KIC 006520753

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 ($S_\oplus$)
006520753-01	OBS	4504.01	4.130353	133.517664	312.3	2.821	10.8	11.3	0.81	5490	1.74	232.02
006520753-02	OBS	4504.02	8.119274	135.190026	343.3	3.856	9.5	9.7	0.81	5490	1.80	94.22

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
006520753-01	OBS	PC	0.99	0	0	0	0	CENT_KIC_POS
006520753-02	OBS	PC	0.81	0	0	0	0	CENT_FEW_DIFFS

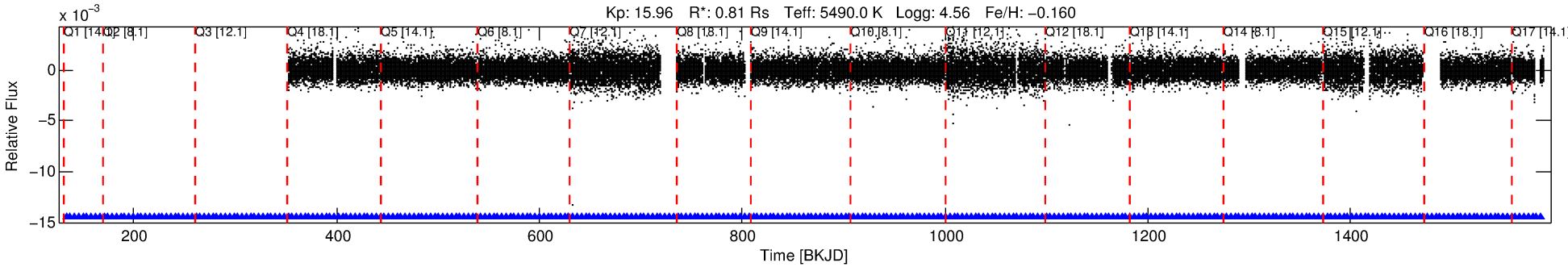
Notes: OBS = Observed. INJ = Injected. INV = Inverted. SCR = Scrambled.
N = Not Transit-Like. S = Stellar Eclipse. C = Centroid Offset. E = Ephemeris Match.
See `http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col` for comment definitions.

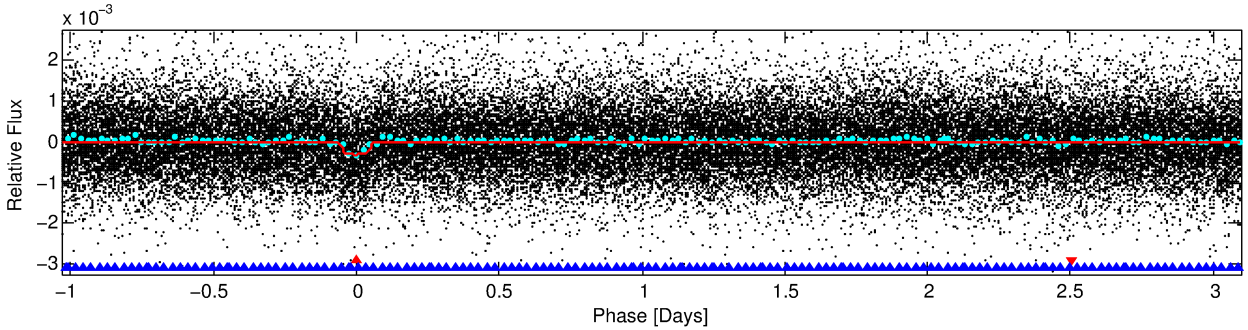
Ephemeris Match Information For 006520753-01

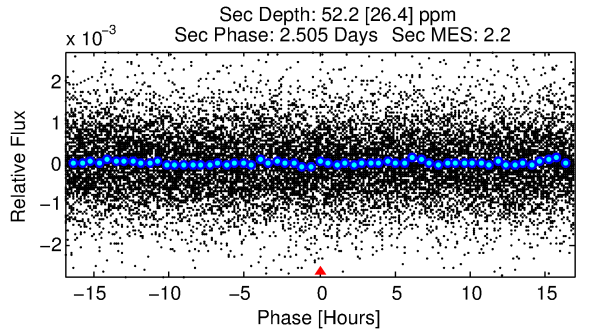
No Significant Match Found

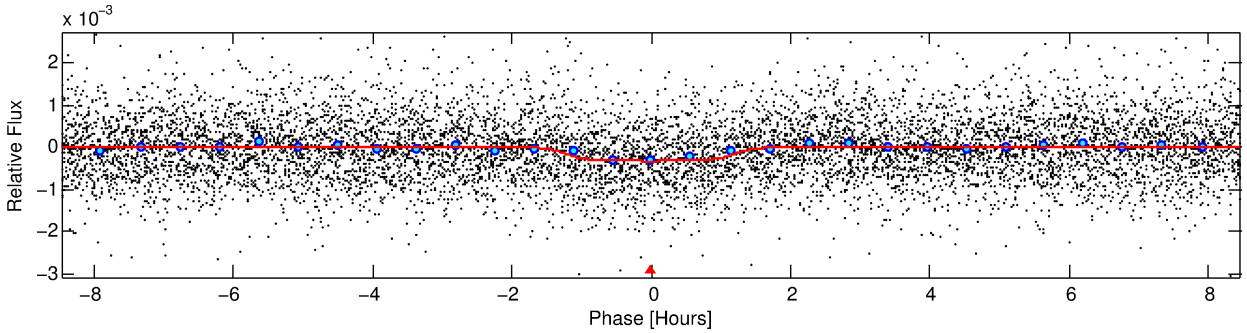
DV One-Page Summary

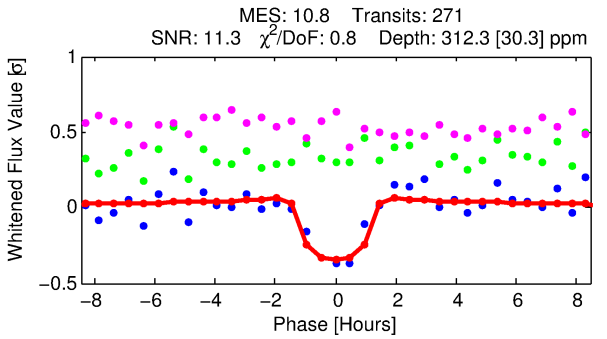
KIC: 6520753 Candidate: 1 of 2 Period: 4.130 d
KOI: K04504.01 Corr: 0.964

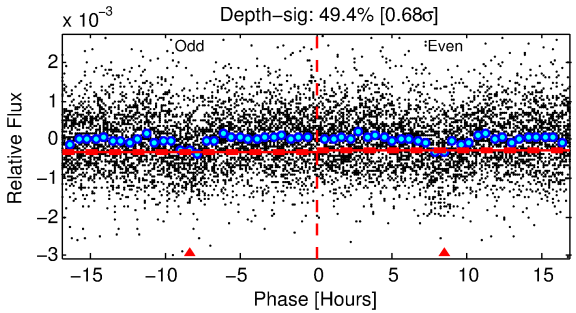


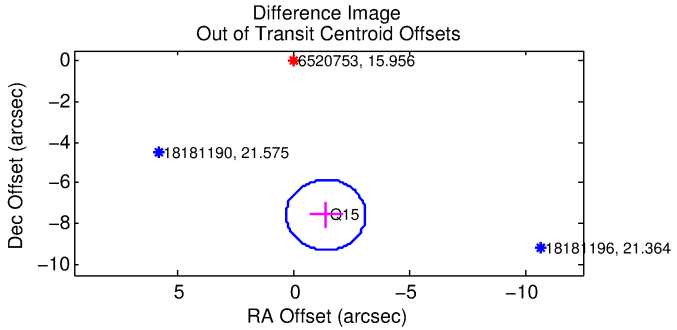












DV Fit Results:

Period = 4.13035 [0.00002] d
Epoch = 133.5177 [0.0038] BKJD
Rp/R* = 0.0197 [0.0062]
a/R* = 5.18 [7.00]
b = 0.91 [0.26]

Seff = 232.02 [70.72]
Teq = 995 [76] K
Rp = 1.74 [0.68] Re
a = 0.0480 [0.0091] AU

Ag = 21.90 [18.57] [1.13σ]
Teffp = 3328 [680] K [3.41σ]

DV Diagnostic Results:

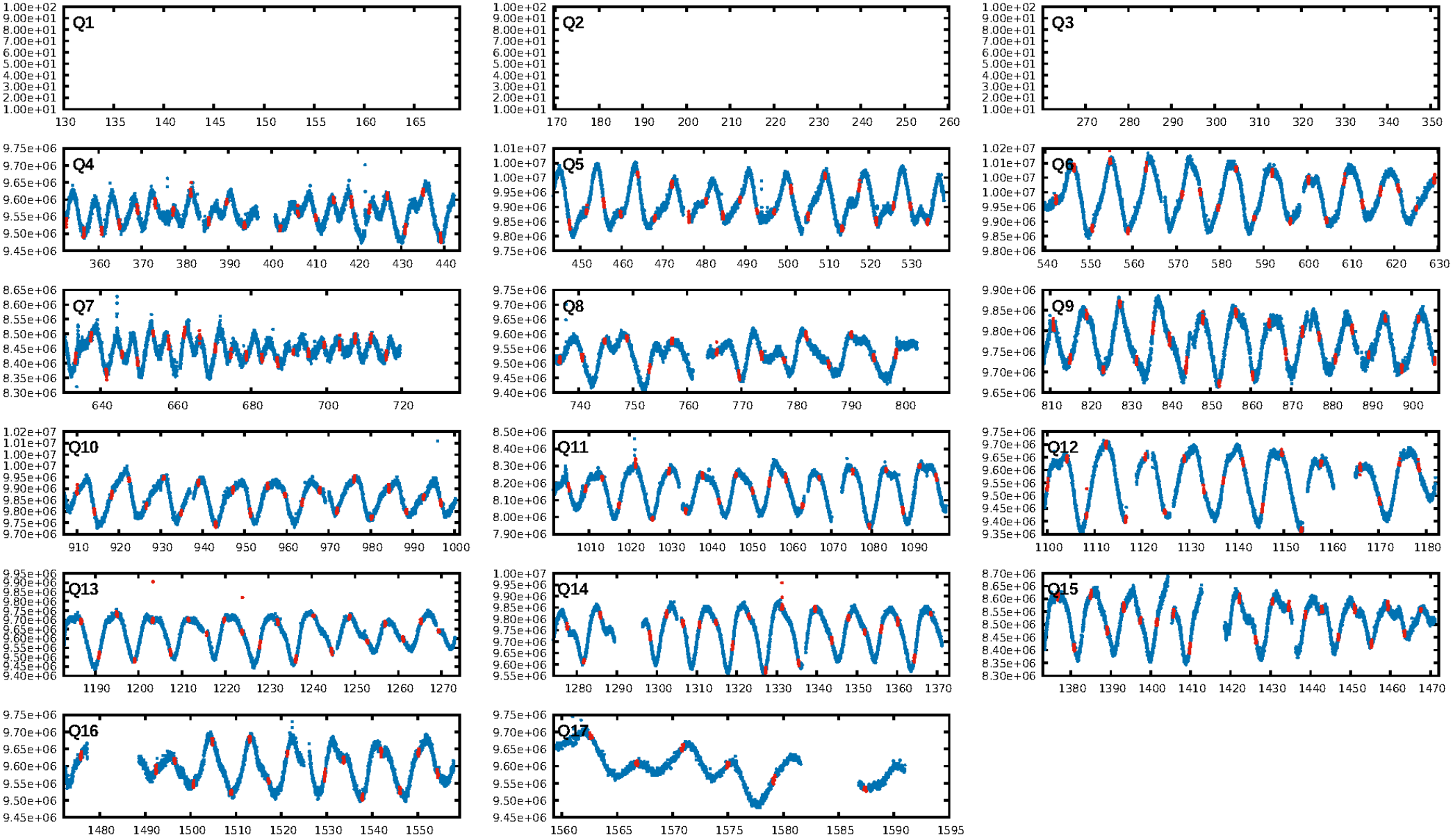
ShortPeriod−sig: N/A
LongPeriod−sig: 100.0% [20.04σ]
ModelChiSquare2−sig: N/A
ModelChiSquareGof−sig: N/A
Bootstrap−pfa: 9.37e−26
RollingBand−fgt: 1.00 [265/265]
GhostDiagnostic−chr: −8.509

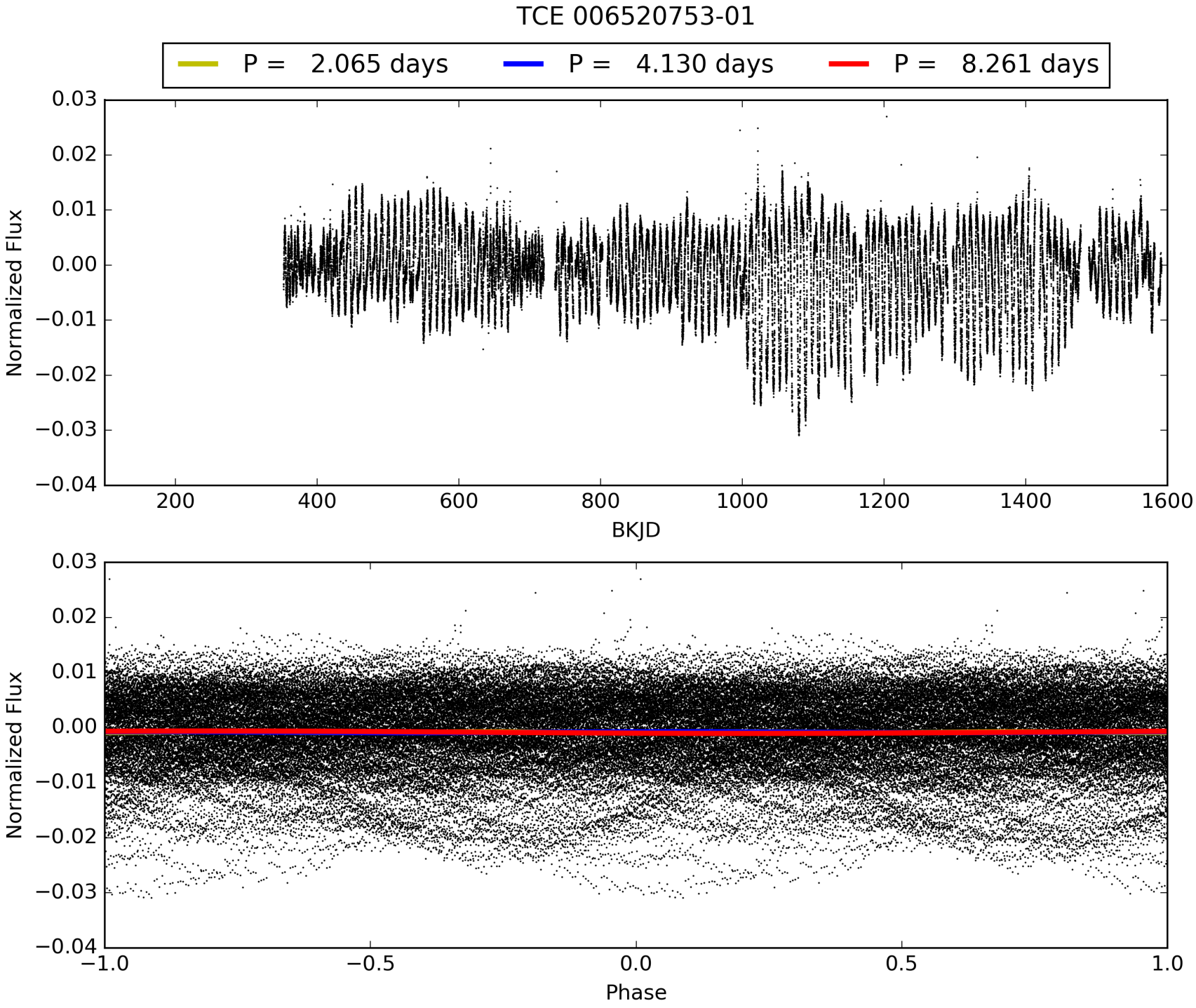
Centroid−sig: 0.0%
Centroid−so: 4.054 arcsec [11.32σ]
OotOffset−rm: 7.686 arcsec [13.40σ]
KicOffset−rm: 0.637 arcsec [1.03σ]
OotOffset−st: 0/1/0/0 [1]
KicOffset−st: 3/1/3/2 [9]
DiffImageQuality−fgm: 0.44 [4/9]
DiffImageOverlap−fno: 1.00 [14/14]

Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 −− Date Generated: 29−Jan−2016 12:56:13 Z

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

TCE 006520753-01, PDC Light Curves

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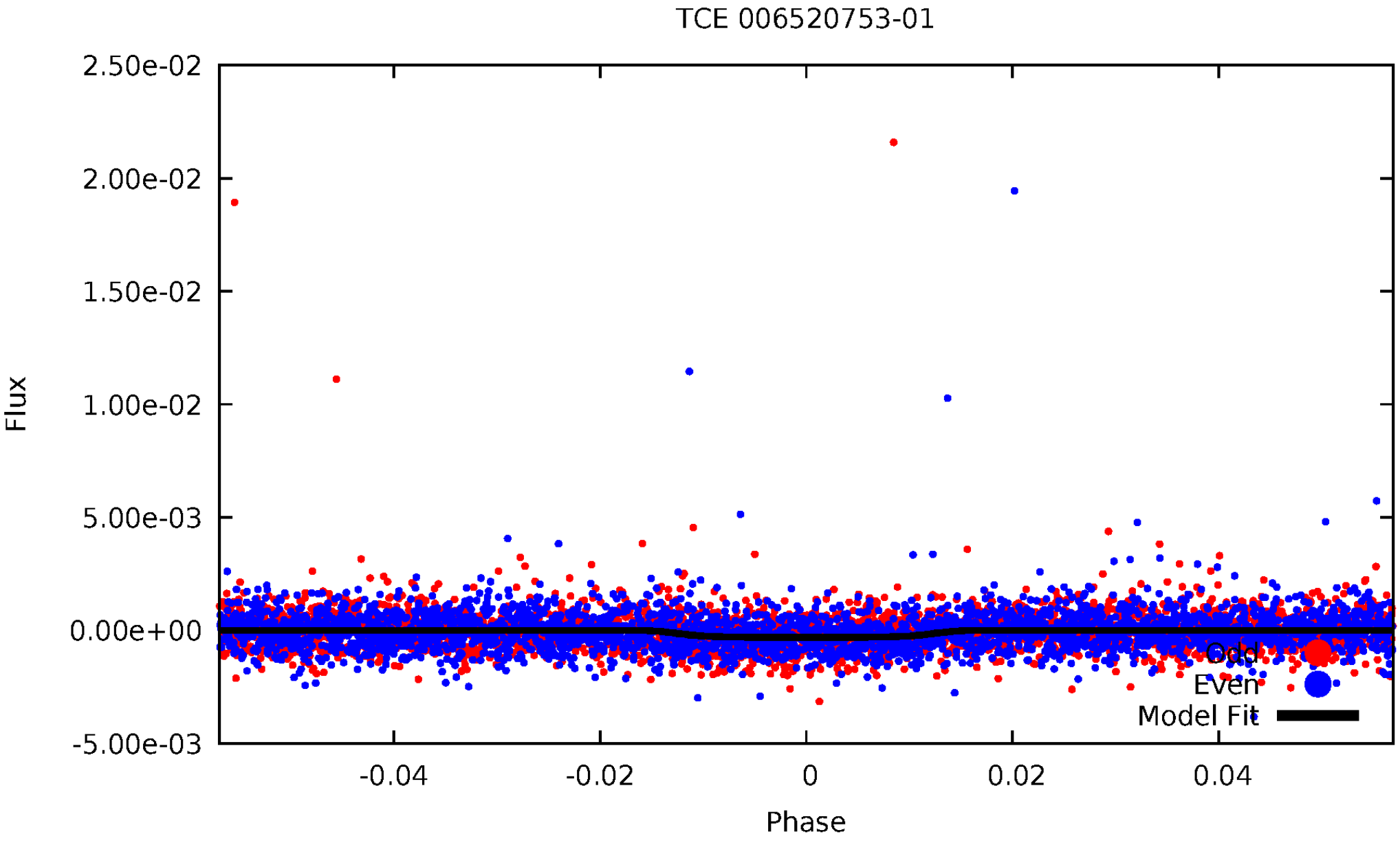
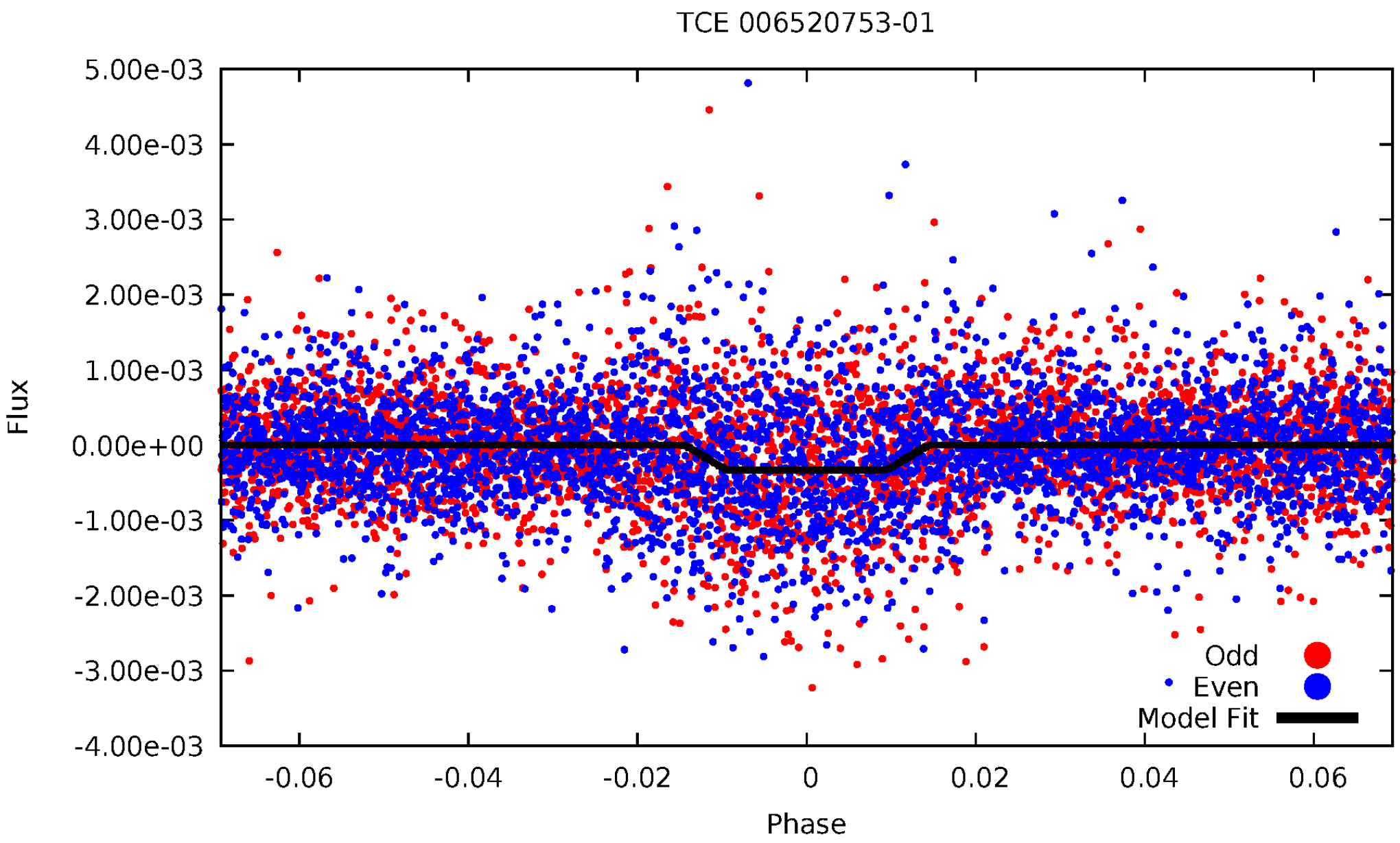
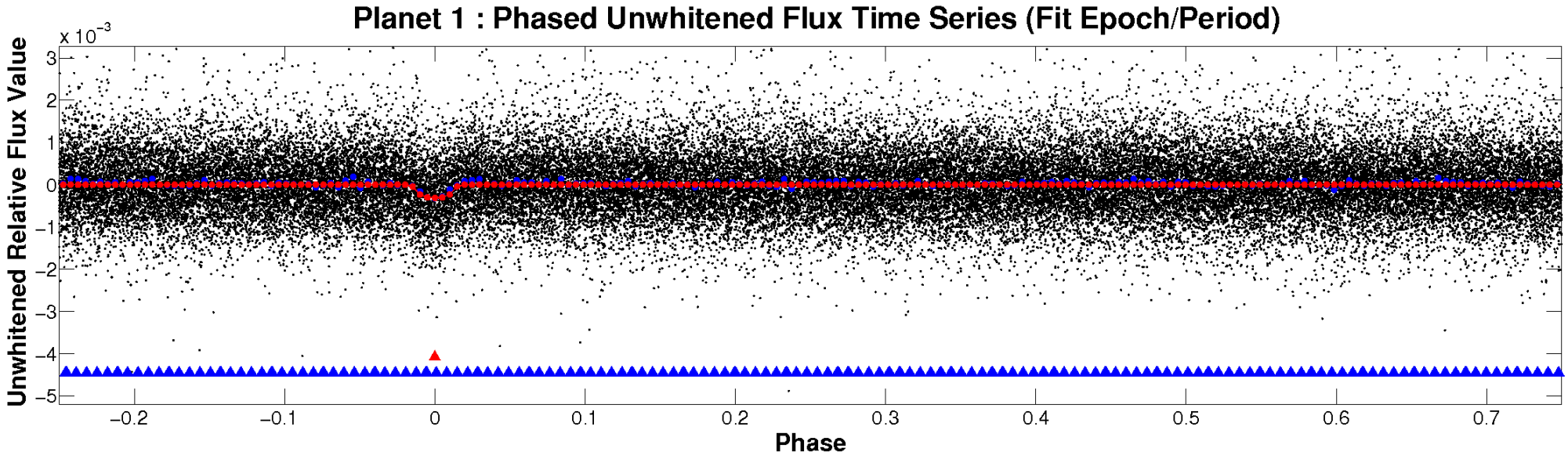
P = 2.065 days
P = 4.130 days
P = 8.261 days
Normalized Flux
BKJD
Normalized Flux
Phase

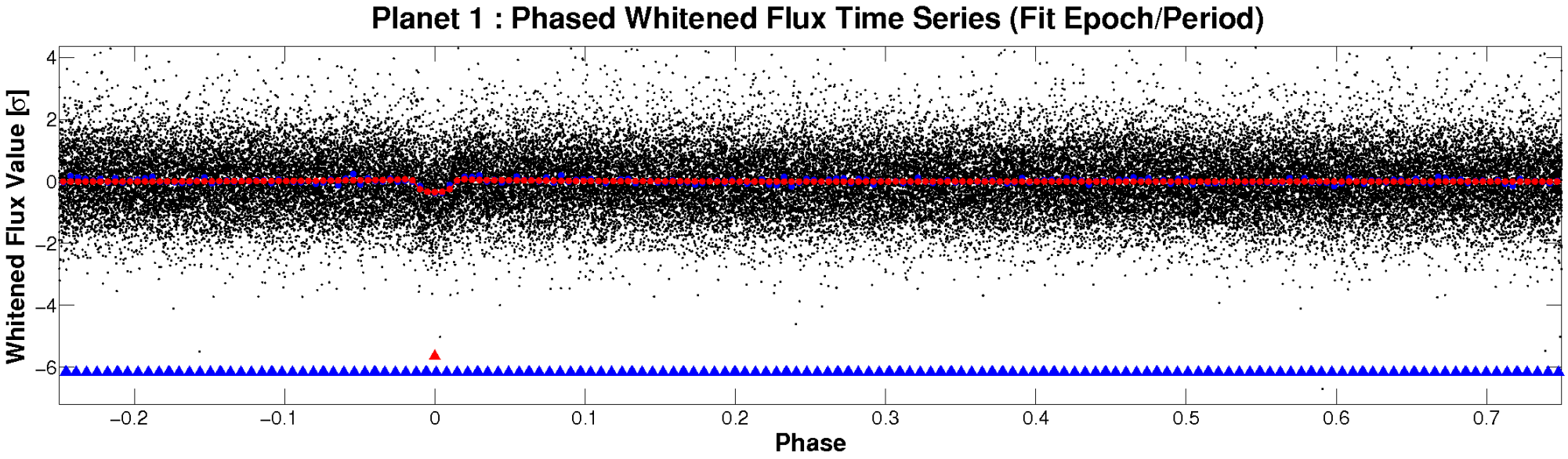
DV Odd/Even


TCE 006520753-01
2.50e-02
2.00e-02
1.50e-02
1.00e-02
5.00e-03
0.00e+00
-5.00e-03
Flux
-0.04
-0.02
0
0.02
0.04
Phase
Odd
Even
Model Fit


ALT Odd/Even
TCE 006520753-01
5.00e-03
4.00e-03
3.00e-03
2.00e-03
1.00e-03
0.00e+00
-1.00e-03
-2.00e-03
-3.00e-03
-4.00e-03
Flux
-0.06
-0.04
-0.02
0
0.02
0.04
0.06
Phase
Odd
Even
Model Fit

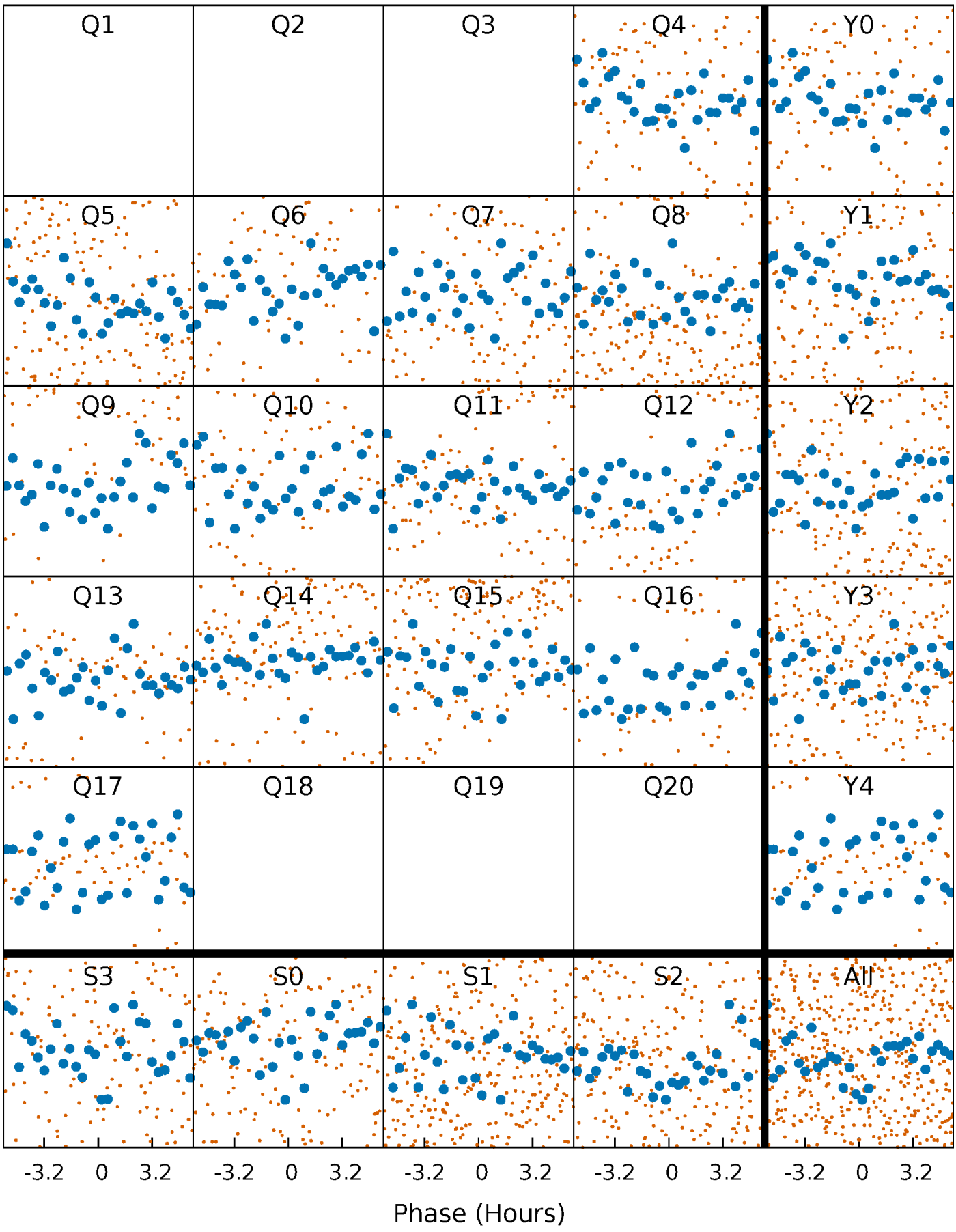
Non-Whitened Vs. Whitened Light Curve





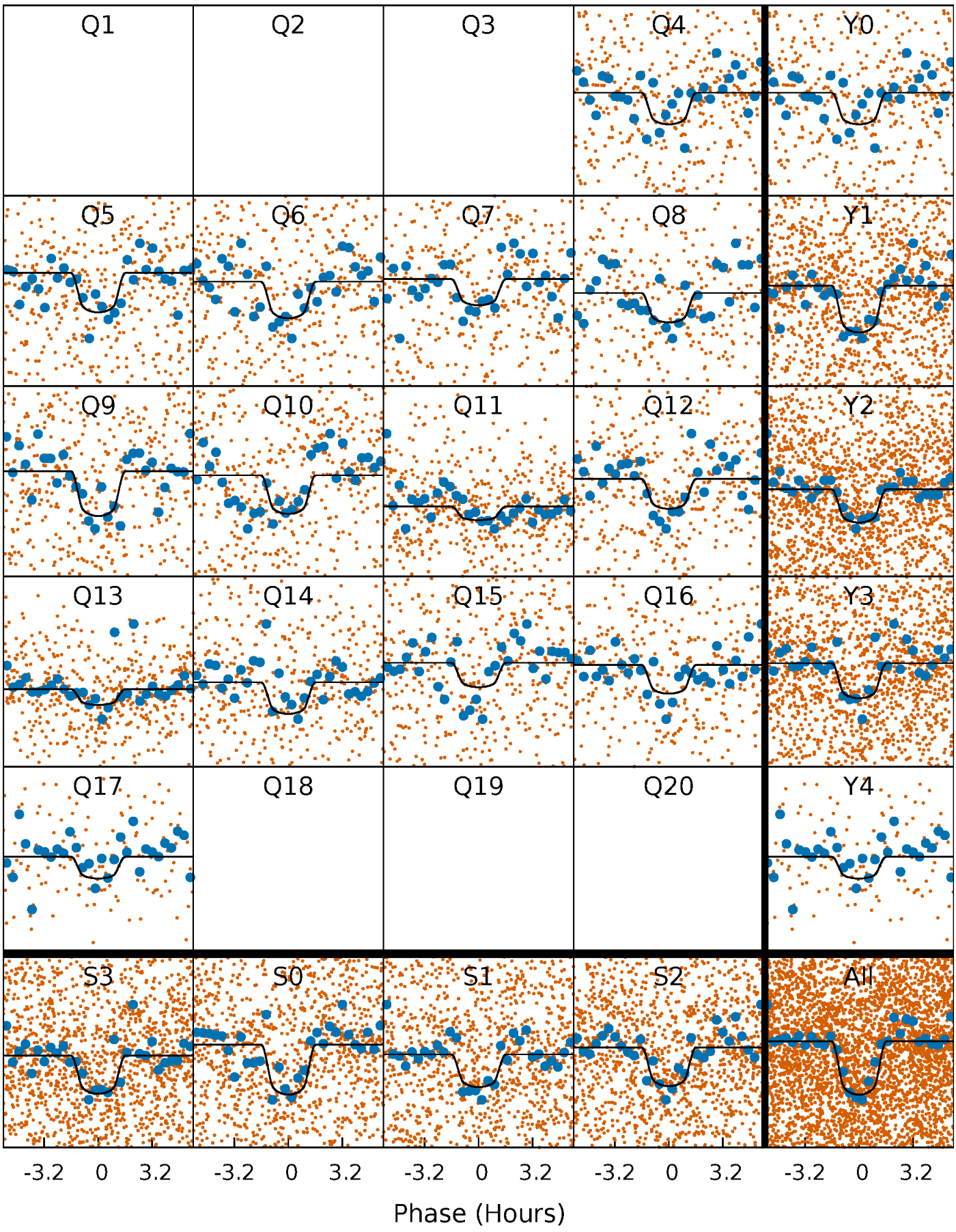
PDC Quarter-Phased Transit Curves

TCE 006520753-01 P= 4.130353 Days T_0=133.517664 (BKJD)



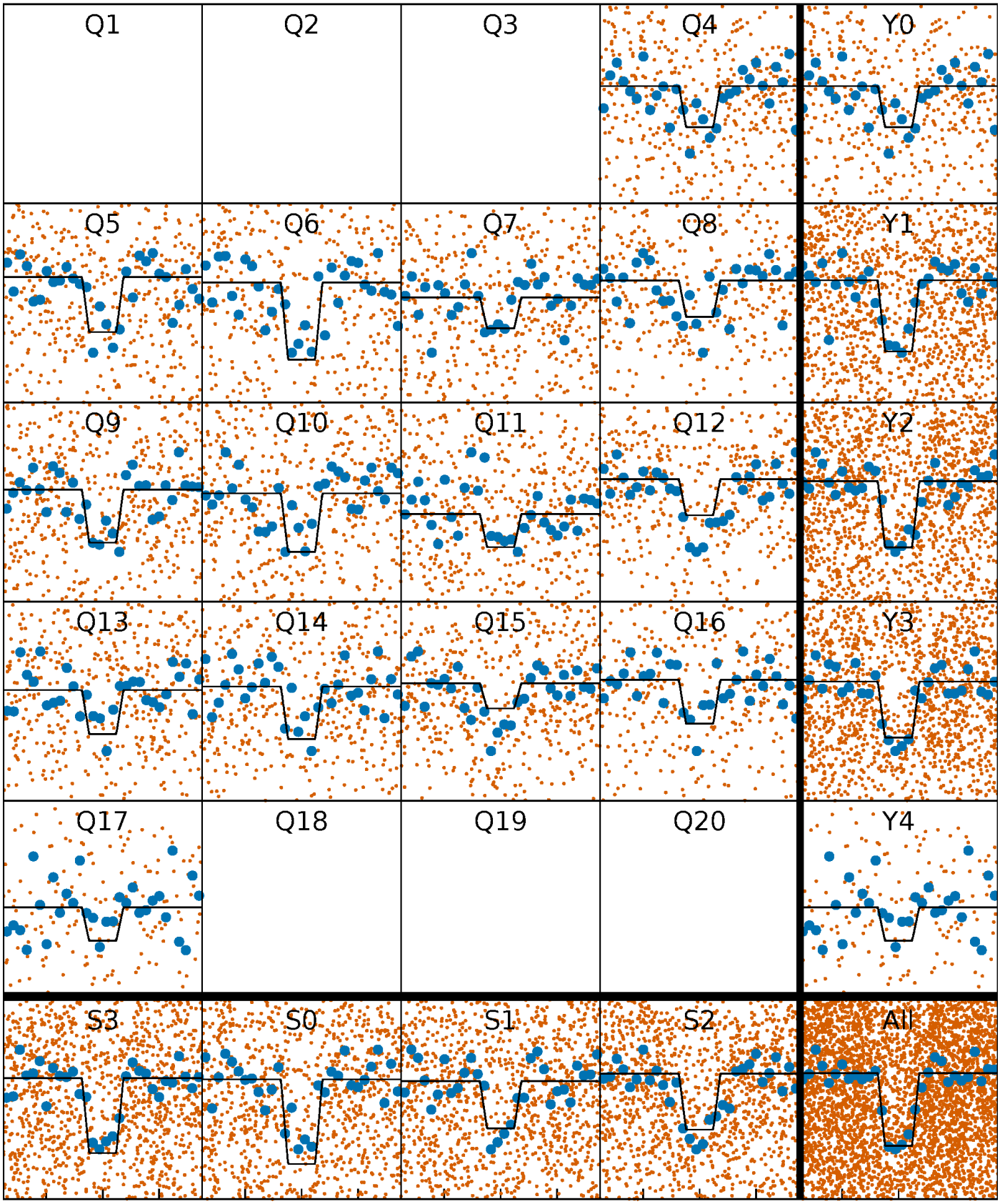
DV Quarter-Phased Transit Curves

TCE 006520753-01 P= 4.130353 Days T_0=133.517664 (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

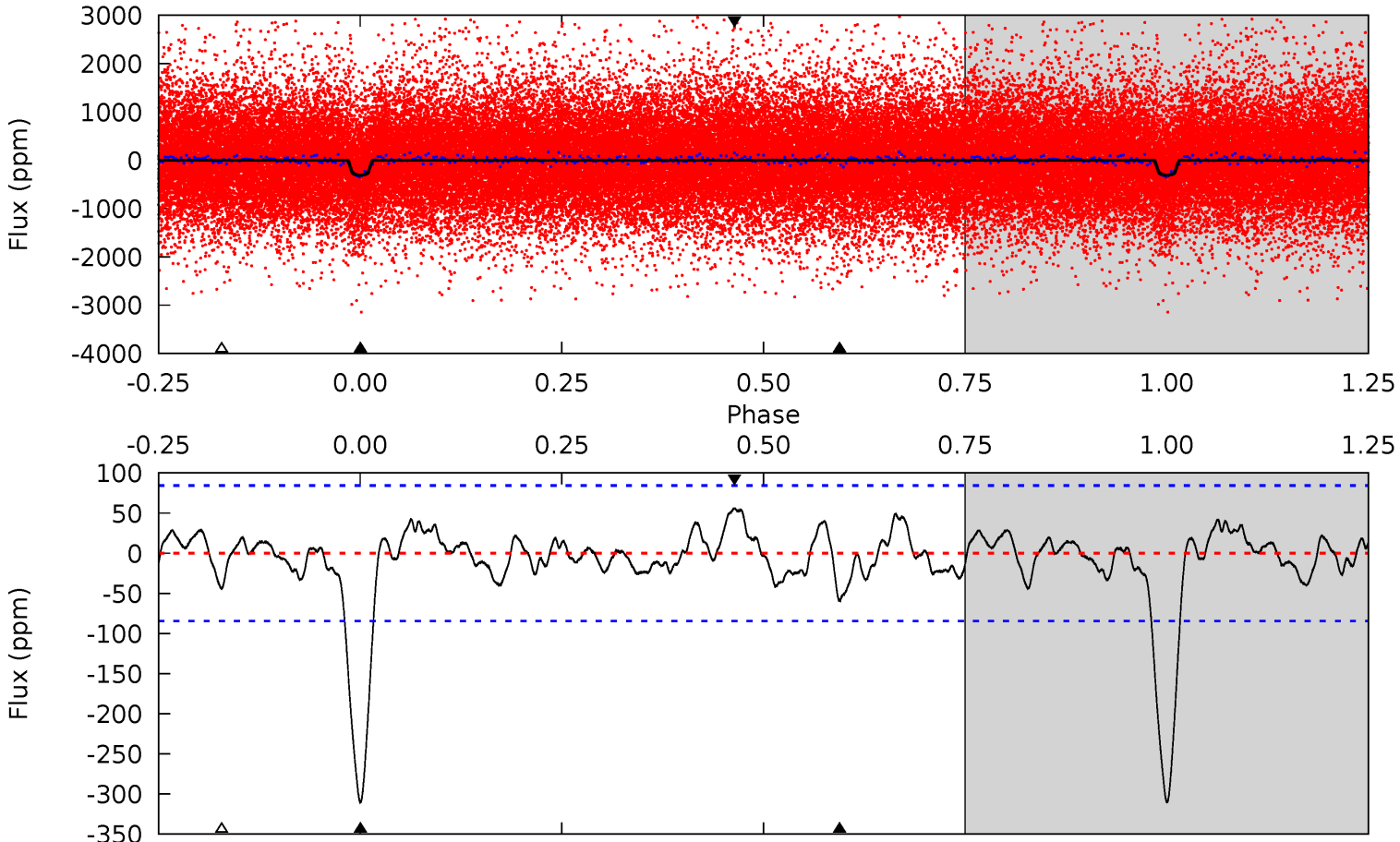
TCE 006520753-01 P= 4.130352 Days T_0=133.520421 (BKJD)

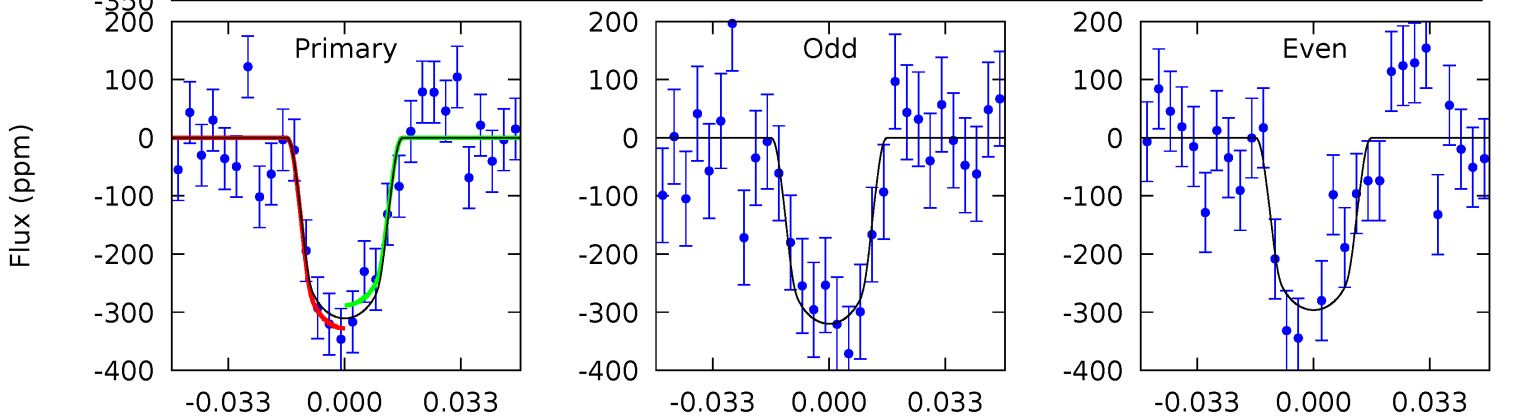


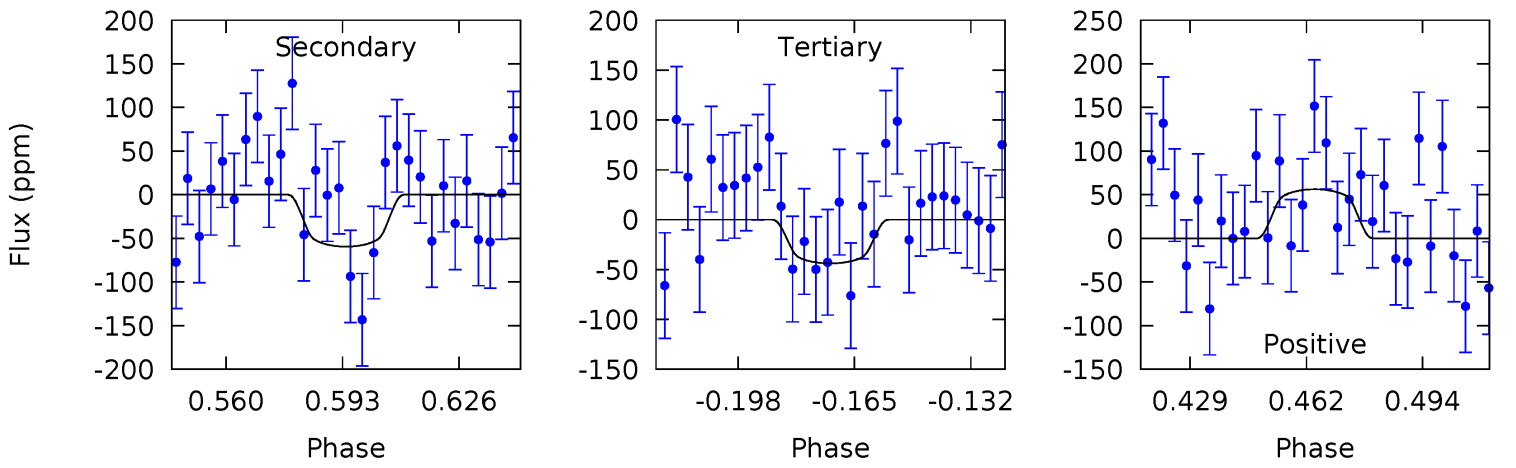
DV Model-Shift Uniqueness Test

006520753-01, P = 4.130353 Days, E = 133.517664 Days

Pri	Sec	Ter	Pos	FA_1	FA_2	F_{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
17.6	3.38	2.49	3.20	4.79	2.13	1.20	15.1	14.4	0.89	0.19	0.67	0.94	0.15	1.13



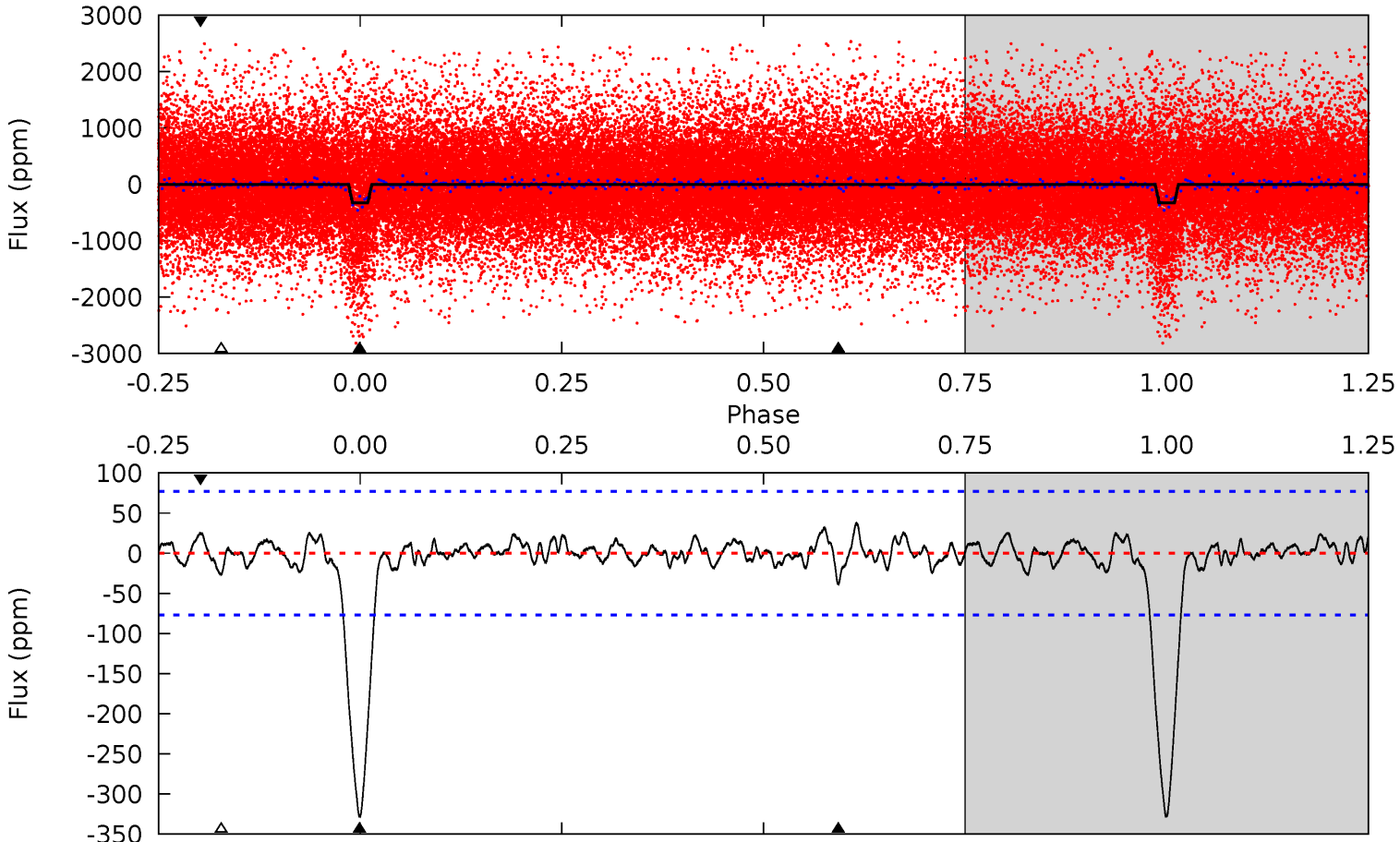


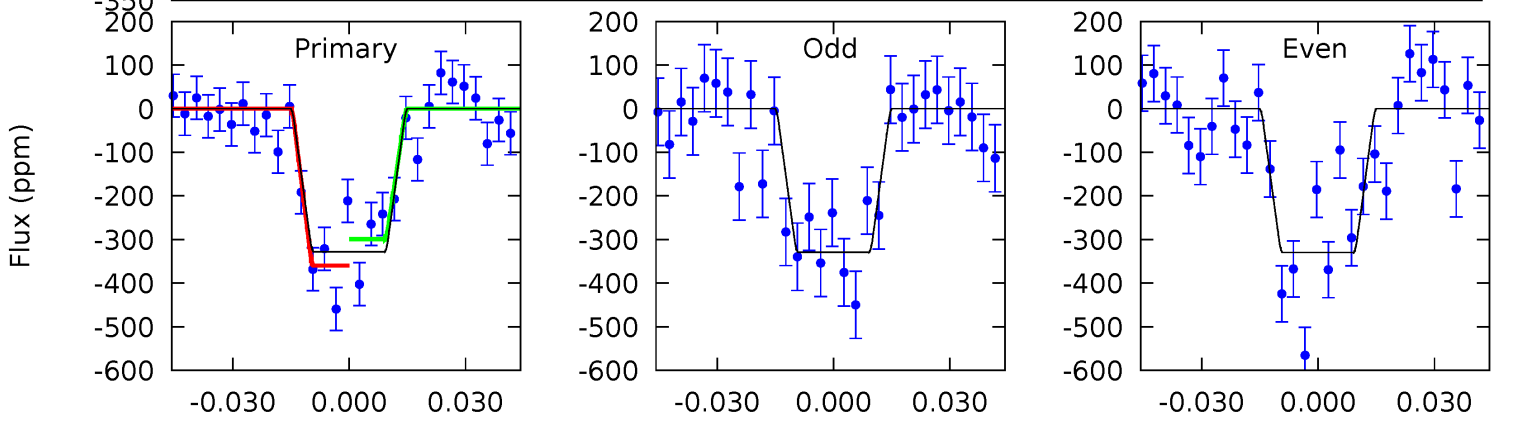


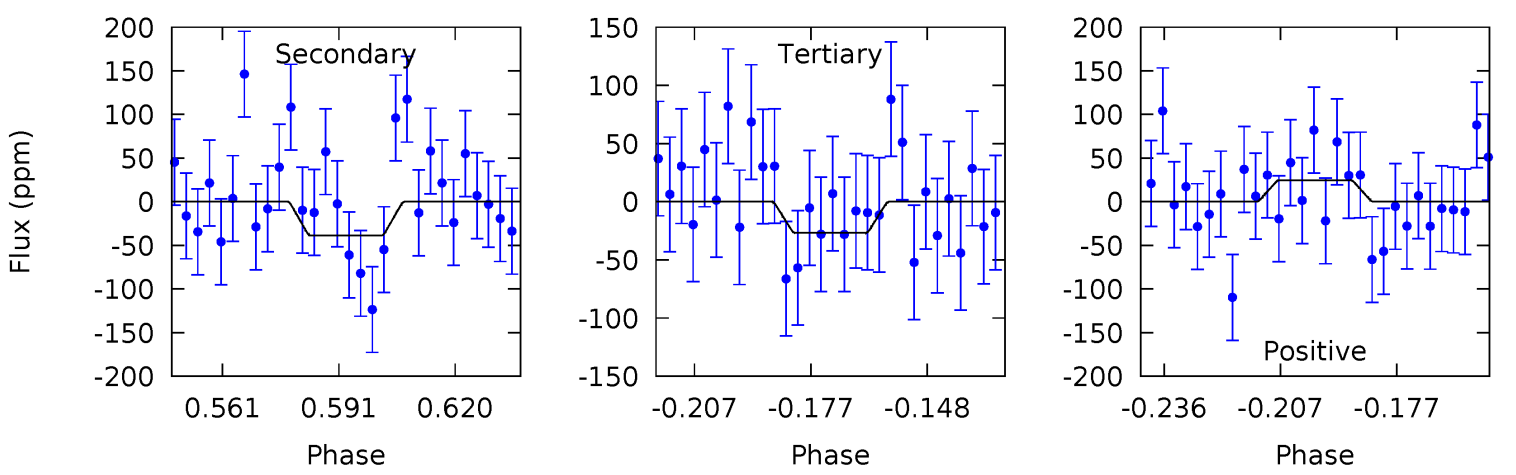
Alt Model-Shift Uniqueness Test

006520753-01, P = 4.130352 Days, E = 133.520421 Days

Pri	Sec	Ter	Pos	FA_1	FA_2	F_{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
20.5	2.42	1.66	1.55	4.81	2.18	0.67	18.8	19.0	0.76	0.87	0.04	1.09	0.10	1.91







Stellar Parameters For KIC 006520753

	$T_{\rm eff}(K)$	$\log(g)$	[Fe/H]	R ($R_\odot$)	$M(M_\odot)$	$p_\star$ (g·cm^{-3})
	5490^{+199}_{-182}	$4.557^{+0.048}_{-0.143}$	$-0.160^{+0.300}_{-0.300}$	$0.810^{+0.187}_{-0.080}$	$0.864^{+0.092}_{-0.092}$	$2.292^{+0.563}_{-0.917}$
	+4%/-3%	+1%/-3%	+188%/-188%	+23%/-10%	+11%/-11%	+25%/-40%
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 006520753-01 / KOI 4504.01

Detrend	Depth (ppm)	R_p ($R_\oplus$)	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-60±18	$1.79^{+0.64}_{-0.55}$	1412^{+78}_{-63}	3784^{+537}_{-390}	23^{+24}_{-11}
Alt.	-39±16	$1.68^{+0.61}_{-0.58}$	1415^{+85}_{-63}	3608^{+614}_{-446}	17^{+24}_{-9}

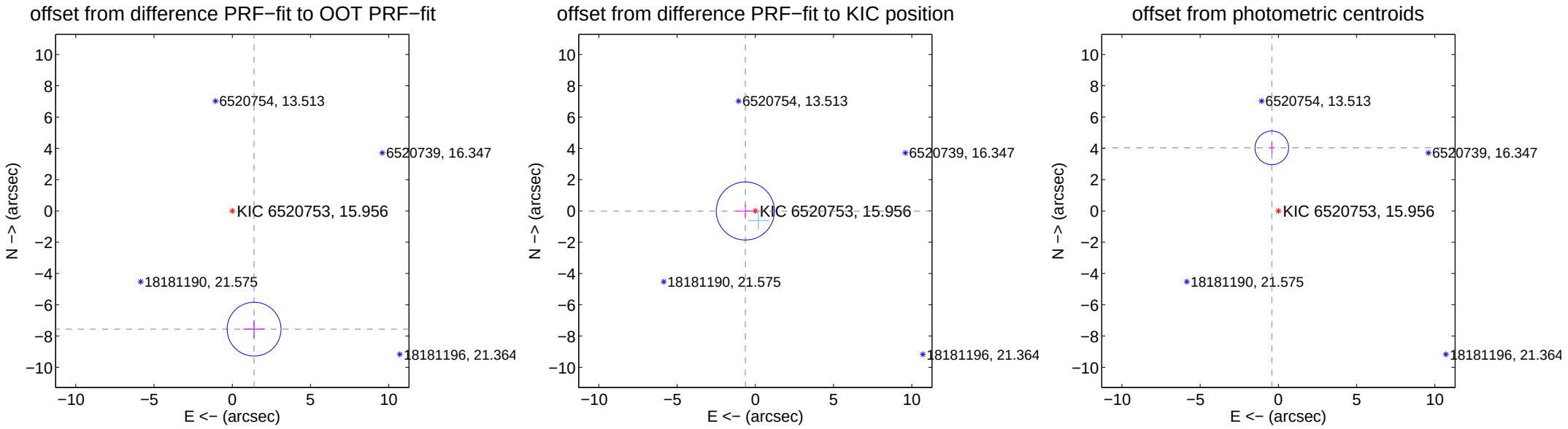
T_{max} = Theoretical Maximum Planetary Temperature
T_{obs} = Observed Planetary Temperature (Assuming A=0.3)
A_{obs} = Observed Albedo (Assuming T=0)

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

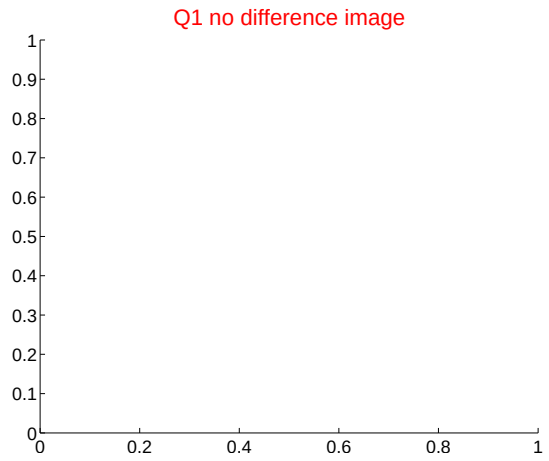
Supplemental centroid analysis for 006520753-01. Kepler magnitude: 15.96. Transit SNR 11.31
There are 4 quarters with good PRF difference image offsets
The OOT PRF centroid is offset from the target star catalog position by about 7.05 arcsec so the offset from difference PRF-fit to OOT-fit may be invalid.

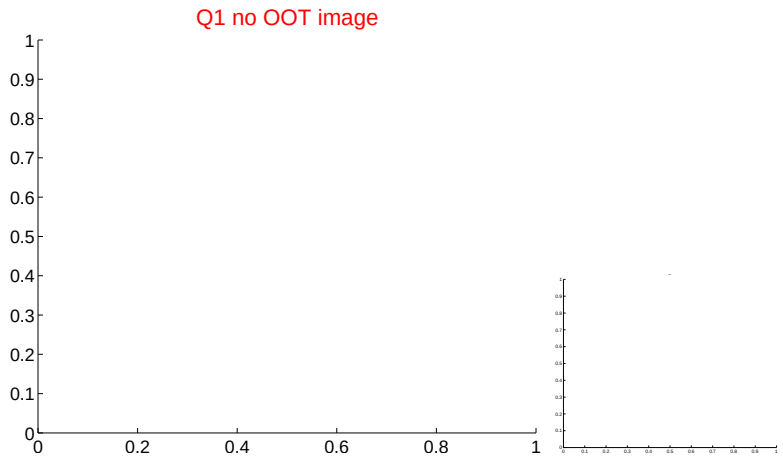
	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	7.686 ± 0.574	13.40	-1.394 ± 0.685	-7.559 ± 0.569
PRF-fit source offset from KIC position	0.637 ± 0.619	1.03	0.637 ± 0.619	-0.006 ± 0.415
photometric centroid source offset	4.05 ± 0.36	11.32	0.42 ± 0.17	4.03 ± 0.36

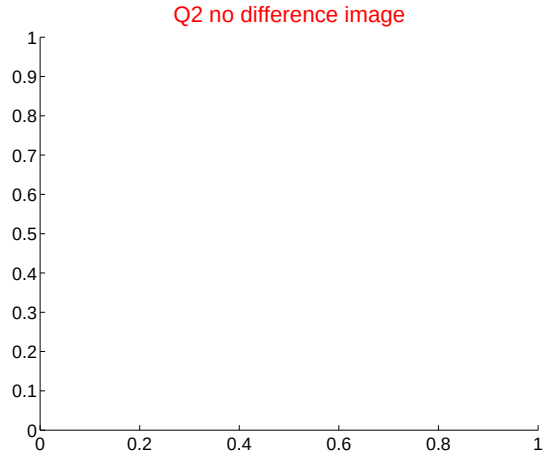


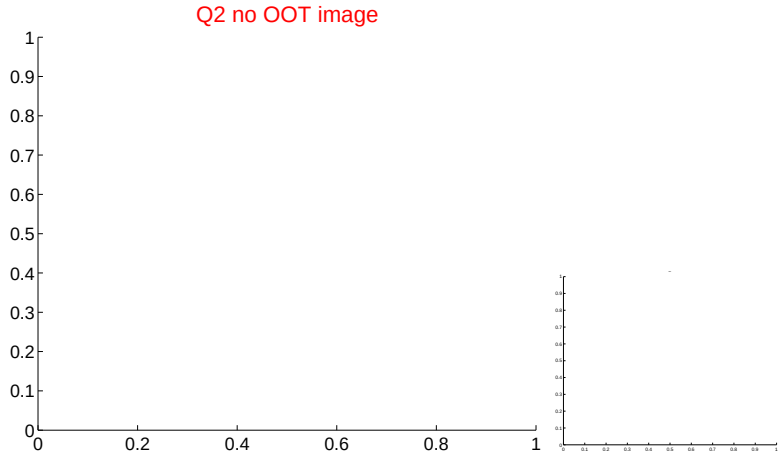
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one-σ uncertainty. Blue circle: three-σ. Red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

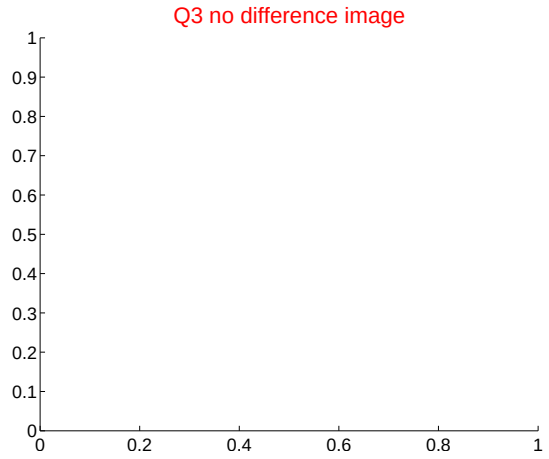
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.

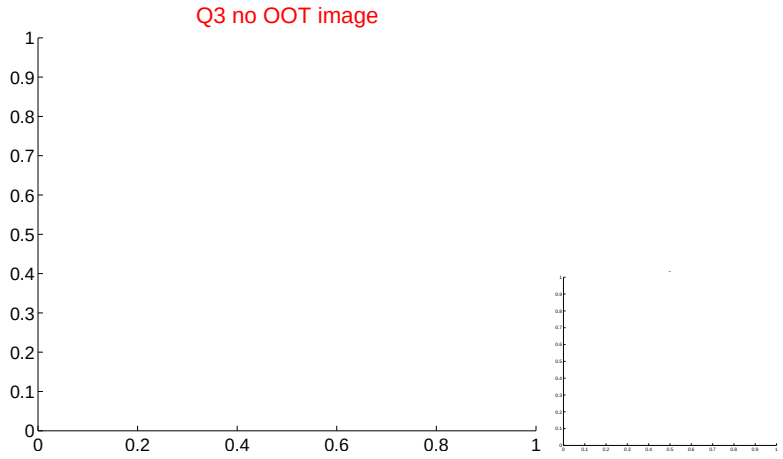


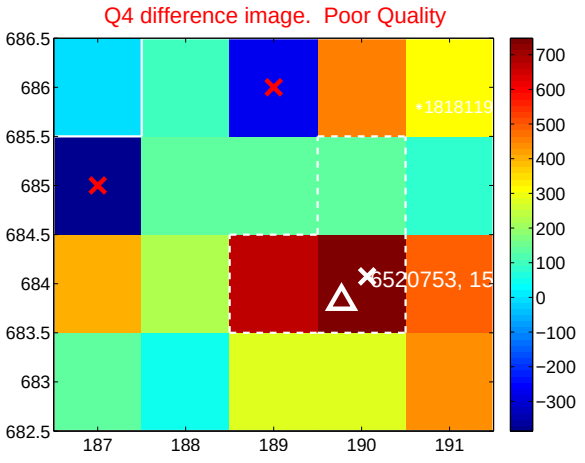


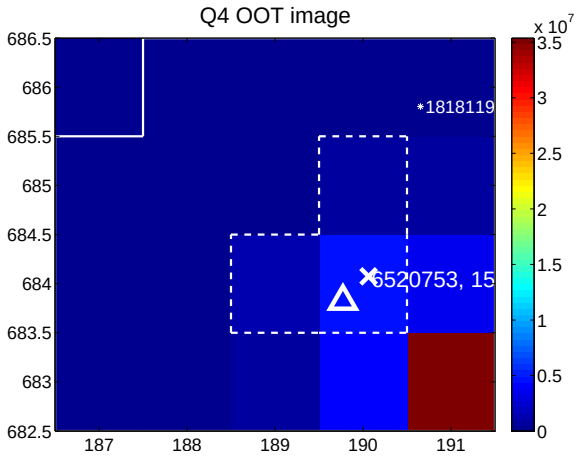




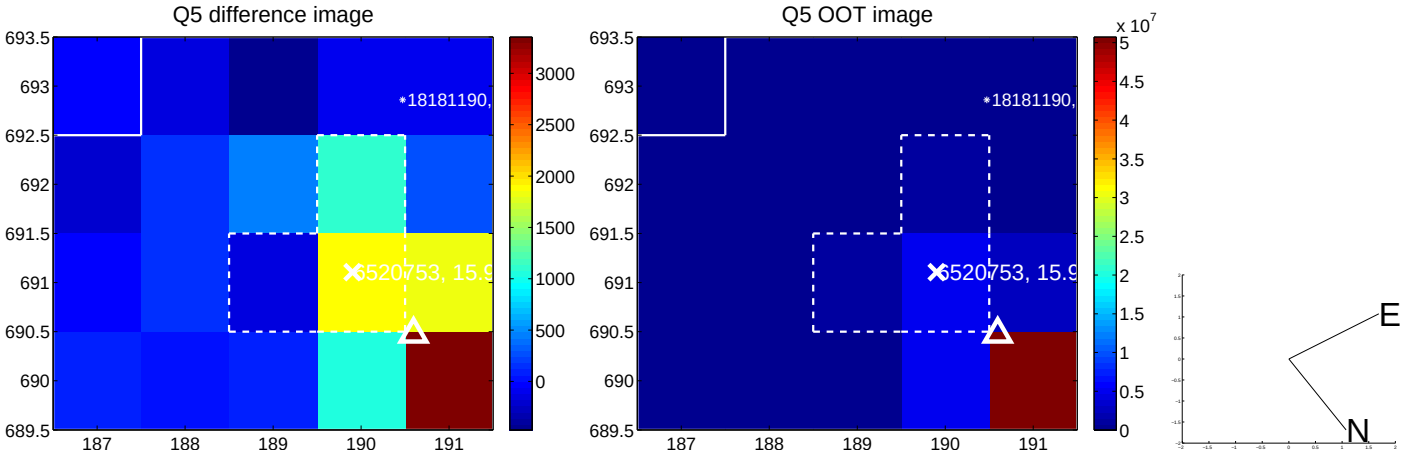


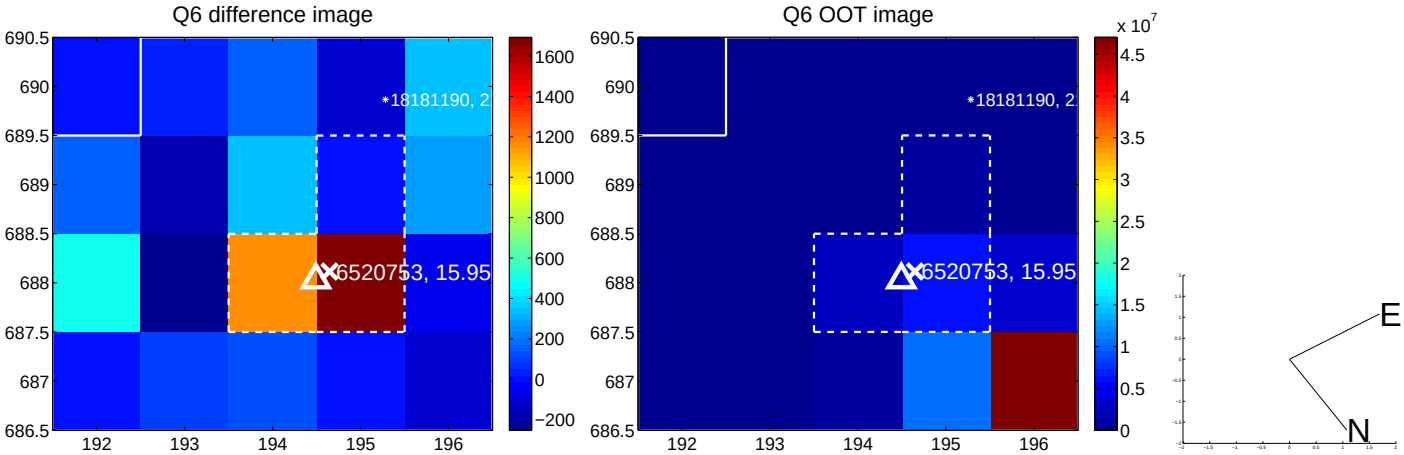


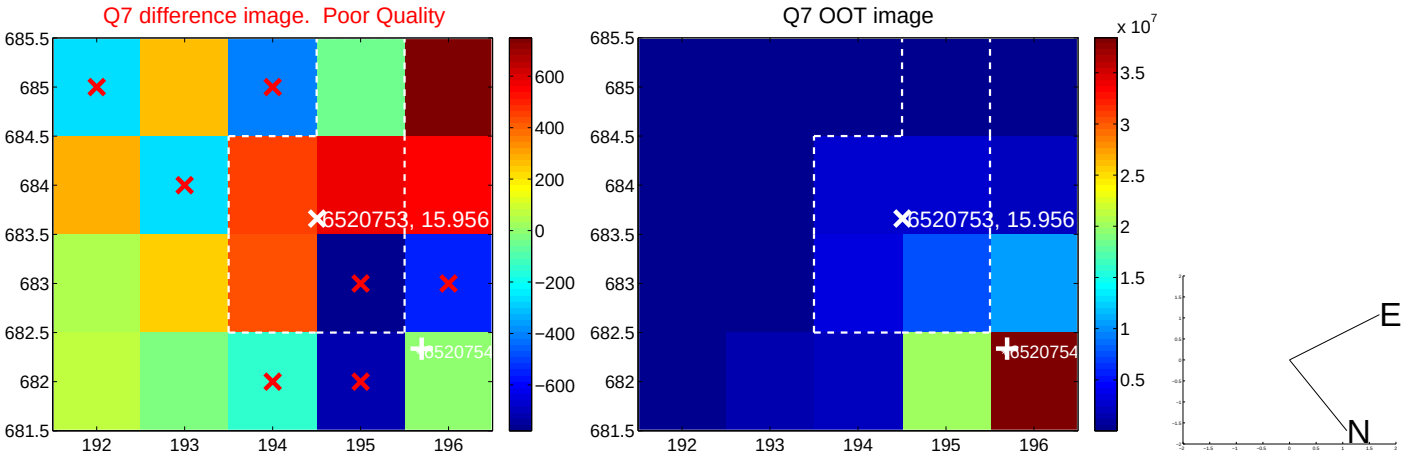


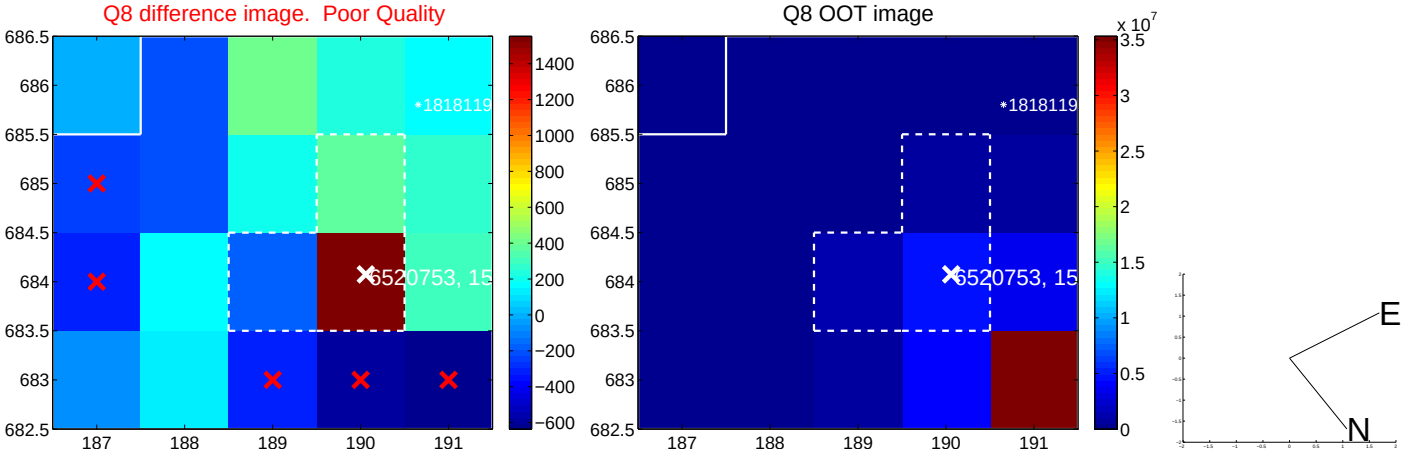


white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.

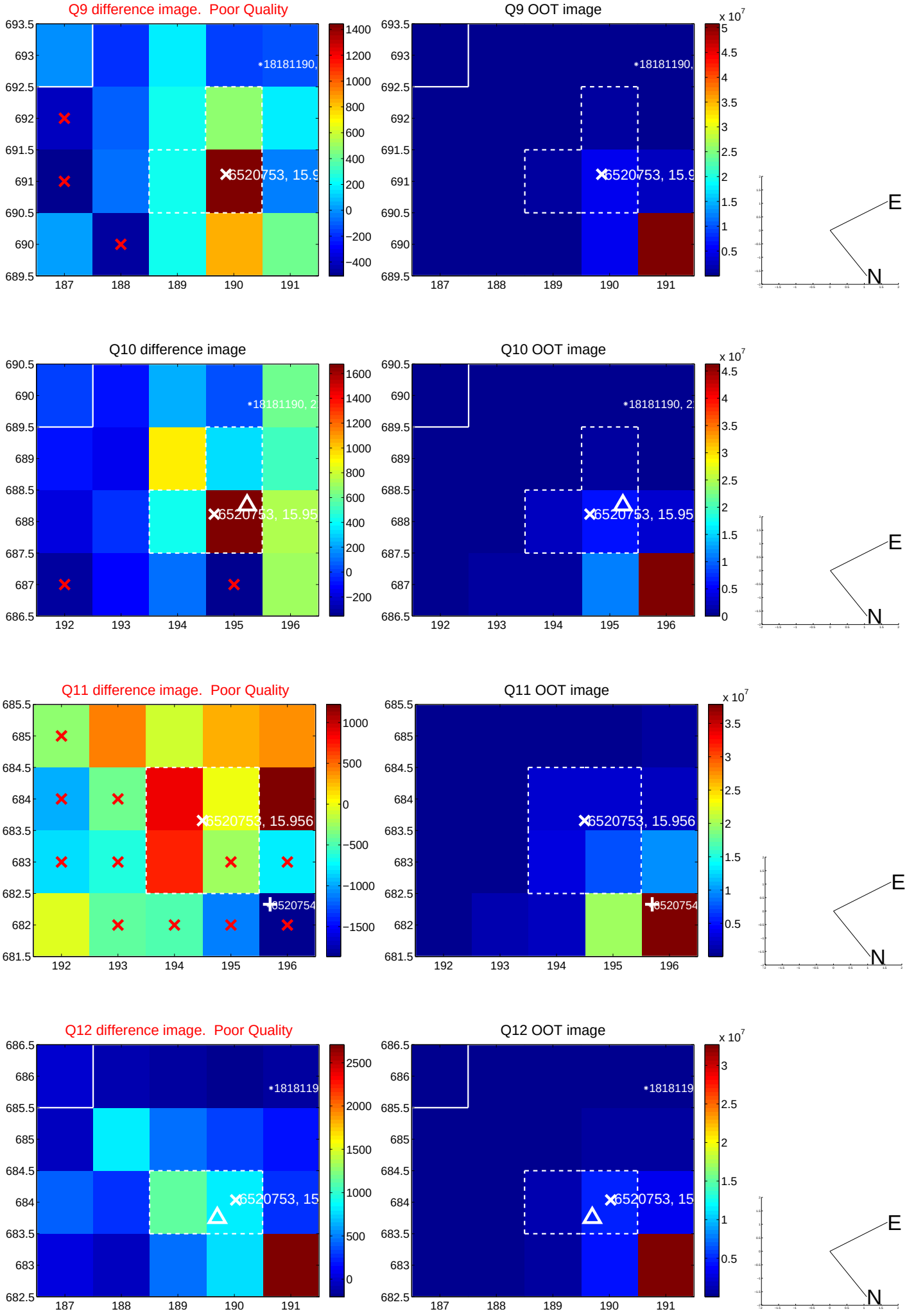




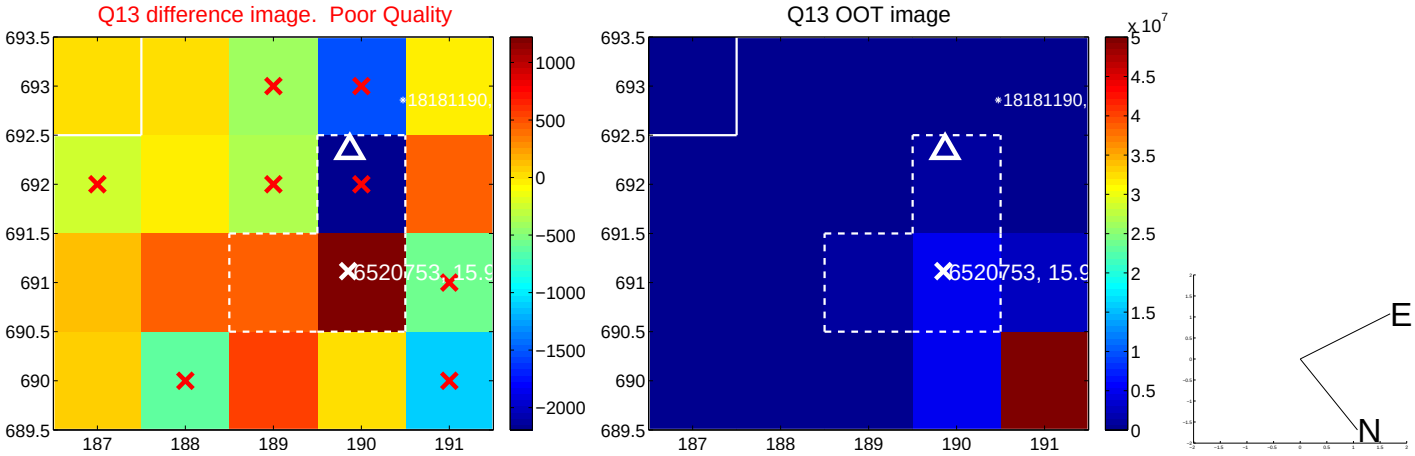


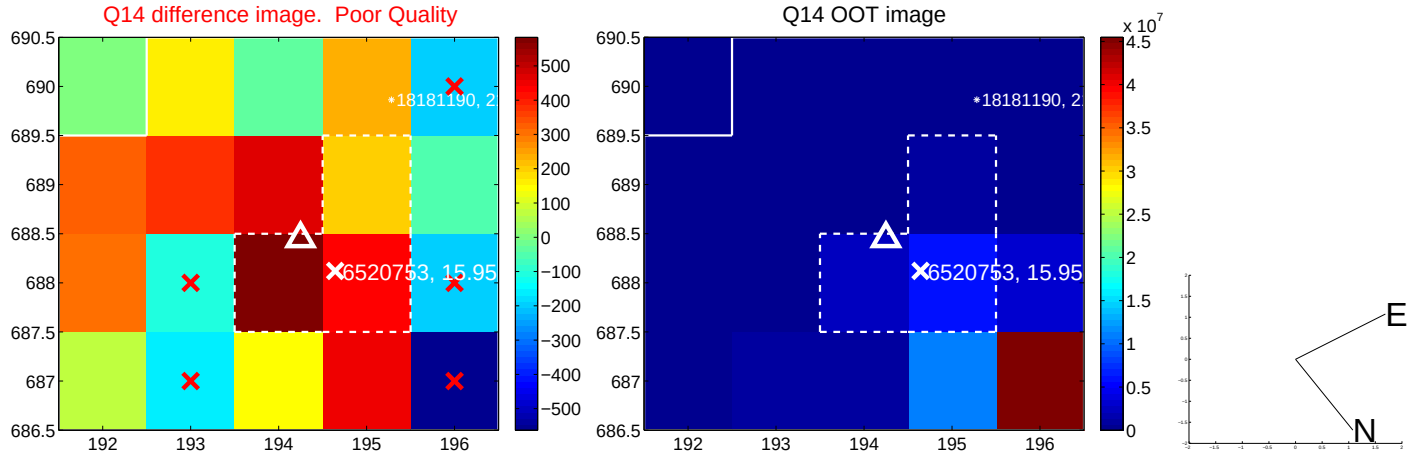


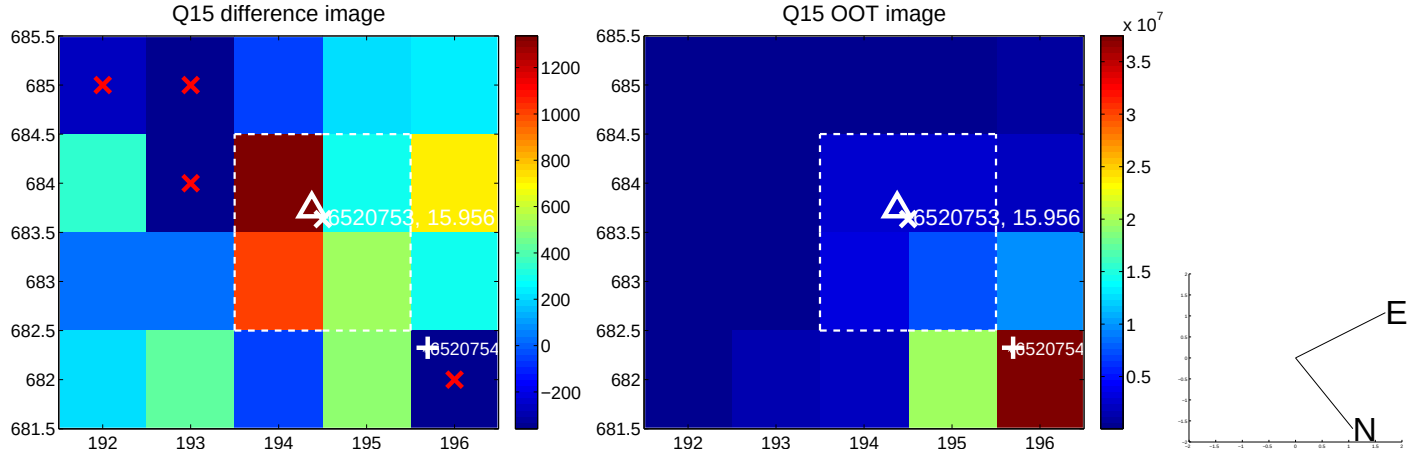
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.

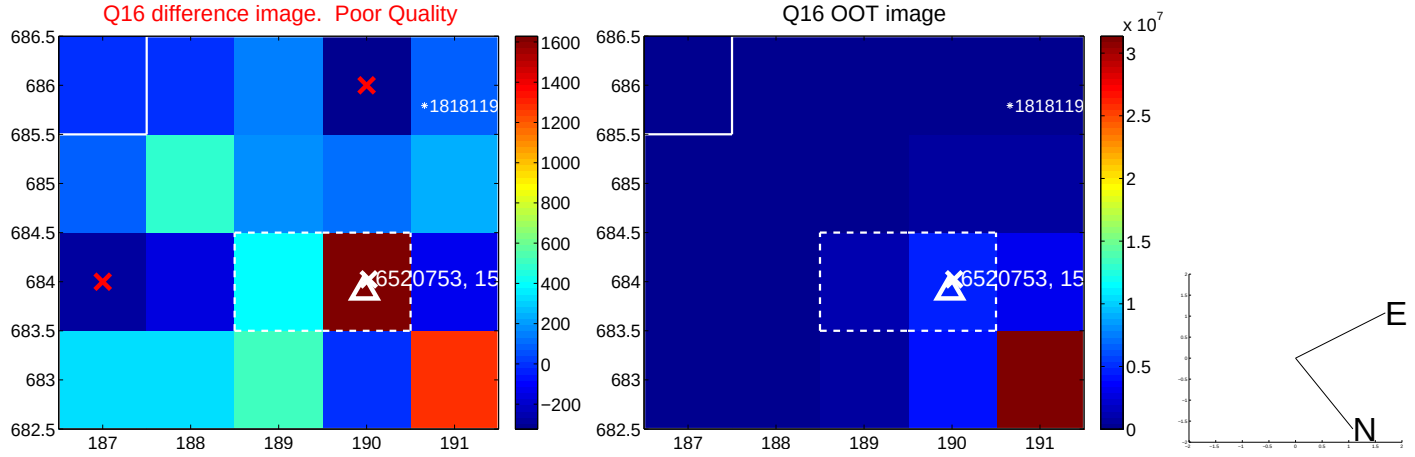


white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.

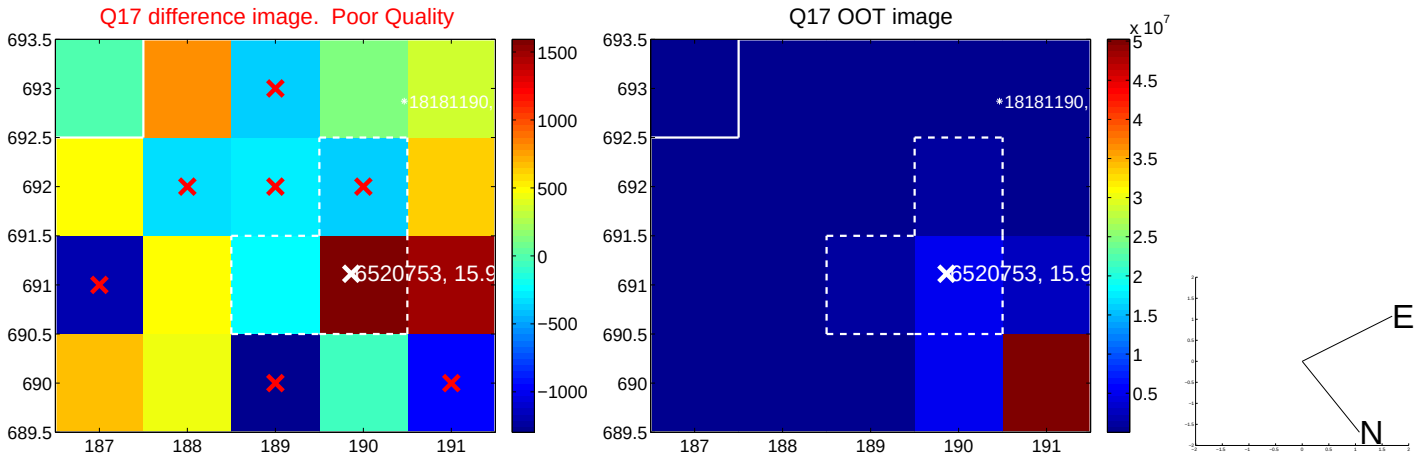


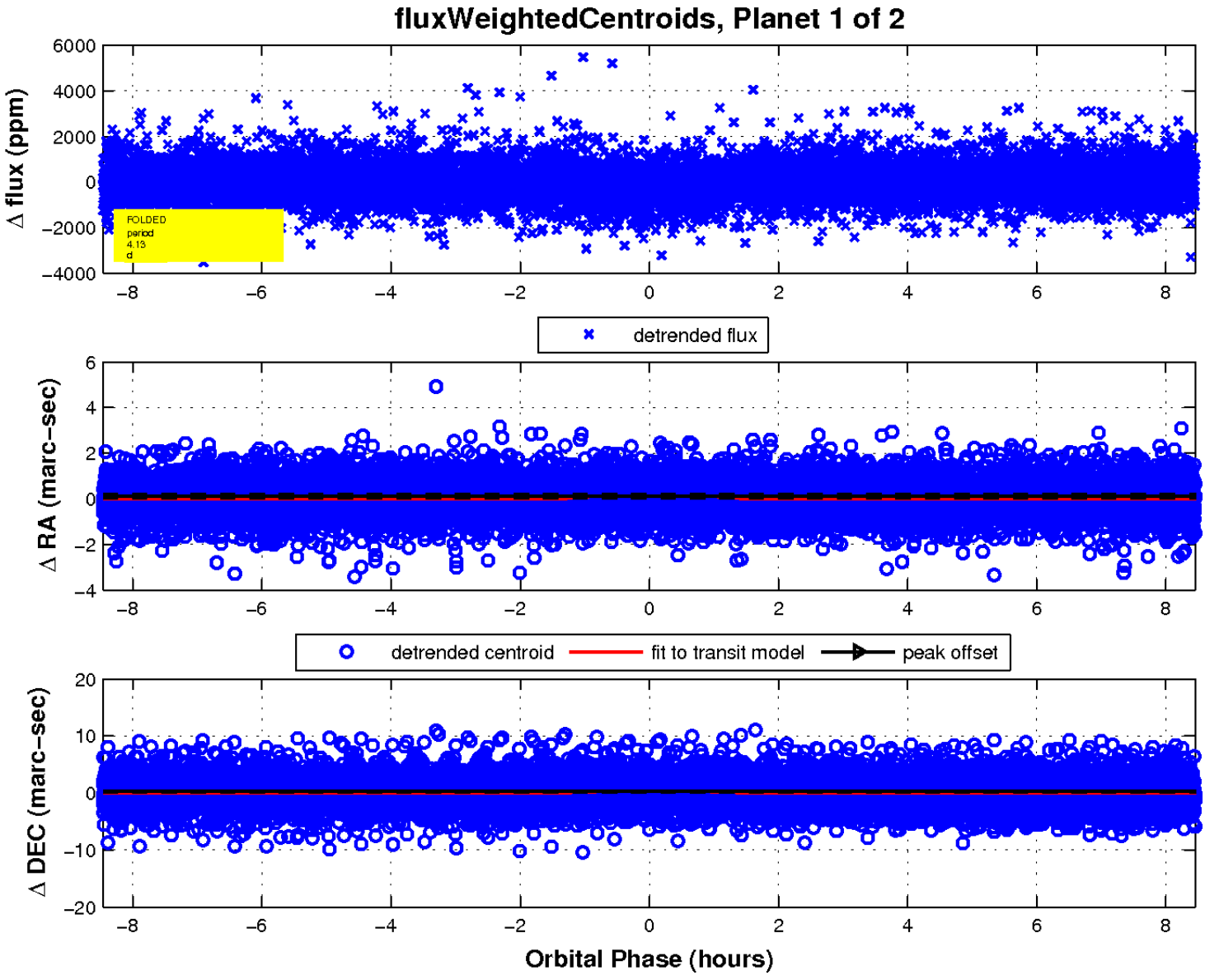




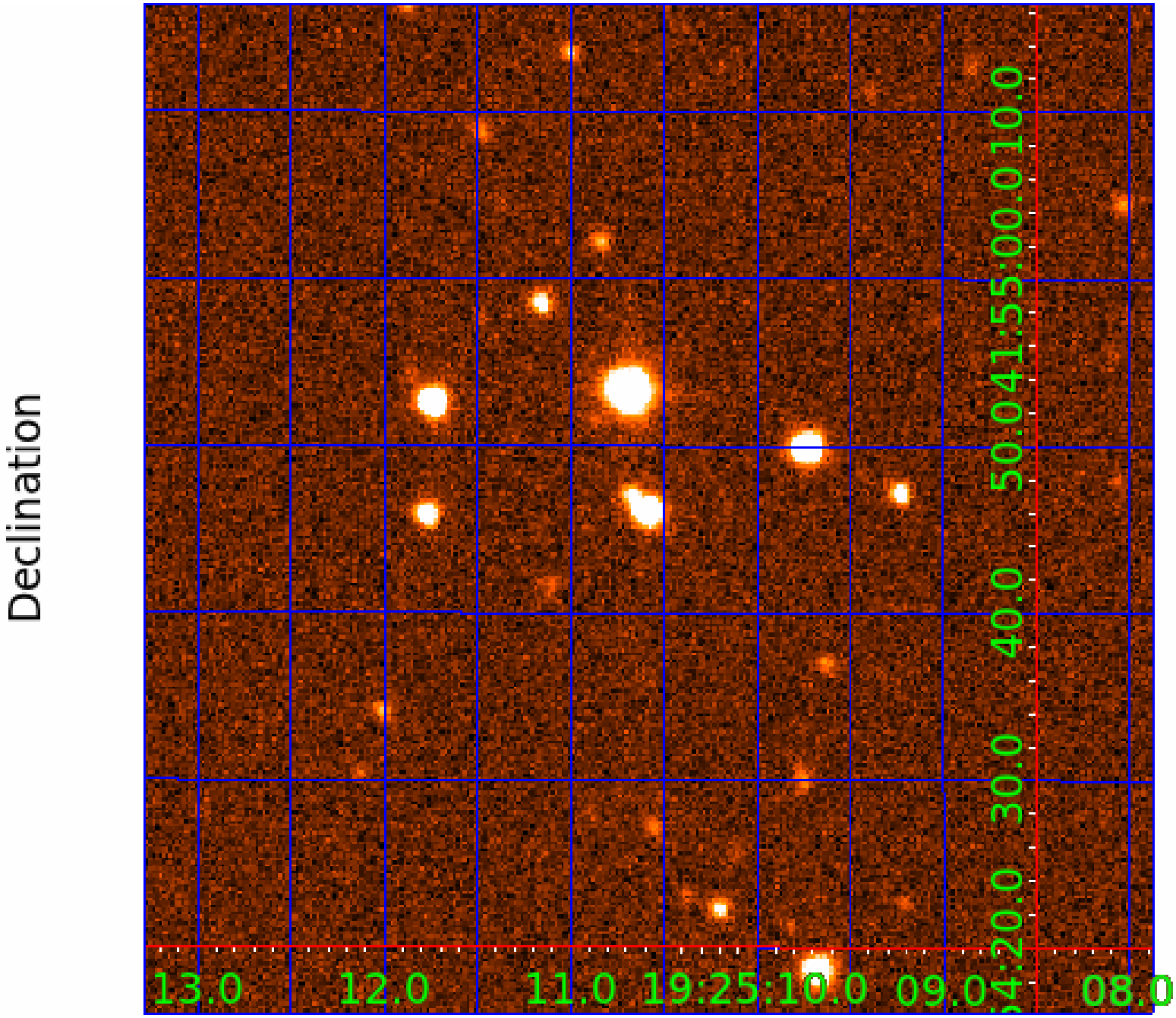


white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.





UKIRT Image


Declination
50:04
41:55:00.0
10.0
40.0
30.0
20.0
4:
13.0
12.0
11.0
19:25:10.0
09.0
08.0

KIC 006520753

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 ($S_\oplus$)
006520753-01	OBS	4504.01	4.130353	133.517664	312.3	2.821	10.8	11.3	0.81	5490	1.74	232.02
006520753-02	OBS	4504.02	8.119274	135.190026	343.3	3.856	9.5	9.7	0.81	5490	1.80	94.22

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
006520753-01	OBS	PC	0.99	0	0	0	0	CENT_KIC_POS
006520753-02	OBS	PC	0.81	0	0	0	0	CENT_FEW_DIFFS

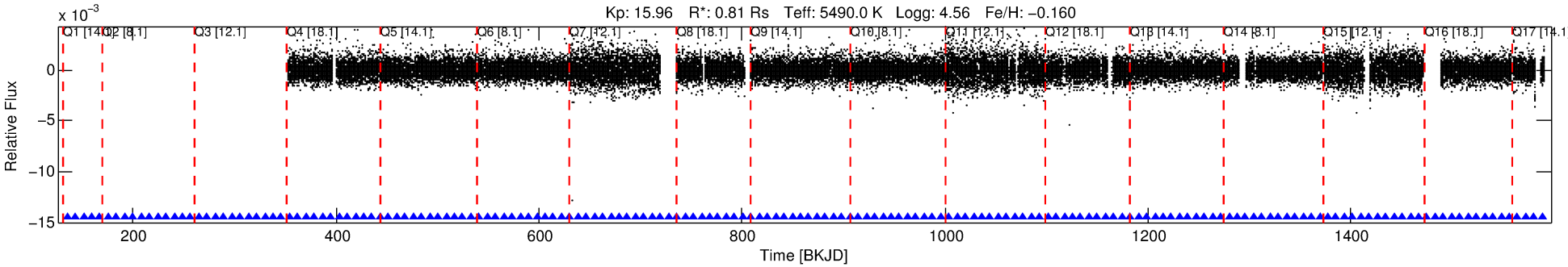
Notes: OBS = Observed. INJ = Injected. INV = Inverted. SCR = Scrambled.
N = Not Transit-Like. S = Stellar Eclipse. C = Centroid Offset. E = Ephemeris Match.
See `http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col` for comment definitions.

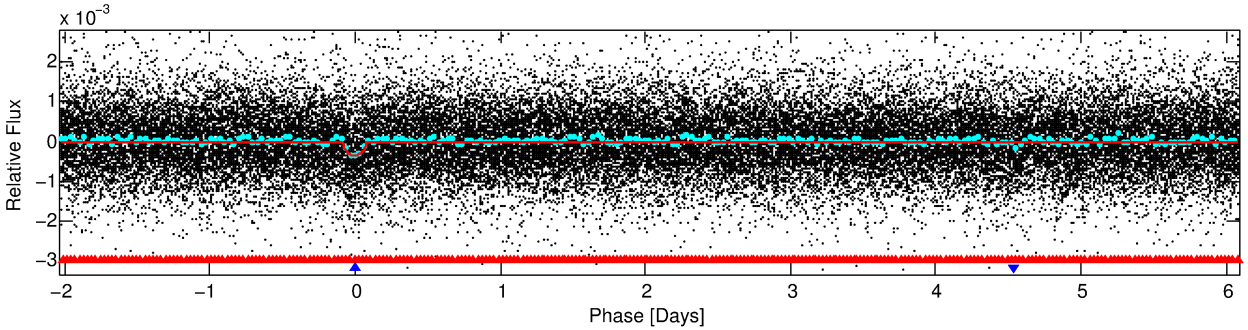
Ephemeris Match Information For 006520753-02

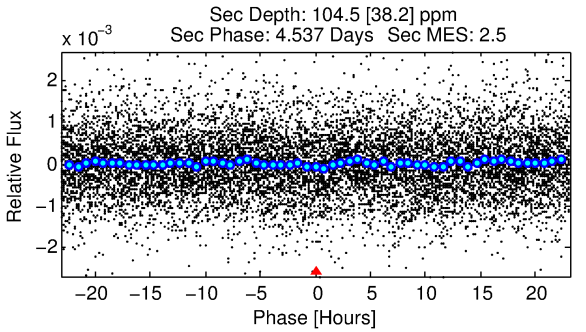
No Significant Match Found

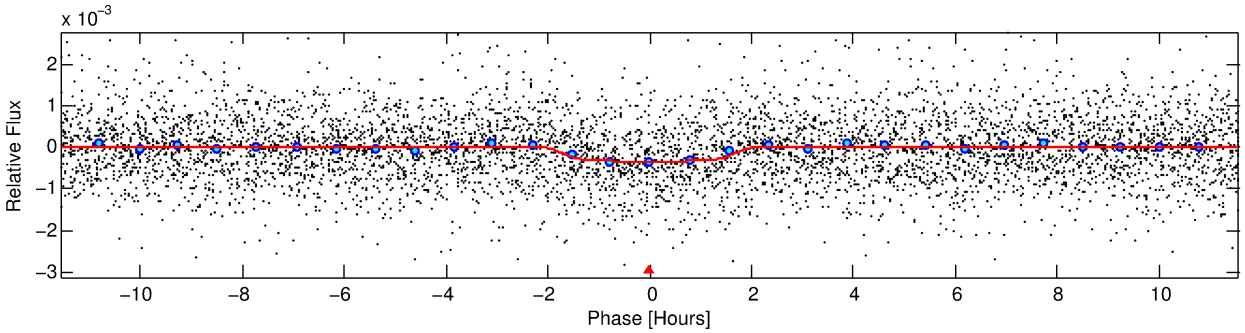
DV One-Page Summary

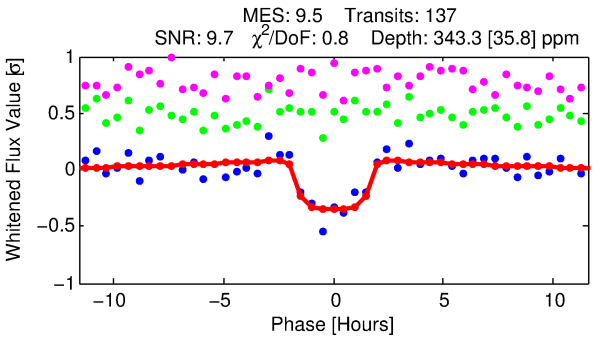
KIC: 6520753 Candidate: 2 of 2 Period: 8.119 d
KOI: K04504.02 Corr: 0.960

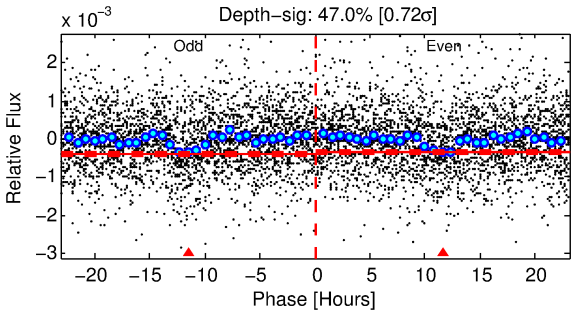


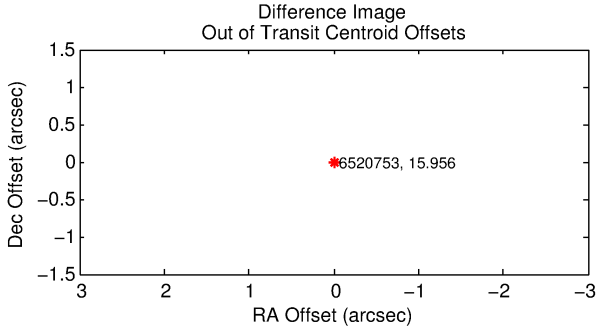












DV Fit Results:

Period = 8.11927 [0.00007] d
Epoch = 135.1900 [0.0075] BKJD
Rp/R* = 0.0203 [0.0061]
a/R* = 7.76 [9.98]
b = 0.90 [0.28]

Seff = 94.22 [28.72]
Teq = 794 [61] K
Rp = 1.80 [0.68] Re
a = 0.0753 [0.0142] AU

Ag = 100.84 [75.49] [1.32σ]
Teffp = 3892 [695] K [4.44σ]

DV Diagnostic Results:

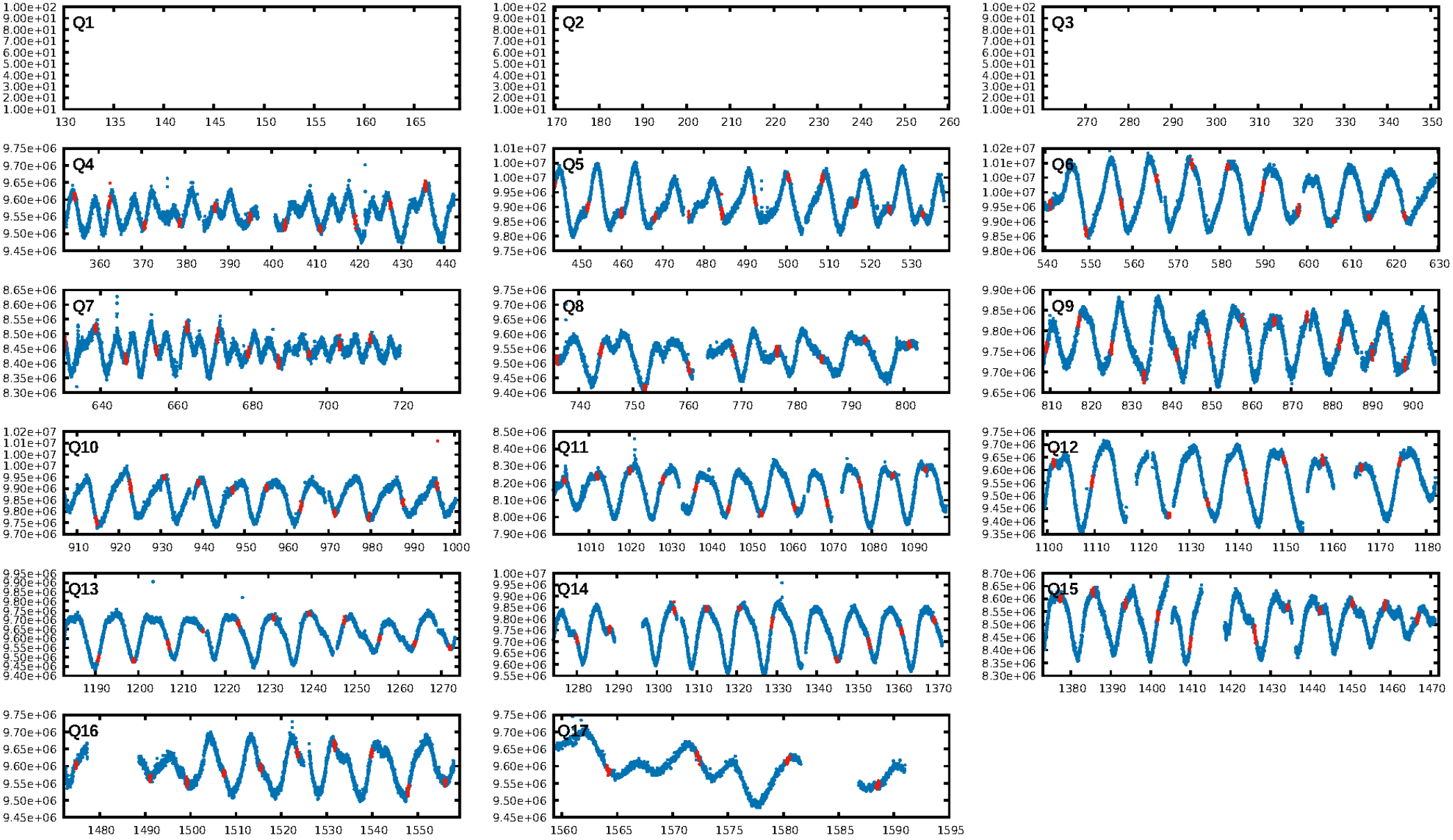
ShortPeriod−sig: 100.0% [20.04σ]
LongPeriod−sig: N/A
ModelChiSquare2−sig: 100.0%
ModelChiSquareGof−sig: 100.0%
Bootstrap−pfa: 2.69e−20
RollingBand−fgt: 1.00 [133/133]
GhostDiagnostic−chr: −8.838

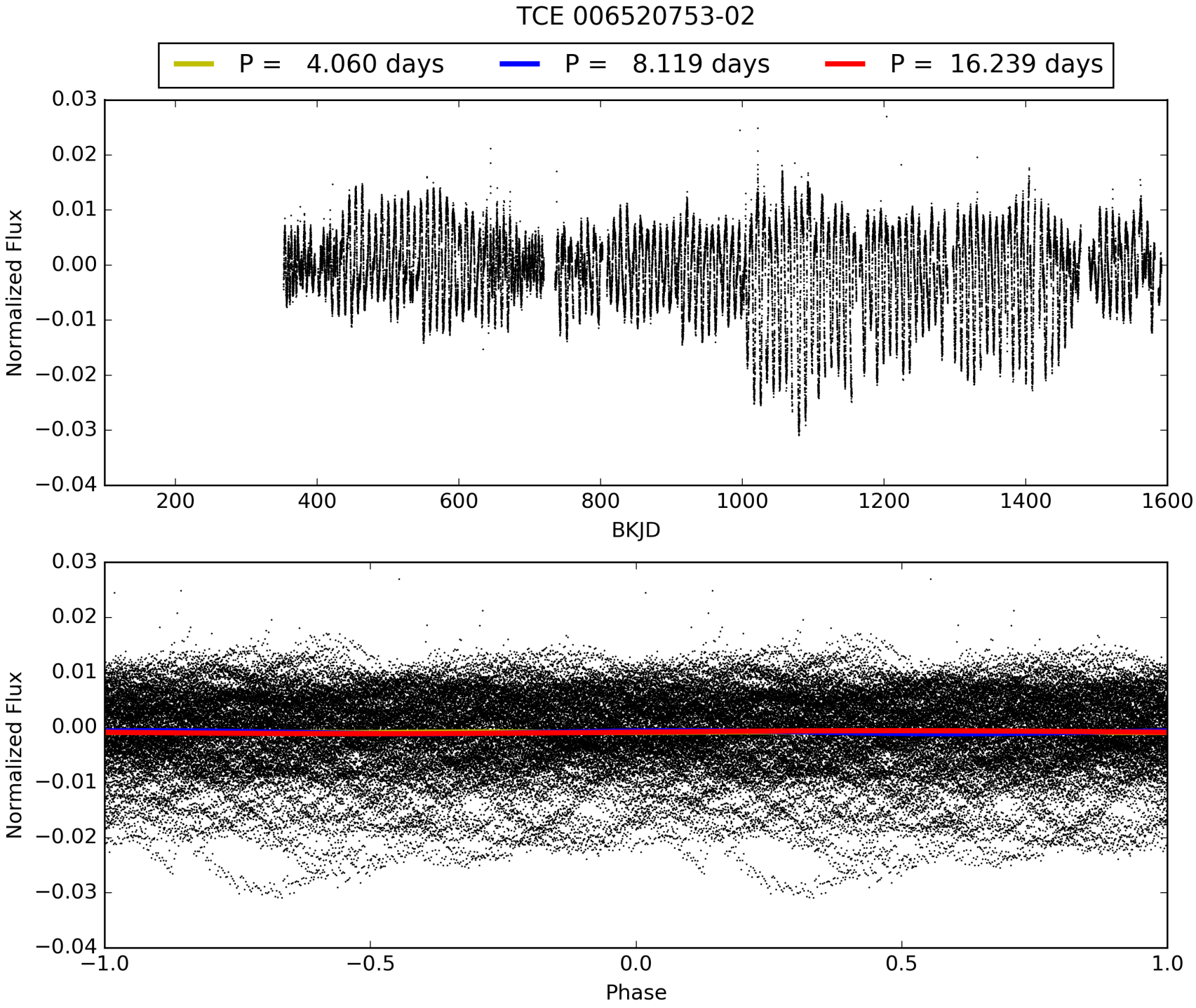
Centroid−sig: 0.0%
Centroid−so: 3.690 arcsec [8.99σ]
OotOffset−rm: N/A
KicOffset−rm: 3.022 arcsec [1.16σ]
OotOffset−st: 0/0/0/0 [0]
KicOffset−st: 1/0/2/1 [4]
DiffImageQuality−fgm: 0.50 [2/4]
DiffImageOverlap−fno: 1.00 [14/14]

Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 −− Date Generated: 29−Jan−2016 12:56:20 Z

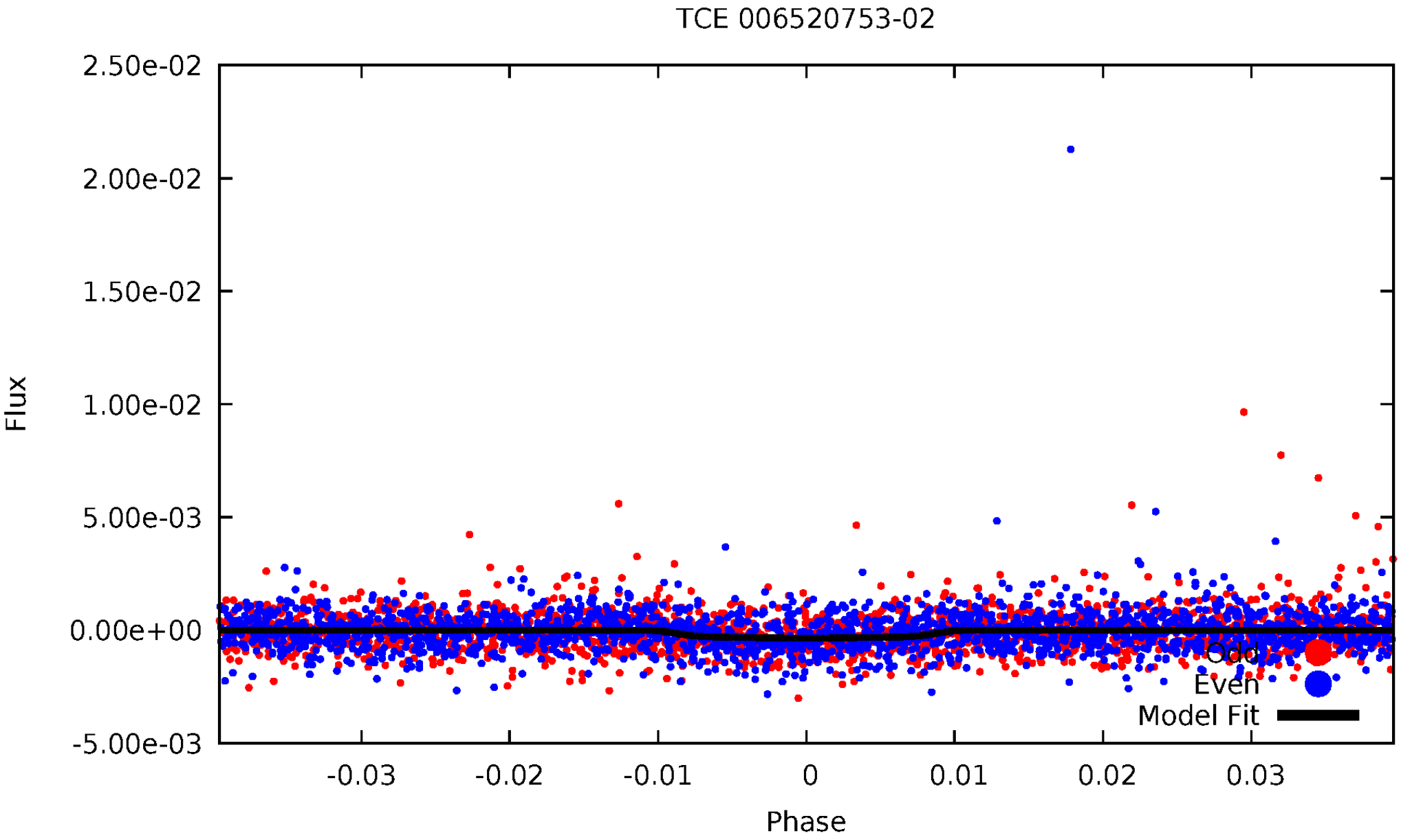
This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

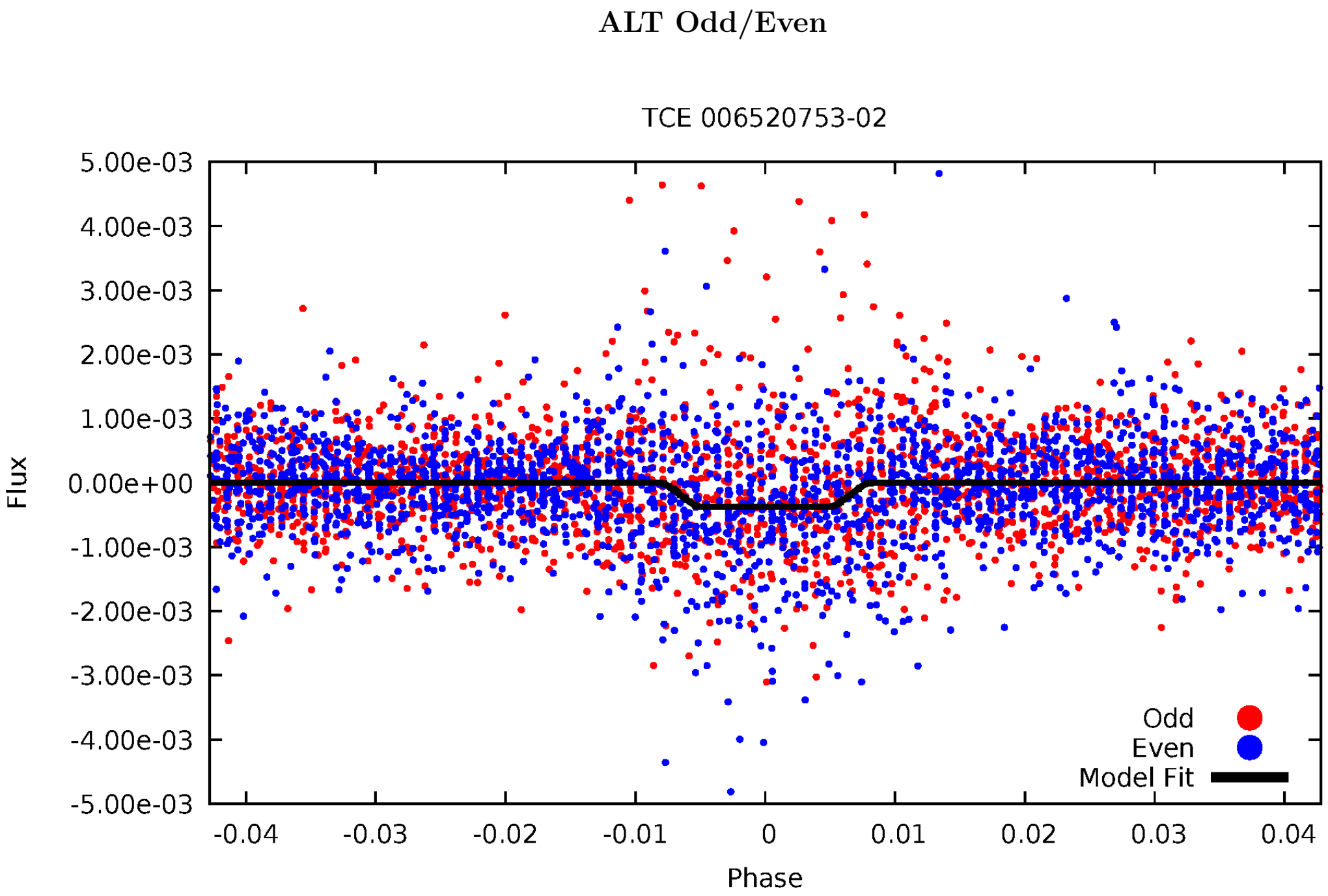
TCE 006520753-02, PDC Light Curves



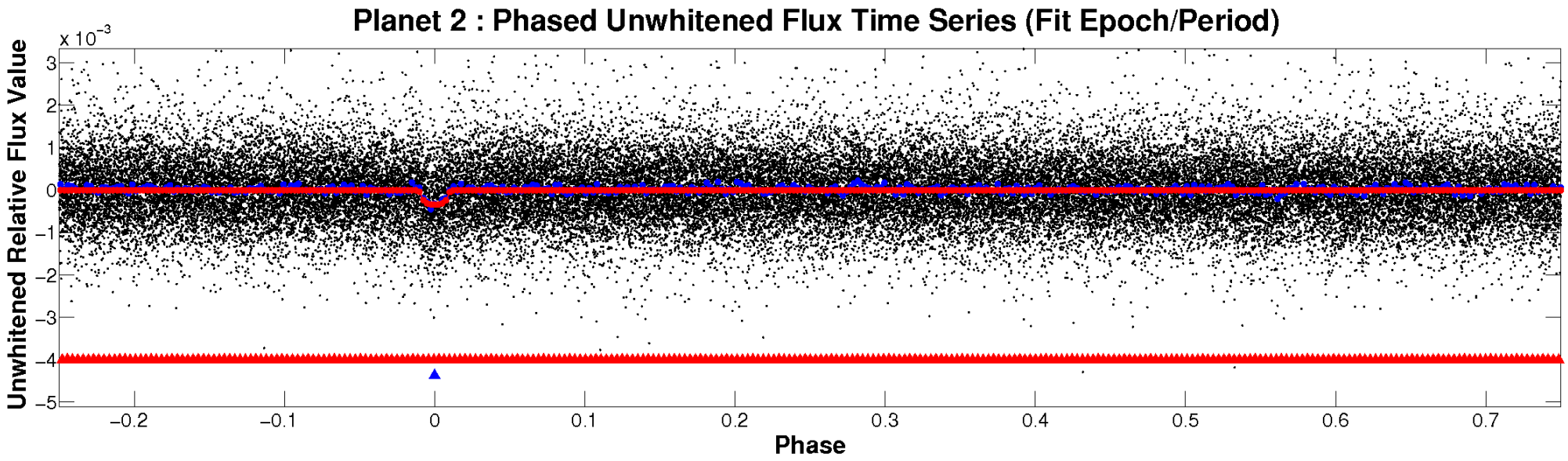

TCE 006520753-02
P = 4.060 days
P = 8.119 days
P = 16.239 days
Normalized Flux
BKJD
Normalized Flux
Phase

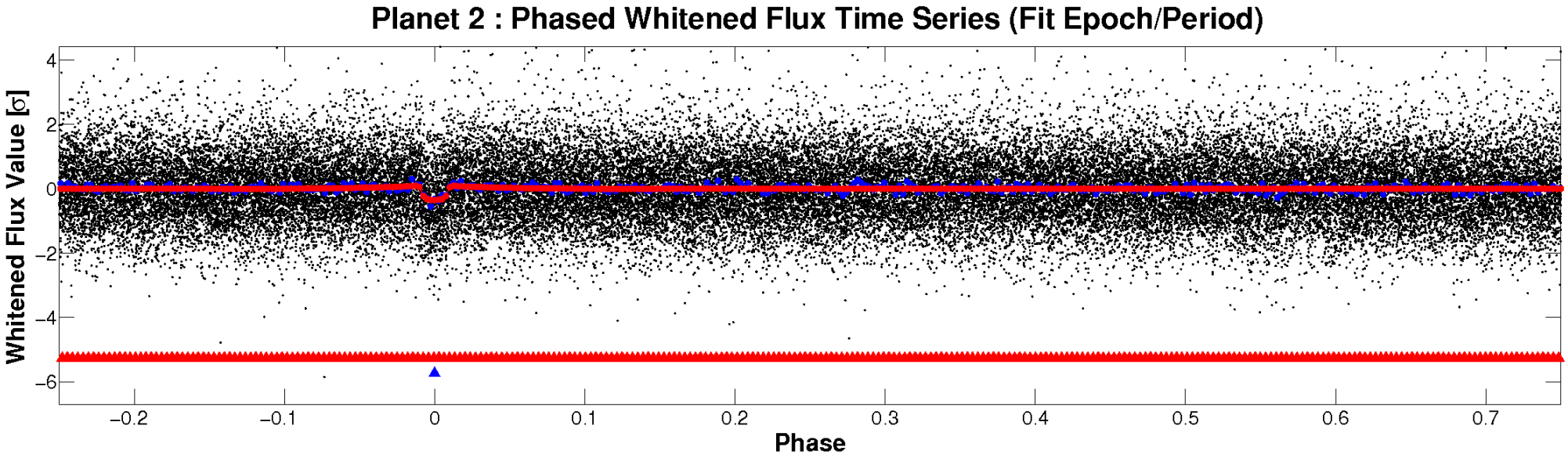
DV Odd/Even


TCE 006520753-02
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 006520753-02
5.00e-03
4.00e-03
3.00e-03
2.00e-03
1.00e-03
0.00e+00
-1.00e-03
-2.00e-03
-3.00e-03
-4.00e-03
-5.00e-03
Flux
-0.04
-0.03
-0.02
-0.01
0
0.01
0.02
0.03
0.04
Phase
Odd
Even
Model Fit

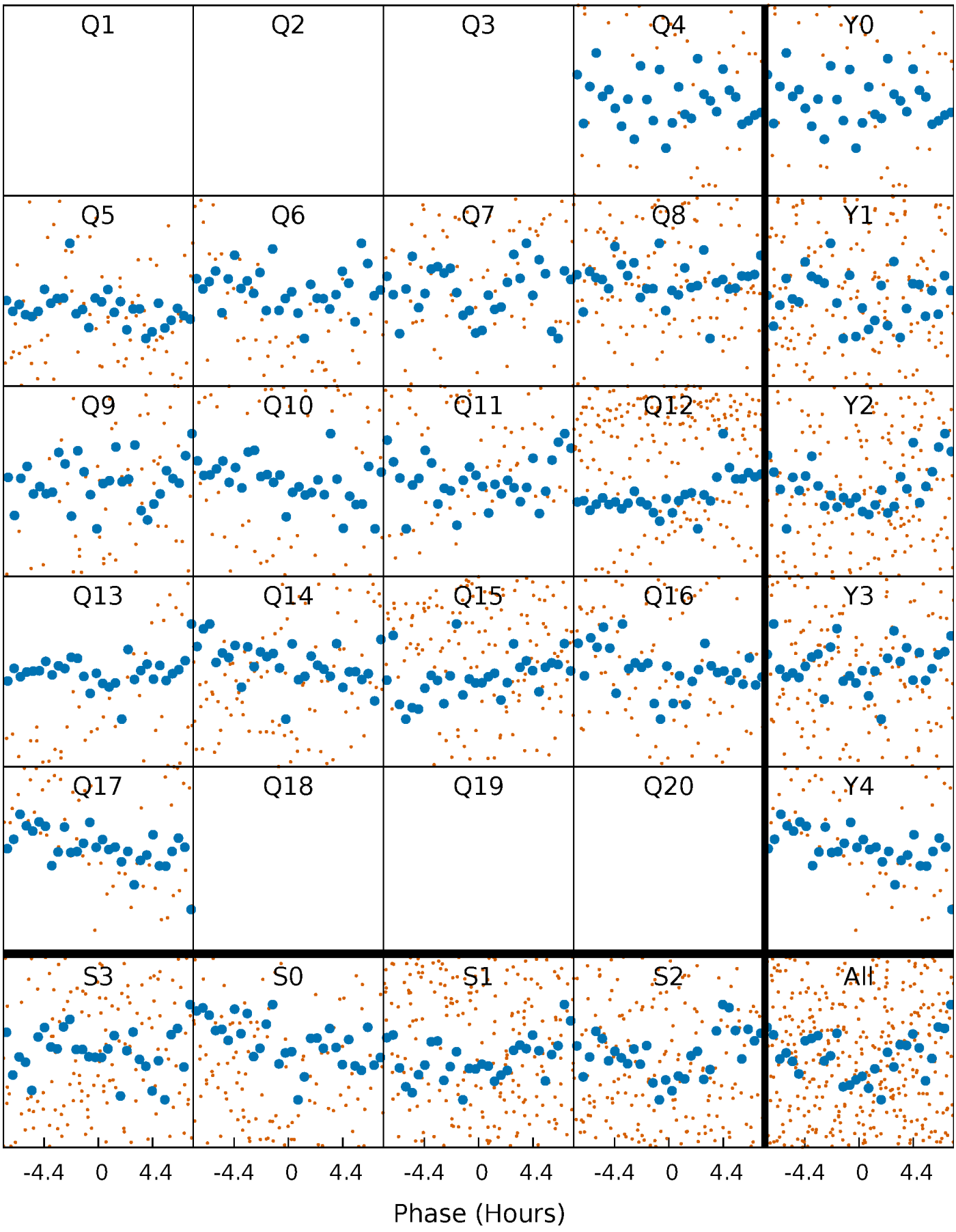
Non-Whitened Vs. Whitened Light Curve





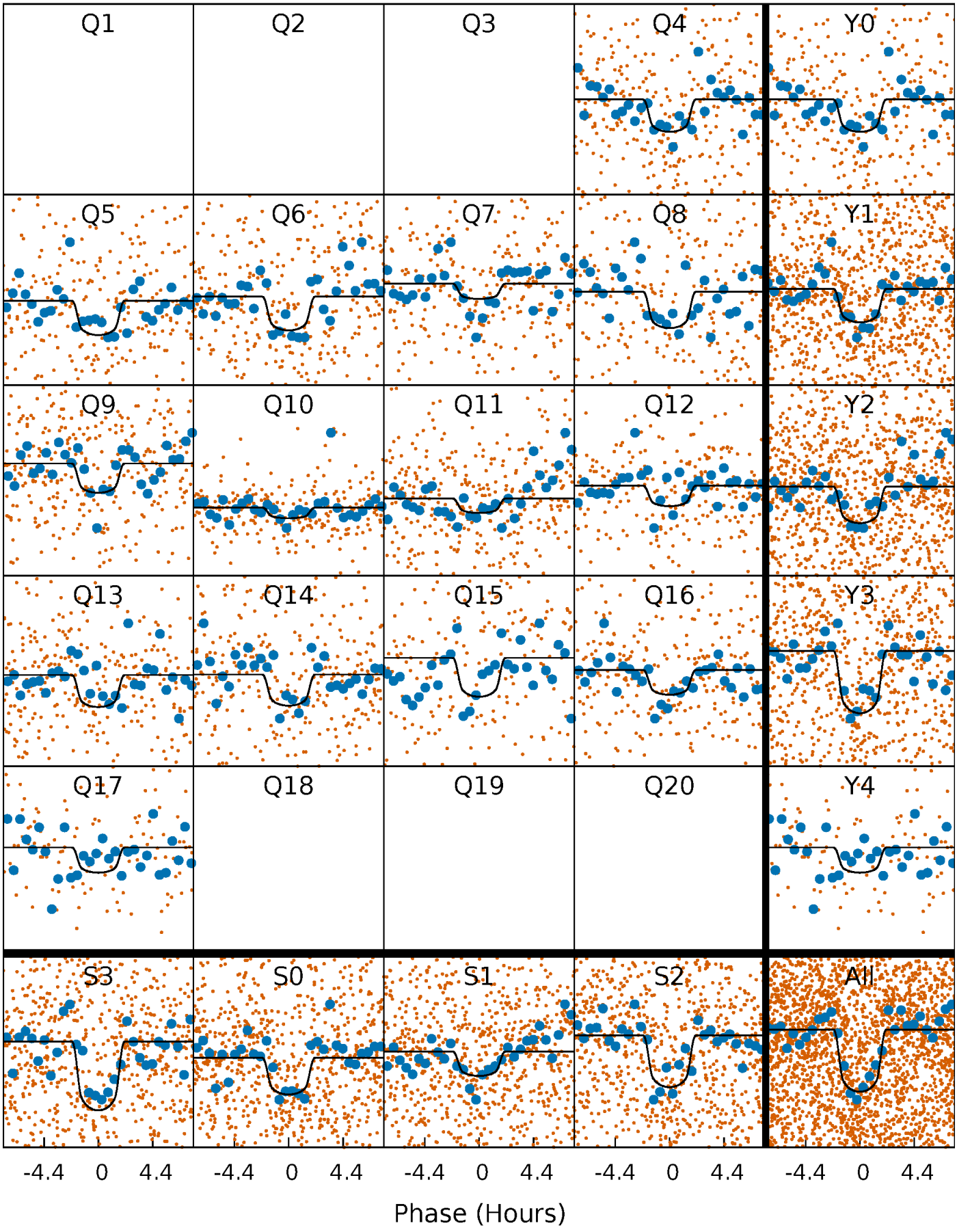
PDC Quarter-Phased Transit Curves

TCE 006520753-02 P= 8.119274 Days T_0=135.190026 (BKJD)



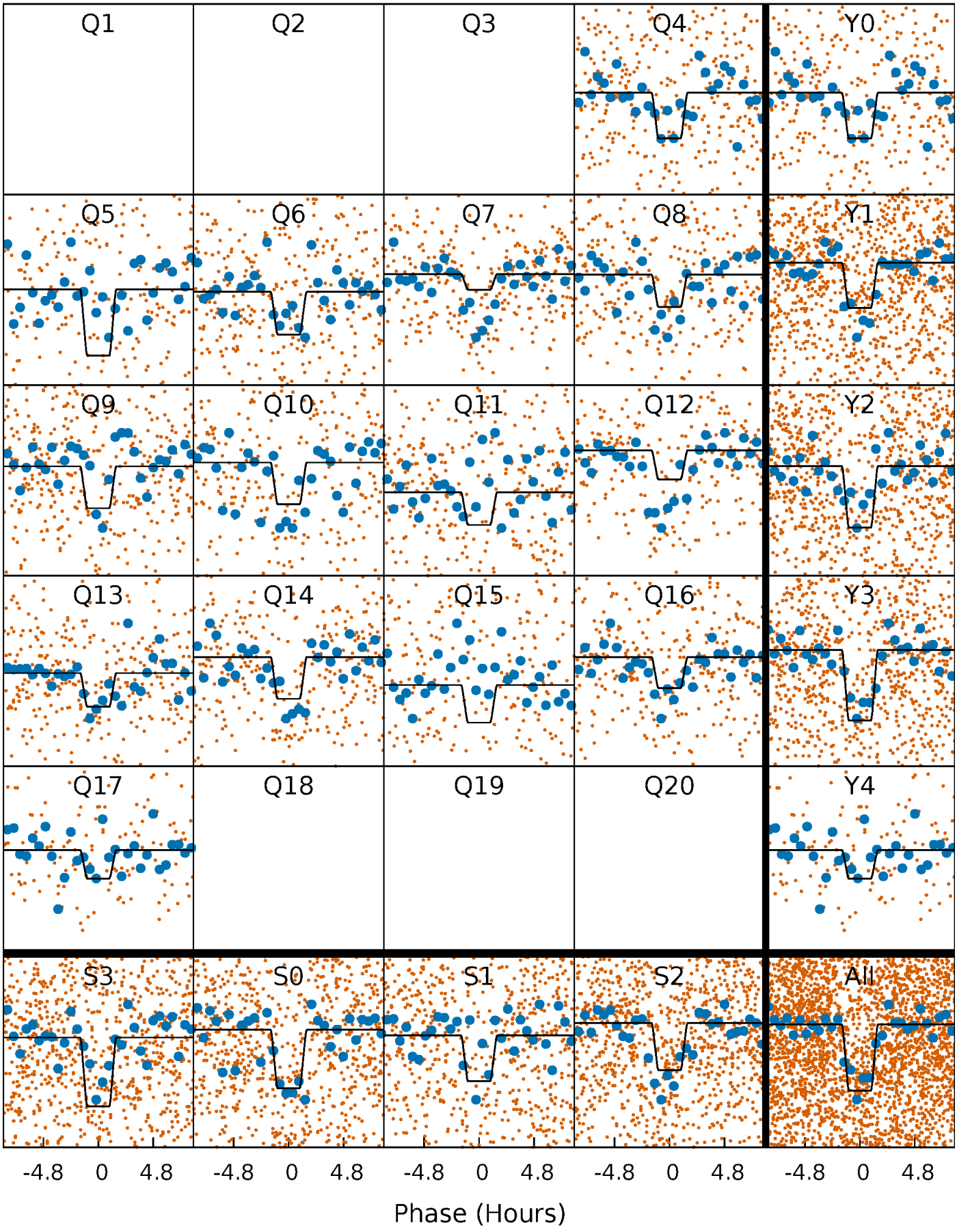
DV Quarter-Phased Transit Curves

TCE 006520753-02 P= 8.119274 Days T_0=135.190026 (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

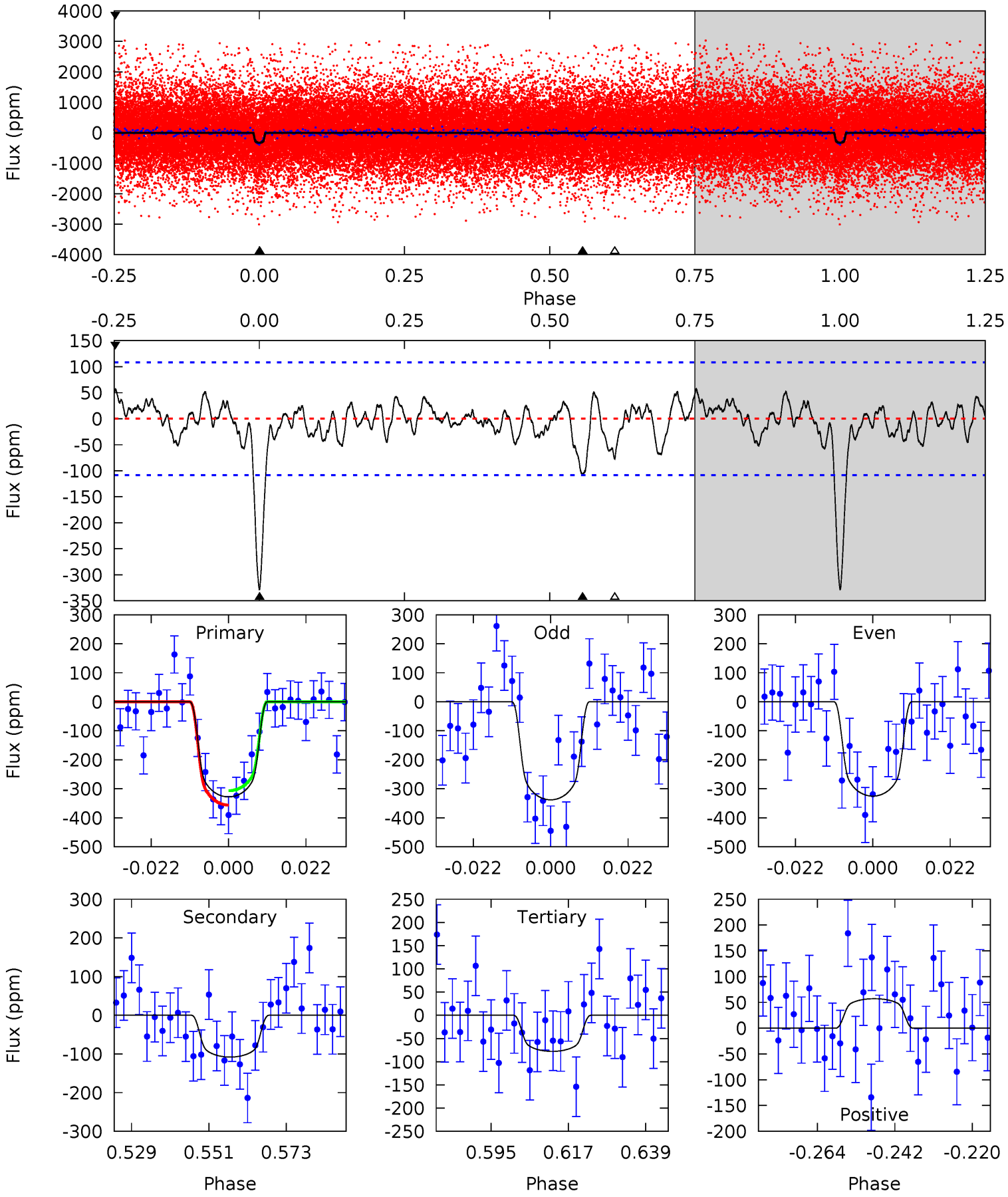
TCE 006520753-02 P= 8.119247 Days T_0=135.186322 (BKJD)



DV Model-Shift Uniqueness Test

006520753-02, P = 8.119274 Days, E = 135.190026 Days

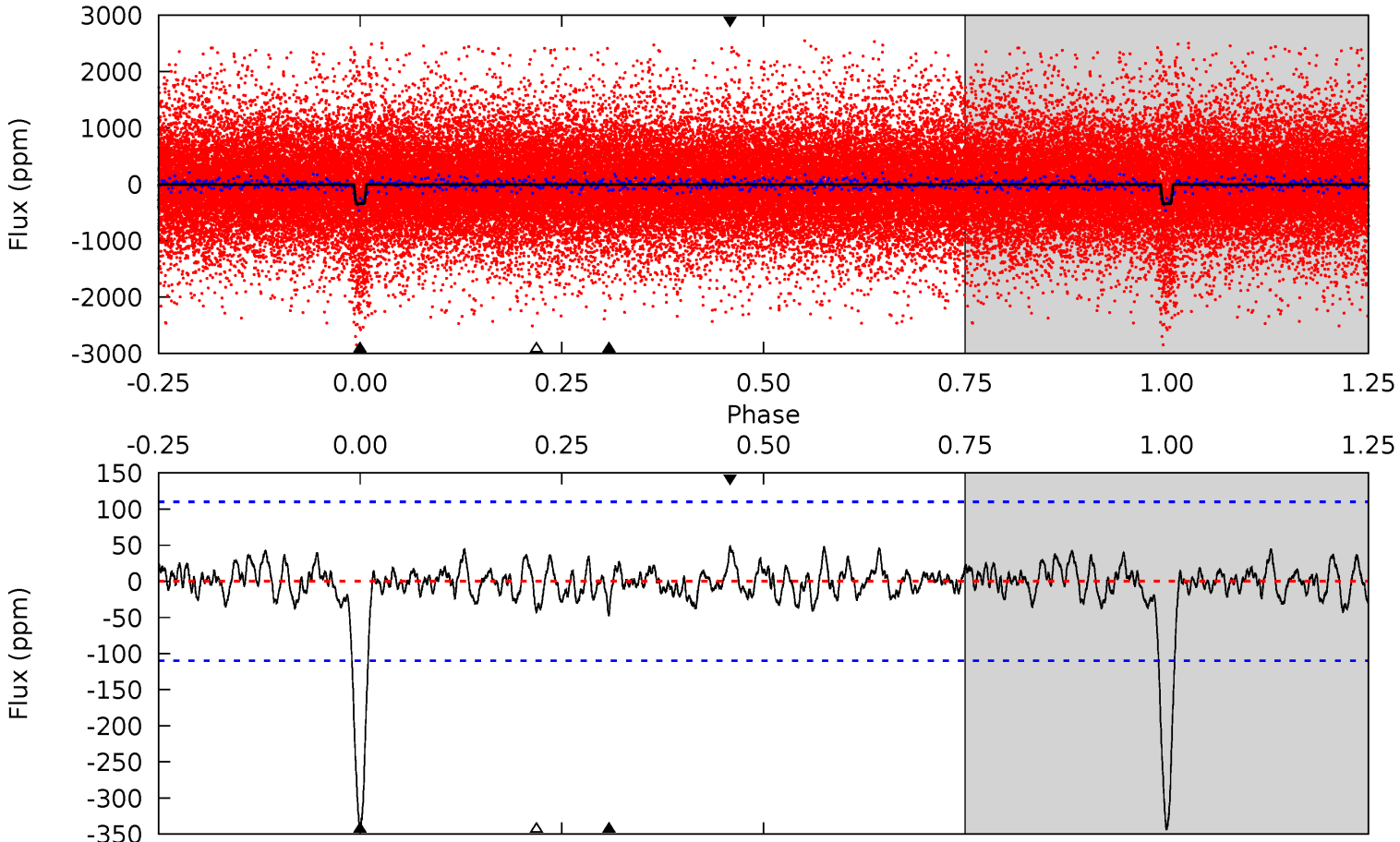
Pri	Sec	Ter	Pos	FA_1	FA_2	F_{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
14.7	4.86	3.50	2.57	4.87	2.29	1.15	11.3	12.2	1.36	2.29	0.29	1.00	0.15	1.11

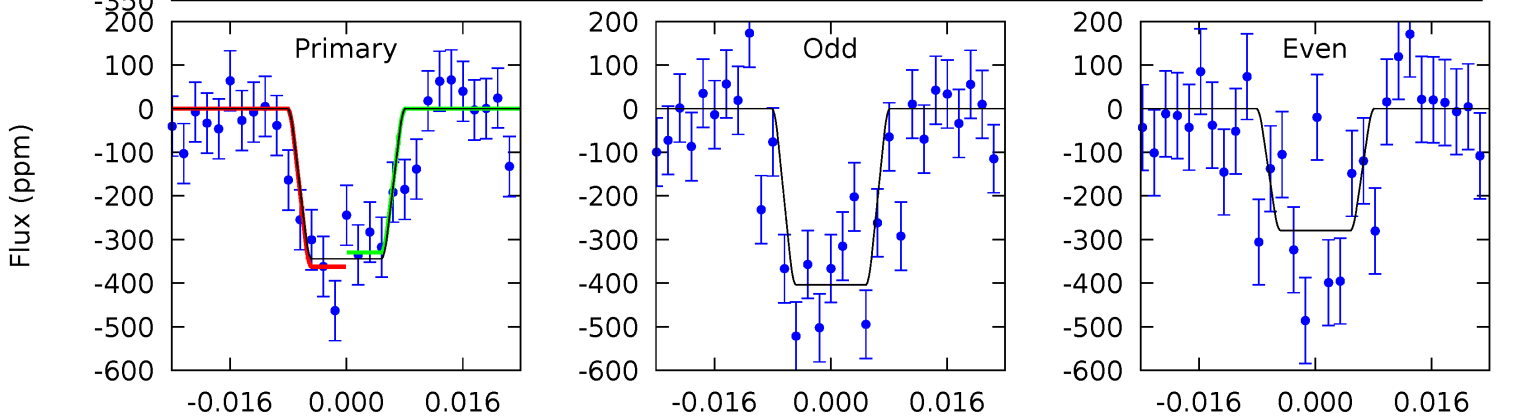


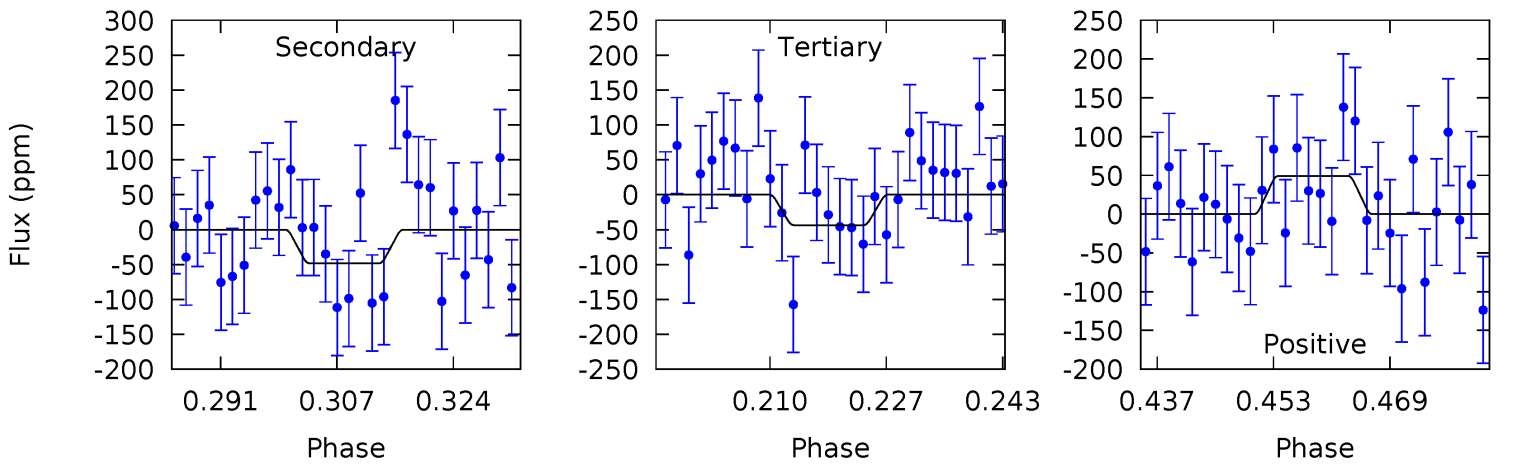
Alt Model-Shift Uniqueness Test

006520753-02, P = 8.119247 Days, E = 135.186322 Days

Pri	Sec	Ter	Pos	FA_1	FA_2	F_{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
15.4	2.16	1.96	2.21	4.93	2.40	0.78	13.5	13.2	0.21	-0.05	2.80	1.09	0.13	0.73







Stellar Parameters For KIC 006520753

	$T_{\rm eff}(K)$	$\log(g)$	[Fe/H]	R ($R_\odot$)	$M(M_\odot)$	$p_\star$ (g·cm^{-3})
	5490^{+199}_{-182}	$4.557^{+0.048}_{-0.143}$	$-0.160^{+0.300}_{-0.300}$	$0.810^{+0.187}_{-0.080}$	$0.864^{+0.092}_{-0.092}$	$2.292^{+0.563}_{-0.917}$
	+4%/-3%	+1%/-3%	+188%/-188%	+23%/-10%	+11%/-11%	+25%/-40%
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 006520753-02 / KOI 4504.02

Detrend	Depth (ppm)	R_p ($R_\oplus$)	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-108±22	$1.83^{+0.62}_{-0.52}$	1127^{+65}_{-55}	4179^{+644}_{-422}	99^{+97}_{-46}
Alt.	-48±22	$1.77^{+0.62}_{-0.59}$	1132^{+63}_{-57}	3680^{+531}_{-477}	46^{+58}_{-27}

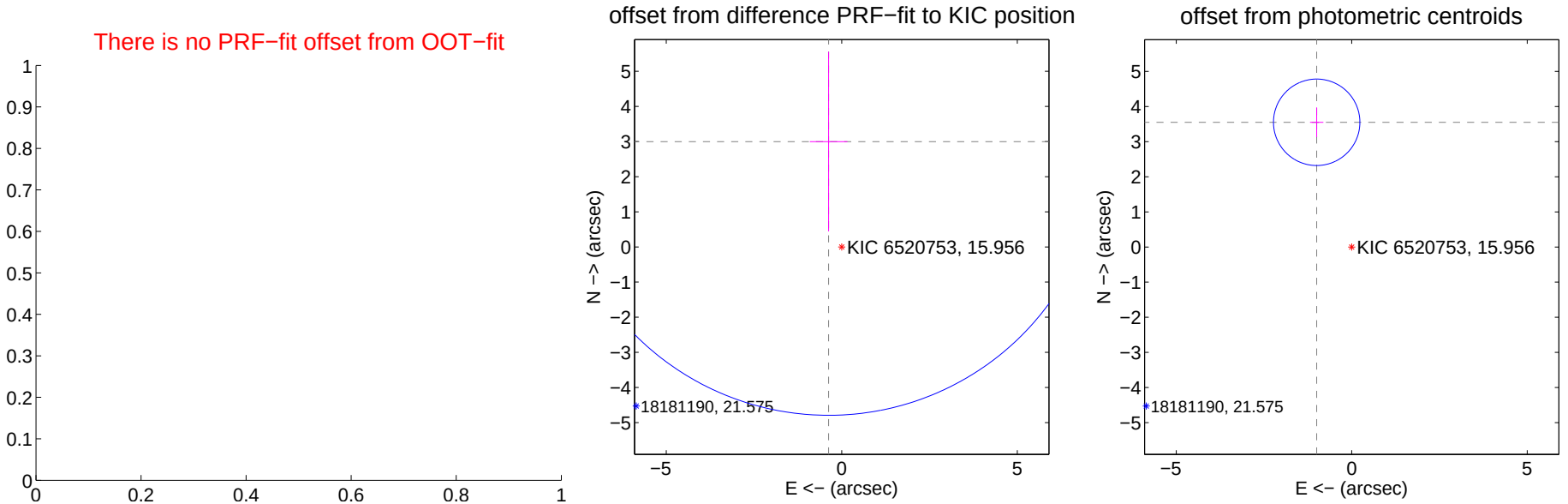
T_{max} = Theoretical Maximum Planetary Temperature
T_{obs} = Observed Planetary Temperature (Assuming A=0.3)
A_{obs} = Observed Albedo (Assuming T=0)

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

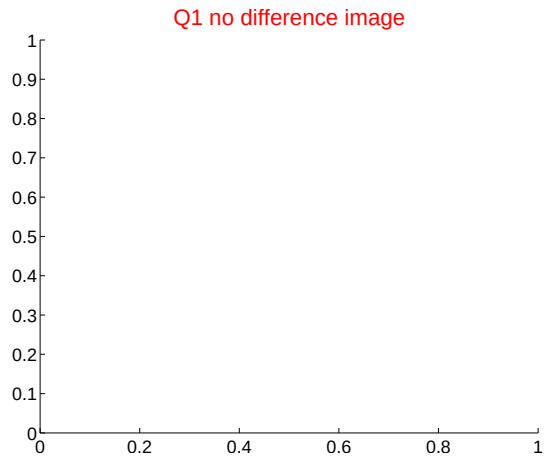
Supplemental centroid analysis for 006520753-02. Kepler magnitude: 15.96. Transit SNR 9.74
There are 2 quarters with good PRF difference image offsets
The direct PRF centroid is offset from the target star catalog position by about NaN arcsec

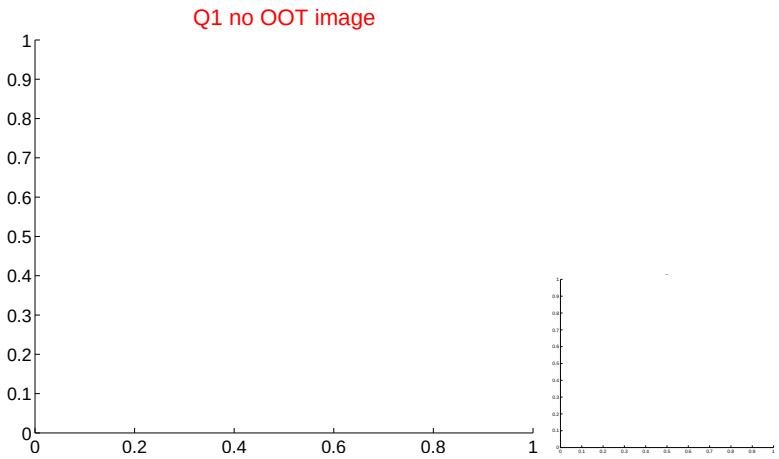
	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	—	—	—	—
PRF-fit source offset from KIC position	3.022 ± 2.597	1.16	0.375 ± 0.535	2.998 ± 2.556
photometric centroid source offset	3.69 ± 0.41	8.99	1.00 ± 0.19	3.55 ± 0.42

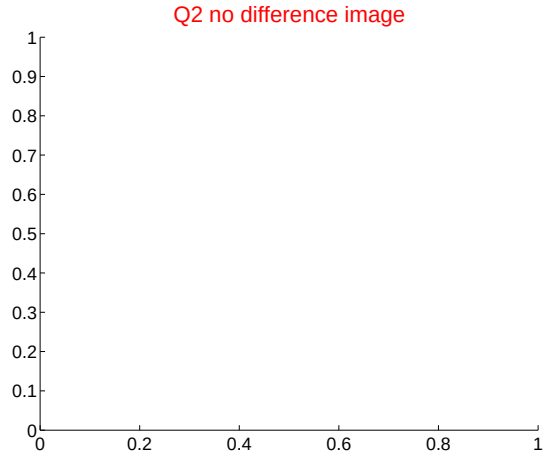


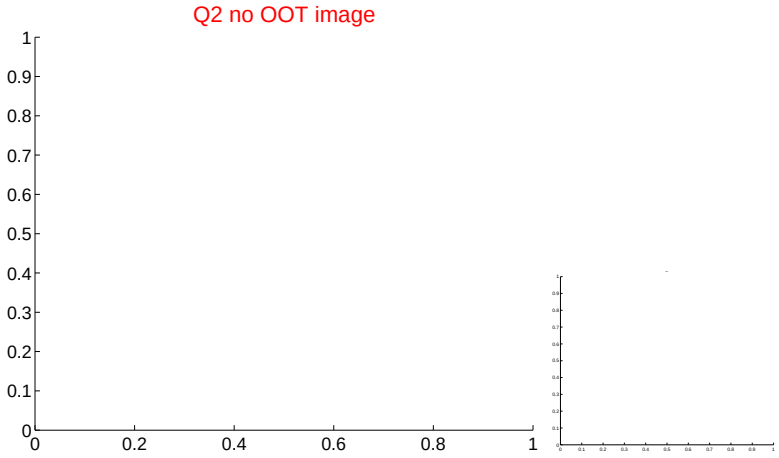
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one-σ uncertainty. Blue circle: three-σ. Red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

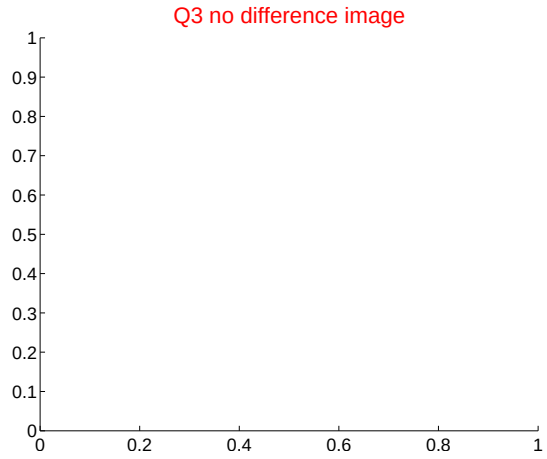
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.

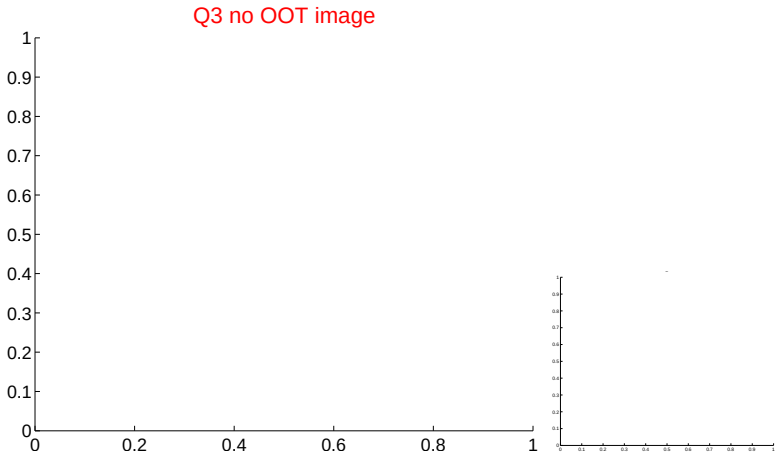


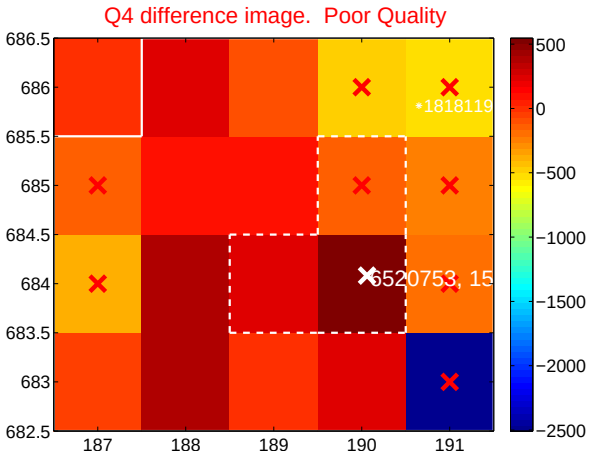


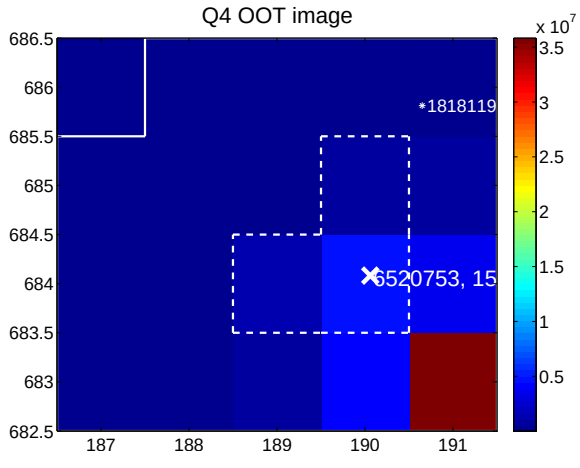




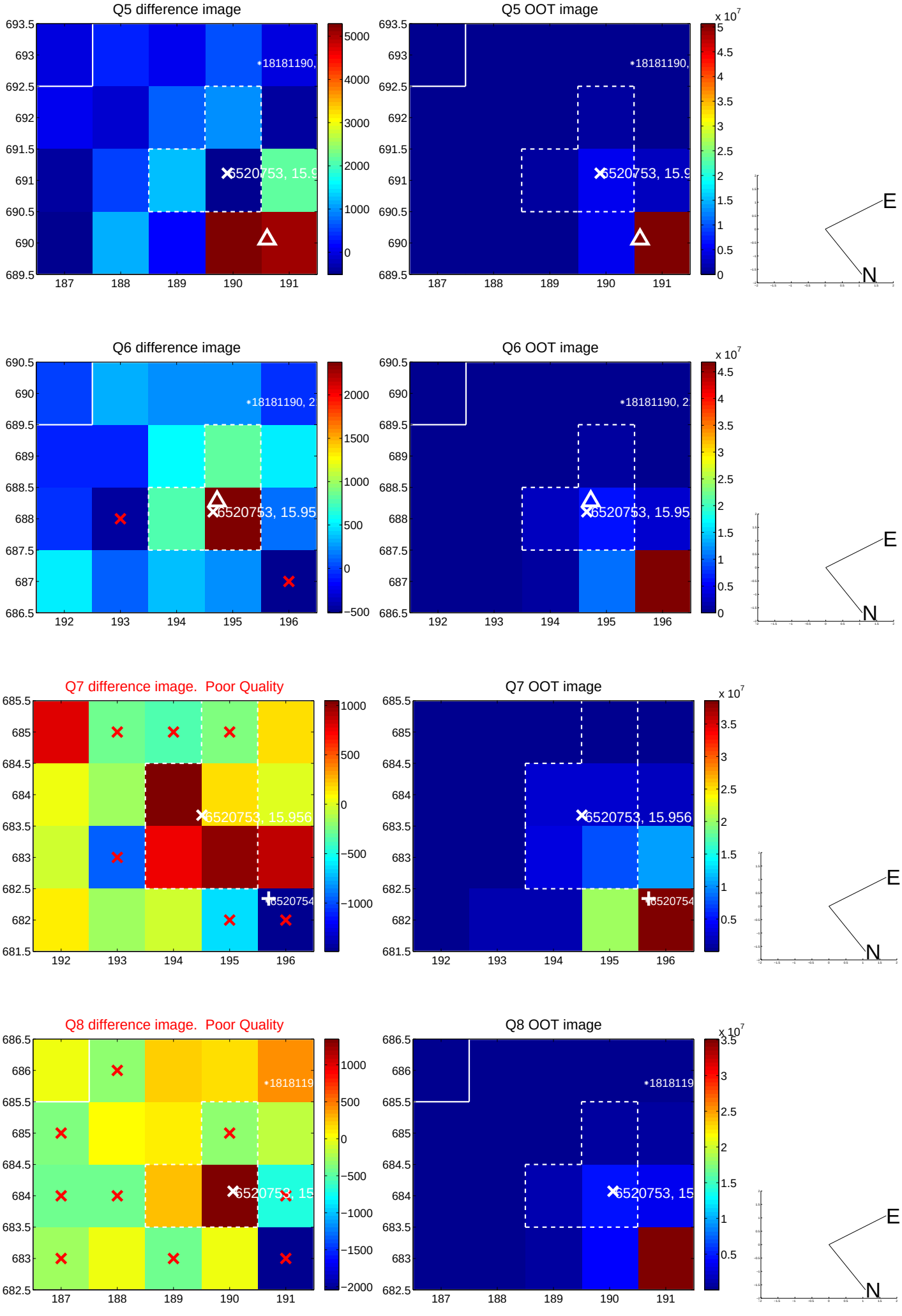




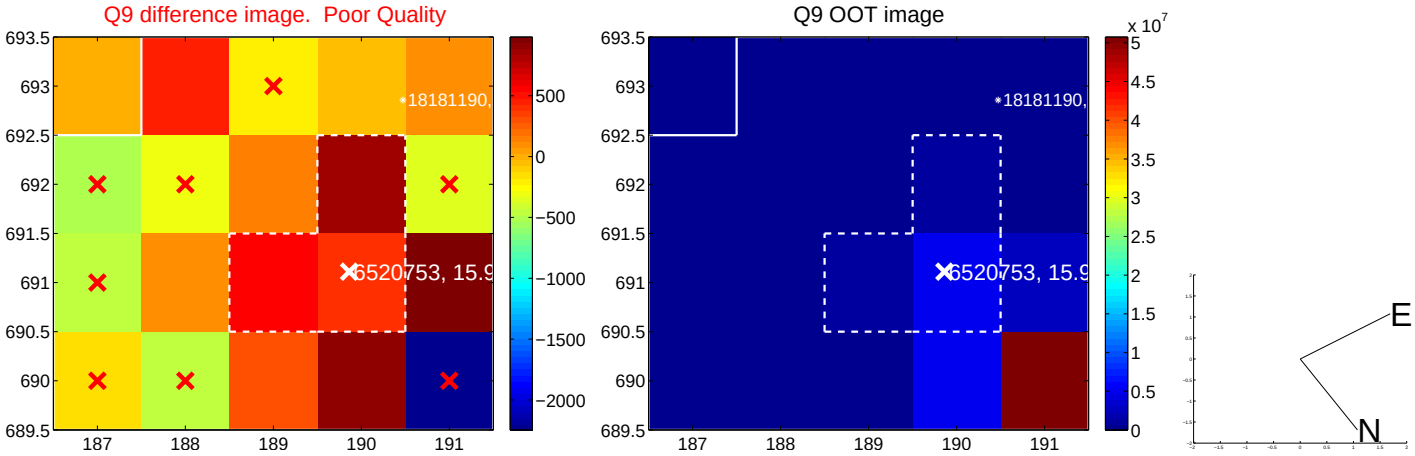


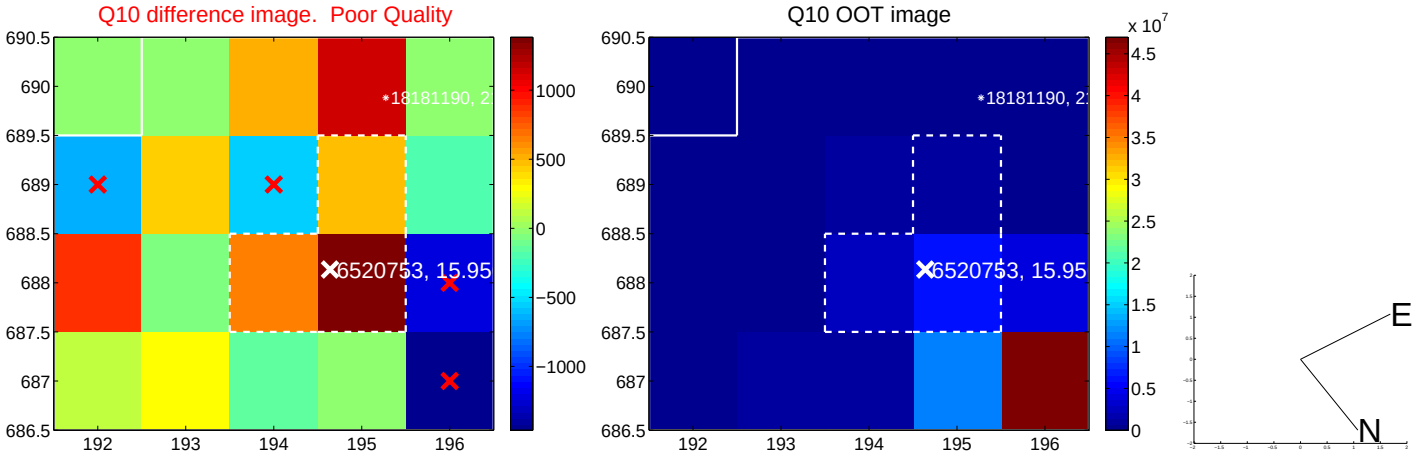


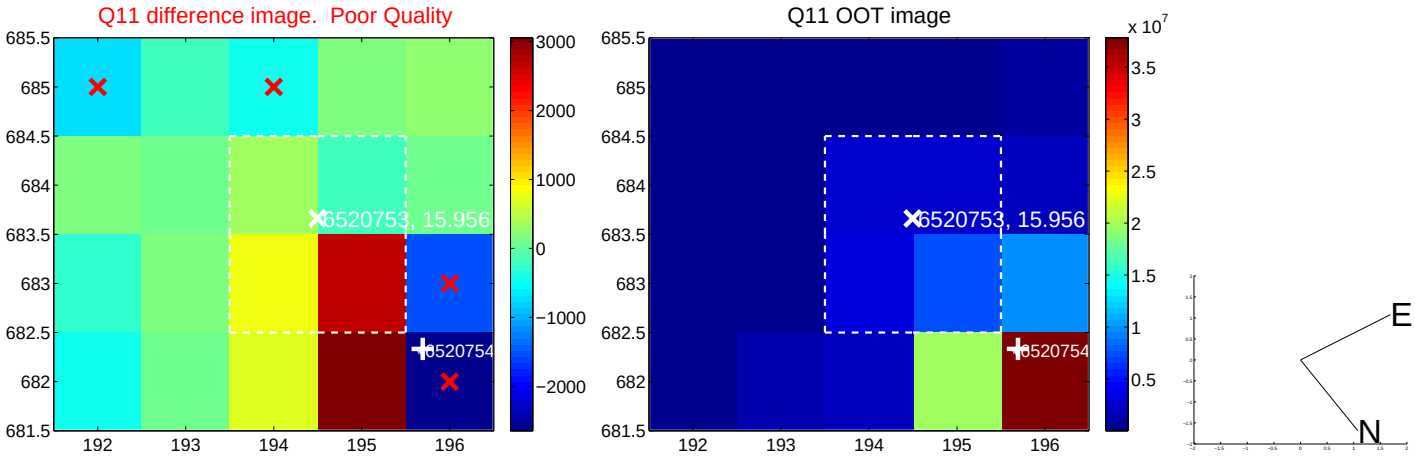
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.

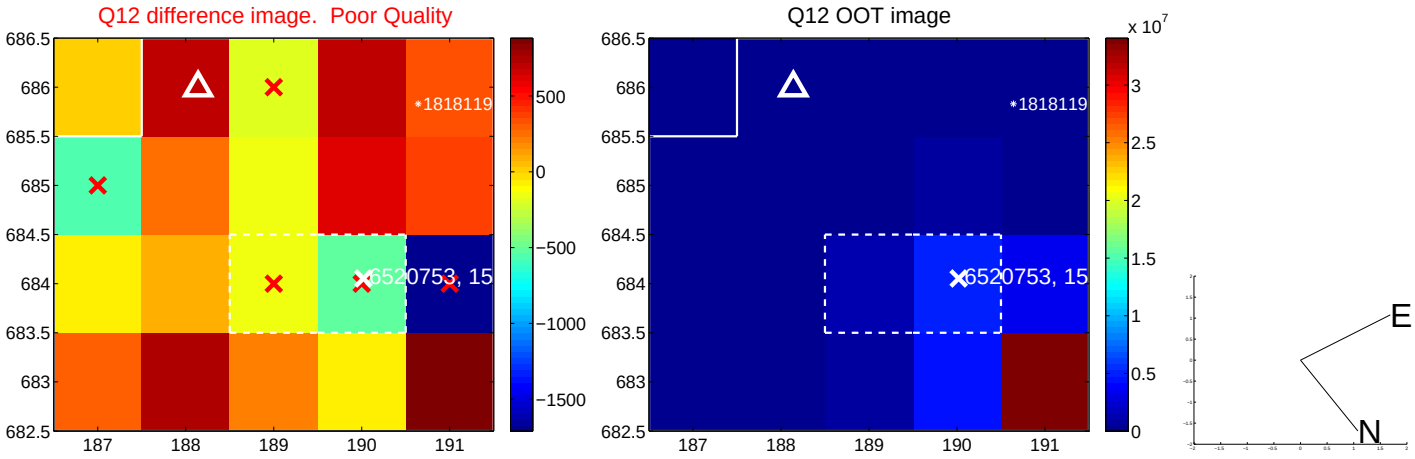


white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.

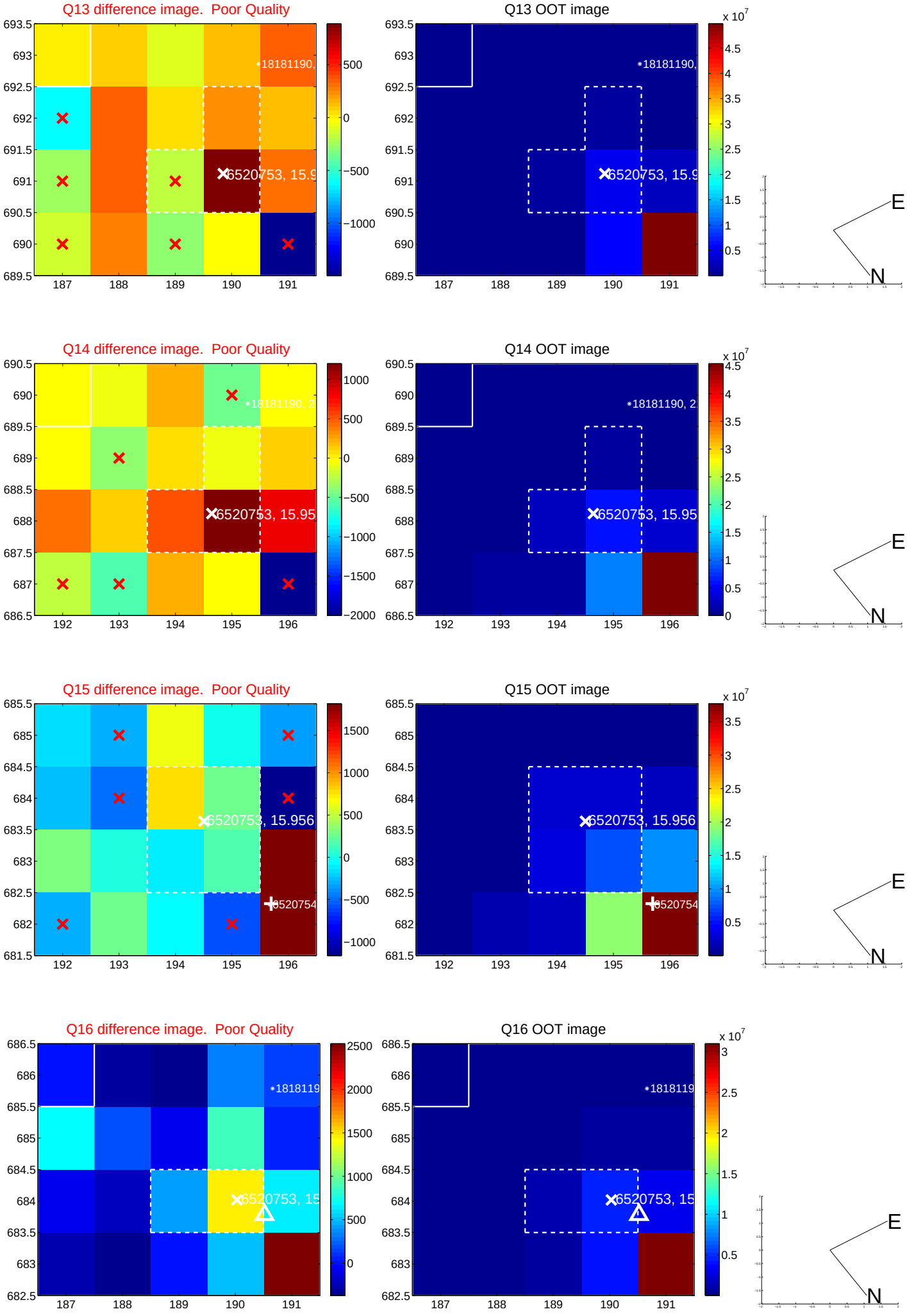








white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.



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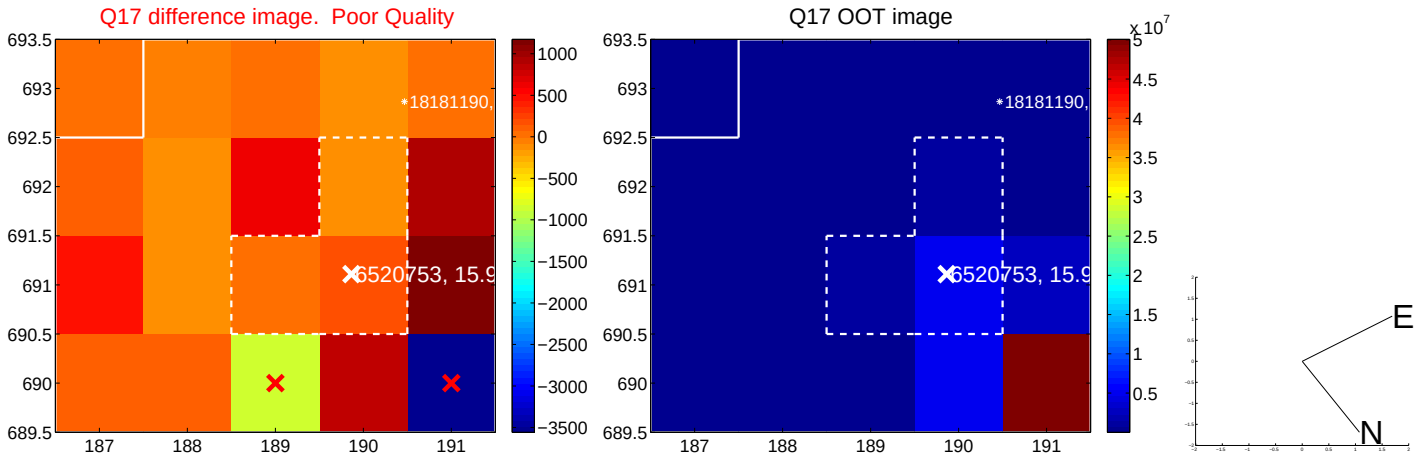
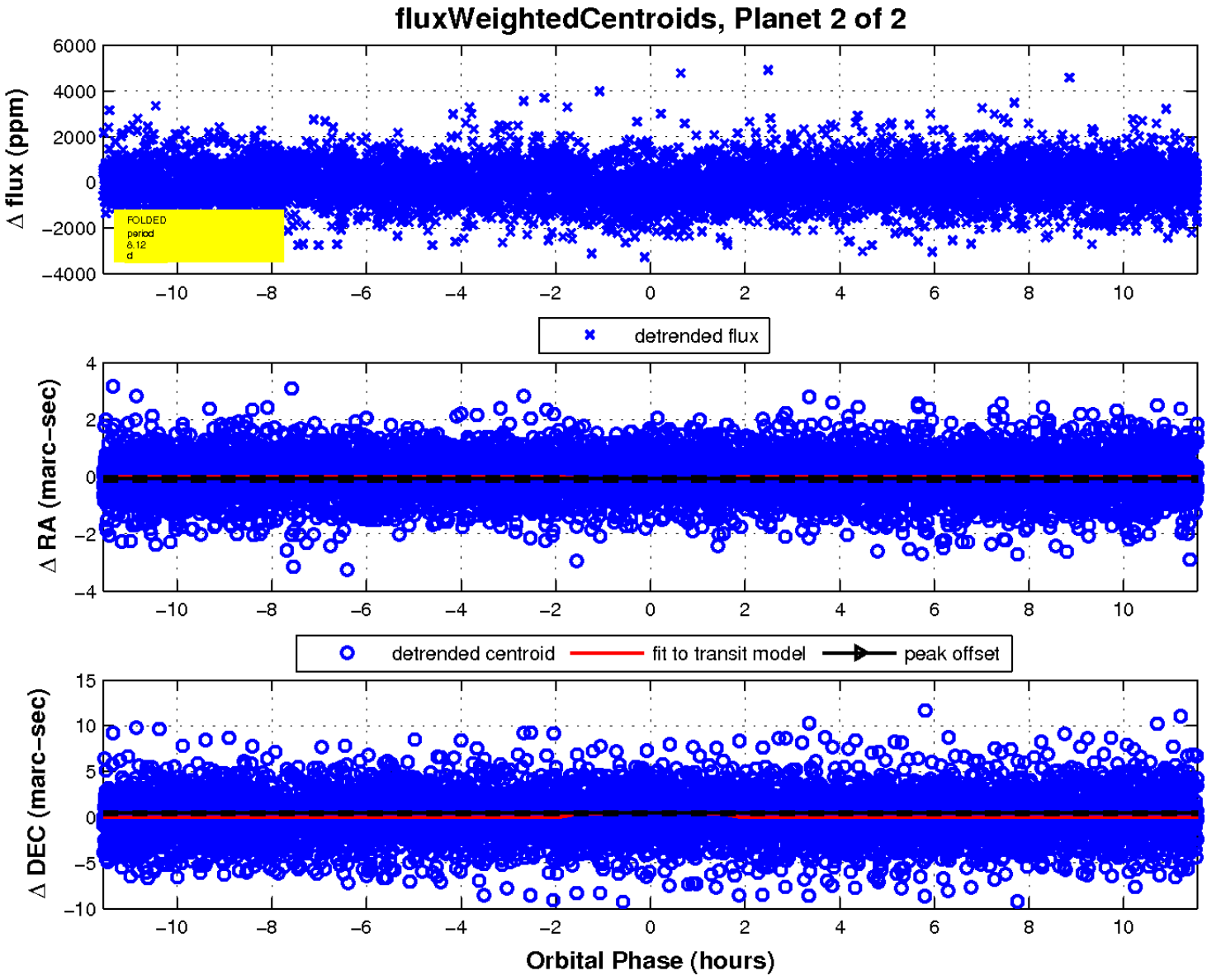
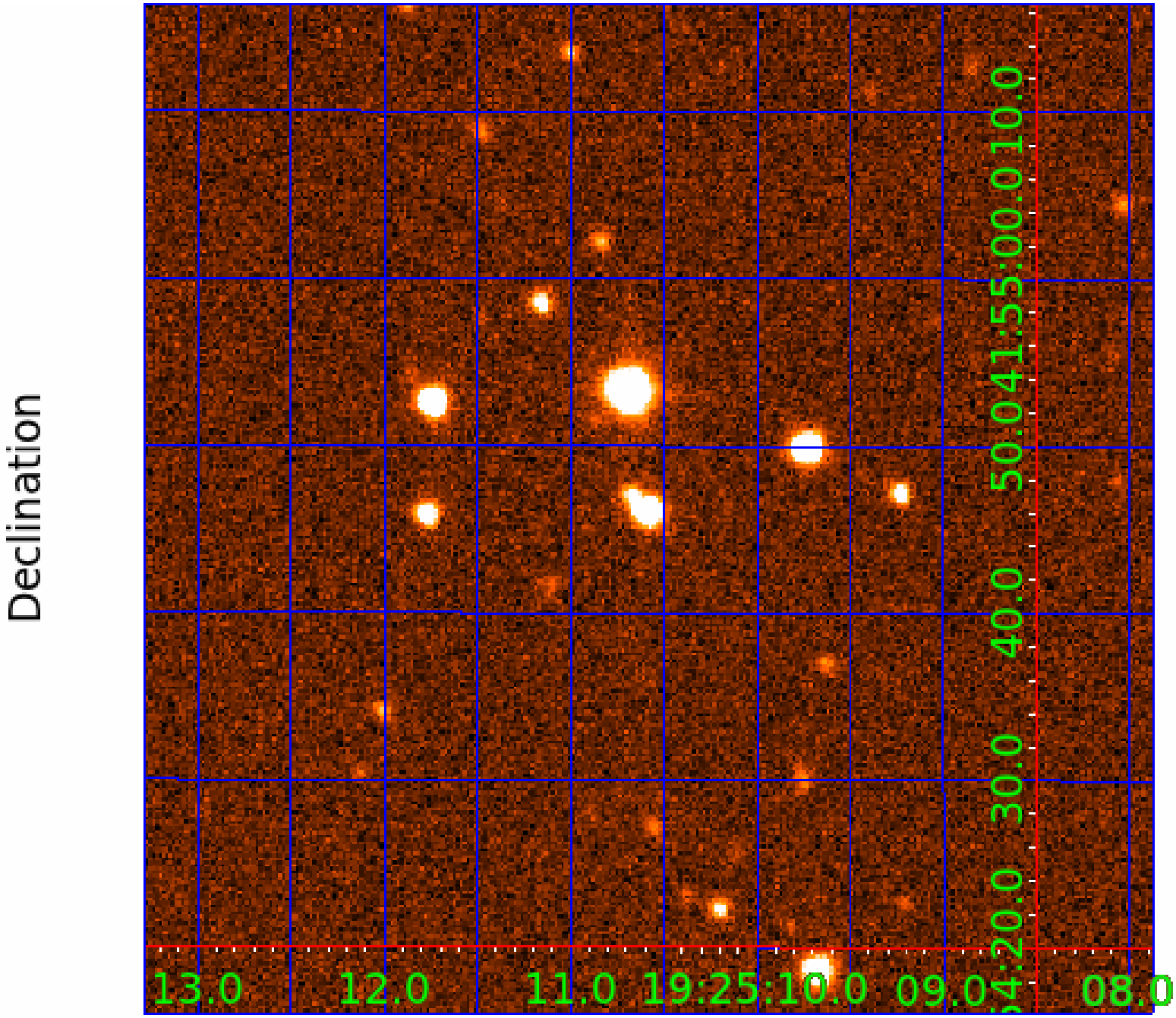




UKIRT Image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