

KIC 007609553

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})
007609553-01	OBS	2924.01	2.279497	133.366369	121.8	1.637	13.7	15.2	0.80	5017	0.94	376.58
007609553-02	OBS	2924.02	8.856856	134.136643	307.5	0.593	7.6	11.3	0.80	5017	1.77	61.65

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
007609553-01	OBS	PC	1.00	0	0	0	0	NO_COMMENT
007609553-02	OBS	PC	0.92	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.

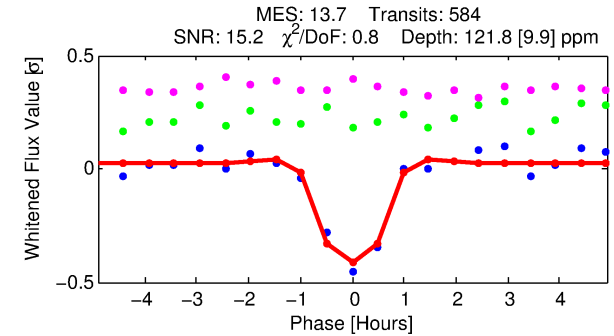
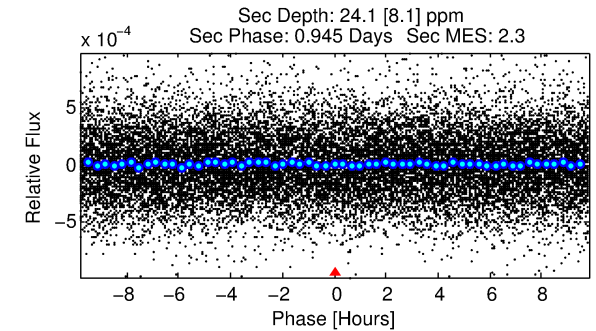
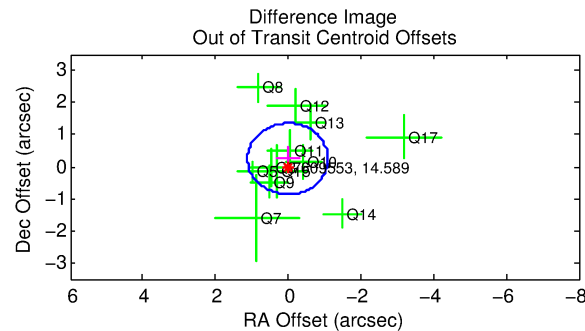
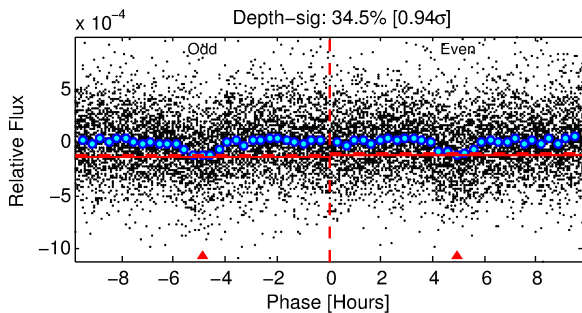
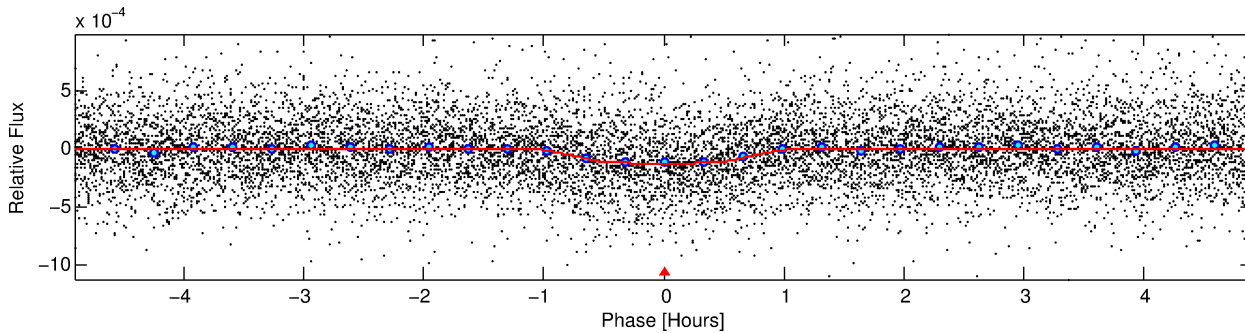
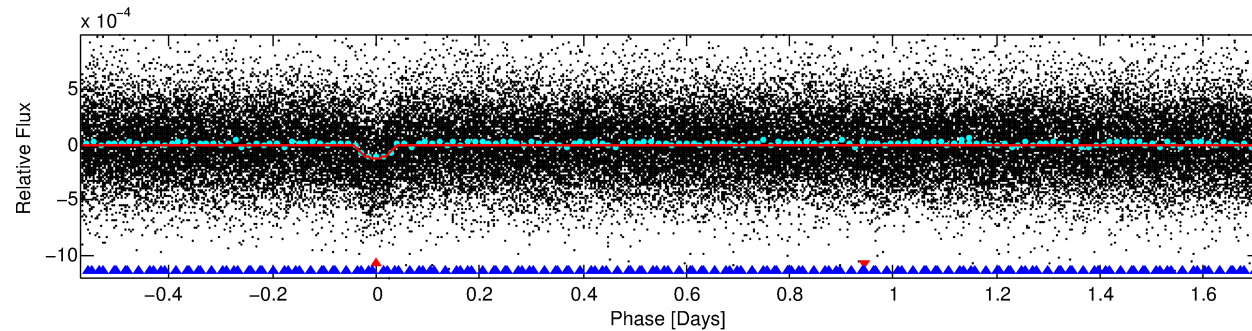
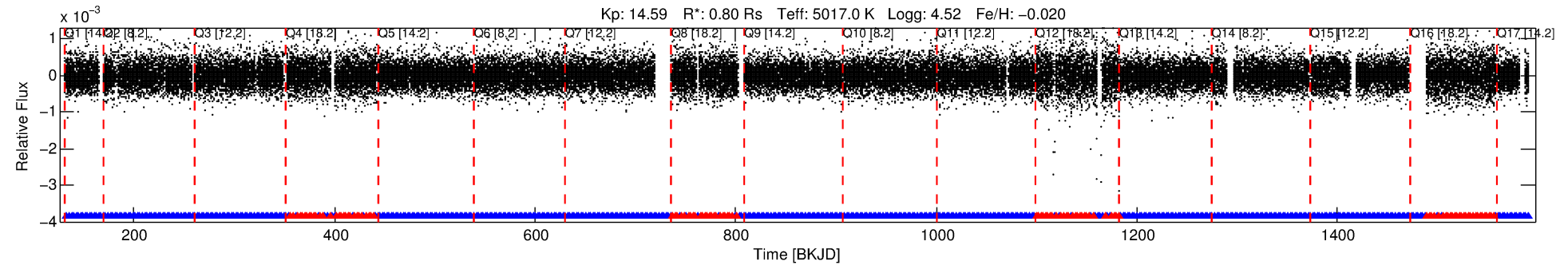
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 007609553-01

No Significant Match Found

DV One-Page Summary

KIC: 7609553 Candidate: 1 of 2 Period: 2.279 d
KOI: K02924.01 Corr: 0.929



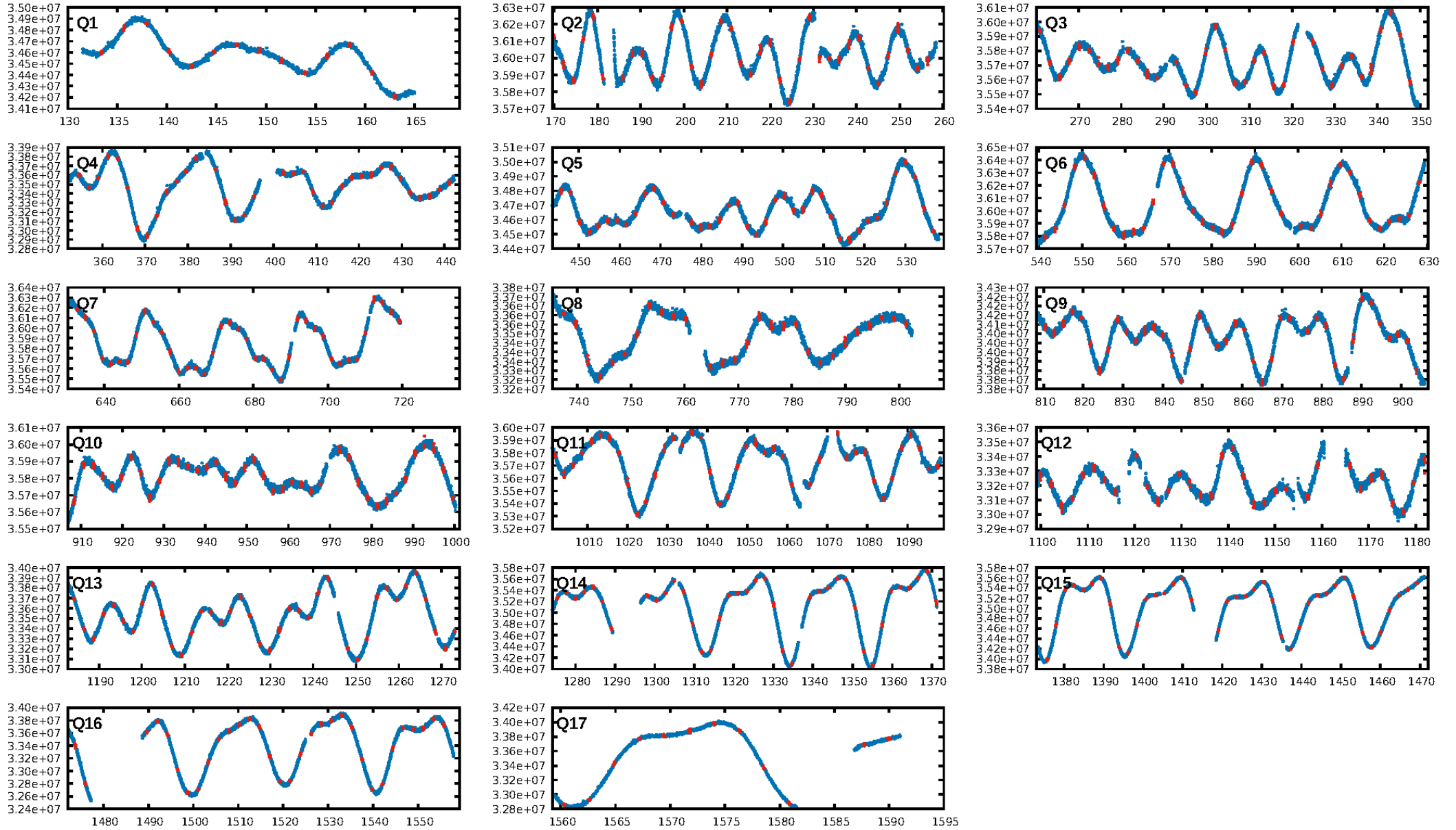
DV Fit Results:

Period = 2.27950 [0.00001] d
Epoch = 133.3664 [0.0017] BKJD
Rp/R* = 0.0109 [0.0045]
a/R* = 7.74 [11.08]
b = 0.71 [1.06]
Seff = 376.58 [68.46]
Teff = 1123 [51] K
Rp = 0.94 [0.41] Re
a = 0.0309 [0.0029] AU
Ag = 14.26 [12.96] [1.02 σ]
Teffp = 3375 [765] K [2.94 σ]

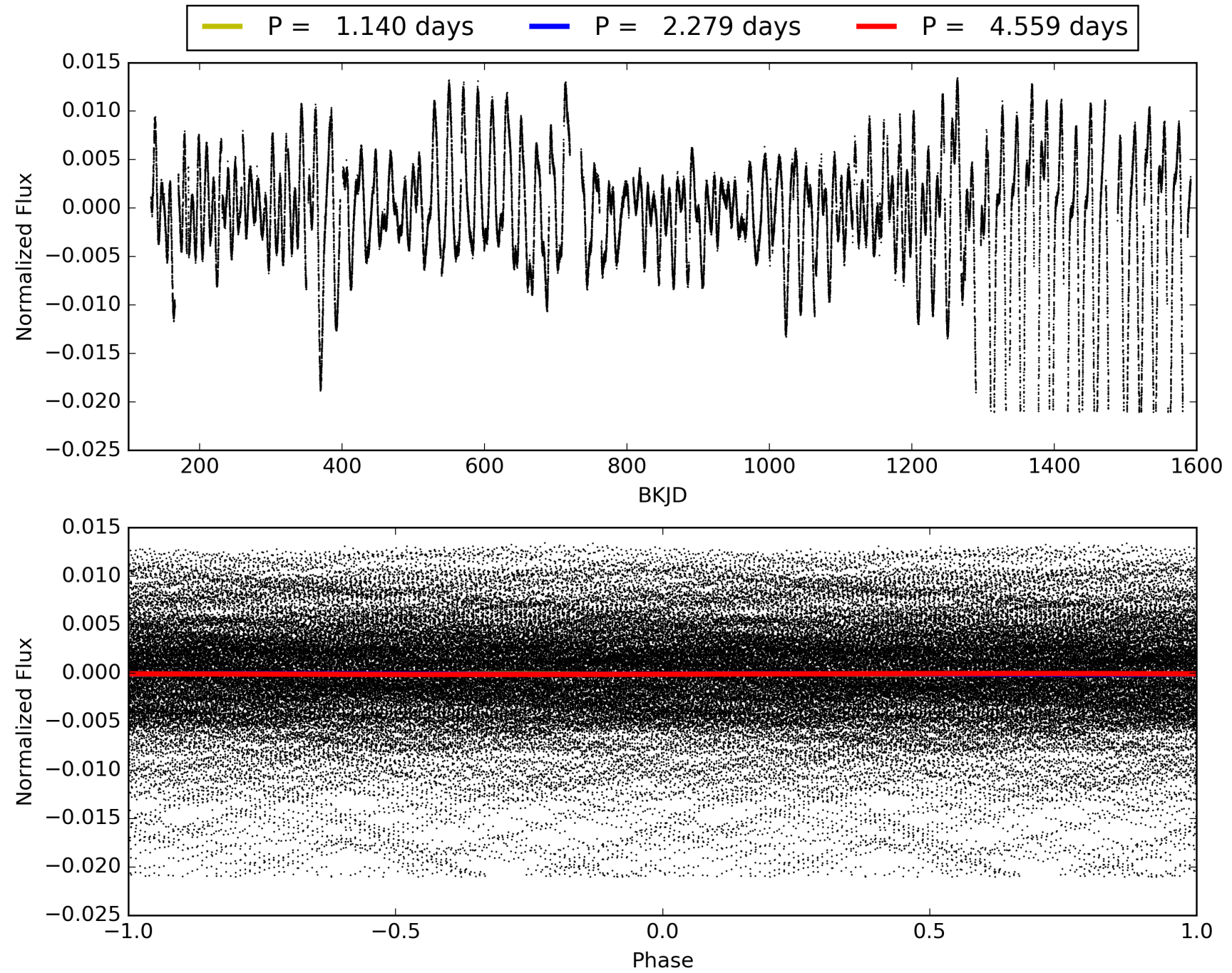
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [90.64 σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 1.99e-40
RollingBand-fgt: 0.81 [450/558]
GhostDiagnostic-chr: -9.04
Centroid-sig: N/A
Centroid-so: 2.488 arcsec [3.05 σ]
OotOffset-rm: 0.245 arcsec [0.66 σ]
KicOffset-rm: 0.053 arcsec [0.15 σ]
OotOffset-st: 2/4/2/4 [12]
KicOffset-st: 2/4/2/4 [12]
DiffImageQuality-fgm: 0.83 [10/12]
DiffImageOverlap-fno: 1.00 [17/17]

TCE 007609553-01, PDC Light Curves

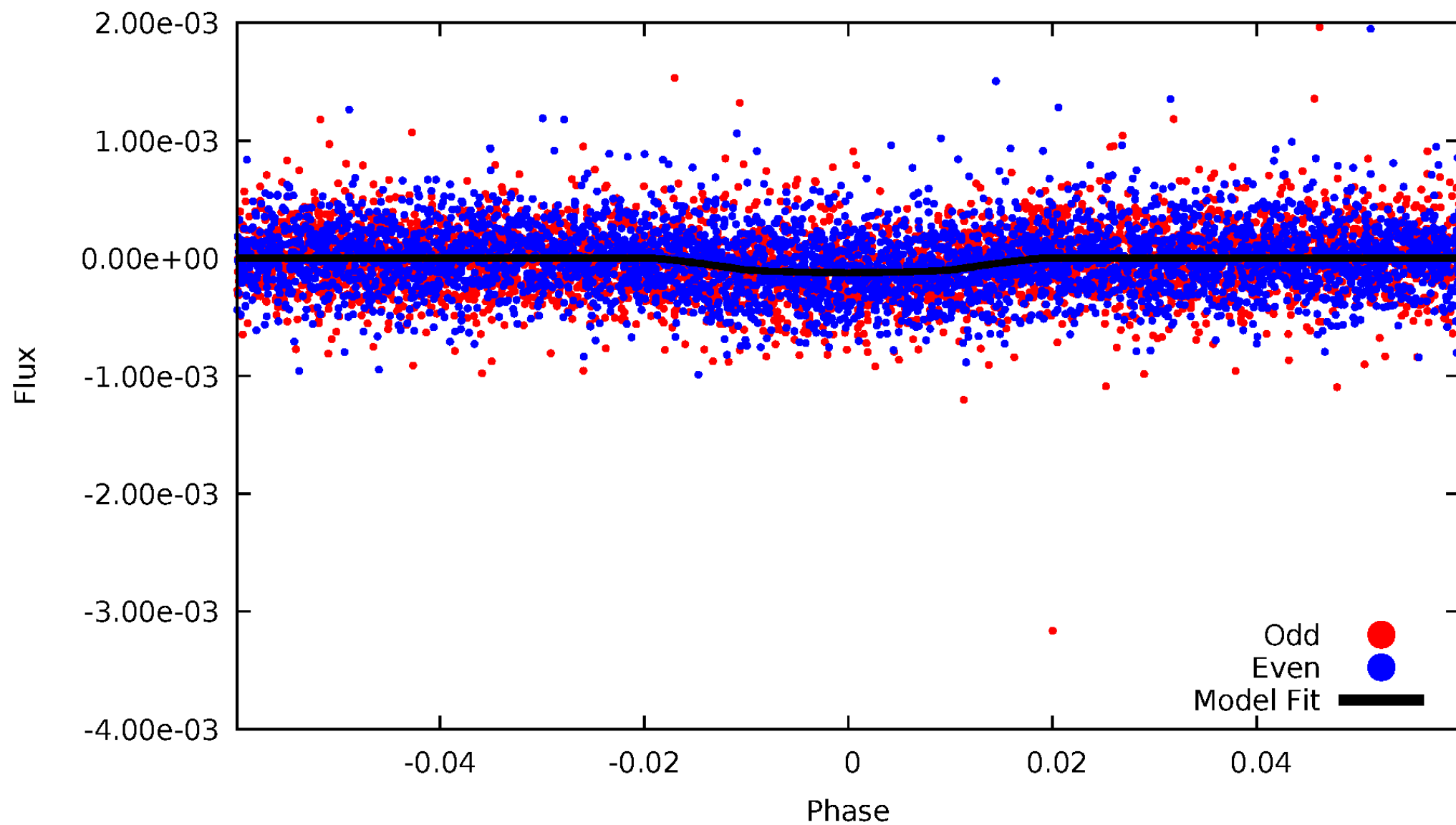


TCE 007609553-01



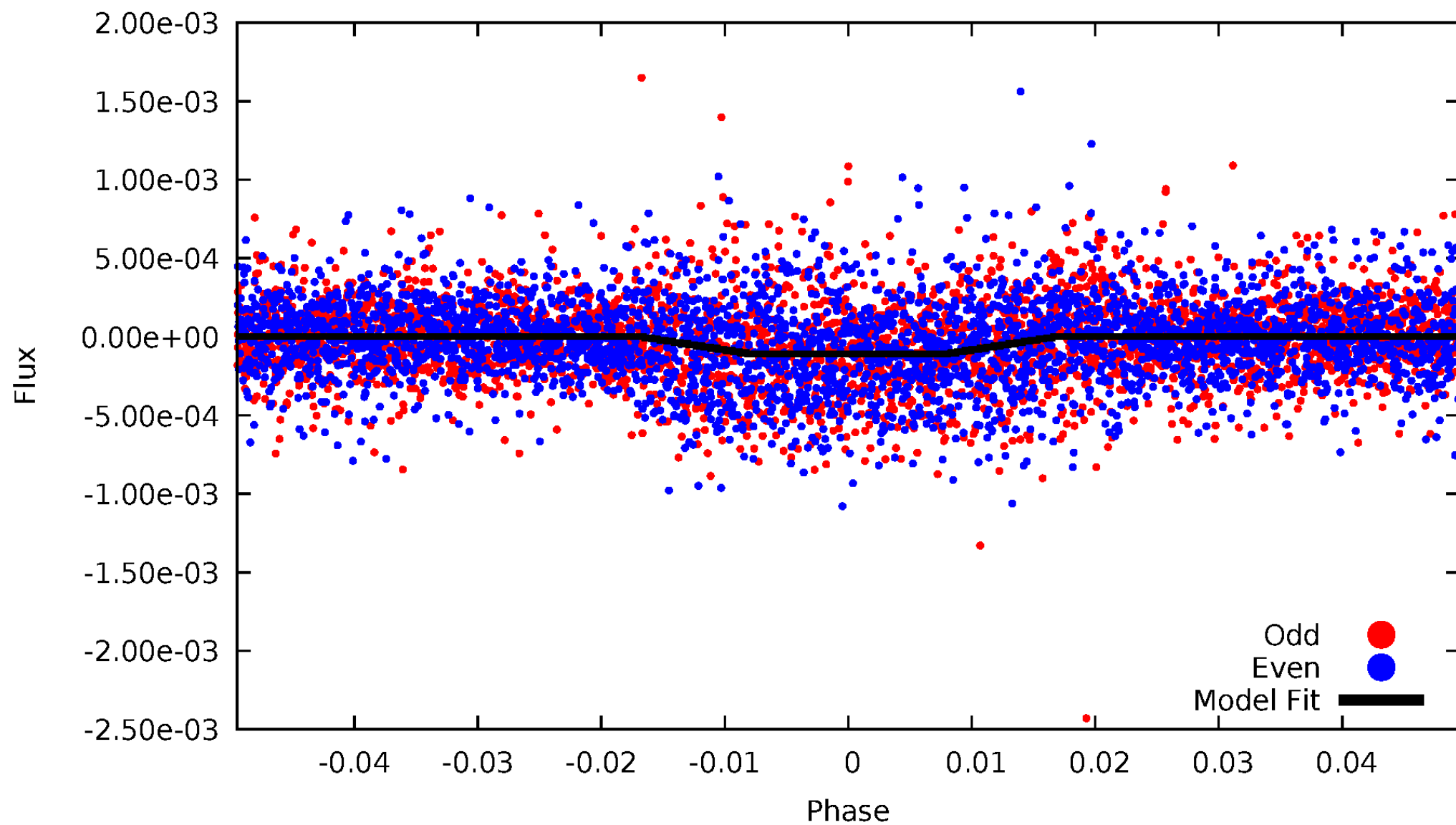
DV Odd/Even

TCE 007609553-01

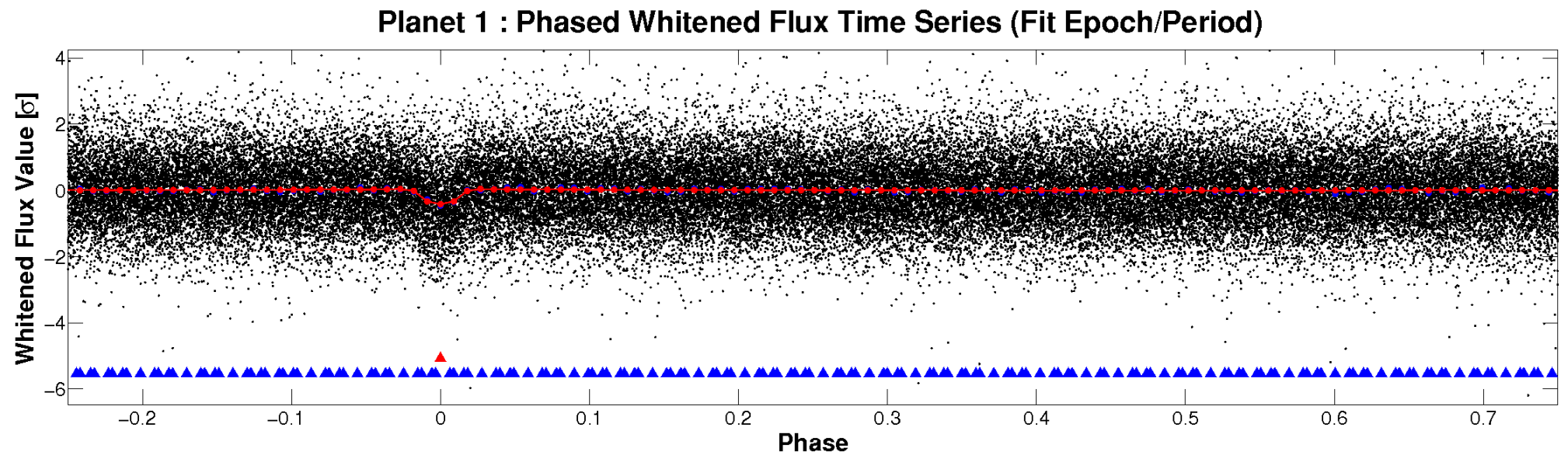
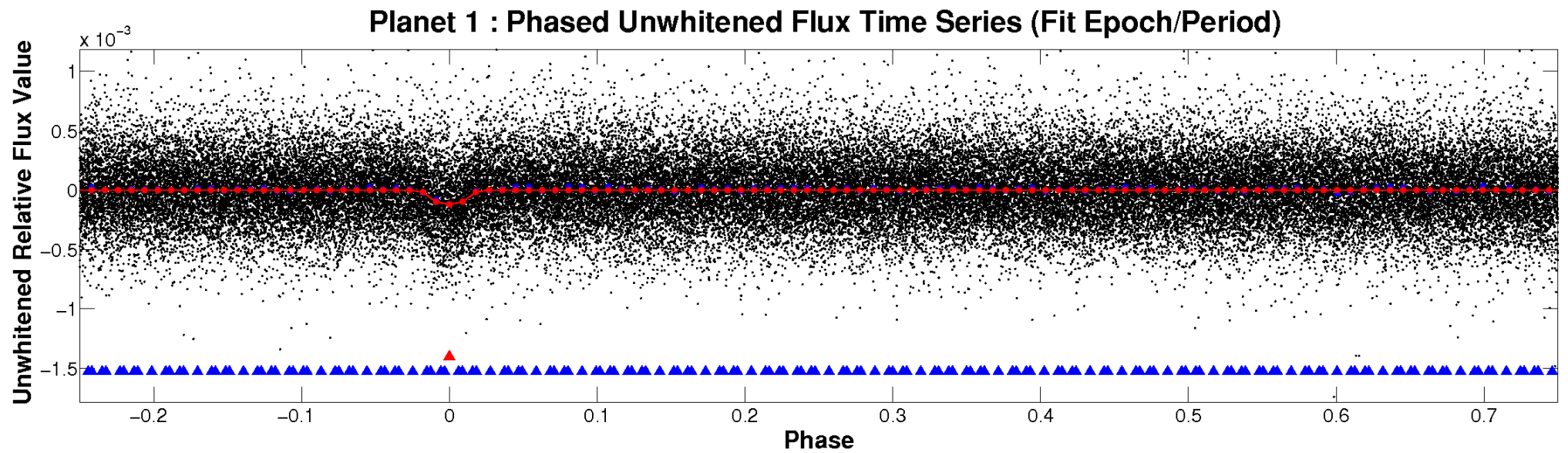


ALT Odd/Even

TCE 007609553-01

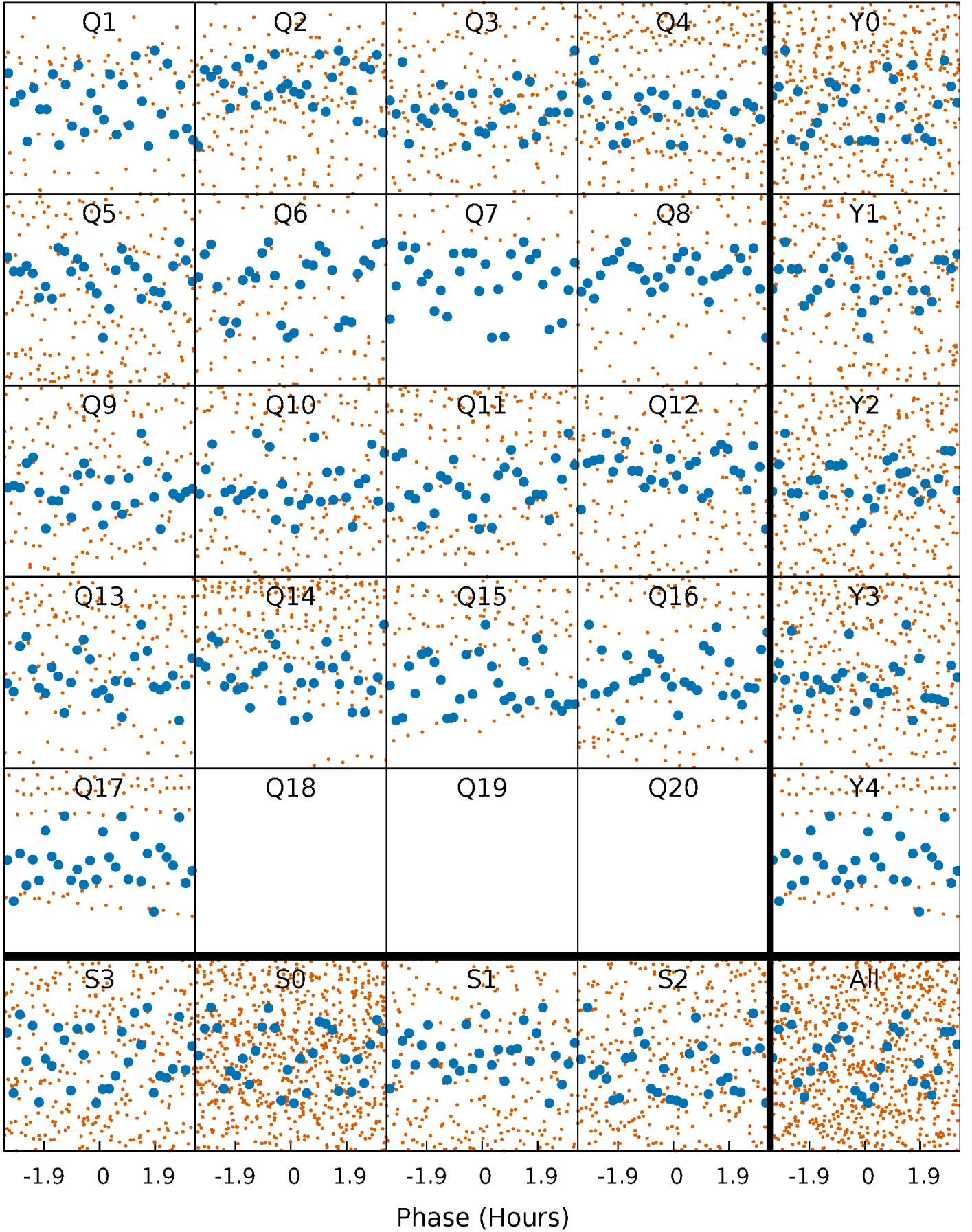


Non-Whitened Vs. Whitened Light Curve



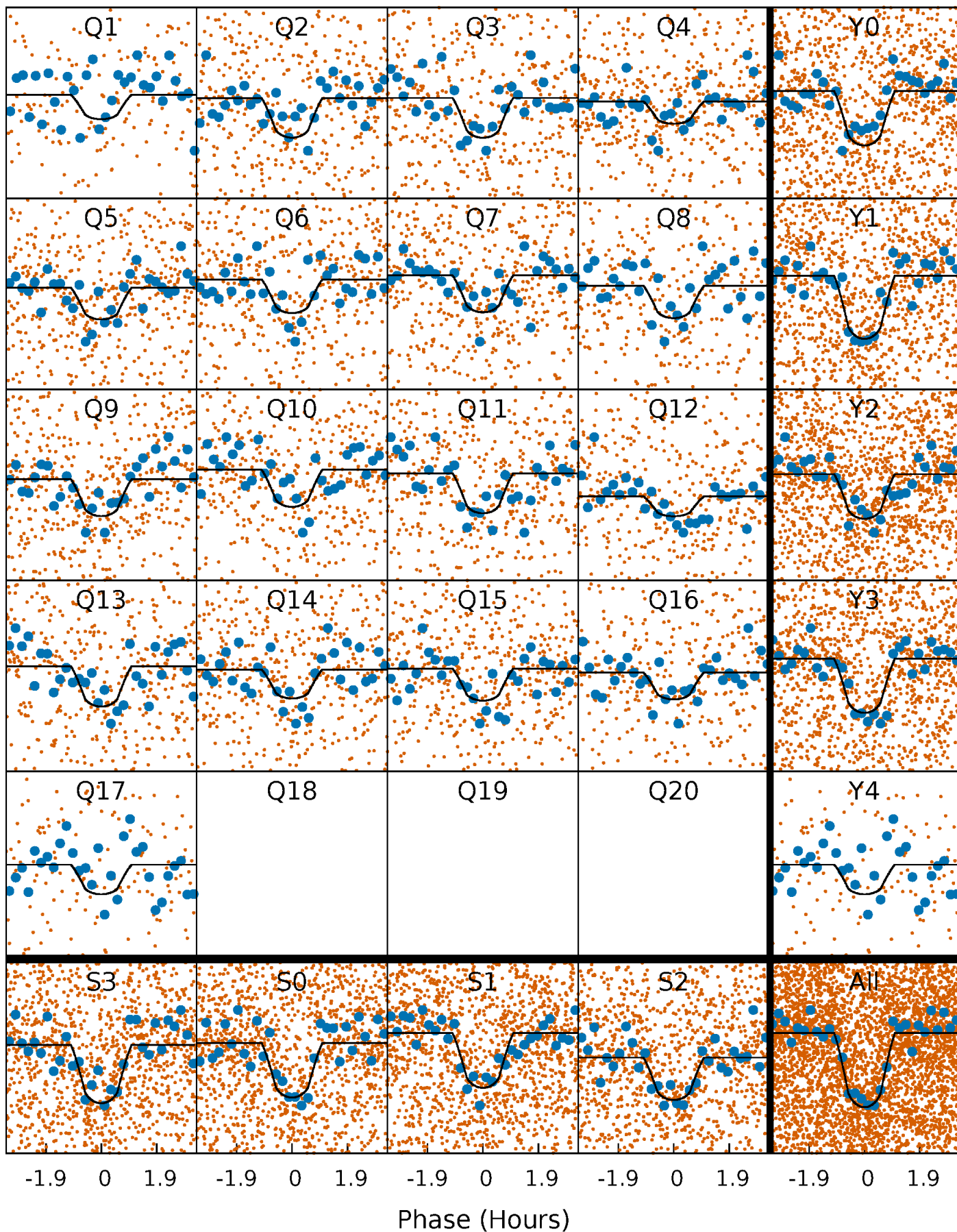
PDC Quarter-Phased Transit Curves

TCE 007609553-01 P= 2.279497 Days $T_0=133.366369$ (BKJD)



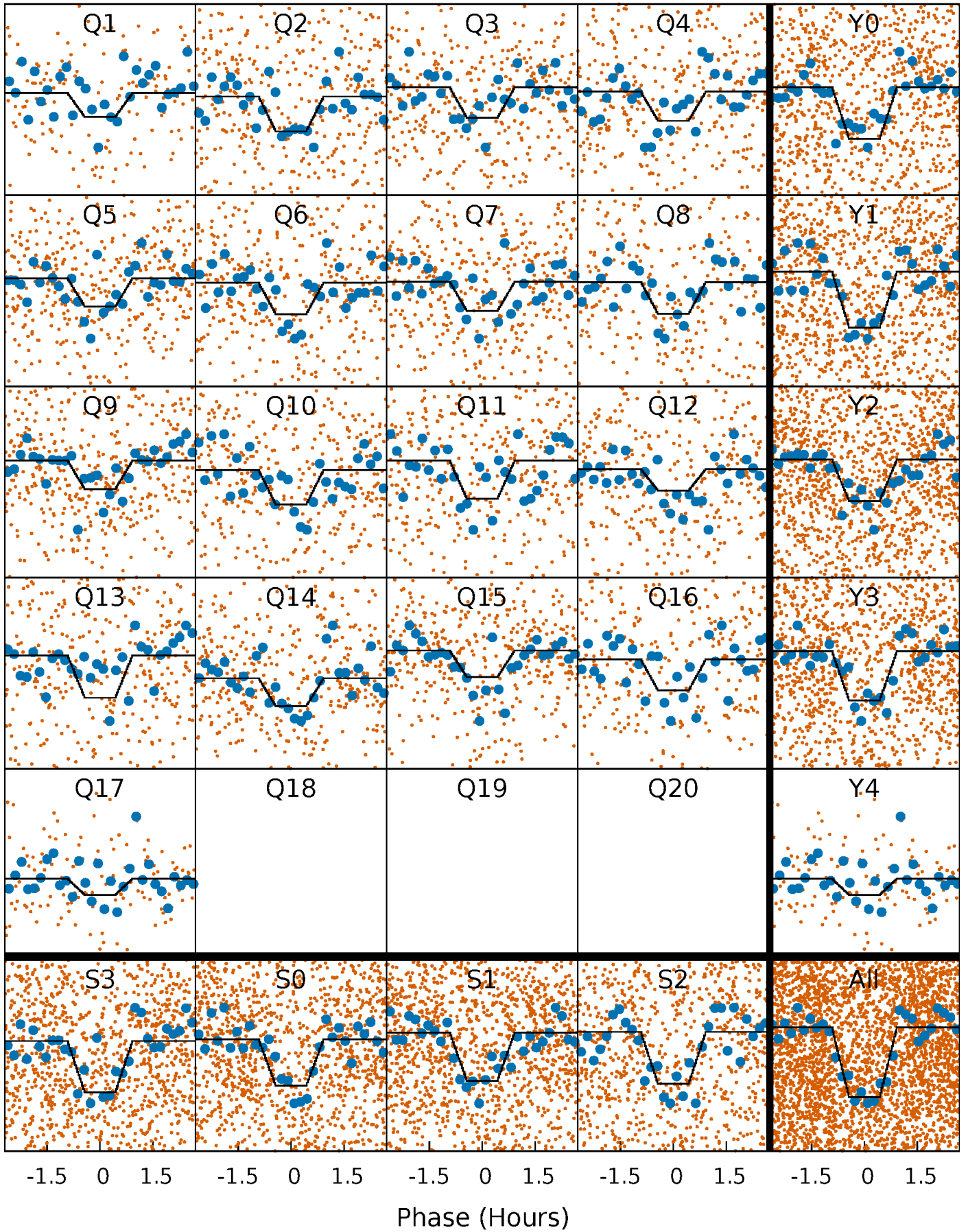
DV Quarter-Phased Transit Curves

TCE 007609553-01 P= 2.279497 Days $T_0=133.366369$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

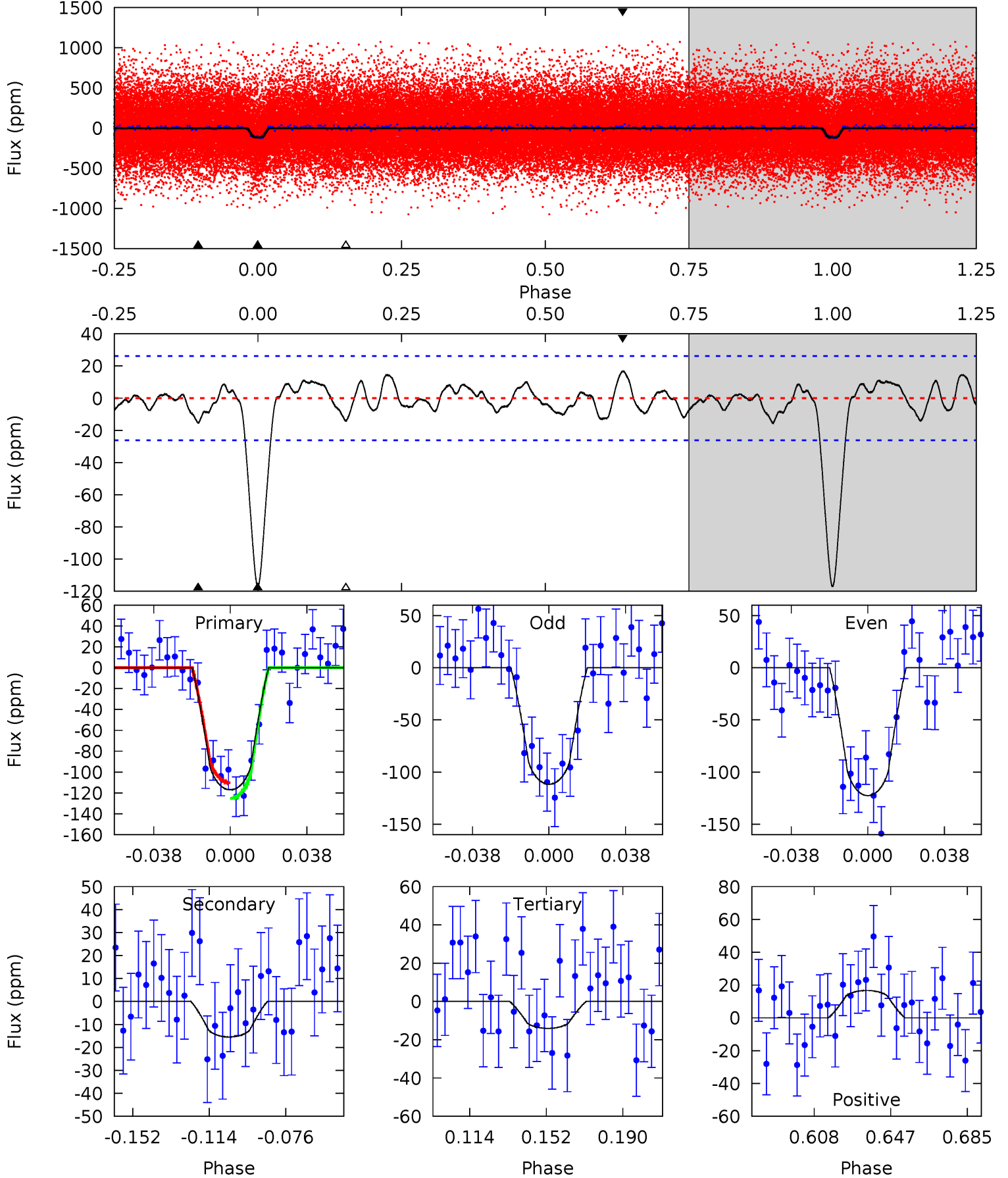
TCE 007609553-01 P= 2.279503 Days $T_0=133.365231$ (BKJD)



DV Model-Shift Uniqueness Test

007609553-01, P = 2.279497 Days, E = 131.086872 Days

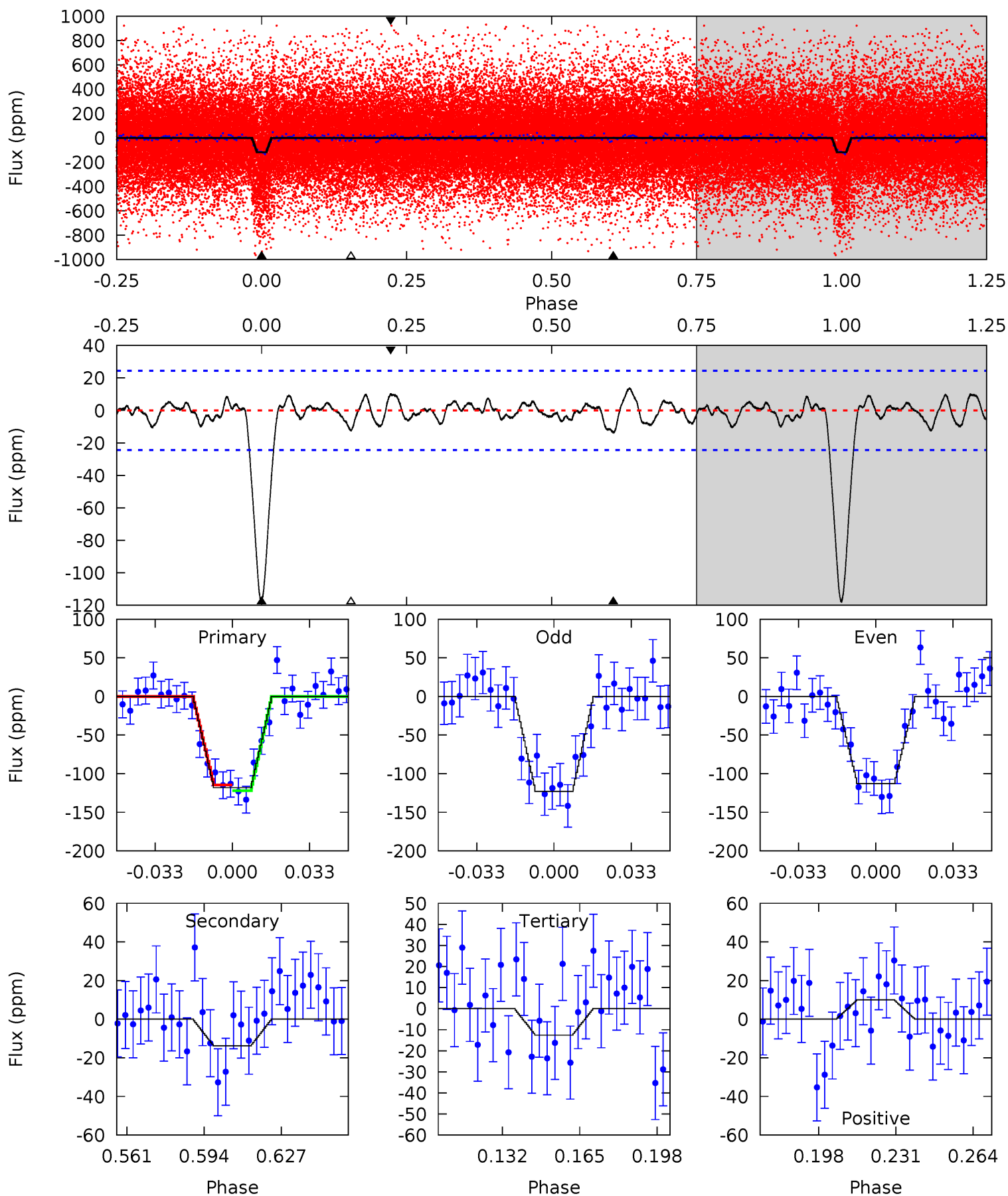
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
21.3	2.82	2.56	3.04	4.76	2.07	1.21	18.7	18.2	0.26	-0.22	0.99	0.99	0.12	1.37



Alt Model-Shift Uniqueness Test

007609553-01, P = 2.279503 Days, E = 131.085728 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
23.2	2.71	2.46	1.97	4.79	2.13	0.89	20.7	21.2	0.25	0.75	1.00	1.05	0.10	0.72



Stellar Parameters For KIC 007609553

	$T_{\text{eff}} (K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5017^{+151}_{-136}	$4.516^{+0.075}_{-0.067}$	$-0.020^{+0.300}_{-0.250}$	$0.797^{+0.079}_{-0.087}$	$0.760^{+0.095}_{-0.055}$	$2.117^{+0.677}_{-0.468}$
	+3%/-3%	+2%/-1%	+1500%/-1250%	+10%/-11%	+12%/-7%	+32%/-22%
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 007609553-01 / KOI 2924.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-15 ± 5	$0.95^{+0.40}_{-0.37}$	1568^{+66}_{-60}	3460^{+673}_{-457}	$9.187^{+17.251}_{-5.343}$
Alt.	-14 ± 5	$0.91^{+0.39}_{-0.38}$	1572^{+55}_{-60}	3415^{+697}_{-415}	$8.721^{+16.878}_{-5.092}$

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

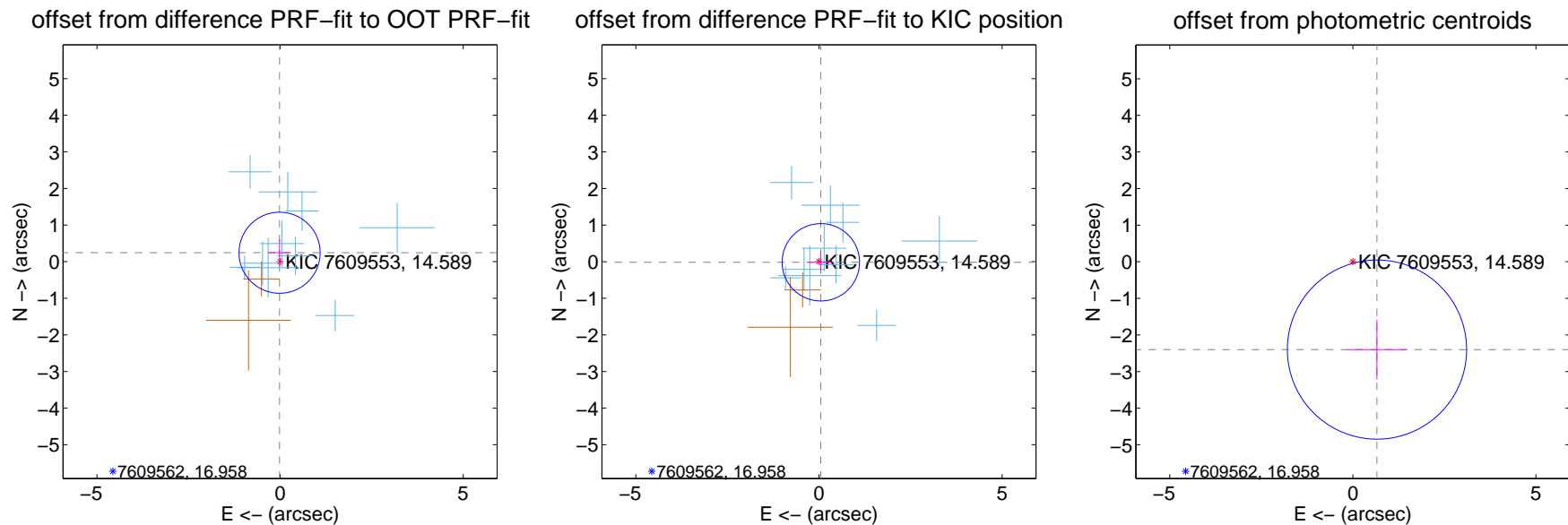
DV Centroid Data

Supplemental centroid analysis for 007609553-01. Kepler magnitude: 14.59. Transit SNR 15.17

There are 10 quarters with good PRF difference image offsets

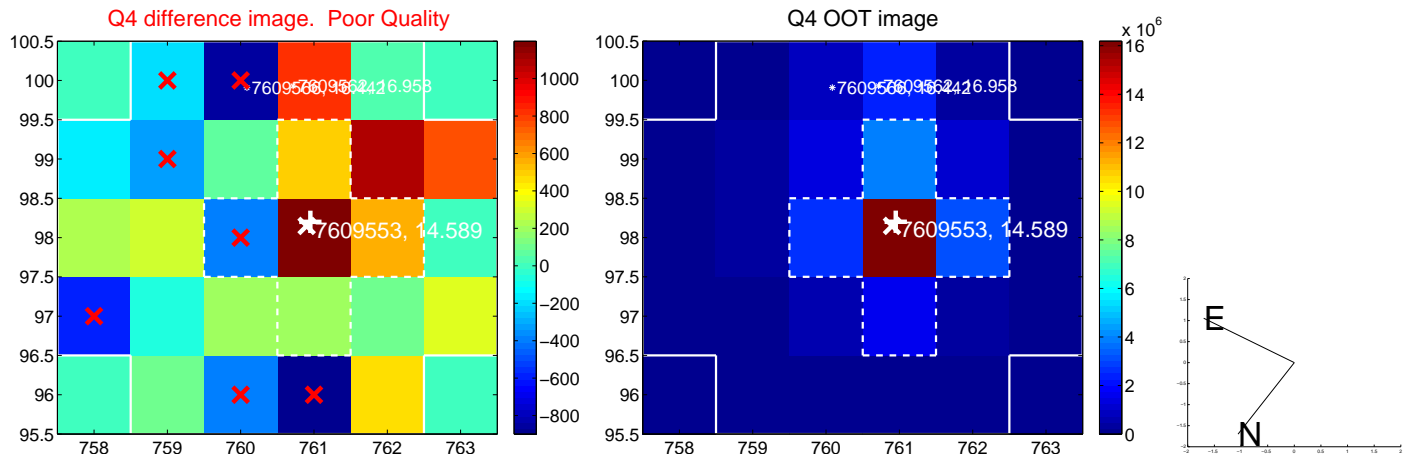
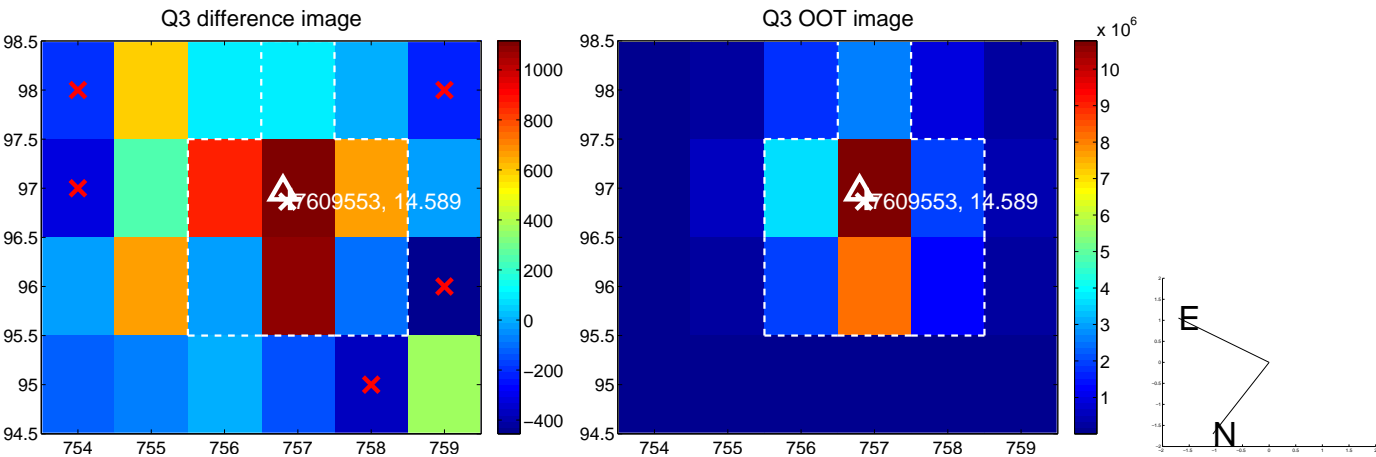
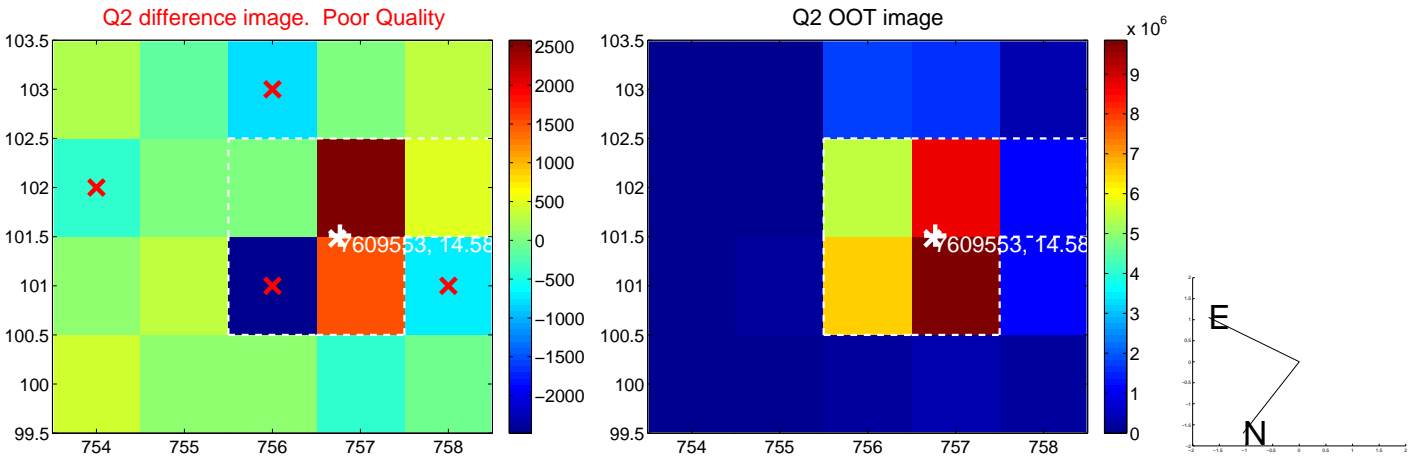
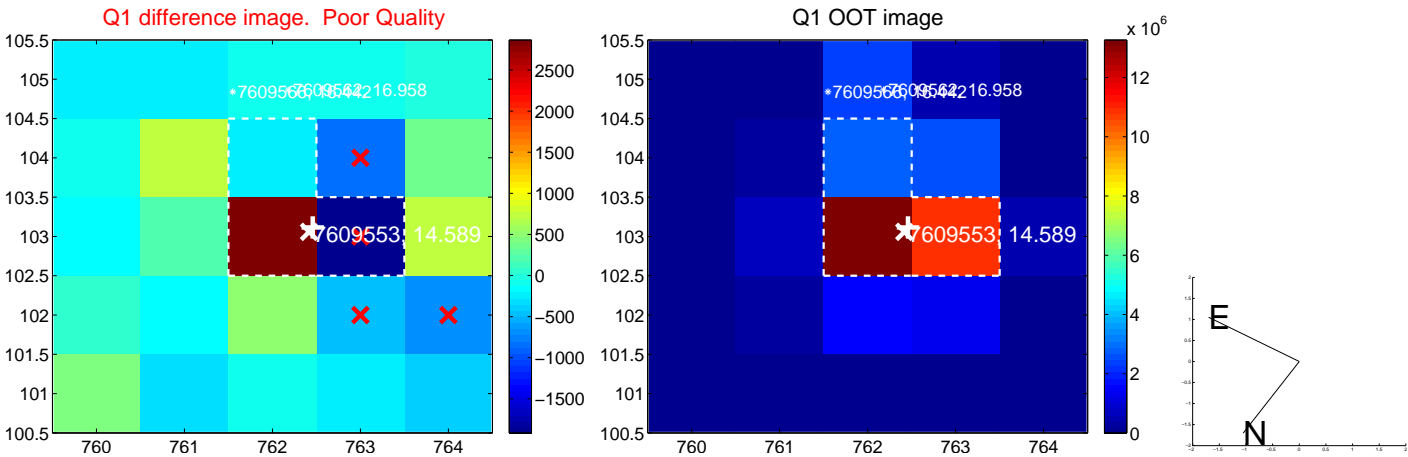
The direct PRF centroid is offset from the target star catalog position by about 0.38 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.245 ± 0.369	0.66	0.014 ± 0.310	0.244 ± 0.369
PRF-fit source offset from KIC position	0.053 ± 0.352	0.15	-0.050 ± 0.361	-0.016 ± 0.309
photometric centroid source offset	2.49 ± 0.82	3.05	-0.66 ± 0.82	-2.40 ± 0.82

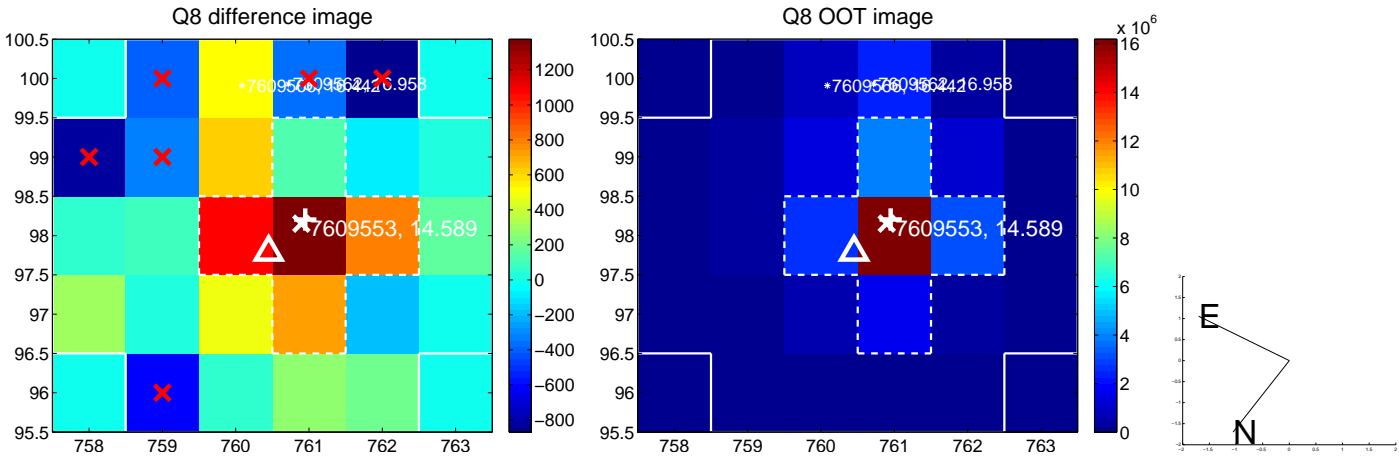
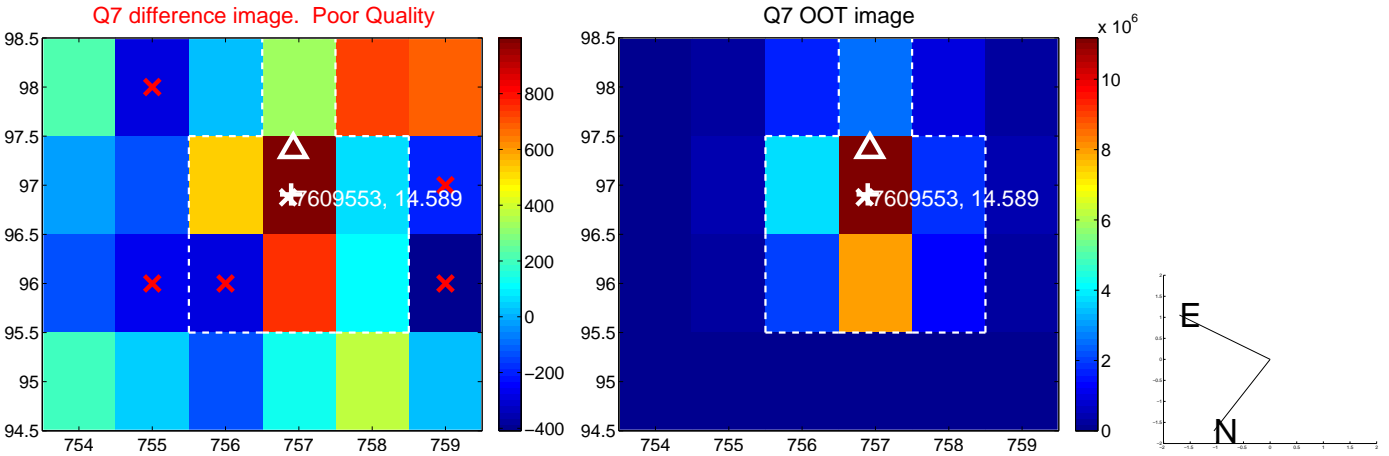
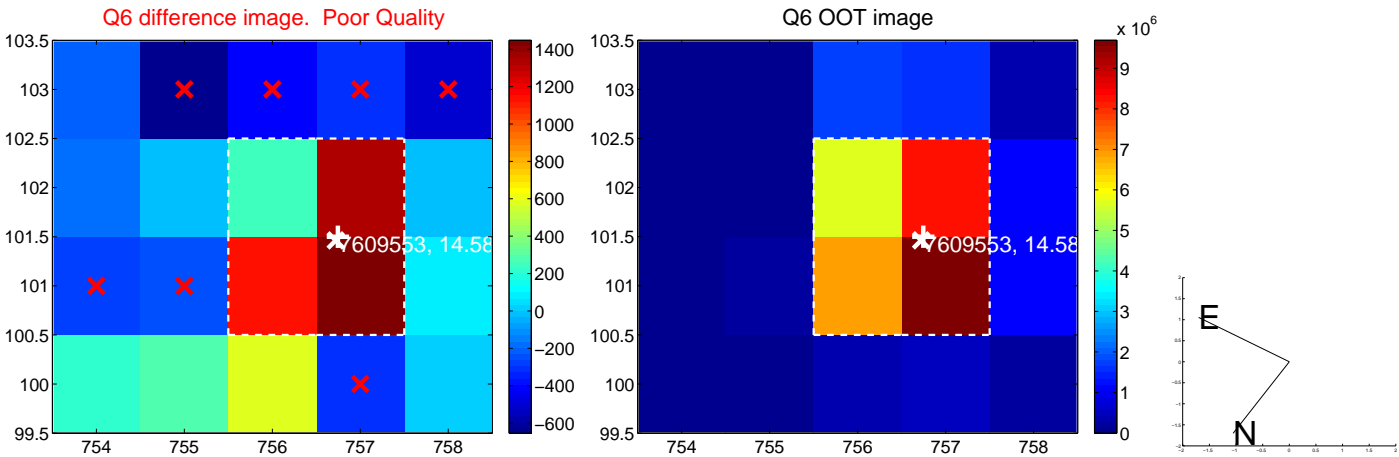
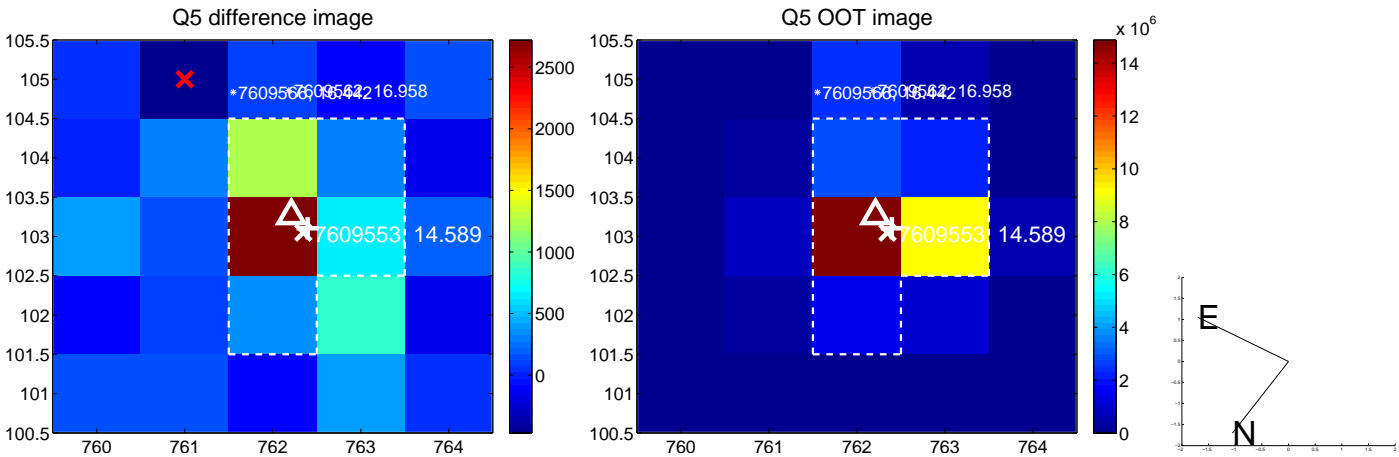


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

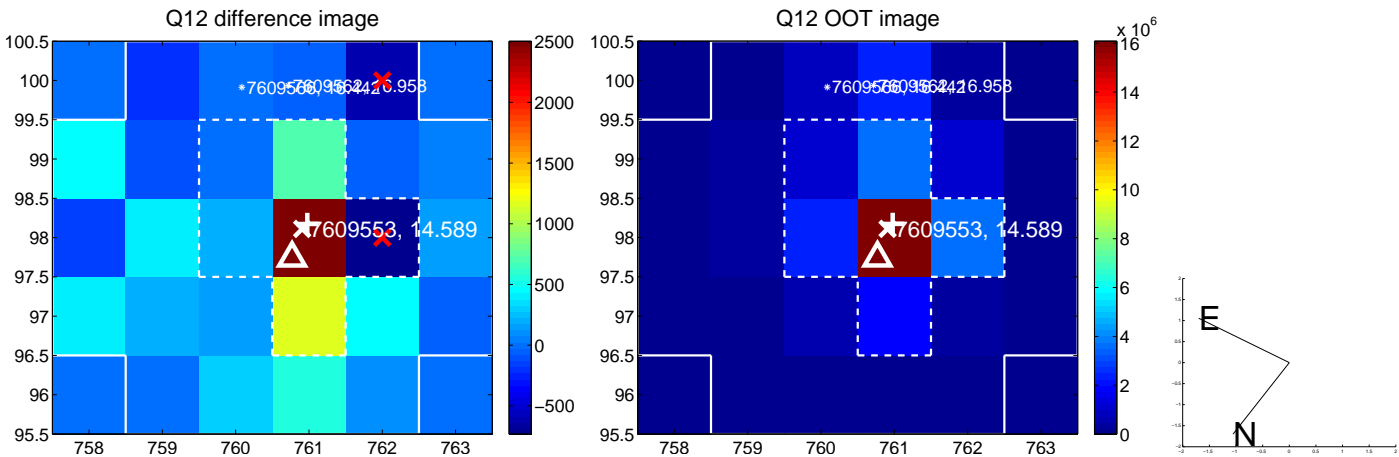
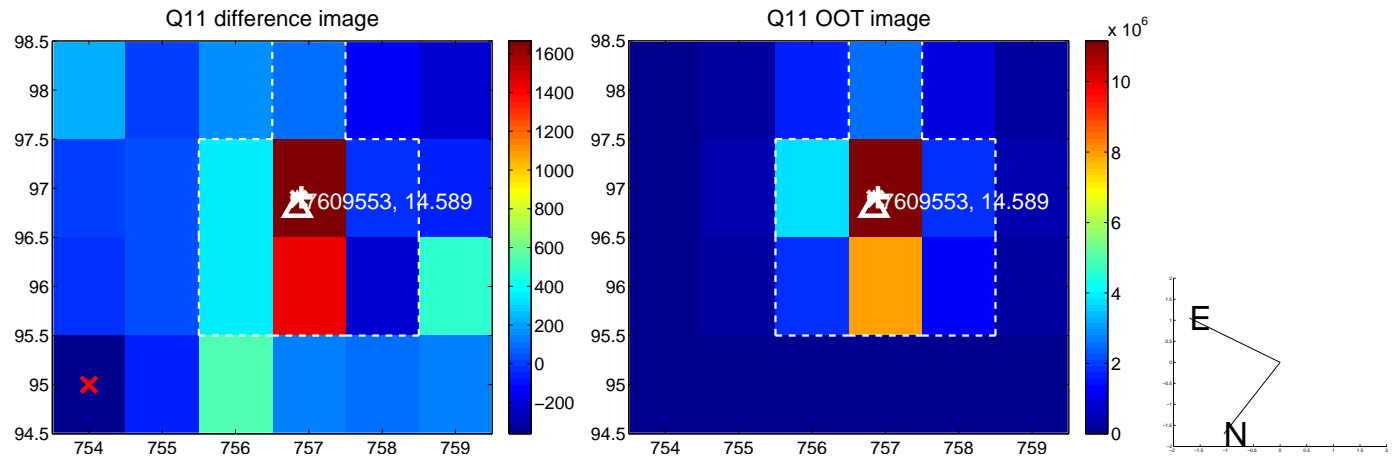
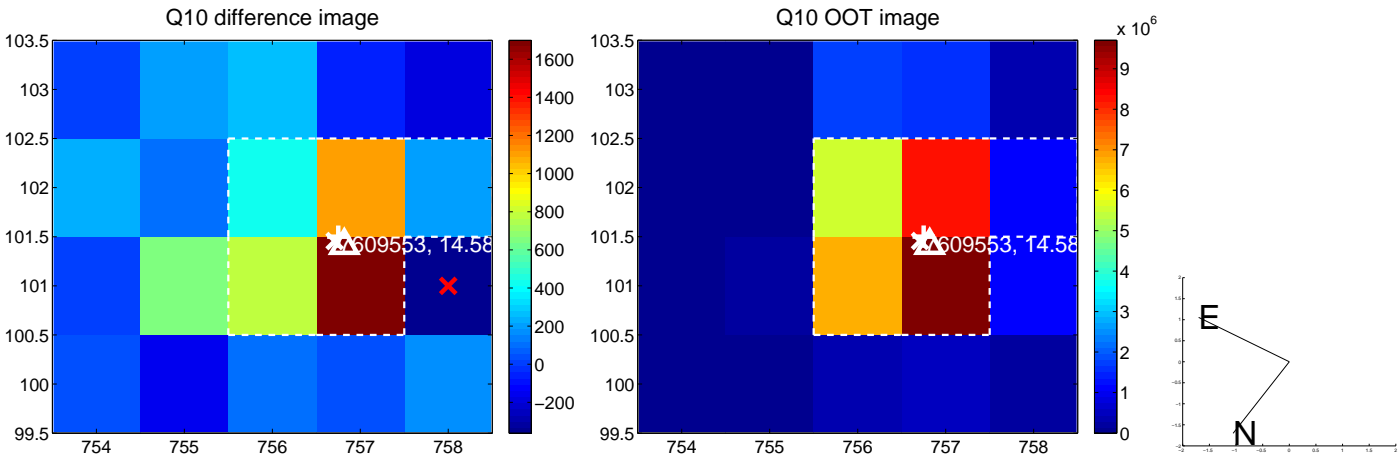
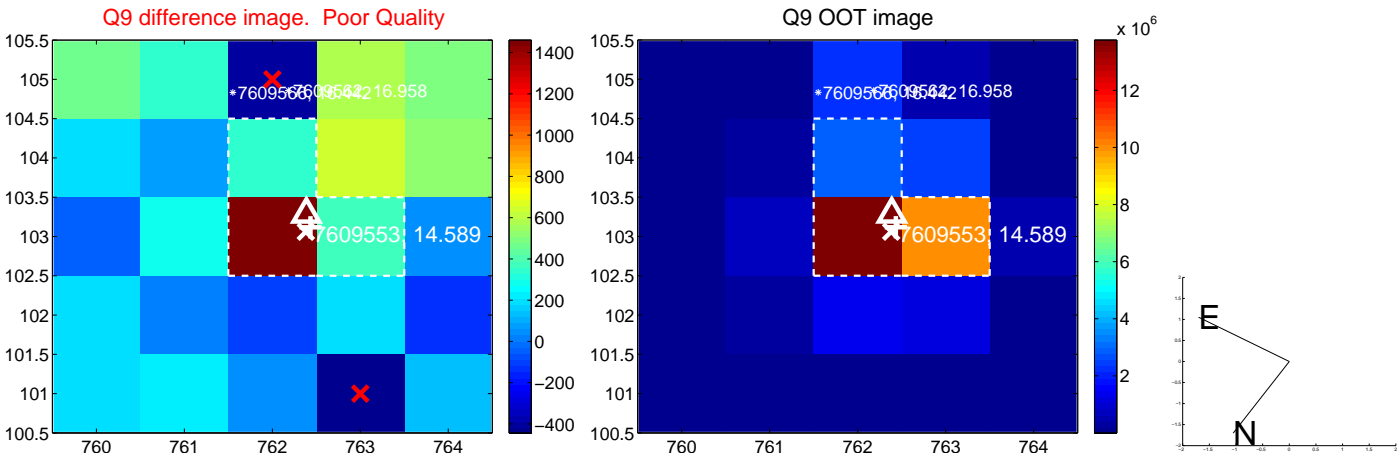
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



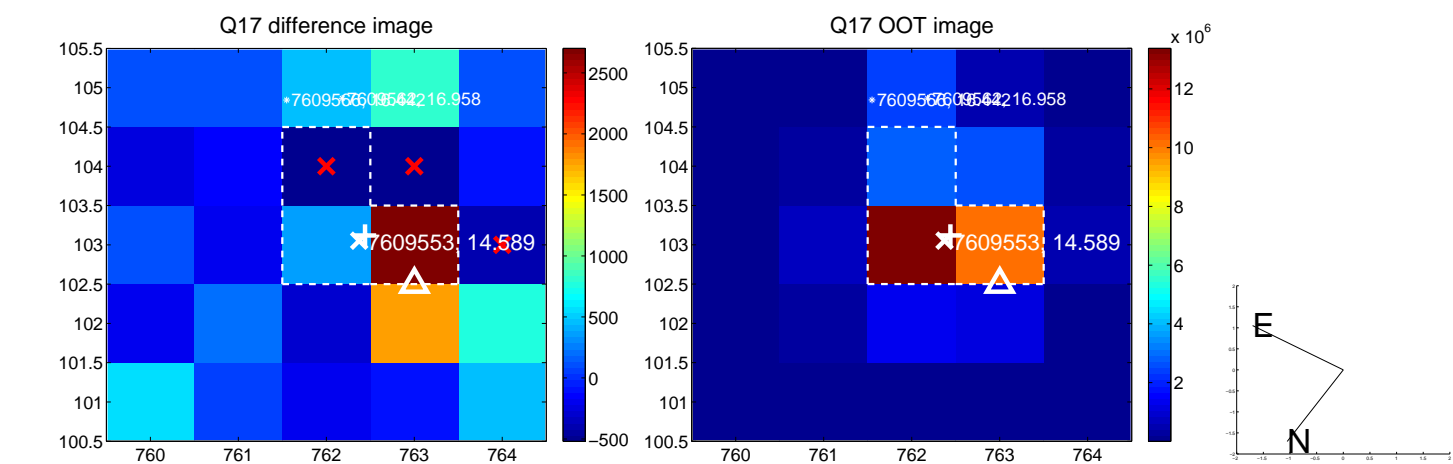
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



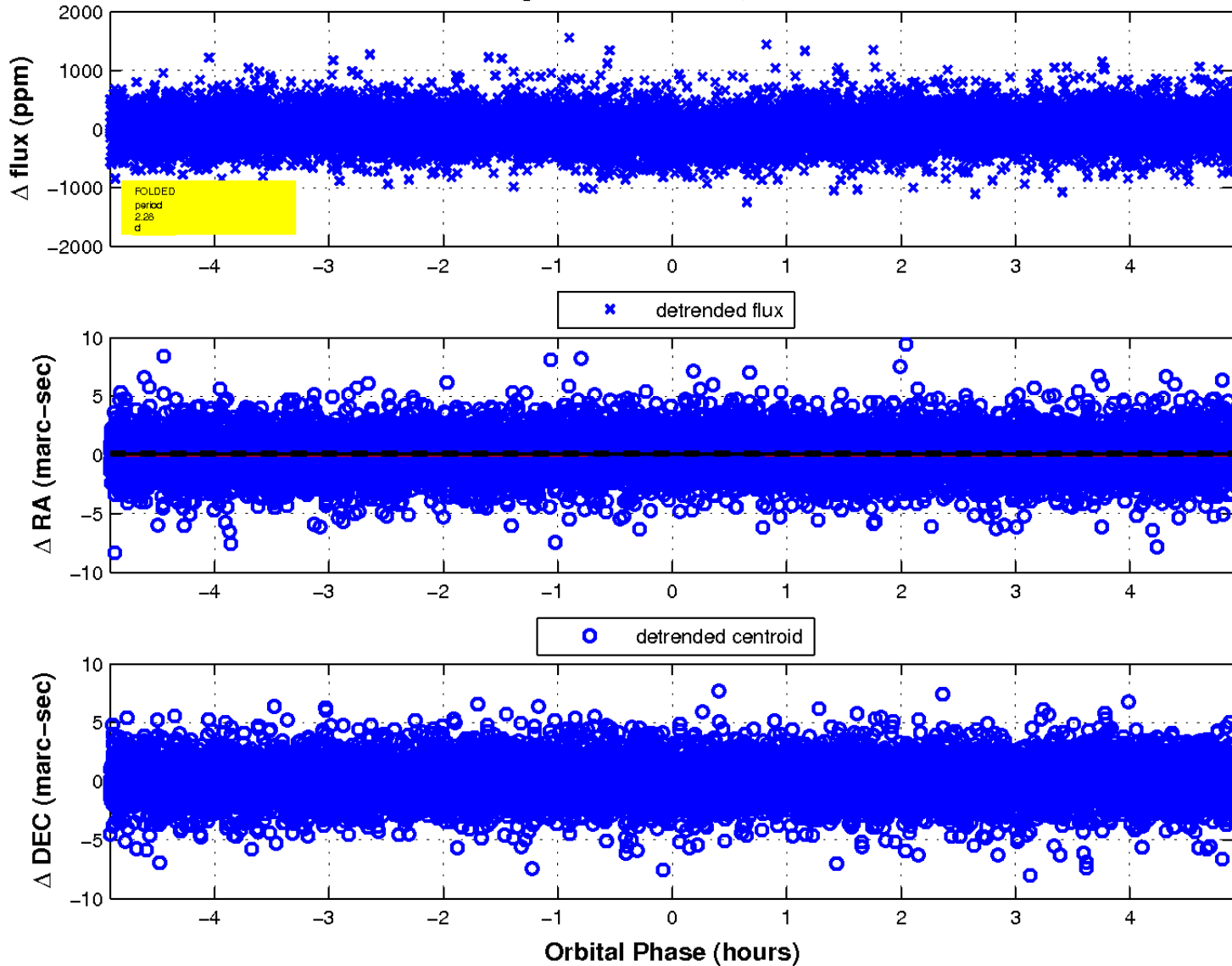
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

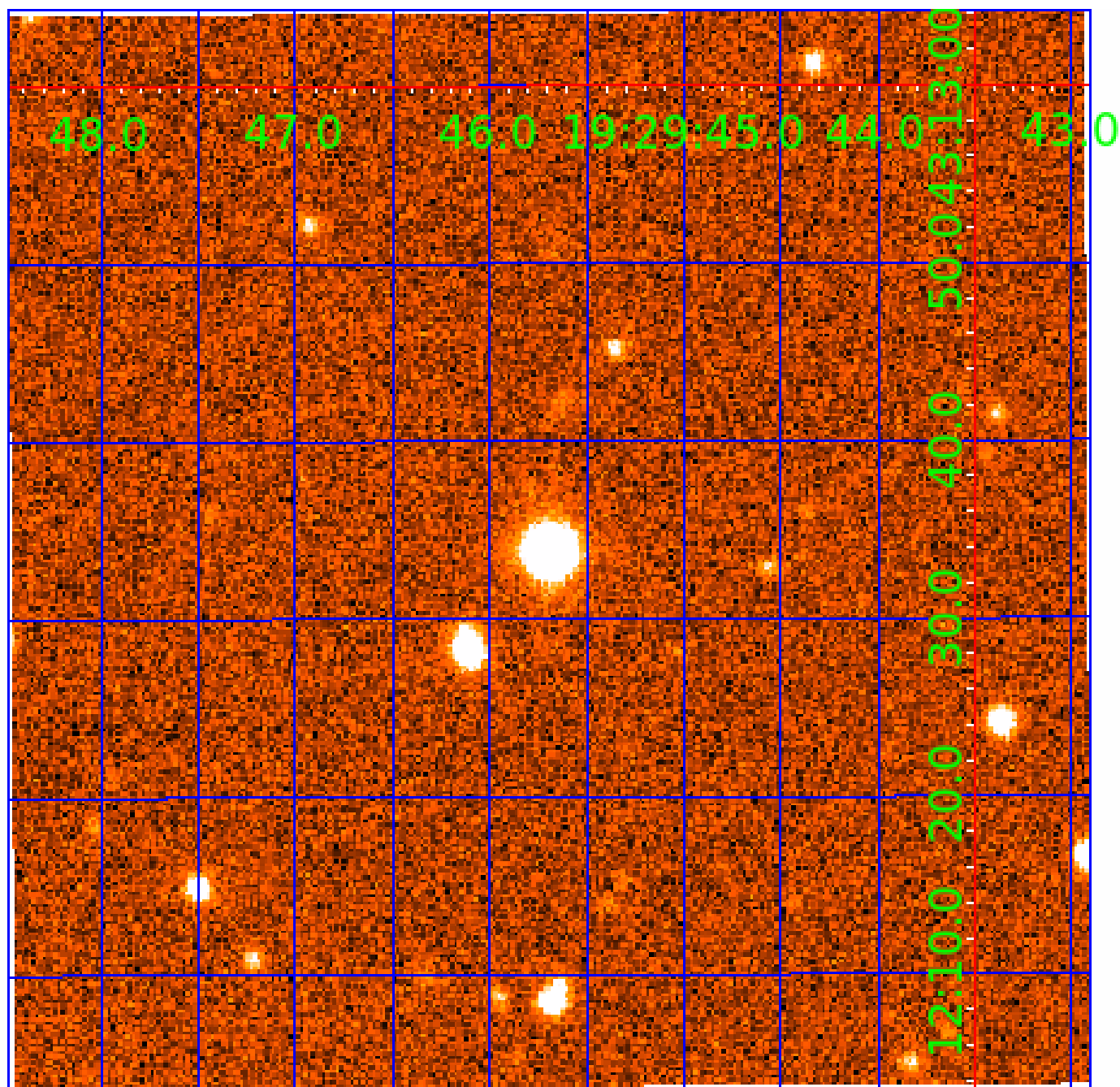


fluxWeightedCentroids, Planet 1 of 2



UKIRT Image

Declination



KIC 007609553

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})
007609553-01	OBS	2924.01	2.279497	133.366369	121.8	1.637	13.7	15.2	0.80	5017	0.94	376.58
007609553-02	OBS	2924.02	8.856856	134.136643	307.5	0.593	7.6	11.3	0.80	5017	1.77	61.65

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
007609553-01	OBS	PC	1.00	0	0	0	0	NO_COMMENT
007609553-02	OBS	PC	0.92	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.

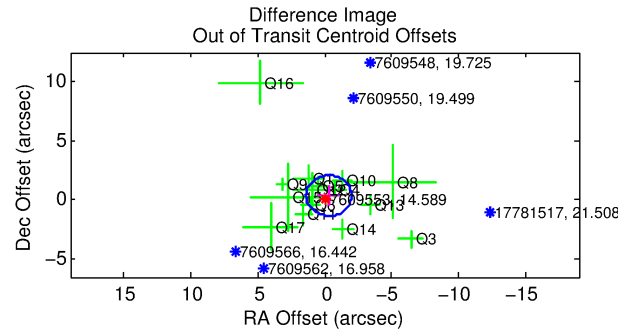
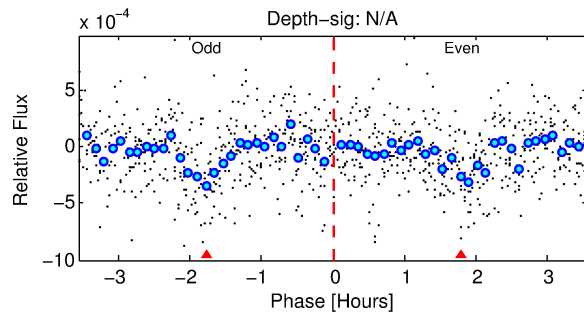
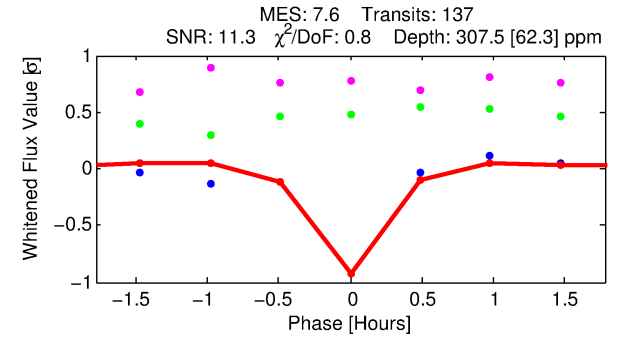
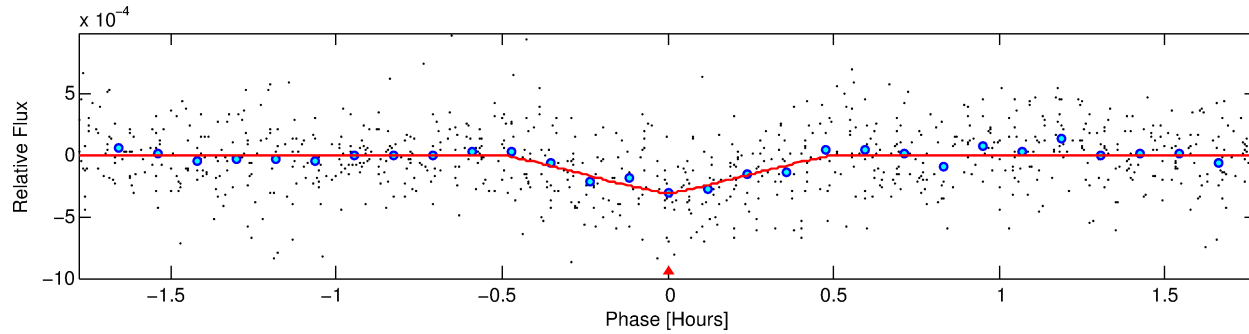
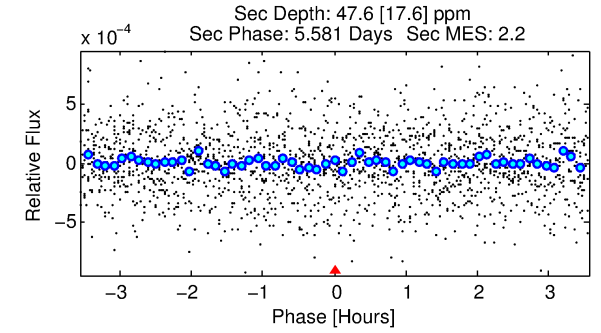
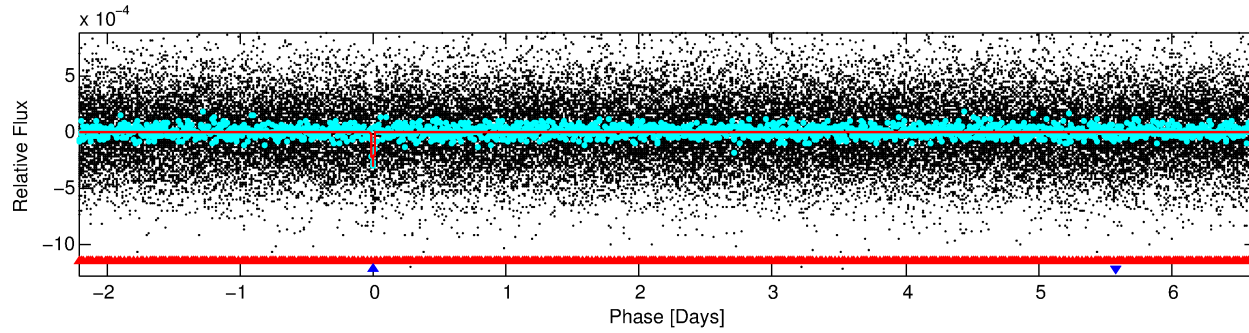
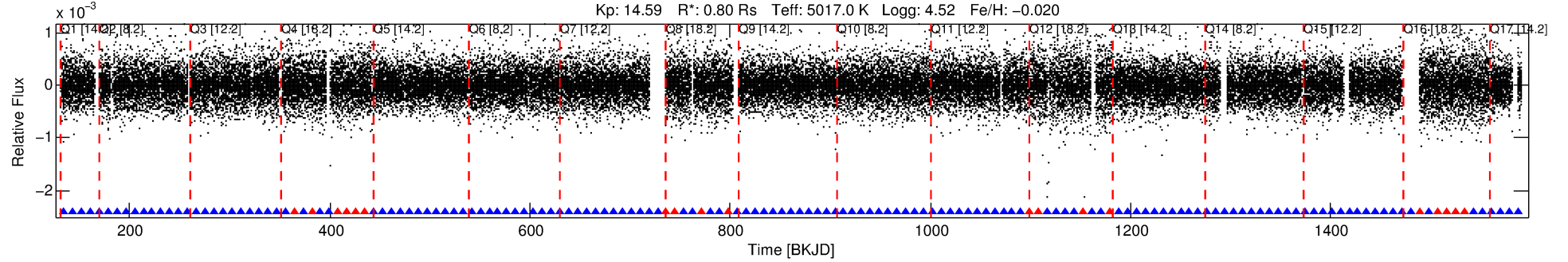
Ephemeris Match Information For 007609553-02

No Significant Match Found

DV One-Page Summary

KIC: 7609553 Candidate: 2 of 2 Period: 8.857 d
KOI: K02924 Corr: No Ephemeris Match

Kp: 14.59 R*: 0.80 Rs Teff: 5017.0 K Logg: 4.52 Fe/H: -0.020



DV Fit Results:

Period = 8.85686 [0.00002] d
Epoch = 134.1366 [0.0017] BKJD
Rp/R* = 0.0204 [0.0138]
a/R* = 54.98 [140.96]
b = 0.90 [0.57]
Seff = 61.65 [11.21]
Teq = 715 [32] K
Rp = 1.77 [1.21] Re
a = 0.0765 [0.0071] AU
Ag = 48.69 [68.40] [0.70σ]
Teffp = 2918 [1024] K [2.15σ]

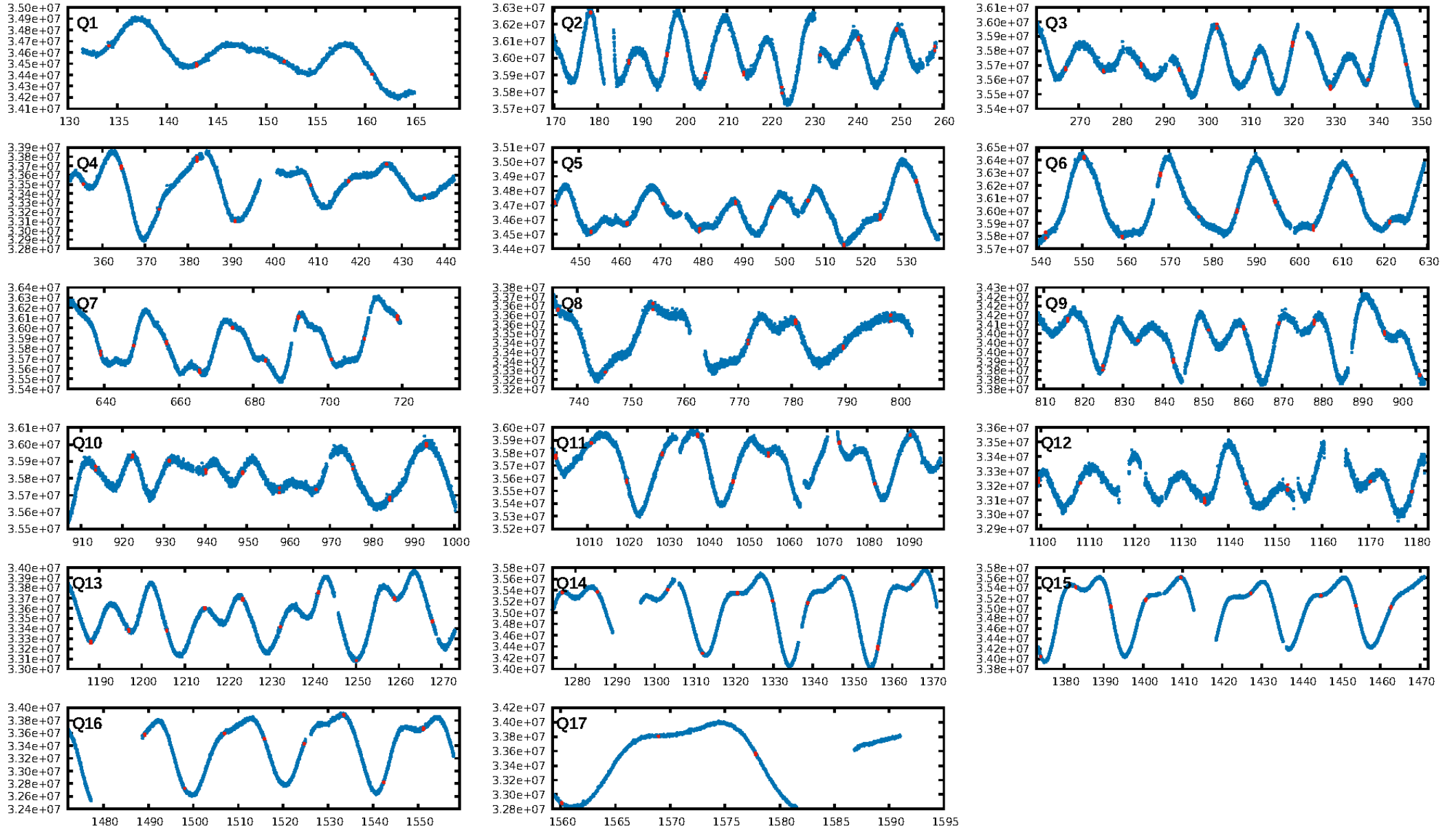
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [90.64σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 97.8%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 6.73e-14
RollingBand-fgt: 0.85 [112/131]
GhostDiagnostic-chr: -6.203
Centroid-sig: N/A
Centroid-so: 2.573 arcsec [2.32σ]
OotOffset-rm: 0.477 arcsec [0.84σ]
KicOffset-rm: 0.357 arcsec [0.47σ]
OotOffset-st: 3/3/4/5 [15]
KicOffset-st: 3/3/4/5 [15]
DiffImageQuality-fgm: 0.53 [8/15]
DiffImageOverlap-fno: 1.00 [17/17]

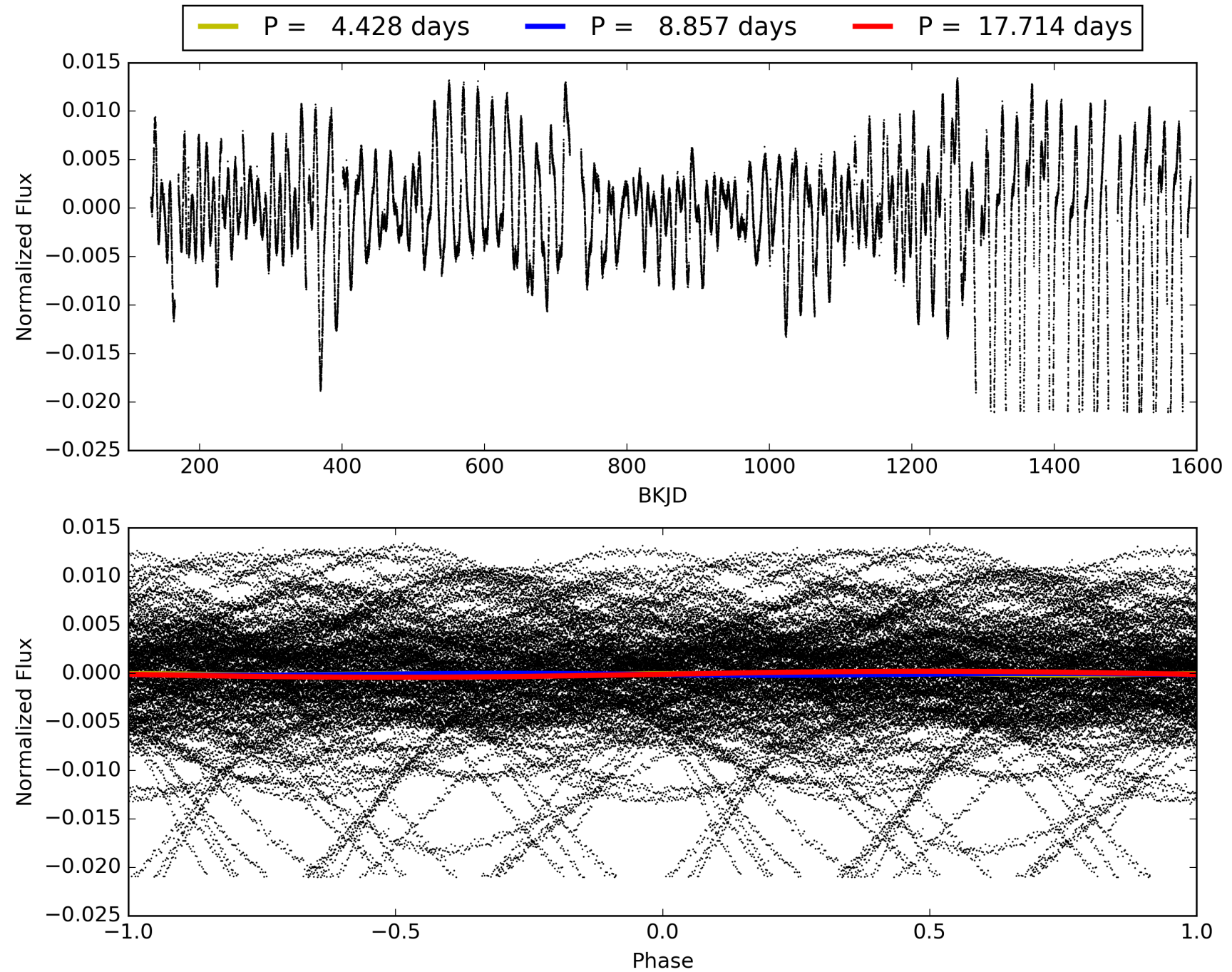
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This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

TCE 007609553-02, PDC Light Curves

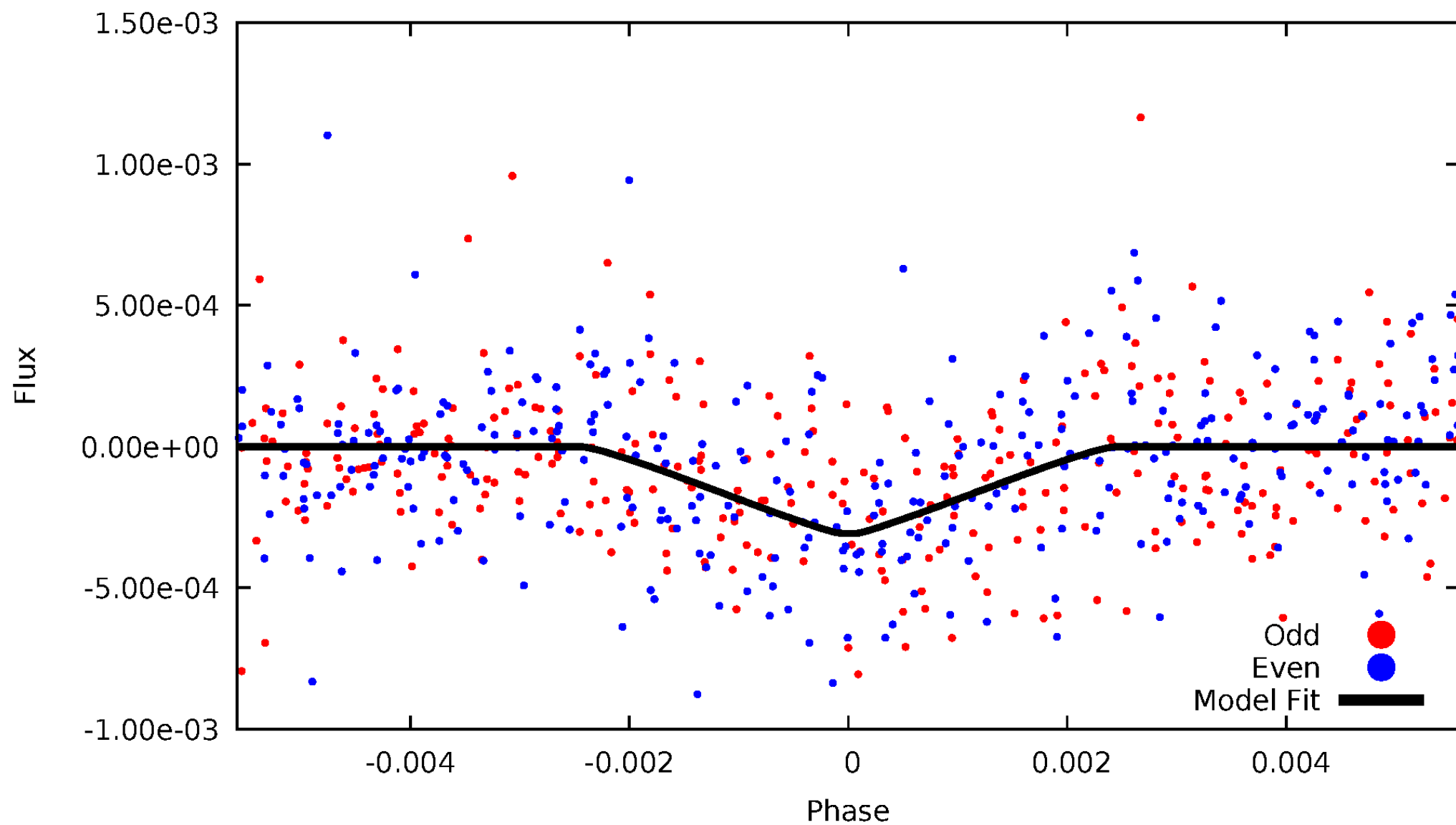


TCE 007609553-02



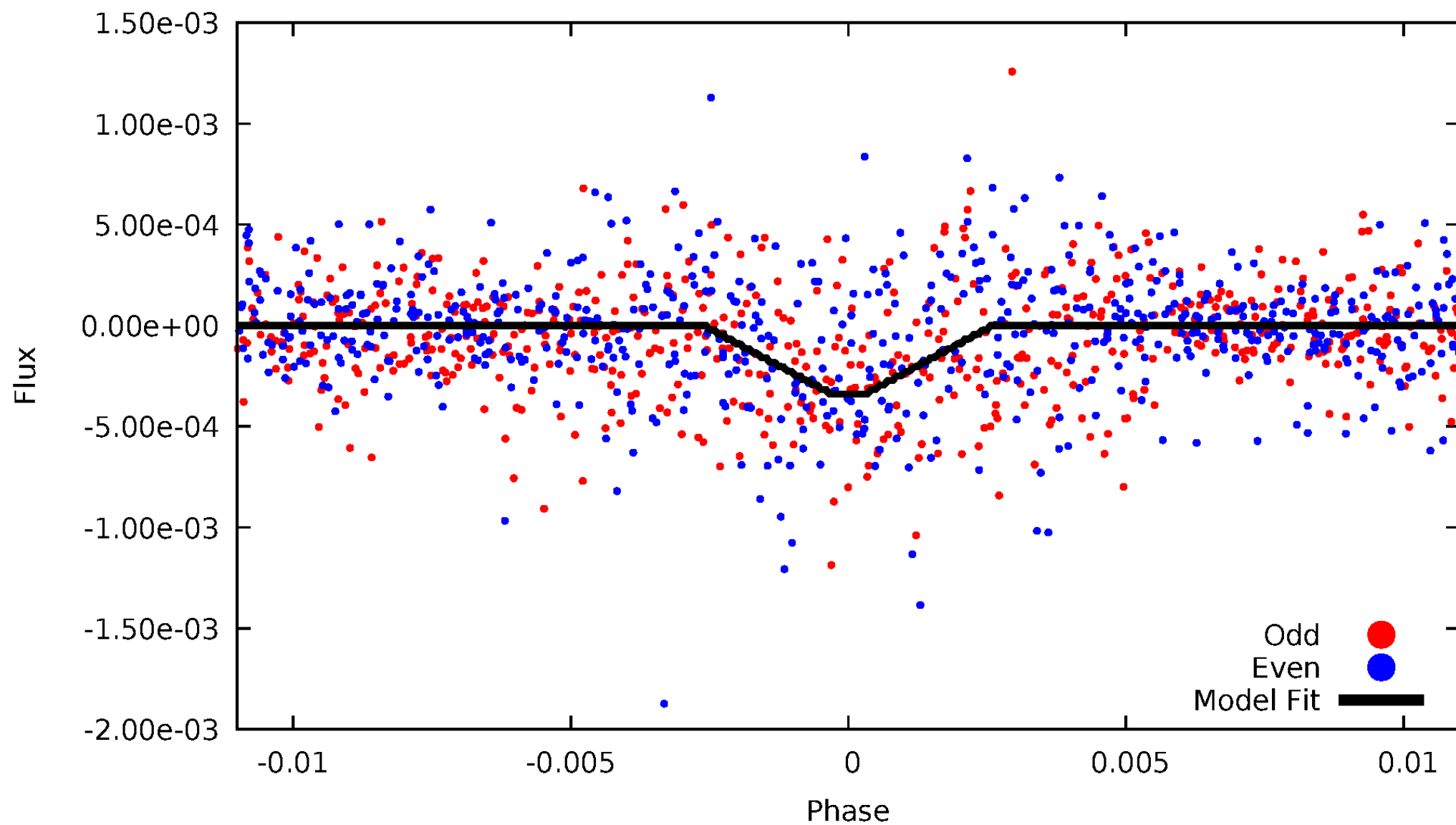
DV Odd/Even

TCE 007609553-02



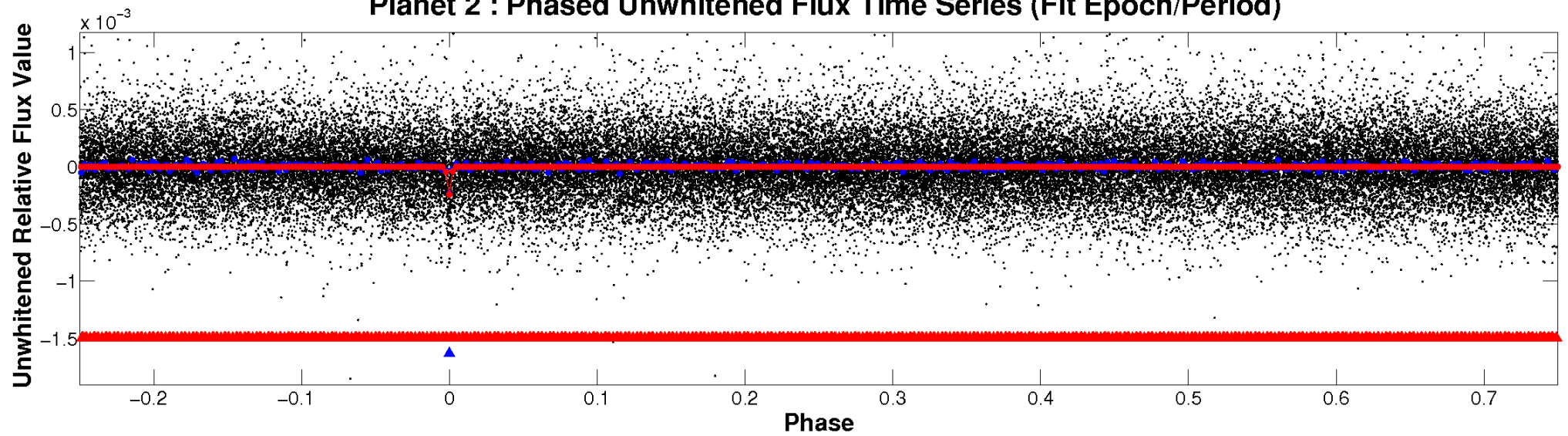
ALT Odd/Even

TCE 007609553-02

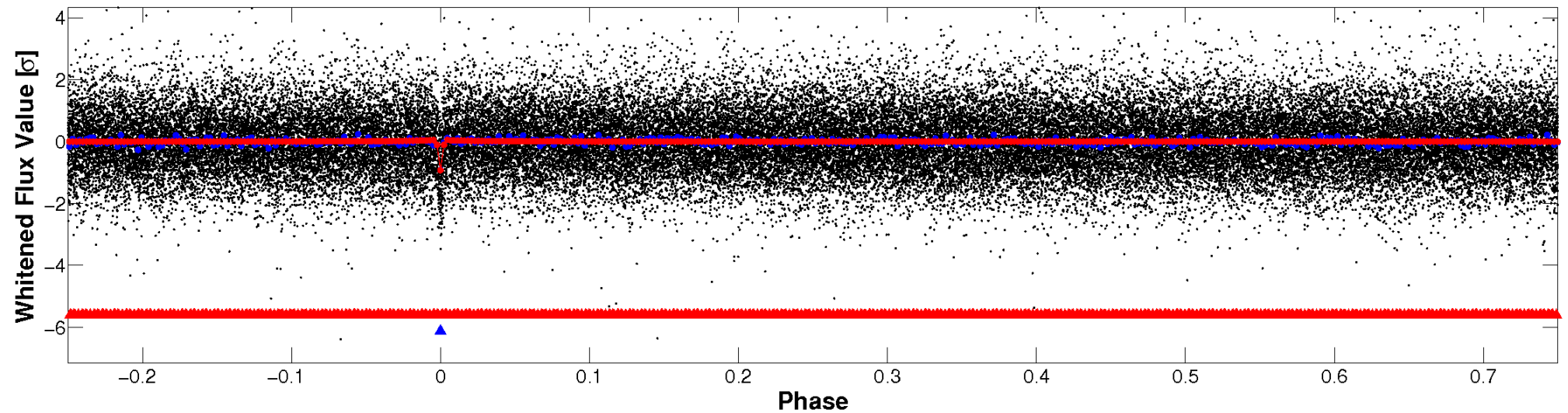


Non-Whitened Vs. Whitened Light Curve

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

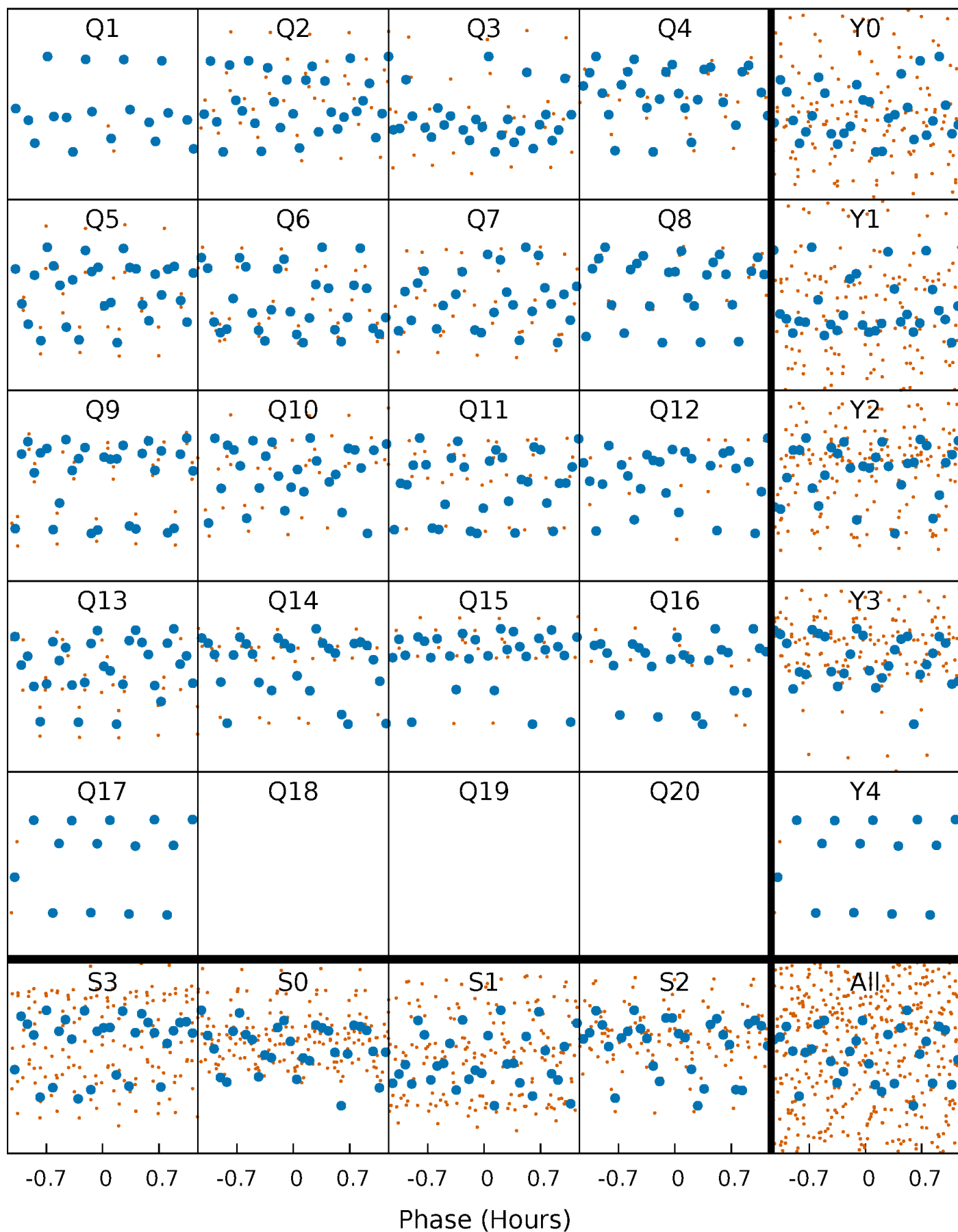


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



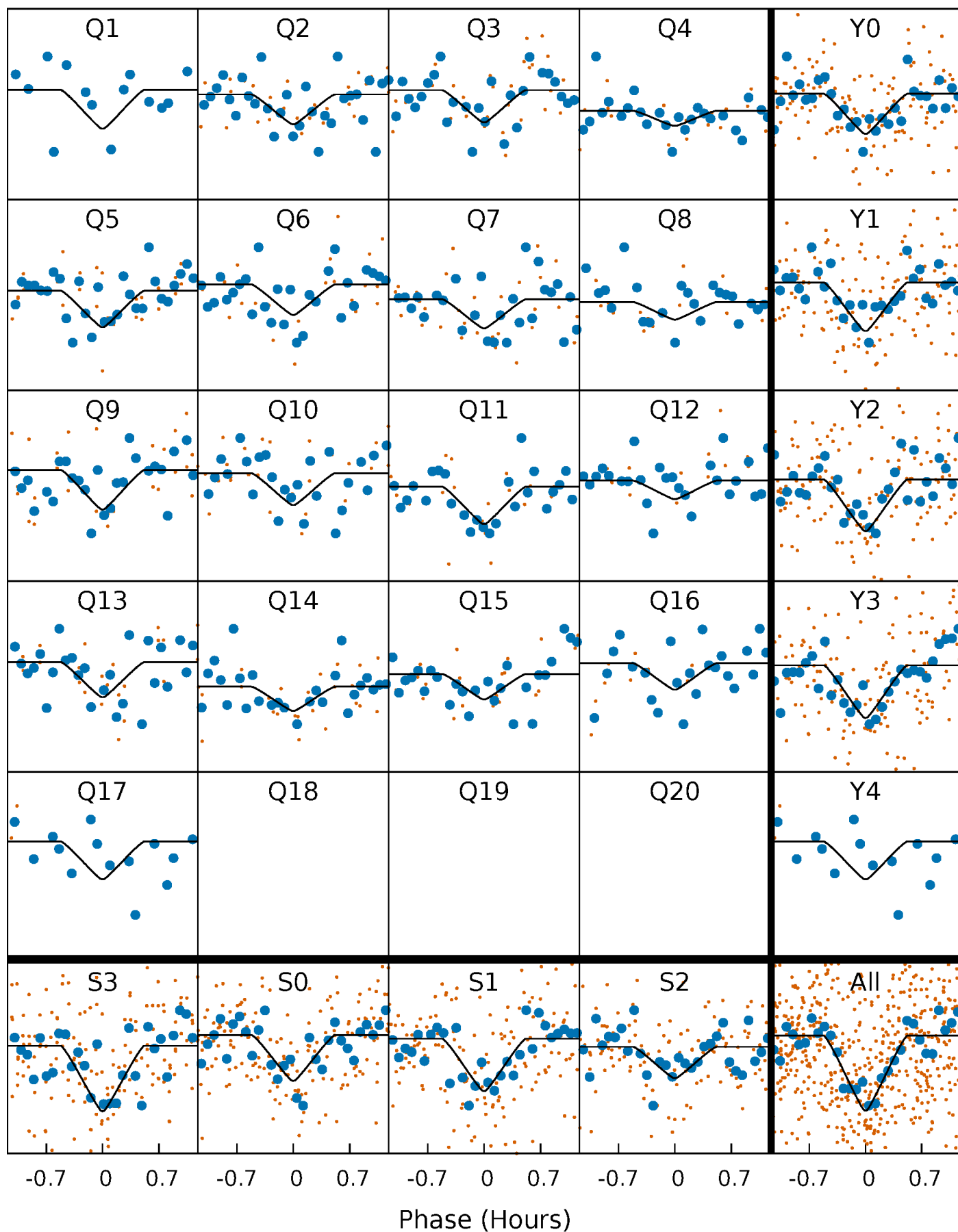
PDC Quarter-Phased Transit Curves

TCE 007609553-02 P= 8.856856 Days $T_0=134.136643$ (BKJD)



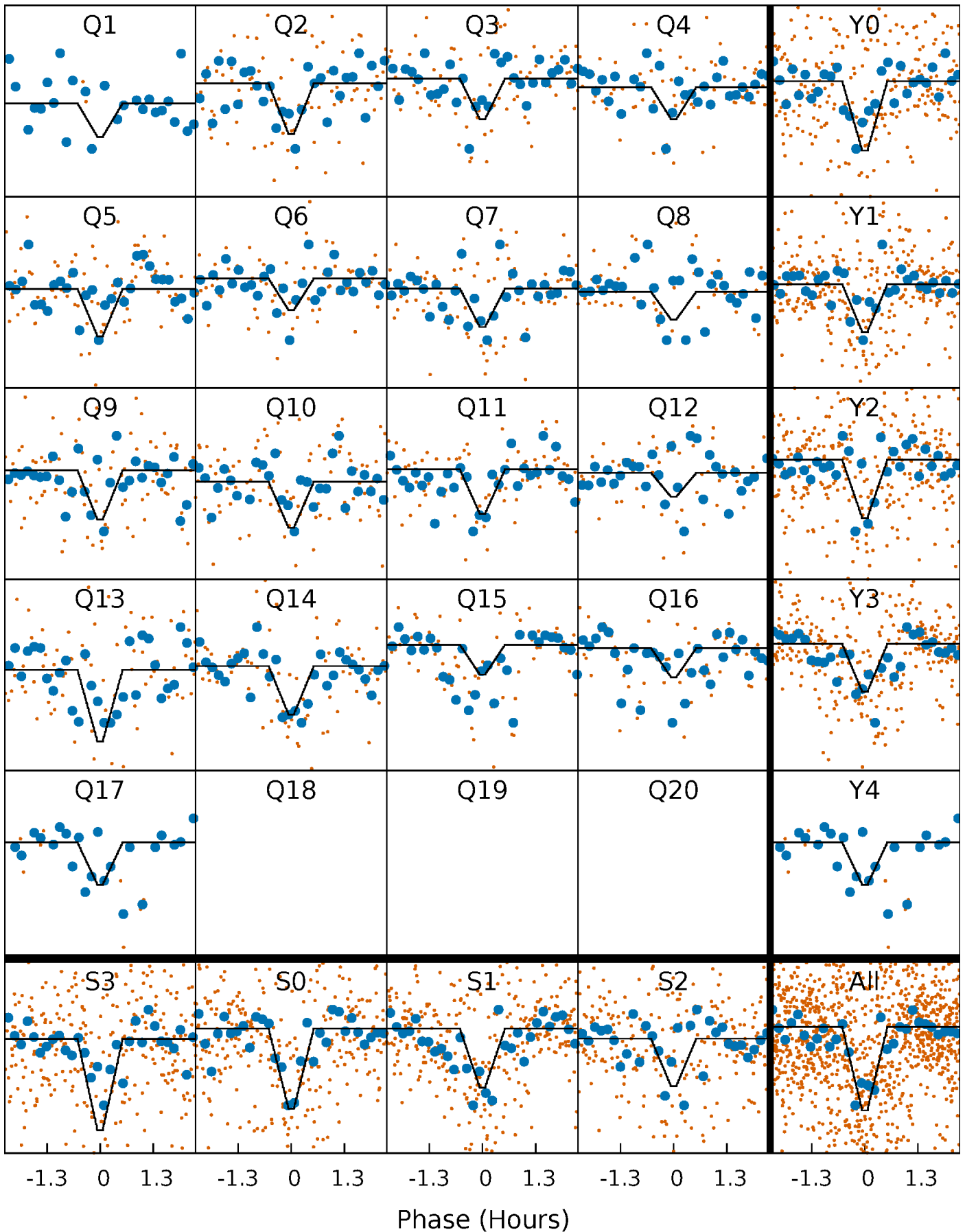
DV Quarter-Phased Transit Curves

TCE 007609553-02 P= 8.856856 Days $T_0=134.136643$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

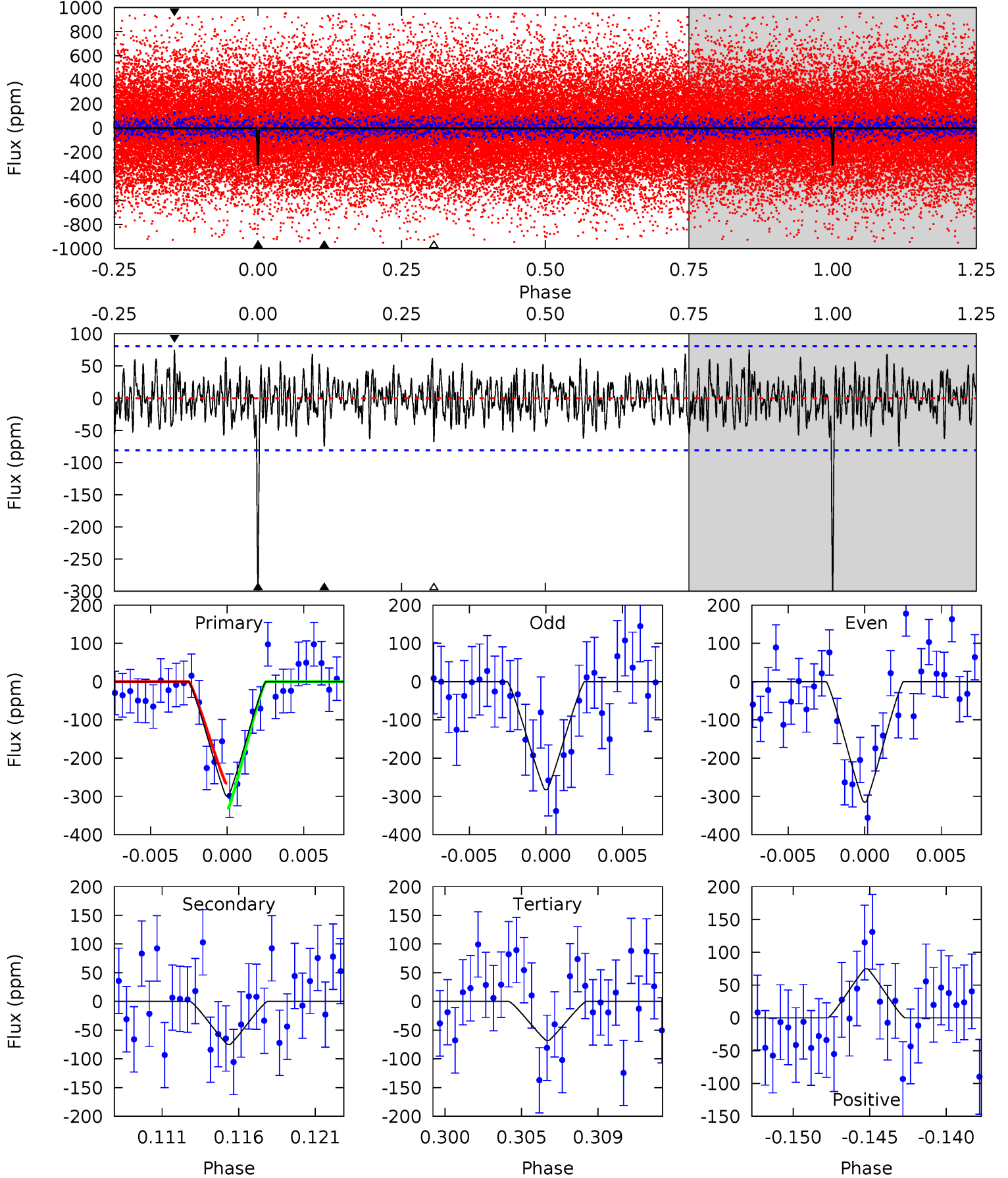
TCE 007609553-02 P= 8.856759 Days $T_0=134.145298$ (BKJD)



DV Model-Shift Uniqueness Test

007609553-02, P = 8.856856 Days, E = 125.279787 Days

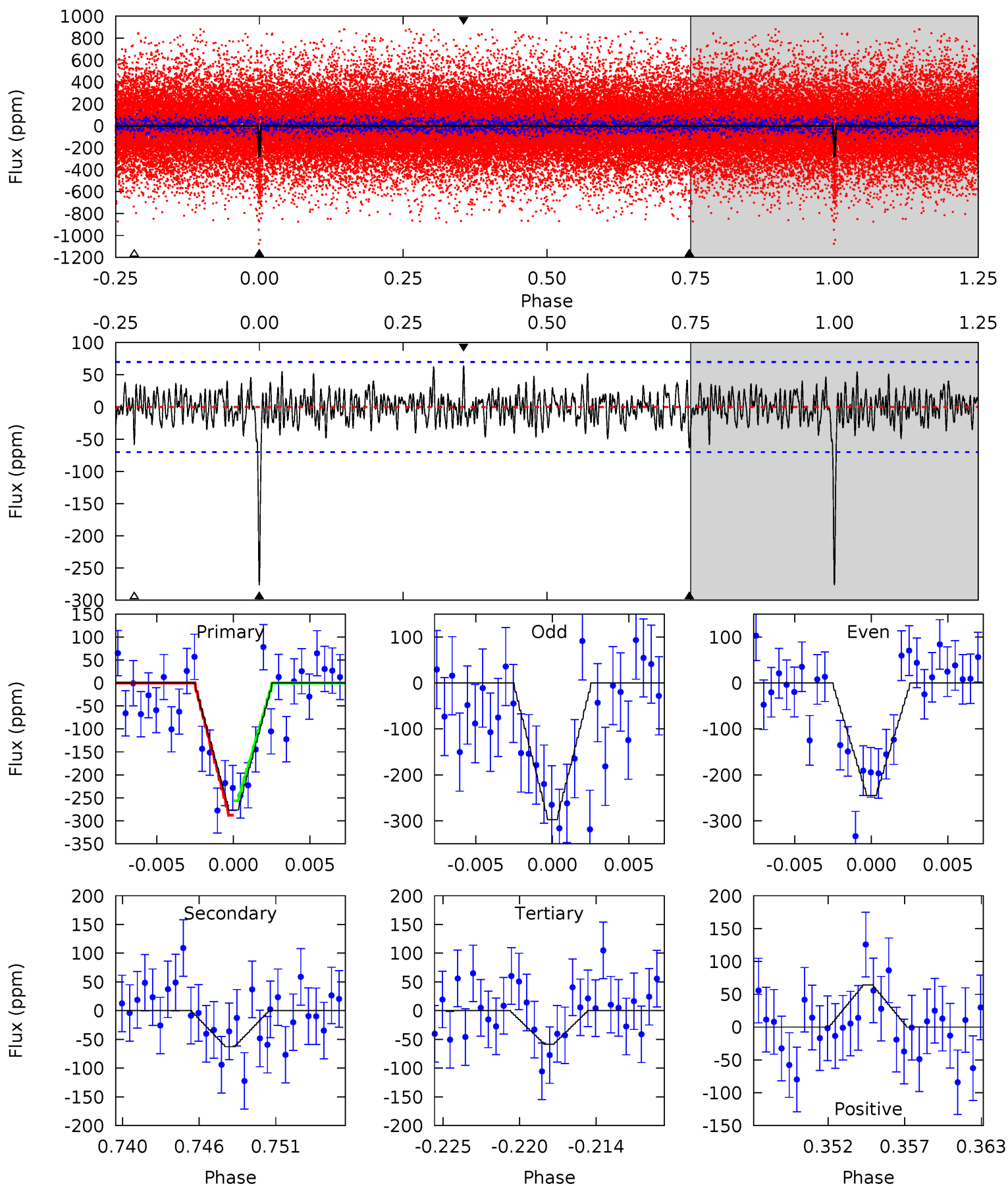
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
19.1	4.79	4.35	4.77	5.16	2.82	1.50	14.8	14.3	0.44	0.01	1.04	0.95	0.20	2.08



Alt Model-Shift Uniqueness Test

007609553-02, P = 8.856759 Days, E = 125.288539 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
20.3	4.62	4.30	4.73	5.15	2.80	1.35	16.0	15.6	0.32	-0.11	1.93	0.93	0.19	1.16



Stellar Parameters For KIC 007609553

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5017^{+151}_{-136}	$4.516^{+0.075}_{-0.067}$	$-0.020^{+0.300}_{-0.250}$	$0.797^{+0.079}_{-0.087}$	$0.760^{+0.095}_{-0.055}$	$2.117^{+0.677}_{-0.468}$
	+3%/-3%	+2%/-1%	+1500%/-1250%	+10%/-11%	+12%/-7%	+32%/-22%
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 007609553-02 / KOI 2924.02

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-75 ± 16	$1.96^{+1.09}_{-1.10}$	999^{+38}_{-39}	3547^{+1231}_{-494}	63^{+266}_{-37}
Alt.	-63 ± 14	$1.67^{+1.12}_{-1.00}$	999^{+36}_{-38}	3608^{+1460}_{-532}	73^{+364}_{-48}

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

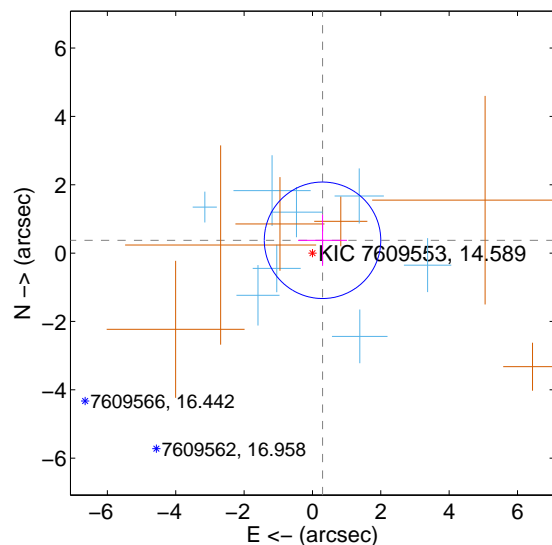
Supplemental centroid analysis for 007609553-02. Kepler magnitude: 14.59. Transit SNR 11.27

There are 8 quarters with good PRF difference image offsets

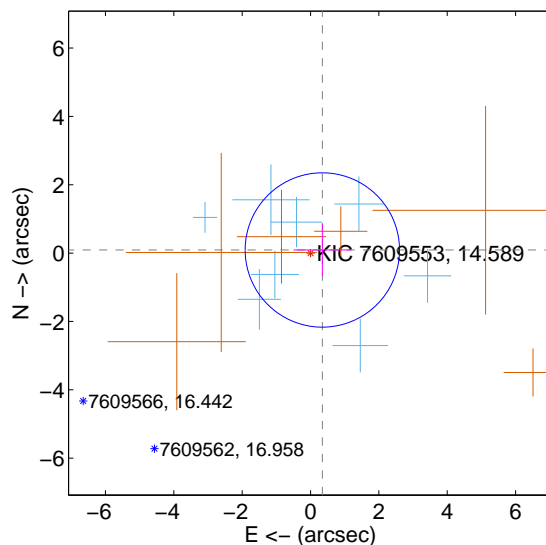
The direct PRF centroid is offset from the target star catalog position by about 0.37 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.477 ± 0.568	0.84	-0.295 ± 0.714	0.375 ± 0.748
PRF-fit source offset from KIC position	0.357 ± 0.753	0.47	-0.346 ± 0.847	0.091 ± 0.756
photometric centroid source offset	2.57 ± 1.11	2.32	-2.47 ± 1.11	-0.71 ± 1.09

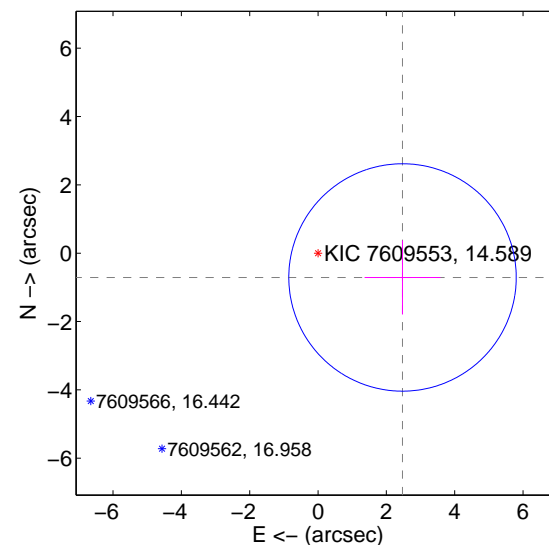
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

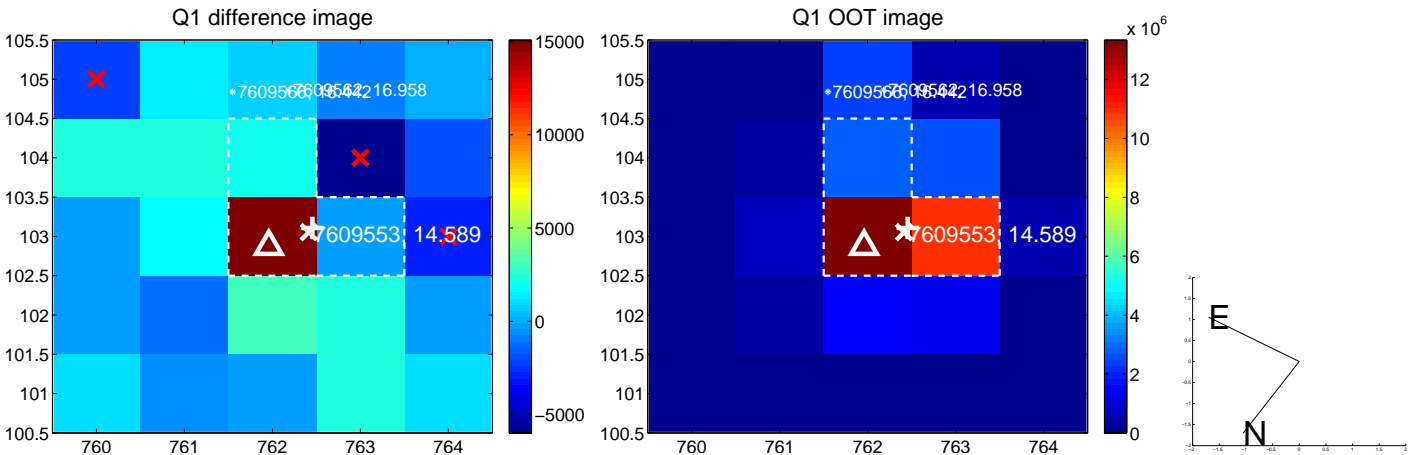


offset from photometric centroids

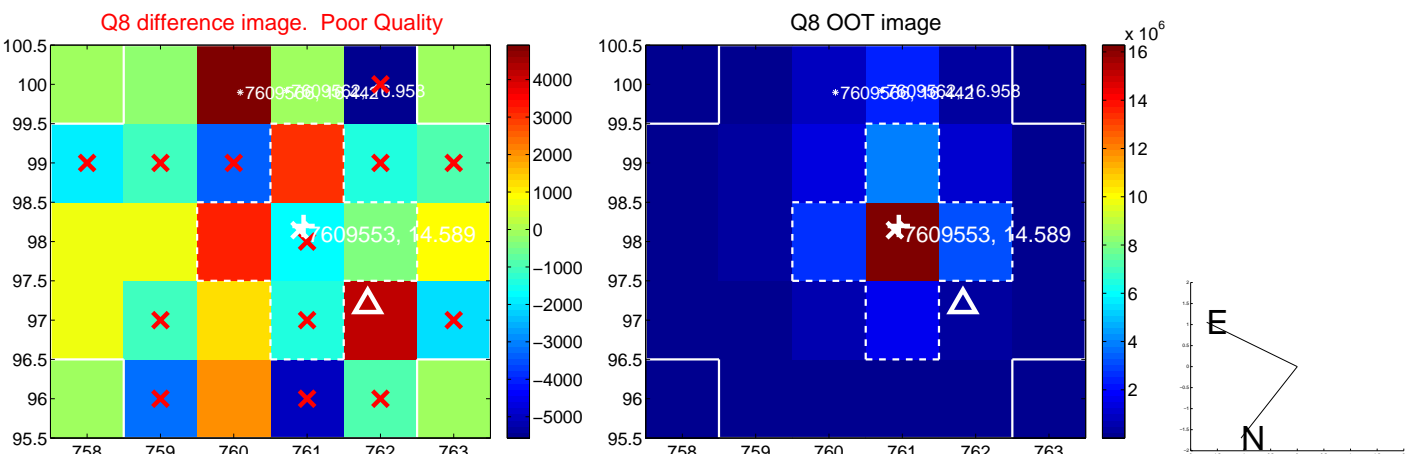
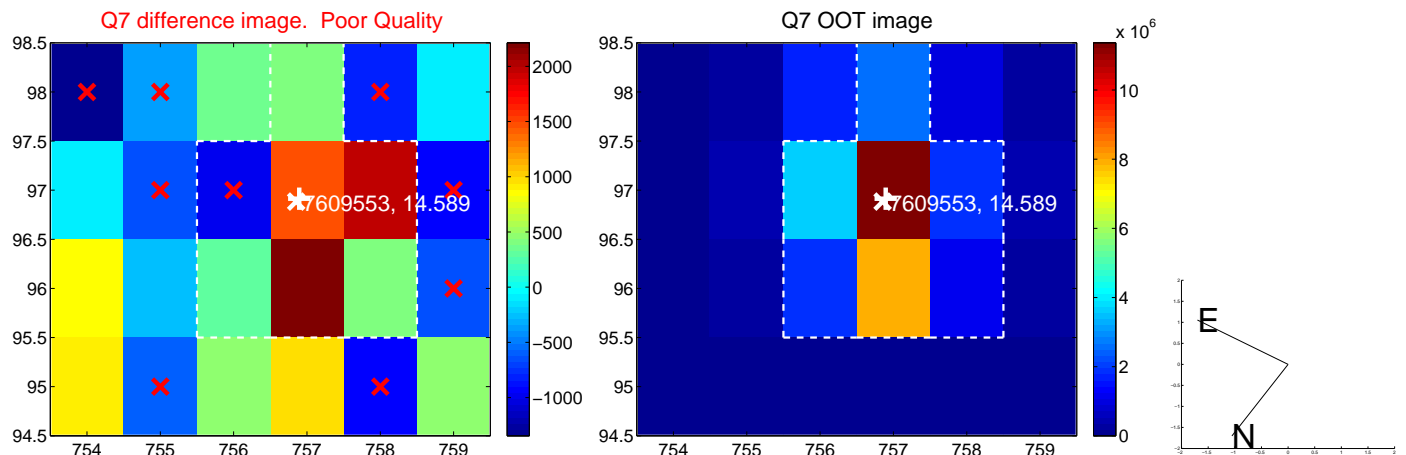
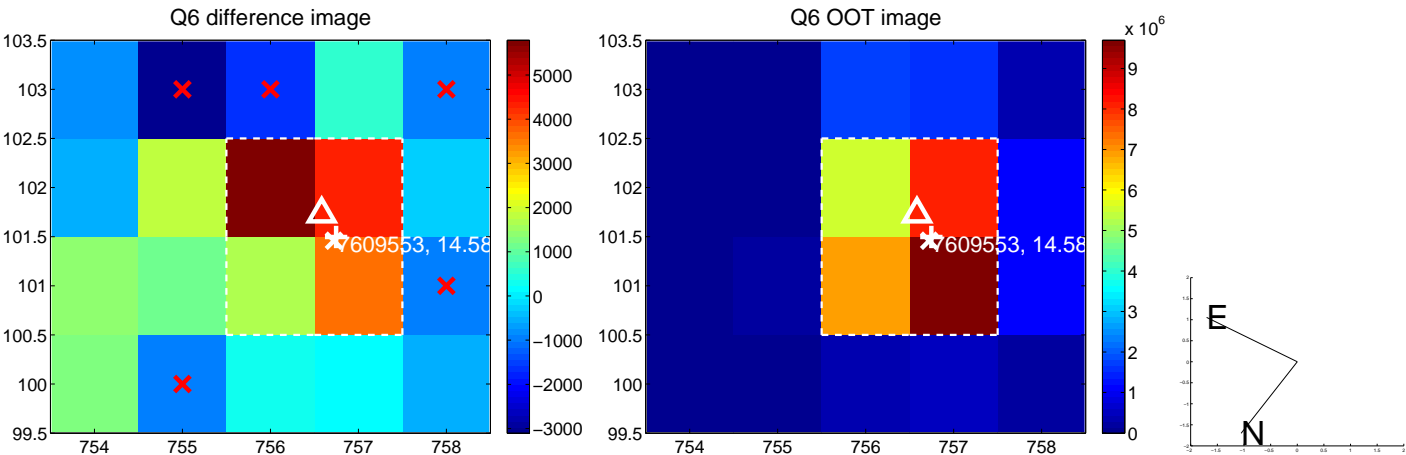
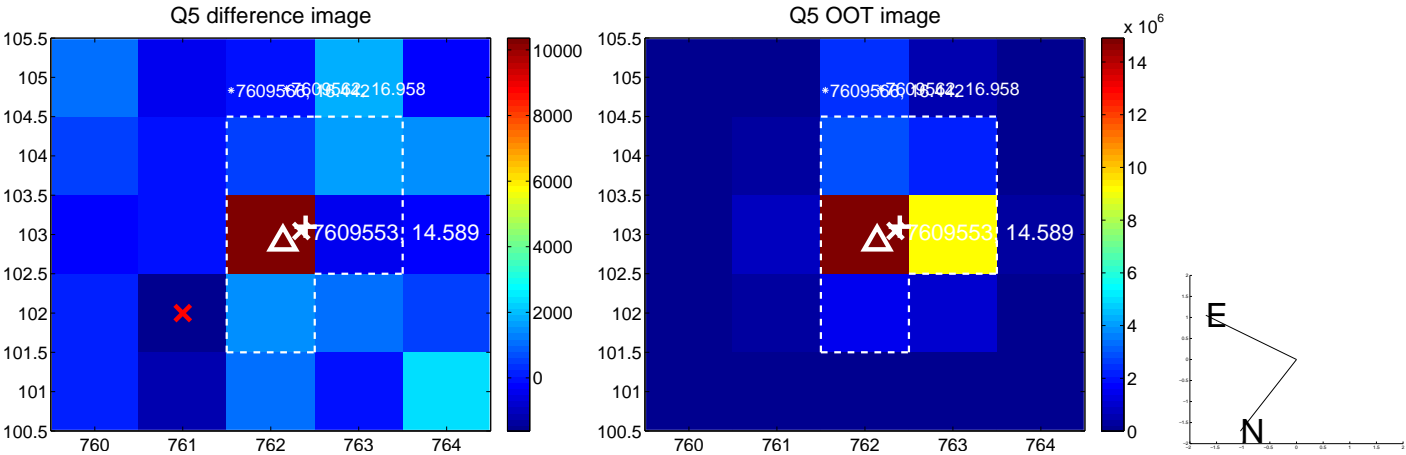


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

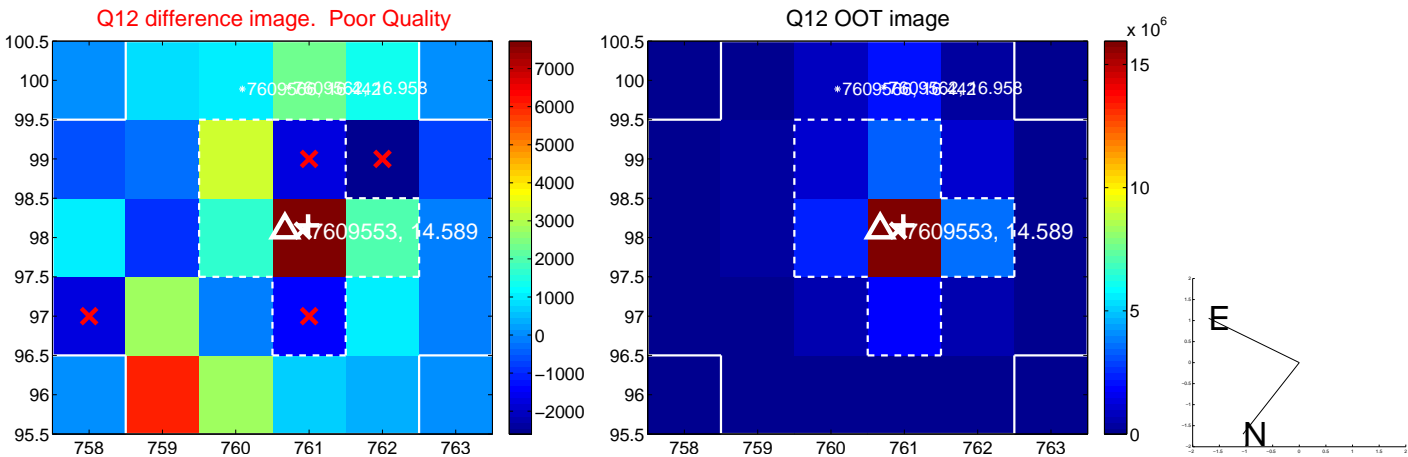
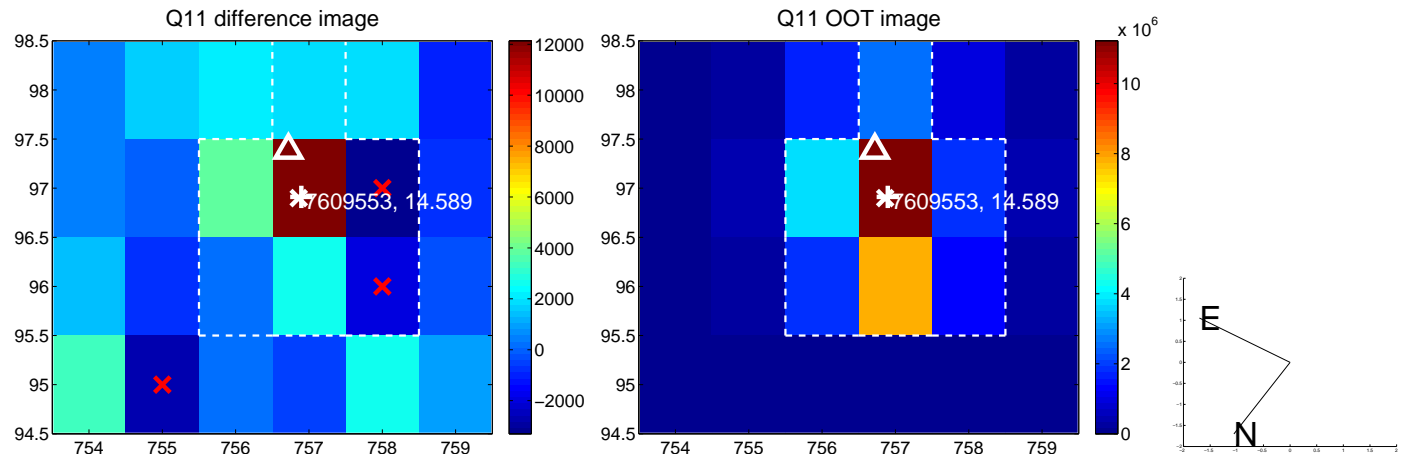
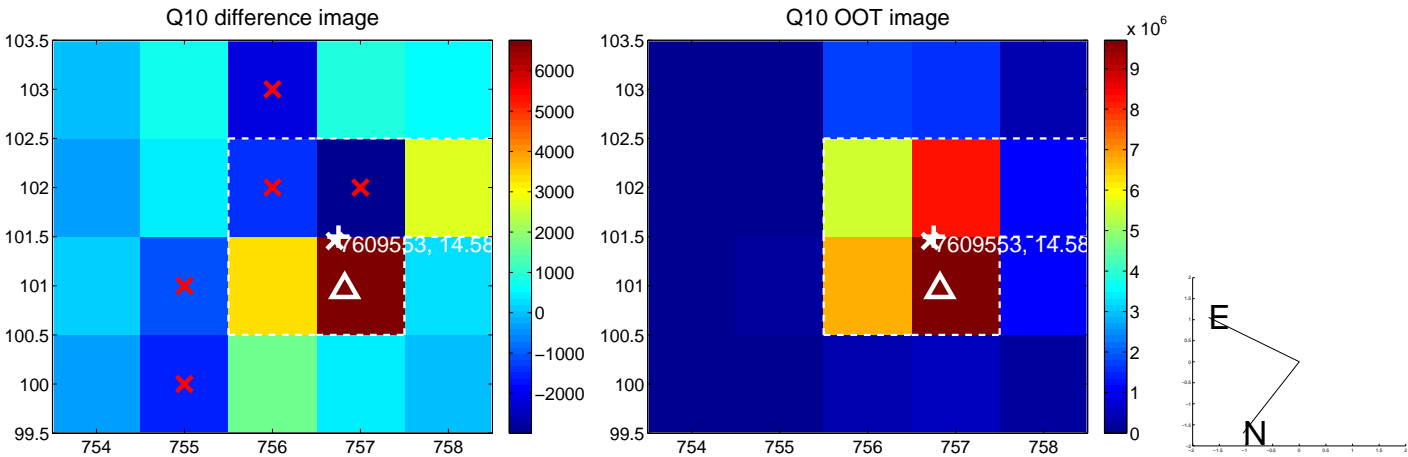
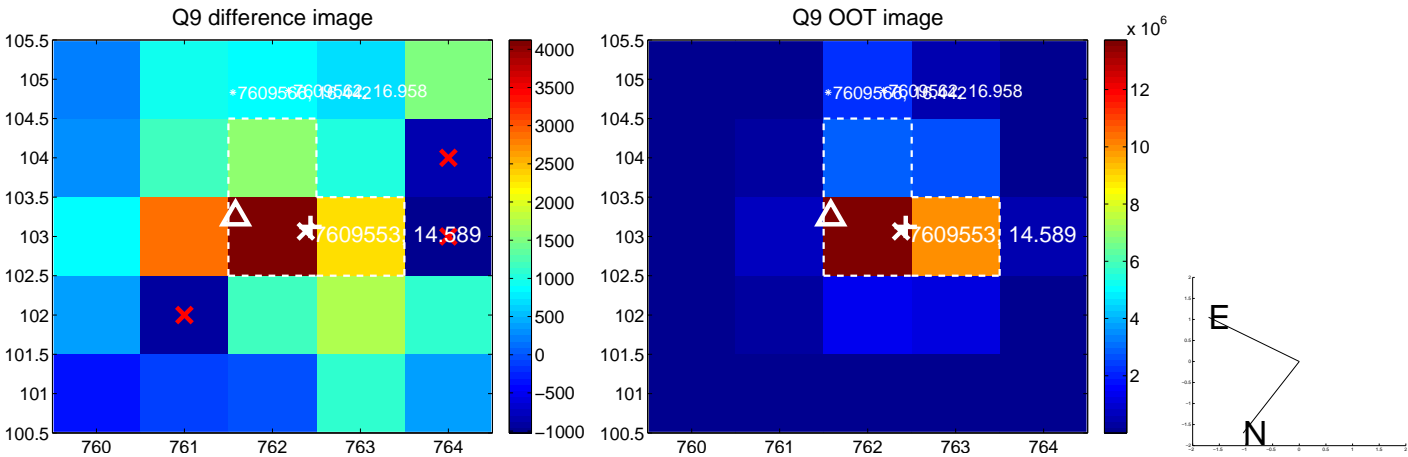
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



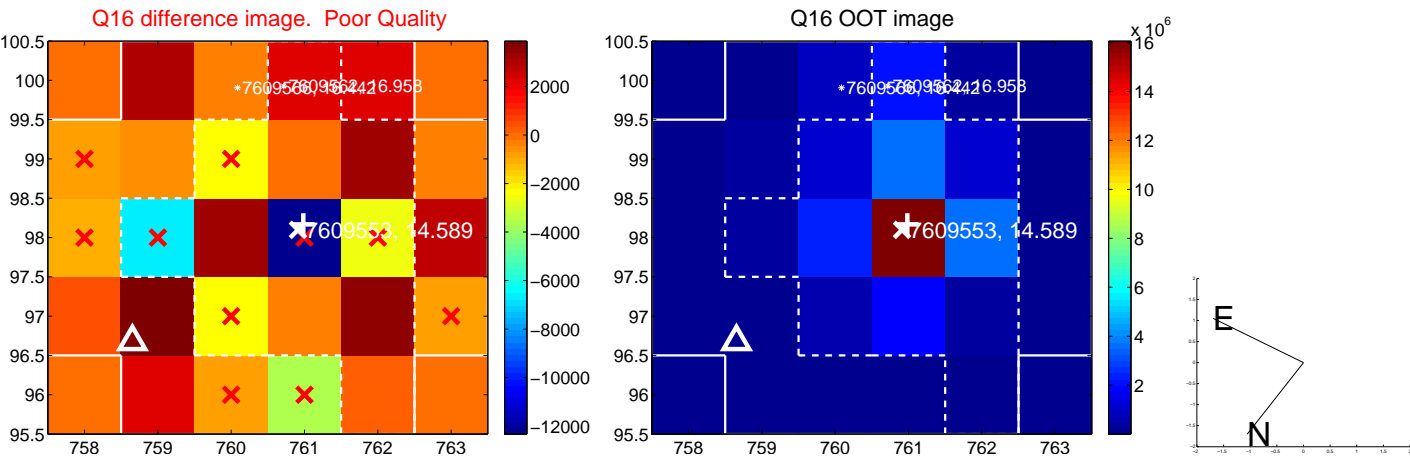
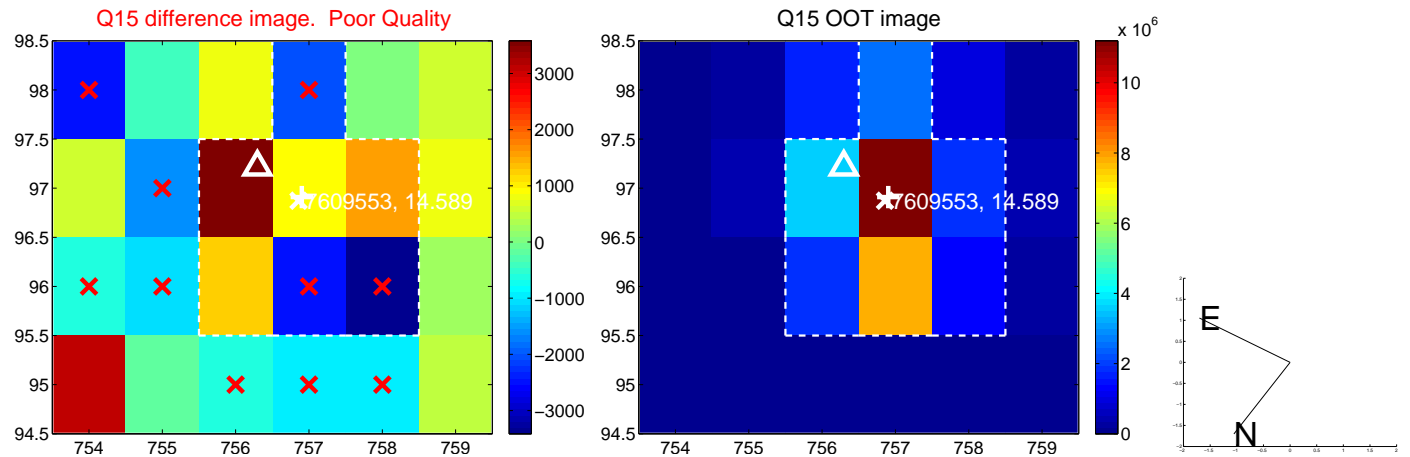
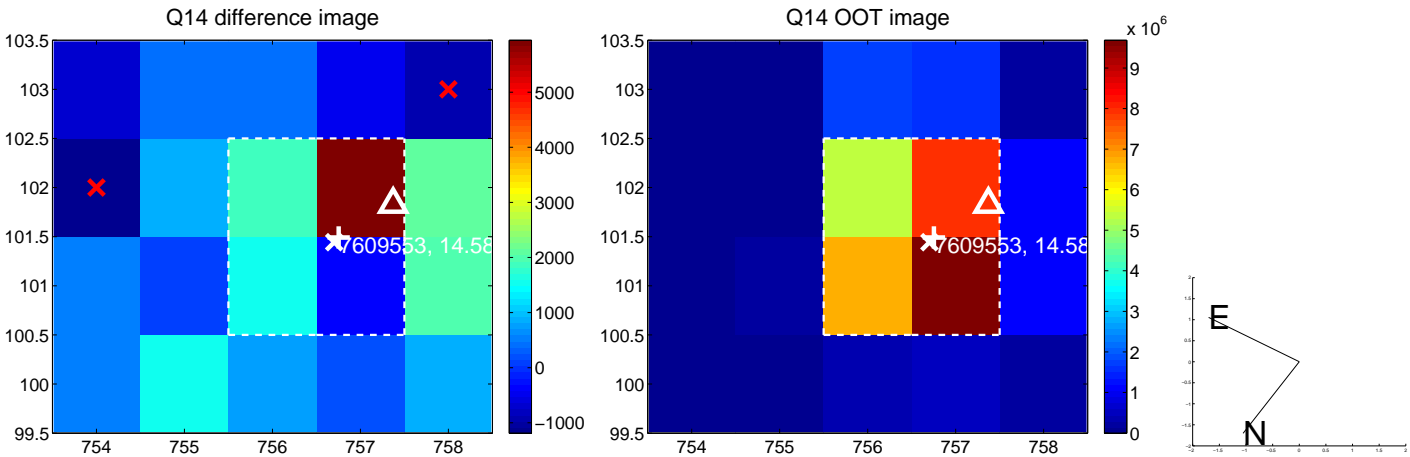
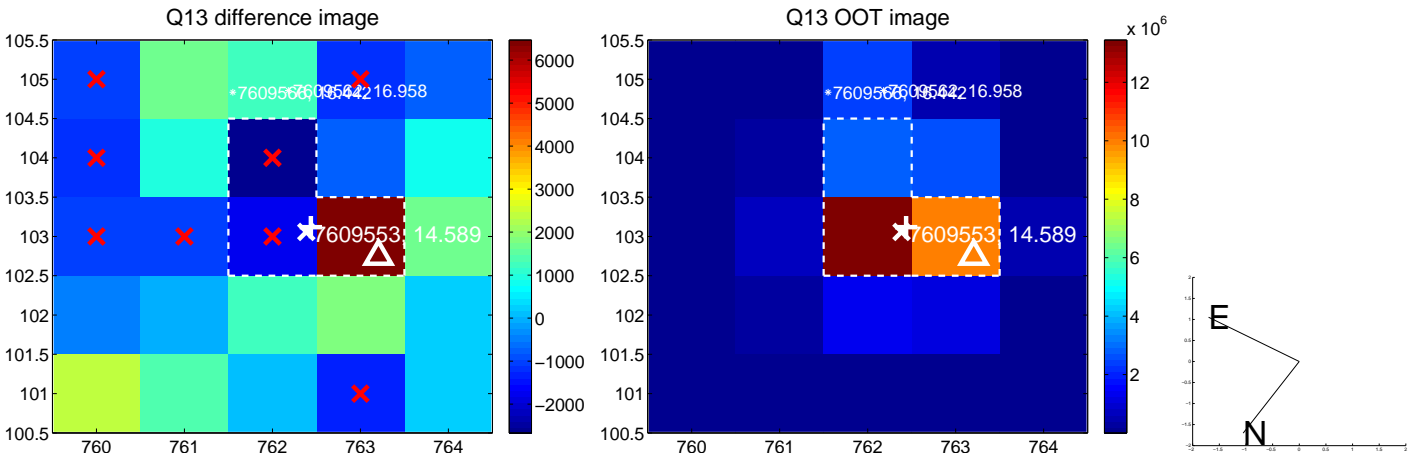
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



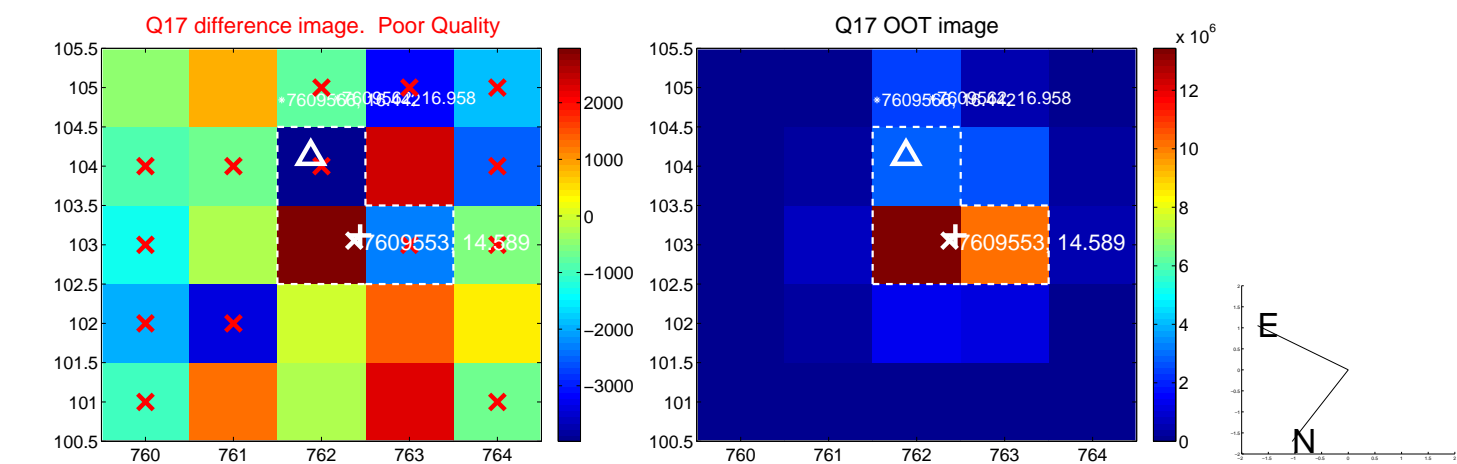
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



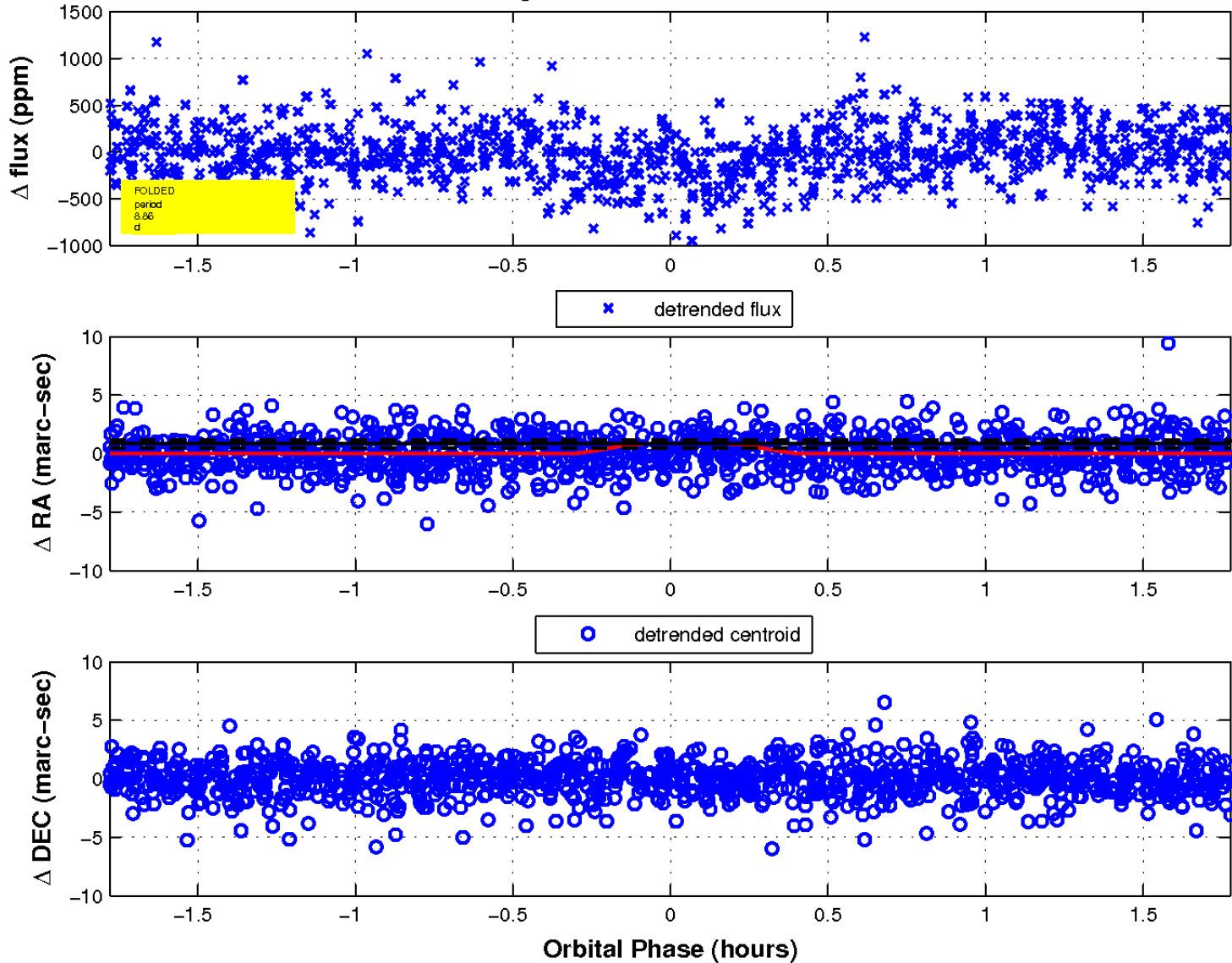
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



fluxWeightedCentroids, Planet 2 of 2



UKIRT Image

Declination

