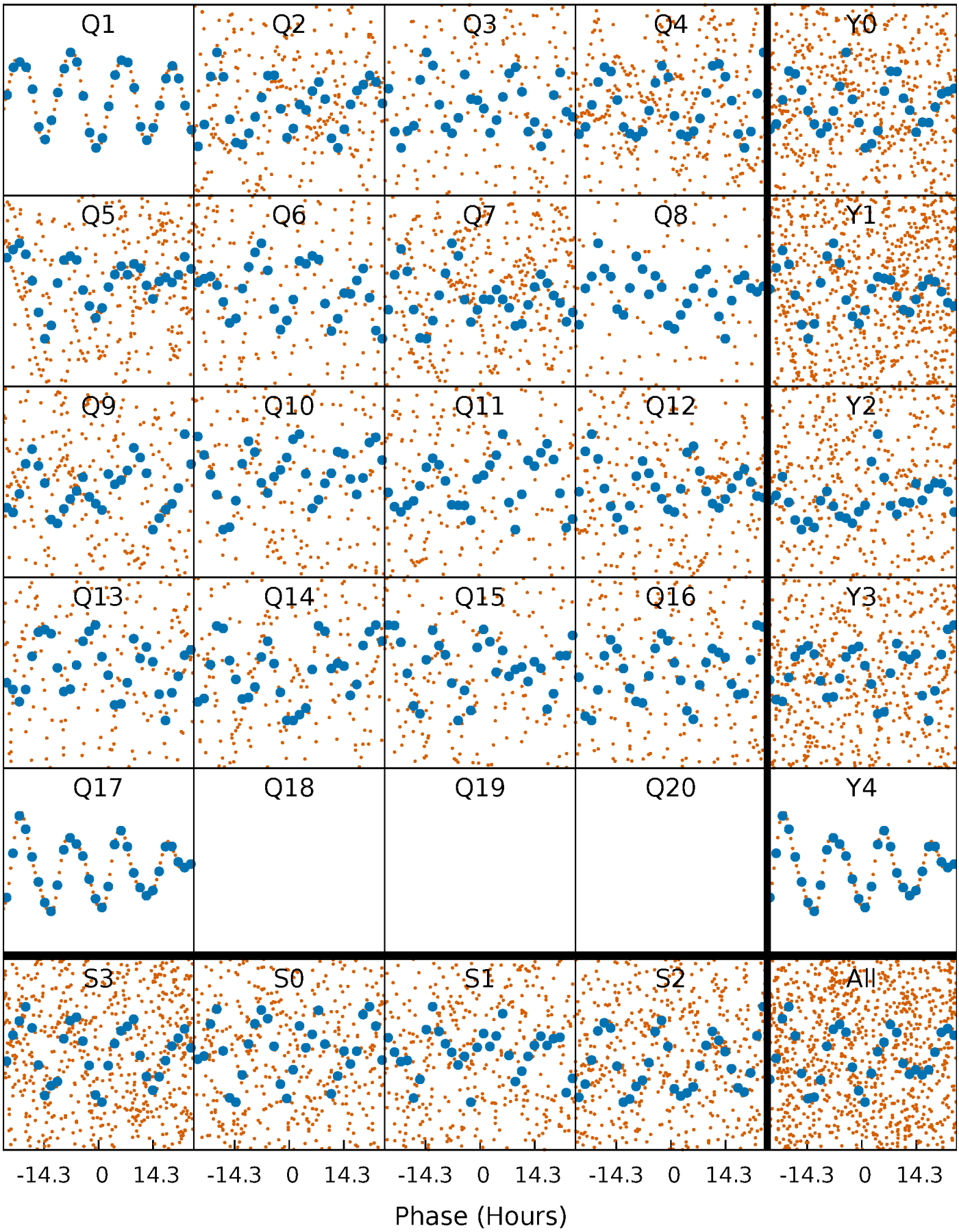
Non-Whitened Vs. Whitened Light Curve





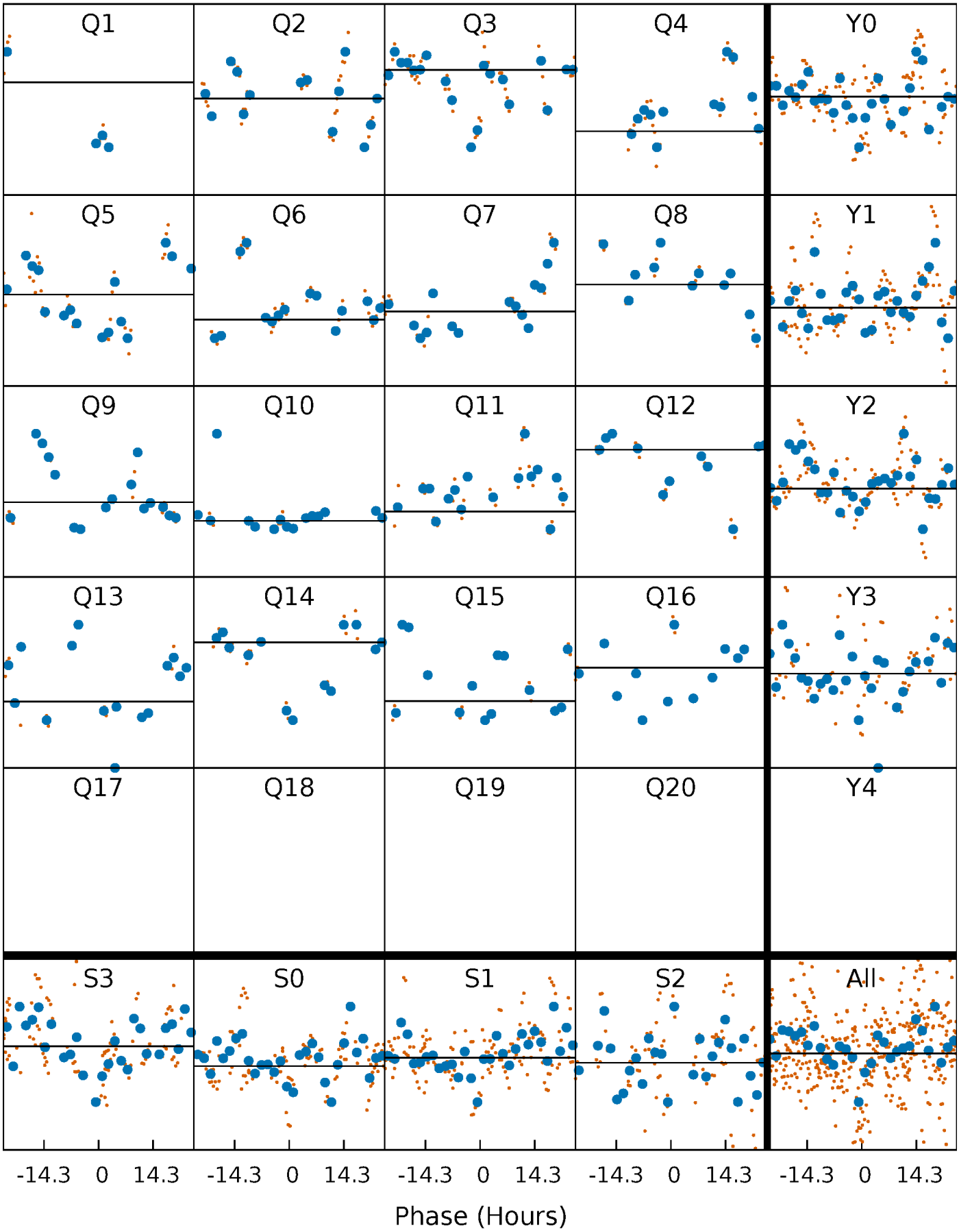
PDC Quarter-Phased Transit Curves

TCE 005213157-07 P= 19.289356 Days T_0=148.055366 (BKJD)



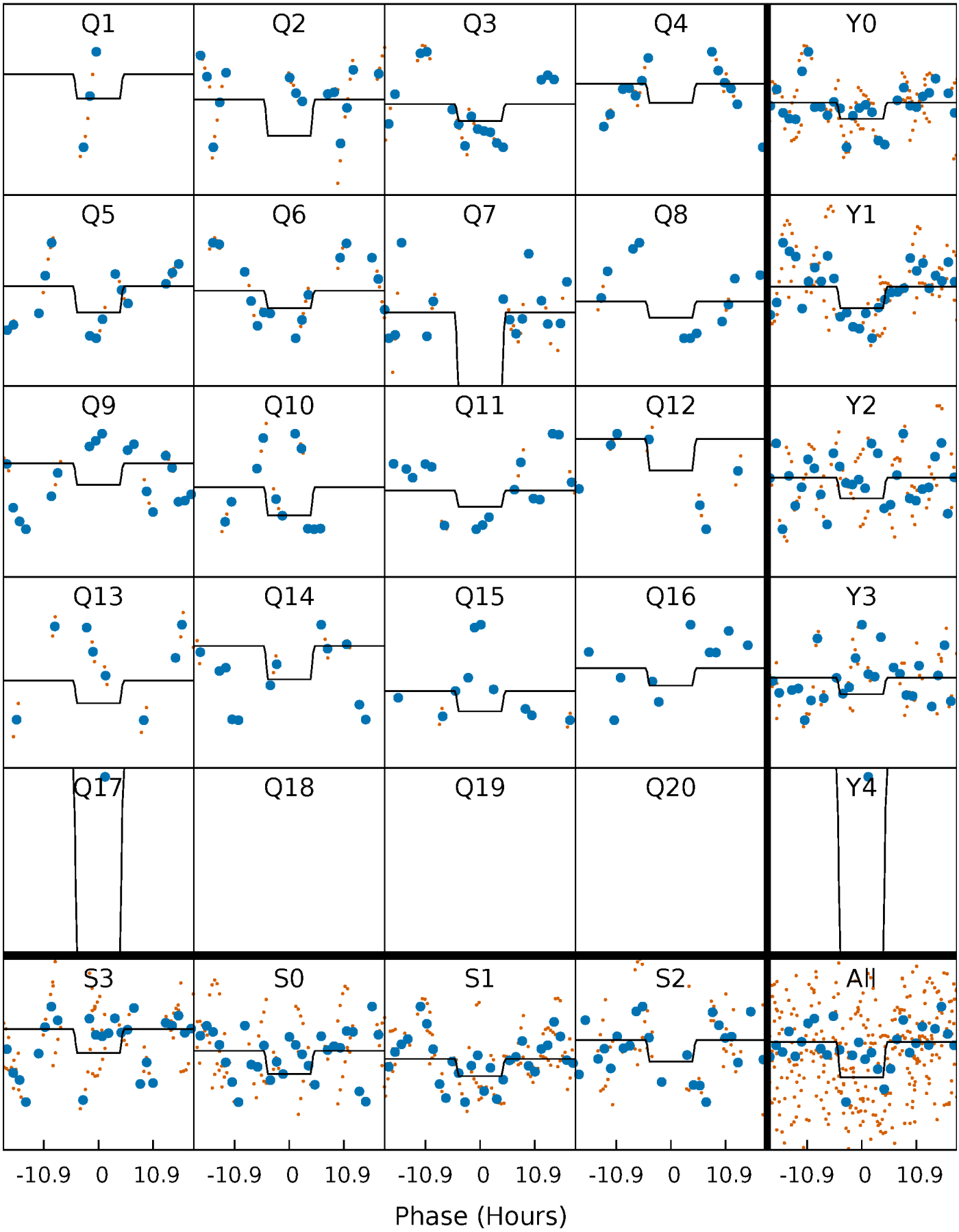
DV Quarter-Phased Transit Curves

TCE 005213157-07 P= 19.289356 Days T_0=148.055366 (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

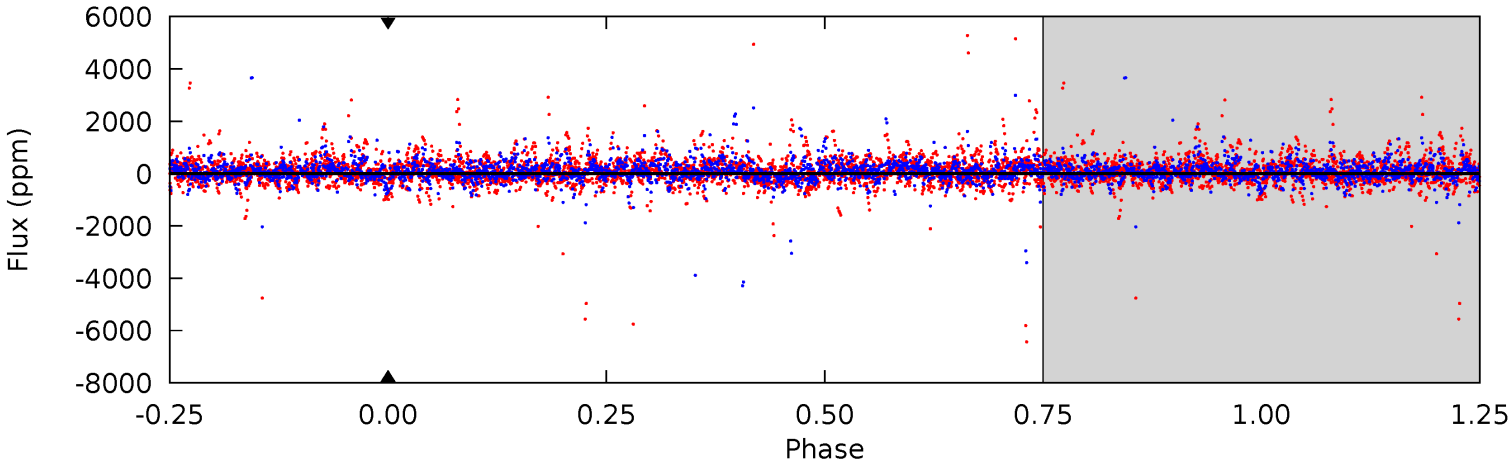
TCE 005213157-07 P= 19.289356 Days T_0=148.173615 (BKJD)

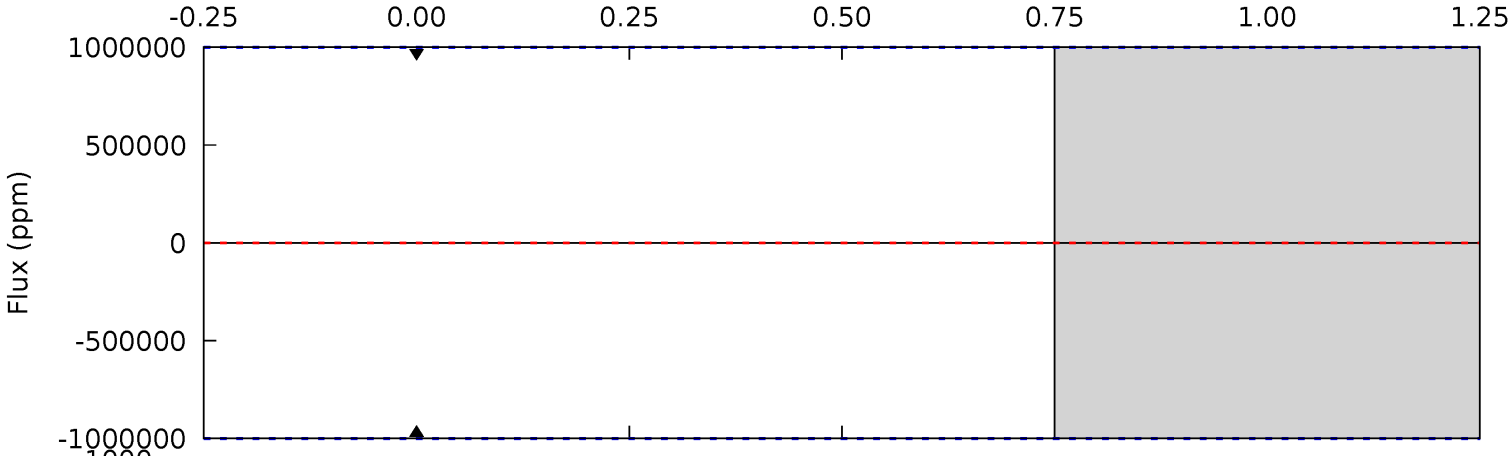


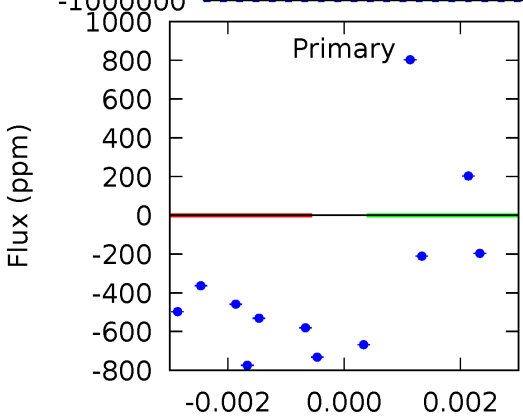
DV Model-Shift Uniqueness Test

005213157-07, P = 19.289356 Days, E = 128.766010 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



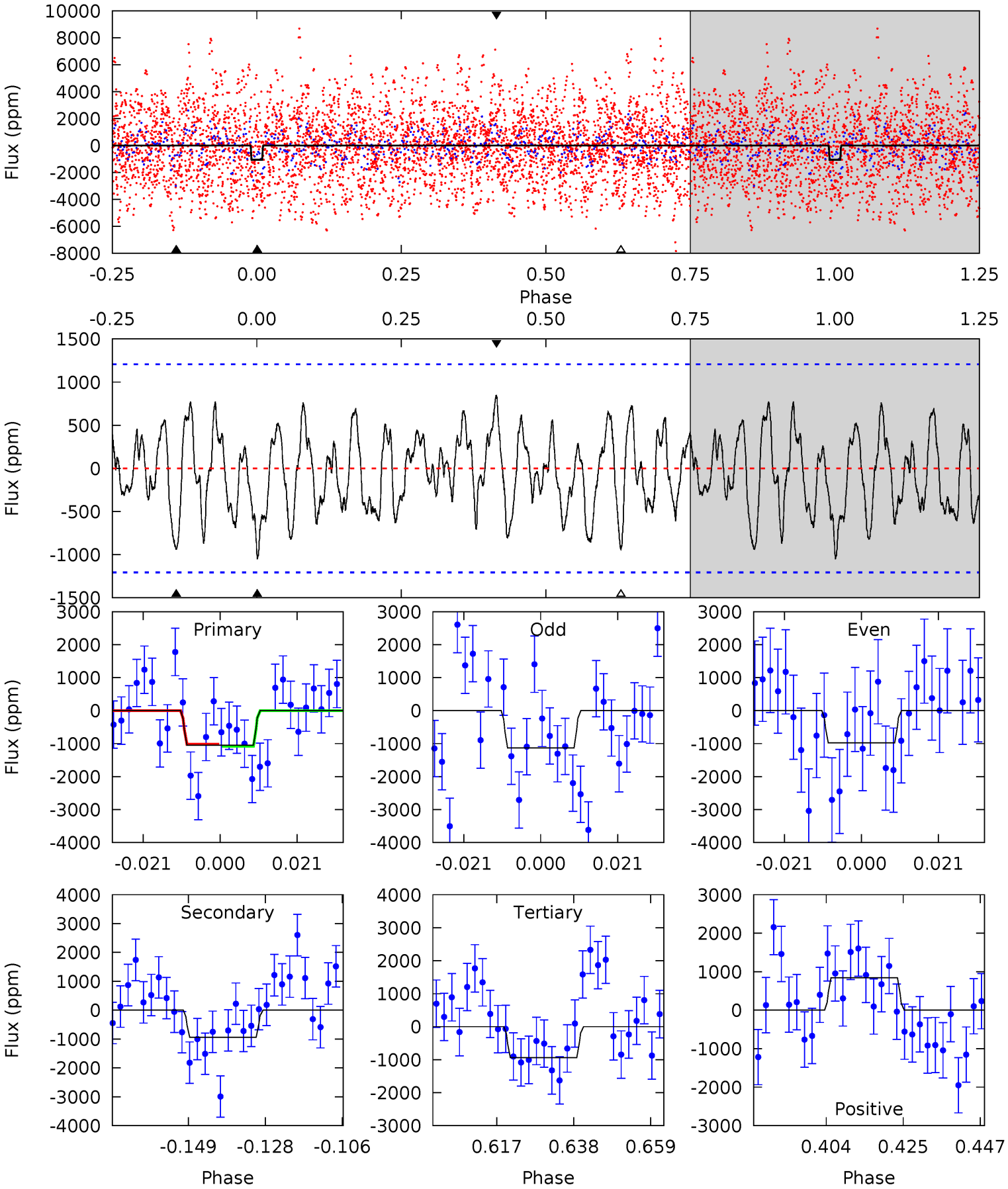




Alt Model-Shift Uniqueness Test

005213157-07, P = 19.289356 Days, E = 128.884259 Days

Pri	Sec	Ter	Pos	FA_1	FA_2	F_{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
4.26	3.81	3.79	3.41	4.88	2.30	1.56	0.46	0.85	0.02	0.40	0.32	0.76	0.44	0.13



Stellar Parameters For KIC 005213157

	$T_{\rm eff}(K)$	$\log(g)$	[Fe/H]	R ($R_\odot$)	$M(M_\odot)$	$p_\star$ (g·cm^{-3})
	8485^{+235}_{-369}	$3.762^{+0.392}_{-0.140}$	$-0.160^{+0.400}_{-0.350}$	$3.096^{+0.929}_{-1.393}$	$2.024^{+0.395}_{-0.439}$	$0.096^{+0.363}_{-0.043}$
	+3%/-4%	+10%/-4%	+250%/-219%	+30%/-45%	+20%/-22%	+378%/-45%
Source	KIC0	KIC0	KIC0	DSEP		

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

Secondary Eclipse Parameters for KIC 005213157-07 / KOI

Detrend	Depth (ppm)	R_p ($R_\oplus$)	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	0±1000000	$22.45^{+24.06}_{-15.49}$	2122^{+176}_{-261}	-5190^{+62854}_{-45941}	$-26.448^{+6360.734}_{-5546.385}$
Alt.	-942±247	$25.48^{+24.96}_{-17.97}$	2110^{+190}_{-228}	5029^{+4562}_{-1184}	25^{+275}_{-19}

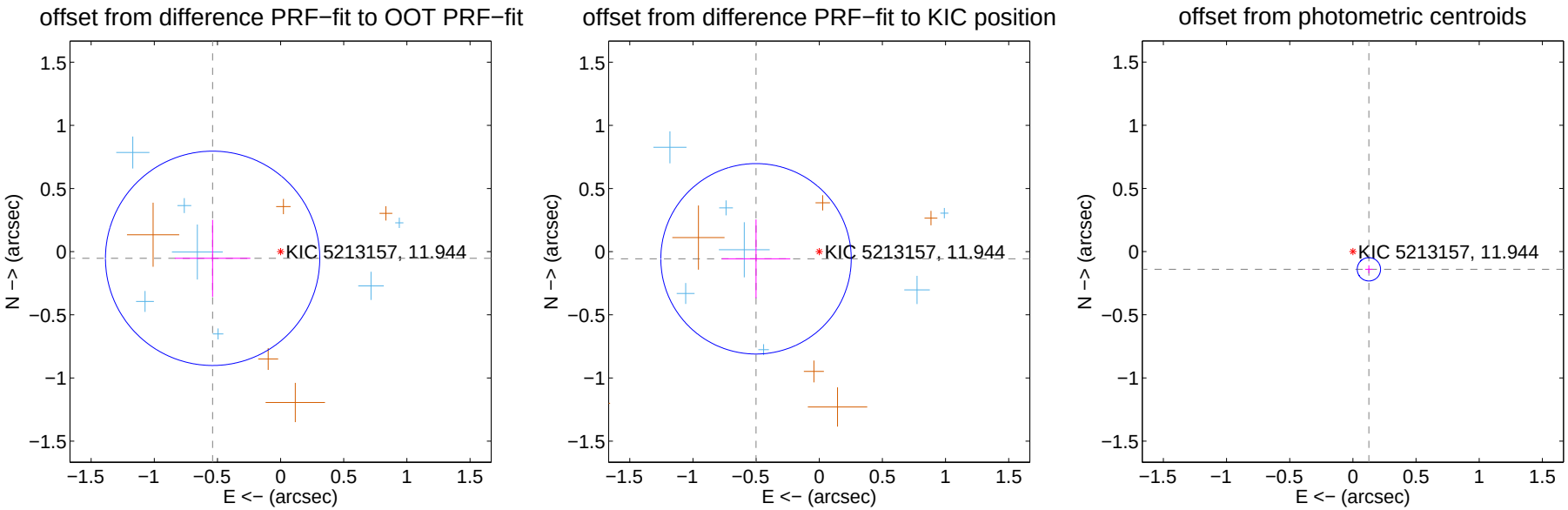
T_{max} = Theoretical Maximum Planetary Temperature
T_{obs} = Observed Planetary Temperature (Assuming A=0.3)
A_{obs} = Observed Albedo (Assuming T=0)

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

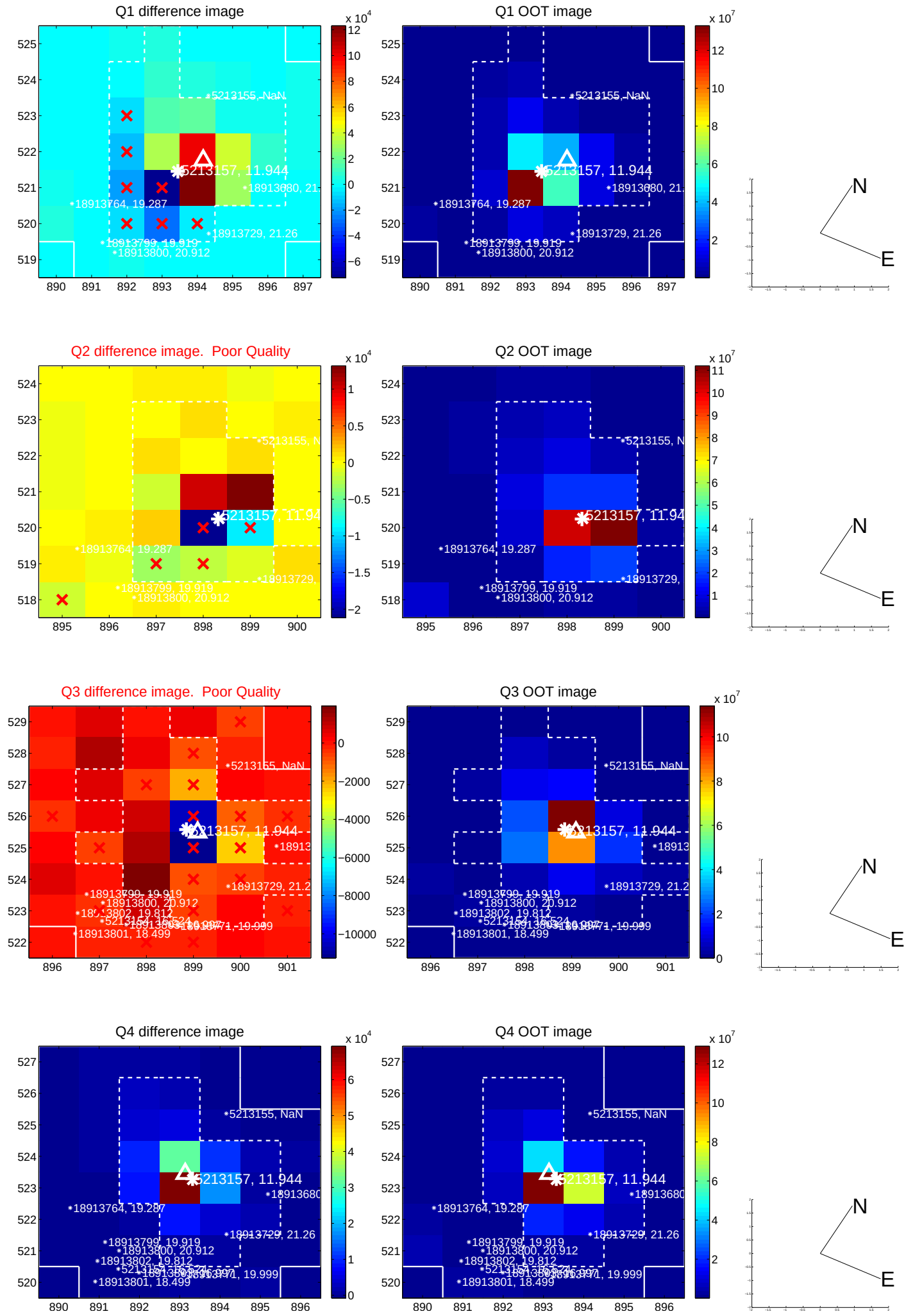
Supplemental centroid analysis for 005213157-07. Kepler magnitude: 11.94. Transit SNR -1.00
There are 9 quarters with good PRF difference image offsets
The direct PRF centroid is offset from the target star catalog position by about 0.04 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.541 ± 0.283	1.91	0.538 ± 0.299	-0.053 ± 0.305
PRF-fit source offset from KIC position	0.504 ± 0.251	2.00	0.501 ± 0.271	-0.056 ± 0.311
photometric centroid source offset	0.19 ± 0.03	6.14	-0.13 ± 0.03	-0.14 ± 0.03

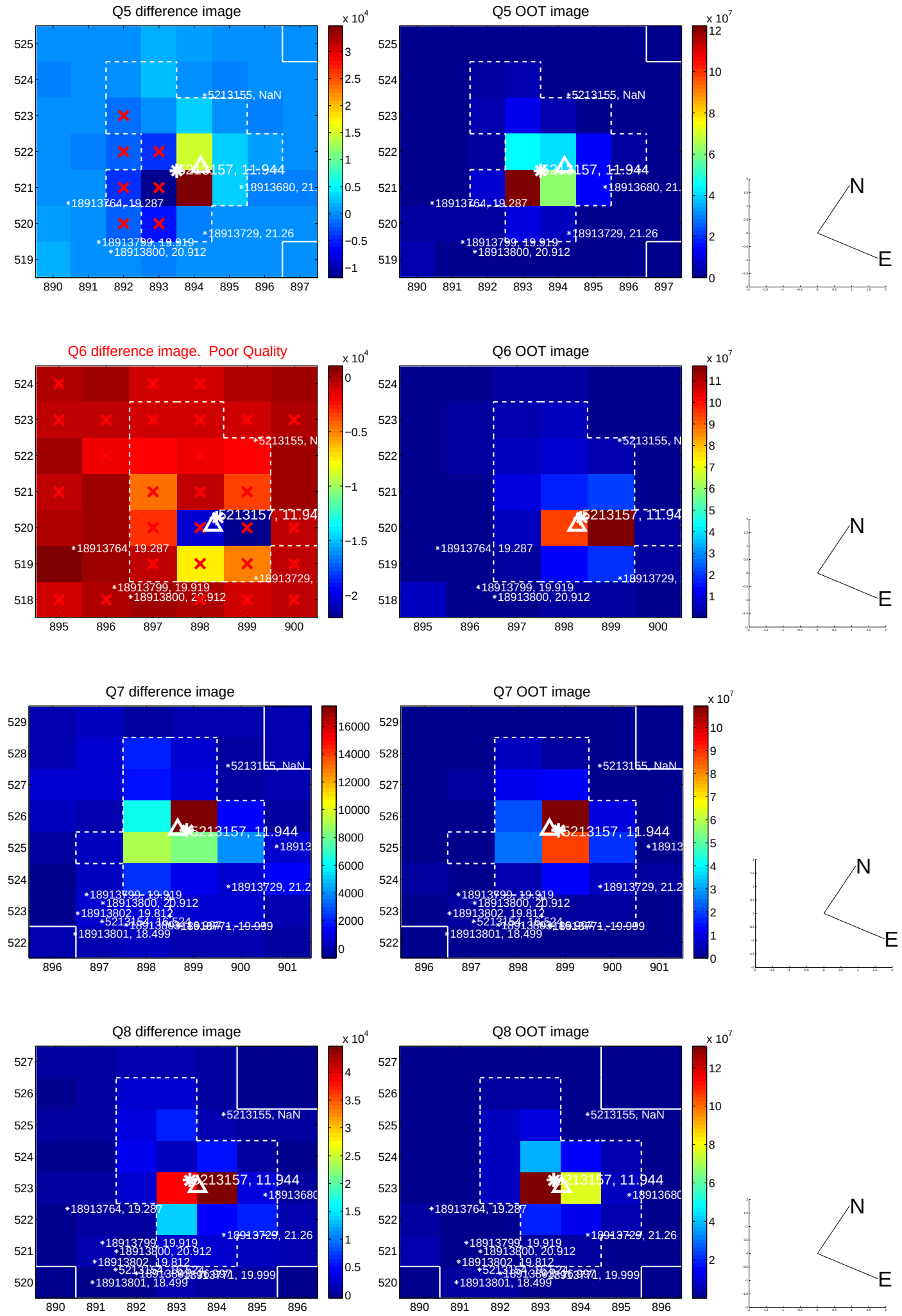


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one-σ uncertainty. Blue circle: three-σ. Red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

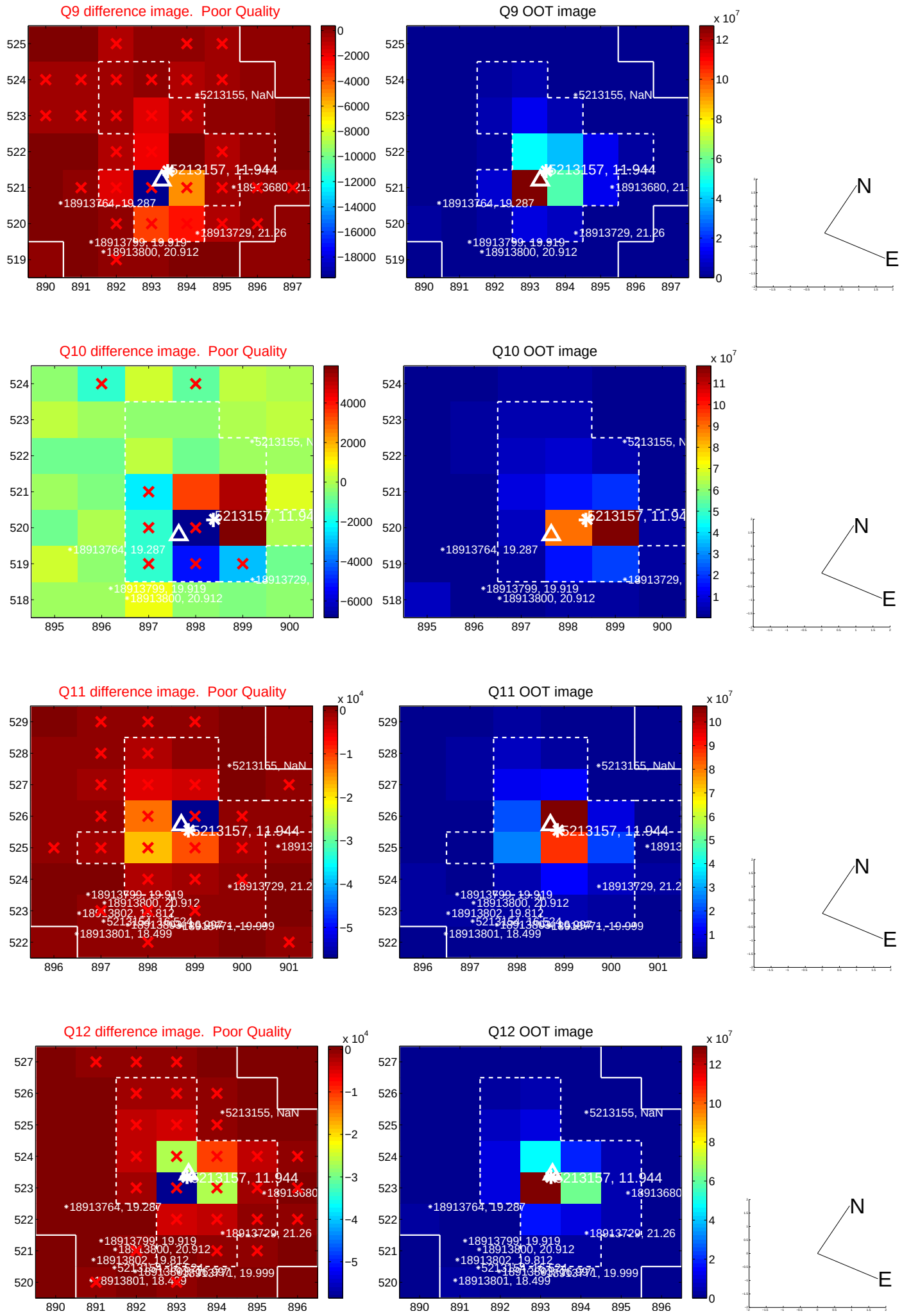
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.



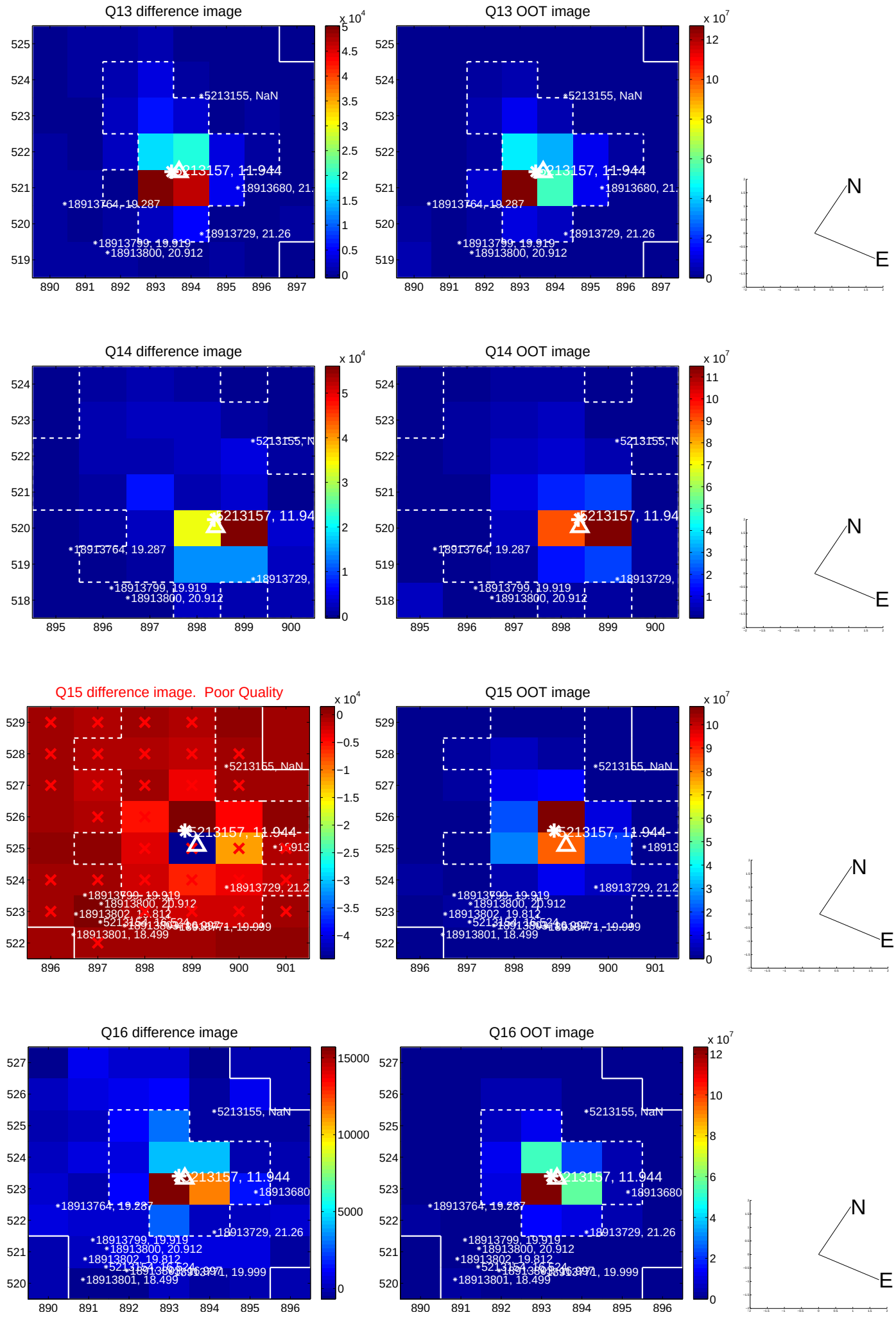
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ✕: large negative pixel value.



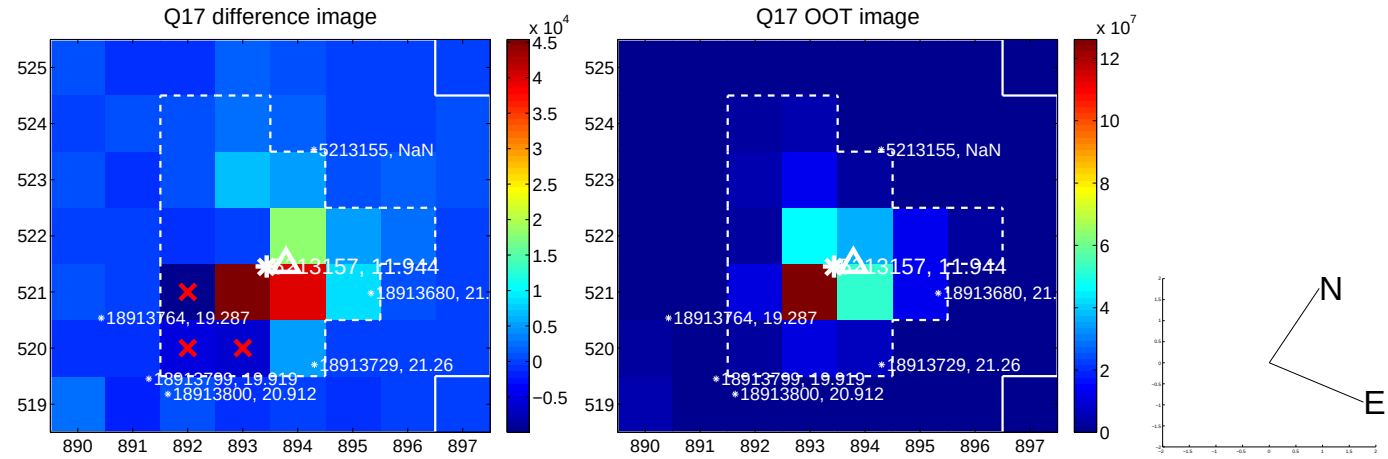
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.

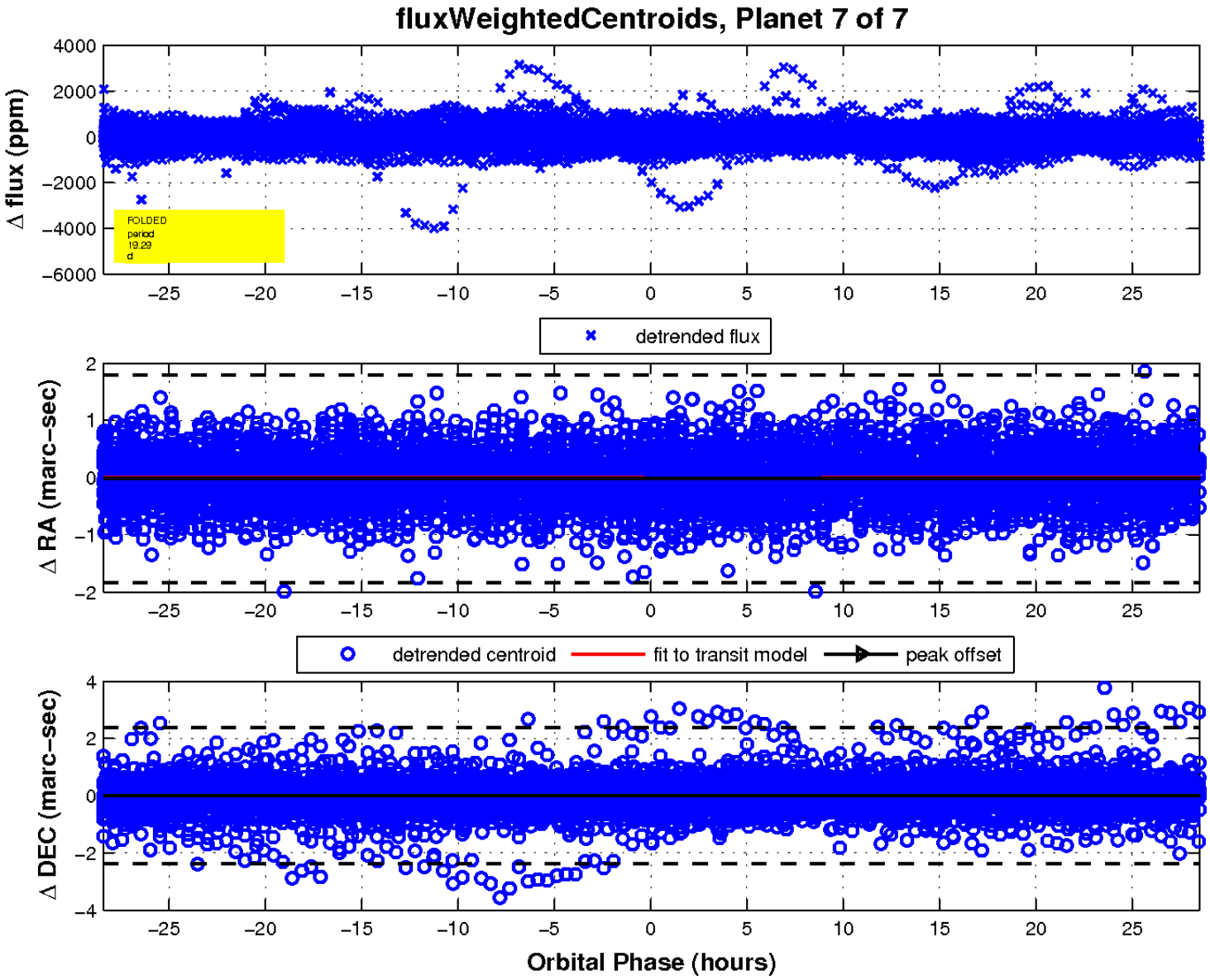


white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.

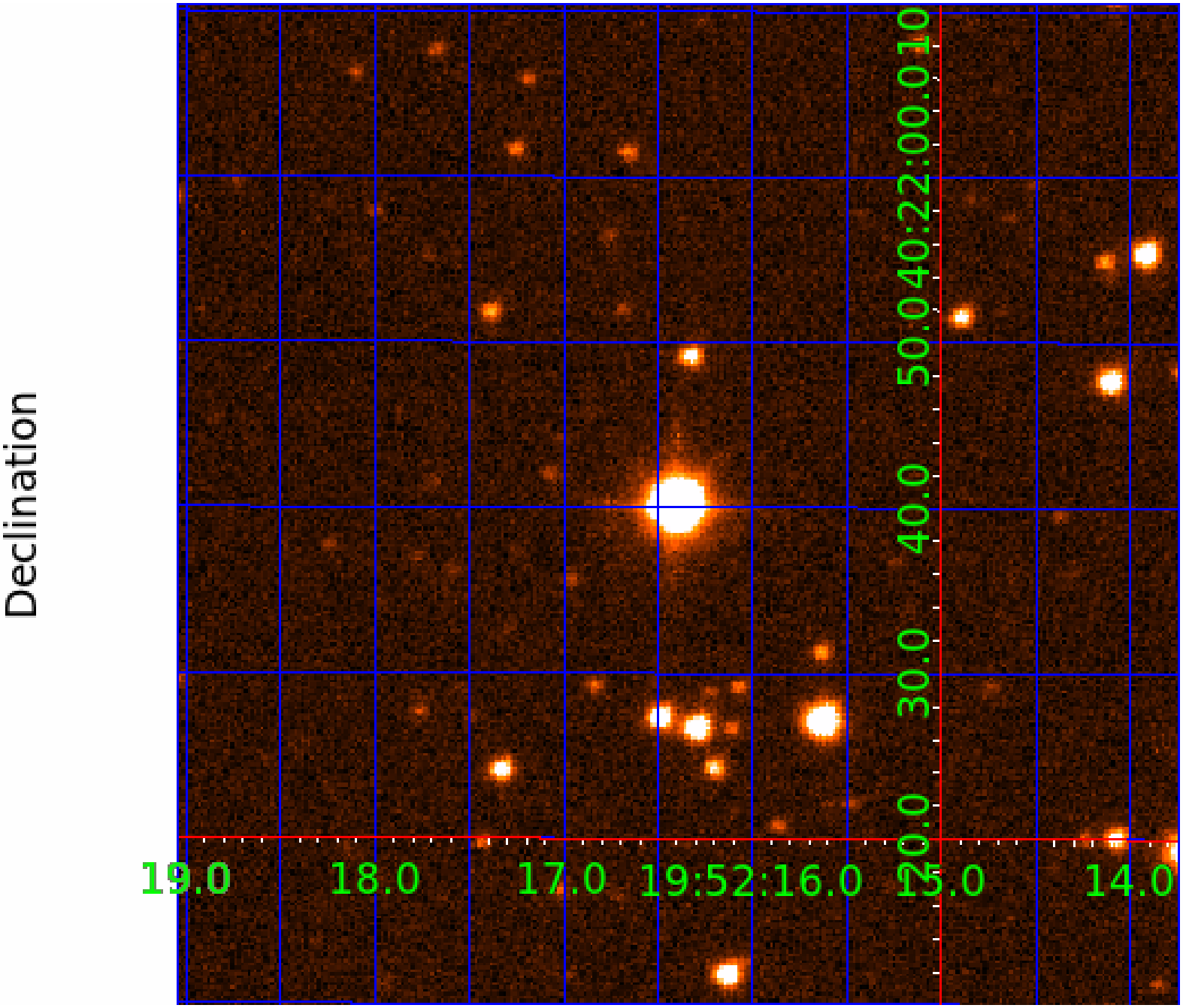


white ×: KIC target position; +: OOT centroid; △: difference centroid. red ✕: large negative pixel value.





UKIRT Image


Declination
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