

KIC 003529290

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})
003529290-01	OBS	3340.02	13.728195	143.548381	102.0	5.341	11.4	12.6	0.95	6168	1.08	97.17
003529290-02	OBS	3340.01	8.954176	132.827781	70.9	5.127	9.1	10.3	0.95	6168	0.97	171.79

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
003529290-01	OBS	PC	1.00	0	0	0	0	NO_COMMENT
003529290-02	OBS	PC	0.97	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.

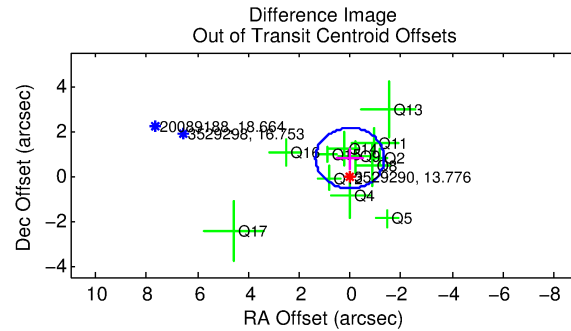
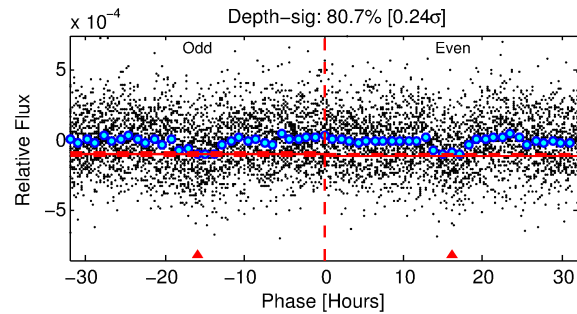
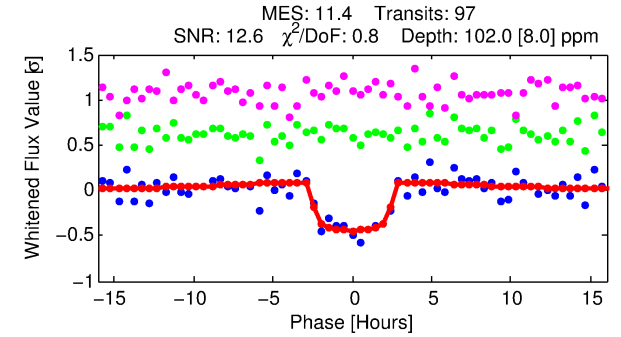
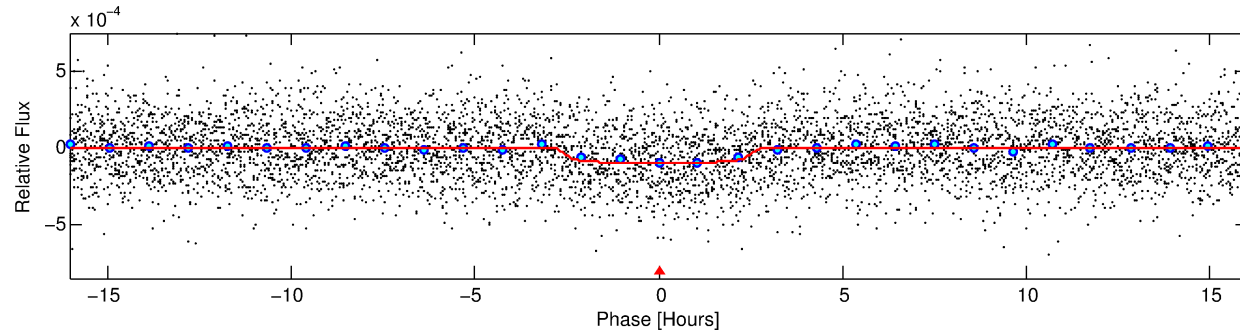
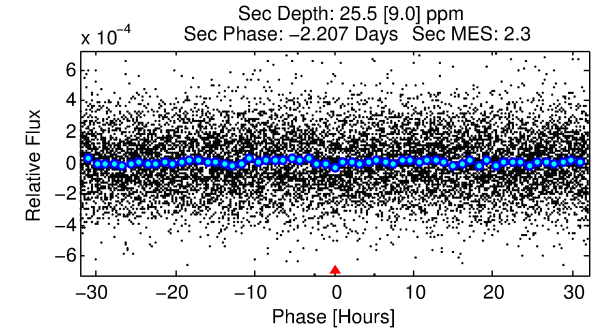
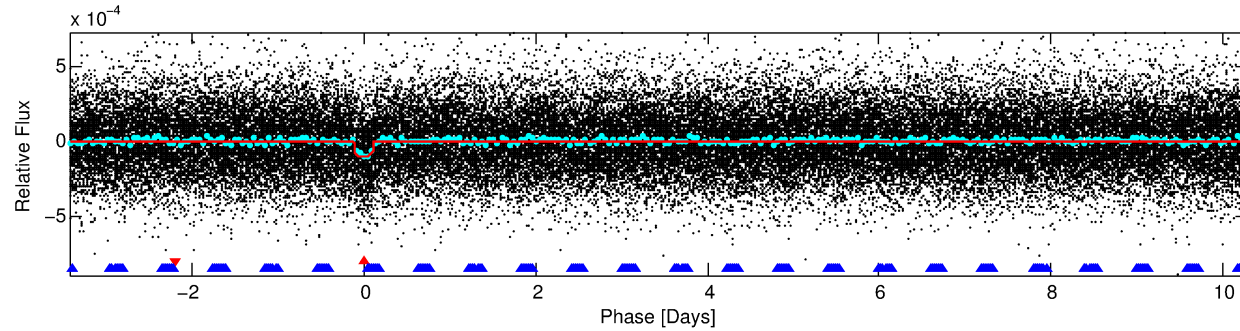
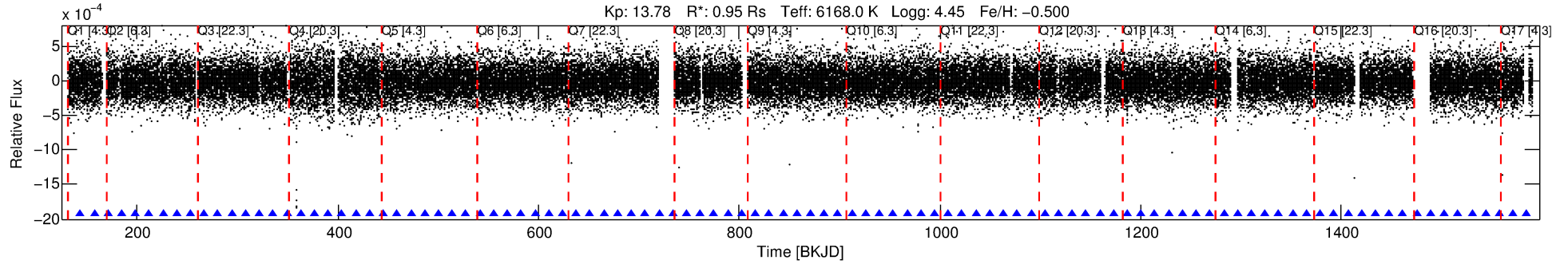
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 003529290-01

No Significant Match Found

DV One-Page Summary

KIC: 3529290 Candidate: 1 of 2 Period: 13.728 d
KOI: K03340.02 Corr: 0.978



DV Fit Results:

Period = 13.72820 [0.00012] d
Epoch = 143.5484 [0.0073] BKJD
Rp/R* = 0.0105 [0.0038]
a/R* = 10.83 [21.38]
b = 0.85 [0.67]
Seff = 97.17 [35.18]
Teq = 801 [72] K
Rp = 1.08 [0.49] Re
a = 0.1094 [0.0253] AU
Ag = 143.51 [126.57] [1.13σ]
Teffp = 4284 [880] K [3.94σ]

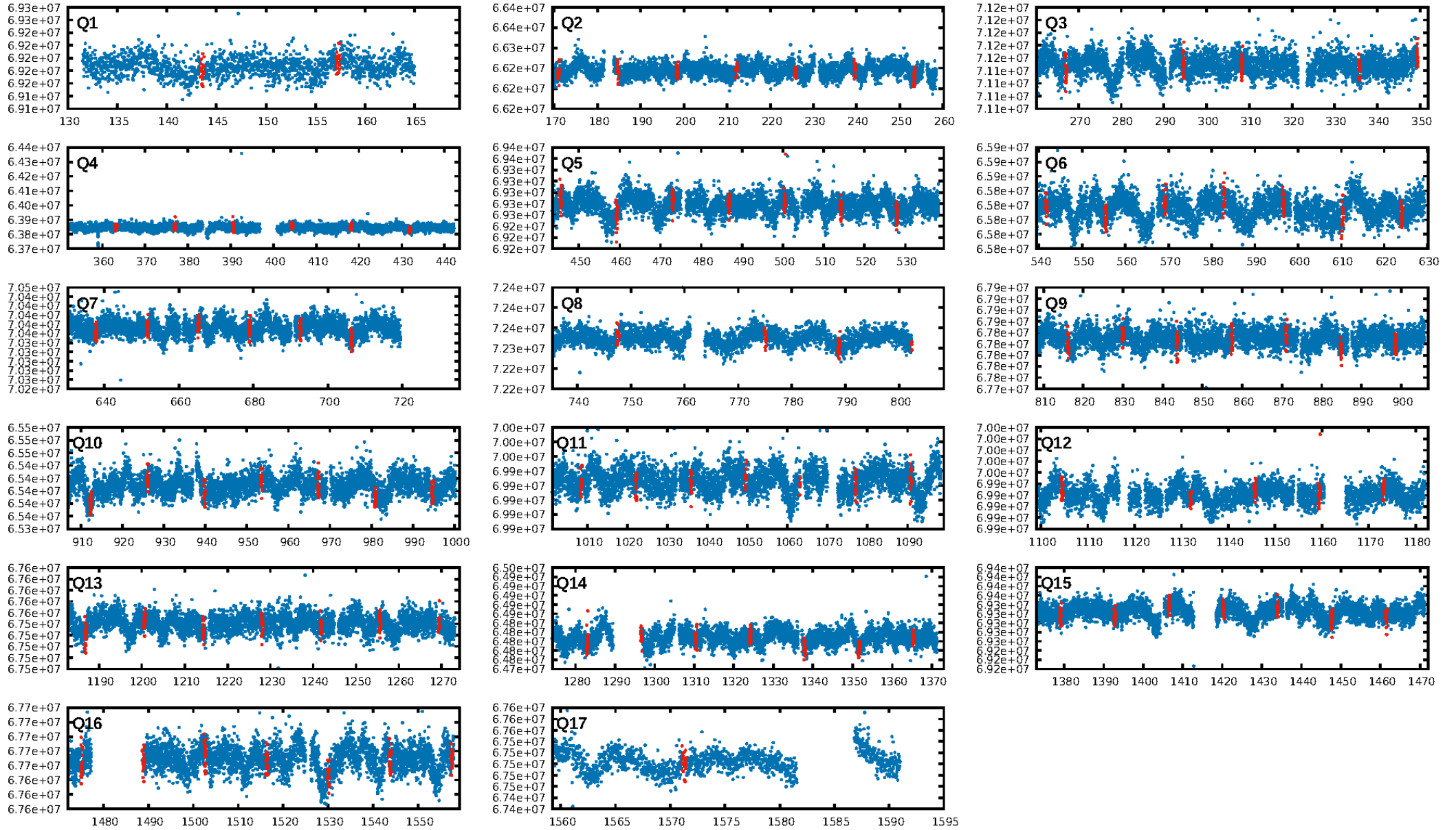
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [15.48σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 82.7%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 7.38e-30
RollingBand-fgt: 1.00 [94/94]
GhostDiagnostic-chr: 3.121
Centroid-sig: 10.9%
Centroid-so: 1.650 arcsec [1.55σ]
OotOffset-rm: 0.786 arcsec [1.74σ]
KicOffset-rm: 0.799 arcsec [1.75σ]
OotOffset-st: 2/2/4/4 [12]
KicOffset-st: 2/2/4/4 [12]
DiffImageQuality-fgm: 0.50 [6/12]
DiffImageOverlap-fno: 1.00 [17/17]

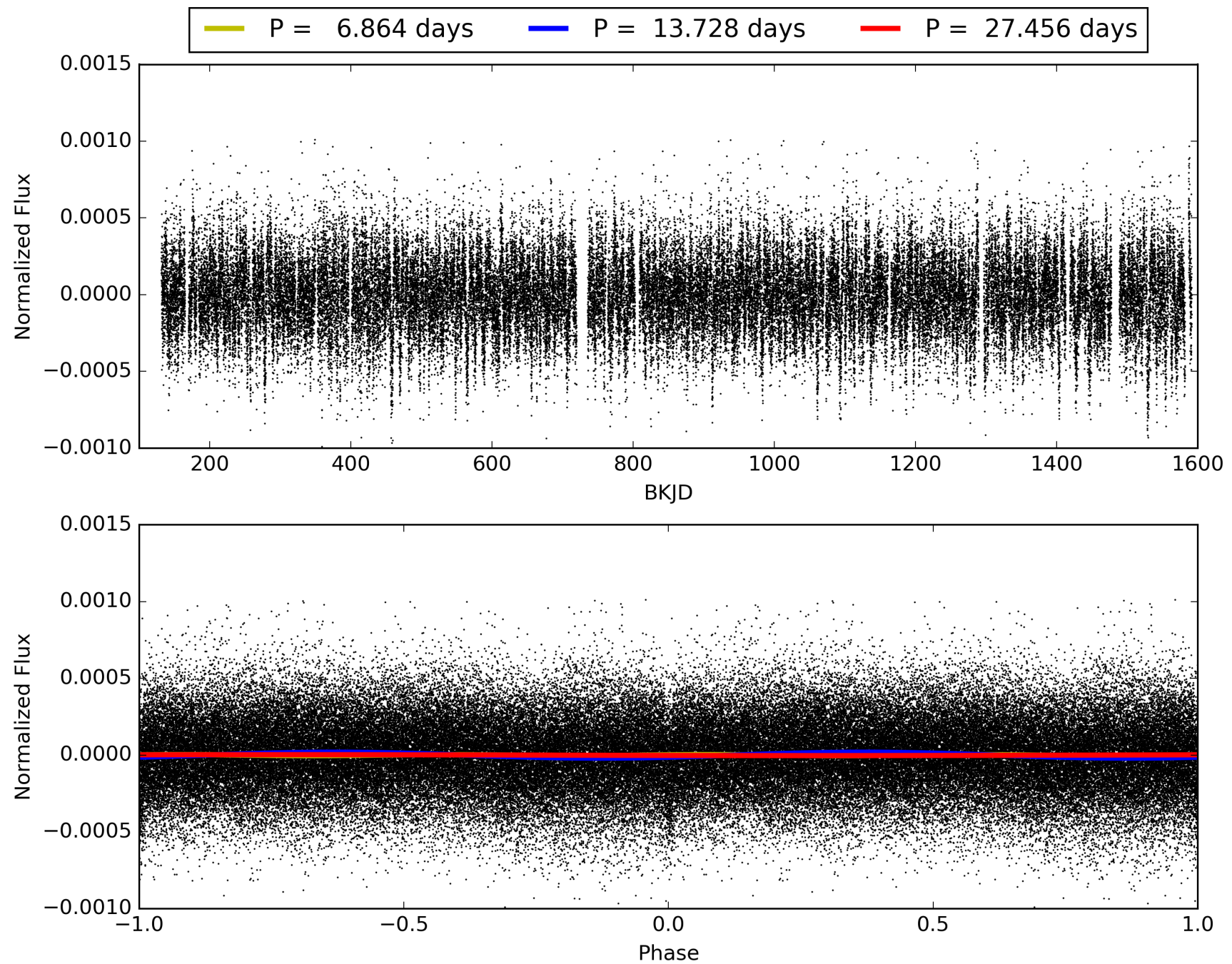
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 01:12:20 Z

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

TCE 003529290-01, PDC Light Curves

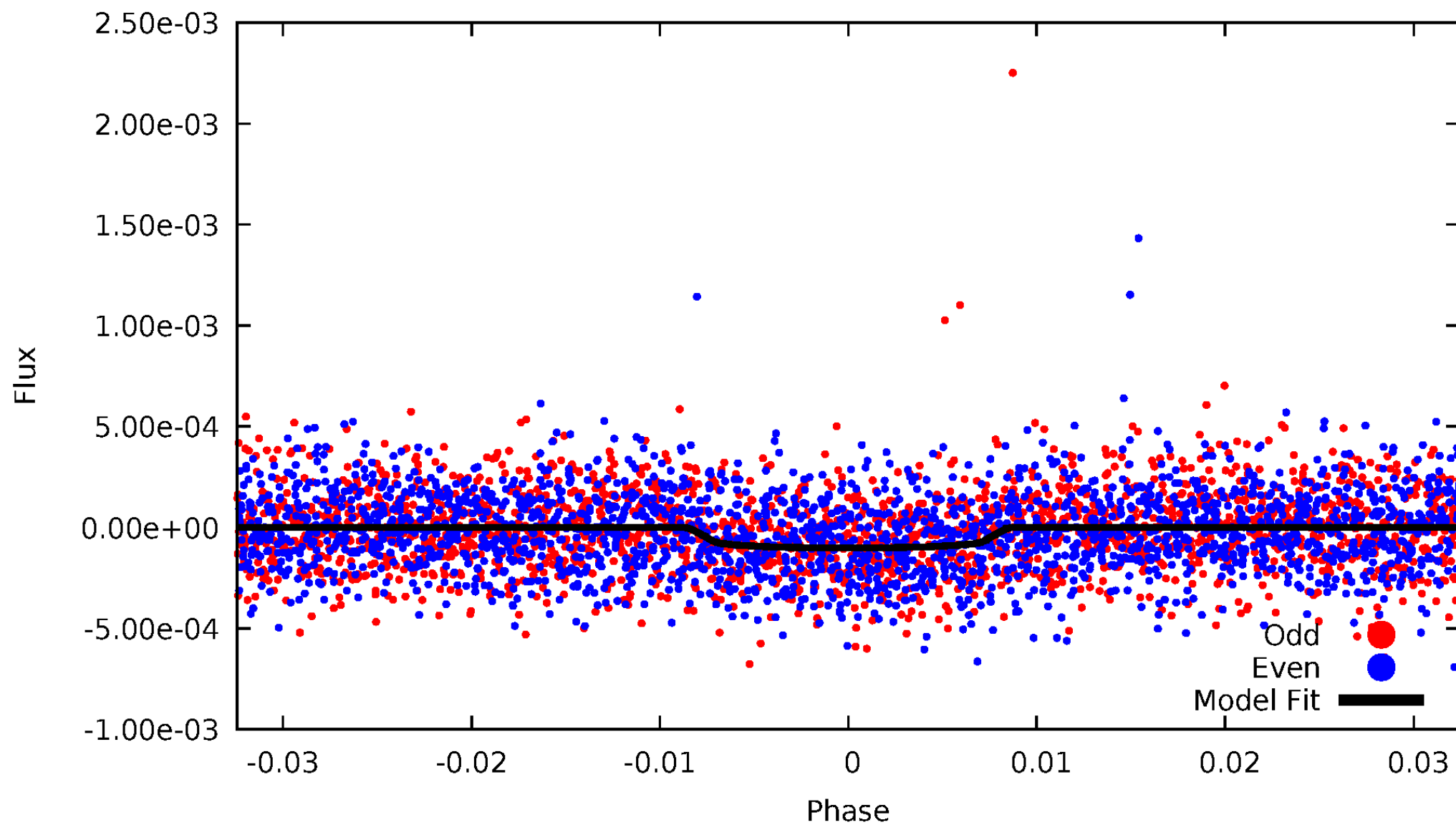


TCE 003529290-01



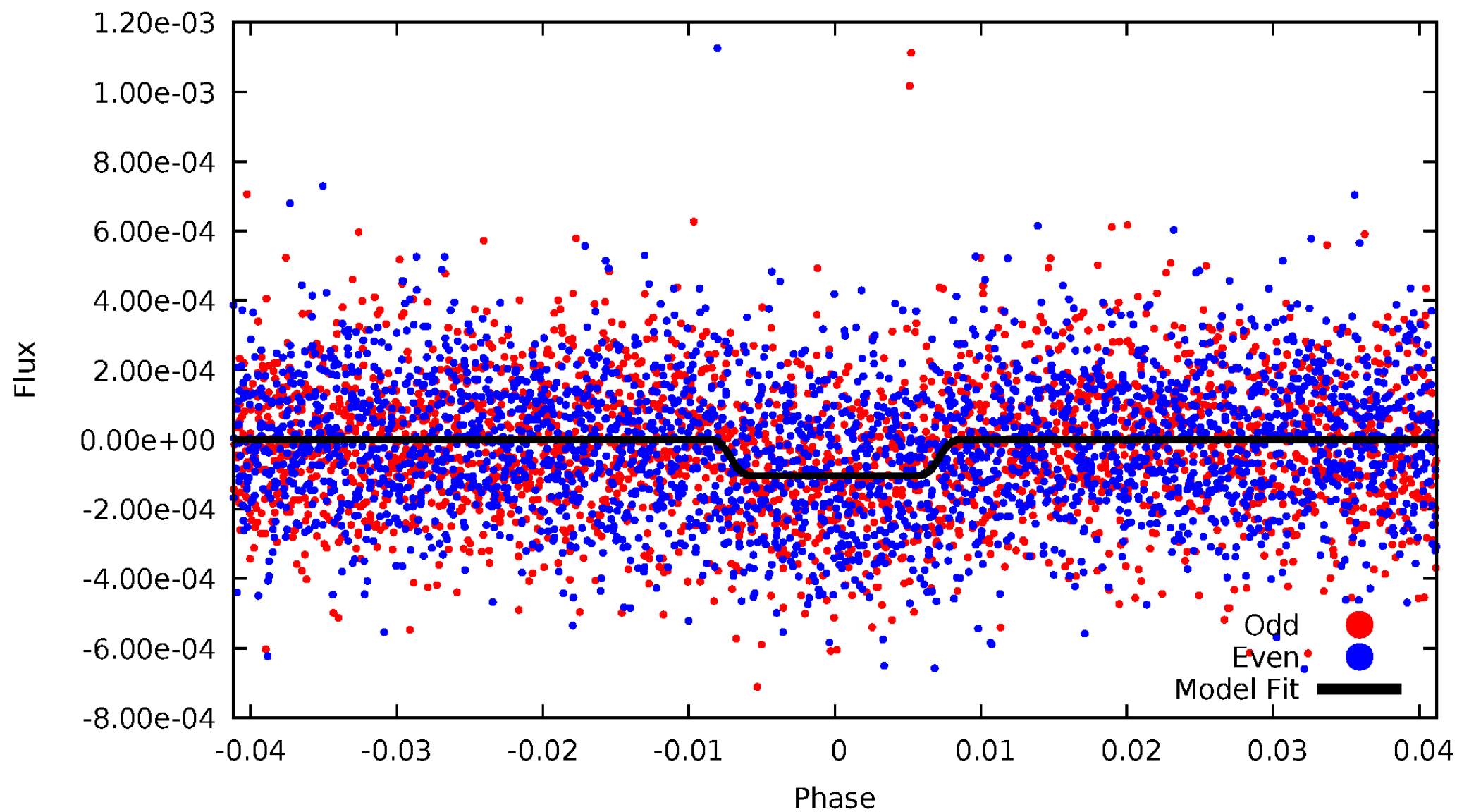
DV Odd/Even

TCE 003529290-01

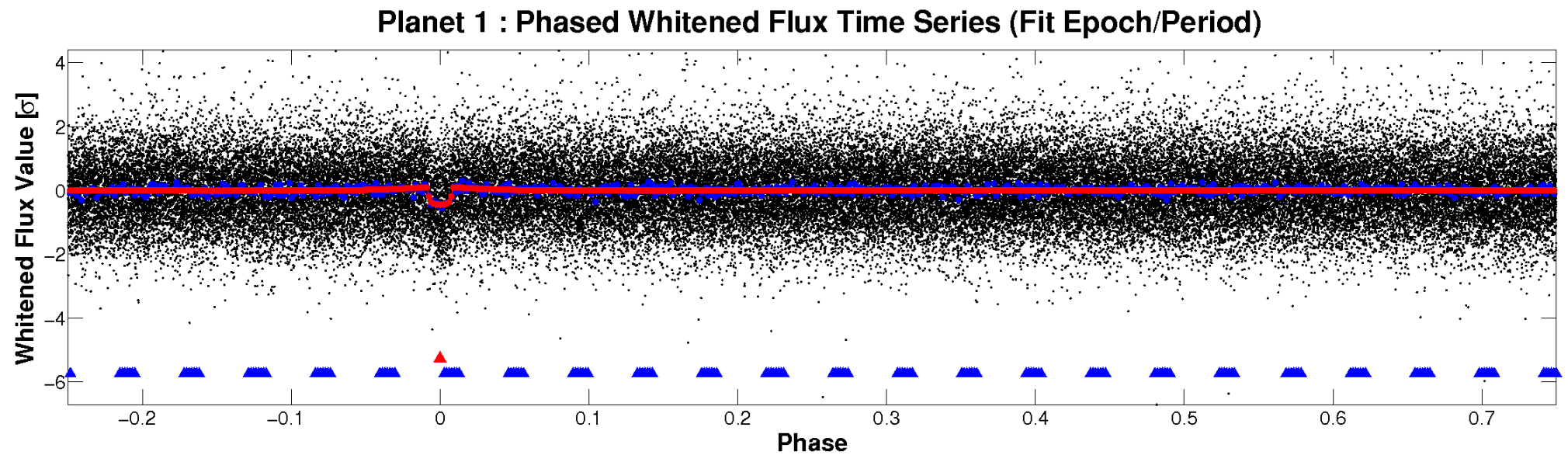
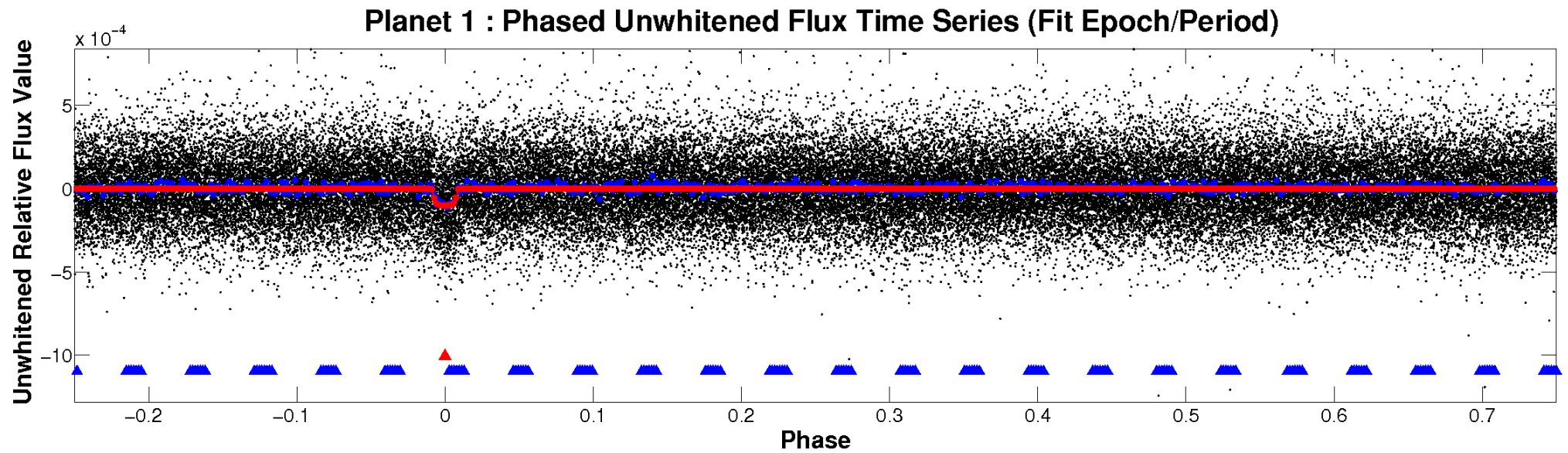


ALT Odd/Even

TCE 003529290-01

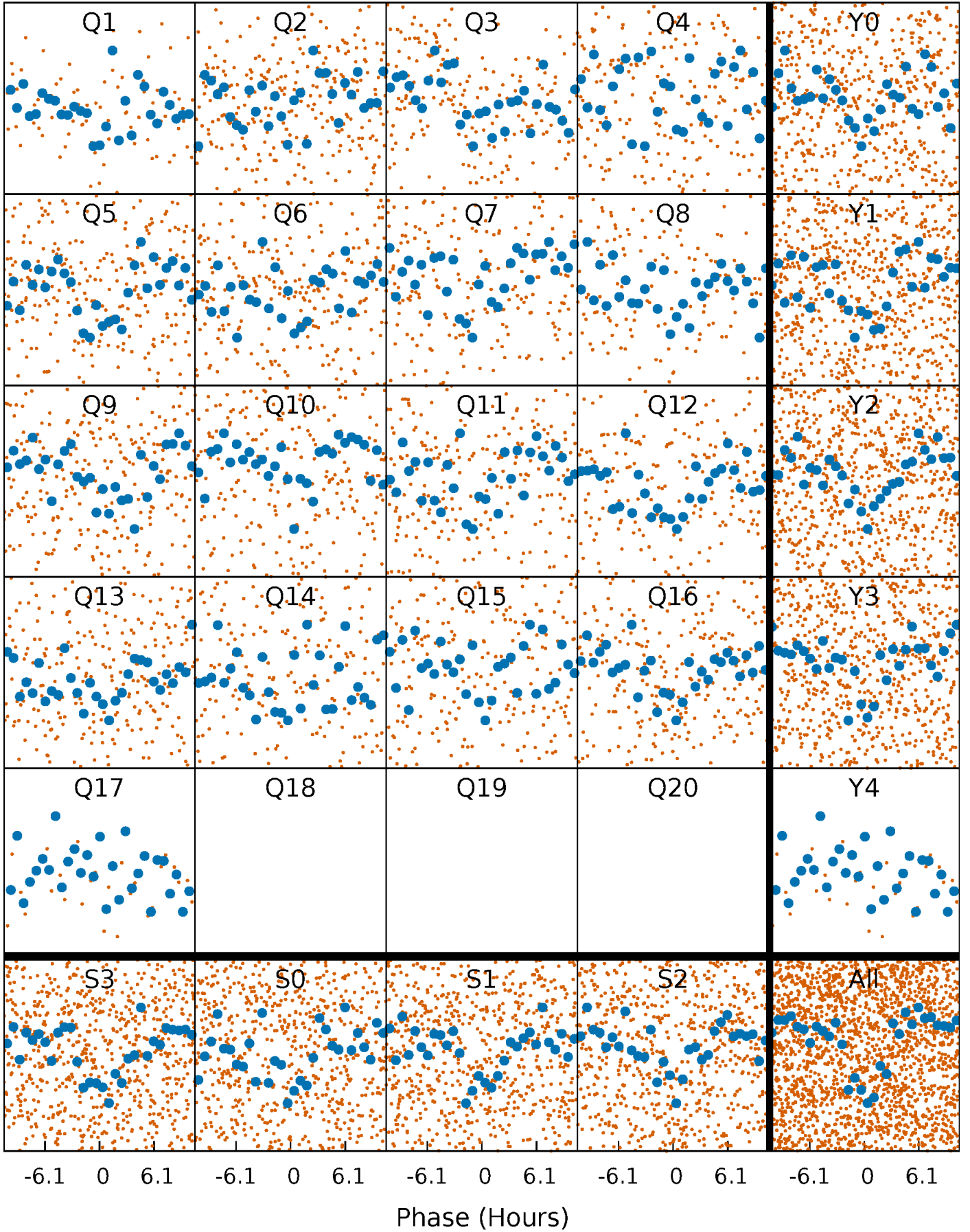


Non-Whitened Vs. Whitened Light Curve



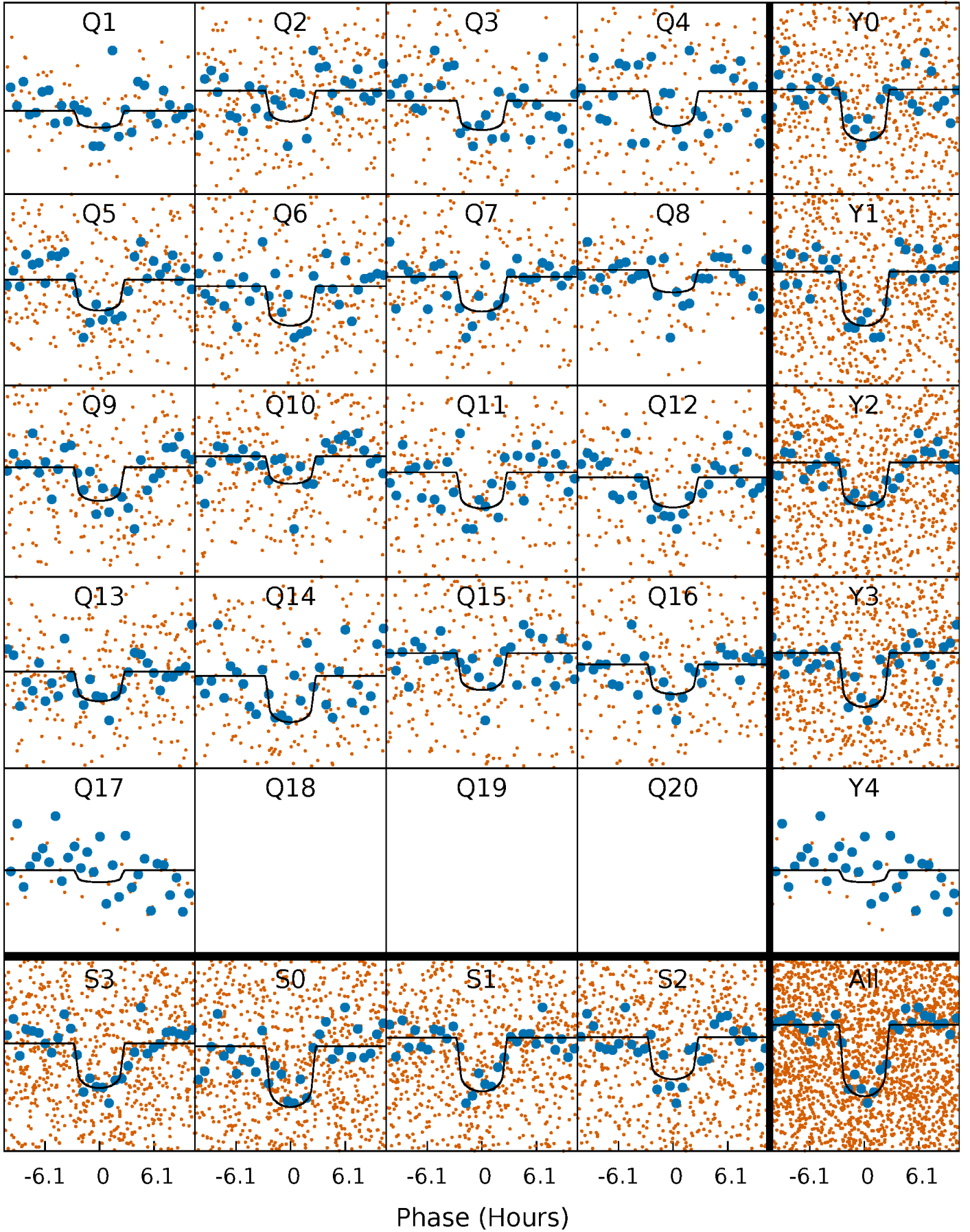
PDC Quarter-Phased Transit Curves

TCE 003529290-01 P= 13.728195 Days $T_0=143.548381$ (BKJD)



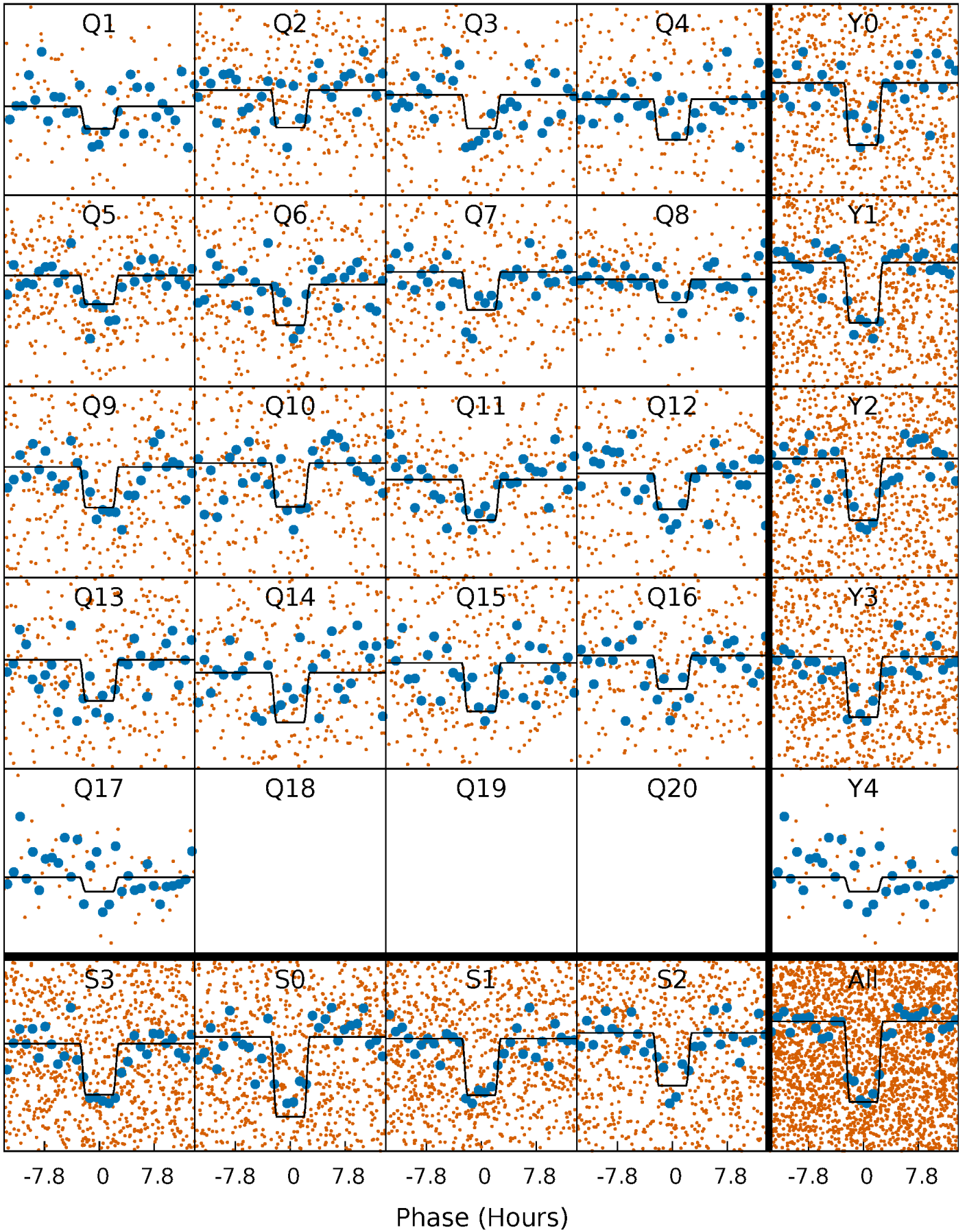
DV Quarter-Phased Transit Curves

TCE 003529290-01 P= 13.728195 Days $T_0=143.548381$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

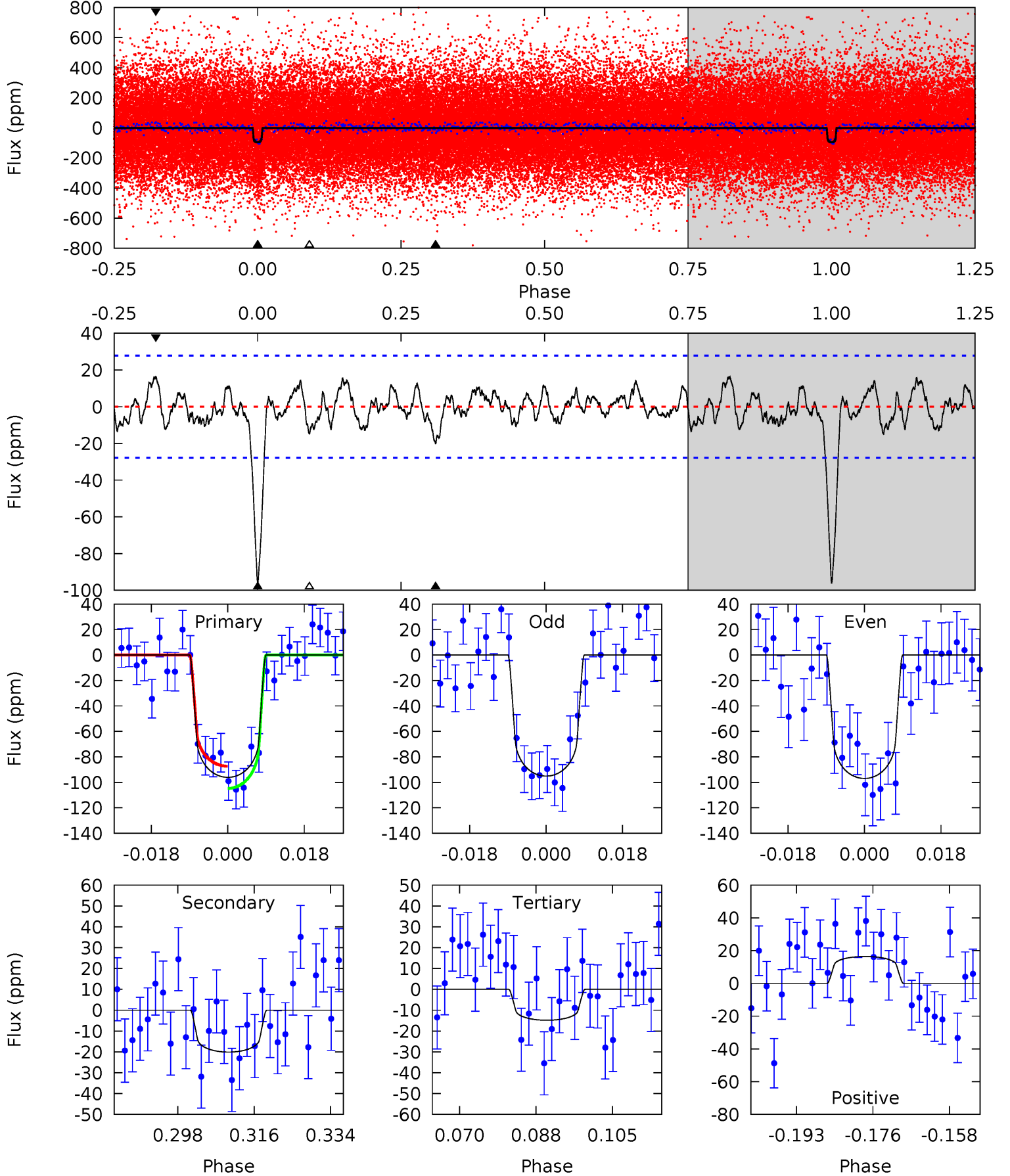
TCE 003529290-01 P= 13.728344 Days $T_0=143.546045$ (BKJD)



DV Model-Shift Uniqueness Test

003529290-01, P = 13.728195 Days, E = 129.820186 Days

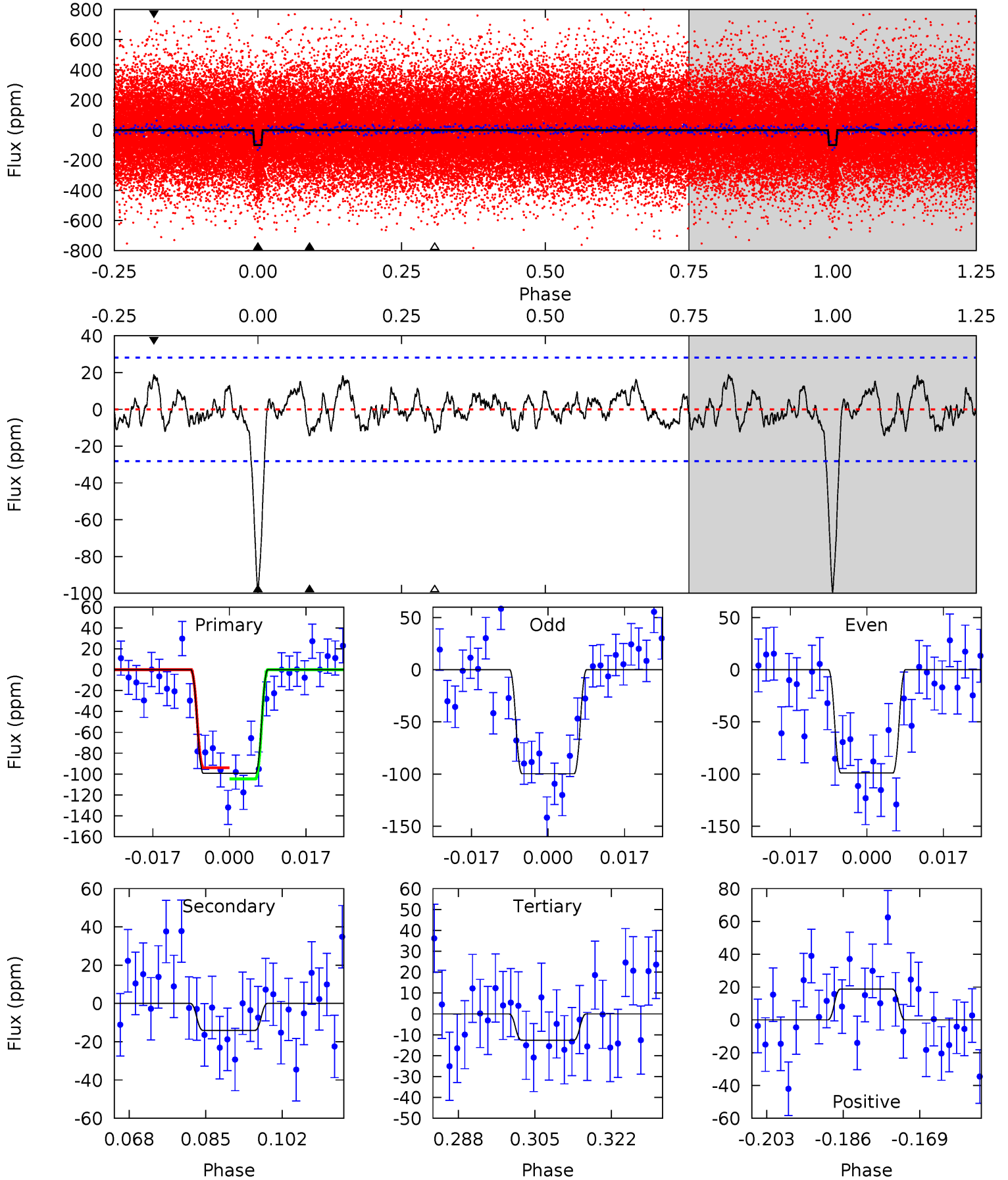
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
17.0	3.55	2.62	2.90	4.92	2.37	1.13	14.4	14.1	0.93	0.65	0.16	1.07	0.15	1.54



Alt Model-Shift Uniqueness Test

003529290-01, $P = 13.728344$ Days, $E = 129.817701$ Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
17.3	2.45	2.20	3.27	4.92	2.39	1.12	15.1	14.1	0.25	-0.82	0.06	0.98	0.16	0.93



Stellar Parameters For KIC 003529290

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6168^{+166}_{-185}	$4.452^{+0.081}_{-0.189}$	$-0.500^{+0.300}_{-0.300}$	$0.947^{+0.256}_{-0.118}$	$0.925^{+0.116}_{-0.095}$	$1.533^{+0.547}_{-0.782}$
	+3%/-3%	+2%/-4%	+60%/-60%	+27%/-12%	+13%/-10%	+36%/-51%
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 003529290-01 / KOI 3340.02

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-20 ± 6	$1.11^{+0.47}_{-0.42}$	1132^{+74}_{-55}	4273^{+959}_{-523}	107^{+183}_{-58}
Alt.	-14 ± 6	$1.08^{+0.46}_{-0.40}$	1132^{+83}_{-56}	4027^{+856}_{-568}	76^{+130}_{-43}

T_{max} = Theoretical Maximum Planetary Temperature

T_{obs} = Observed Planetary Temperature (Assuming $A=0.3$)

A_{obs} = Observed Albedo (Assuming $T=0$)

If a secondary eclipse is present, the system is likely an EB if $T_{obs} \gg T_{max}$ AND $A_{obs} \gg 1.0$

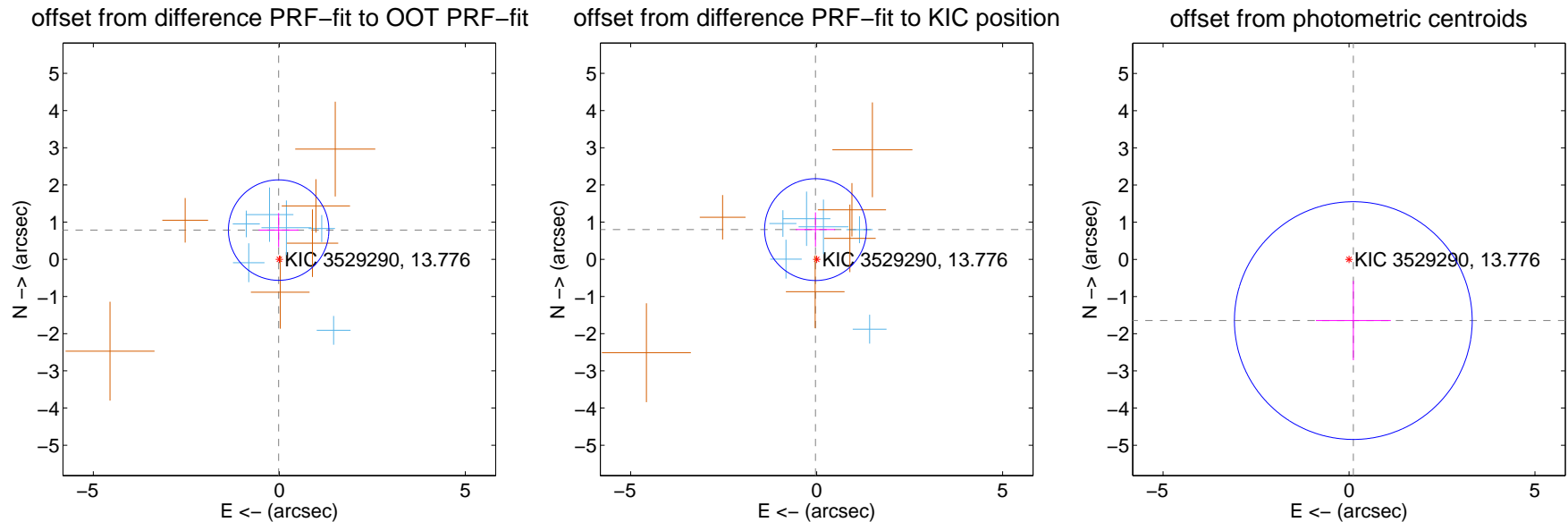
DV Centroid Data

Supplemental centroid analysis for 003529290-01. Kepler magnitude: 13.78. Transit SNR 12.58

There are 6 quarters with good PRF difference image offsets

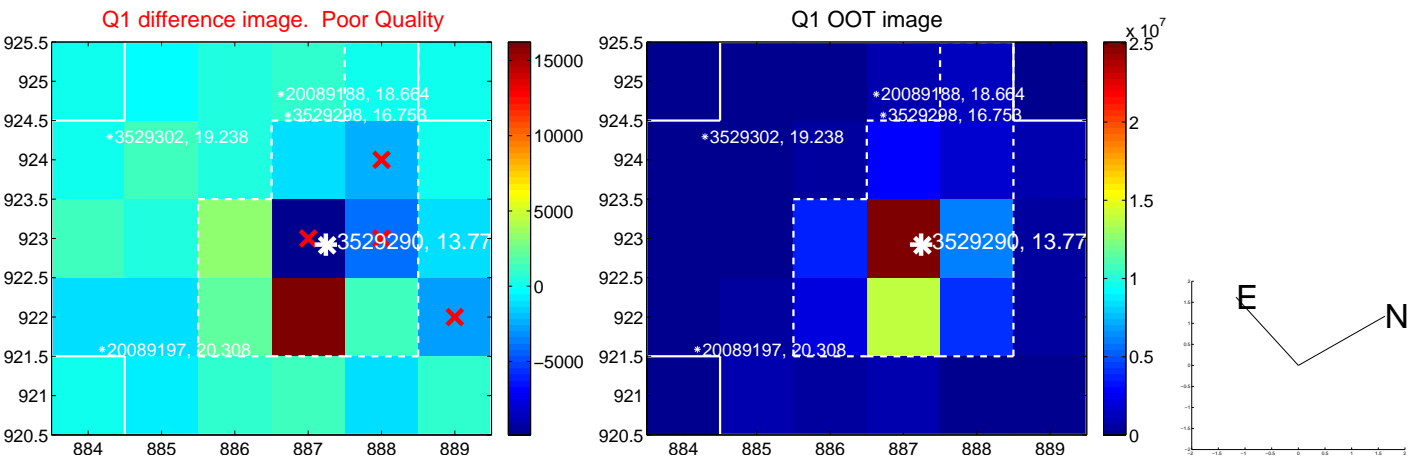
The direct PRF centroid is offset from the target star catalog position by about 0.05 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.786 ± 0.450	1.74	0.018 ± 0.536	0.786 ± 0.456
PRF-fit source offset from KIC position	0.799 ± 0.456	1.75	0.031 ± 0.529	0.799 ± 0.463
photometric centroid source offset	1.65 ± 1.07	1.55	-0.12 ± 1.01	-1.65 ± 1.07

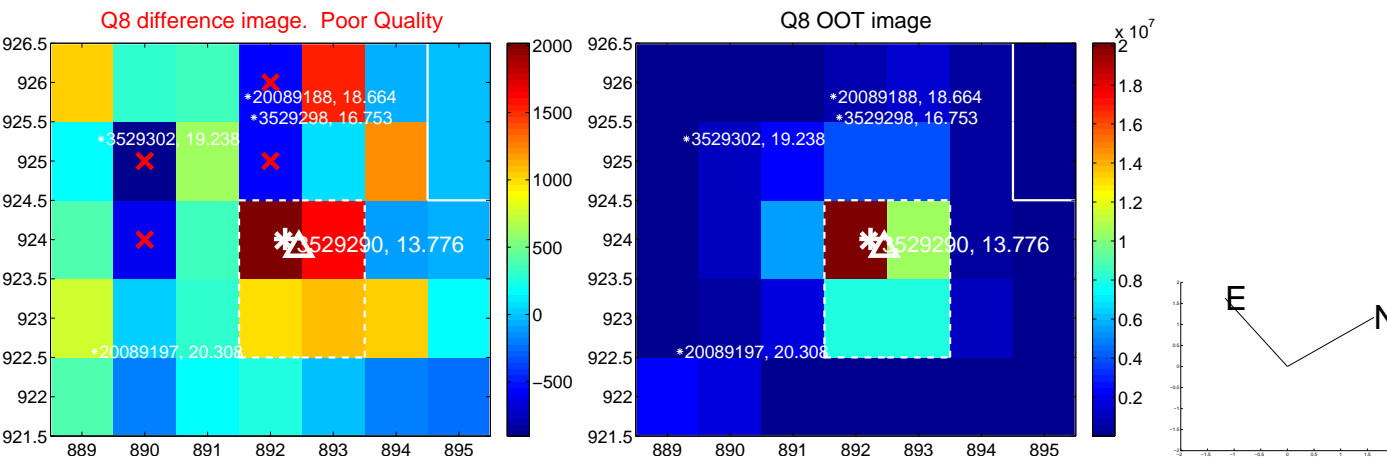
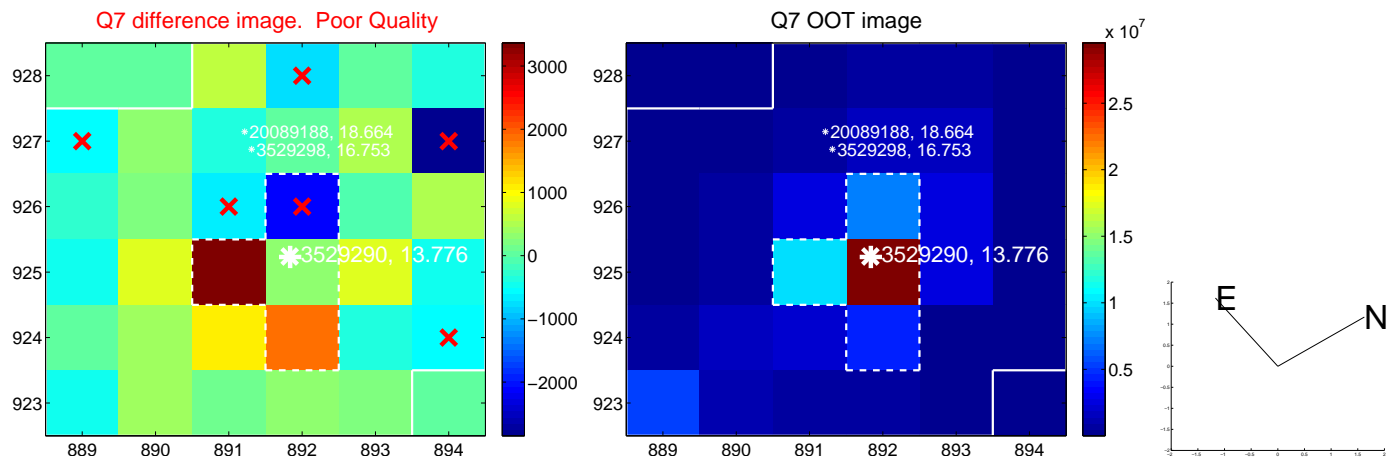
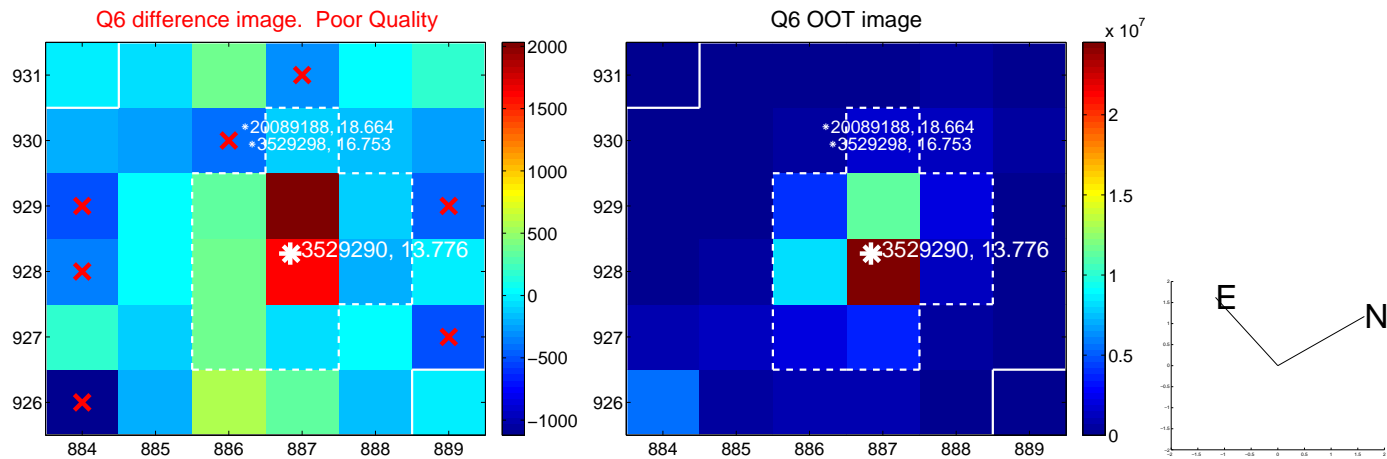
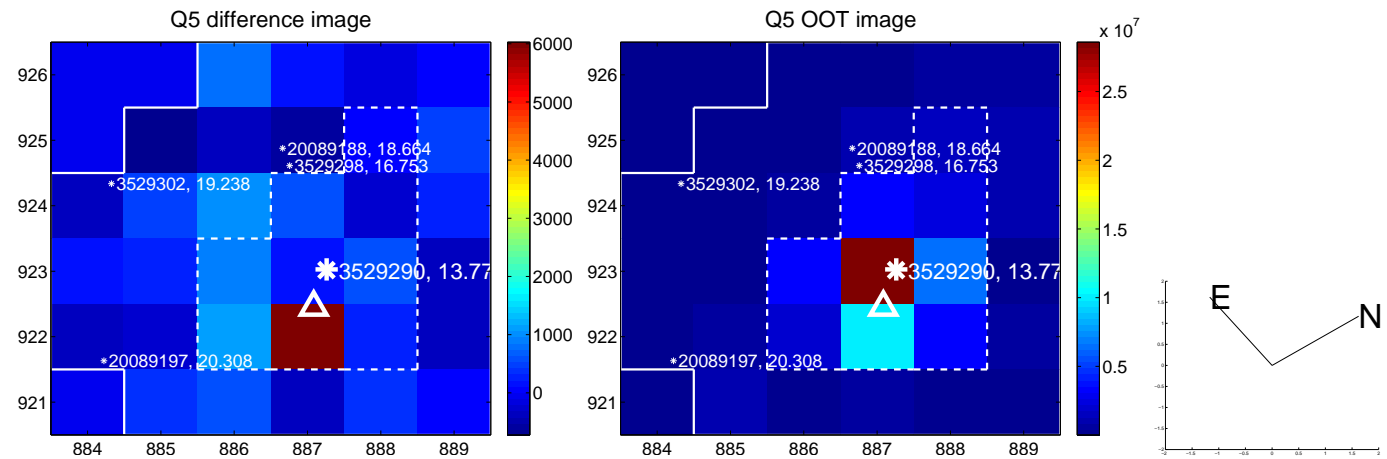


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

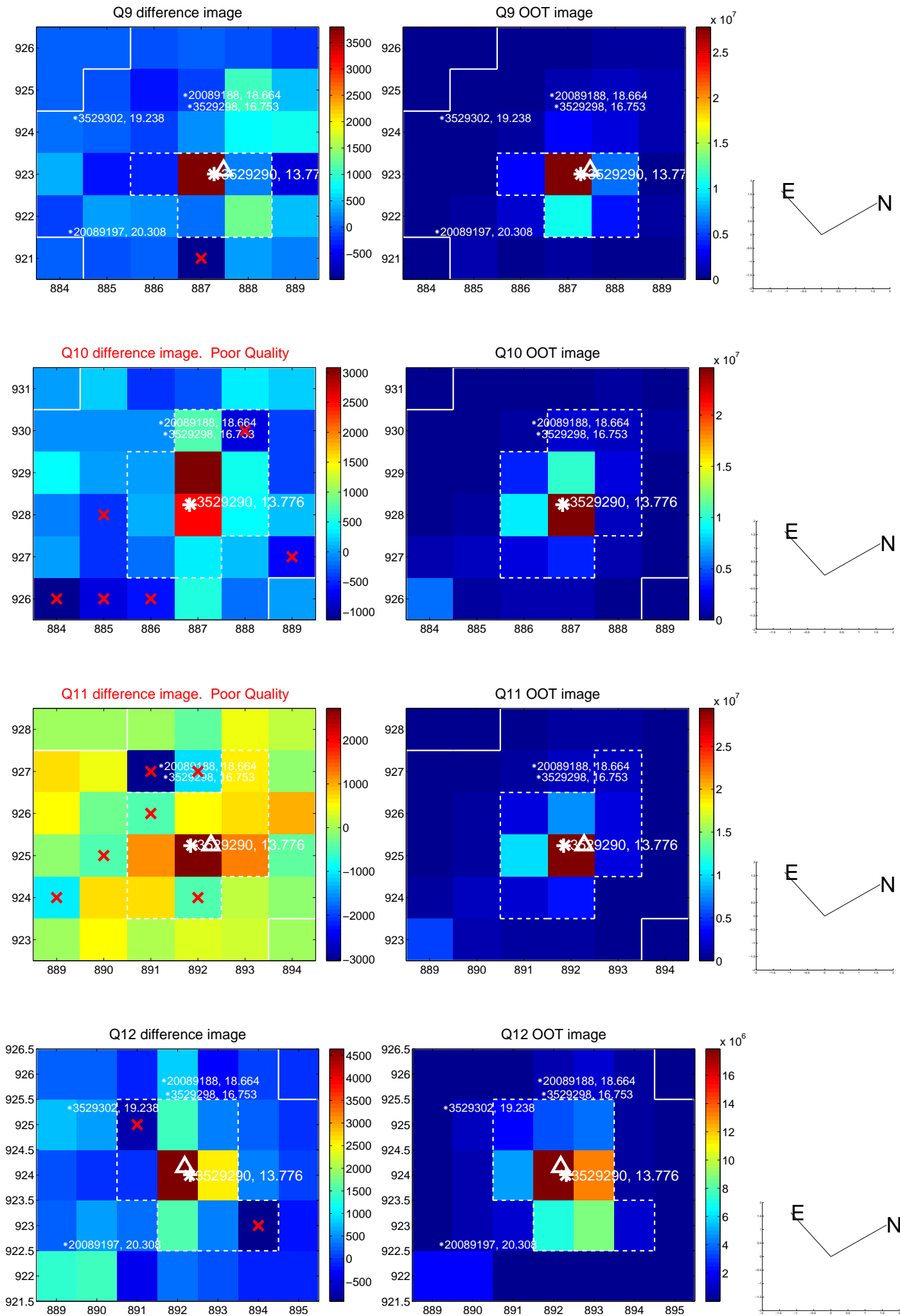
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



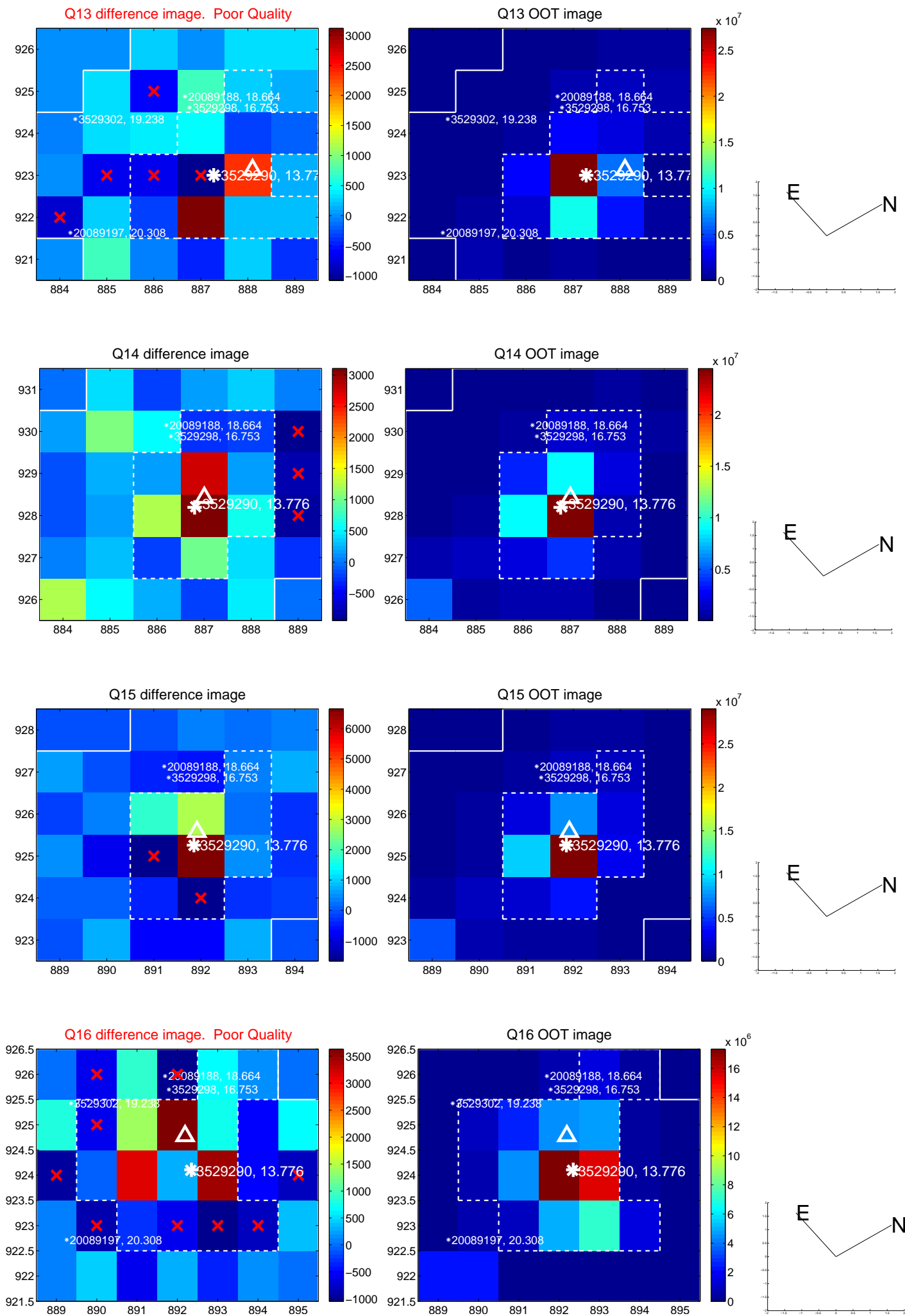
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



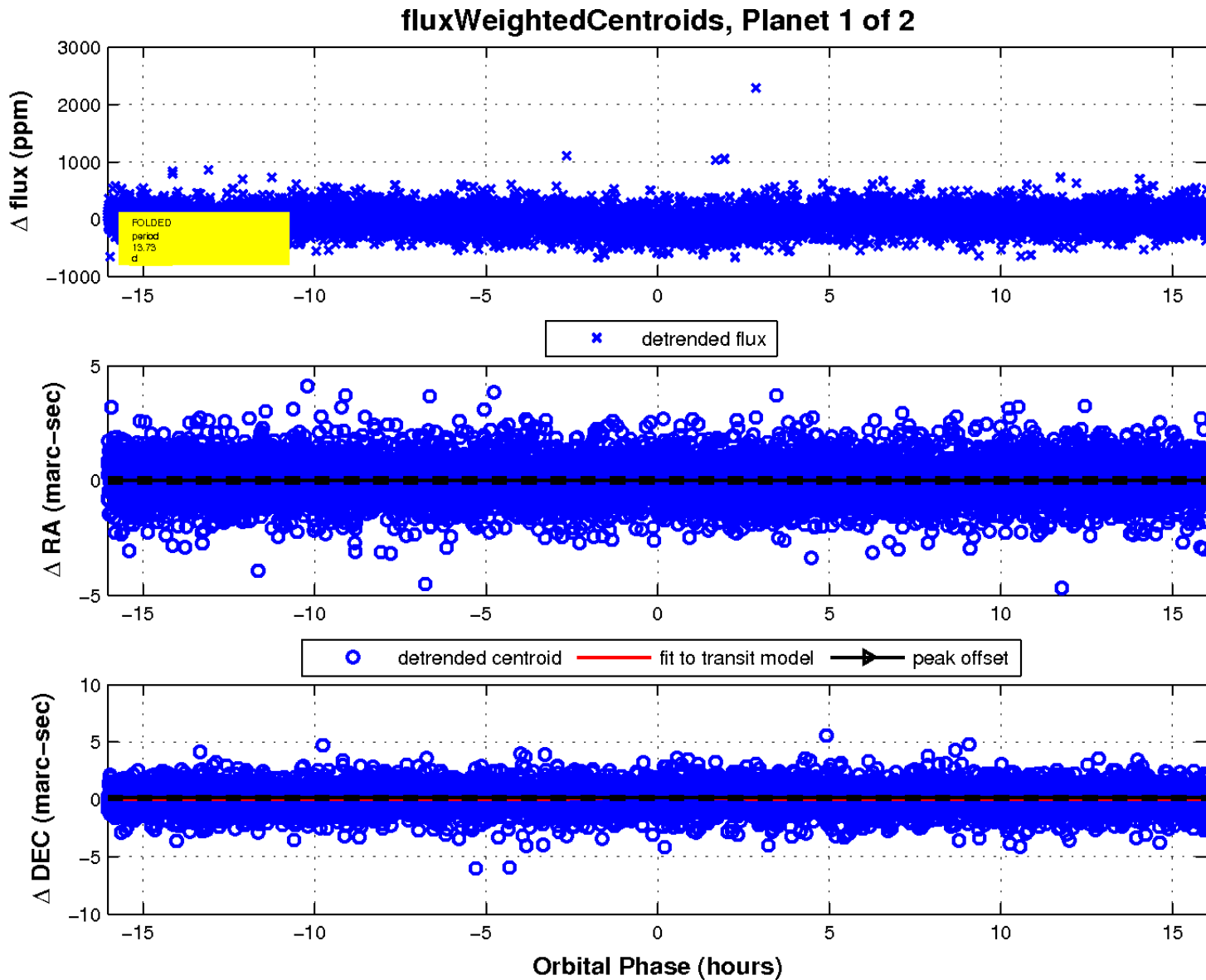
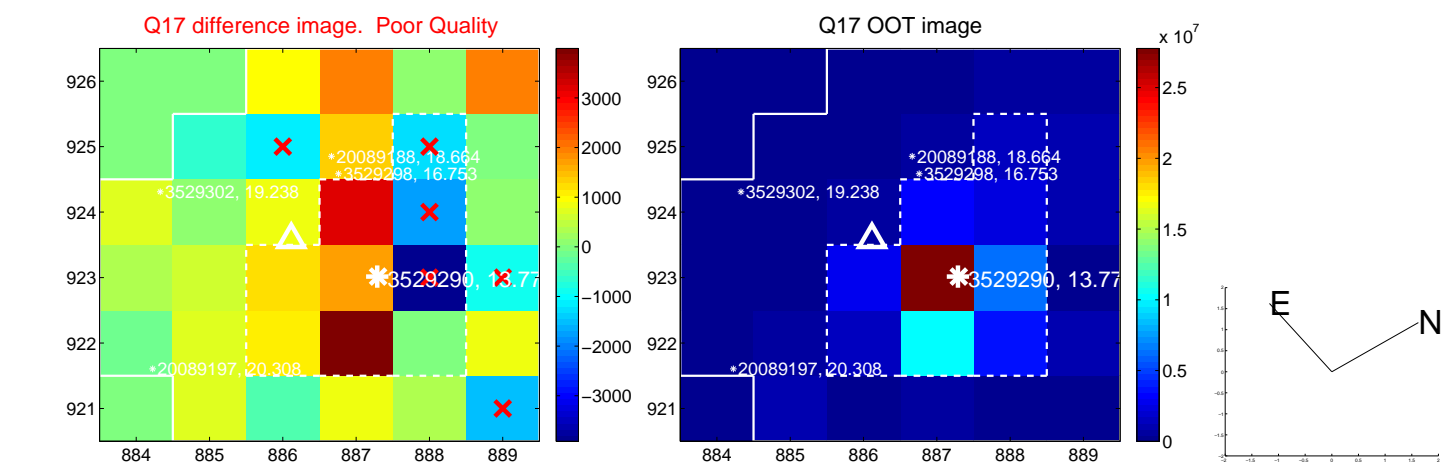
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

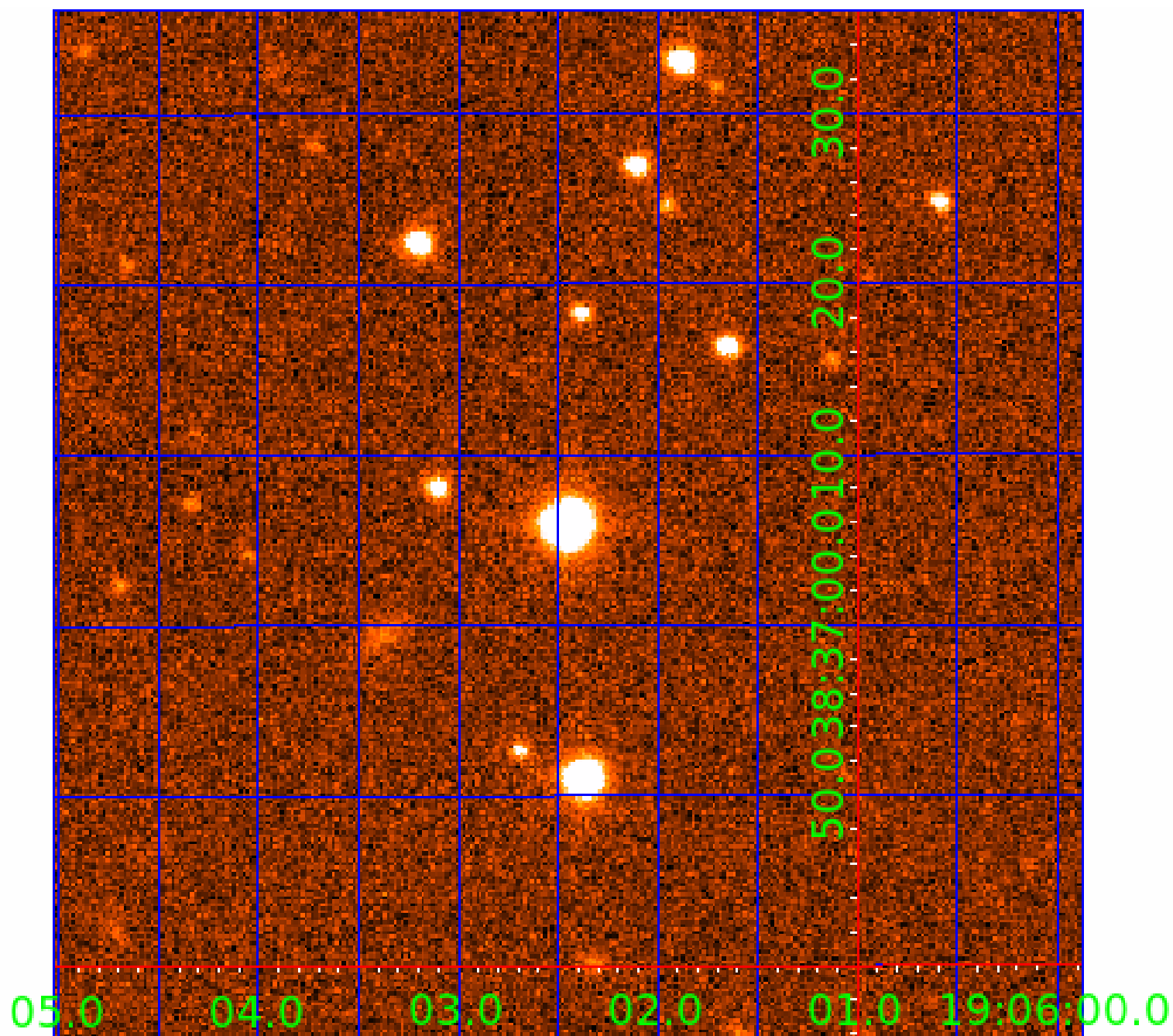


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 003529290

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})
003529290-01	OBS	3340.02	13.728195	143.548381	102.0	5.341	11.4	12.6	0.95	6168	1.08	97.17
003529290-02	OBS	3340.01	8.954176	132.827781	70.9	5.127	9.1	10.3	0.95	6168	0.97	171.79

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
003529290-01	OBS	PC	1.00	0	0	0	0	NO_COMMENT
003529290-02	OBS	PC	0.97	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.

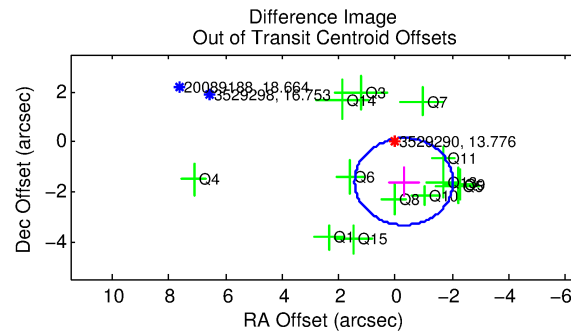
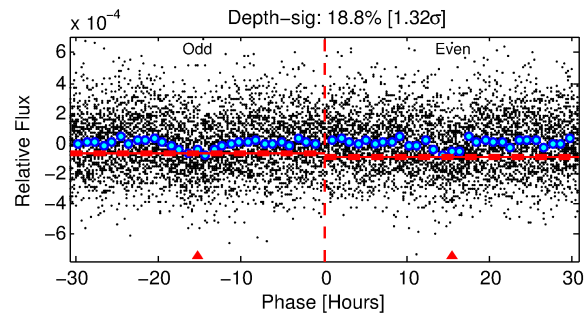
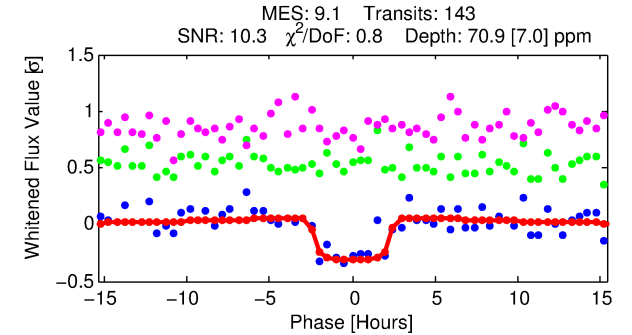
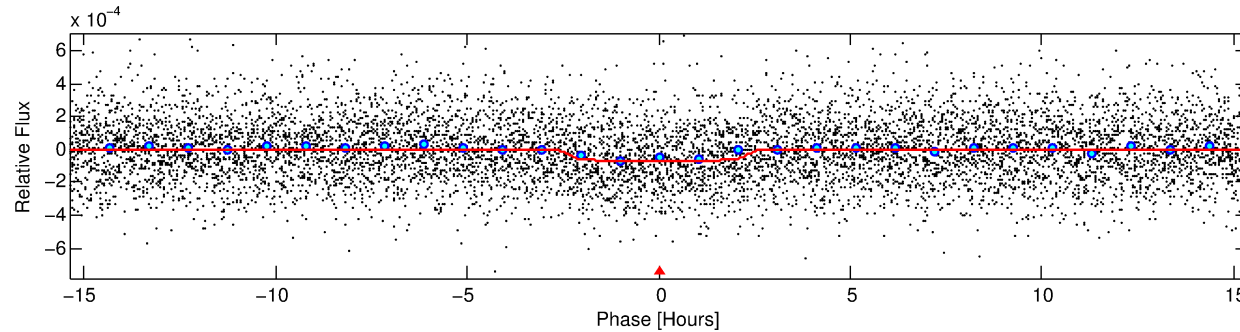
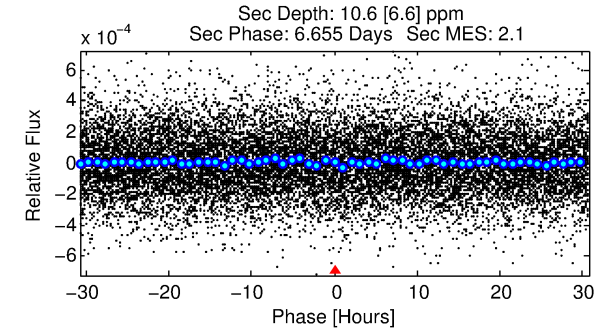
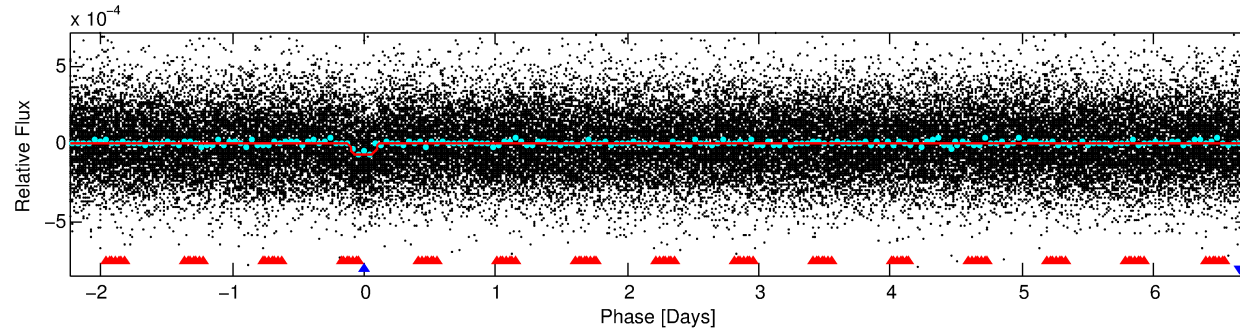
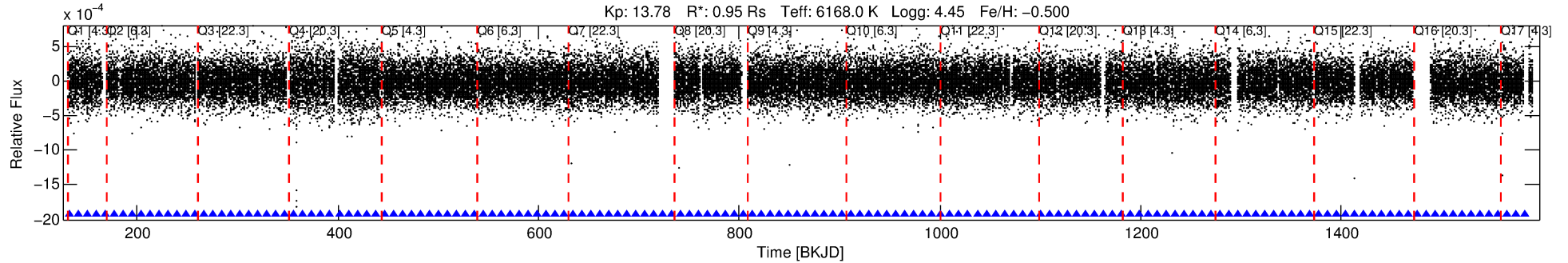
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 003529290-02

No Significant Match Found

DV One-Page Summary

KIC: 3529290 Candidate: 2 of 2 Period: 8.954 d
KOI: K03340.01 Corr: 0.959



DV Fit Results:

Period = 8.95418 [0.00009] d
Epoch = 132.8278 [0.0083] BKJD
Rp/R* = 0.0094 [0.0020]
a/R* = 5.03 [5.78]
b = 0.94 [0.15]
Seff = 171.79 [62.19]
Teq = 923 [84] K
Rp = 0.97 [0.34] Re
a = 0.0823 [0.0190] AU
Ag = 41.57 [34.54] [1.17 sigma]
Teffp = 3624 [695] K [3.86 sigma]

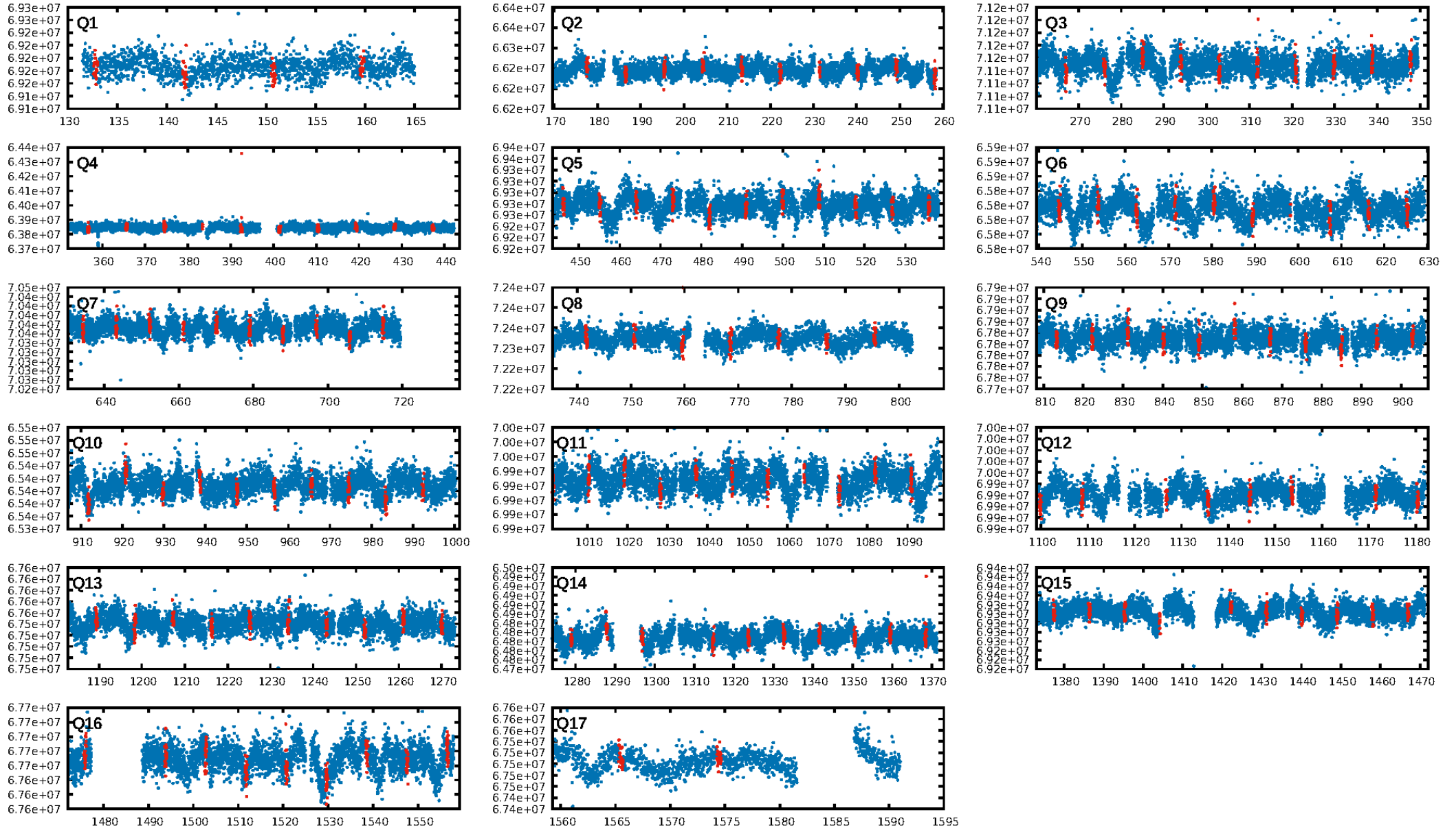
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [15.48 sigma]
ModelChiSquare2-sig: 100.0%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 1.11e-19
RollingBand-fgt: 1.00 [137/137]
GhostDiagnostic-chr: 1.288
Centroid-sig: 45.7%
Centroid-so: 0.688 arcsec [0.58 sigma]
OotOffset-rm: 1.628 arcsec [2.80 sigma]
KicOffset-rm: 1.624 arcsec [2.95 sigma]
OotOffset-st: 3/4/2/4 [13]
KicOffset-st: 3/4/2/4 [13]
DiffImageQuality-fgm: 0.62 [8/13]
DiffImageOverlap-fno: 1.00 [17/17]

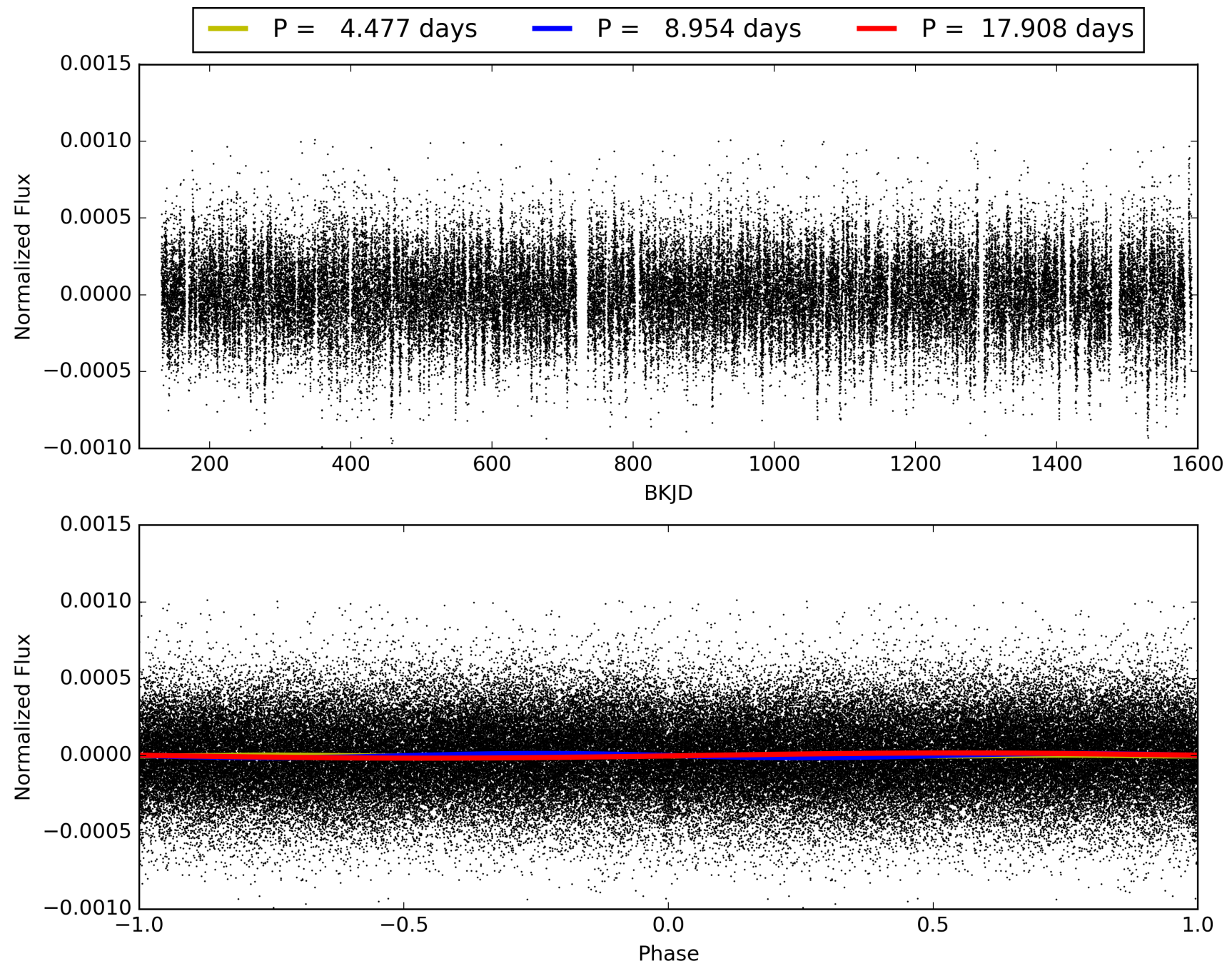
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 01:12:27 Z

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

TCE 003529290-02, PDC Light Curves

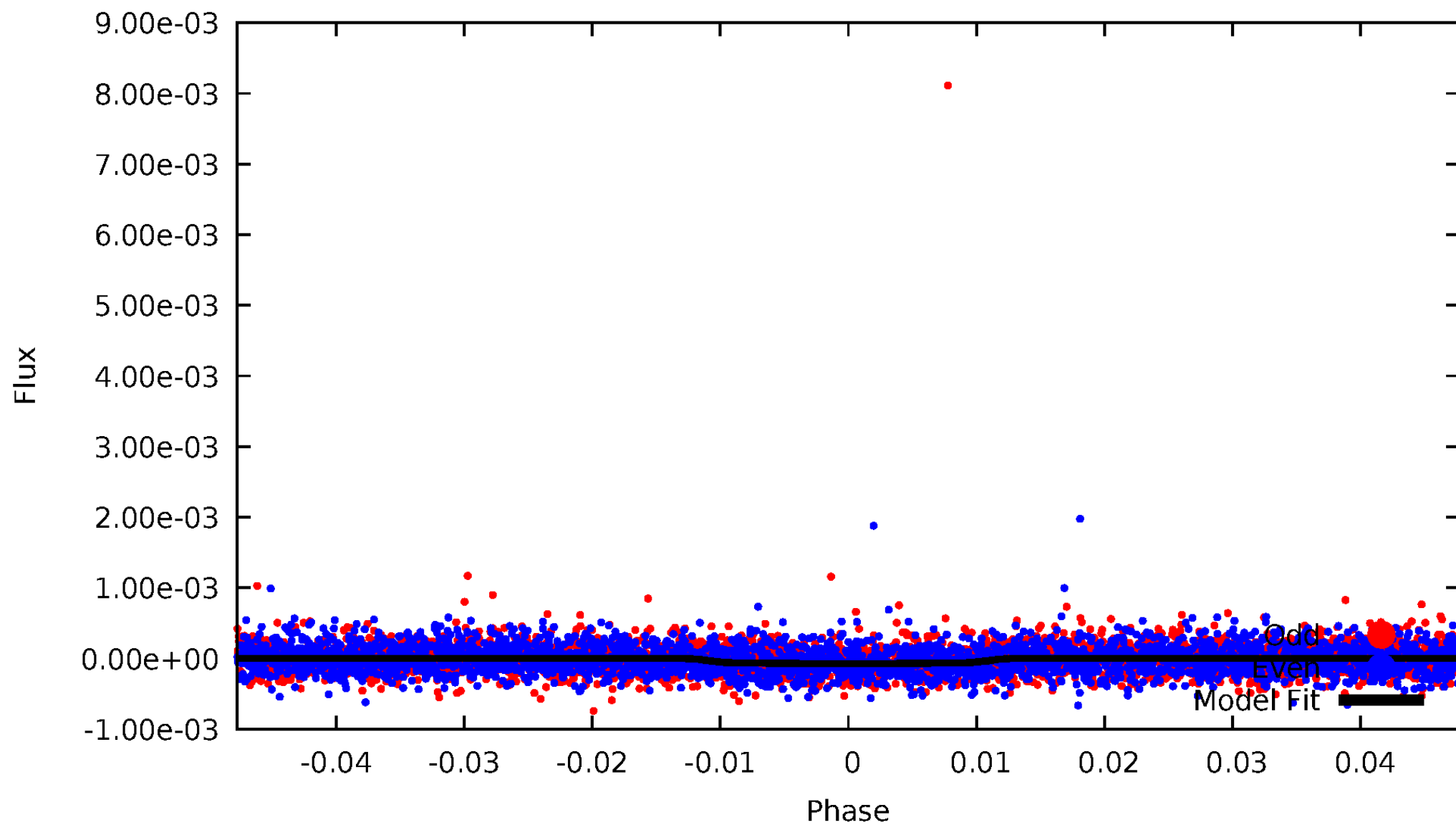


TCE 003529290-02



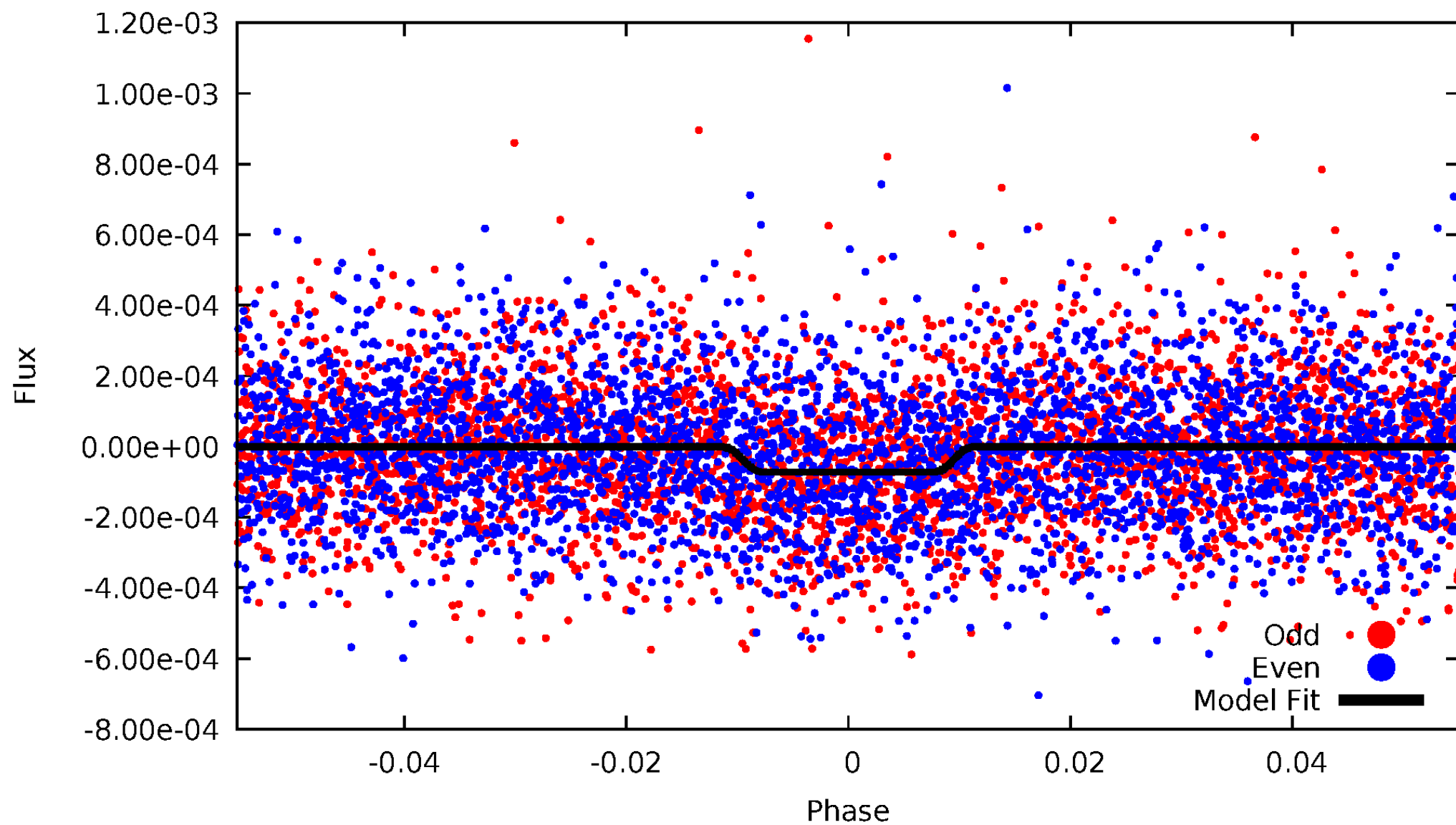
DV Odd/Even

TCE 003529290-02



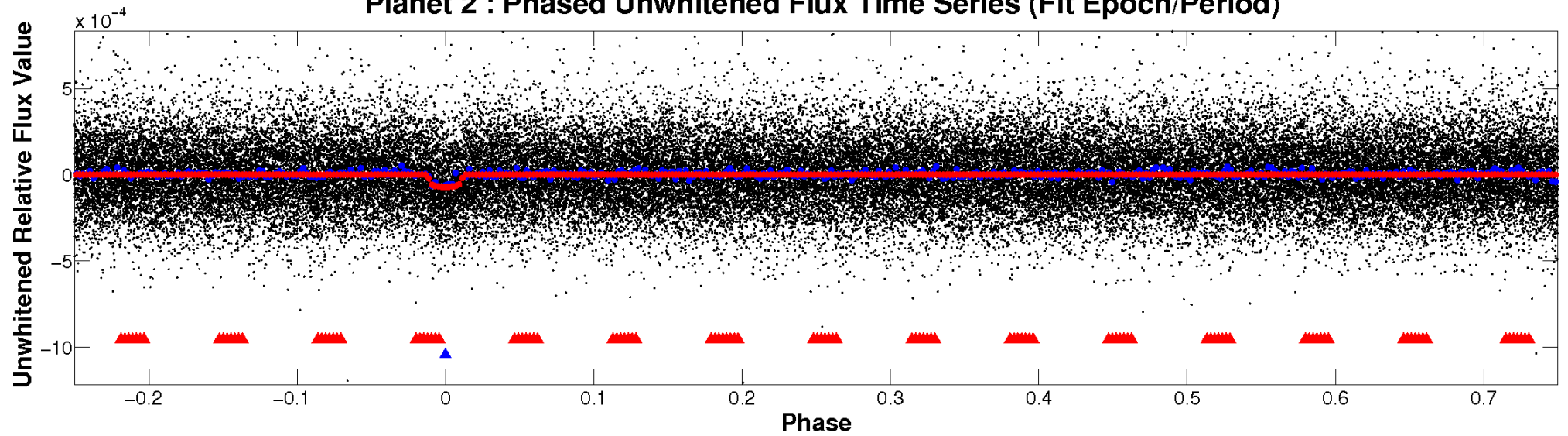
ALT Odd/Even

TCE 003529290-02

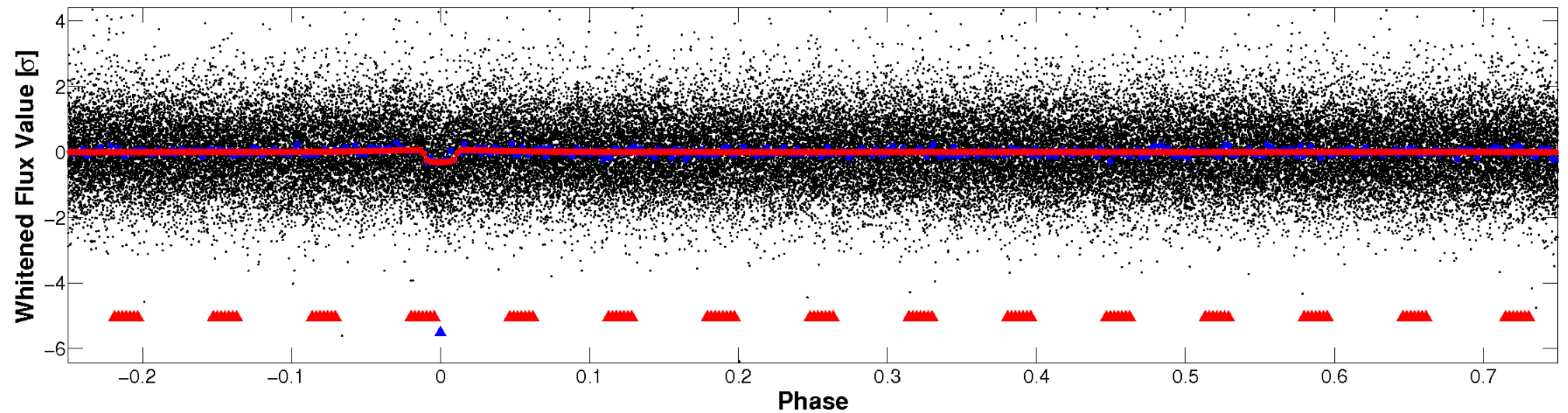


Non-Whitened Vs. Whitened Light Curve

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

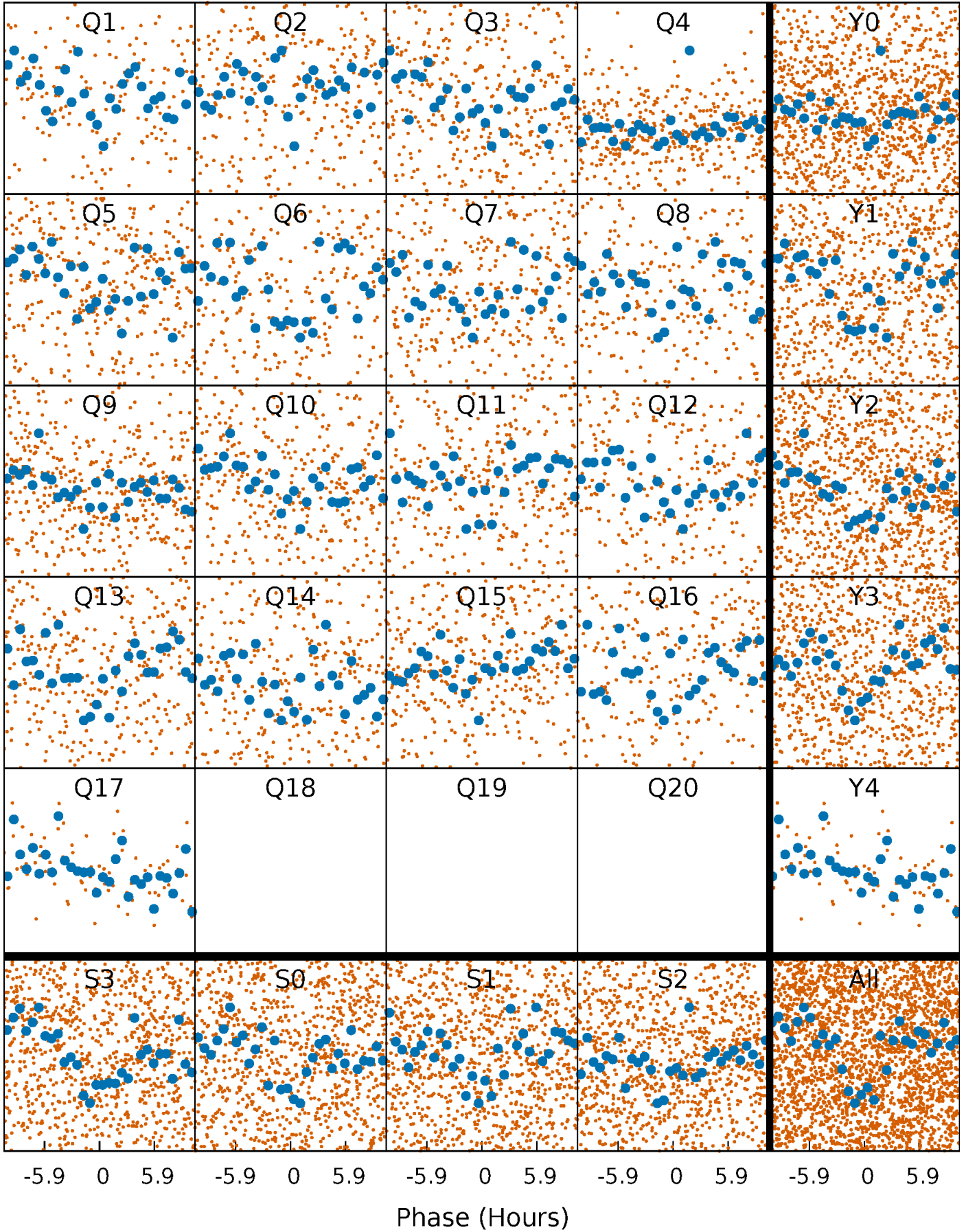


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



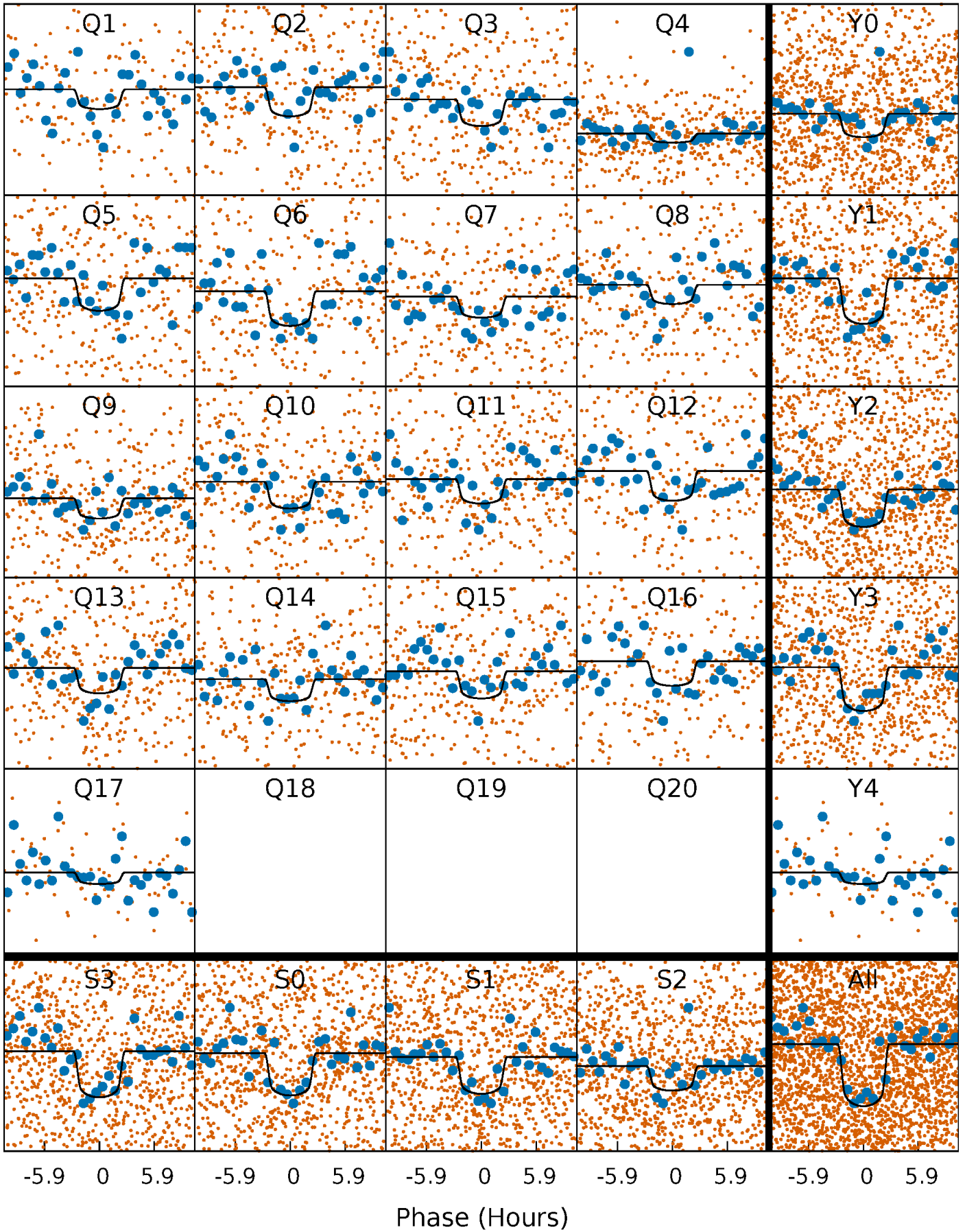
PDC Quarter-Phased Transit Curves

TCE 003529290-02 P= 8.954176 Days $T_0=132.827781$ (BKJD)



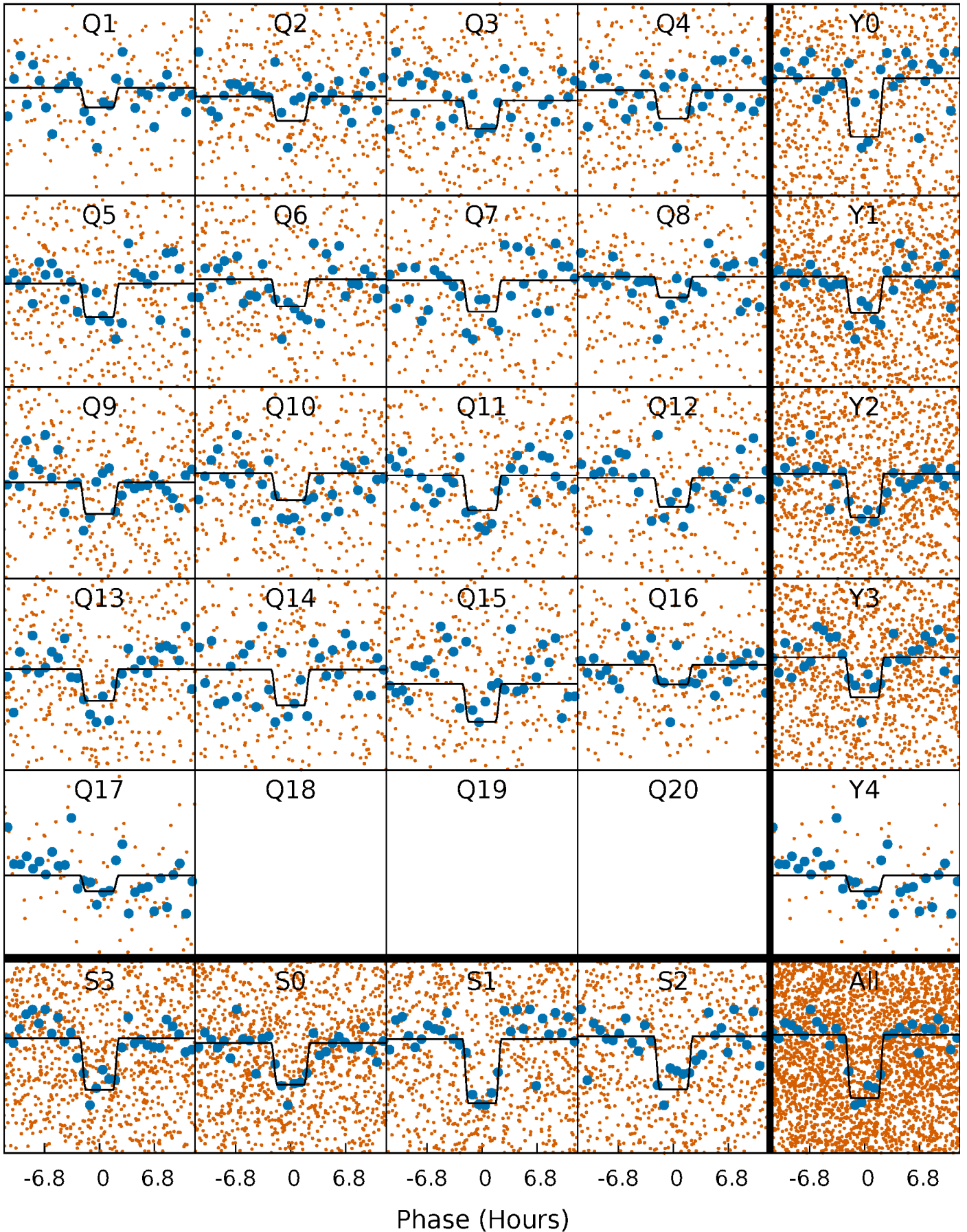
DV Quarter-Phased Transit Curves

TCE 003529290-02 P= 8.954176 Days $T_0=132.827781$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

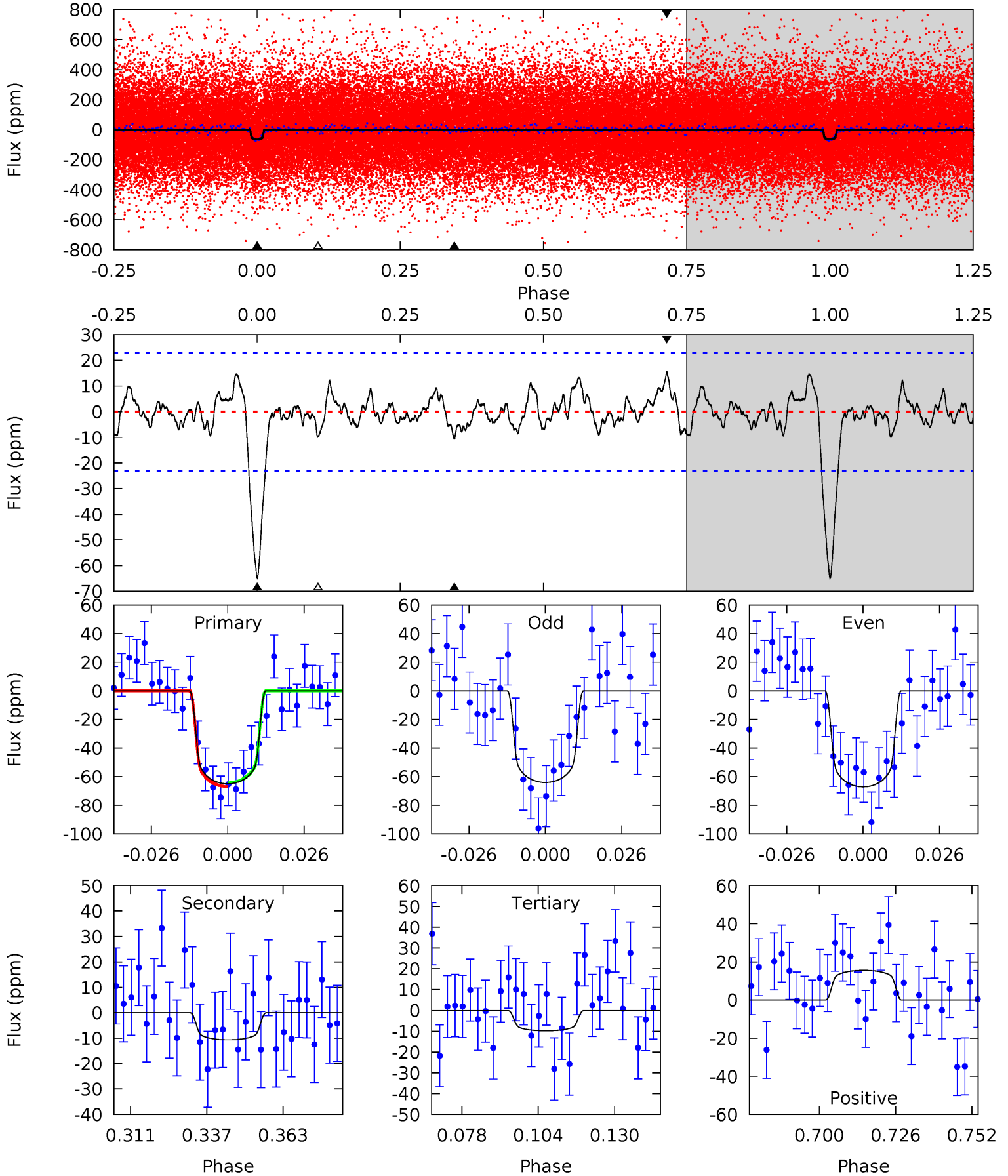
TCE 003529290-02 P= 8.953863 Days $T_0=132.856988$ (BKJD)



DV Model-Shift Uniqueness Test

003529290-02, P = 8.954176 Days, E = 123.873605 Days

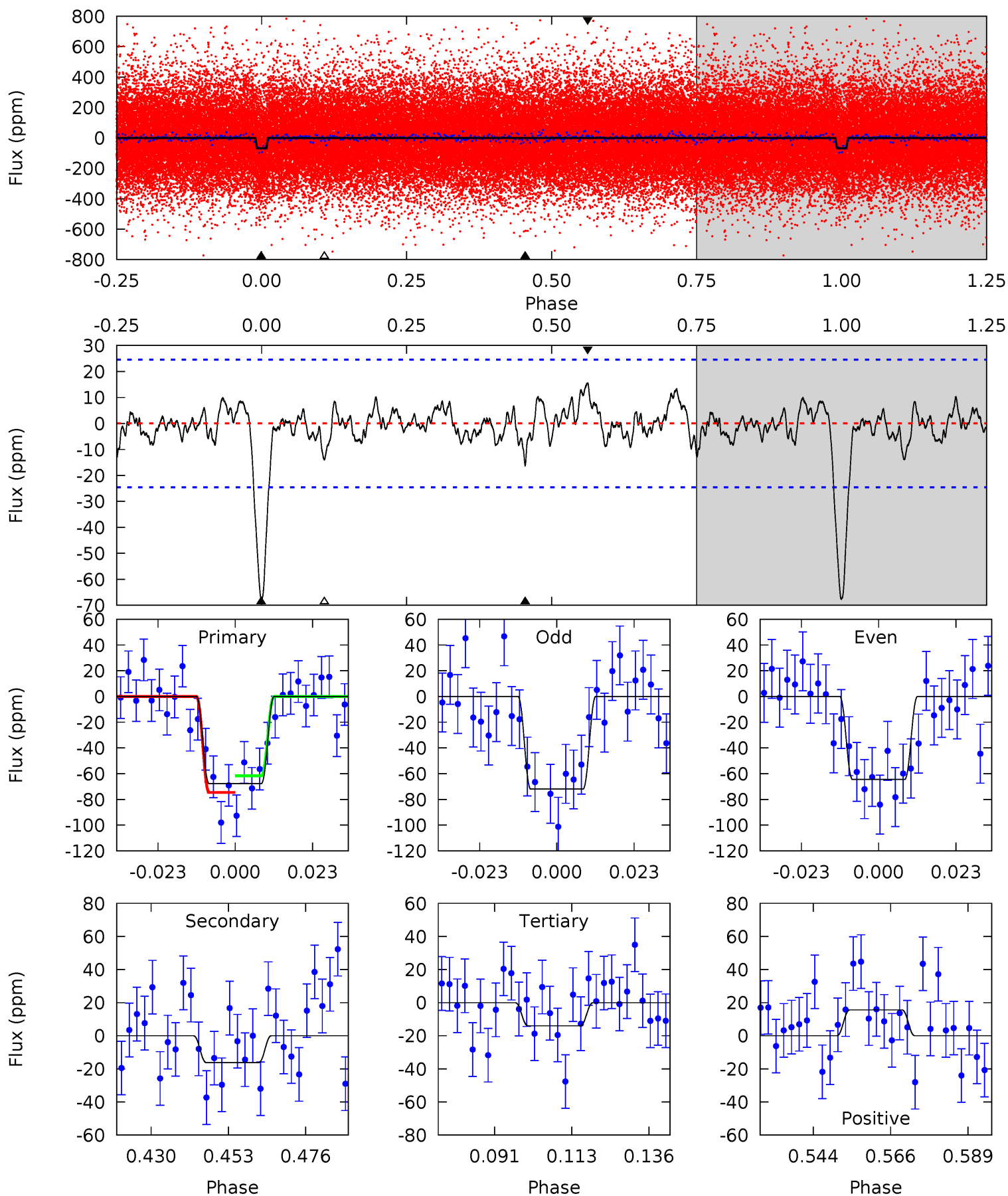
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
13.7	2.24	2.06	3.28	4.84	2.23	1.06	11.6	10.4	0.18	-1.03	0.32	0.85	0.19	0.28



Alt Model-Shift Uniqueness Test

003529290-02, P = 8.953863 Days, E = 123.903125 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
13.4	3.21	2.78	3.09	4.87	2.28	1.02	10.6	10.3	0.44	0.13	0.75	0.89	0.19	1.29



Stellar Parameters For KIC 003529290

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6168^{+166}_{-185}	$4.452^{+0.081}_{-0.189}$	$-0.500^{+0.300}_{-0.300}$	$0.947^{+0.256}_{-0.118}$	$0.925^{+0.116}_{-0.095}$	$1.533^{+0.547}_{-0.782}$
	+3%/-3%	+2%/-4%	+60%/-60%	+27%/-12%	+13%/-10%	+36%/-51%
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 003529290-02 / KOI 3340.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-11 ± 5	$1.02^{+0.26}_{-0.24}$	1303^{+85}_{-65}	3920^{+496}_{-450}	37^{+32}_{-20}
Alt.	-16 ± 5	$0.91^{+0.24}_{-0.23}$	1307^{+88}_{-65}	4433^{+559}_{-456}	70^{+65}_{-32}

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

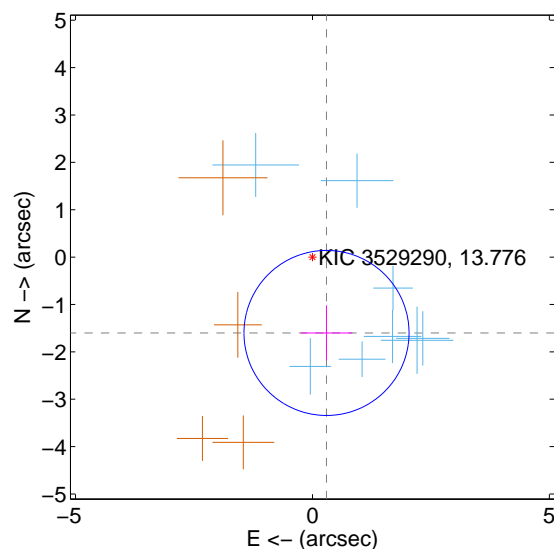
Supplemental centroid analysis for 003529290-02. Kepler magnitude: 13.78. Transit SNR 10.34

There are 8 quarters with good PRF difference image offsets

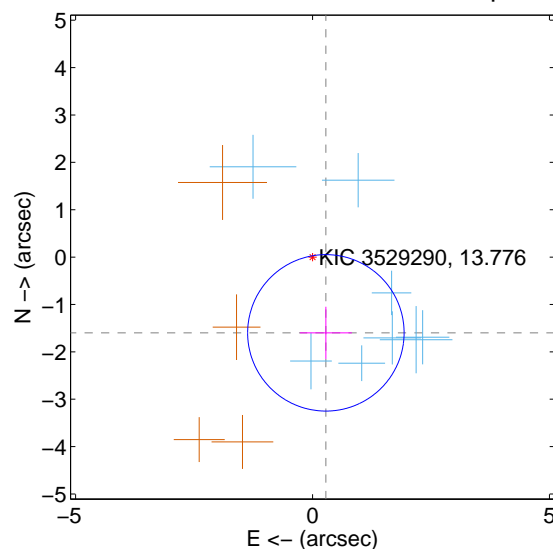
The direct PRF centroid is offset from the target star catalog position by about 0.02 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	1.628 ± 0.581	2.80	-0.297 ± 0.546	-1.601 ± 0.582
PRF-fit source offset from KIC position	1.624 ± 0.550	2.95	-0.282 ± 0.550	-1.599 ± 0.550
photometric centroid source offset	0.69 ± 1.19	0.58	-0.62 ± 1.18	0.31 ± 1.24

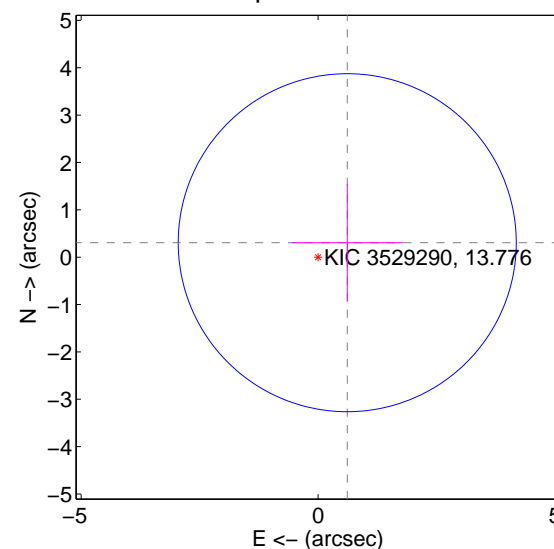
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

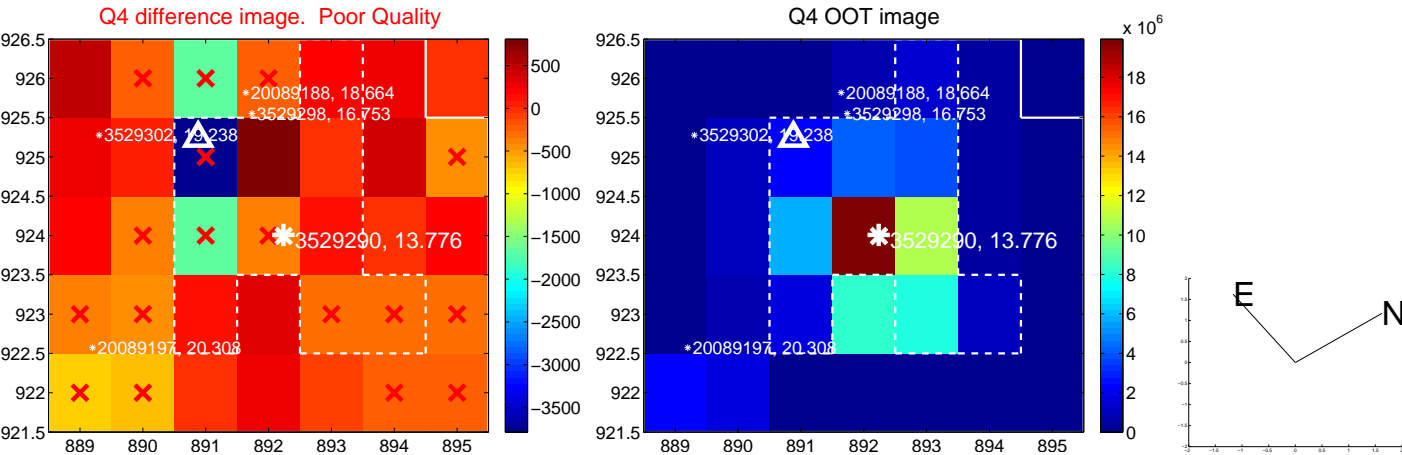
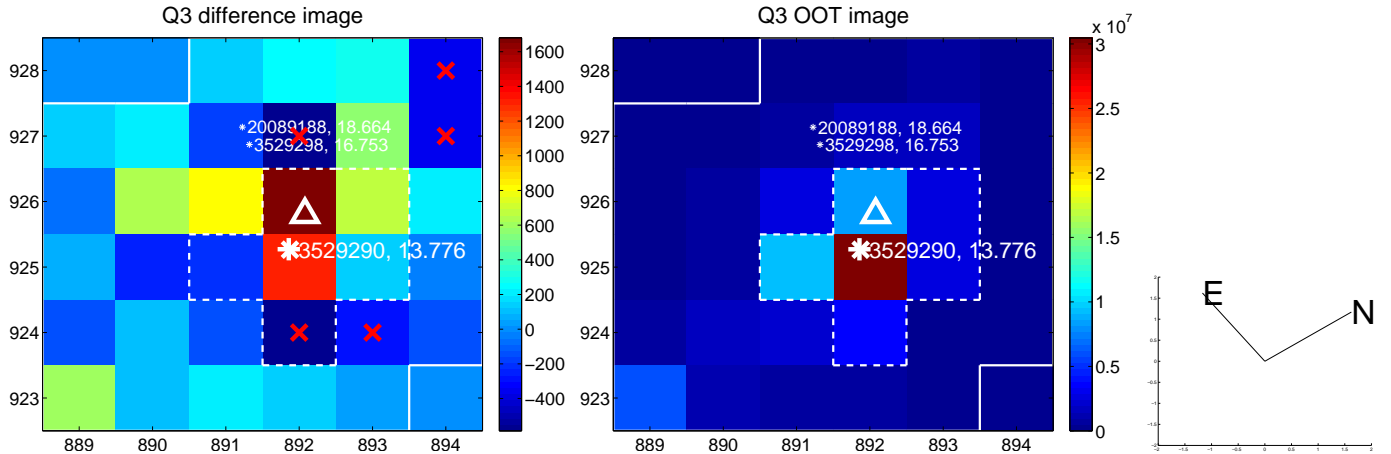
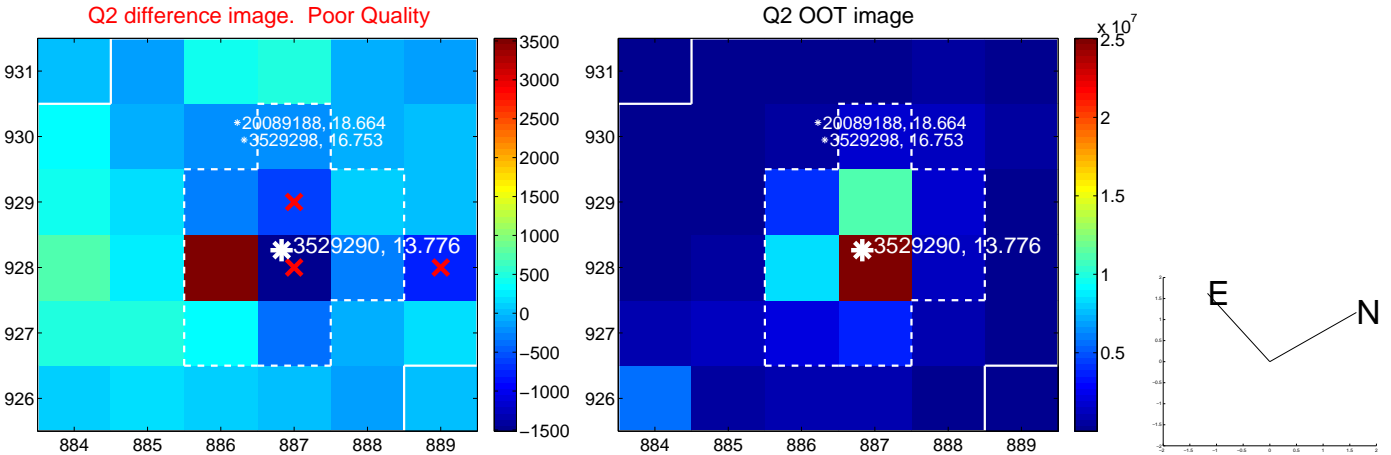
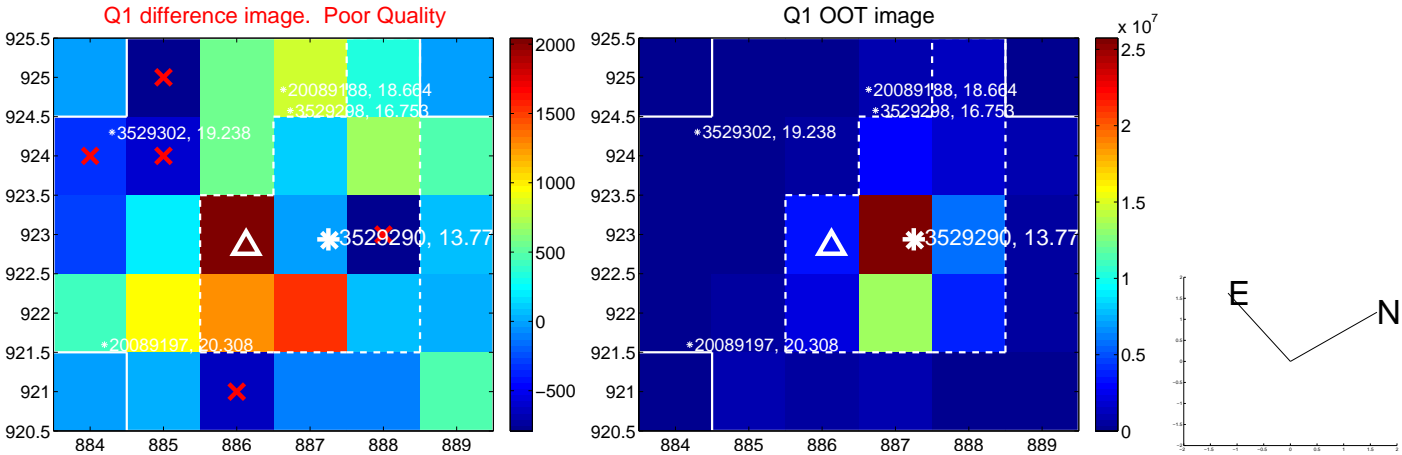


offset from photometric centroids

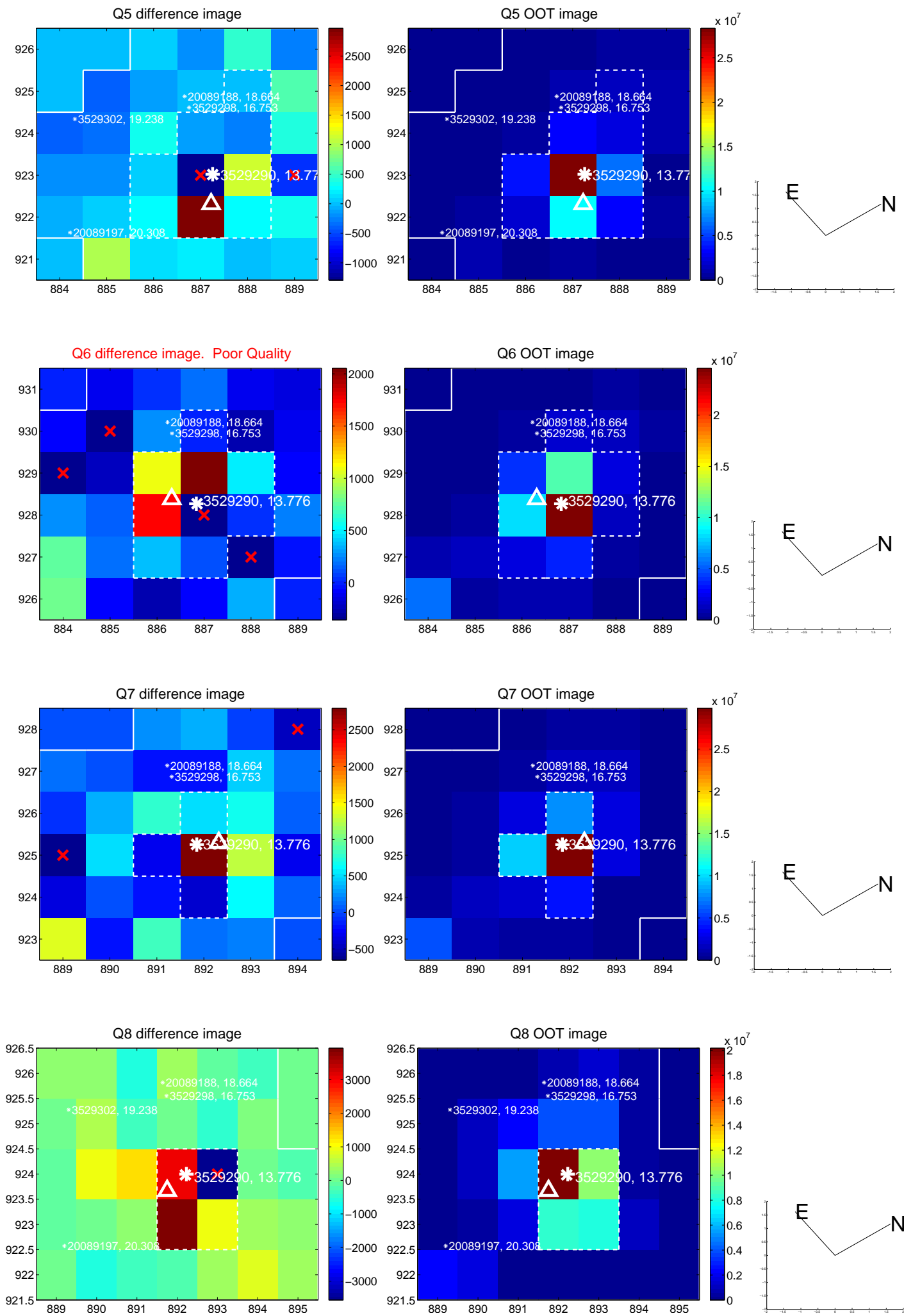


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

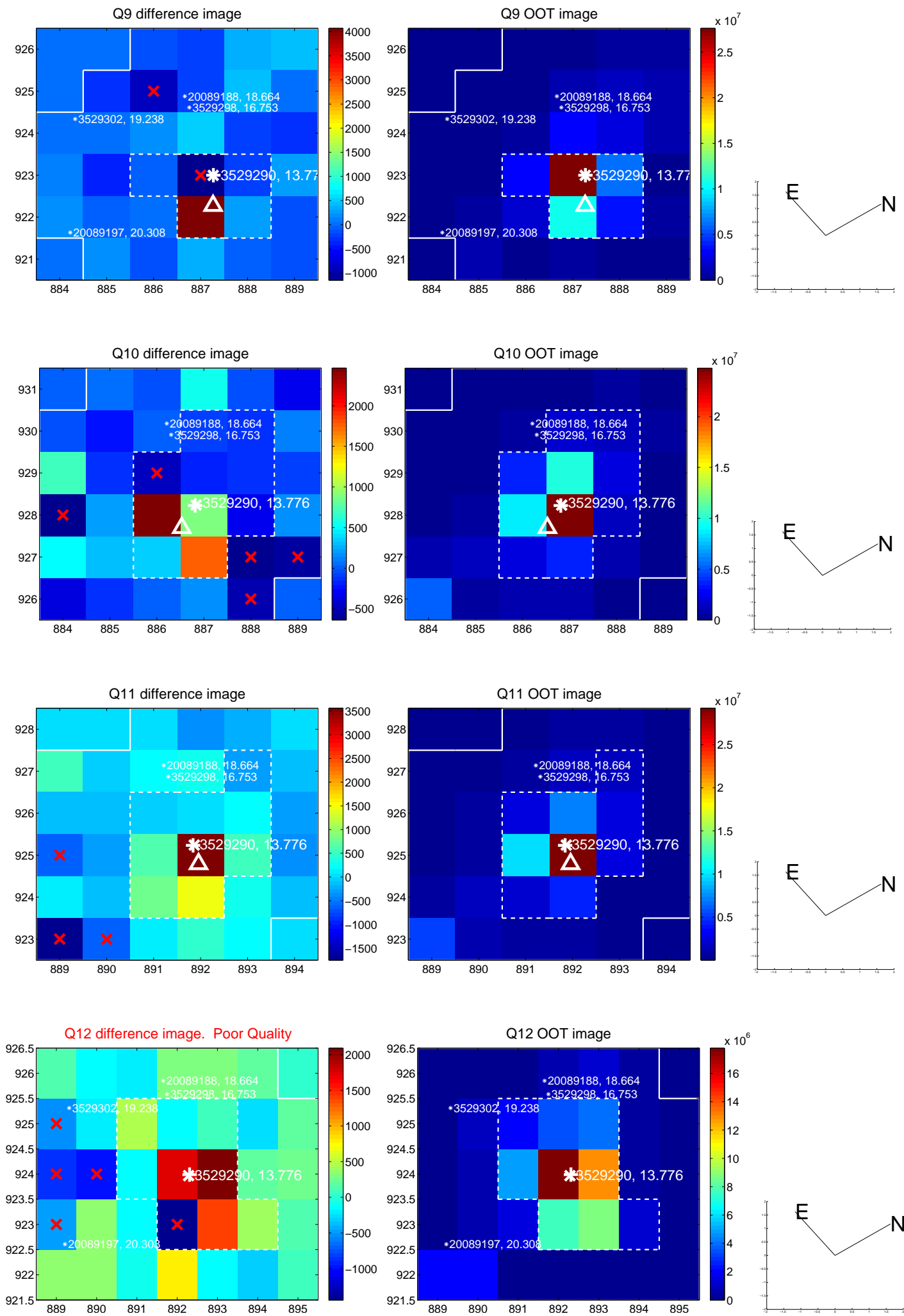
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



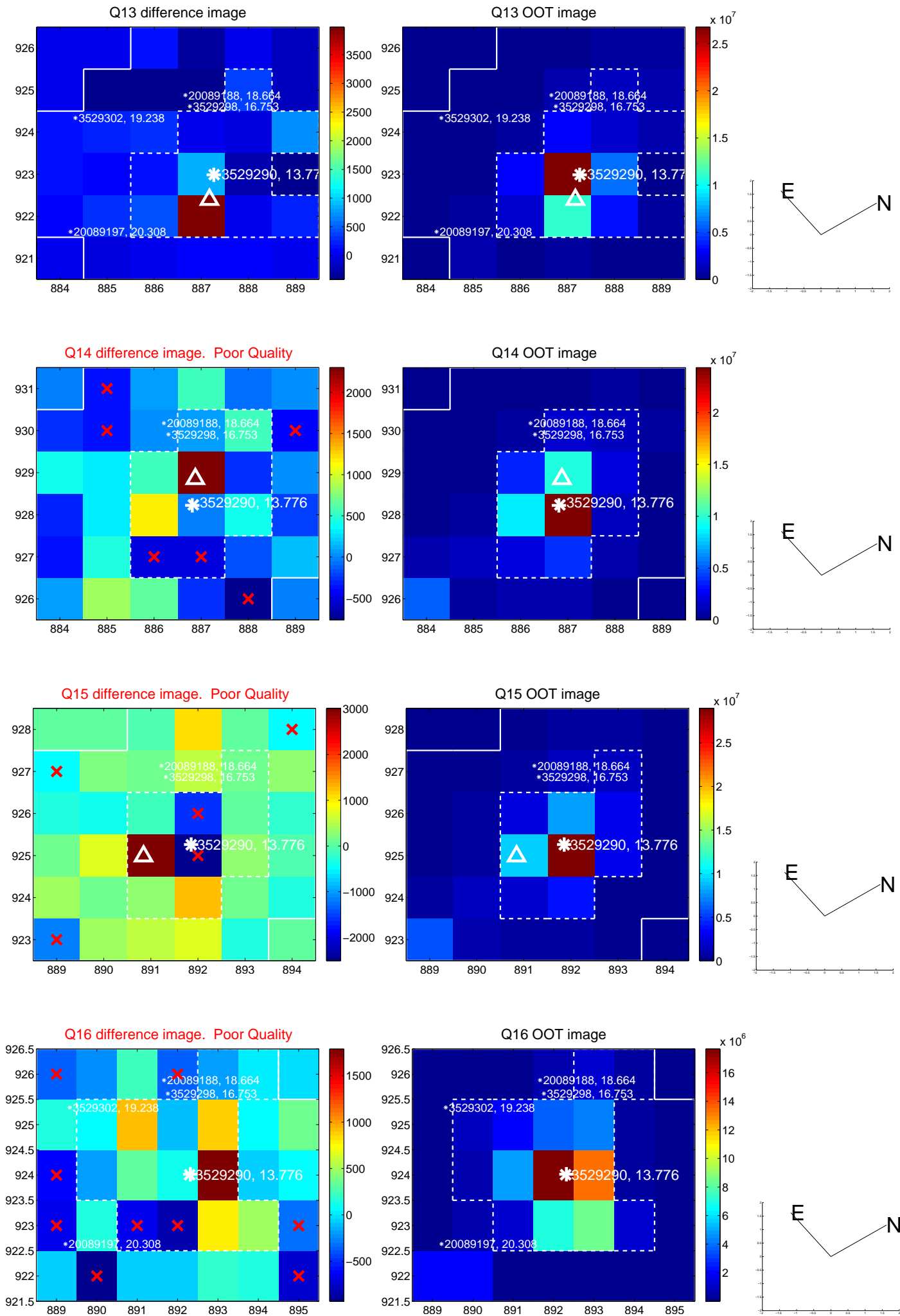
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



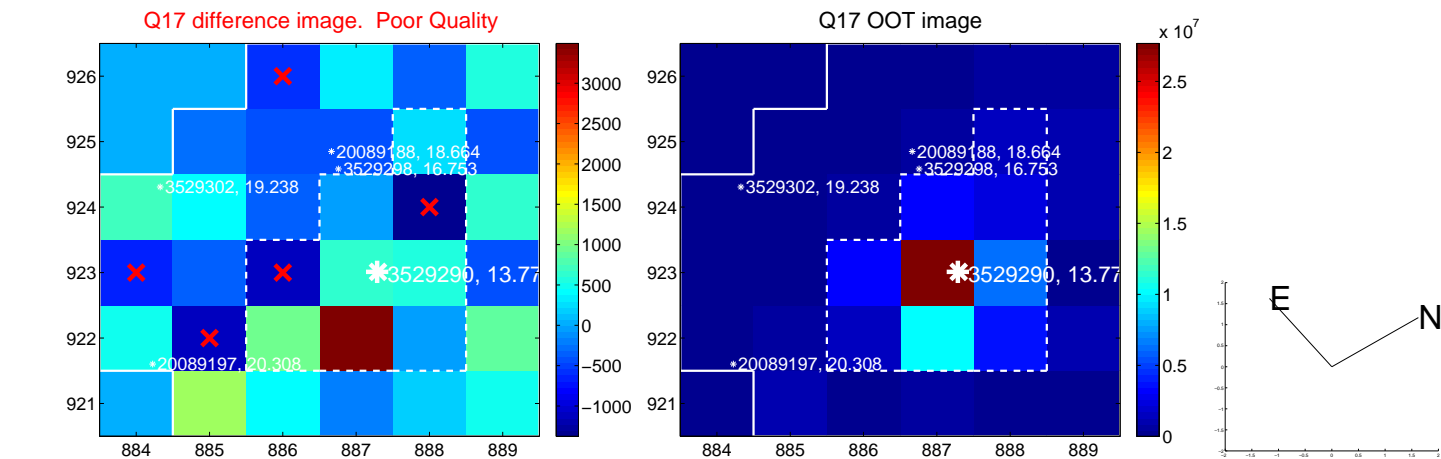
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



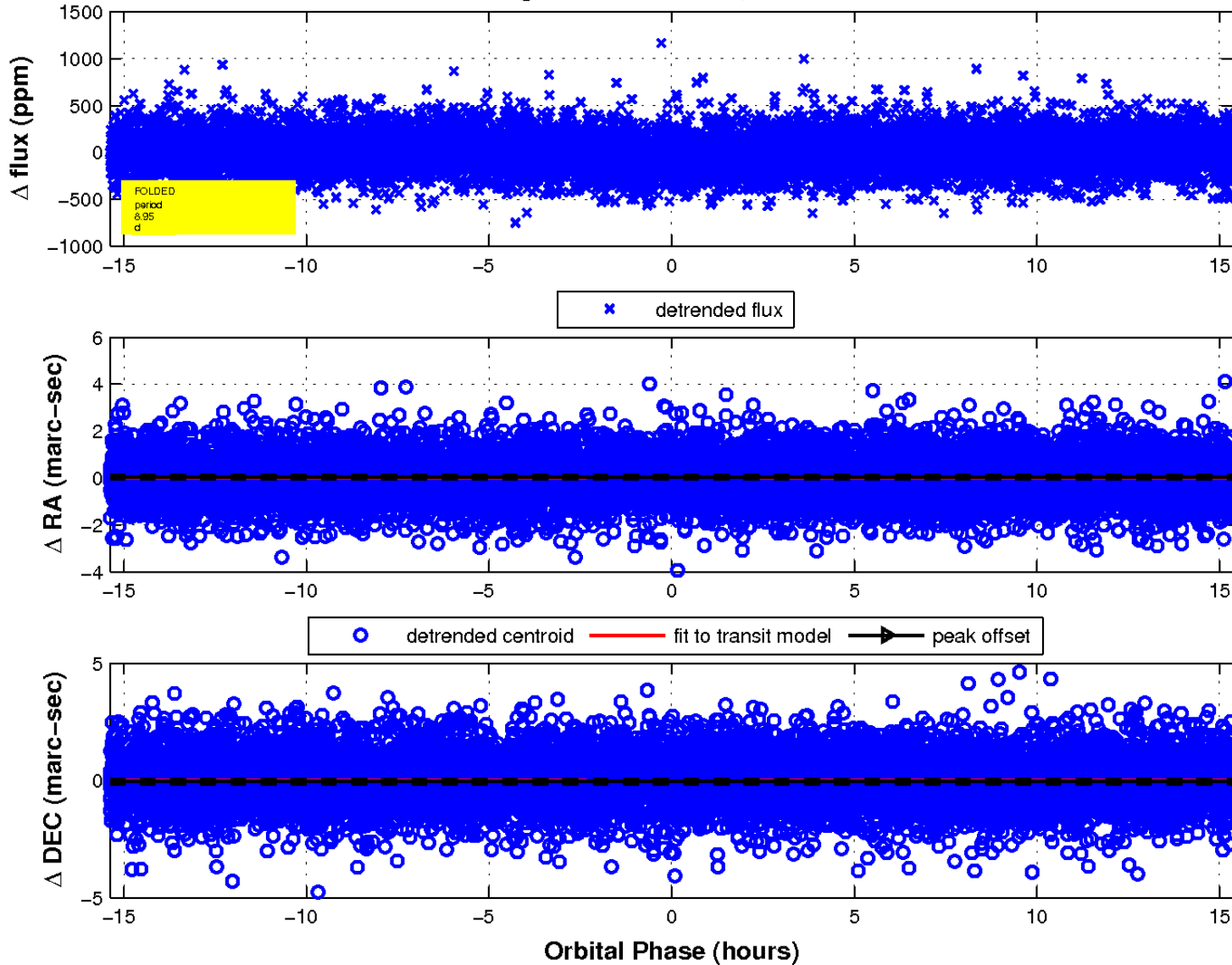
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



fluxWeightedCentroids, Planet 2 of 2



UKIRT Image

Declination

