

KIC 008107150

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})
008107150-01	OBS	7863.01	5.244781	136.037199	35.5	7.771	8.2	8.5	0.88	5823	0.60	251.29
008107150-02	OBS	No	254.820113	312.167348	233.5	15.974	8.0	7.9	0.88	5823	1.53	1.42

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008107150-01	OBS	PC	0.69	0	0	0	0	NO_COMMENT
008107150-02	OBS	FP	0.00	1	0	0	0	ALL_TRANS_CHASES—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.

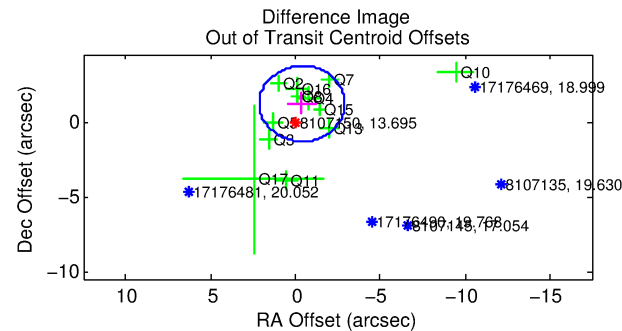
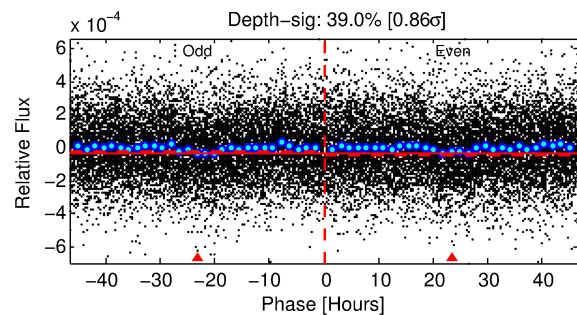
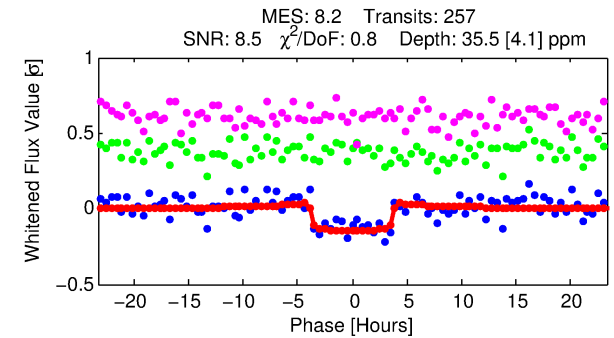
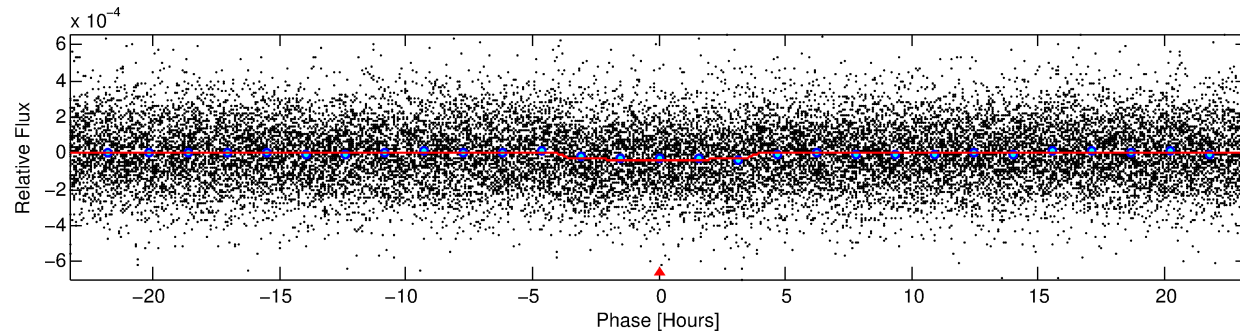
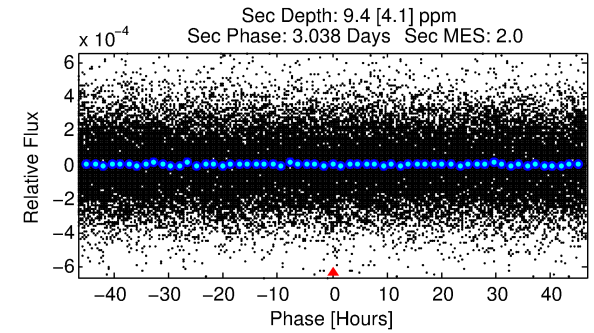
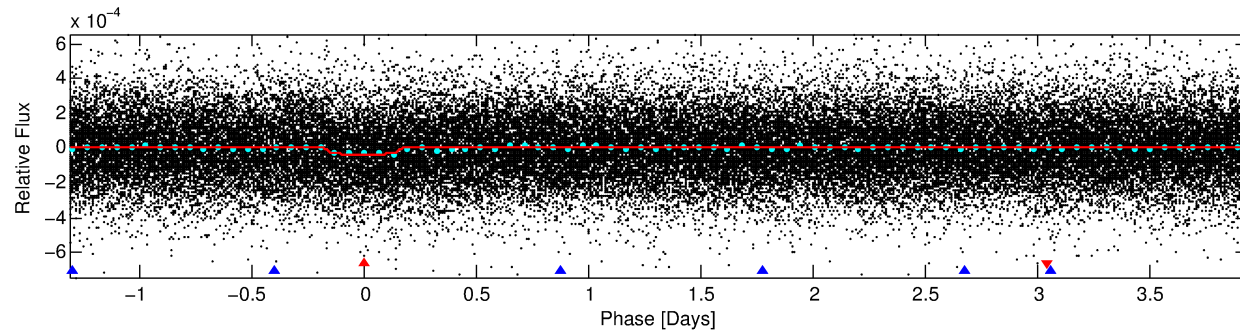
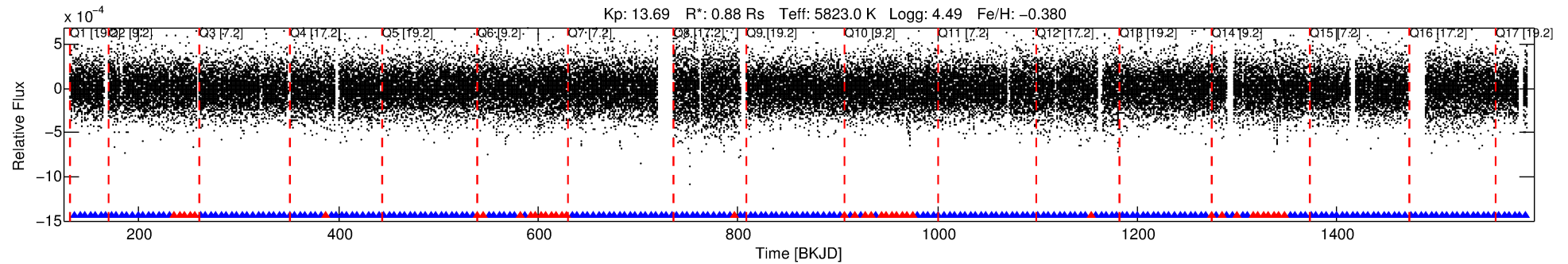
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 008107150-01

No Significant Match Found

DV One-Page Summary

KIC: 8107150 Candidate: 1 of 2 Period: 5.245 d



DV Fit Results:

Period = 5.24478 [0.00007] d
Epoch = 136.0372 [0.0096] BKJD
 R_p/R^* = 0.0063 [0.0024]
 a/R^* = 2.76 [4.66]
 b = 0.87 [0.54]
 S_{eff} = 251.29 [87.27]
 T_{eq} = 1015 [88] K
 R_p = 0.60 [0.28] R_{e}
 a = 0.0562 [0.0126] AU
 A_g = 44.81 [42.53] [1.03σ]
 T_{eff} = 4061 [910] K [3.33σ]

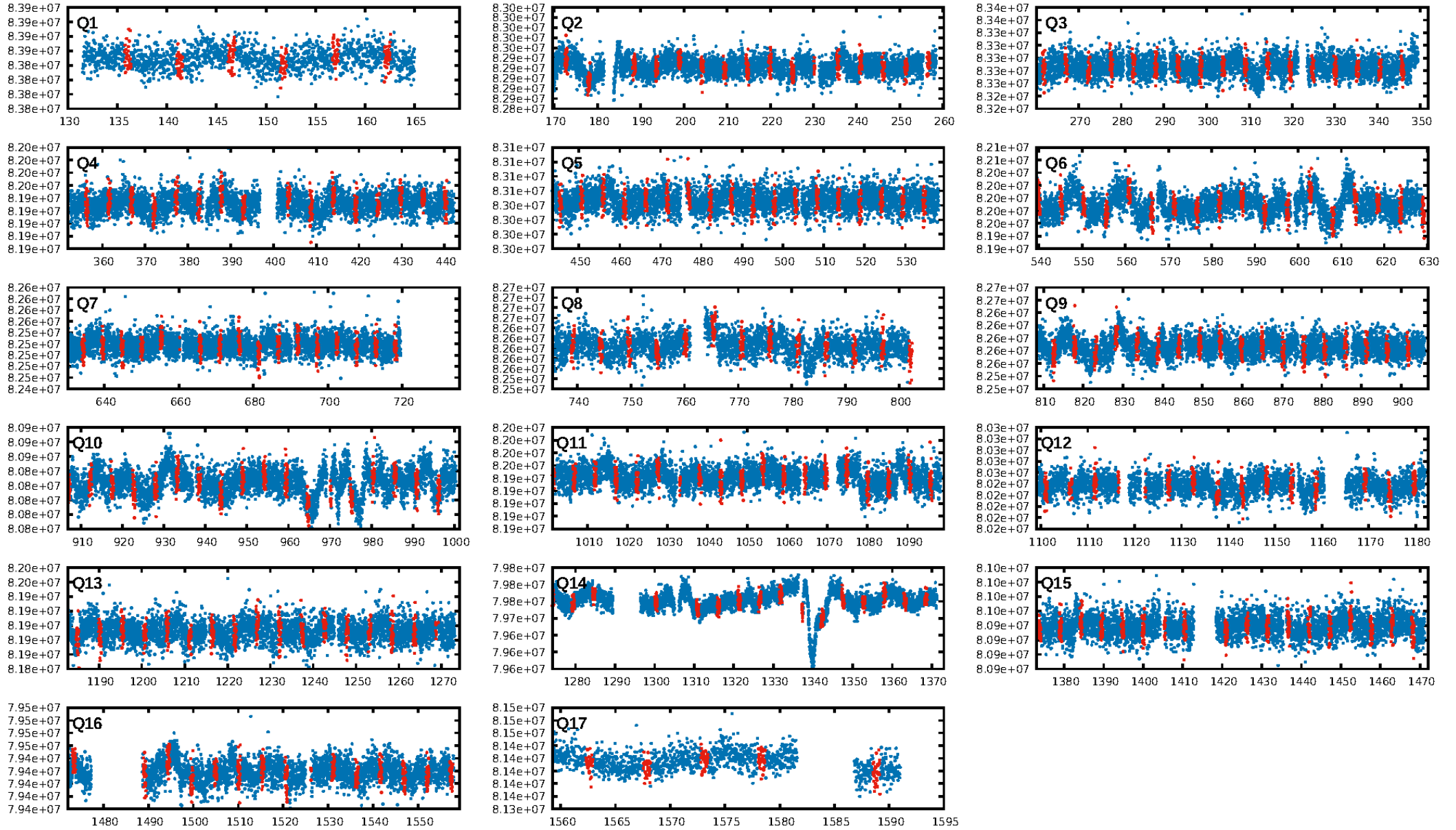
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [337.19σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 3.30e-15
RollingBand-fgt: 0.84 [206/246]
GhostDiagnostic-chr: -7.598
Centroid-sig: 24.8%
Centroid-so: 1.242 arcsec [0.95σ]
OotOffset-rm: 1.263 arcsec [1.50σ]
KicOffset-rm: 1.207 arcsec [1.66σ]
OotOffset-st: 2/4/3/3 [12]
KicOffset-st: 2/4/3/3 [12]
DiffImageQuality-fgm: 0.67 [8/12]
DiffImageOverlap-fno: 1.00 [17/17]

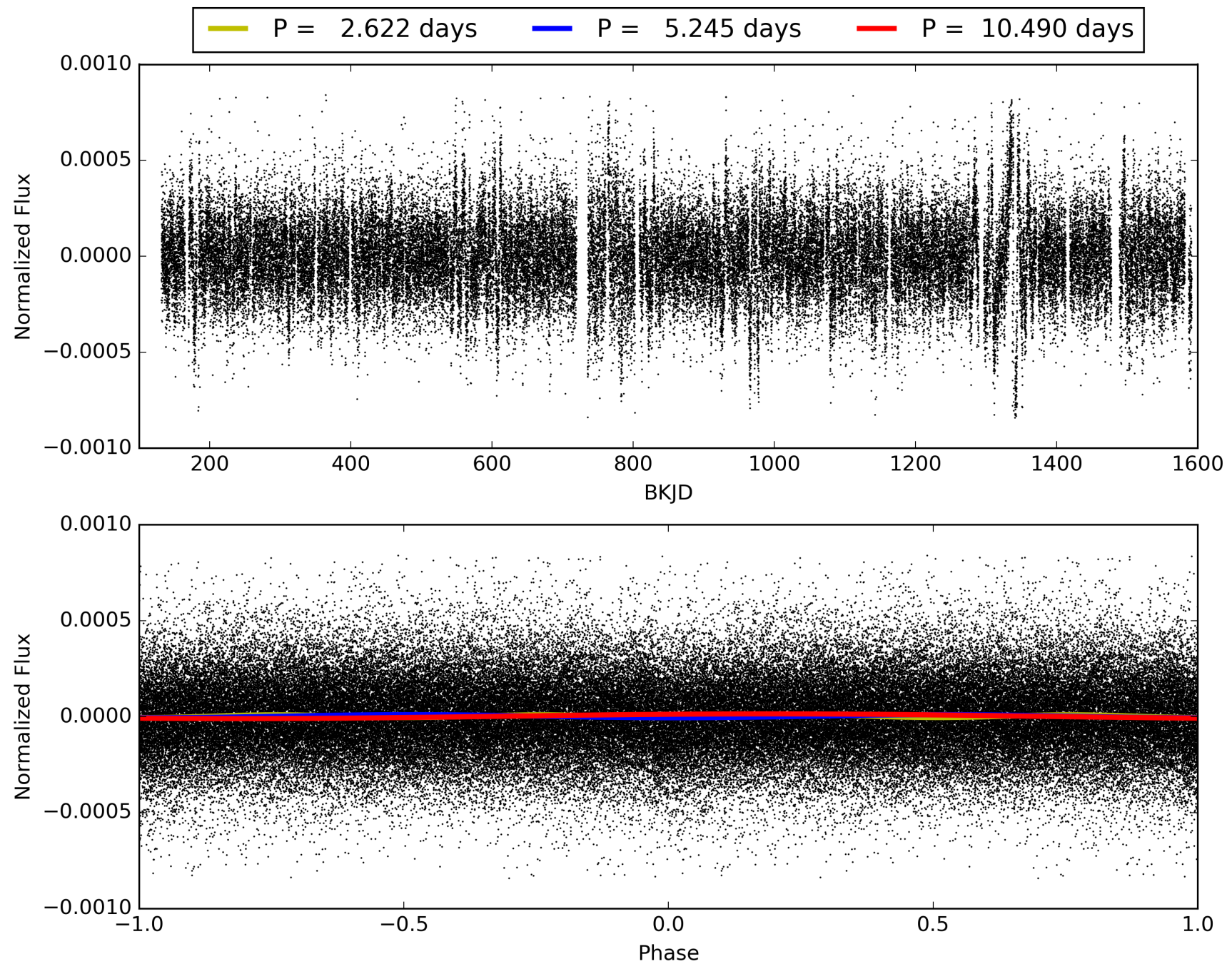
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 03:31:38 Z

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

TCE 008107150-01, PDC Light Curves

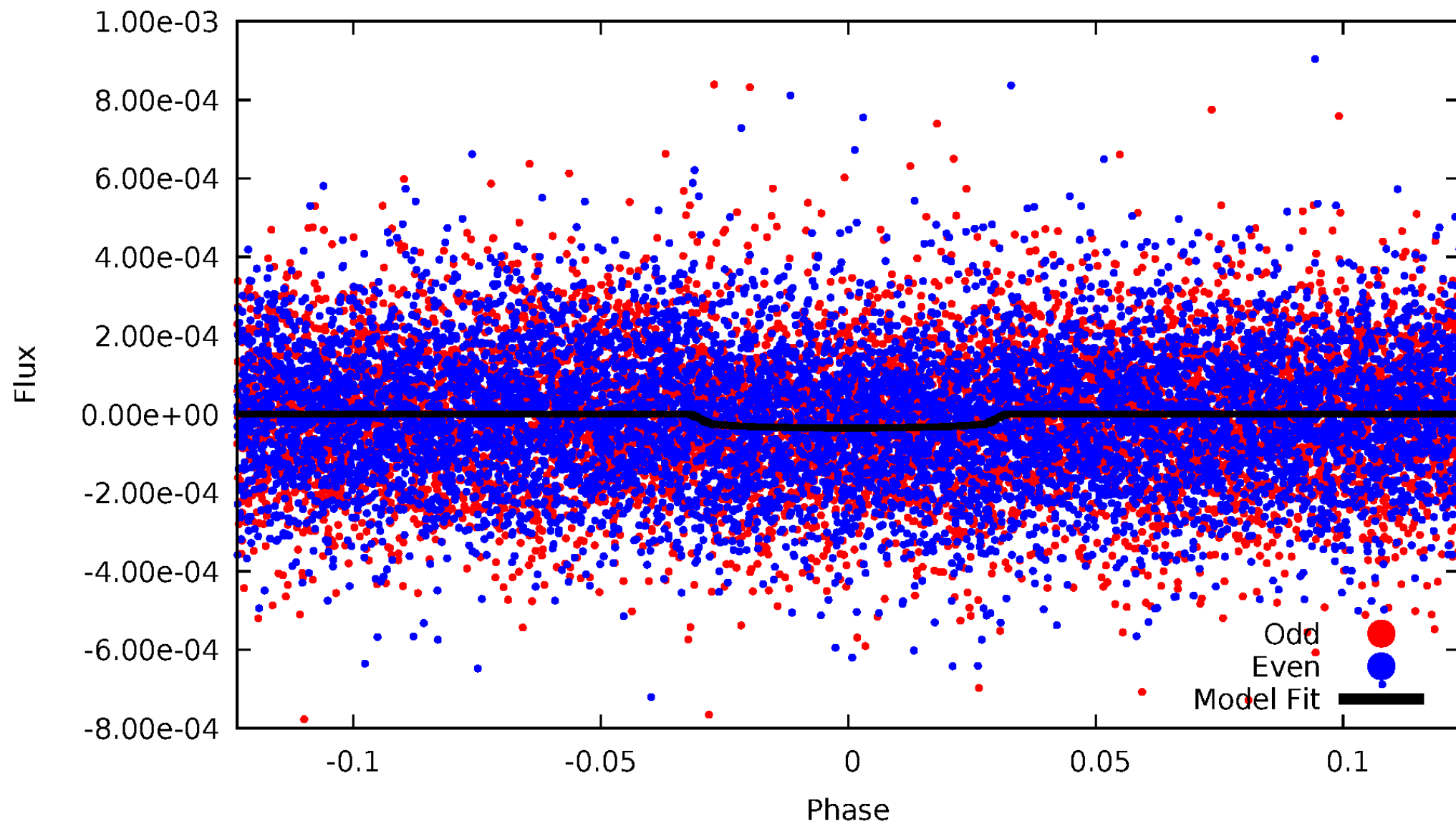


TCE 008107150-01



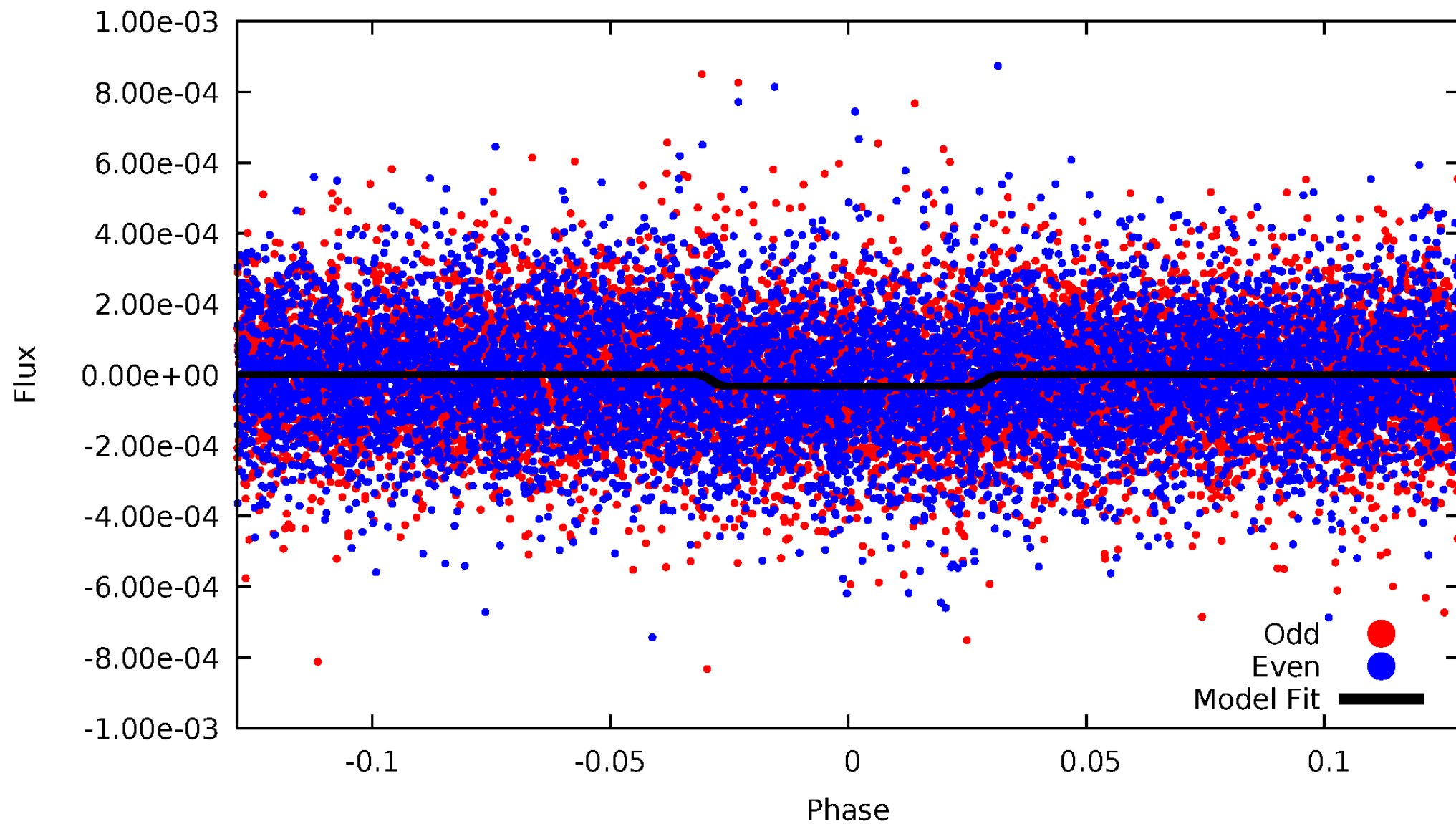
DV Odd/Even

TCE 008107150-01

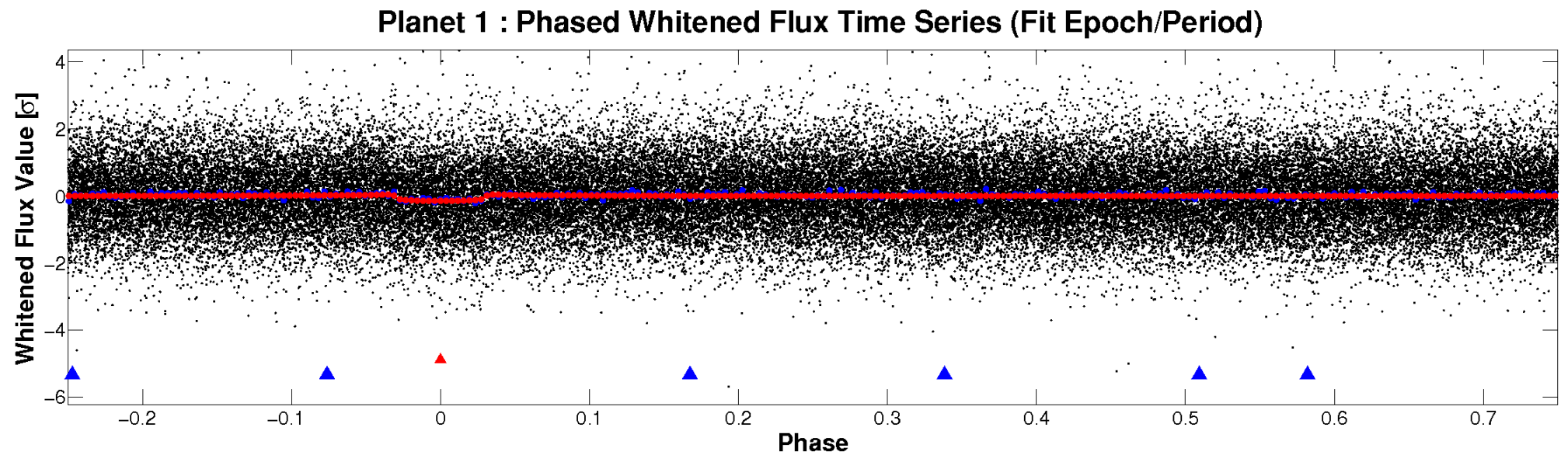
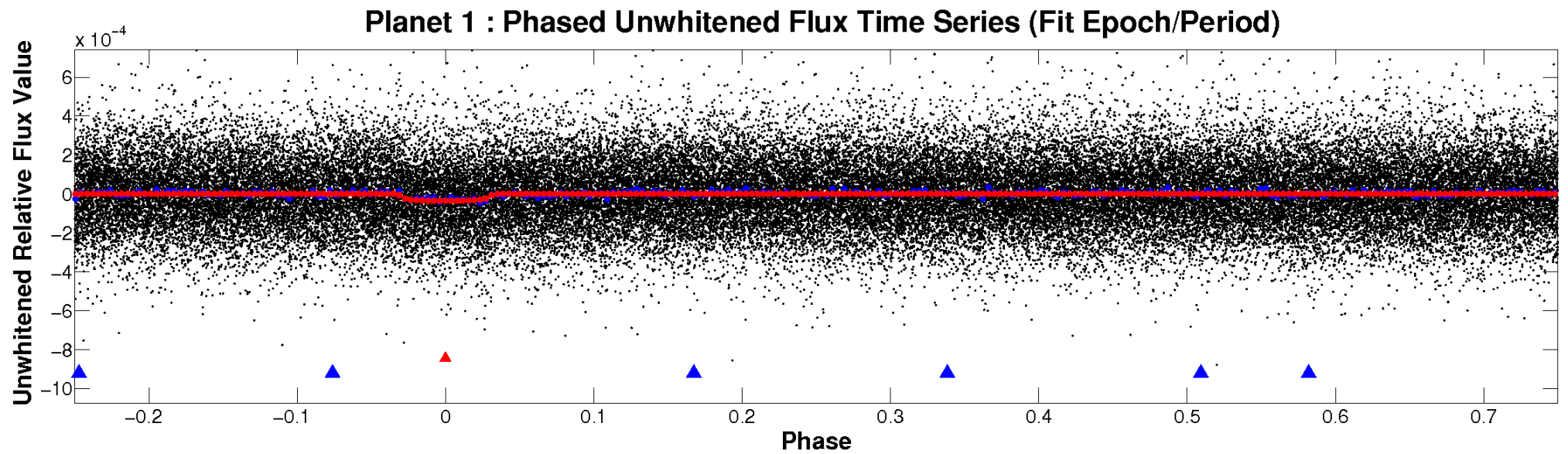


ALT Odd/Even

TCE 008107150-01

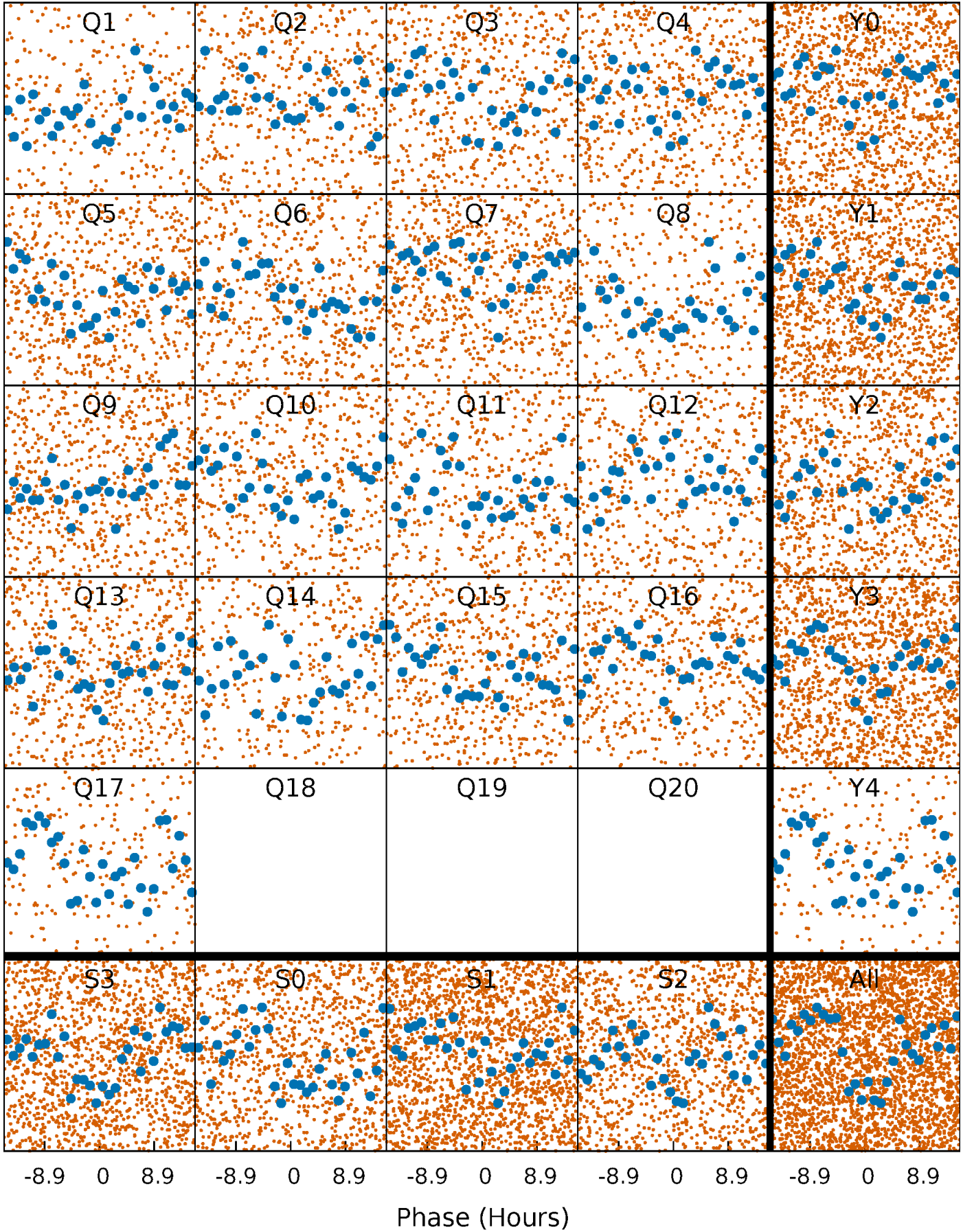


Non-Whitened Vs. Whitened Light Curve



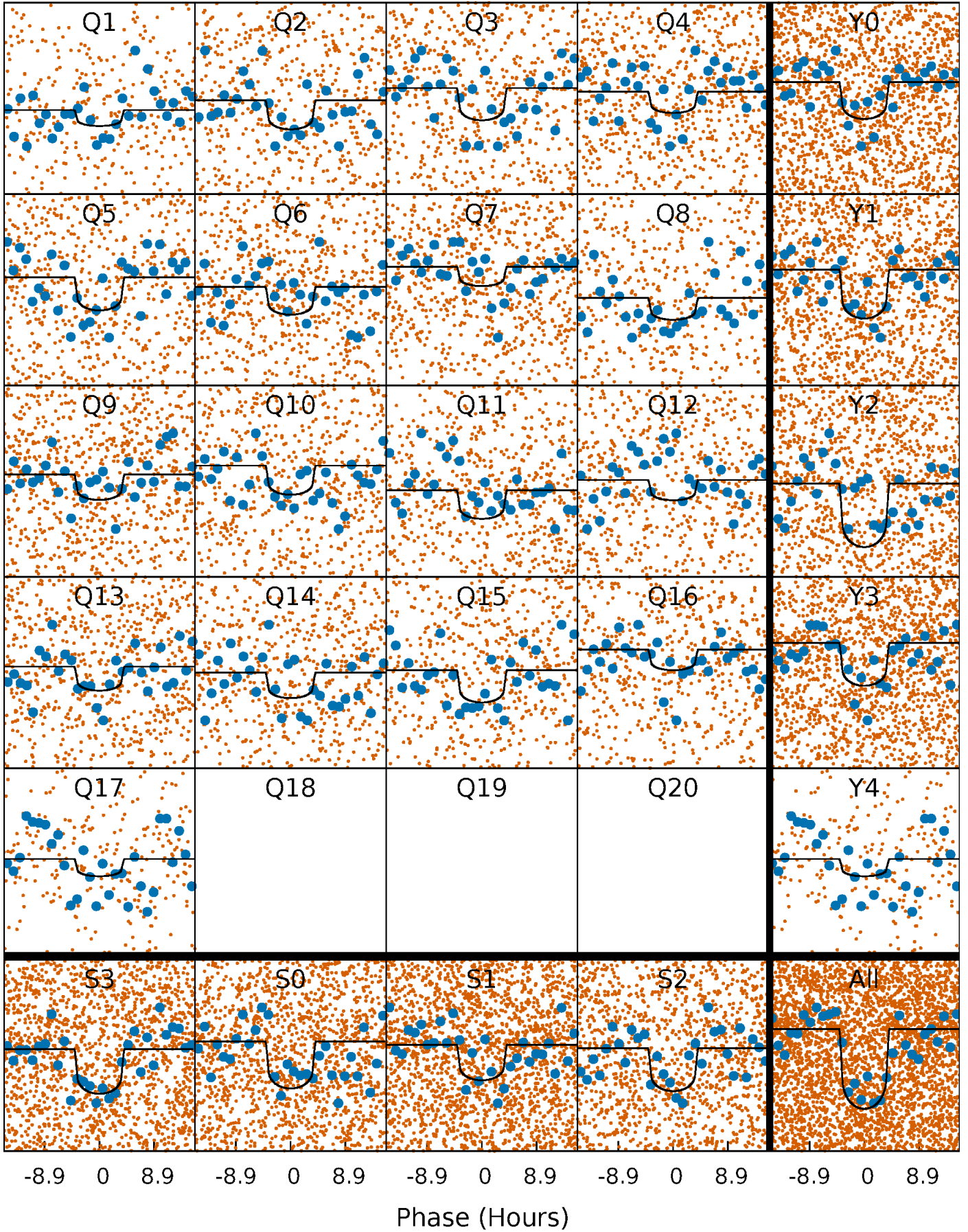
PDC Quarter-Phased Transit Curves

TCE 008107150-01 P= 5.244781 Days $T_0=136.037199$ (BKJD)



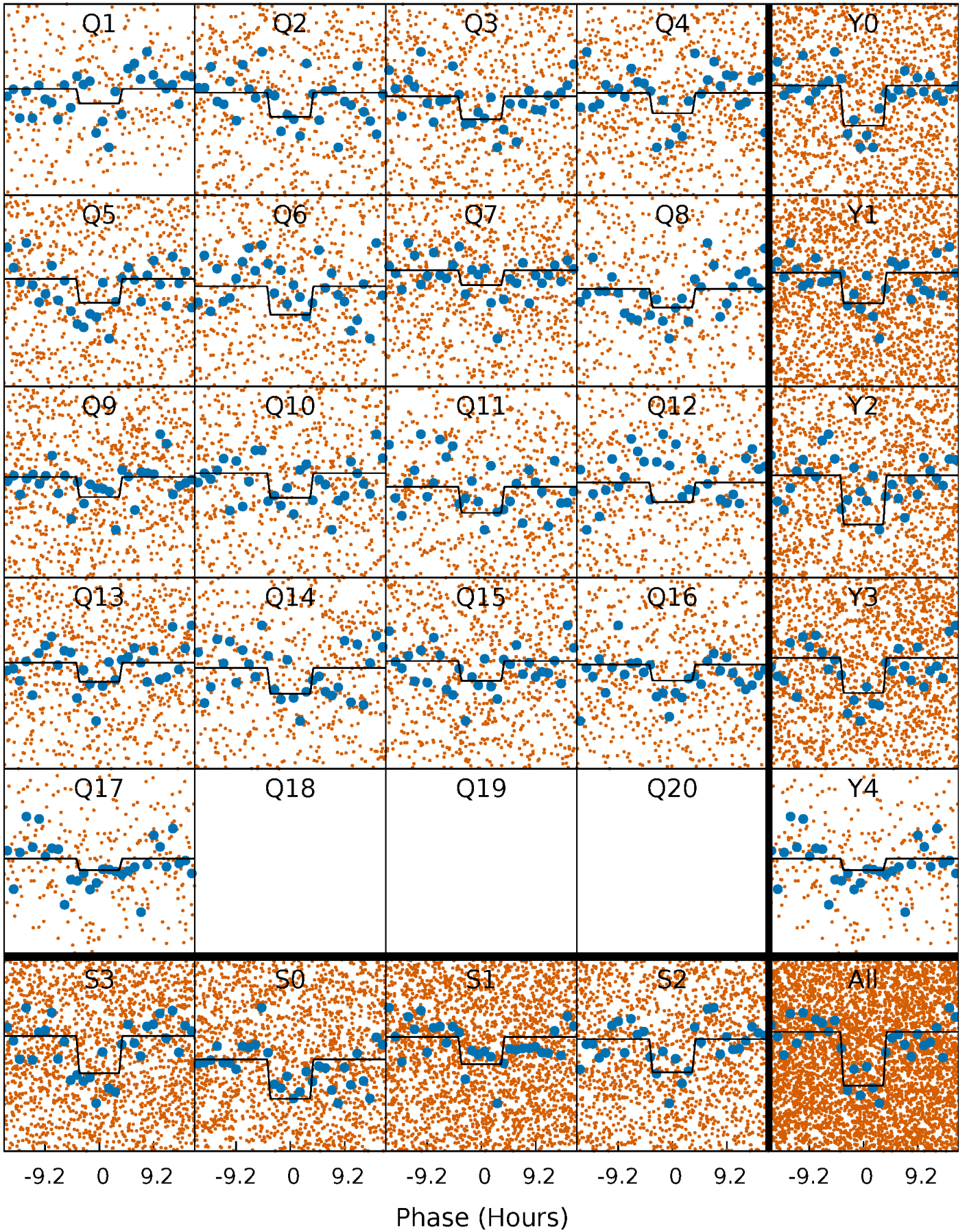
DV Quarter-Phased Transit Curves

TCE 008107150-01 P= 5.244781 Days $T_0=136.037199$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

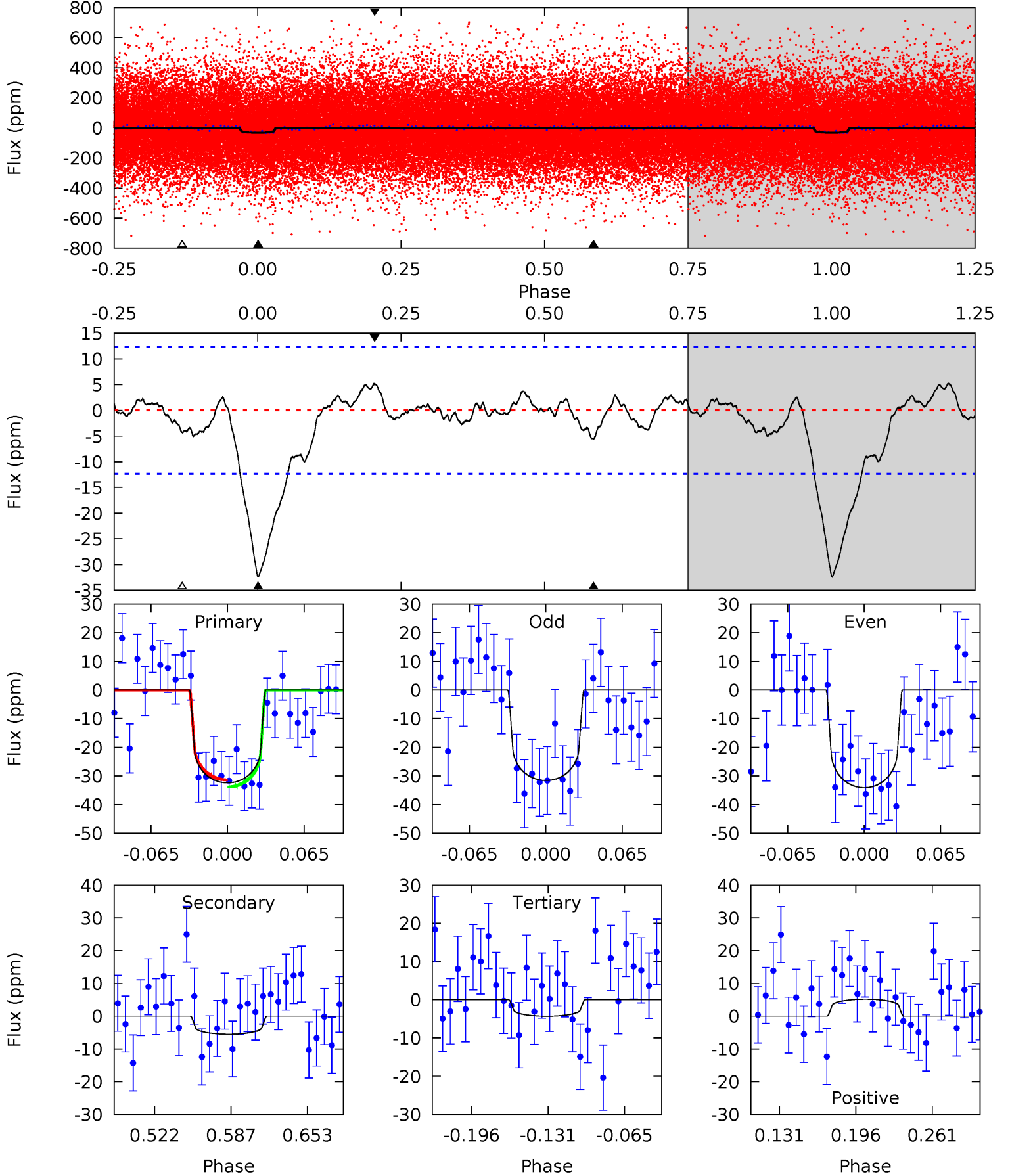
TCE 008107150-01 P= 5.244984 Days $T_0=136.019153$ (BKJD)



DV Model-Shift Uniqueness Test

008107150-01, P = 5.244781 Days, E = 130.792418 Days

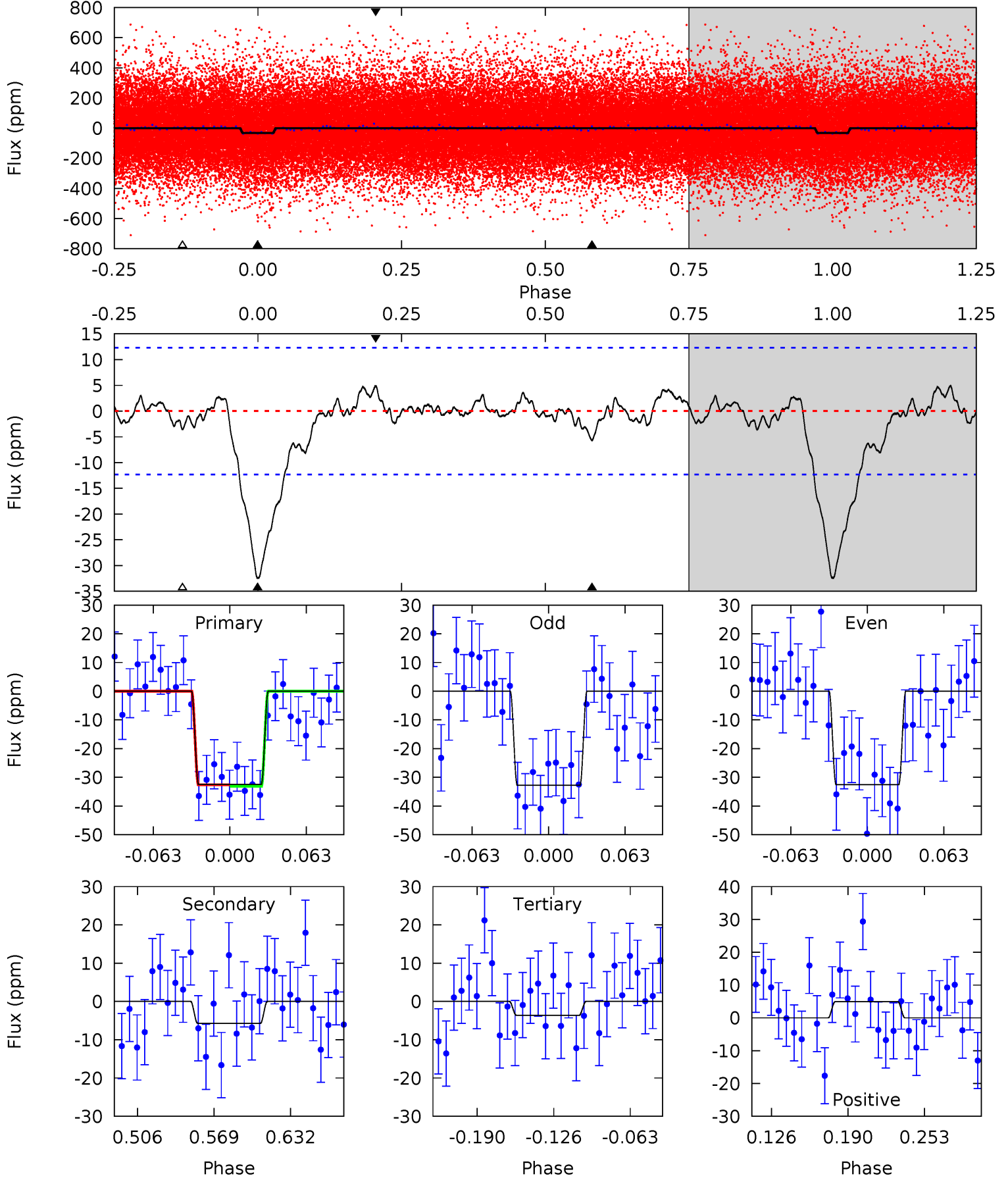
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
12.2	2.08	1.62	1.95	4.65	1.84	1.01	10.6	10.2	0.46	0.14	0.48	0.95	0.14	0.46



Alt Model-Shift Uniqueness Test

008107150-01, P = 5.244984 Days, E = 130.774169 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
12.3	2.17	1.37	1.86	4.66	1.86	0.85	10.9	10.4	0.79	0.30	0.04	0.92	0.13	0.09



Stellar Parameters For KIC 008107150

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5823^{+140}_{-158}	$4.486^{+0.078}_{-0.182}$	$-0.380^{+0.300}_{-0.300}$	$0.878^{+0.231}_{-0.099}$	$0.862^{+0.109}_{-0.079}$	$1.794^{+0.687}_{-0.805}$
	+2%/-3%	+2%/-4%	+79%/-79%	+26%/-11%	+13%/-9%	+38%/-45%
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 008107150-01 / KOI 7863.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-6 ± 3	$0.62^{+0.26}_{-0.24}$	1441^{+97}_{-70}	3885^{+803}_{-532}	24^{+43}_{-15}
Alt.	-6 ± 3	$0.55^{+0.25}_{-0.25}$	1436^{+96}_{-70}	4004^{+1071}_{-593}	29^{+71}_{-18}

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

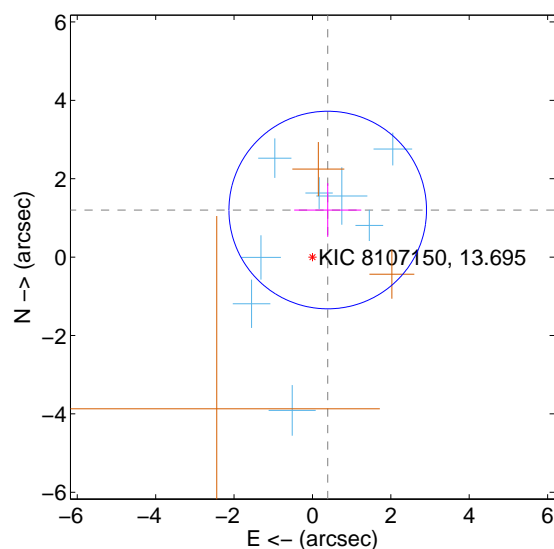
Supplemental centroid analysis for 008107150-01. Kepler magnitude: 13.70. Transit SNR 8.46

There are 8 quarters with good PRF difference image offsets

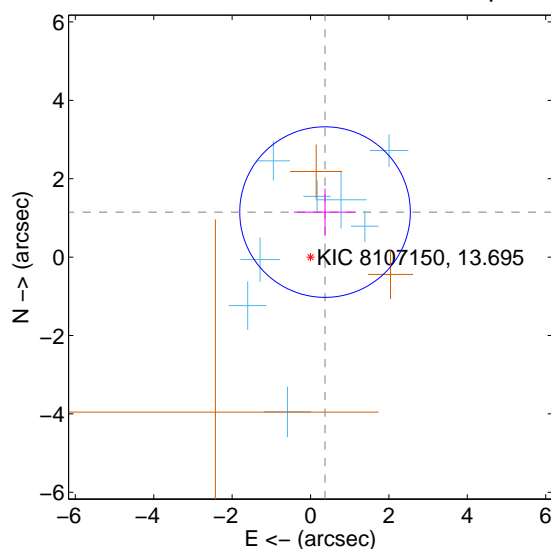
The direct PRF centroid is offset from the target star catalog position by about 0.08 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	1.263 ± 0.840	1.50	-0.390 ± 0.856	1.201 ± 0.685
PRF-fit source offset from KIC position	1.207 ± 0.725	1.66	-0.370 ± 0.792	1.148 ± 0.602
photometric centroid source offset	1.24 ± 1.30	0.95	0.48 ± 1.20	-1.15 ± 1.32

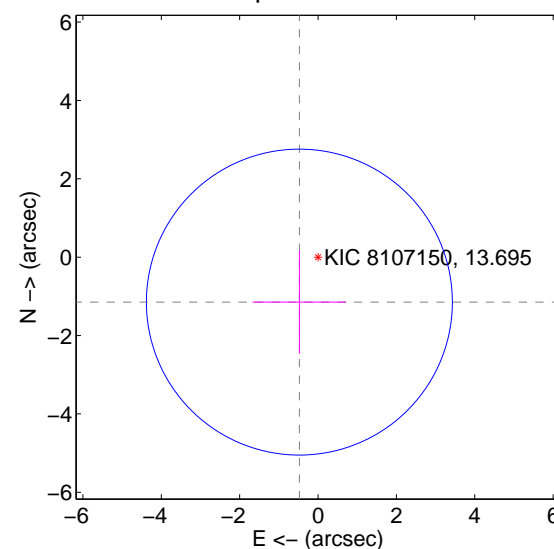
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

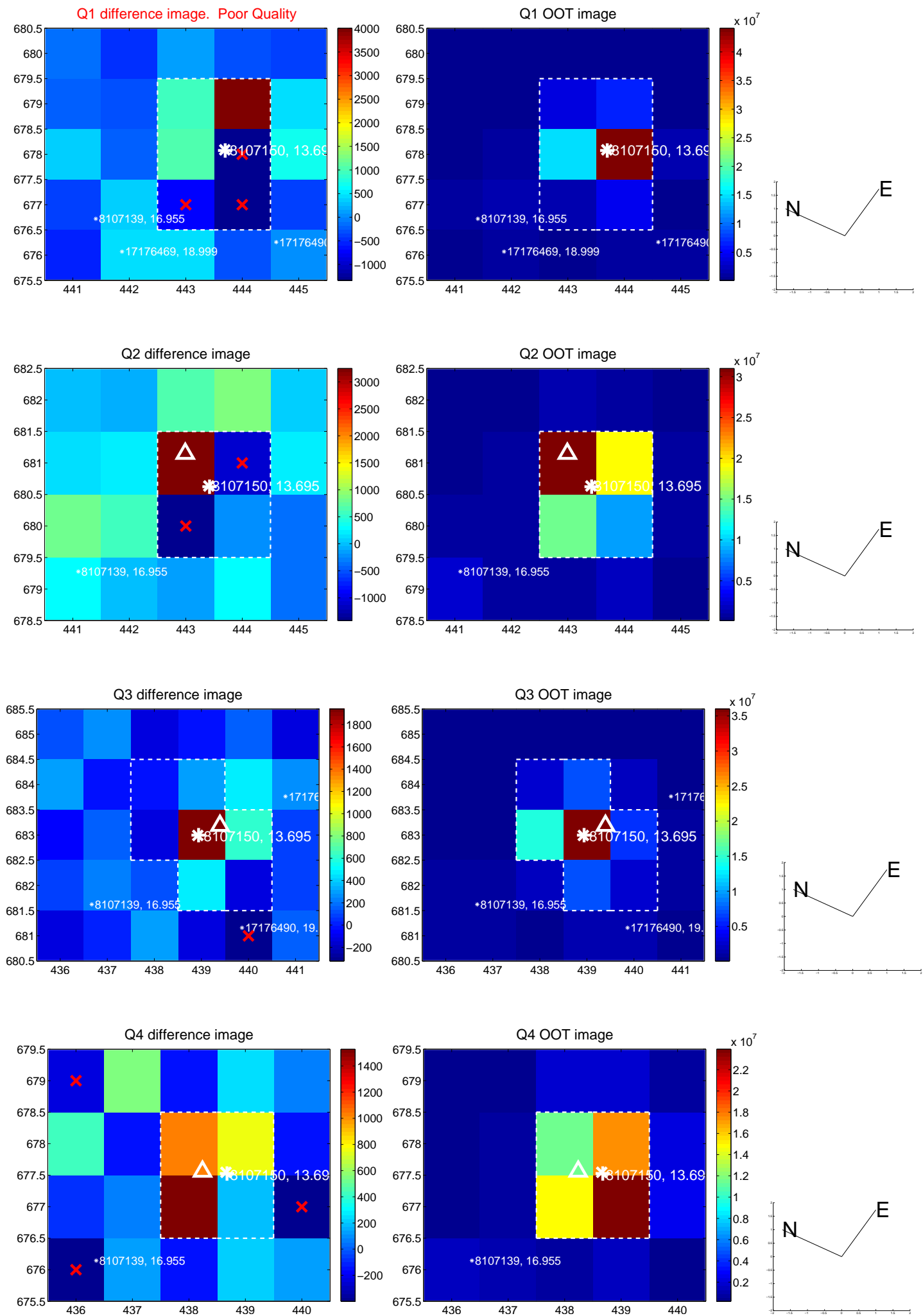


offset from photometric centroids

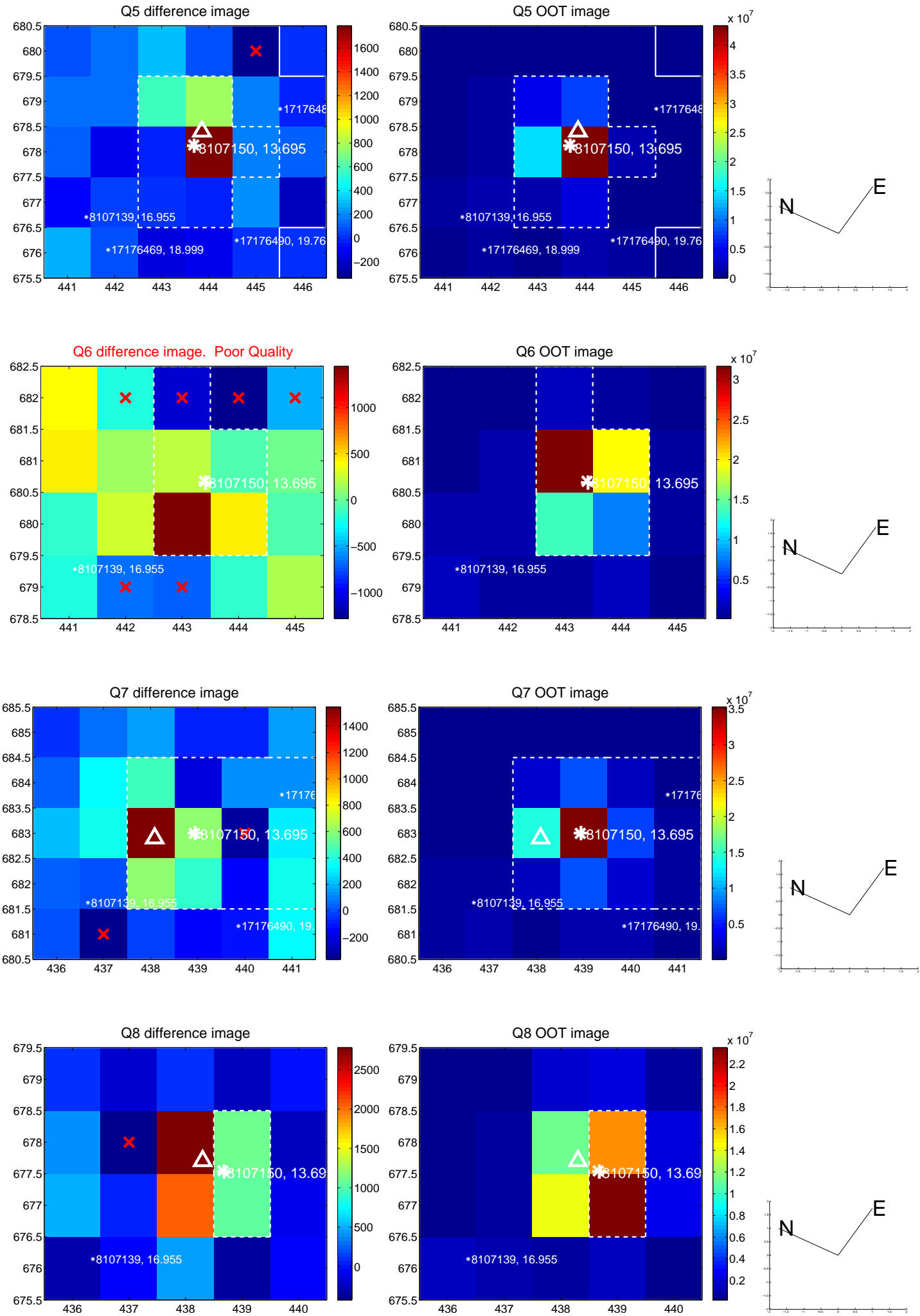


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

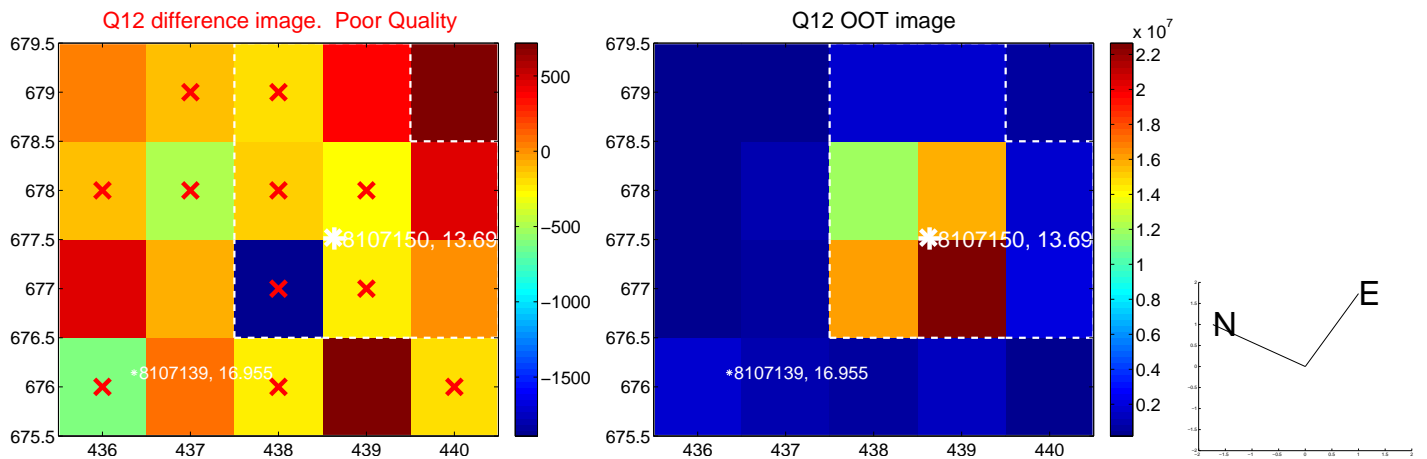
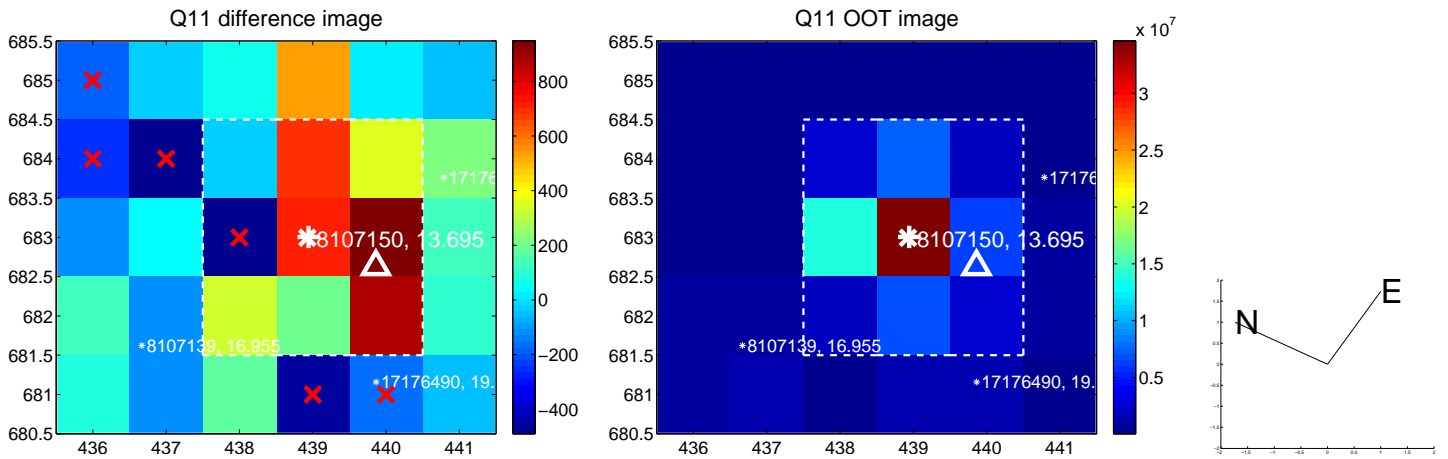
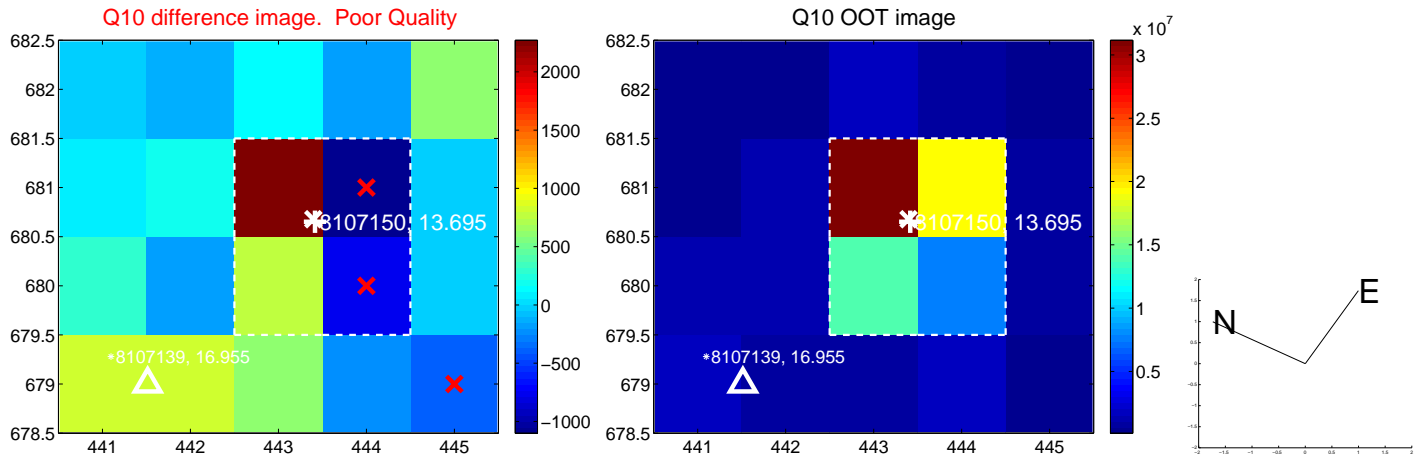
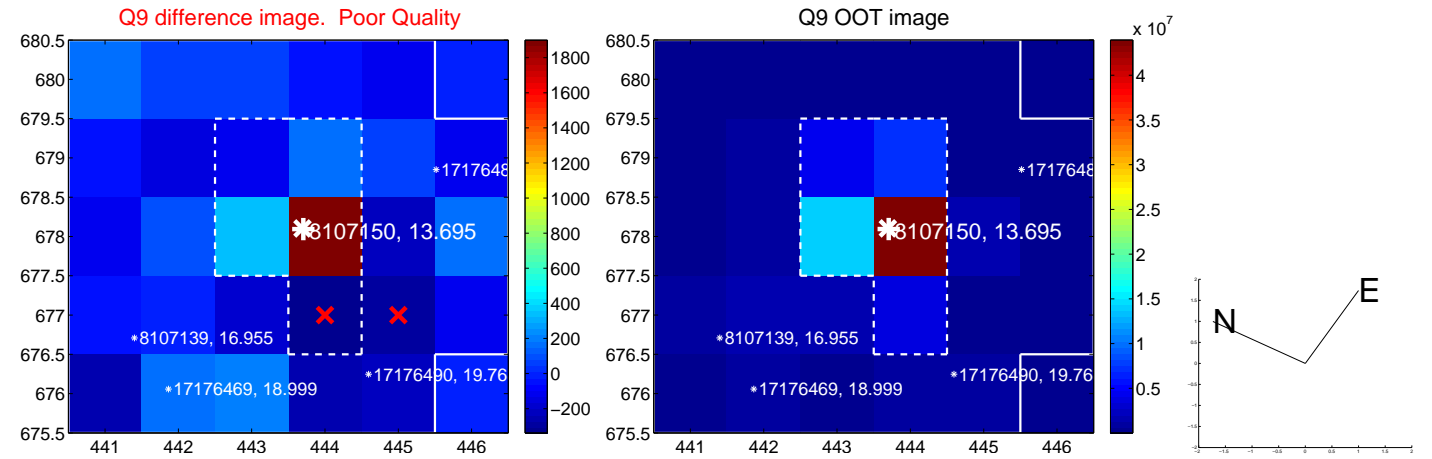
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



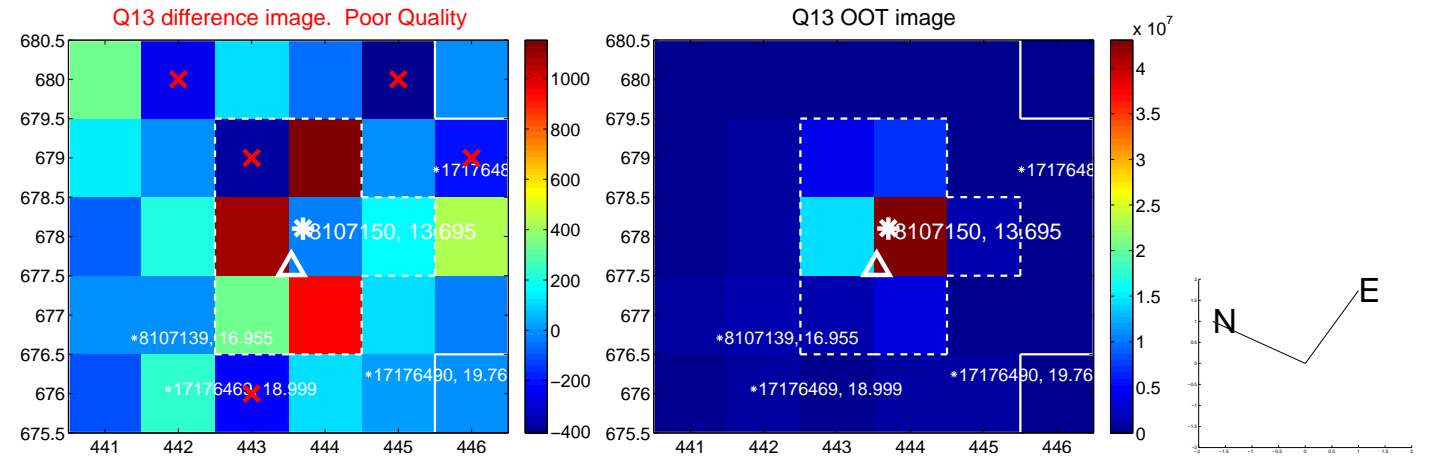
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



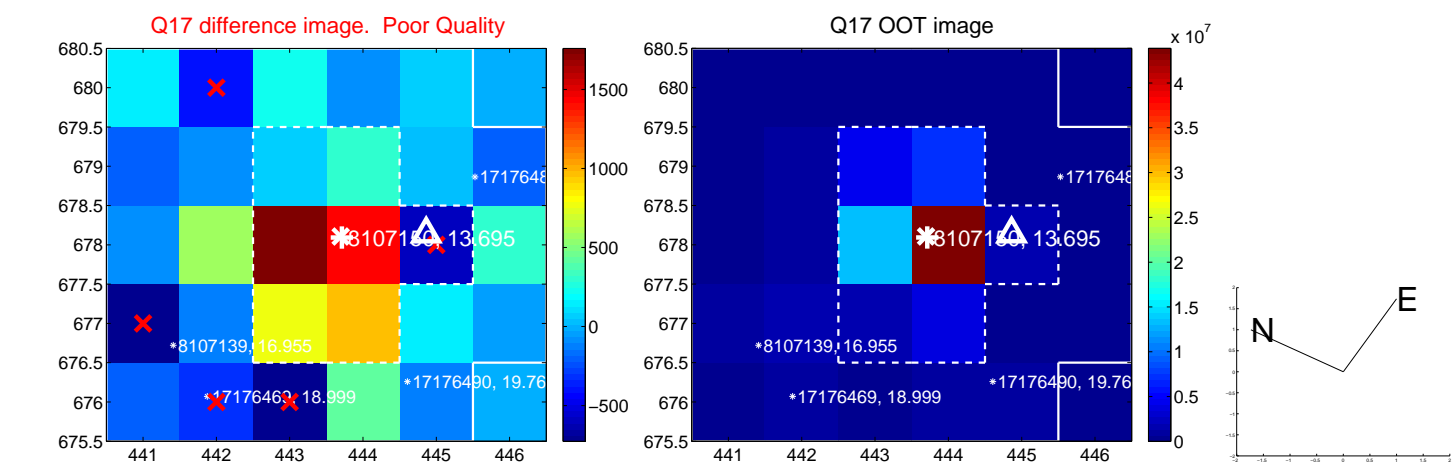
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



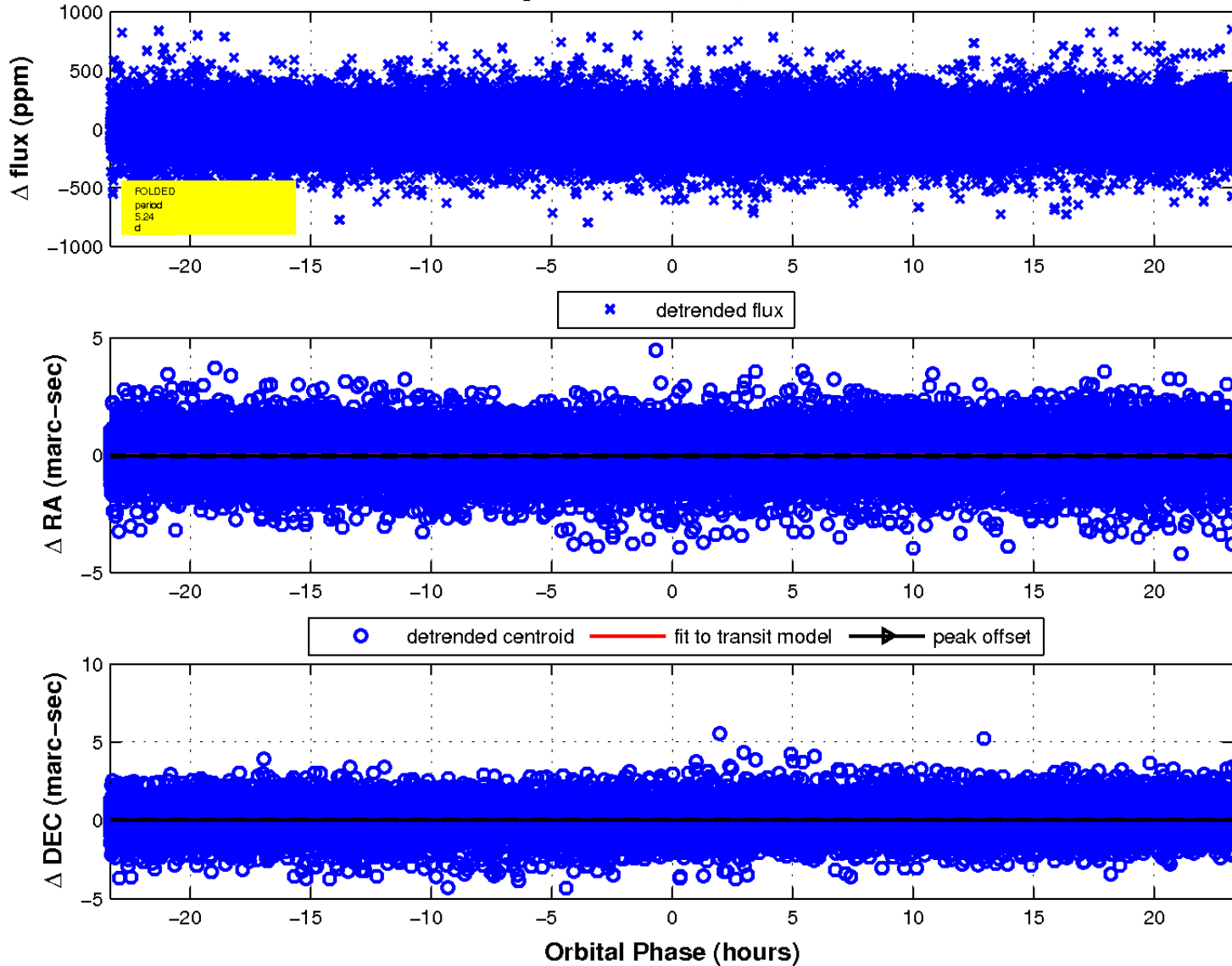
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

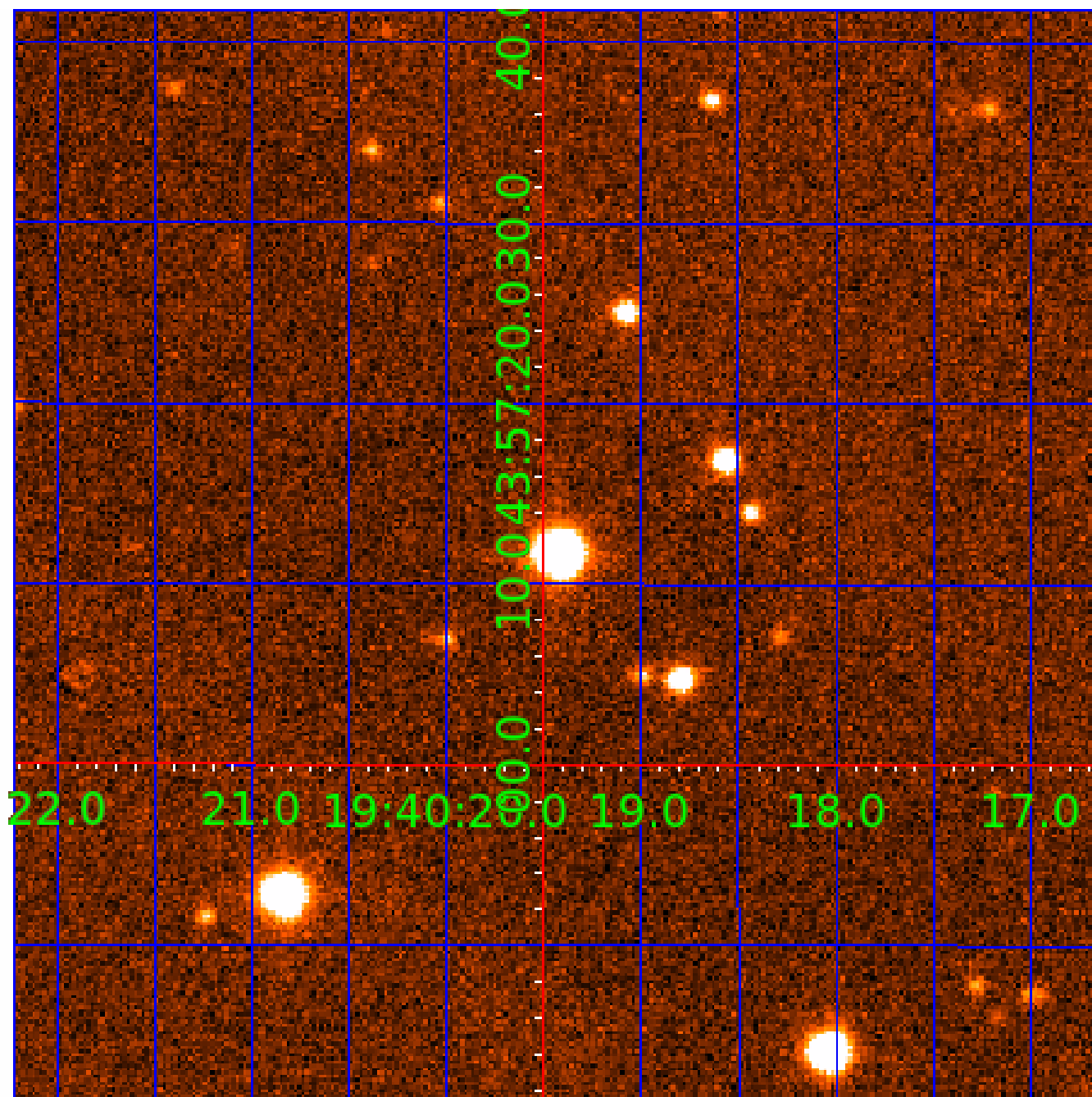


fluxWeightedCentroids, Planet 1 of 2



UKIRT Image

Declination



KIC 008107150

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})
008107150-01	OBS	7863.01	5.244781	136.037199	35.5	7.771	8.2	8.5	0.88	5823	0.60	251.29
008107150-02	OBS	No	254.820113	312.167348	233.5	15.974	8.0	7.9	0.88	5823	1.53	1.42

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008107150-01	OBS	PC	0.69	0	0	0	0	NO_COMMENT
008107150-02	OBS	FP	0.00	1	0	0	0	ALL_TRANS_CHASES—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.

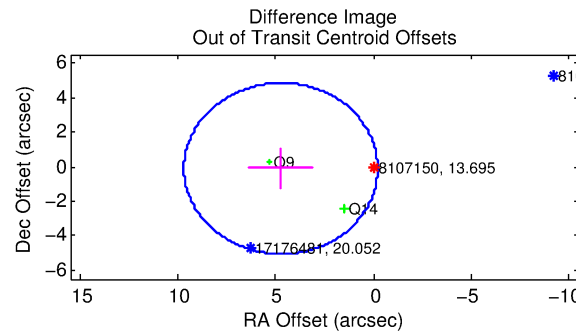
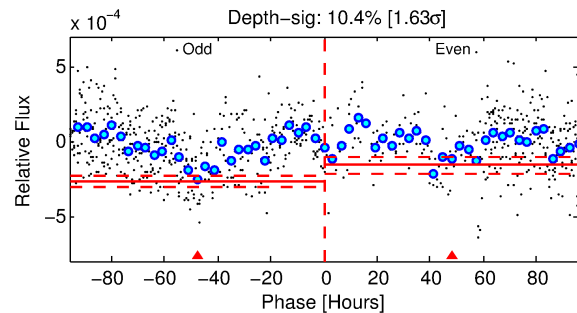
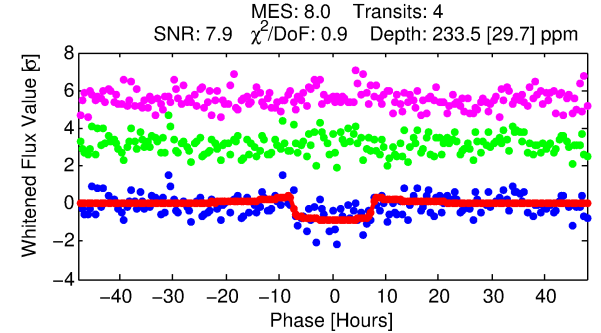
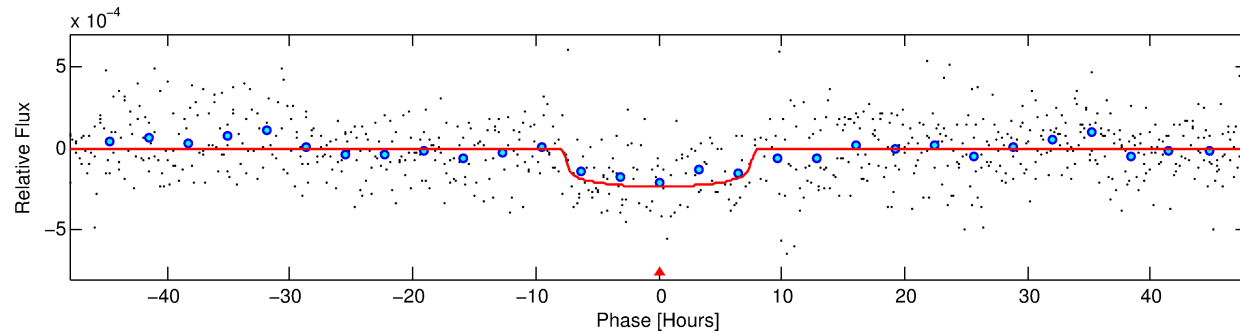
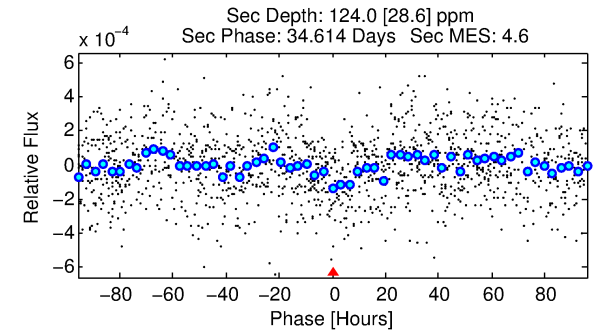
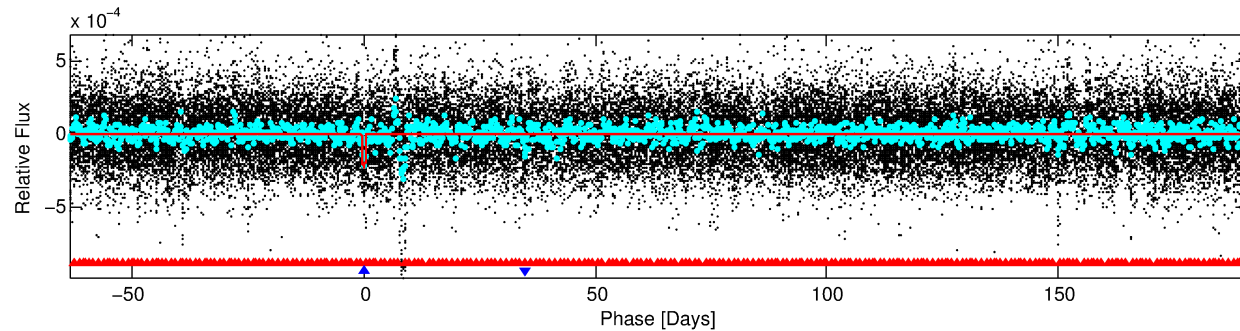
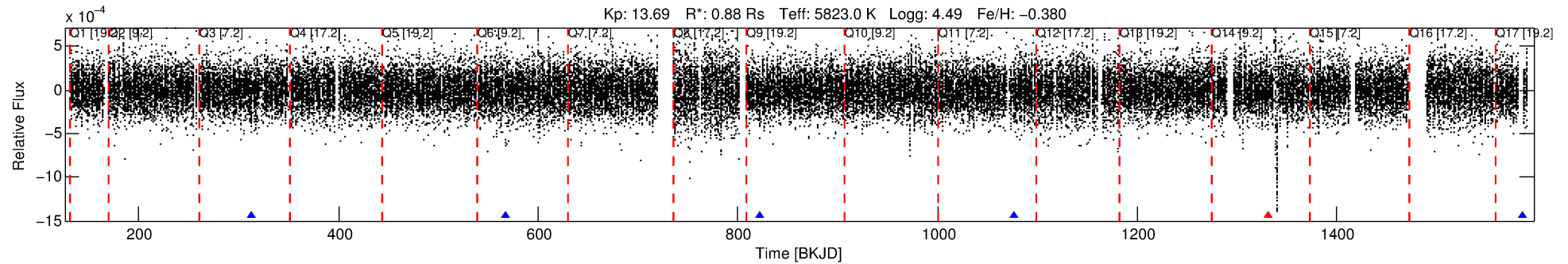
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 008107150-02

No Significant Match Found

DV One-Page Summary

KIC: 8107150 Candidate: 2 of 2 Period: 254.820 d



DV Fit Results:

Period = 254.82011 [0.00834] d
Epoch = 312.1673 [0.0204] BKJD
Rp/R* = 0.0159 [0.0027]
a/R* = 67.66 [50.67]
b = 0.85 [0.25]
Seff = 1.42 [0.49]
Teq = 278 [24] K
Rp = 1.53 [0.48] Re
a = 0.7485 [0.1678] AU
Ag = 16414.17 [8589.29] [1.91σ]
Teffp = 4869 [512] K [8.96σ]

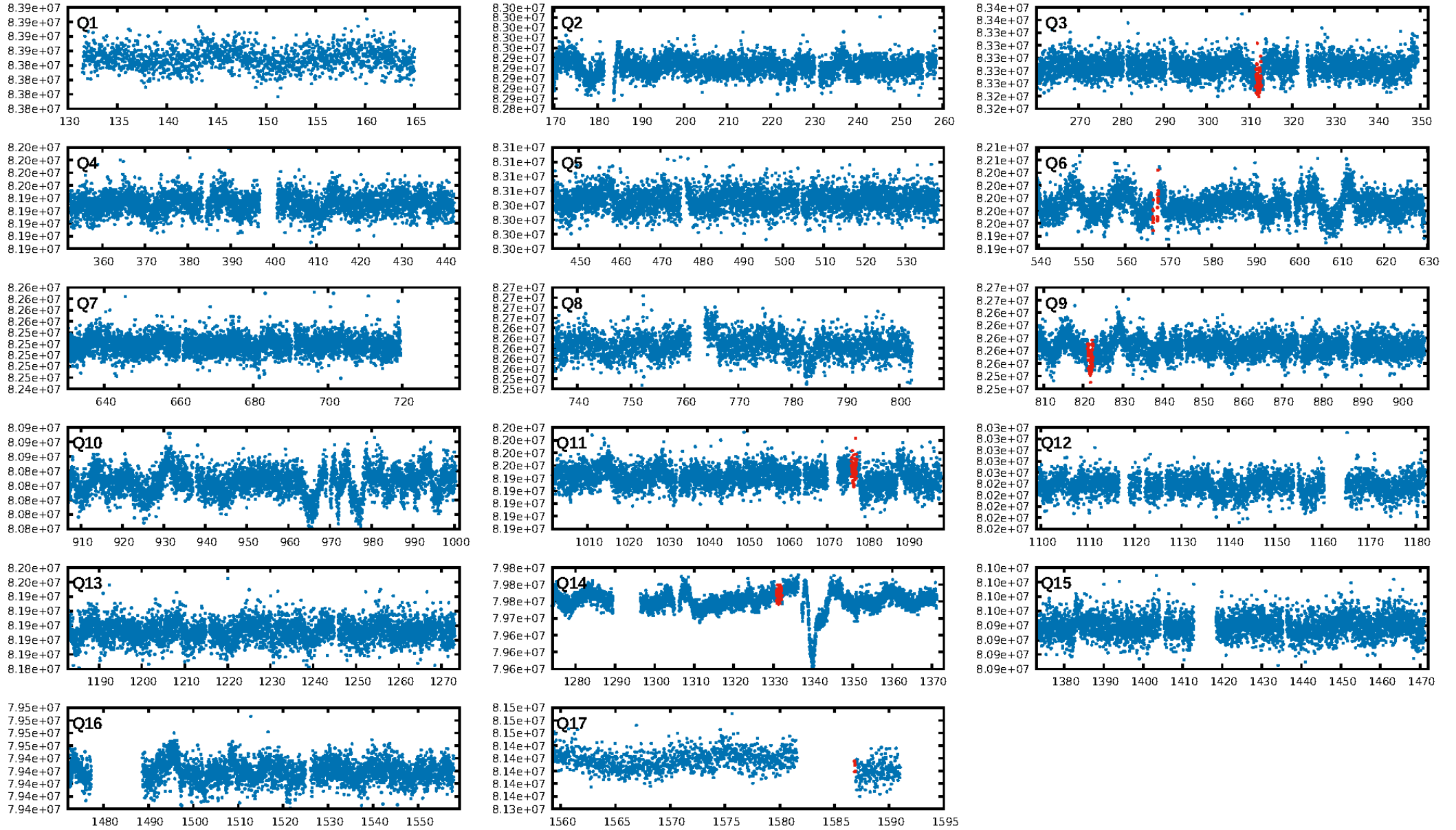
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [337.19σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 16.0%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 9.90e-11
RollingBand-fgt: 0.75 [3/4]
GhostDiagnostic-chr: 4.674
Centroid-sig: 0.7%
Centroid-so: 2.210 arcsec [1.81σ]
OotOffset-rm: 4.739 arcsec [2.87σ]
OotOffset-st: 1/0/0/1 [2]
KicOffset-rm: 4.739 arcsec [2.84σ]
KicOffset-st: 1/0/0/1 [2]
DiffImageQuality-fgm: 0.50 [1/2]
DiffImageOverlap-fno: 0.75 [3/4]

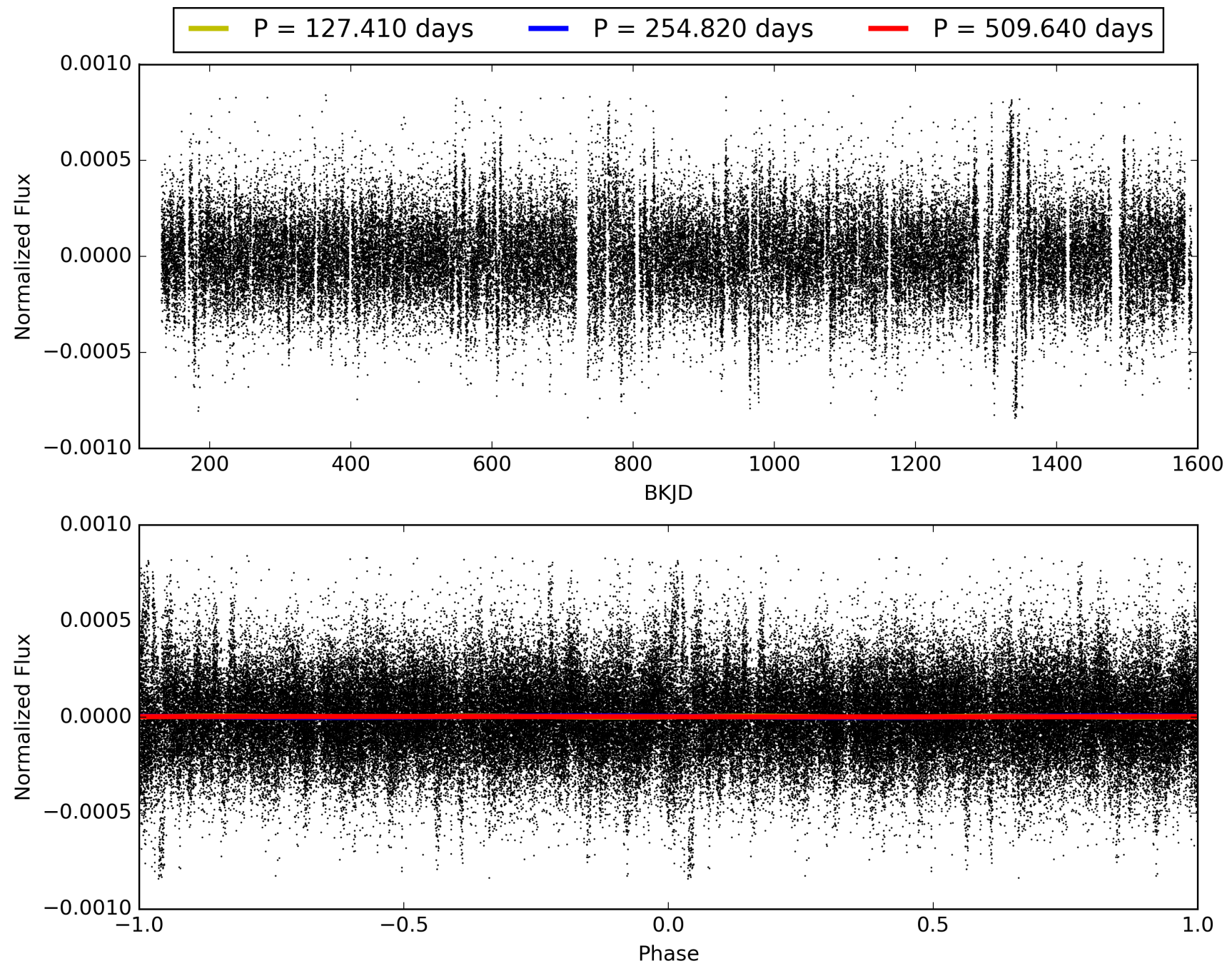
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 03:31:48 Z

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TCE 008107150-02, PDC Light Curves

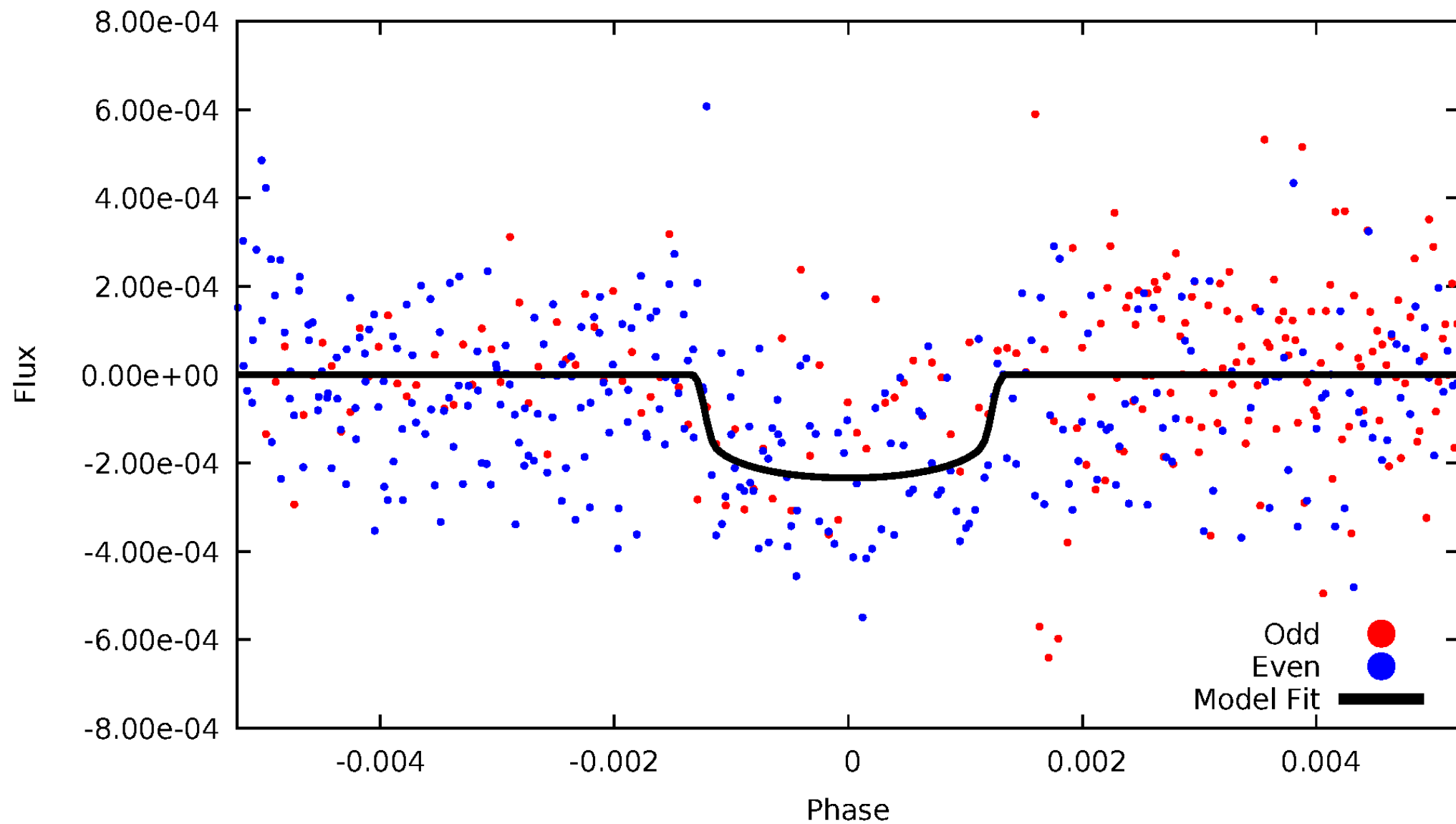


TCE 008107150-02



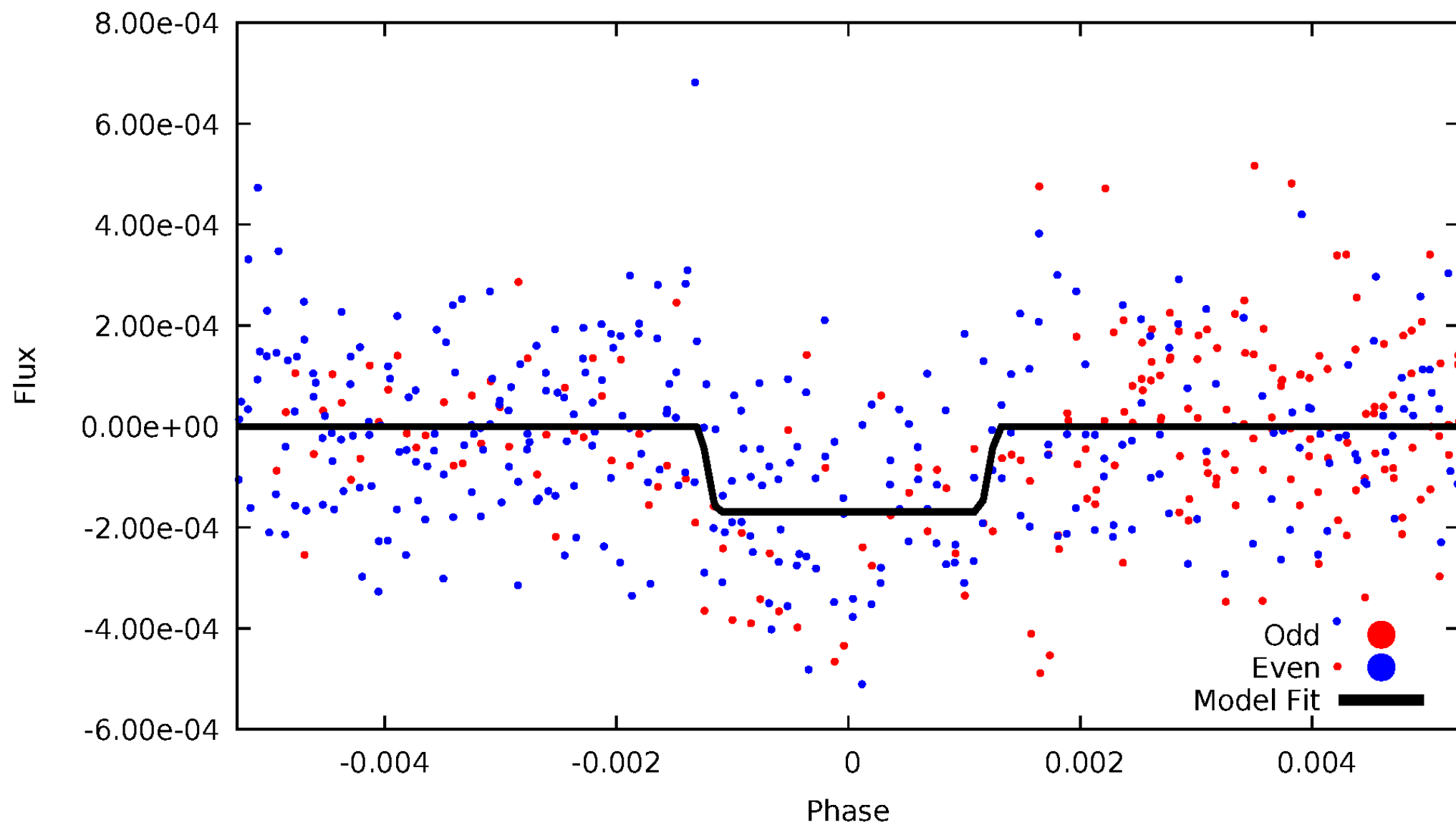
DV Odd/Even

TCE 008107150-02



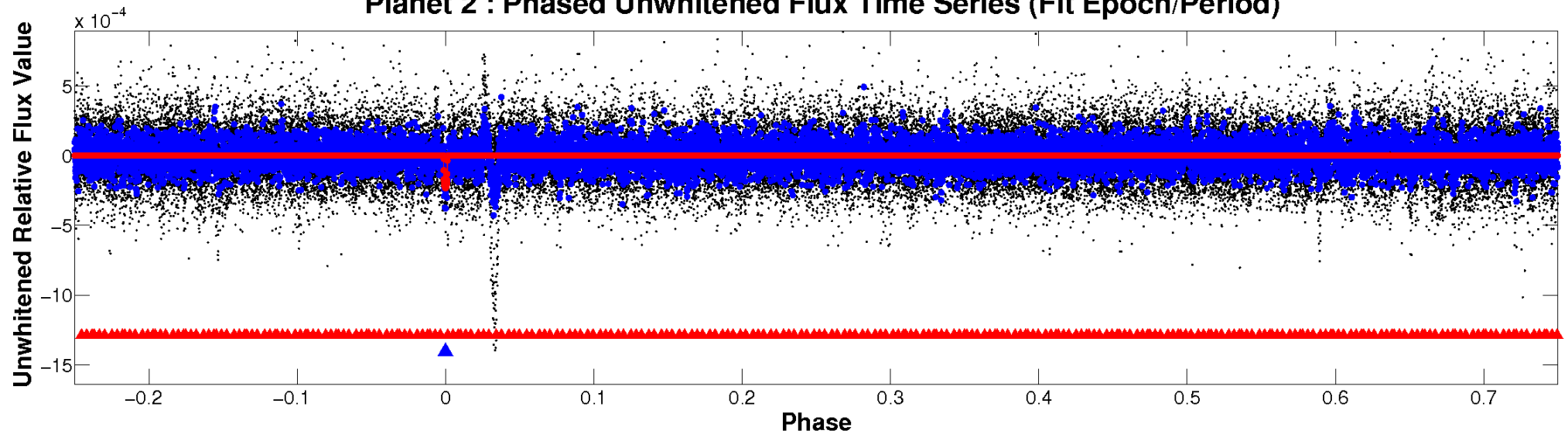
ALT Odd/Even

TCE 008107150-02

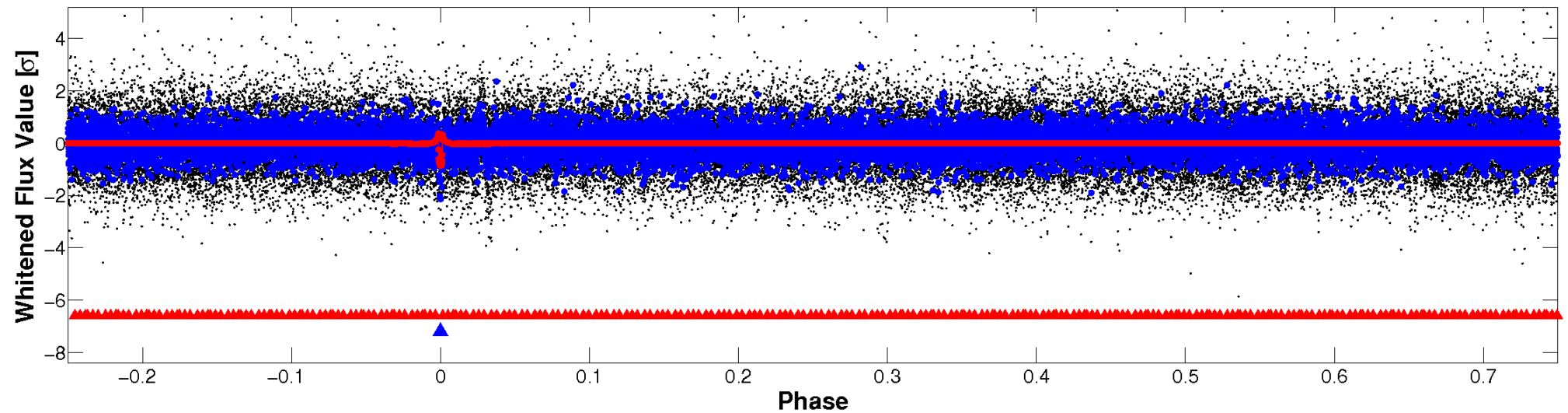


Non-Whitened Vs. Whitened Light Curve

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

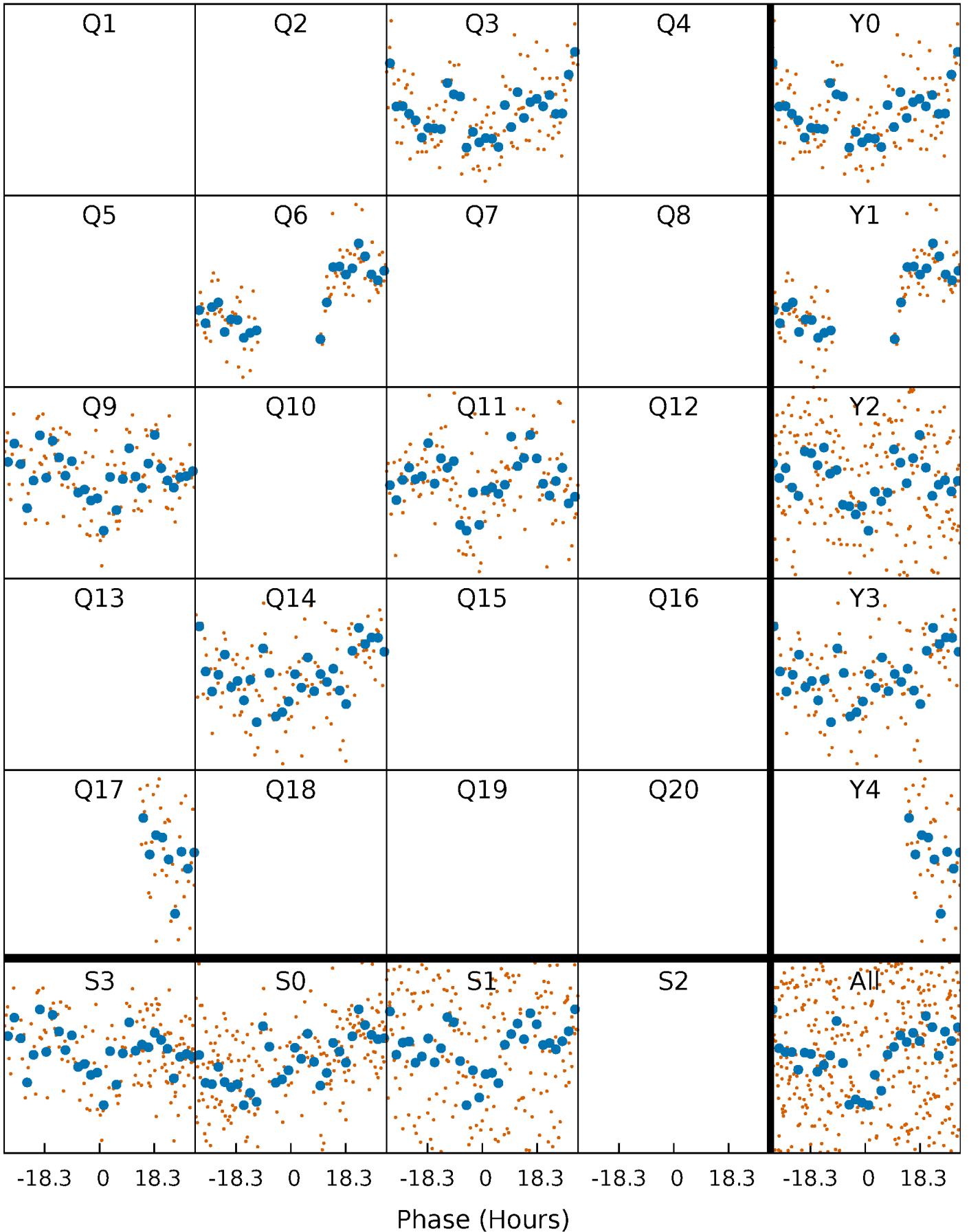


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



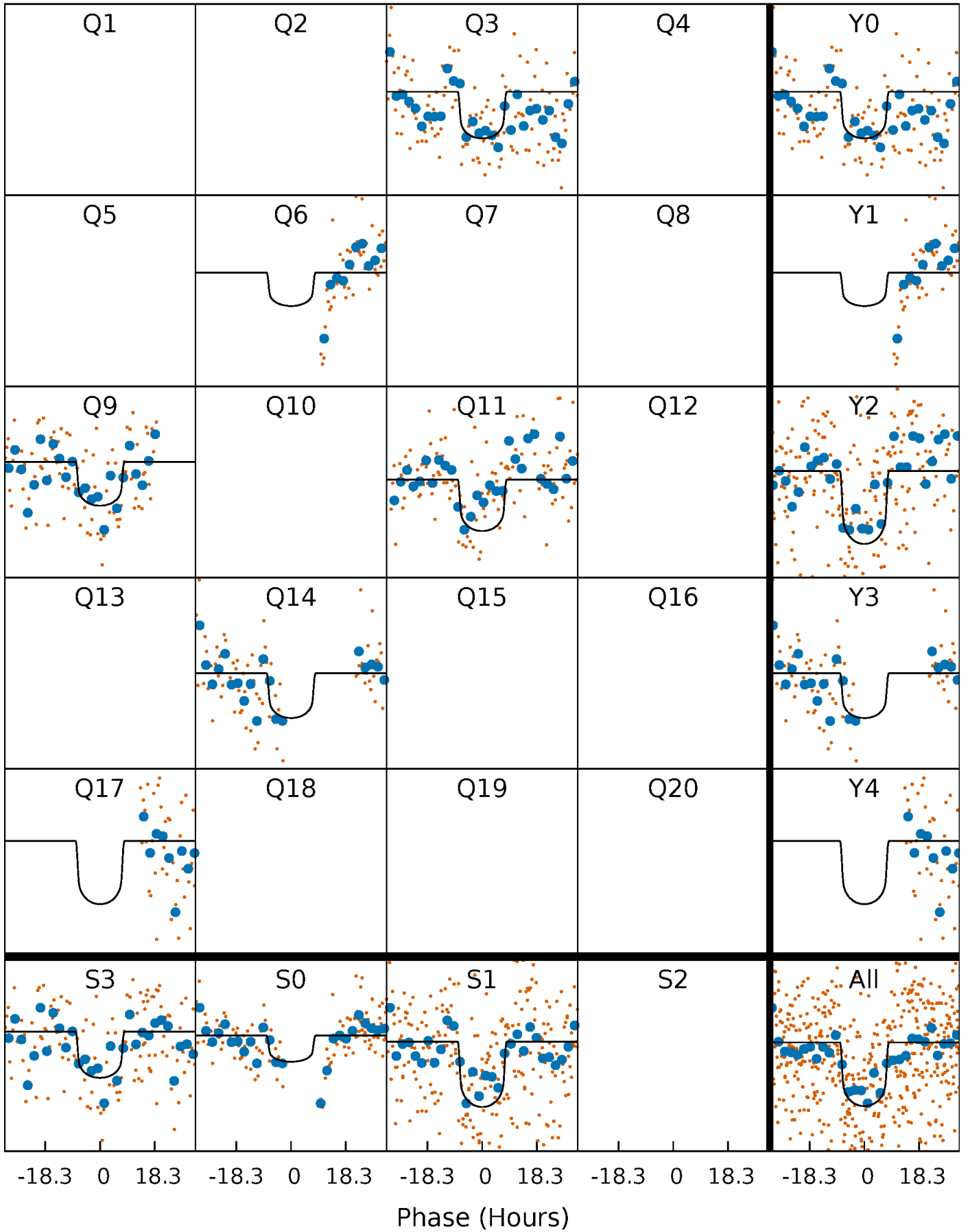
PDC Quarter-Phased Transit Curves

TCE 008107150-02 P=254.820113 Days $T_0=312.167348$ (BKJD)



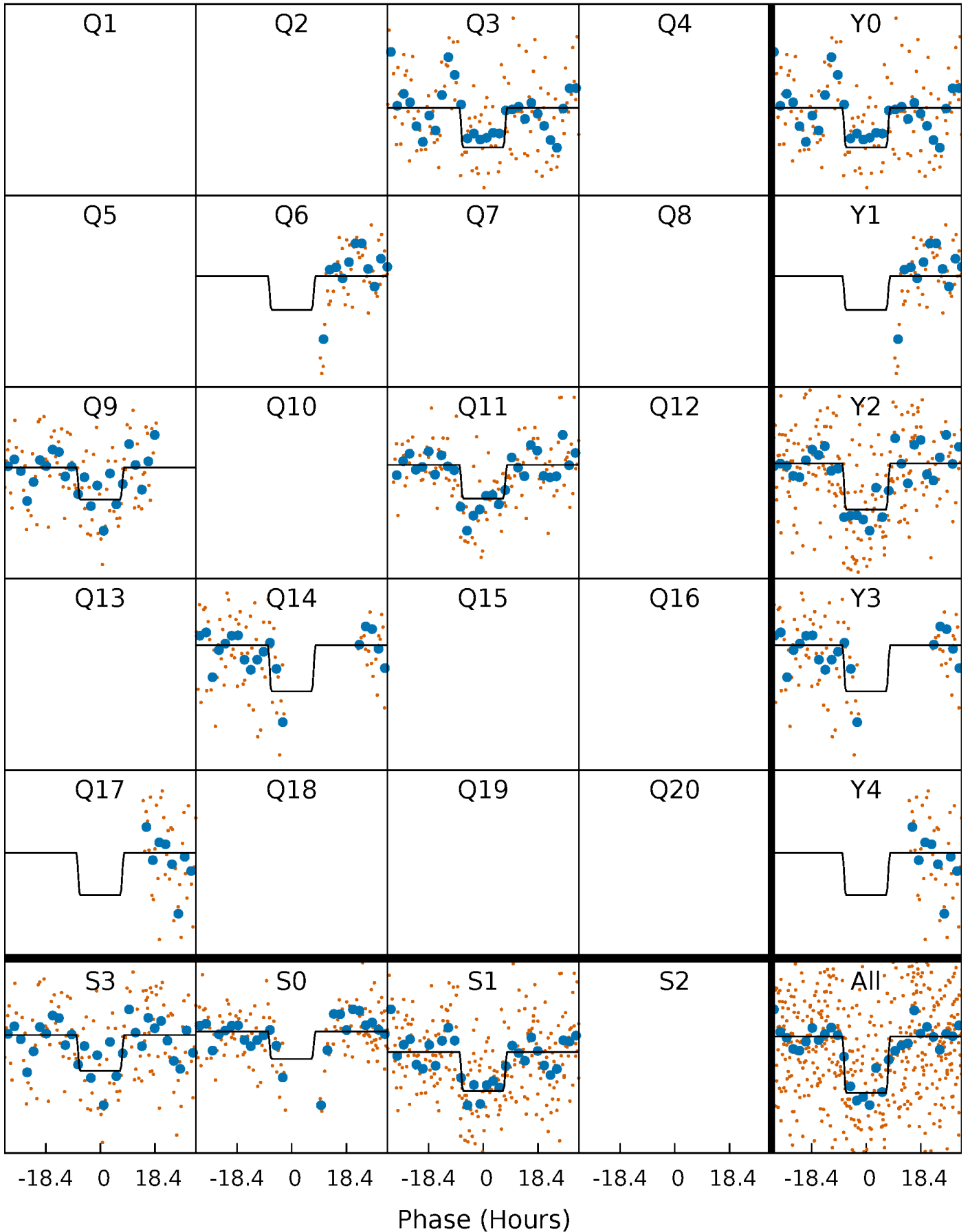
DV Quarter-Phased Transit Curves

TCE 008107150-02 P=254.820113 Days $T_0=312.167348$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

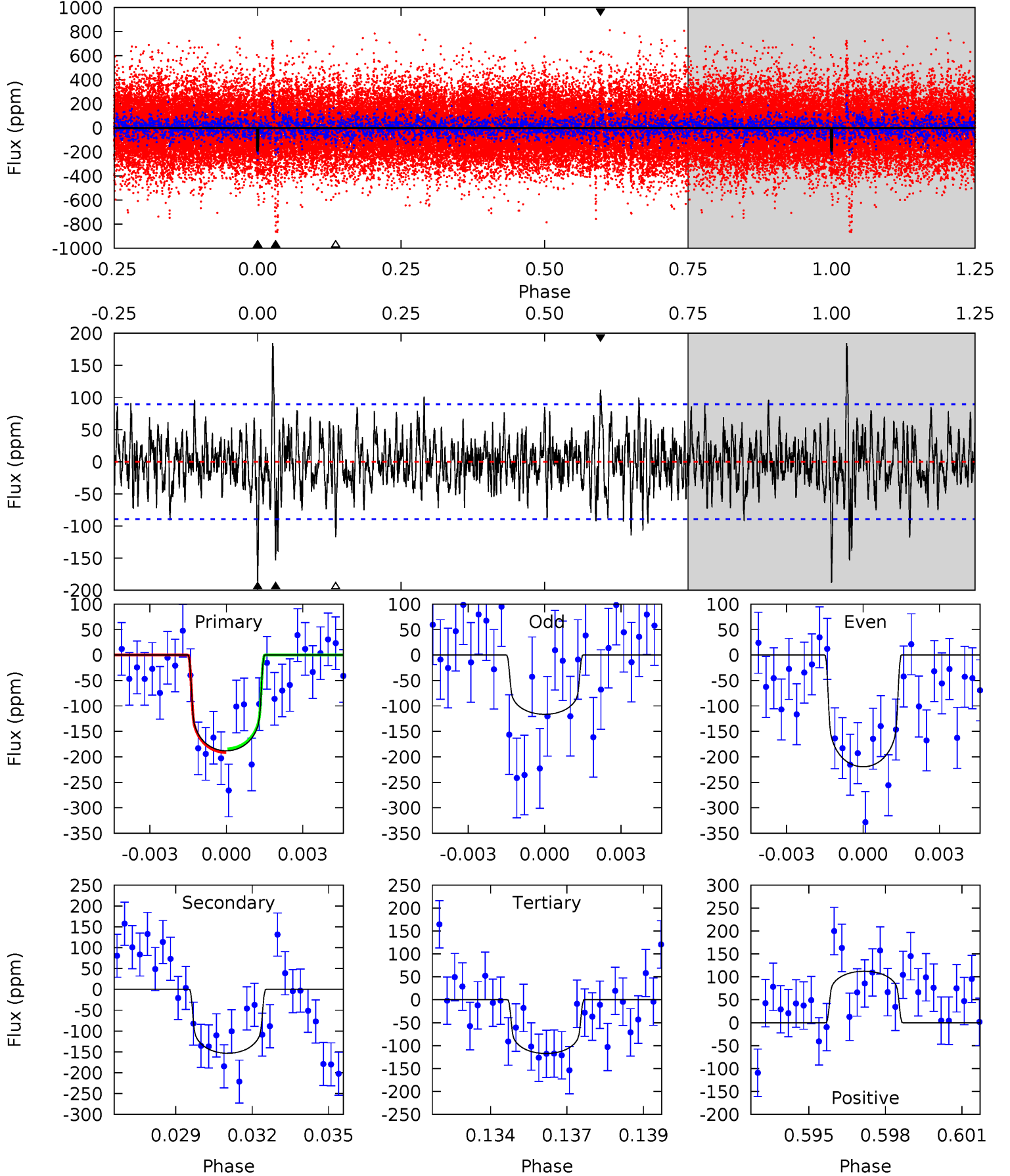
TCE 008107150-02 P=254.806493 Days $T_0=312.195718$ (BKJD)



DV Model-Shift Uniqueness Test

008107150-02, P = 254.820113 Days, E = 57.347235 Days

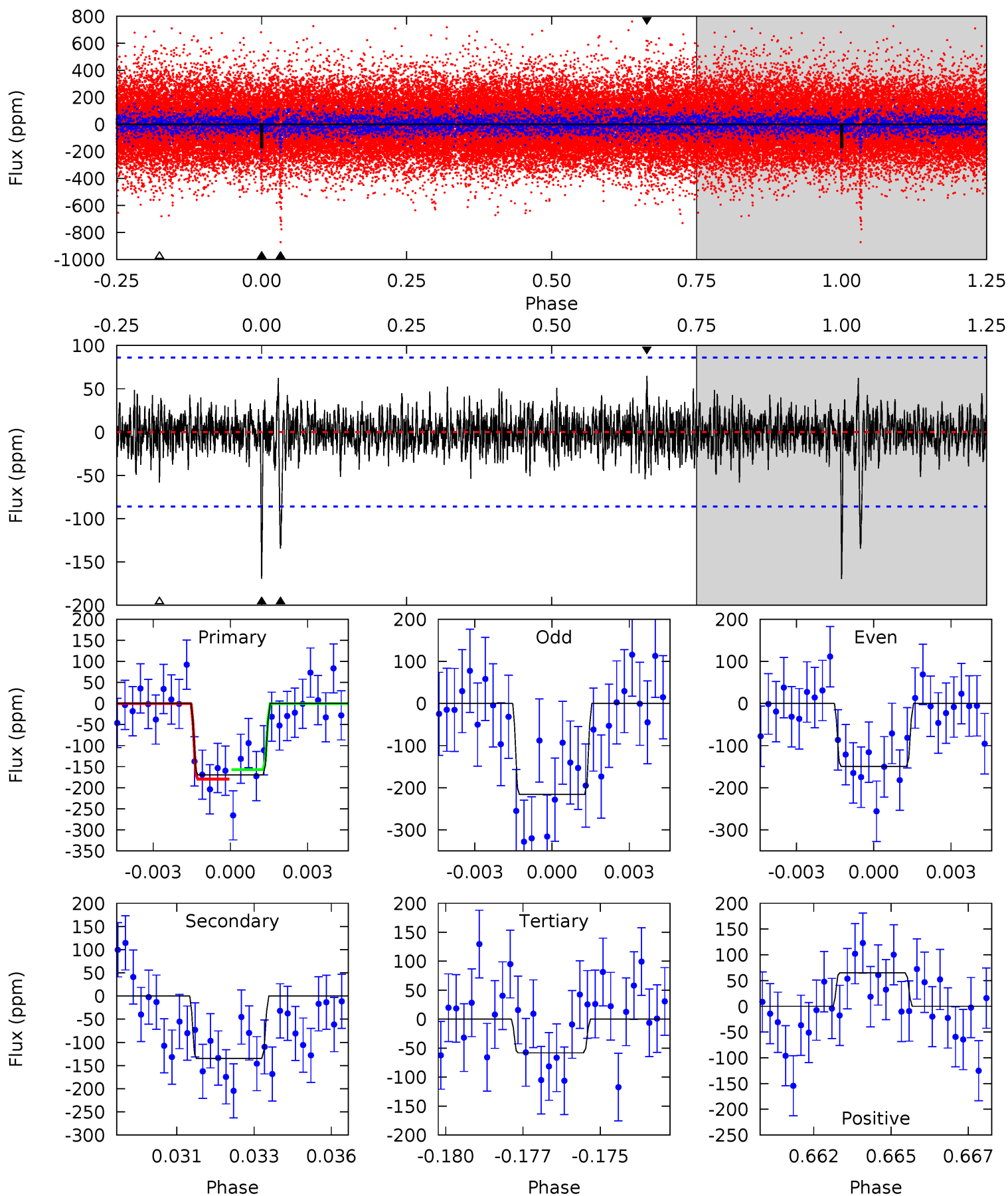
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
11.1	9.05	6.91	6.62	5.27	3.00	2.00	4.18	4.48	2.13	2.43	2.79	0.89	0.50	0.21



Alt Model-Shift Uniqueness Test

008107150-02, P = 254.806493 Days, E = 57.389225 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
10.4	8.26	3.57	3.99	5.28	3.02	1.01	6.82	6.41	4.69	4.27	1.87	0.98	0.28	0.69



Stellar Parameters For KIC 008107150

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$\rho_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5823^{+140}_{-158}	$4.486^{+0.078}_{-0.182}$	$-0.380^{+0.300}_{-0.300}$	$0.878^{+0.231}_{-0.099}$	$0.862^{+0.109}_{-0.079}$	$1.794^{+0.687}_{-0.805}$
	+2%/-3%	+2%/-4%	+79%/-79%	+26%/-11%	+13%/-9%	+38%/-45%
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 008107150-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-153 ± 17	$1.57^{+0.32}_{-0.28}$	392^{+25}_{-17}	5176^{+500}_{-362}	19250^{+9339}_{-6121}
Alt.	-135 ± 16	$1.30^{+0.30}_{-0.30}$	393^{+28}_{-19}	5532^{+617}_{-514}	24650^{+16402}_{-8683}

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 $A_{\text{obs}} \gg 1.0$

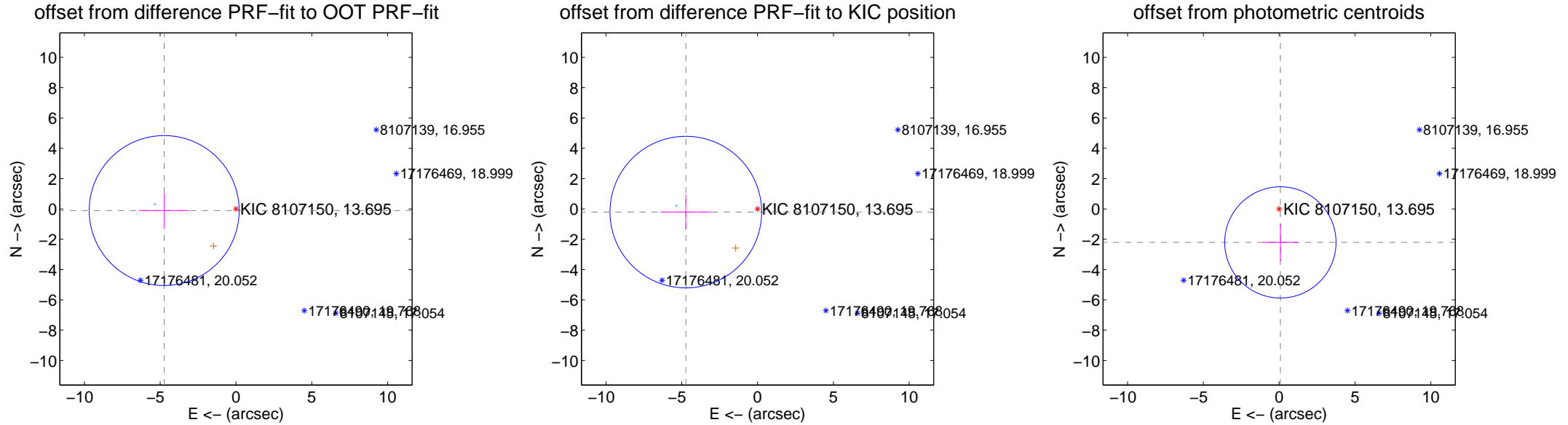
DV Centroid Data

Supplemental centroid analysis for 008107150-02. Kepler magnitude: 13.70. Transit SNR 7.94

There are 1 quarters with good PRF difference image offsets

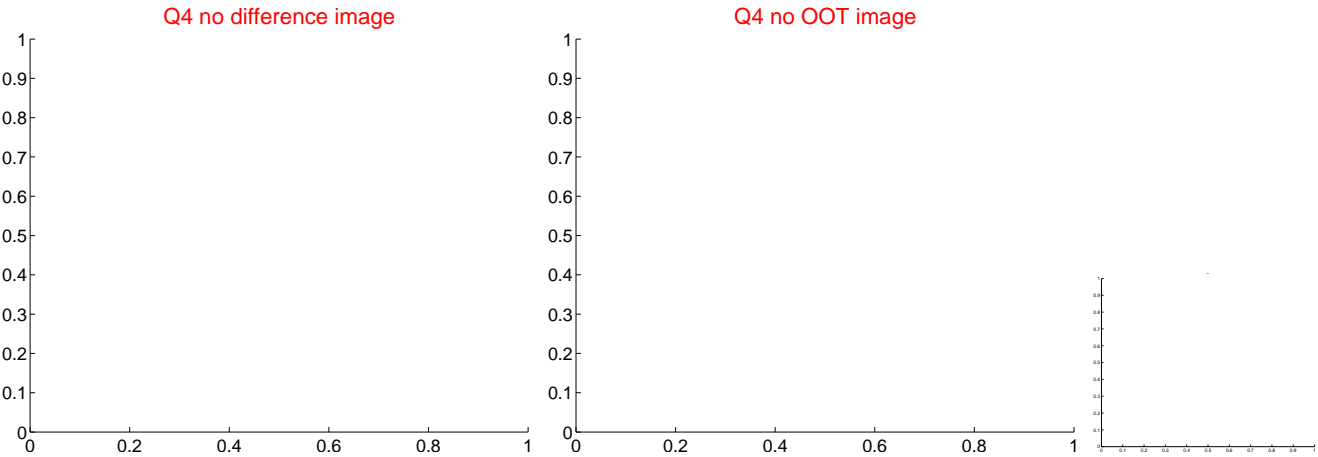
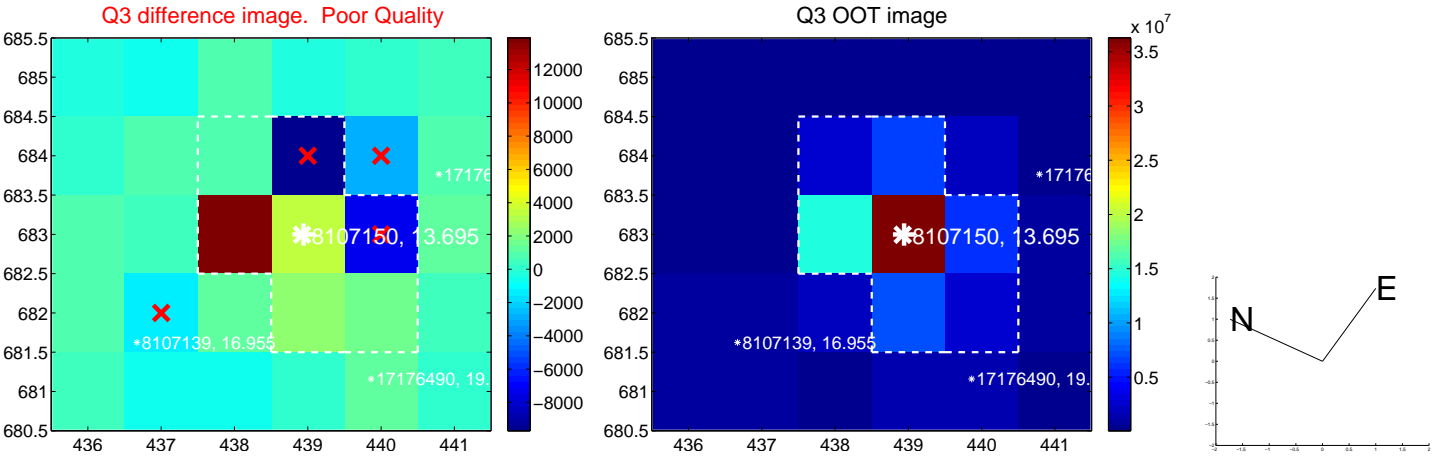
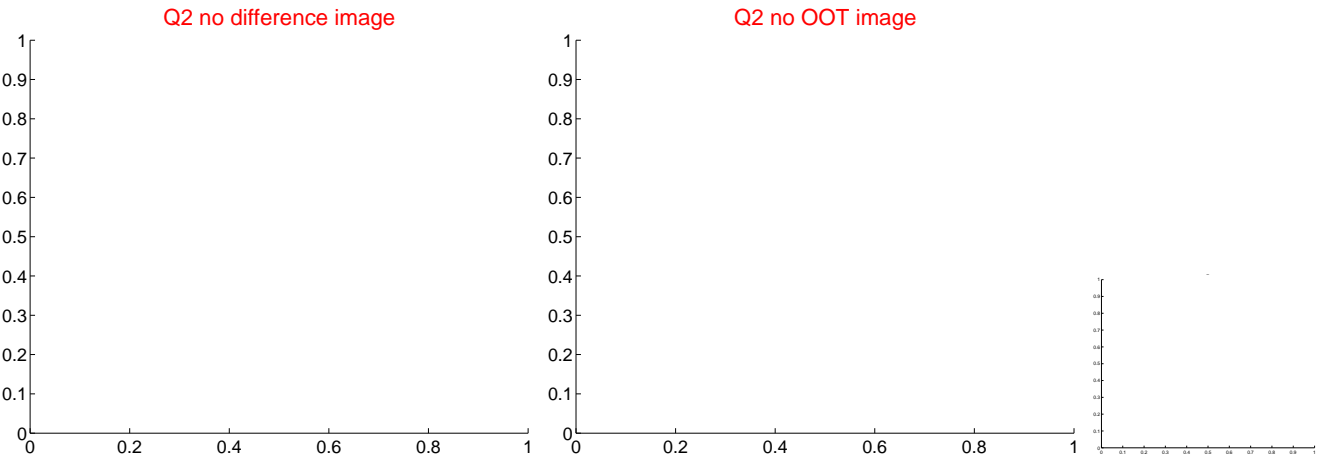
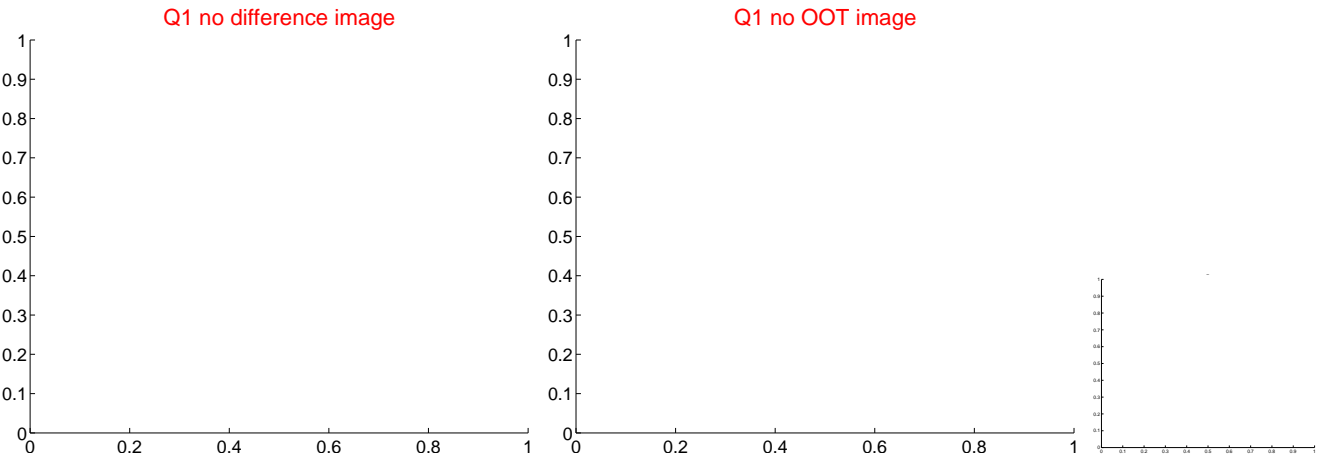
The direct PRF centroid is offset from the target star catalog position by about 0.14 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	4.739 ± 1.649	2.87	4.738 ± 1.649	-0.106 ± 1.145
PRF-fit source offset from KIC position	4.739 ± 1.667	2.84	4.734 ± 1.668	-0.208 ± 1.162
photometric centroid source offset	2.21 ± 1.22	1.81	-0.08 ± 1.17	-2.21 ± 1.22

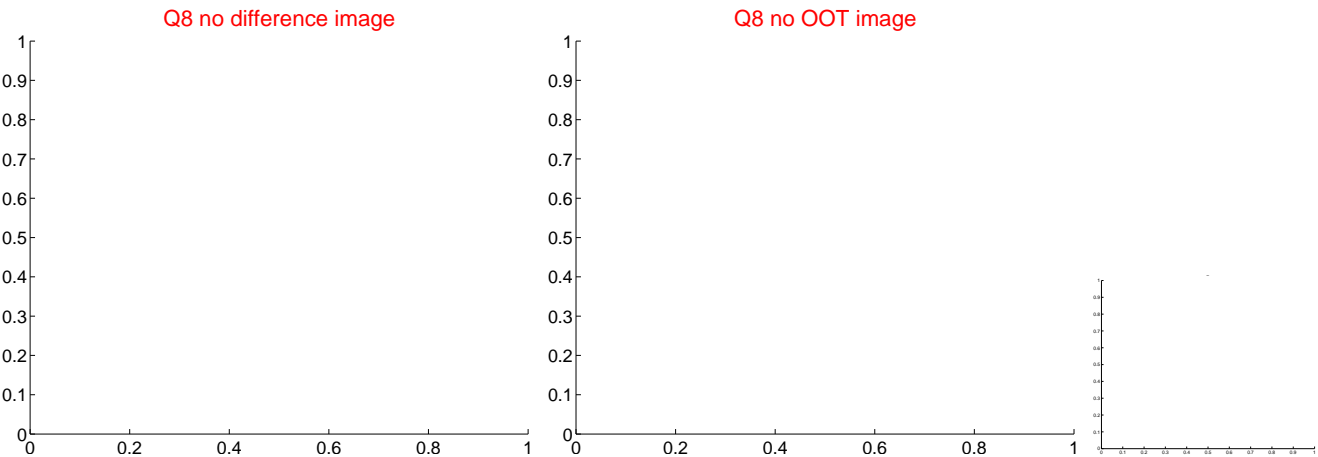
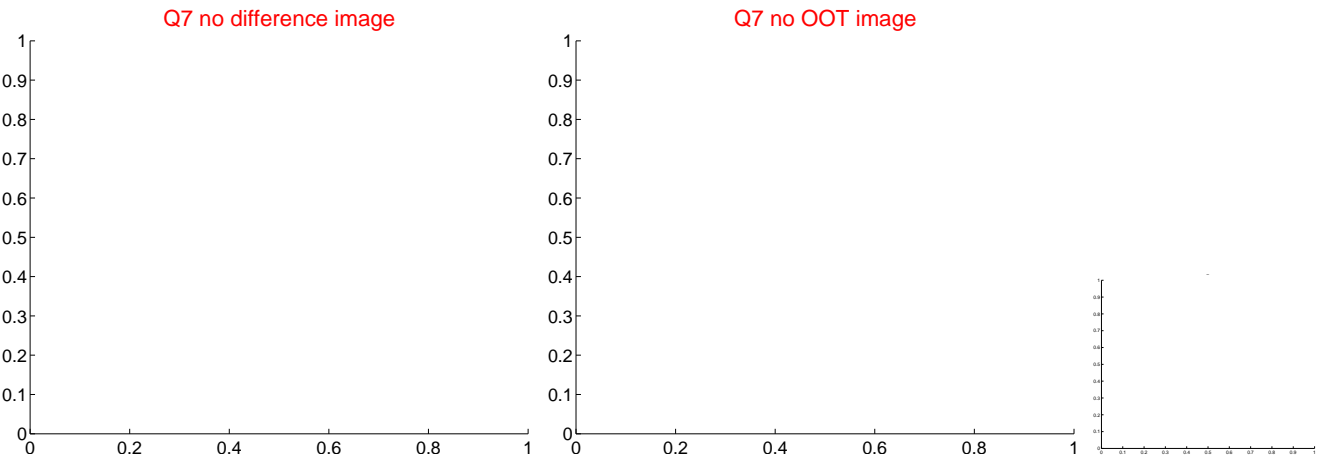
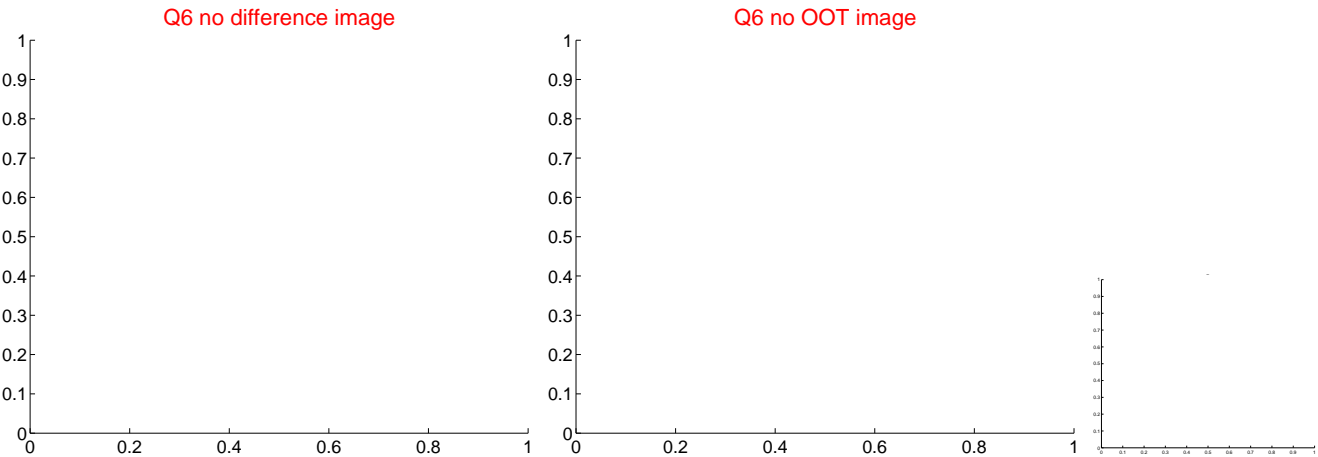
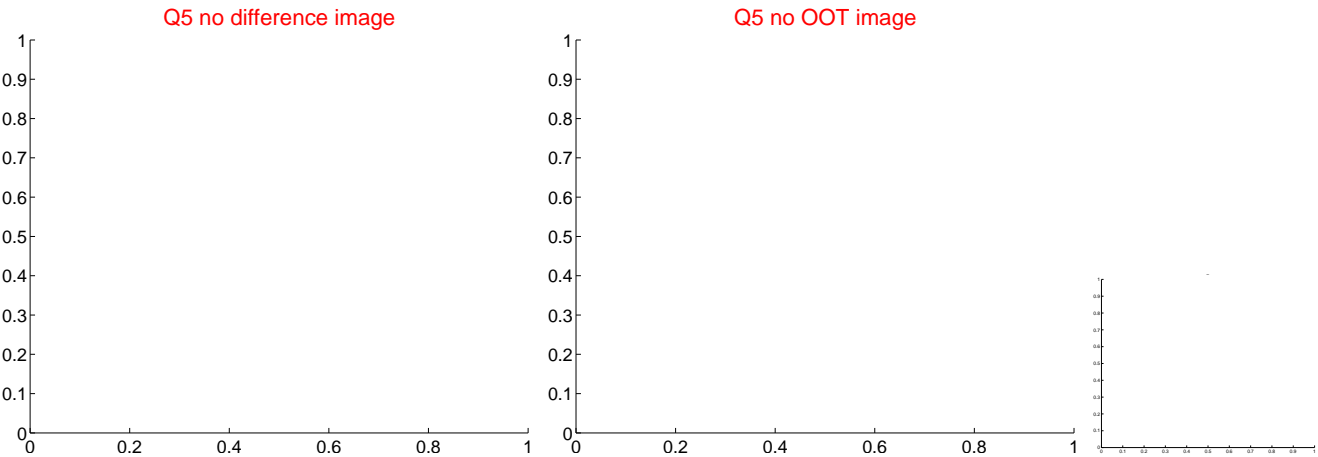


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

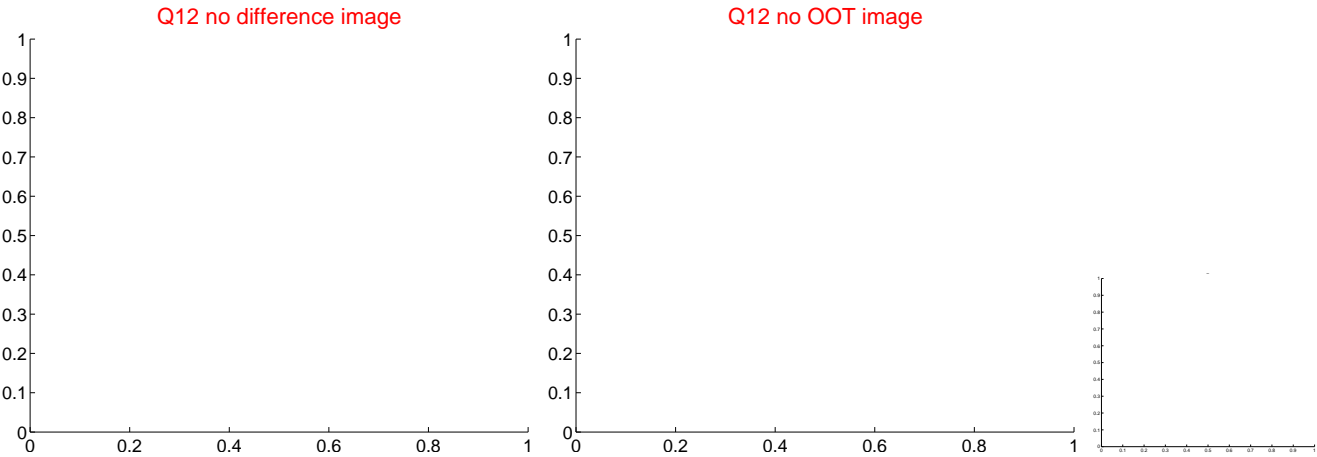
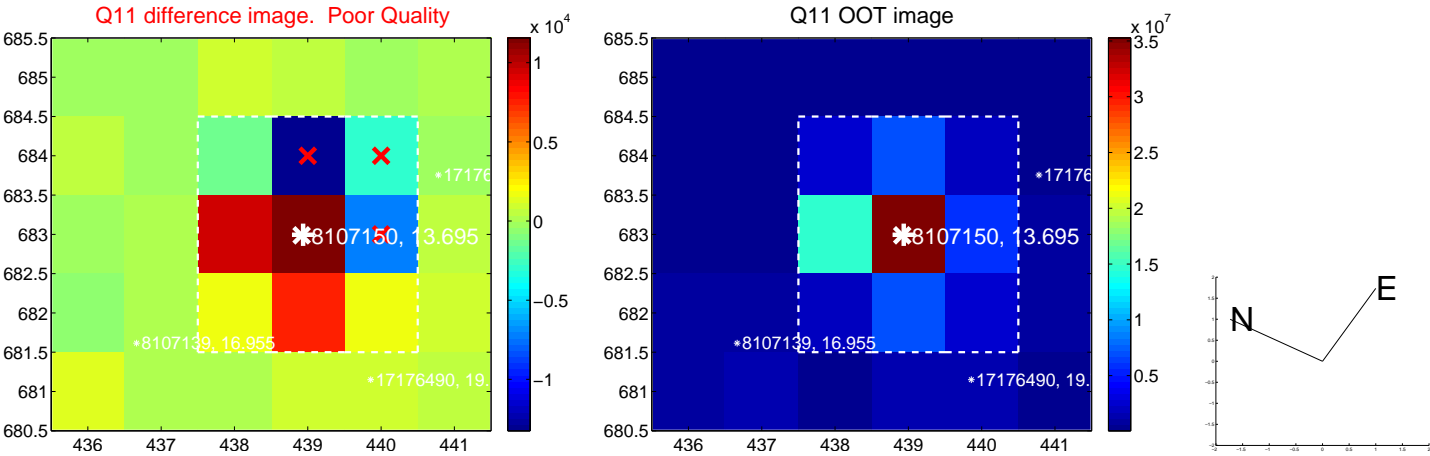
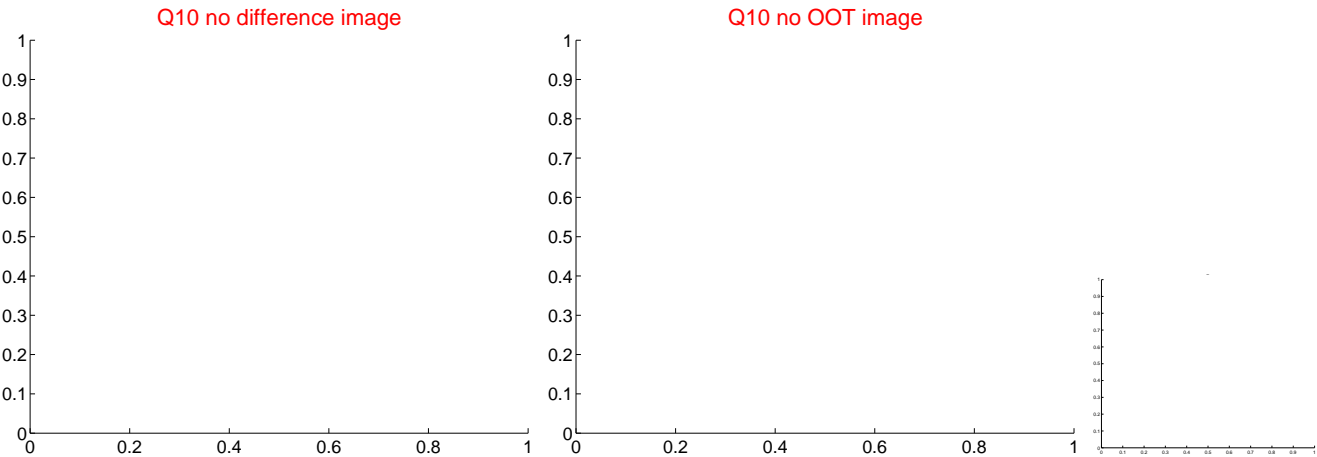
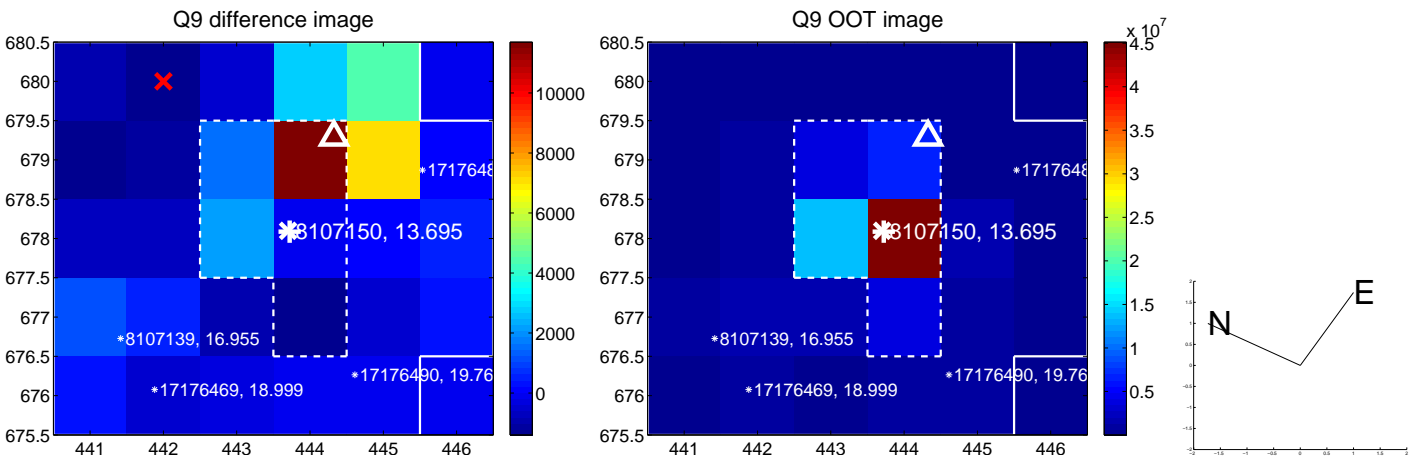
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ✕: large negative pixel value.



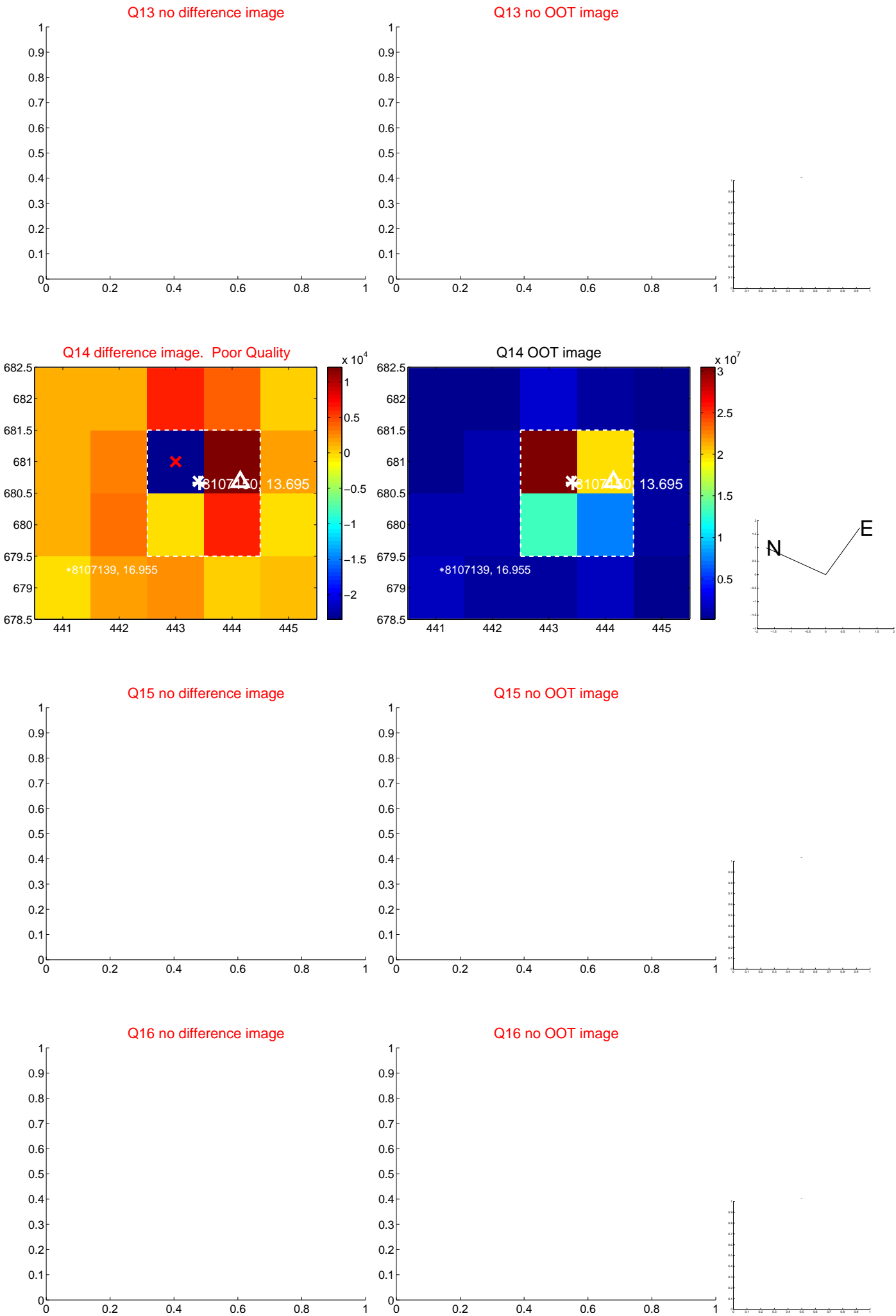
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



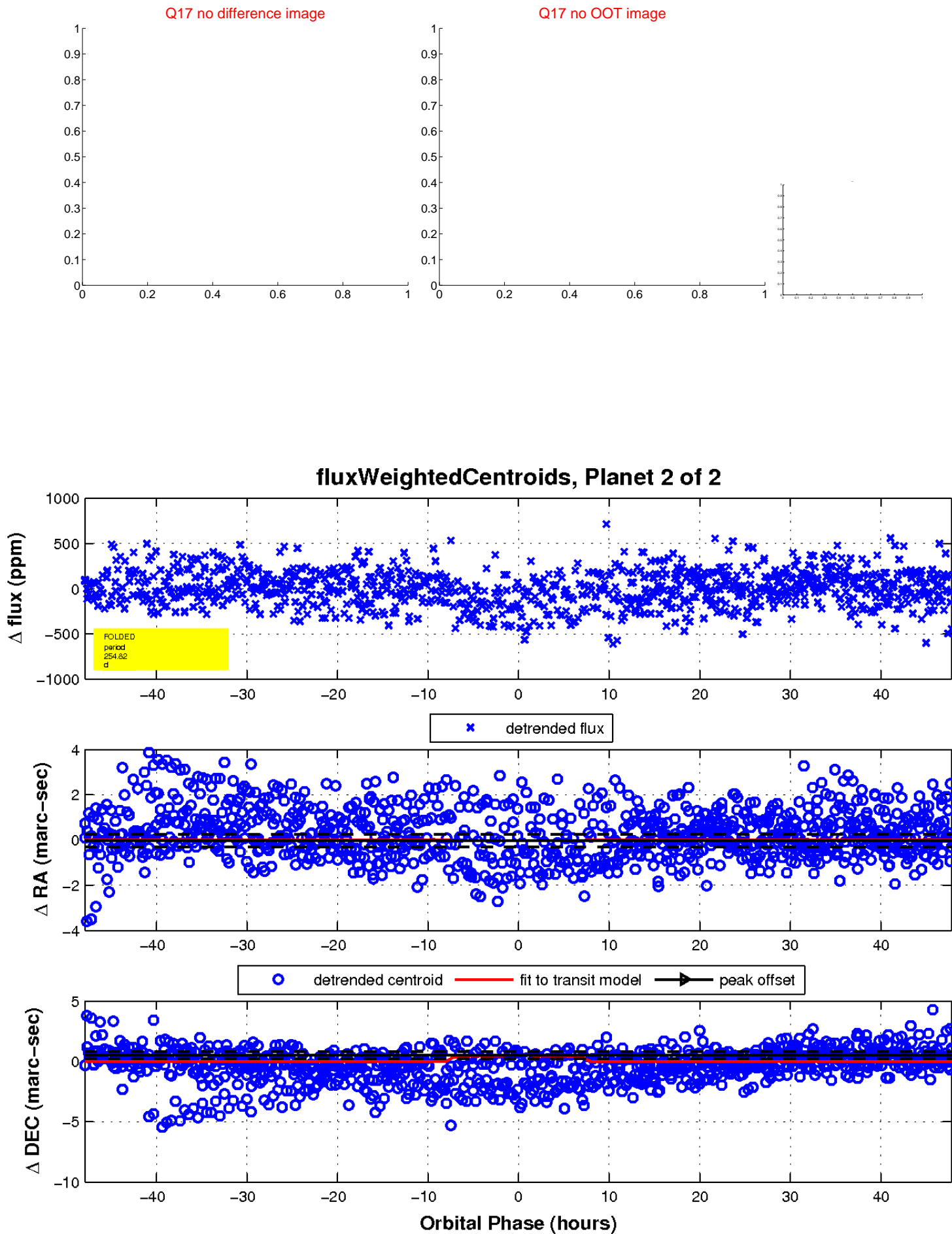
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



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



UKIRT Image

Declination

