KIC 006541920

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 ($S_\oplus$)
006541920-01	OBS	0157.03	31.995499	154.160762	1355.6	4.460	102.3	103.5	1.05	5657	4.37	27.21
006541920-02	OBS	0157.01	13.024922	138.176627	760.4	4.795	94.9	96.8	1.05	5657	3.23	90.20
006541920-03	OBS	0157.02	22.687165	148.454362	959.6	5.625	94.0	99.1	1.05	5657	3.48	43.04
006541920-04	OBS	0157.05	118.378578	168.908526	1104.5	9.700	57.5	61.6	1.05	5657	3.55	4.76
006541920-05	OBS	0157.04	46.686019	131.665574	562.7	7.276	40.5	43.4	1.05	5657	2.98	16.44
006541920-06	OBS	0157.06	10.304027	138.501918	297.9	4.610	41.0	44.0	1.05	5657	2.21	123.29

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
006541920-01	OBS	PC	1.00	0	0	0	0	NO_COMMENT
006541920-02	OBS	PC	1.00	0	0	0	0	NO_COMMENT
006541920-03	OBS	PC	1.00	0	0	0	0	NO_COMMENT
006541920-04	OBS	PC	1.00	0	0	0	0	NO_COMMENT
006541920-05	OBS	PC	1.00	0	0	0	0	NO_COMMENT
006541920-06	OBS	PC	1.00	0	0	0	0	NO_COMMENT

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.

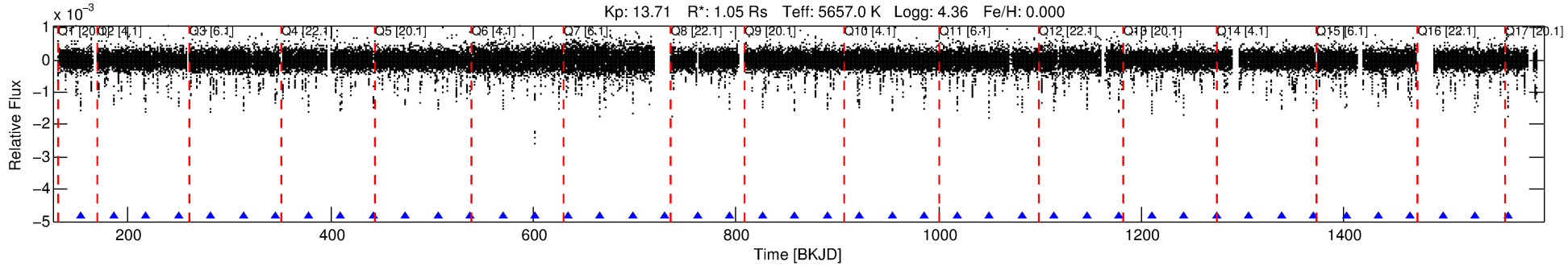
Ephemeris Match Information For 006541920-01

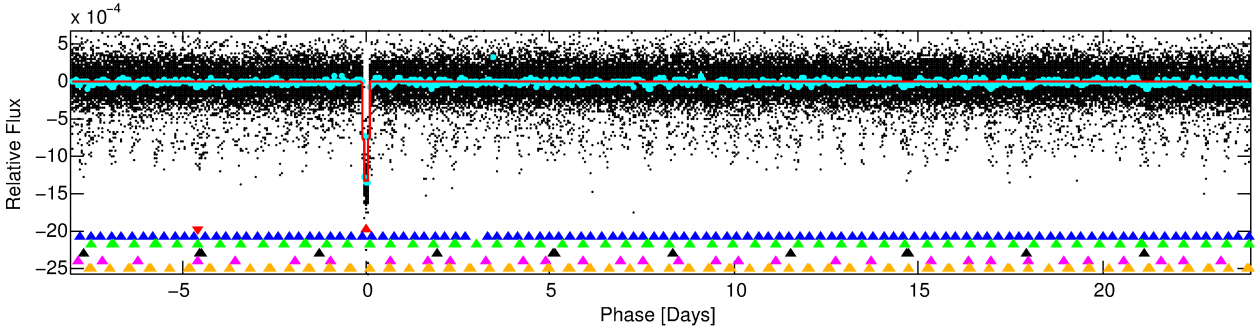
No Significant Match Found

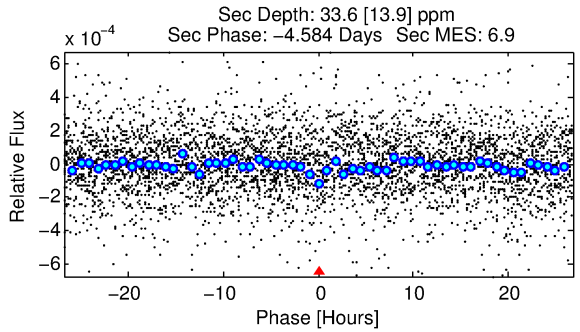
DV One-Page Summary

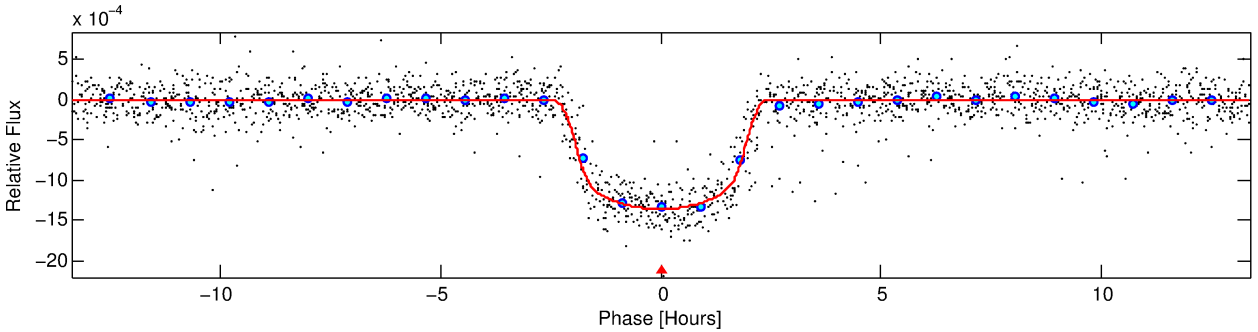
KIC: 6541920 Candidate: 1 of 6 Period: 31.995 d
KOI: K00157.03 Name: Kepler−11e Corr: 0.963

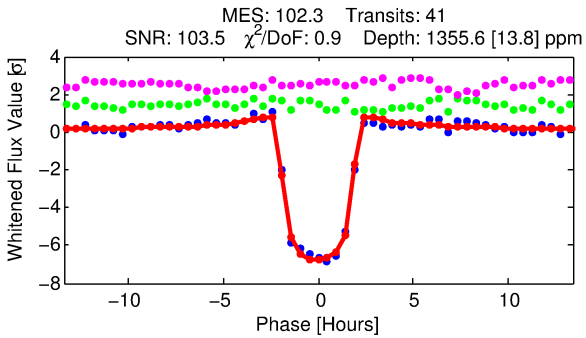
Kp: 13.71 R*: 1.05 Rs Teff: 5657.0 K Logg: 4.36 Fe/H: 0.000

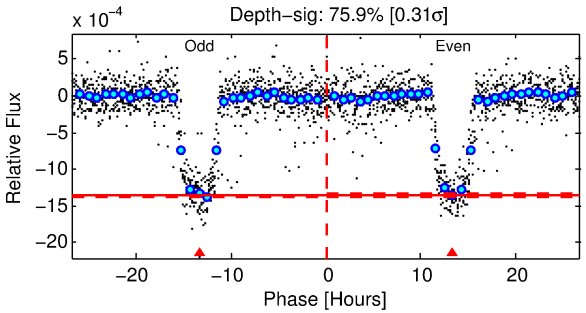


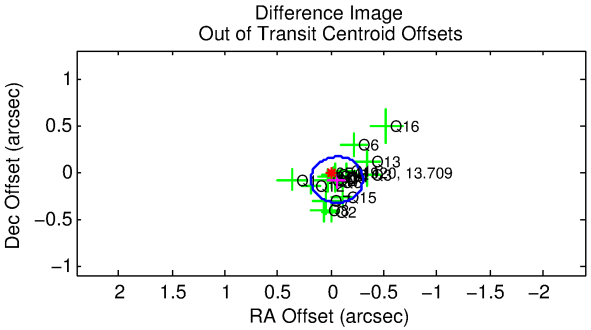












DV Fit Results:

Period = 31.99550 [0.00003] d
Epoch = 154.1608 [0.0009] BKJD
Rp/R* = 0.0382 [0.0009]
a/R* = 33.89 [3.34]
b = 0.83 [0.04]

Seff = 27.21 [3.38]
Teq = 582 [18] K
Rp = 4.37 [0.30] Re
a = 0.1921 [0.0116] AU

Ag = 35.76 [15.32] [2.27σ]
Teffp = 2202 [234] K [6.90σ]

DV Diagnostic Results:

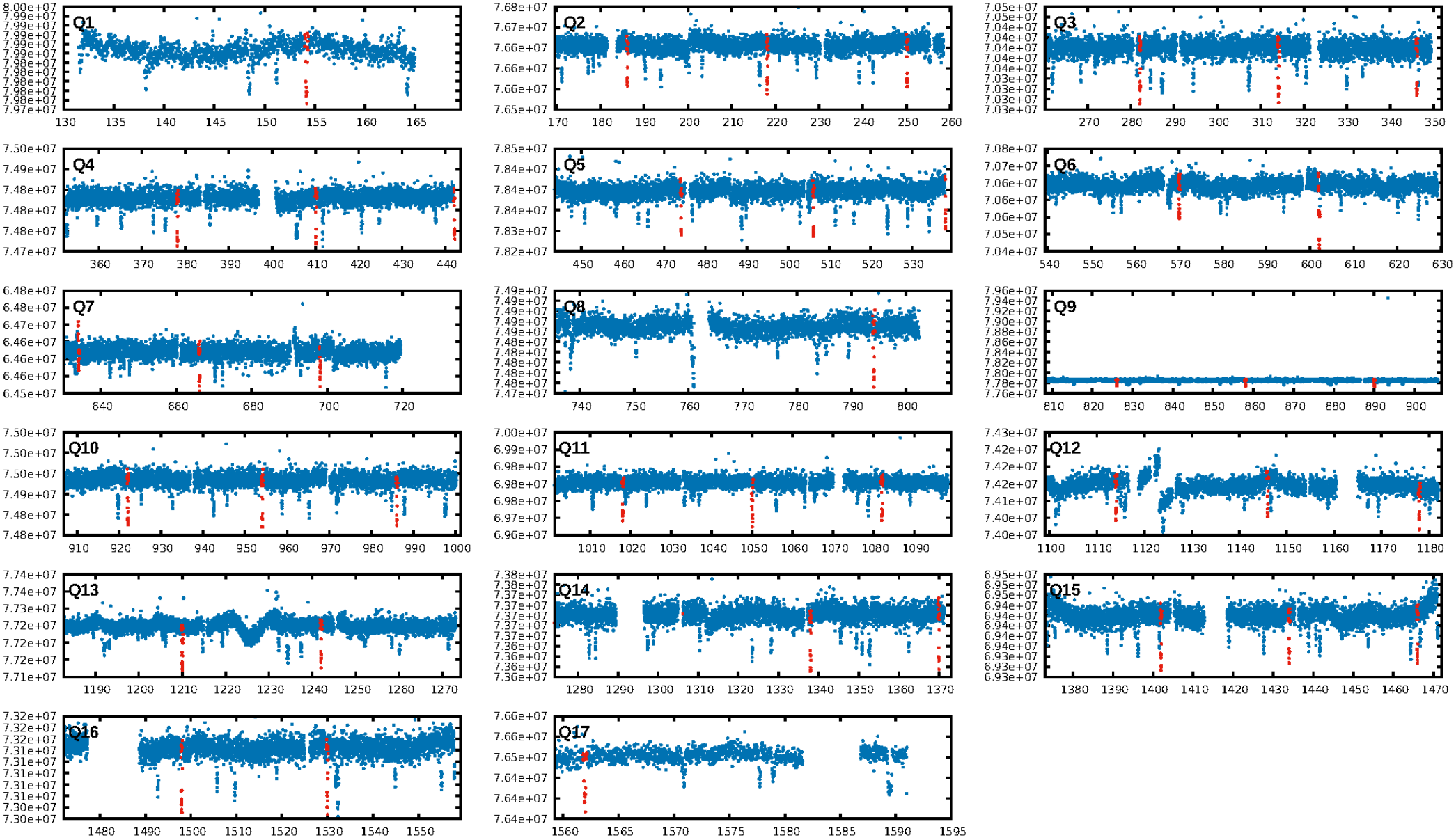
ShortPeriod−sig: 100.0% [31.12σ]
LongPeriod−sig: 100.0% [41.32σ]
ModelChiSquare2−sig: 92.6%
ModelChiSquareGof−sig: 100.0%
Bootstrap−pfa: 0.00e+00
RollingBand−fgt: 1.00 [39/39]
GhostDiagnostic−chr: 4.348

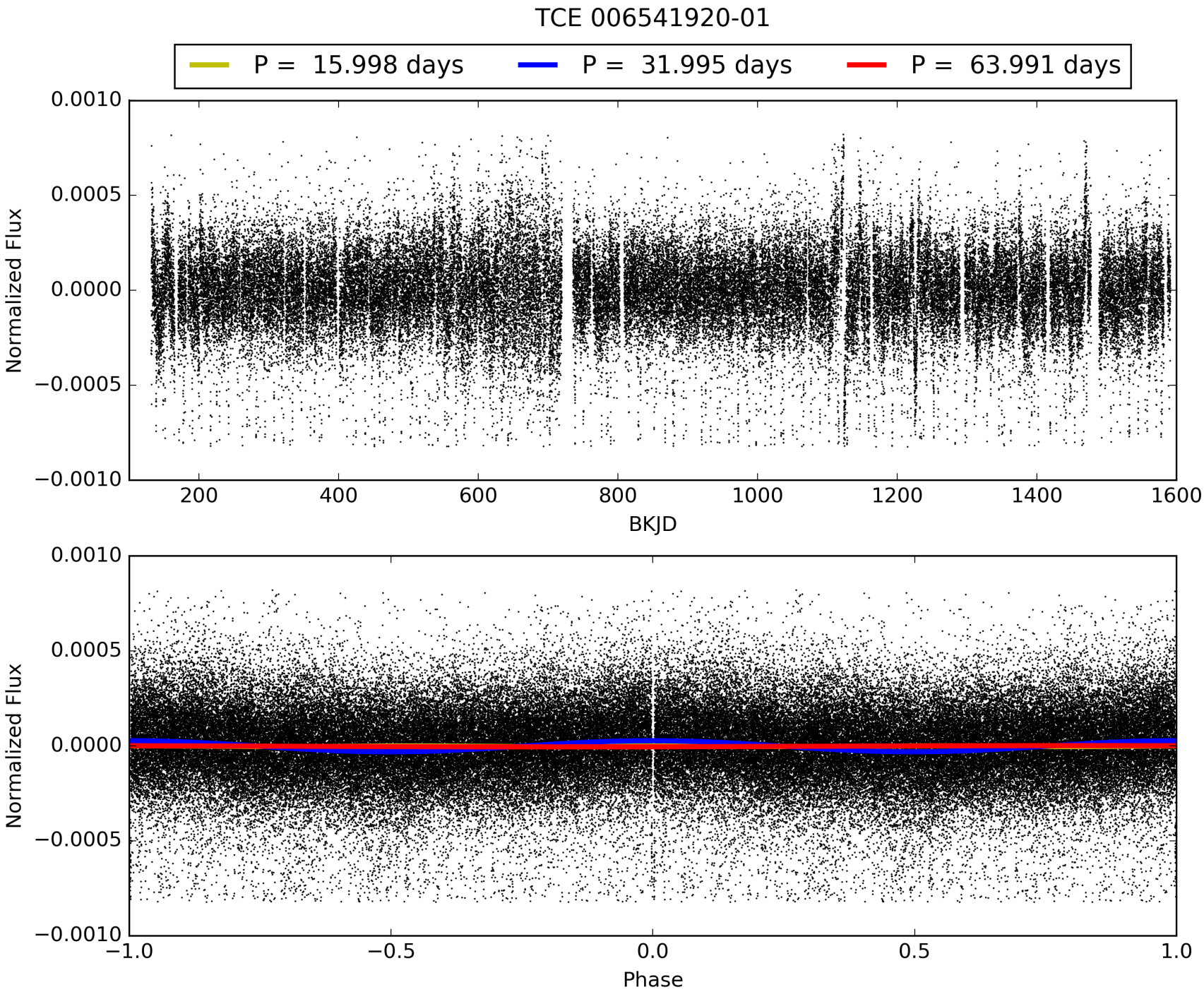
Centroid−sig: 0.0%
Centroid−so: 0.299 arcsec [3.26σ]
OotOffset−rm: 0.101 arcsec [1.23σ]
KicOffset−rm: 0.137 arcsec [1.41σ]
OotOffset−st: 4/4/4/5 [17]
KicOffset−st: 4/4/4/5 [17]
DiffImageQuality−fgm: 1.00 [17/17]
DiffImageOverlap−fno: 1.00 [17/17]

Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 −− Date Generated: 31−Jan−2016 13:02:50 Z

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

TCE 006541920-01, PDC Light Curves

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P = 15.998 days
P = 31.995 days
P = 63.991 days
Normalized Flux
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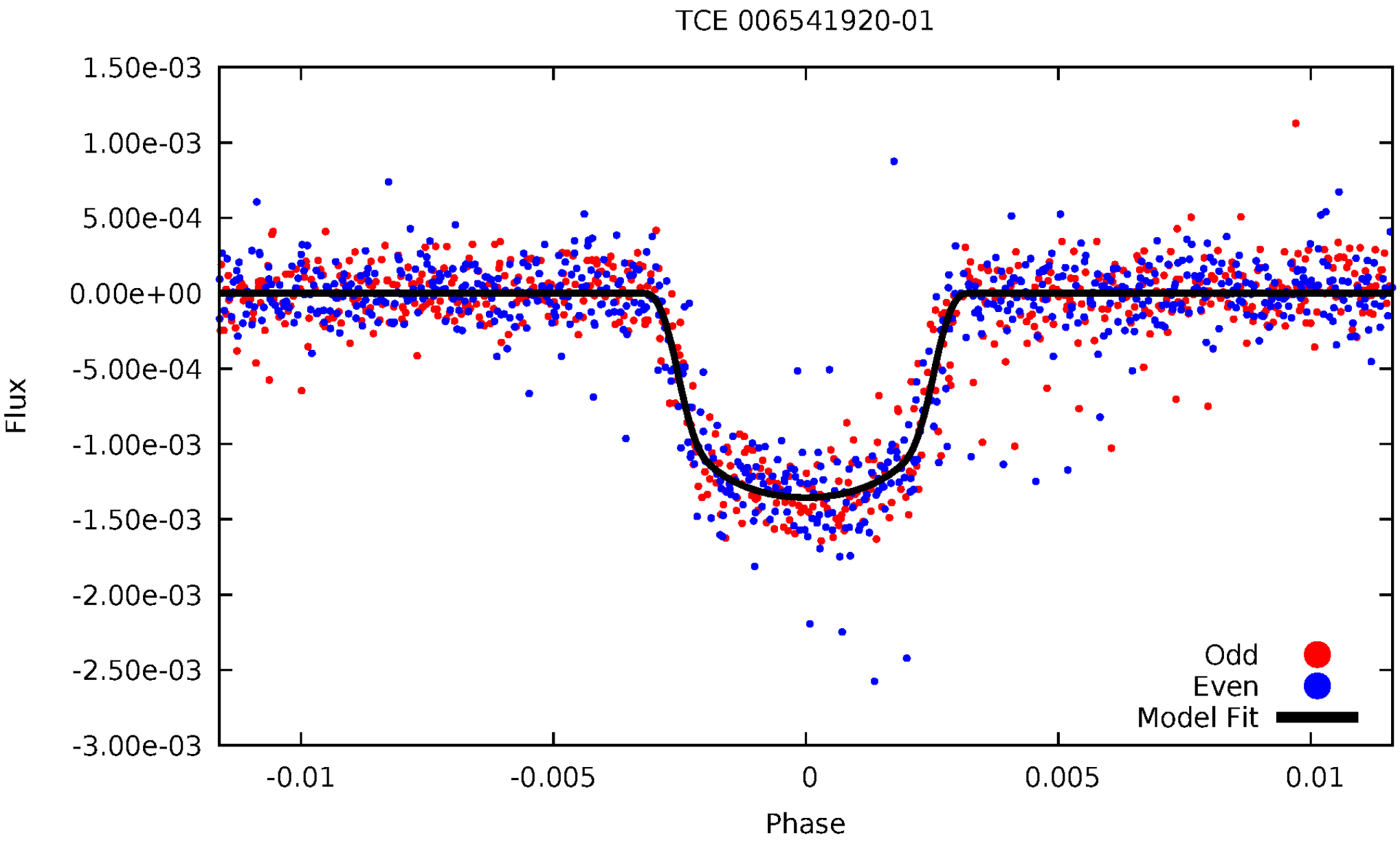
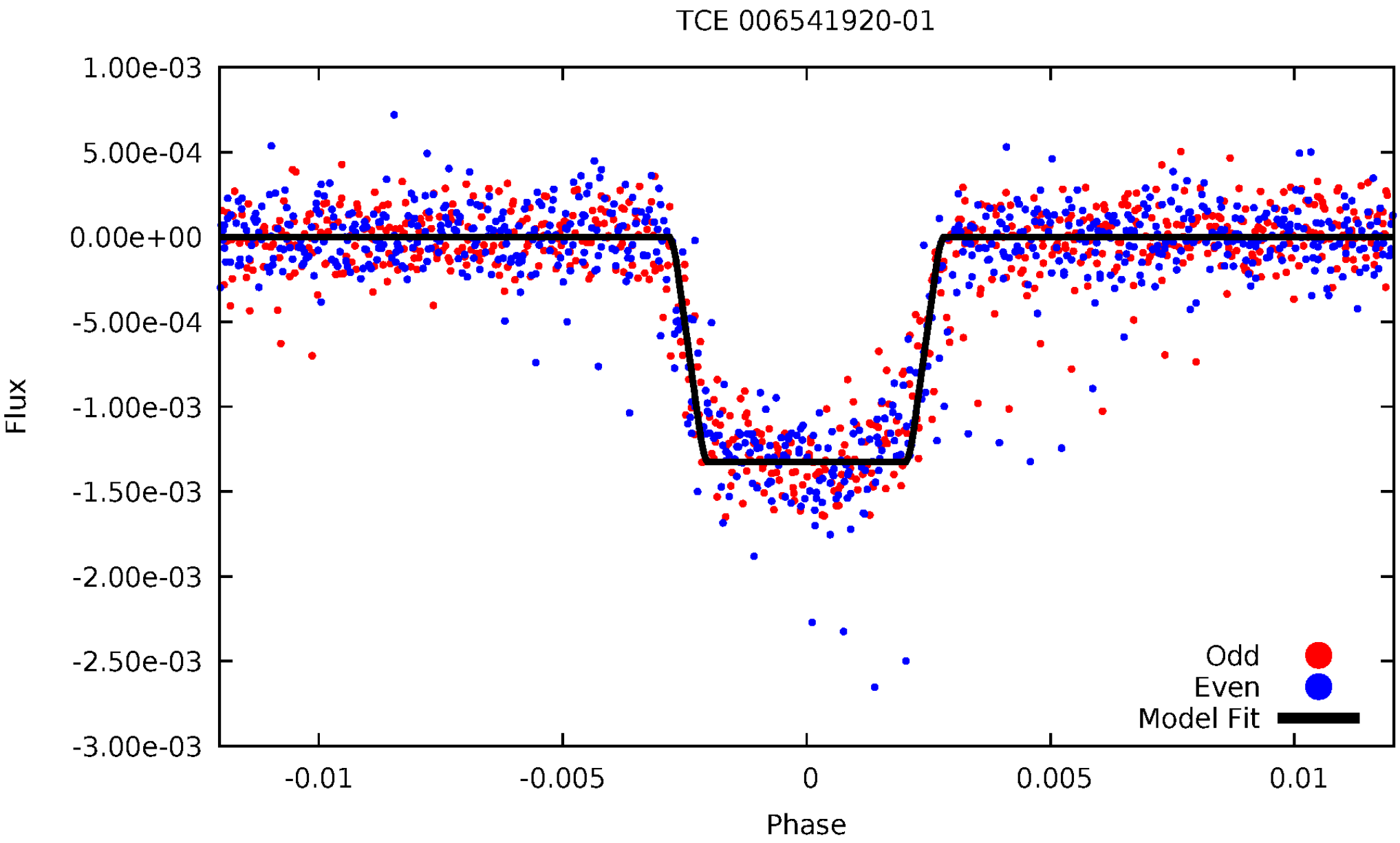
0.0005
0.0000
−0.0005
−0.0010
200
400
600
800
1000
1200
1400
1600
BKJD
Normalized Flux
0.0010
0.0005
0.0000
−0.0005
−0.0010
−1.0
−0.5
0.0
0.5
1.0
Phase

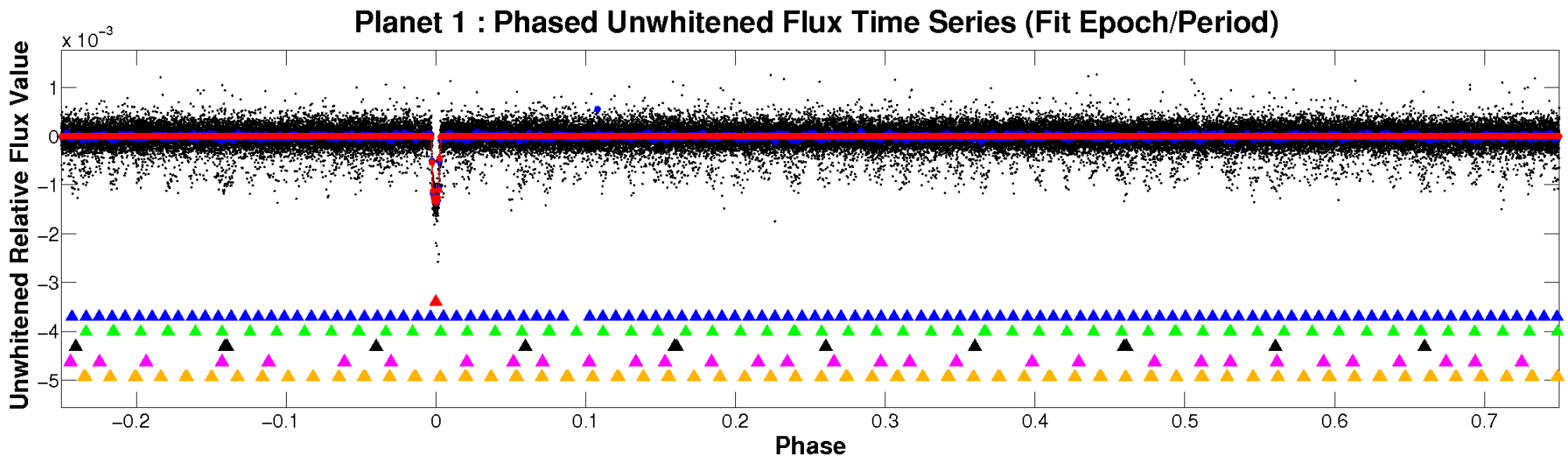
DV Odd/Even

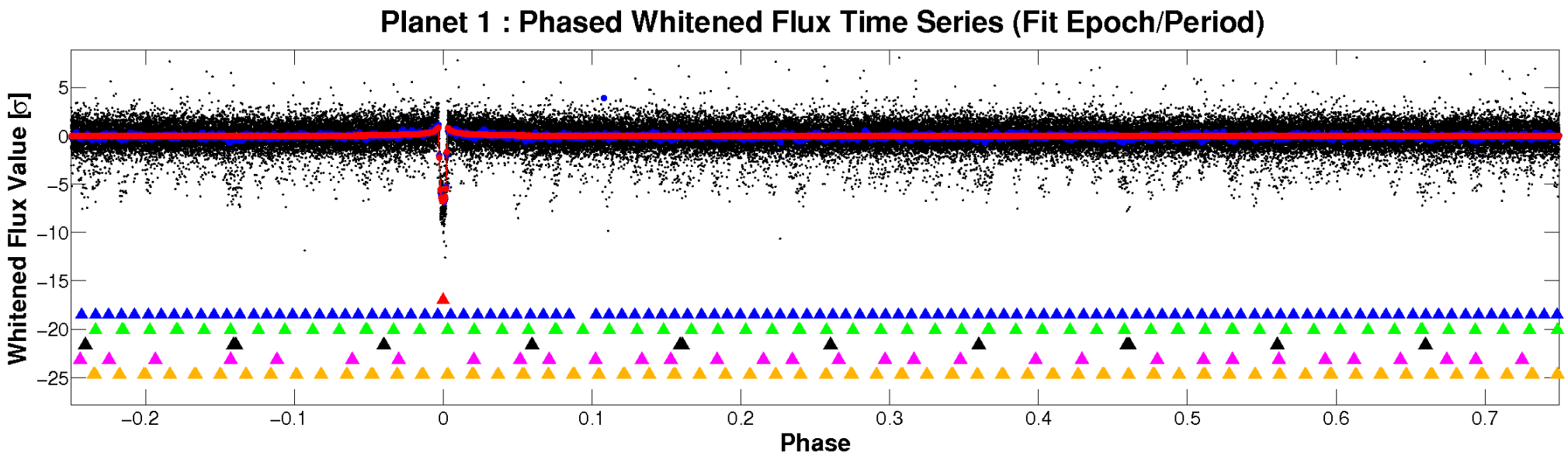

TCE 006541920-01
1.50e-03
1.00e-03
5.00e-04
0.00e+00
-5.00e-04
-1.00e-03
-1.50e-03
-2.00e-03
-2.50e-03
-3.00e-03
Flux
-0.01
-0.005
0
0.005
0.01
Phase
Odd
Even
Model Fit

ALT Odd/Even


TCE 006541920-01
1.00e-03
5.00e-04
0.00e+00
-5.00e-04
-1.00e-03
-1.50e-03
-2.00e-03
-2.50e-03
-3.00e-03
Flux
-0.01
-0.005
0
0.005
0.01
Phase
Odd
Even
Model Fit

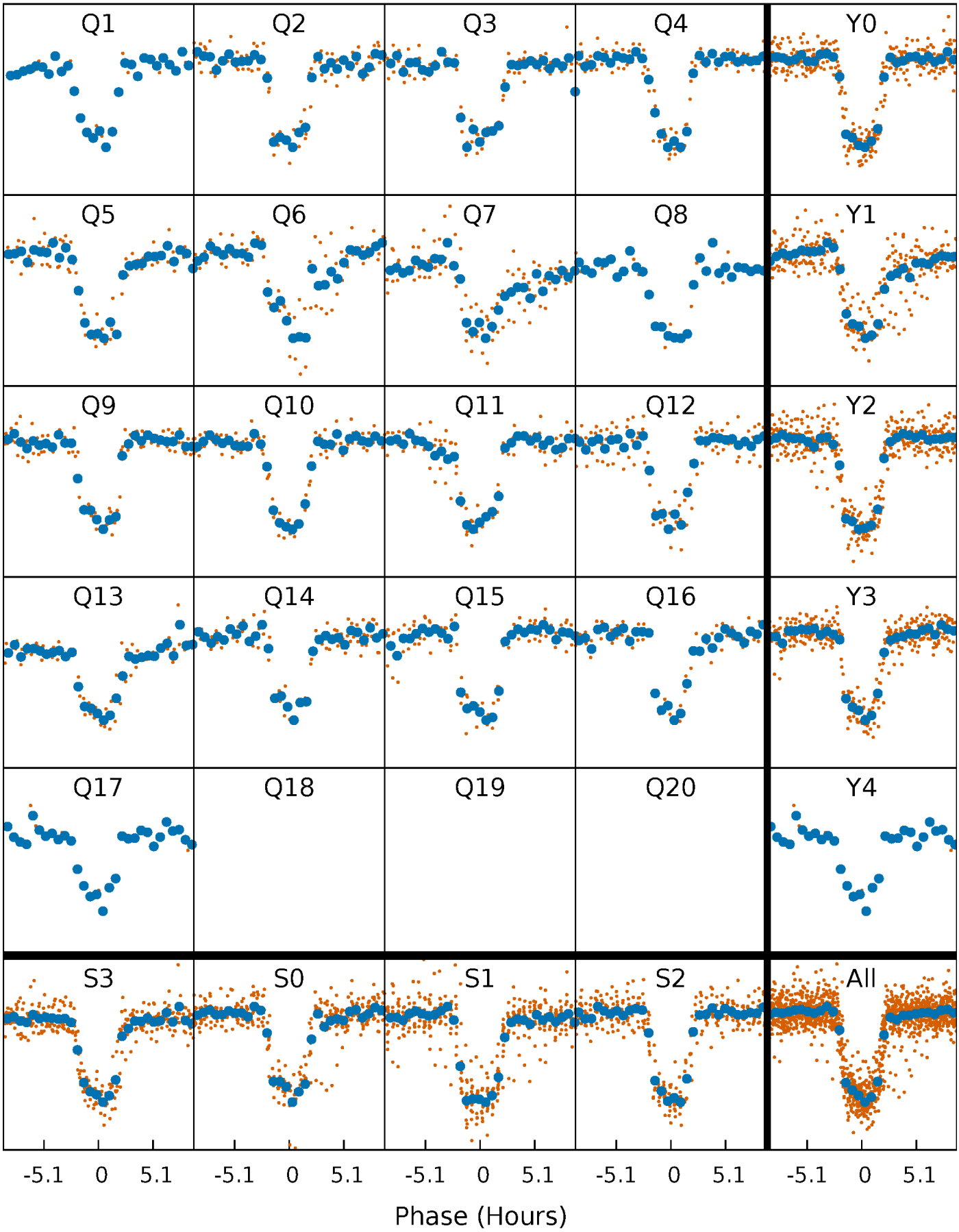
Non-Whitened Vs. Whitened Light Curve





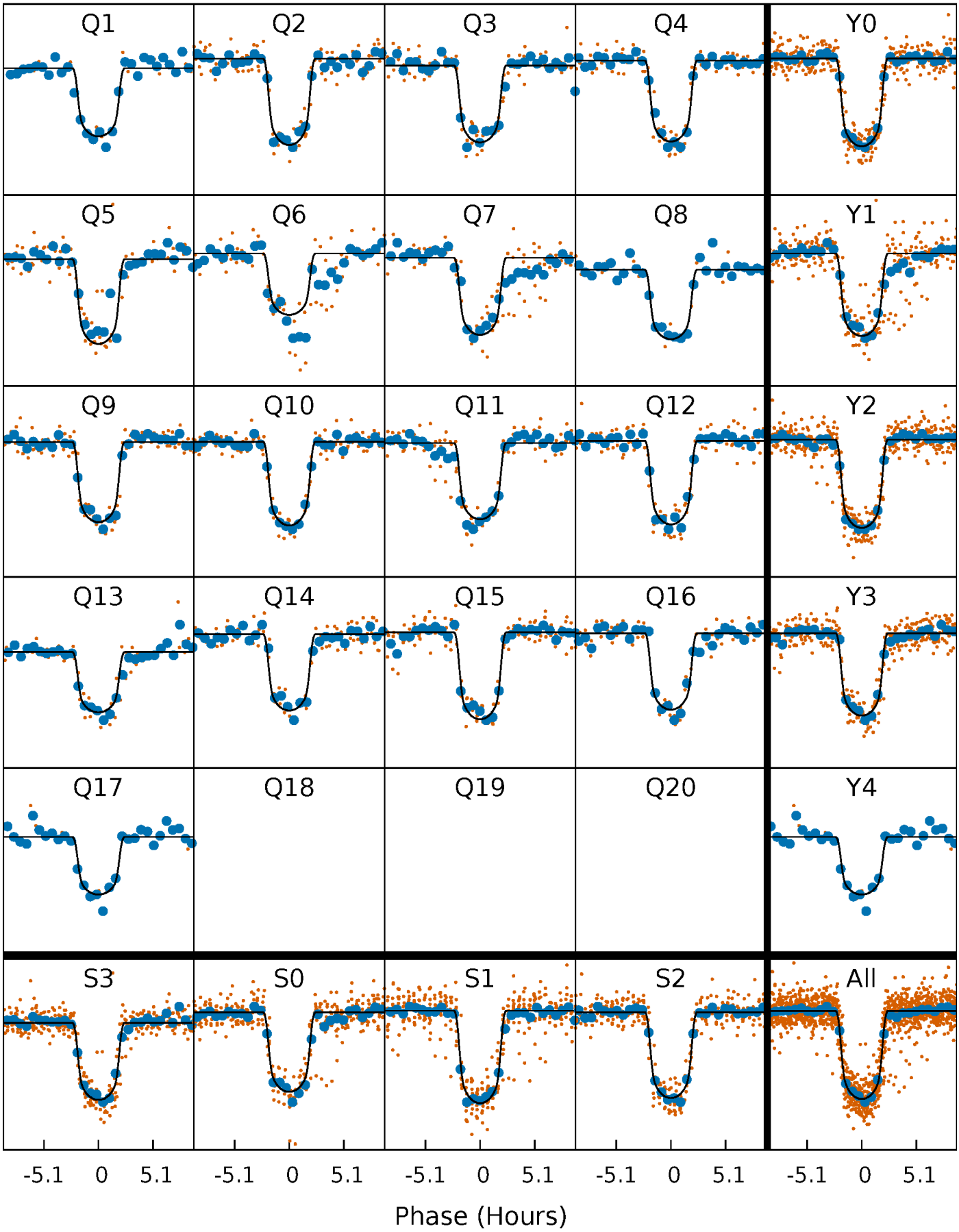
PDC Quarter-Phased Transit Curves

TCE 006541920-01 P= 31.995499 Days T_0=154.160762 (BKJD)



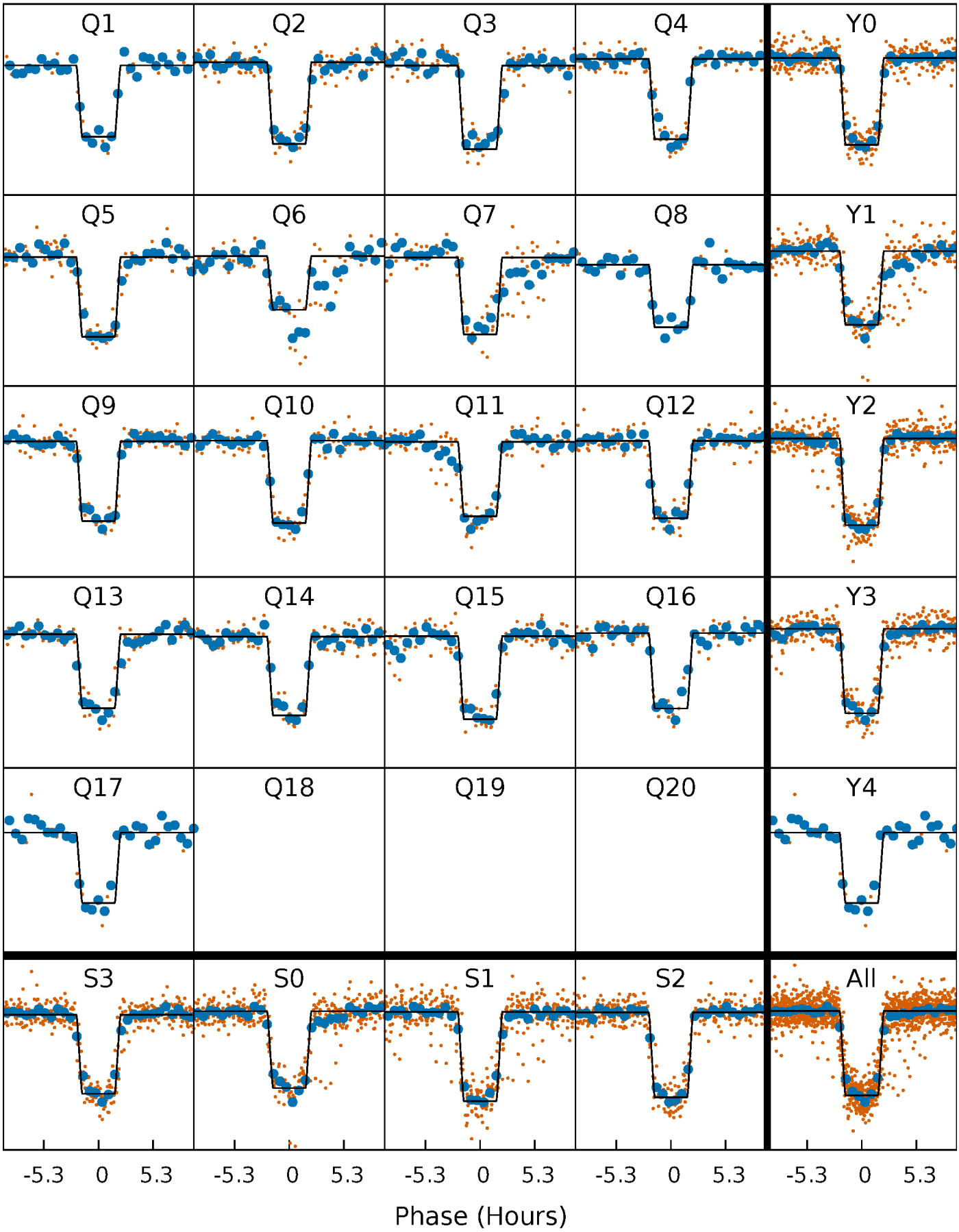
DV Quarter-Phased Transit Curves

TCE 006541920-01 P= 31.995499 Days T_0=154.160762 (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

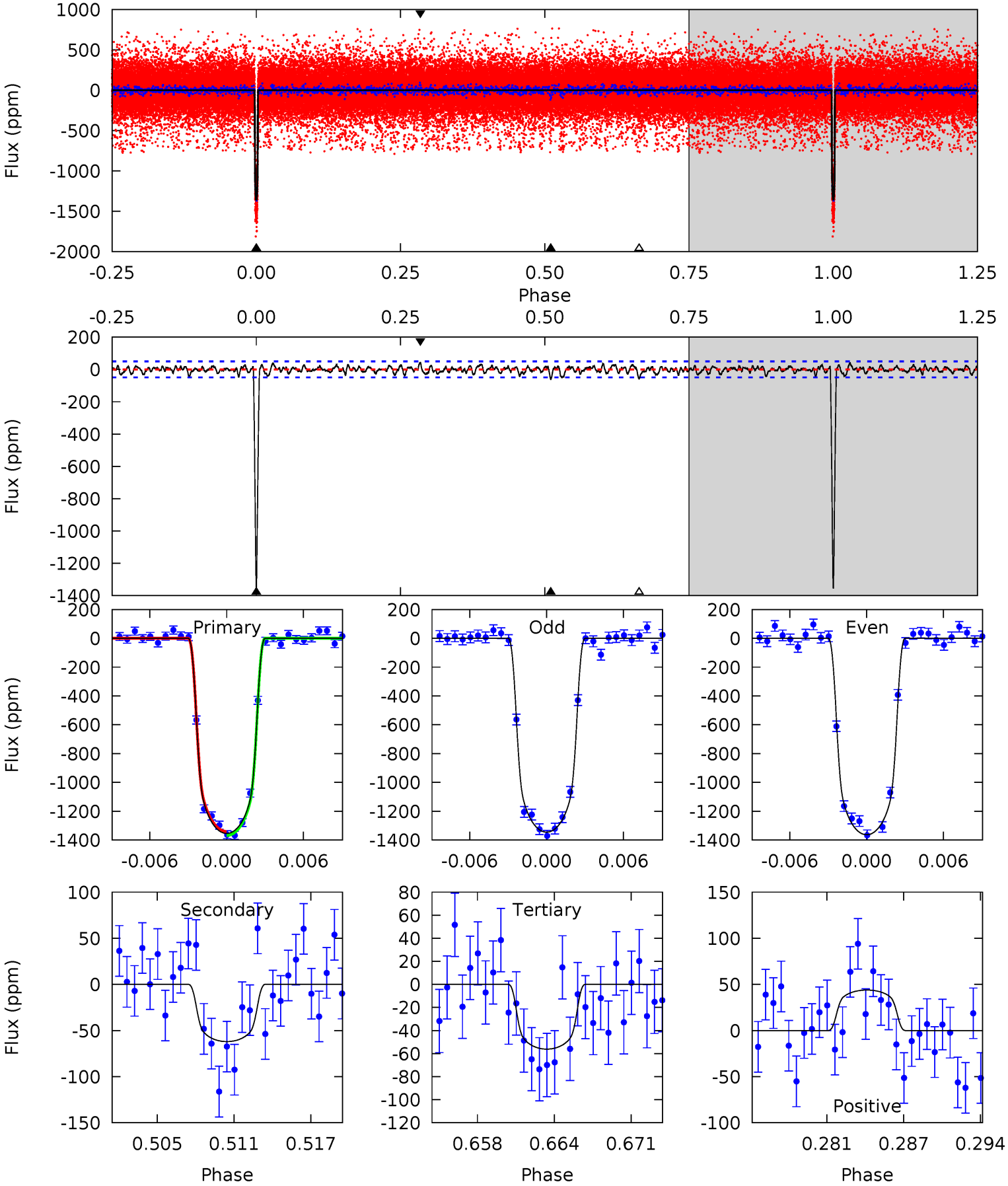
TCE 006541920-01 P= 31.995735 Days T_0=154.156273 (BKJD)



DV Model-Shift Uniqueness Test

006541920-01, P = 31.995499 Days, E = 122.165263 Days

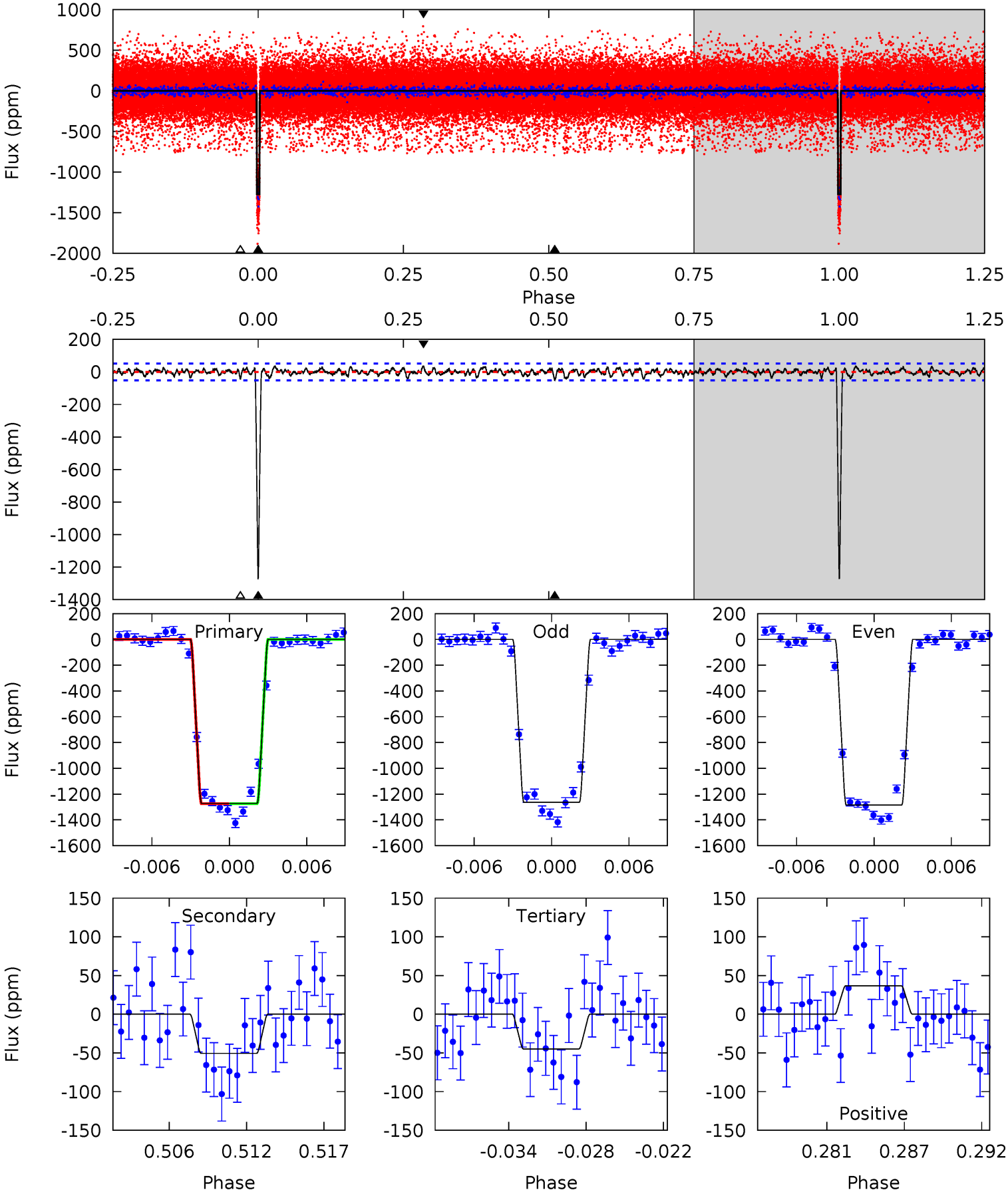
Pri	Sec	Ter	Pos	FA_1	FA_2	F_{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
140.7	6.45	5.83	4.56	5.11	2.73	1.63	134.9	136.1	0.61	1.89	0.93	0.99	0.03	1.46



Alt Model-Shift Uniqueness Test

006541920-01, P = 31.995735 Days, E = 122.160538 Days

Pri	Sec	Ter	Pos	FA_1	FA_2	F_{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
126.4	5.02	4.46	3.65	5.14	2.77	1.35	121.9	122.7	0.57	1.37	1.11	1.01	0.03	0.06



Stellar Parameters For KIC 006541920

	$T_{\rm eff}(K)$	$\log(g)$	[Fe/H]	R ($R_\odot$)	$M(M_\odot)$	$p_\star$ (g·cm^{-3})
	5657^{+113}_{-101}	$4.364^{+0.055}_{-0.045}$	$0.000^{+0.150}_{-0.150}$	$1.046^{+0.068}_{-0.068}$	$0.921^{+0.071}_{-0.052}$	$1.134^{+0.239}_{-0.165}$
	+2%/-2%	+1%/-1%	+inf%/-inf%	+7%/-7%	+8%/-6%	+21%/-15%
Source	SPE25	TRA25	SPE25	DSEP		

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

Secondary Eclipse Parameters for KIC 006541920-01 / KOI 0157.03

Detrend	Depth (ppm)	R_p ($R_\oplus$)	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-62±10	$4.38^{+0.21}_{-0.23}$	815^{+21}_{-22}	3167^{+83}_{-88}	66^{+13}_{-11}
Alt.	-51±10	$4.17^{+0.20}_{-0.19}$	814^{+21}_{-23}	3114^{+97}_{-104}	59^{+14}_{-13}

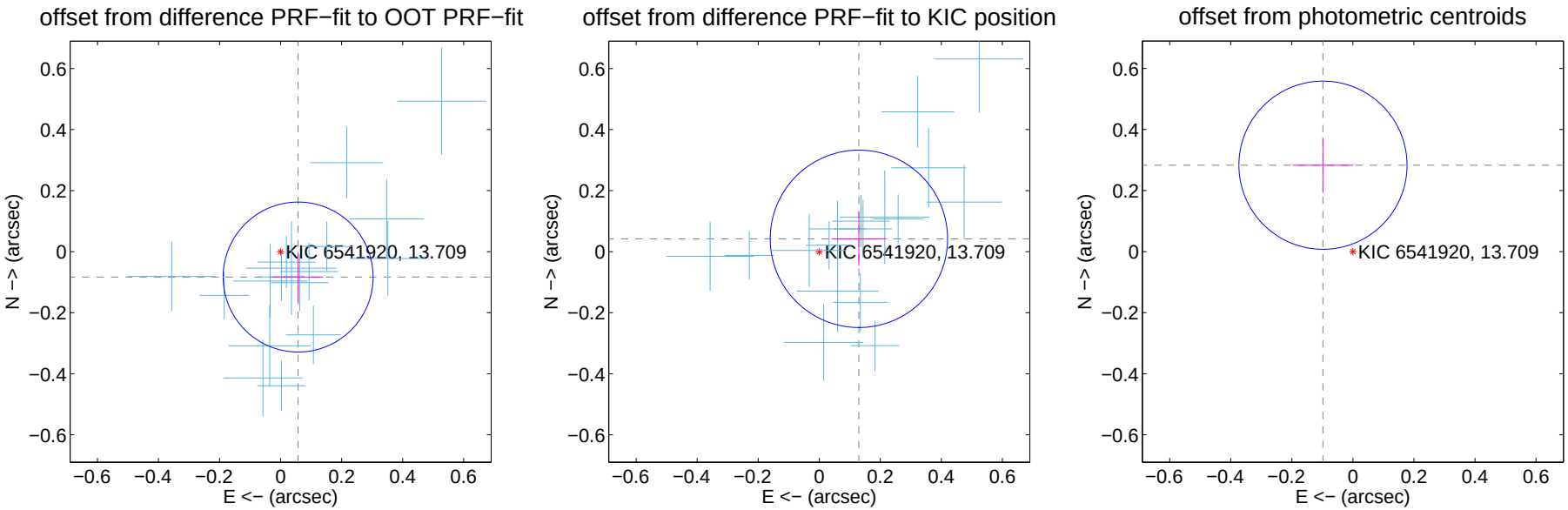
T_{max} = Theoretical Maximum Planetary Temperature
T_{obs} = Observed Planetary Temperature (Assuming A=0.3)
A_{obs} = Observed Albedo (Assuming T=0)

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

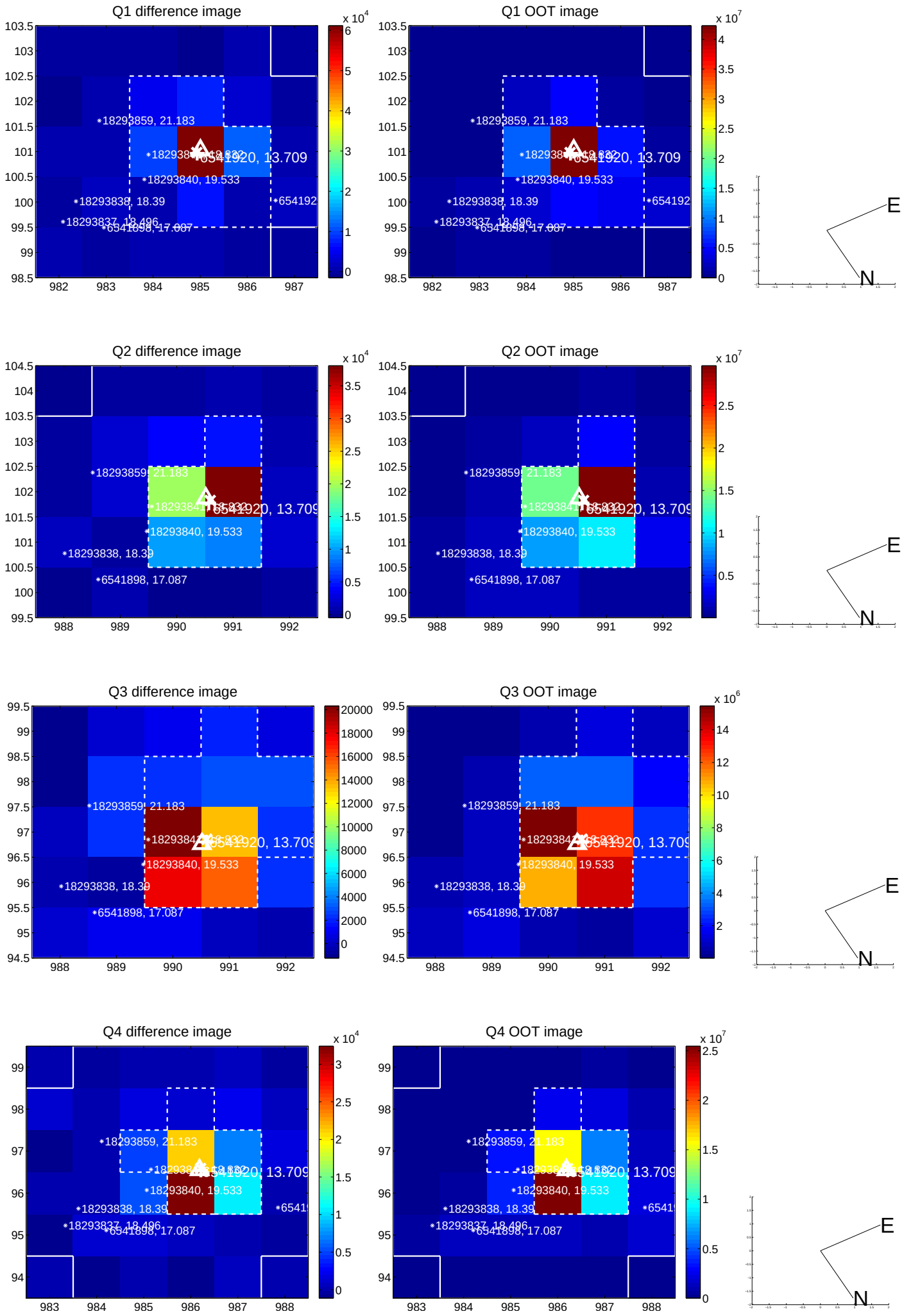
Supplemental centroid analysis for 006541920-01. Kepler magnitude: 13.71. Transit SNR 103.45
There are 17 quarters with good PRF difference image offsets
The direct PRF centroid is offset from the target star catalog position by about 0.10 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.101 ± 0.082	1.23	-0.057 ± 0.082	-0.083 ± 0.082
PRF-fit source offset from KIC position	0.137 ± 0.097	1.41	-0.130 ± 0.090	0.042 ± 0.088
photometric centroid source offset	0.30 ± 0.09	3.26	0.10 ± 0.10	0.28 ± 0.09

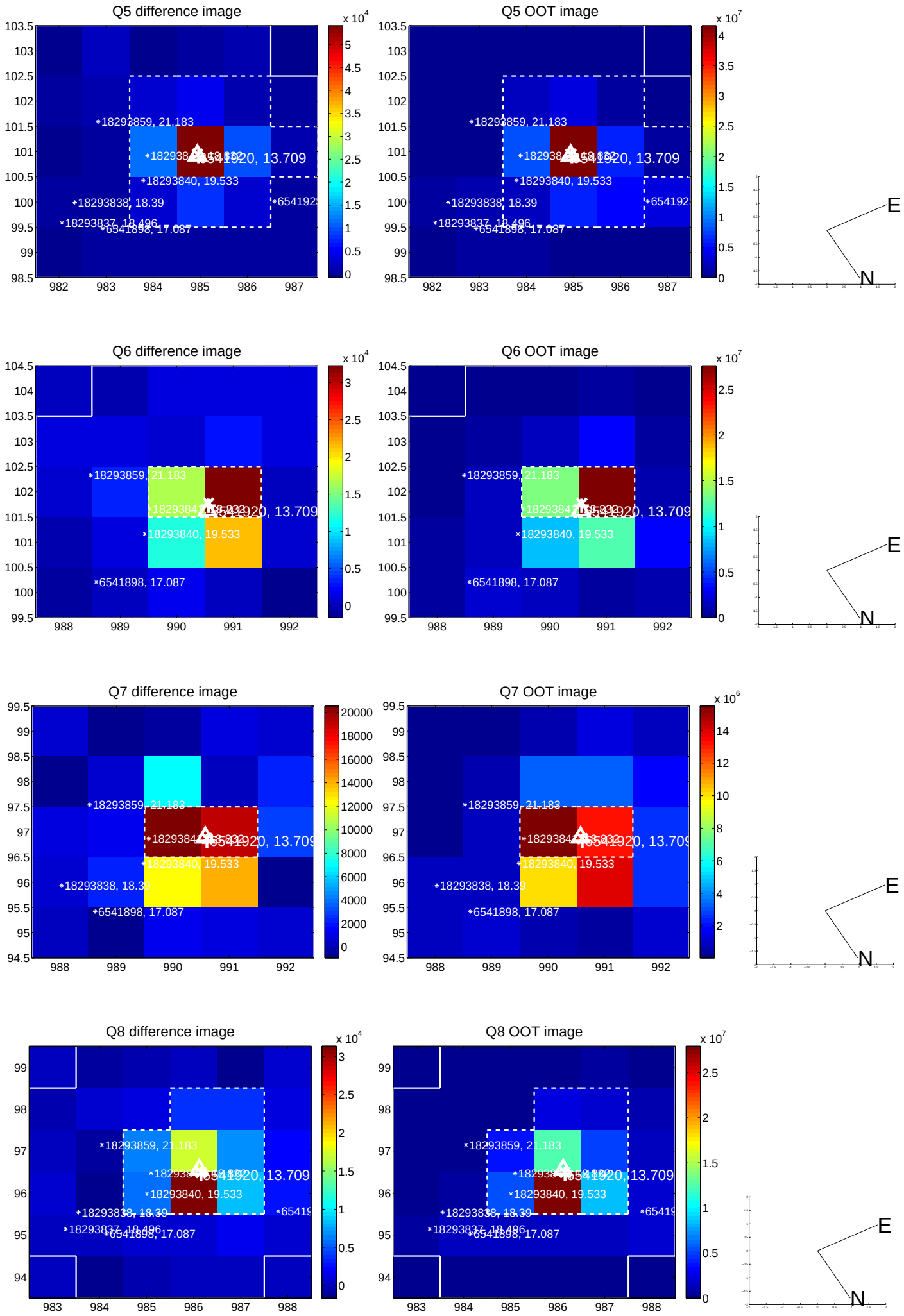


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one-σ uncertainty. Blue circle: three-σ. Red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

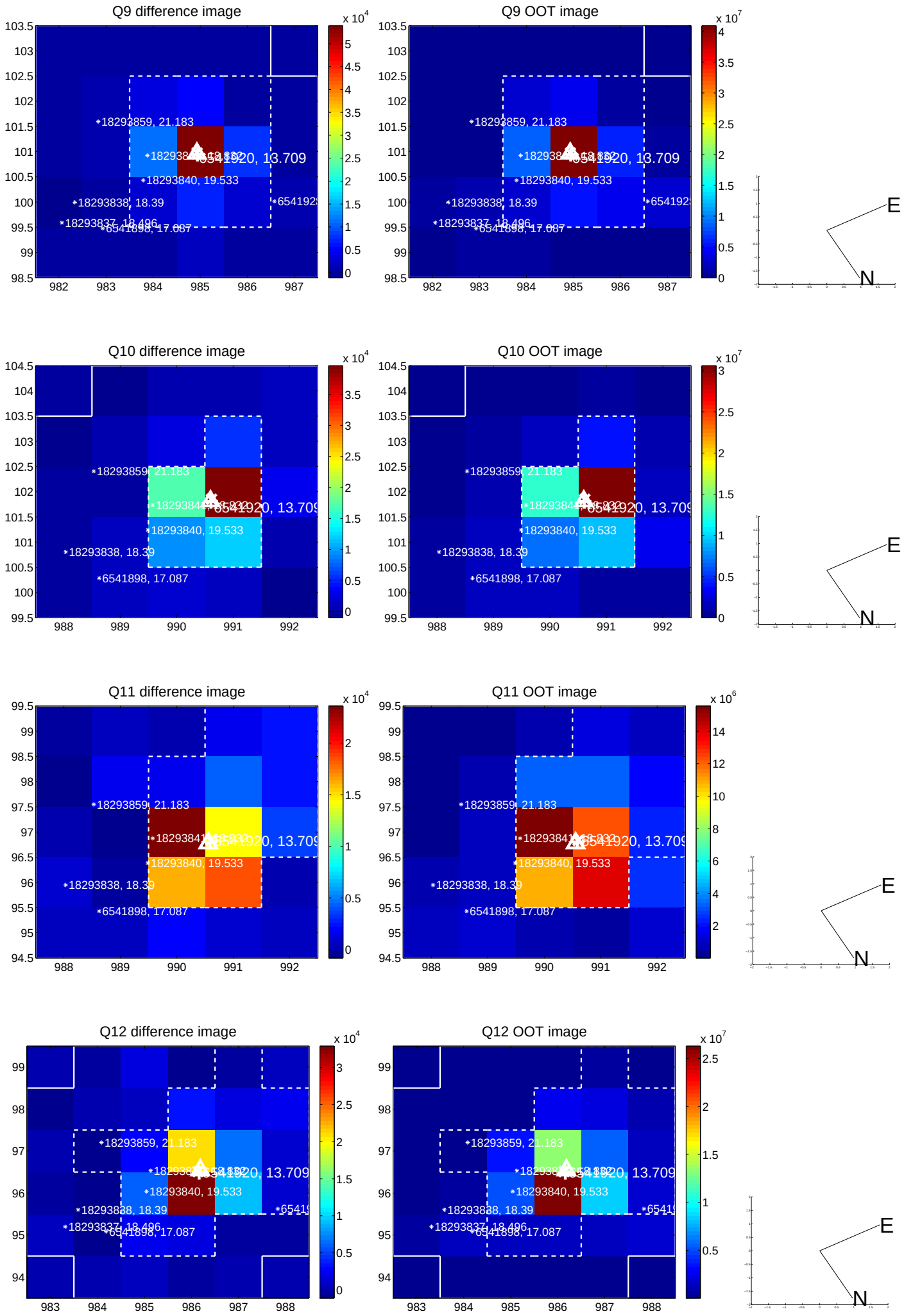
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.



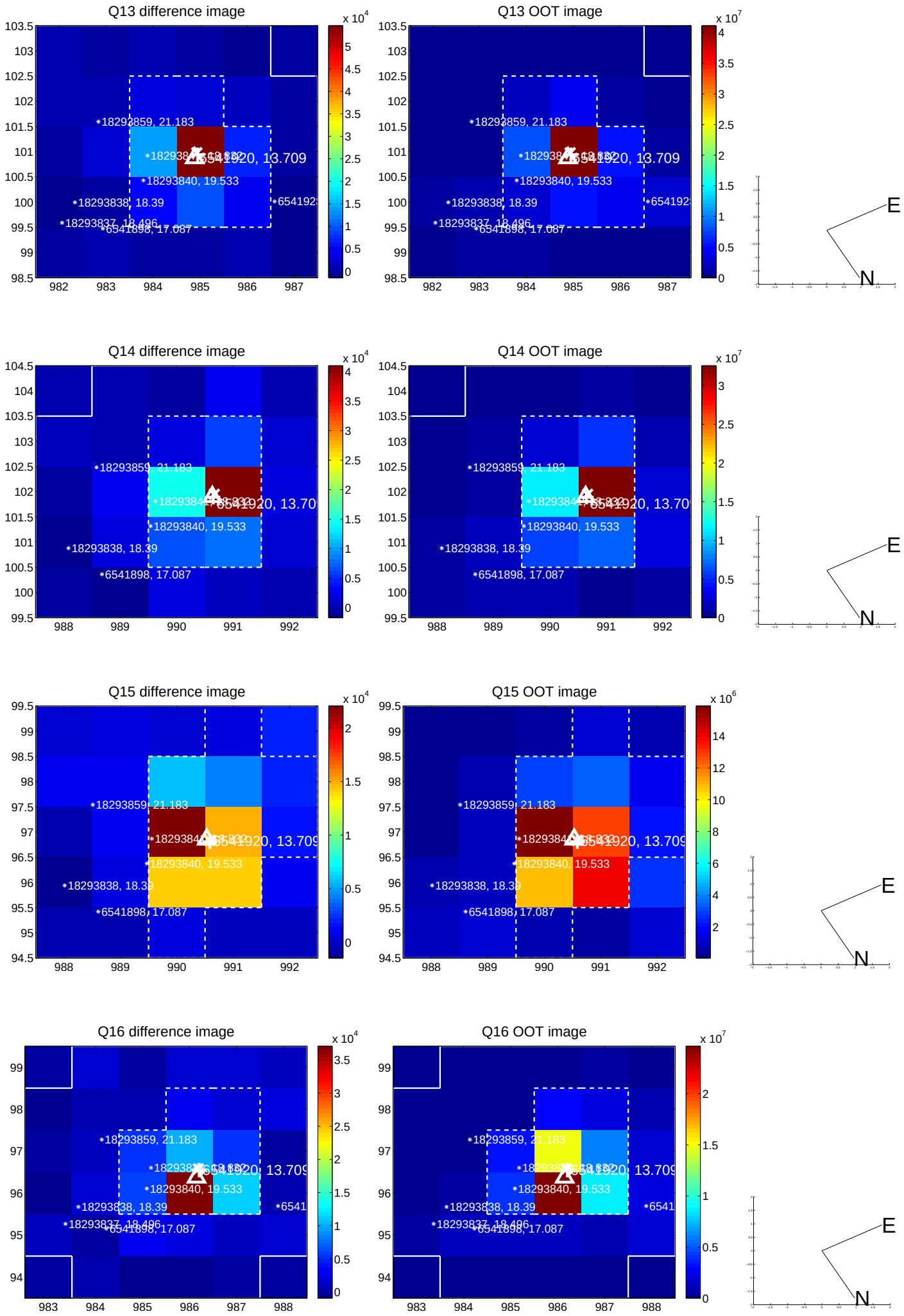
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.



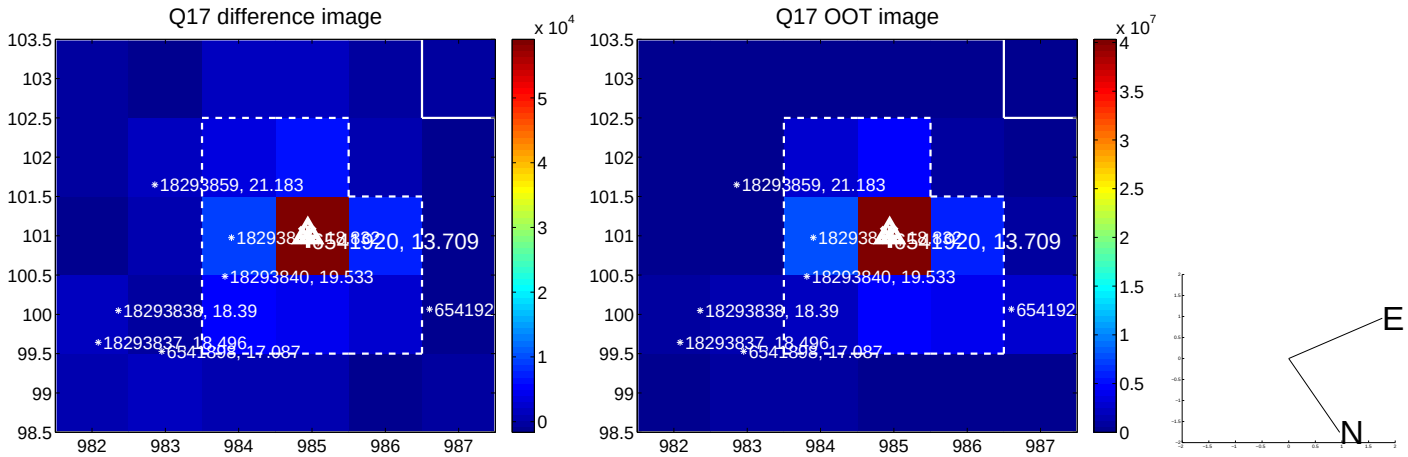
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.

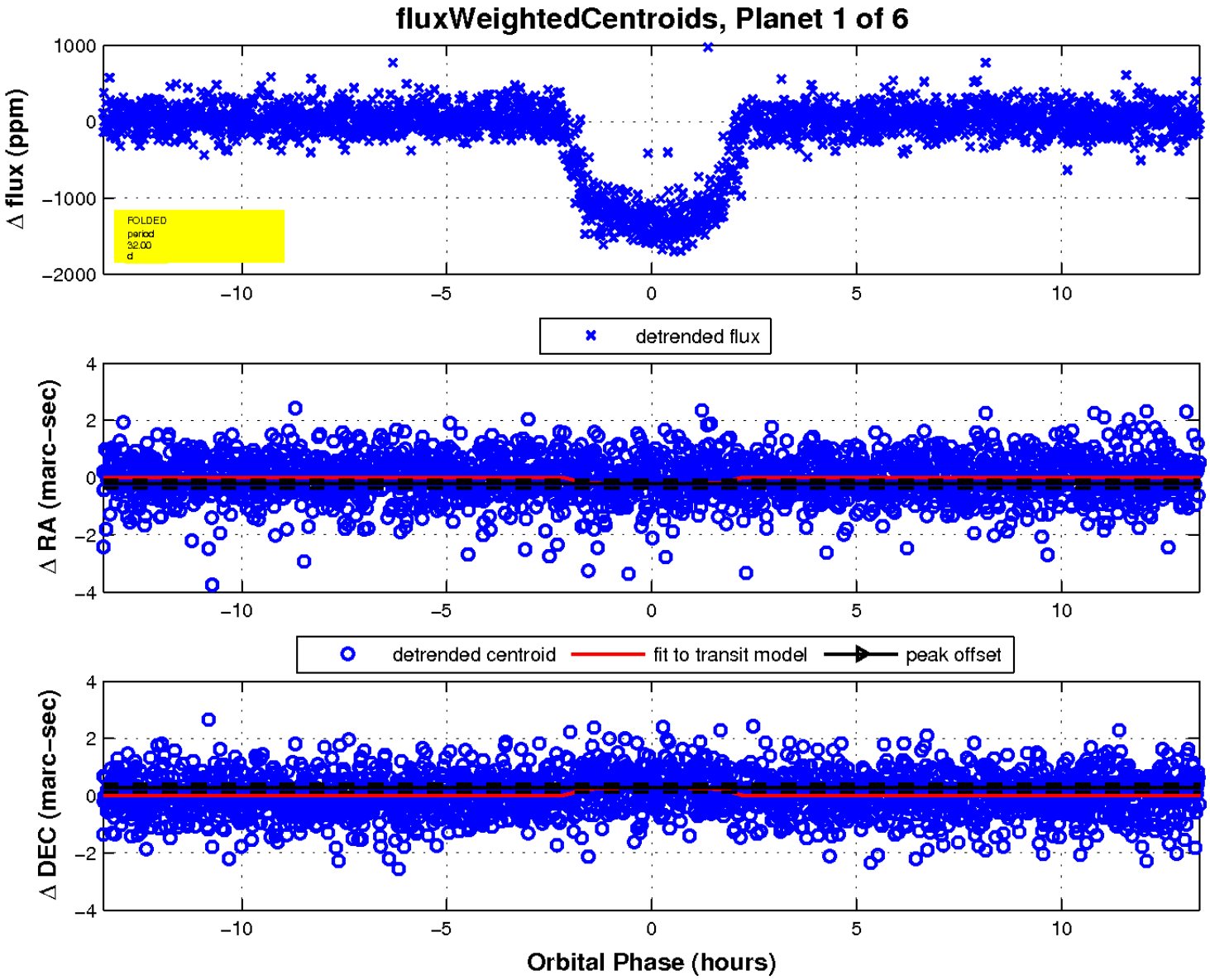


white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.

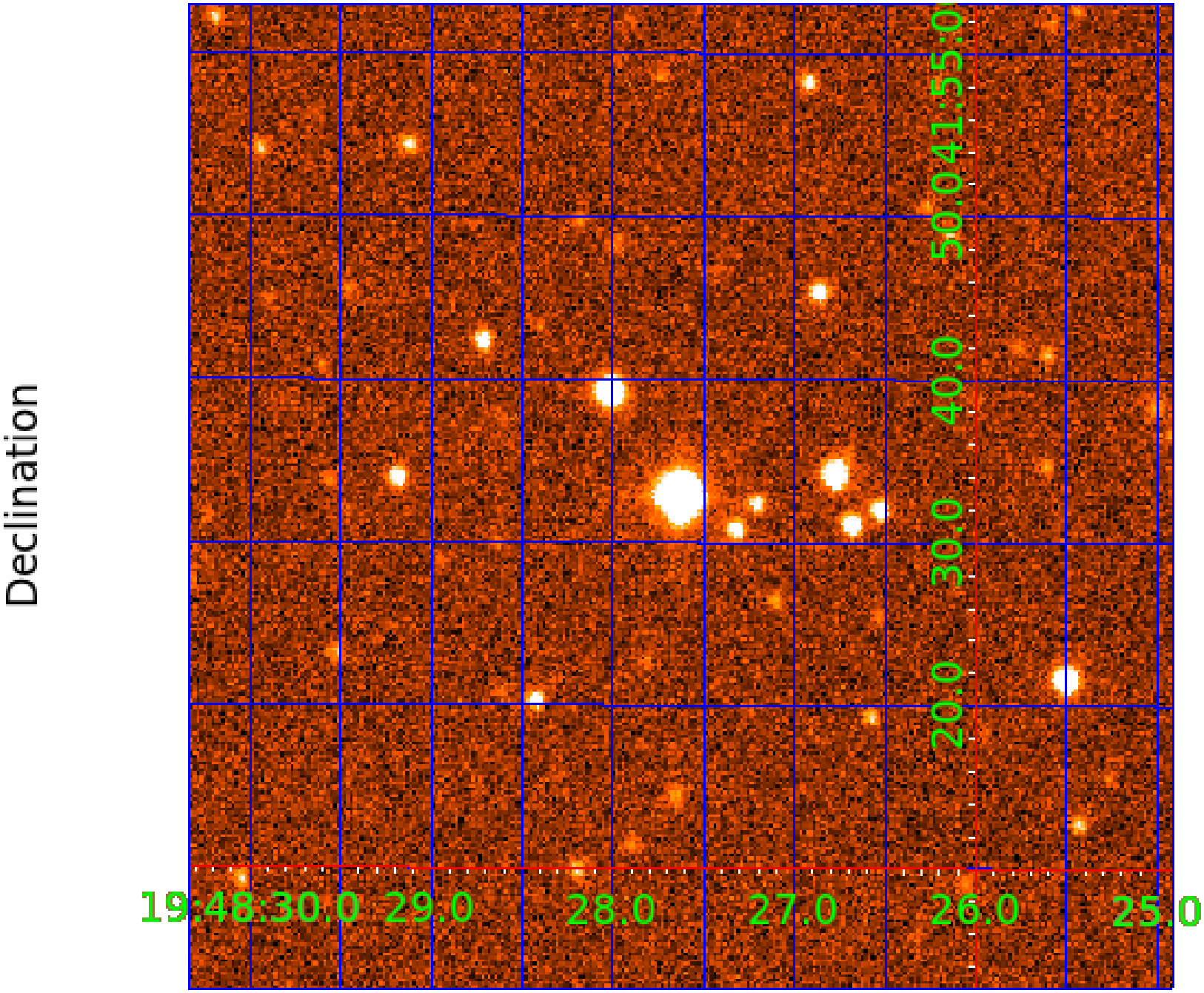


white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.





UKIRT Image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30.0
20.0
19:48:30.0
29.0
28.0
27.0
26.0
25.0

KIC 006541920

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 ($S_\oplus$)
006541920-01	OBS	0157.03	31.995499	154.160762	1355.6	4.460	102.3	103.5	1.05	5657	4.37	27.21
006541920-02	OBS	0157.01	13.024922	138.176627	760.4	4.795	94.9	96.8	1.05	5657	3.23	90.20
006541920-03	OBS	0157.02	22.687165	148.454362	959.6	5.625	94.0	99.1	1.05	5657	3.48	43.04
006541920-04	OBS	0157.05	118.378578	168.908526	1104.5	9.700	57.5	61.6	1.05	5657	3.55	4.76
006541920-05	OBS	0157.04	46.686019	131.665574	562.7	7.276	40.5	43.4	1.05	5657	2.98	16.44
006541920-06	OBS	0157.06	10.304027	138.501918	297.9	4.610	41.0	44.0	1.05	5657	2.21	123.29

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
006541920-01	OBS	PC	1.00	0	0	0	0	NO_COMMENT
006541920-02	OBS	PC	1.00	0	0	0	0	NO_COMMENT
006541920-03	OBS	PC	1.00	0	0	0	0	NO_COMMENT
006541920-04	OBS	PC	1.00	0	0	0	0	NO_COMMENT
006541920-05	OBS	PC	1.00	0	0	0	0	NO_COMMENT
006541920-06	OBS	PC	1.00	0	0	0	0	NO_COMMENT

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.

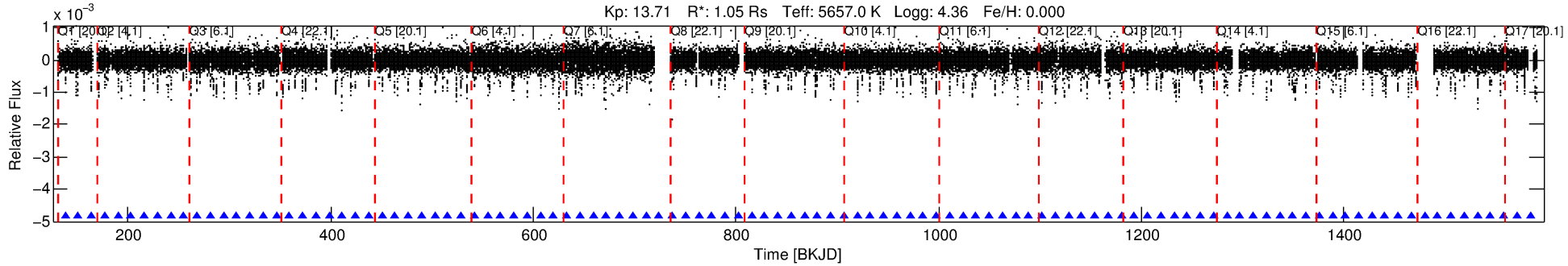
Ephemeris Match Information For 006541920-02

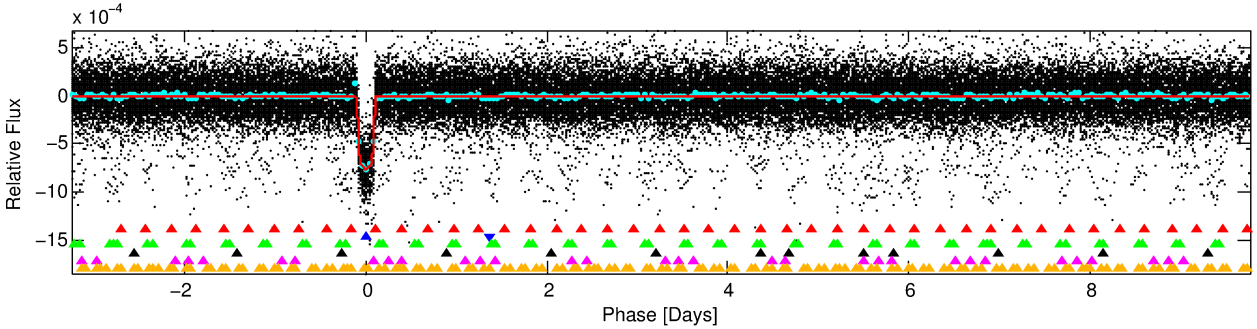
No Significant Match Found

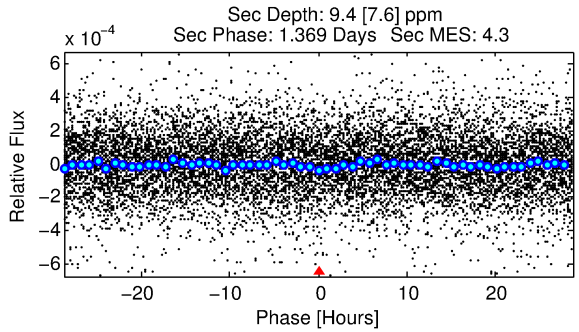
DV One-Page Summary

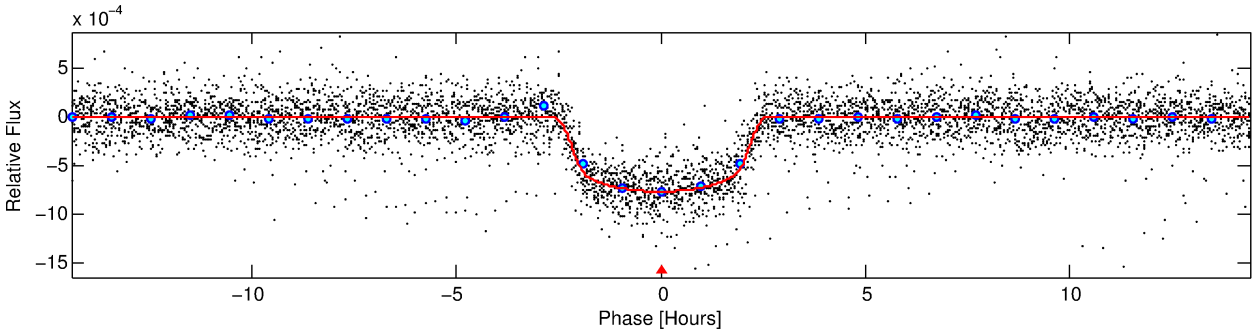
KIC: 6541920 Candidate: 2 of 6 Period: 13.025 d
KOI: K00157.01 Name: Kepler−11c Corr: 0.975

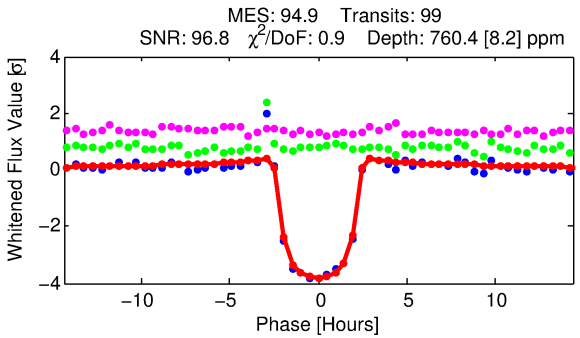
Kp: 13.71 R*: 1.05 Rs Teff: 5657.0 K Logg: 4.36 Fe/H: 0.000

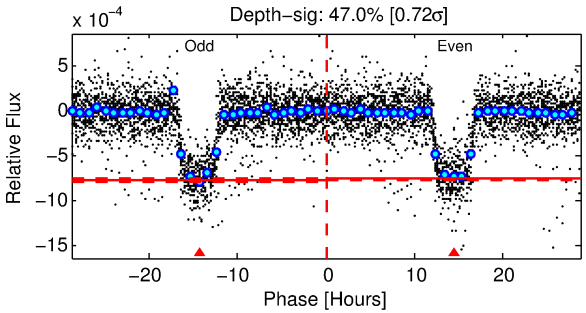


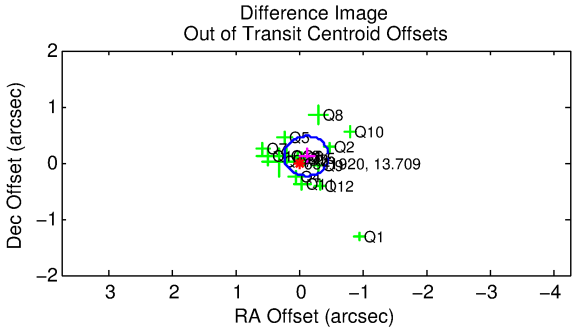












DV Fit Results:

Period = 13.02492 [0.00002] d
Epoch = 138.1766 [0.0009] BKJD
Rp/R* = 0.0283 [0.0012]
a/R* = 13.12 [2.45]
b = 0.81 [0.08]

Seff = 90.20 [11.19]
Teq = 786 [24] K
Rp = 3.23 [0.25] Re
a = 0.1055 [0.0064] AU

Ag = 5.54 [4.51] [1.01σ]
Teffp = 1864 [378] K [2.84σ]

DV Diagnostic Results:

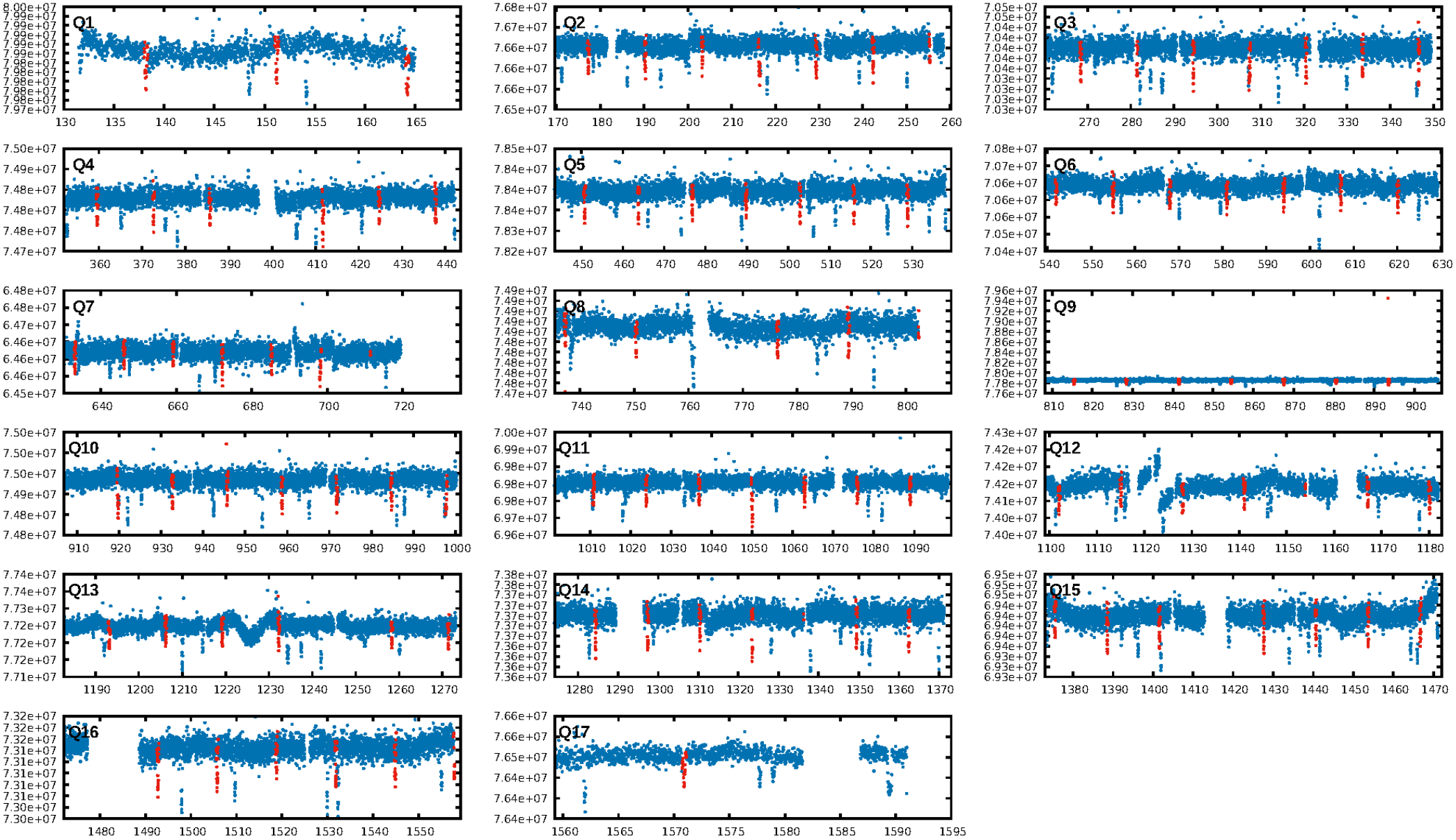
ShortPeriod−sig: 100.0% [9.82σ]
LongPeriod−sig: 100.0% [31.37σ]
ModelChiSquare2−sig: 31.3%
ModelChiSquareGof−sig: 100.0%
Bootstrap−pfa: 0.00e+00
RollingBand−fgt: 1.00 [95/95]
GhostDiagnostic−chr: 4.721

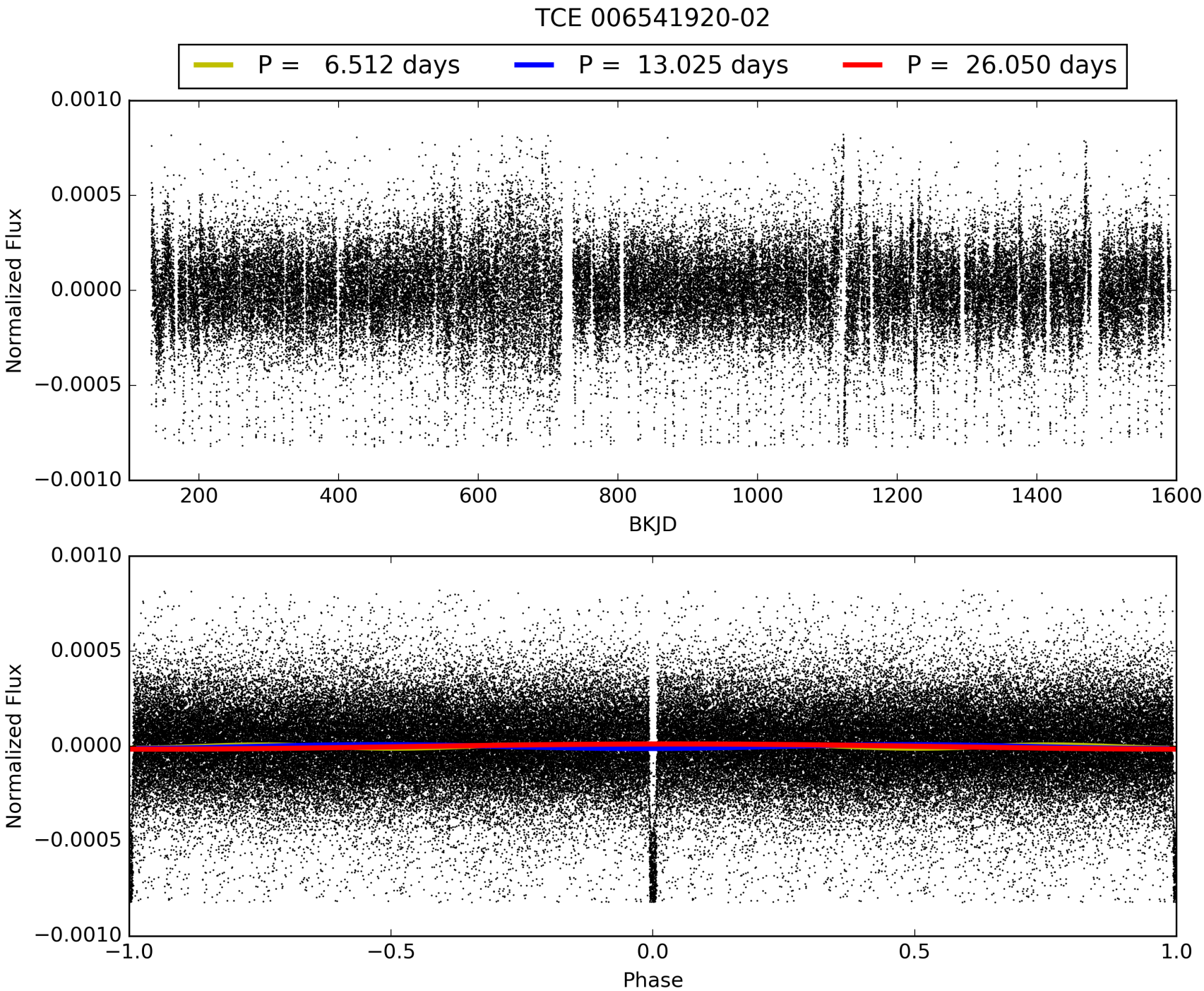
Centroid−sig: 0.1%
Centroid−so: 0.341 arcsec [3.47σ]
OotOffset−rm: 0.157 arcsec [1.33σ]
KicOffset−rm: 0.299 arcsec [2.51σ]
OotOffset−st: 4/4/4/5 [17]
KicOffset−st: 4/4/4/5 [17]
DiffImageQuality−fgm: 1.00 [17/17]
DiffImageOverlap−fno: 0.94 [16/17]

Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 −− Date Generated: 31−Jan−2016 13:02:56 Z

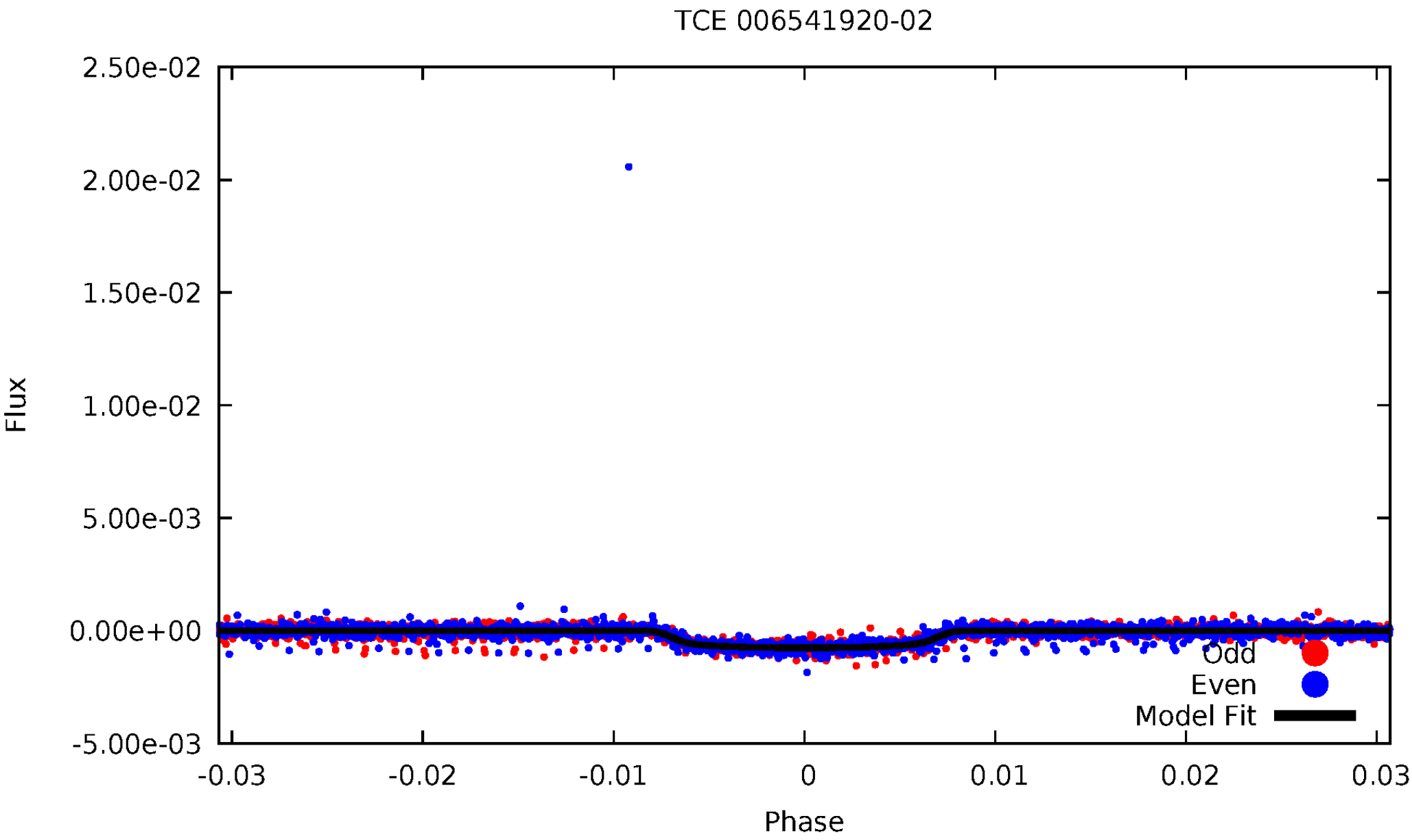
This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

TCE 006541920-02, PDC Light Curves

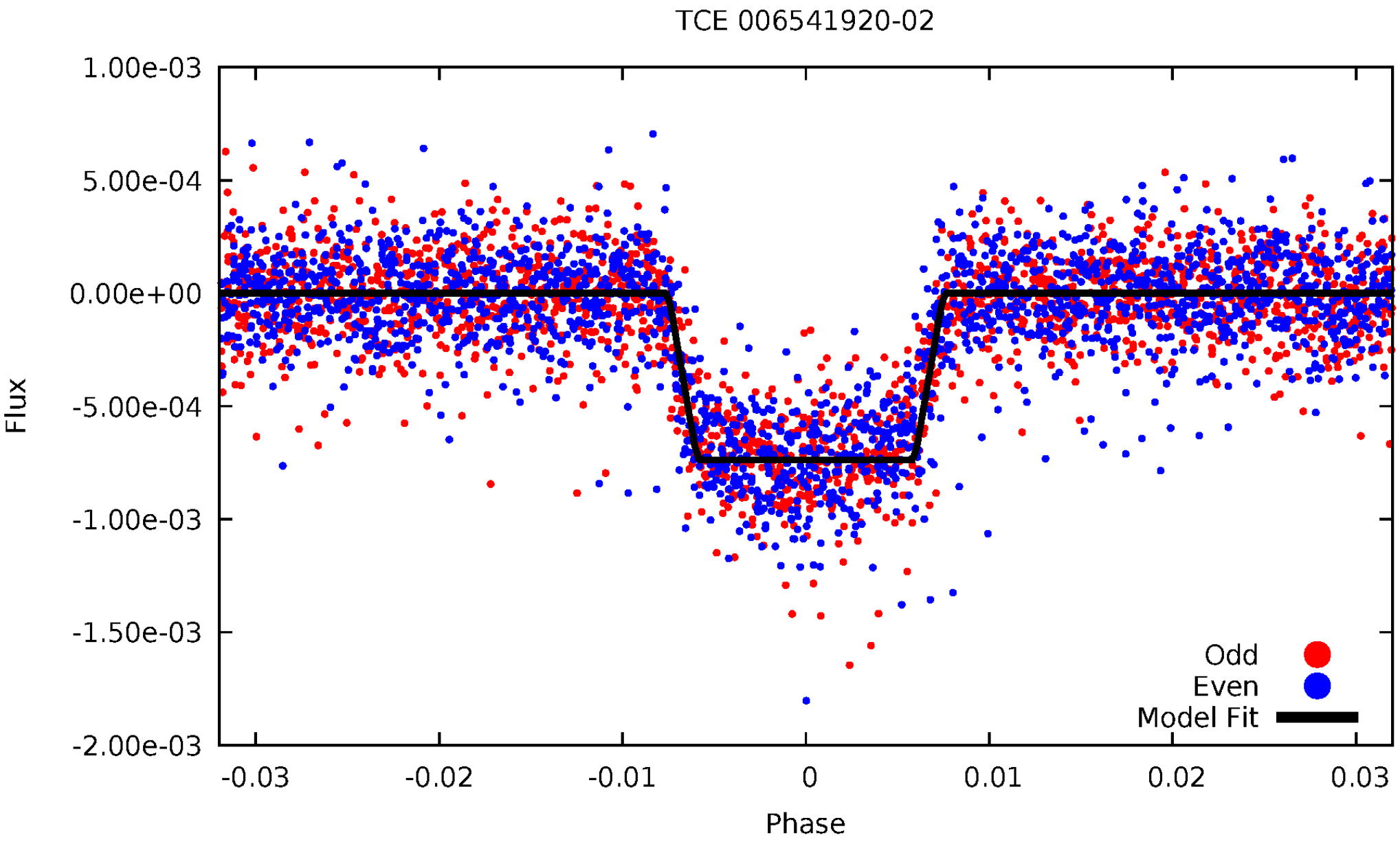



TCE 006541920-02
P = 6.512 days
P = 13.025 days
P = 26.050 days
Normalized Flux
0.0010
0.0005
0.0000
−0.0005
−0.0010
200
400
600
800
1000
1200
1400
1600
BKJD
Normalized Flux
0.0010
0.0005
0.0000
−0.0005
−0.0010
−1.0
−0.5
0.0
0.5
1.0
Phase

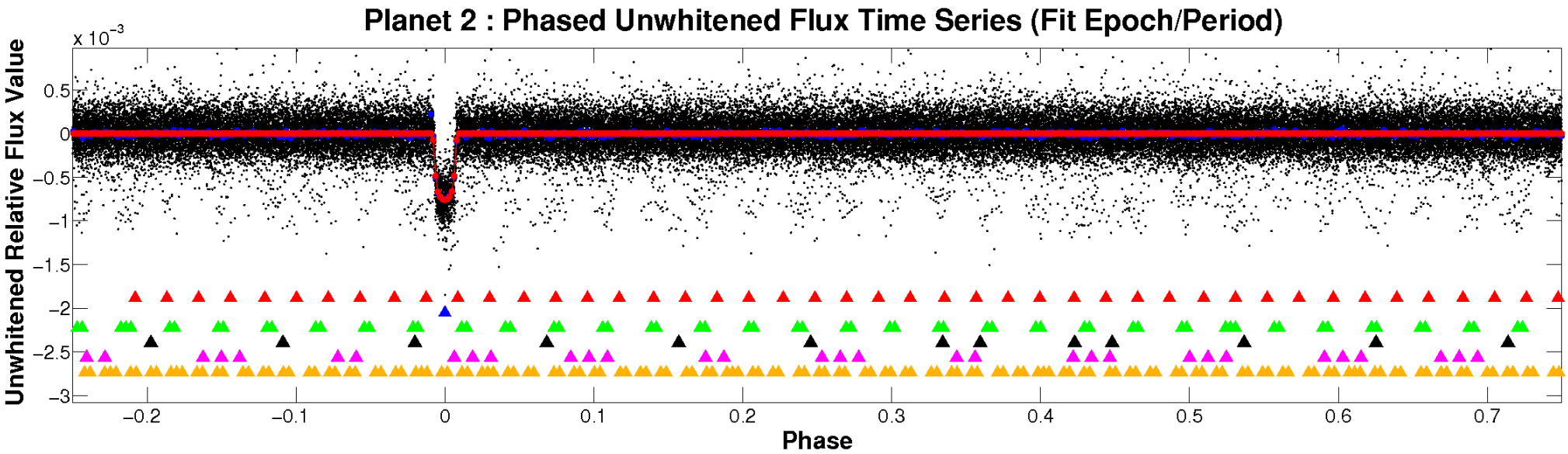
DV Odd/Even

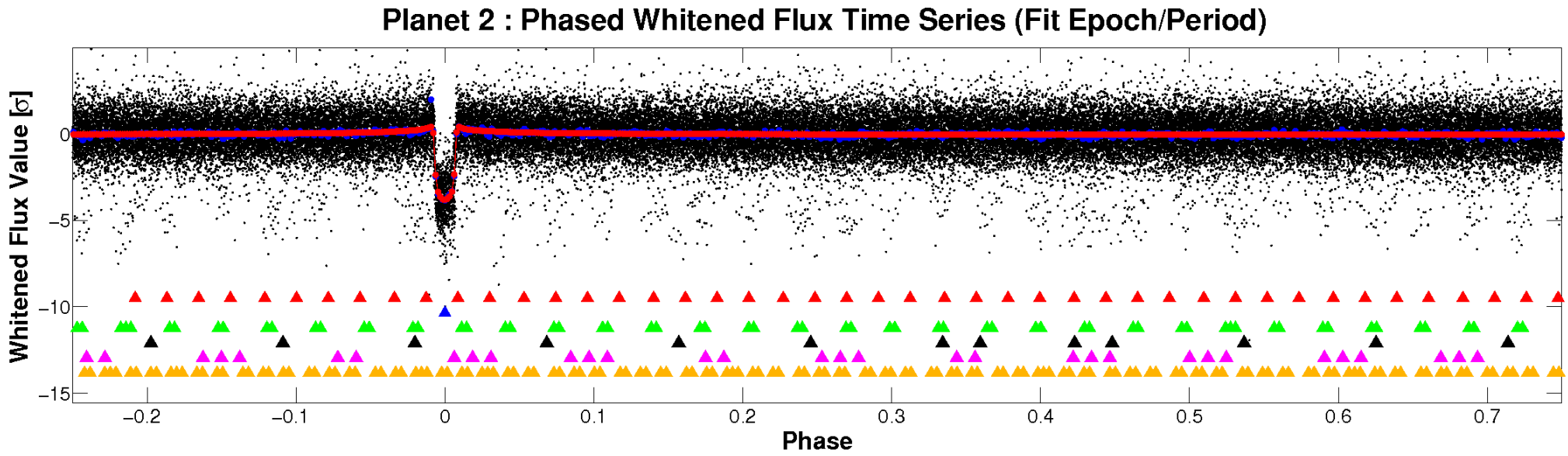

TCE 006541920-02
2.50e-02
2.00e-02
1.50e-02
1.00e-02
5.00e-03
0.00e+00
-5.00e-03
Flux
-0.03
-0.02
-0.01
0
0.01
0.02
0.03
Phase
Odd
Even
Model Fit

ALT Odd/Even


TCE 006541920-02
1.00e-03
5.00e-04
0.00e+00
-5.00e-04
-1.00e-03
-1.50e-03
-2.00e-03
Flux
-0.03
-0.02
-0.01
0
0.01
0.02
0.03
Phase
Odd
Even
Model Fit

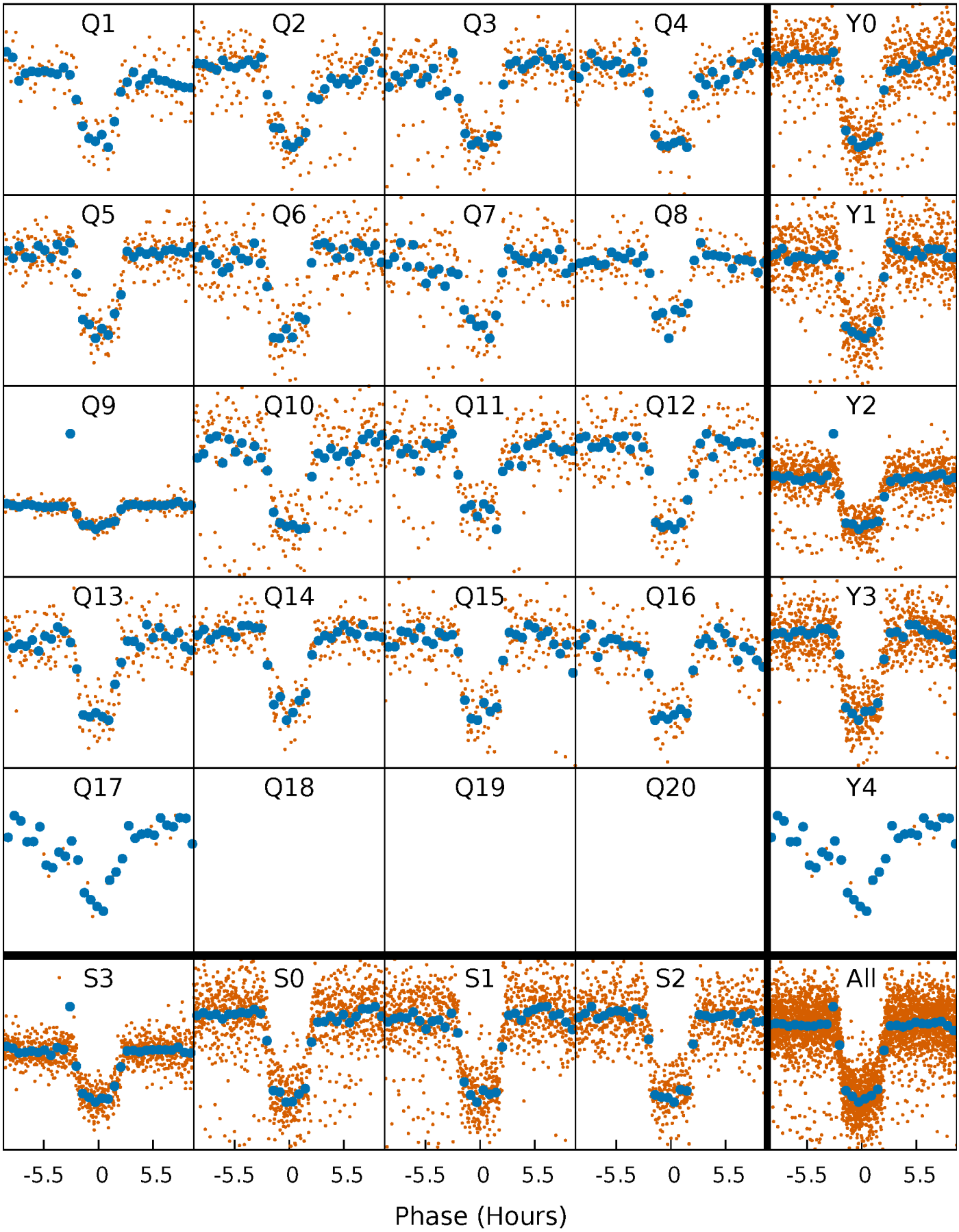
Non-Whitened Vs. Whitened Light Curve





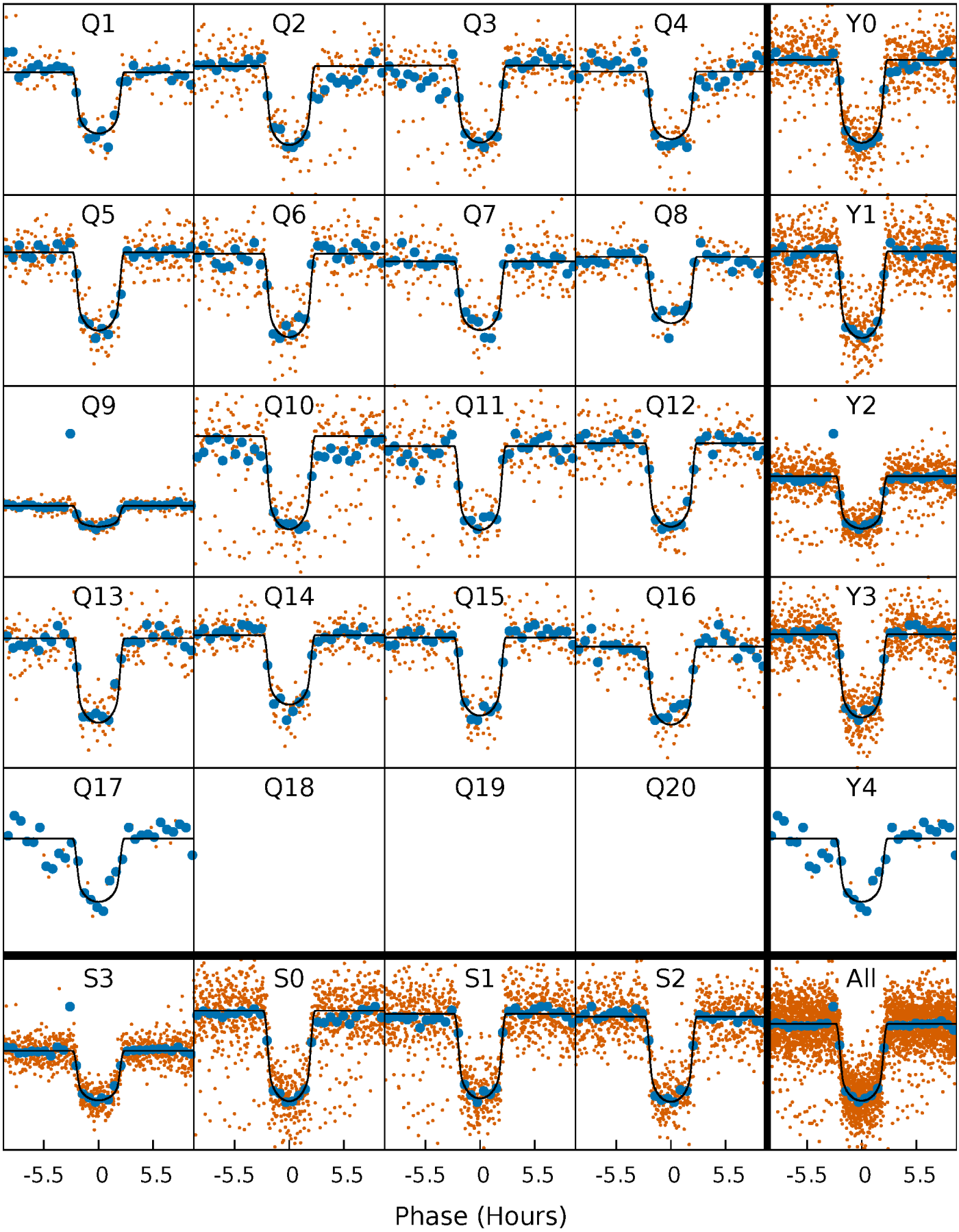
PDC Quarter-Phased Transit Curves

TCE 006541920-02 P= 13.024922 Days T_0=138.176627 (BKJD)



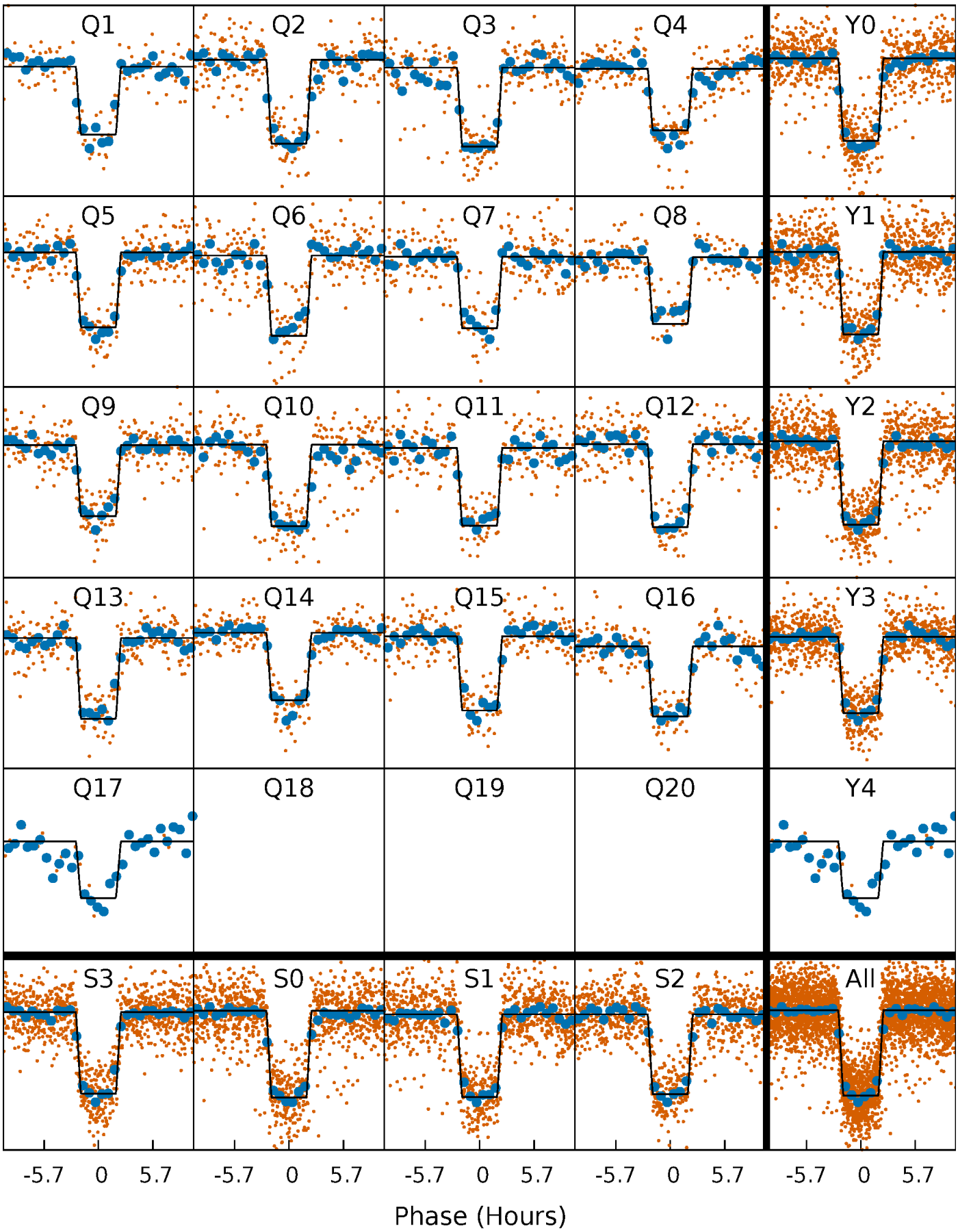
DV Quarter-Phased Transit Curves

TCE 006541920-02 P= 13.024922 Days T_0=138.176627 (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

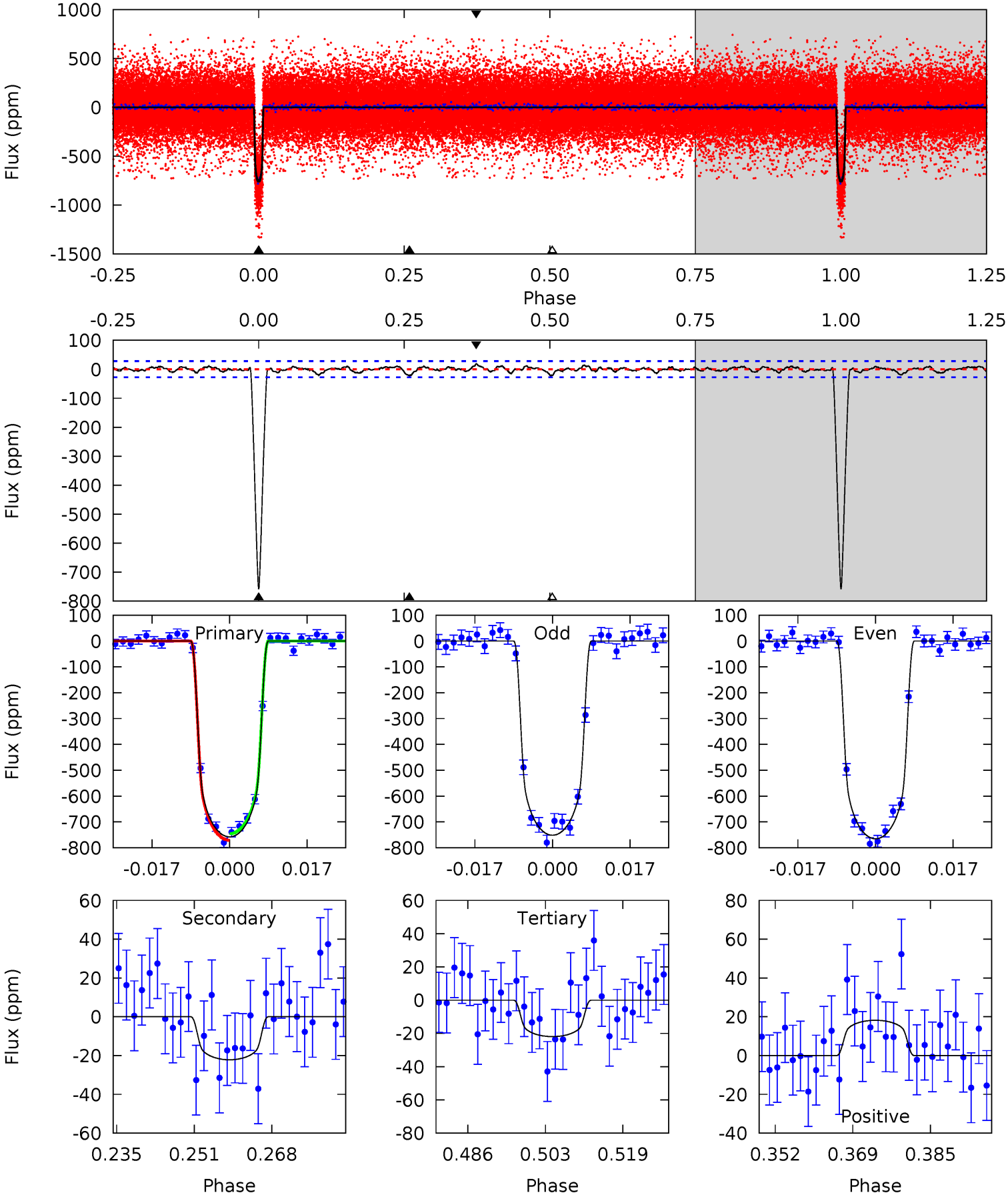
TCE 006541920-02 P= 13.024812 Days T_0=138.183209 (BKJD)



DV Model-Shift Uniqueness Test

006541920-02, P = 13.024922 Days, E = 125.151705 Days

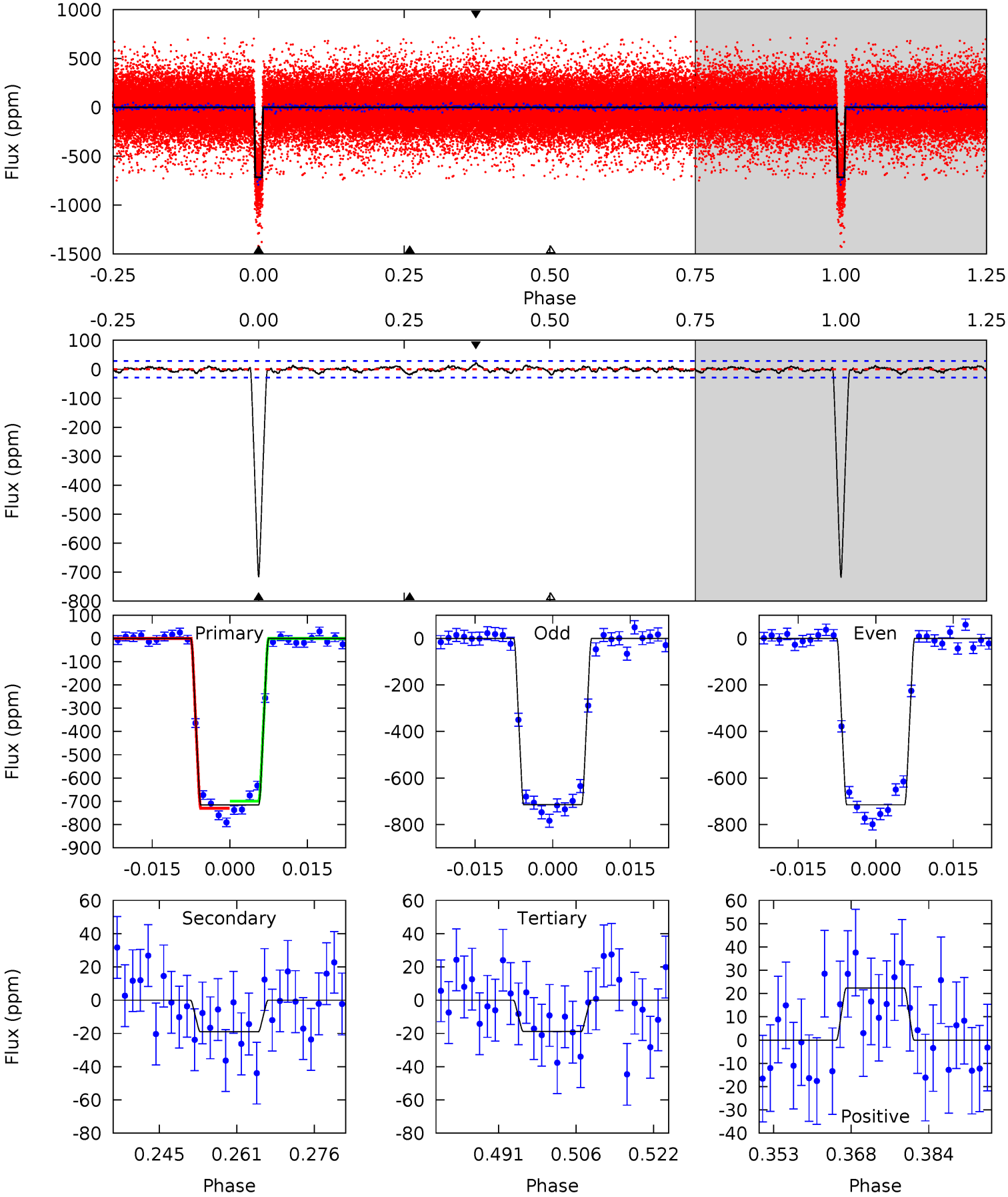
Pri	Sec	Ter	Pos	FA_1	FA_2	F_{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
134.7	3.94	3.90	3.23	4.93	2.39	1.11	130.8	131.5	0.04	0.71	1.23	1.00	0.02	2.23



Alt Model-Shift Uniqueness Test

006541920-02, P = 13.024812 Days, E = 125.158397 Days

Pri	Sec	Ter	Pos	FA_1	FA_2	F_{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
123.6	3.30	3.25	3.86	4.94	2.42	1.04	120.4	119.8	0.05	-0.56	0.04	1.01	0.03	2.66



Stellar Parameters For KIC 006541920

	$T_{\rm eff}(K)$	$\log(g)$	[Fe/H]	R ($R_\odot$)	$M(M_\odot)$	$p_\star$ (g·cm^{-3})
	5657^{+113}_{-101}	$4.364^{+0.055}_{-0.045}$	$0.000^{+0.150}_{-0.150}$	$1.046^{+0.068}_{-0.068}$	$0.921^{+0.071}_{-0.052}$	$1.134^{+0.239}_{-0.165}$
	+2%/-2%	+1%/-1%	+inf%/-inf%	+7%/-7%	+8%/-6%	+21%/-15%
Source	SPE25	TRA25	SPE25	DSEP		

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

Secondary Eclipse Parameters for KIC 006541920-02 / KOI 0157.01

Detrend	Depth (ppm)	R_p ($R_\oplus$)	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-22±6	$3.22^{+0.20}_{-0.21}$	1097^{+27}_{-30}	2965^{+119}_{-132}	13^{+4}_{-3}
Alt.	-19±6	$3.10^{+0.19}_{-0.19}$	1098^{+29}_{-29}	2953^{+126}_{-147}	13^{+4}_{-4}

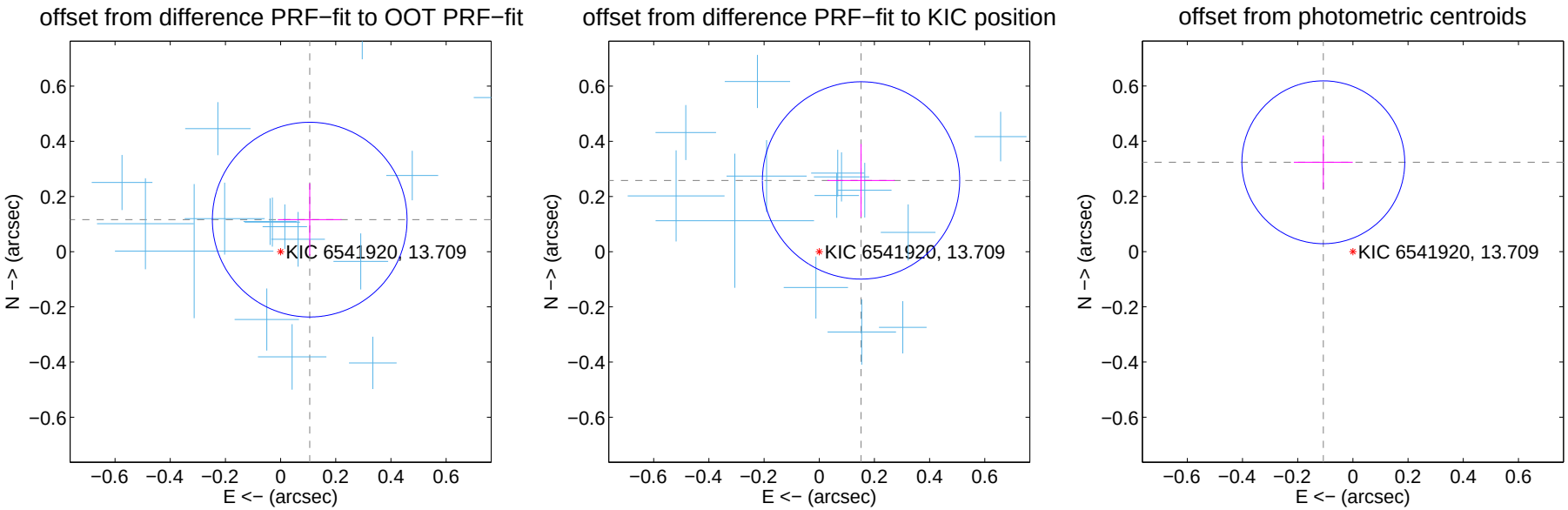
T_{max} = Theoretical Maximum Planetary Temperature
T_{obs} = Observed Planetary Temperature (Assuming A=0.3)
A_{obs} = Observed Albedo (Assuming T=0)

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

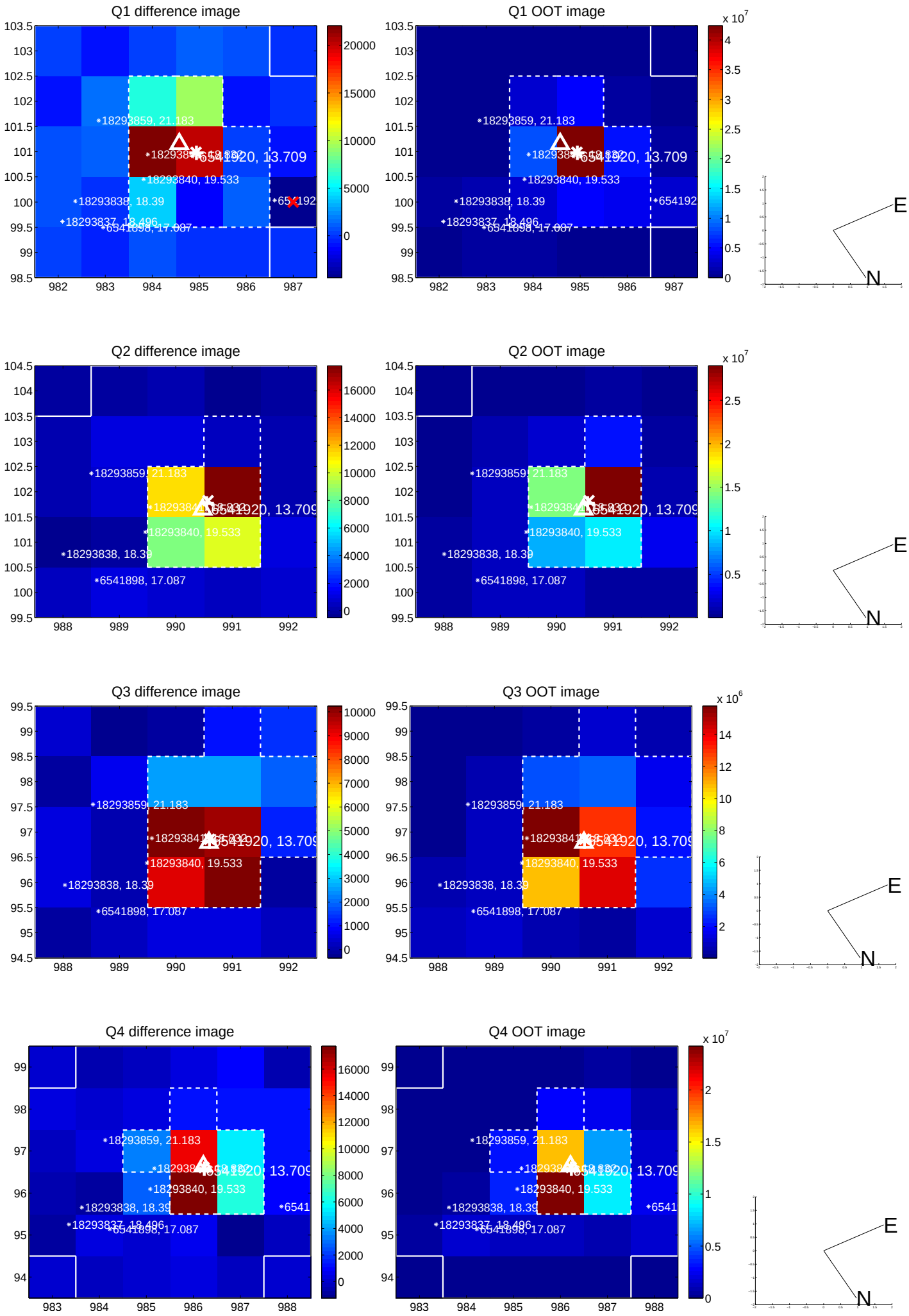
Supplemental centroid analysis for 006541920-02. Kepler magnitude: 13.71. Transit SNR 96.83
There are 17 quarters with good PRF difference image offsets
The direct PRF centroid is offset from the target star catalog position by about 0.11 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.157 ± 0.118	1.33	-0.106 ± 0.115	0.116 ± 0.131
PRF-fit source offset from KIC position	0.299 ± 0.119	2.51	-0.152 ± 0.122	0.258 ± 0.132
photometric centroid source offset	0.34 ± 0.10	3.47	0.11 ± 0.11	0.32 ± 0.10

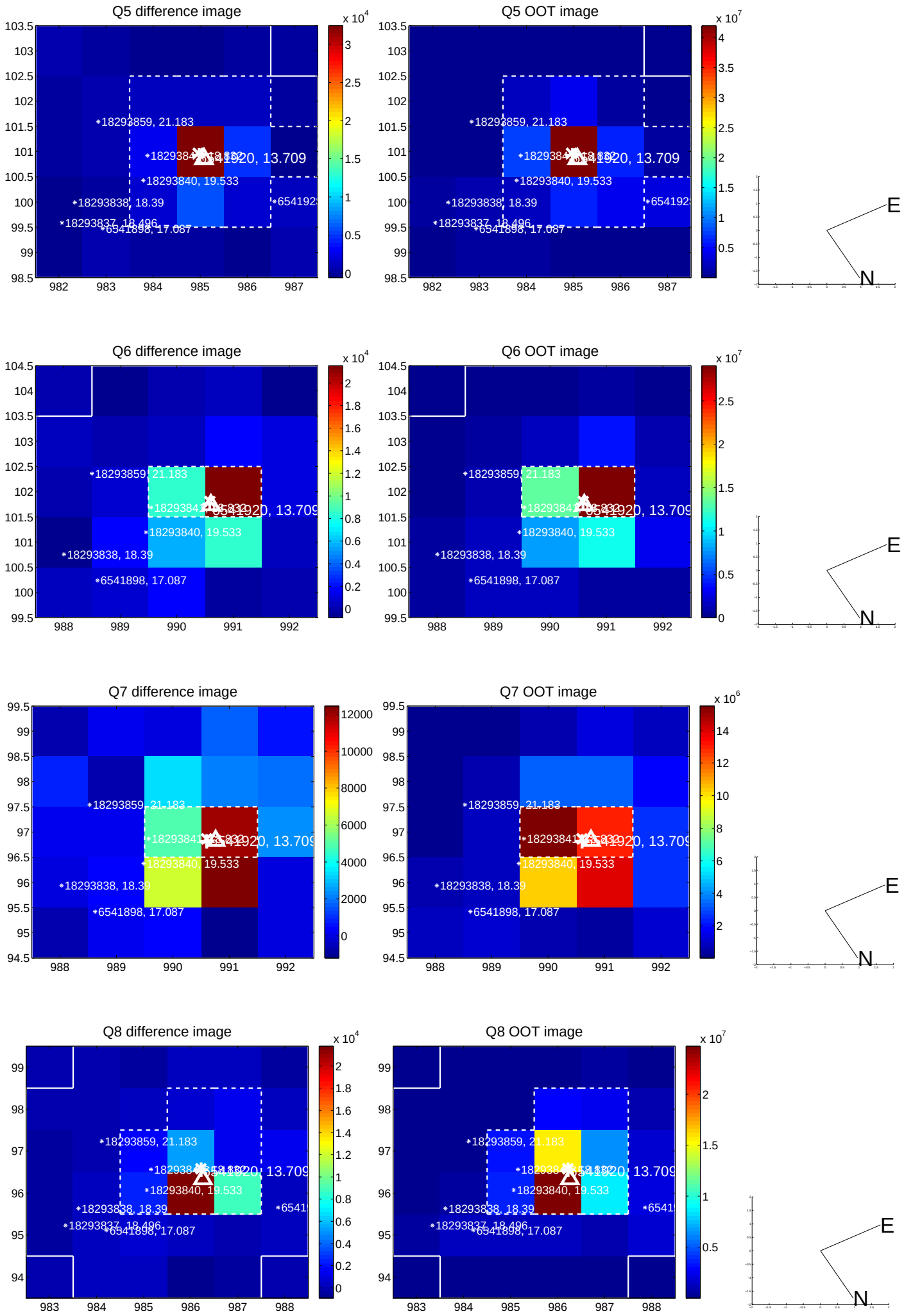


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one-σ uncertainty. Blue circle: three-σ. Red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

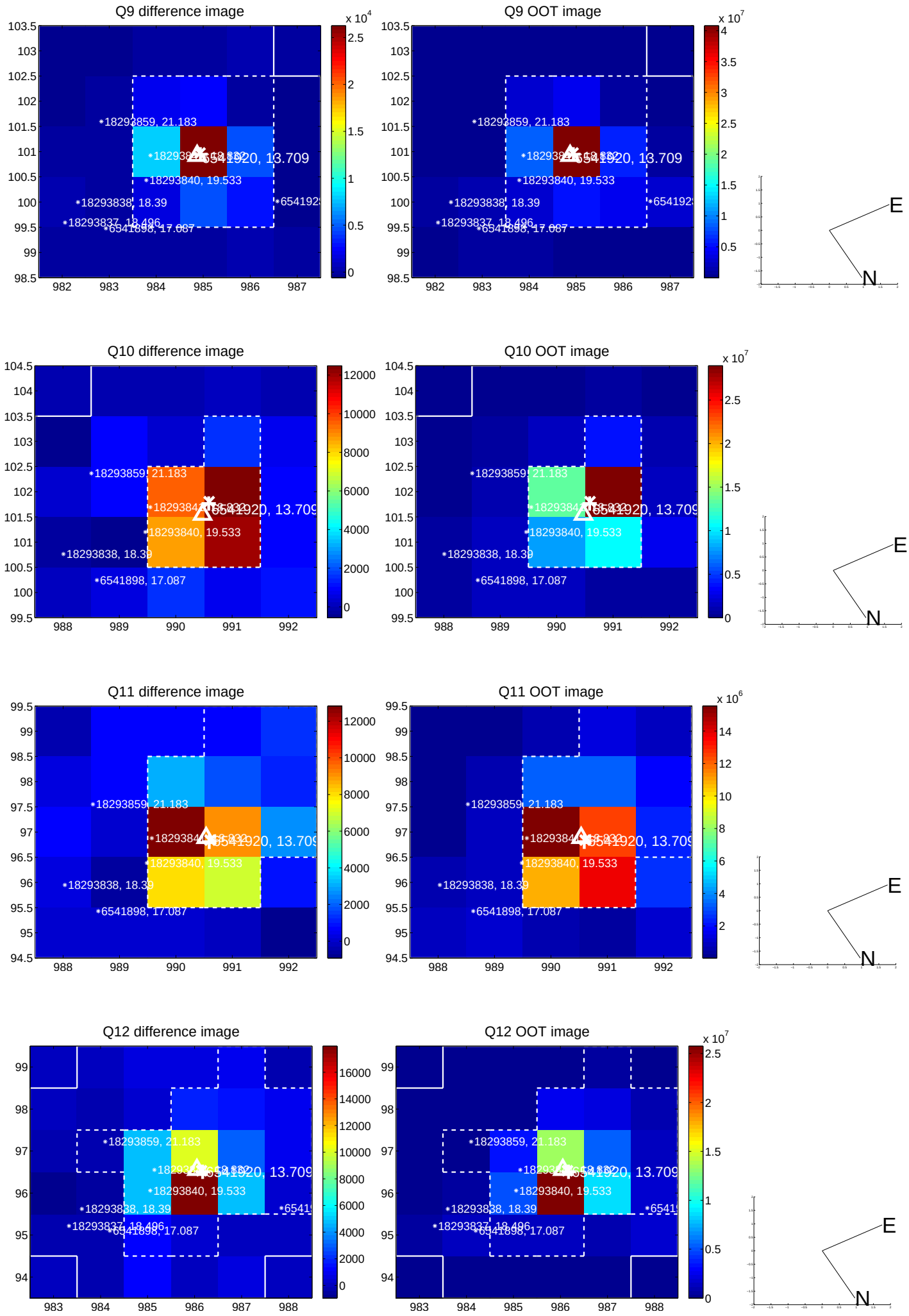
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.



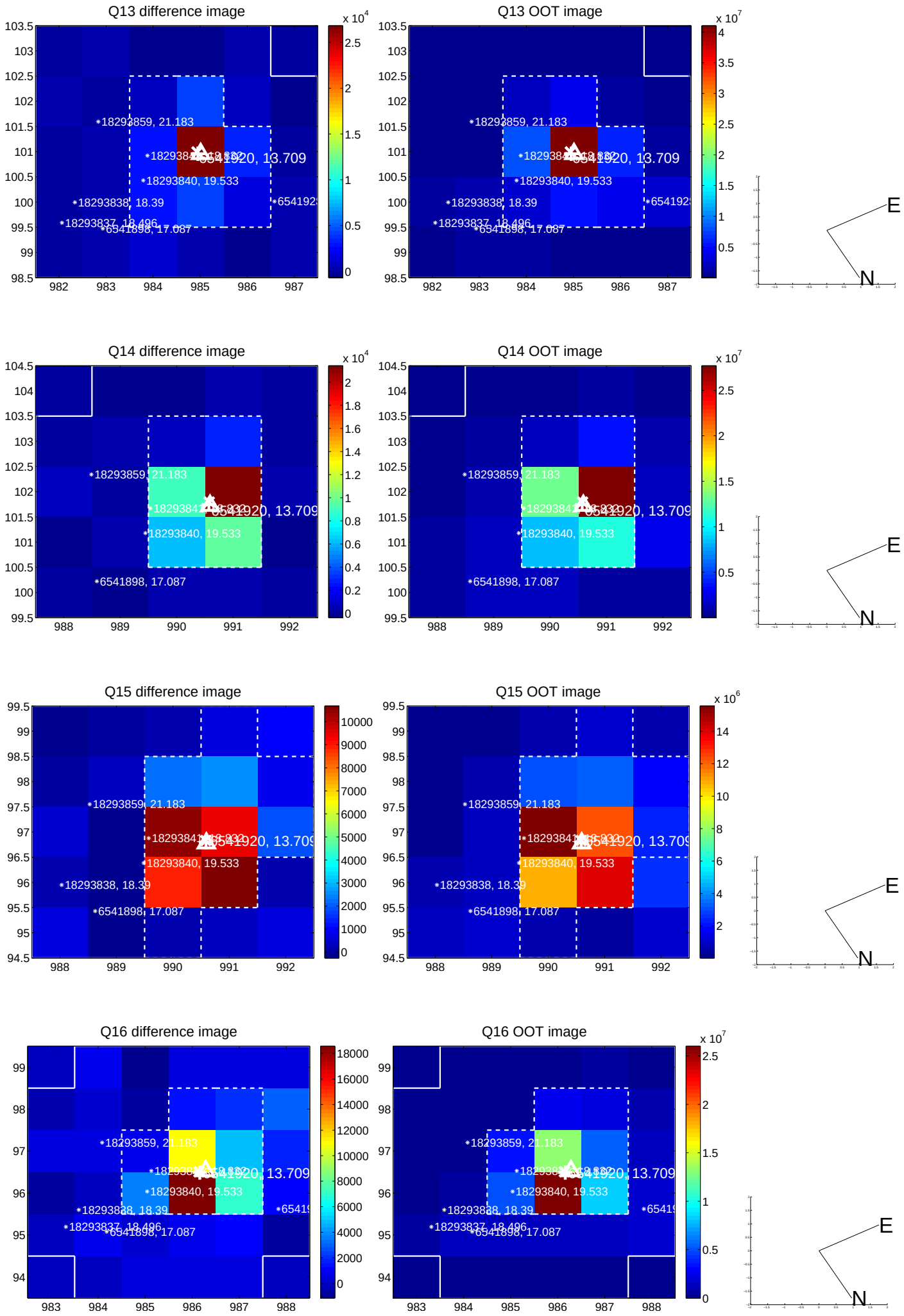
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.



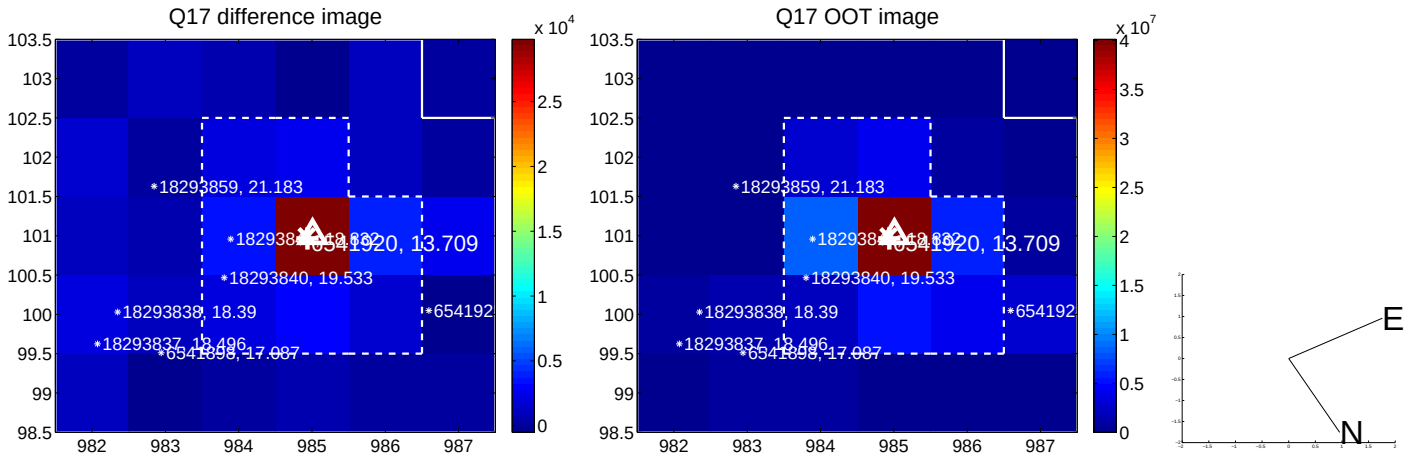
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.

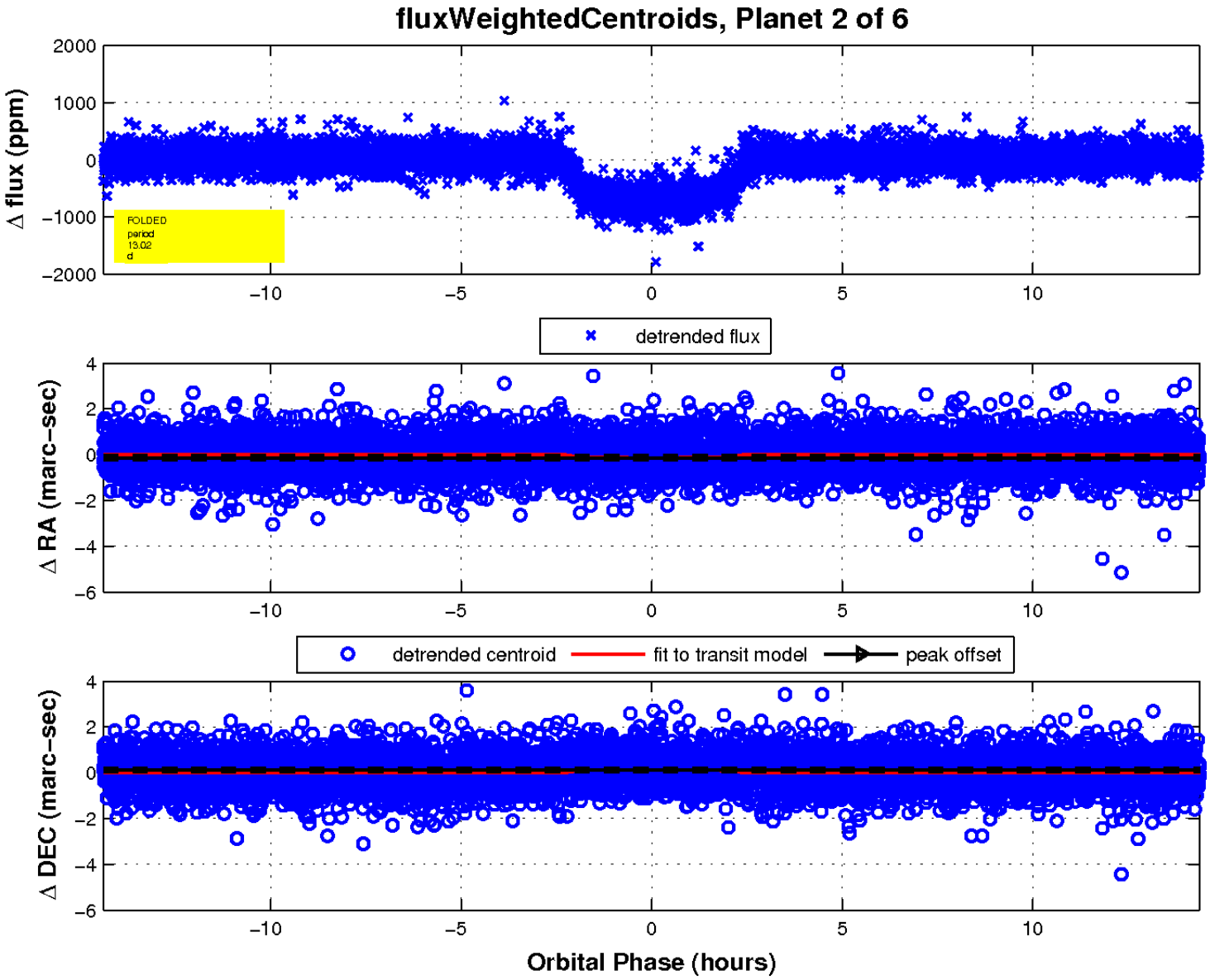


white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.

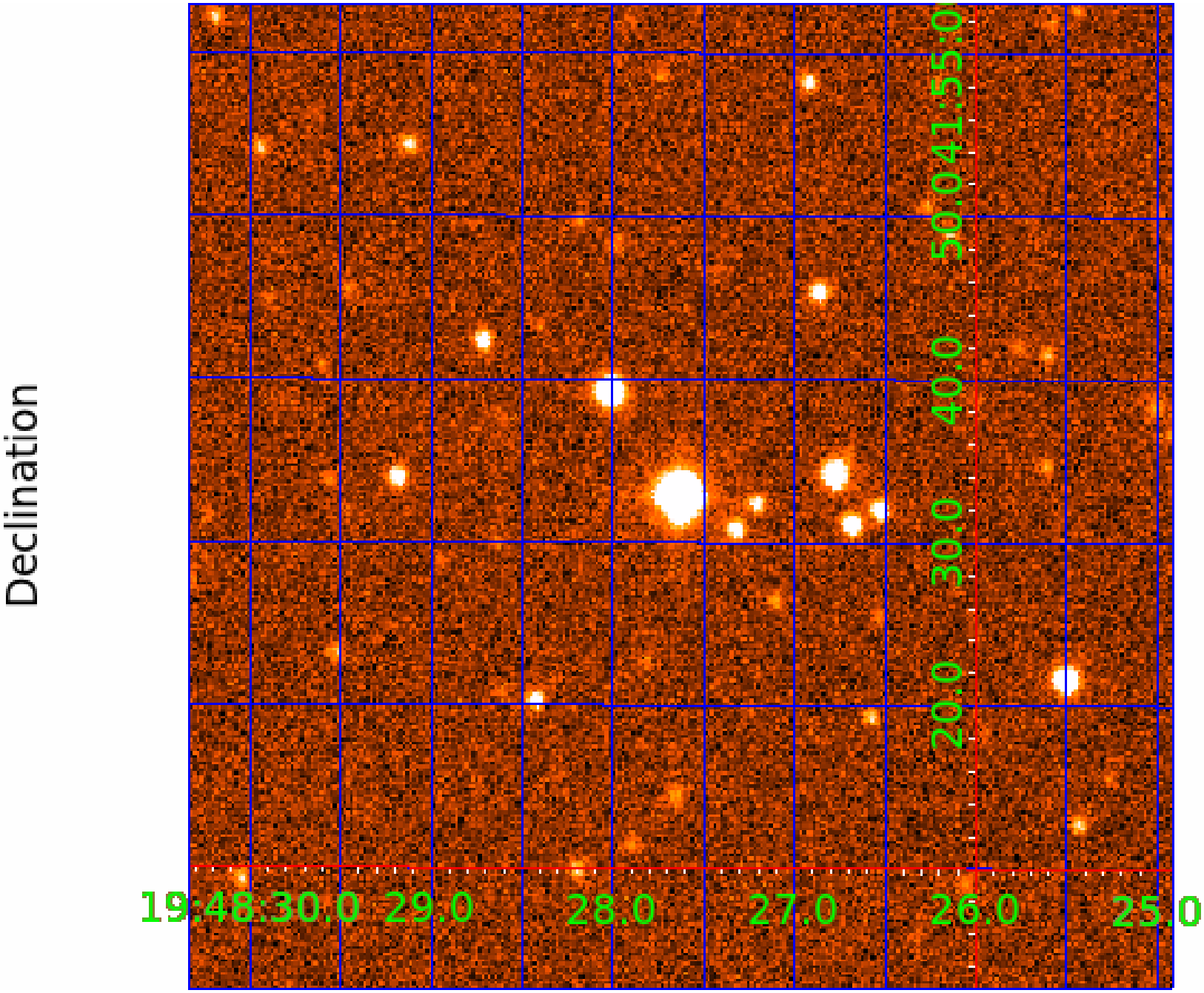


white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.





UKIRT Image


Declination
50:041:55:0
40.0
30.0
20.0
19:48:30.0
29.0
28.0
27.0
26.0
25.0

KIC 006541920

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 ($S_\oplus$)
006541920-01	OBS	0157.03	31.995499	154.160762	1355.6	4.460	102.3	103.5	1.05	5657	4.37	27.21
006541920-02	OBS	0157.01	13.024922	138.176627	760.4	4.795	94.9	96.8	1.05	5657	3.23	90.20
006541920-03	OBS	0157.02	22.687165	148.454362	959.6	5.625	94.0	99.1	1.05	5657	3.48	43.04
006541920-04	OBS	0157.05	118.378578	168.908526	1104.5	9.700	57.5	61.6	1.05	5657	3.55	4.76
006541920-05	OBS	0157.04	46.686019	131.665574	562.7	7.276	40.5	43.4	1.05	5657	2.98	16.44
006541920-06	OBS	0157.06	10.304027	138.501918	297.9	4.610	41.0	44.0	1.05	5657	2.21	123.29

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
006541920-01	OBS	PC	1.00	0	0	0	0	NO_COMMENT
006541920-02	OBS	PC	1.00	0	0	0	0	NO_COMMENT
006541920-03	OBS	PC	1.00	0	0	0	0	NO_COMMENT
006541920-04	OBS	PC	1.00	0	0	0	0	NO_COMMENT
006541920-05	OBS	PC	1.00	0	0	0	0	NO_COMMENT
006541920-06	OBS	PC	1.00	0	0	0	0	NO_COMMENT

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.

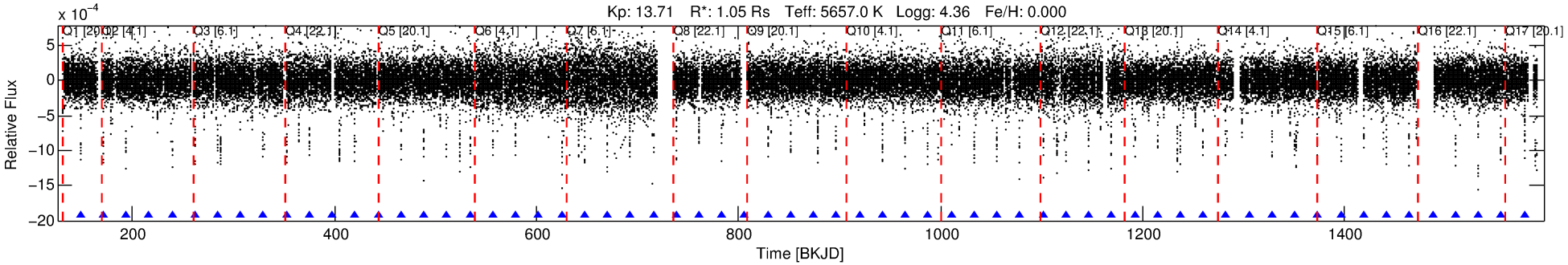
Ephemeris Match Information For 006541920-03

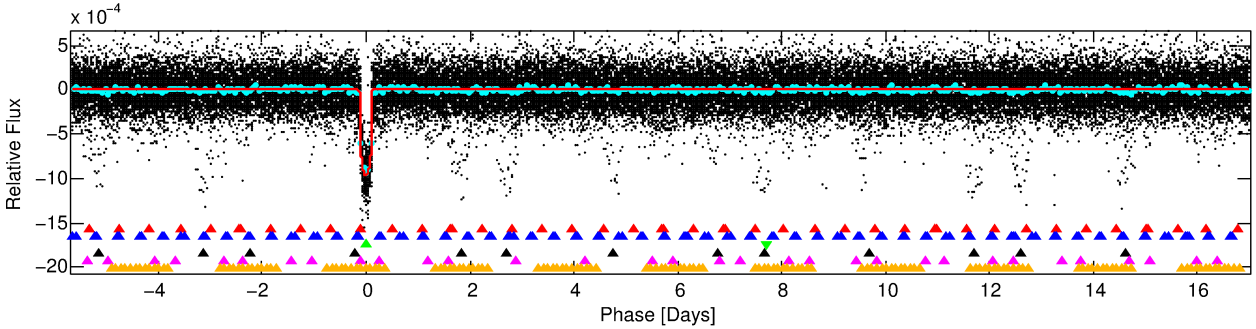
No Significant Match Found

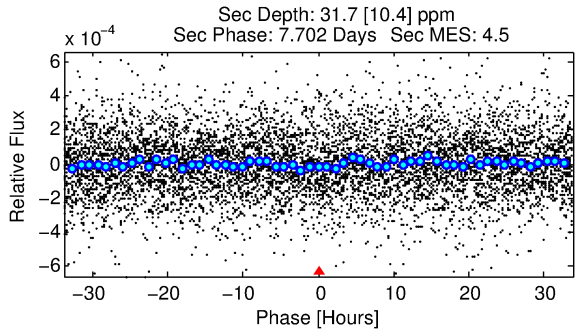
DV One-Page Summary

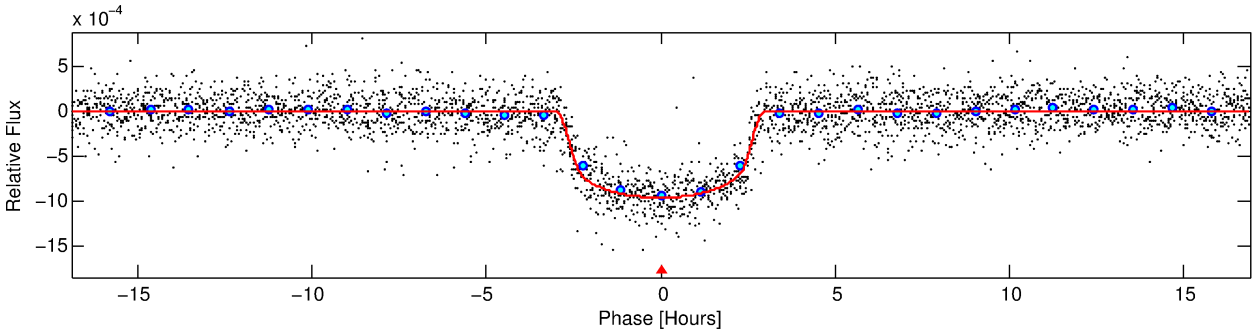
KIC: 6541920 Candidate: 3 of 6 Period: 22.687 d
KOI: K00157.02 Name: Kepler−11d Corr: 0.987

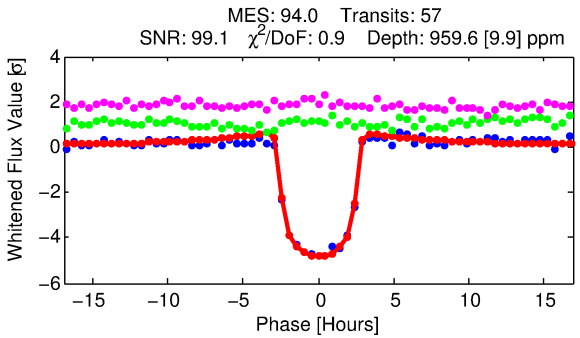
Kp: 13.71 R*: 1.05 Rs Teff: 5657.0 K Logg: 4.36 Fe/H: 0.000

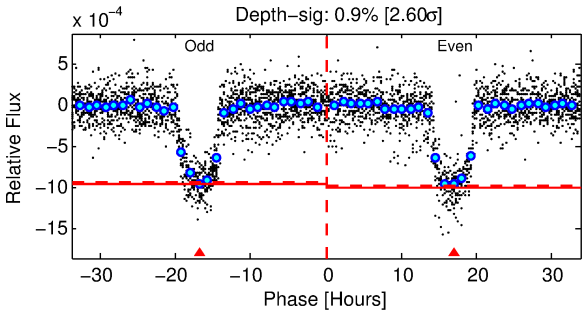


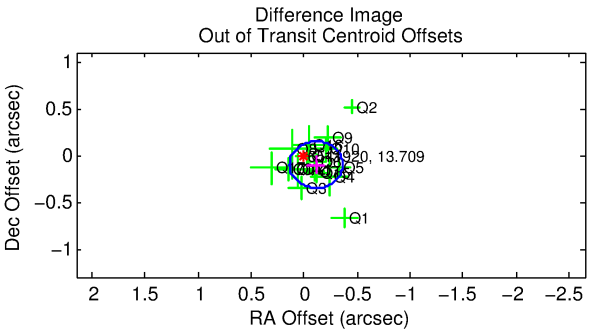












DV Fit Results:

Period = 22.68717 [0.00003] d
Epoch = 148.4544 [0.0011] BKJD
Rp/R* = 0.0305 [0.0018]
a/R* = 22.69 [5.73]
b = 0.72 [0.17]

Seff = 43.04 [5.34]
Teq = 653 [20] K
Rp = 3.48 [0.31] Re
a = 0.1527 [0.0092] AU

Ag = 33.54 [12.13] [2.68σ]
Teffp = 2430 [218] K [8.13σ]

DV Diagnostic Results:

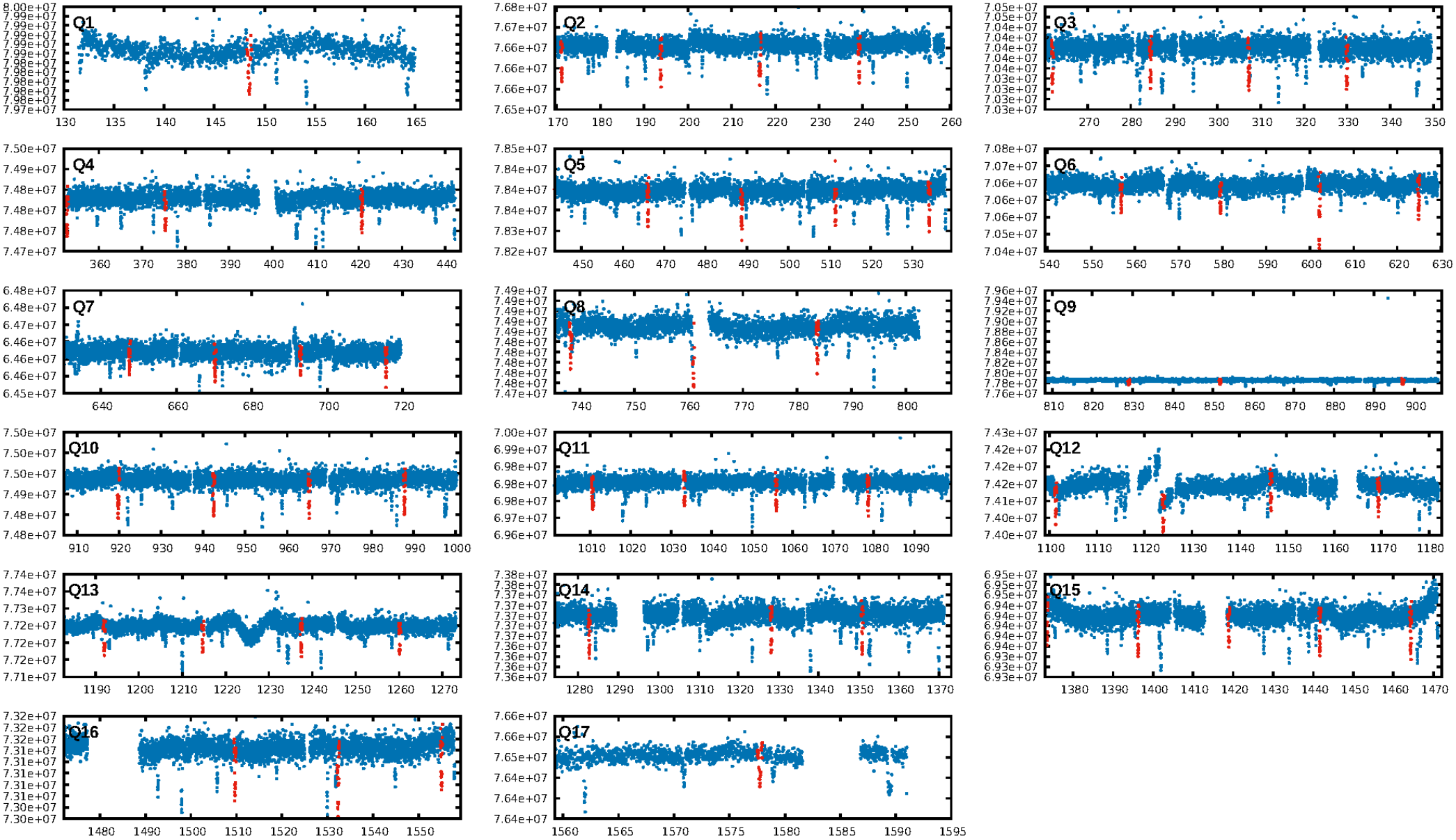
ShortPeriod−sig: 100.0% [31.37σ]
LongPeriod−sig: 100.0% [31.12σ]
ModelChiSquare2−sig: 40.4%
ModelChiSquareGof−sig: 100.0%
Bootstrap−pfa: 0.00e+00
RollingBand−fgt: 1.00 [55/55]
GhostDiagnostic−chr: 5.705

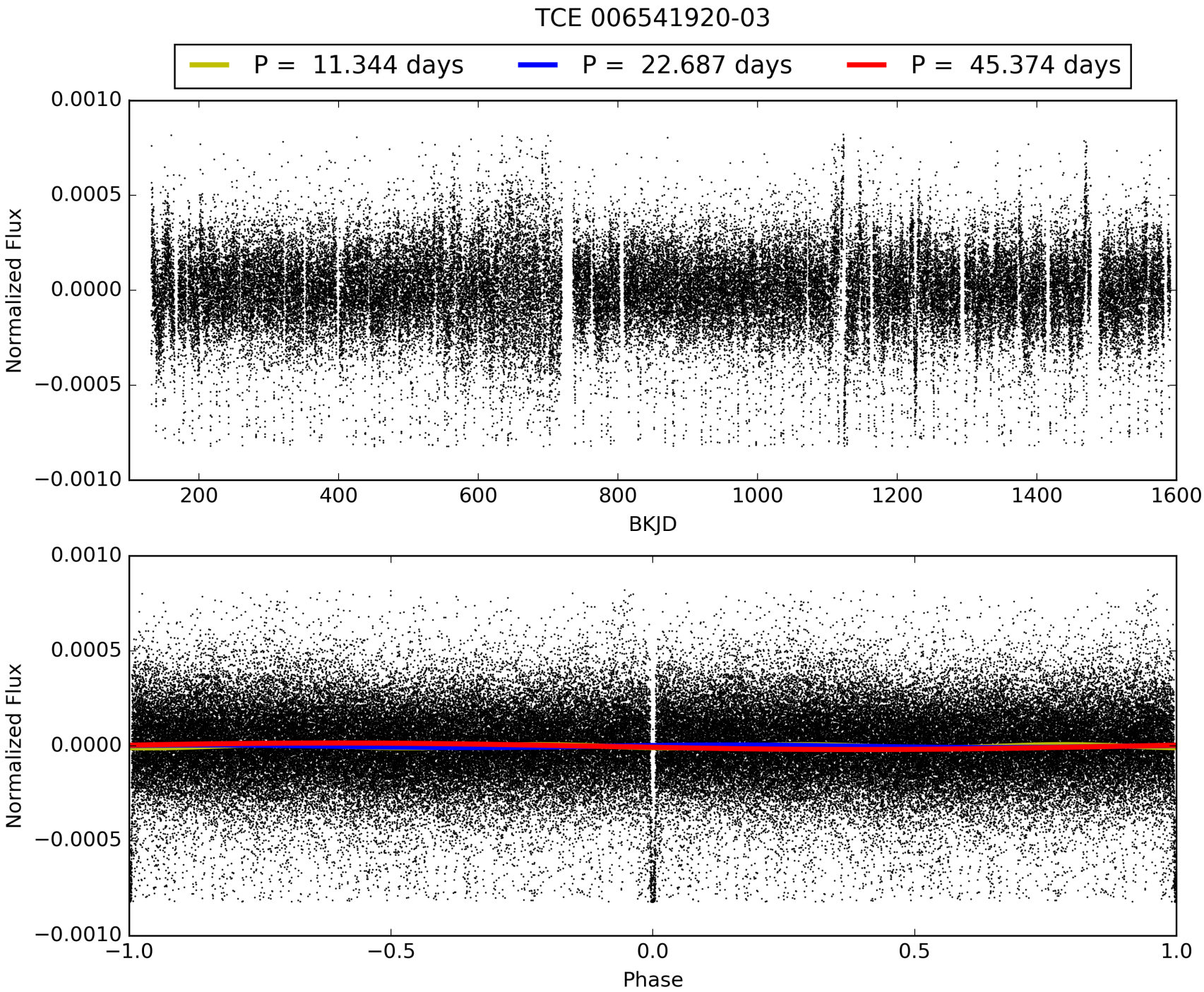
Centroid−sig: 0.0%
Centroid−so: 0.277 arcsec [2.79σ]
OotOffset−rm: 0.150 arcsec [1.80σ]
KicOffset−rm: 0.161 arcsec [1.81σ]
OotOffset−st: 4/4/4/5 [17]
KicOffset−st: 4/4/4/5 [17]
DiffImageQuality−fgm: 1.00 [17/17]
DiffImageOverlap−fno: 0.94 [16/17]

Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 −− Date Generated: 31−Jan−2016 13:03:03 Z

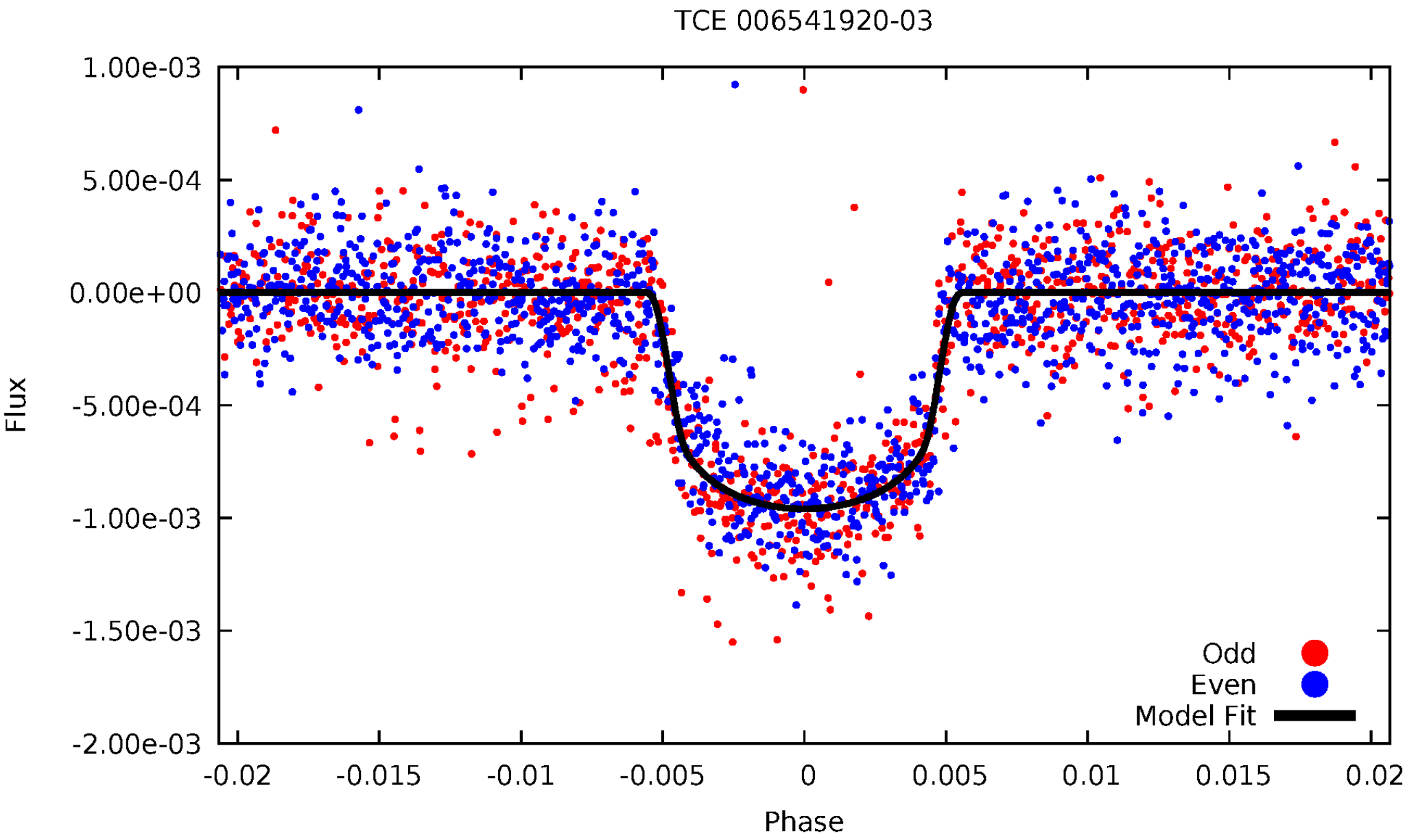
This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

TCE 006541920-03, PDC Light Curves

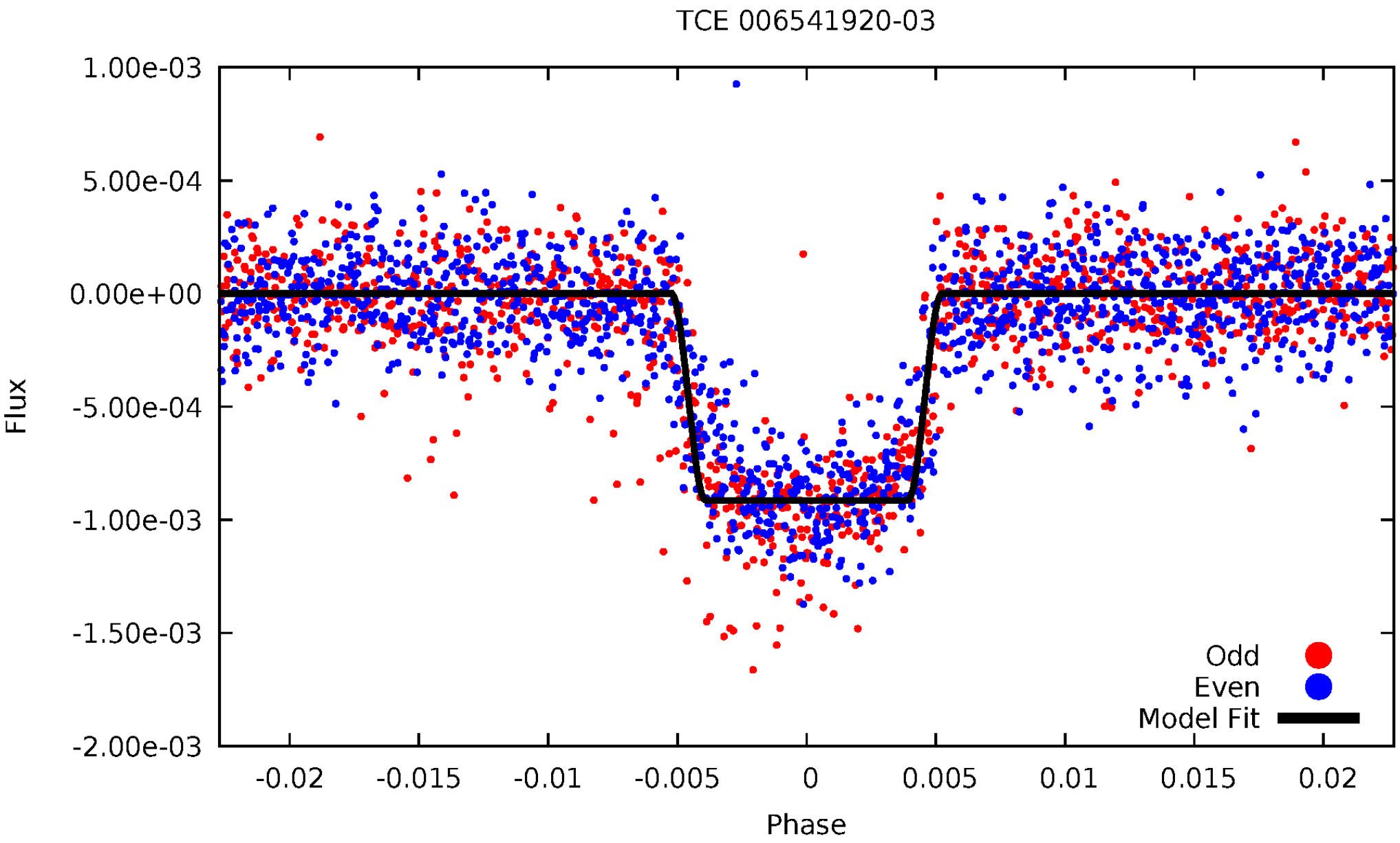



TCE 006541920-03
P = 11.344 days
P = 22.687 days
P = 45.374 days
Normalized Flux
0.0010
0.0005
0.0000
−0.0005
−0.0010
200
400
600
800
1000
1200
1400
1600
BKJD
Normalized Flux
0.0010
0.0005
0.0000
−0.0005
−0.0010
−1.0
−0.5
0.0
0.5
1.0
Phase

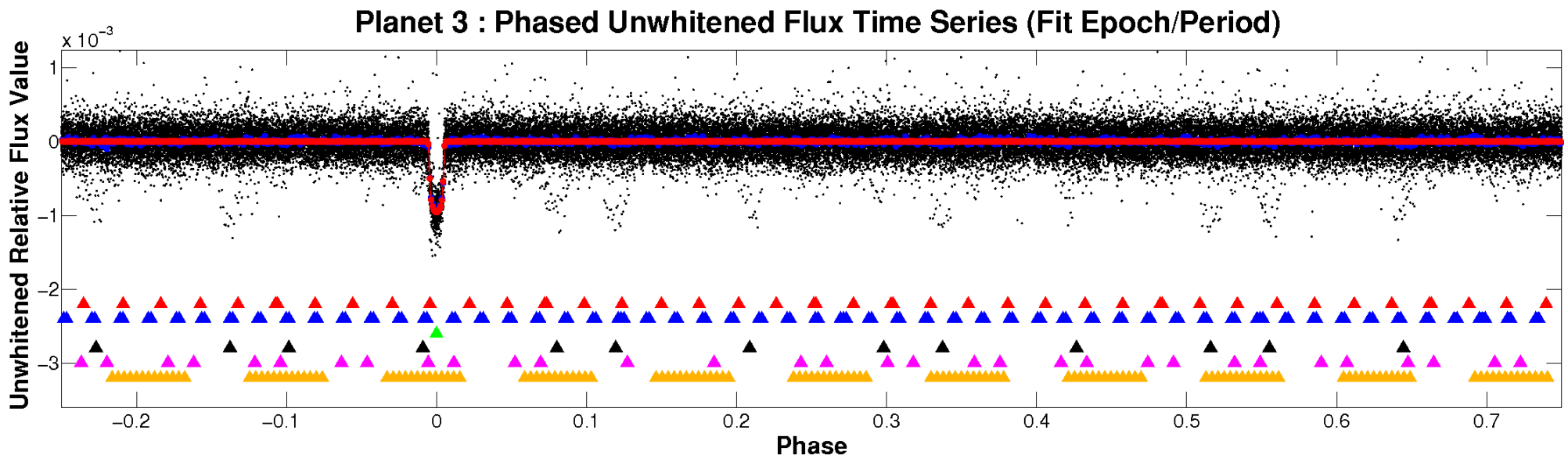
DV Odd/Even

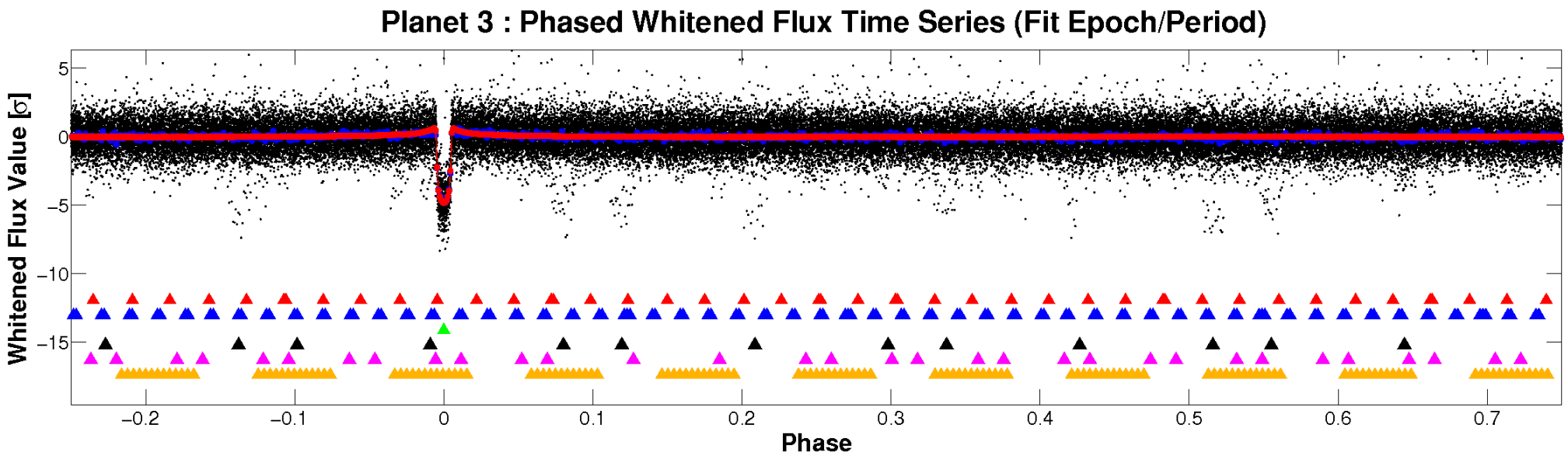

TCE 006541920-03
1.00e-03
5.00e-04
0.00e+00
-5.00e-04
-1.00e-03
-1.50e-03
-2.00e-03
Flux
-0.02
-0.015
-0.01
-0.005
0
0.005
0.01
0.015
0.02
Phase
Odd
Even
Model Fit

ALT Odd/Even


TCE 006541920-03
1.00e-03
5.00e-04
0.00e+00
-5.00e-04
-1.00e-03
-1.50e-03
-2.00e-03
Flux
-0.02
-0.015
-0.01
-0.005
0
0.005
0.01
0.015
0.02
Phase
Odd
Even
Model Fit

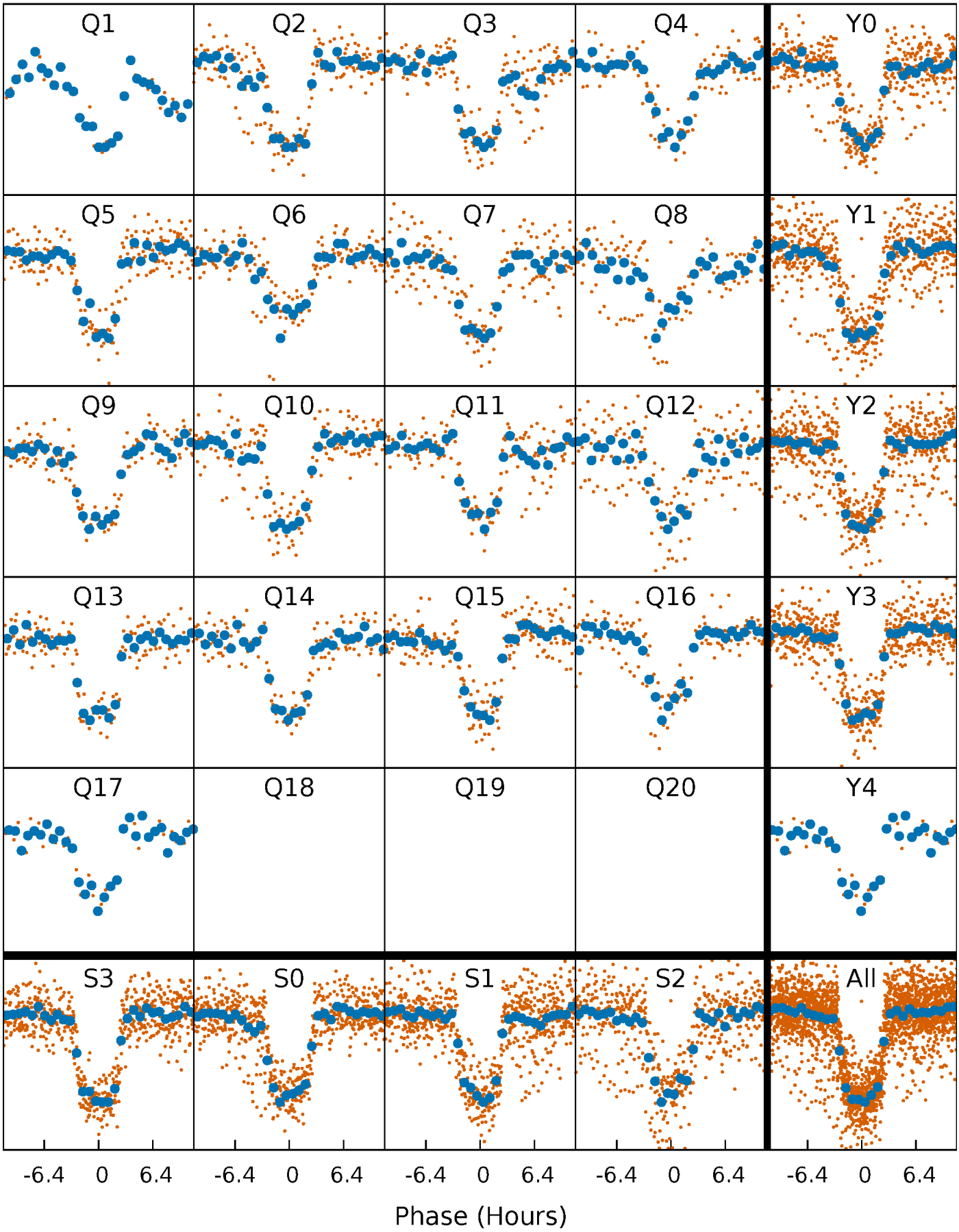
Non-Whitened Vs. Whitened Light Curve





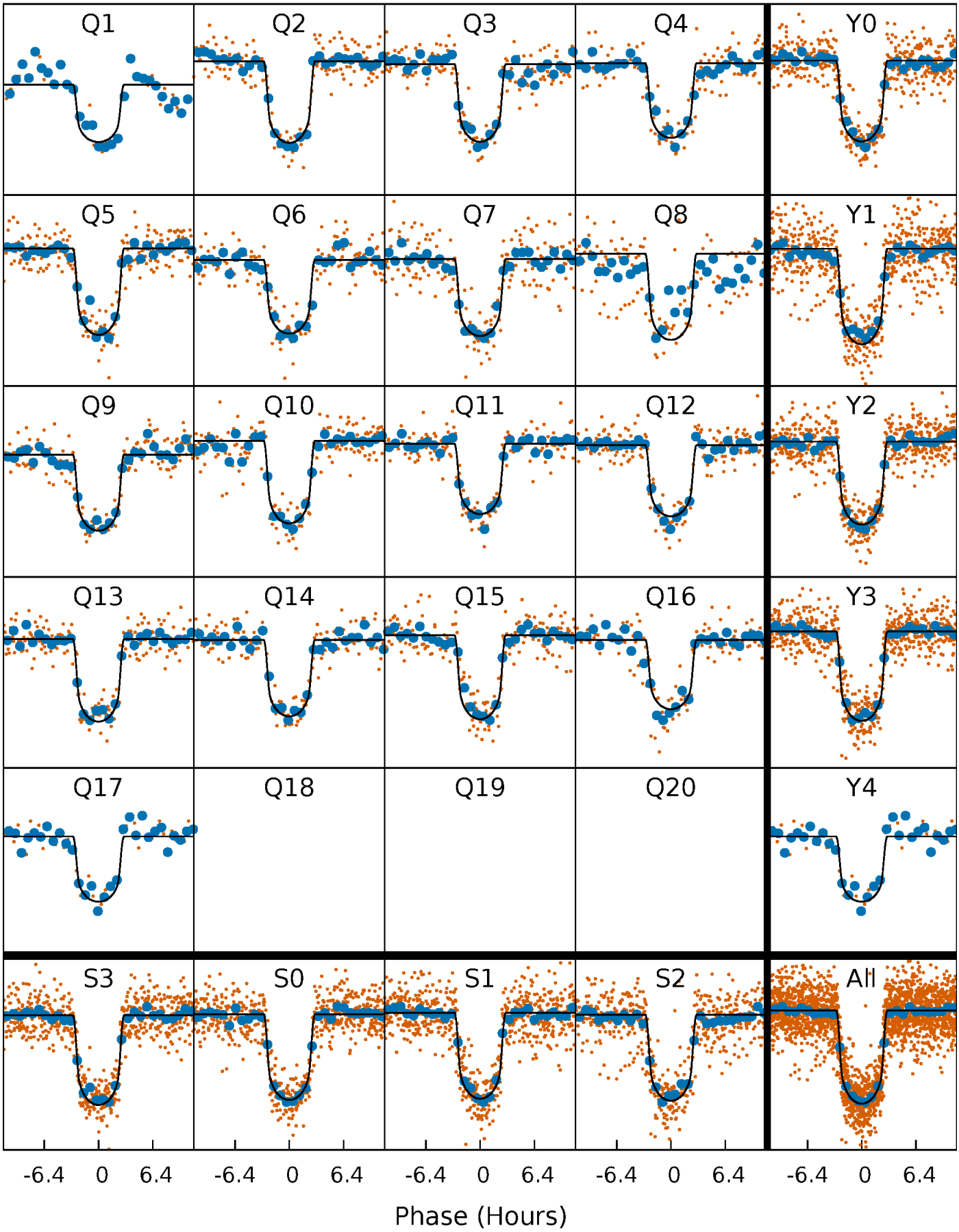
PDC Quarter-Phased Transit Curves

TCE 006541920-03 P= 22.687165 Days T_0=148.454362 (BKJD)



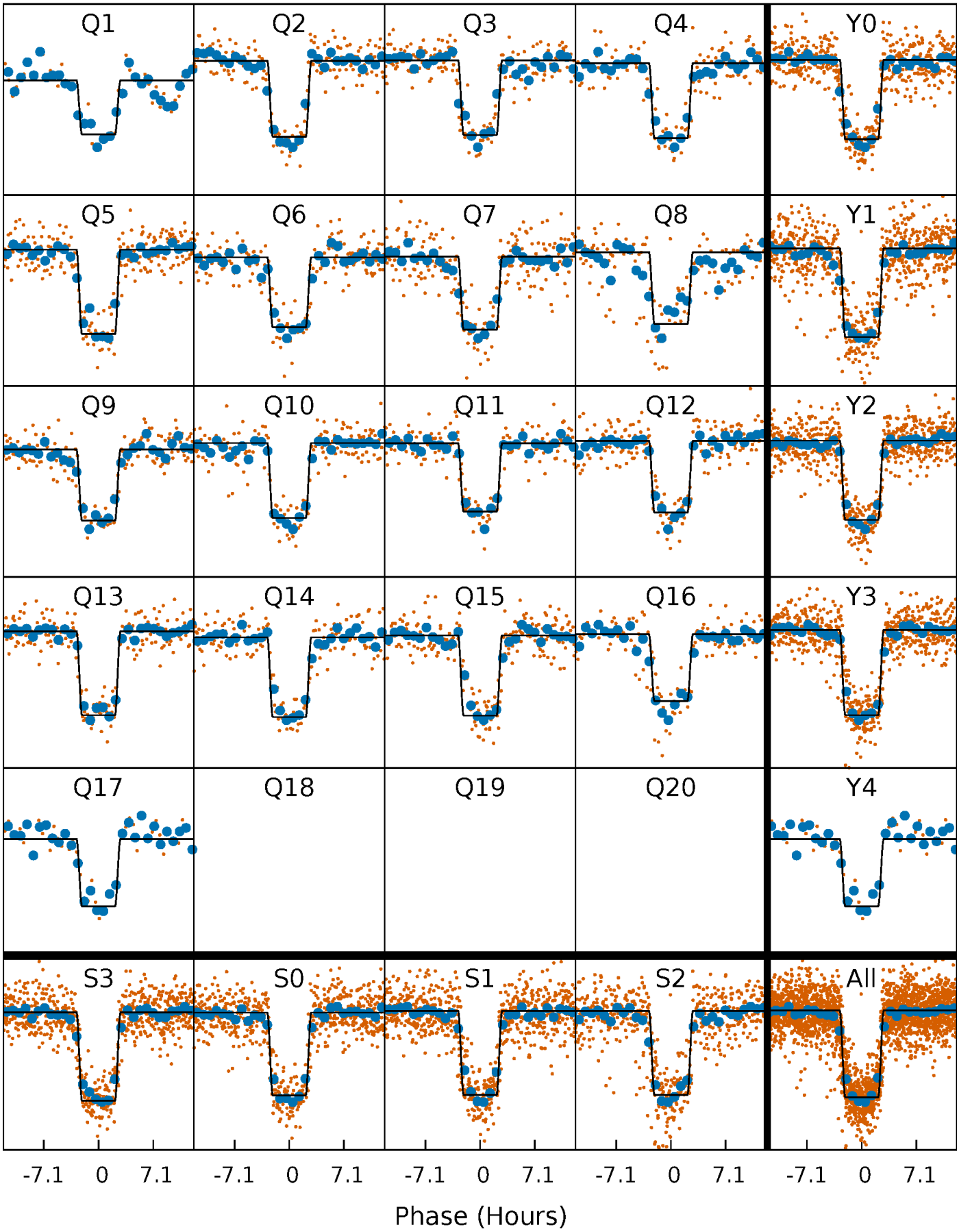
DV Quarter-Phased Transit Curves

TCE 006541920-03 P= 22.687165 Days T_0=148.454362 (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

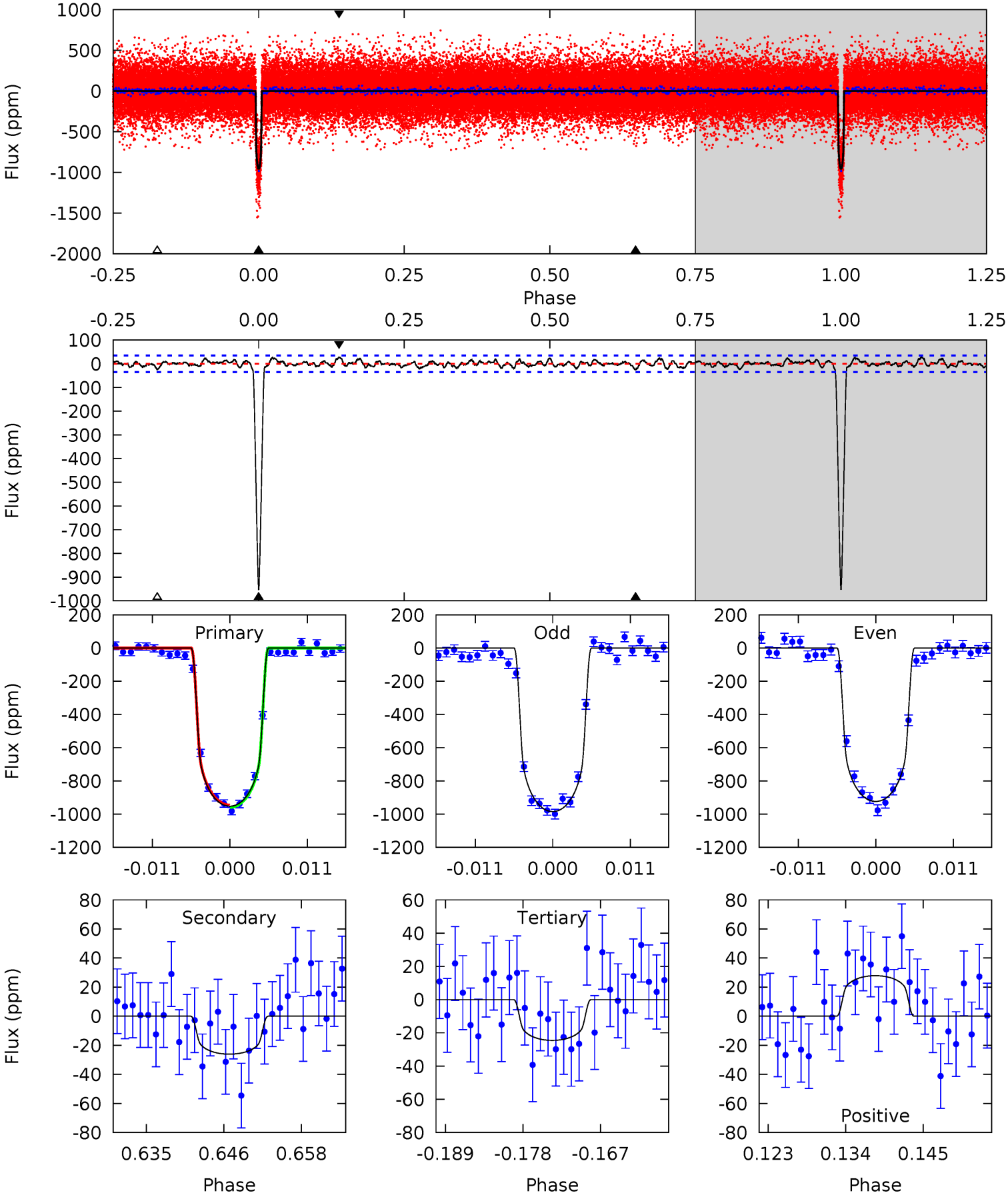
TCE 006541920-03 P= 22.686793 Days T_0=148.466572 (BKJD)



DV Model-Shift Uniqueness Test

006541920-03, P = 22.687165 Days, E = 125.767197 Days

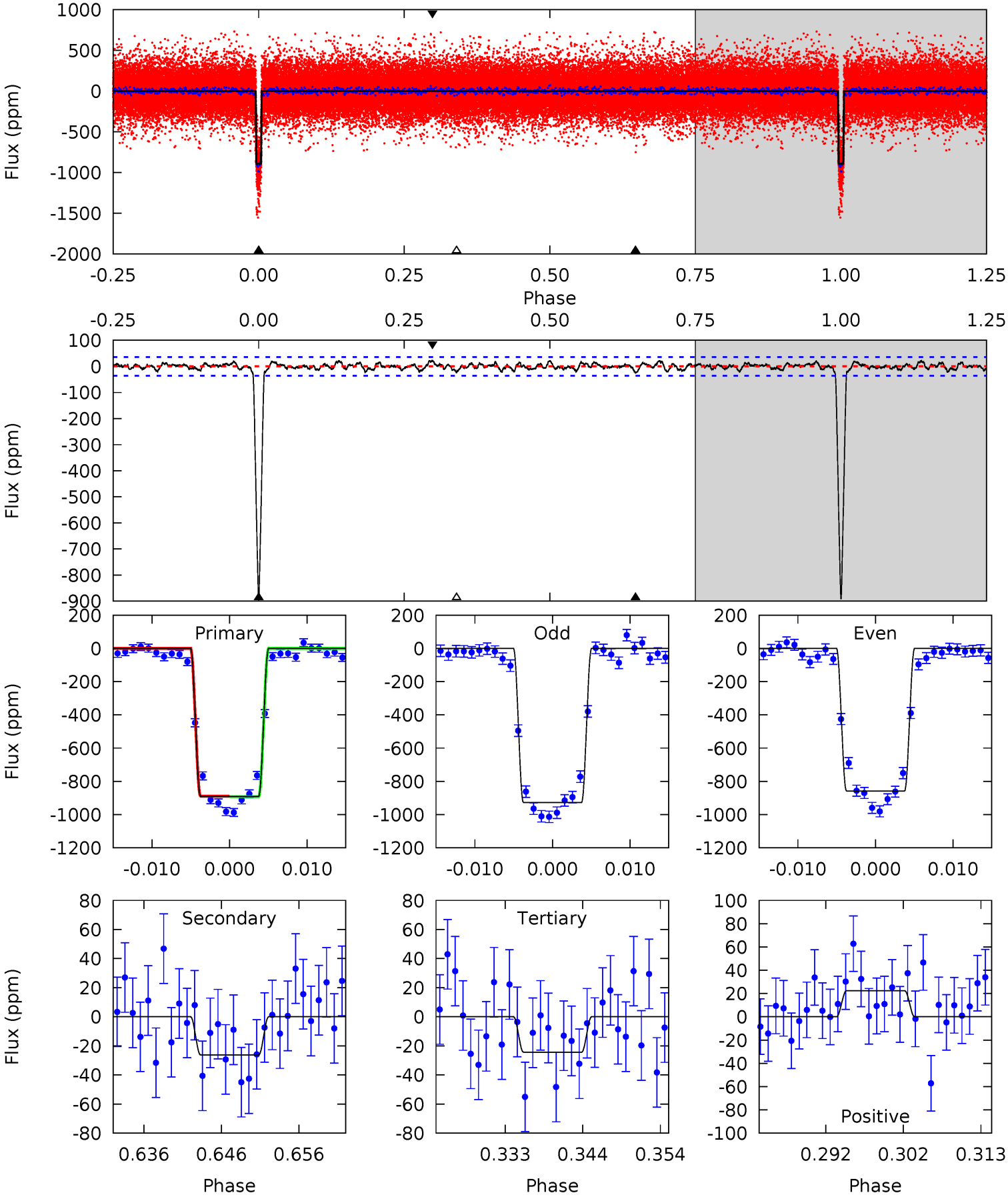
Pri	Sec	Ter	Pos	FA_1	FA_2	F_{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
137.1	3.76	3.53	4.01	5.01	2.54	1.36	133.6	133.1	0.23	-0.25	4.41	0.99	0.03	0



Alt Model-Shift Uniqueness Test

006541920-03, P = 22.686793 Days, E = 125.779779 Days

Pri	Sec	Ter	Pos	FA_1	FA_2	F_{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
124.8	3.67	3.41	3.15	5.02	2.56	1.23	121.4	121.7	0.26	0.53	4.92	0.99	0.02	0.22



Stellar Parameters For KIC 006541920

	$T_{\rm eff}(K)$	$\log(g)$	[Fe/H]	R ($R_\odot$)	$M(M_\odot)$	$p_\star$ (g·cm^{-3})
	5657^{+113}_{-101}	$4.364^{+0.055}_{-0.045}$	$0.000^{+0.150}_{-0.150}$	$1.046^{+0.068}_{-0.068}$	$0.921^{+0.071}_{-0.052}$	$1.134^{+0.239}_{-0.165}$
	+2%/-2%	+1%/-1%	+inf%/-inf%	+7%/-7%	+8%/-6%	+21%/-15%
Source	SPE25	TRA25	SPE25	DSEP		

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

Secondary Eclipse Parameters for KIC 006541920-03 / KOI 0157.02

Detrend	Depth (ppm)	R_p ($R_\oplus$)	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-26±7	$3.48^{+0.26}_{-0.24}$	912^{+24}_{-23}	2985^{+129}_{-138}	28^{+9}_{-8}
Alt.	-26±7	$3.46^{+0.25}_{-0.26}$	913^{+24}_{-26}	2987^{+134}_{-142}	28^{+10}_{-8}

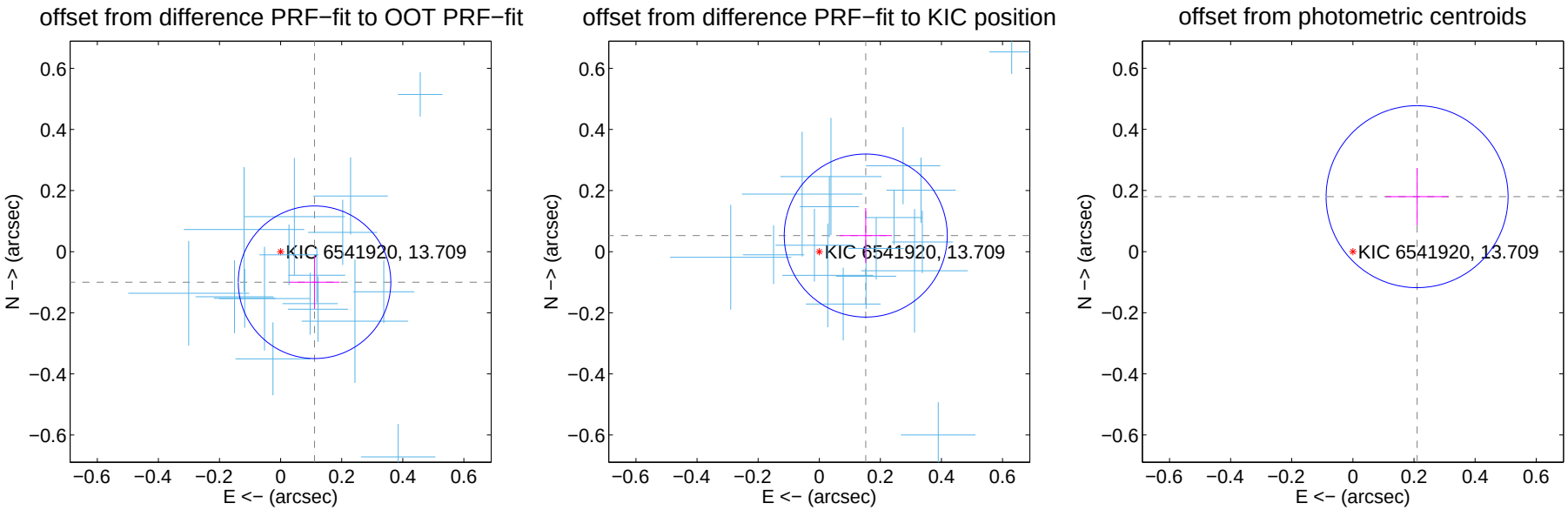
T_{max} = Theoretical Maximum Planetary Temperature
T_{obs} = Observed Planetary Temperature (Assuming A=0.3)
A_{obs} = Observed Albedo (Assuming T=0)

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

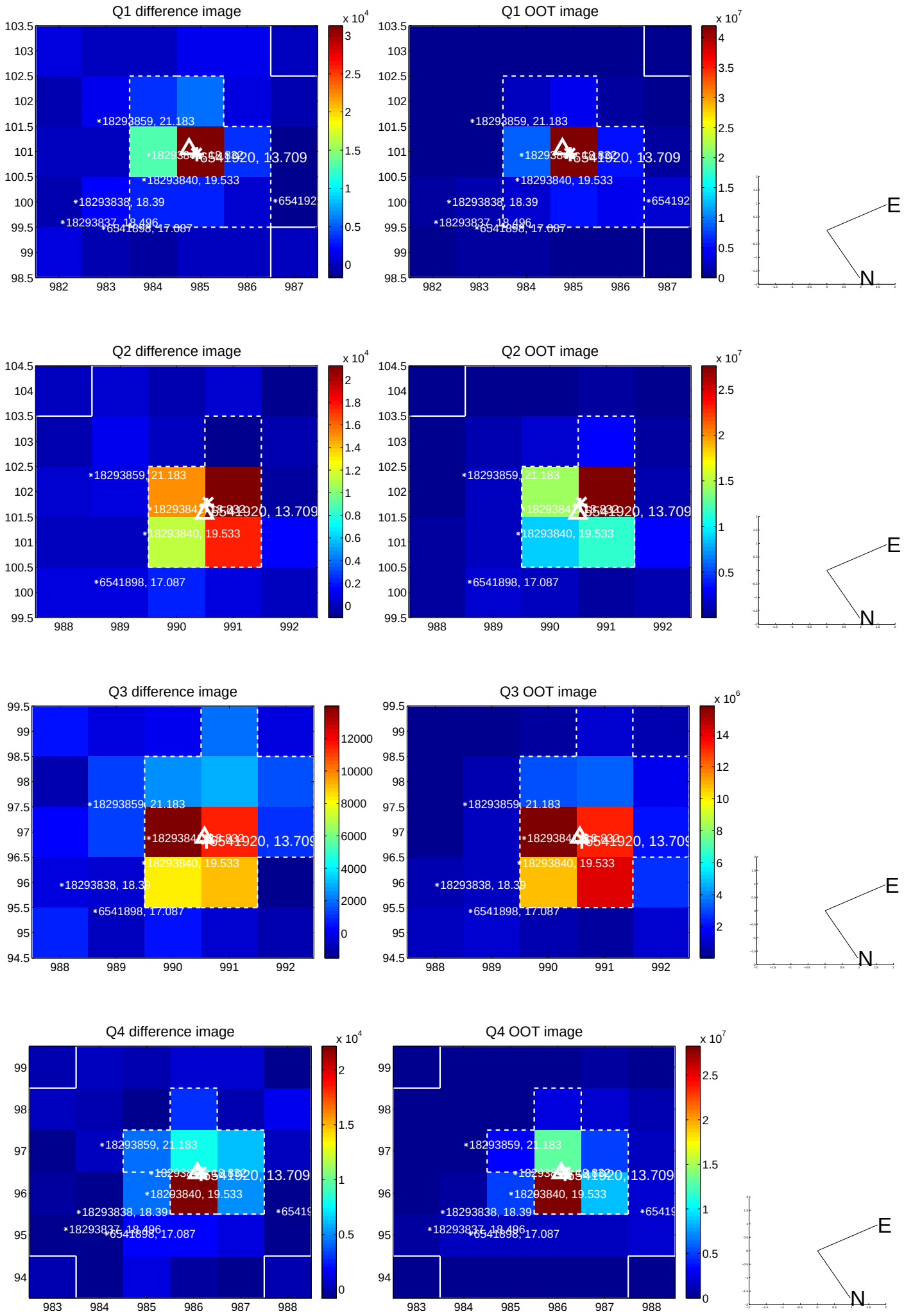
Supplemental centroid analysis for 006541920-03. Kepler magnitude: 13.71. Transit SNR 99.09
There are 17 quarters with good PRF difference image offsets
The direct PRF centroid is offset from the target star catalog position by about 0.12 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.150 ± 0.083	1.80	-0.111 ± 0.082	-0.100 ± 0.087
PRF-fit source offset from KIC position	0.161 ± 0.089	1.81	-0.152 ± 0.085	0.053 ± 0.090
photometric centroid source offset	0.28 ± 0.10	2.79	-0.21 ± 0.10	0.18 ± 0.09

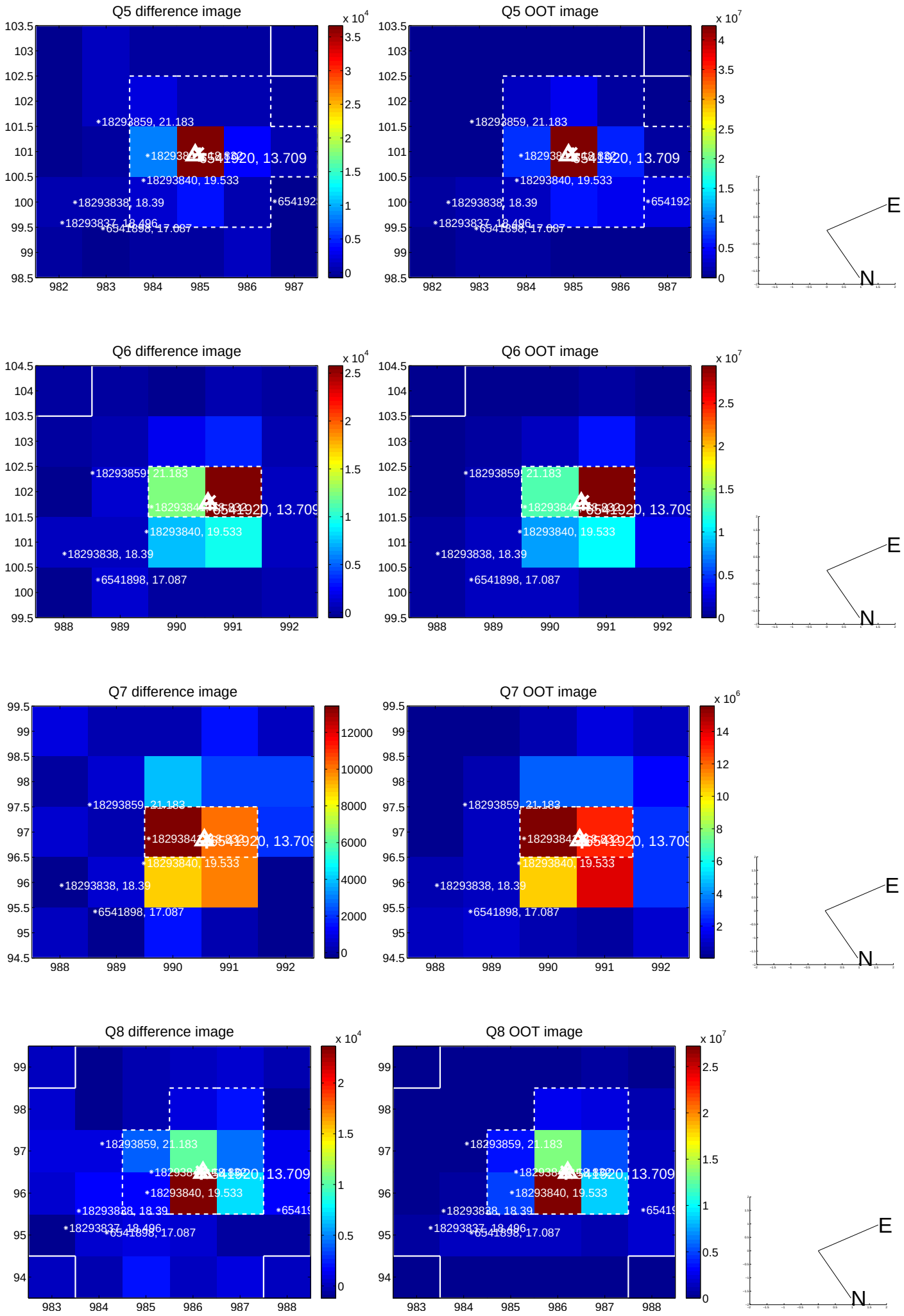


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one-σ uncertainty. Blue circle: three-σ. Red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

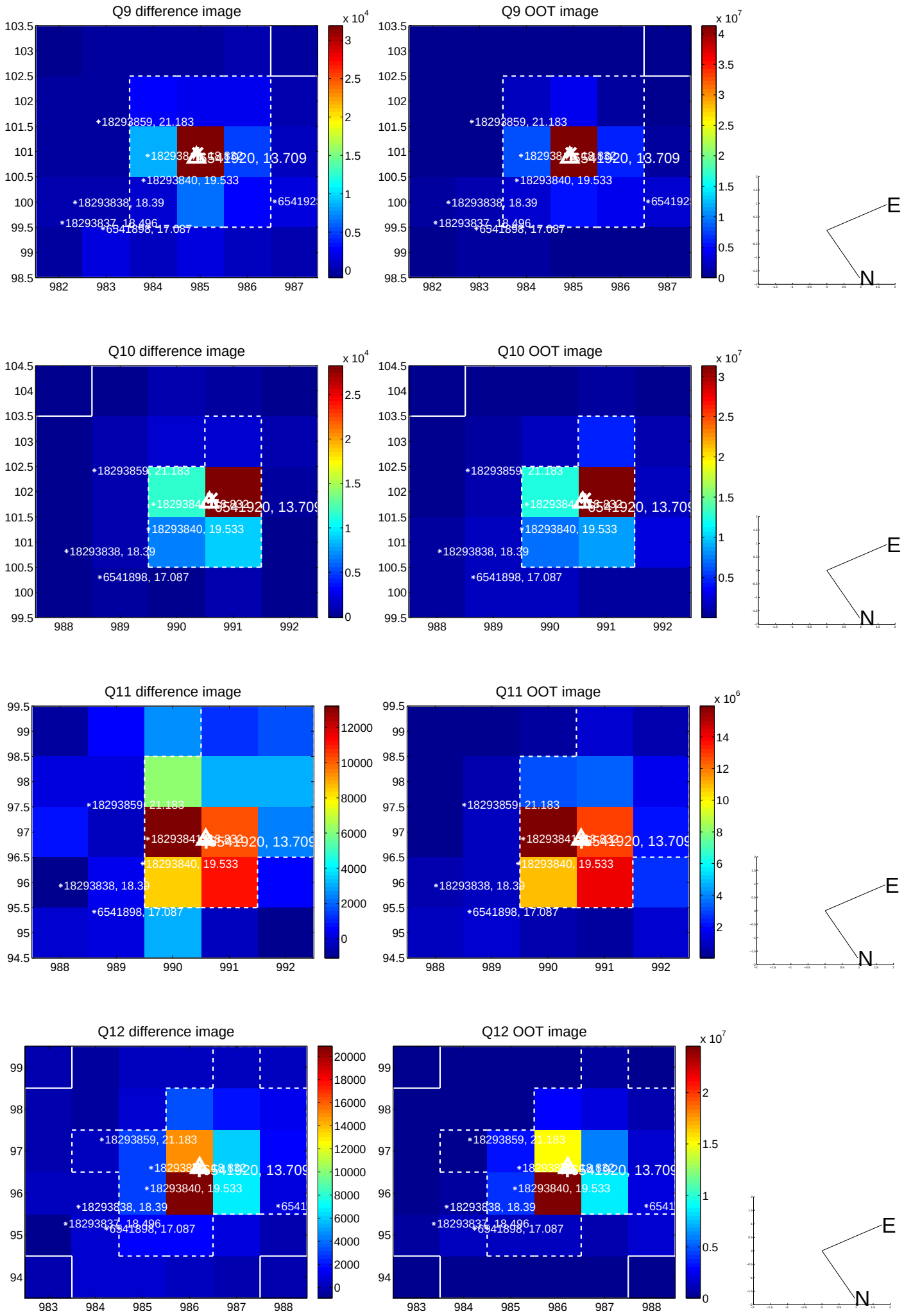
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ✕: large negative pixel value.



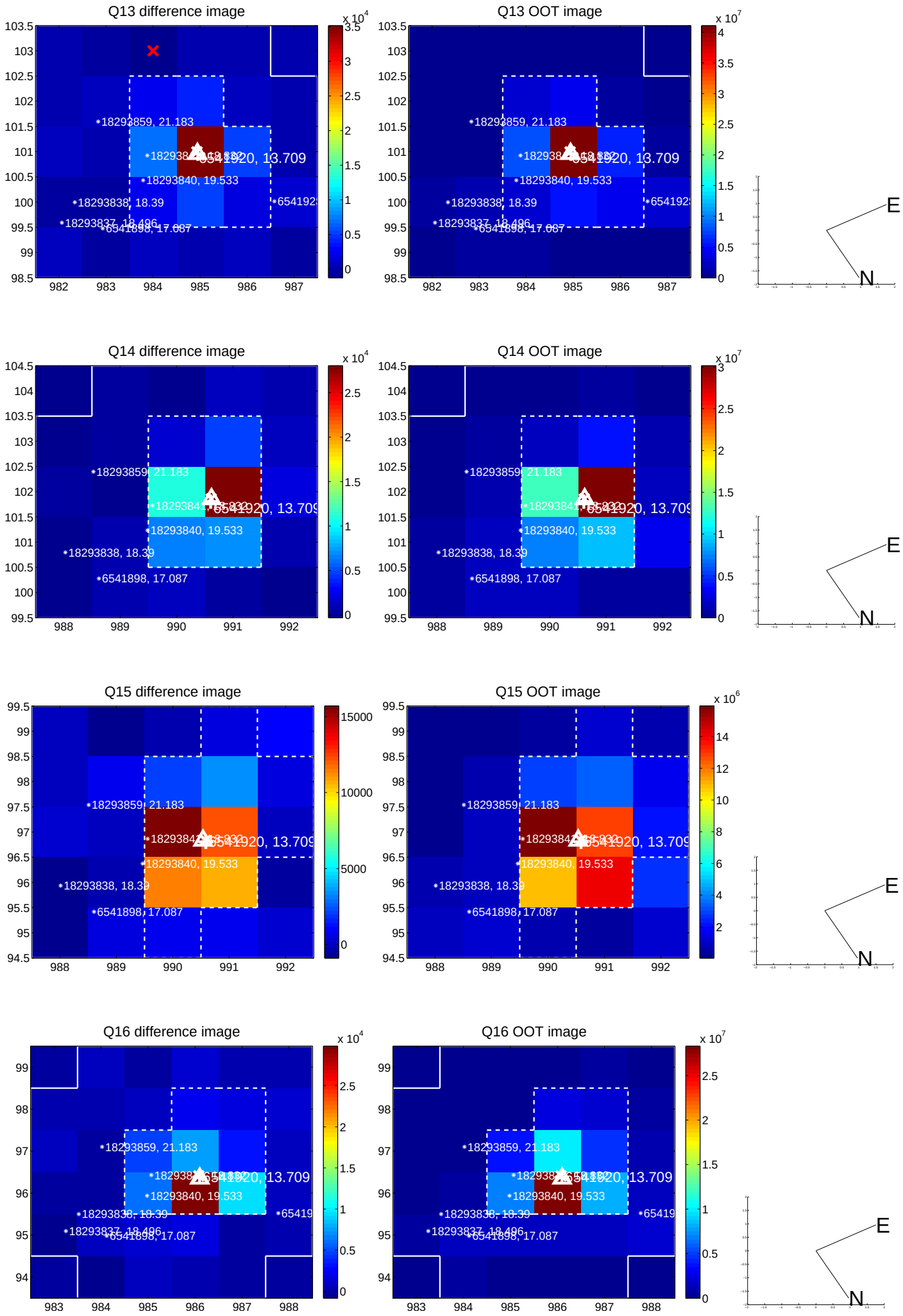
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.



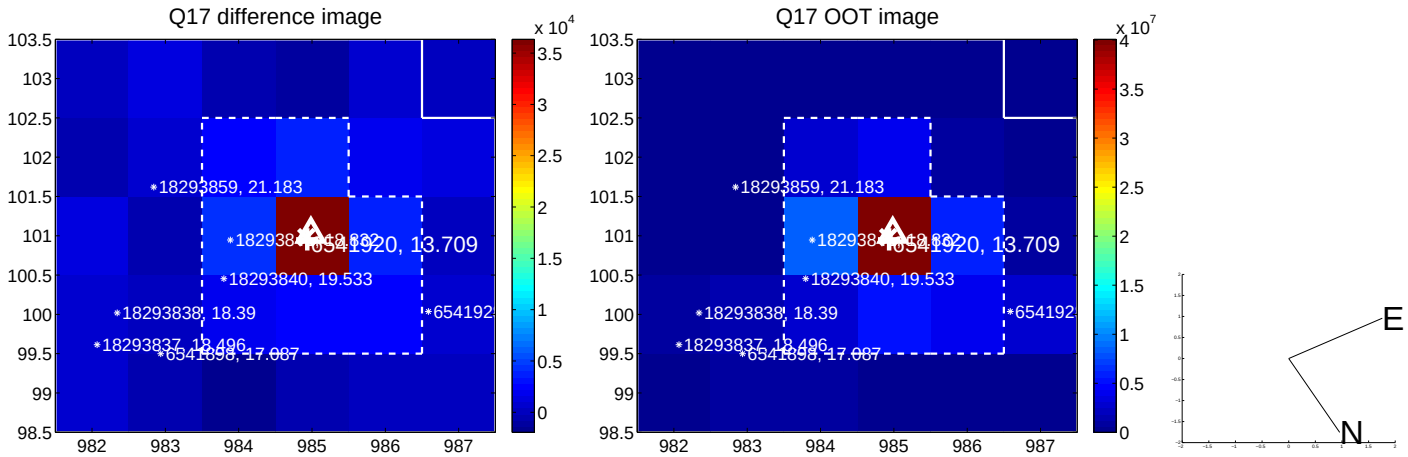
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.

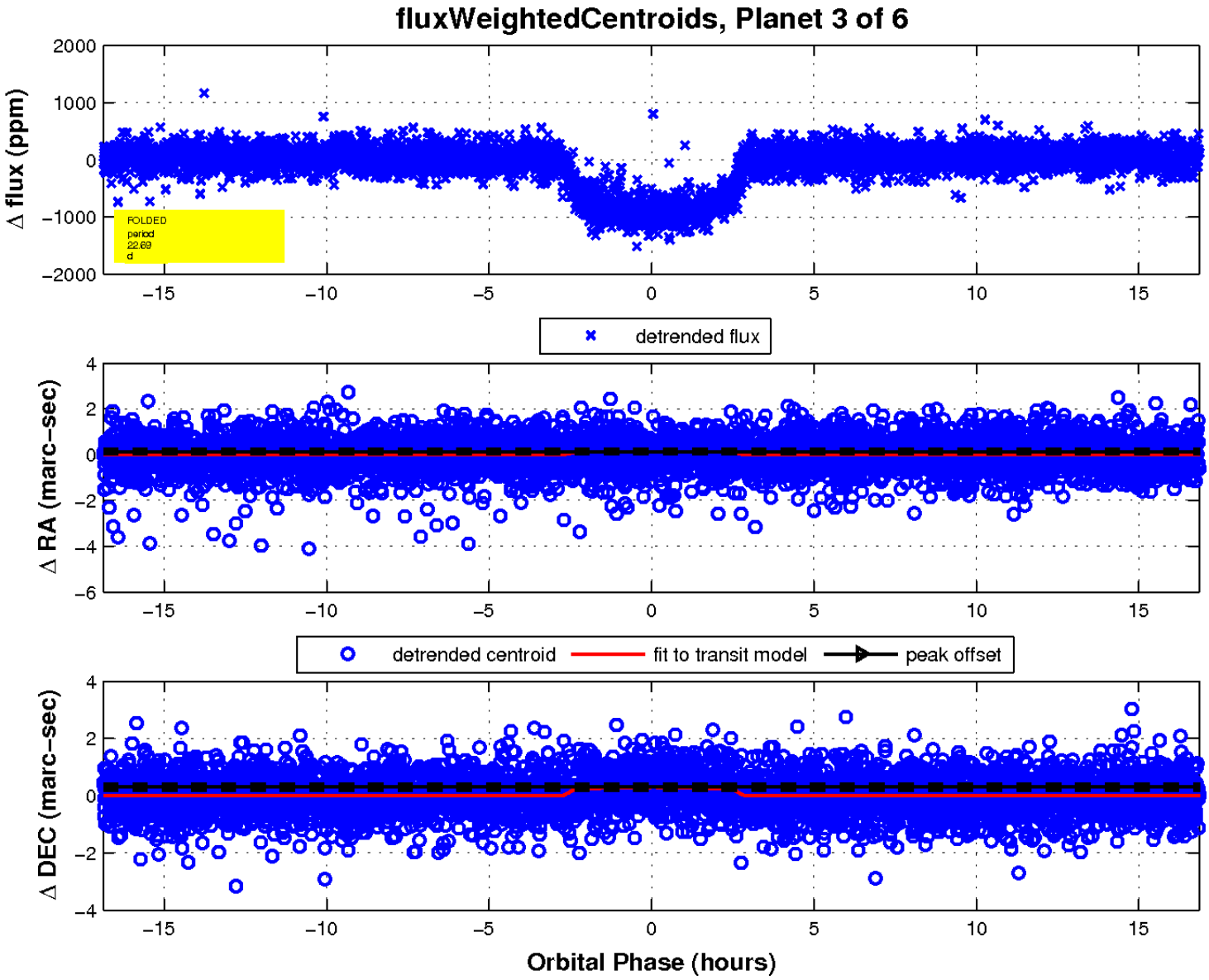


white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.

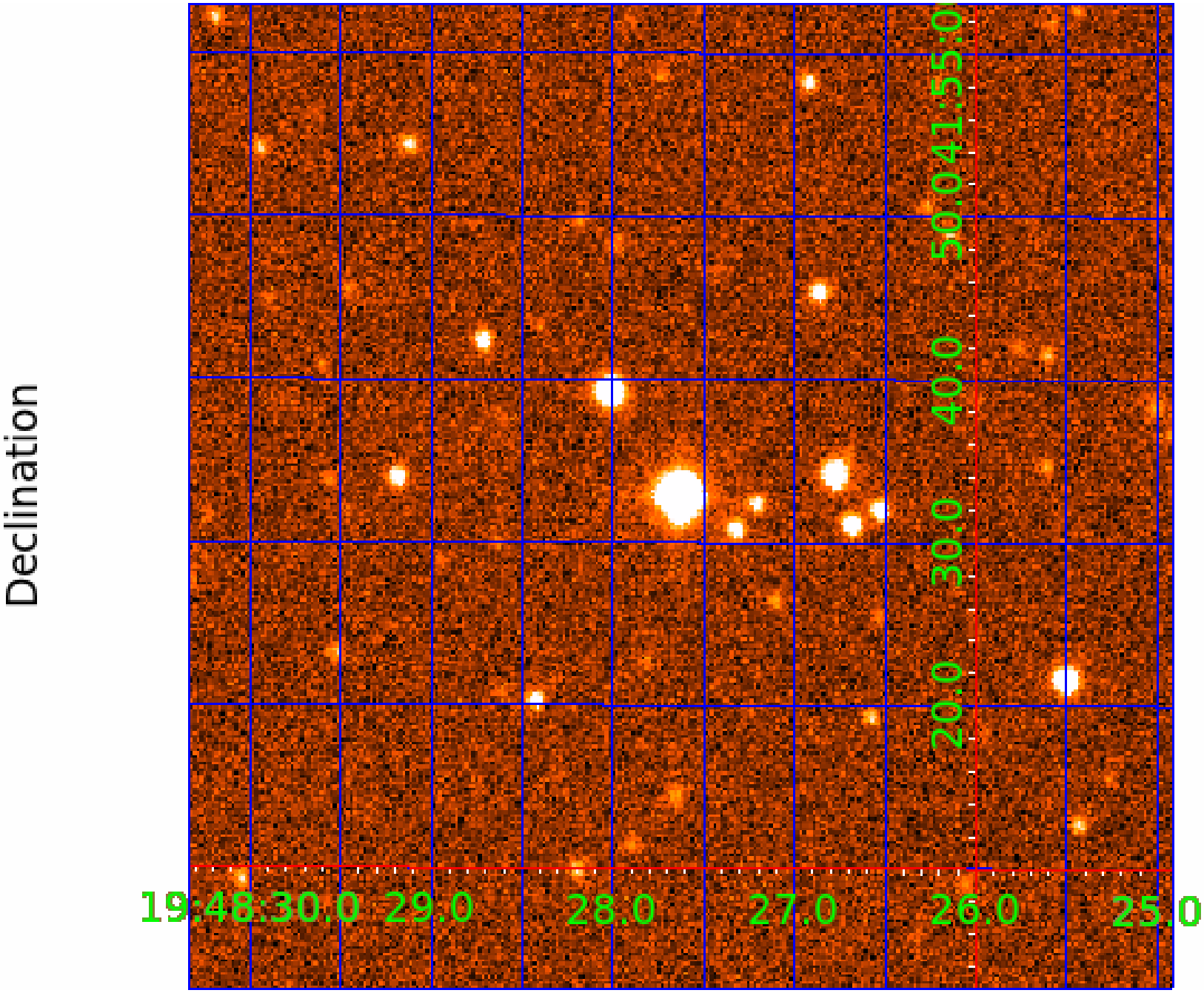


white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.





UKIRT Image


Declination
50:041:55:0
40.0
30.0
20.0
19:48:30.0
29.0
28.0
27.0
26.0
25.0

KIC 006541920

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 ($S_\oplus$)
006541920-01	OBS	0157.03	31.995499	154.160762	1355.6	4.460	102.3	103.5	1.05	5657	4.37	27.21
006541920-02	OBS	0157.01	13.024922	138.176627	760.4	4.795	94.9	96.8	1.05	5657	3.23	90.20
006541920-03	OBS	0157.02	22.687165	148.454362	959.6	5.625	94.0	99.1	1.05	5657	3.48	43.04
006541920-04	OBS	0157.05	118.378578	168.908526	1104.5	9.700	57.5	61.6	1.05	5657	3.55	4.76
006541920-05	OBS	0157.04	46.686019	131.665574	562.7	7.276	40.5	43.4	1.05	5657	2.98	16.44
006541920-06	OBS	0157.06	10.304027	138.501918	297.9	4.610	41.0	44.0	1.05	5657	2.21	123.29

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
006541920-01	OBS	PC	1.00	0	0	0	0	NO_COMMENT
006541920-02	OBS	PC	1.00	0	0	0	0	NO_COMMENT
006541920-03	OBS	PC	1.00	0	0	0	0	NO_COMMENT
006541920-04	OBS	PC	1.00	0	0	0	0	NO_COMMENT
006541920-05	OBS	PC	1.00	0	0	0	0	NO_COMMENT
006541920-06	OBS	PC	1.00	0	0	0	0	NO_COMMENT

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.

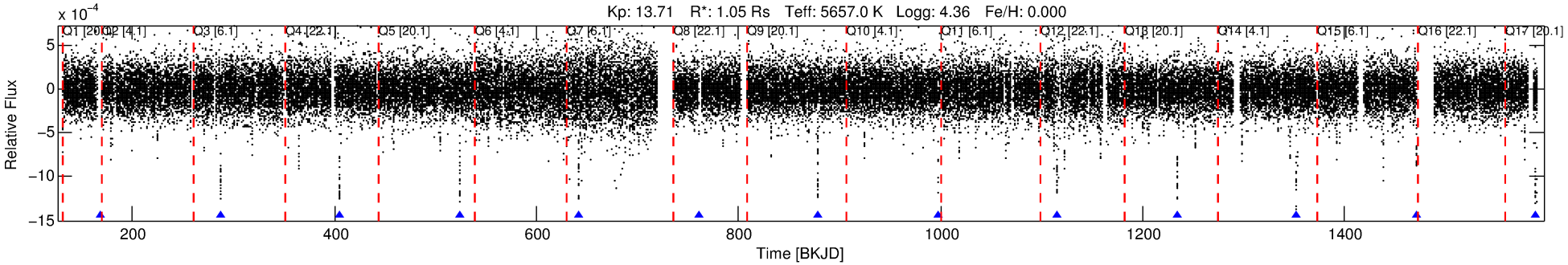
Ephemeris Match Information For 006541920-04

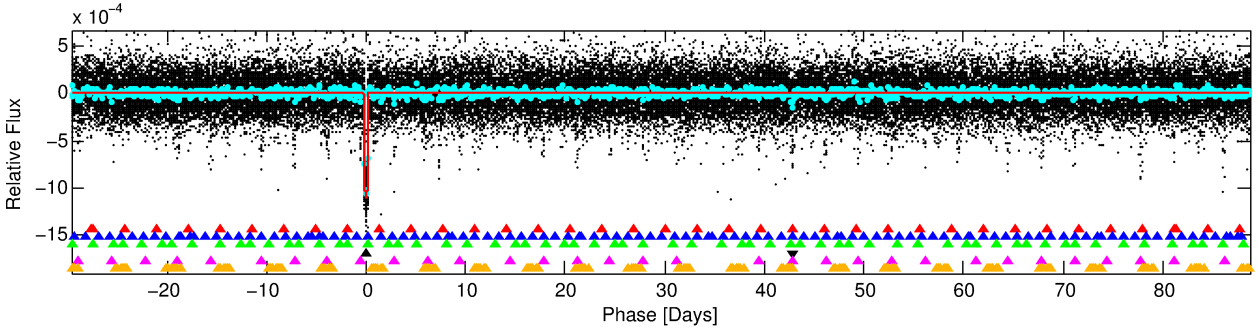
No Significant Match Found

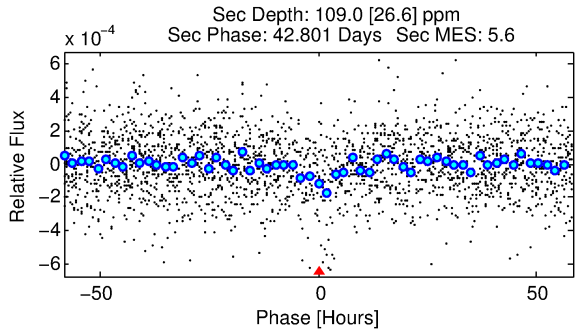
DV One-Page Summary

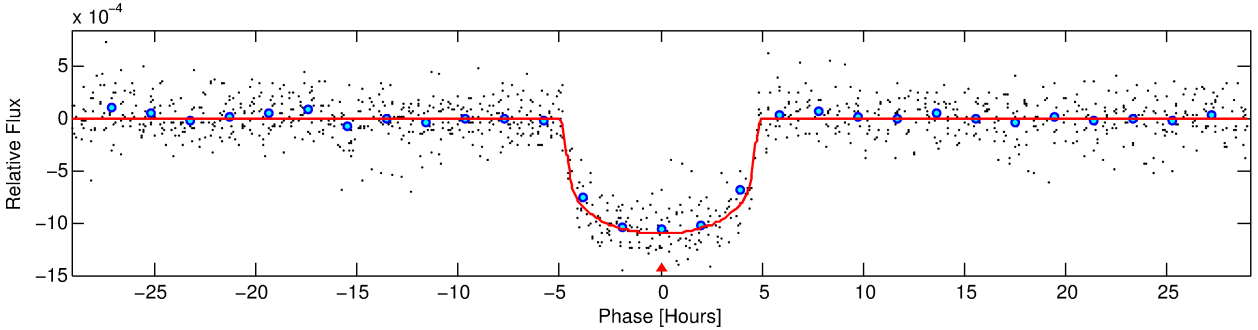
KIC: 6541920 Candidate: 4 of 6 Period: 118.379 d
KOI: K00157.05 Name: Kepler−11g Corr: 0.993

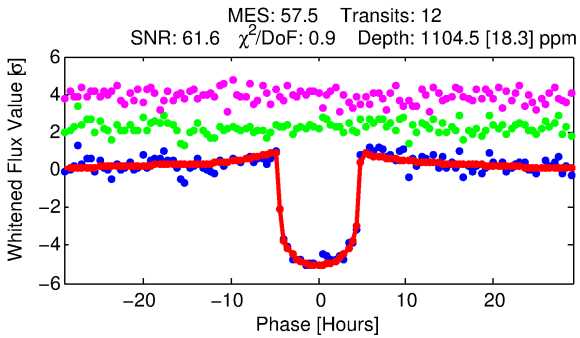
Kp: 13.71 R*: 1.05 Rs Teff: 5657.0 K Logg: 4.36 Fe/H: 0.000

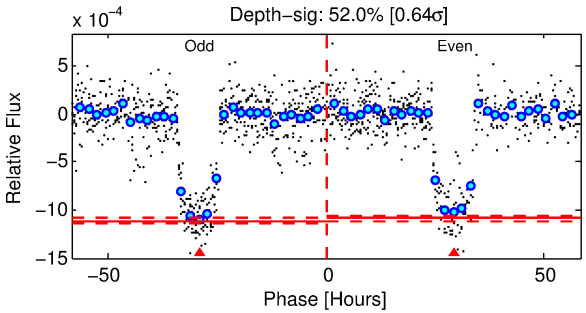


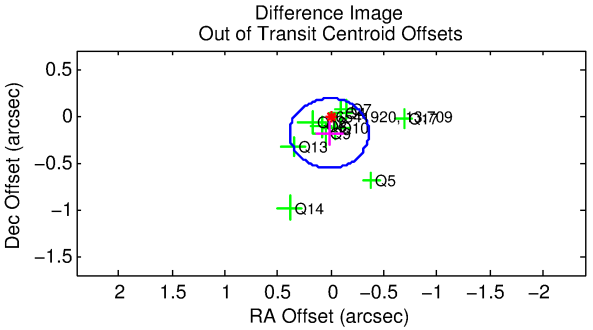












DV Fit Results:

Period = 118.37858 [0.00033] d
Epoch = 168.9085 [0.0025] BKJD
Rp/R* = 0.0311 [0.0026]
a/R* = 83.20 [28.52]
b = 0.52 [0.49]

Seff = 4.76 [0.59]
Teq = 377 [12] K
Rp = 3.55 [0.37] Re
a = 0.4594 [0.0278] AU

Ag = 1002.28 [310.07] [3.23σ]
Teffp = 3276 [250] K [11.59σ]

DV Diagnostic Results:

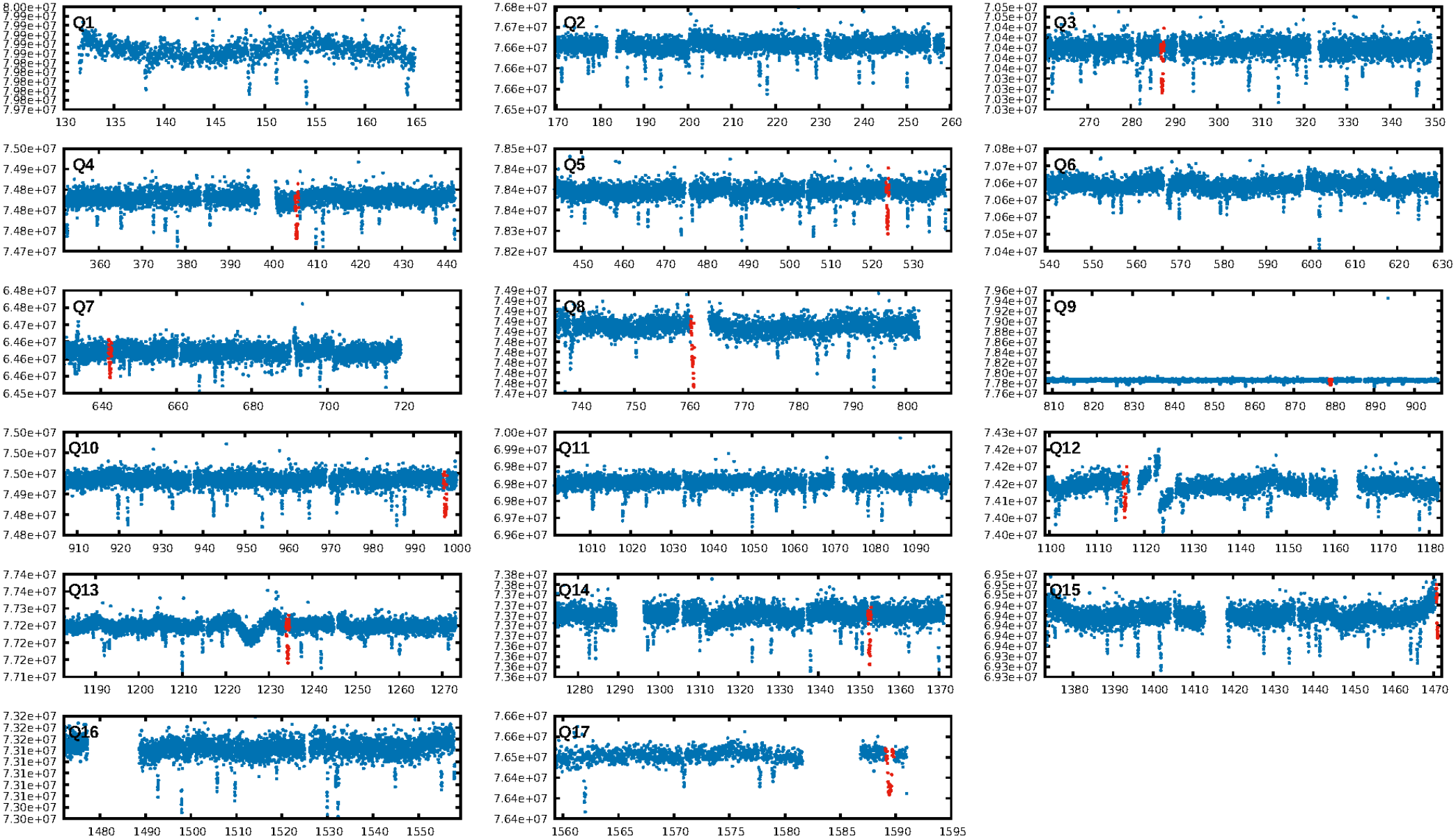
ShortPeriod−sig: 100.0% [141.90σ]
LongPeriod−sig: N/A
ModelChiSquare2−sig: 0.0%
ModelChiSquareGof−sig: 100.0%
Bootstrap−pfa: 0.00e+00
RollingBand−fgt: 1.00 [11/11]
GhostDiagnostic−chr: 3.352

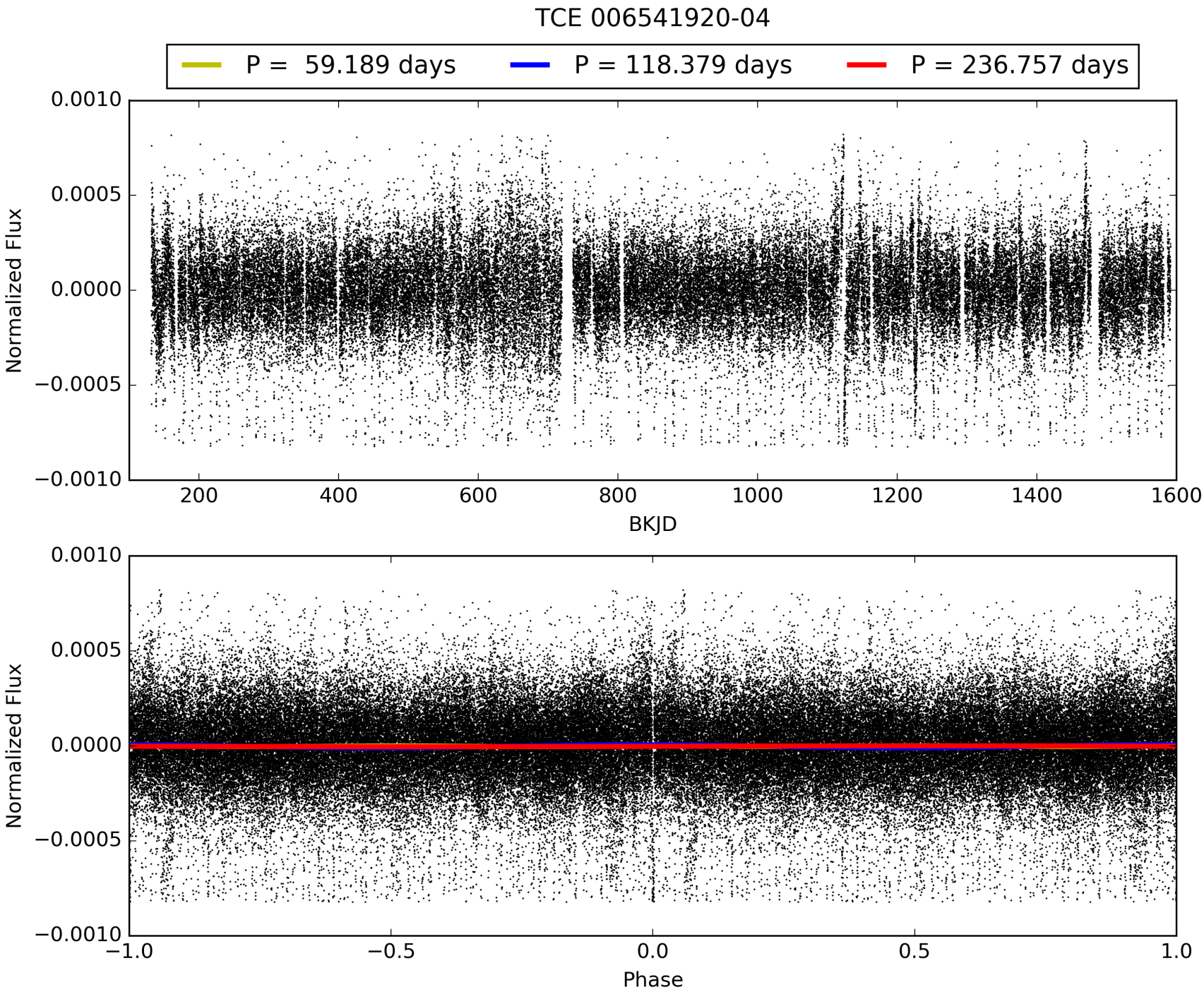
Centroid−sig: 3.2%
Centroid−so: 0.294 arcsec [2.07σ]
OotOffset−rm: 0.186 arcsec [1.50σ]
KicOffset−rm: 0.149 arcsec [1.16σ]
OotOffset−st: 2/2/2/4 [10]
KicOffset−st: 2/2/2/4 [10]
DiffImageQuality−fgm: 1.00 [10/10]
DiffImageOverlap−fno: 0.70 [7/10]

Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 −− Date Generated: 31−Jan−2016 13:03:10 Z

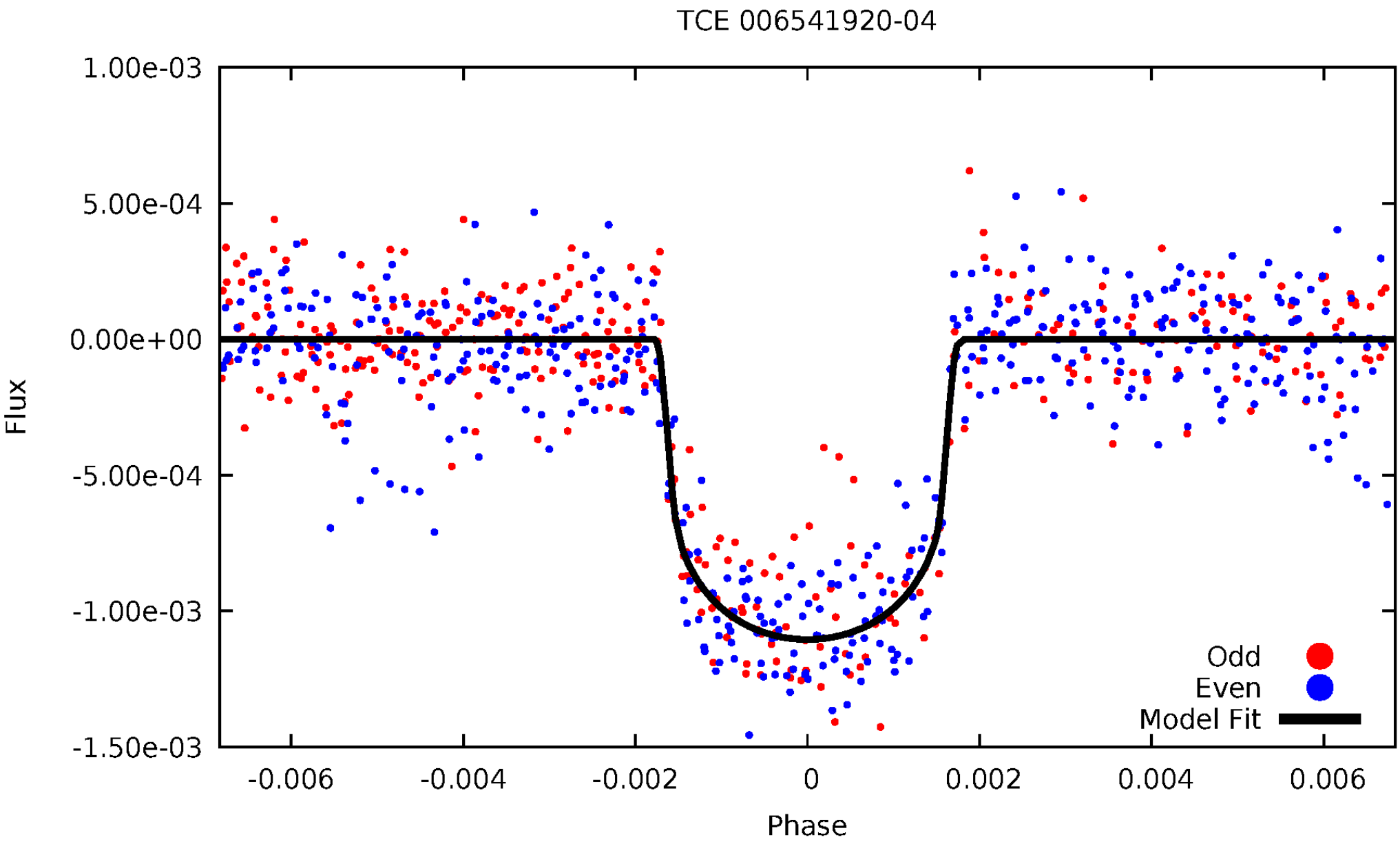
This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

TCE 006541920-04, PDC Light Curves

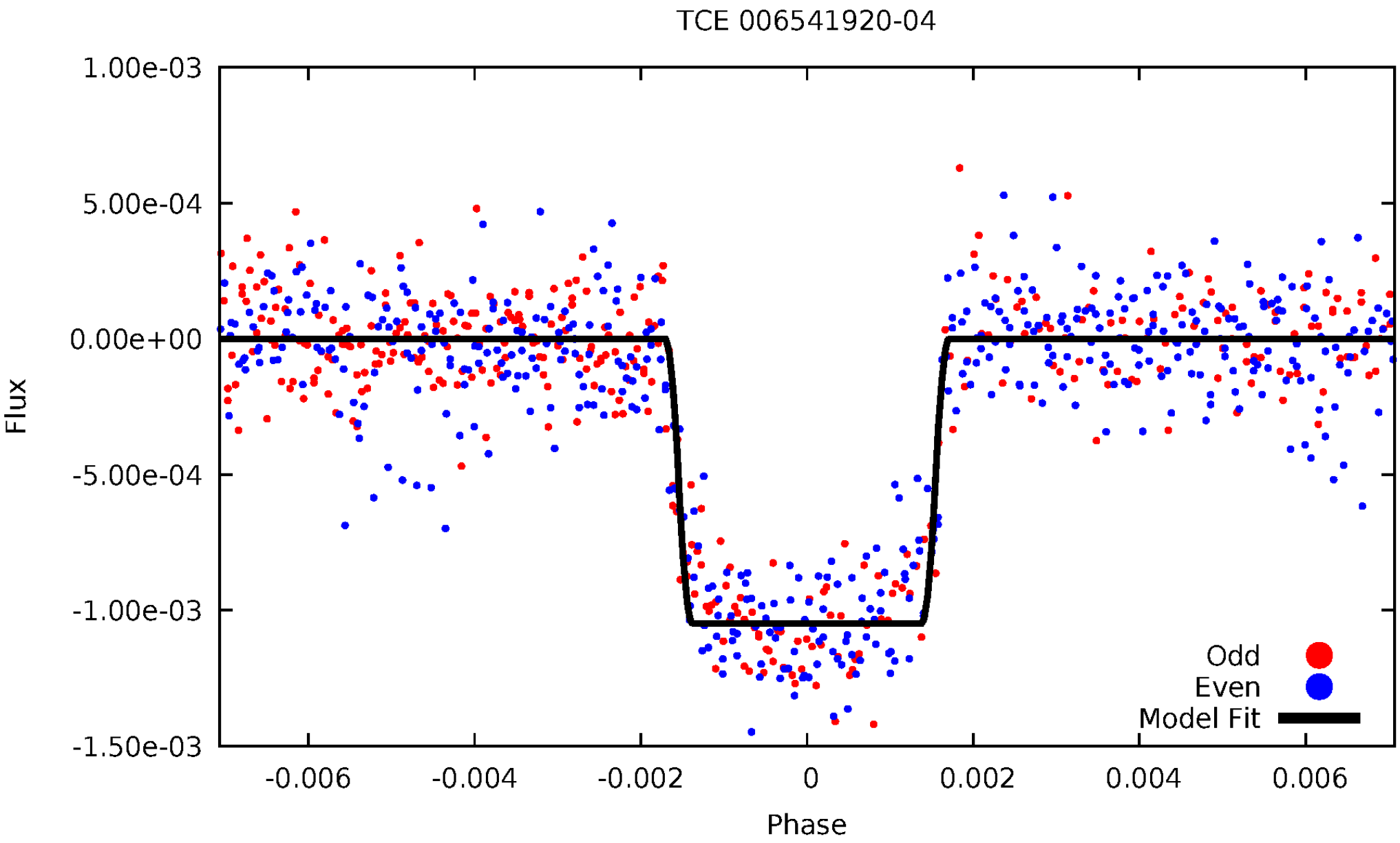



TCE 006541920-04
P = 59.189 days
P = 118.379 days
P = 236.757 days
Normalized Flux
0.0010
0.0005
0.0000
−0.0005
−0.0010
200
400
600
800
1000
1200
1400
1600
BKJD
Normalized Flux
0.0010
0.0005
0.0000
−0.0005
−0.0010
−1.0
−0.5
0.0
0.5
1.0
Phase

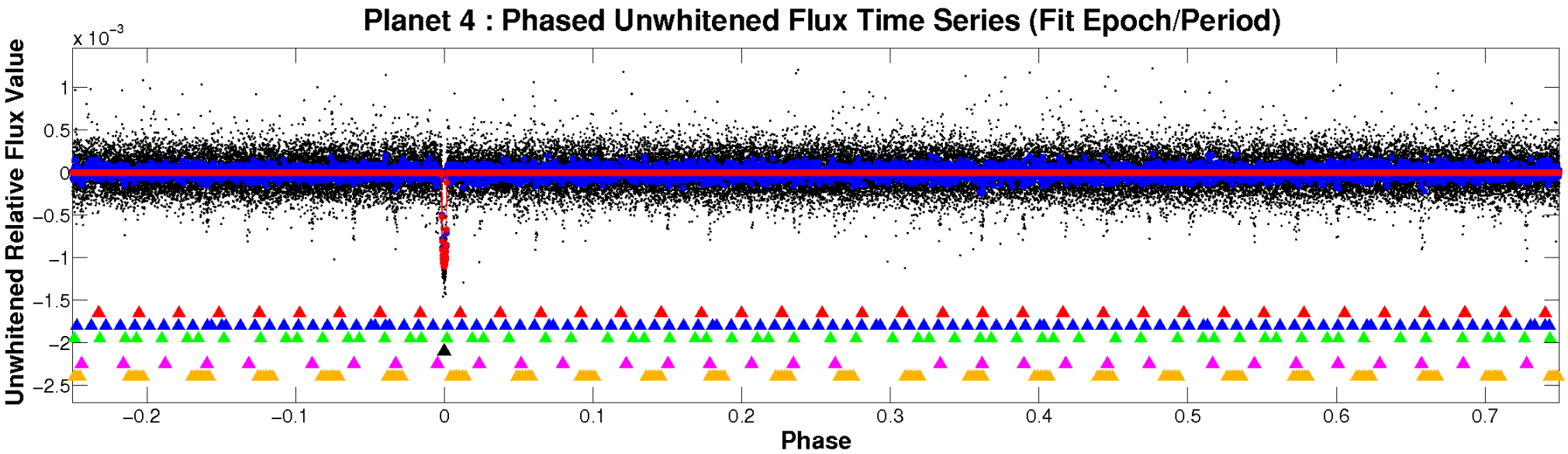
DV Odd/Even

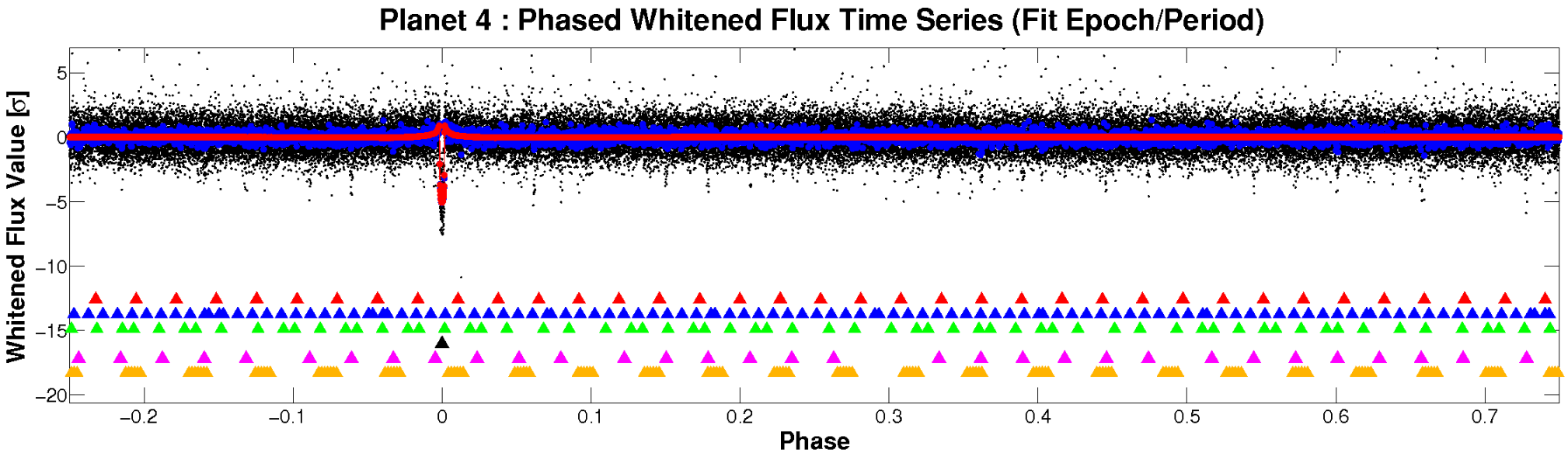

TCE 006541920-04
1.00e-03
5.00e-04
0.00e+00
-5.00e-04
-1.00e-03
-1.50e-03
Flux
-0.006
-0.004
-0.002
0
0.002
0.004
0.006
Phase
Odd
Even
Model Fit

ALT Odd/Even


TCE 006541920-04
1.00e-03
5.00e-04
0.00e+00
-5.00e-04
-1.00e-03
-1.50e-03
Flux
-0.006
-0.004
-0.002
0
0.002
0.004
0.006
Phase
Odd
Even
Model Fit

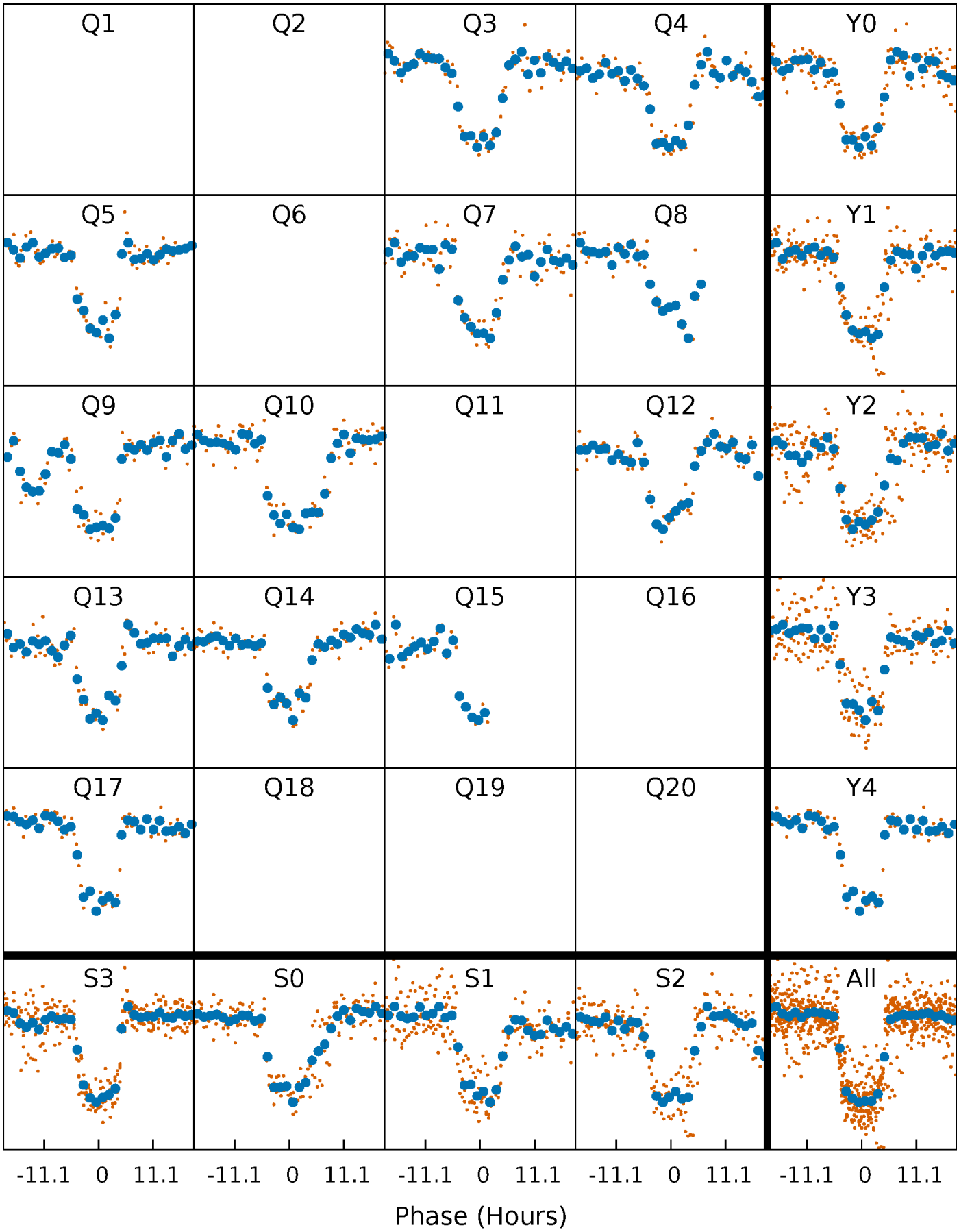
Non-Whitened Vs. Whitened Light Curve





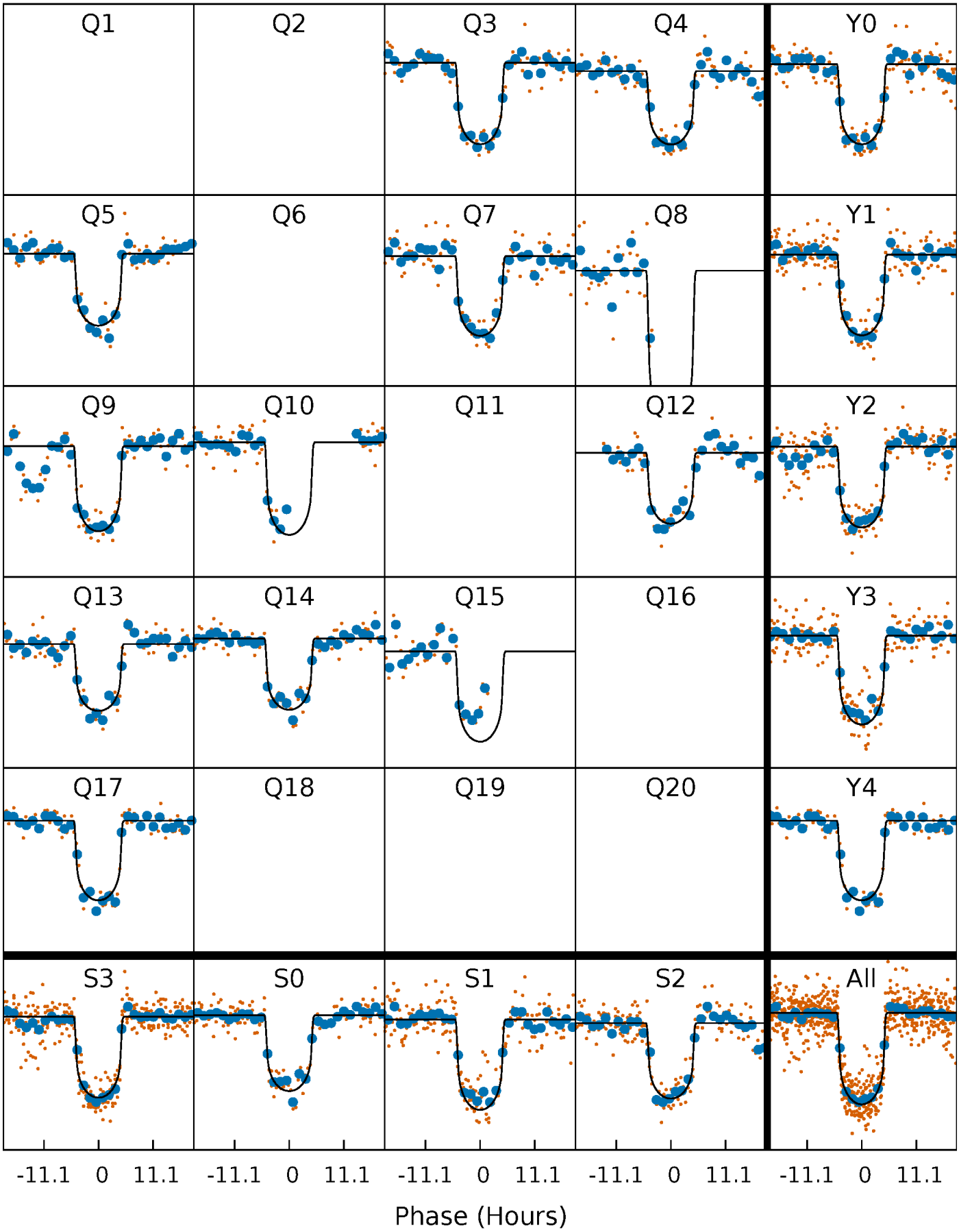
PDC Quarter-Phased Transit Curves

TCE 006541920-04 P=118.378579 Days T_0=168.908526 (BKJD)



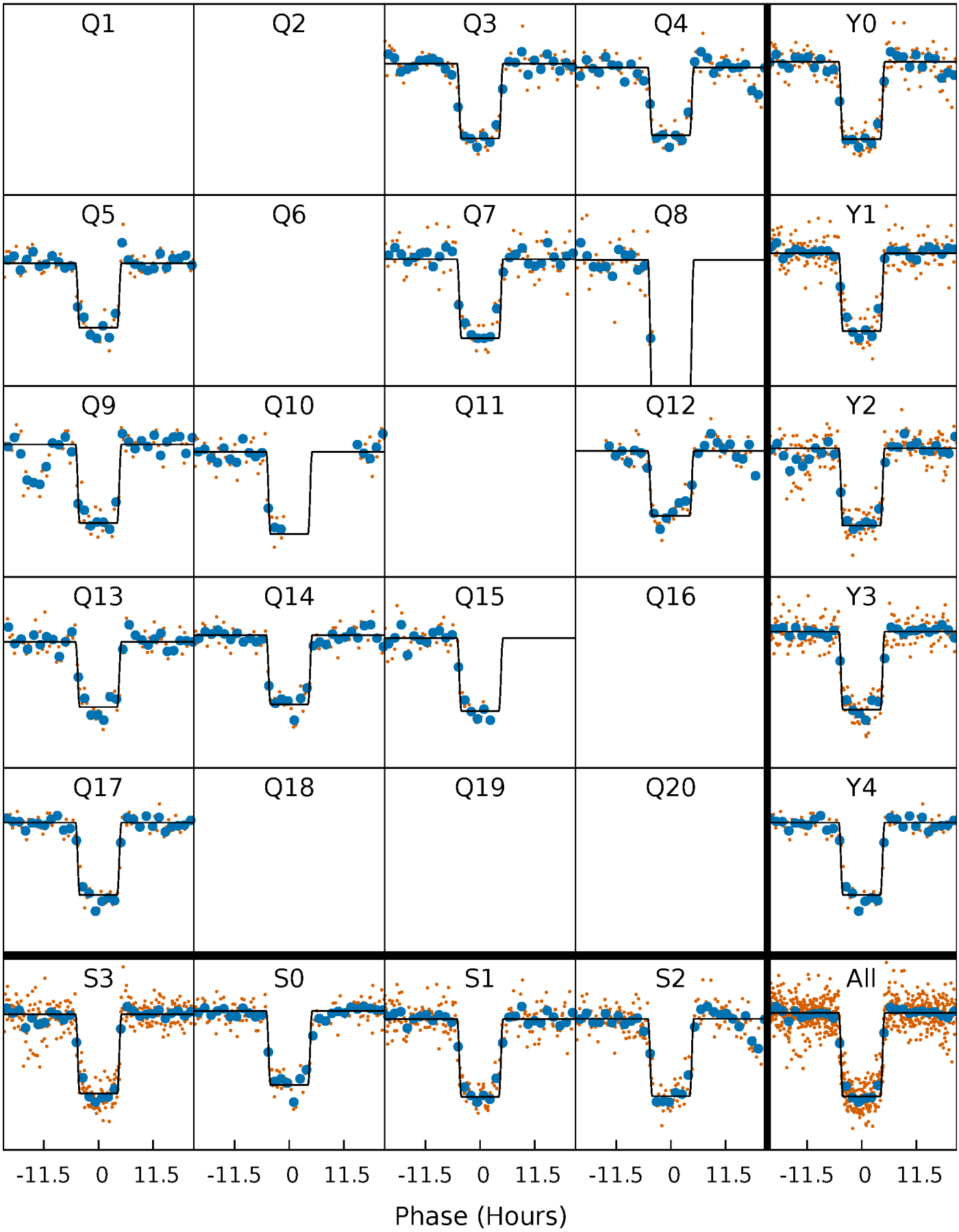
DV Quarter-Phased Transit Curves

TCE 006541920-04 P=118.378579 Days T_0=168.908526 (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

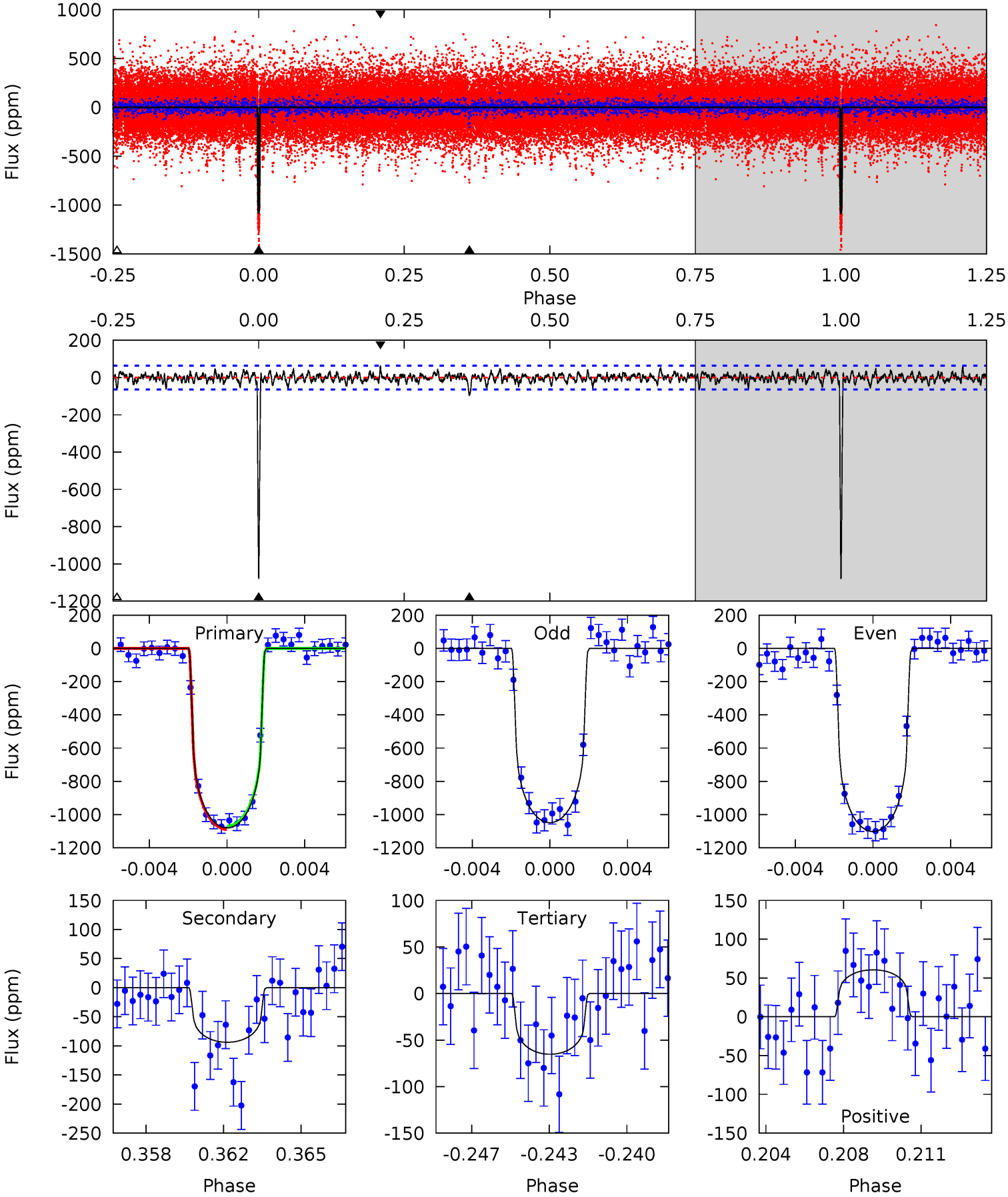
TCE 006541920-04 P=118.377270 Days T_0=168.918065 (BKJD)



DV Model-Shift Uniqueness Test

006541920-04, P = 118.378579 Days, E = 50.529947 Days

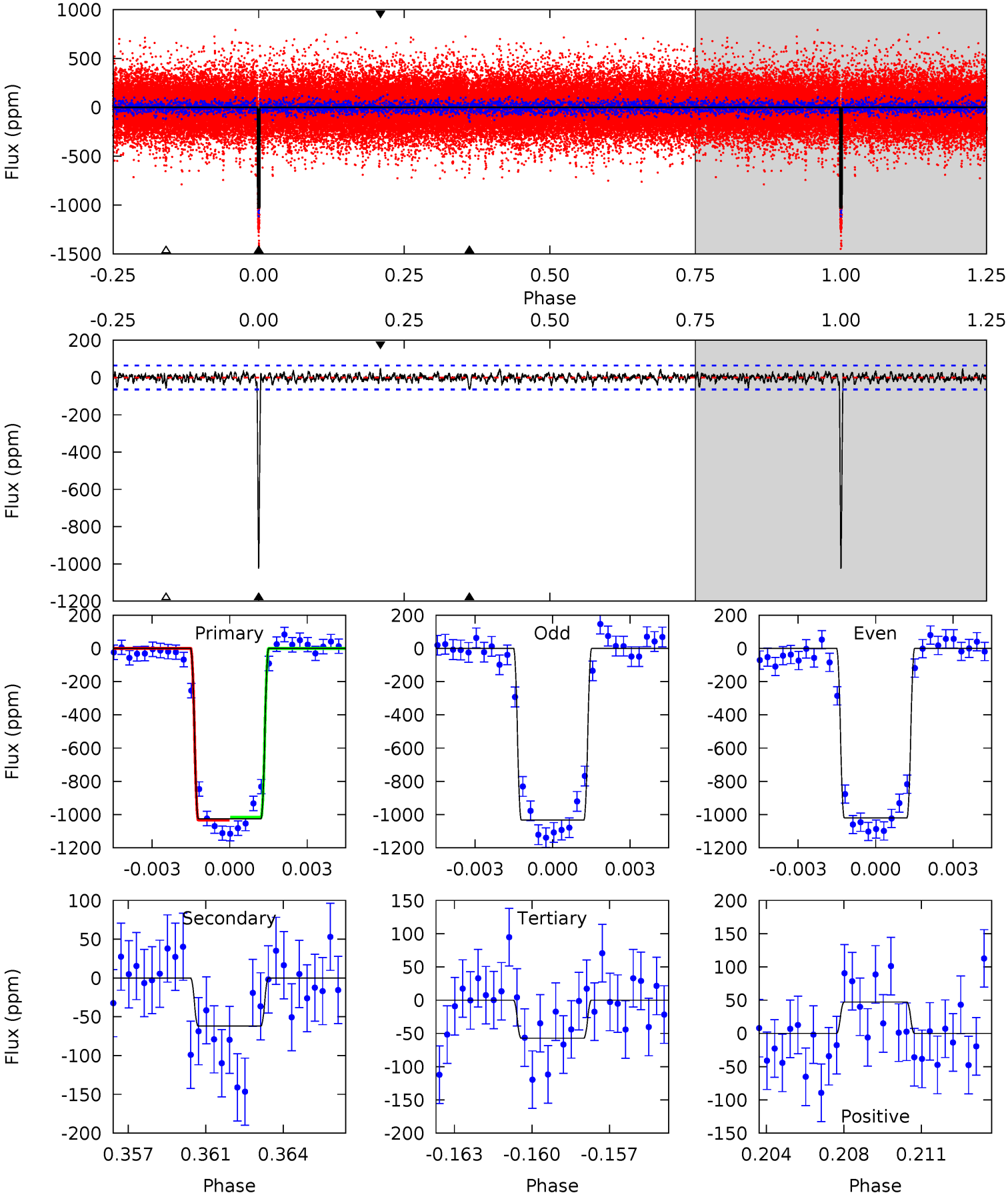
Pri	Sec	Ter	Pos	FA_1	FA_2	F_{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
88.3	7.67	5.34	4.95	5.22	2.91	1.39	83.0	83.4	2.34	2.72	2.17	0.95	0.05	0.81



Alt Model-Shift Uniqueness Test

006541920-04, P = 118.377270 Days, E = 50.540795 Days

Pri	Sec	Ter	Pos	FA_1	FA_2	F_{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
83.0	5.02	4.63	3.82	5.23	2.93	1.08	78.4	79.2	0.39	1.20	0.51	0.96	0.04	0.67



Stellar Parameters For KIC 006541920

	$T_{\rm eff}(K)$	$\log(g)$	[Fe/H]	R ($R_\odot$)	$M(M_\odot)$	$p_\star$ (g·cm^{-3})
	5657^{+113}_{-101}	$4.364^{+0.055}_{-0.045}$	$0.000^{+0.150}_{-0.150}$	$1.046^{+0.068}_{-0.068}$	$0.921^{+0.071}_{-0.052}$	$1.134^{+0.239}_{-0.165}$
	+2%/-2%	+1%/-1%	+inf%/-inf%	+7%/-7%	+8%/-6%	+21%/-15%
Source	SPE25	TRA25	SPE25	DSEP		

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

Secondary Eclipse Parameters for KIC 006541920-04 / KOI 0157.05

Detrend	Depth (ppm)	R_p ($R_\oplus$)	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-94±12	$3.57^{+0.29}_{-0.34}$	526^{+13}_{-14}	3601^{+135}_{-137}	864^{+206}_{-171}
Alt.	-62±12	$3.67^{+0.34}_{-0.32}$	526^{+13}_{-14}	3335^{+132}_{-144}	532^{+145}_{-126}

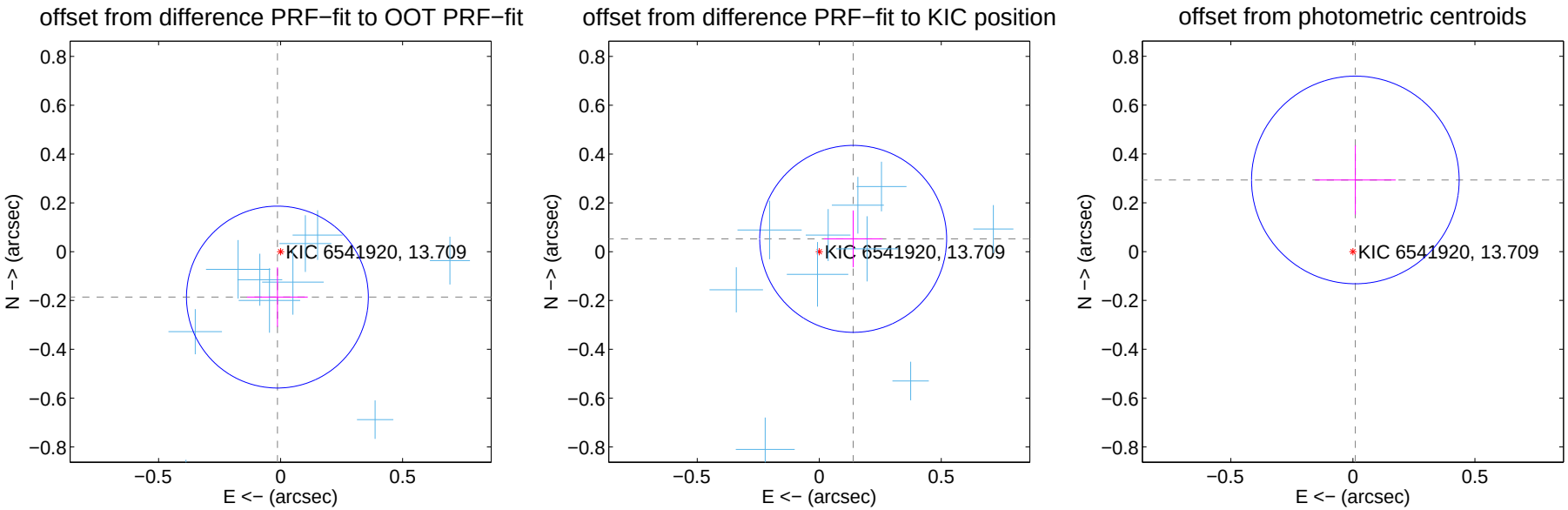
T_{max} = Theoretical Maximum Planetary Temperature
T_{obs} = Observed Planetary Temperature (Assuming A=0.3)
A_{obs} = Observed Albedo (Assuming T=0)

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

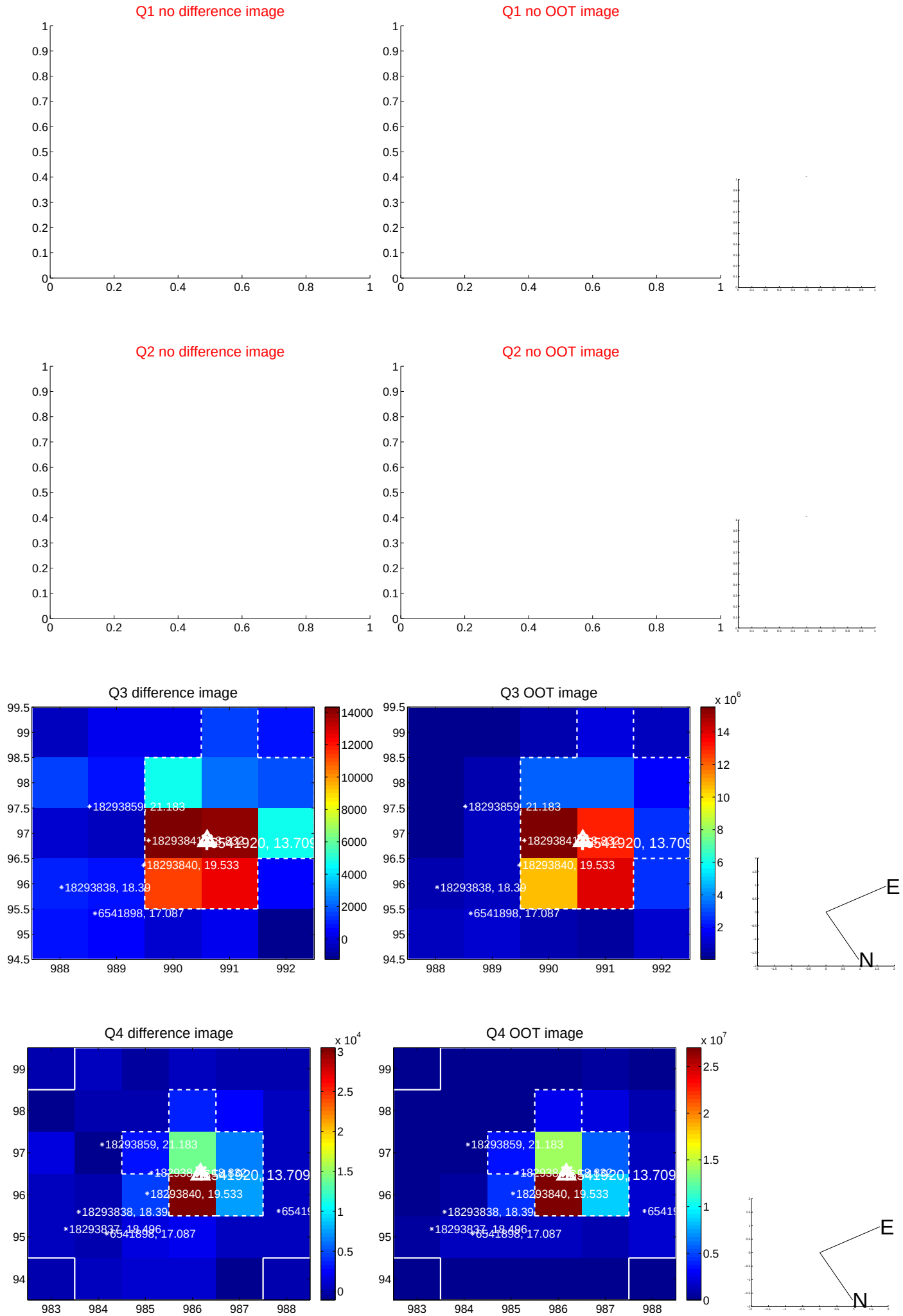
Supplemental centroid analysis for 006541920-04. Kepler magnitude: 13.71. Transit SNR 61.56
There are 10 quarters with good PRF difference image offsets
The direct PRF centroid is offset from the target star catalog position by about 0.13 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.186 ± 0.124	1.50	0.013 ± 0.124	-0.186 ± 0.122
PRF-fit source offset from KIC position	0.149 ± 0.128	1.16	-0.139 ± 0.120	0.052 ± 0.116
photometric centroid source offset	0.29 ± 0.14	2.07	-0.01 ± 0.17	0.29 ± 0.14

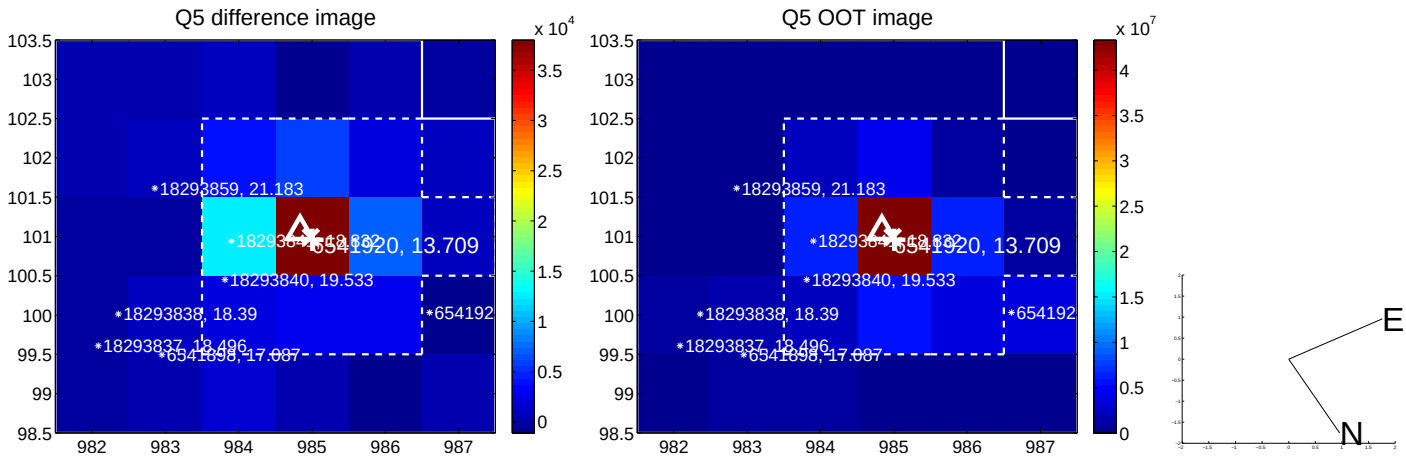


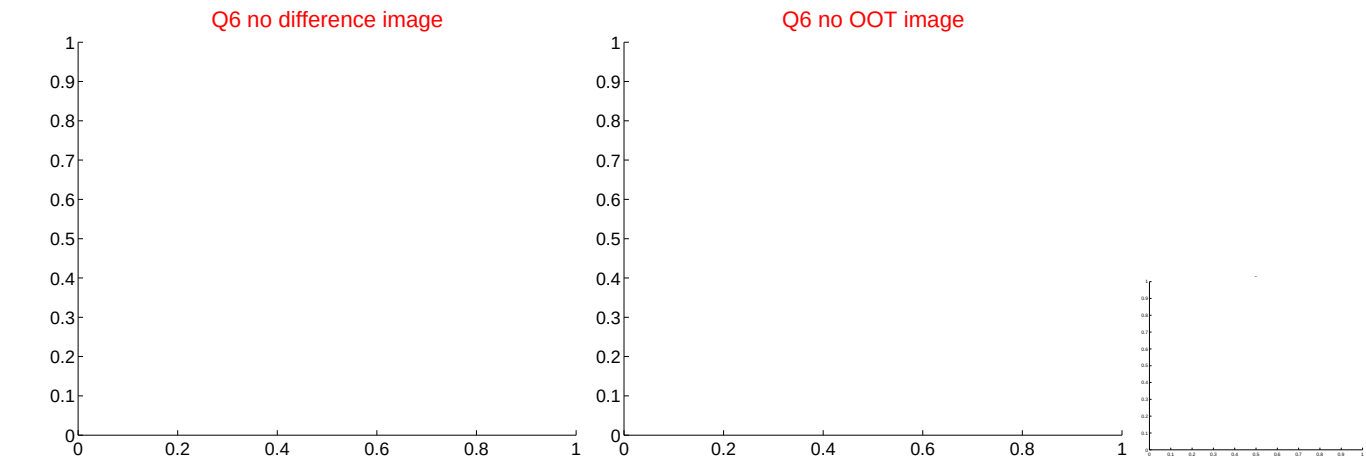
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one-σ uncertainty. Blue circle: three-σ. Red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

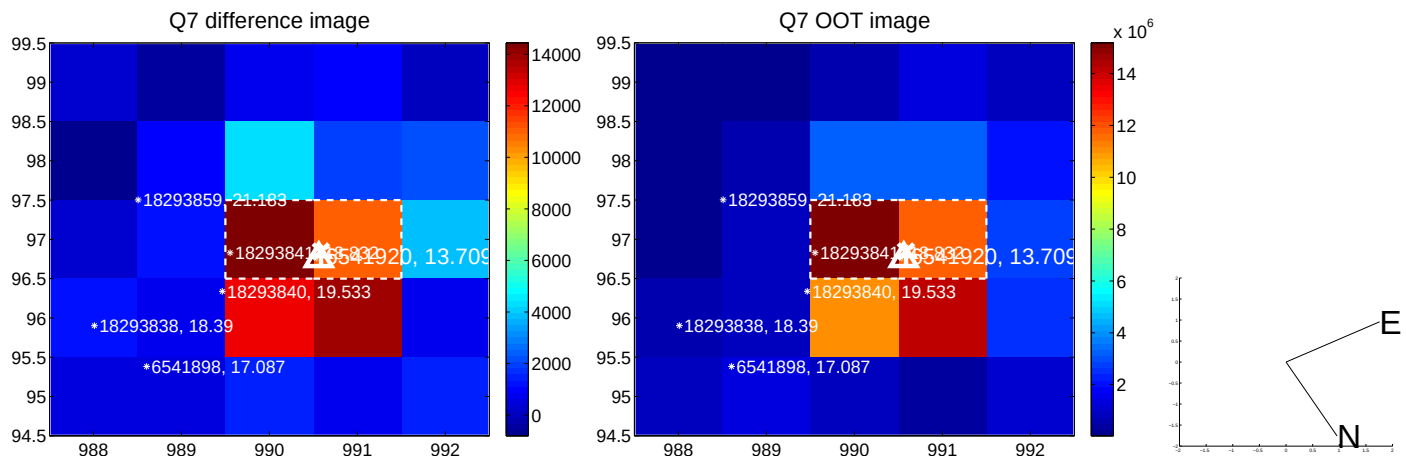
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.

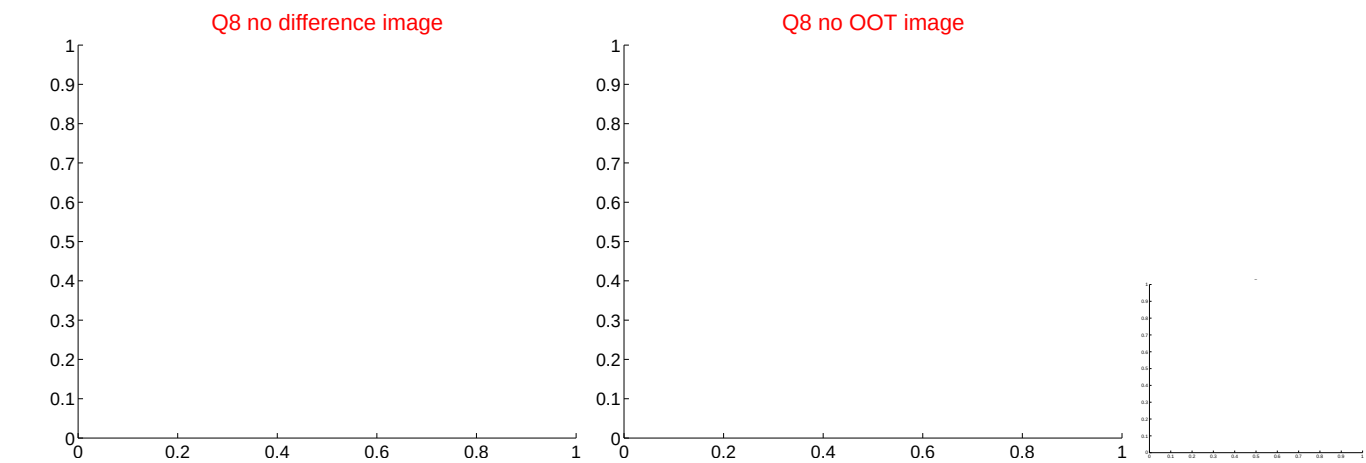


white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.

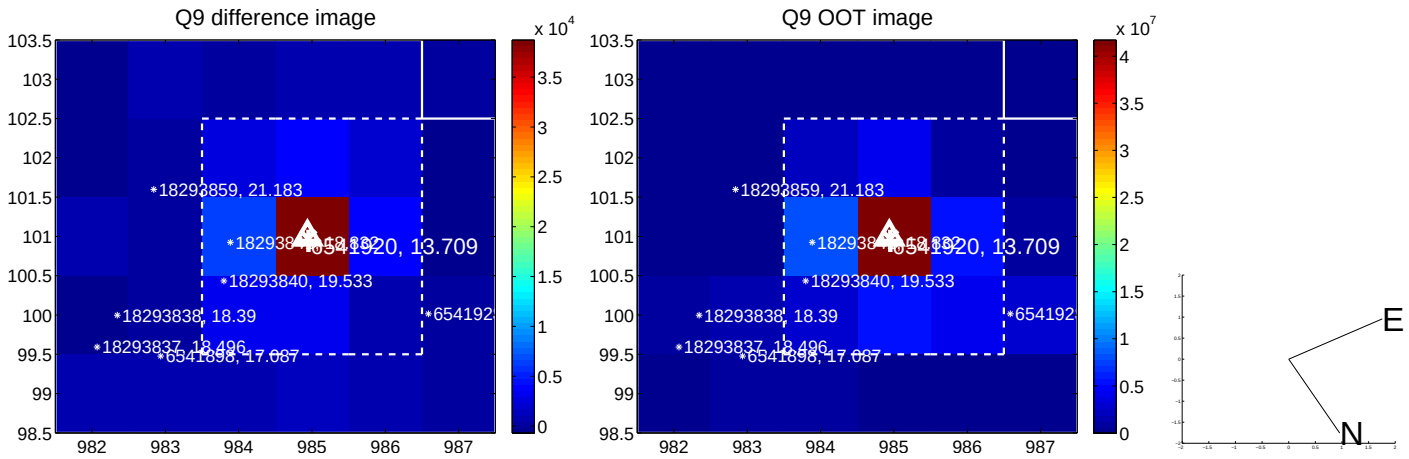


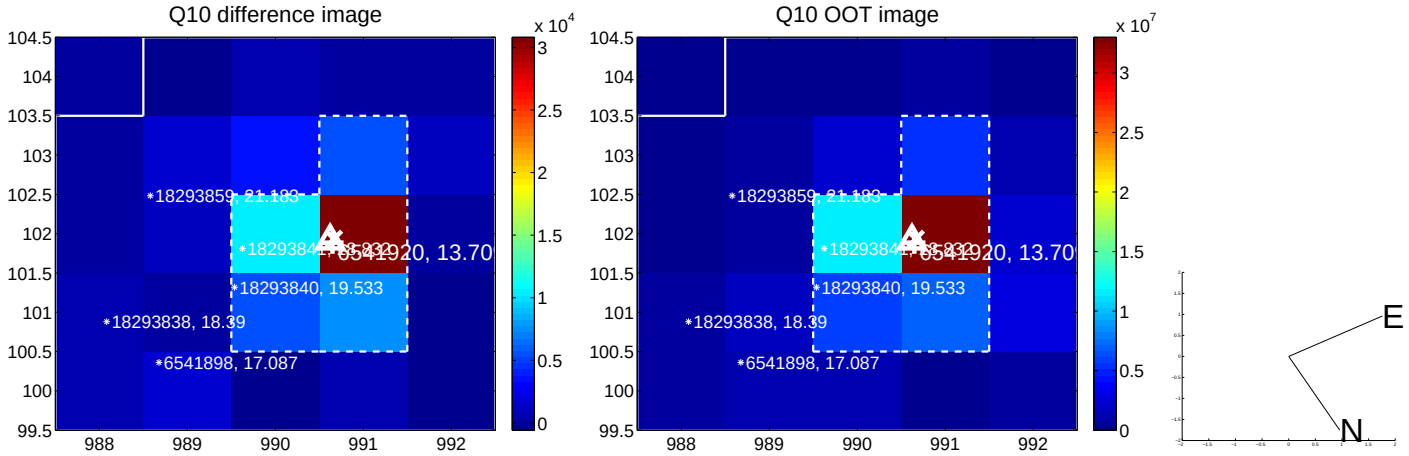


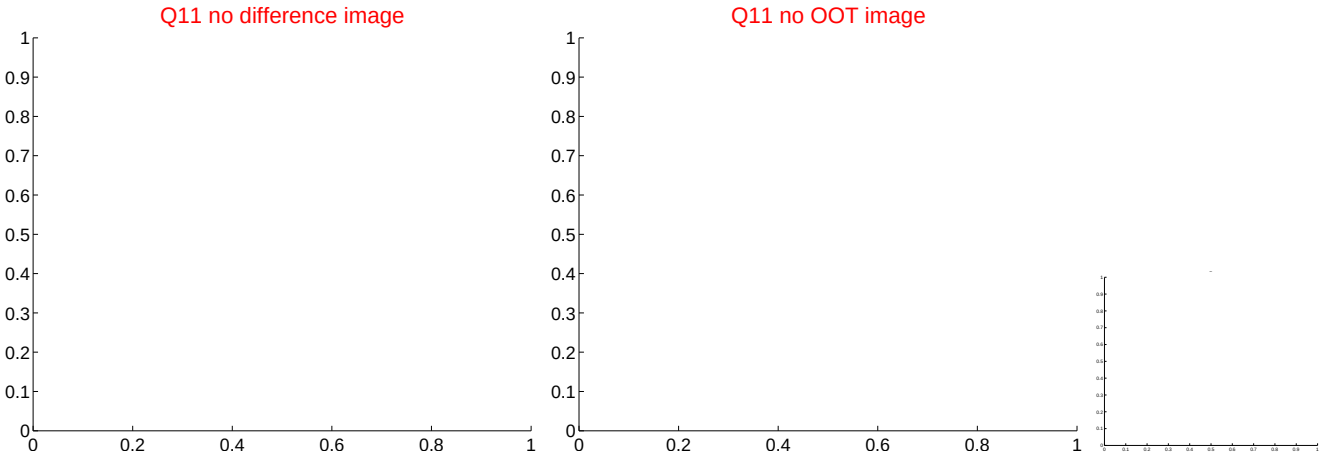


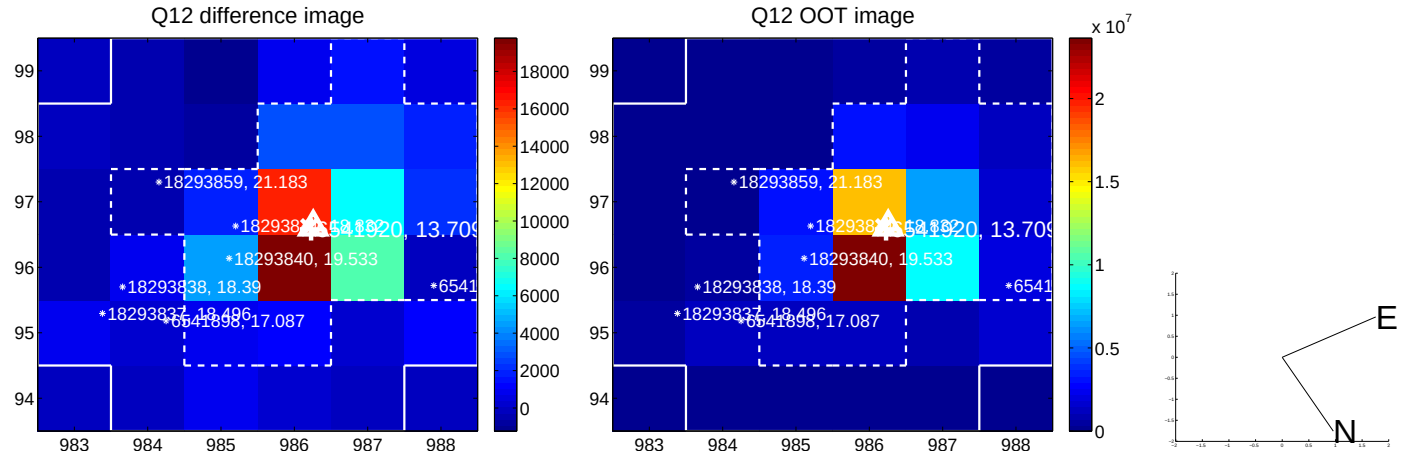


white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.

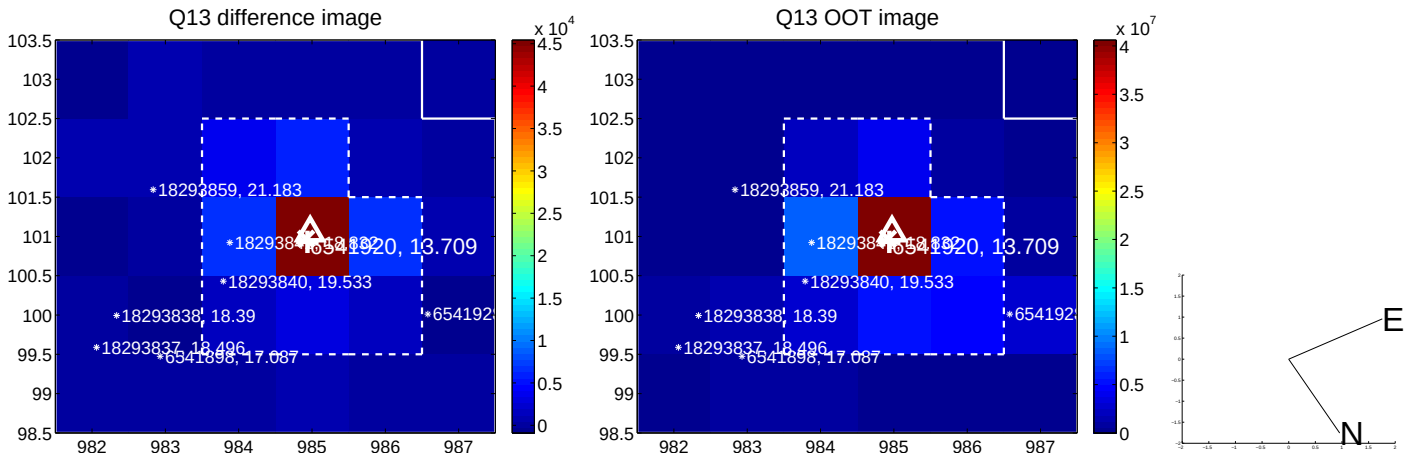


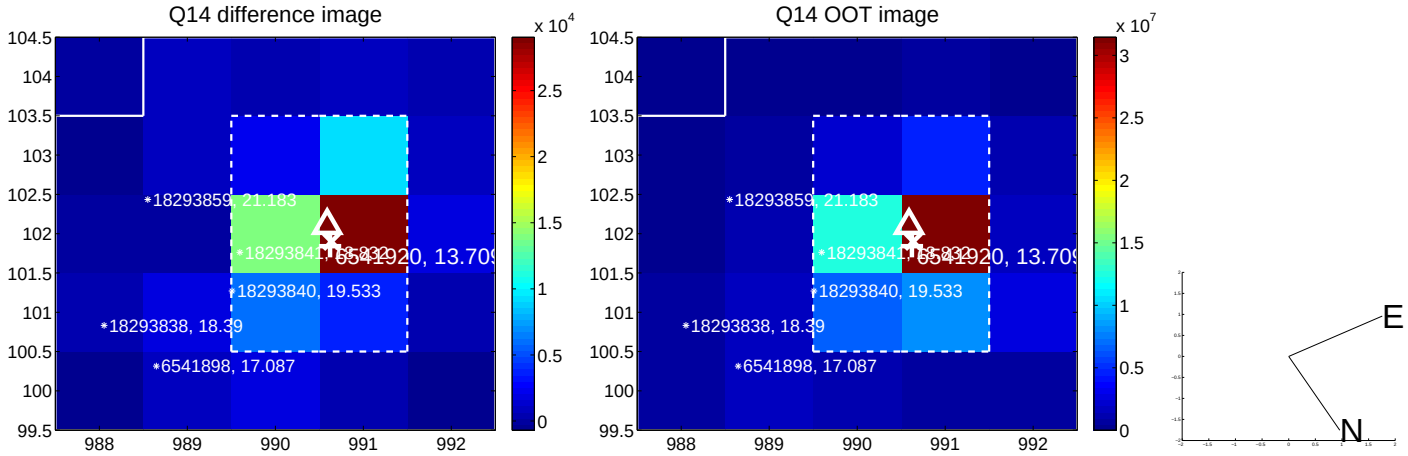


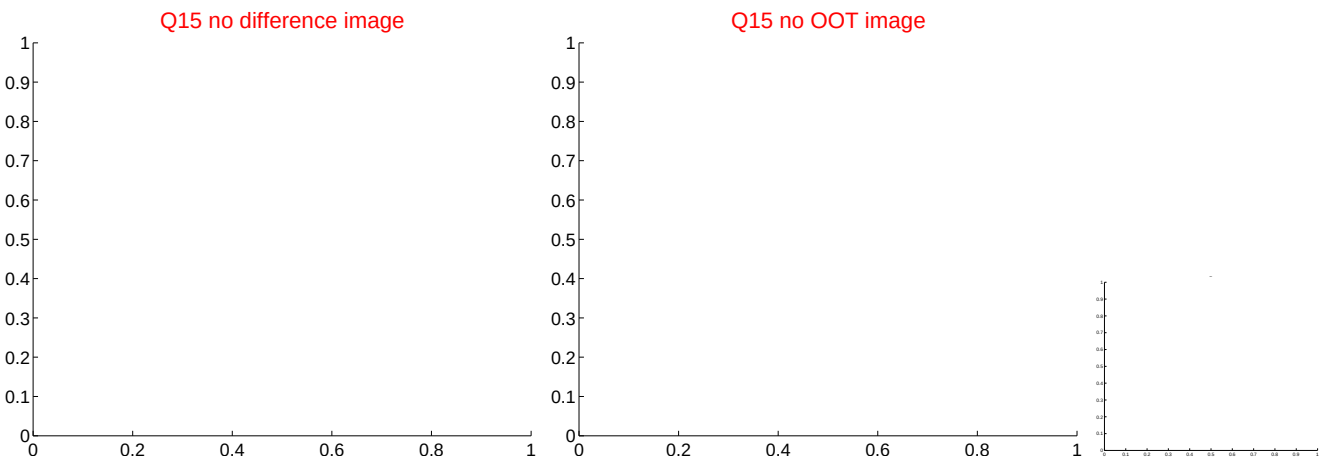


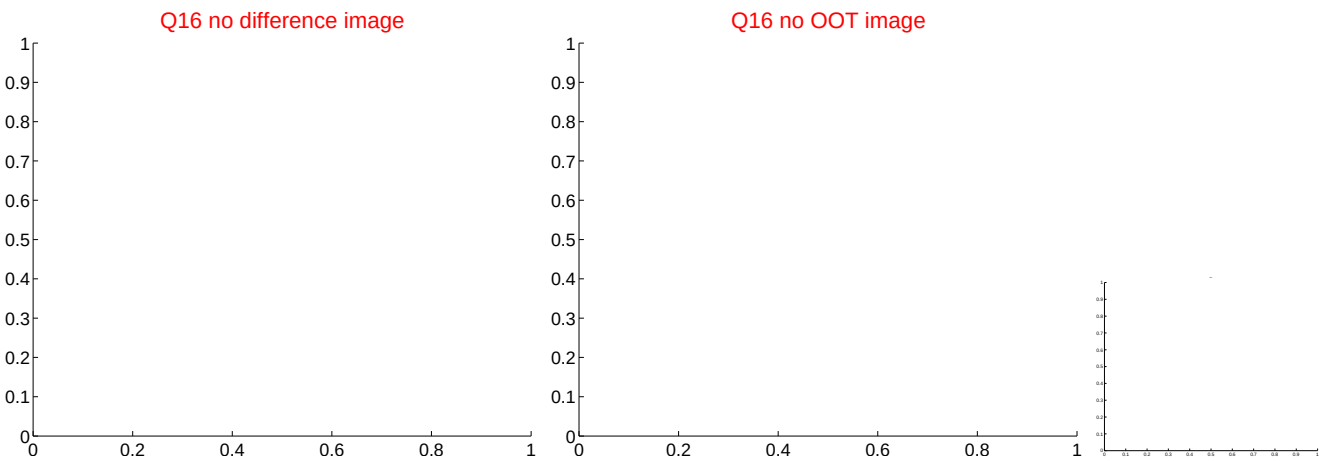


white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.

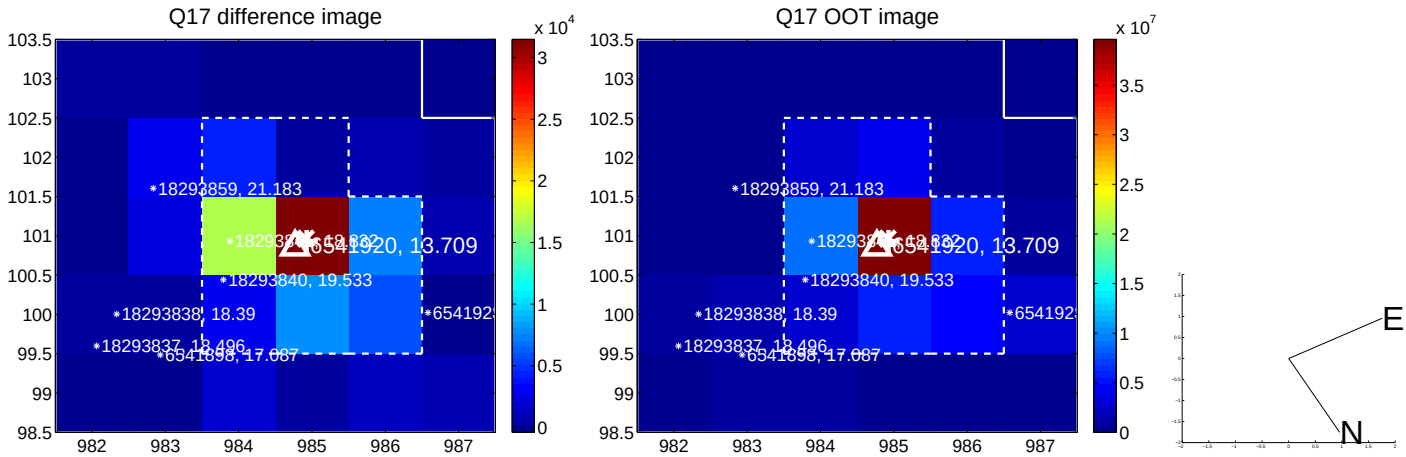


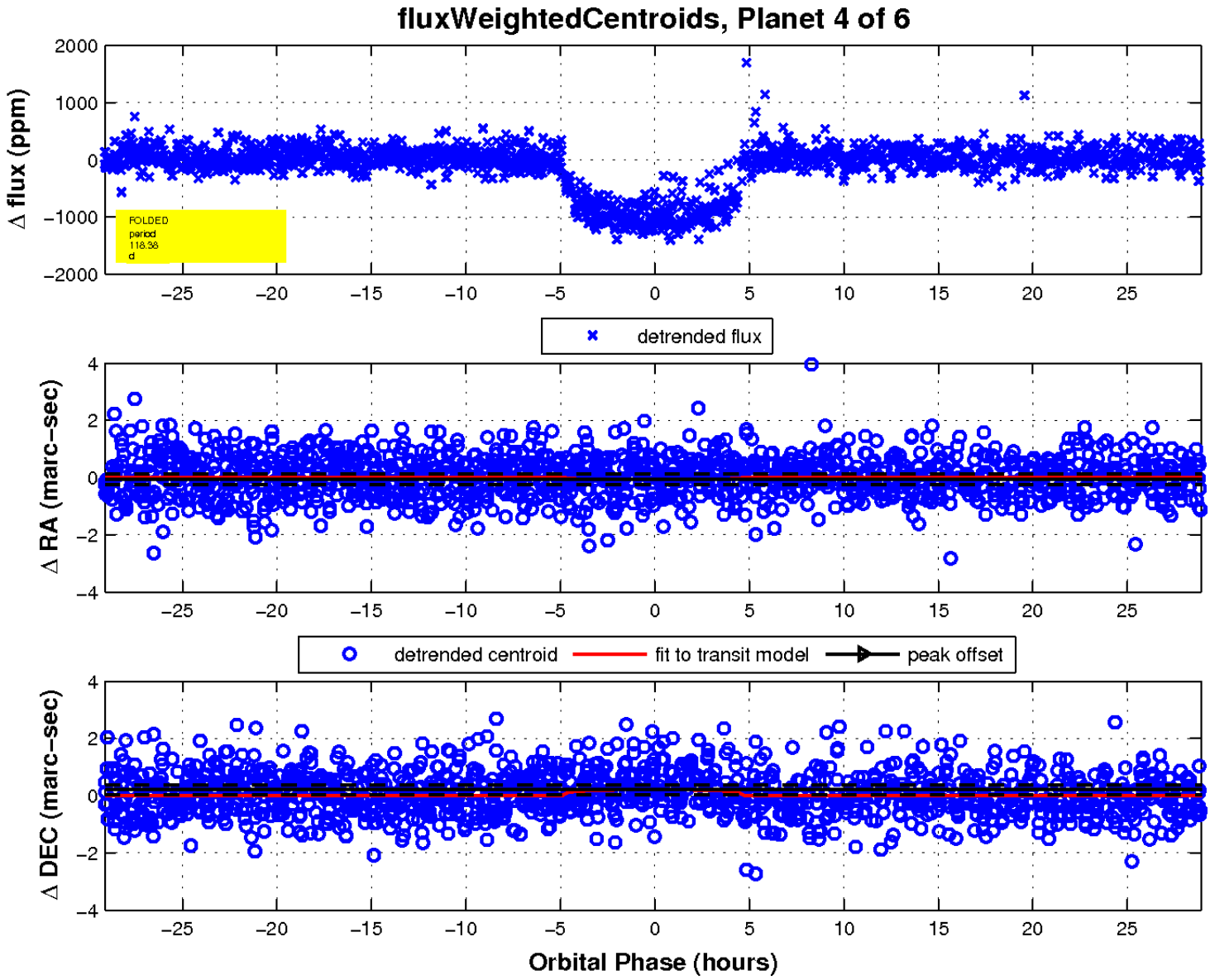




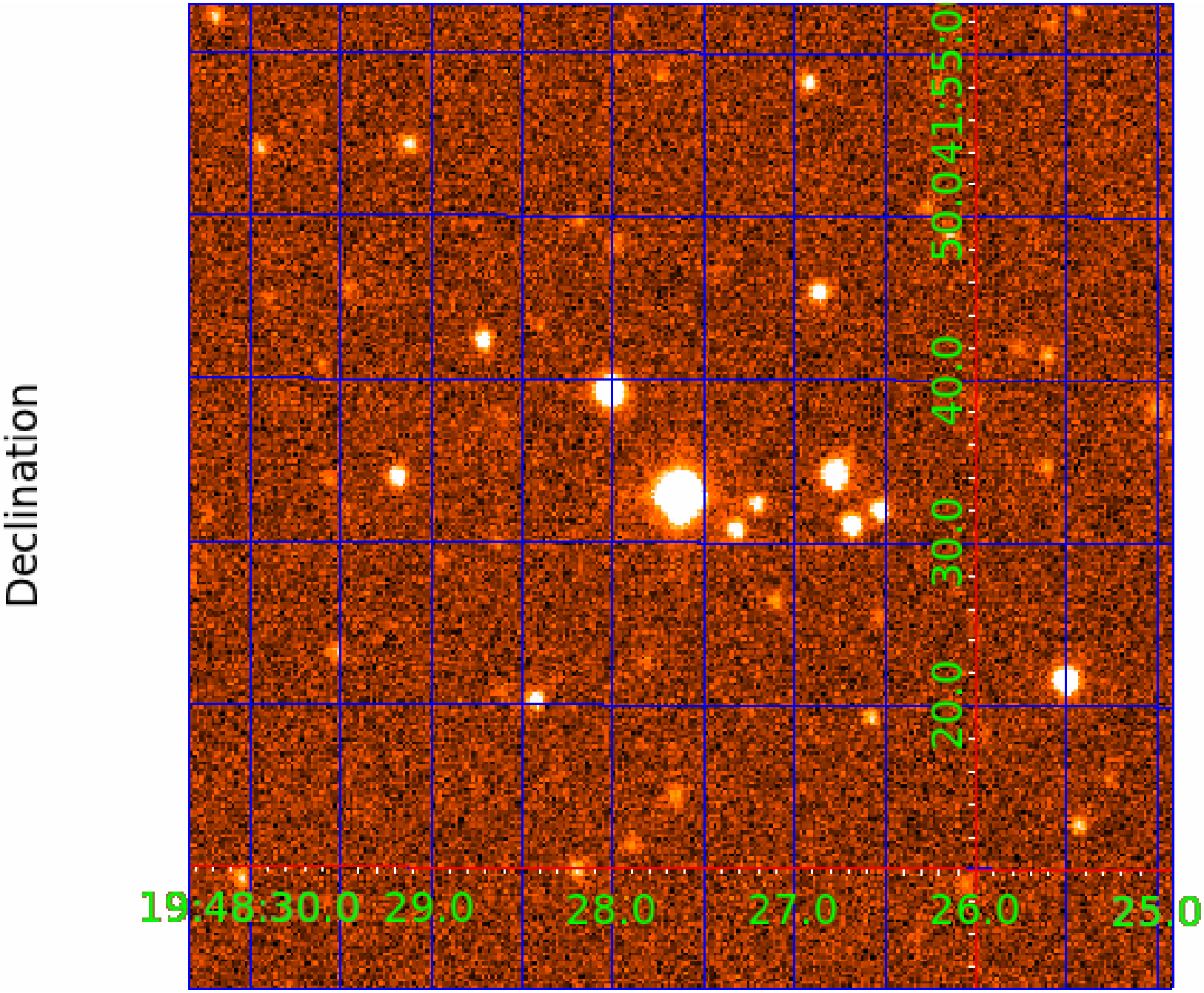


white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.





UKIRT Image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40.0
30.0
20.0
19:48:30.0
29.0
28.0
27.0
26.0
25.0

KIC 006541920

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 ($S_\oplus$)
006541920-01	OBS	0157.03	31.995499	154.160762	1355.6	4.460	102.3	103.5	1.05	5657	4.37	27.21
006541920-02	OBS	0157.01	13.024922	138.176627	760.4	4.795	94.9	96.8	1.05	5657	3.23	90.20
006541920-03	OBS	0157.02	22.687165	148.454362	959.6	5.625	94.0	99.1	1.05	5657	3.48	43.04
006541920-04	OBS	0157.05	118.378578	168.908526	1104.5	9.700	57.5	61.6	1.05	5657	3.55	4.76
006541920-05	OBS	0157.04	46.686019	131.665574	562.7	7.276	40.5	43.4	1.05	5657	2.98	16.44
006541920-06	OBS	0157.06	10.304027	138.501918	297.9	4.610	41.0	44.0	1.05	5657	2.21	123.29

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
006541920-01	OBS	PC	1.00	0	0	0	0	NO_COMMENT
006541920-02	OBS	PC	1.00	0	0	0	0	NO_COMMENT
006541920-03	OBS	PC	1.00	0	0	0	0	NO_COMMENT
006541920-04	OBS	PC	1.00	0	0	0	0	NO_COMMENT
006541920-05	OBS	PC	1.00	0	0	0	0	NO_COMMENT
006541920-06	OBS	PC	1.00	0	0	0	0	NO_COMMENT

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.

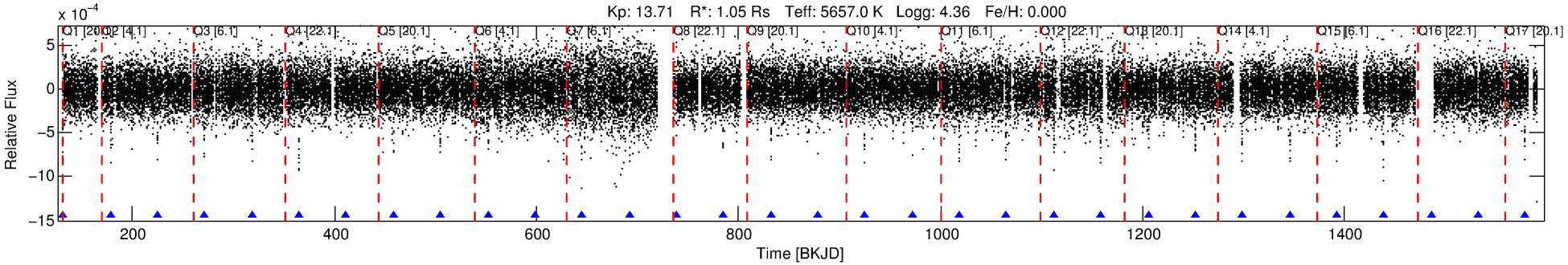
Ephemeris Match Information For 006541920-05

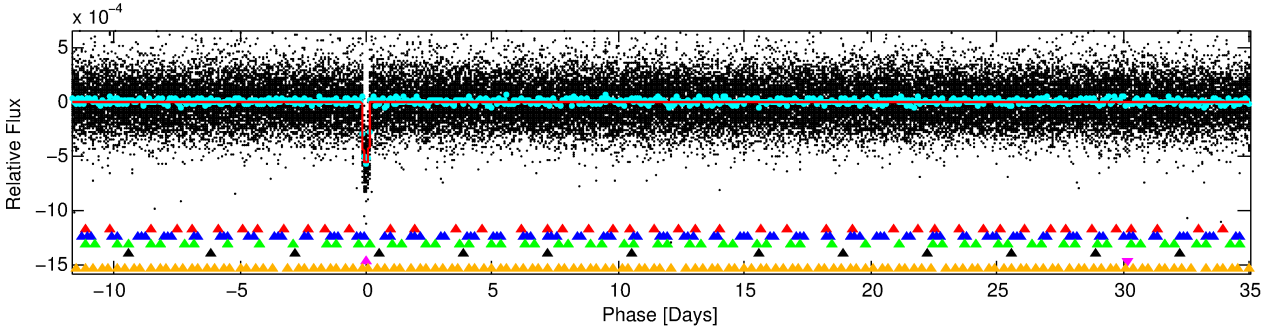
No Significant Match Found

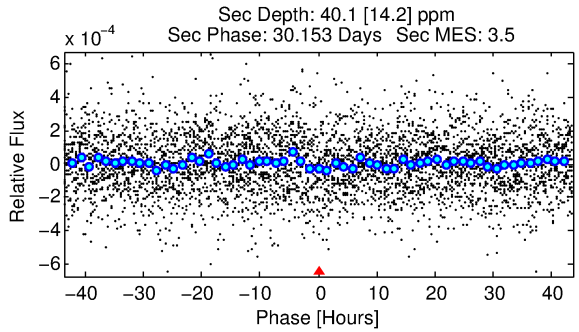
DV One-Page Summary

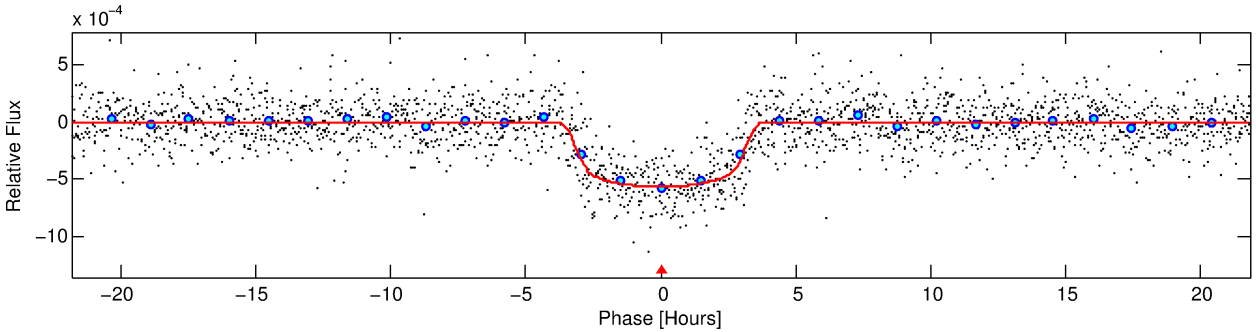
KIC: 6541920 Candidate: 5 of 6 Period: 46.686 d
KOI: K00157.04 Name: Kepler−11f Corr: 0.940

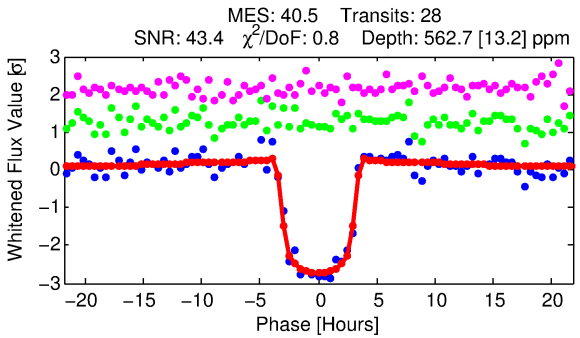
Kp: 13.71 R*: 1.05 Rs Teff: 5657.0 K Logg: 4.36 Fe/H: 0.000

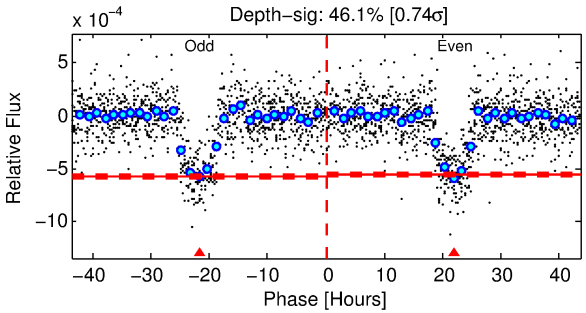


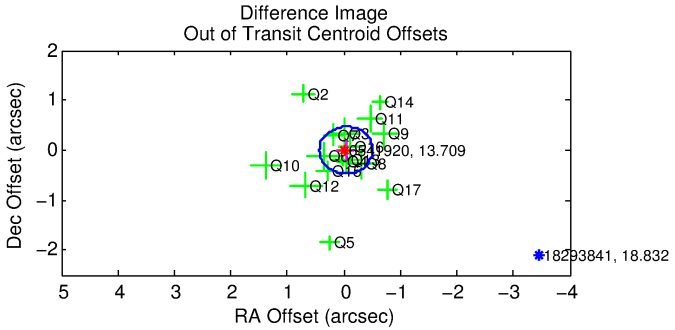












DV Fit Results:

Period = 46.68602 [0.00017] d
Epoch = 131.6656 [0.0031] BKJD
Rp/R* = 0.0261 [0.0008]
a/R* = 23.72 [2.90]
b = 0.90 [0.03]

Seff = 16.44 [2.04]
Teq = 513 [16] K
Rp = 2.98 [0.21] Re
a = 0.2471 [0.0149] AU

Ag = 151.97 [56.67] [2.66σ]
Teffp = 2787 [257] K [8.82σ]

DV Diagnostic Results:

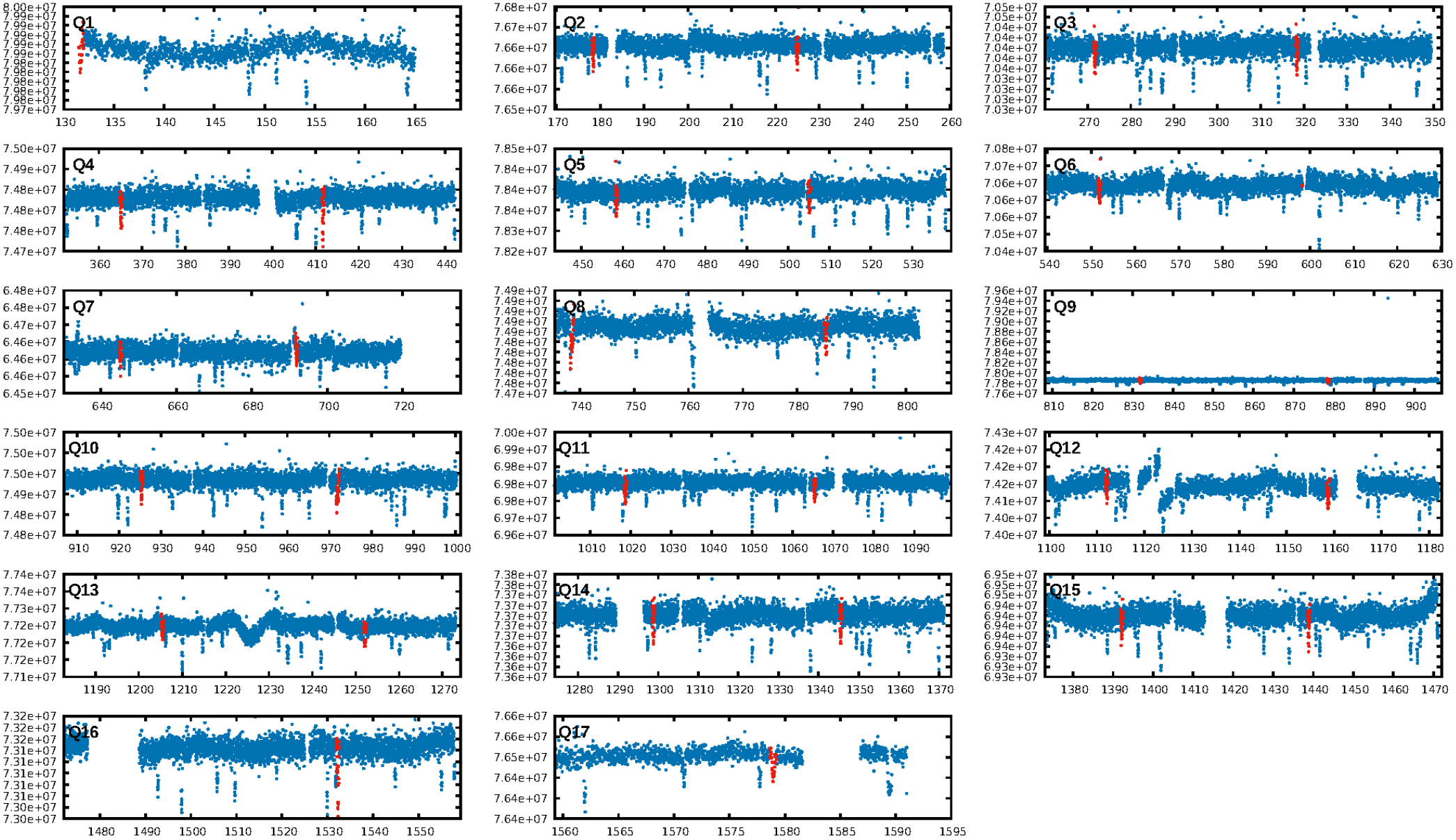
ShortPeriod−sig: 100.0% [41.32σ]
LongPeriod−sig: 100.0% [141.90σ]
ModelChiSquare2−sig: 95.0%
ModelChiSquareGof−sig: 100.0%
Bootstrap−pfa: 0.00e+00
RollingBand−fgt: 1.00 [26/26]
GhostDiagnostic−chr: 2.765

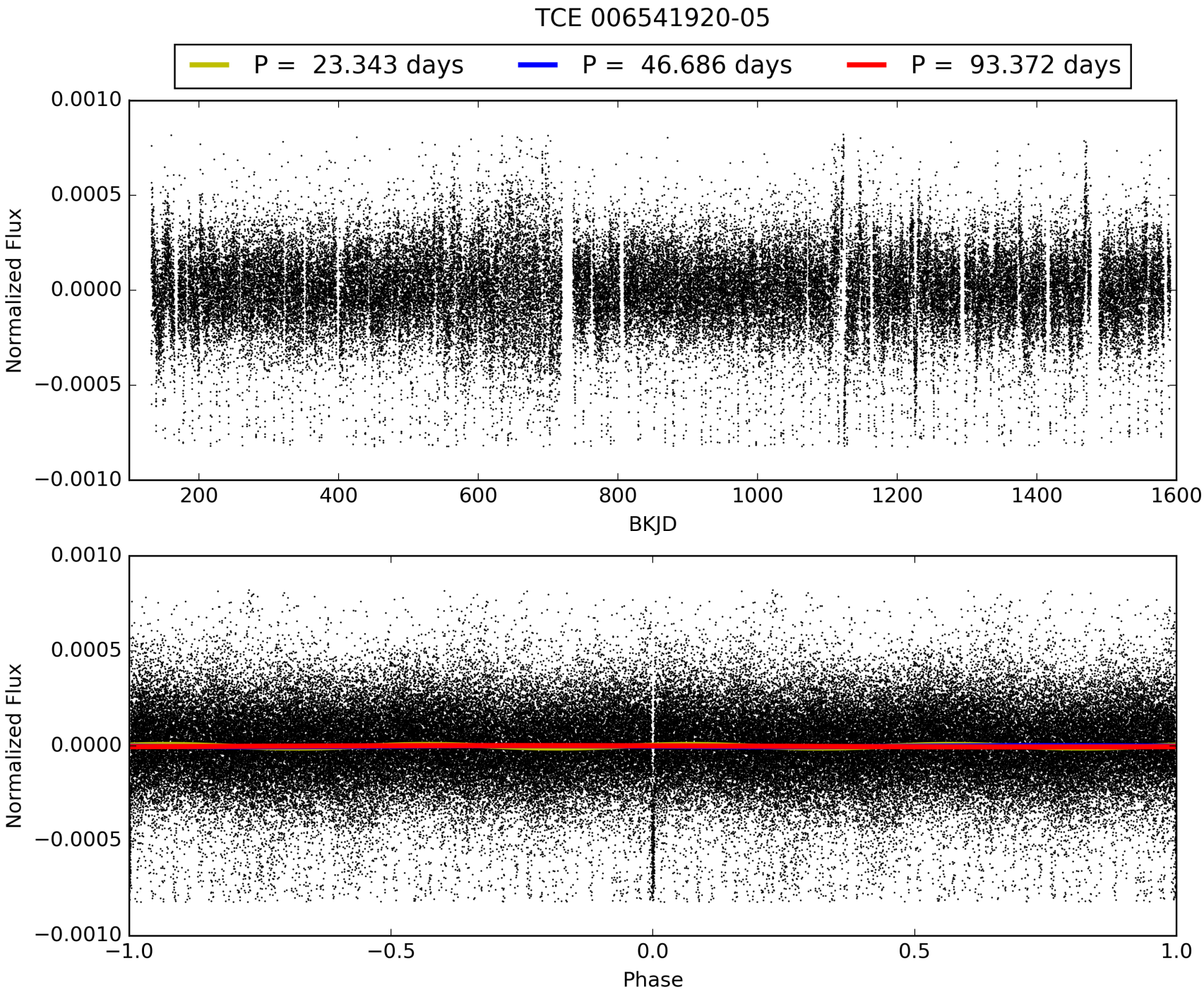
Centroid−sig: 0.5%
Centroid−so: 0.382 arcsec [1.74σ]
OotOffset−rm: 0.035 arcsec [0.23σ]
KicOffset−rm: 0.178 arcsec [0.93σ]
OotOffset−st: 4/4/4/4 [16]
KicOffset−st: 4/4/4/4 [16]
DiffImageQuality−fgm: 1.00 [16/16]
DiffImageOverlap−fno: 0.75 [12/16]

Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 −− Date Generated: 31−Jan−2016 13:03:16 Z

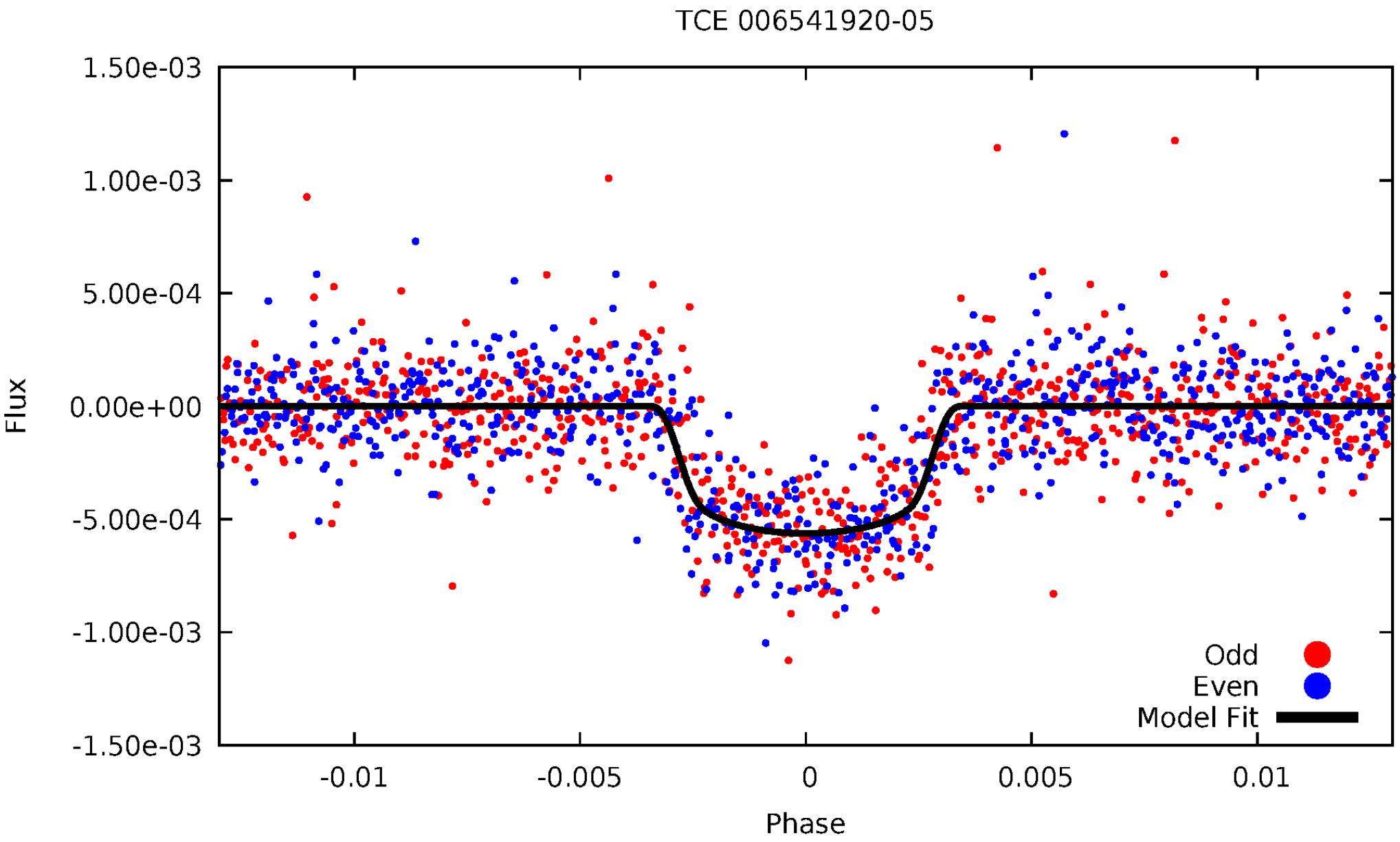
This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

TCE 006541920-05, PDC Light Curves

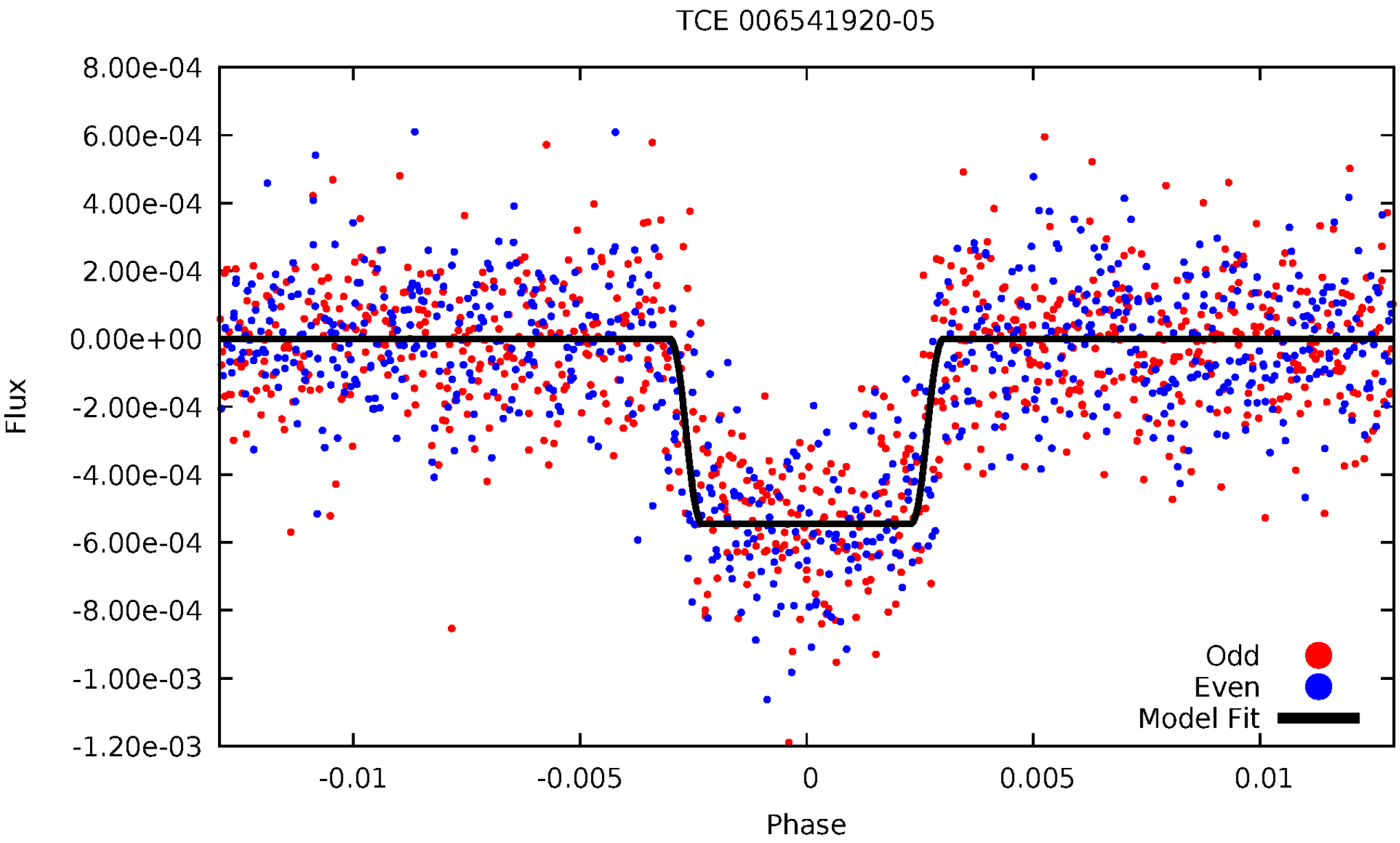



TCE 006541920-05
P = 23.343 days
P = 46.686 days
P = 93.372 days
Normalized Flux
0.0010
0.0005
0.0000
−0.0005
−0.0010
200
400
600
800
1000
1200
1400
1600
BKJD
Normalized Flux
0.0010
0.0005
0.0000
−0.0005
−0.0010
−1.0
−0.5
0.0
0.5
1.0
Phase

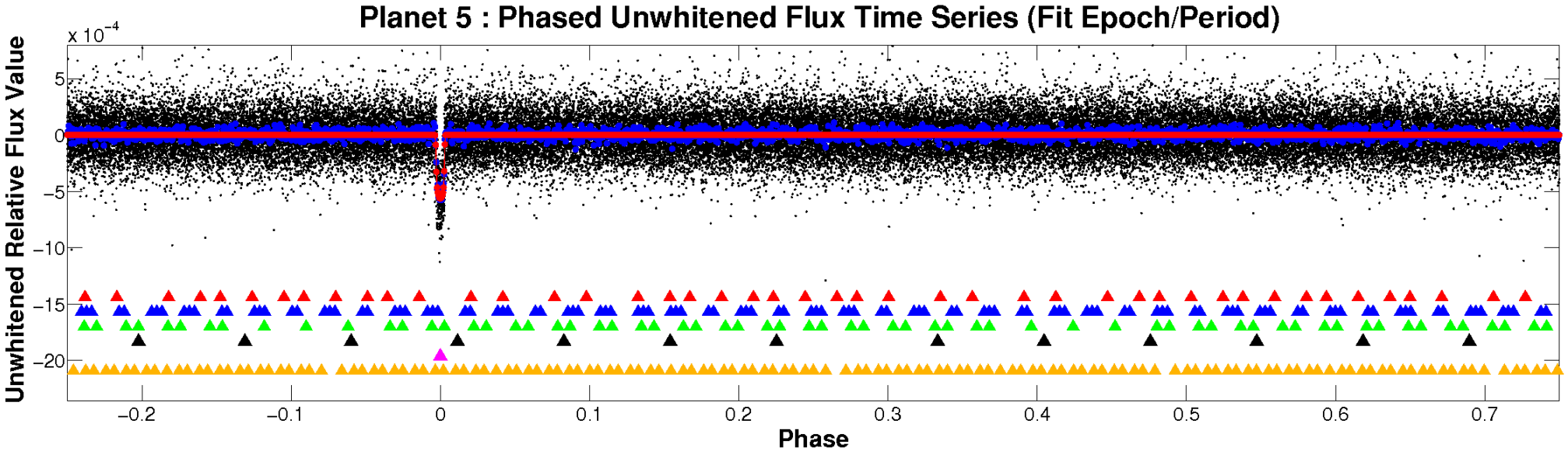
DV Odd/Even

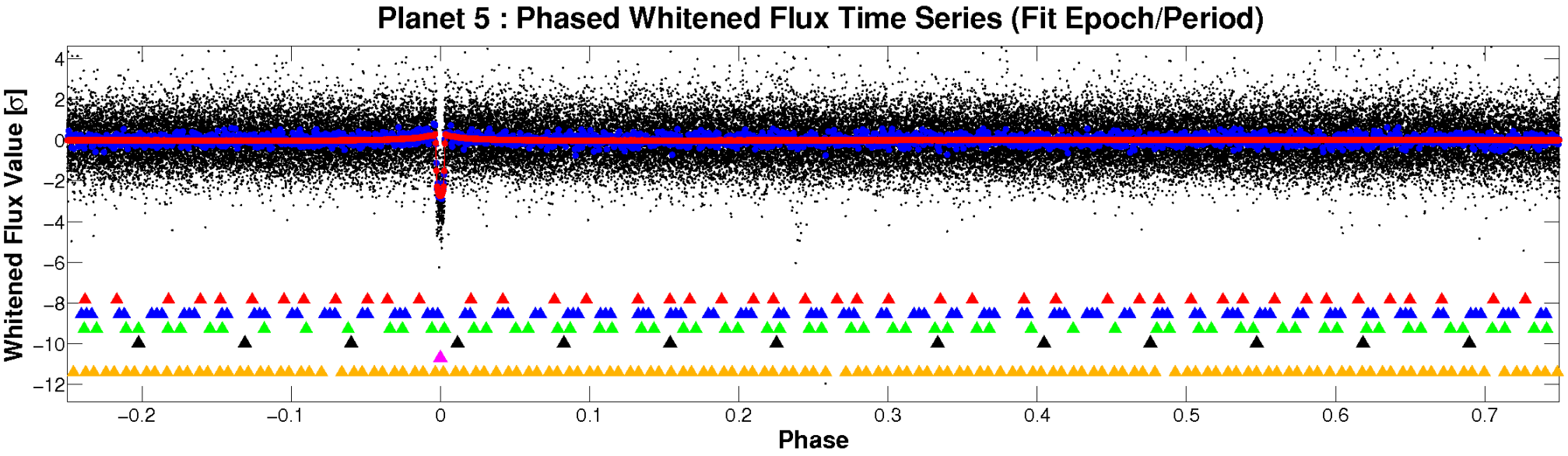

TCE 006541920-05
1.50e-03
1.00e-03
5.00e-04
0.00e+00
-5.00e-04
-1.00e-03
-1.50e-03
Flux
-0.01
-0.005
0
0.005
0.01
Phase
Odd
Even
Model Fit

ALT Odd/Even


TCE 006541920-05
8.00e-04
6.00e-04
4.00e-04
2.00e-04
0.00e+00
-2.00e-04
-4.00e-04
-6.00e-04
-8.00e-04
-1.00e-03
-1.20e-03
Flux
-0.01
-0.005
0
0.005
0.01
Phase
Odd
Even
Model Fit

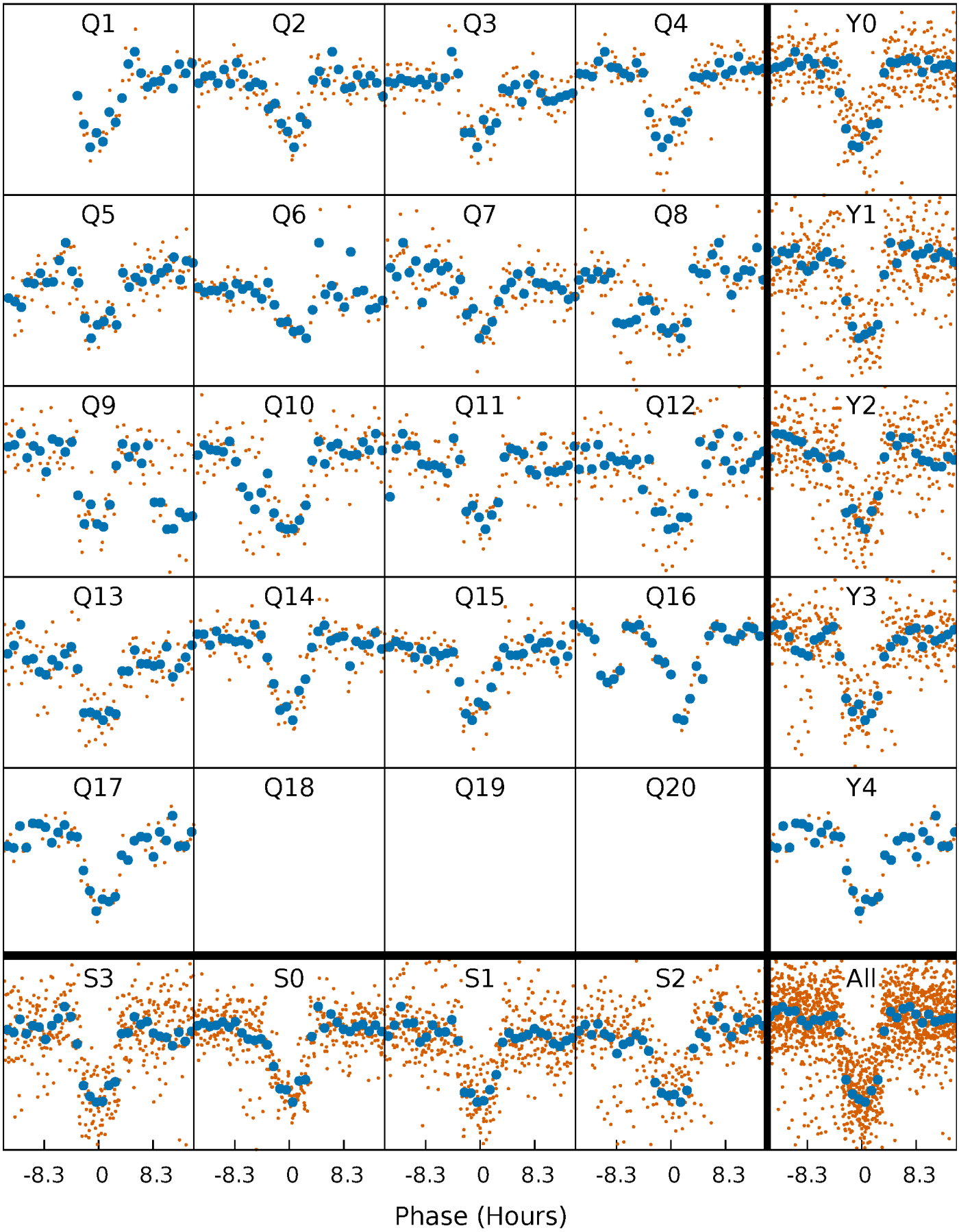
Non-Whitened Vs. Whitened Light Curve





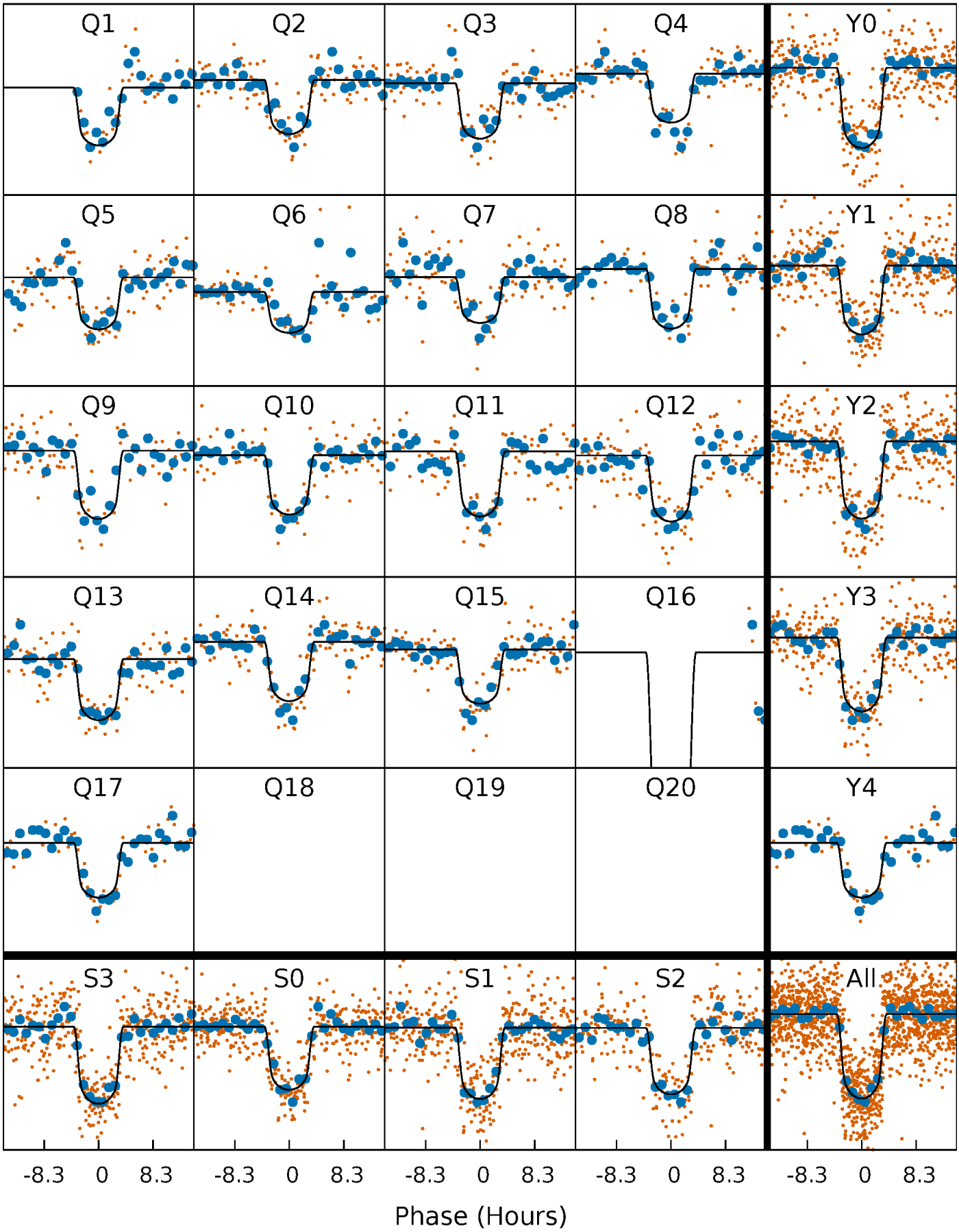
PDC Quarter-Phased Transit Curves

TCE 006541920-05 P= 46.686019 Days T_0=131.665574 (BKJD)



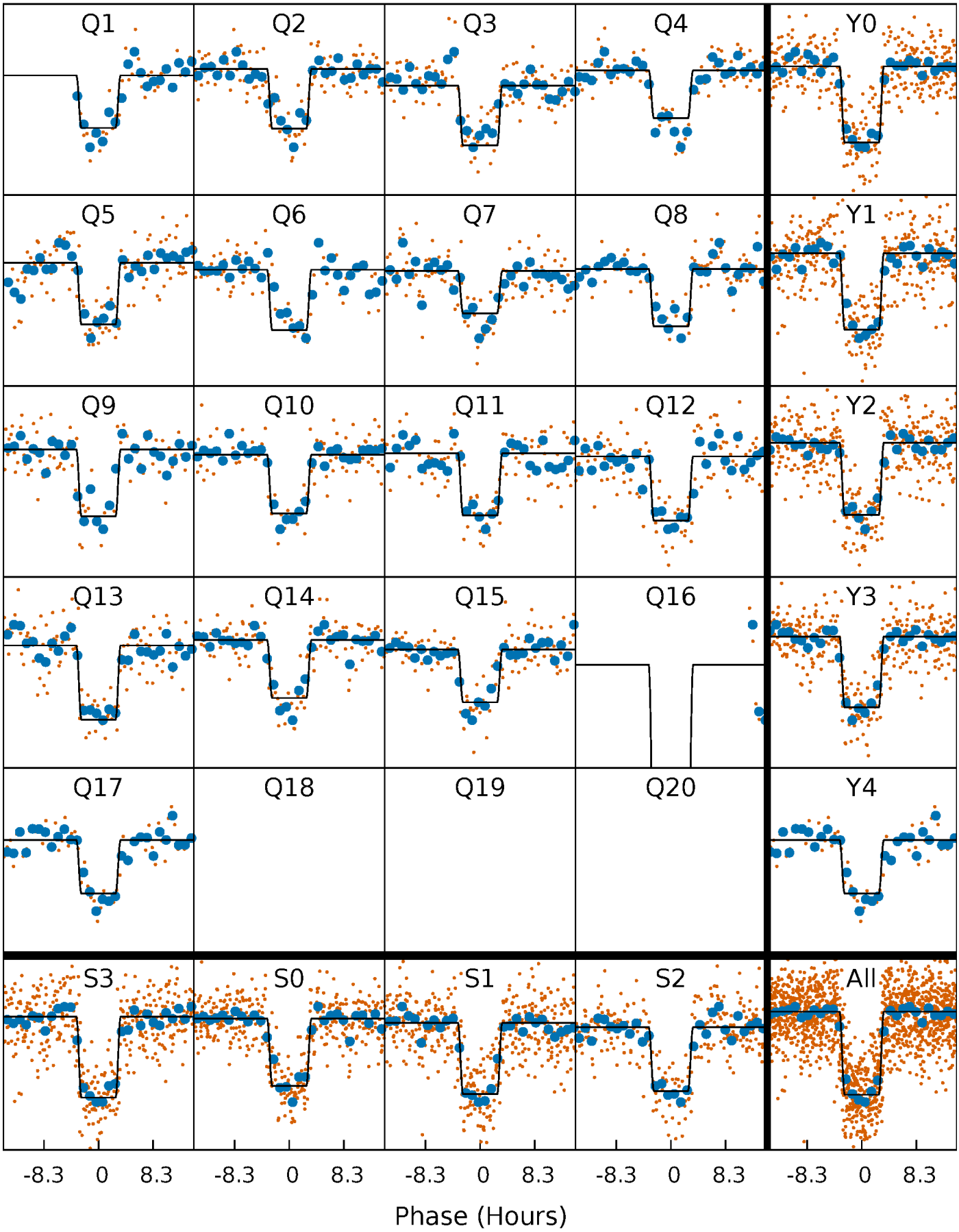
DV Quarter-Phased Transit Curves

TCE 006541920-05 P= 46.686019 Days T_0=131.665574 (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

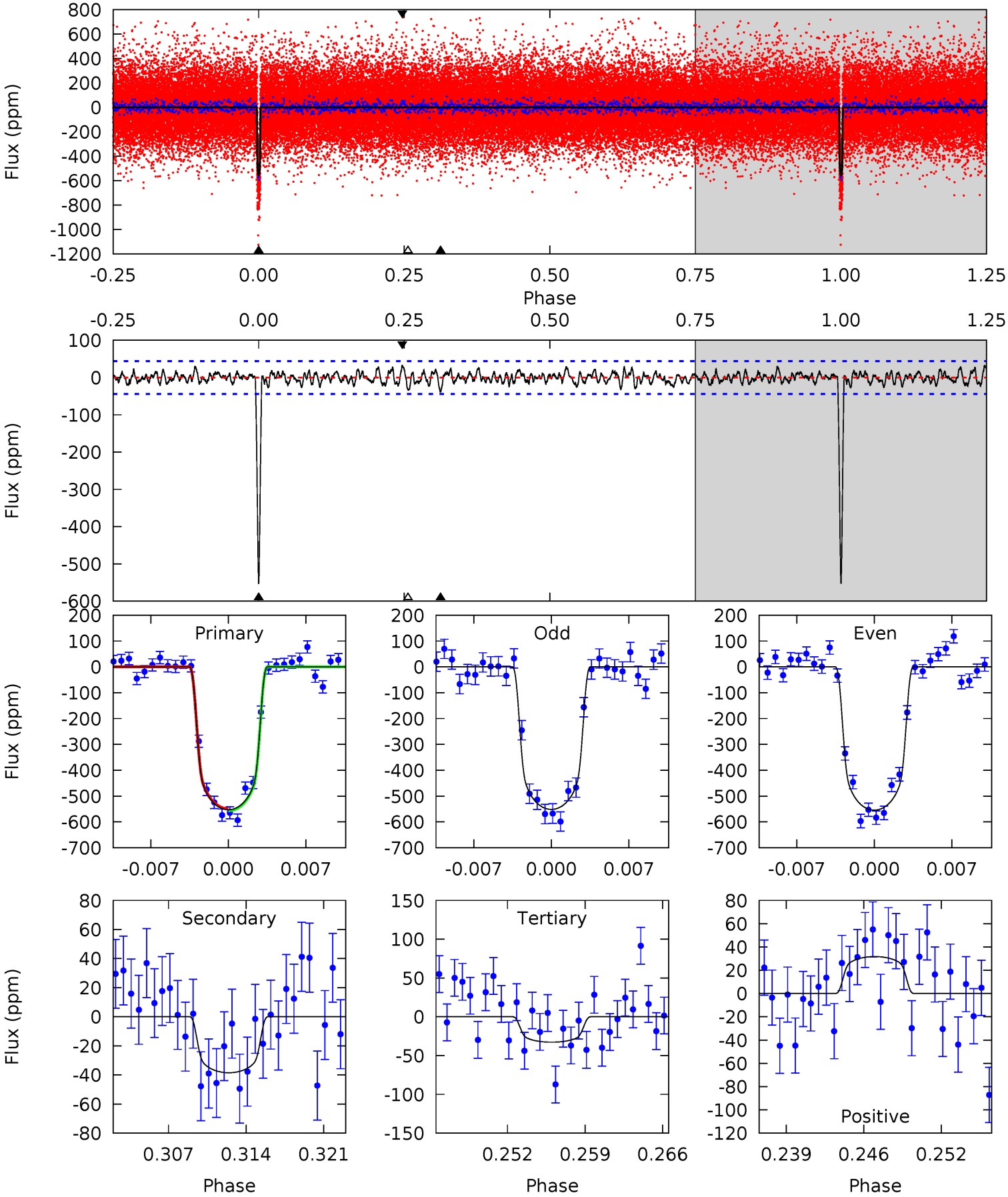
TCE 006541920-05 P= 46.685944 Days T_0=131.666599 (BKJD)



DV Model-Shift Uniqueness Test

006541920-05, P = 46.686019 Days, E = 84.979555 Days

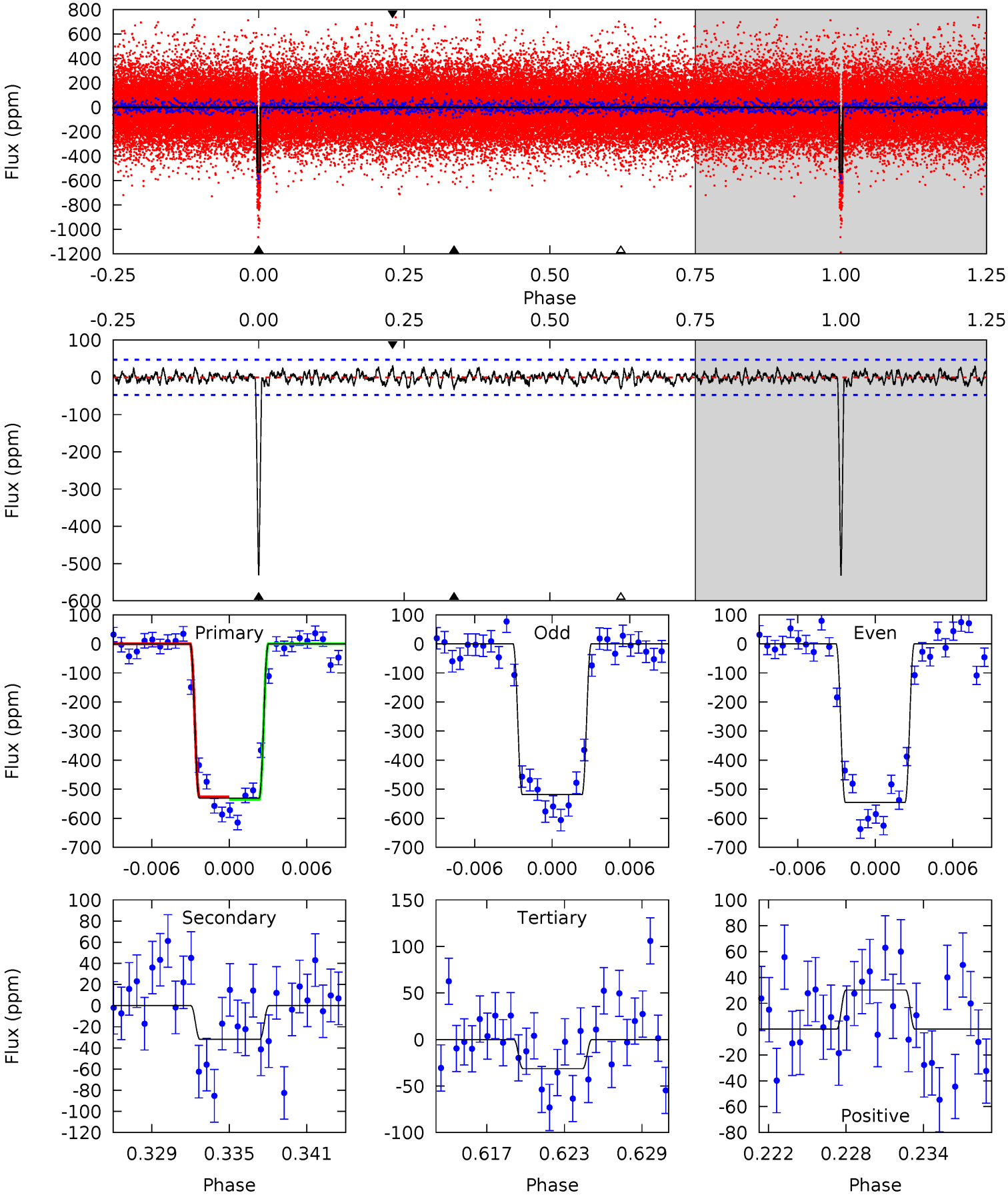
Pri	Sec	Ter	Pos	FA_1	FA_2	F_{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
63.6	4.43	3.77	3.65	5.10	2.71	1.33	59.9	60.0	0.66	0.77	0.16	1.02	0.05	0.41



Alt Model-Shift Uniqueness Test

006541920-05, P = 46.685944 Days, E = 84.980655 Days

Pri	Sec	Ter	Pos	FA_1	FA_2	F_{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
57.5	3.46	3.40	3.28	5.12	2.75	1.13	54.1	54.2	0.06	0.18	1.44	0.99	0.05	0.45



Stellar Parameters For KIC 006541920

	$T_{\rm eff}(K)$	$\log(g)$	[Fe/H]	R ($R_\odot$)	$M(M_\odot)$	$p_\star$ (g·cm^{-3})
	5657^{+113}_{-101}	$4.364^{+0.055}_{-0.045}$	$0.000^{+0.150}_{-0.150}$	$1.046^{+0.068}_{-0.068}$	$0.921^{+0.071}_{-0.052}$	$1.134^{+0.239}_{-0.165}$
	+2%/-2%	+1%/-1%	+inf%/-inf%	+7%/-7%	+8%/-6%	+21%/-15%
Source	SPE25	TRA25	SPE25	DSEP		

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

Secondary Eclipse Parameters for KIC 006541920-05 / KOI 0157.04

Detrend	Depth (ppm)	R_p ($R_\oplus$)	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-38±9	$2.97^{+0.15}_{-0.14}$	715^{+19}_{-19}	3305^{+122}_{-123}	148^{+36}_{-32}
Alt.	-32±9	$2.67^{+0.14}_{-0.15}$	718^{+18}_{-18}	3317^{+156}_{-167}	149^{+48}_{-43}

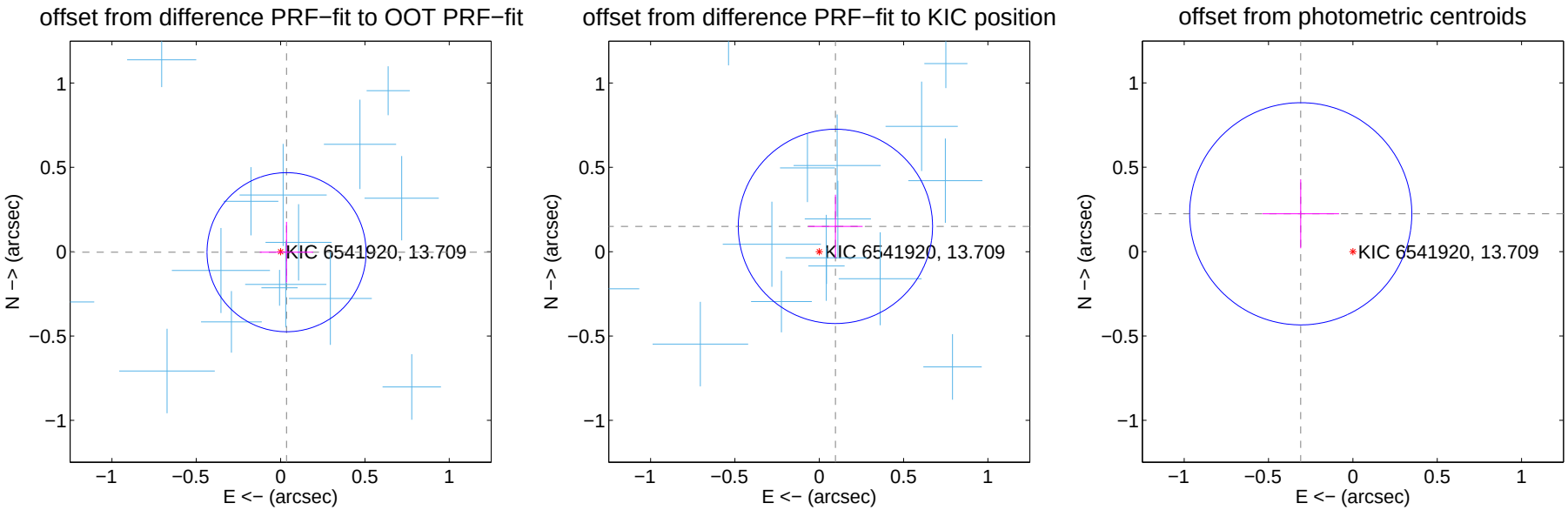
T_{max} = Theoretical Maximum Planetary Temperature
T_{obs} = Observed Planetary Temperature (Assuming A=0.3)
A_{obs} = Observed Albedo (Assuming T=0)

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

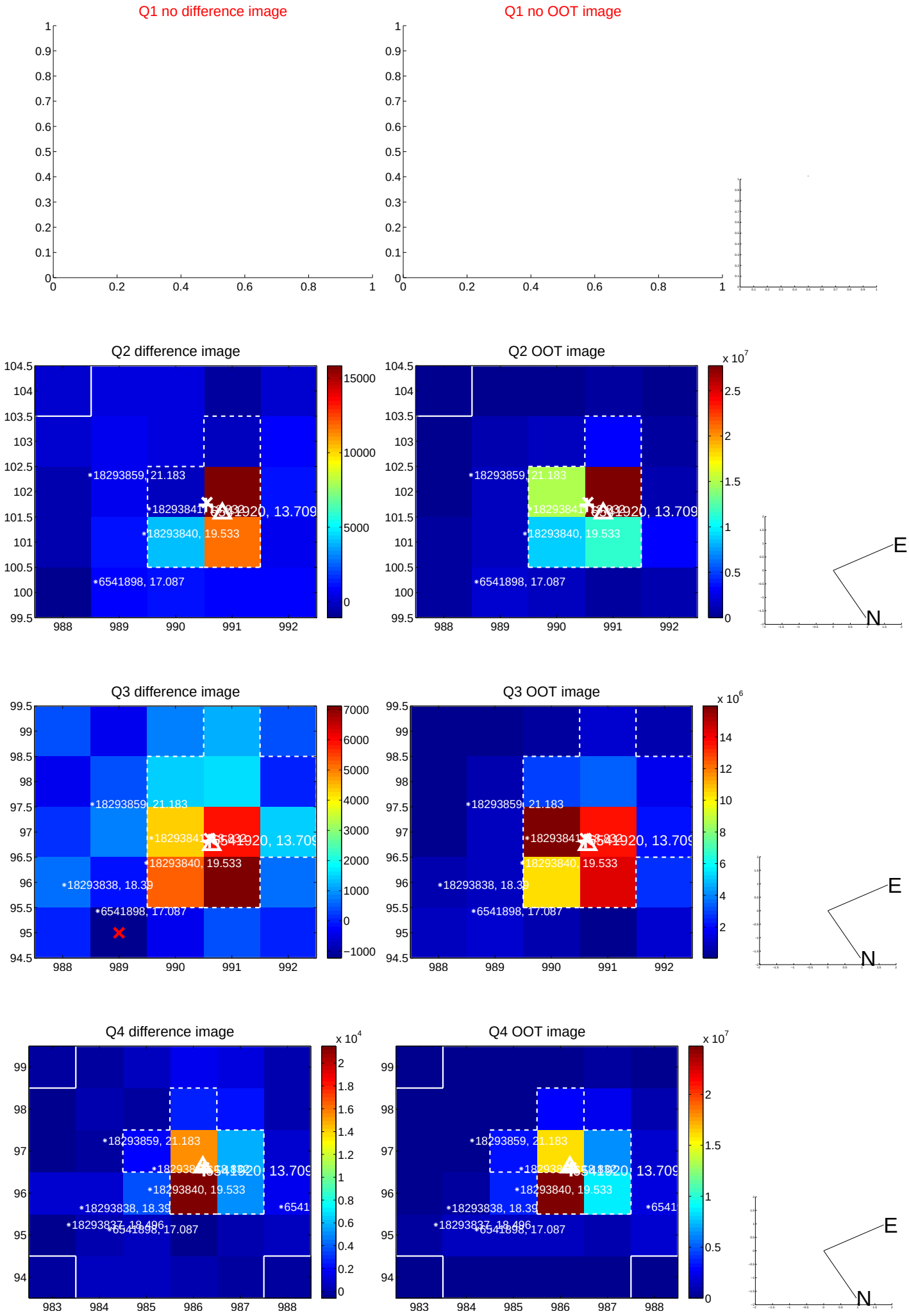
Supplemental centroid analysis for 006541920-05. Kepler magnitude: 13.71. Transit SNR 43.40
There are 16 quarters with good PRF difference image offsets
The direct PRF centroid is offset from the target star catalog position by about 0.12 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.035 ± 0.157	0.23	-0.035 ± 0.158	-0.003 ± 0.180
PRF-fit source offset from KIC position	0.178 ± 0.192	0.93	-0.096 ± 0.161	0.150 ± 0.188
photometric centroid source offset	0.38 ± 0.22	1.74	0.31 ± 0.23	0.22 ± 0.20

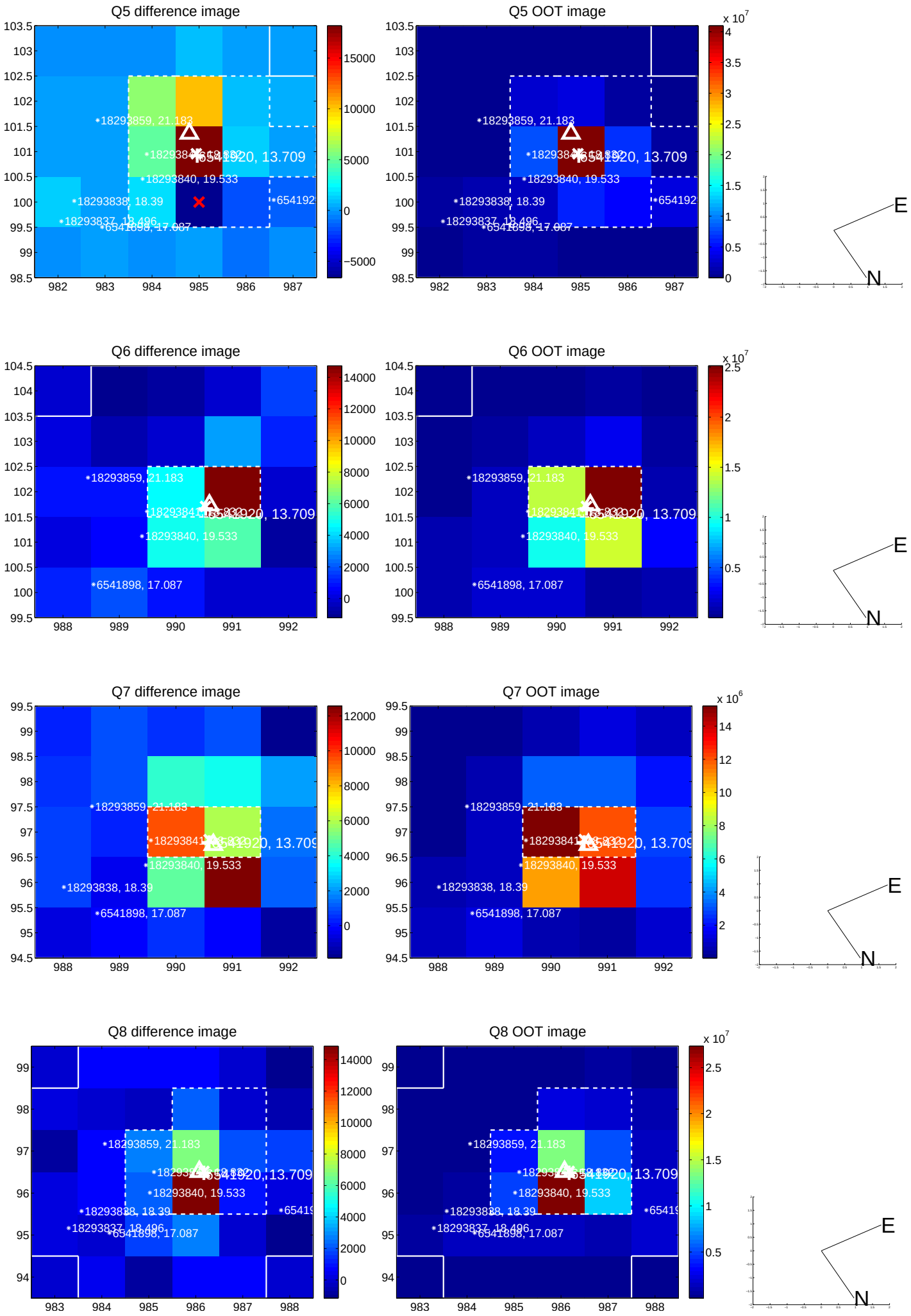


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one-σ uncertainty. Blue circle: three-σ. Red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

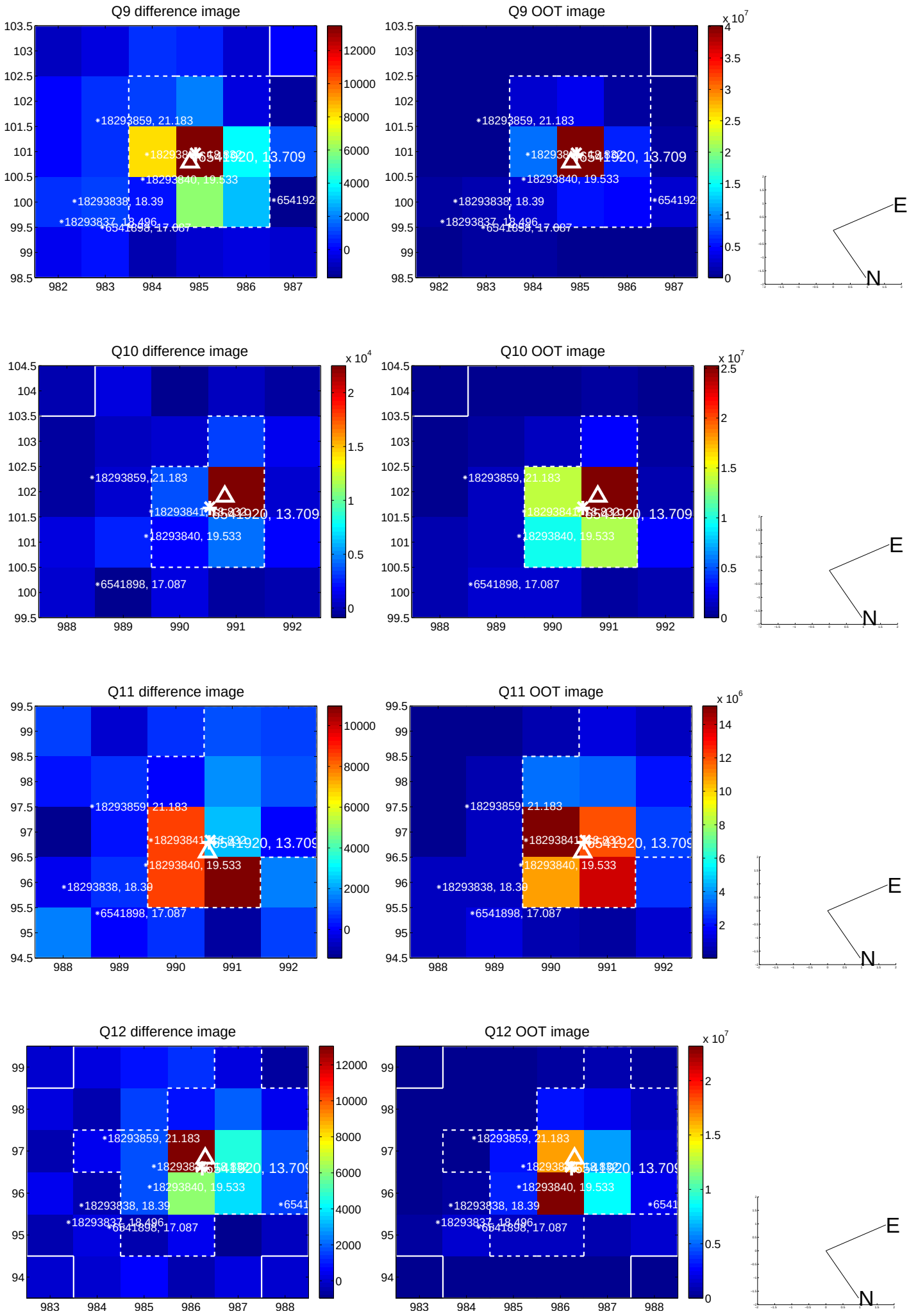
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.



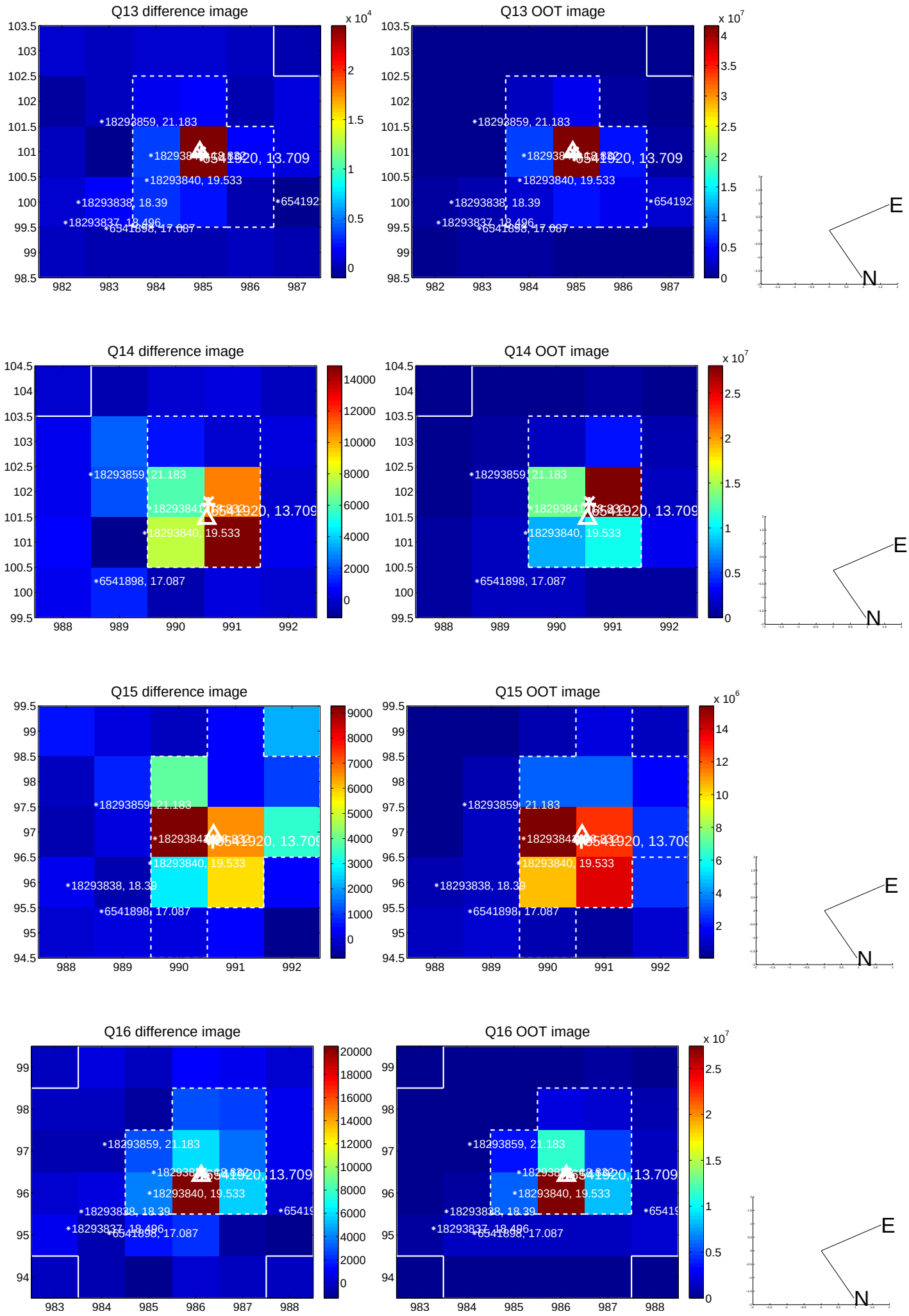
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ✕: large negative pixel value.



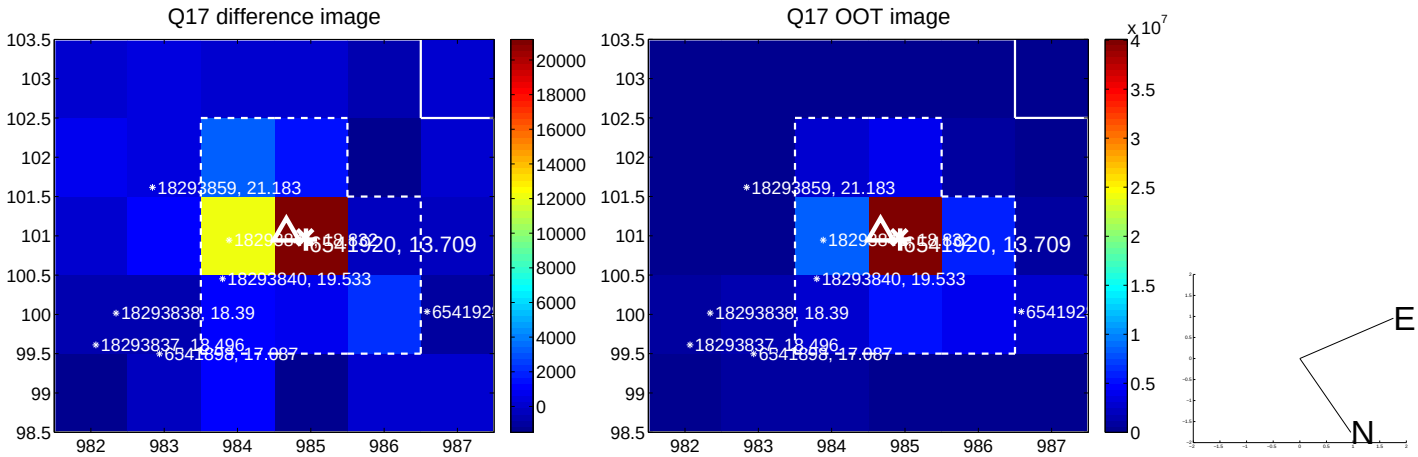
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.

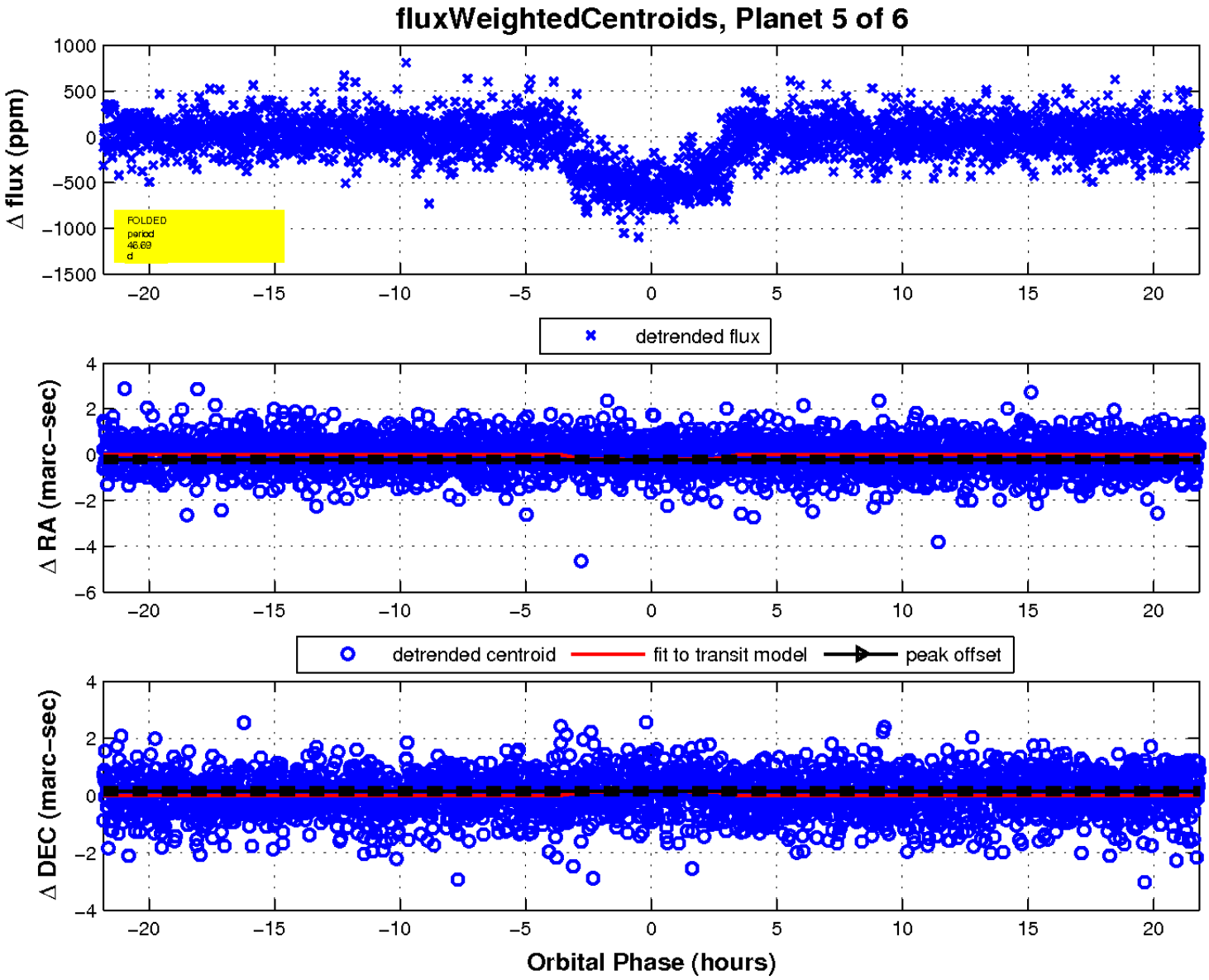


white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.

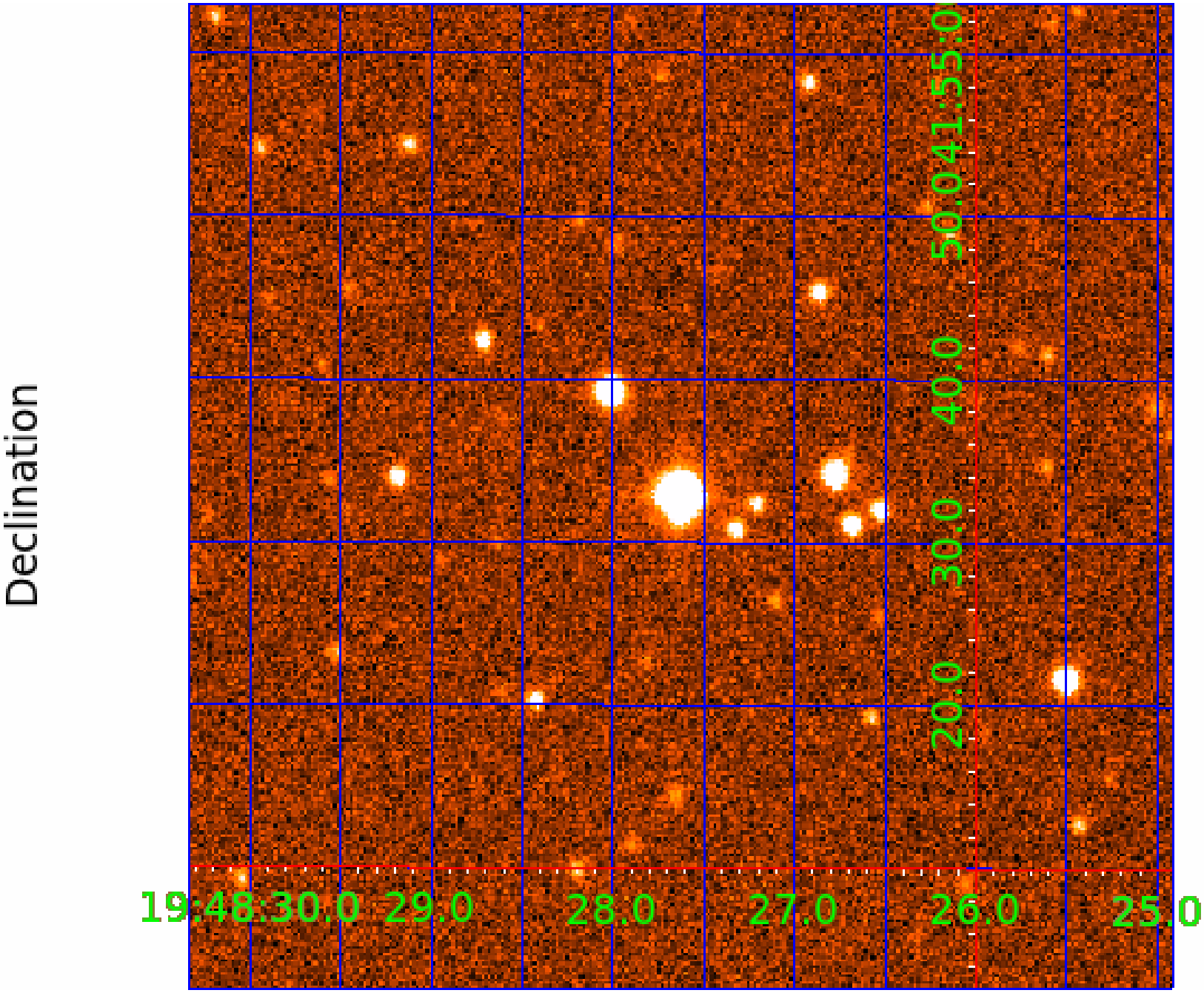


white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.





UKIRT Image


Declination
50:041:55:0
40.0
30.0
20.0
19:48:30.0
29.0
28.0
27.0
26.0
25.0

KIC 006541920

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 ($S_\oplus$)
006541920-01	OBS	0157.03	31.995499	154.160762	1355.6	4.460	102.3	103.5	1.05	5657	4.37	27.21
006541920-02	OBS	0157.01	13.024922	138.176627	760.4	4.795	94.9	96.8	1.05	5657	3.23	90.20
006541920-03	OBS	0157.02	22.687165	148.454362	959.6	5.625	94.0	99.1	1.05	5657	3.48	43.04
006541920-04	OBS	0157.05	118.378578	168.908526	1104.5	9.700	57.5	61.6	1.05	5657	3.55	4.76
006541920-05	OBS	0157.04	46.686019	131.665574	562.7	7.276	40.5	43.4	1.05	5657	2.98	16.44
006541920-06	OBS	0157.06	10.304027	138.501918	297.9	4.610	41.0	44.0	1.05	5657	2.21	123.29

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
006541920-01	OBS	PC	1.00	0	0	0	0	NO_COMMENT
006541920-02	OBS	PC	1.00	0	0	0	0	NO_COMMENT
006541920-03	OBS	PC	1.00	0	0	0	0	NO_COMMENT
006541920-04	OBS	PC	1.00	0	0	0	0	NO_COMMENT
006541920-05	OBS	PC	1.00	0	0	0	0	NO_COMMENT
006541920-06	OBS	PC	1.00	0	0	0	0	NO_COMMENT

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.

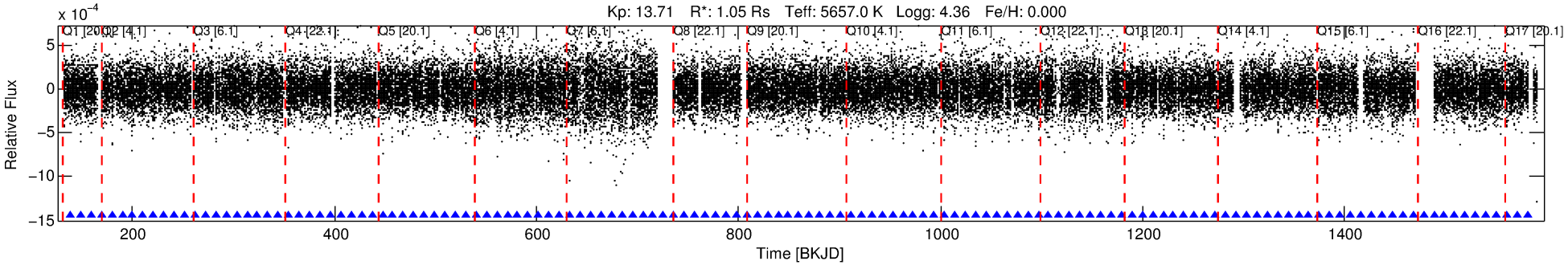
Ephemeris Match Information For 006541920-06

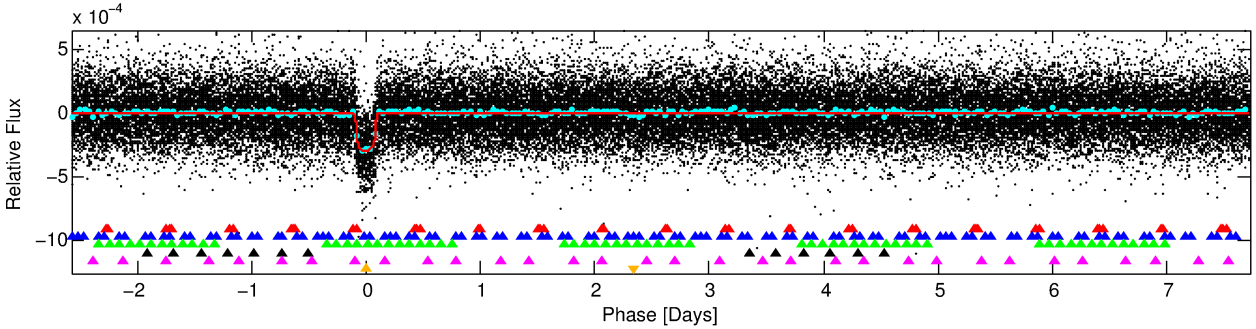
No Significant Match Found

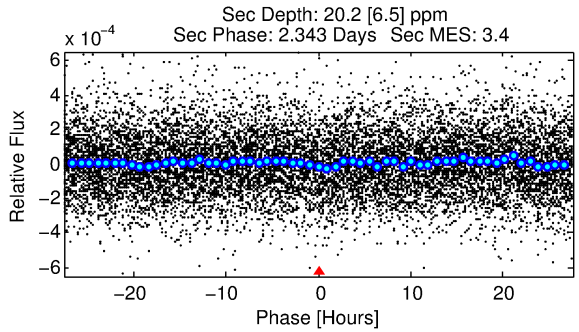
DV One-Page Summary

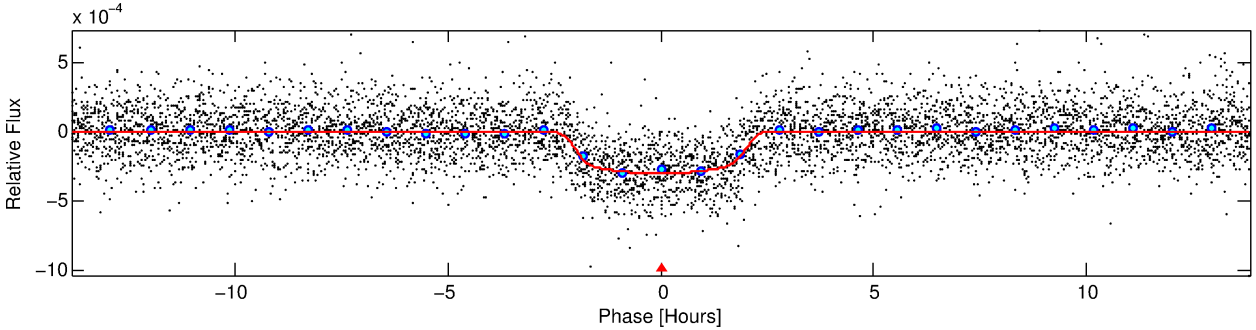
KIC: 6541920 Candidate: 6 of 6 Period: 10.304 d
KOI: K00157.06 Name: Kepler−11b Corr: 0.956

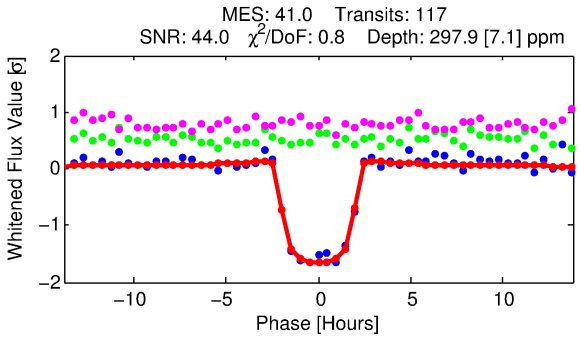
Kp: 13.71 R*: 1.05 Rs Teff: 5657.0 K Logg: 4.36 Fe/H: 0.000

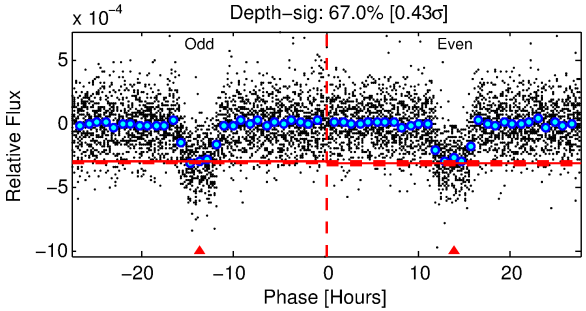


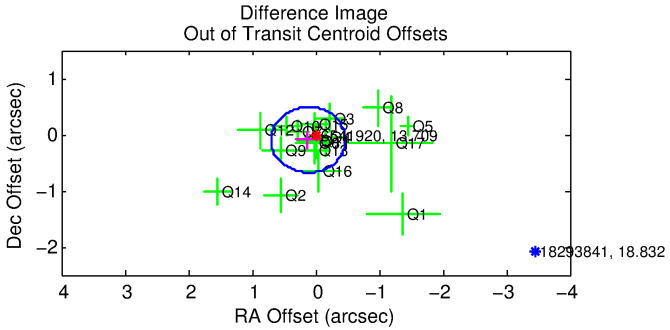












DV Fit Results:

Period = 10.30403 [0.00003] d
Epoch = 138.5019 [0.0022] BKJD
Rp/R* = 0.0194 [0.0009]
a/R* = 7.46 [1.57]
b = 0.92 [0.04]

Seff = 123.29 [15.29]
Teq = 850 [26] K
Rp = 2.21 [0.18] Re
a = 0.0902 [0.0055] AU

Ag = 18.55 [6.47] [2.71σ]
Teffp = 2727 [235] K [7.93σ]

DV Diagnostic Results:

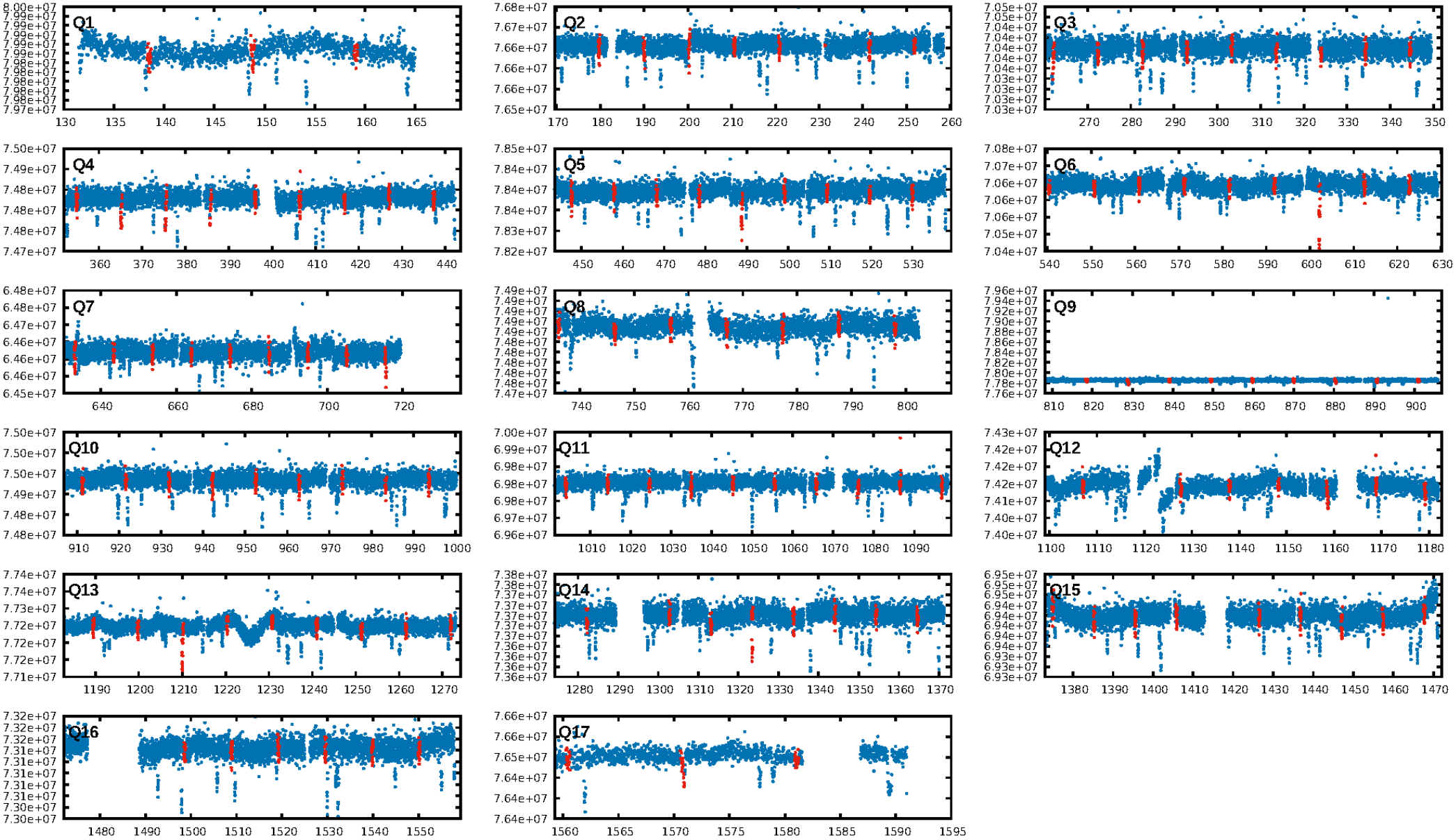
ShortPeriod−sig: N/A
LongPeriod−sig: 100.0% [9.82σ]
ModelChiSquare2−sig: 99.3%
ModelChiSquareGof−sig: 100.0%
Bootstrap−pfa: 0.00e+00
RollingBand−fgt: 1.00 [112/112]
GhostDiagnostic−chr: 7.389

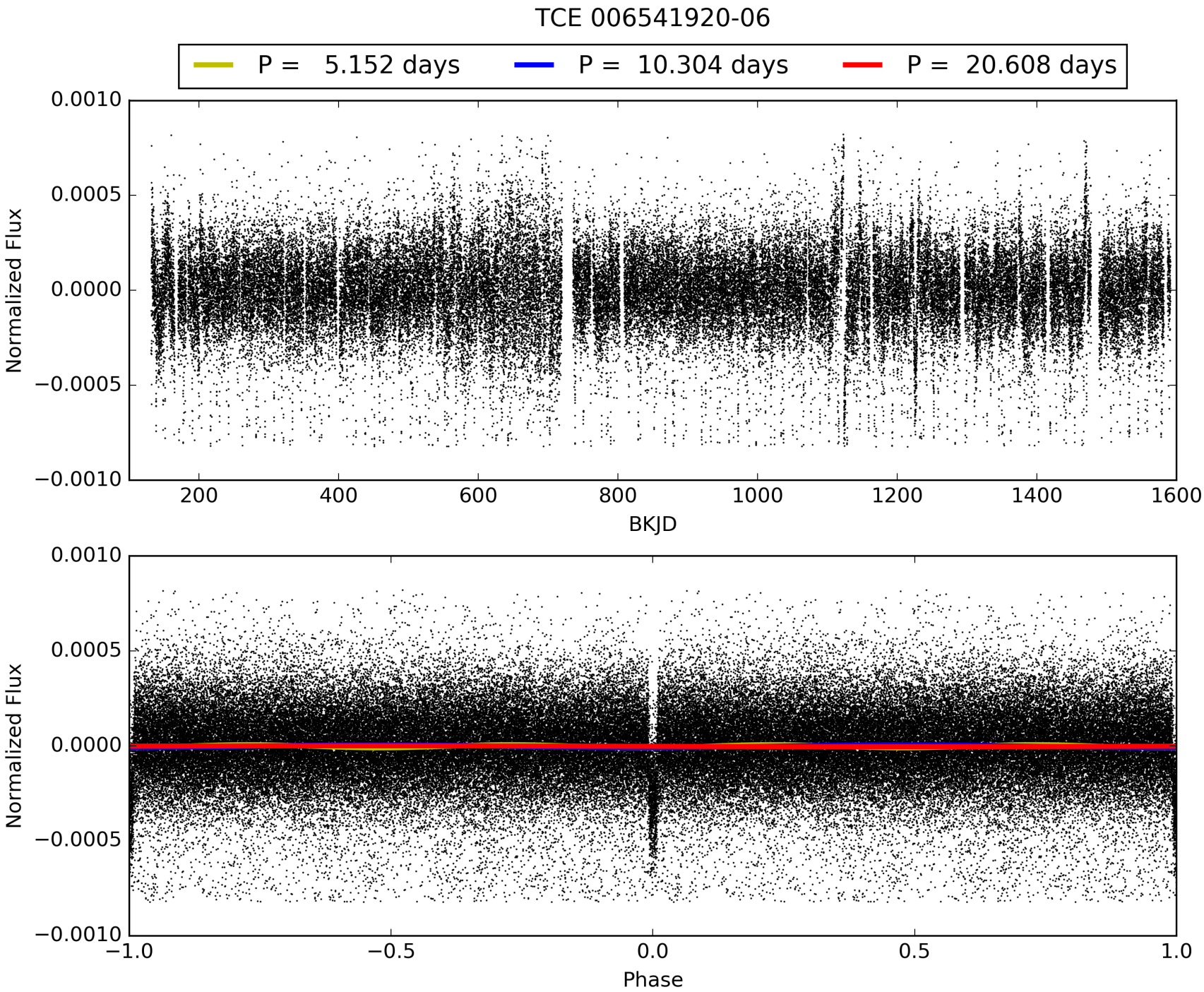
Centroid−sig: 0.5%
Centroid−so: 0.114 arcsec [0.49σ]
OotOffset−rm: 0.151 arcsec [0.77σ]
KicOffset−rm: 0.079 arcsec [0.55σ]
OotOffset−st: 4/4/4/5 [17]
KicOffset−st: 4/4/4/5 [17]
DiffImageQuality−fgm: 1.00 [17/17]
DiffImageOverlap−fno: 1.00 [17/17]

Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 −− Date Generated: 31−Jan−2016 13:03:22 Z

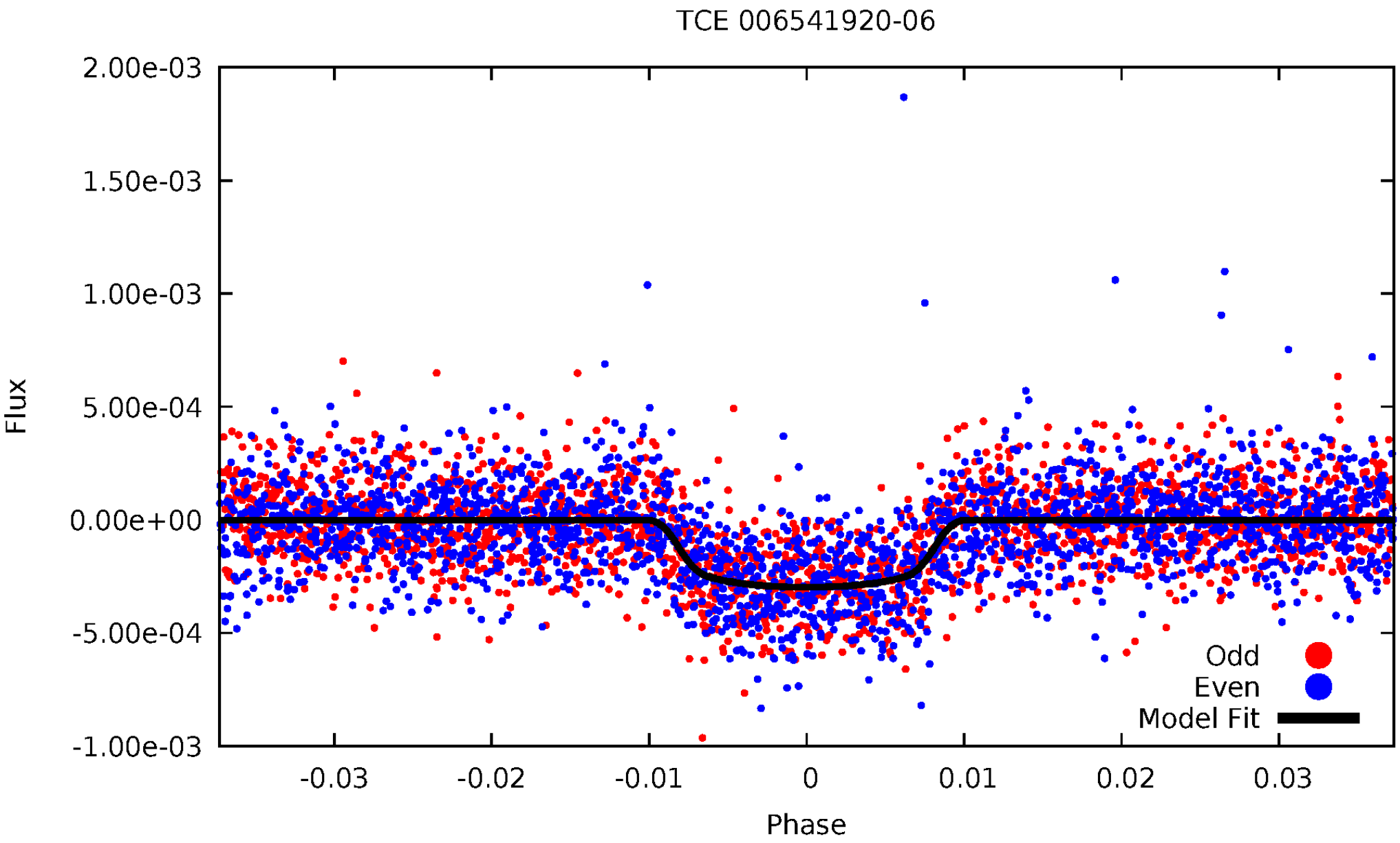
This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

TCE 006541920-06, PDC Light Curves

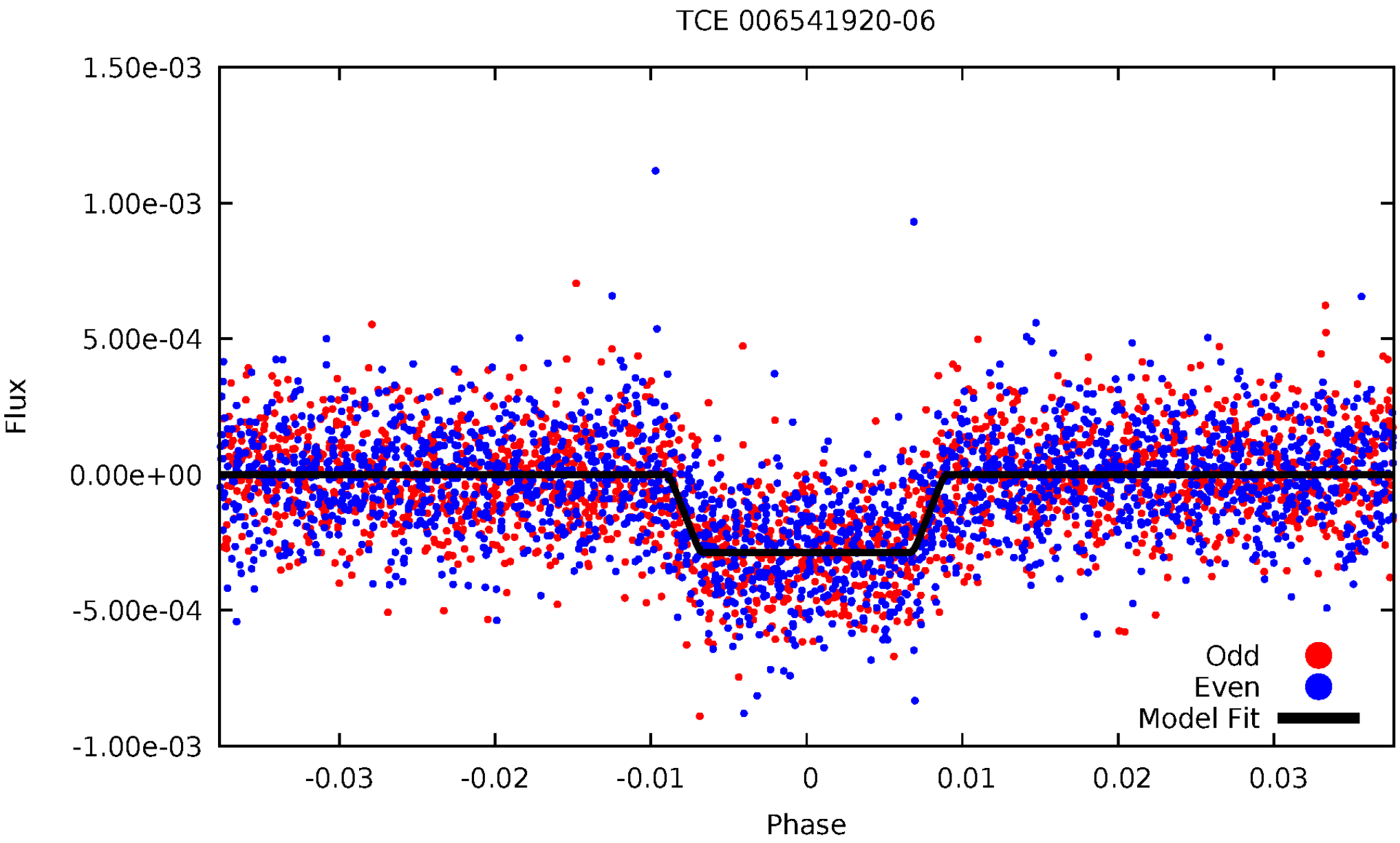



TCE 006541920-06
P = 5.152 days
P = 10.304 days
P = 20.608 days
Normalized Flux
0.0010
0.0005
0.0000
−0.0005
−0.0010
200
400
600
800
1000
1200
1400
1600
BKJD
Normalized Flux
0.0010
0.0005
0.0000
−0.0005
−0.0010
−1.0
−0.5
0.0
0.5
1.0
Phase

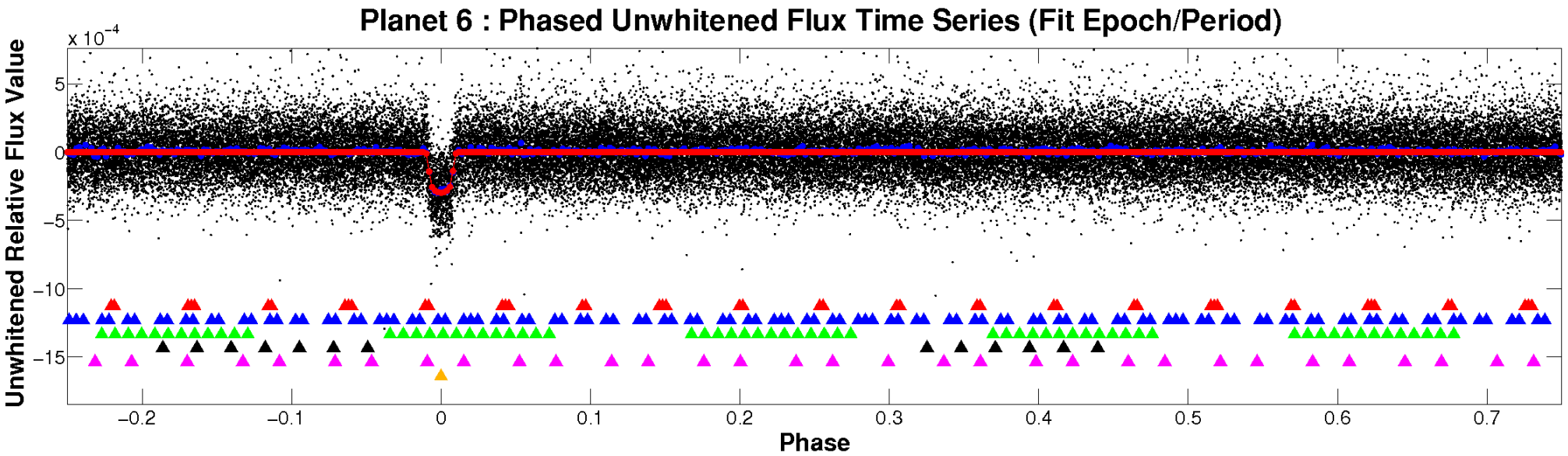
DV Odd/Even

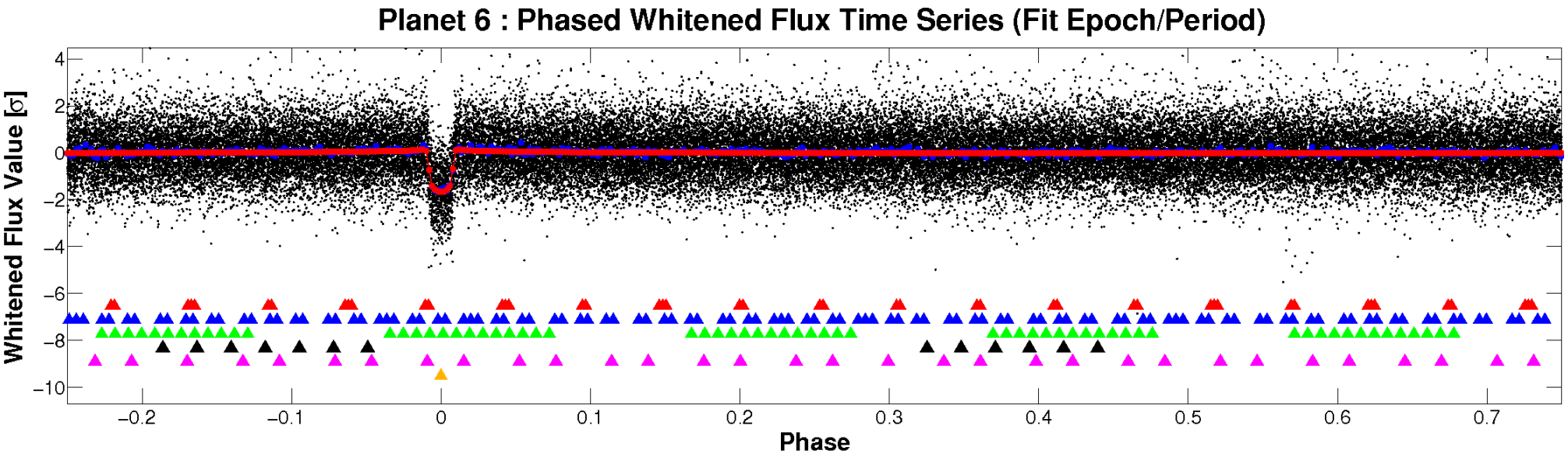

TCE 006541920-06
2.00e-03
1.50e-03
1.00e-03
5.00e-04
0.00e+00
-5.00e-04
-1.00e-03
Flux
-0.03
-0.02
-0.01
0
0.01
0.02
0.03
Phase
Odd
Even
Model Fit

ALT Odd/Even


TCE 006541920-06
1.50e-03
1.00e-03
5.00e-04
0.00e+00
-5.00e-04
-1.00e-03
Flux
-0.03
-0.02
-0.01
0
0.01
0.02
0.03
Phase
Odd
Even
Model Fit

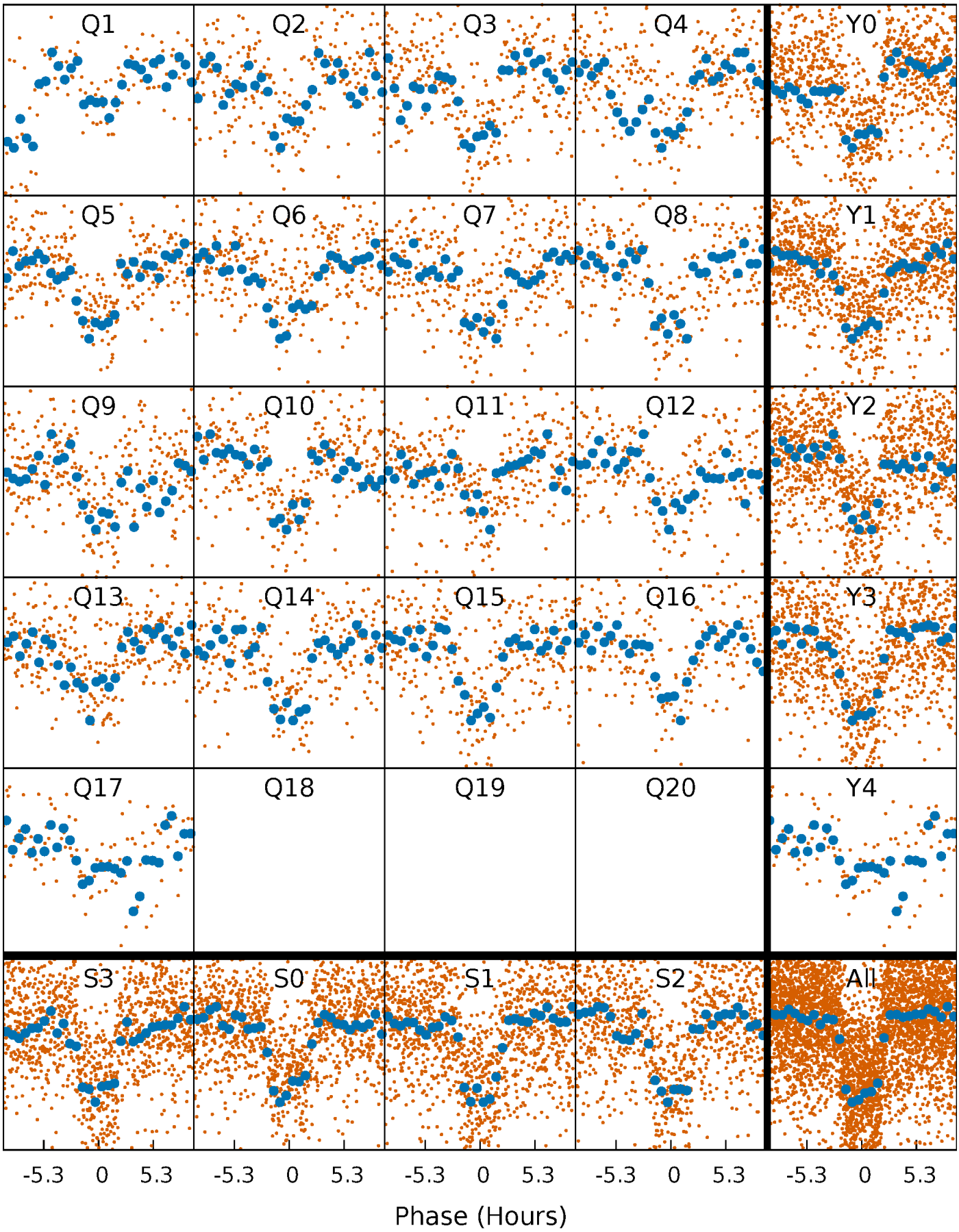
Non-Whitened Vs. Whitened Light Curve





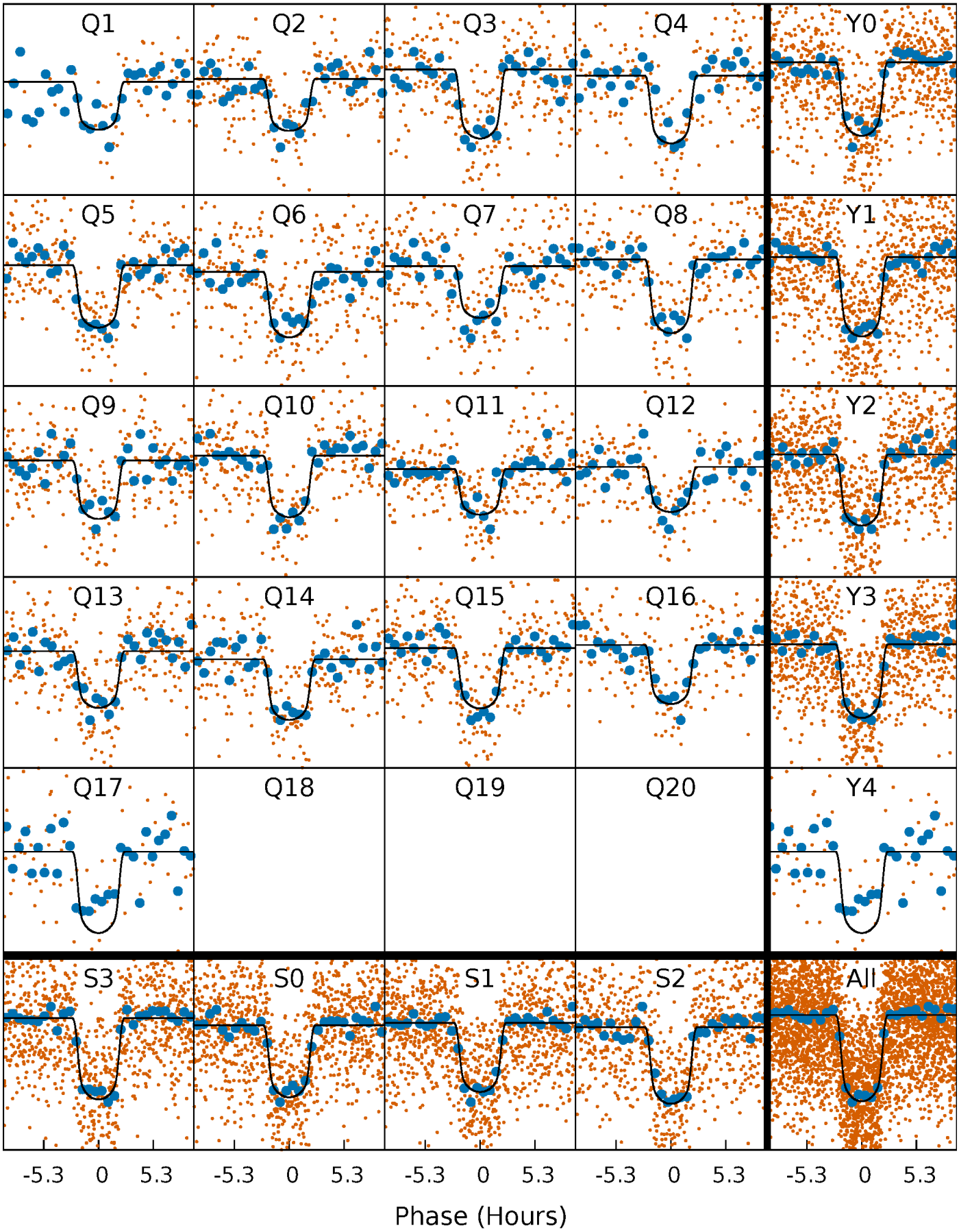
PDC Quarter-Phased Transit Curves

TCE 006541920-06 P= 10.304027 Days T_0=138.501918 (BKJD)



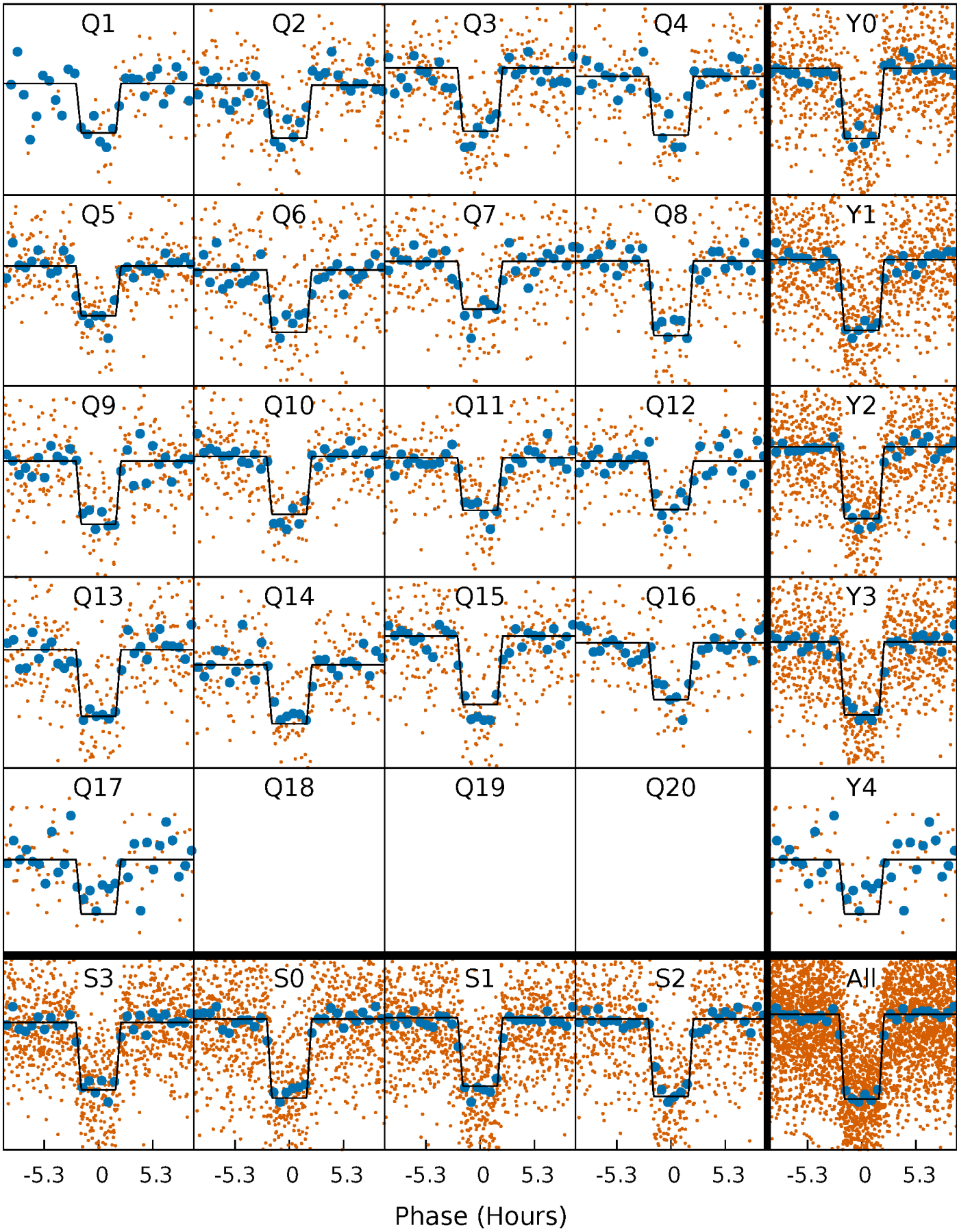
DV Quarter-Phased Transit Curves

TCE 006541920-06 P= 10.304027 Days T_0=138.501918 (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

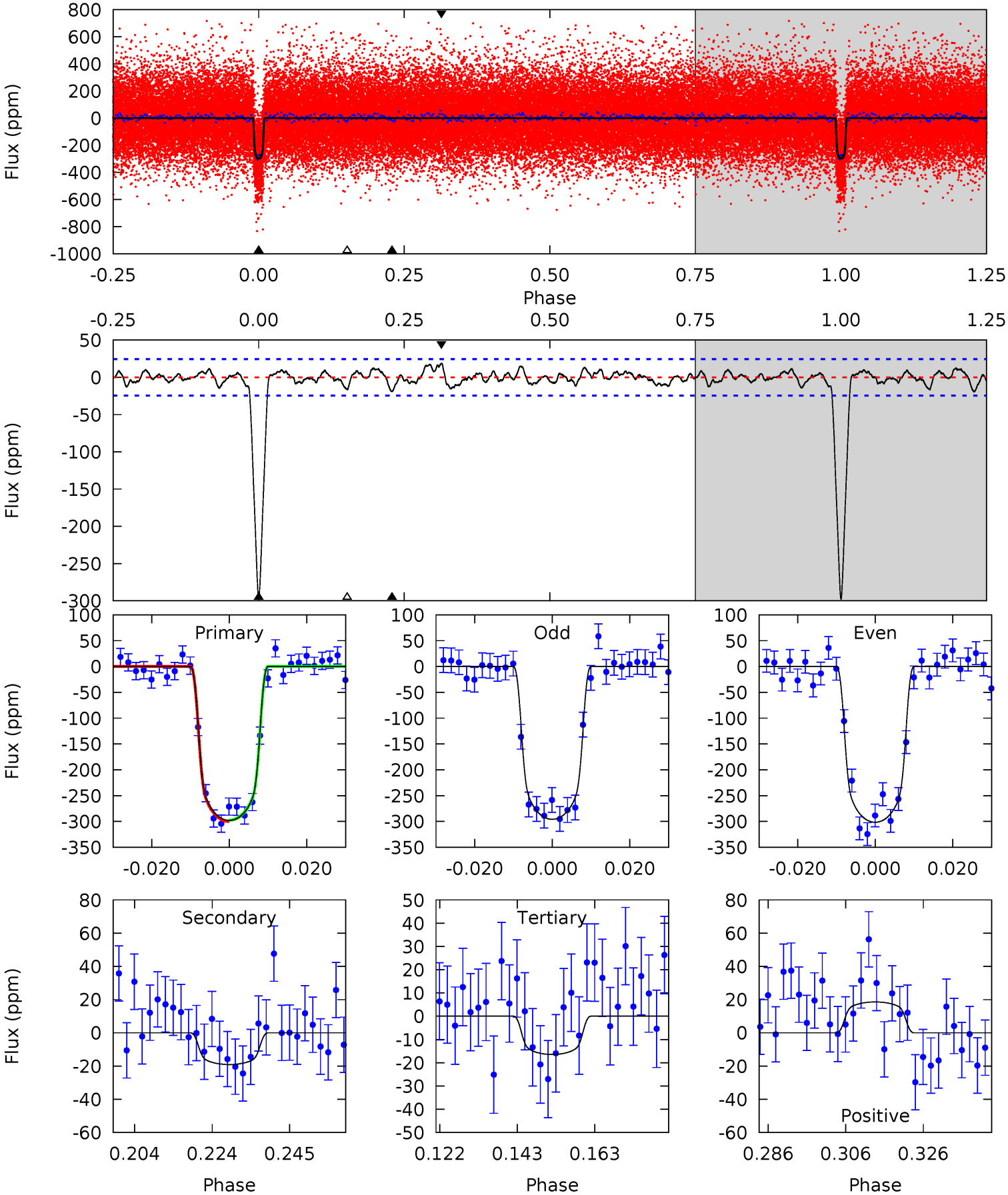
TCE 006541920-06 P= 10.303882 Days T_0=138.512048 (BKJD)



DV Model-Shift Uniqueness Test

006541920-06, P = 10.304027 Days, E = 128.197891 Days

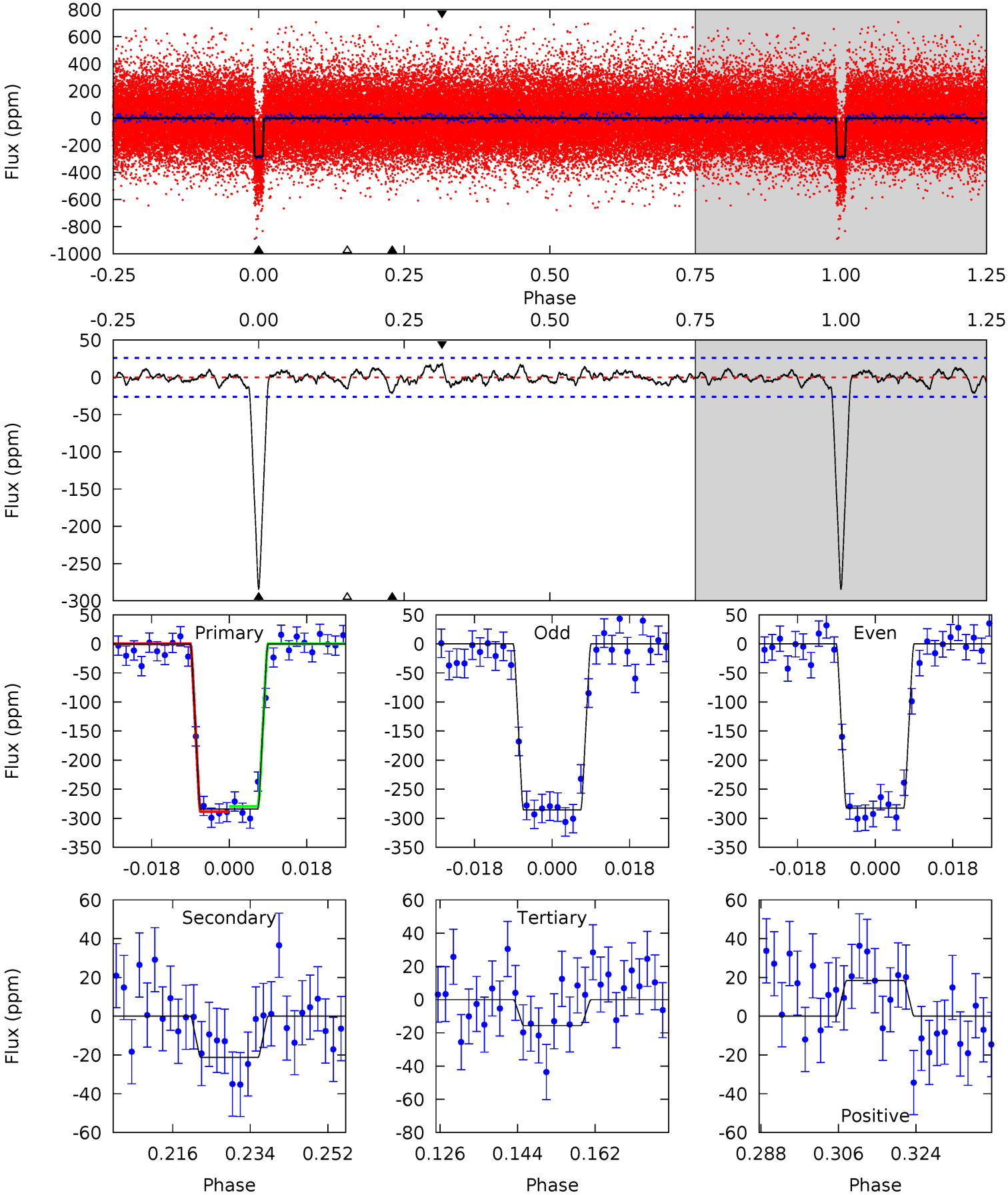
Pri	Sec	Ter	Pos	FA_1	FA_2	F_{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
59.4	3.80	3.28	3.71	4.89	2.32	1.32	56.1	55.7	0.52	0.10	0.57	0.97	0.06	0.26



Alt Model-Shift Uniqueness Test

006541920-06, P = 10.303882 Days, E = 128.208166 Days

Pri	Sec	Ter	Pos	FA_1	FA_2	F_{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
53.4	4.01	2.95	3.46	4.91	2.37	1.16	50.5	50.0	1.06	0.55	0.30	0.98	0.06	0.81



Stellar Parameters For KIC 006541920

	$T_{\rm eff}(K)$	$\log(g)$	[Fe/H]	R ($R_\odot$)	$M(M_\odot)$	$p_\star$ (g·cm^{-3})
	5657^{+113}_{-101}	$4.364^{+0.055}_{-0.045}$	$0.000^{+0.150}_{-0.150}$	$1.046^{+0.068}_{-0.068}$	$0.921^{+0.071}_{-0.052}$	$1.134^{+0.239}_{-0.165}$
	+2%/-2%	+1%/-1%	+inf%/-inf%	+7%/-7%	+8%/-6%	+21%/-15%
Source	SPE25	TRA25	SPE25	DSEP		

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

Secondary Eclipse Parameters for KIC 006541920-06 / KOI 0157.06

Detrend	Depth (ppm)	R_p ($R_\oplus$)	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-19±5	$2.21^{+0.14}_{-0.15}$	1185^{+30}_{-31}	3254^{+140}_{-147}	18^{+5}_{-5}
Alt.	-21±5	$1.93^{+0.13}_{-0.14}$	1188^{+28}_{-29}	3445^{+138}_{-166}	25^{+8}_{-7}

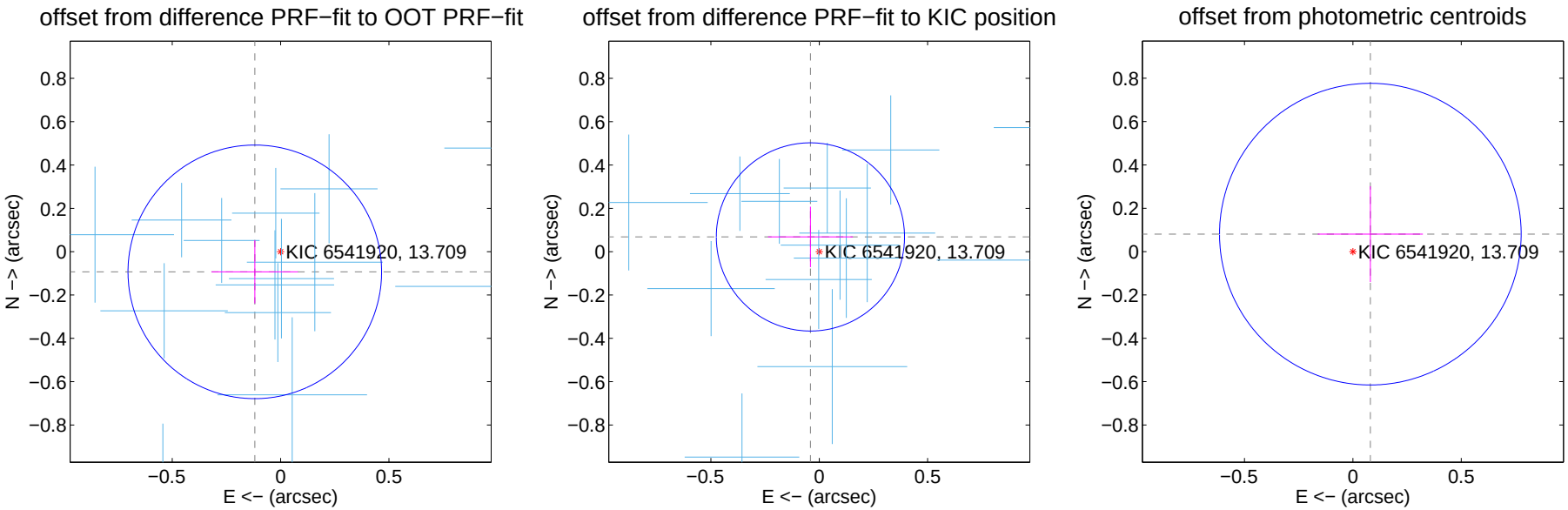
T_{max} = Theoretical Maximum Planetary Temperature
T_{obs} = Observed Planetary Temperature (Assuming A=0.3)
A_{obs} = Observed Albedo (Assuming T=0)

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

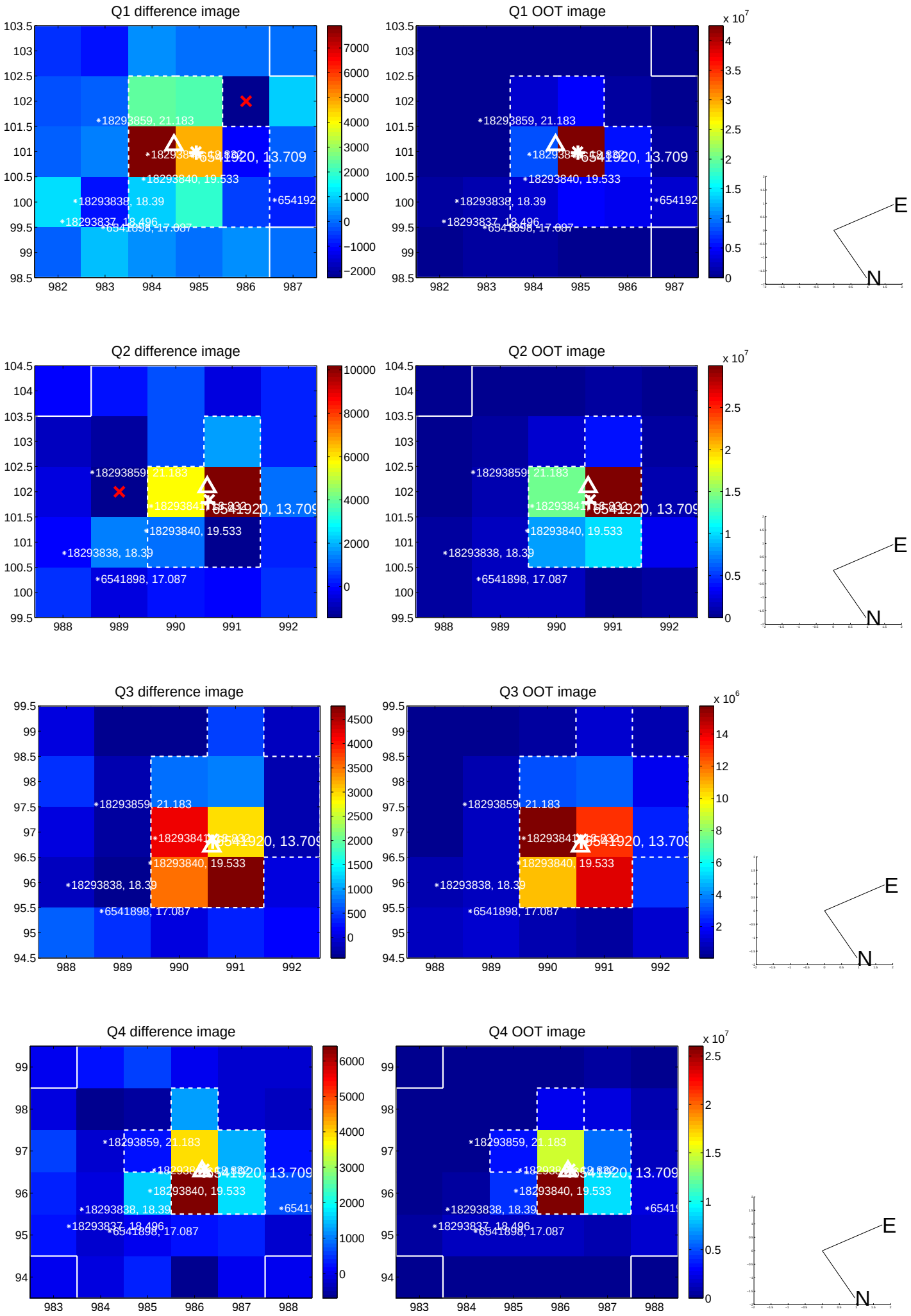
Supplemental centroid analysis for 006541920-06. Kepler magnitude: 13.71. Transit SNR 44.04
There are 17 quarters with good PRF difference image offsets
The direct PRF centroid is offset from the target star catalog position by about 0.12 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.151 ± 0.195	0.77	0.119 ± 0.199	-0.093 ± 0.146
PRF-fit source offset from KIC position	0.079 ± 0.145	0.55	0.041 ± 0.196	0.068 ± 0.139
photometric centroid source offset	0.11 ± 0.23	0.49	-0.08 ± 0.24	0.08 ± 0.22

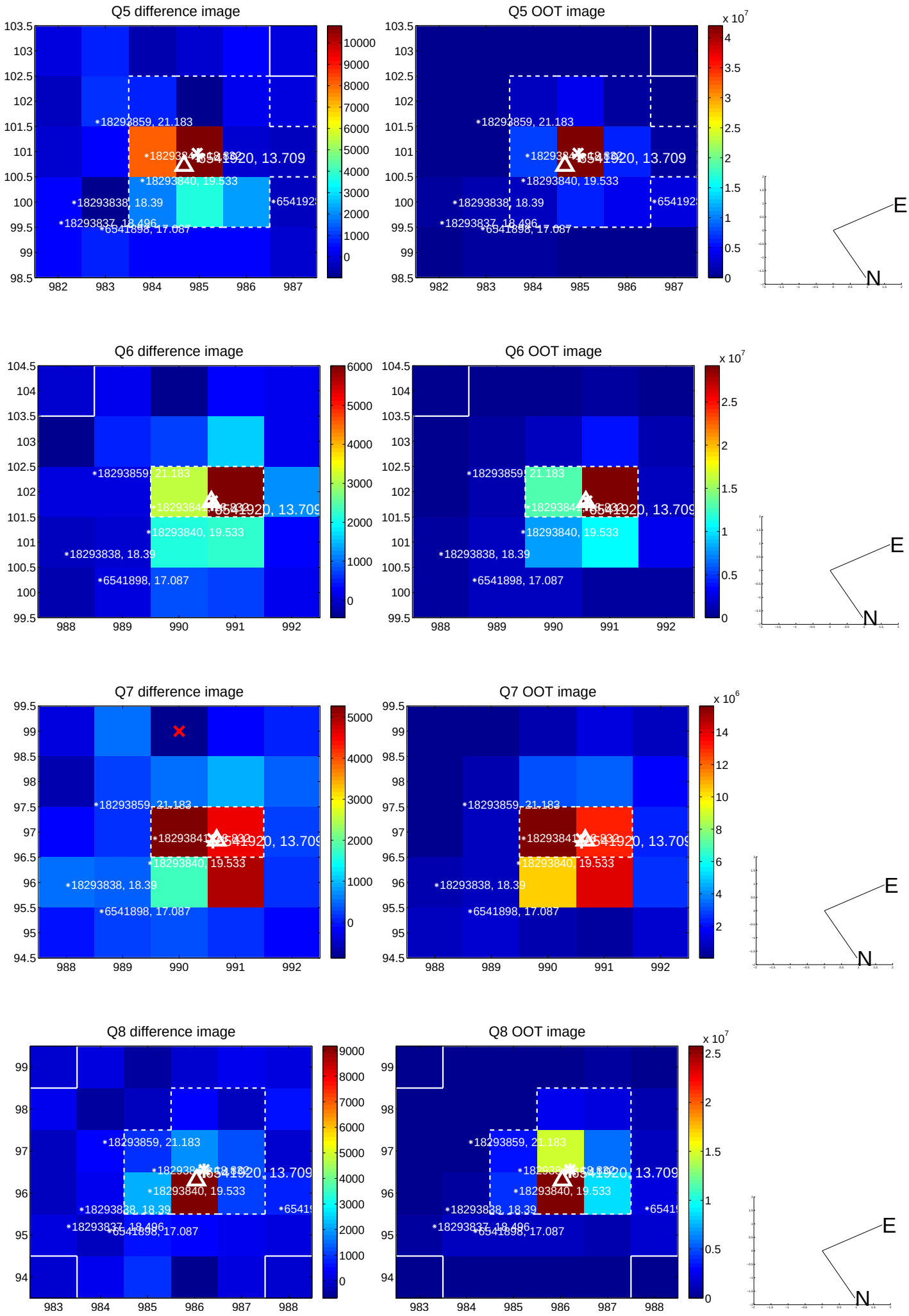


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one-σ uncertainty. Blue circle: three-σ. Red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

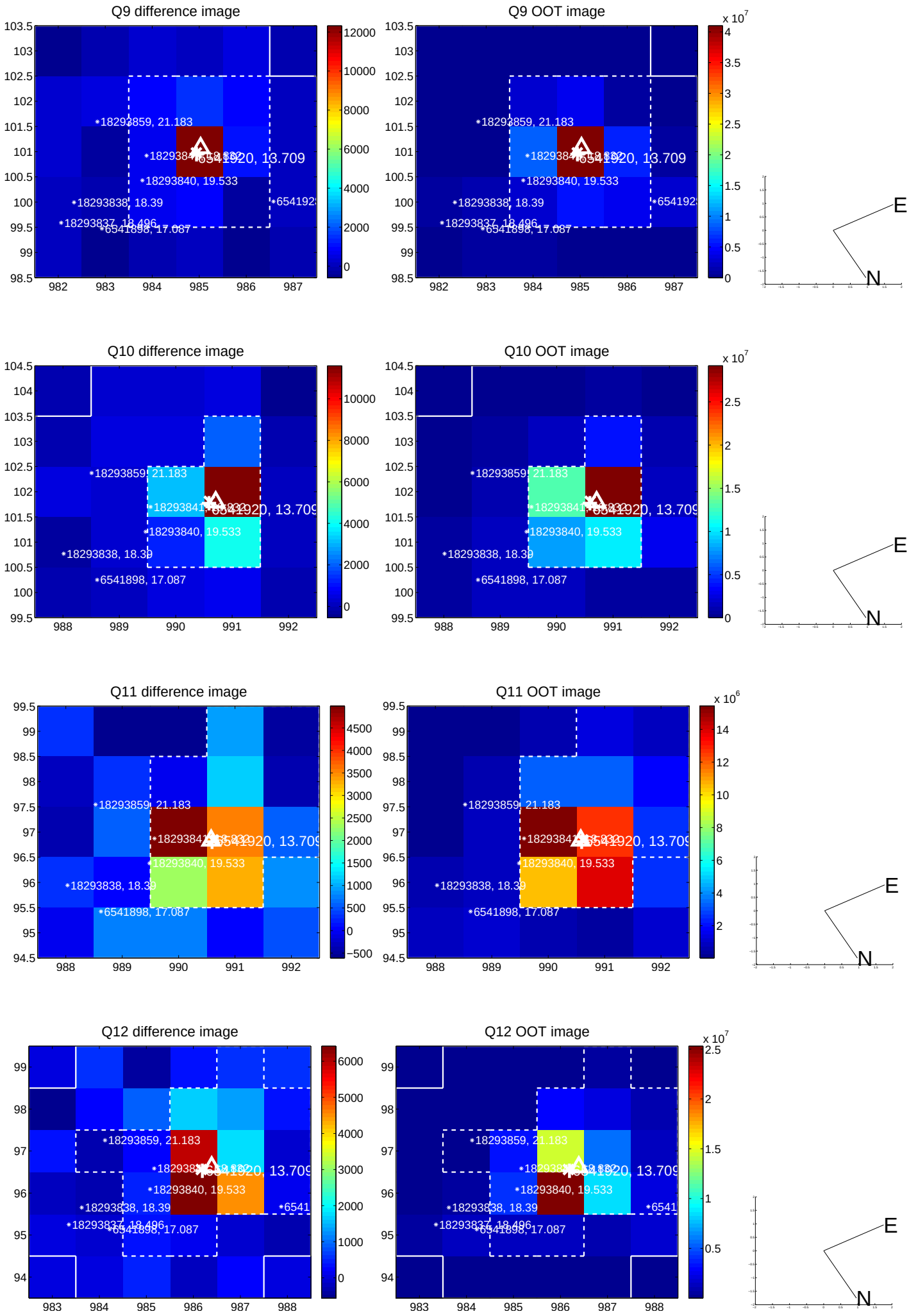
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.



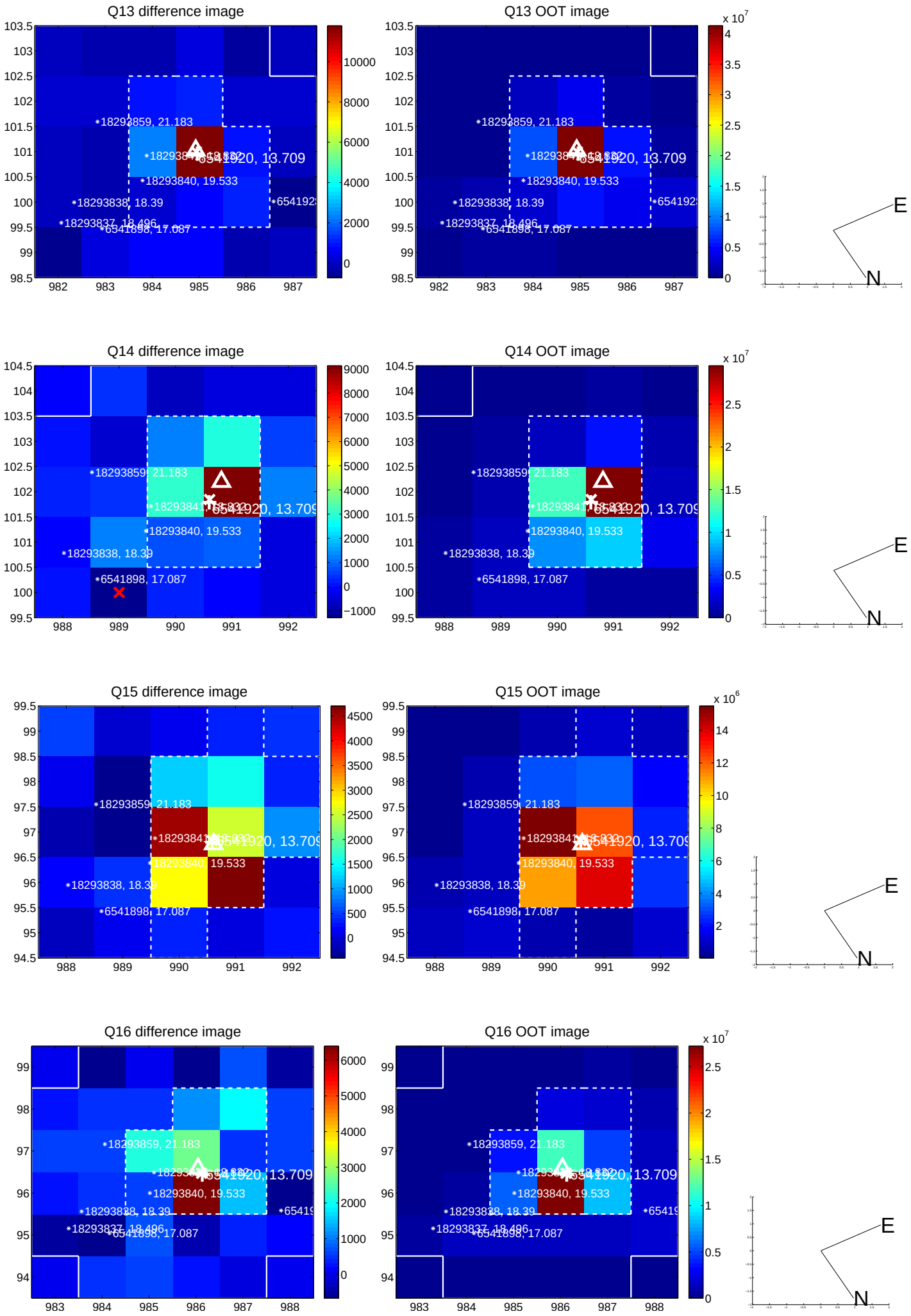
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.



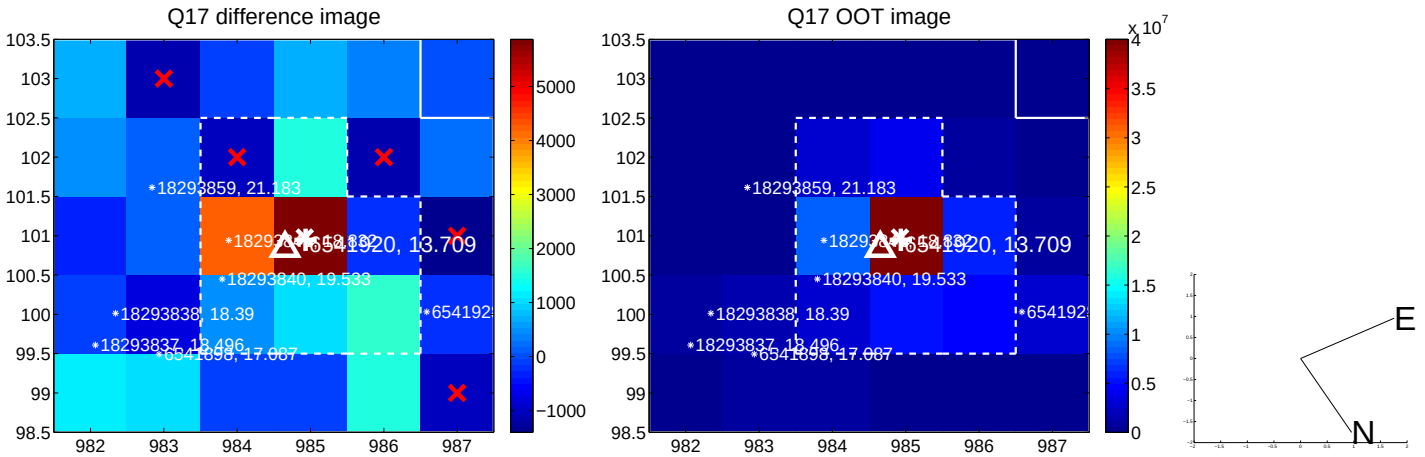
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.

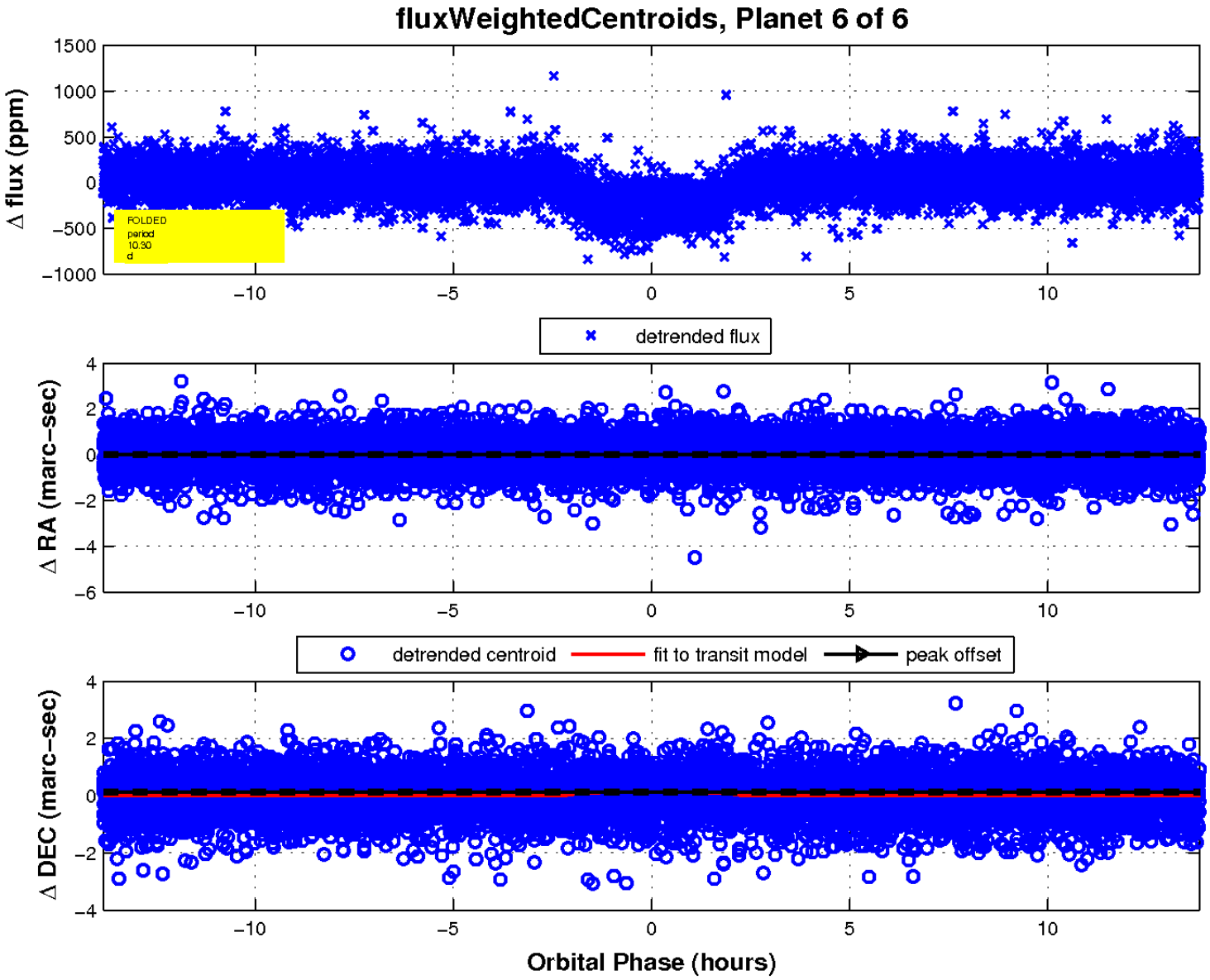


white ×: KIC target position; +: OOT centroid; △: difference centroid. red ✕: large negative pixel value.

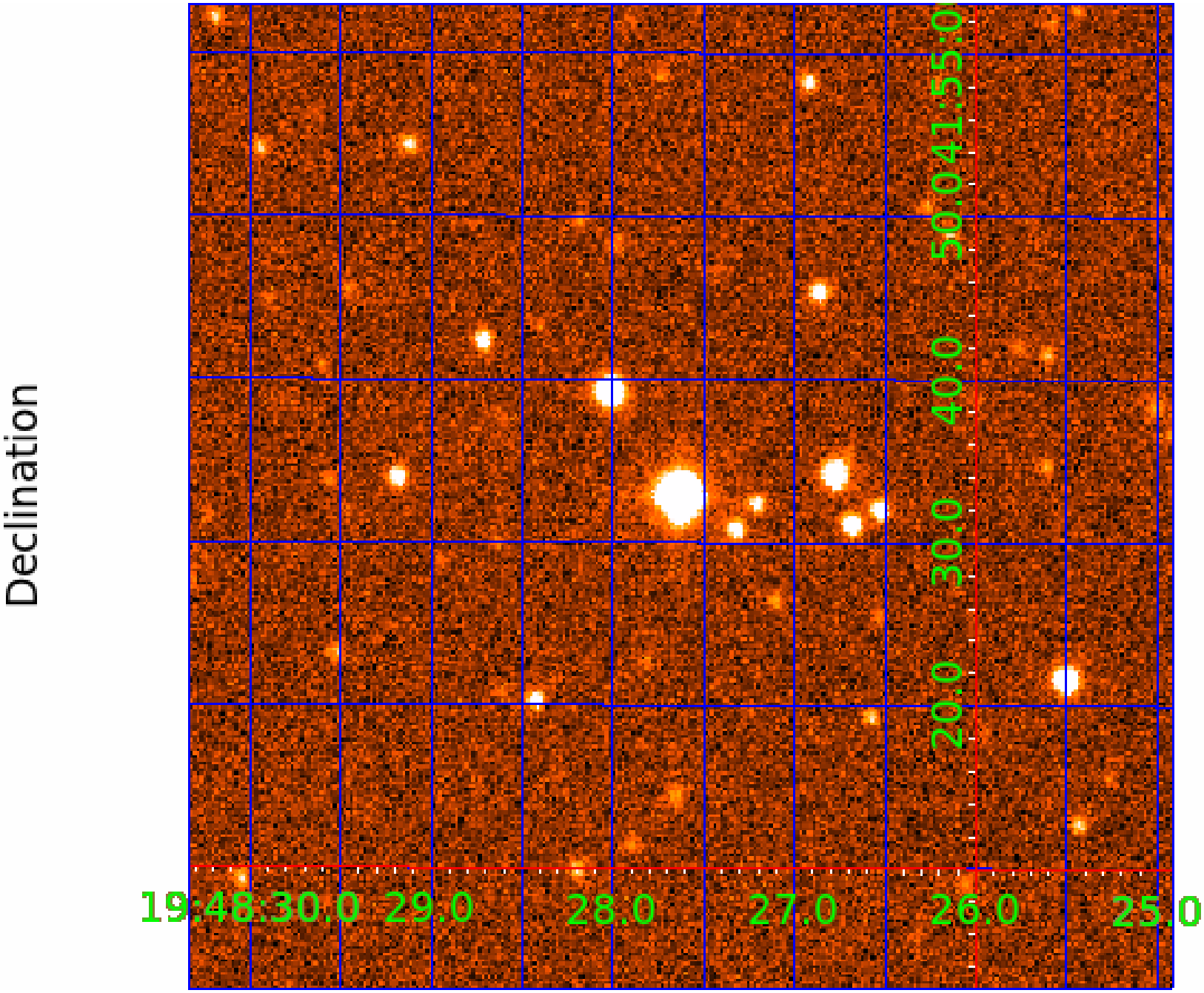


white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.





UKIRT Image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