

KIC 007707736

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})
007707736-01	OBS	No	1.516709	132.624429	8436.3	3.232	303.9	305.4	0.78	5629	13.04	911.85
007707736-02	OBS	6909.01	1.516703	131.867444	35037.1	2.000	604.5	-1.0	0.78	5629	14.59	911.86

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
007707736-01	OBS	FP	0.00	1	0	0	1	LPP_ALT—CENT_KIC_POS—EPHEM_MATCH
007707736-02	OBS	FP	0.00	1	0	0	1	LPP_ALT—SAME_NTL_PERIOD—CENT_NOFITS—EPHEM_MATCH

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 007707736-01

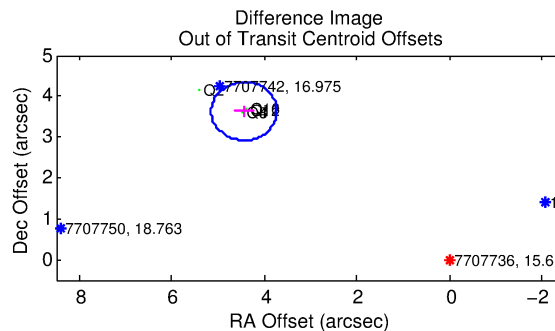
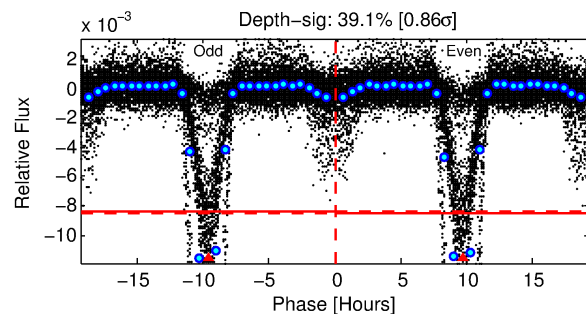
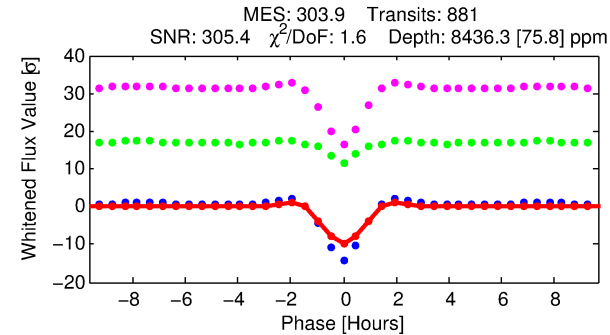
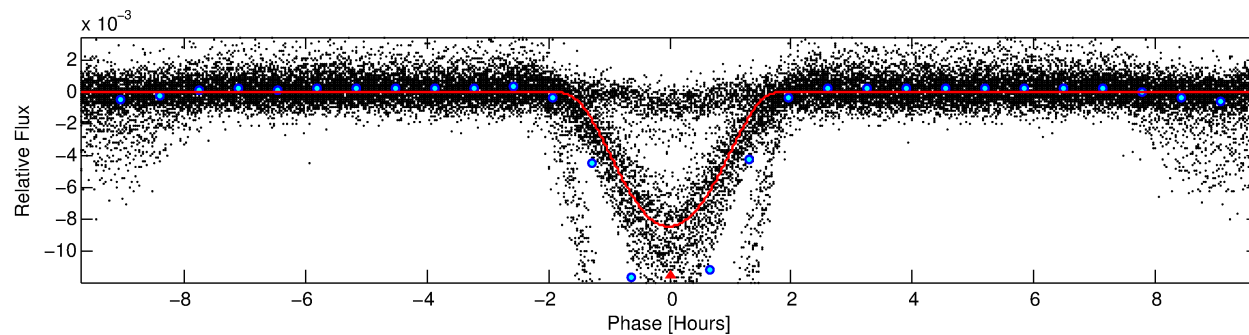
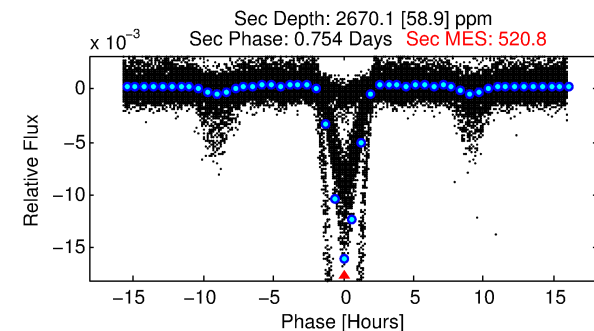
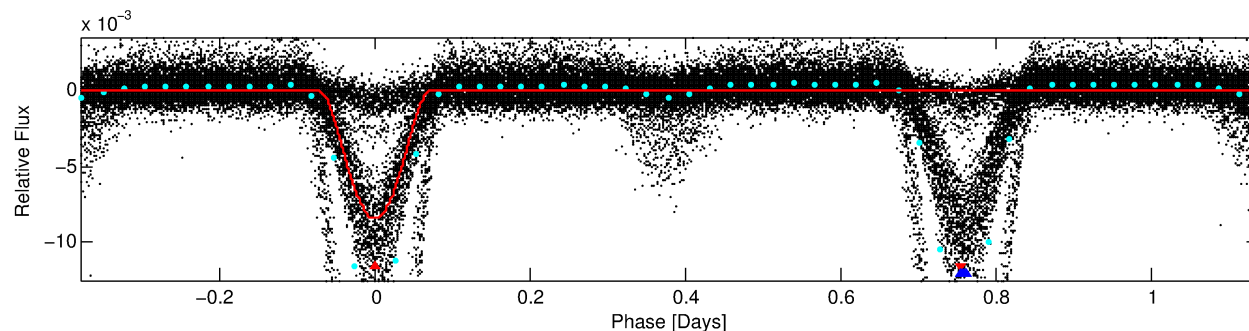
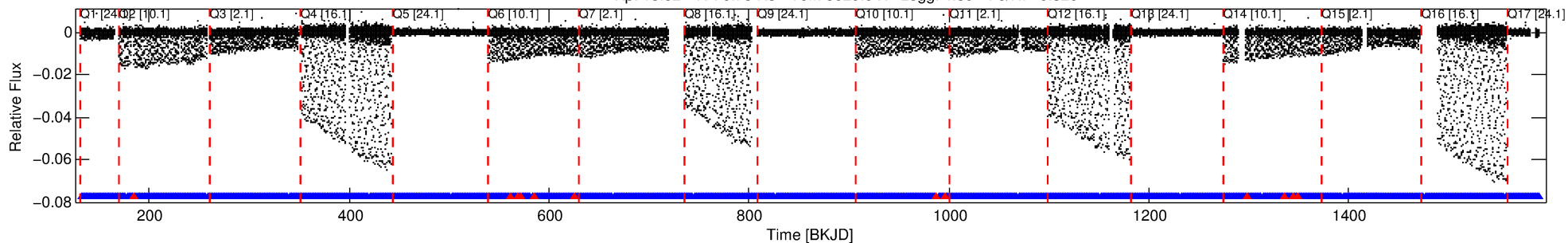
TCE (1)	KIC	Parent (2)	Parent KIC	$P_1:P_2$	Dist ($''$)	Δ Row	Δ Col	m_2	m_1	D_2/D_1	Mechanism	Flag	σ_P	σ_T
007707736-01	7707736	007707742-pri	7707742	2:1	6.5	-2	0	16.98	15.62	63.95	Direct-PRF	0	0.05	0.04

Notes: $P_1:P_2$ is the period ratio. Dist is the distance in arcseconds. Δ Row and Δ Col are the number of pixels apart in row and column. m_2 and m_1 are the magnitudes of the parent and child. D_2/D_1 is the parent's transit depth divided by the child's. σ_P and σ_T are the significance of the match in period and epoch. For a match to be considered significant $\sigma_P < 5.0$ and $\sigma_T < 5.0$. Matches which have σ_P and σ_T very close to this cutoff should receive extra scrutiny, especially if the period ratio is very large.

DV One-Page Summary

KIC: 7707736 Candidate: 1 of 2 Period: 1.517 d
KOI: K06909 Corr: No Ephemeris Match

Kp: 15.62 R*: 0.78 Rs Teff: 5629.0 K Logg: 4.59 Fe/H: -0.320



DV Fit Results:

Period = 1.51671 [0.00000] d
Epoch = 132.6244 [0.0001] BKJD
Rp/R* = 0.1526 [0.0231]
a/R* = 2.32 [0.03]
b = 1.00 [0.03]
Seff = 911.85 [269.42]
Teq = 1401 [104] K
Rp = 13.04 [3.62] Re
a = 0.0246 [0.0047] AU
Ag = 5.22 [2.12] [1.99σ]
Teffp = 3275 [267] K [6.54σ]

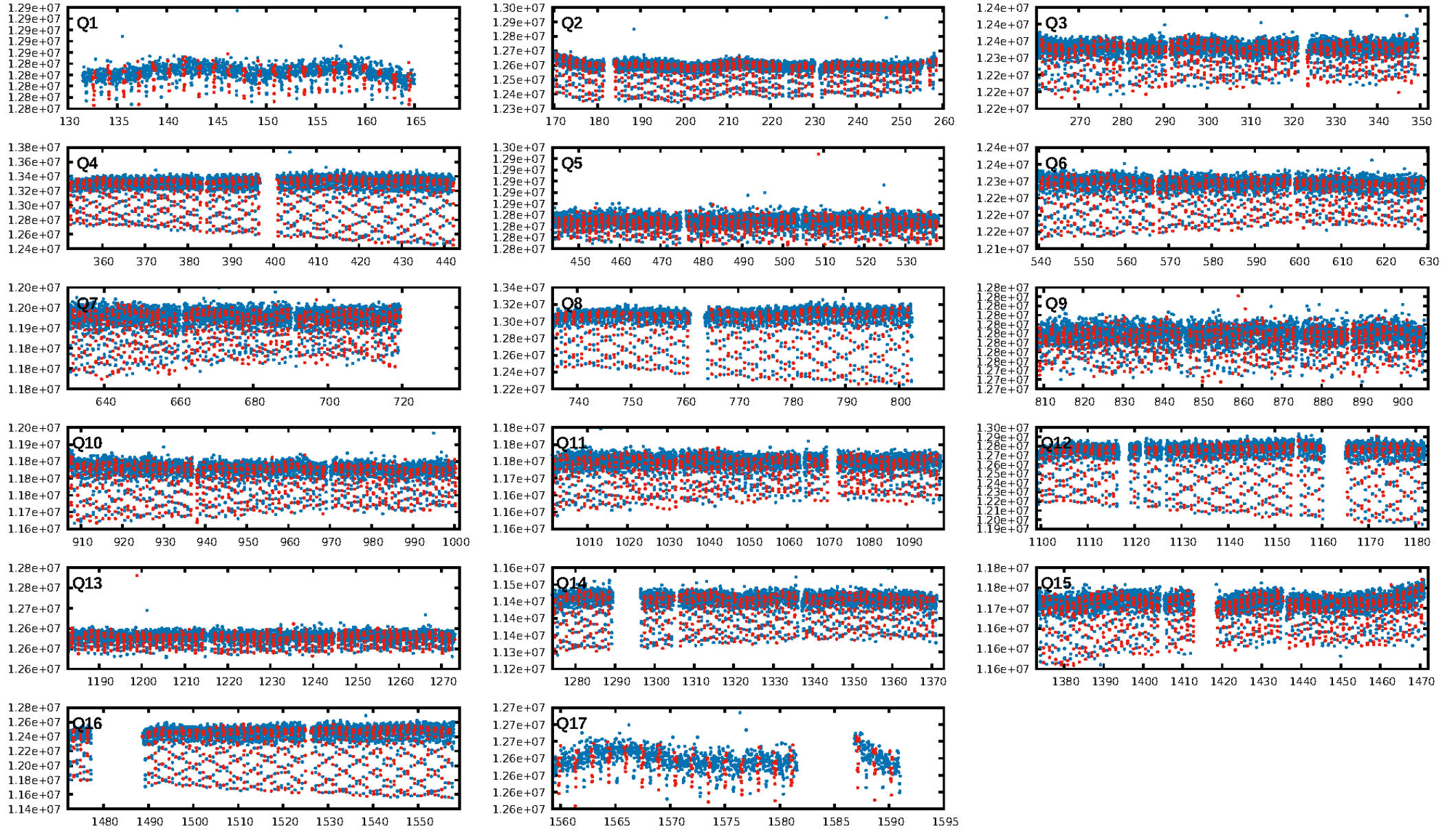
DV Diagnostic Results:

ShortPeriod-sig: 0.0% [0.00σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: N/A
RollingBand-fgt: 0.99 [829/841]
GhostDiagnostic-chr: -0.5584
Centroid-sig: N/A
Centroid-so: 42.218 arcsec [1049.89σ]
OotOffset-rm: 5.734 arcsec [24.20σ]
KicOffset-rm: 6.460 arcsec [58.97σ]
OotOffset-st: 1/0/4/0 [5]
KicOffset-st: 1/0/4/0 [5]
DiffImageQuality-fgm: 1.00 [5/5]
DiffImageOverlap-fno: 1.00 [17/17]

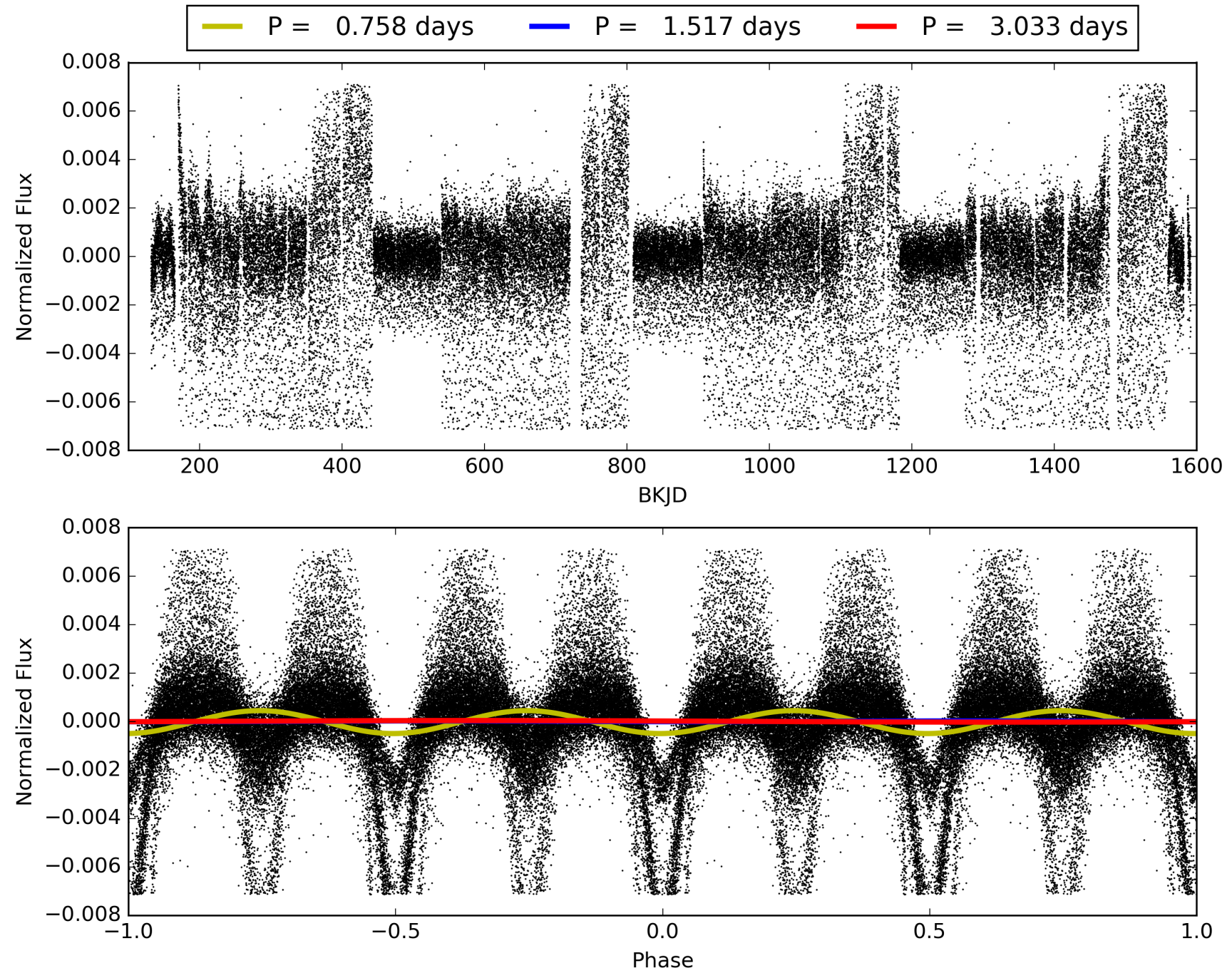
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This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

TCE 007707736-01, PDC Light Curves

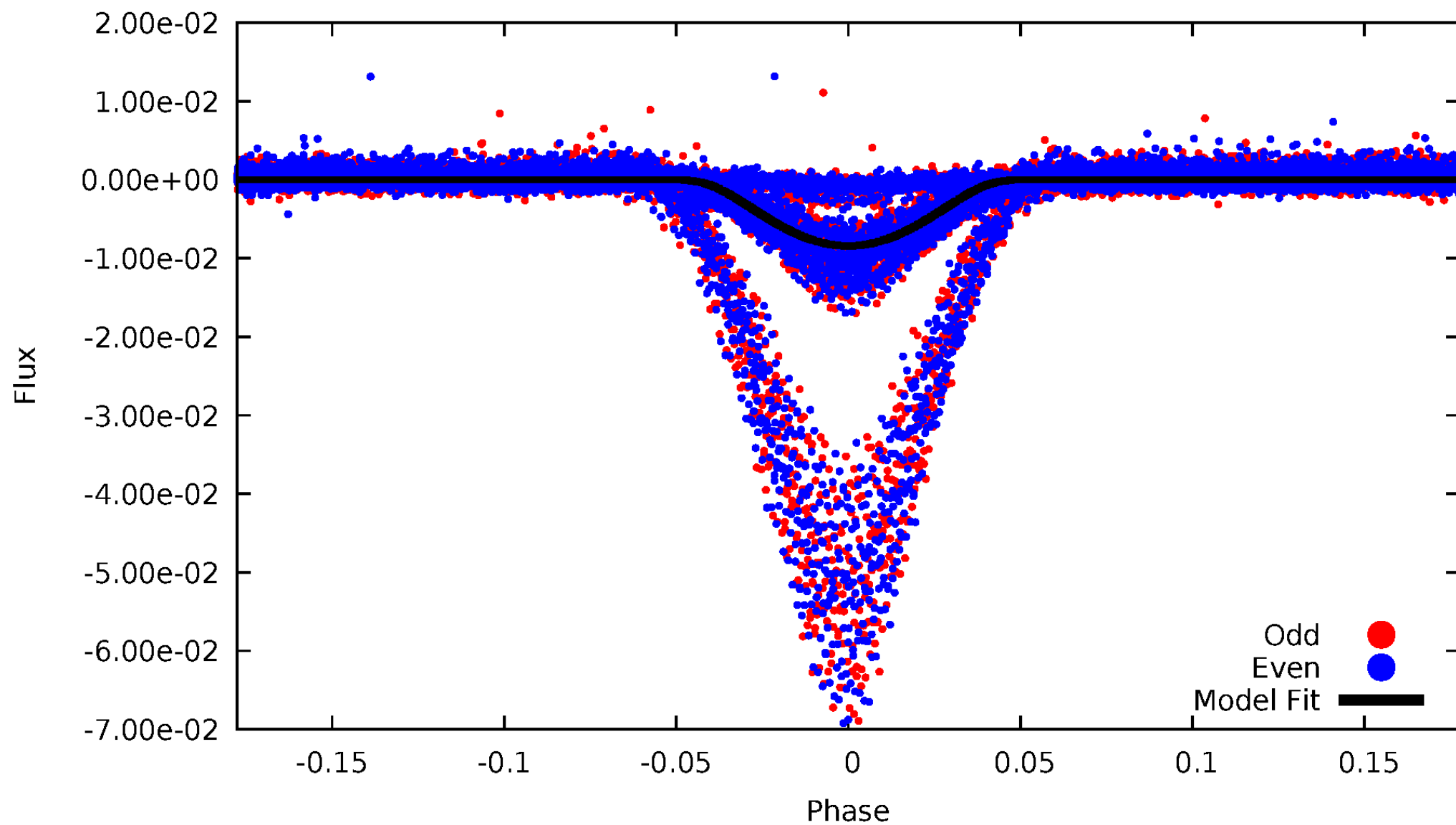


TCE 007707736-01



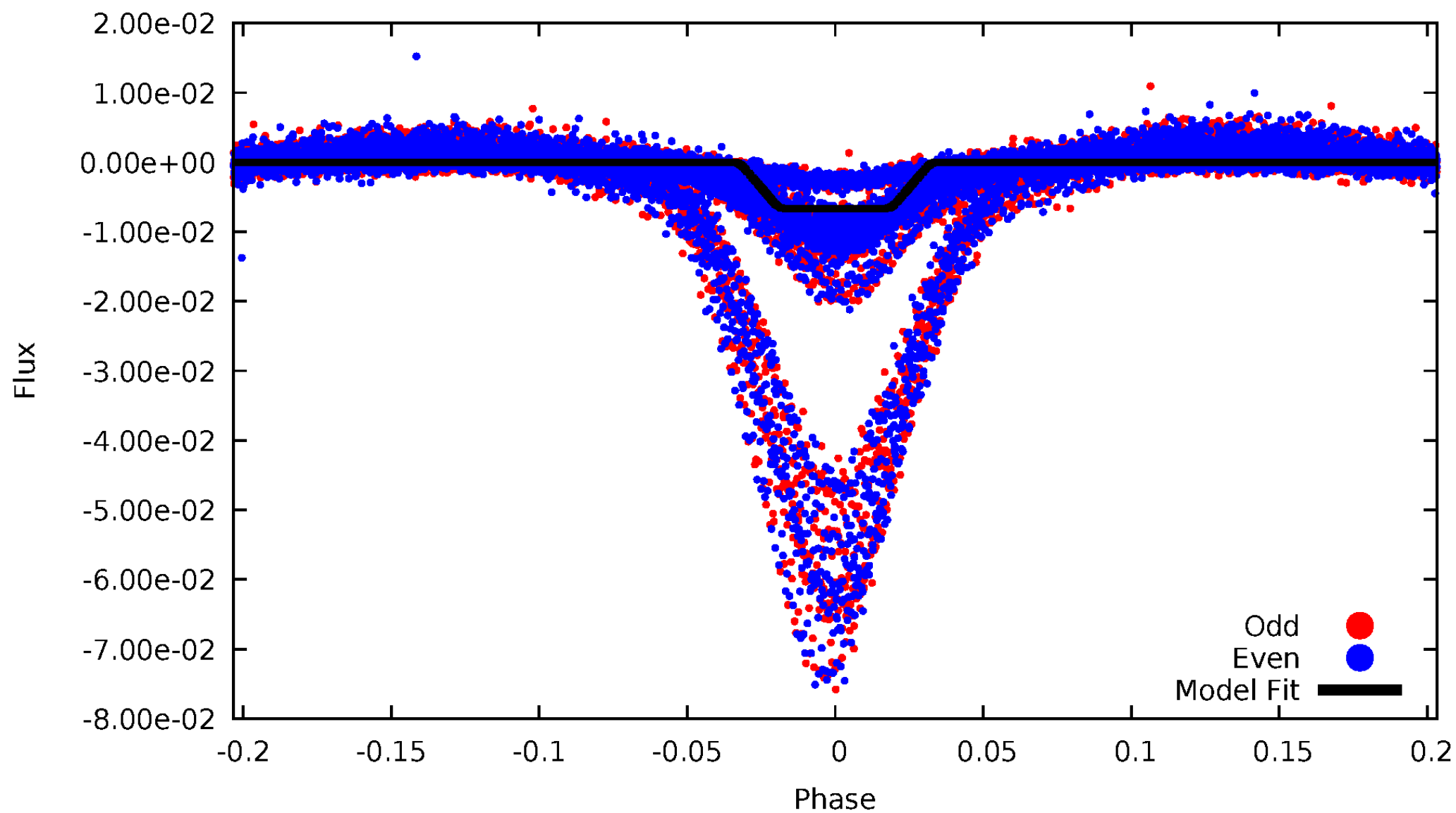
DV Odd/Even

TCE 007707736-01



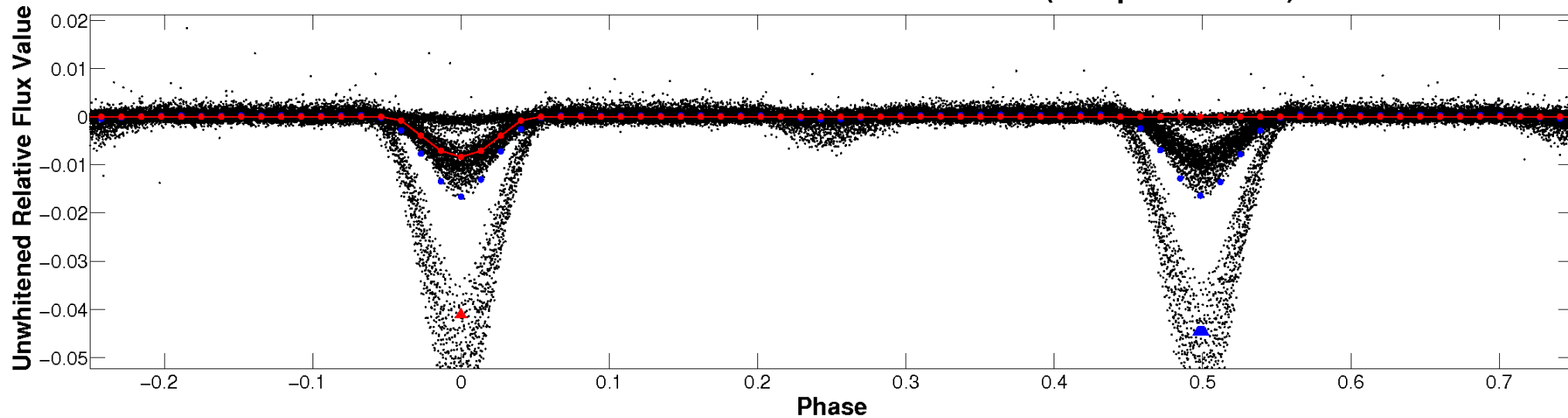
ALT Odd/Even

TCE 007707736-01

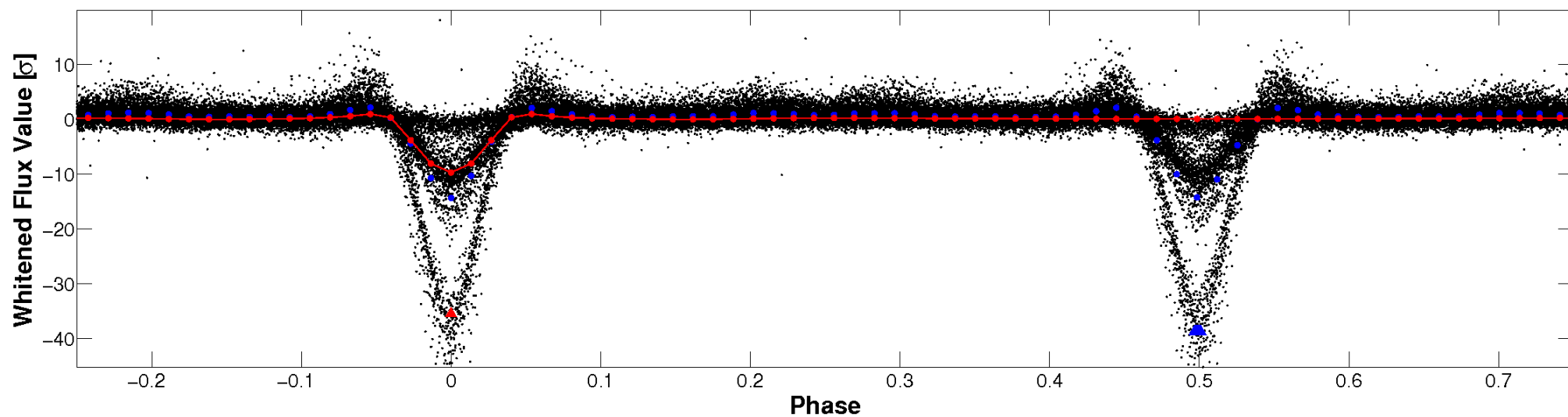


Non-Whitened Vs. Whitened Light Curve

Planet 1 : Phased Unwhitened Flux Time Series (Fit Epoch/Period)

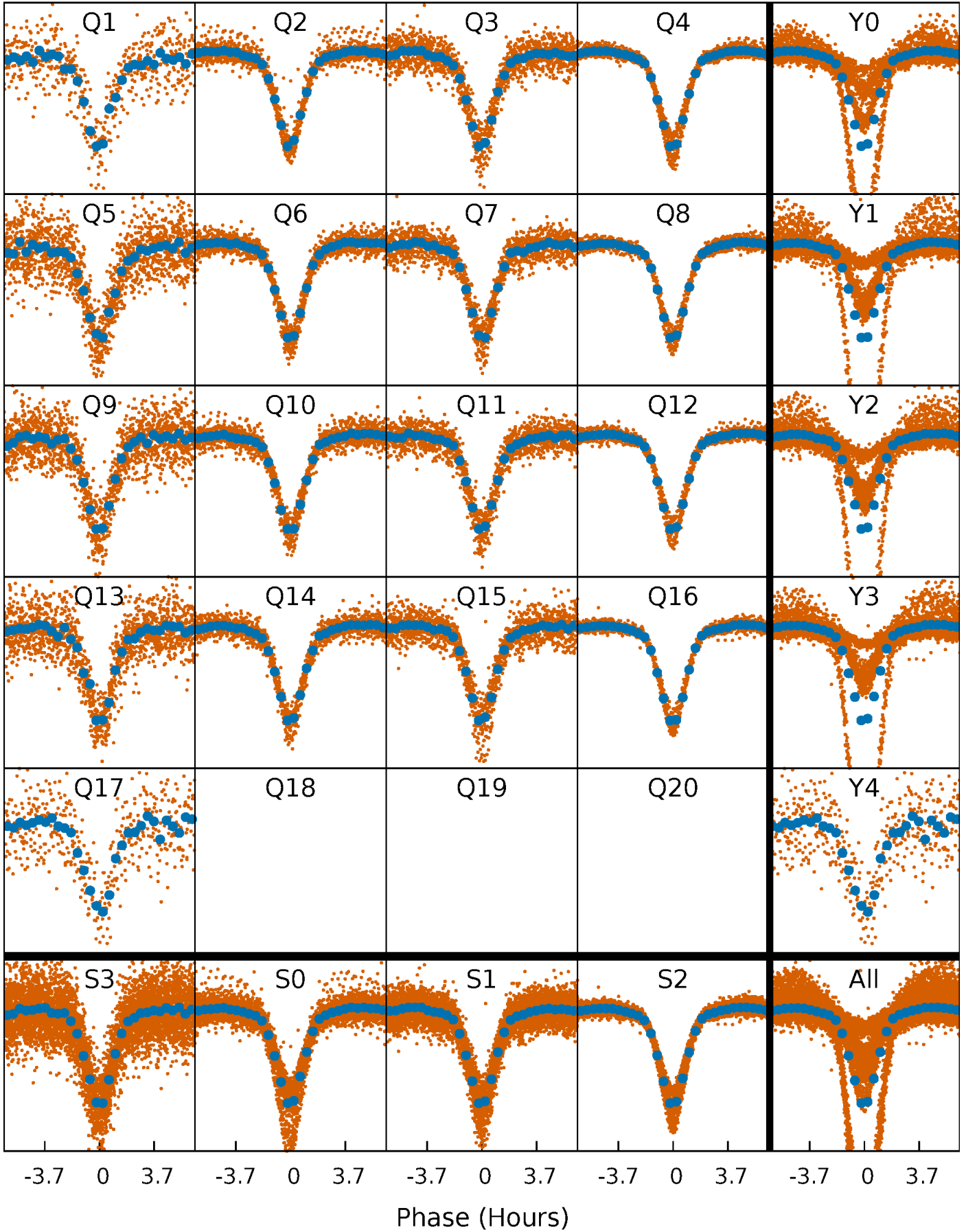


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



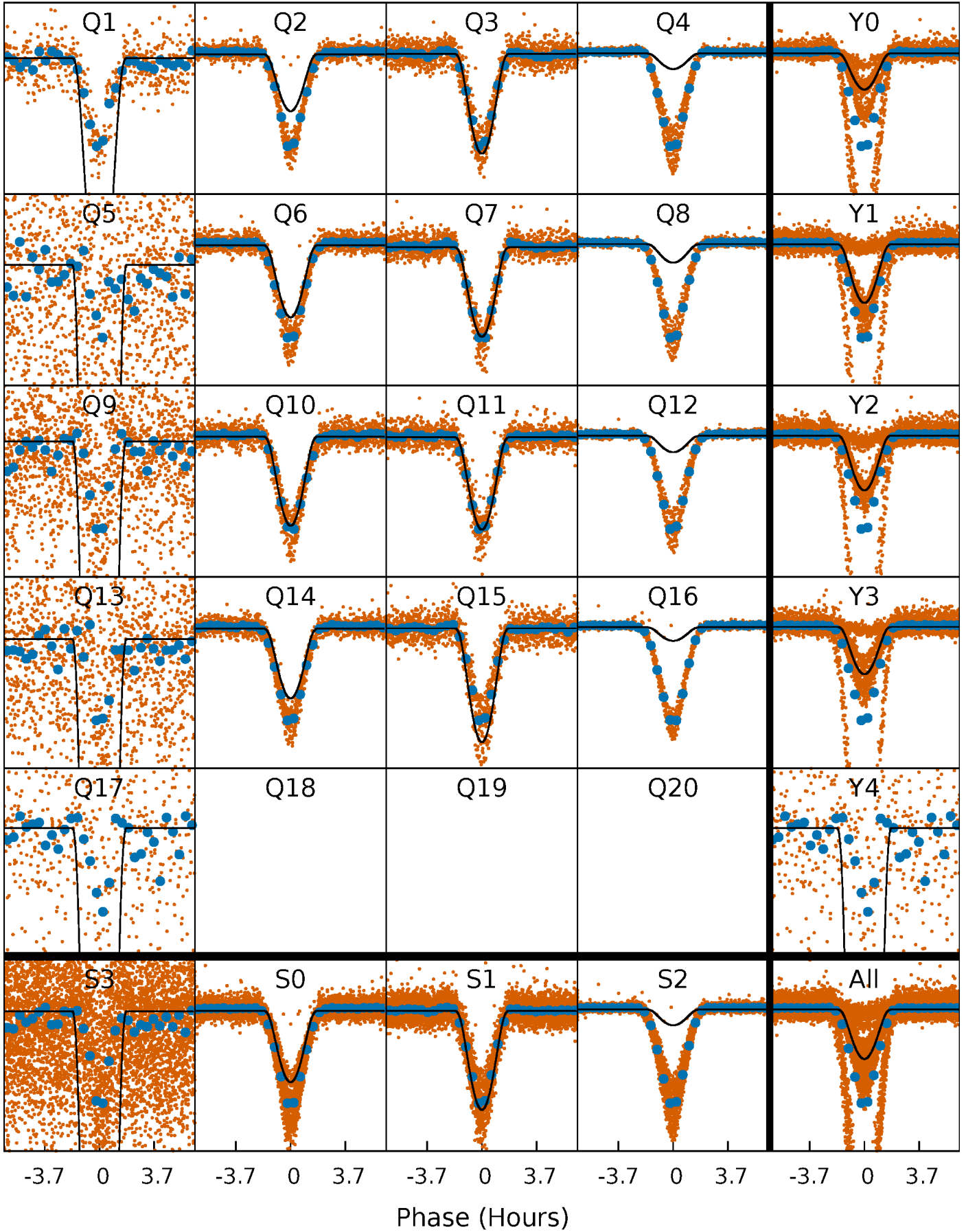
PDC Quarter-Phased Transit Curves

TCE 007707736-01 P= 1.516709 Days $T_0=132.624429$ (BKJD)



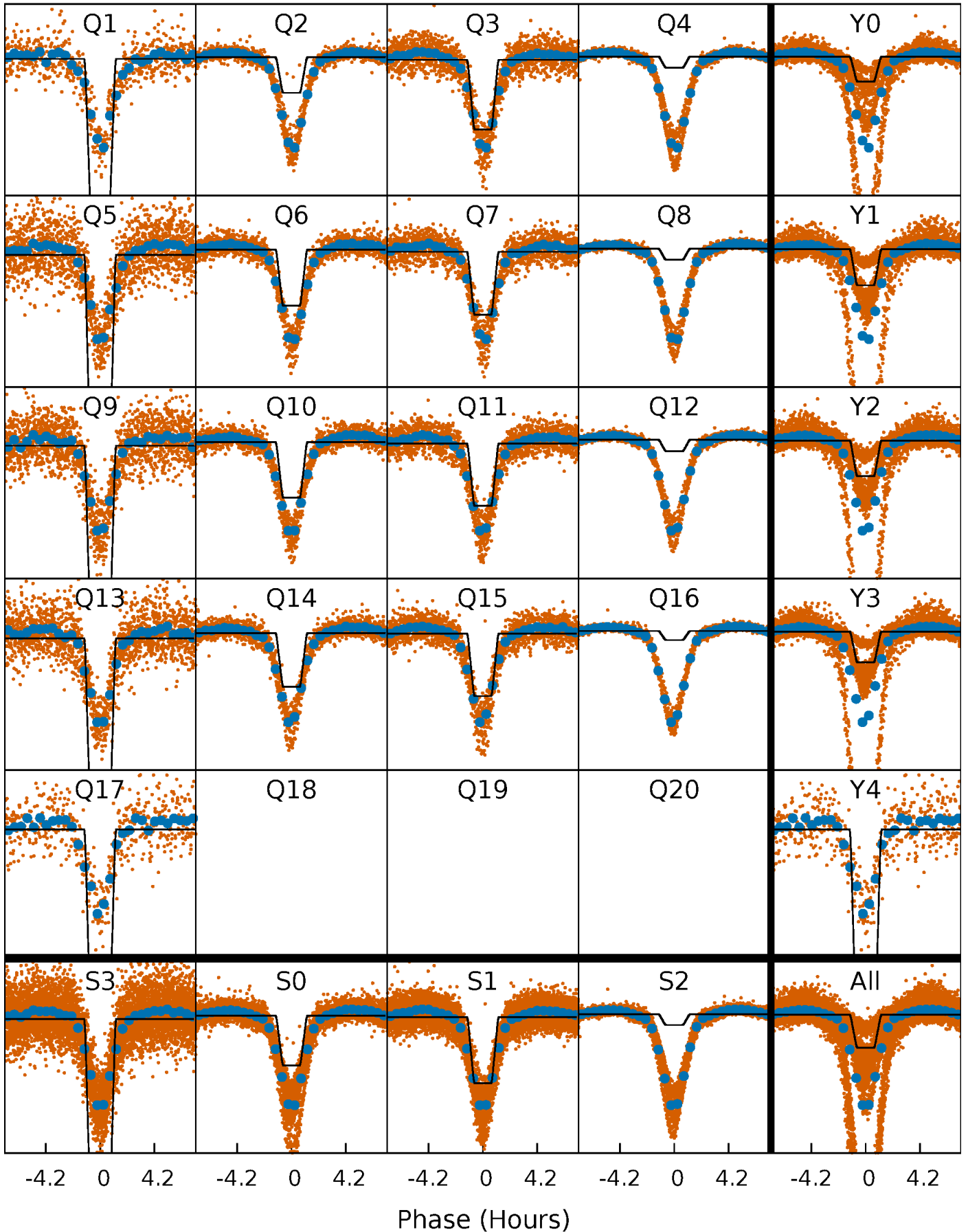
DV Quarter-Phased Transit Curves

TCE 007707736-01 P= 1.516709 Days $T_0=132.624429$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

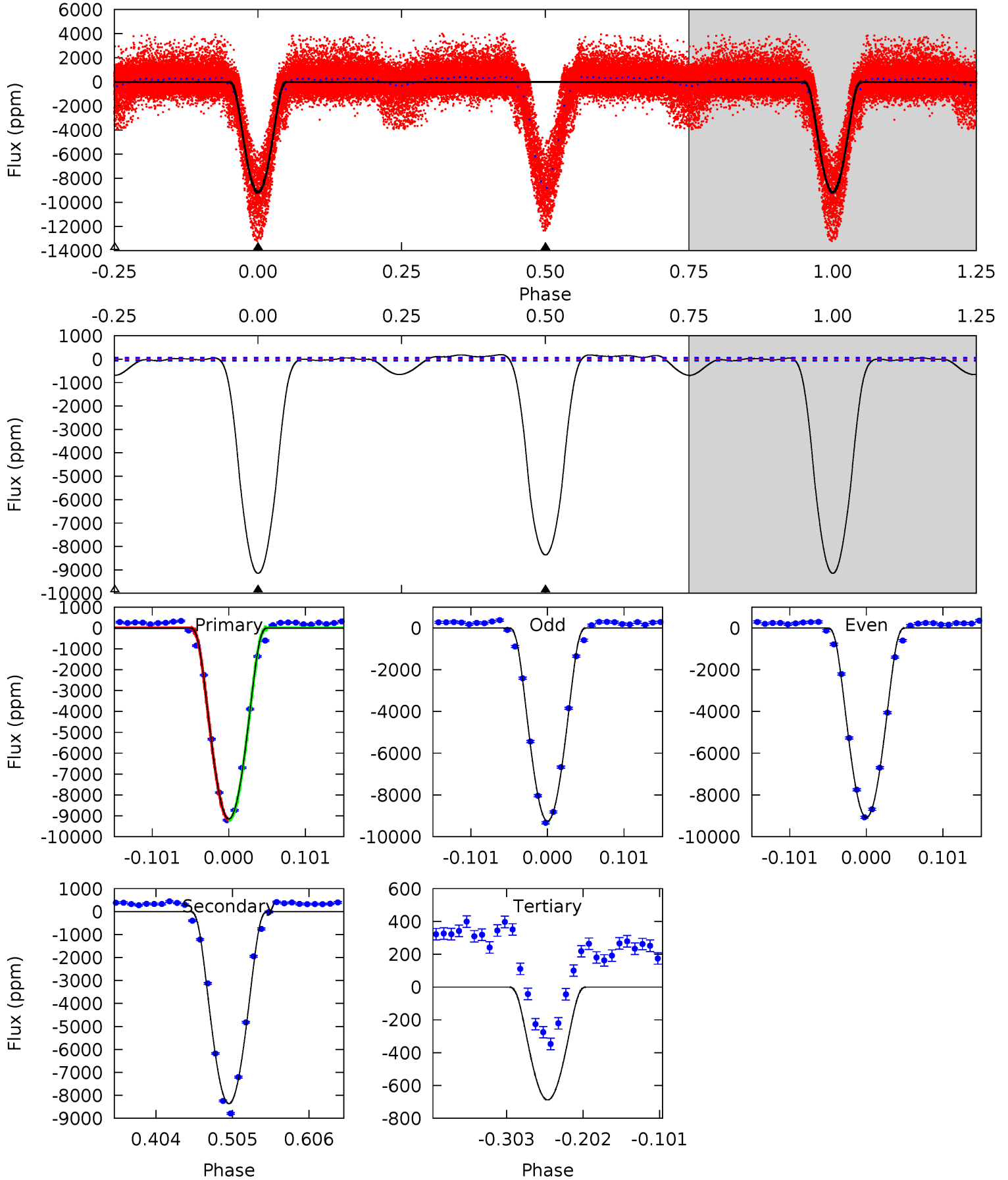
TCE 007707736-01 P= 1.516720 Days $T_0=132.618332$ (BKJD)



DV Model-Shift Uniqueness Test

007707736-01, P = 1.516709 Days, E = 131.107720 Days

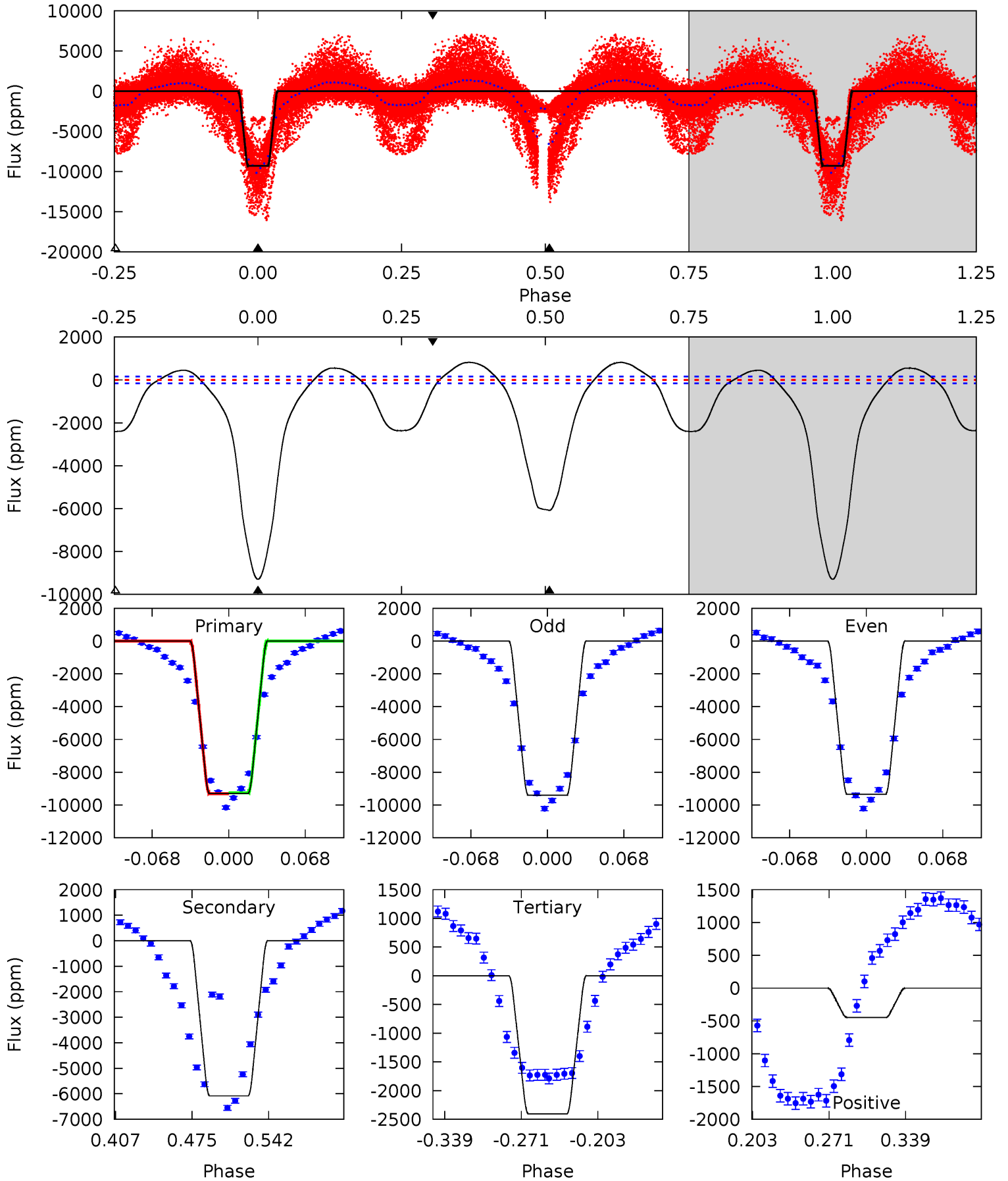
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
662.4	605.4	49.8	0	4.56	1.64	17.9	612.6	662.4	555.6	605.4	6.42	1.81	0.02	0.86



Alt Model-Shift Uniqueness Test

007707736-01, P = 1.516720 Days, E = 131.101612 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
270.2	176.9	70.0	-13.1	4.65	1.83	29.3	200.3	283.3	106.9	189.9	0.91	1.90	0.08	0



Stellar Parameters For KIC 007707736

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	5629^{+169}_{-152}	$4.586^{+0.036}_{-0.144}$	$-0.320^{+0.300}_{-0.300}$	$0.783^{+0.182}_{-0.061}$	$0.875^{+0.088}_{-0.097}$	$2.565^{+0.490}_{-1.104}$
	+3%/-3%	+1%/-3%	+94%/-94%	+23%/-8%	+10%/-11%	+19%/-43%
Source	PHO1	KIC0	KIC0	DSEP		

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

Secondary Eclipse Parameters for KIC 007707736-01 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-8361 ± 14	$13.59^{+2.33}_{-2.24}$	2000^{+111}_{-77}	4538^{+328}_{-280}	15^{+6}_{-4}
Alt.	-6082 ± 34	$7.23^{+2.15}_{-2.06}$	1999^{+112}_{-77}	5567^{+920}_{-634}	39^{+36}_{-15}

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 $T_{\text{obs}} \gg T_{\text{max}}$ AND $A_{\text{obs}} \gg 1.0$

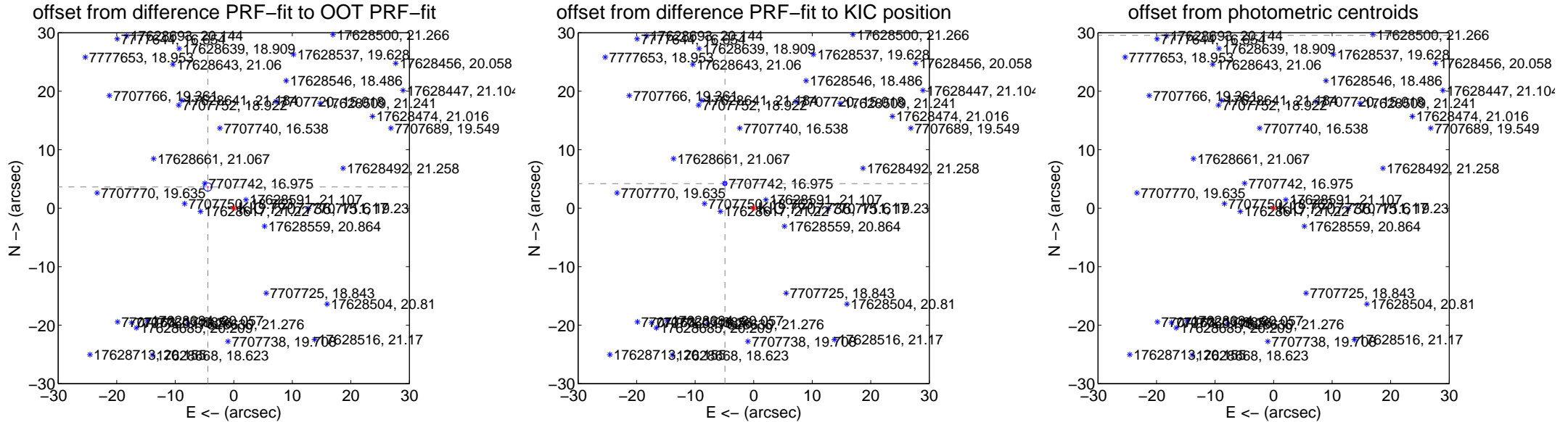
DV Centroid Data

Supplemental centroid analysis for 007707736-01. Kepler magnitude: 15.62. Transit SNR 305.39

There are 5 quarters with good PRF difference image offsets

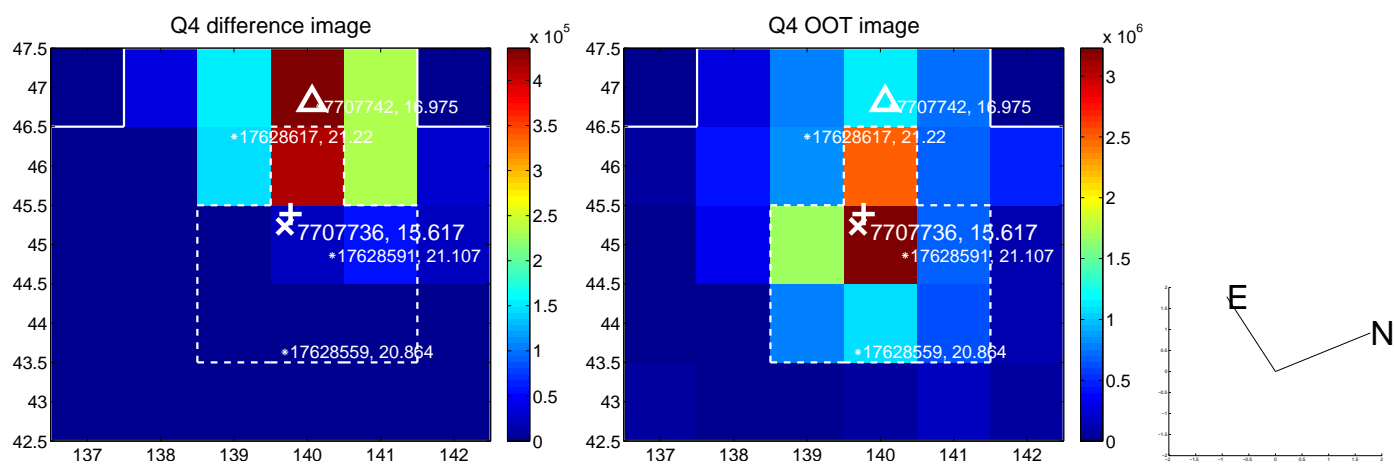
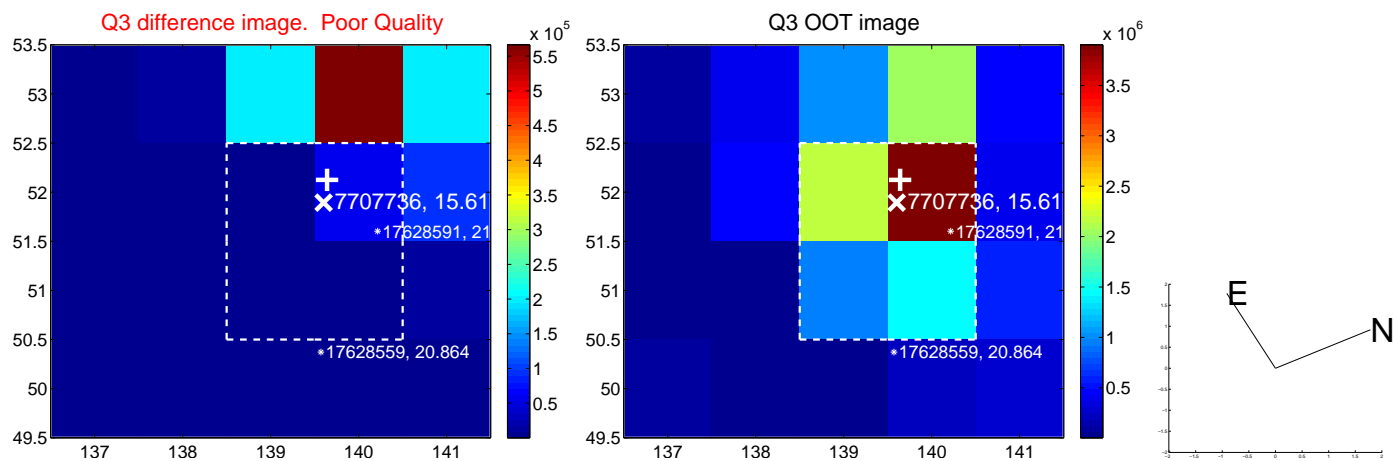
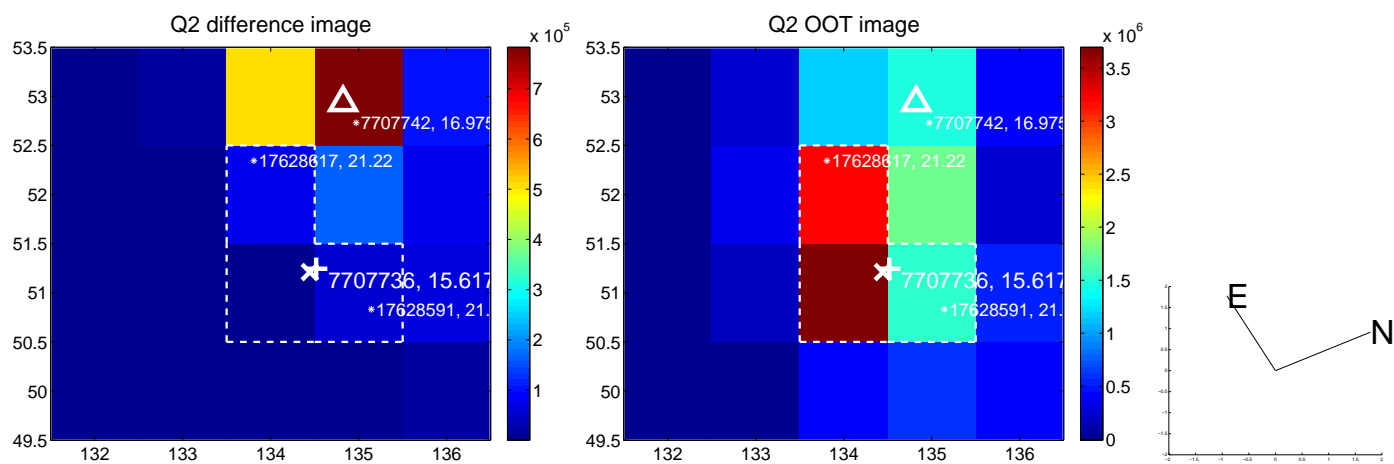
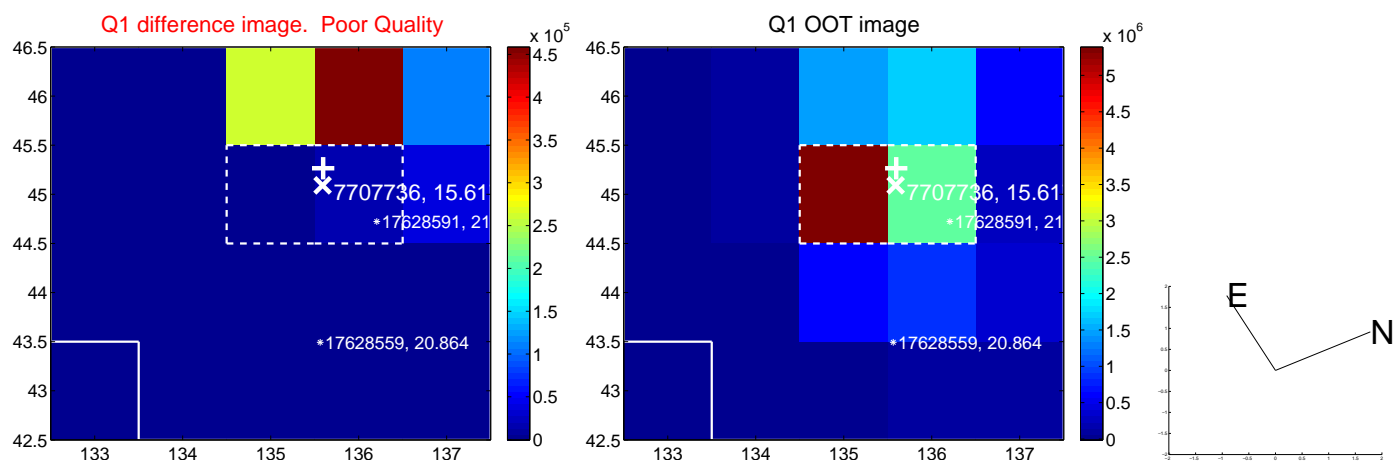
The direct PRF centroid is offset from the target star catalog position by about 0.74 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	5.734 ± 0.237	24.20	4.441 ± 0.216	3.627 ± 0.128
PRF-fit source offset from KIC position	6.460 ± 0.110	58.97	4.912 ± 0.103	4.196 ± 0.079
photometric centroid source offset	42.22 ± 0.04	1049.89	30.14 ± 0.04	29.56 ± 0.04

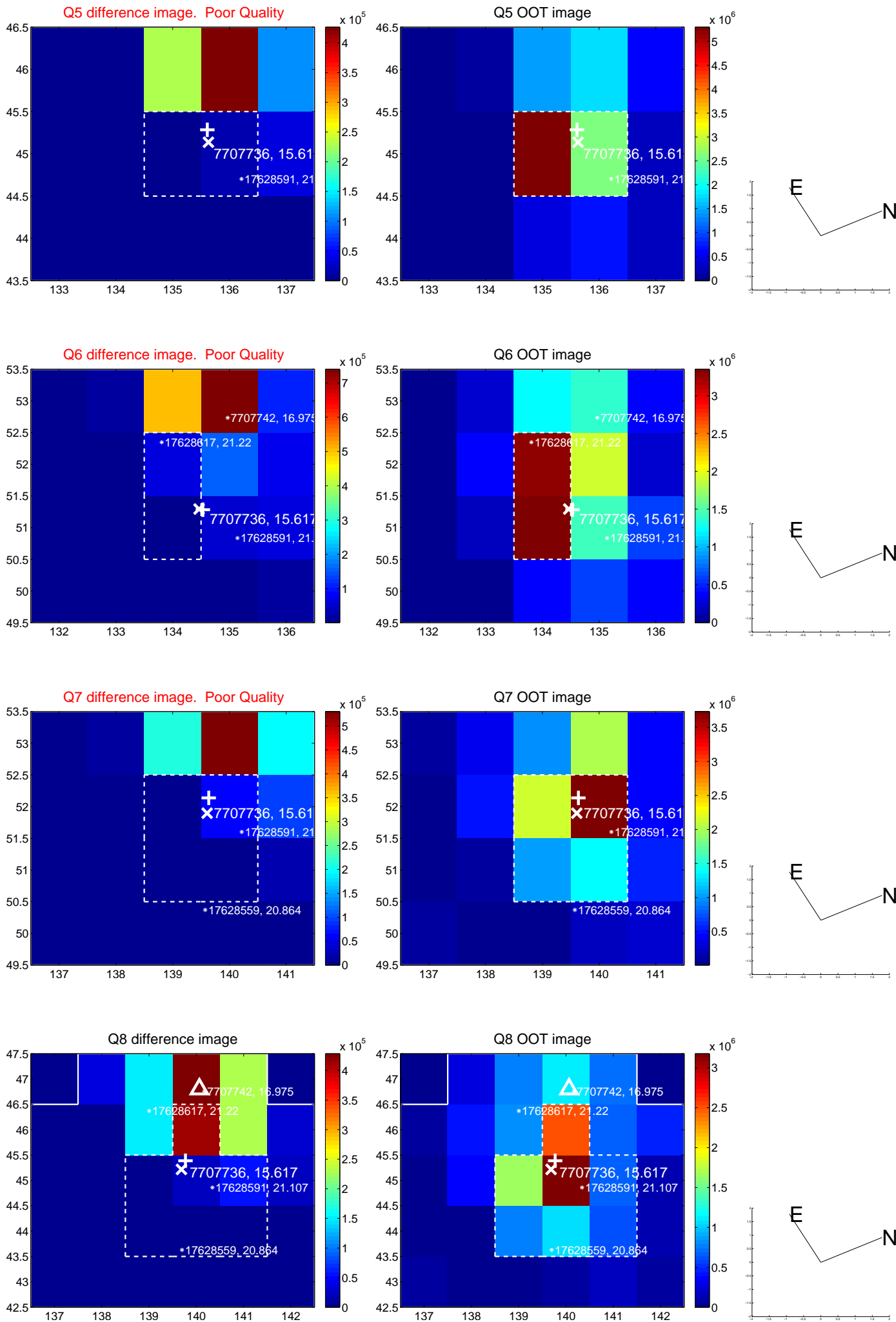


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

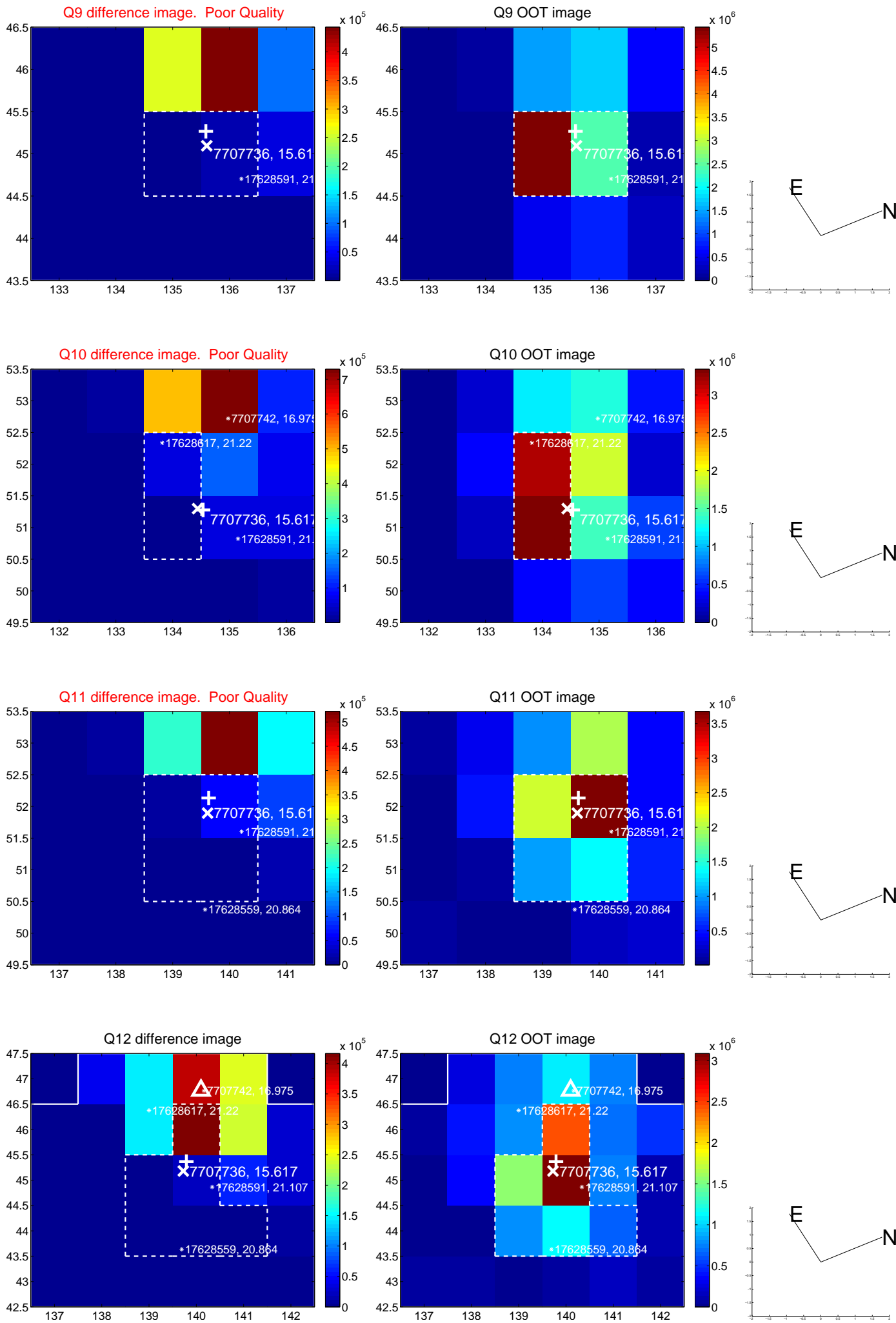
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



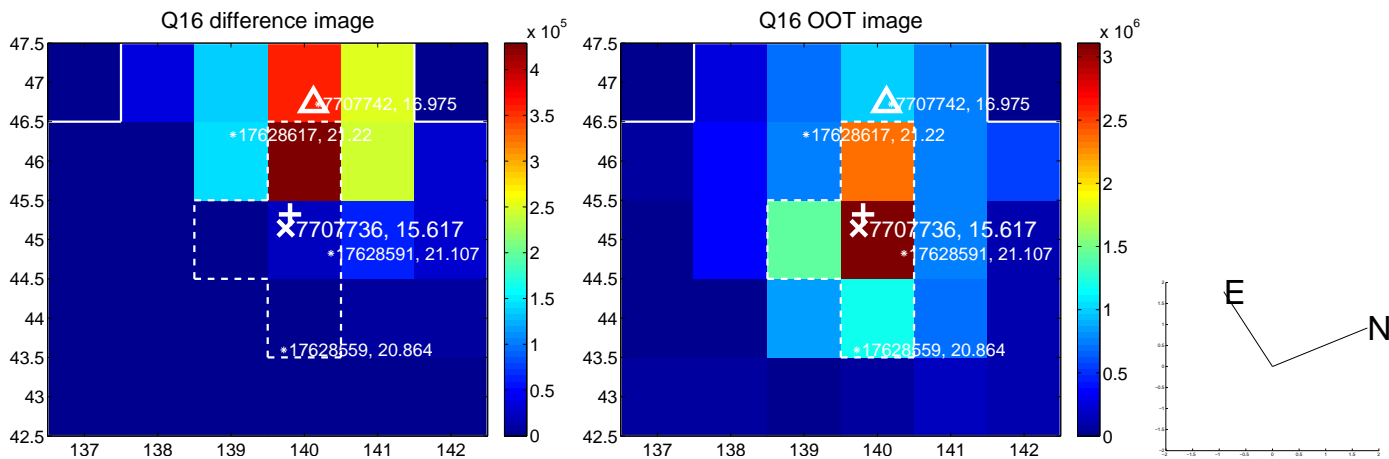
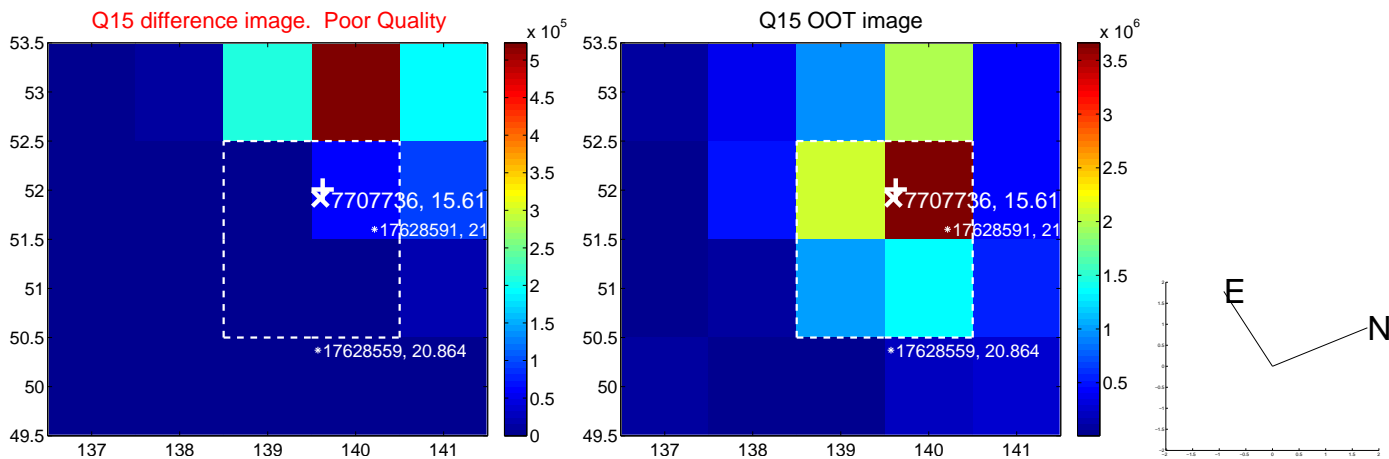
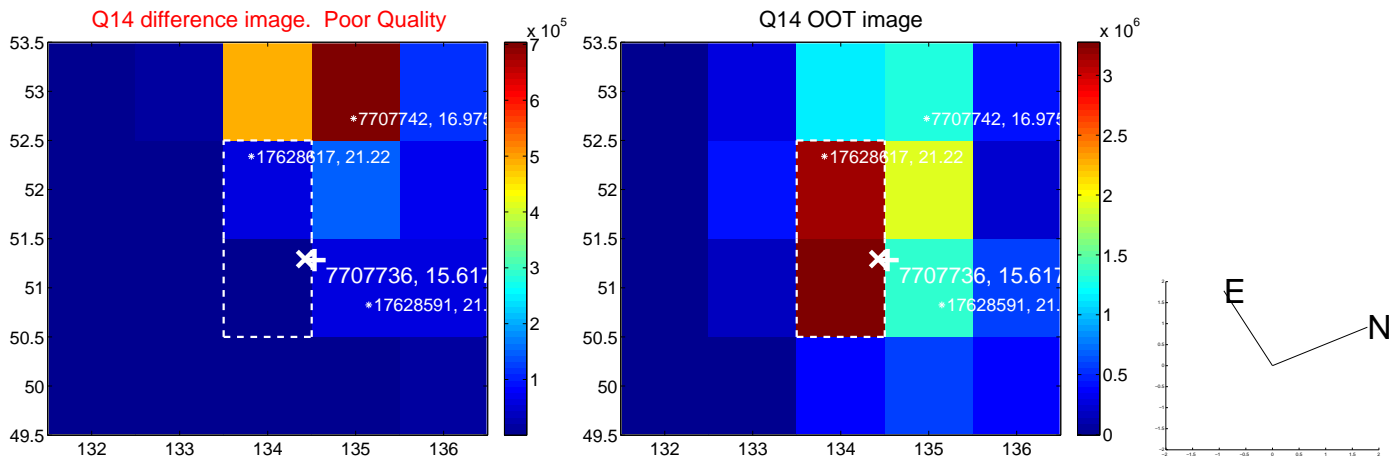
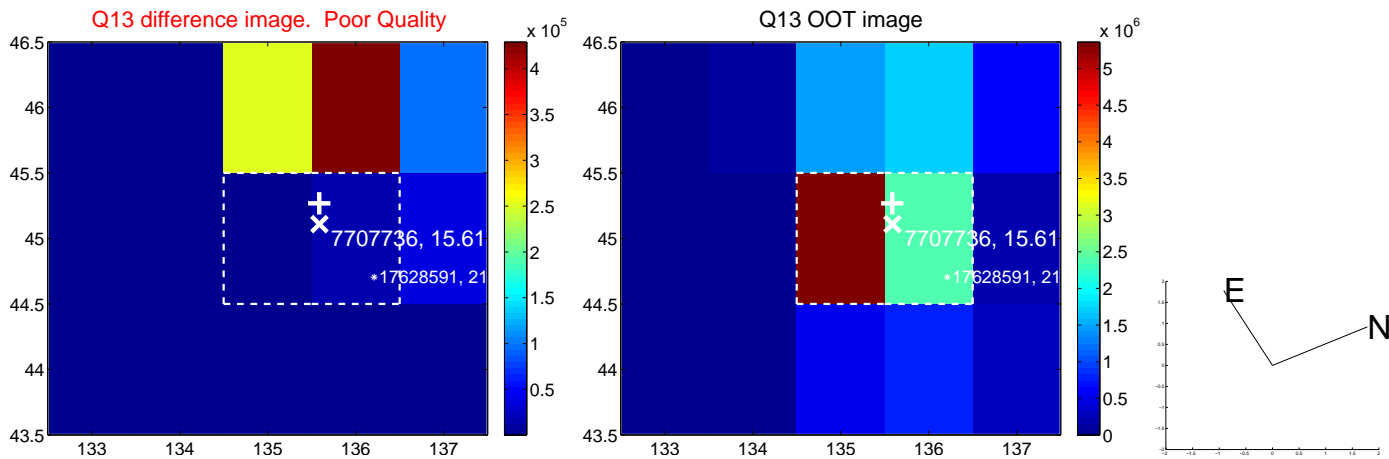
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



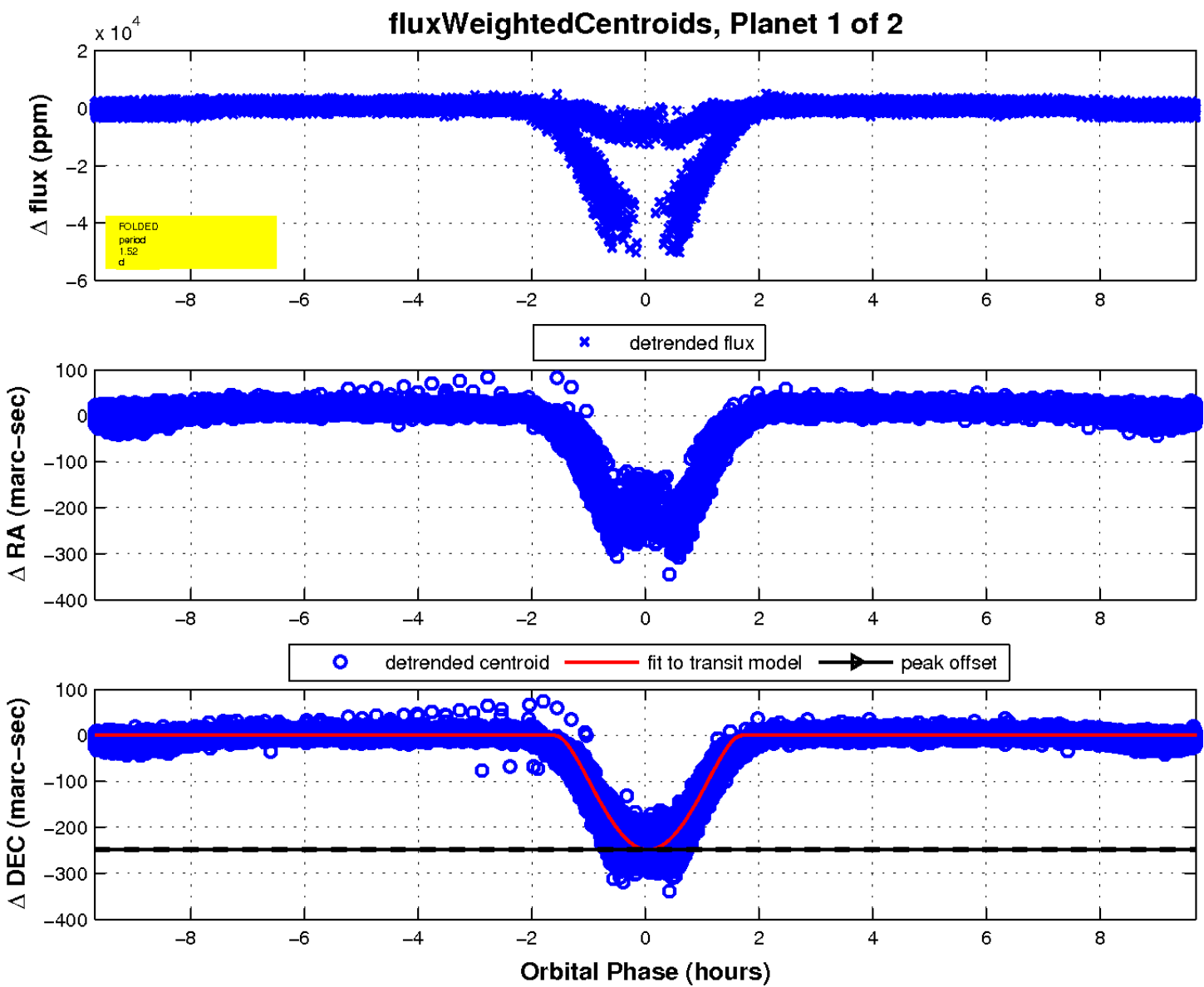
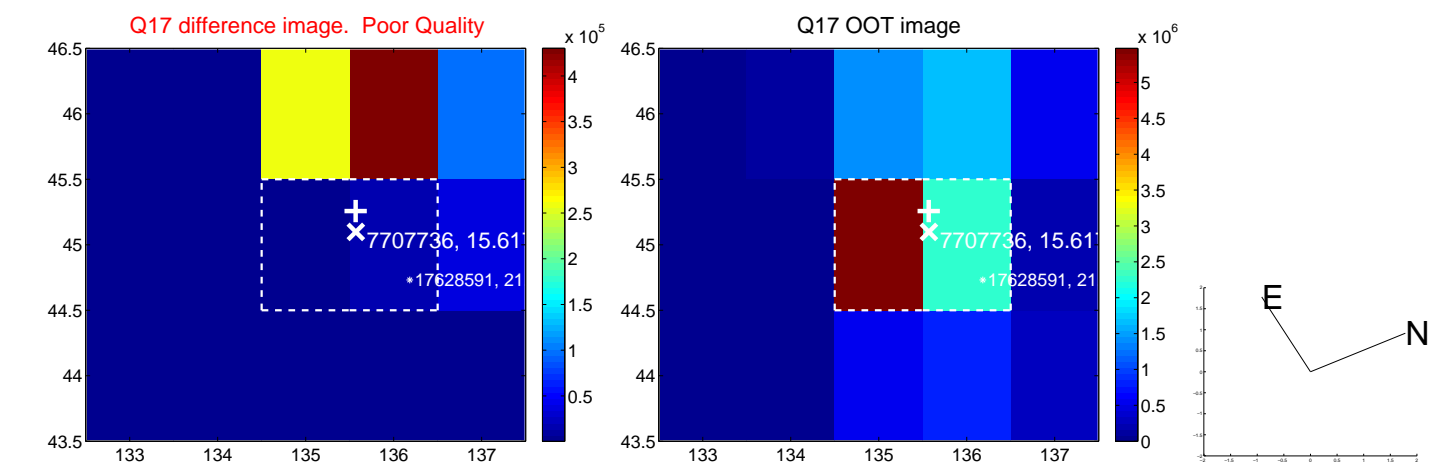
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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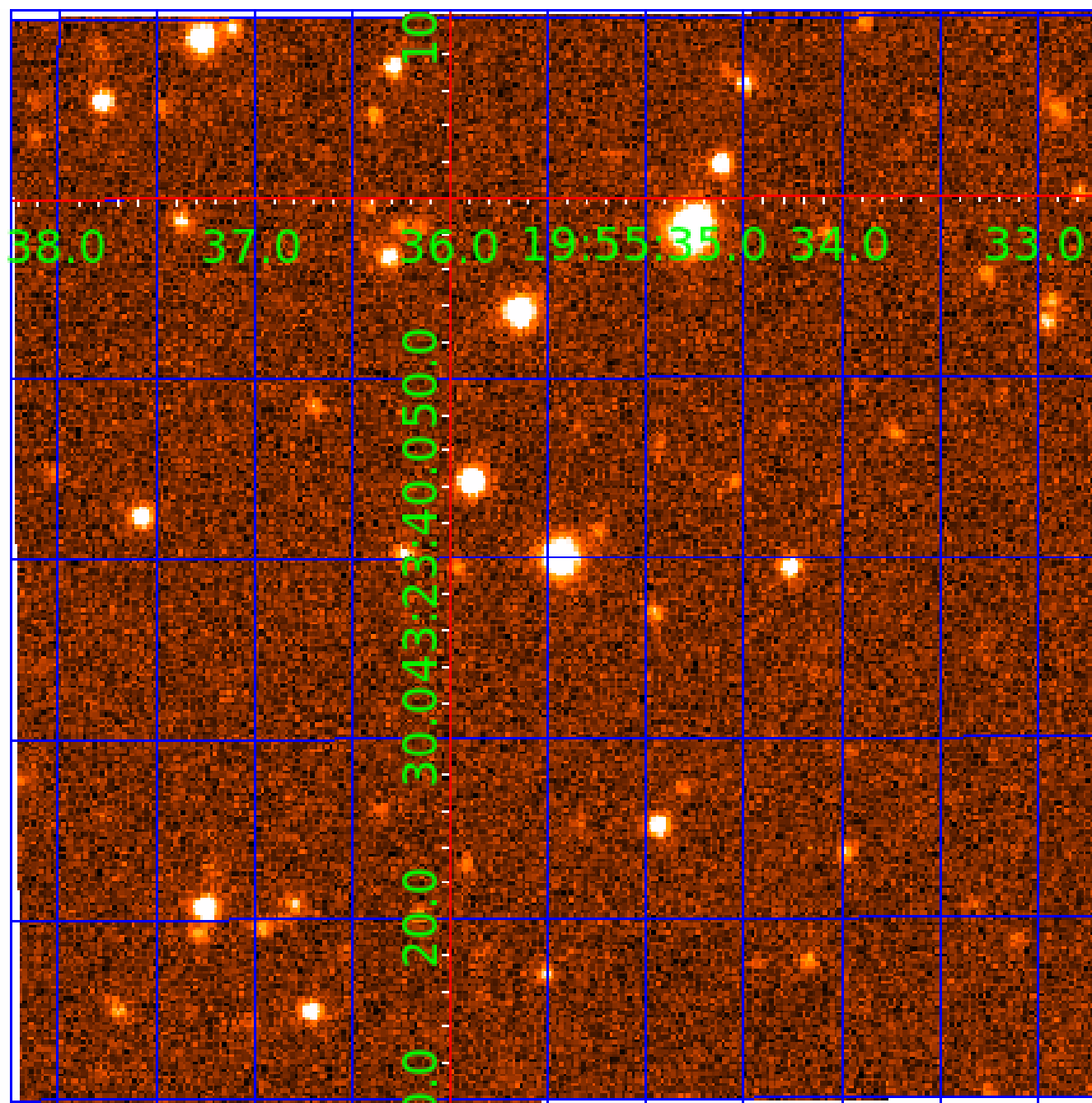


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 007707736

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})
007707736-01	OBS	No	1.516709	132.624429	8436.3	3.232	303.9	305.4	0.78	5629	13.04	911.85
007707736-02	OBS	6909.01	1.516703	131.867444	35037.1	2.000	604.5	-1.0	0.78	5629	14.59	911.86

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
007707736-01	OBS	FP	0.00	1	0	0	1	LPP_ALT—CENT_KIC_POS—EPHEM_MATCH
007707736-02	OBS	FP	0.00	1	0	0	1	LPP_ALT—SAME_NTL_PERIOD—CENT_NOFITS—EPHEM_MATCH

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 007707736-02

TCE (1)	KIC	Parent (2)	Parent KIC	$P_1:P_2$	Dist ($''$)	Δ Row	Δ Col	m_2	m_1	D_2/D_1	Mechanism	Flag	σ_P	σ_T
007707736-02	7707736	007707742-pri	7707742	2:1	6.5	-2	0	16.98	15.62	15.40	Direct-PRF	0	0.81	0.07

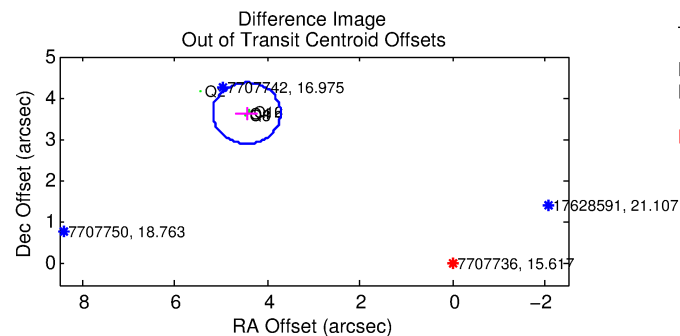
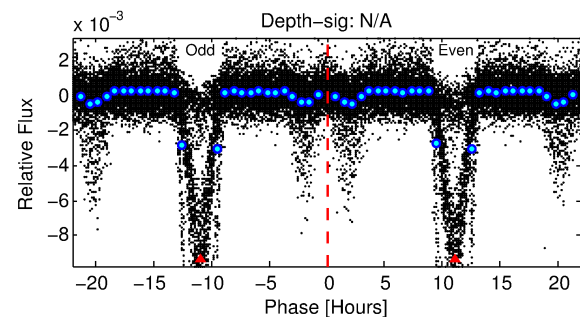
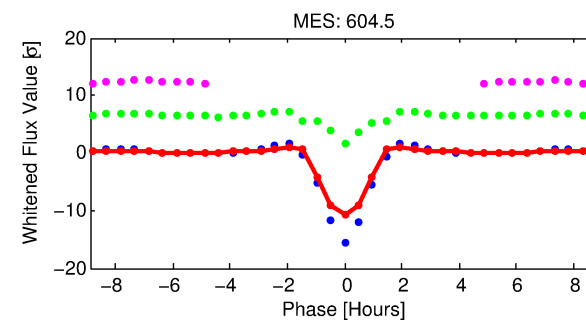
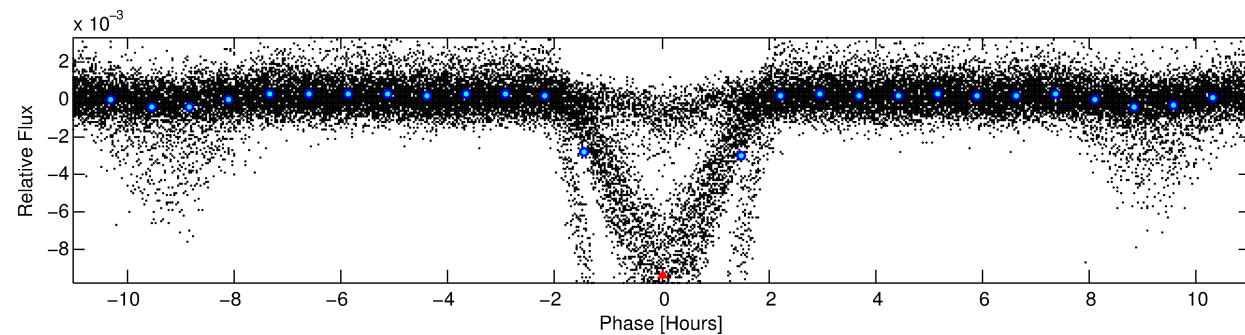
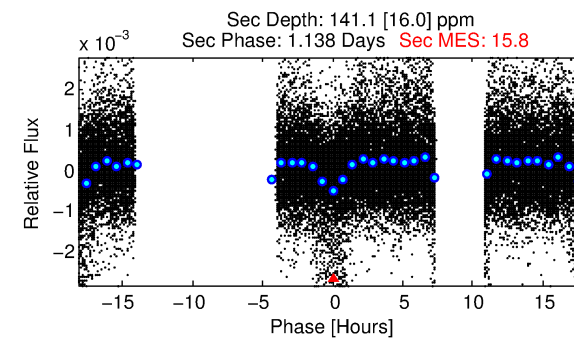
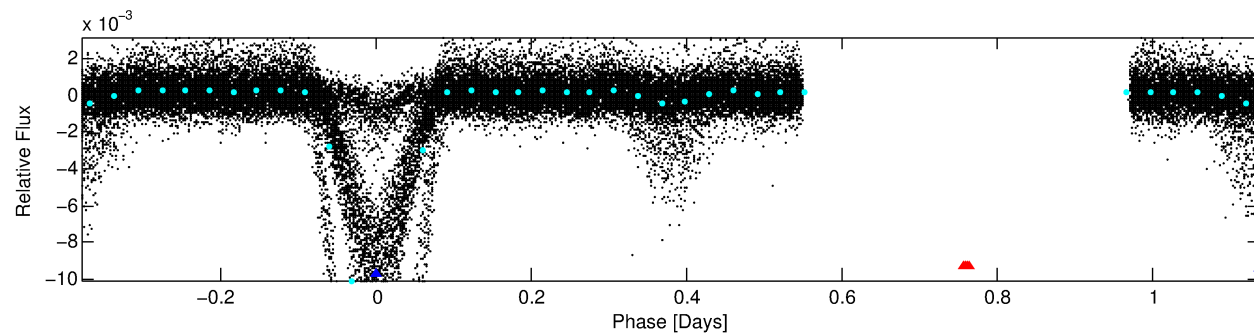
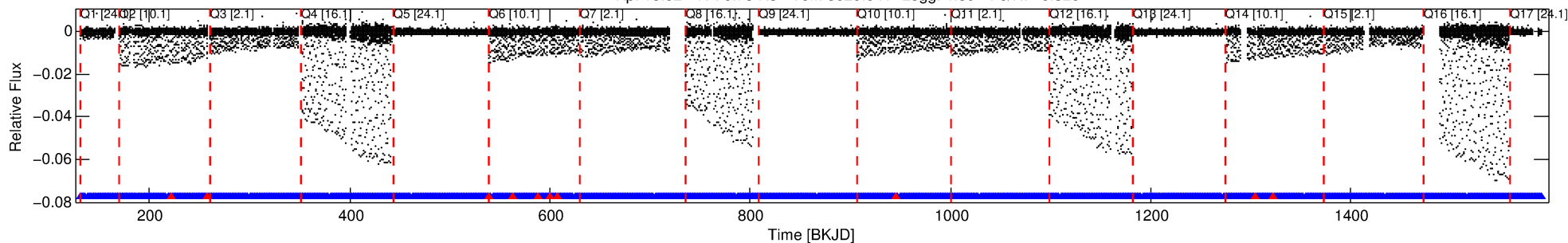
Notes: $P_1:P_2$ is the period ratio. Dist is the distance in arcseconds. Δ Row and Δ Col are the number of pixels apart in row and column. m_2 and m_1 are the magnitudes of the parent and child. D_2/D_1 is the parent's transit depth divided by the child's. σ_P and σ_T are the significance of the match in period and epoch. For a match to be considered significant $\sigma_P < 5.0$ and $\sigma_T < 5.0$. Matches which have σ_P and σ_T very close to this cutoff should receive extra scrutiny, especially if the period ratio is very large.

DV One-Page Summary

KIC: 7707736 Candidate: 2 of 2 Period: 1.517 d

KOI: K06909 Corr: No Ephemeris Match

Kp: 15.62 R*: 0.78 Rs Teff: 5629.0 K Logg: 4.59 Fe/H: -0.320



TPS TCE Results:

Period = 1.51670 d

Epoch = 131.8674 BKJD

DV fit results are unavailable

DV Diagnostic Results:

ShortPeriod-sig: N/A

LongPeriod-sig: 0.0% [0.00σ]

ModelChiSquare2-sig: N/A

ModelChiSquareGof-sig: N/A

Bootstrap-pfa: N/A

RollingBand-fgt: 0.99 [833/843]

GhostDiagnostic-chr: -0.989

Centroid-sig: N/A

Centroid-so: 43.534 arcsec [992.13σ]

OotOffset-rm: 5.749 arcsec [23.54σ]

KicOffset-rm: 6.471 arcsec [54.00σ]

OotOffset-st: 1/0/4/0 [5]

KicOffset-st: 1/0/4/0 [5]

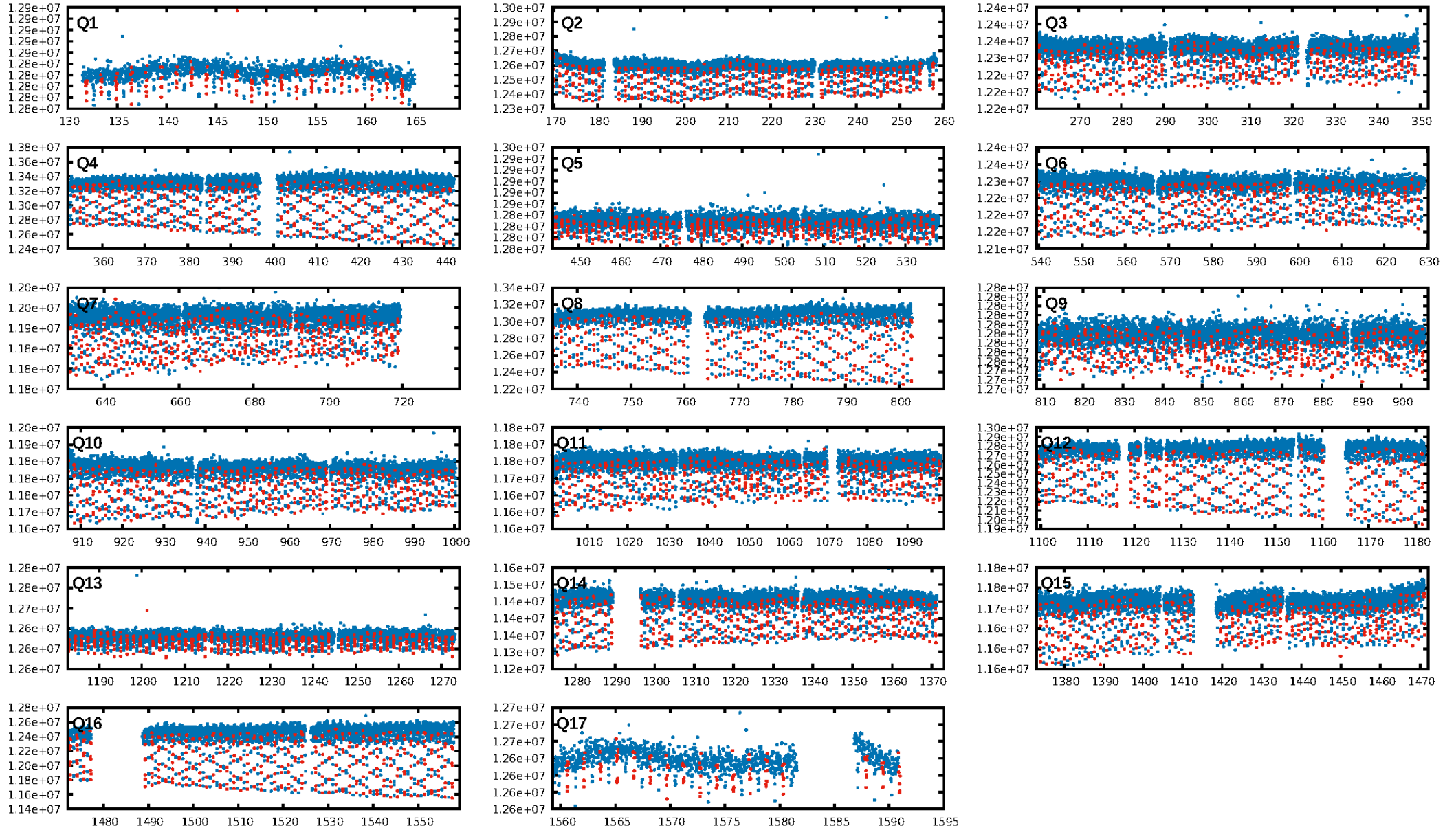
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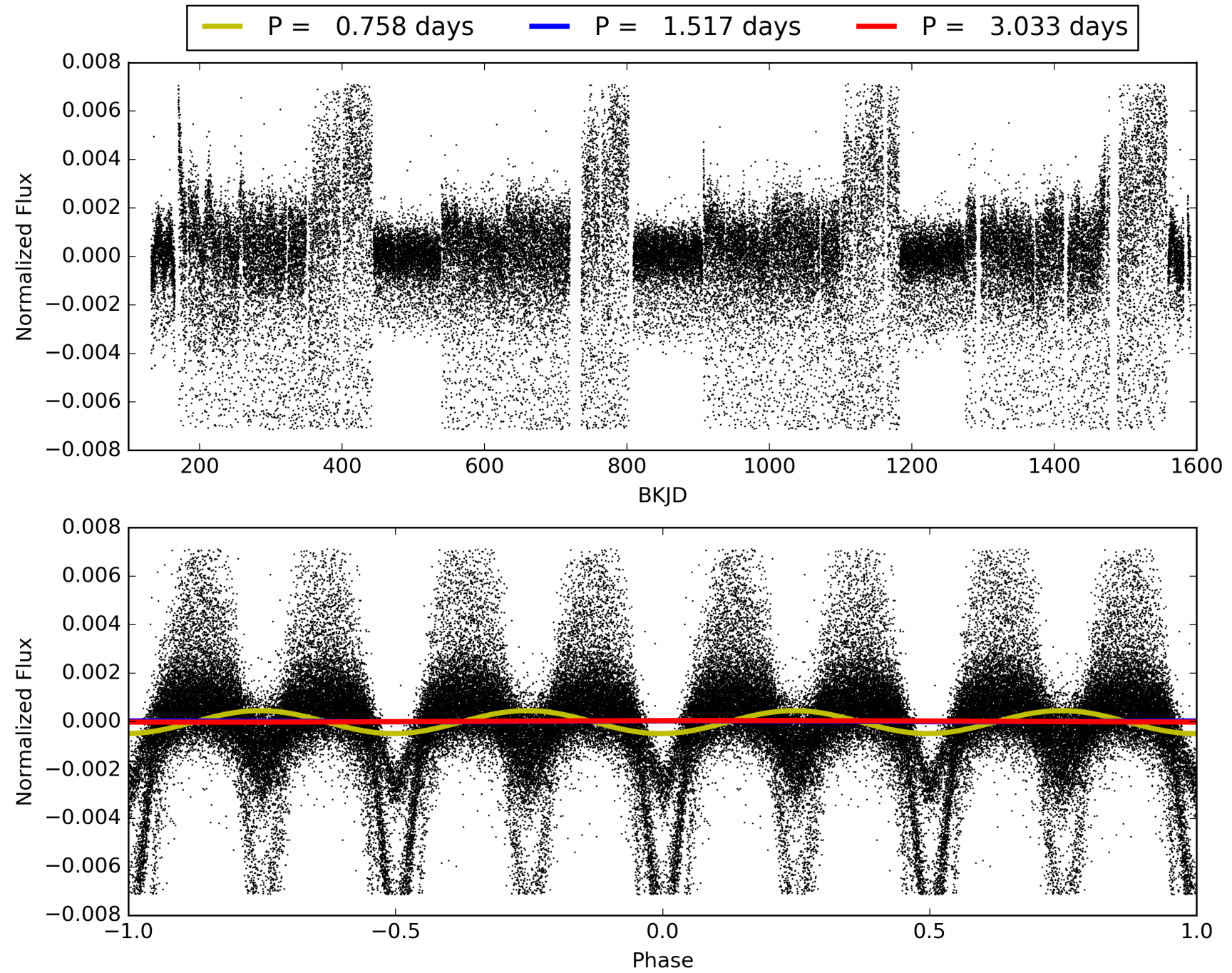
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 01:48:49 Z

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

TCE 007707736-02, PDC Light Curves

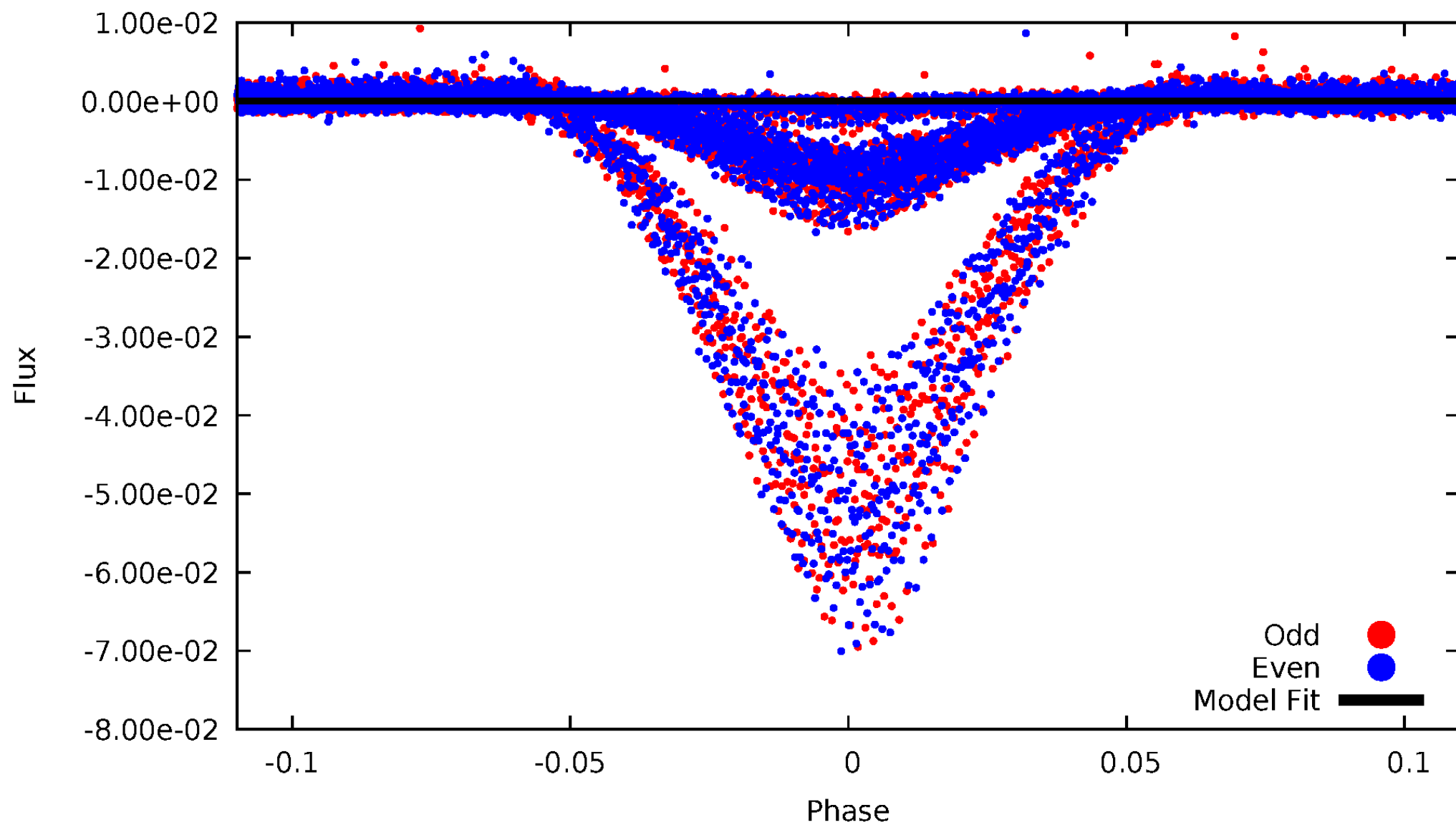


TCE 007707736-02



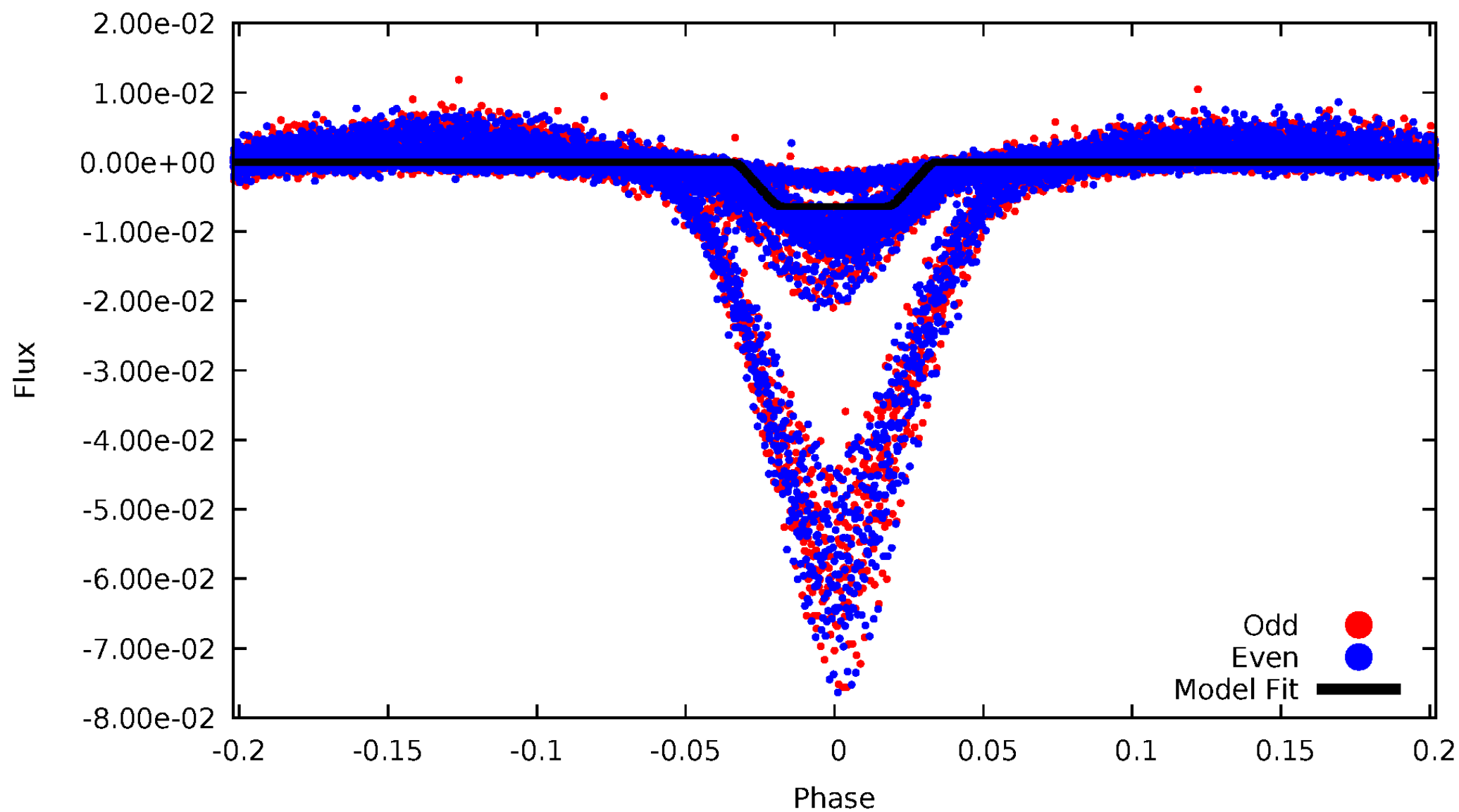
DV Odd/Even

TCE 007707736-02



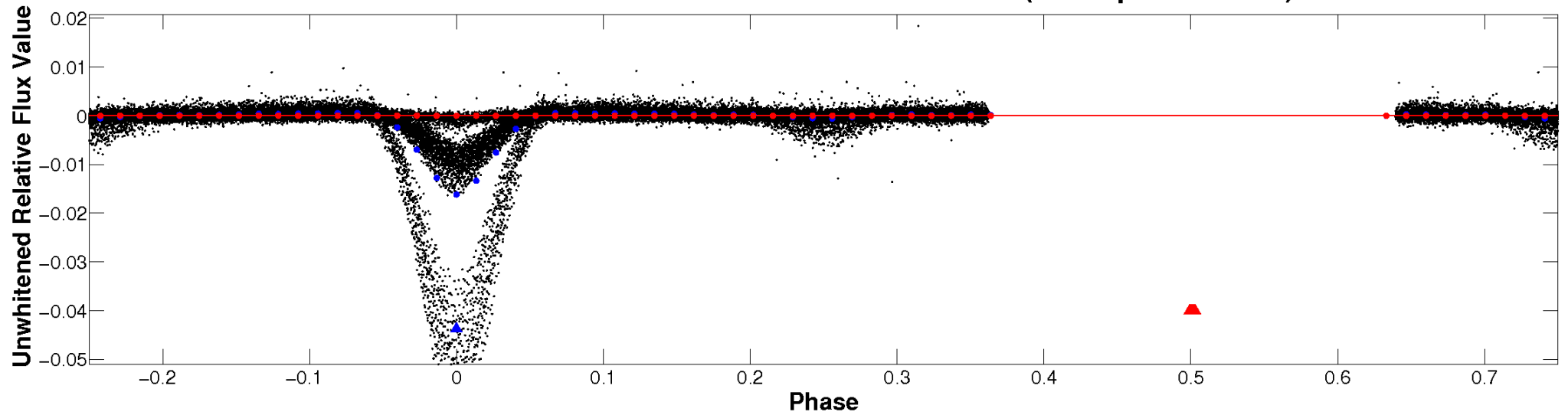
ALT Odd/Even

TCE 007707736-02

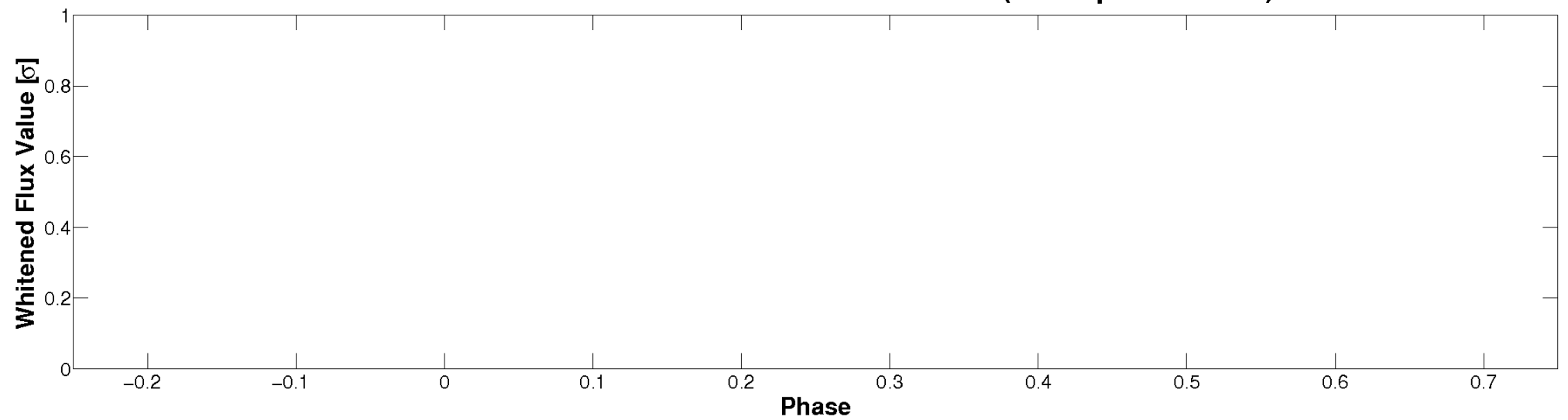


Non-Whitened Vs. Whitened Light Curve

Planet 2 : Phased Unwhitened Flux Time Series (TPS Epoch/Period)

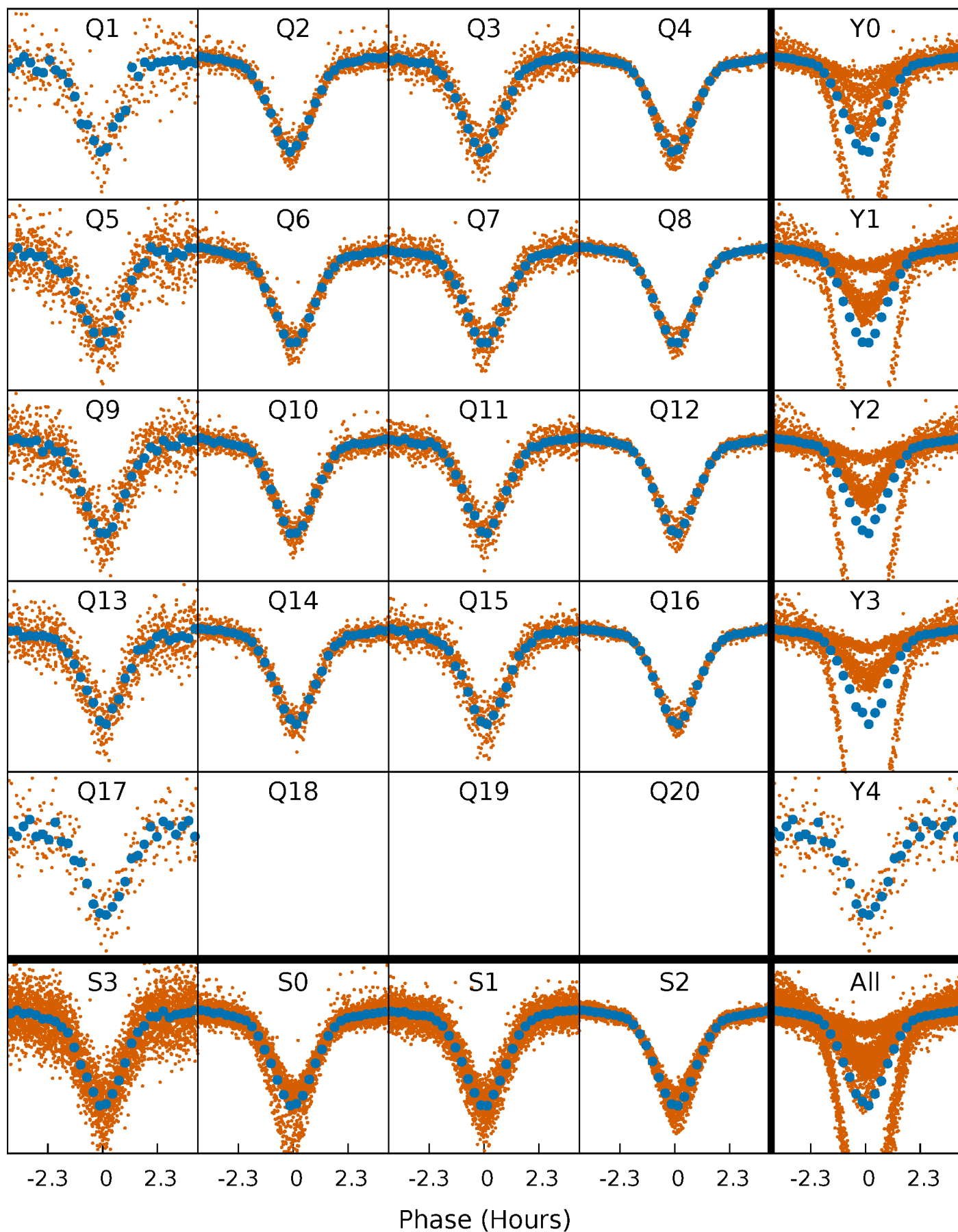


Planet 2 : Phased Whitened Flux Time Series (TPS Epoch/Period)



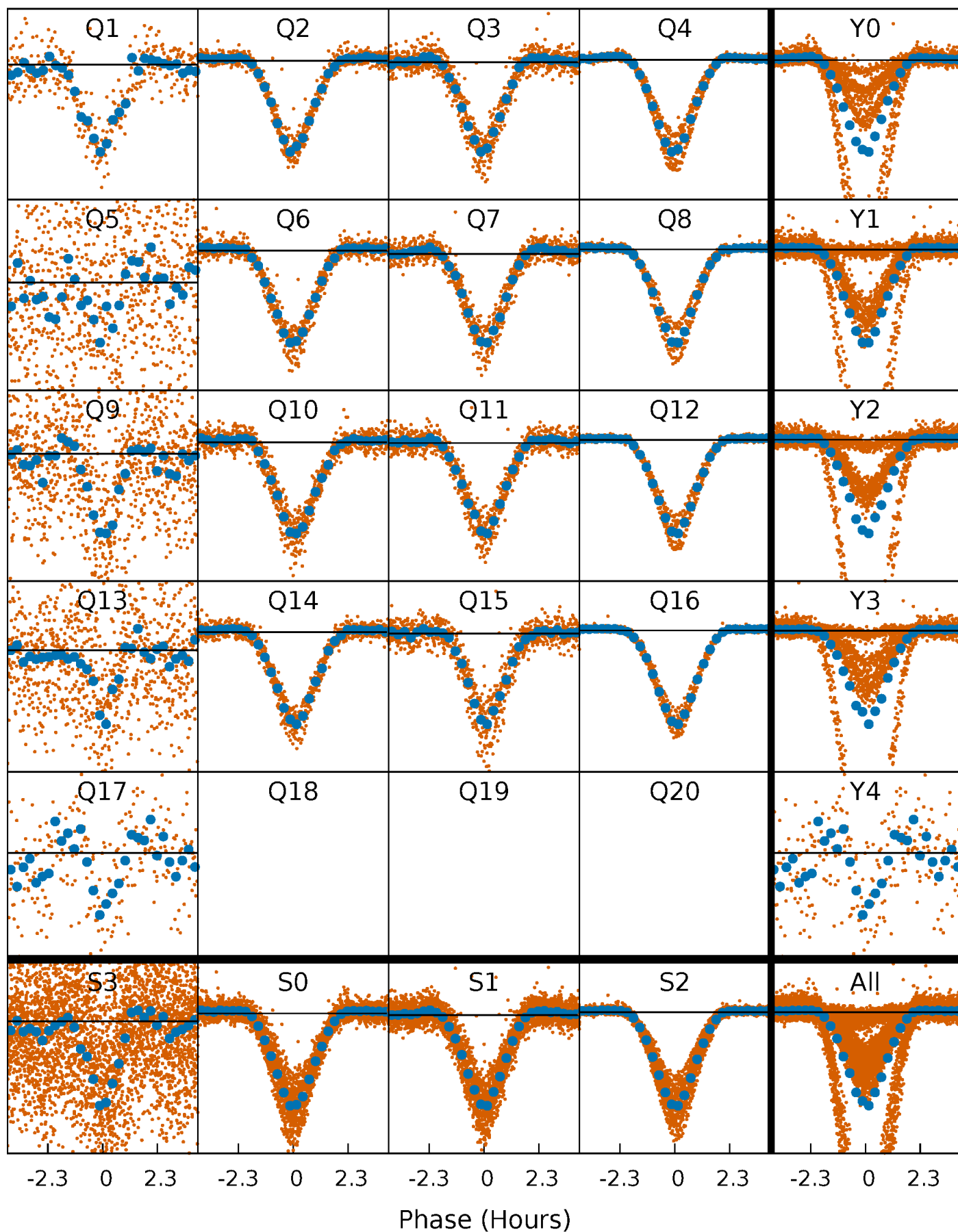
PDC Quarter-Phased Transit Curves

TCE 007707736-02 P= 1.516703 Days $T_0=131.867444$ (BKJD)



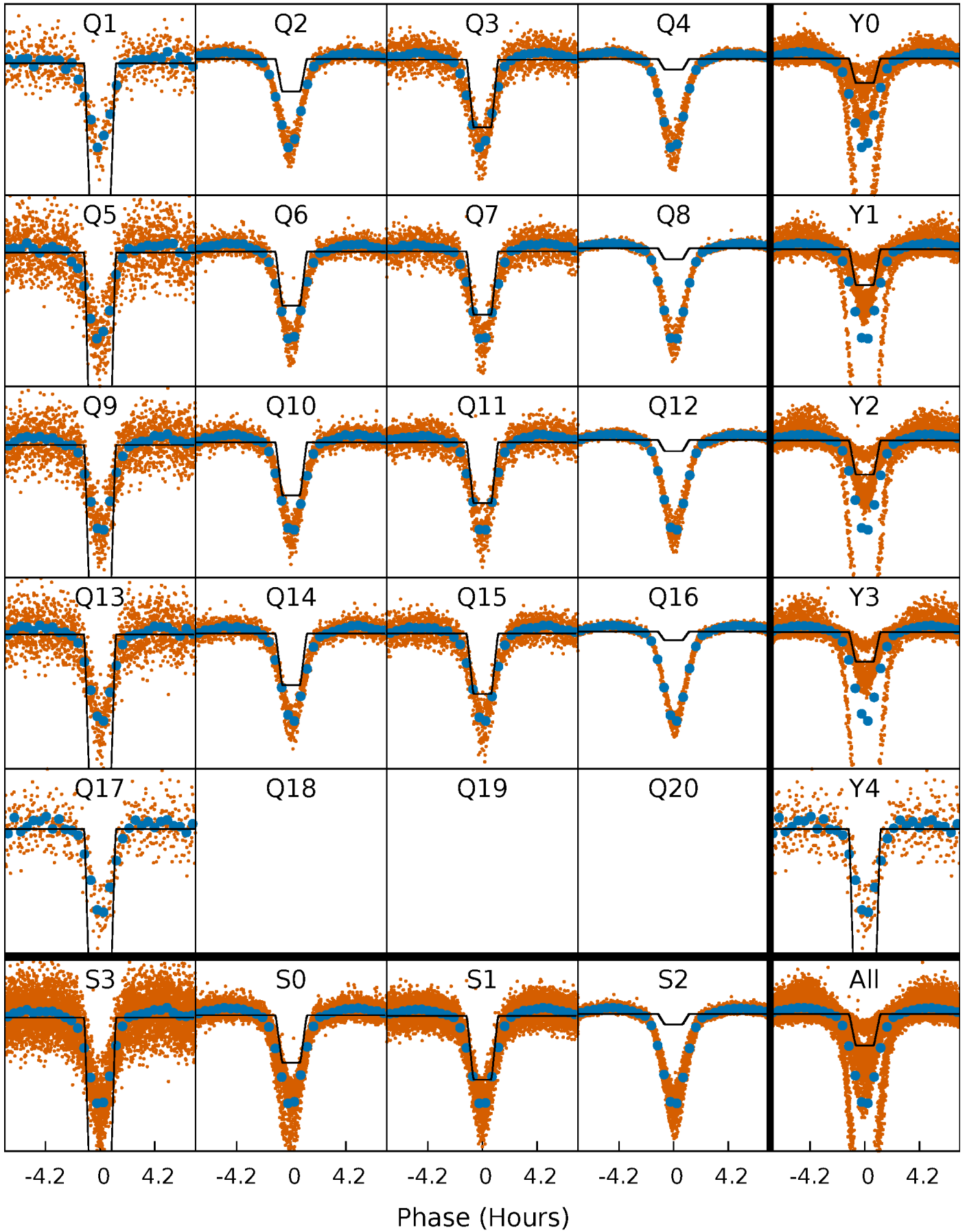
DV Quarter-Phased Transit Curves

TCE 007707736-02 P= 1.516703 Days $T_0=131.867444$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

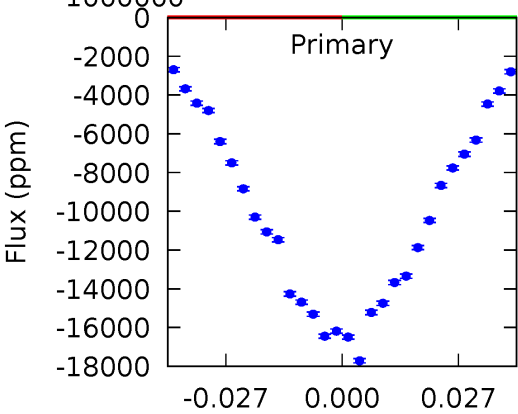
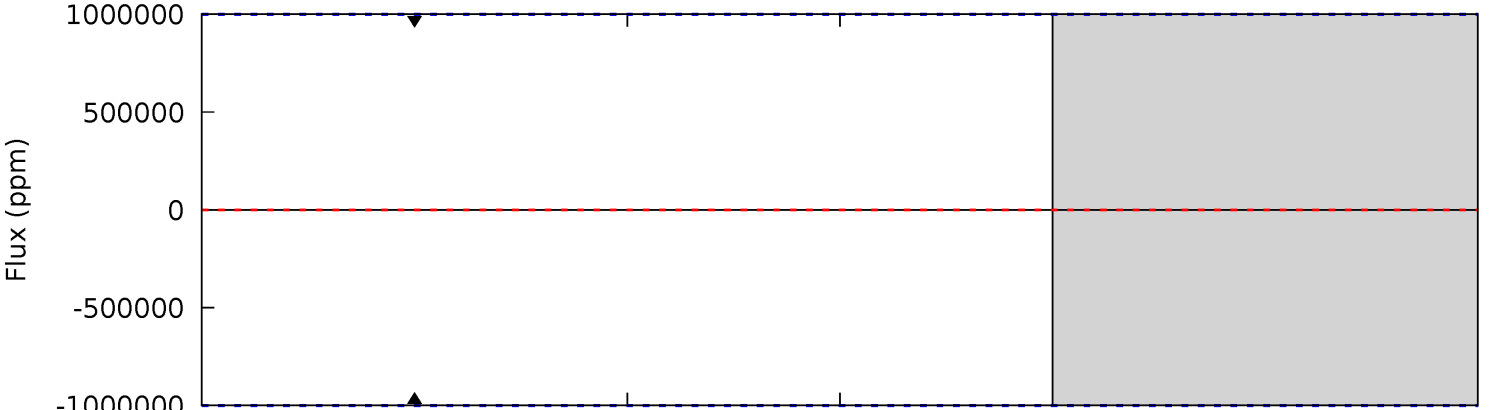
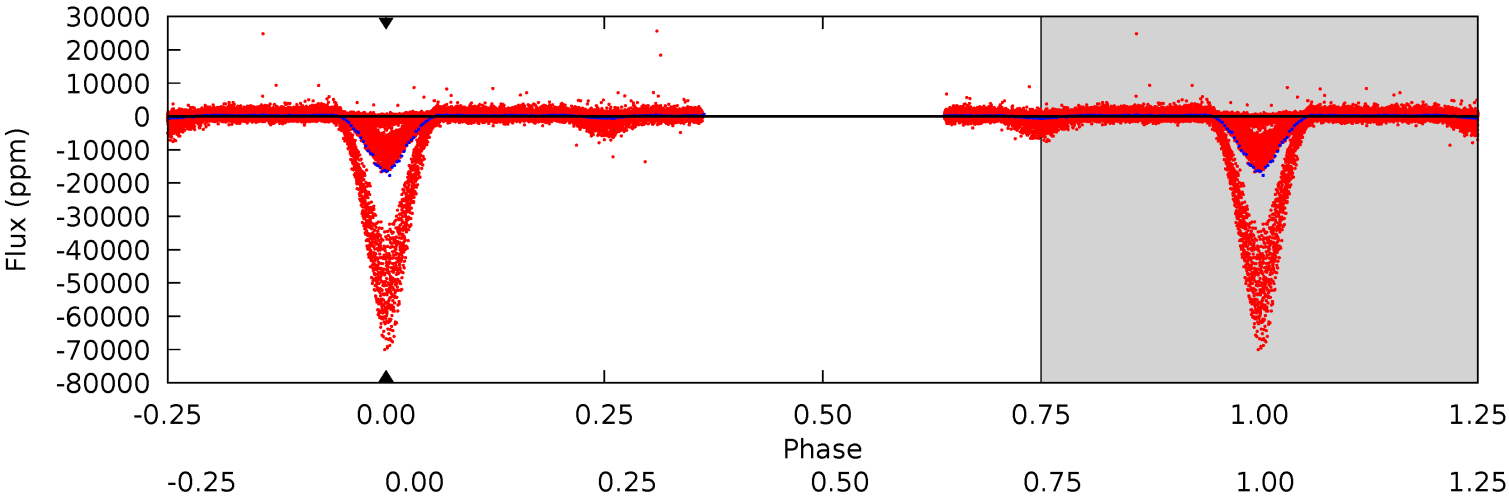
TCE 007707736-02 P= 1.516703 Days $T_0=131.867997$ (BKJD)



DV Model-Shift Uniqueness Test

007707736-02, P = 1.516703 Days, E = 130.350741 Days

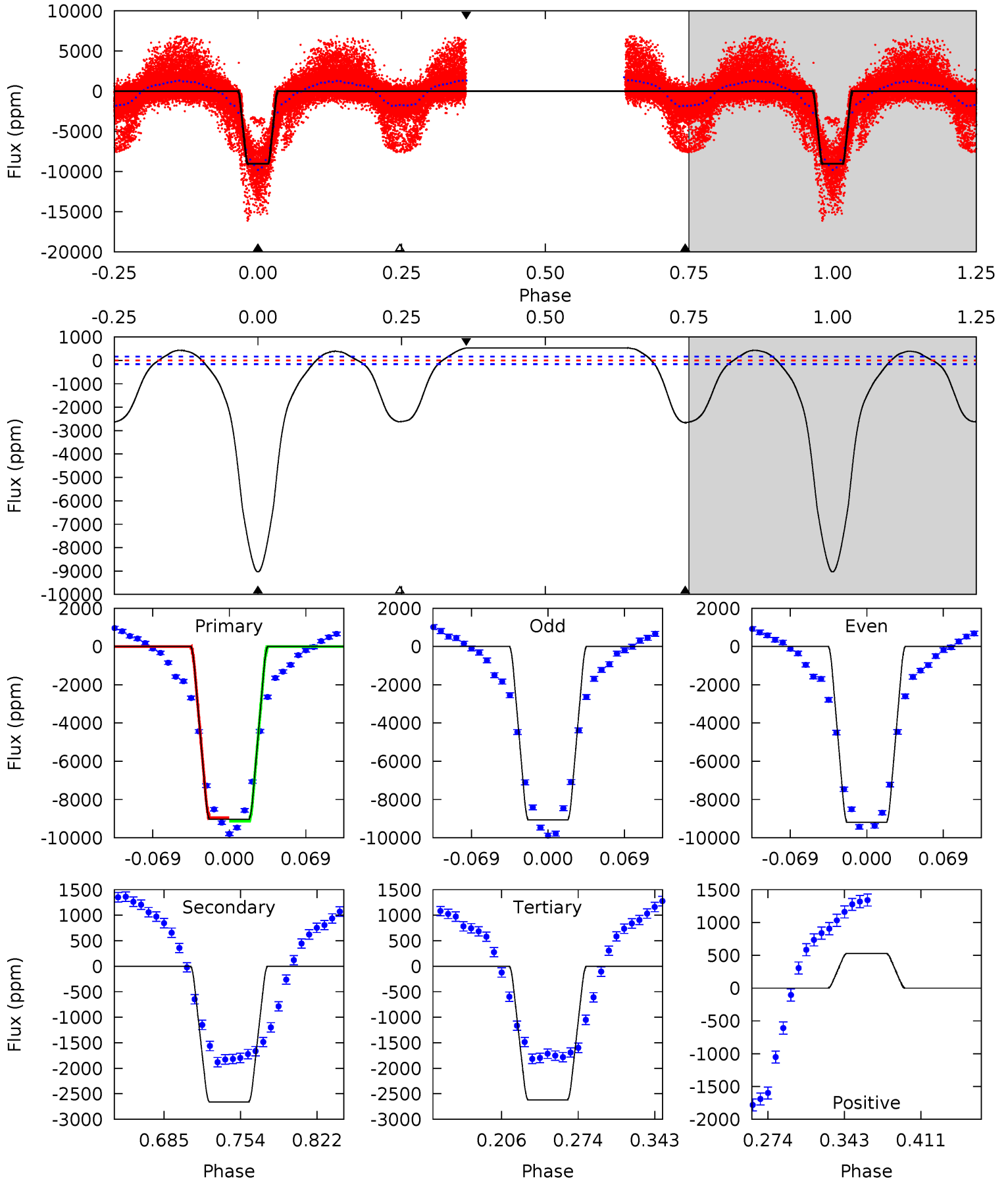
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
0	0	0	0	1.00	1.00	1.00	0	0	0	0	0	0	0	0



Alt Model-Shift Uniqueness Test

007707736-02, P = 1.516703 Days, E = 130.351294 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
256.3	75.4	74.3	15.0	4.64	1.82	26.5	182.1	241.4	1.11	60.4	1.71	1.90	0.06	0



Stellar Parameters For KIC 007707736

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5629^{+169}_{-152}	$4.586^{+0.036}_{-0.144}$	$-0.320^{+0.300}_{-0.300}$	$0.783^{+0.182}_{-0.061}$	$0.875^{+0.088}_{-0.097}$	$2.565^{+0.490}_{-1.104}$
	+3%/-3%	+1%/-3%	+94%/-94%	+23%/-8%	+10%/-11%	+19%/-43%
Source	PHO1	KIC0	KIC0	DSEP		

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

Secondary Eclipse Parameters for KIC 007707736-02 / KOI 6909.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	0 ± 1000000	$15.99^{+8.10}_{-8.88}$	1999^{+98}_{-80}	3260^{+5635}_{-11475}	$2.064^{+215.239}_{-171.762}$
Alt.	-2658 ± 35	$9.38^{+7.89}_{-6.11}$	1998^{+113}_{-79}	4156^{+2507}_{-802}	$9.976^{+66.967}_{-7.033}$

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 $A_{obs} \gg 1.0$

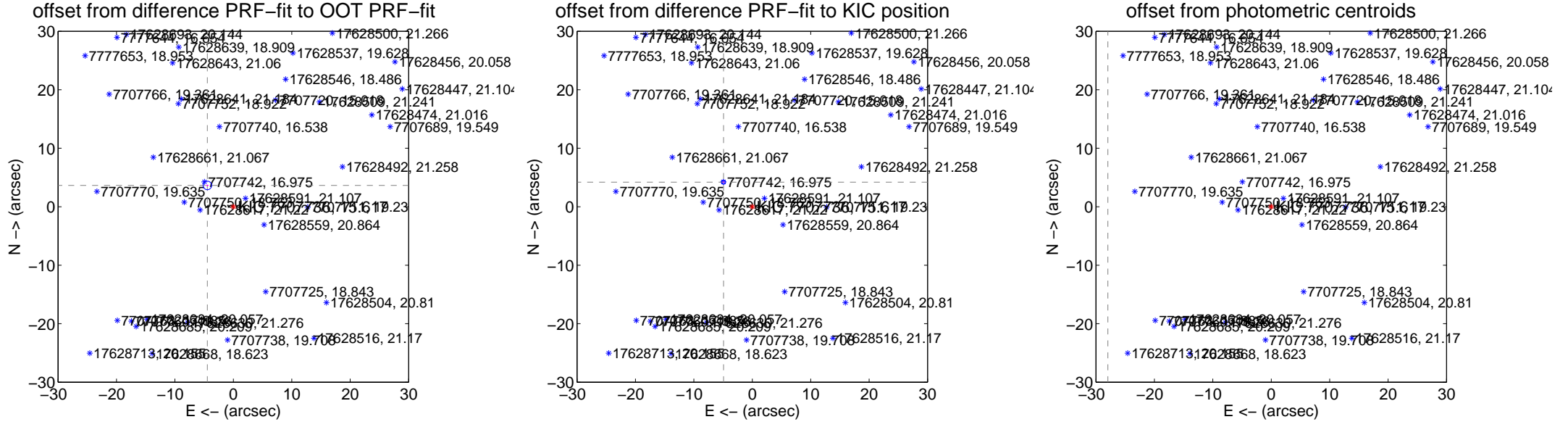
DV Centroid Data

Supplemental centroid analysis for 007707736-02. Kepler magnitude: 15.62. Transit SNR -1.00

There are 5 quarters with good PRF difference image offsets

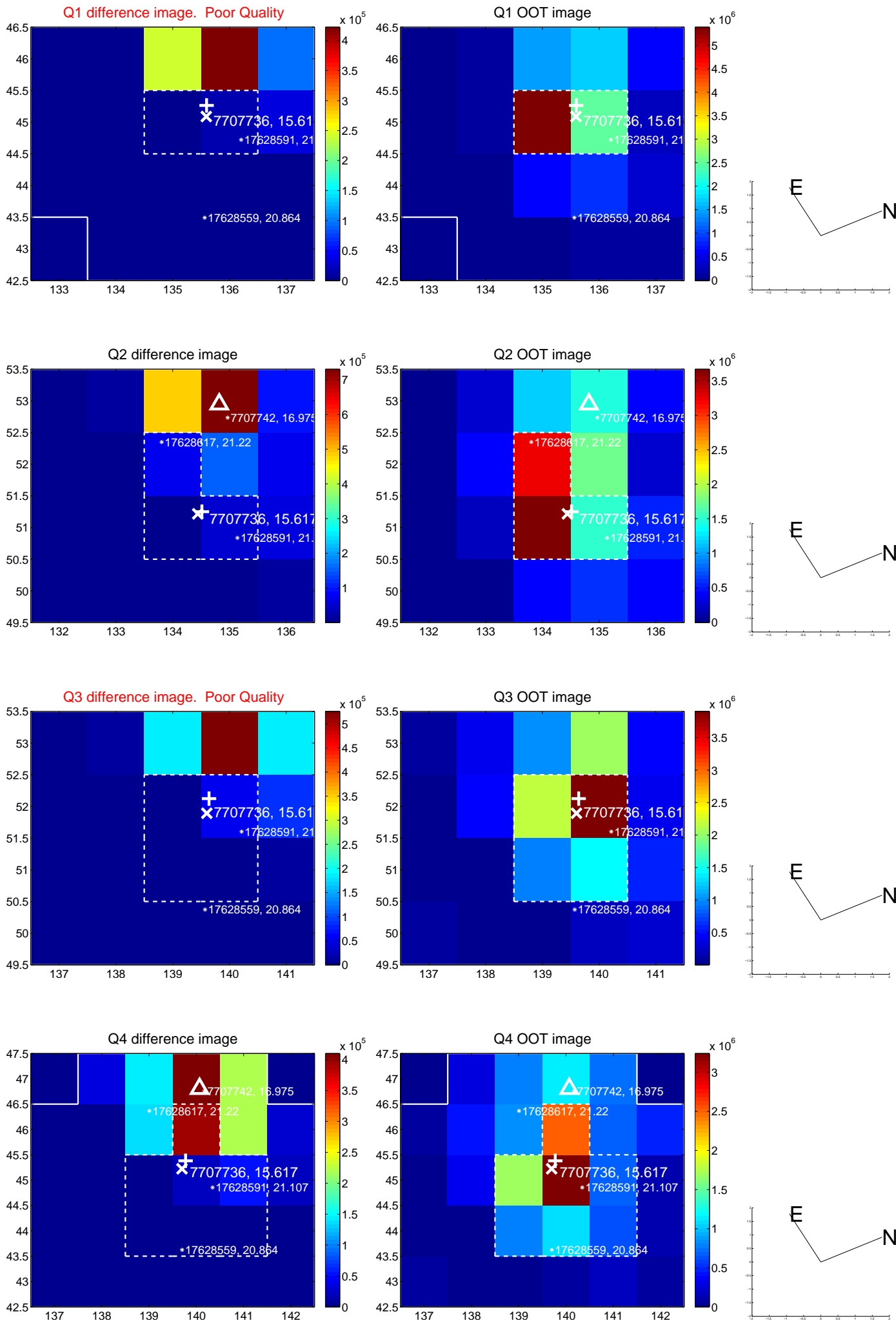
The direct PRF centroid is offset from the target star catalog position by about 0.73 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	5.749 \pm 0.244	23.54	4.450 \pm 0.224	3.639 \pm 0.129
PRF-fit source offset from KIC position	6.471 \pm 0.120	54.00	4.925 \pm 0.112	4.198 \pm 0.083
photometric centroid source offset	43.53 \pm 0.04	992.13	27.97 \pm 0.04	33.36 \pm 0.04

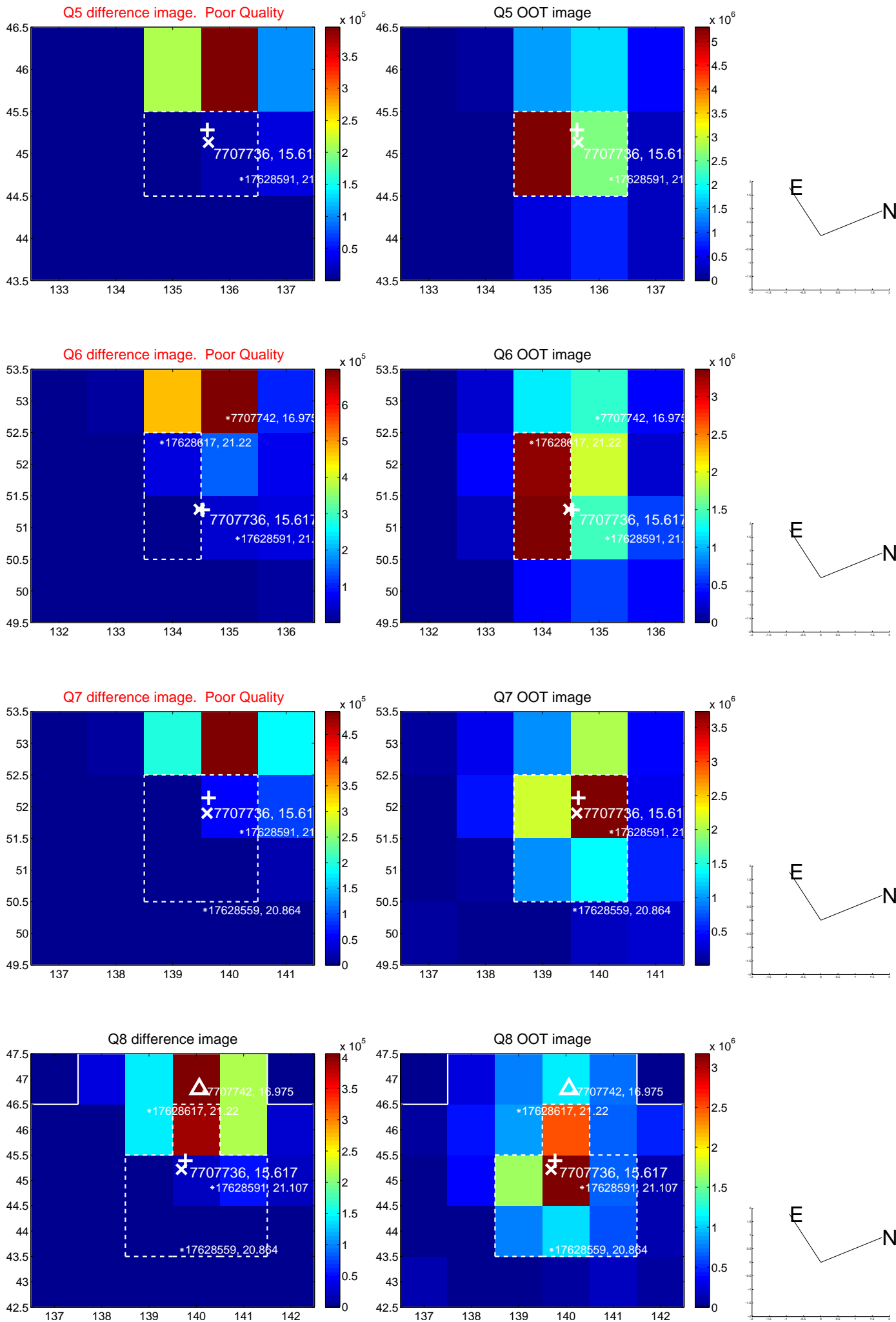


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

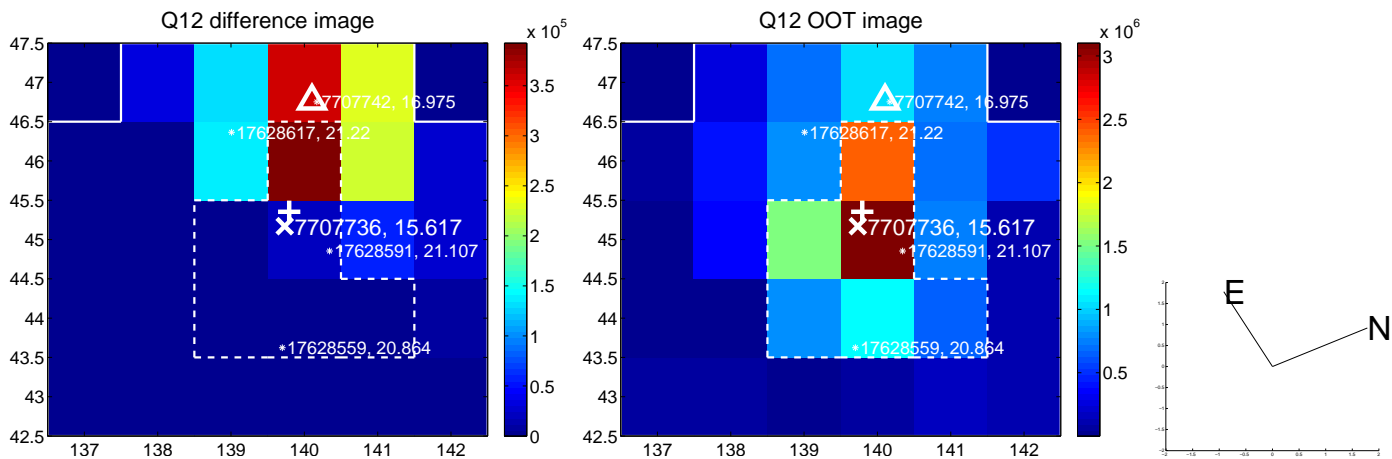
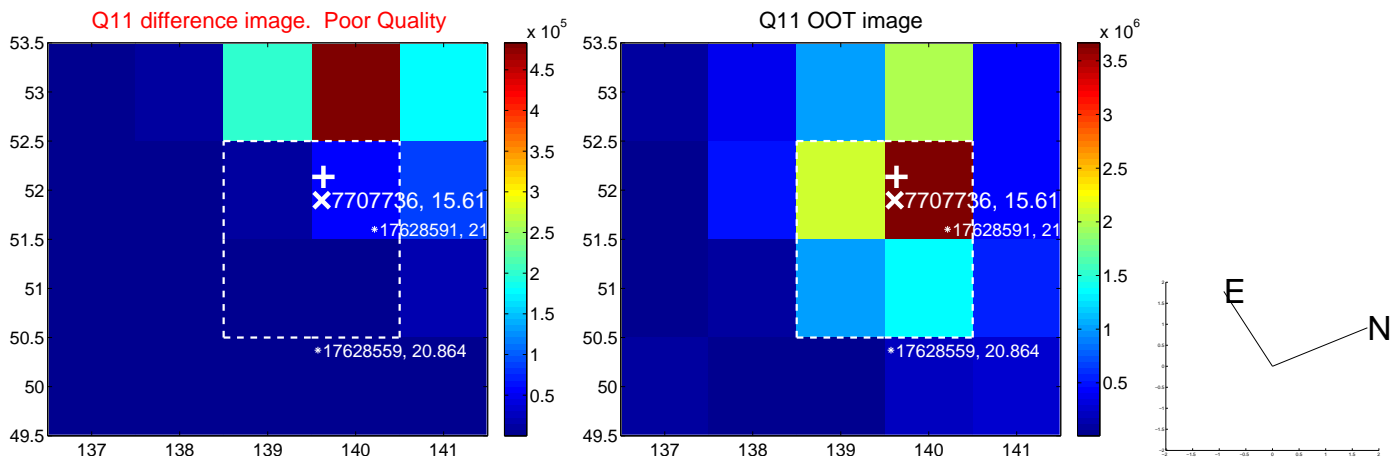
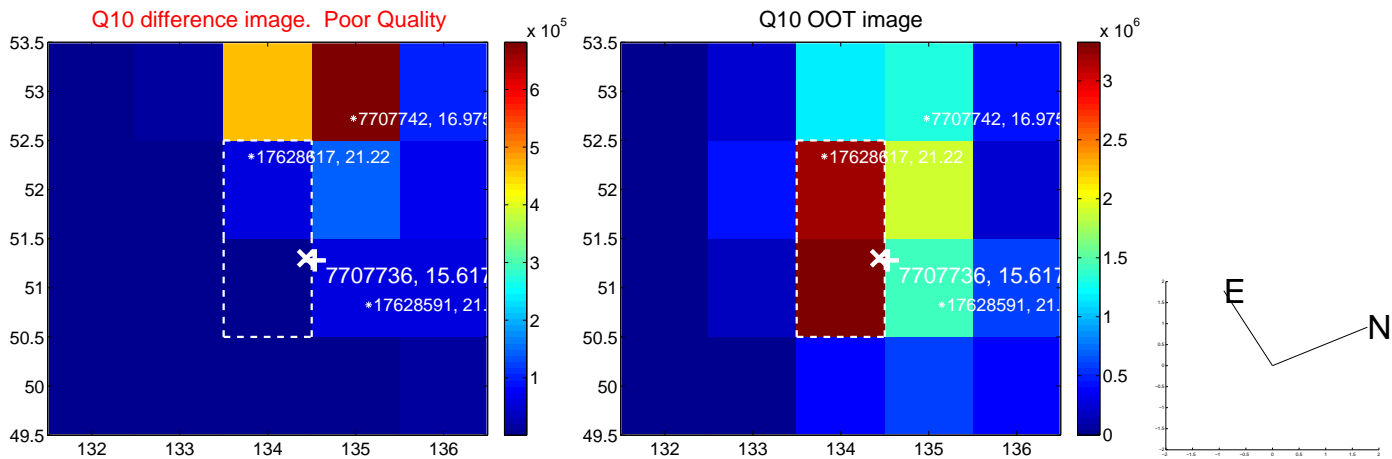
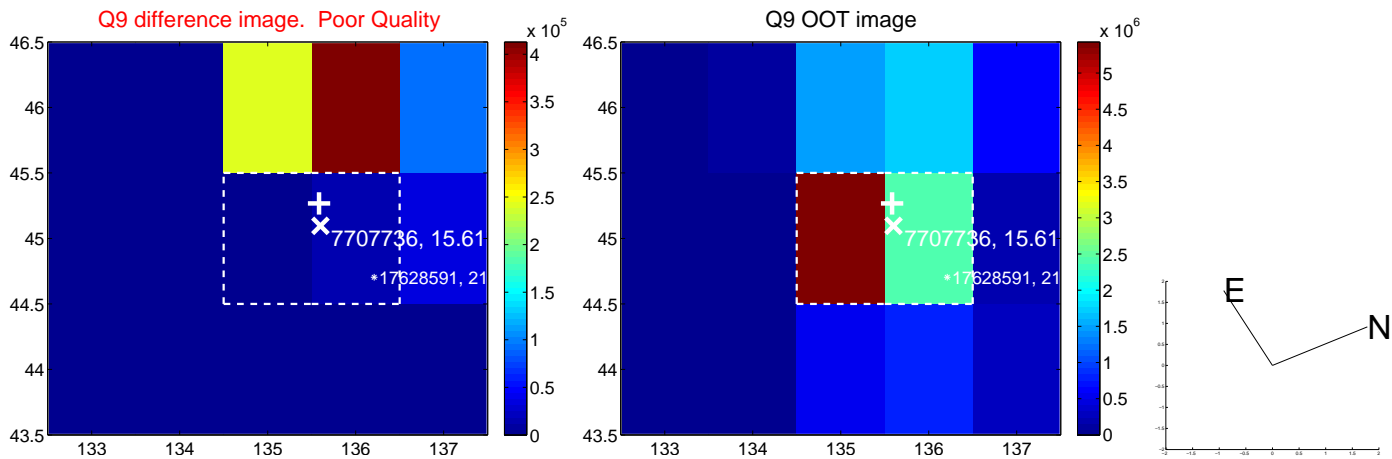
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



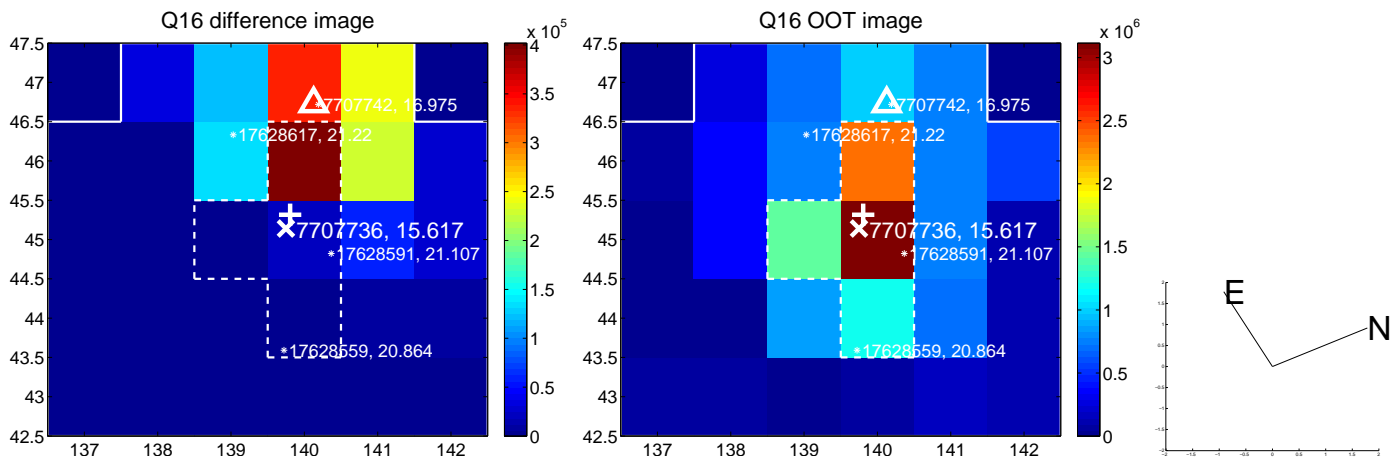
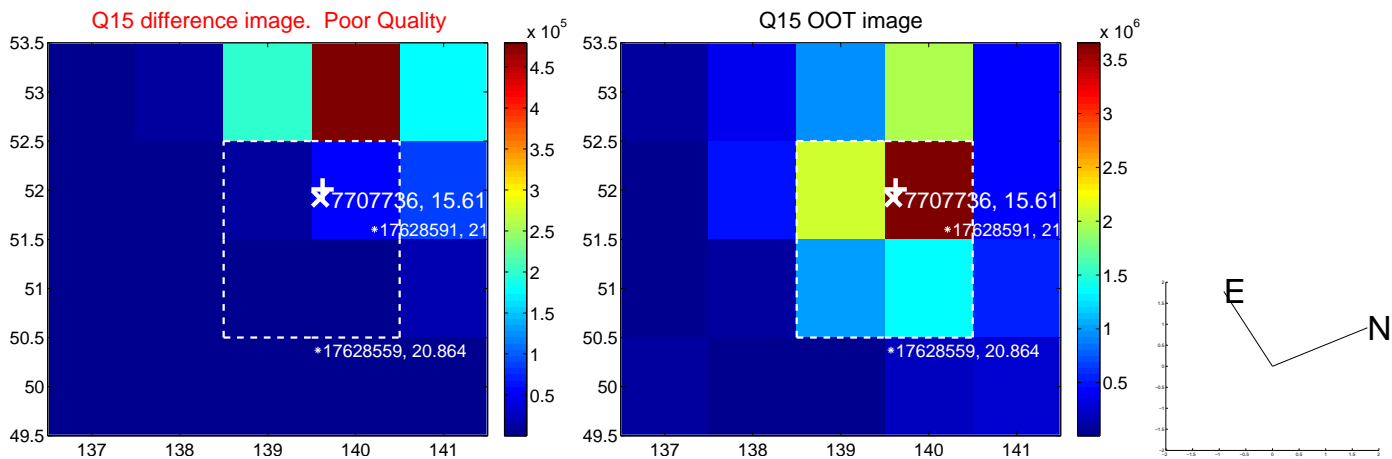
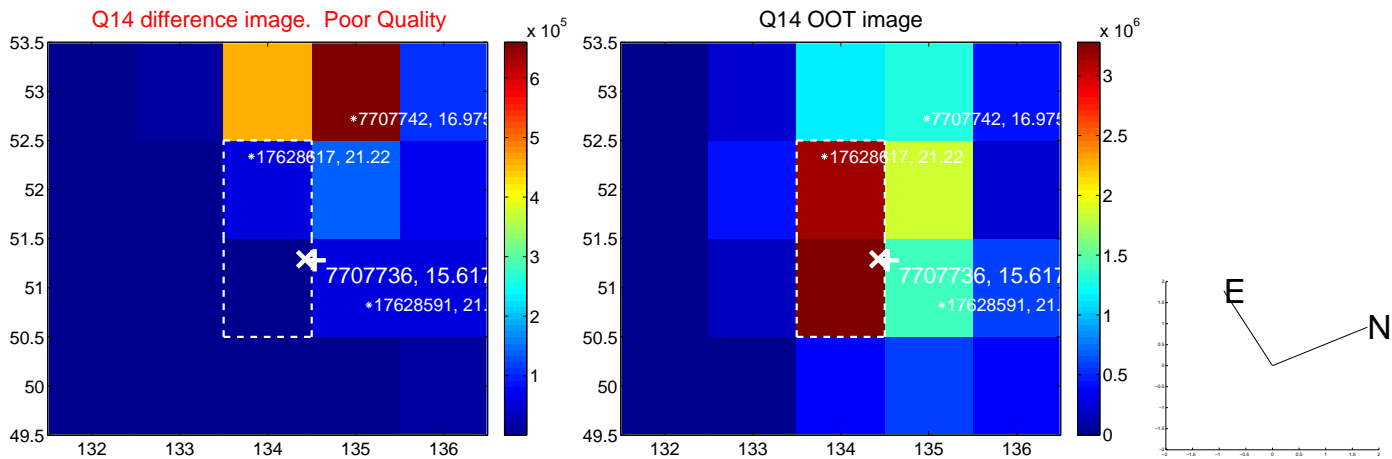
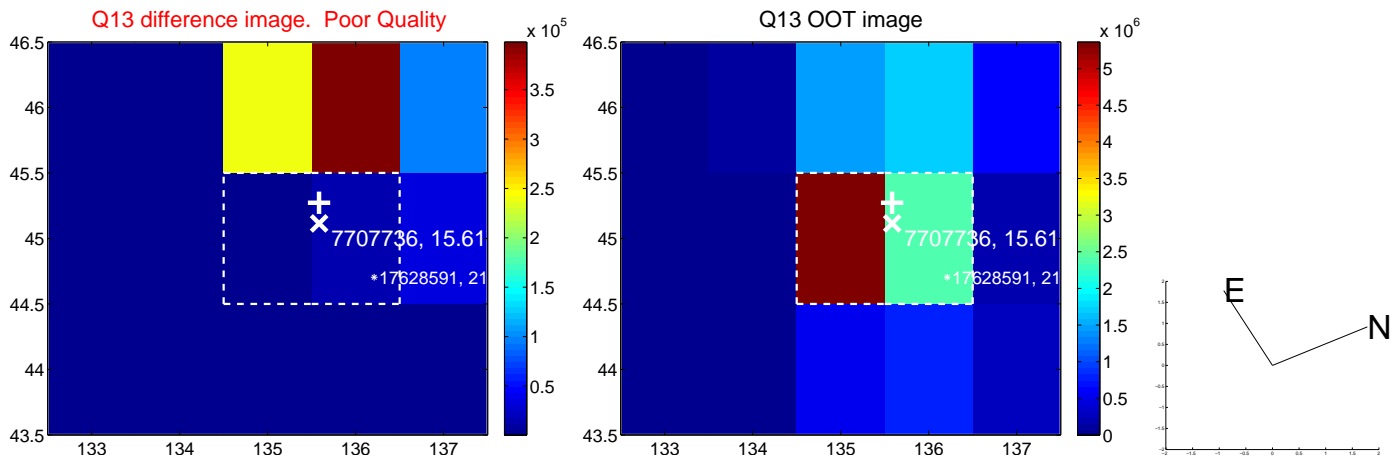
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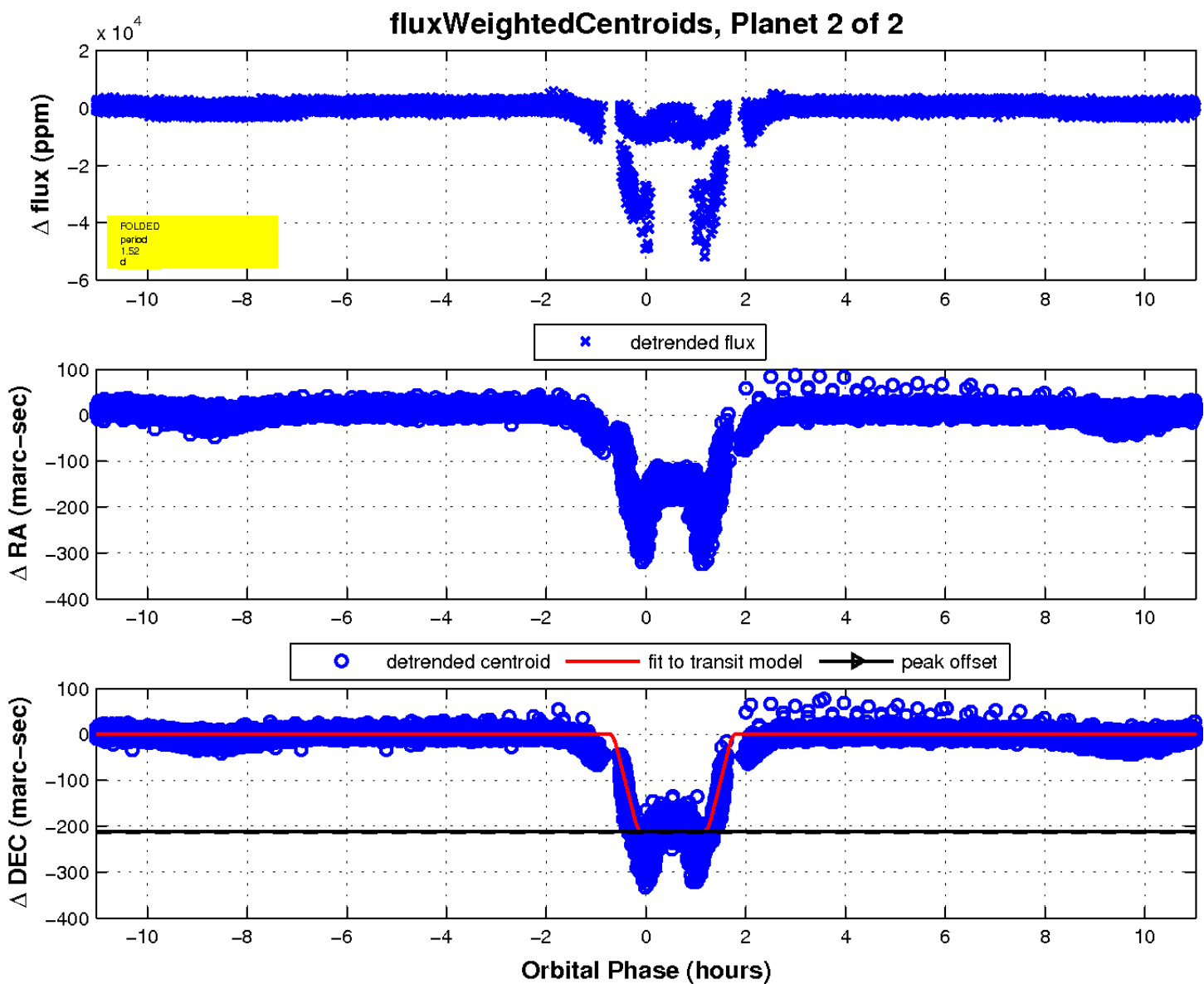
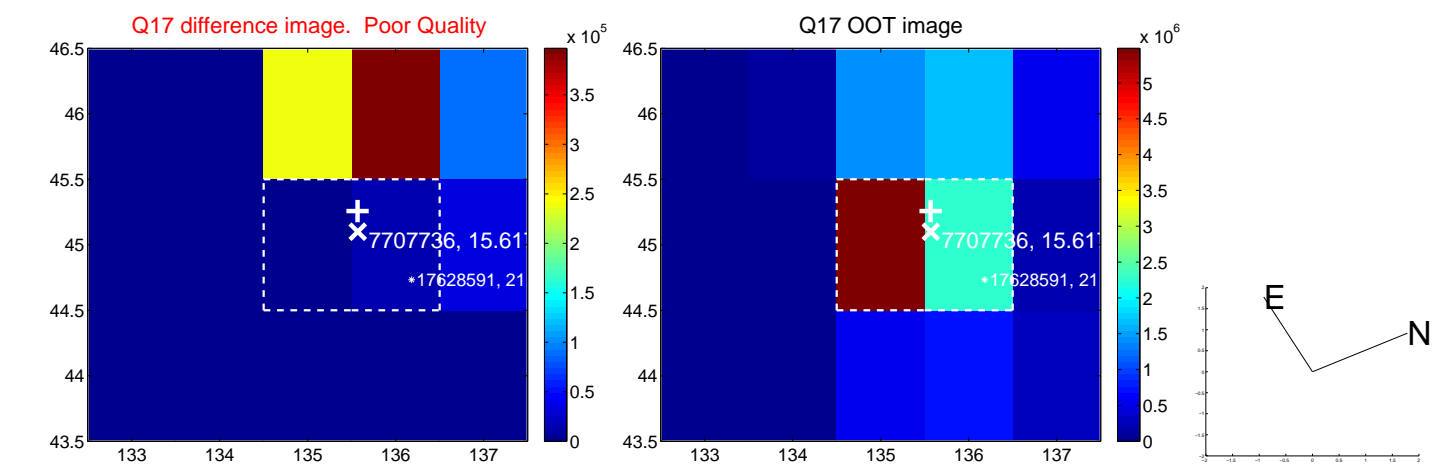
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white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination

