

KIC 005695396

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})
005695396-01	OBS	0283.01	16.091969	138.414487	428.3	3.058	98.4	98.1	1.02	5680	2.48	62.82
005695396-02	OBS	0283.02	25.516967	154.424704	59.9	5.150	10.6	11.4	1.02	5680	0.88	33.97

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005695396-01	OBS	PC	0.98	0	0	0	0	NO_COMMENT
005695396-02	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.

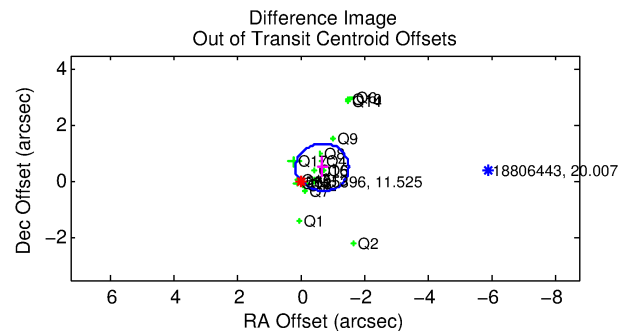
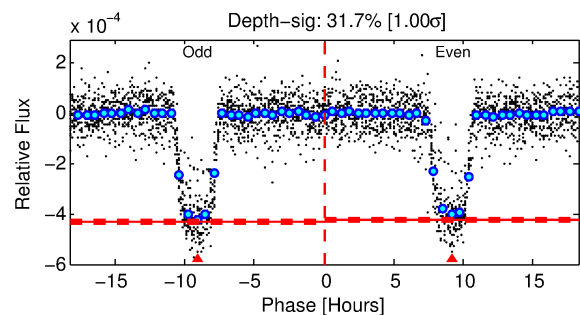
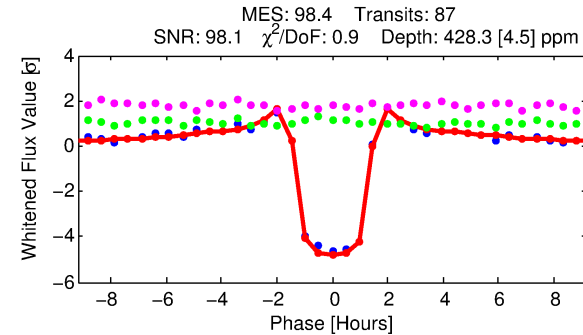
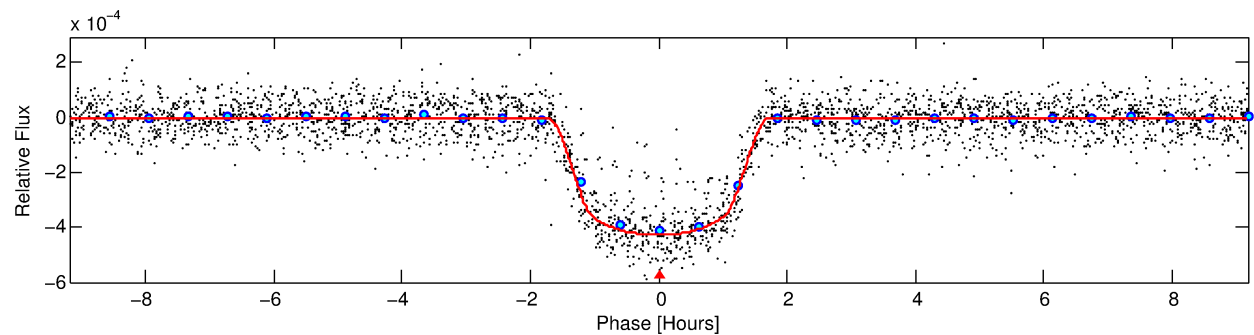
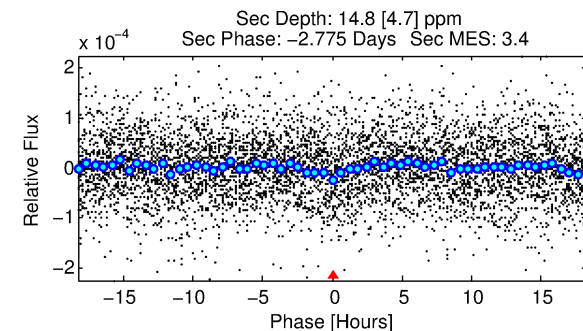
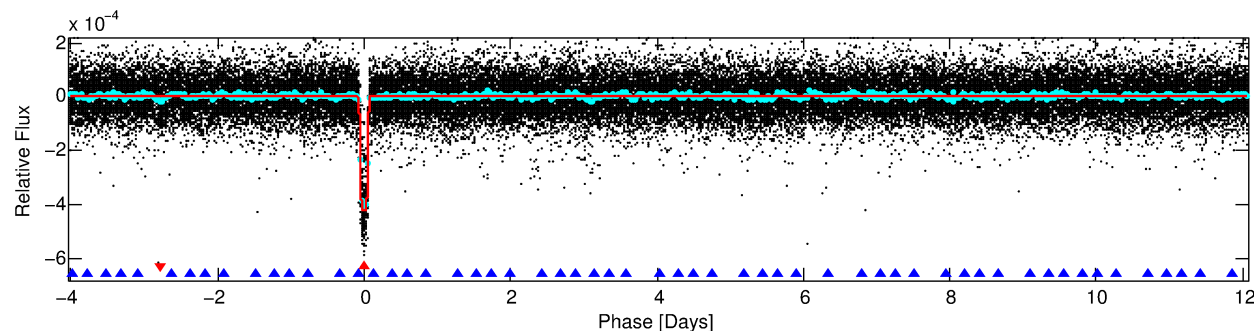
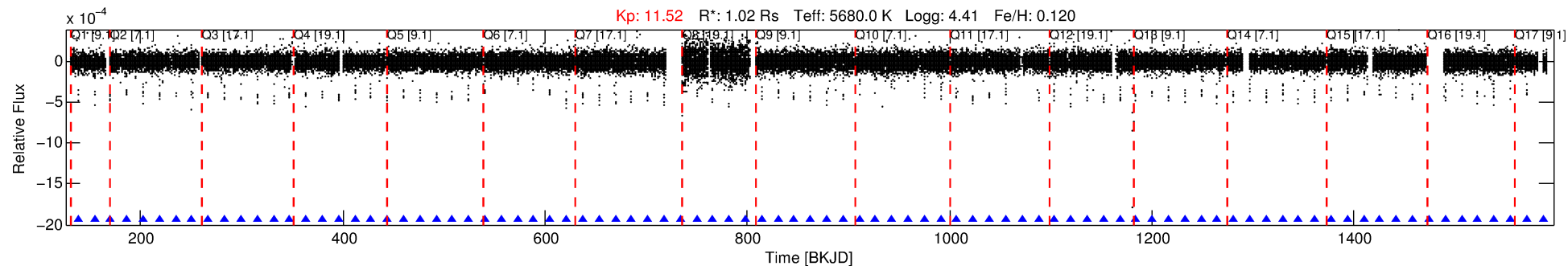
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 005695396-01

No Significant Match Found

DV One-Page Summary

KIC: 5695396 Candidate: 1 of 2 Period: 16.092 d
KOI: K00283.01 Name: Kepler-131b Corr: 0.970



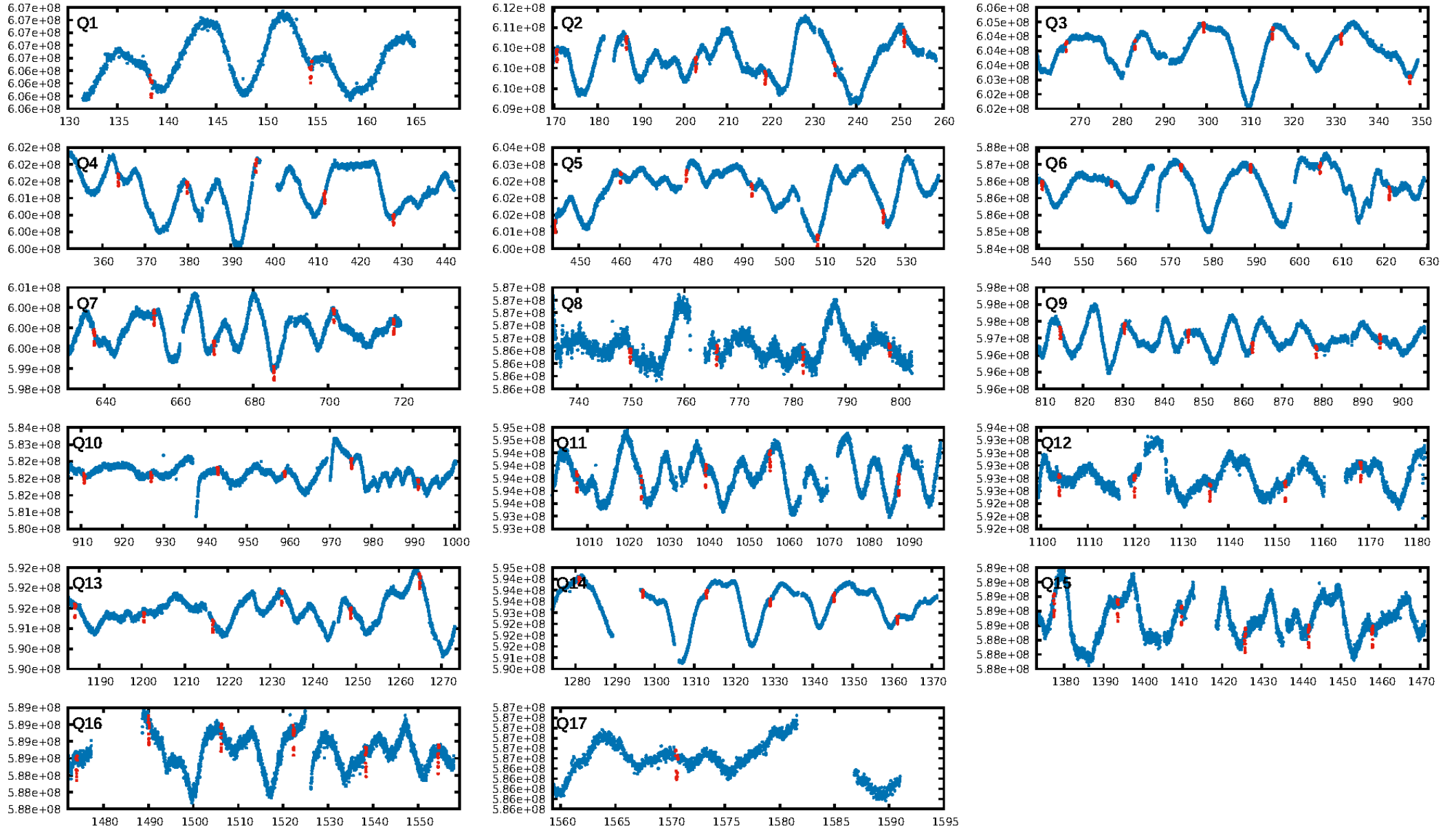
DV Fit Results:

Period = 16.09197 [0.00001] d
Epoch = 138.4145 [0.0005] BKJD
Rp/R* = 0.0223 [0.0008]
a/R* = 20.63 [3.38]
b = 0.88 [0.04]
Seff = 62.82 [13.55]
Teq = 718 [39] K
Rp = 2.48 [0.37] Re
a = 0.1238 [0.0162] AU
Ag = 20.39 [7.84] [2.47σ]
Teffp = 2359 [199] K [8.08σ]

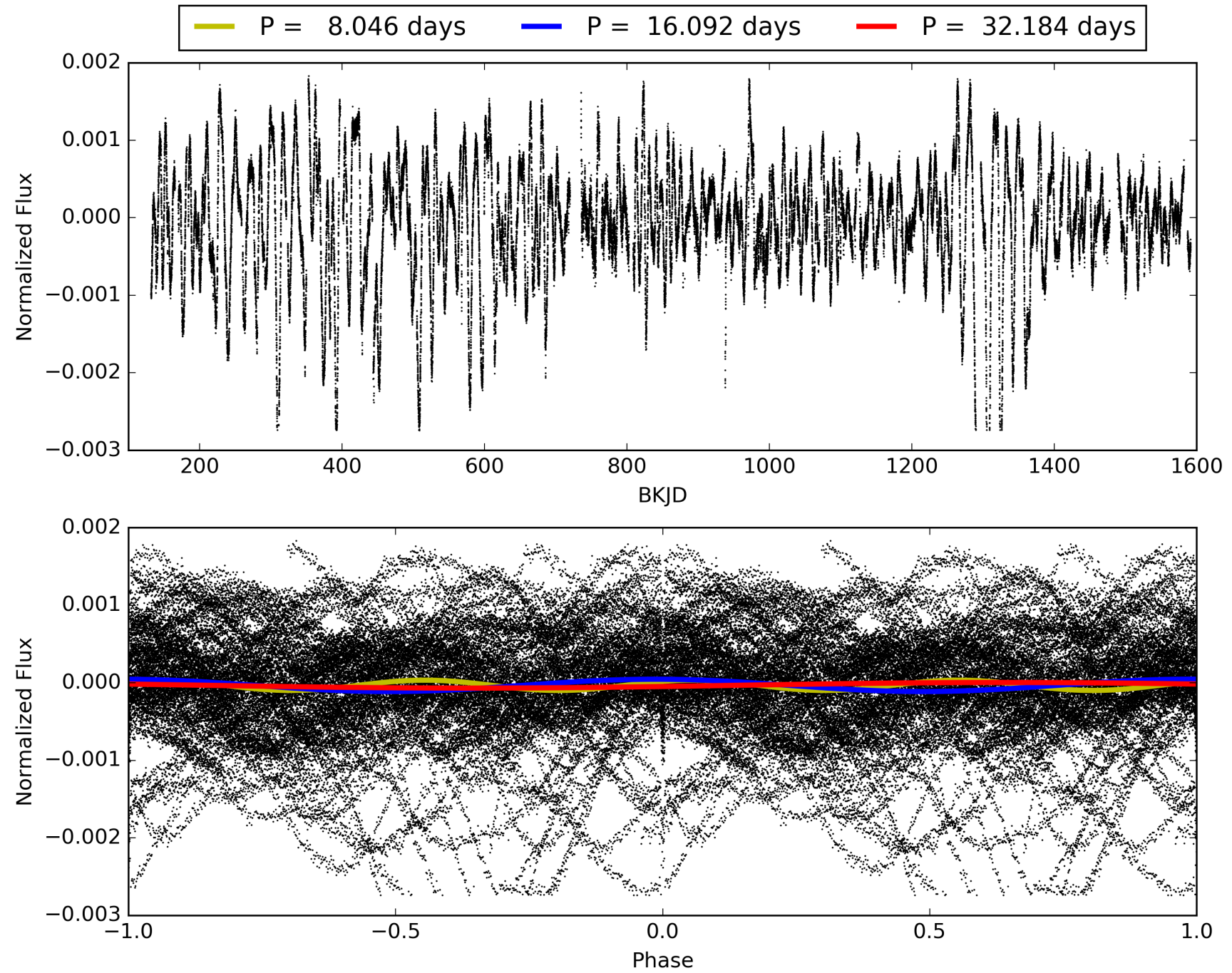
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [37.77σ]
ModelChiSquare2-sig: 0.2%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 0.00e+00
RollingBand-fgt: 1.00 [84/84]
GhostDiagnostic-chr: 6.357
Centroid-sig: 0.9%
Centroid-so: 0.386 arcsec [3.67σ]
OotOffset-rm: 0.850 arcsec [3.04σ]
KicOffset-rm: 0.911 arcsec [2.69σ]
OotOffset-st: 4/4/4/5 [17]
KicOffset-st: 4/4/4/5 [17]
DiffImageQuality-fgm: 0.94 [16/17]
DiffImageOverlap-fno: 1.00 [17/17]

TCE 005695396-01, PDC Light Curves

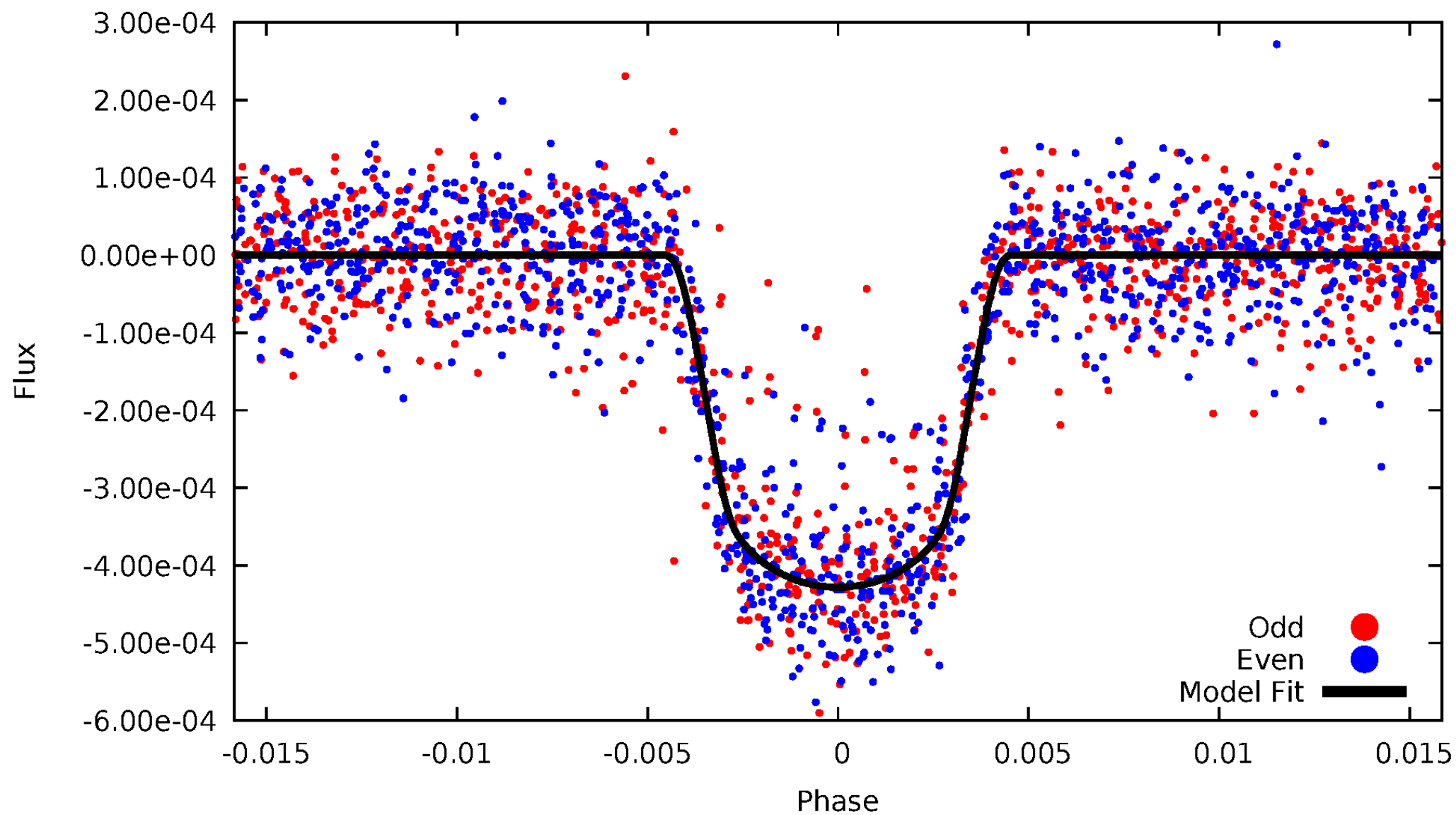


TCE 005695396-01



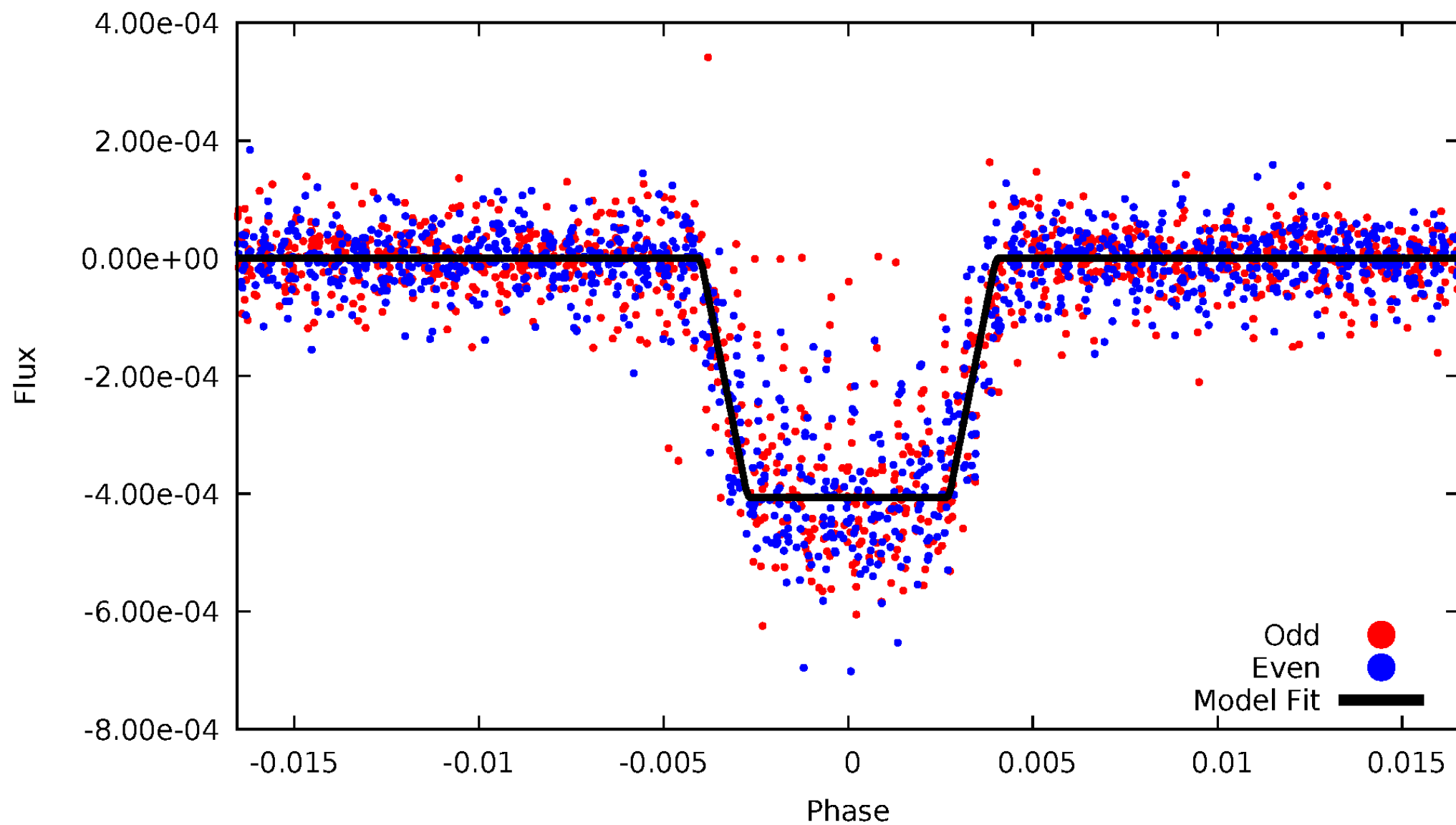
DV Odd/Even

TCE 005695396-01



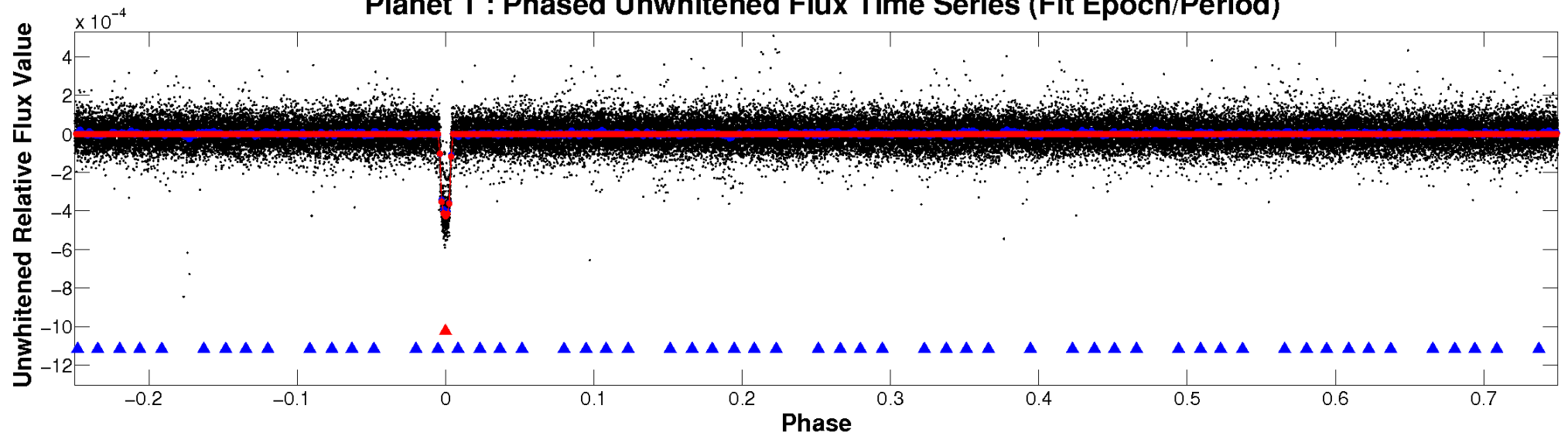
ALT Odd/Even

TCE 005695396-01

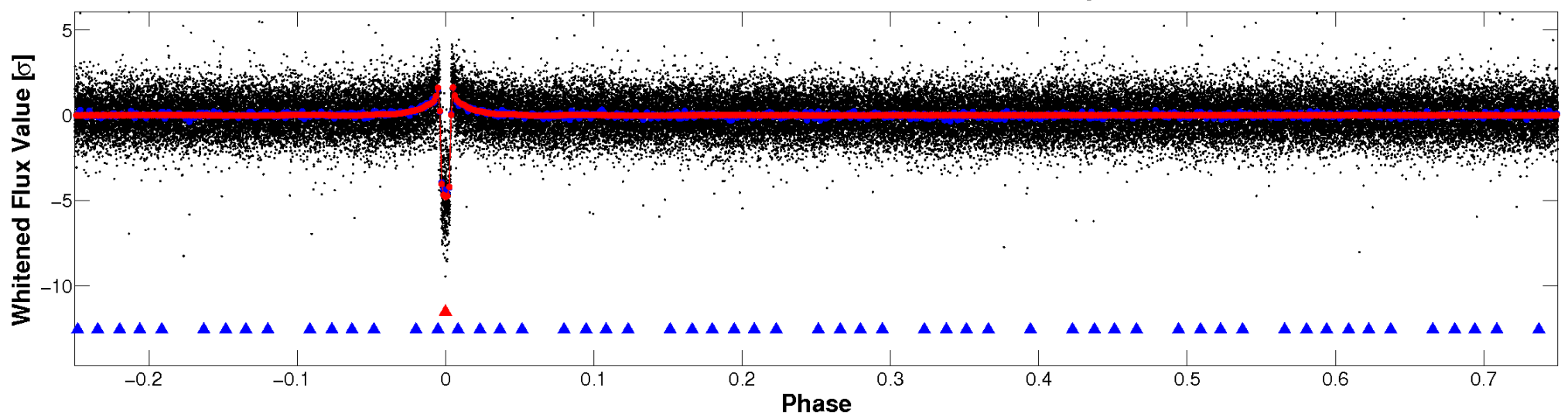


Non-Whitened Vs. Whitened Light Curve

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

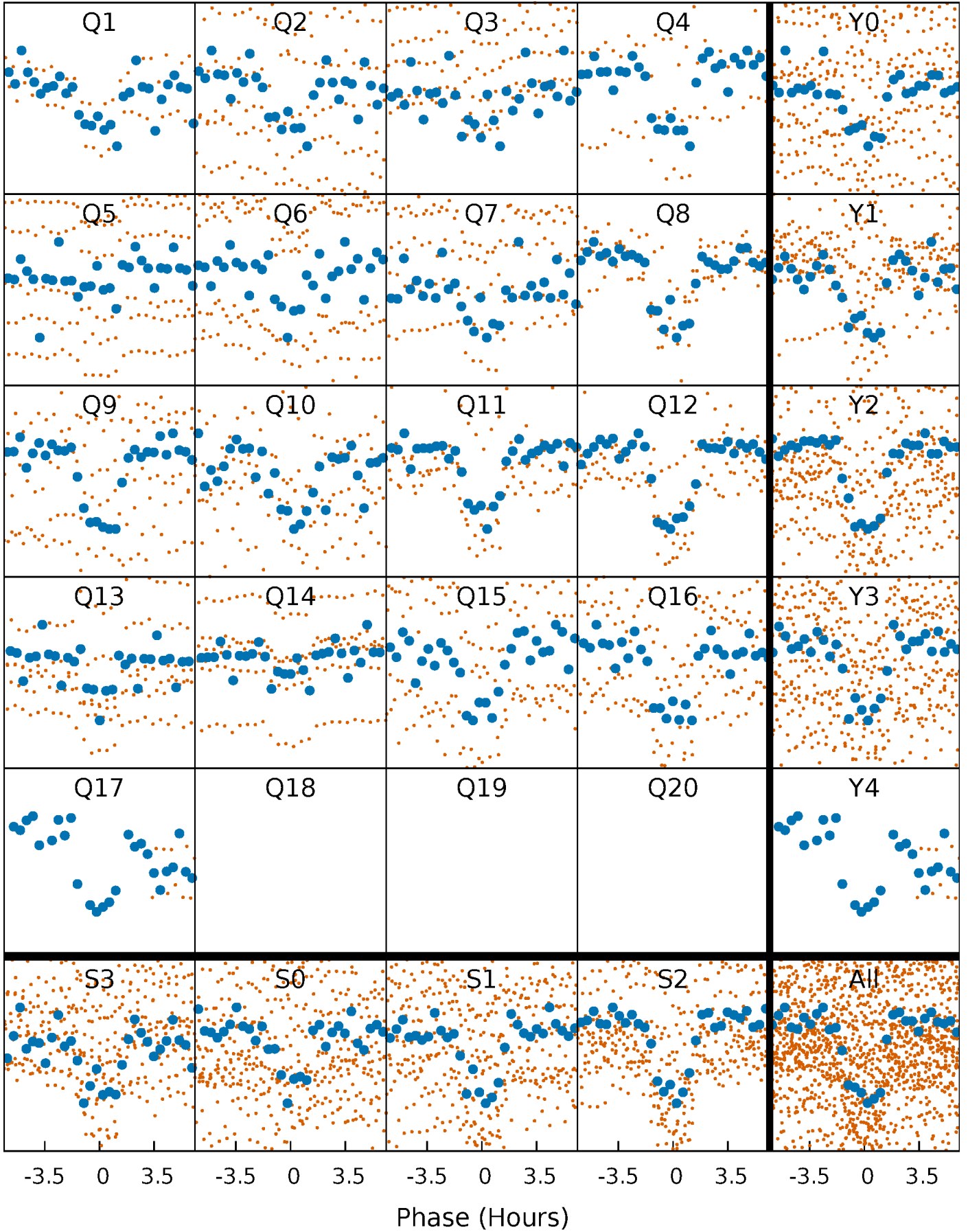


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



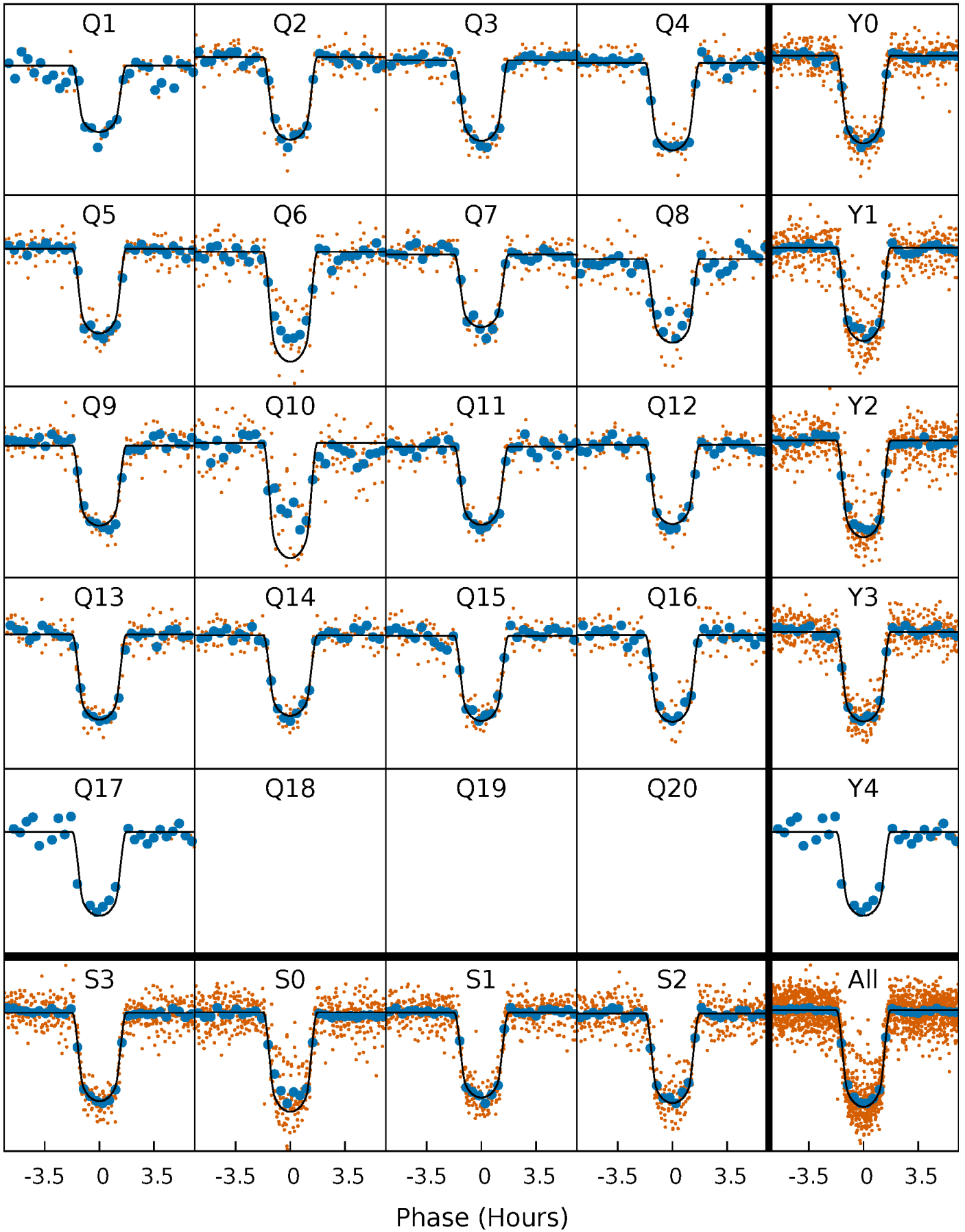
PDC Quarter-Phased Transit Curves

TCE 005695396-01 P= 16.091969 Days $T_0=138.414487$ (BKJD)



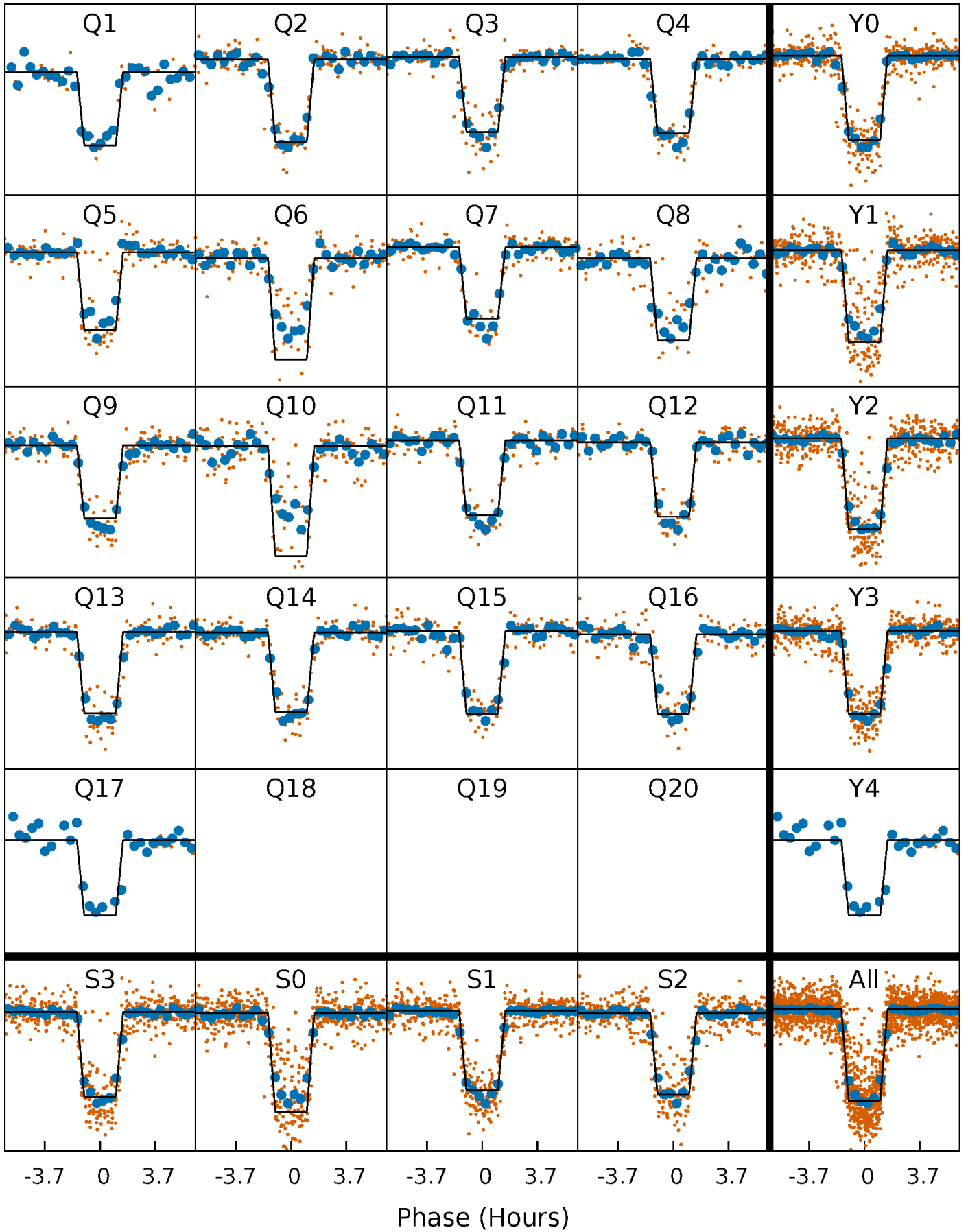
DV Quarter-Phased Transit Curves

TCE 005695396-01 P= 16.091969 Days $T_0=138.414487$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

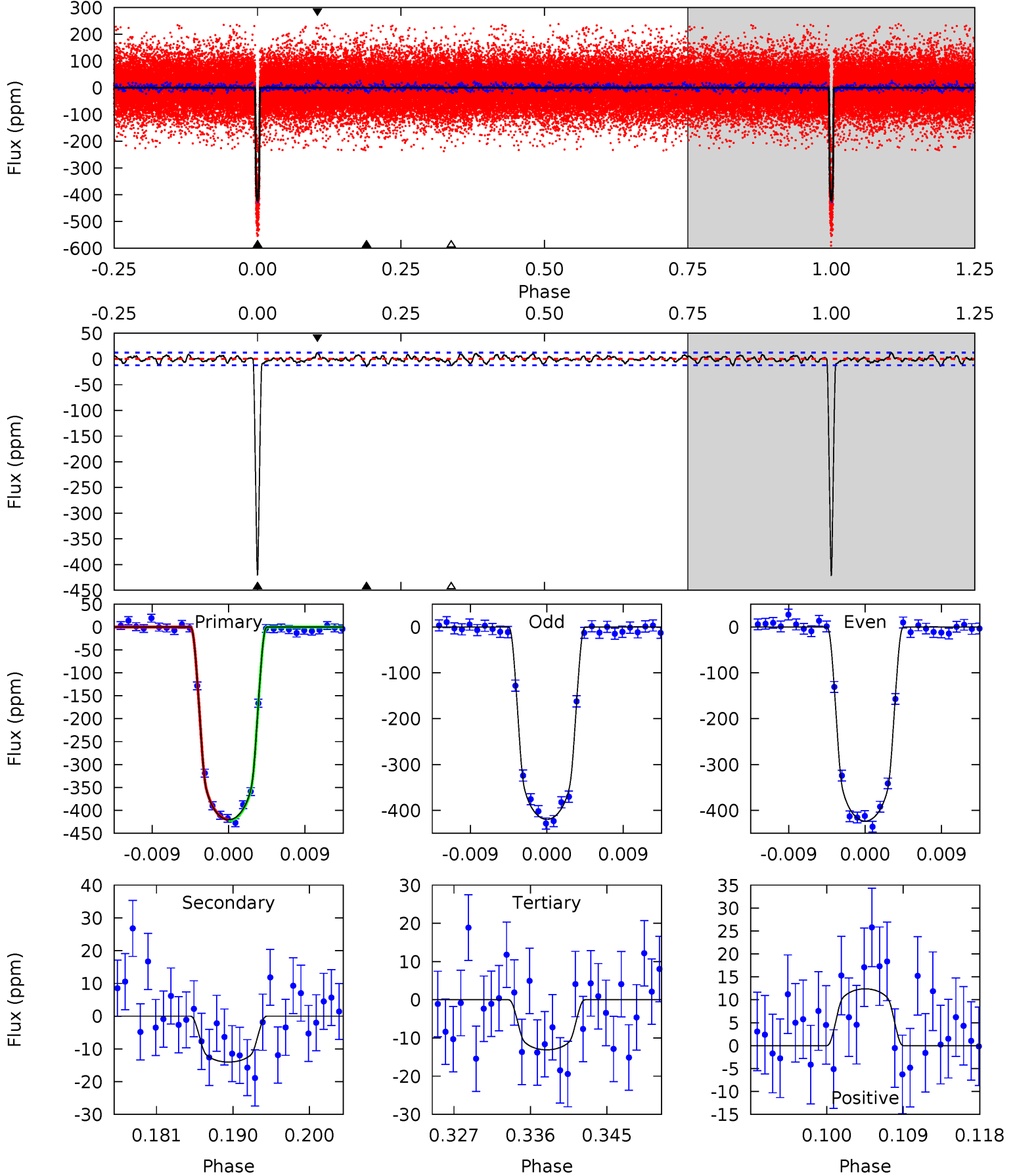
TCE 005695396-01 P= 16.091831 Days $T_0=138.420262$ (BKJD)



DV Model-Shift Uniqueness Test

005695396-01, P = 16.091969 Days, E = 122.322518 Days

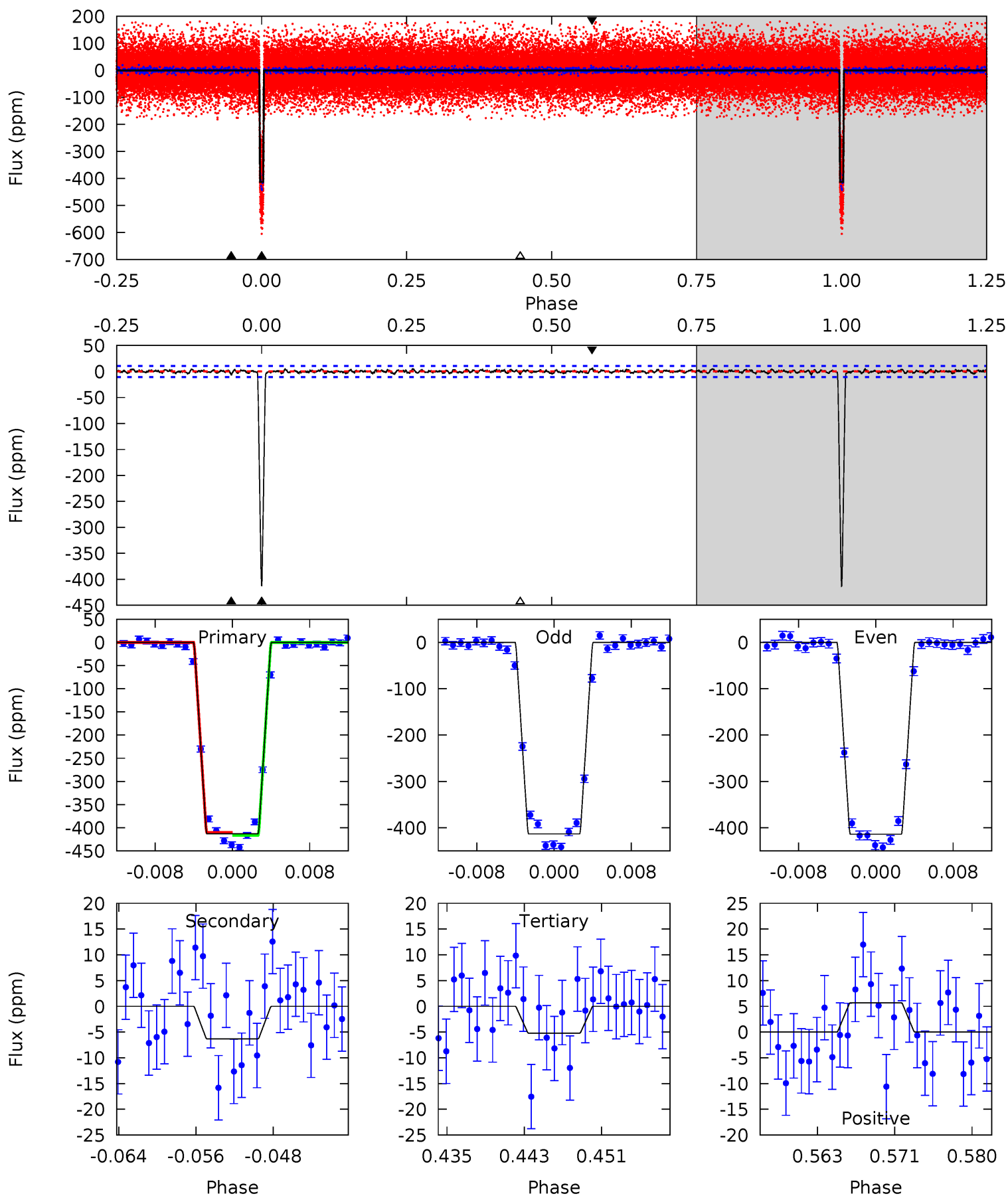
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
173.0	5.77	5.39	5.09	5.04	2.61	1.73	167.6	167.9	0.38	0.68	0.75	0.96	0.03	0.54



Alt Model-Shift Uniqueness Test

005695396-01, P = 16.091831 Days, E = 122.328431 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
196.9	3.01	2.49	2.71	5.07	2.65	0.85	194.4	194.2	0.52	0.30	0.16	0.95	0.01	1.57



Stellar Parameters For KIC 005695396

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5680^{+102}_{-114}	$4.414^{+0.076}_{-0.114}$	$0.120^{+0.150}_{-0.150}$	$1.016^{+0.148}_{-0.098}$	$0.978^{+0.068}_{-0.062}$	$1.312^{+0.404}_{-0.436}$
	+2%/-2%	+2%/-3%	+125%/-125%	+15%/-10%	+7%/-6%	+31%/-33%
Source	SPE61	SPE61	SPE61	DSEP		

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

Secondary Eclipse Parameters for KIC 005695396-01 / KOI 0283.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-14 ± 2	$2.49^{+0.21}_{-0.18}$	1007^{+40}_{-34}	2989^{+83}_{-88}	19^{+5}_{-4}
Alt.	-6 ± 2	$2.25^{+0.21}_{-0.17}$	1008^{+41}_{-37}	2756^{+119}_{-154}	11^{+4}_{-4}

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

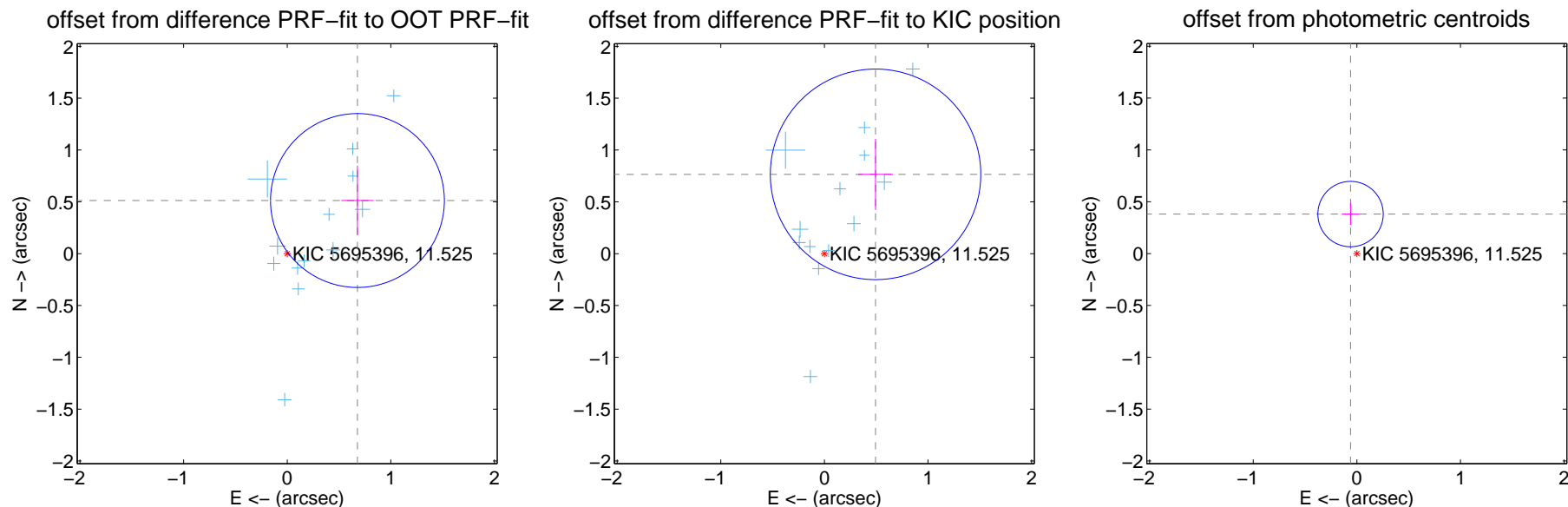
DV Centroid Data

Supplemental centroid analysis for 005695396-01. **Kepler magnitude: 11.53.** Transit SNR 98.08

There are 16 quarters with good PRF difference image offsets

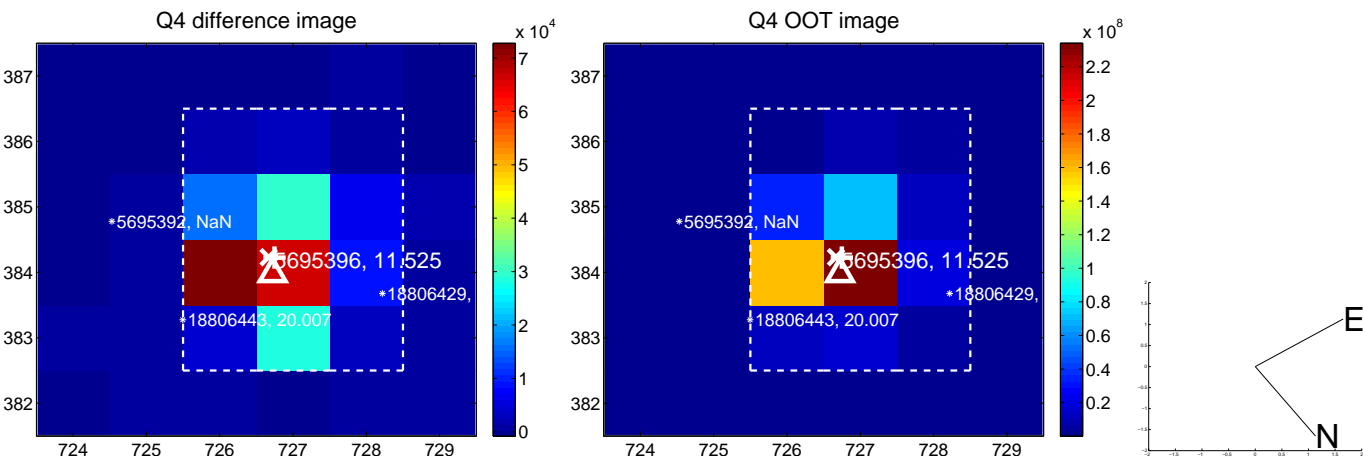
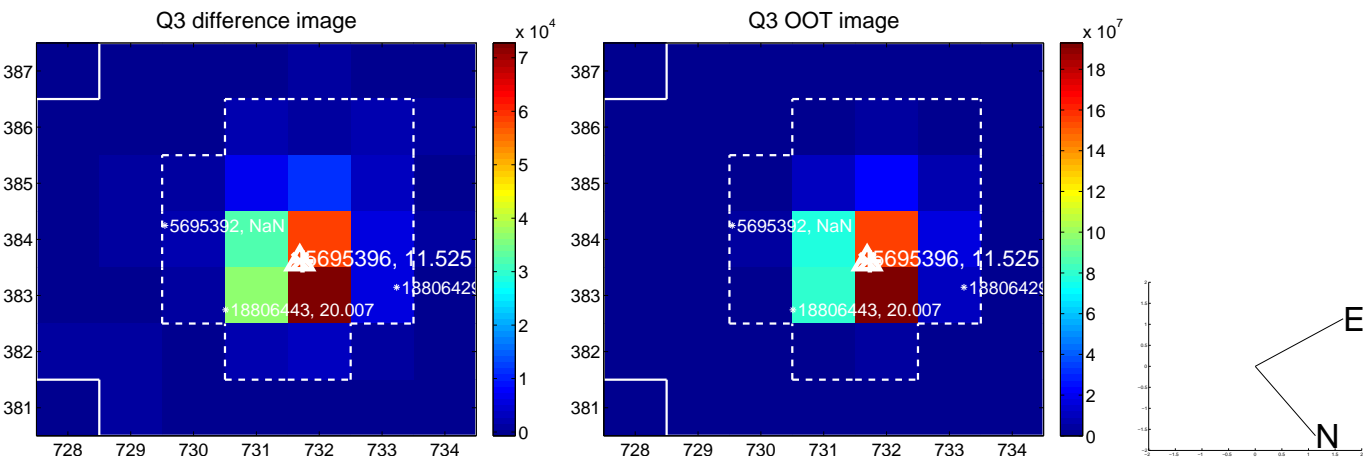
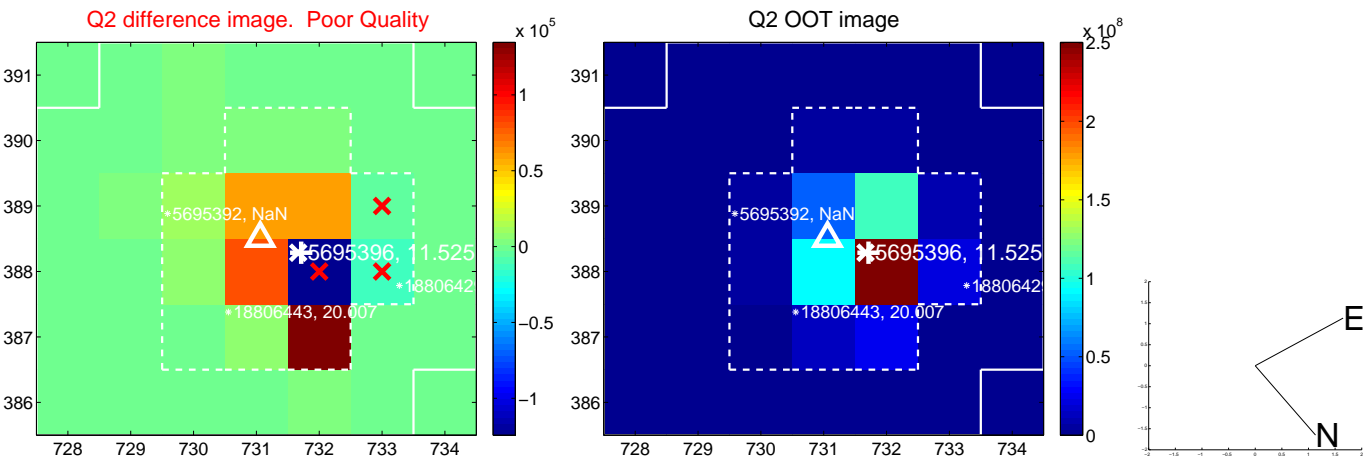
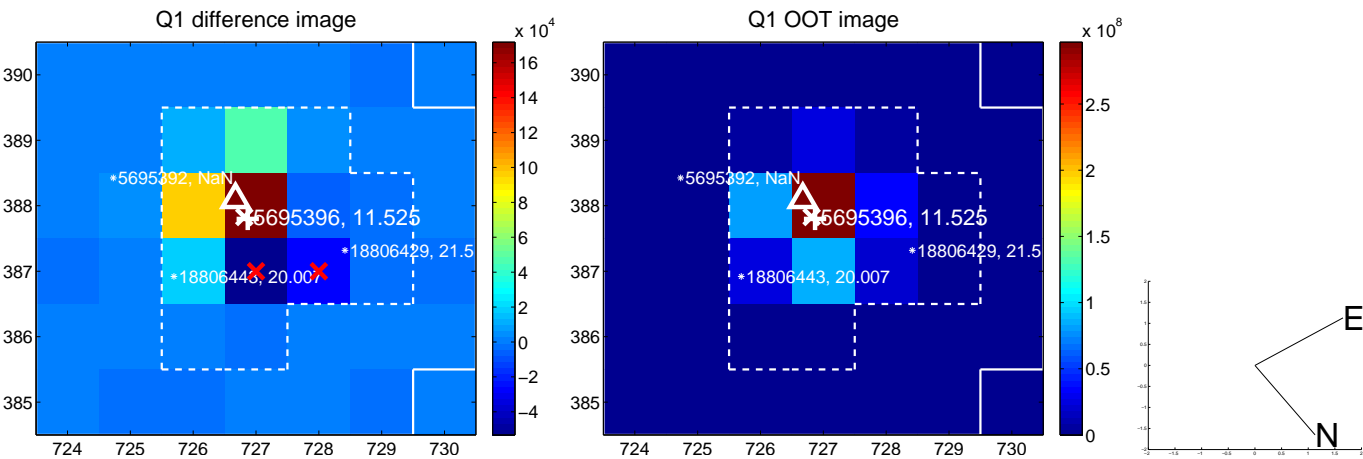
The direct PRF centroid is offset from the target star catalog position by about 0.33 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.850 ± 0.280	3.04	-0.678 ± 0.156	0.513 ± 0.335
PRF-fit source offset from KIC position	0.911 ± 0.339	2.69	-0.494 ± 0.167	0.765 ± 0.343
photometric centroid source offset	0.39 ± 0.11	3.67	0.06 ± 0.09	0.38 ± 0.11

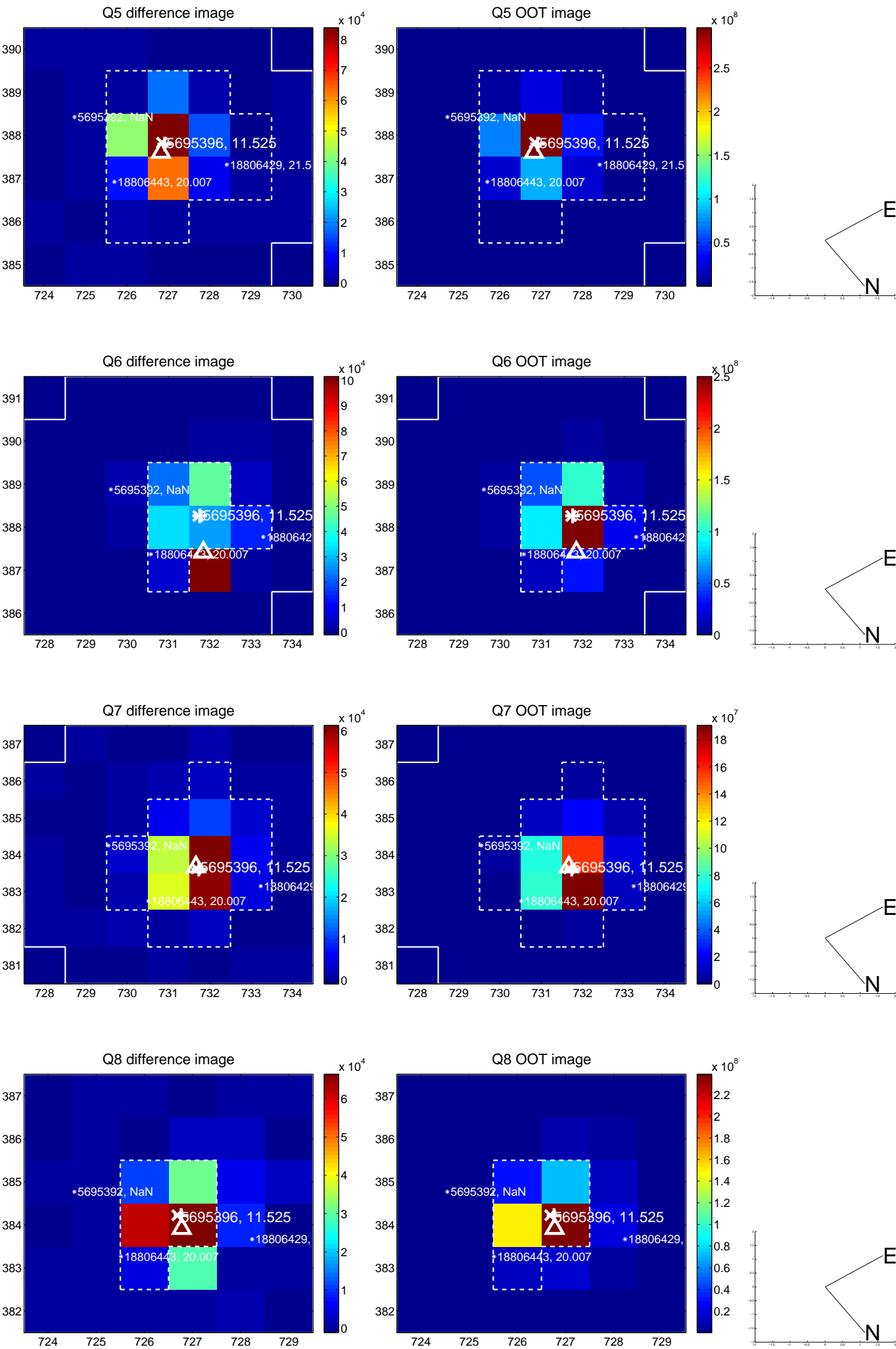


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

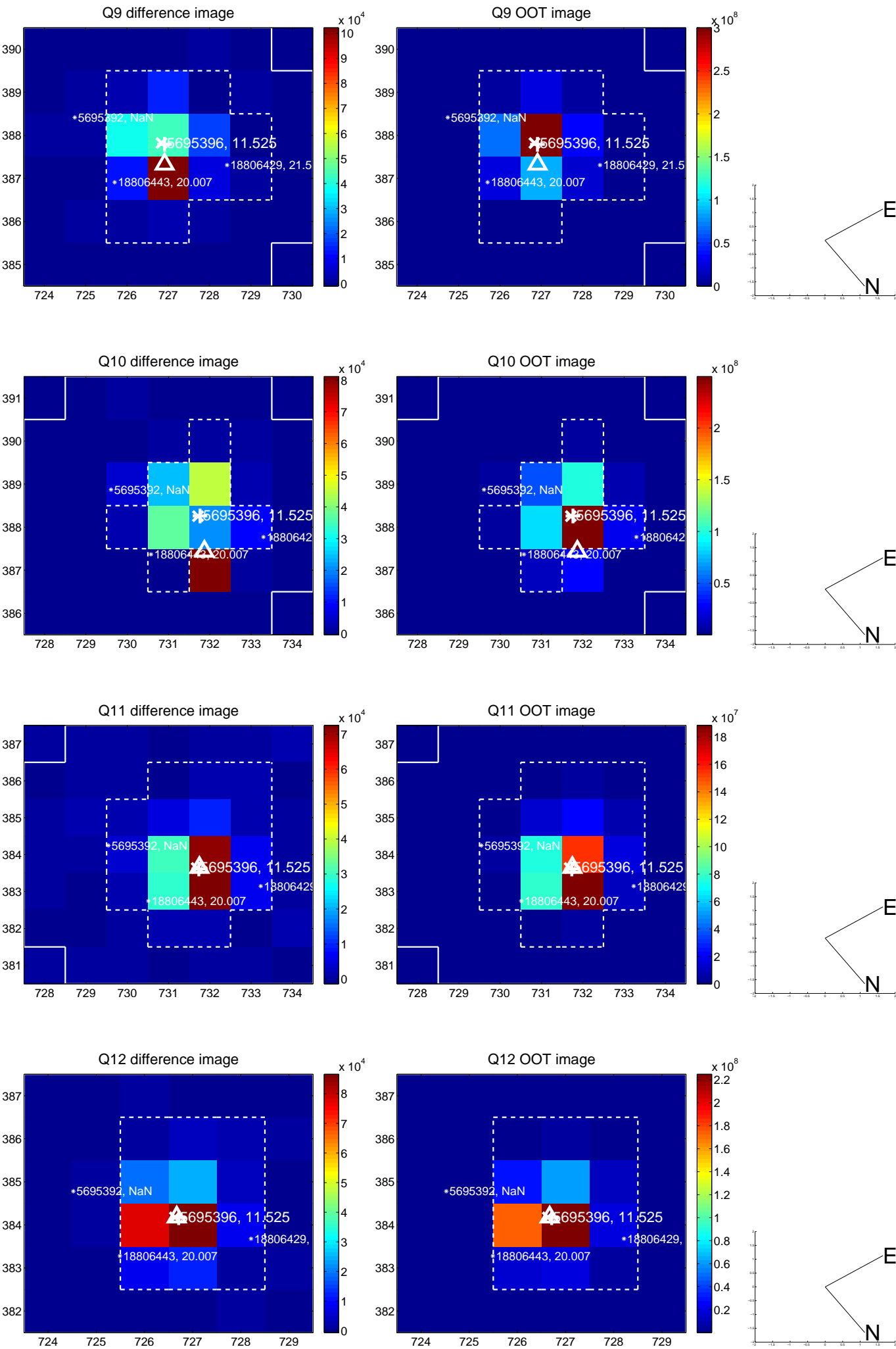
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



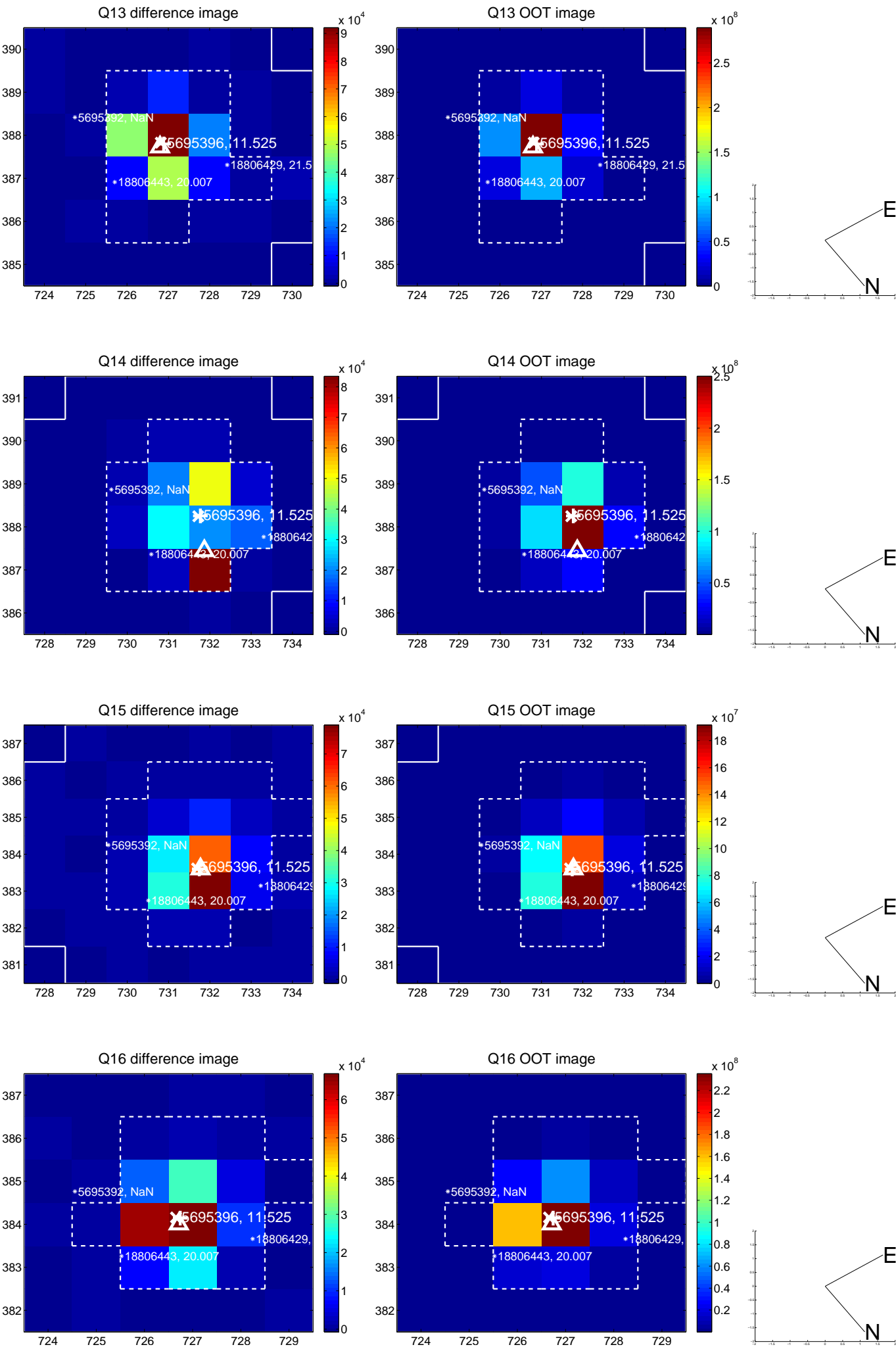
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



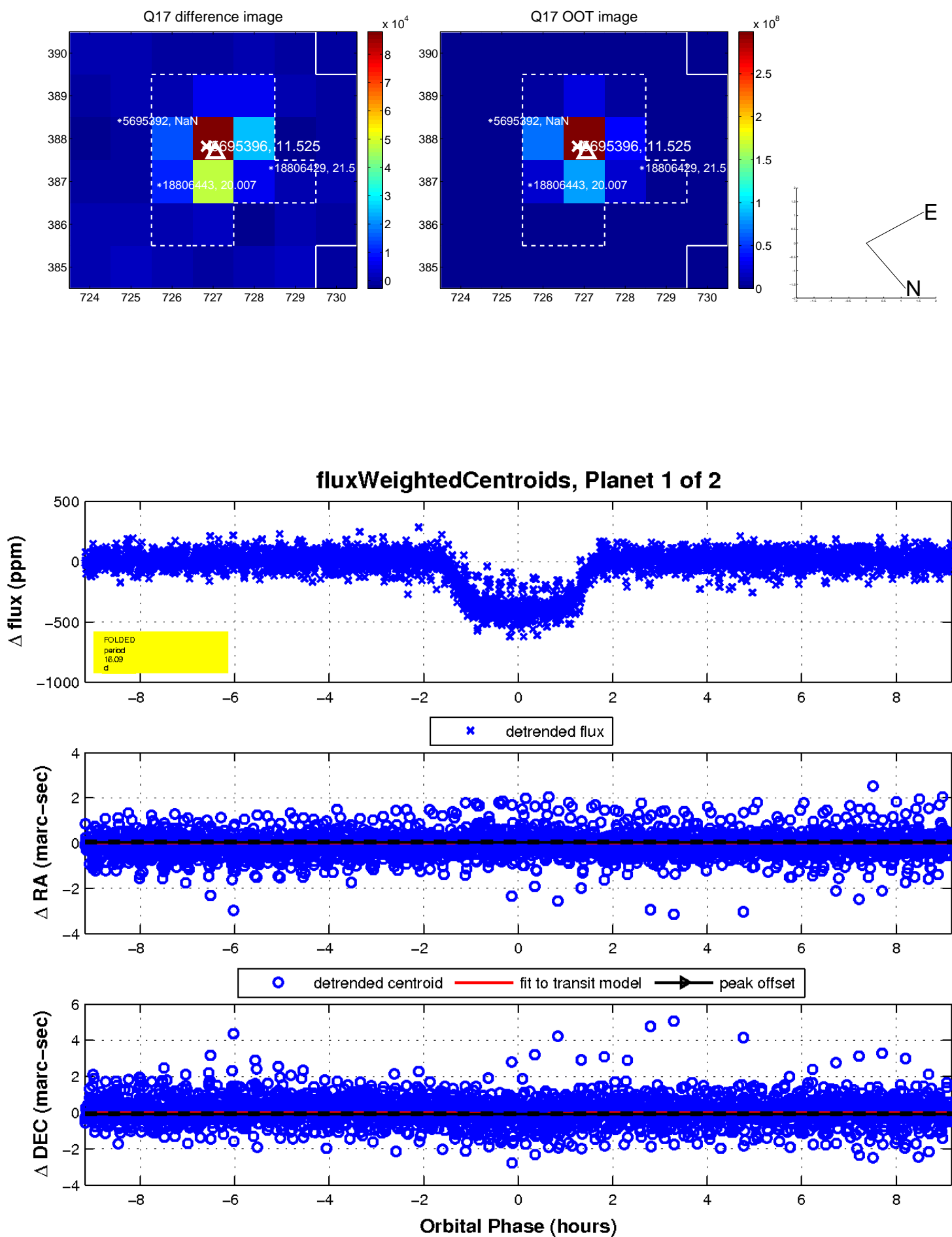
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

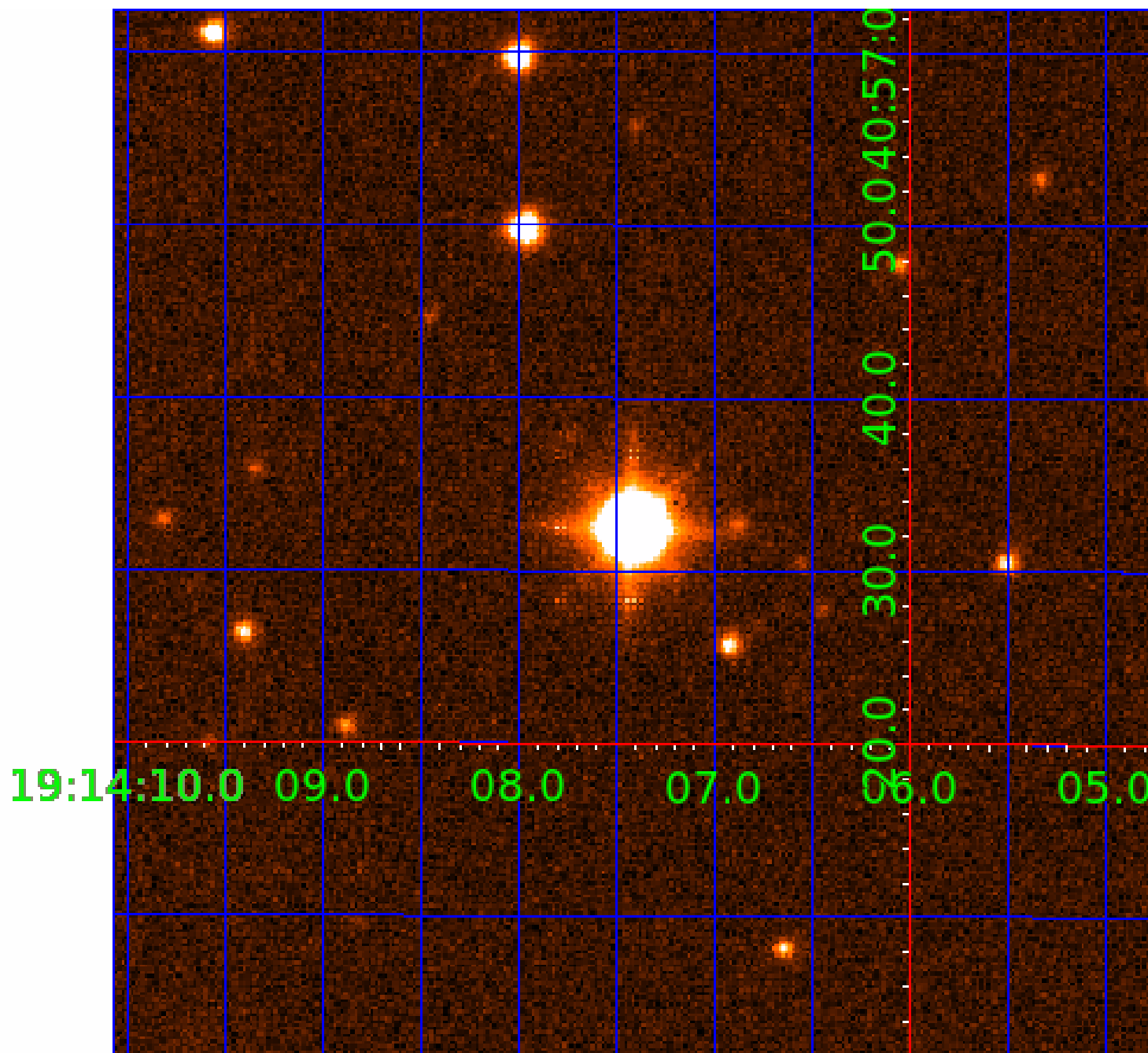


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 005695396

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})
005695396-01	OBS	0283.01	16.091969	138.414487	428.3	3.058	98.4	98.1	1.02	5680	2.48	62.82
005695396-02	OBS	0283.02	25.516967	154.424704	59.9	5.150	10.6	11.4	1.02	5680	0.88	33.97

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005695396-01	OBS	PC	0.98	0	0	0	0	NO_COMMENT
005695396-02	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.

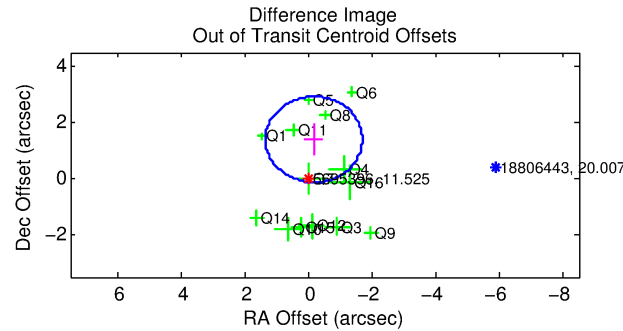
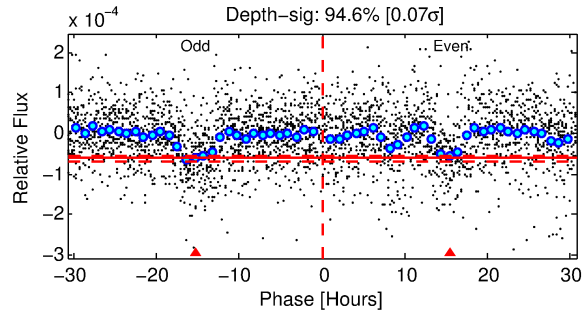
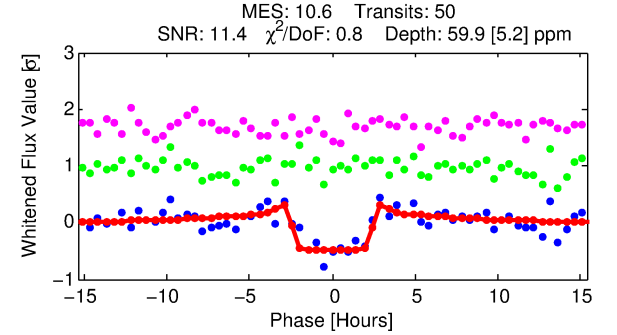
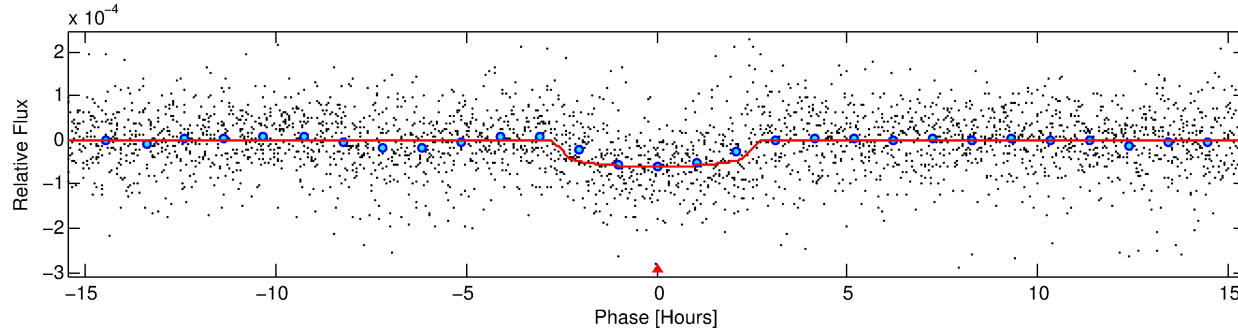
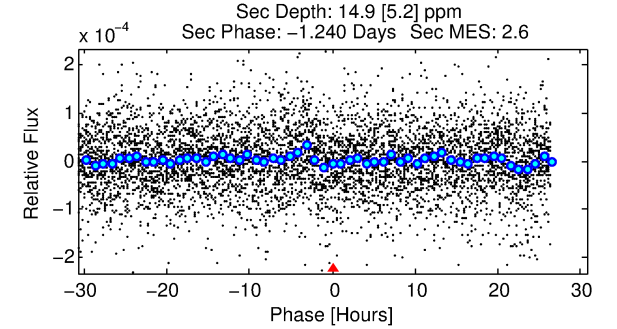
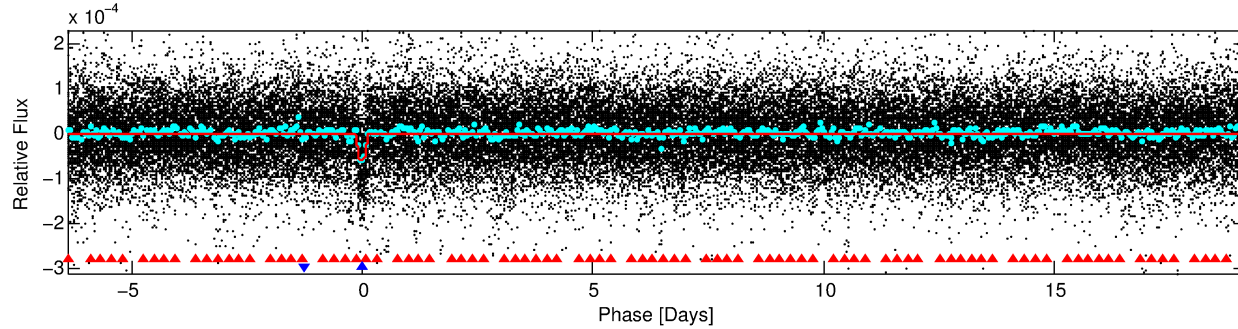
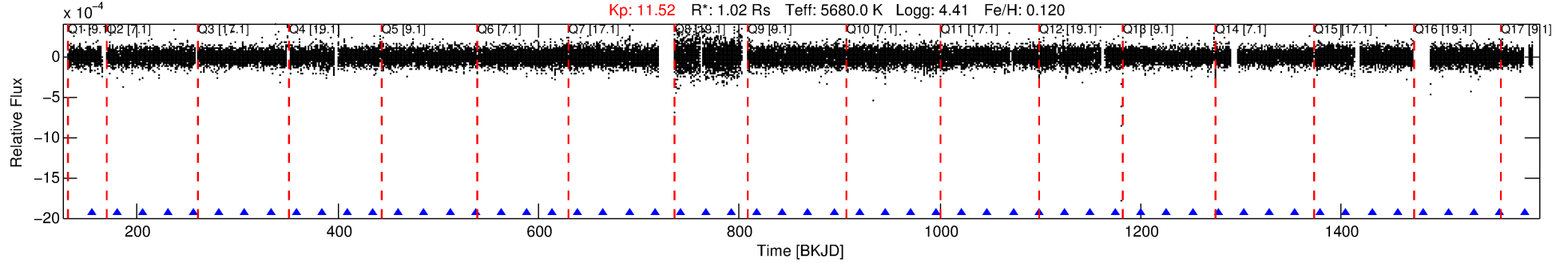
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 005695396-02

No Significant Match Found

DV One-Page Summary

KIC: 5695396 Candidate: 2 of 2 Period: 25.517 d
KOI: K00283.02 Name: Kepler-131c Corr: 0.993



DV Fit Results:

Period = 25.51697 [0.00018] d
Epoch = 154.4247 [0.0056] BKJD
Rp/R* = 0.0080 [0.0021]
a/R* = 22.14 [25.69]
b = 0.82 [0.47]
Seff = 33.97 [7.33]
Teff = 616 [33] K
Rp = 0.88 [0.27] Re
a = 0.1683 [0.0220] AU
Ag = 297.38 [196.82] [1.51σ]
Teffp = 3953 [628] K [5.30σ]

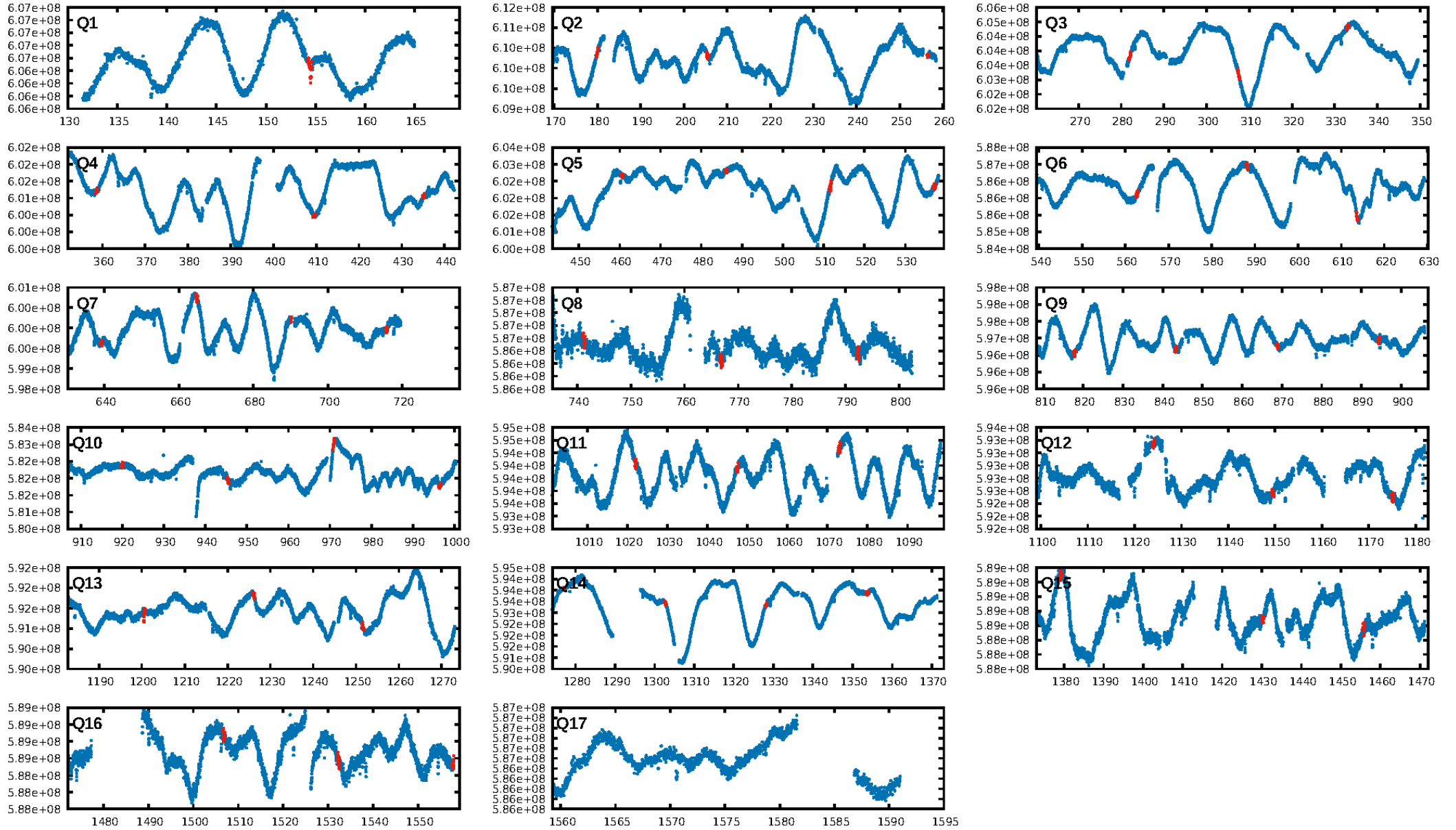
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [37.77σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 69.8%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 1.95e-23
RollingBand-fgt: 1.00 [50/50]
GhostDiagnostic-chr: -11.4
Centroid-sig: 72.5%
Centroid-so: 0.506 arcsec [0.58σ]
OotOffset-rm: 1.406 arcsec [2.76σ]
KicOffset-rm: 1.594 arcsec [3.10σ]
OotOffset-st: 3/4/4/3 [14]
KicOffset-st: 3/4/4/3 [14]
DiffImageQuality-fgm: 1.00 [14/14]
DiffImageOverlap-fno: 0.94 [15/16]

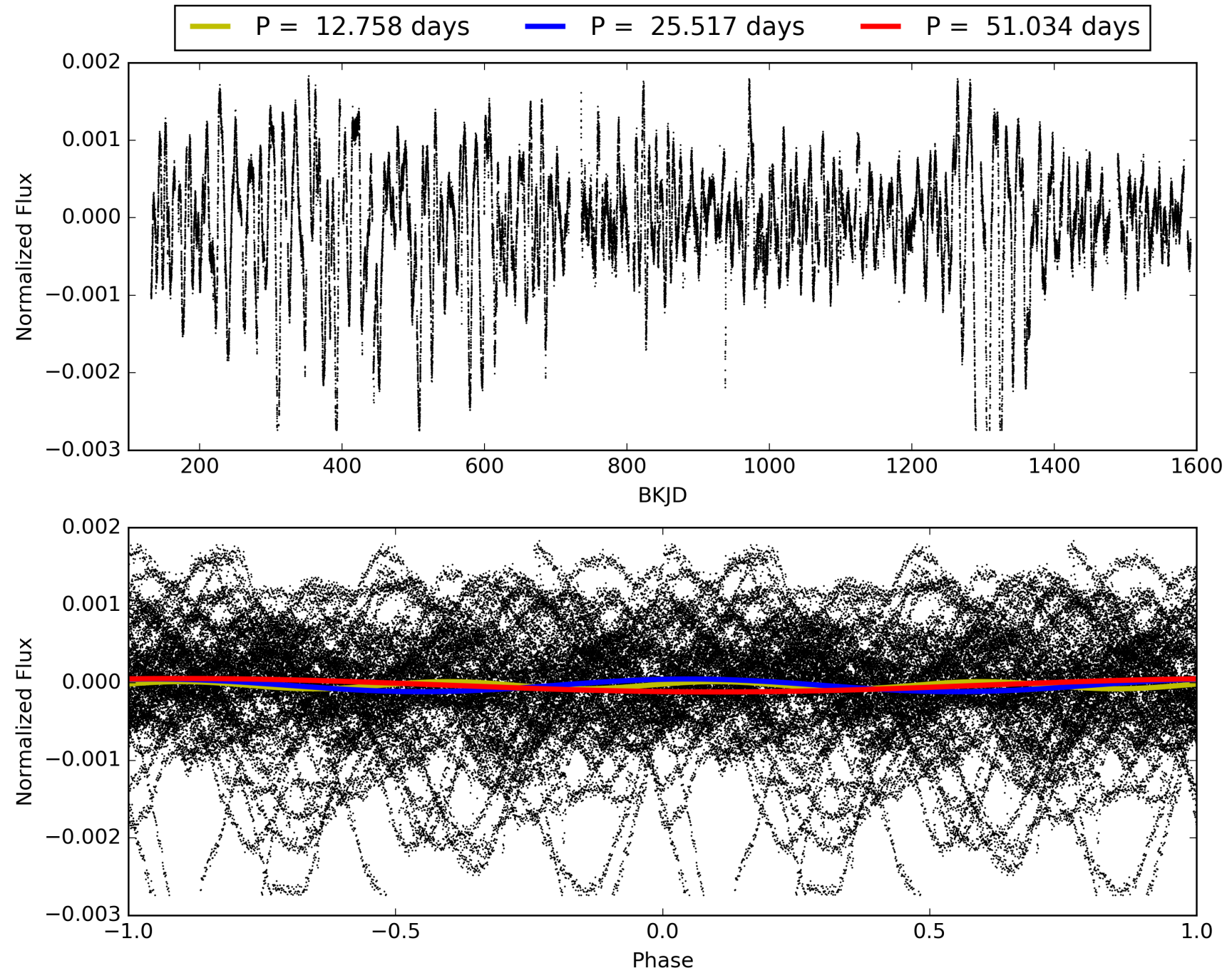
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 19:13:52 Z

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

TCE 005695396-02, PDC Light Curves

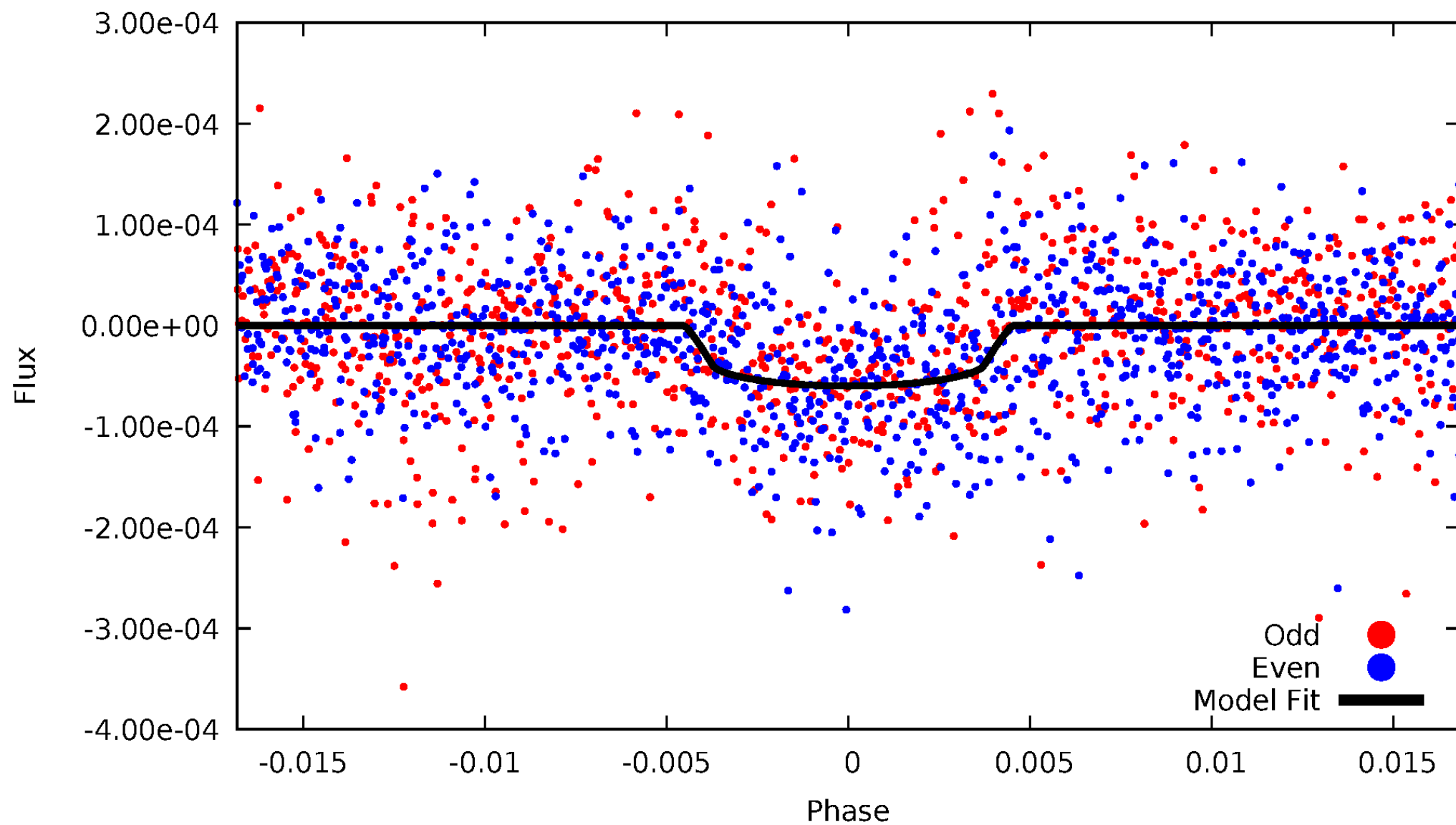


TCE 005695396-02



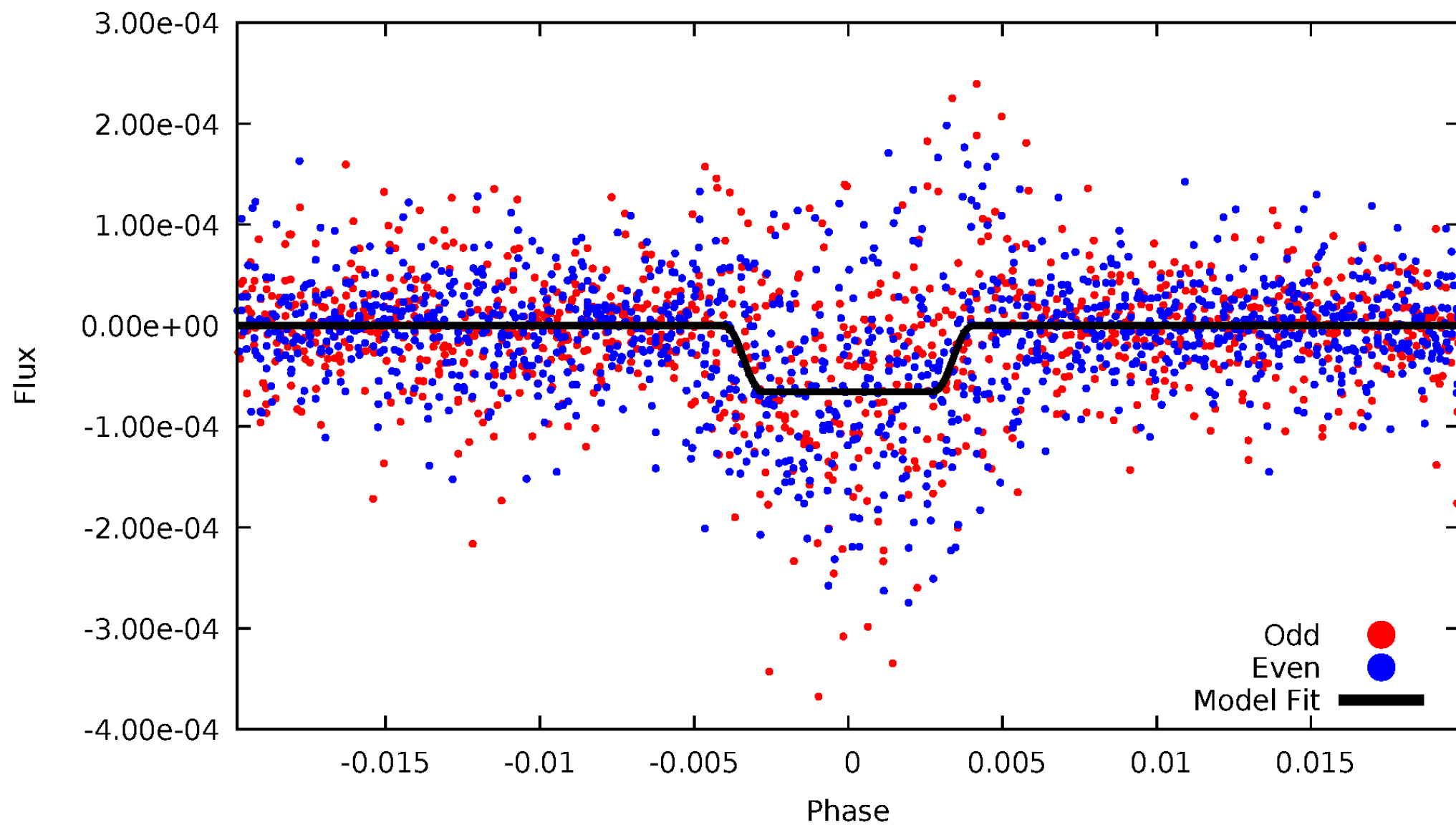
DV Odd/Even

TCE 005695396-02



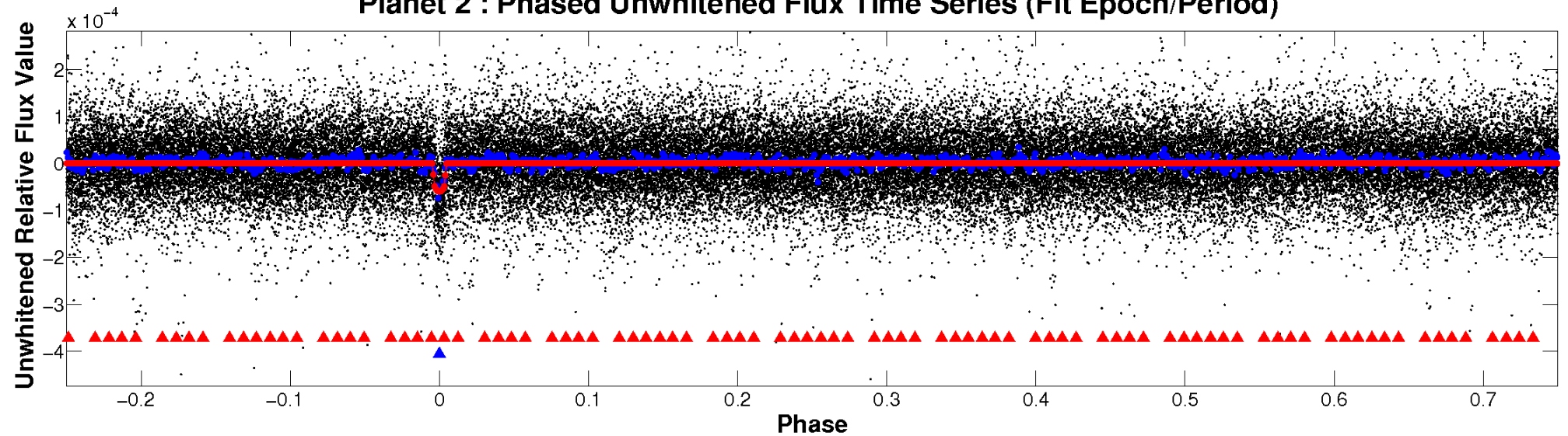
ALT Odd/Even

TCE 005695396-02

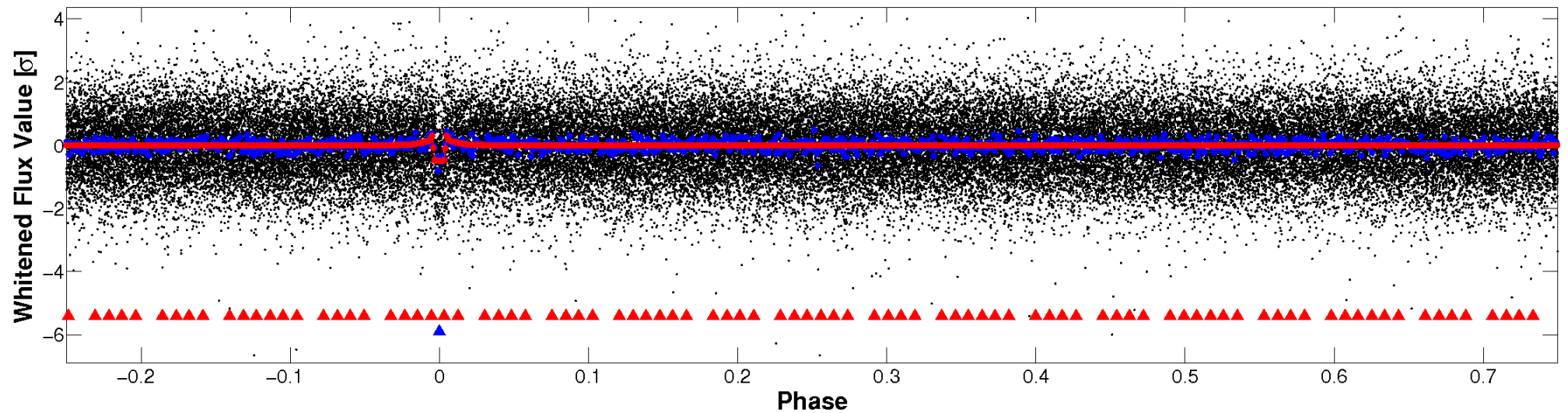


Non-Whitened Vs. Whitened Light Curve

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

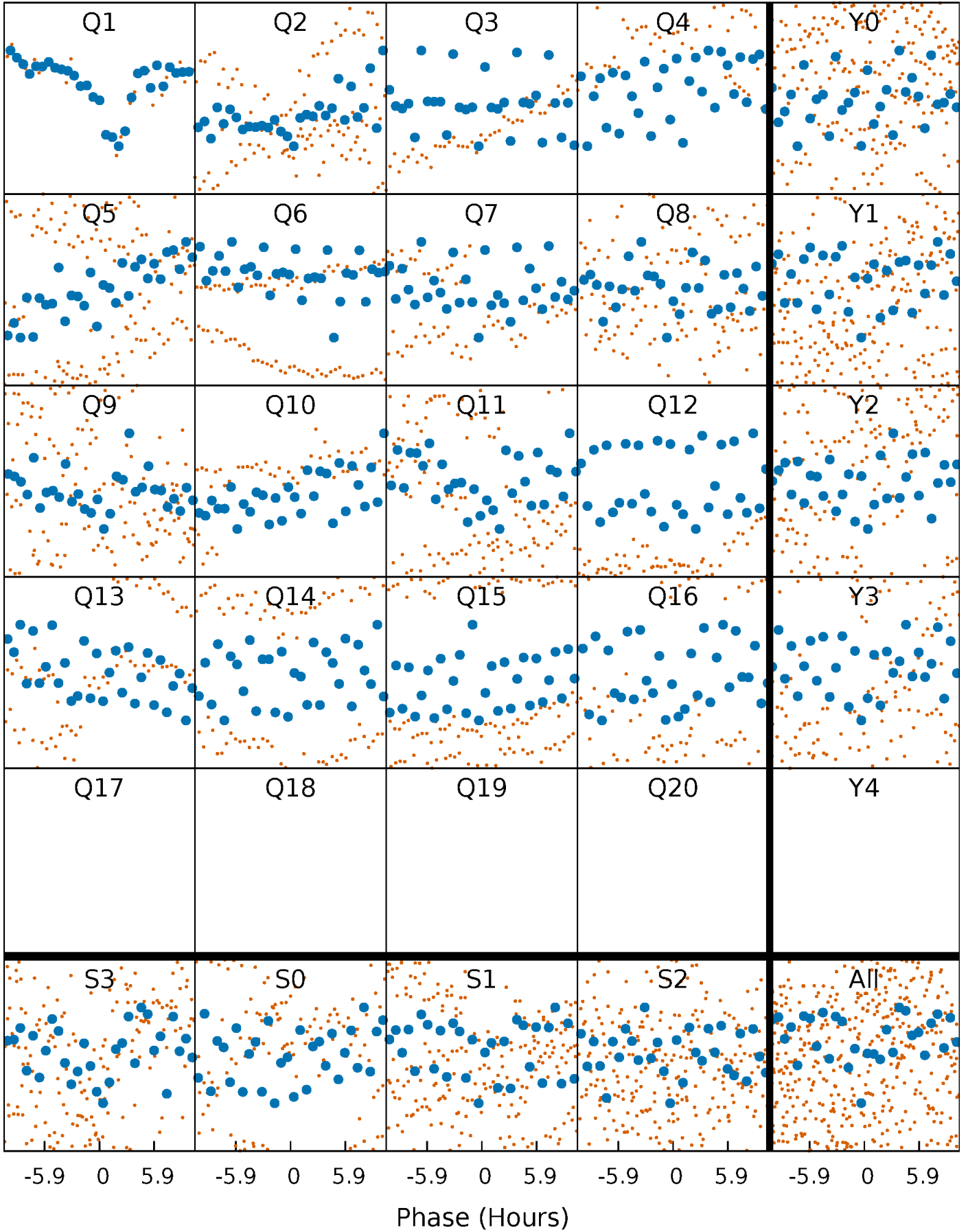


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



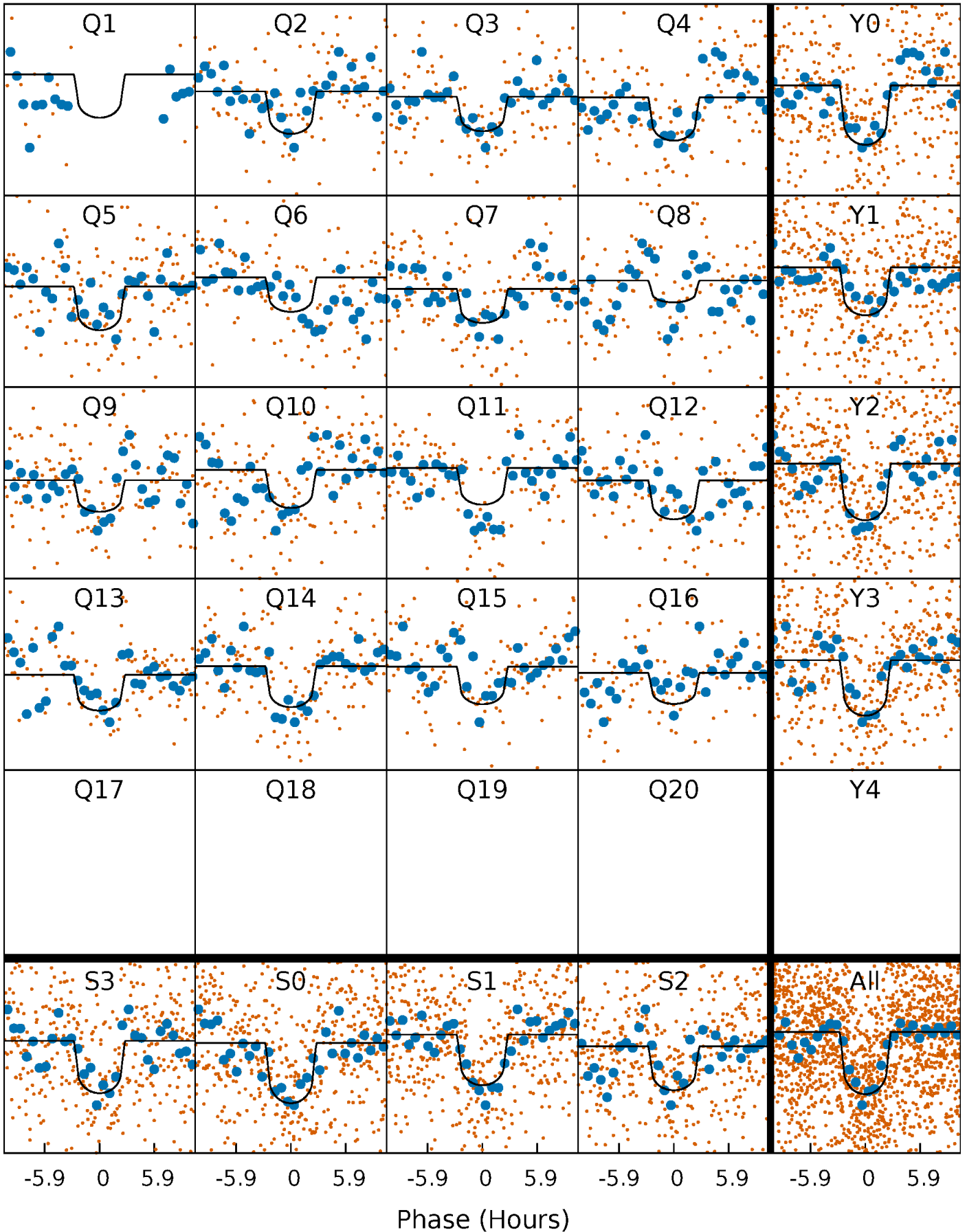
PDC Quarter-Phased Transit Curves

TCE 005695396-02 P= 25.516967 Days $T_0=154.424703$ (BKJD)



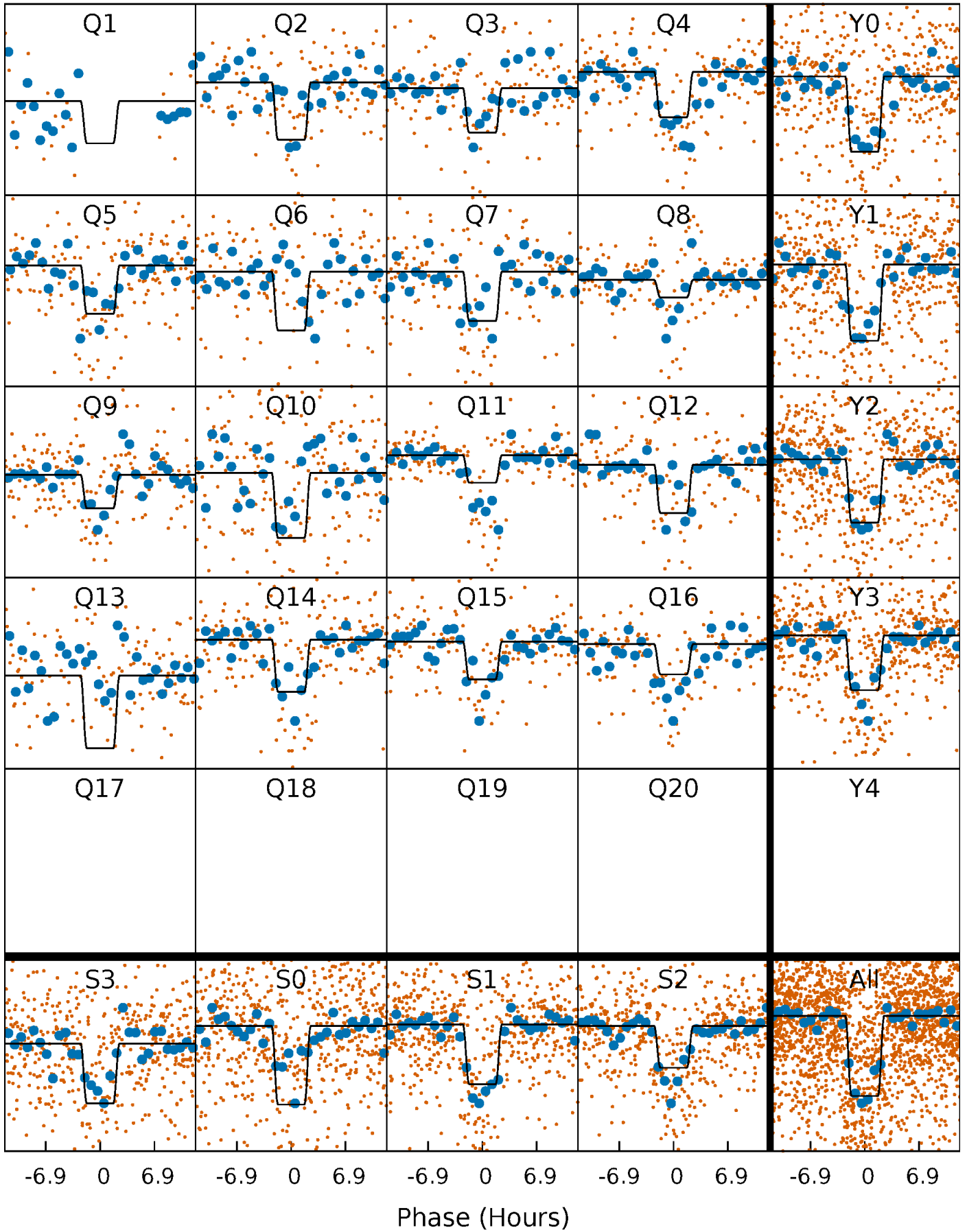
DV Quarter-Phased Transit Curves

TCE 005695396-02 P= 25.516967 Days $T_0=154.424703$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

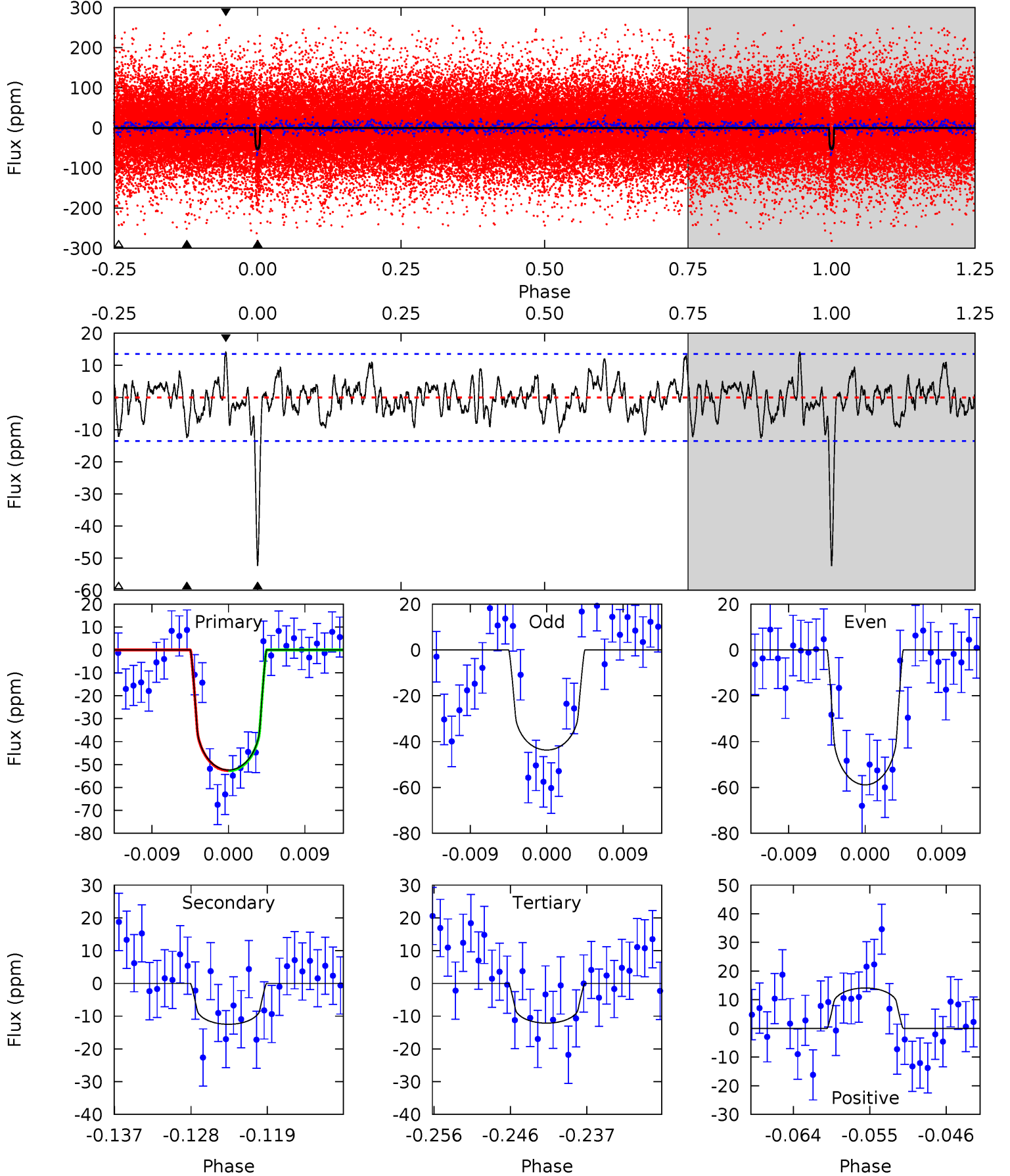
TCE 005695396-02 P= 25.517497 Days $T_0=154.410872$ (BKJD)



DV Model-Shift Uniqueness Test

005695396-02, P = 25.516967 Days, E = 128.907736 Days

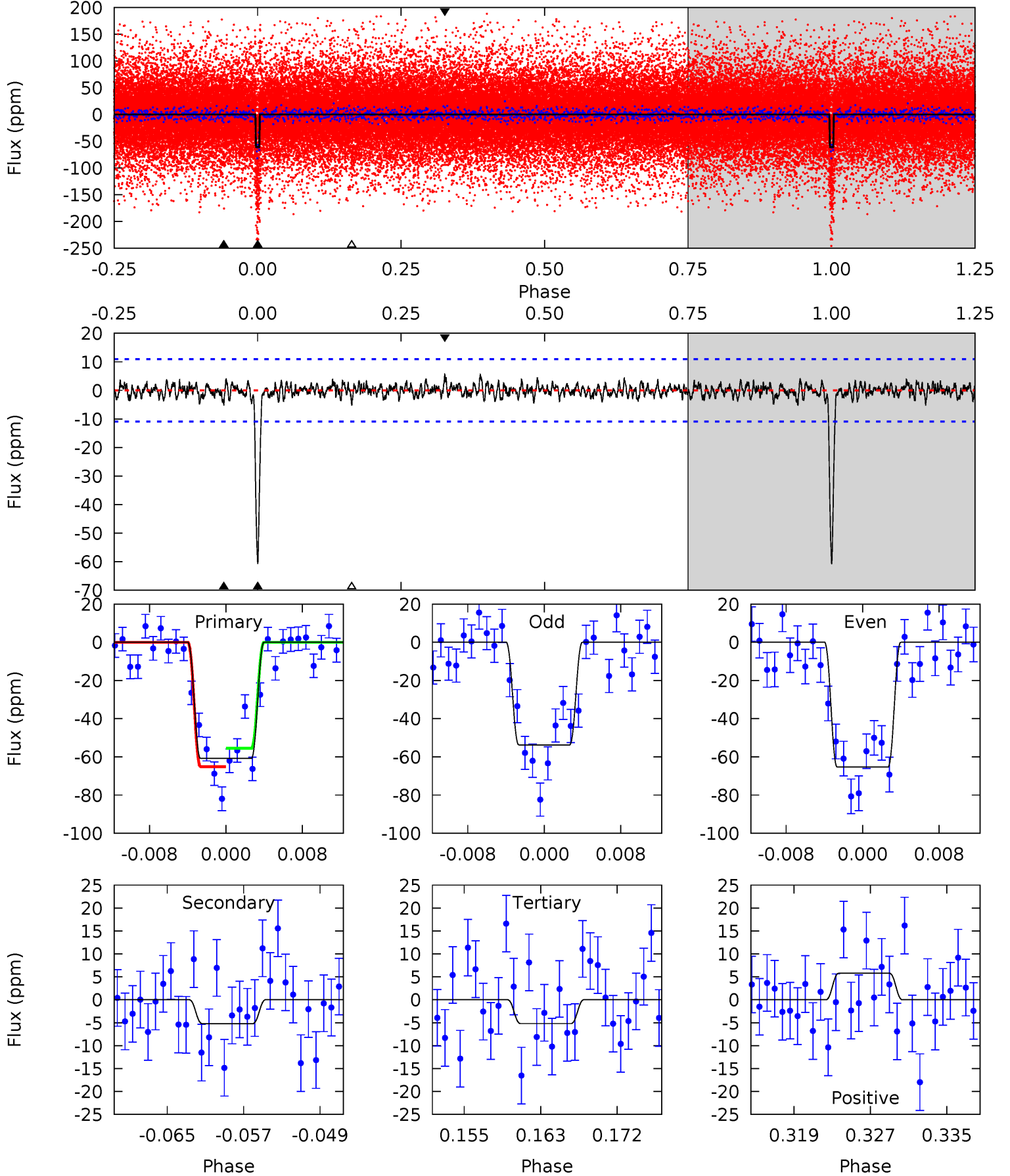
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
19.5	4.65	4.51	5.24	5.04	2.61	1.63	15.0	14.2	0.13	-0.60	2.83	0.93	0.21	0.01



Alt Model-Shift Uniqueness Test

005695396-02, $P = 25.517497$ Days, $E = 128.893375$ Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
28.2	2.41	2.40	2.68	5.06	2.65	0.77	25.8	25.5	0.00	-0.27	2.68	1.11	0.09	2.23



Stellar Parameters For KIC 005695396

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5680^{+102}_{-114}	$4.414^{+0.076}_{-0.114}$	$0.120^{+0.150}_{-0.150}$	$1.016^{+0.148}_{-0.098}$	$0.978^{+0.068}_{-0.062}$	$1.312^{+0.404}_{-0.436}$
	+2%/-2%	+2%/-3%	+125%/-125%	+15%/-10%	+7%/-6%	+31%/-33%
Source	SPE61	SPE61	SPE61	DSEP		

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

Secondary Eclipse Parameters for KIC 005695396-02 / KOI 0283.02

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-12 ± 3	$0.87^{+0.26}_{-0.23}$	865^{+37}_{-34}	4082^{+563}_{-356}	246^{+245}_{-101}
Alt.	-5 ± 2	$0.90^{+0.26}_{-0.24}$	863^{+36}_{-32}	3472^{+415}_{-370}	93^{+100}_{-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 $T_{obs} \gg T_{max}$ AND $A_{obs} \gg 1.0$

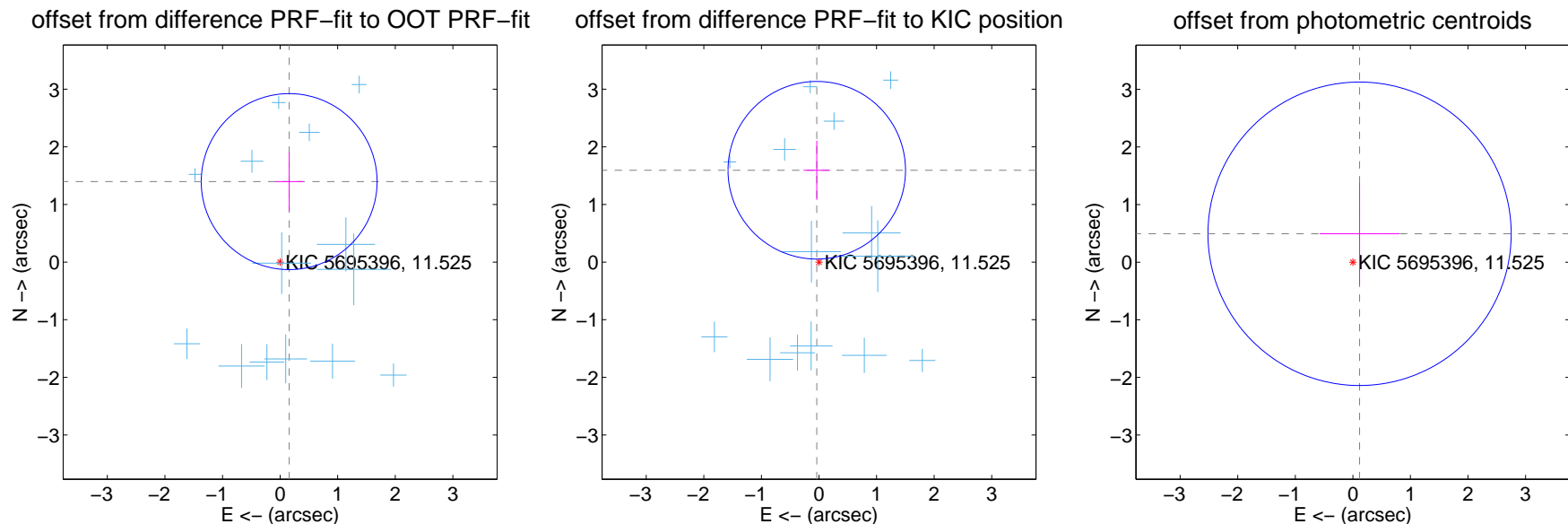
DV Centroid Data

Supplemental centroid analysis for 005695396-02. **Kepler magnitude: 11.53.** Transit SNR 11.35

There are 14 quarters with good PRF difference image offsets

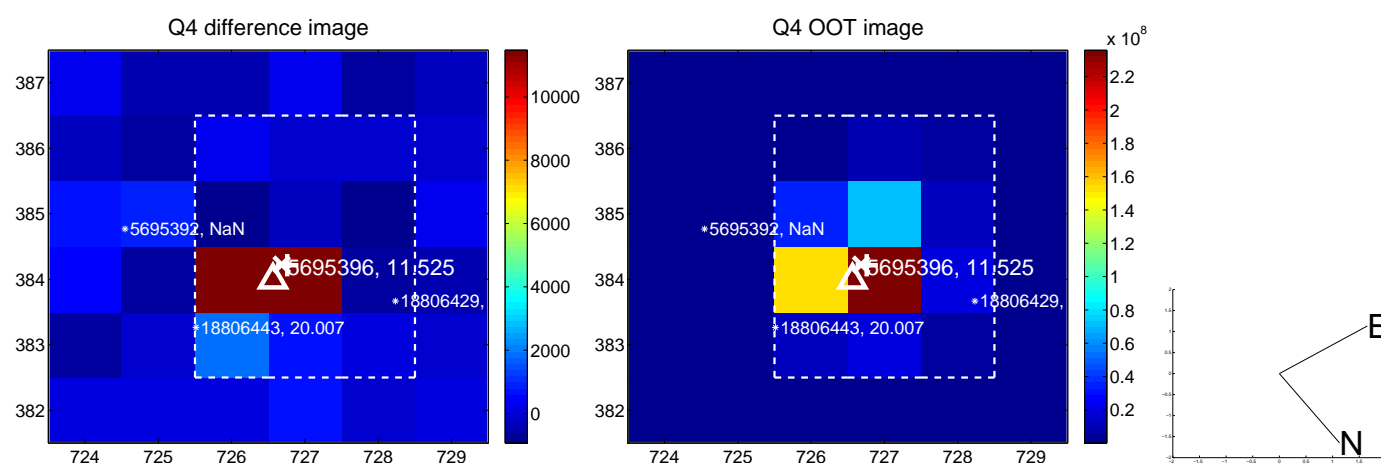
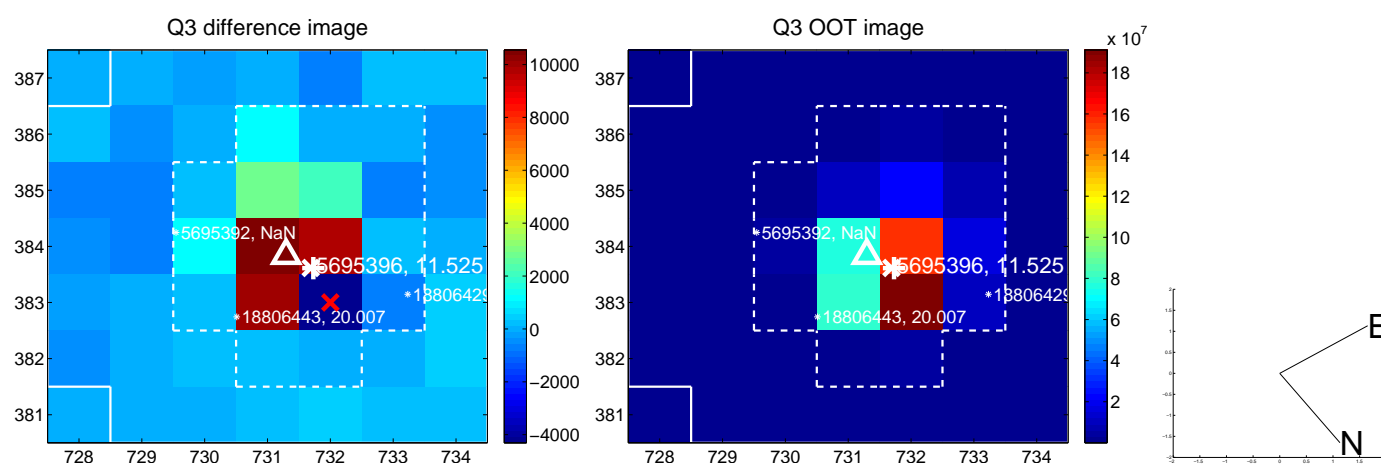
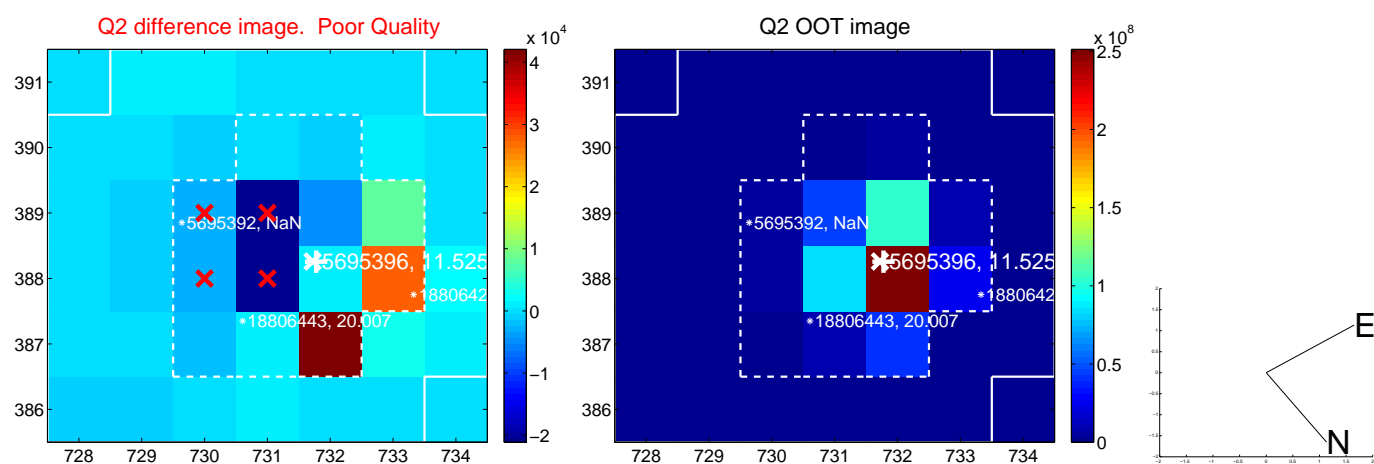
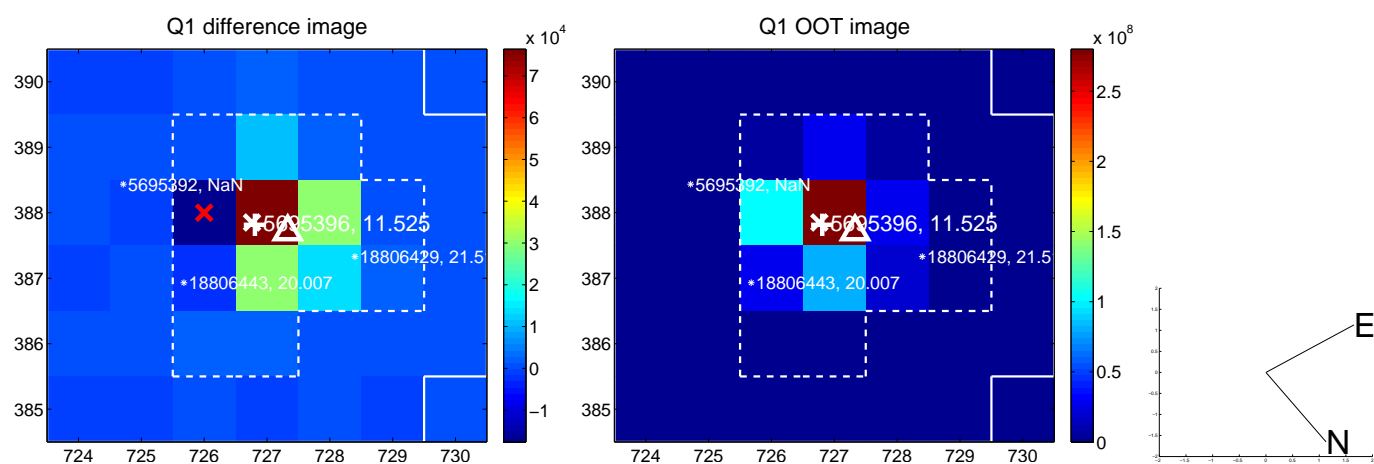
The direct PRF centroid is offset from the target star catalog position by about 0.35 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	1.406 ± 0.509	2.76	-0.157 ± 0.248	1.397 ± 0.511
PRF-fit source offset from KIC position	1.594 ± 0.514	3.10	0.039 ± 0.230	1.594 ± 0.514
photometric centroid source offset	0.51 ± 0.88	0.58	-0.12 ± 0.69	0.49 ± 0.89

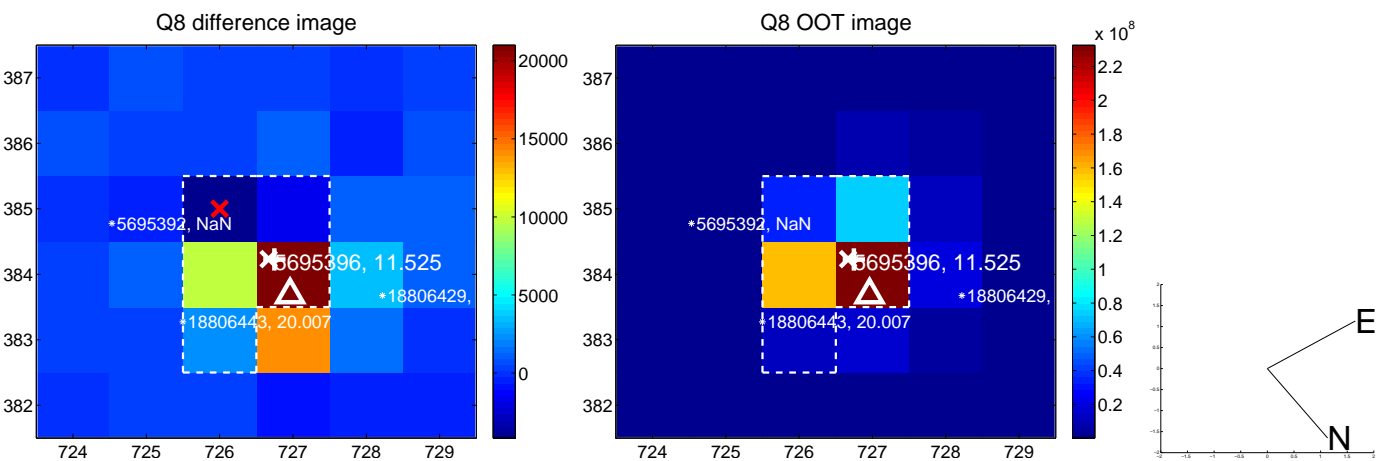
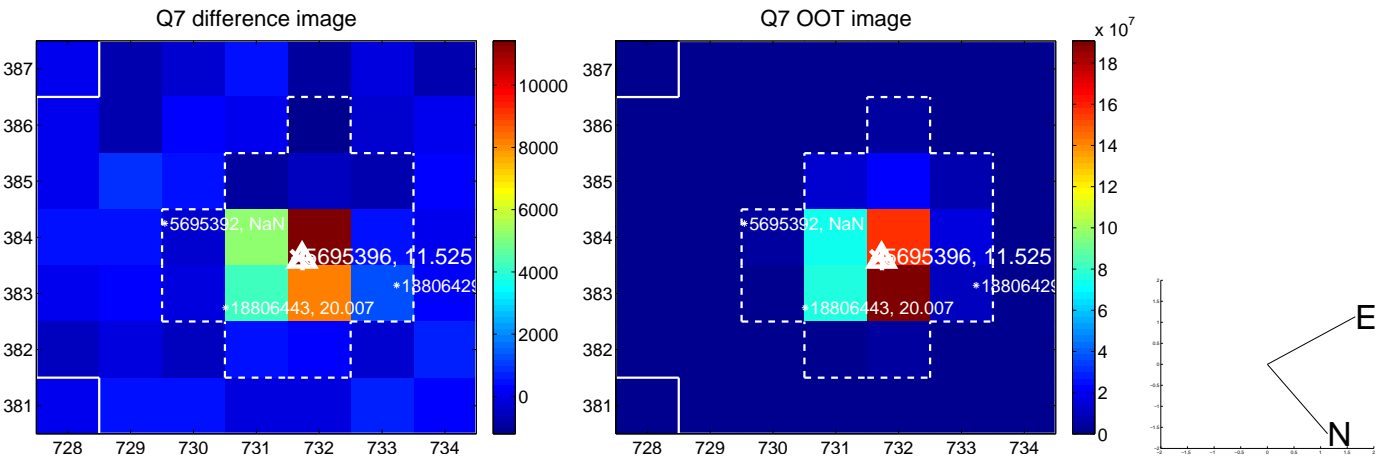
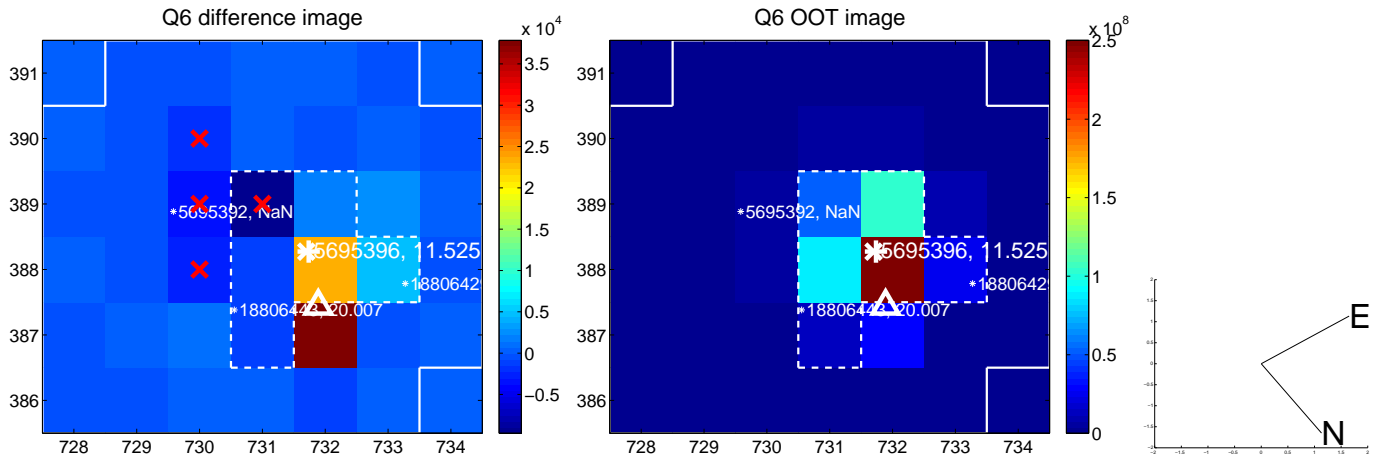
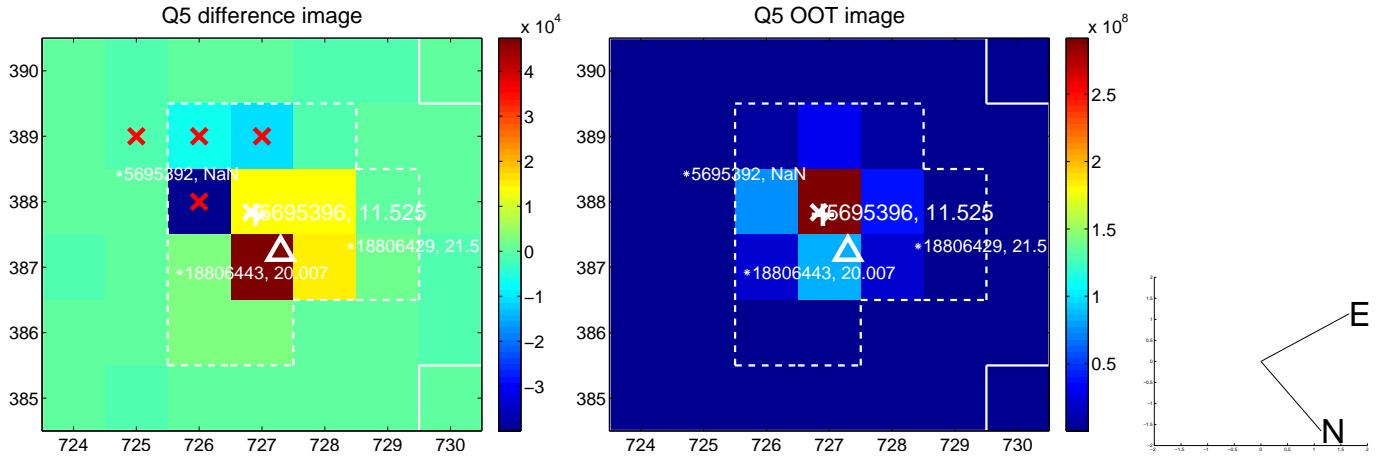


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

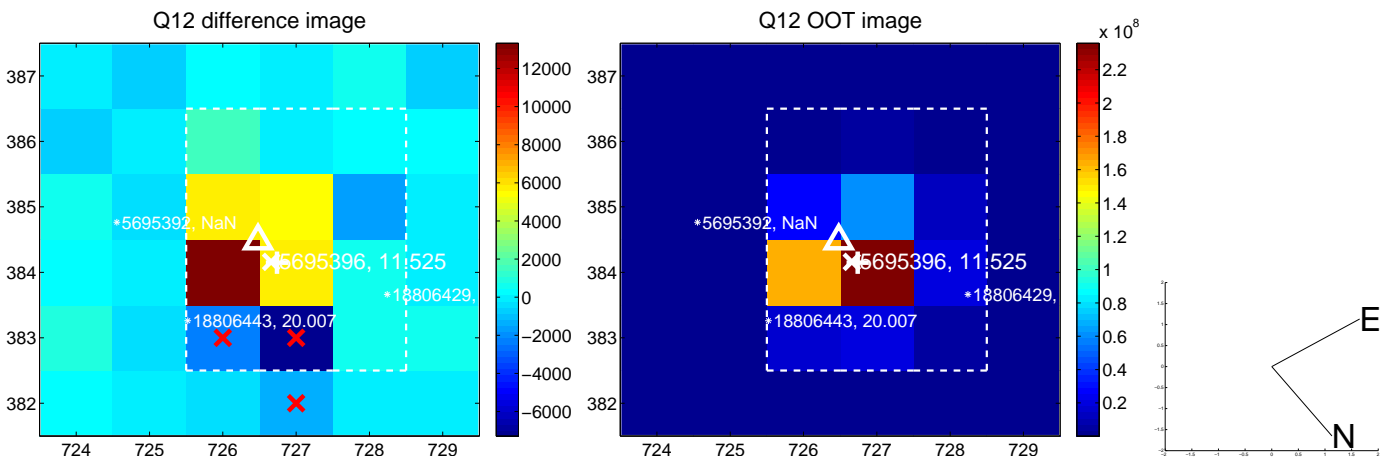
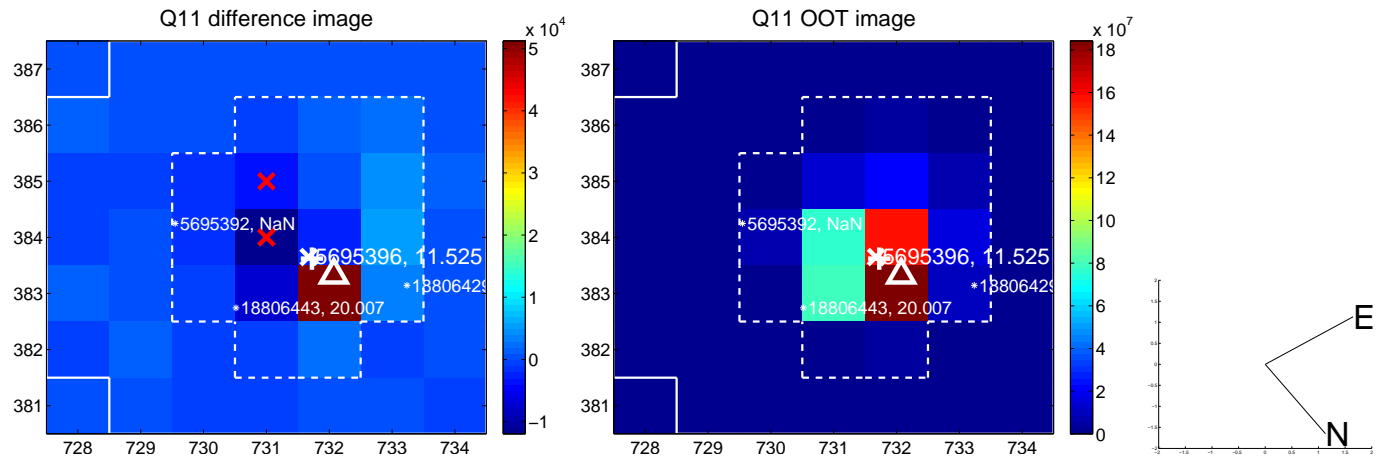
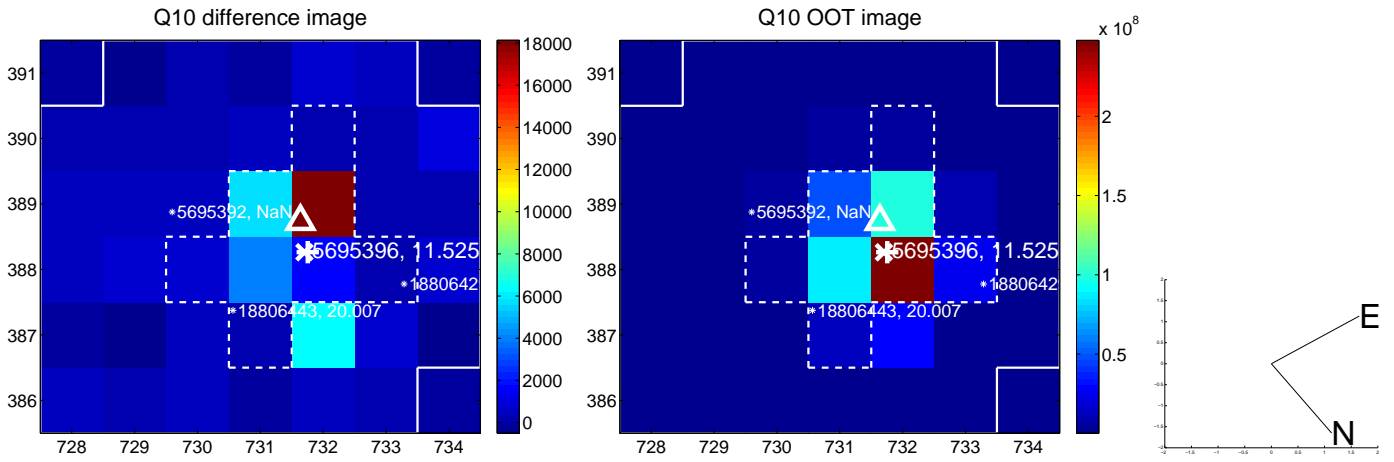
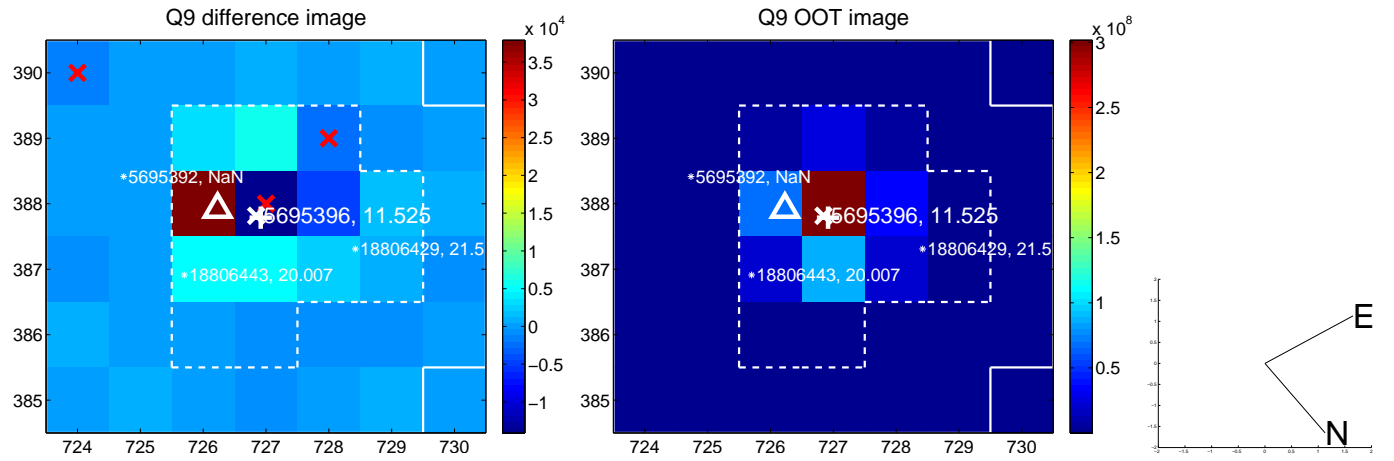
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



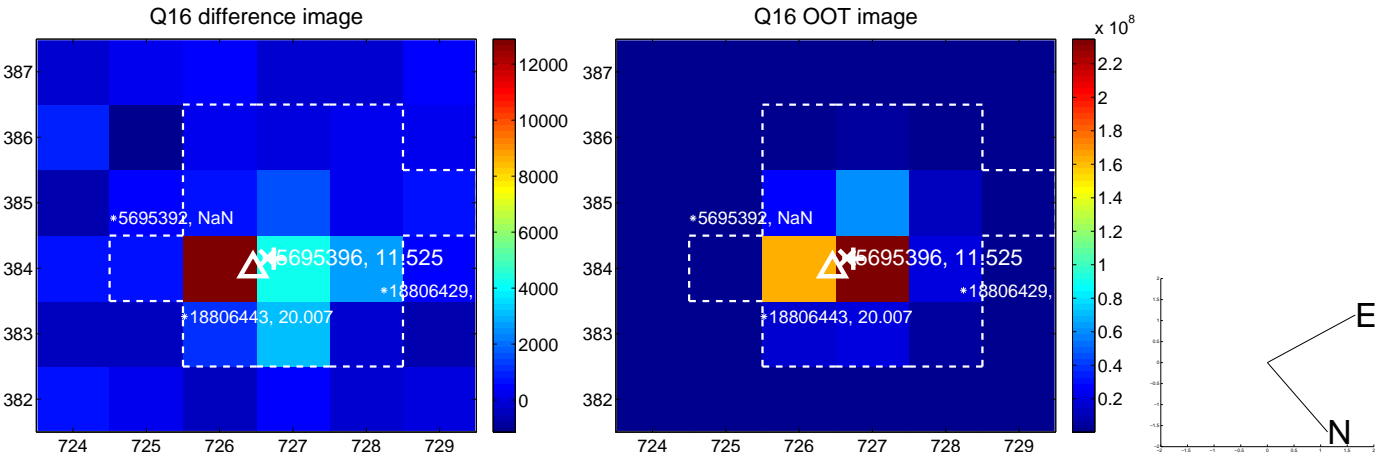
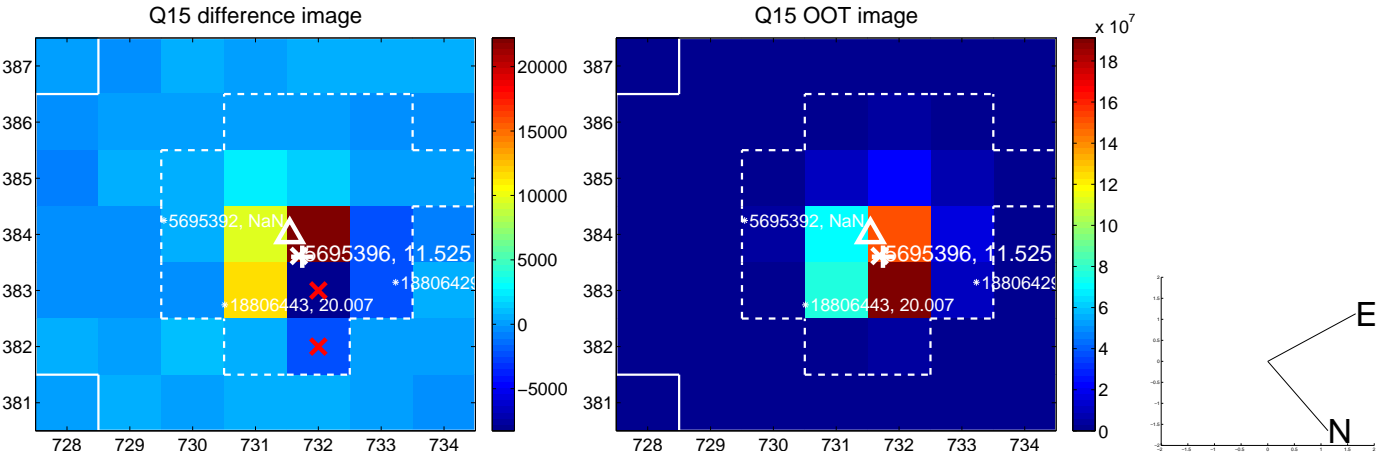
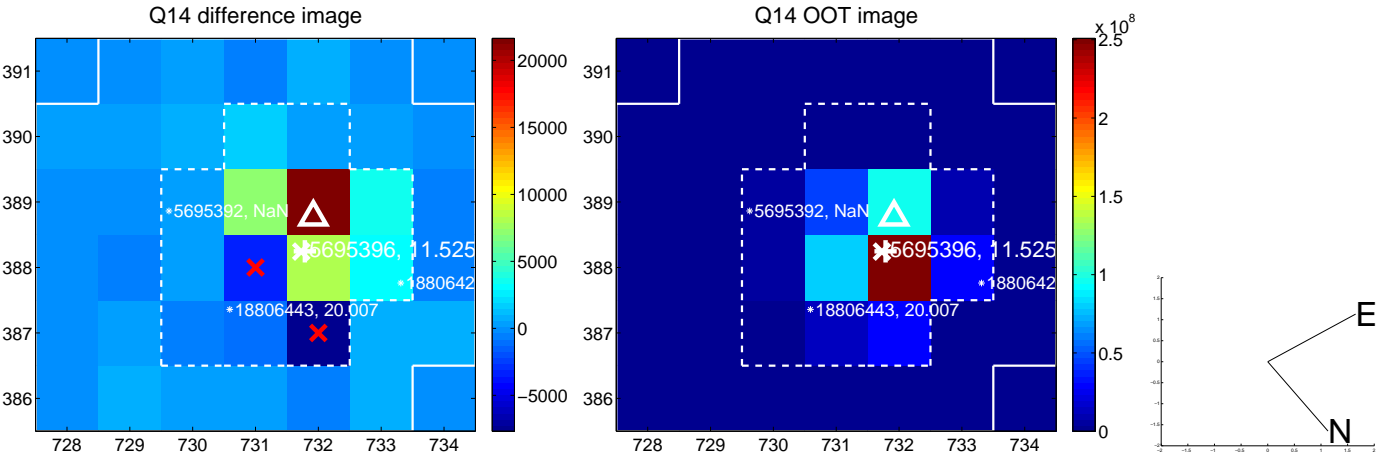
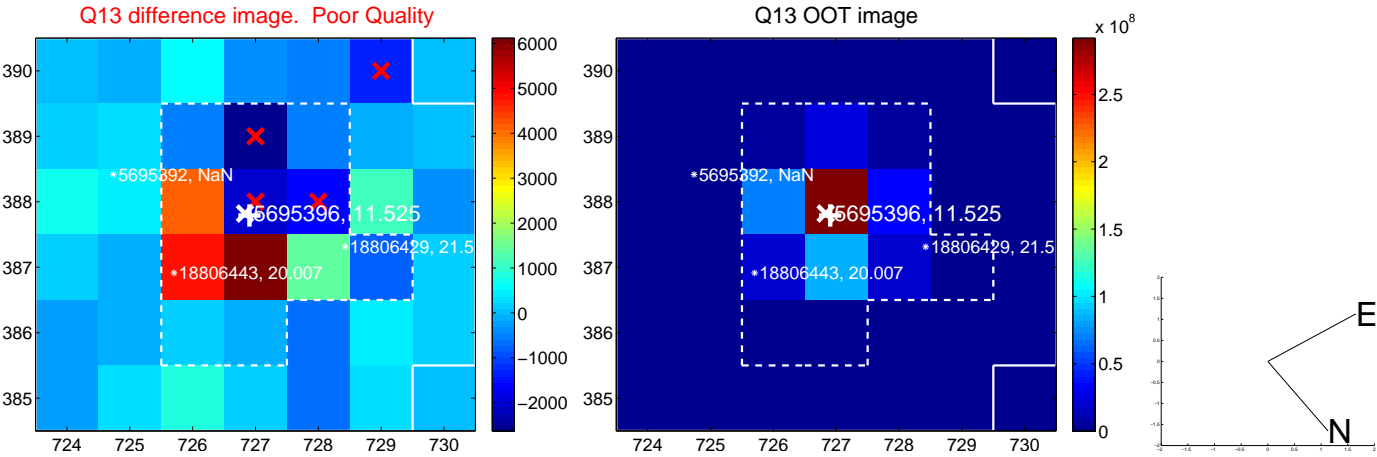
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



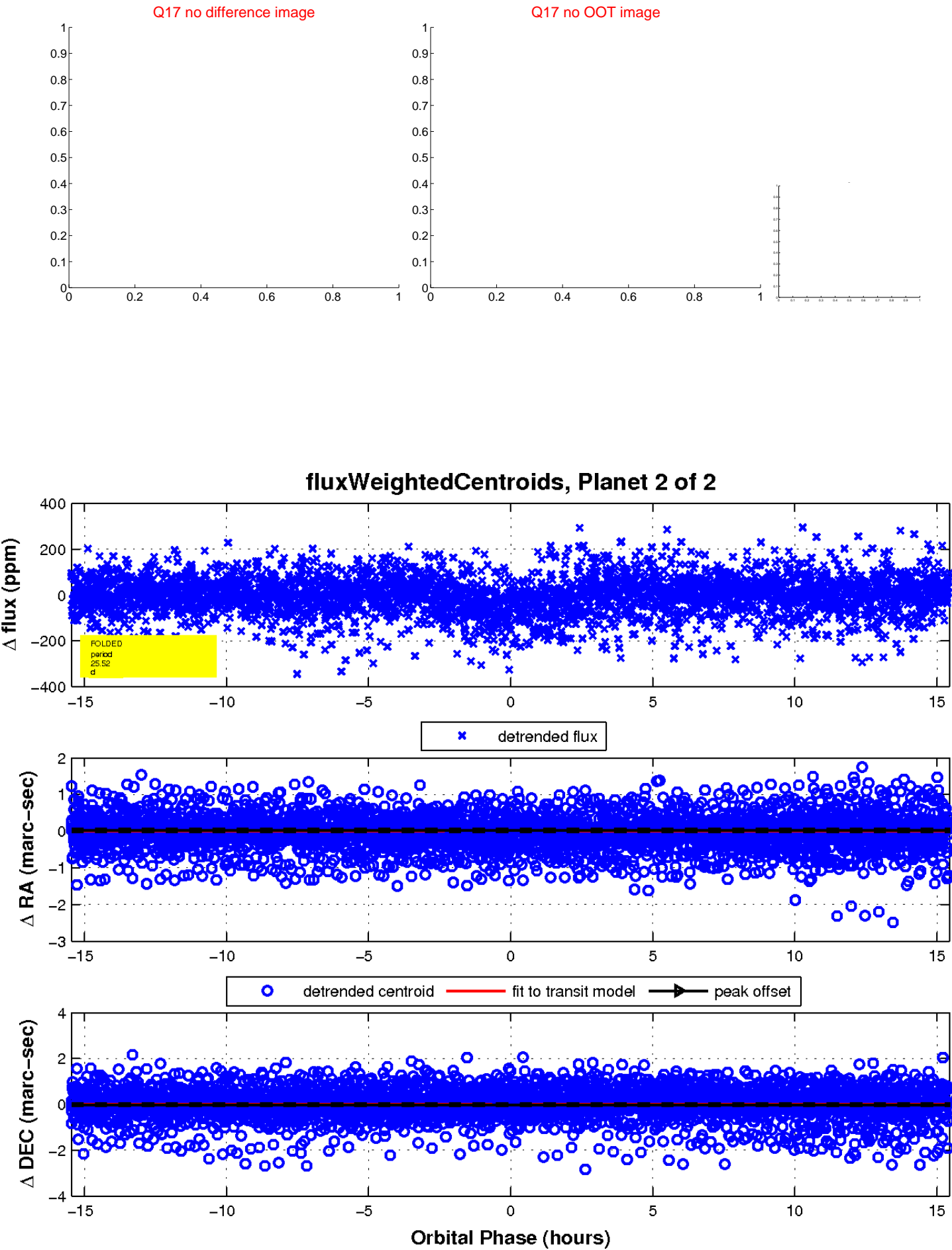
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

