

KIC 011090556

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})
011090556-01	OBS	2977.01	2.788158	131.852920	56.4	3.459	14.9	16.3	1.39	5758	1.30	1231.76
011090556-02	OBS	2977.02	4.138273	133.229559	63.3	3.572	13.6	14.3	1.39	5758	1.29	727.54

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
011090556-01	OBS	PC	1.00	0	0	0	0	NO_COMMENT
011090556-02	OBS	PC	0.98	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.

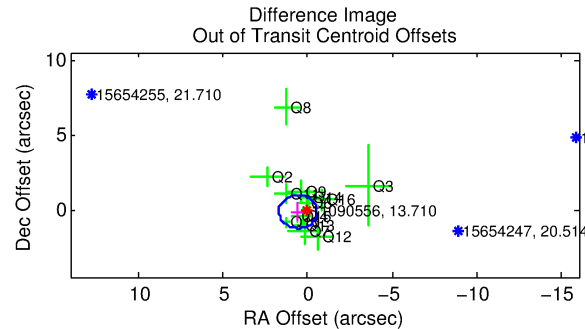
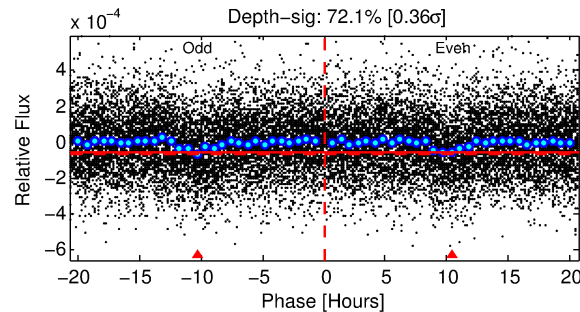
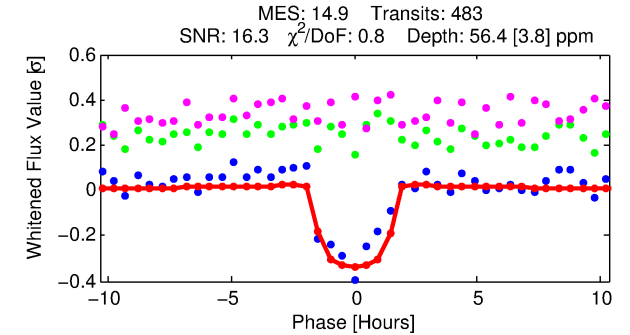
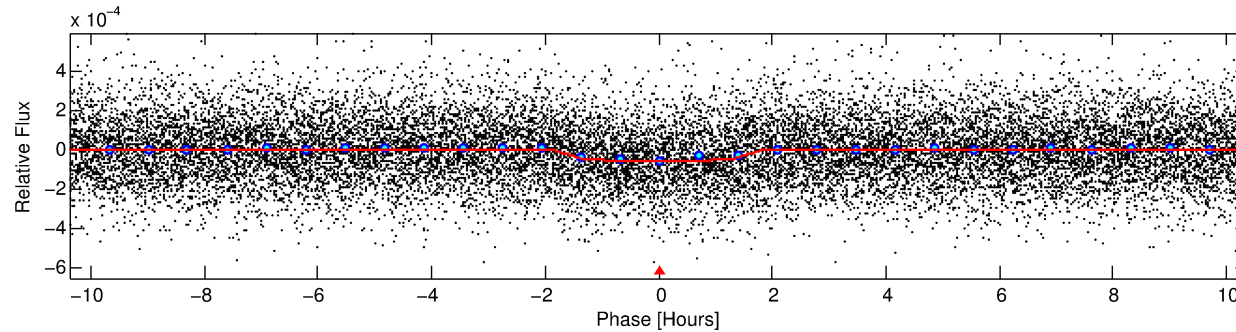
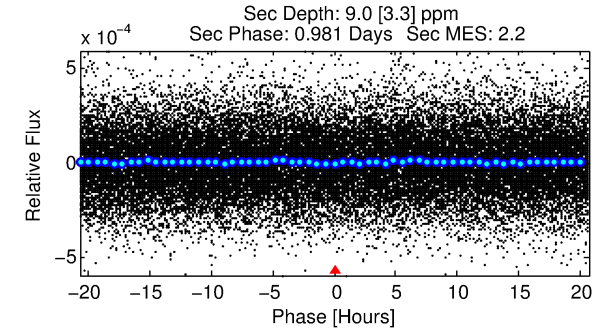
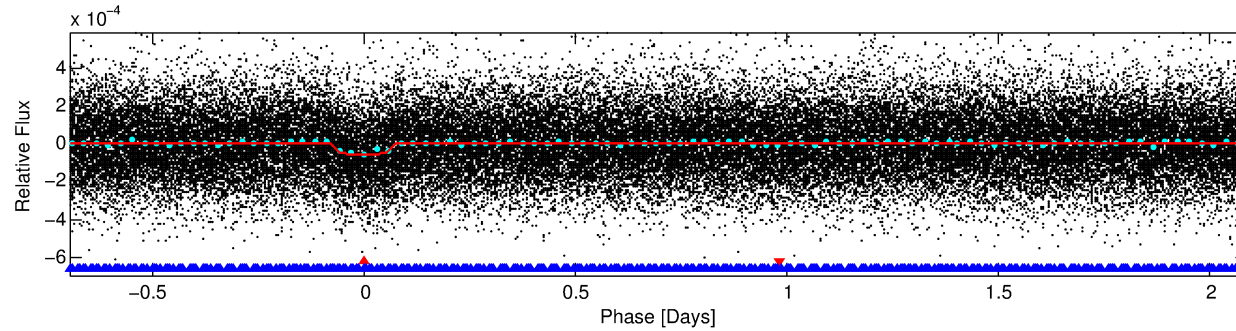
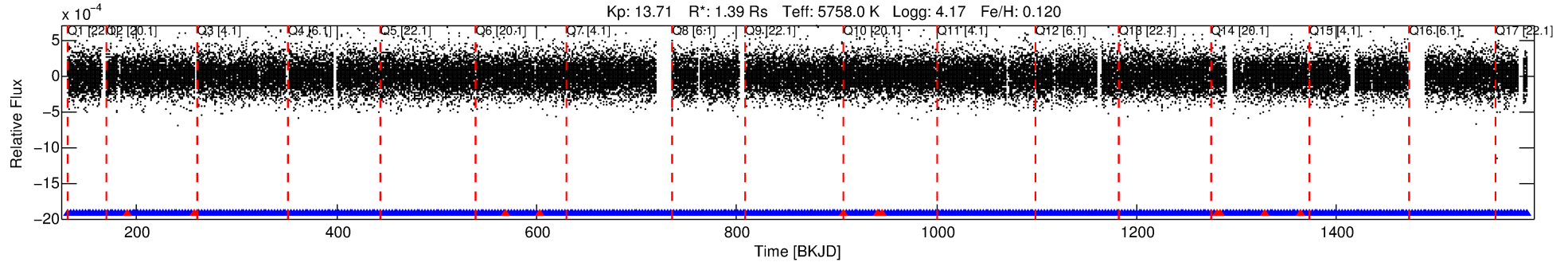
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 011090556-01

No Significant Match Found

DV One-Page Summary

KIC: 11090556 Candidate: 1 of 2 Period: 2.788 d
KOI: K02977.01 Corr: 0.981



DV Fit Results:

Period = 2.78816 [0.00001] d
Epoch = 131.8529 [0.0030] BKJD
Rp/R* = 0.0086 [0.0024]
R*/R* = 2.46 [2.87]
b = 0.94 [0.18]
Seff = 1231.76 [389.86]
Teq = 1511 [120] K
Rp = 1.30 [0.45] Re
a = 0.0392 [0.0076] AU
Ag = 4.53 [3.30] [1.07σ]
Teffp = 3407 [565] K [3.28σ]

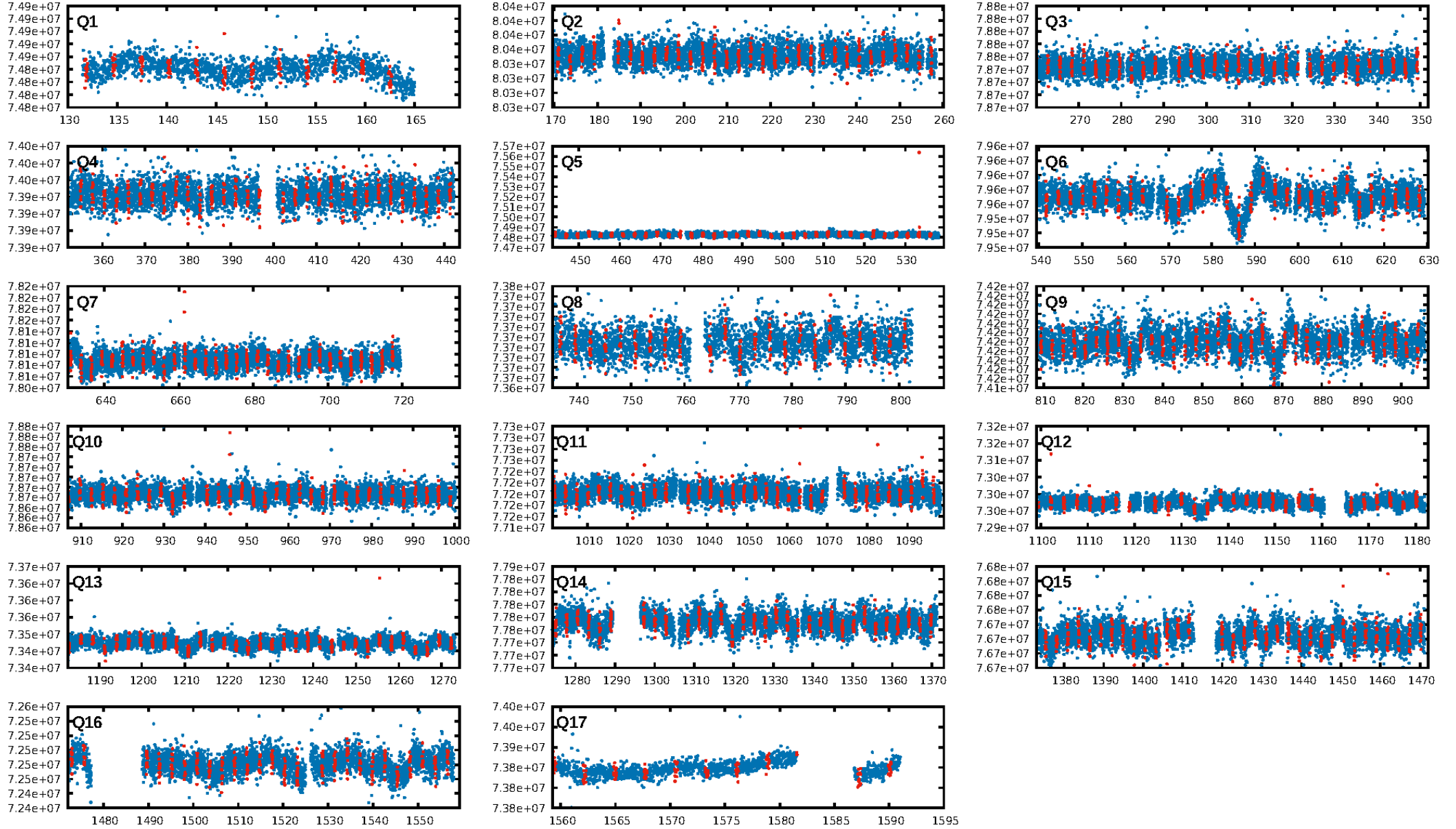
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [6.52σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 2.45e-48
RollingBand-fgt: 0.98 [450/461]
GhostDiagnostic-chr: 7.321
Centroid-sig: 44.2%
Centroid-so: 0.869 arcsec [1.09σ]
OotOffset-rm: 0.605 arcsec [1.63σ]
OotOffset-st: 4/4/4/2 [14]
KicOffset-rm: 0.409 arcsec [1.10σ]
KicOffset-st: 4/4/4/2 [14]
DiffImageQuality-fgm: 0.79 [11/14]
DiffImageOverlap-fno: 1.00 [17/17]

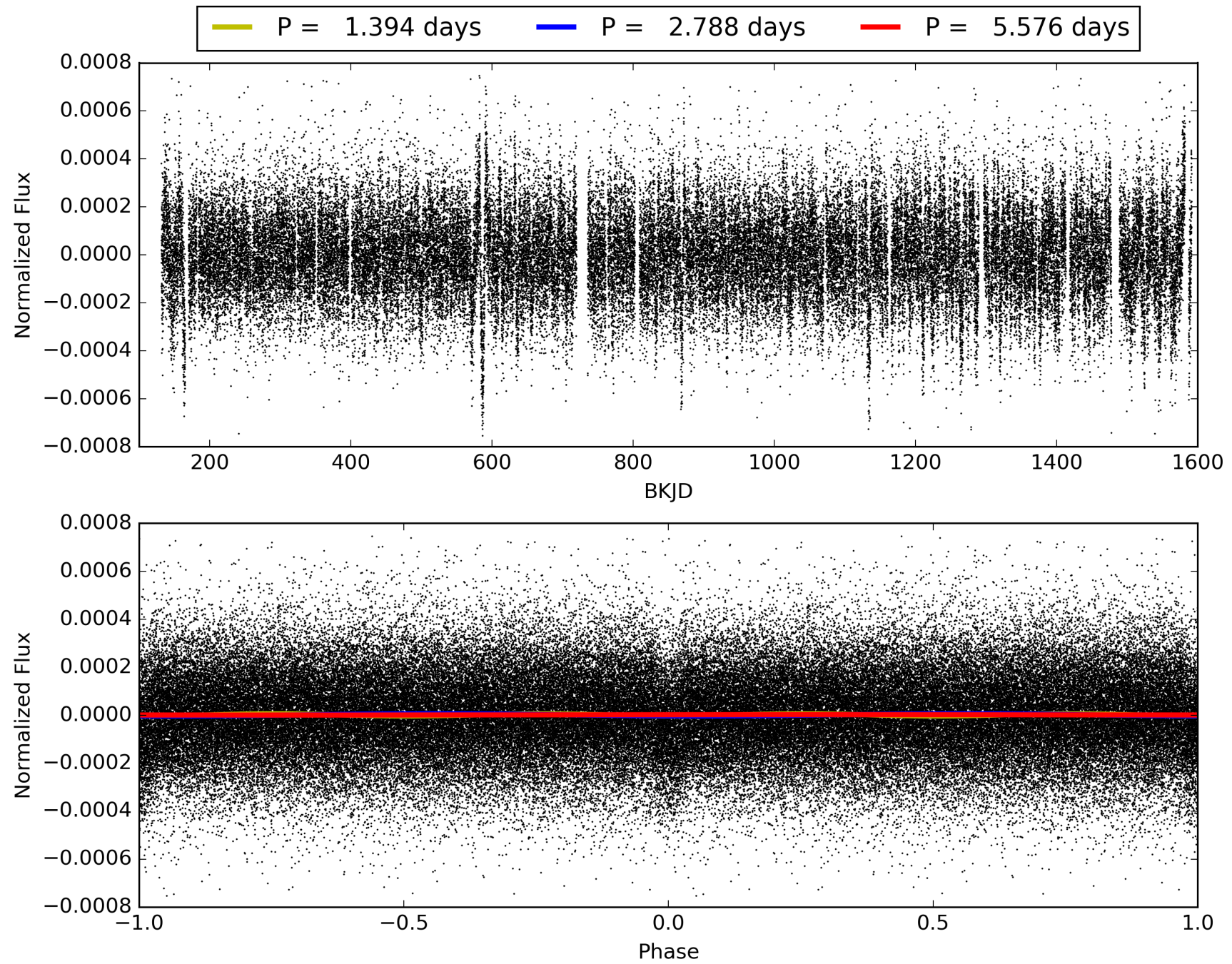
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This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

TCE 011090556-01, PDC Light Curves

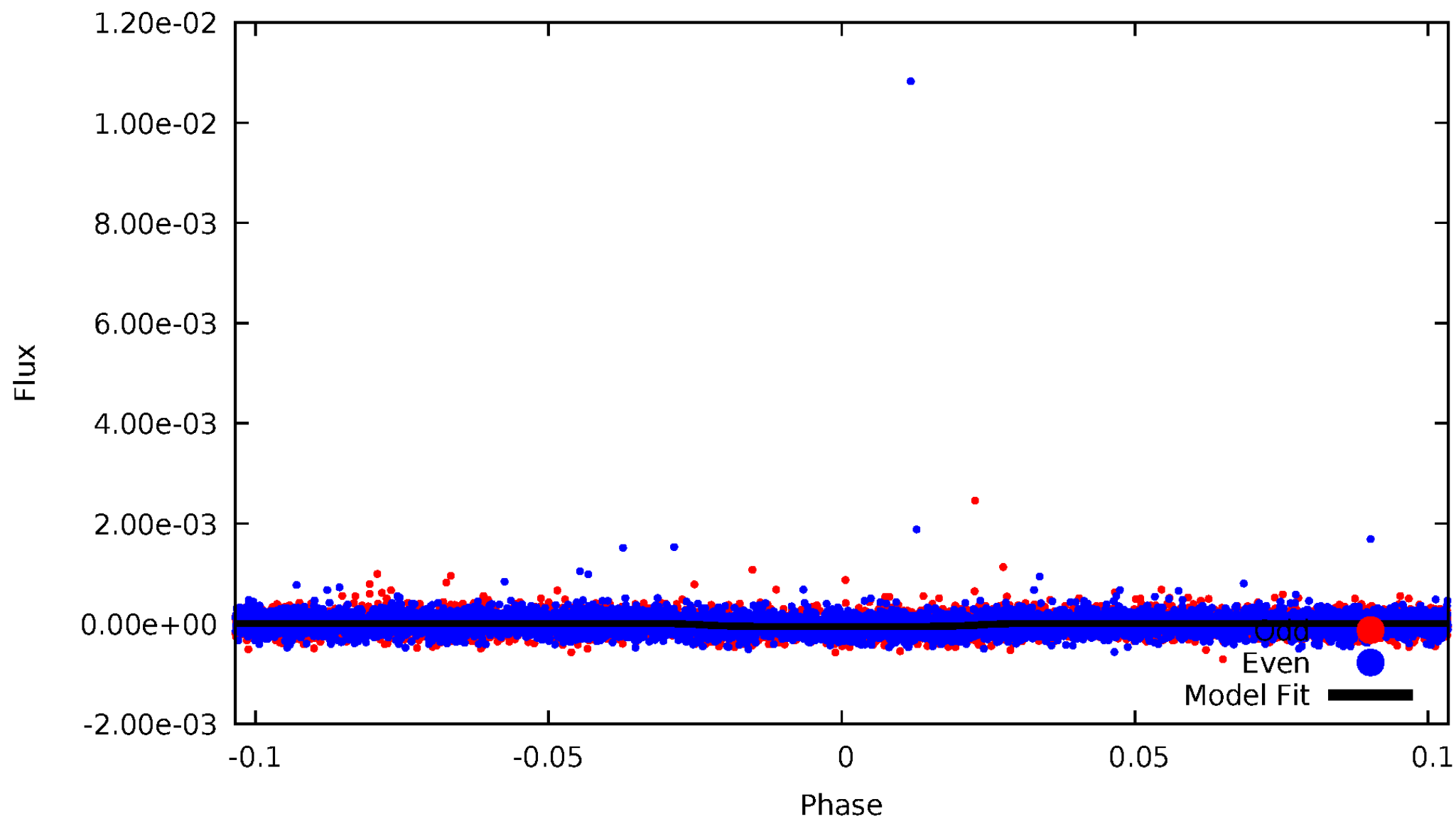


TCE 011090556-01



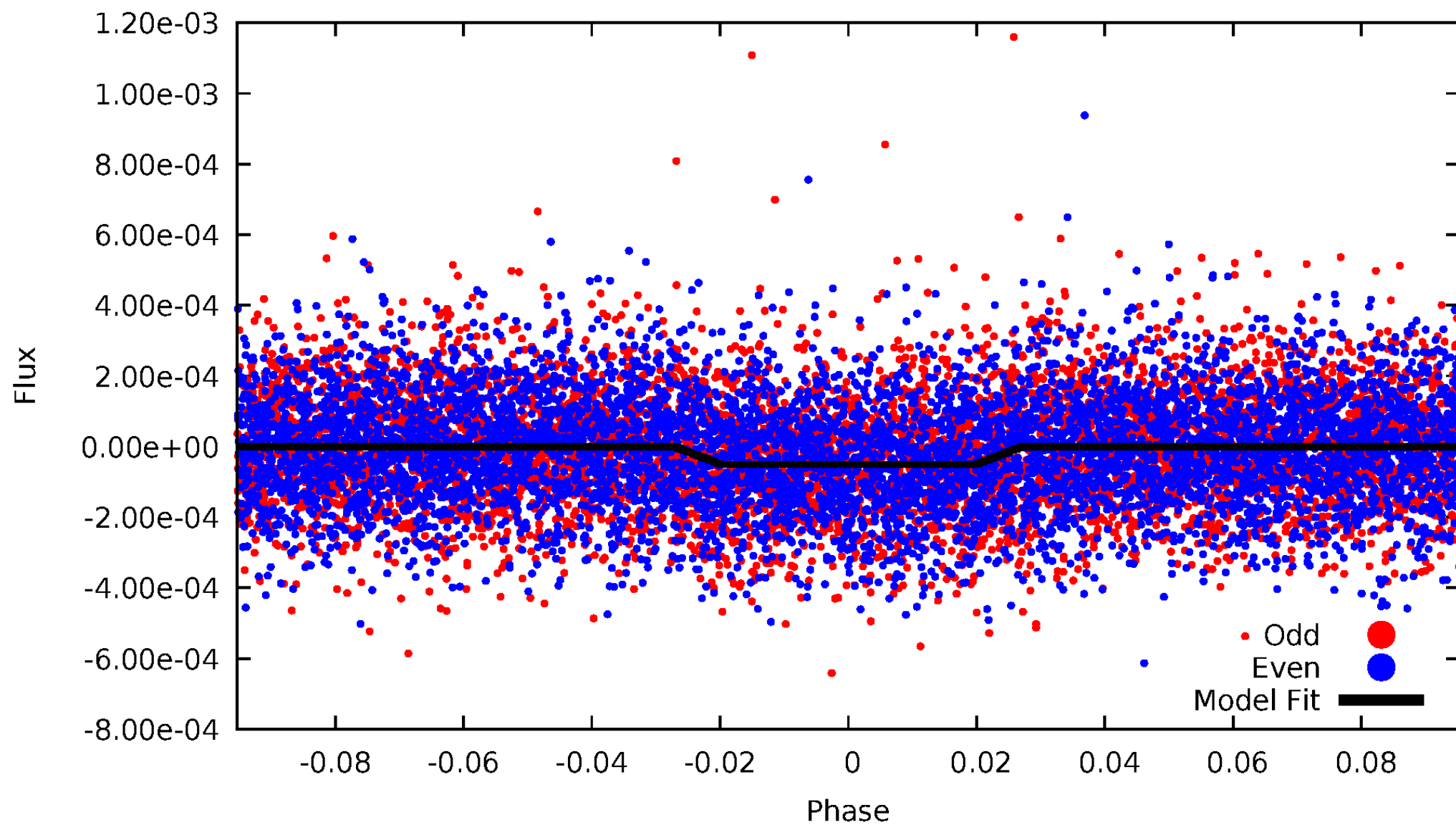
DV Odd/Even

TCE 011090556-01



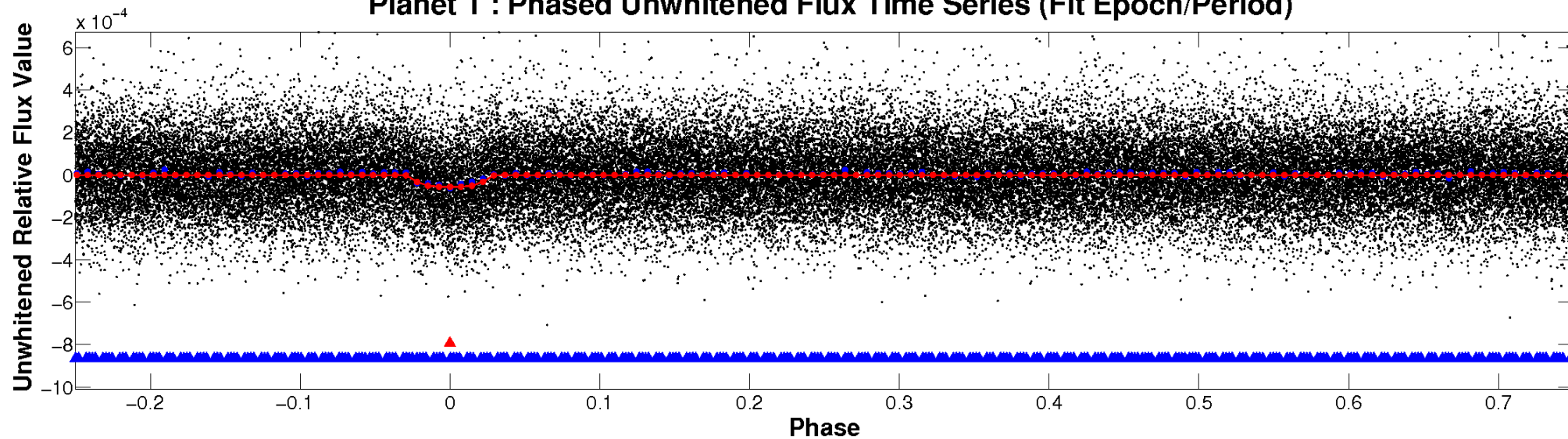
ALT Odd/Even

TCE 011090556-01

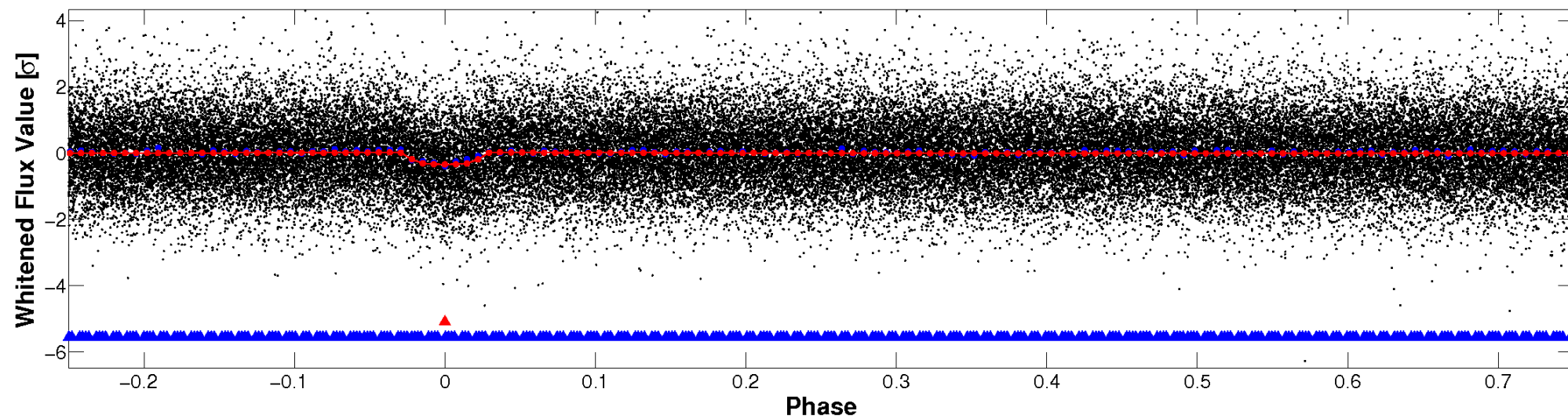


Non-Whitened Vs. Whitened Light Curve

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

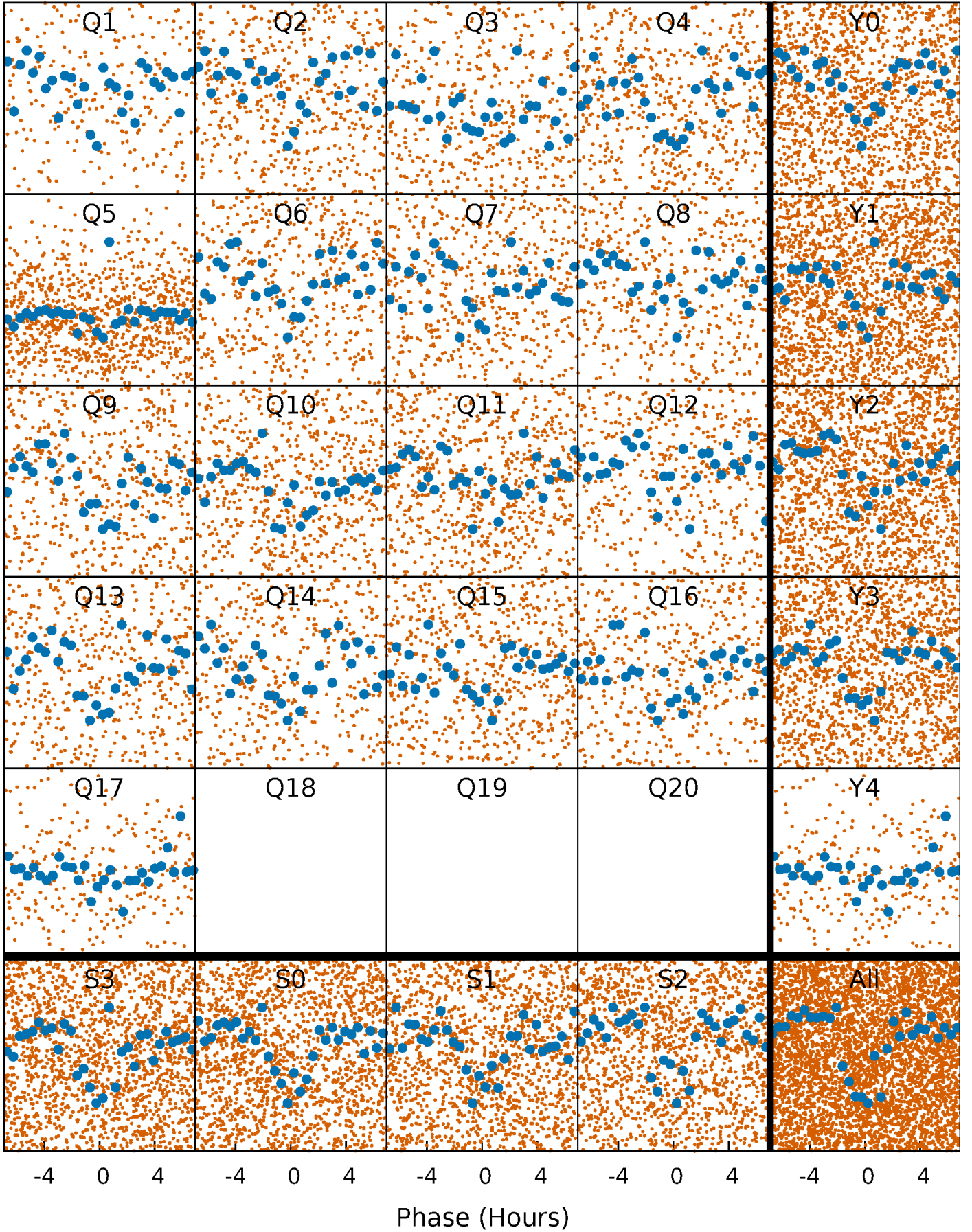


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



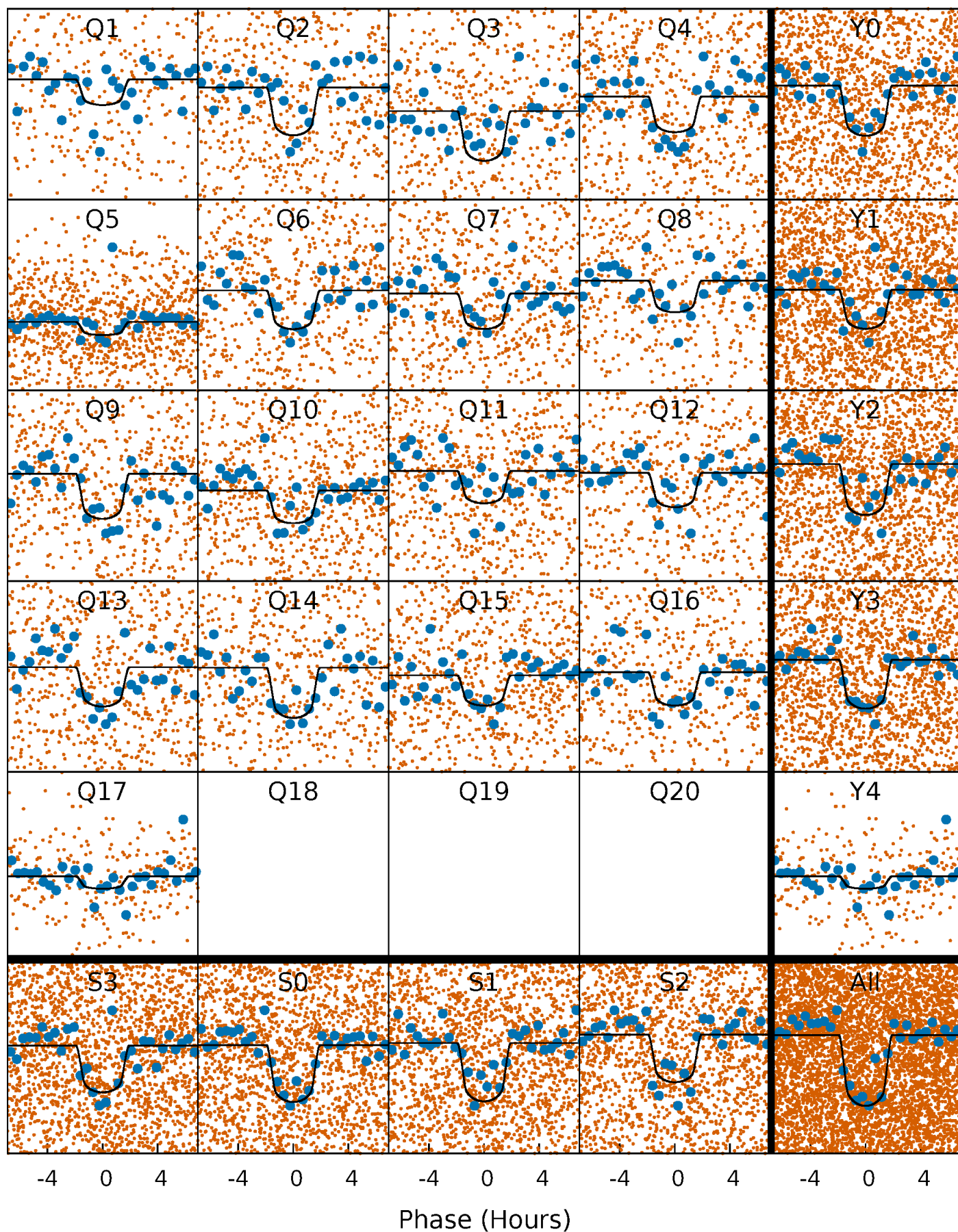
PDC Quarter-Phased Transit Curves

TCE 011090556-01 P= 2.788158 Days $T_0=131.852920$ (BKJD)



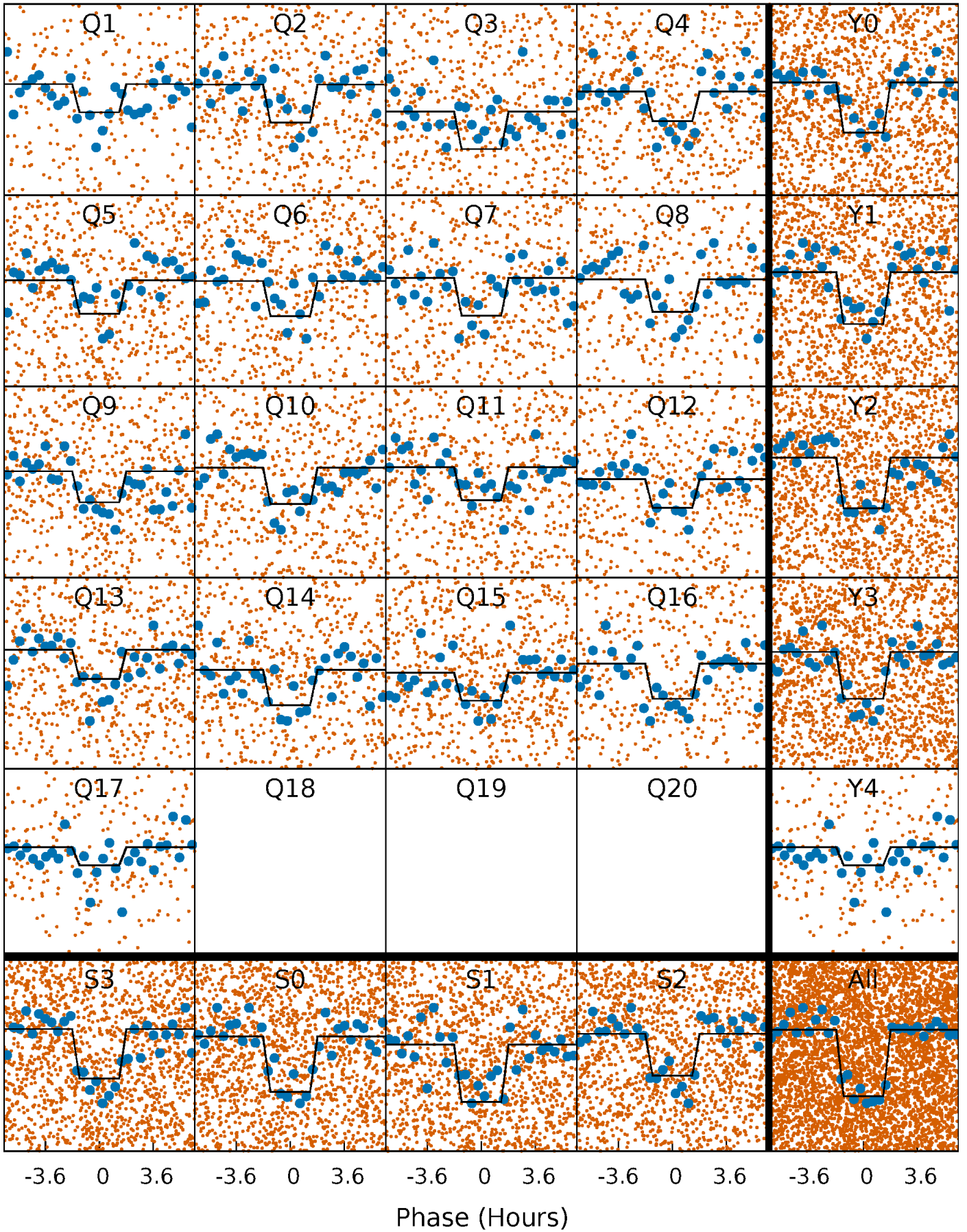
DV Quarter-Phased Transit Curves

TCE 011090556-01 P= 2.788158 Days $T_0=131.852920$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

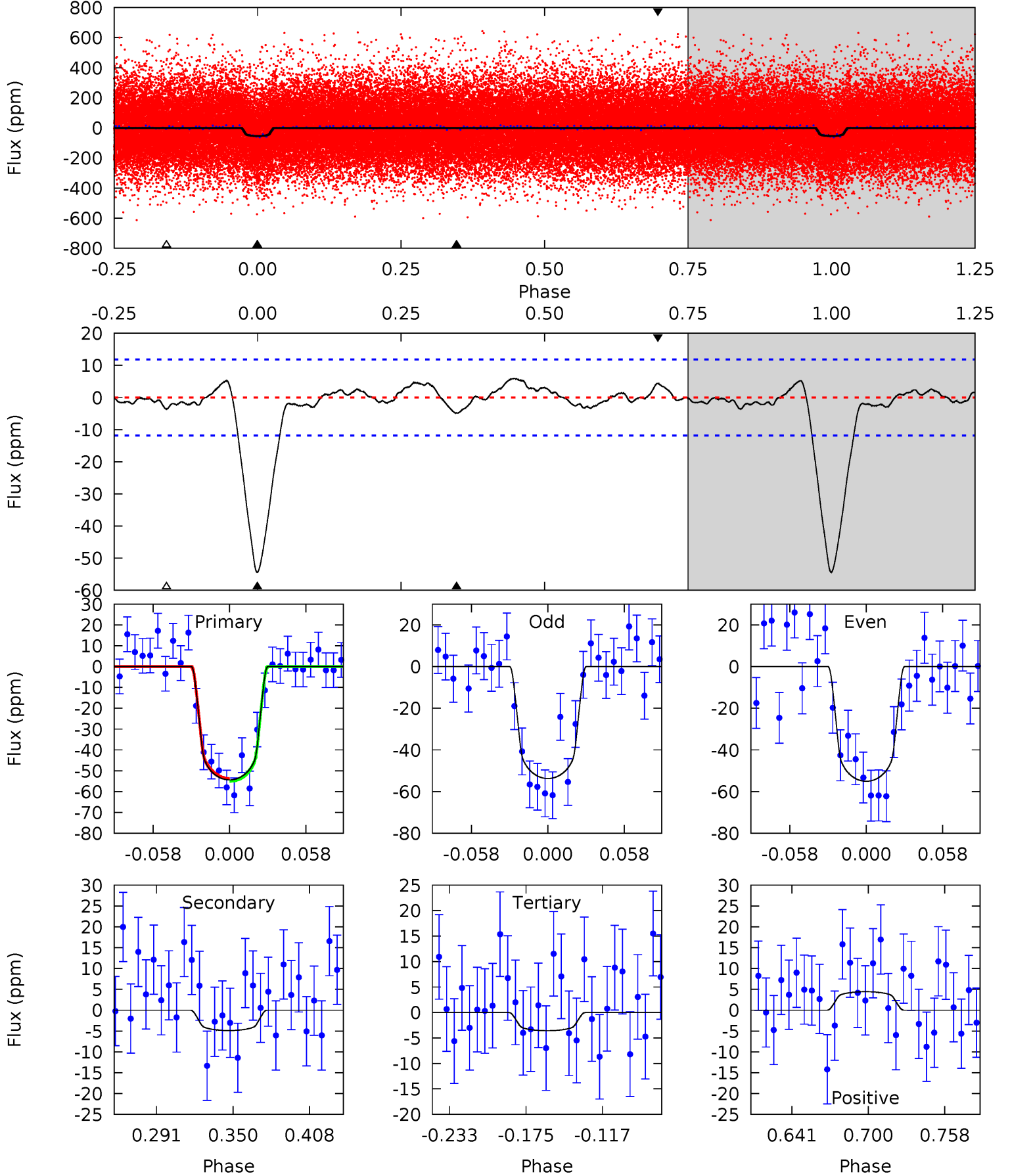
TCE 011090556-01 P= 2.788199 Days $T_0=131.838493$ (BKJD)



DV Model-Shift Uniqueness Test

011090556-01, P = 2.788158 Days, E = 129.064762 Days

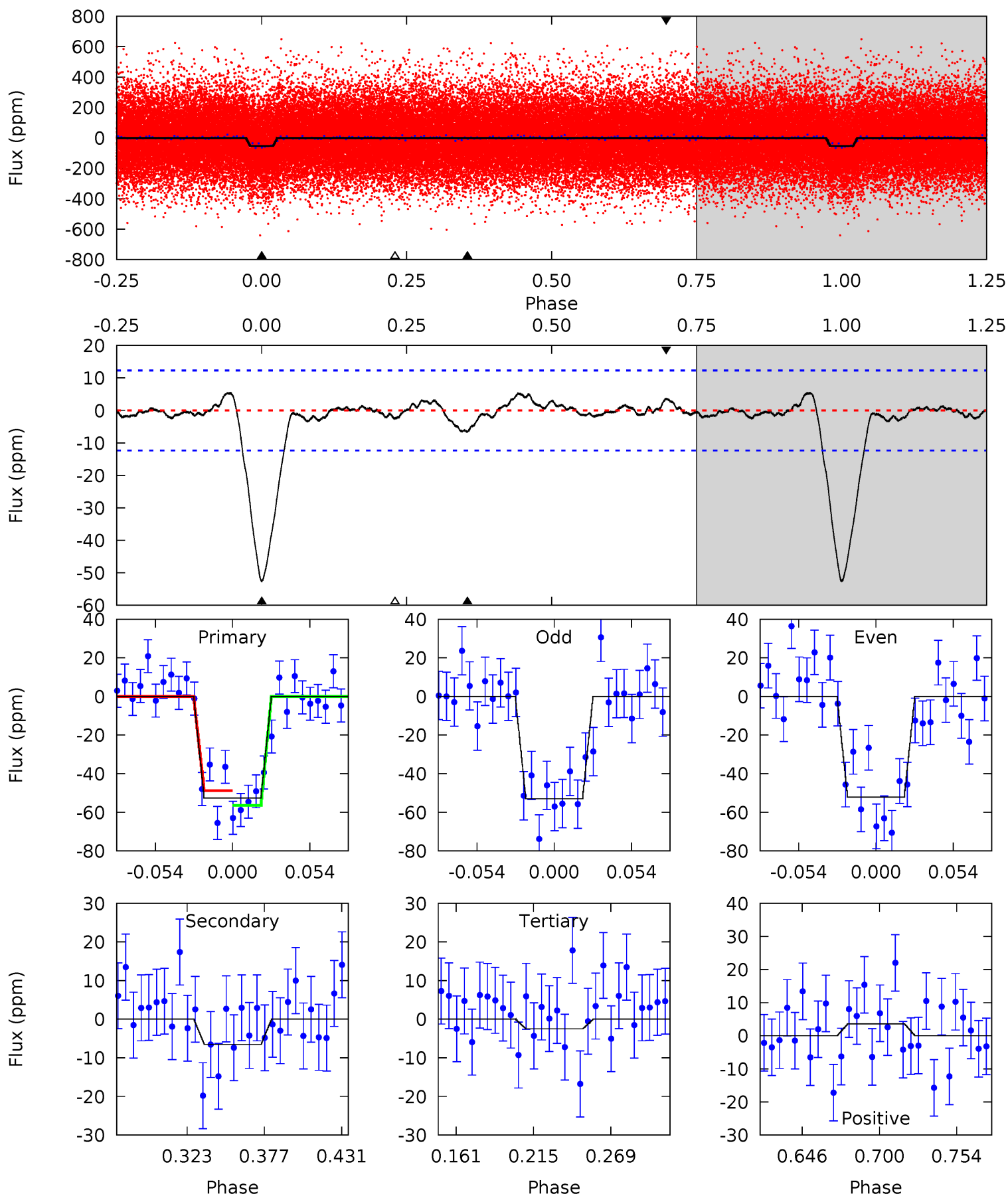
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
21.5	1.93	1.41	1.75	4.68	1.89	0.91	20.1	19.7	0.52	0.18	0.26	0.82	0.10	0.24



Alt Model-Shift Uniqueness Test

011090556-01, P = 2.788199 Days, E = 129.050294 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
20.0	2.49	0.95	1.36	4.69	1.93	0.69	19.1	18.7	1.54	1.13	0.16	0.95	0.09	1.46



Stellar Parameters For KIC 011090556

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5758^{+78}_{-86}	$4.168^{+0.182}_{-0.098}$	$0.120^{+0.150}_{-0.150}$	$1.385^{+0.232}_{-0.283}$	$1.029^{+0.090}_{-0.073}$	$0.546^{+0.461}_{-0.165}$
	+1%/-1%	+4%/-2%	+125%/-125%	+17%/-20%	+9%/-7%	+85%/-30%
Source	SPE90	SPE90	SPE90	DSEP		

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

Secondary Eclipse Parameters for KIC 011090556-01 / KOI 2977.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-5 ± 3	$1.25^{+0.40}_{-0.38}$	2087^{+90}_{-114}	3332^{+574}_{-478}	$2.441^{+3.794}_{-1.425}$
Alt.	-7 ± 3	$1.03^{+0.40}_{-0.33}$	2103^{+90}_{-115}	3748^{+687}_{-468}	$4.743^{+6.936}_{-2.601}$

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 $A_{obs} \gg 1.0$

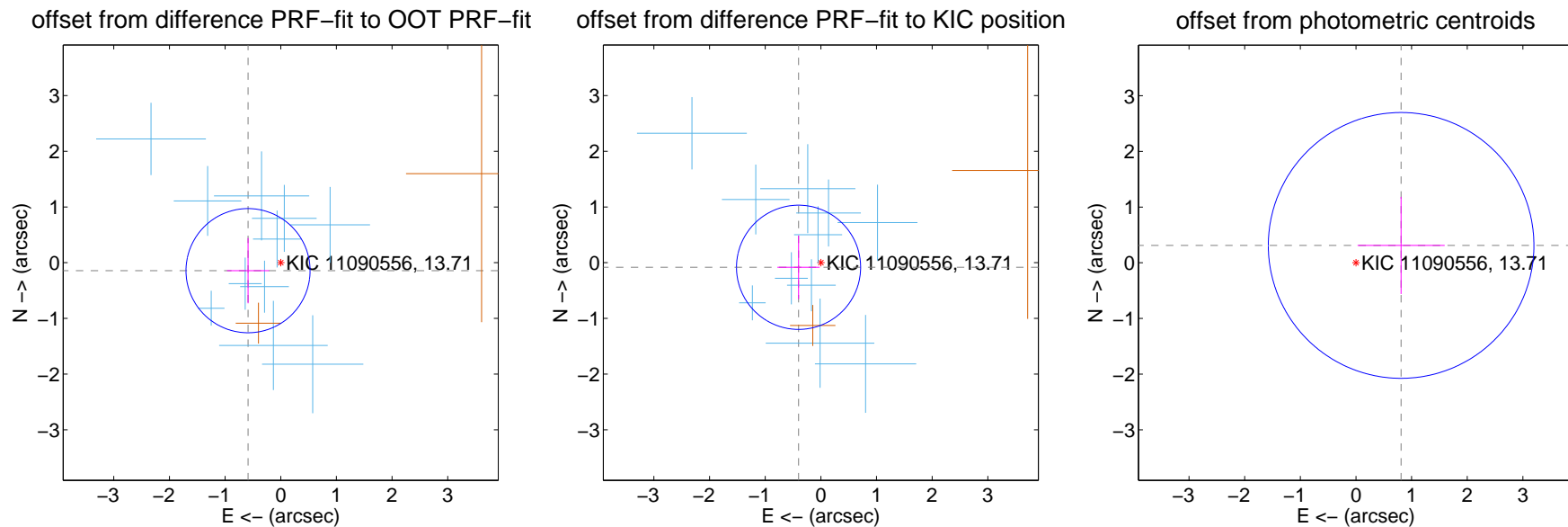
DV Centroid Data

Supplemental centroid analysis for 011090556-01. Kepler magnitude: 13.71. Transit SNR 16.34

There are 11 quarters with good PRF difference image offsets

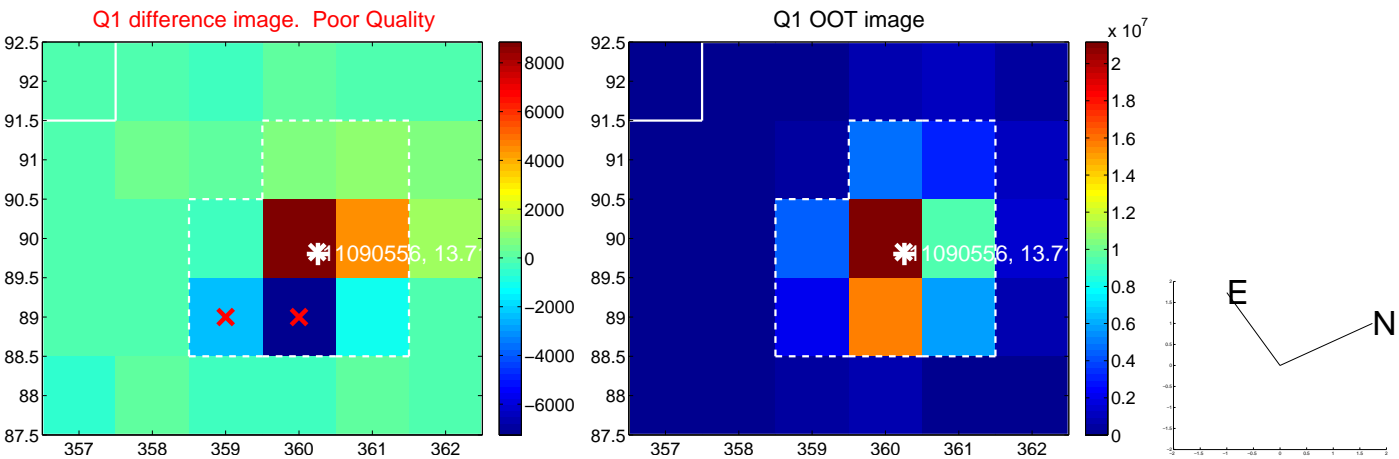
The direct PRF centroid is offset from the target star catalog position by about 0.14 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.605 ± 0.372	1.63	0.588 ± 0.378	-0.143 ± 0.586
PRF-fit source offset from KIC position	0.409 ± 0.372	1.10	0.401 ± 0.380	-0.083 ± 0.569
photometric centroid source offset	0.87 ± 0.80	1.09	-0.81 ± 0.78	0.31 ± 0.87

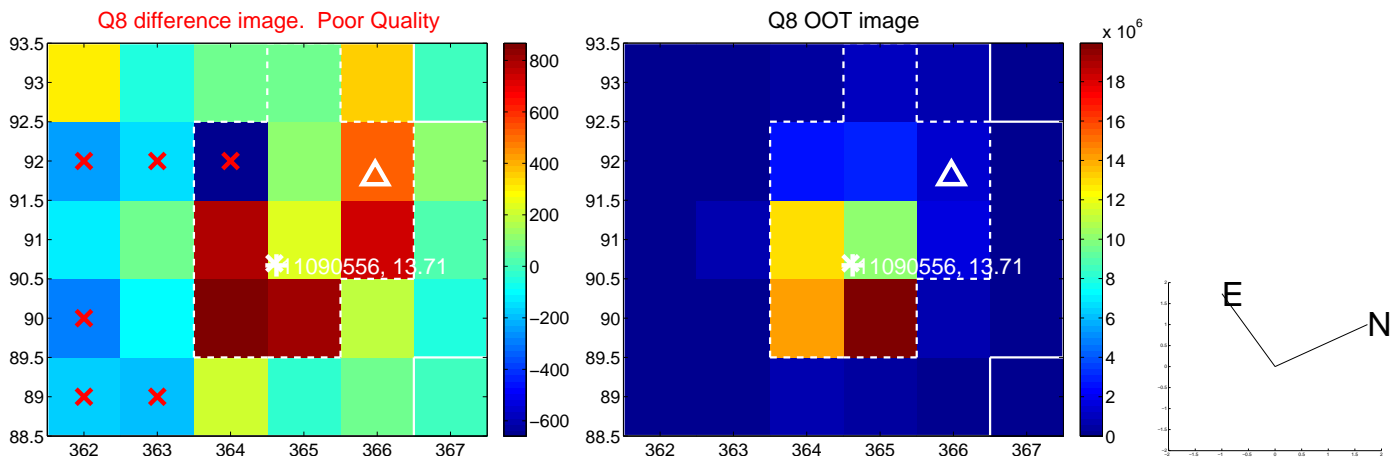
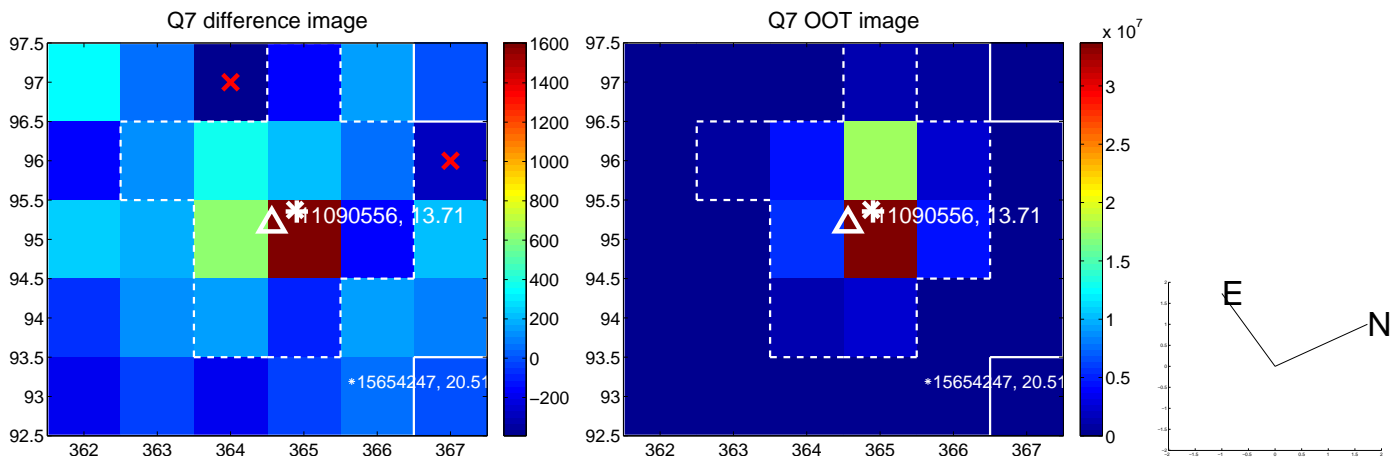
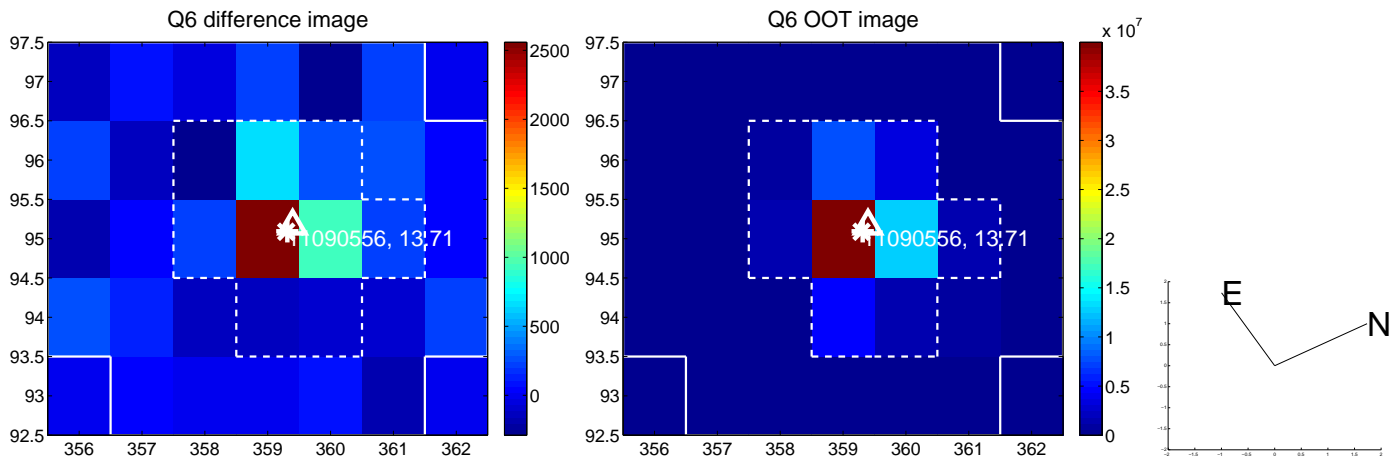
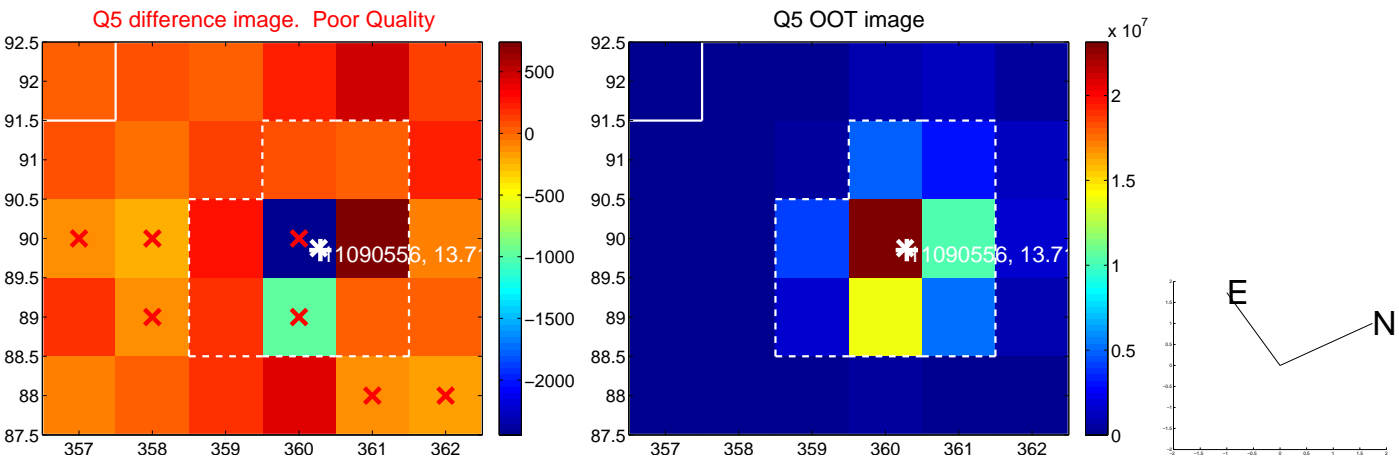


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

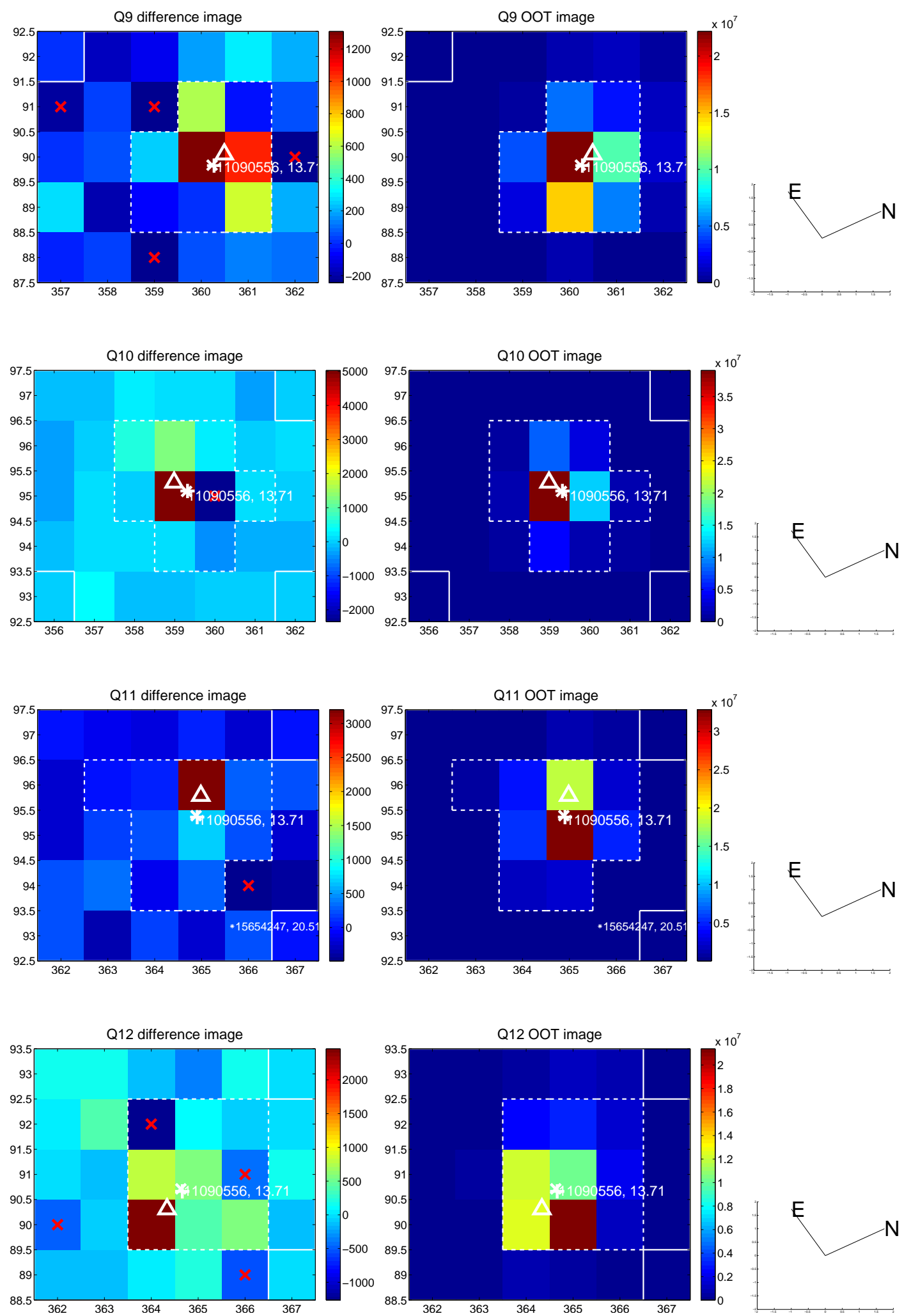
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



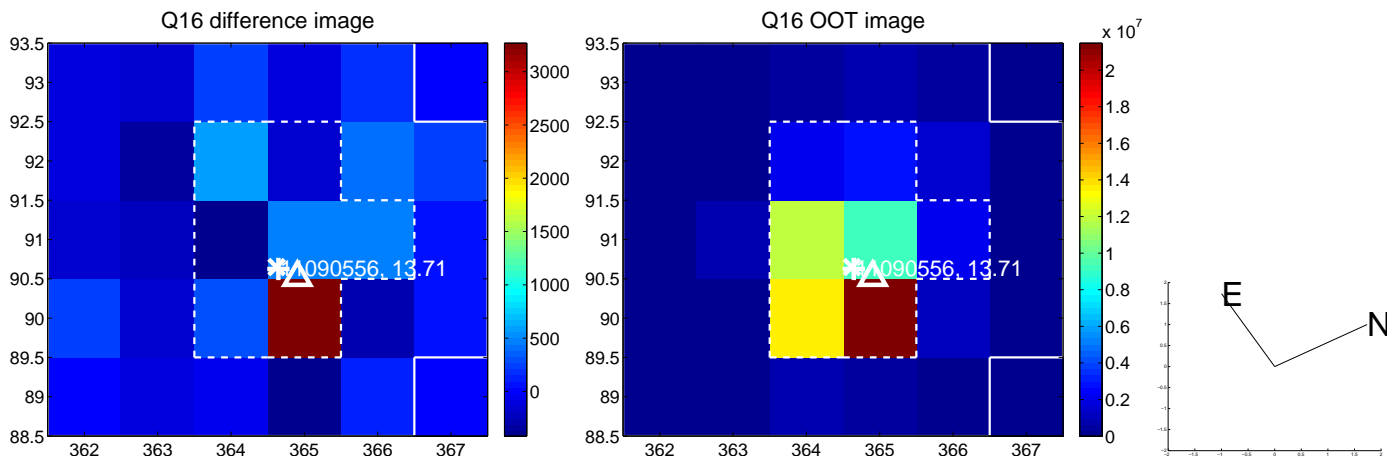
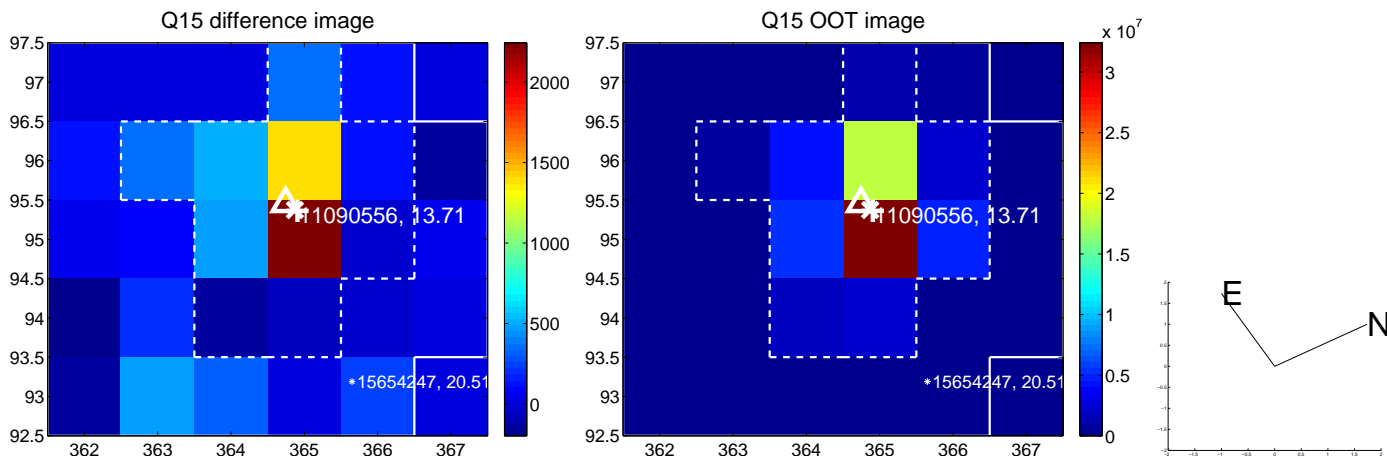
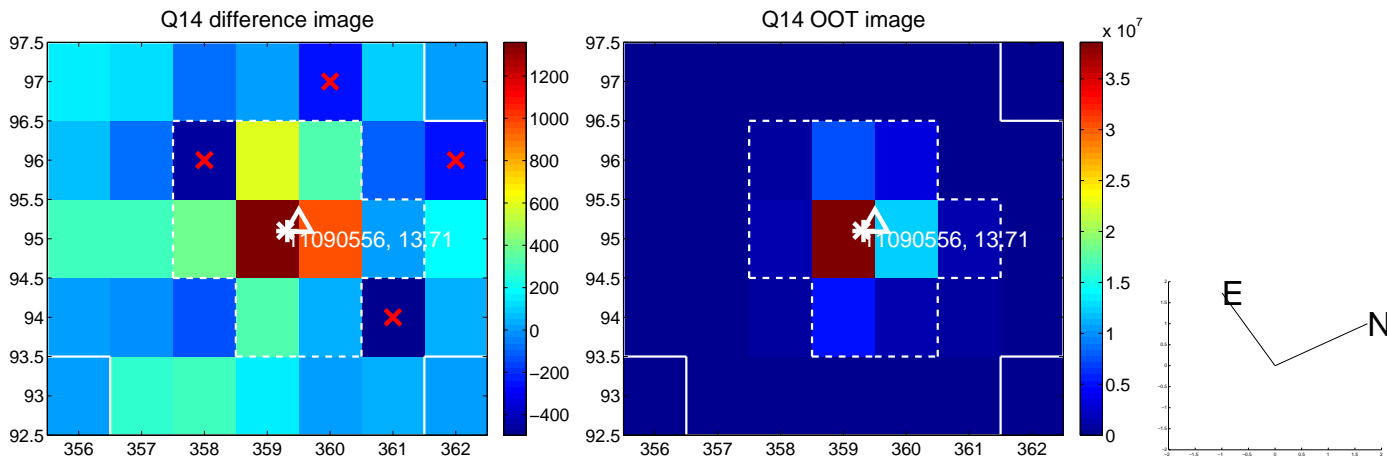
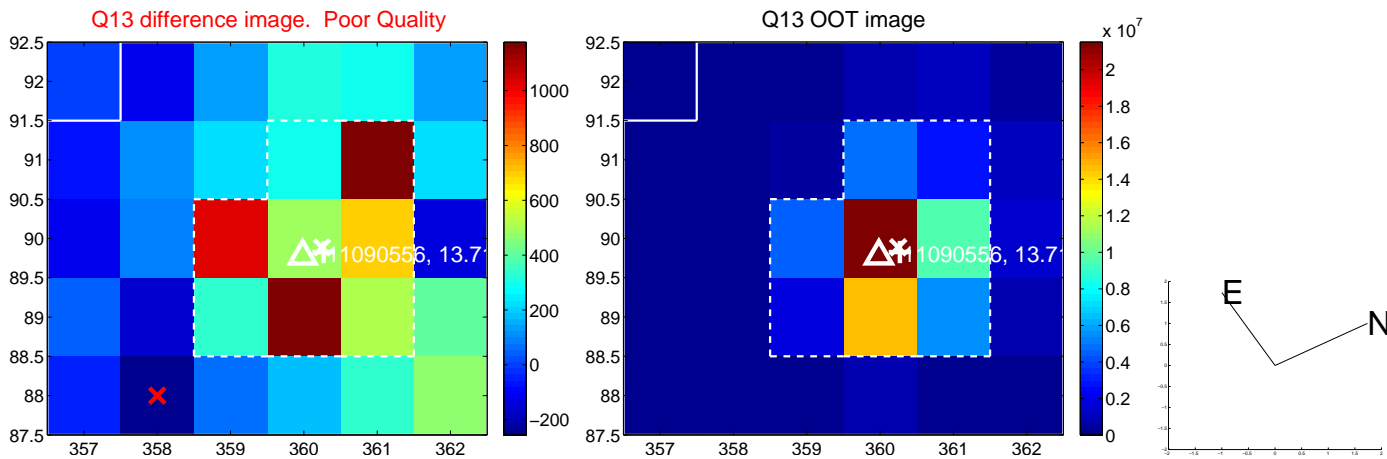
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



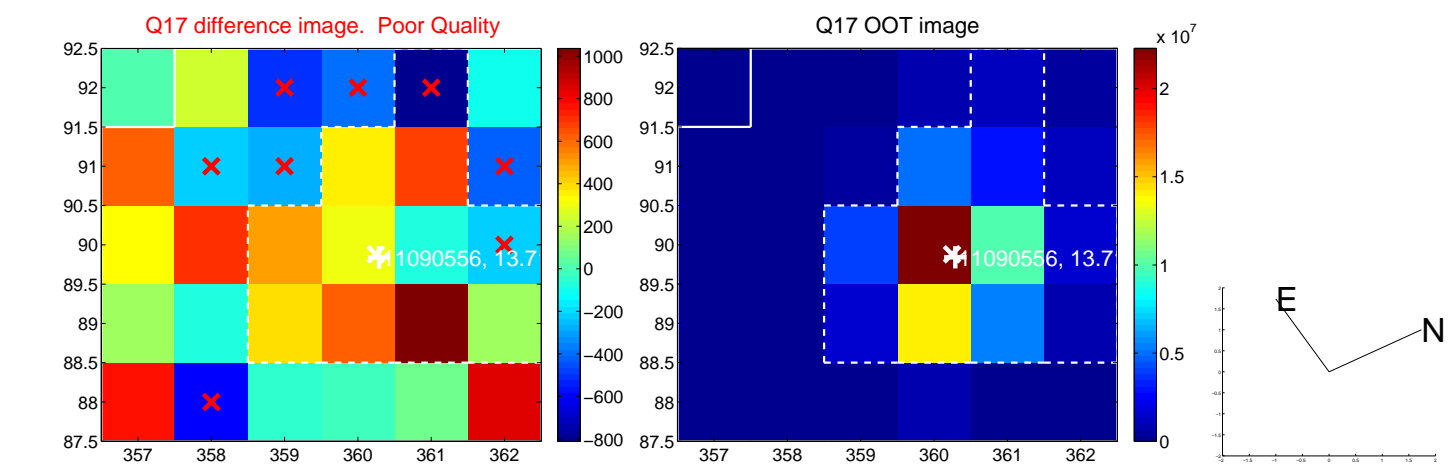
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



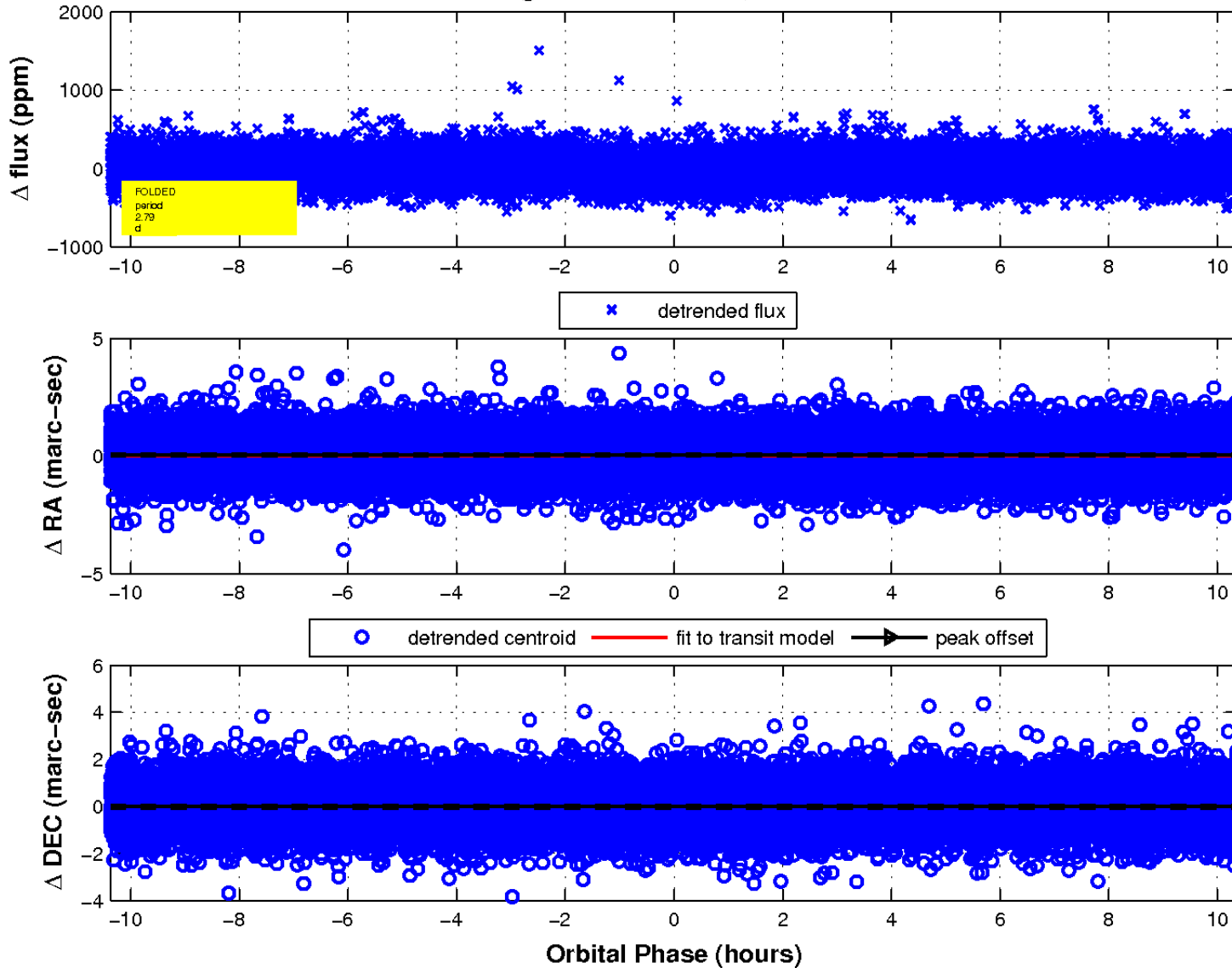
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

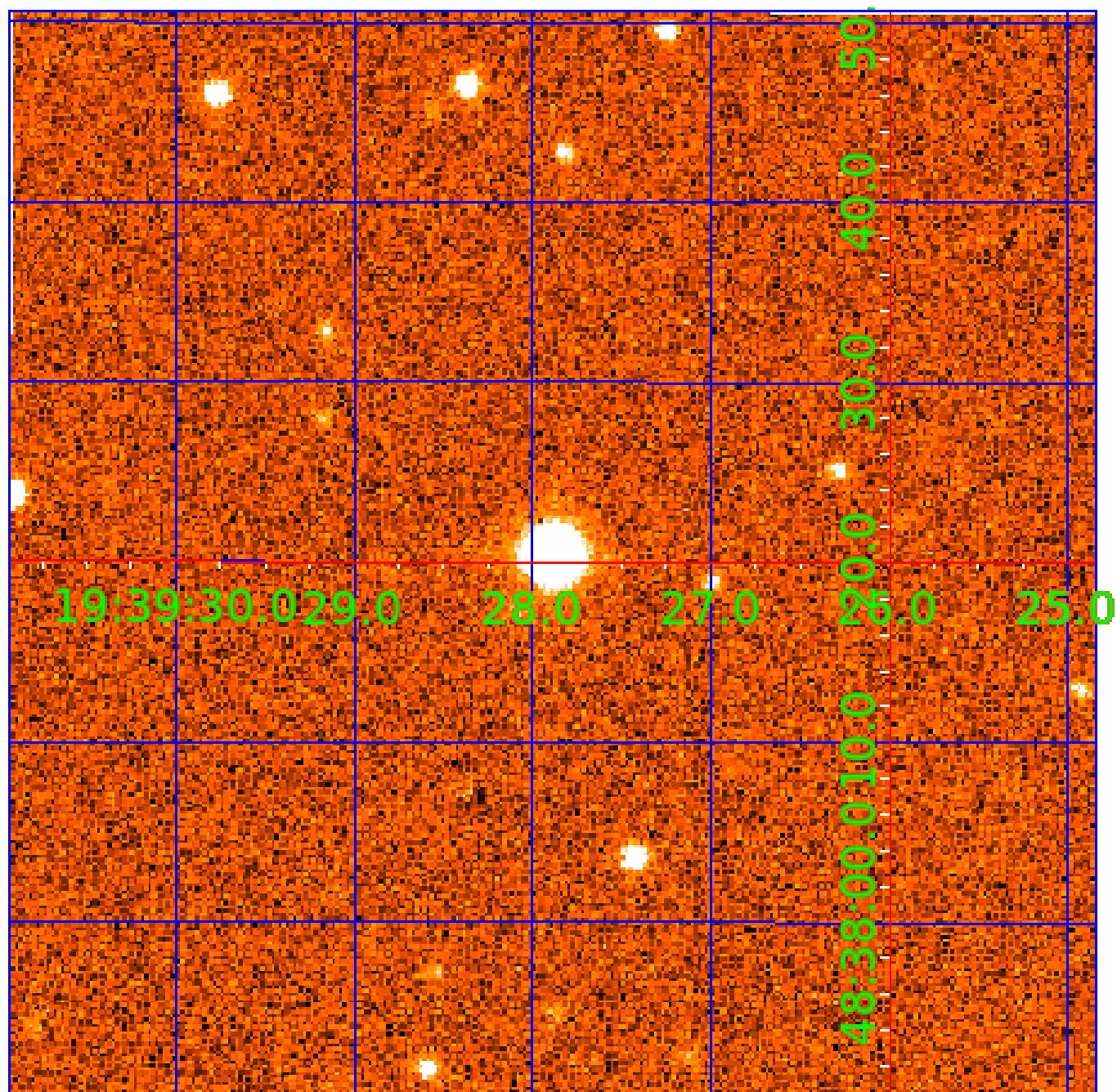


fluxWeightedCentroids, Planet 1 of 2



UKIRT Image

Declination



KIC 011090556

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})
011090556-01	OBS	2977.01	2.788158	131.852920	56.4	3.459	14.9	16.3	1.39	5758	1.30	1231.76
011090556-02	OBS	2977.02	4.138273	133.229559	63.3	3.572	13.6	14.3	1.39	5758	1.29	727.54

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
011090556-01	OBS	PC	1.00	0	0	0	0	NO_COMMENT
011090556-02	OBS	PC	0.98	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.

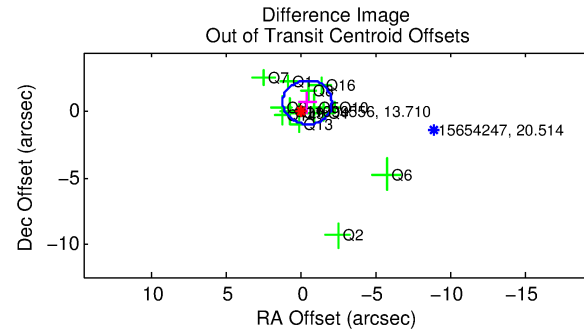
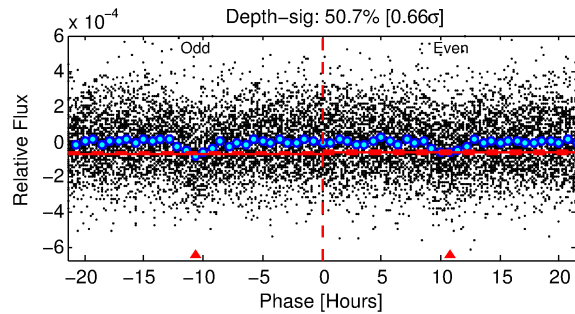
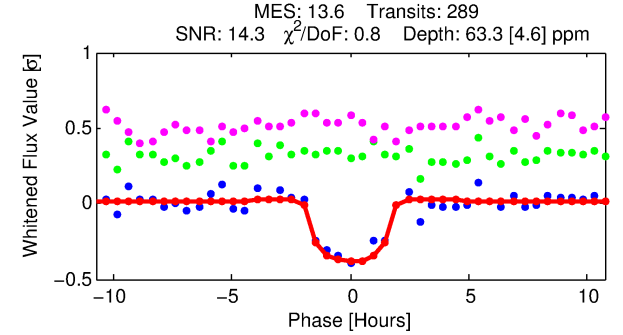
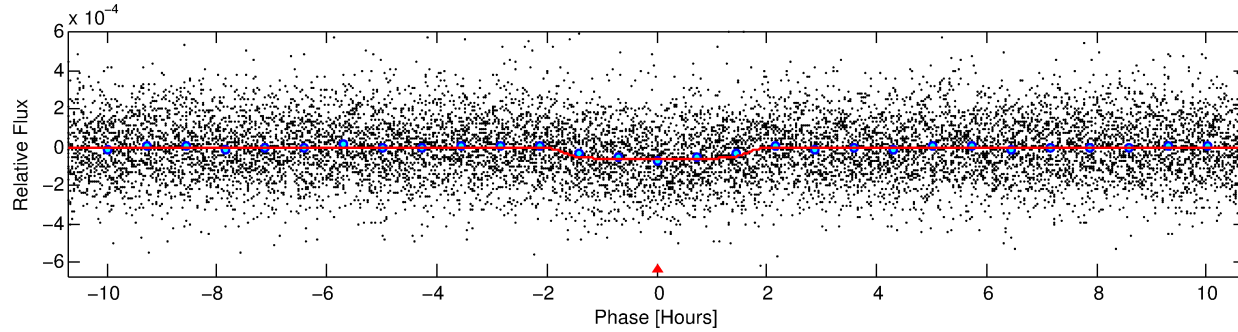
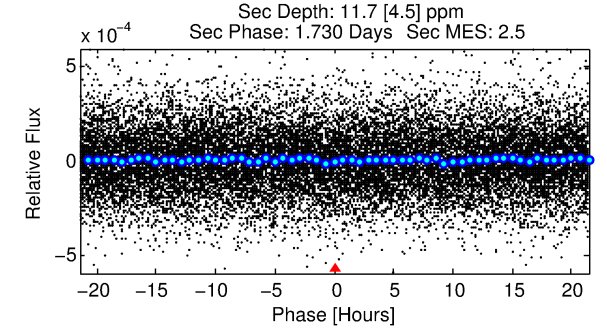
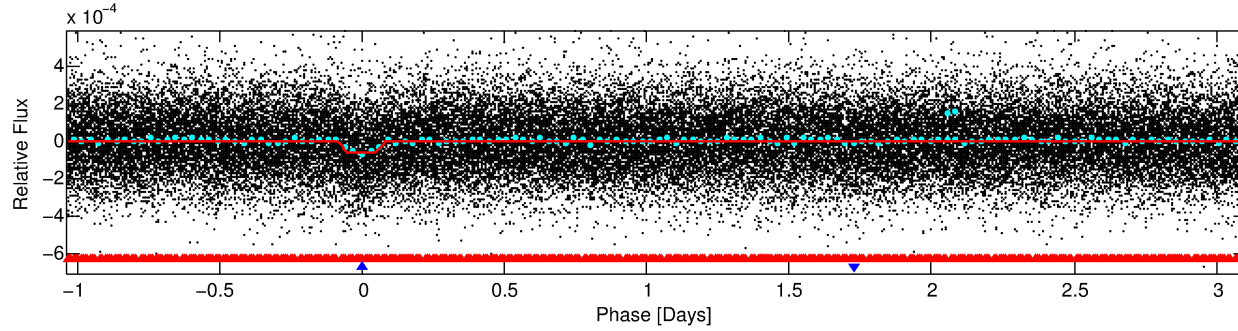
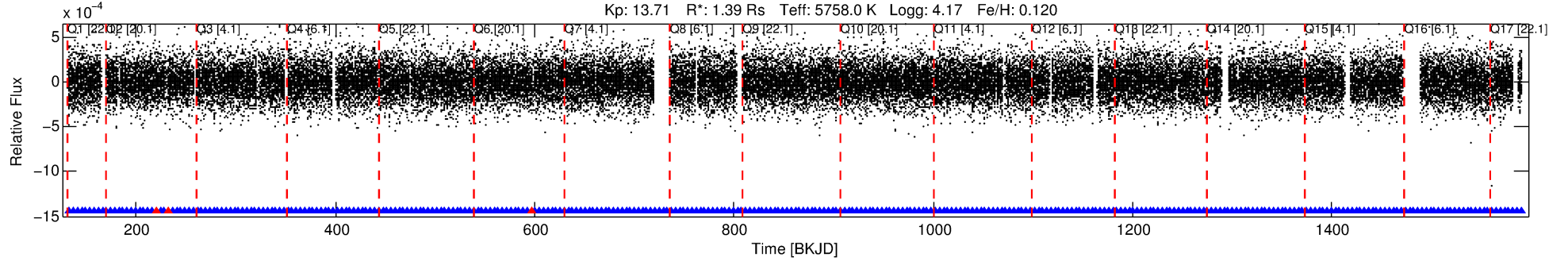
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 011090556-02

No Significant Match Found

DV One-Page Summary

KIC: 11090556 Candidate: 2 of 2 Period: 4.138 d
KOI: K02977.02 Corr: 0.983



DV Fit Results:

Period = 4.13827 [0.00002] d
Epoch = 133.2296 [0.0040] BKJD
Rp/R* = 0.0085 [0.0035]
a/R* = 4.46 [8.02]
b = 0.88 [0.50]
Seff = 727.54 [230.27]
Teq = 1324 [105] K
Rp = 1.29 [0.58] Re
a = 0.0510 [0.0099] AU
Ag = 10.07 [9.57] [0.95σ]
Teffp = 3648 [821] K [2.81σ]

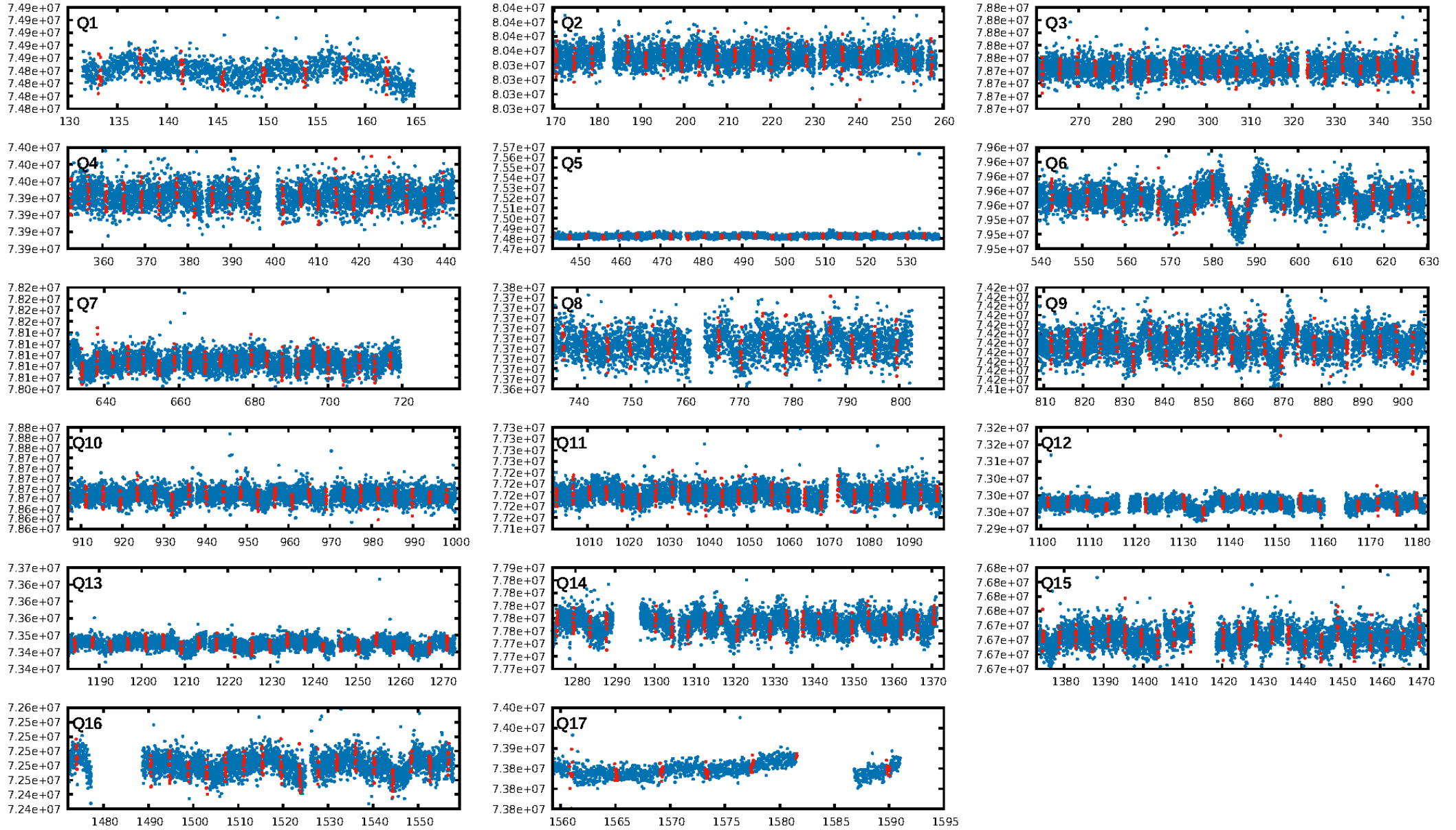
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [6.52σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 4.00e-41
RollingBand-fgt: 0.99 [277/280]
GhostDiagnostic-chr: 2.47
Centroid-sig: 0.2%
Centroid-so: 1.810 arcsec [1.99σ]
OotOffset-rm: 0.858 arcsec [1.55σ]
KicOffset-rm: 0.984 arcsec [1.93σ]
OotOffset-st: 4/3/3/4 [14]
KicOffset-st: 4/3/3/4 [14]
DiffImageQuality-fgm: 0.71 [10/14]
DiffImageOverlap-fno: 1.00 [17/17]

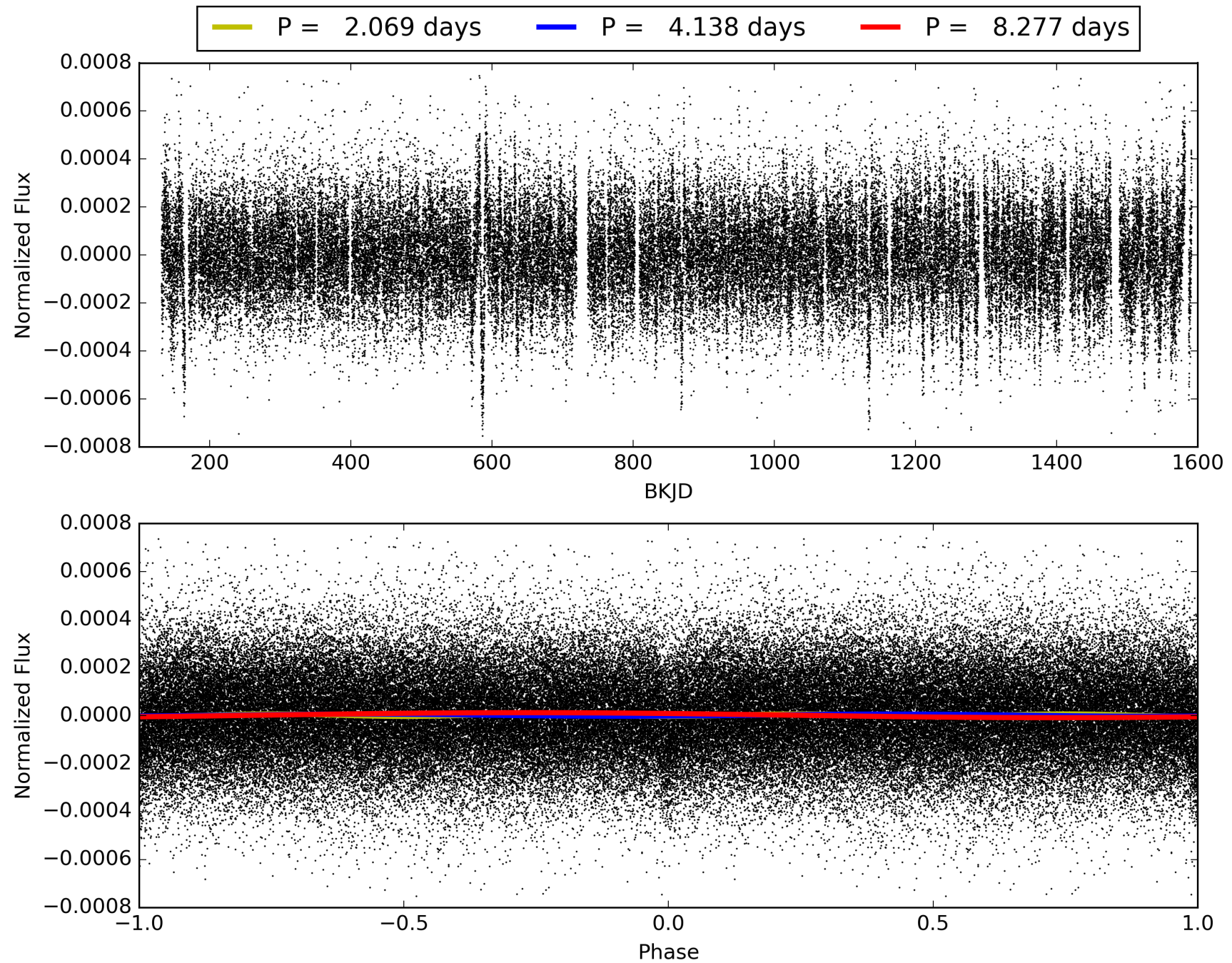
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 03:59:35 Z

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

TCE 011090556-02, PDC Light Curves

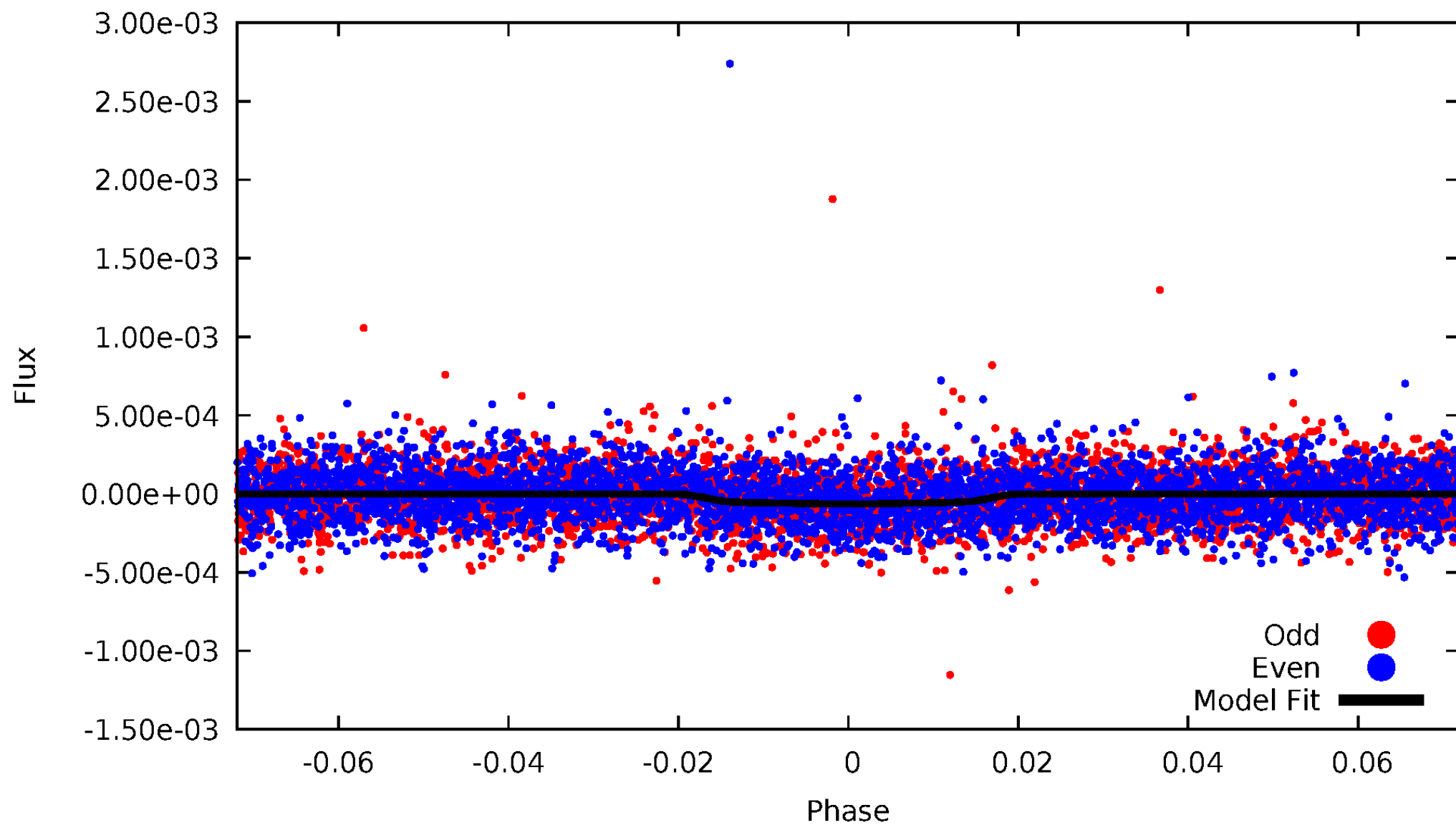


TCE 011090556-02



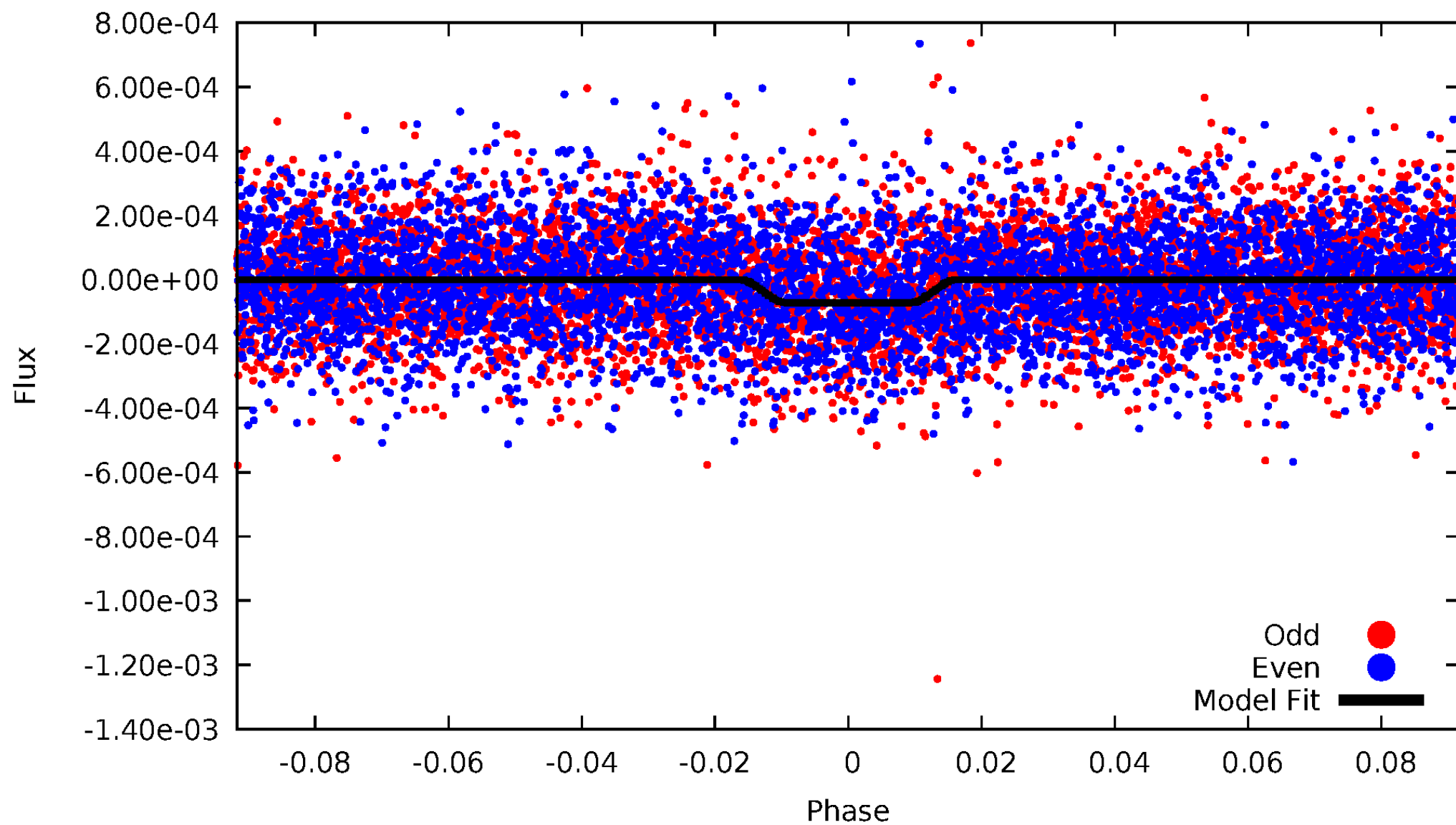
DV Odd/Even

TCE 011090556-02



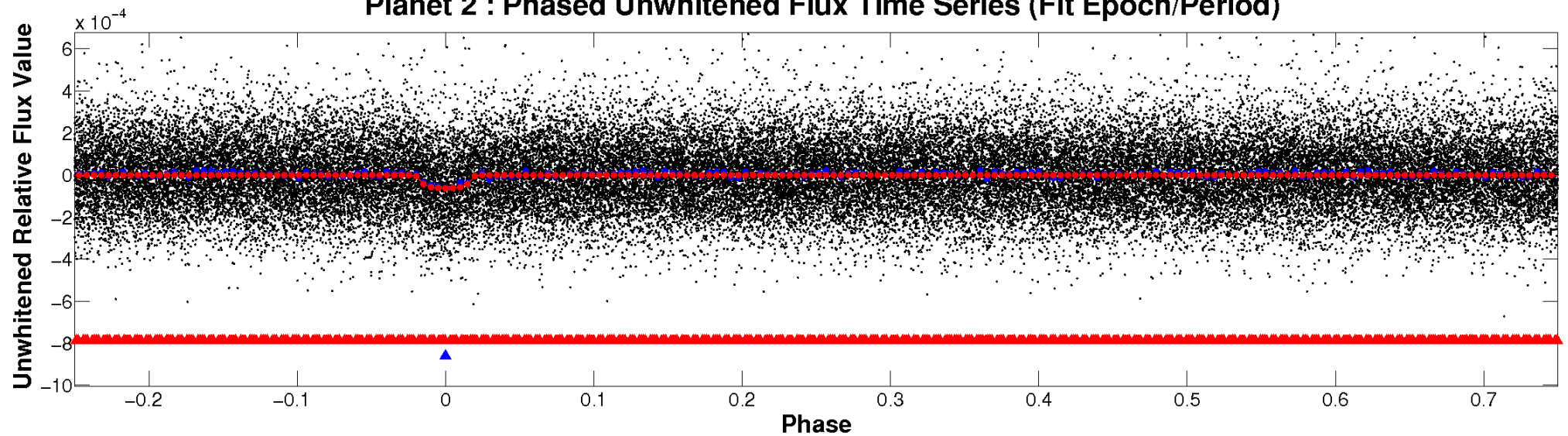
ALT Odd/Even

TCE 011090556-02

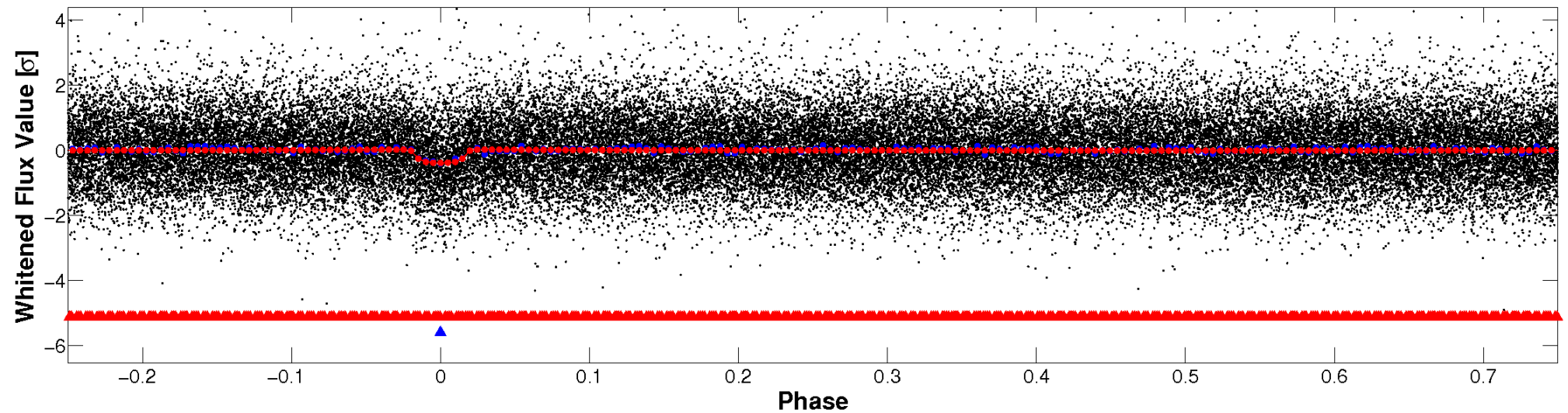


Non-Whitened Vs. Whitened Light Curve

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

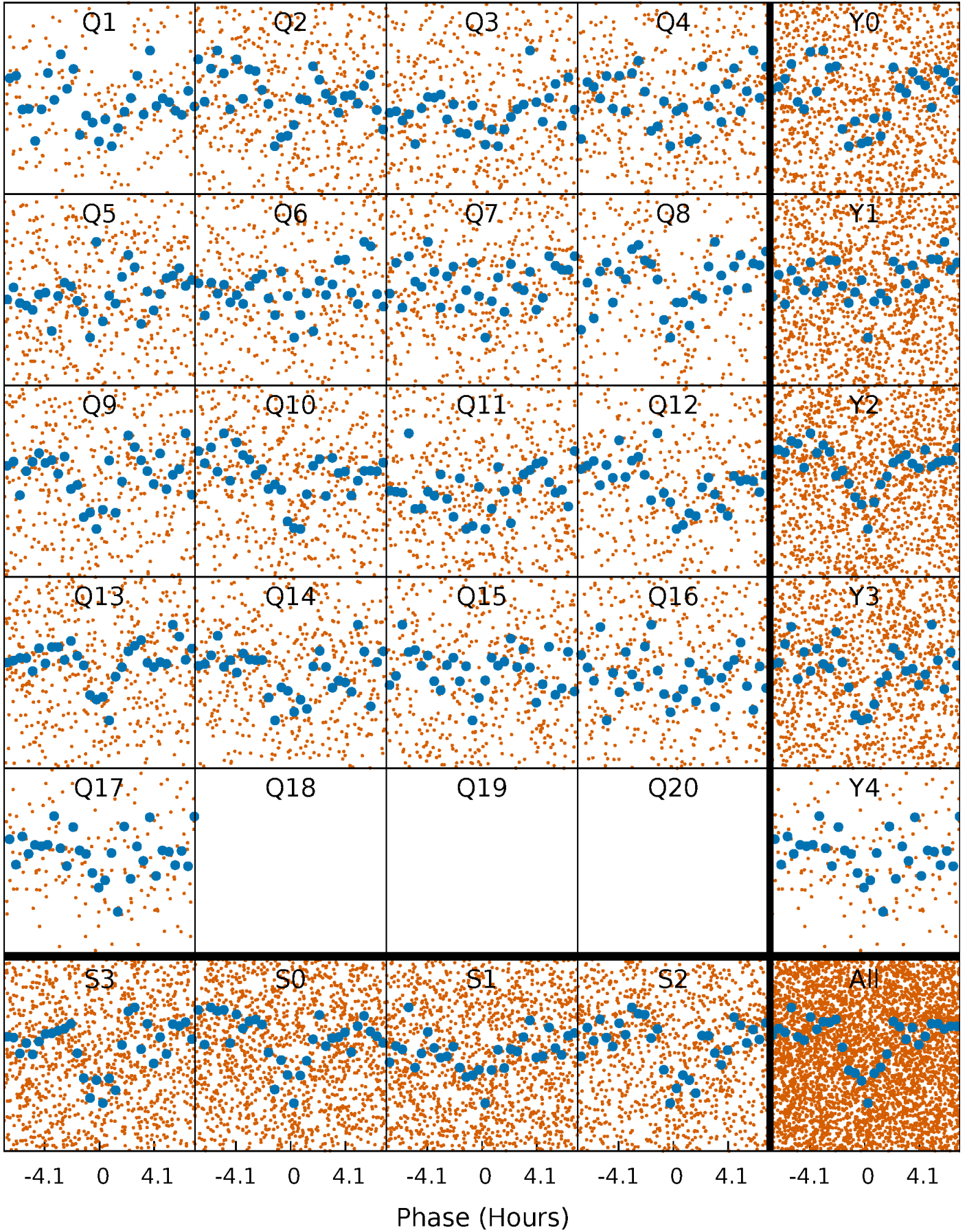


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



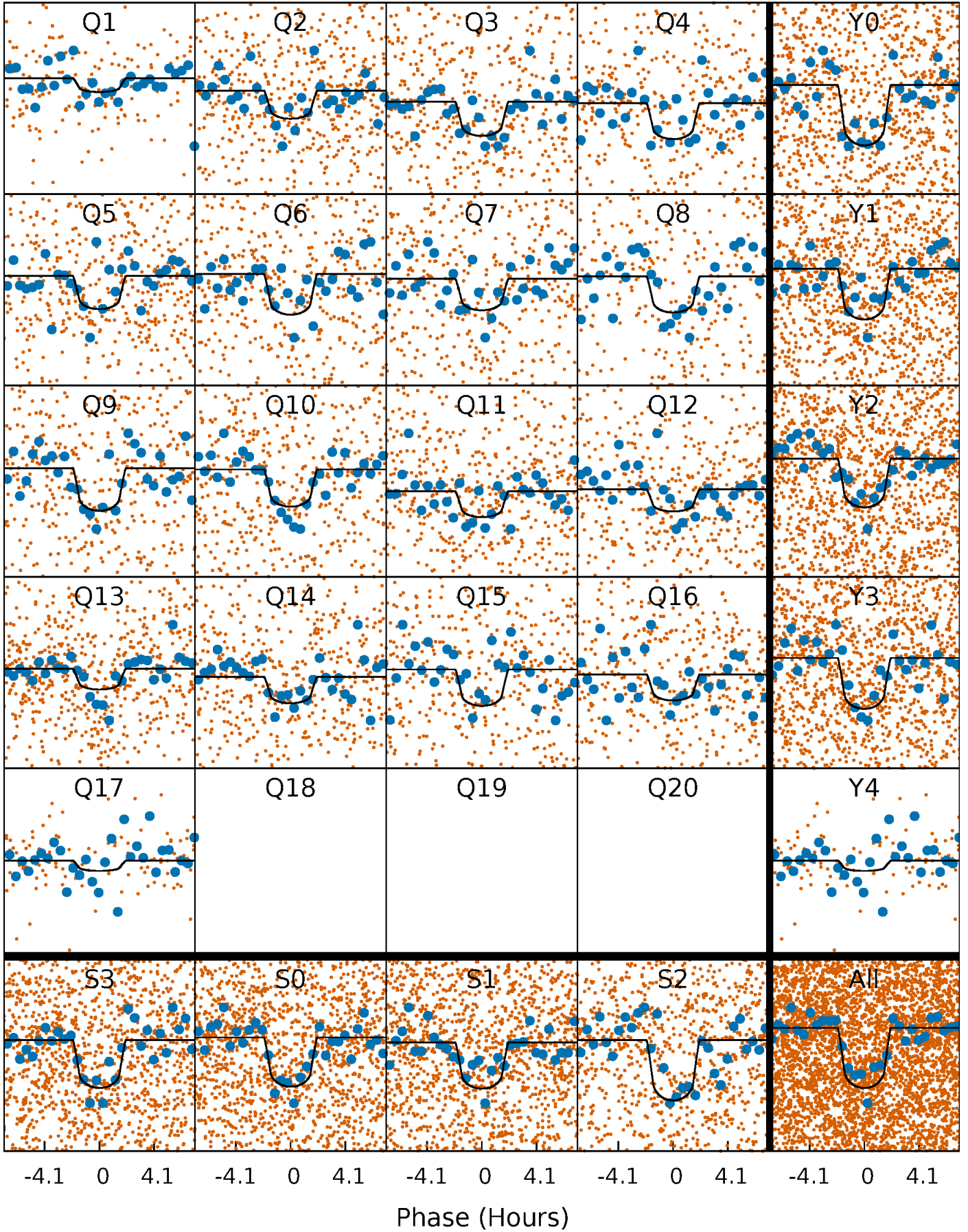
PDC Quarter-Phased Transit Curves

TCE 011090556-02 P= 4.138273 Days $T_0=133.229559$ (BKJD)



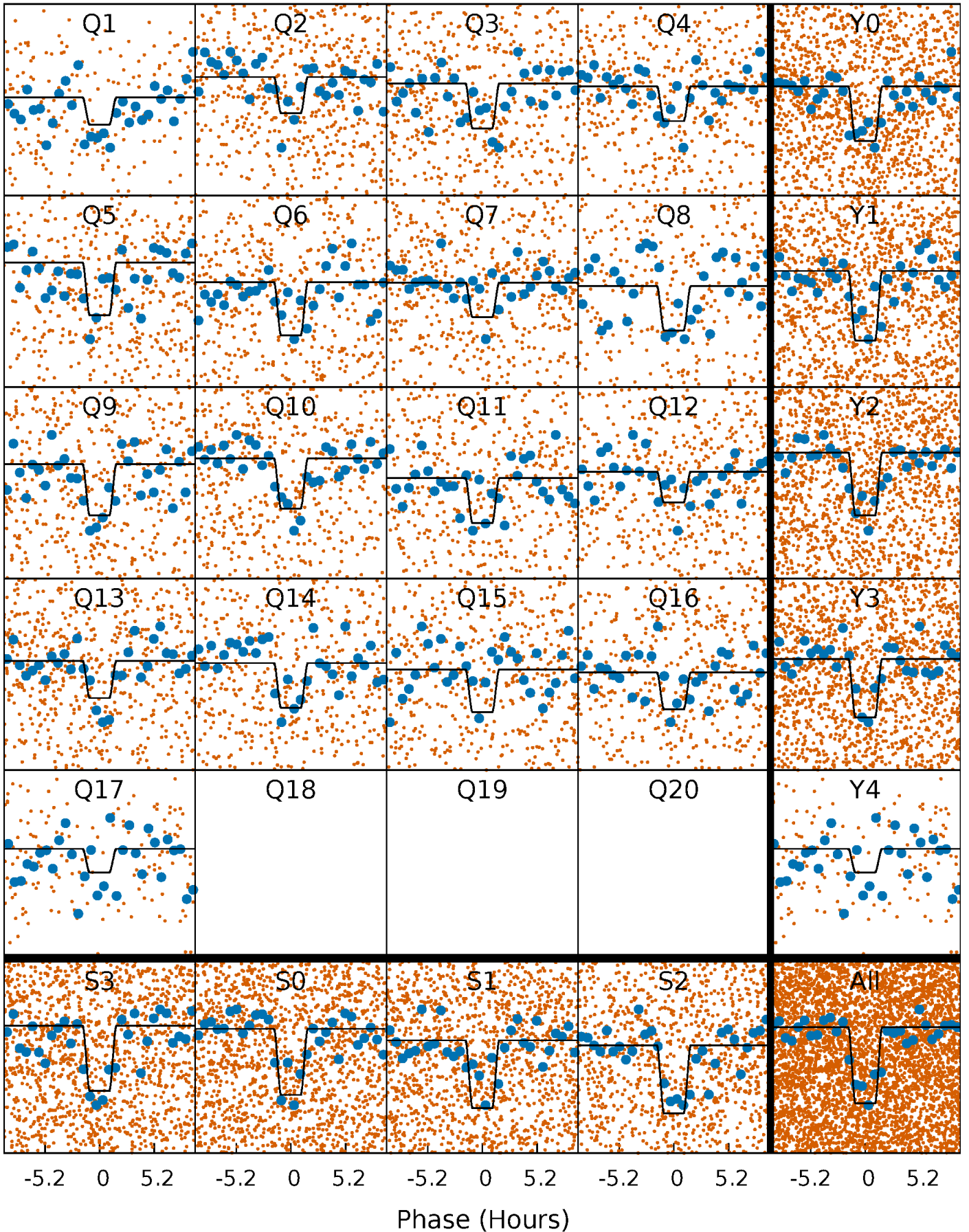
DV Quarter-Phased Transit Curves

TCE 011090556-02 P= 4.138273 Days $T_0=133.229559$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

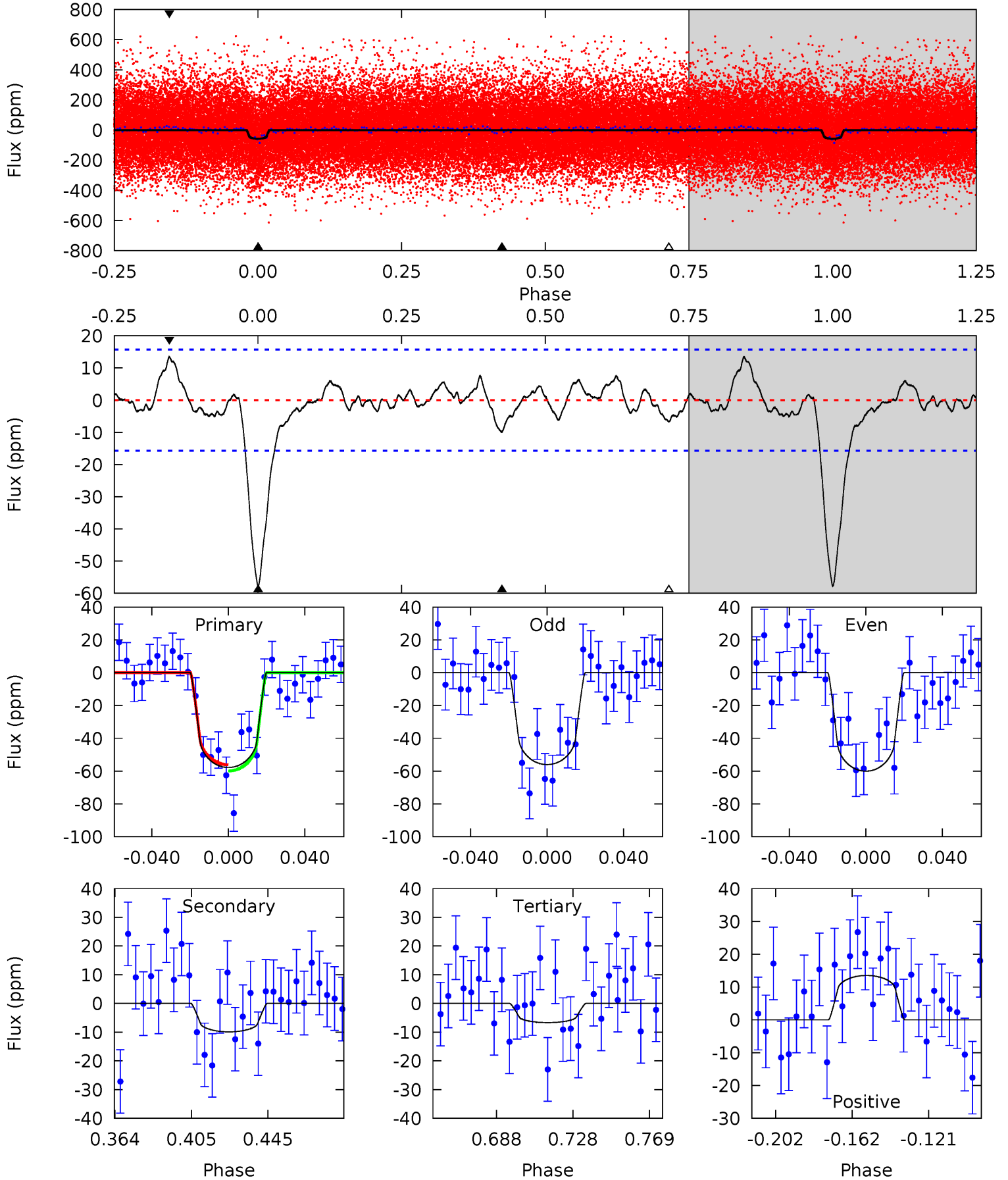
TCE 011090556-02 P= 4.138242 Days $T_0=133.234178$ (BKJD)



DV Model-Shift Uniqueness Test

011090556-02, P = 4.138273 Days, E = 129.091286 Days

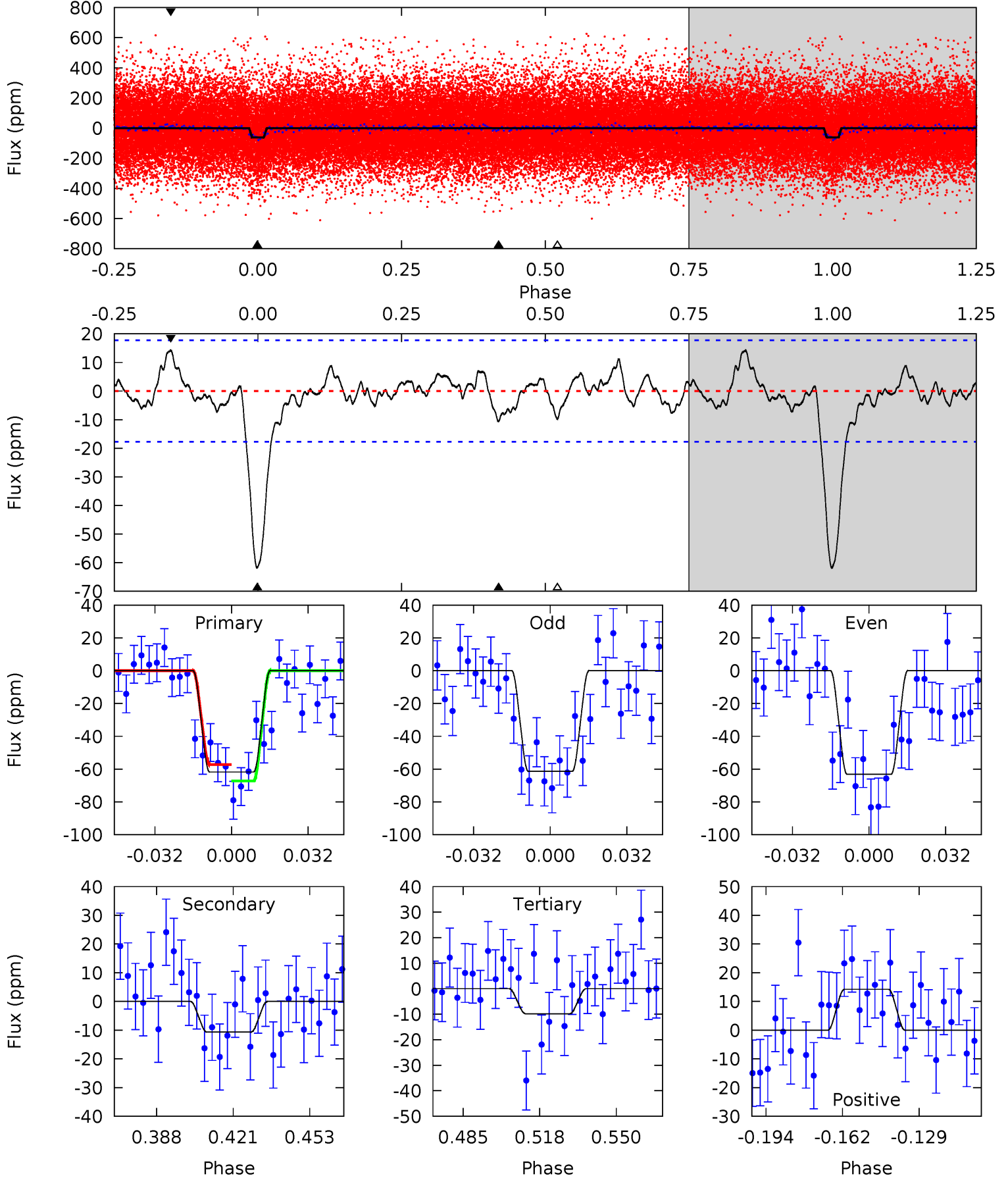
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
17.4	2.99	2.02	4.08	4.75	2.05	1.14	15.4	13.4	0.97	-1.10	0.61	0.96	0.19	0.57



Alt Model-Shift Uniqueness Test

011090556-02, P = 4.138242 Days, E = 129.095936 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
16.7	2.88	2.66	3.85	4.80	2.14	1.17	14.1	12.9	0.23	-0.96	0.25	1.00	0.19	1.35



Stellar Parameters For KIC 011090556

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5758^{+78}_{-86}	$4.168^{+0.182}_{-0.098}$	$0.120^{+0.150}_{-0.150}$	$1.385^{+0.232}_{-0.283}$	$1.029^{+0.090}_{-0.073}$	$0.546^{+0.461}_{-0.165}$
	+1%/-1%	+4%/-2%	+125%/-125%	+17%/-20%	+9%/-7%	+85%/-30%
Source	SPE90	SPE90	SPE90	DSEP		

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

Secondary Eclipse Parameters for KIC 011090556-02 / KOI 2977.02

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-10 ± 3	$1.28^{+0.53}_{-0.54}$	1825^{+88}_{-100}	3766^{+826}_{-457}	$8.333^{+15.796}_{-4.517}$
Alt.	-11 ± 4	$1.24^{+0.53}_{-0.46}$	1834^{+91}_{-103}	3879^{+813}_{-525}	$9.429^{+17.316}_{-5.293}$

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 $A_{obs} \gg 1.0$

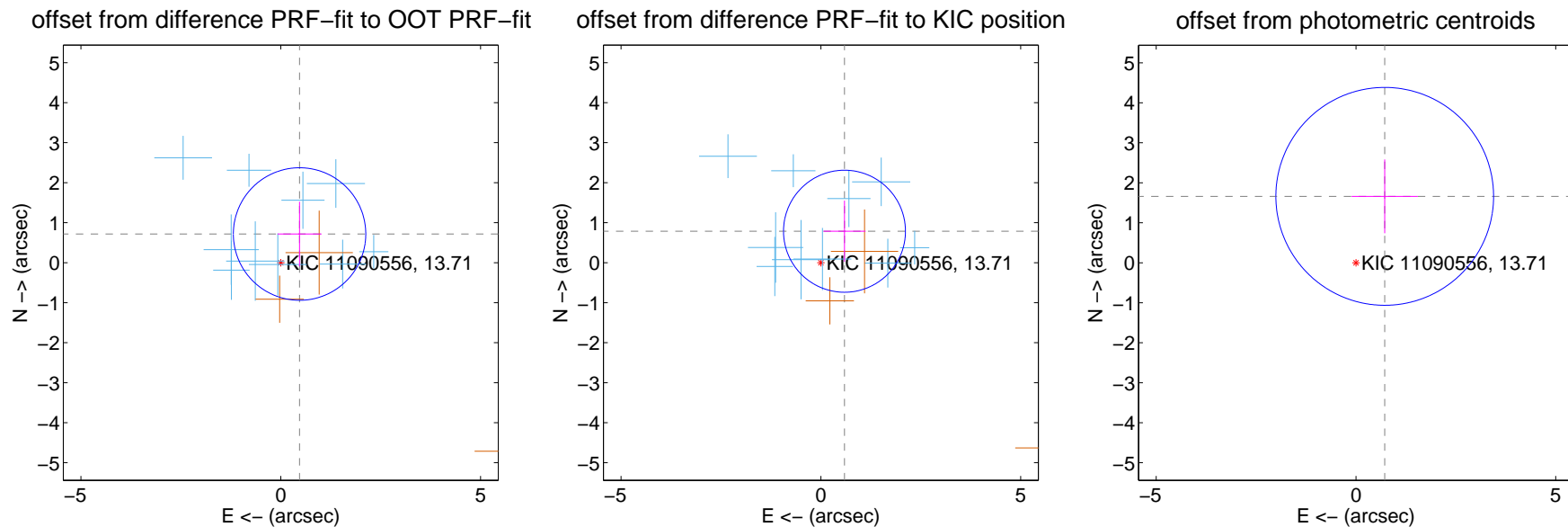
DV Centroid Data

Supplemental centroid analysis for 011090556-02. Kepler magnitude: 13.71. Transit SNR 14.27

There are 10 quarters with good PRF difference image offsets

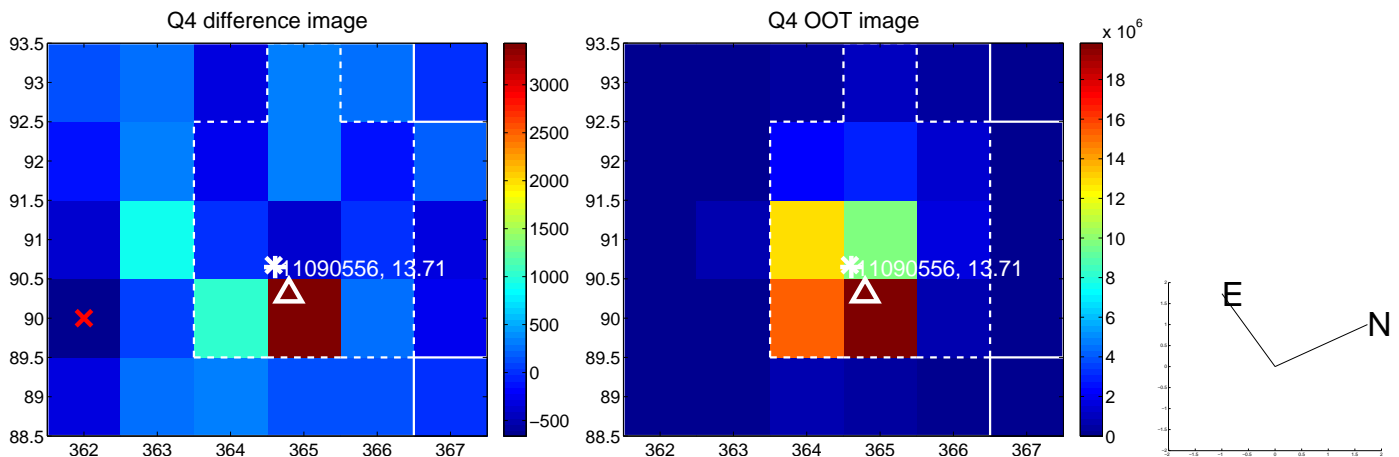
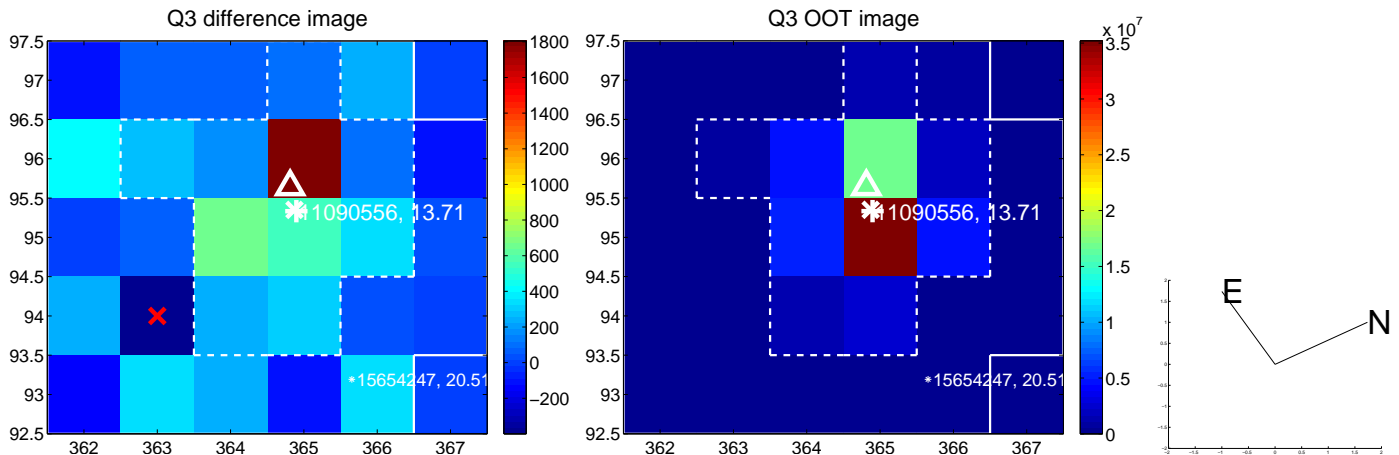
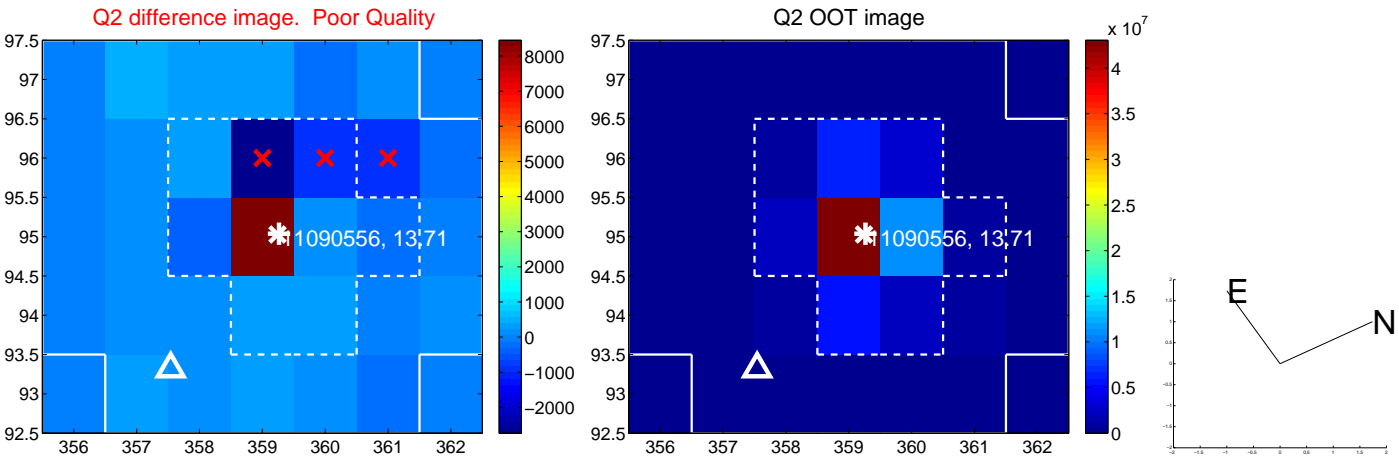
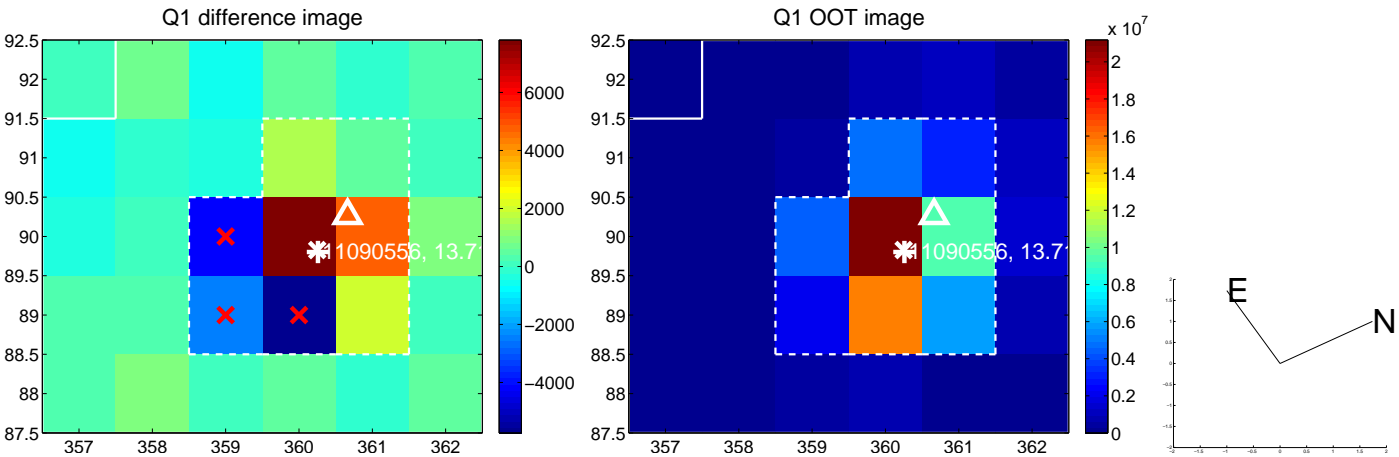
The direct PRF centroid is offset from the target star catalog position by about 0.14 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.858 ± 0.552	1.55	-0.471 ± 0.549	0.717 ± 0.806
PRF-fit source offset from KIC position	0.984 ± 0.508	1.93	-0.591 ± 0.527	0.786 ± 0.766
photometric centroid source offset	1.81 ± 0.91	1.99	-0.72 ± 0.83	1.66 ± 0.92

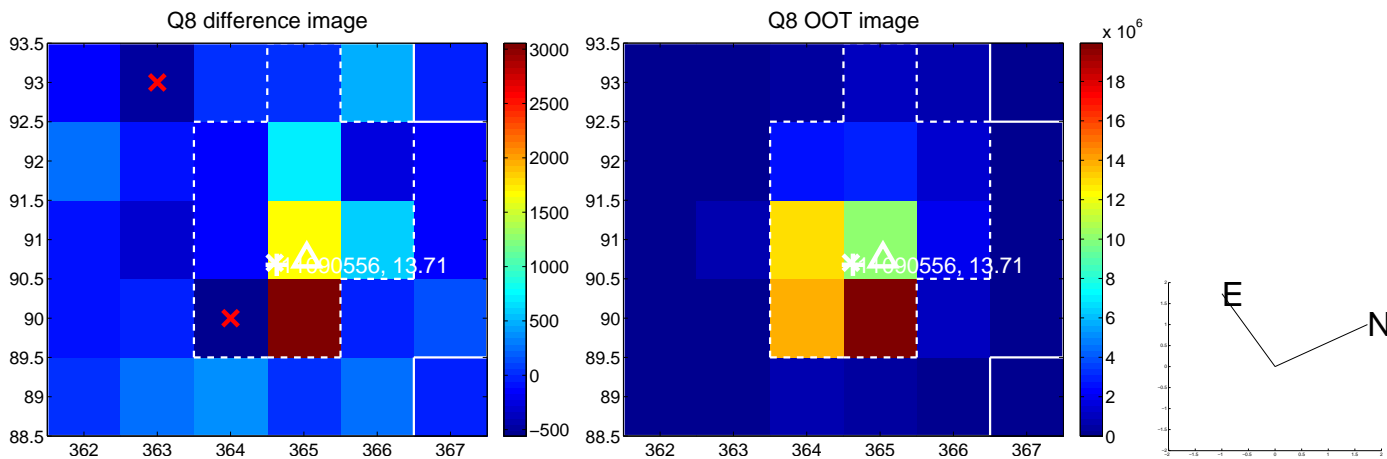
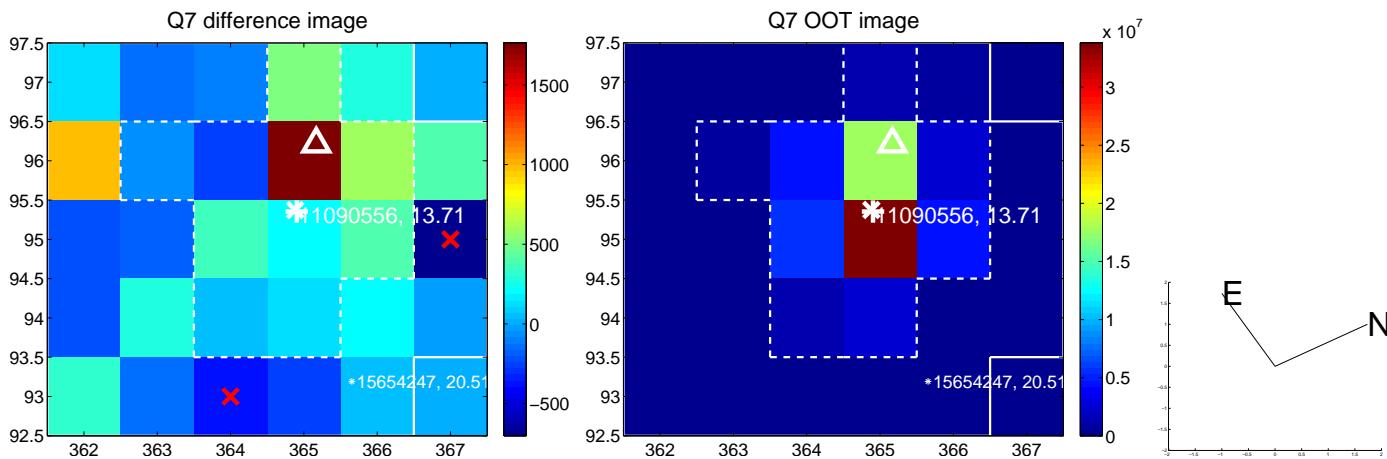
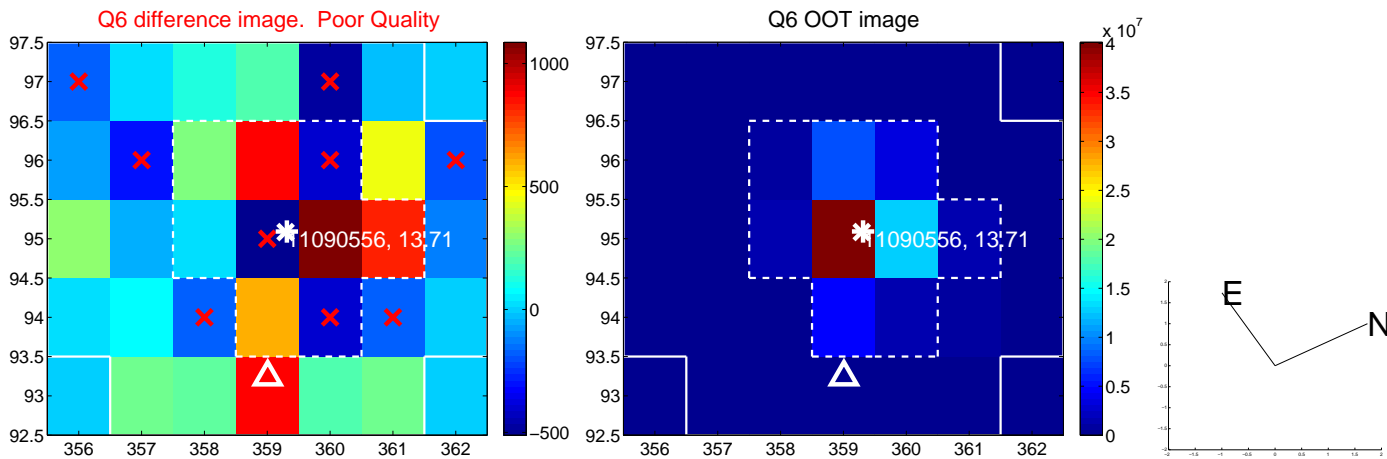
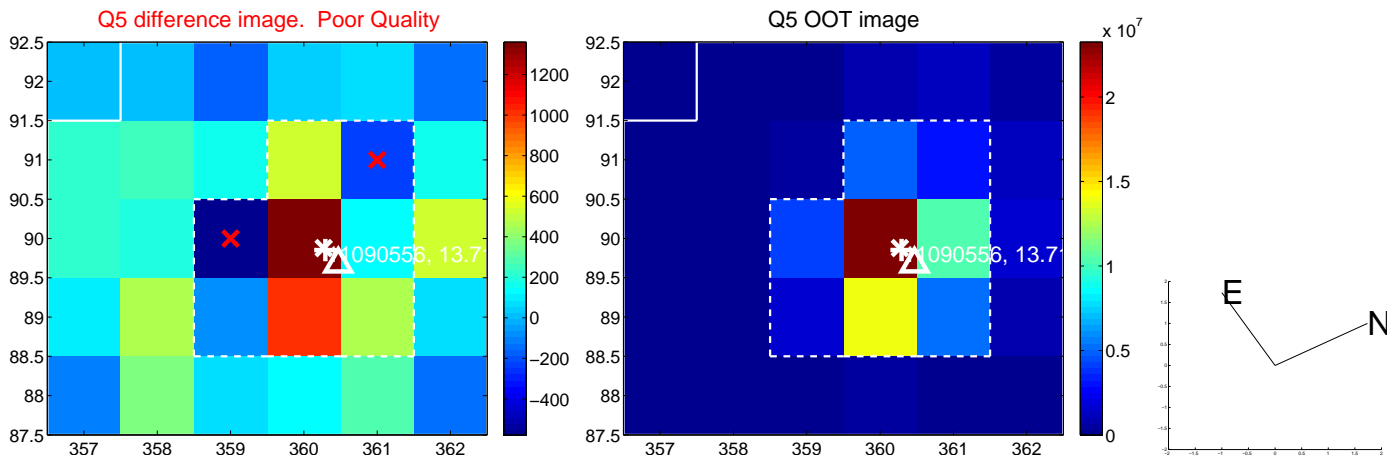


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

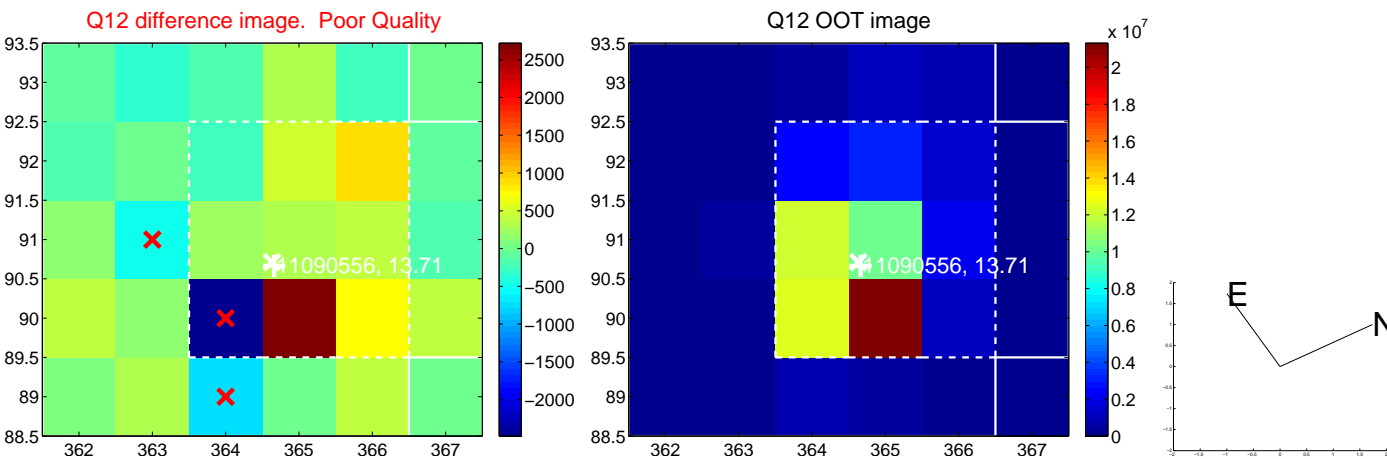
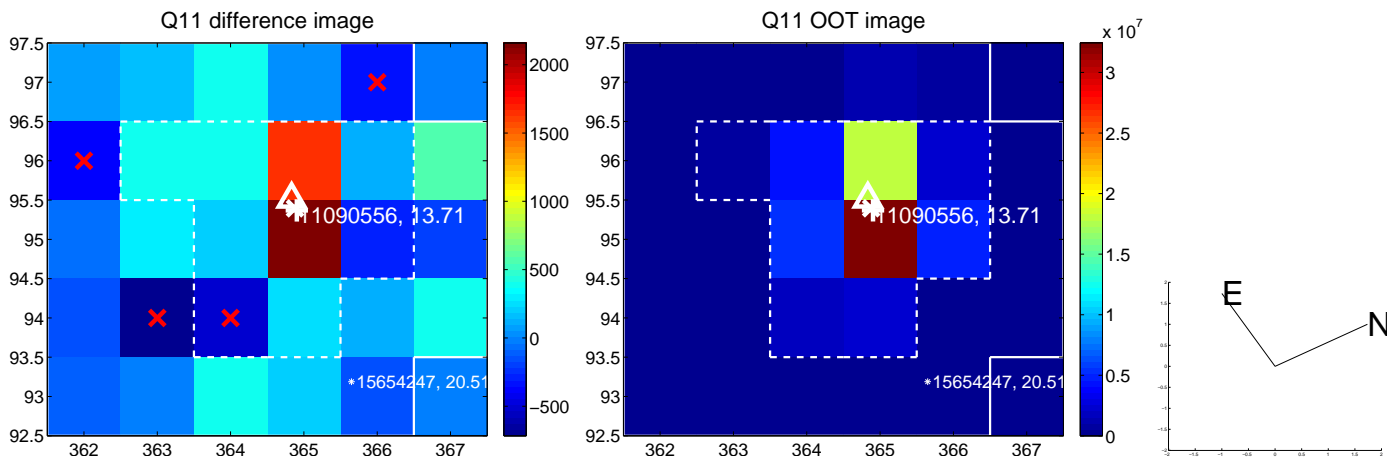
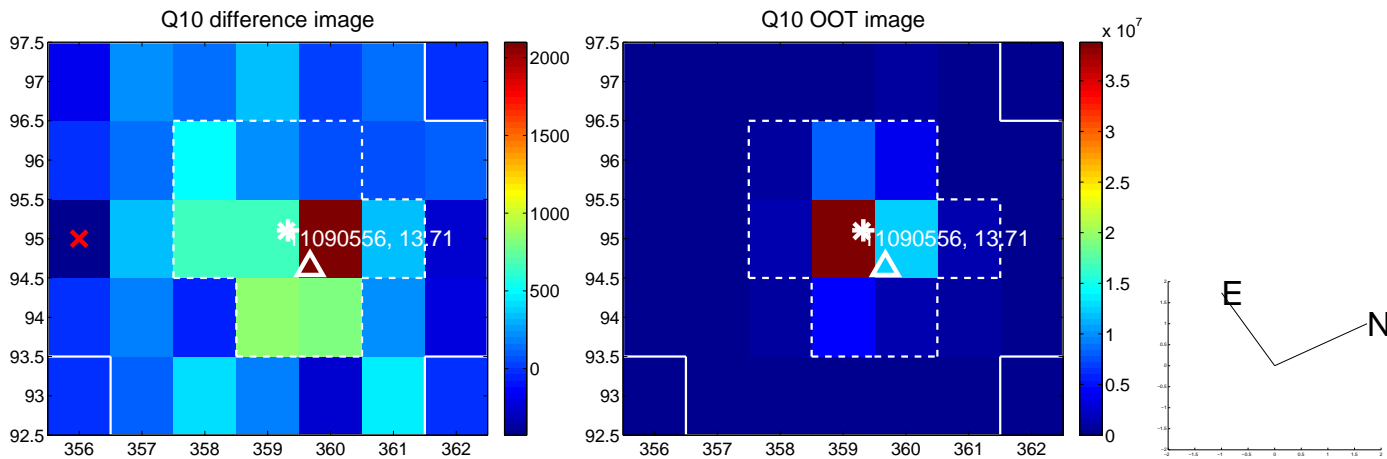
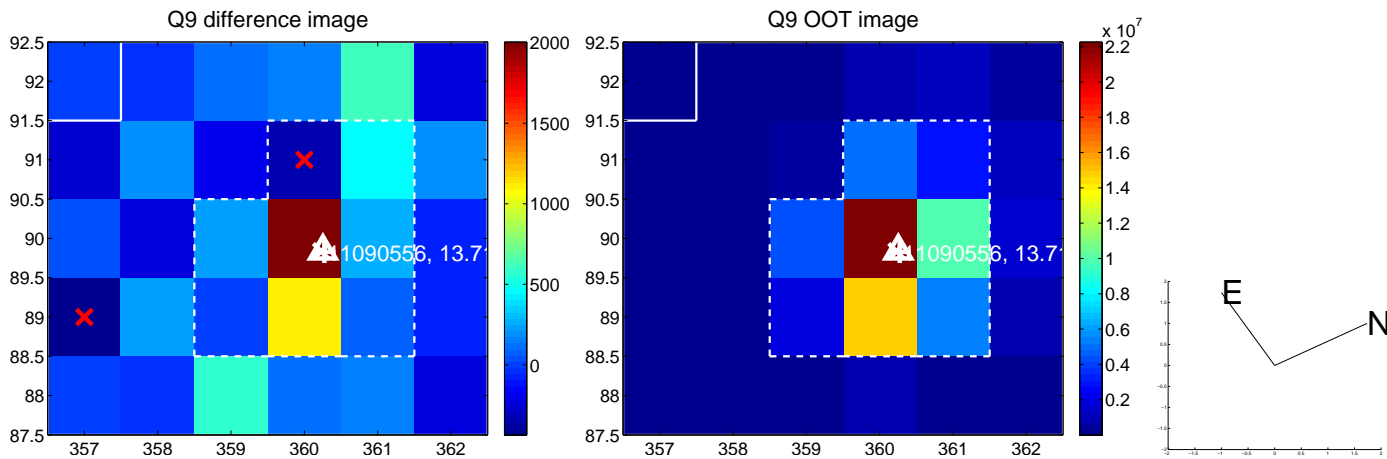
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



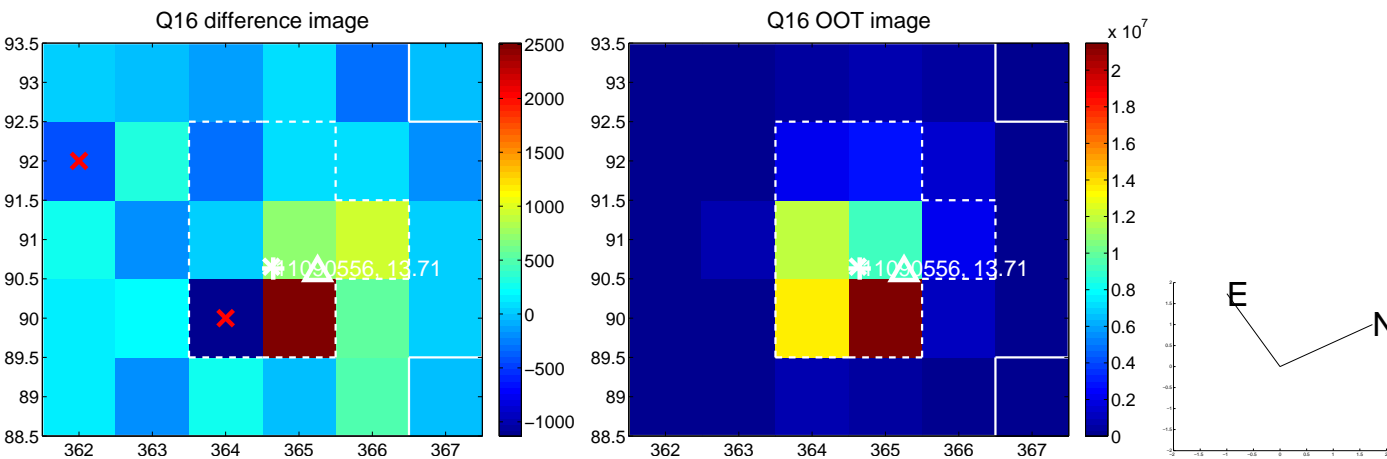
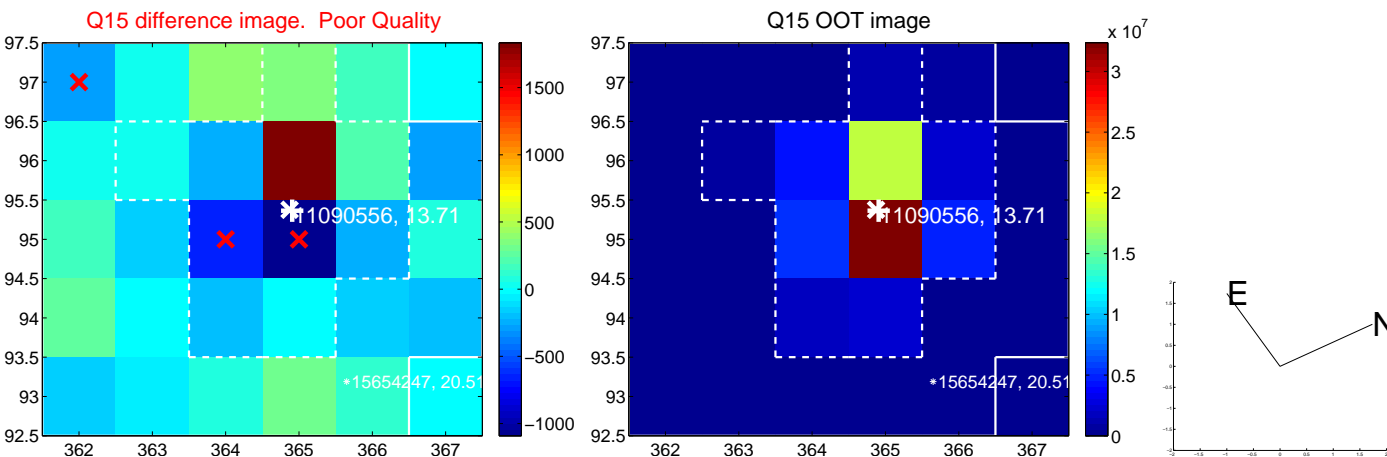
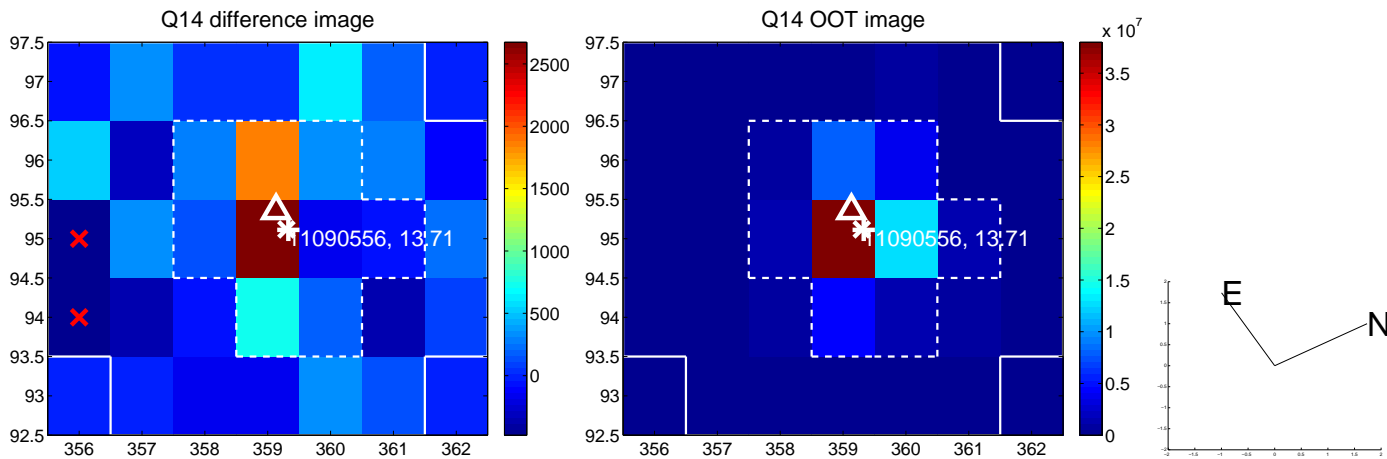
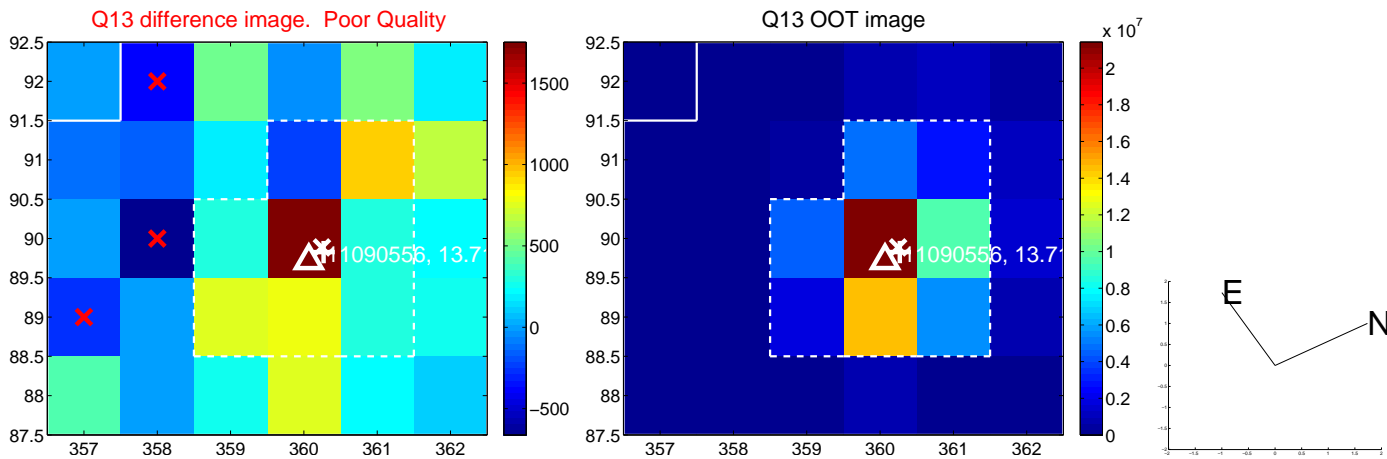
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



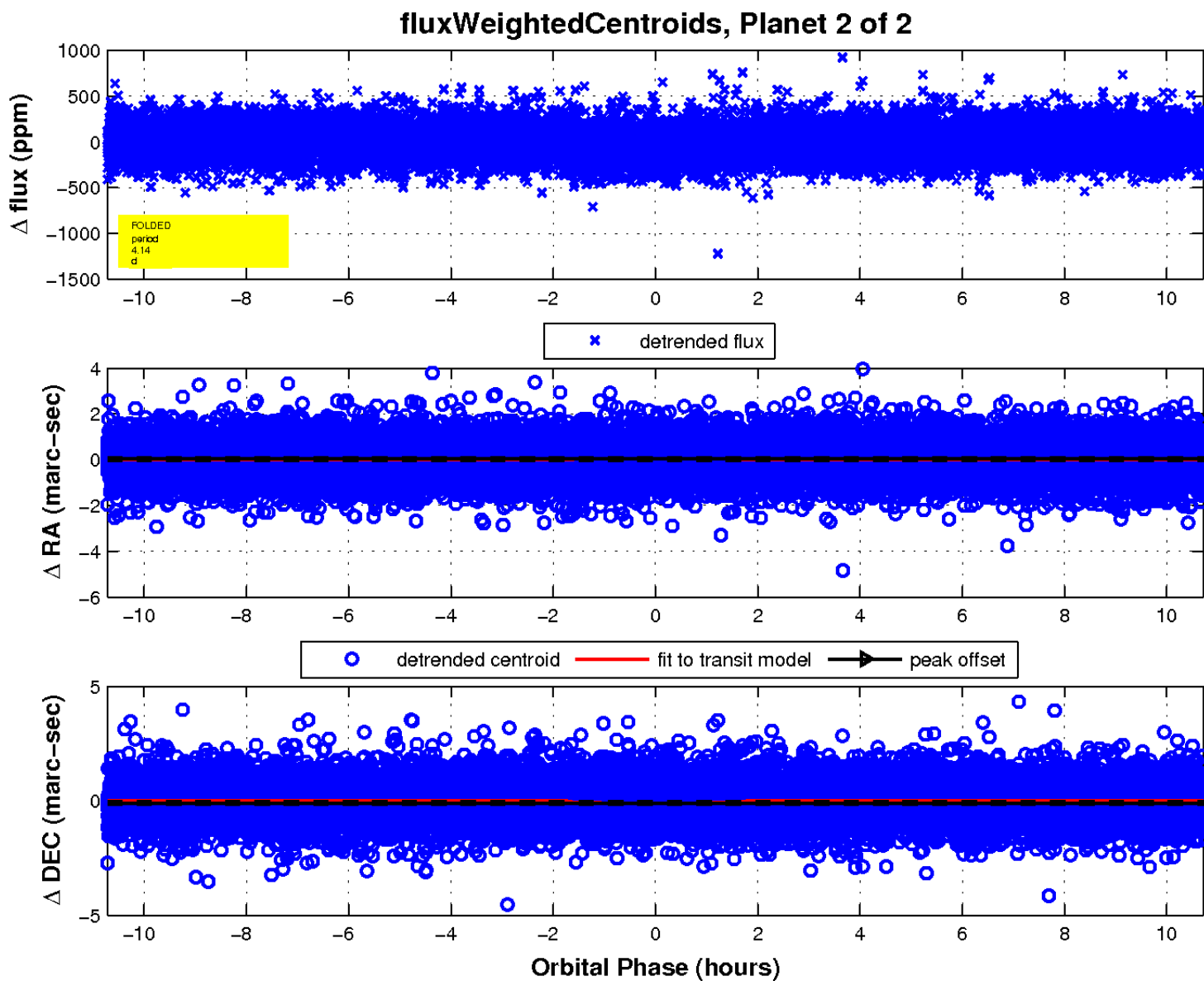
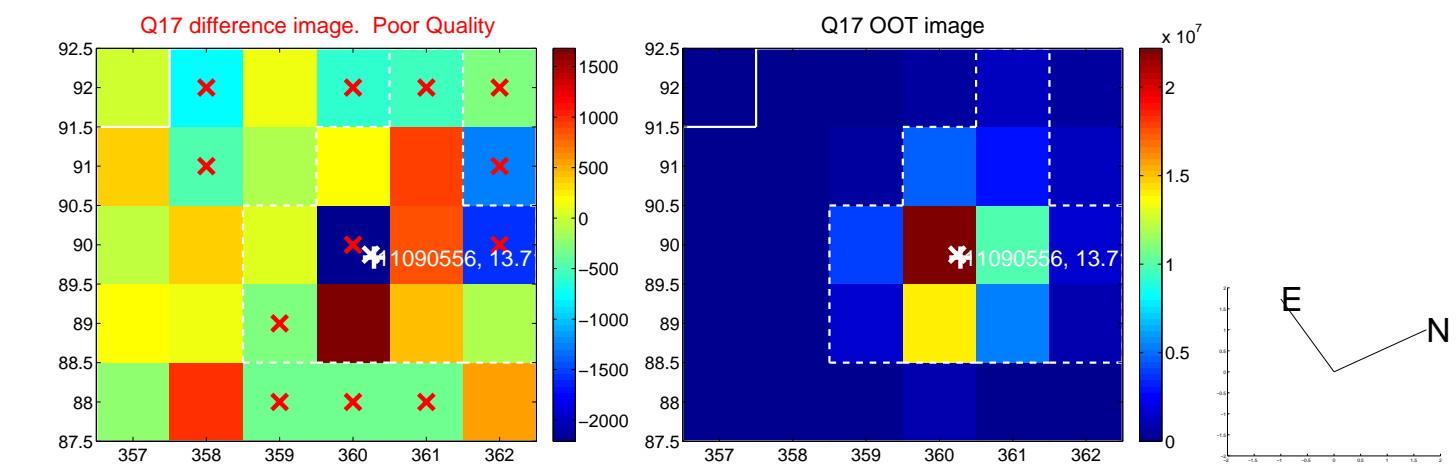
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

