

KIC 007602070

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})
007602070-01	OBS	0514.01	11.755597	140.806966	567.4	4.682	38.9	37.7	0.81	5644	3.47	62.30
007602070-02	OBS	No	11.755652	132.313857	570.7	3.155	32.8	34.2	0.81	5644	3.84	62.30

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
007602070-01	OBS	FP	0.00	0	1	1	0	MOD_SEC_DV—MOD_SEC_ALT—HAS_SEC_TCE—CENT_RESOLVED_OFFSET—HALO_GHOST
007602070-02	OBS	FP	0.00	1	1	1	0	IS_SEC_TCE—CENT_RESOLVED_OFFSET—HALO_GHOST

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.

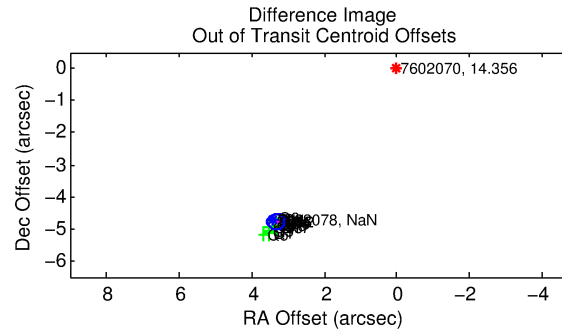
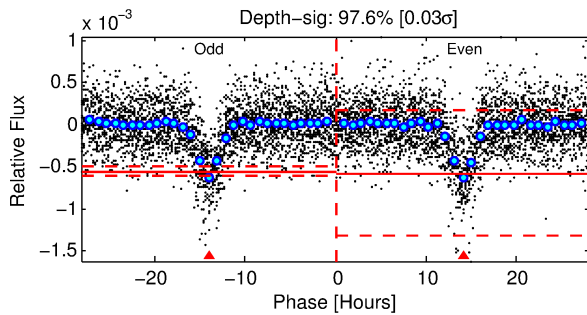
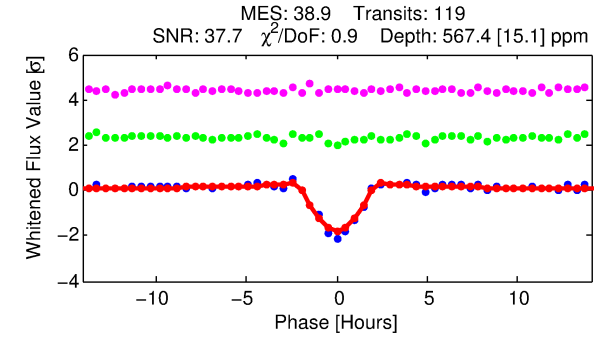
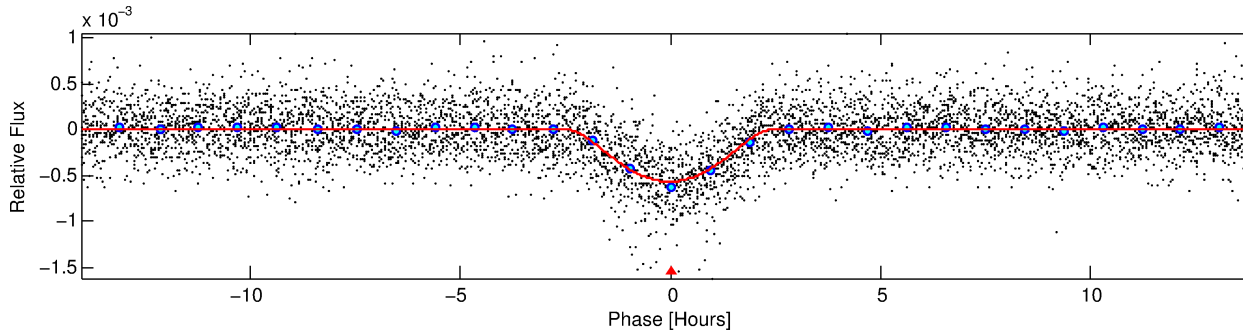
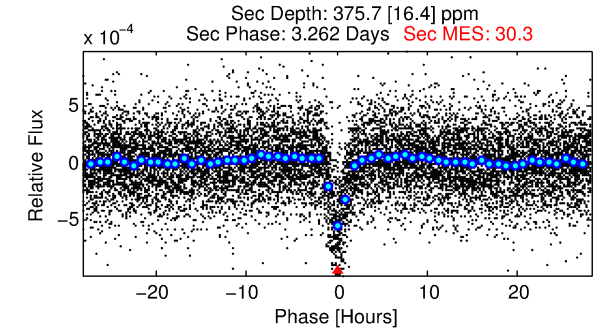
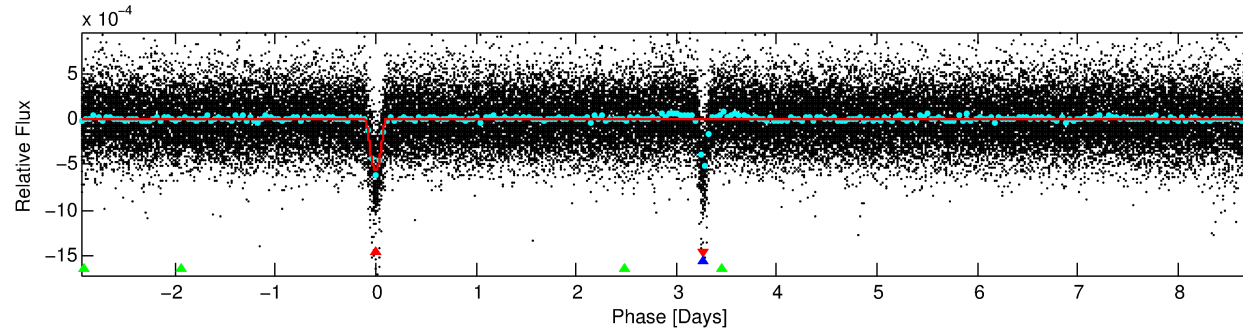
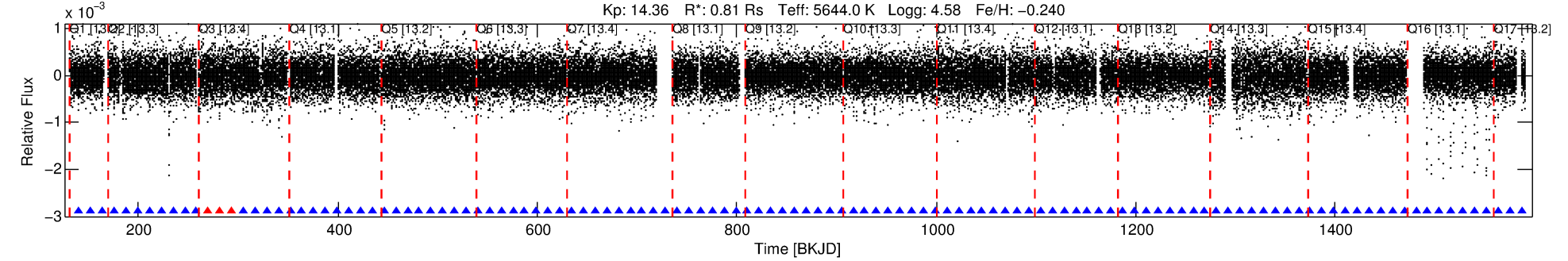
Ephemeris Match Information For 007602070-01

No Significant Match Found

DV One-Page Summary

KIC: 7602070 Candidate: 1 of 3 Period: 11.756 d
KOI: K00514.01 Corr: 0.993

Kp: 14.36 R*: 0.81 Rs Teff: 5644.0 K Logg: 4.58 Fe/H: -0.240



DV Fit Results:

Period = 11.75560 [0.00004] d
Epoch = 140.8070 [0.0027] BKJD
Rp/R* = 0.0394 [0.0232]
a/R* = 5.94 [0.98]
b = 0.99 [0.04]
Seff = 62.30 [17.62]
Teff = 716 [51] K
Rp = 3.47 [2.17] Re
a = 0.0974 [0.0174] AU
Ag = 163.05 [196.85] [0.82σ]
Teffp = 3958 [1171] K [2.77σ]

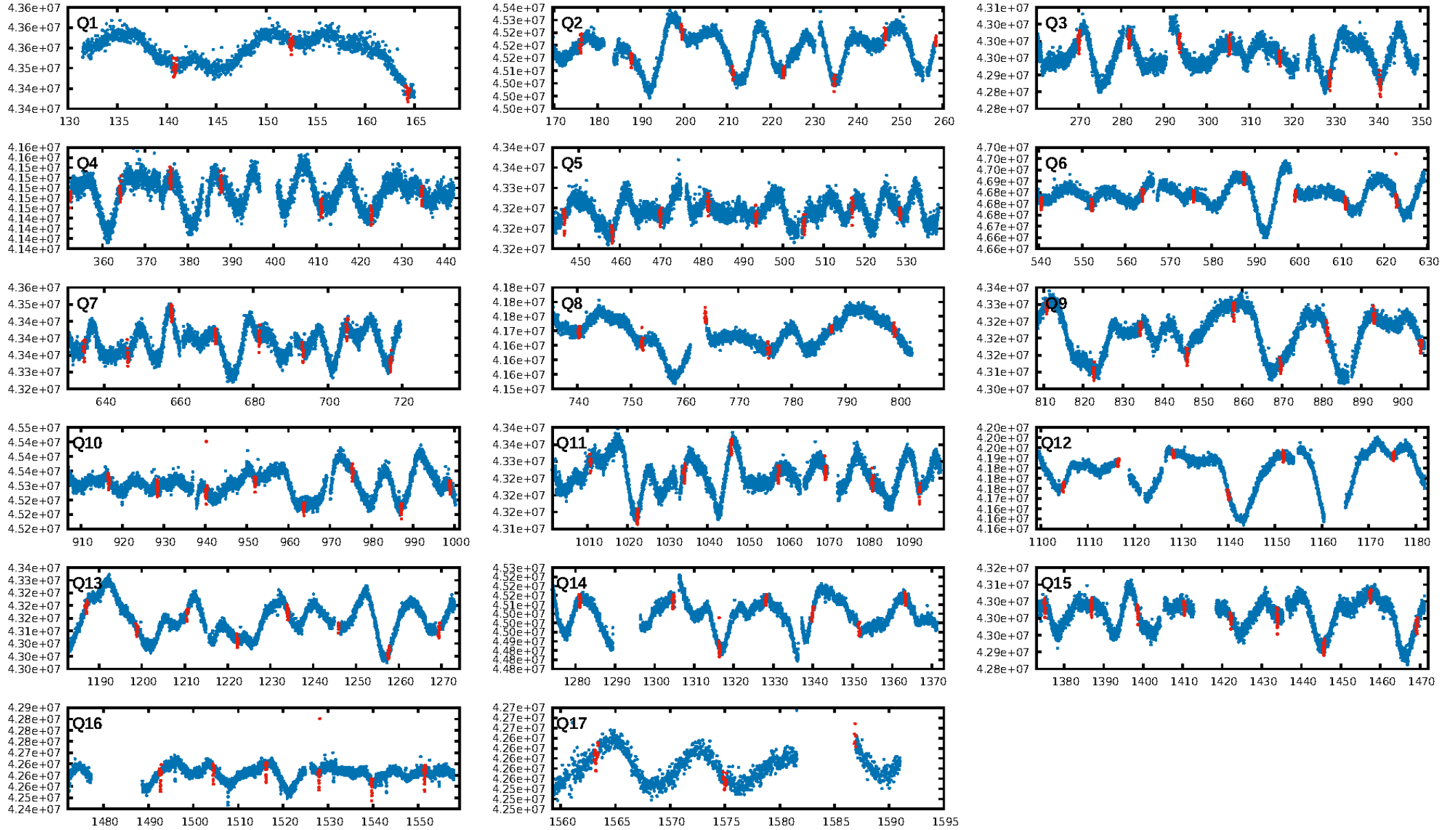
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 0.0% [0.00σ]
ModelChiSquare2-sig: 0.2%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 5.49e-302
RollingBand-fgt: 0.97 [110/113]
GhostDiagnostic-chr: -0.1009
Centroid-sig: 0.0%
Centroid-so: 18.775 arcsec [64.39σ]
OotOffset-rm: 5.835 arcsec [74.18σ]
KicOffset-rm: 5.831 arcsec [76.03σ]
OotOffset-st: 4/4/4/5 [17]
KicOffset-st: 4/4/4/5 [17]
DiffImageQuality-fgm: 1.00 [17/17]
DiffImageOverlap-fno: 1.00 [17/17]

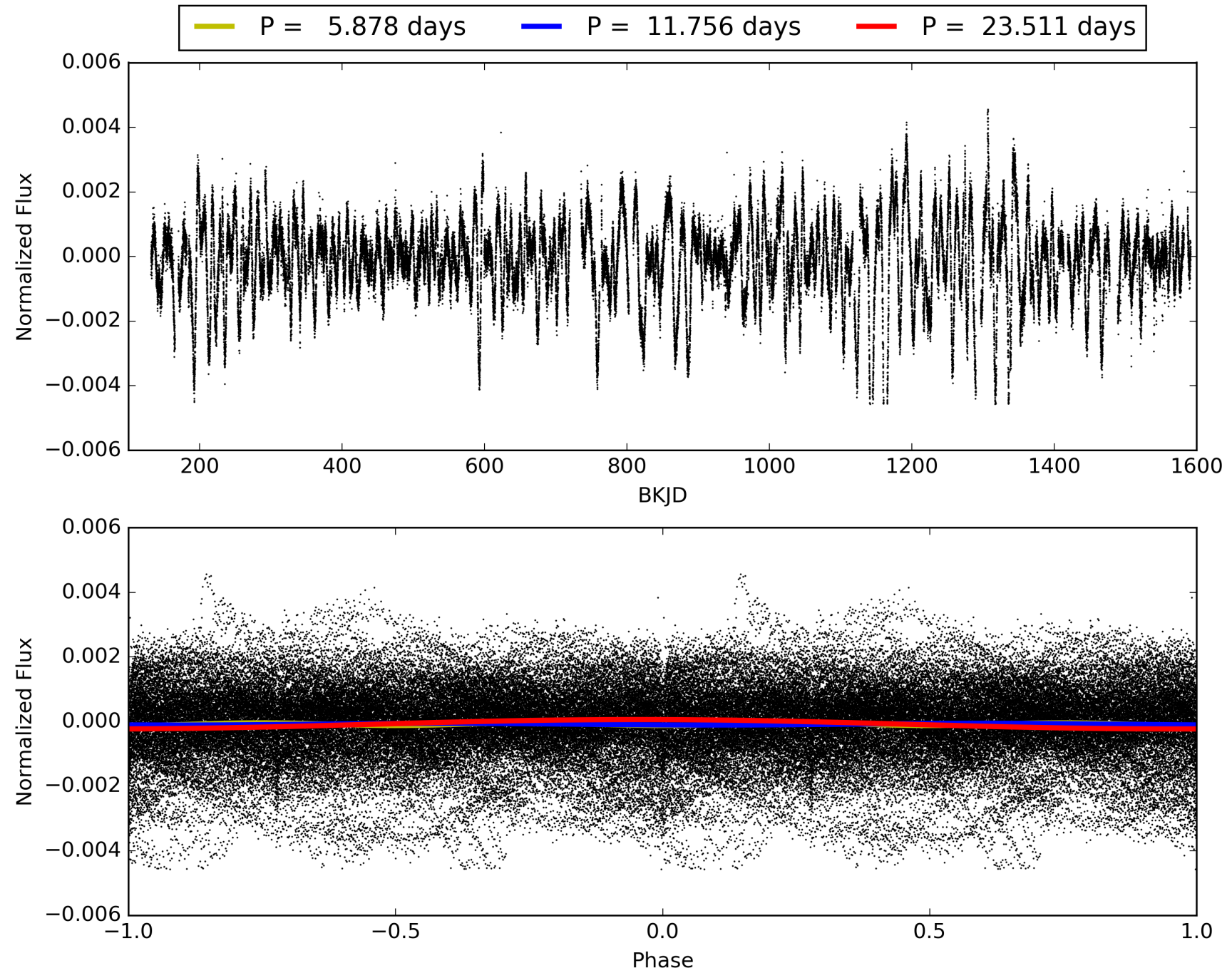
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 01:46:44 Z

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

TCE 007602070-01, PDC Light Curves

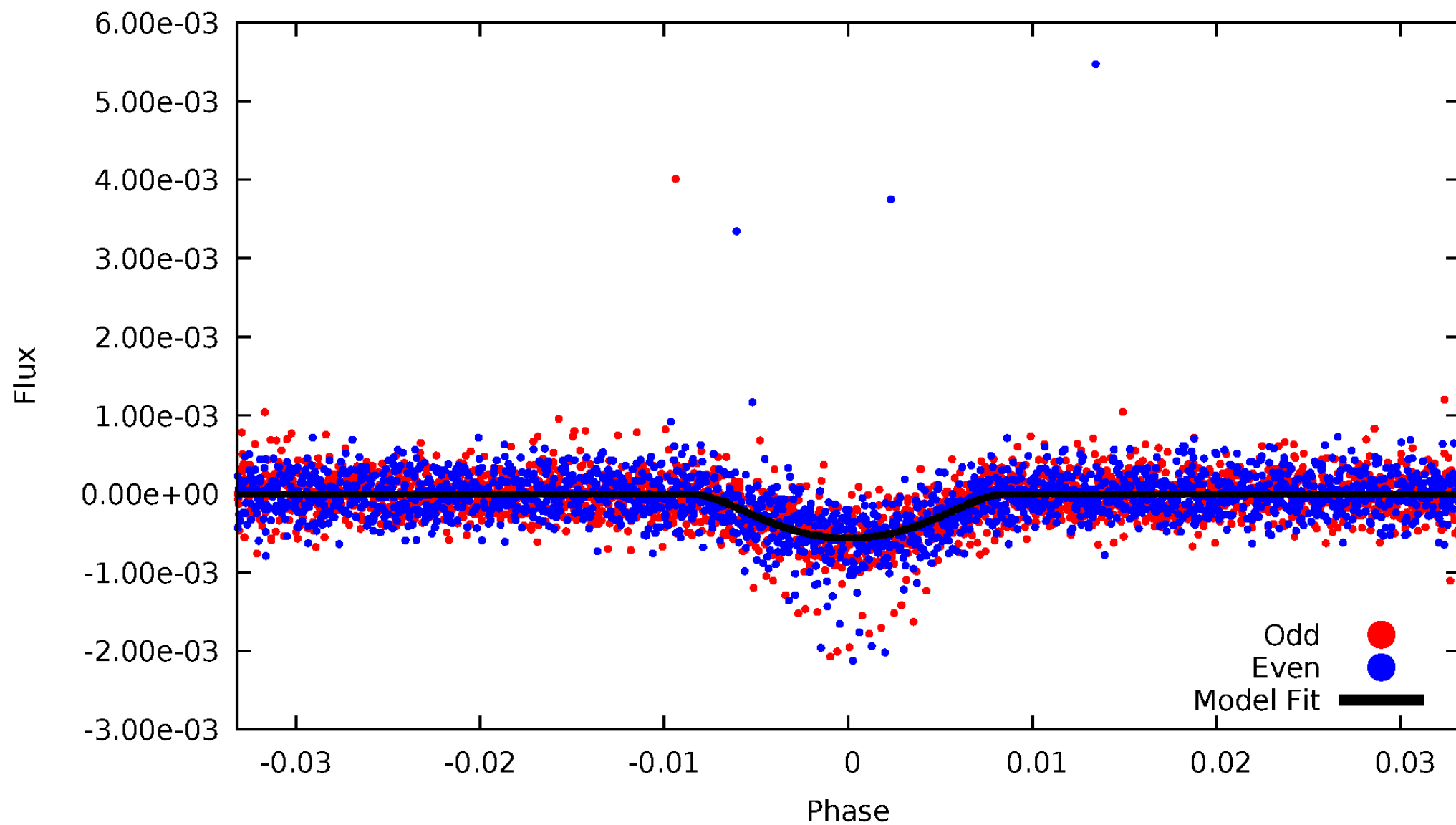


TCE 007602070-01



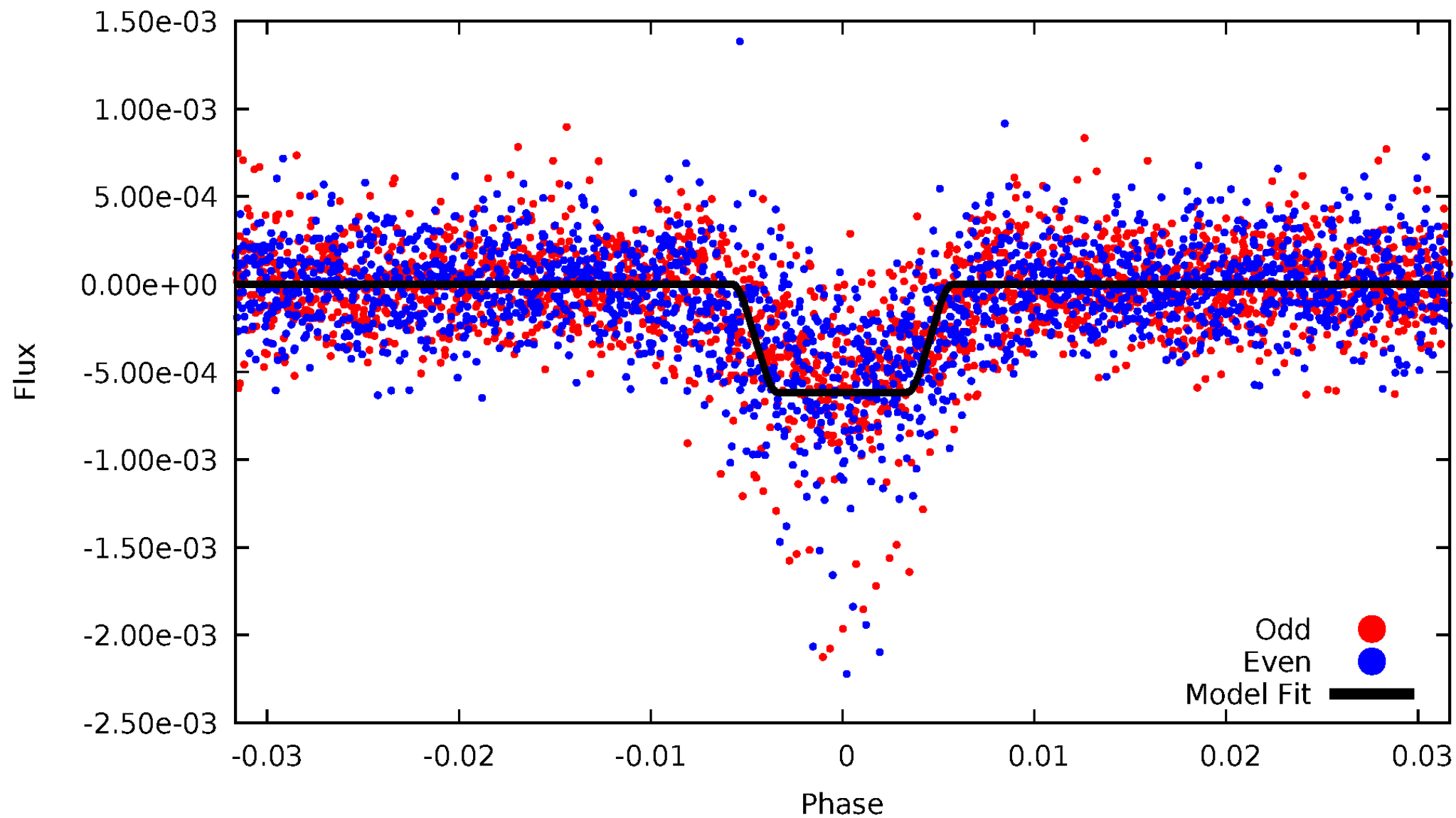
DV Odd/Even

TCE 007602070-01



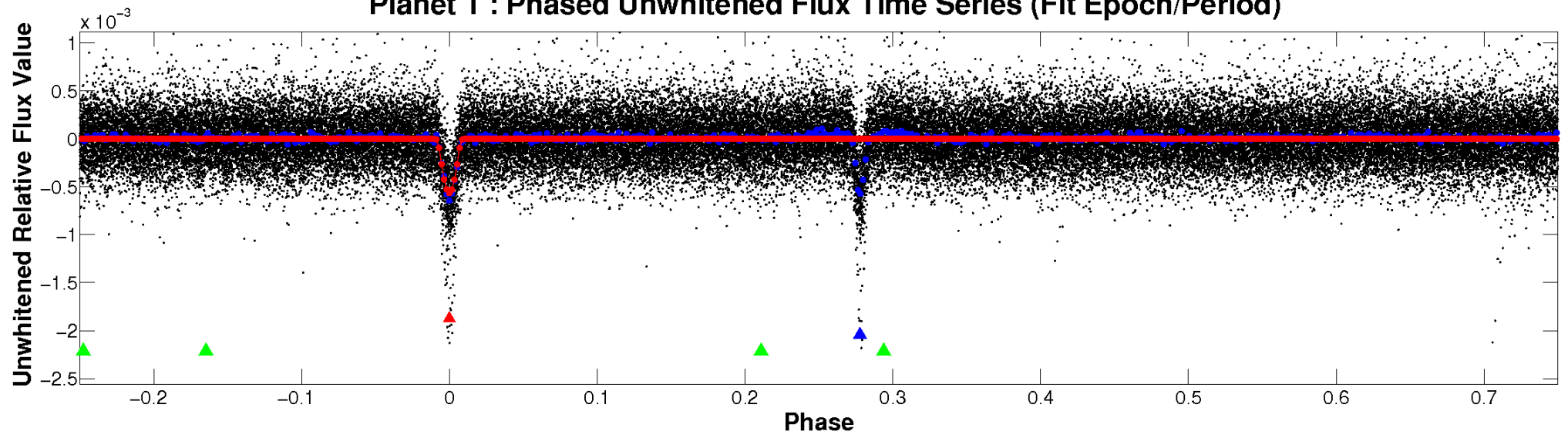
ALT Odd/Even

TCE 007602070-01

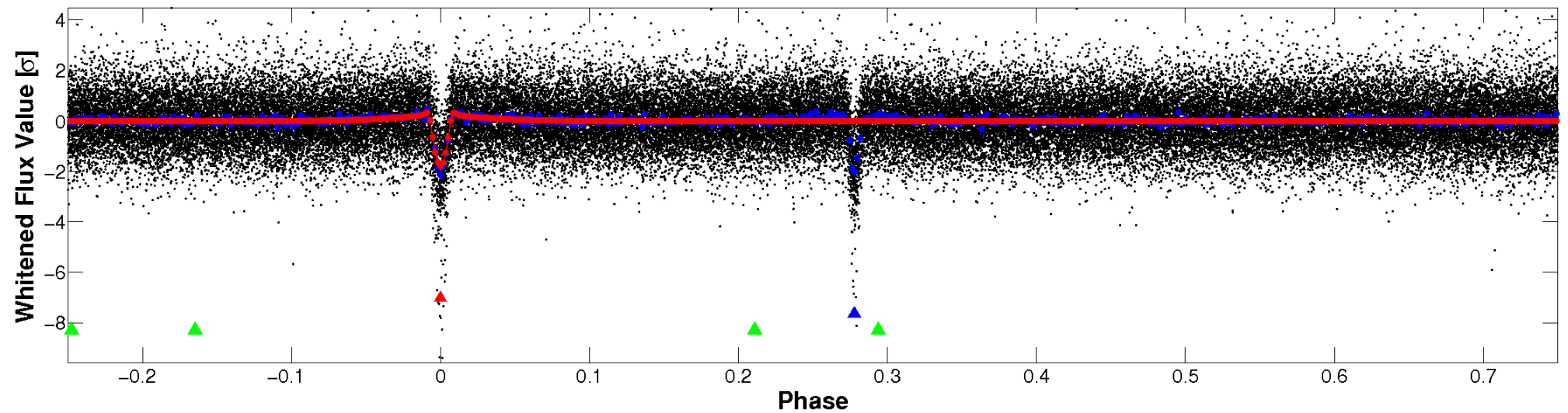


Non-Whitened Vs. Whitened Light Curve

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

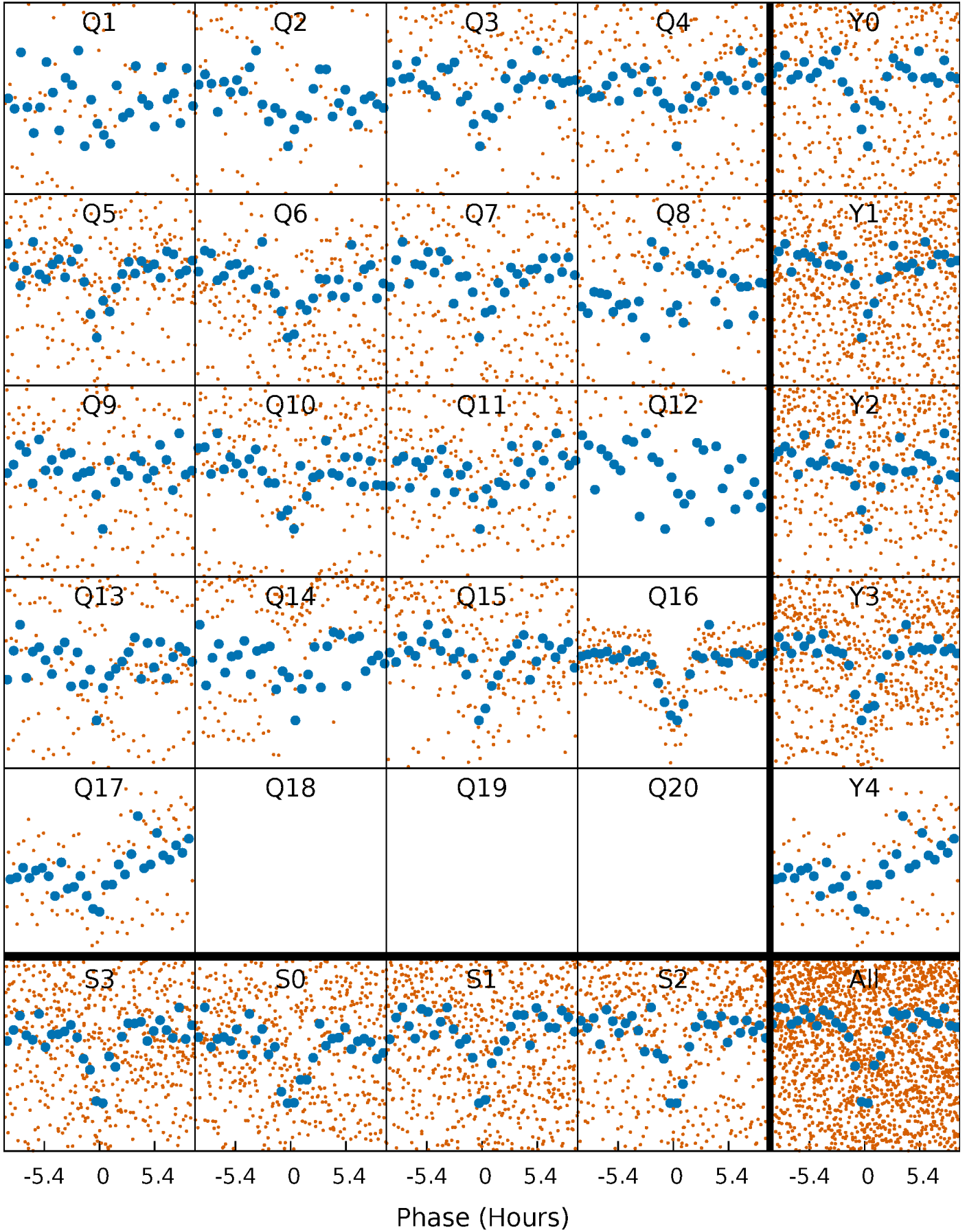


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



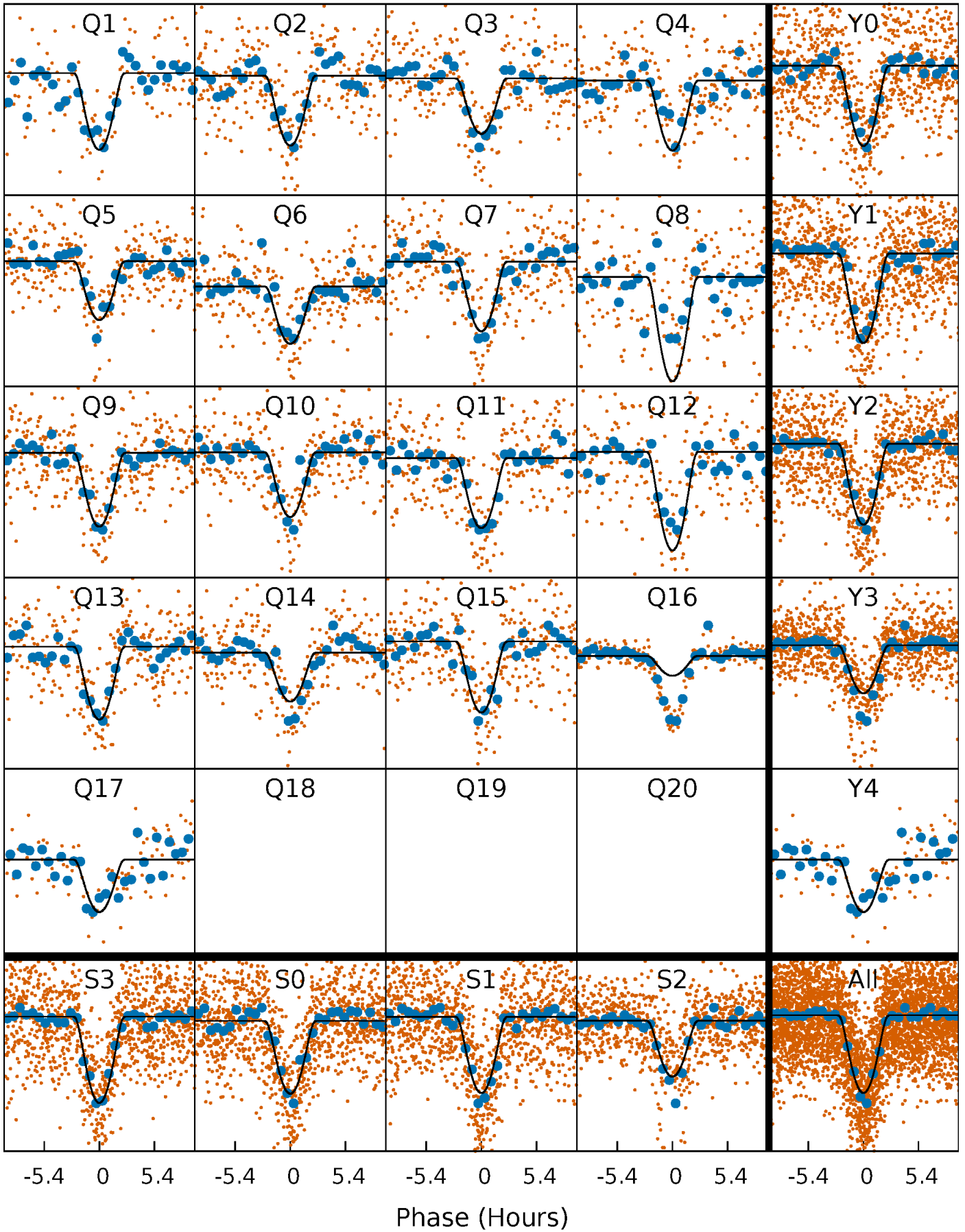
PDC Quarter-Phased Transit Curves

TCE 007602070-01 P= 11.755597 Days $T_0=140.806966$ (BKJD)



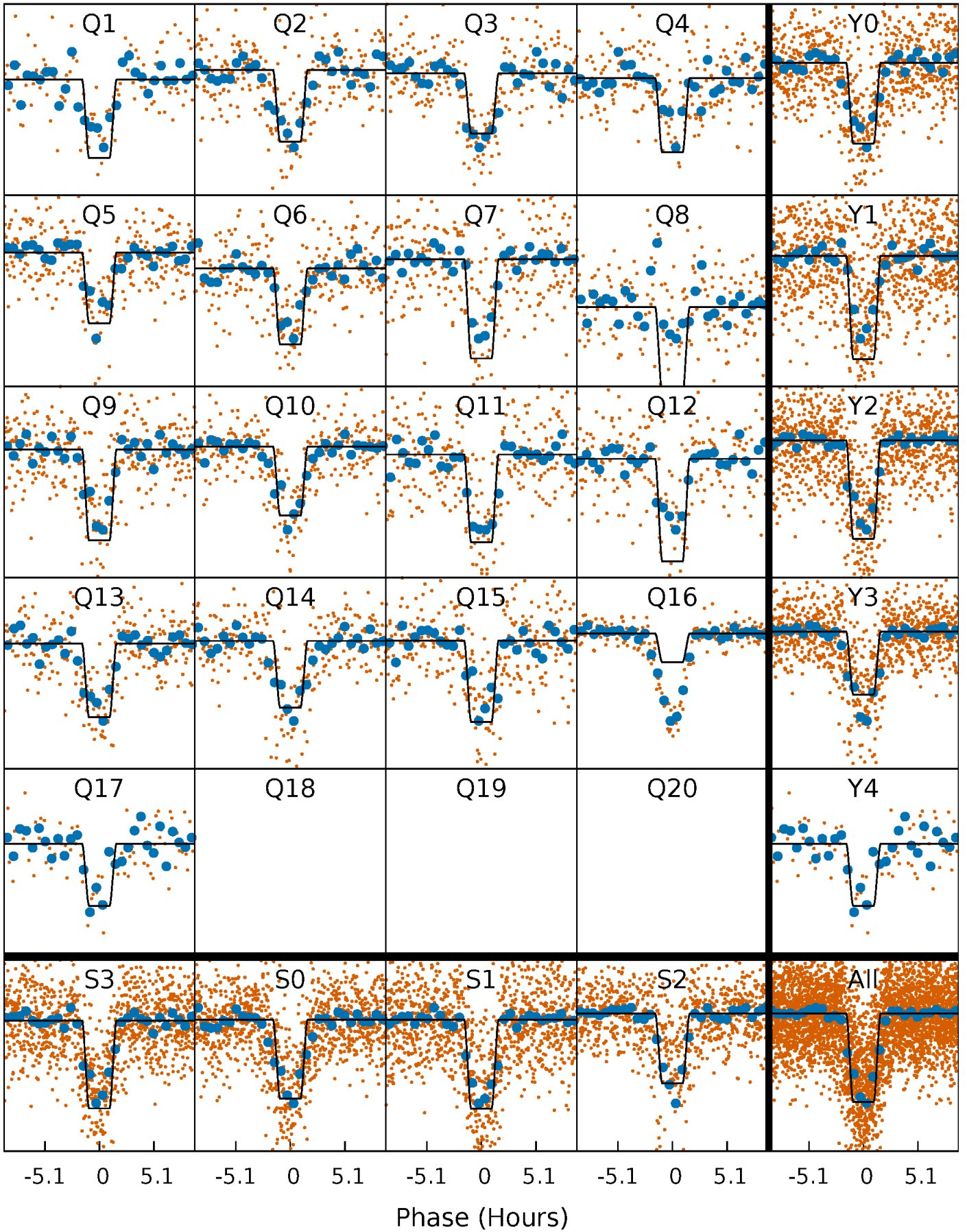
DV Quarter-Phased Transit Curves

TCE 007602070-01 P= 11.755597 Days $T_0=140.806966$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

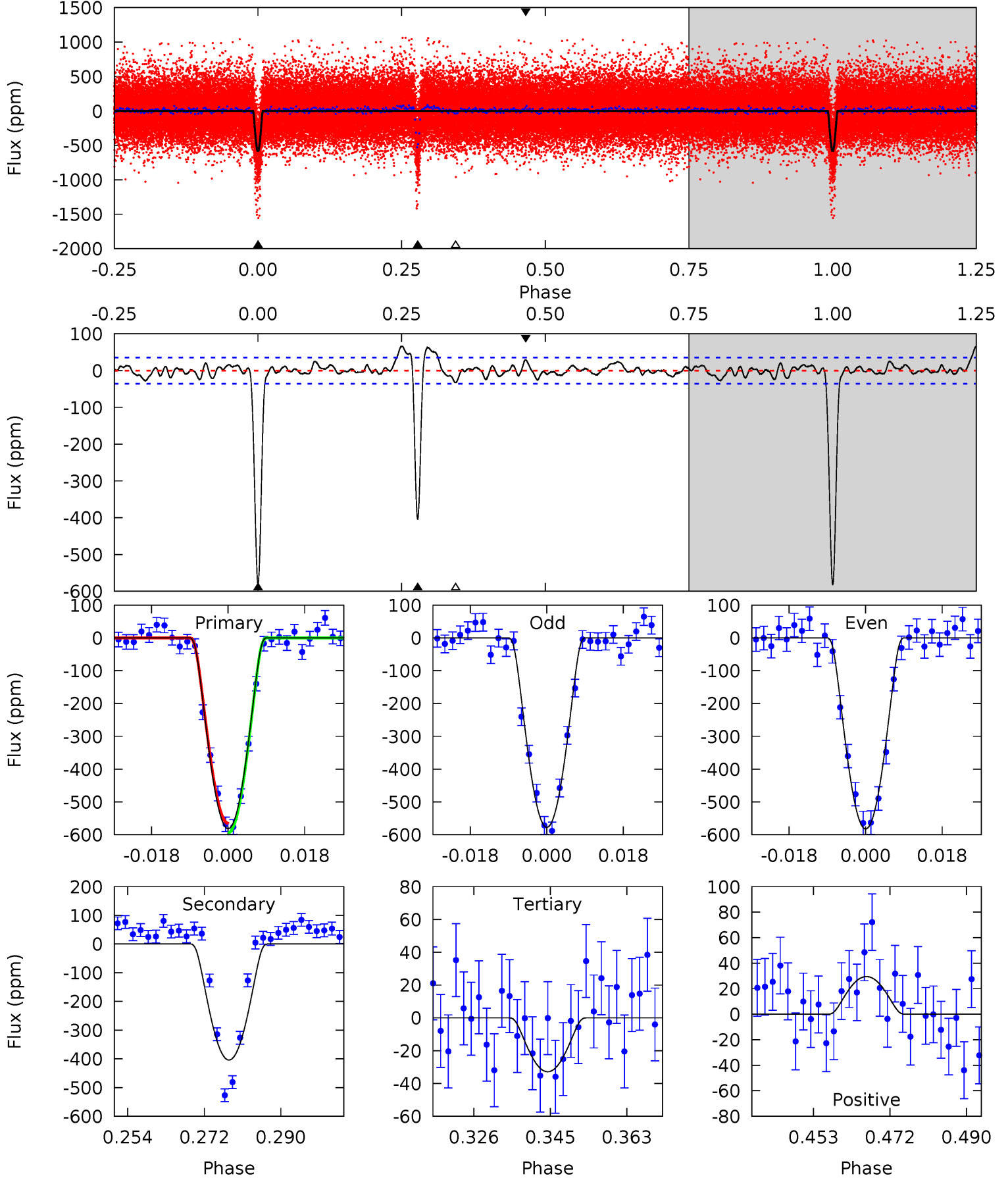
TCE 007602070-01 P= 11.755578 Days $T_0=140.809698$ (BKJD)



DV Model-Shift Uniqueness Test

007602070-01, P = 11.755597 Days, E = 129.051369 Days

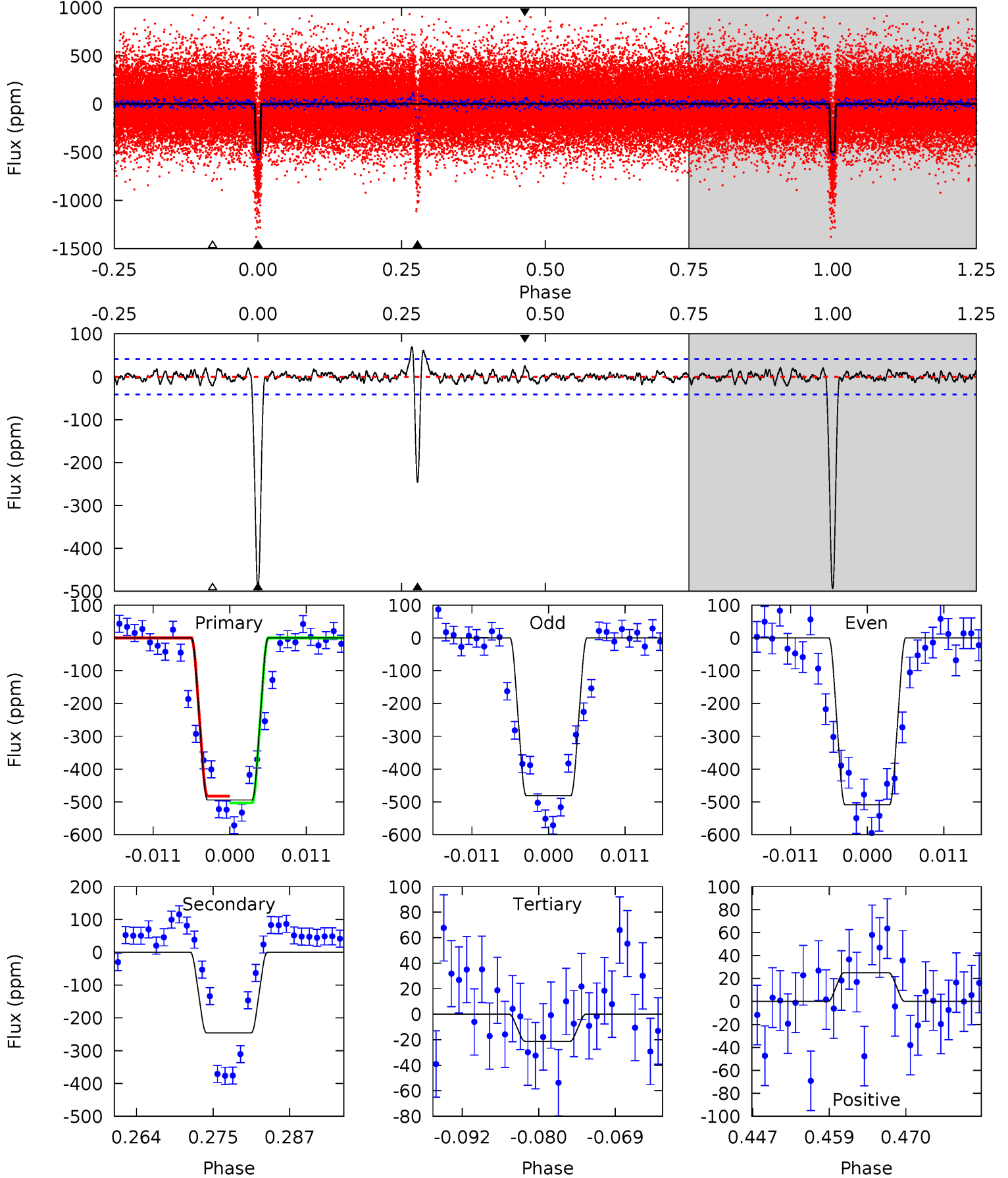
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
80.3	55.8	4.54	4.07	4.91	2.36	2.07	75.8	76.2	51.2	51.7	0.34	1.06	0.10	1.99



Alt Model-Shift Uniqueness Test

007602070-01, $P = 11.755578$ Days, $E = 129.054120$ Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
59.8	29.8	2.58	3.03	5.00	2.53	1.08	57.2	56.8	27.2	26.8	1.68	1.10	0.12	1.24



Stellar Parameters For KIC 007602070

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$\rho_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5644^{+152}_{-152}	$4.575^{+0.036}_{-0.144}$	$-0.240^{+0.300}_{-0.300}$	$0.806^{+0.169}_{-0.068}$	$0.900^{+0.078}_{-0.107}$	$2.422^{+0.457}_{-0.979}$
	+3%/-3%	+1%/-3%	+125%/-125%	+21%/-8%	+9%/-12%	+19%/-40%
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 007602070-01 / KOI 0514.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-404 ± 7	$3.68^{+1.96}_{-2.00}$	1014^{+56}_{-35}	4243^{+1567}_{-594}	152^{+582}_{-87}
Alt.	-246 ± 8	$2.66^{+2.16}_{-1.49}$	1021^{+55}_{-43}	4354^{+1896}_{-776}	174^{+784}_{-119}

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

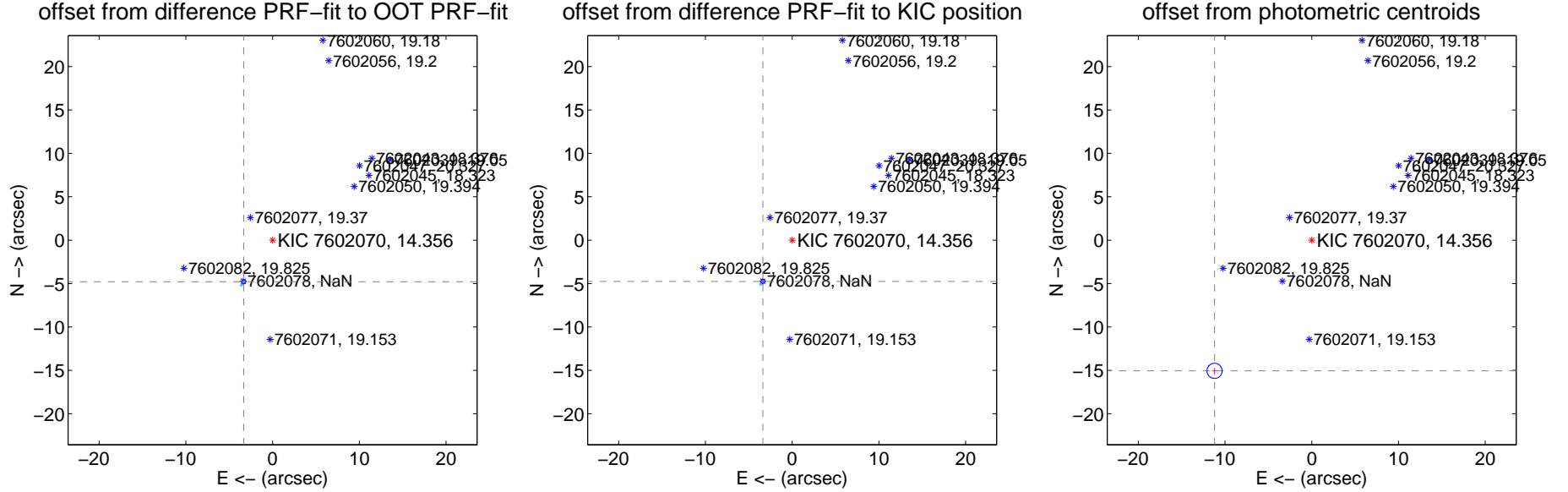
DV Centroid Data

Supplemental centroid analysis for 007602070-01. Kepler magnitude: 14.36. Transit SNR 37.65

There are 17 quarters with good PRF difference image offsets

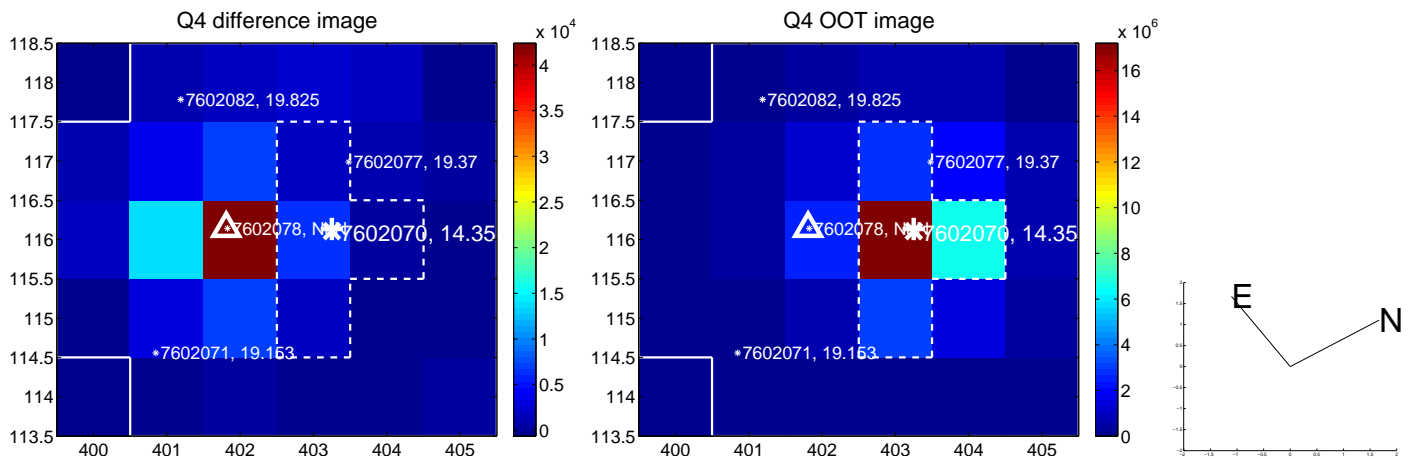
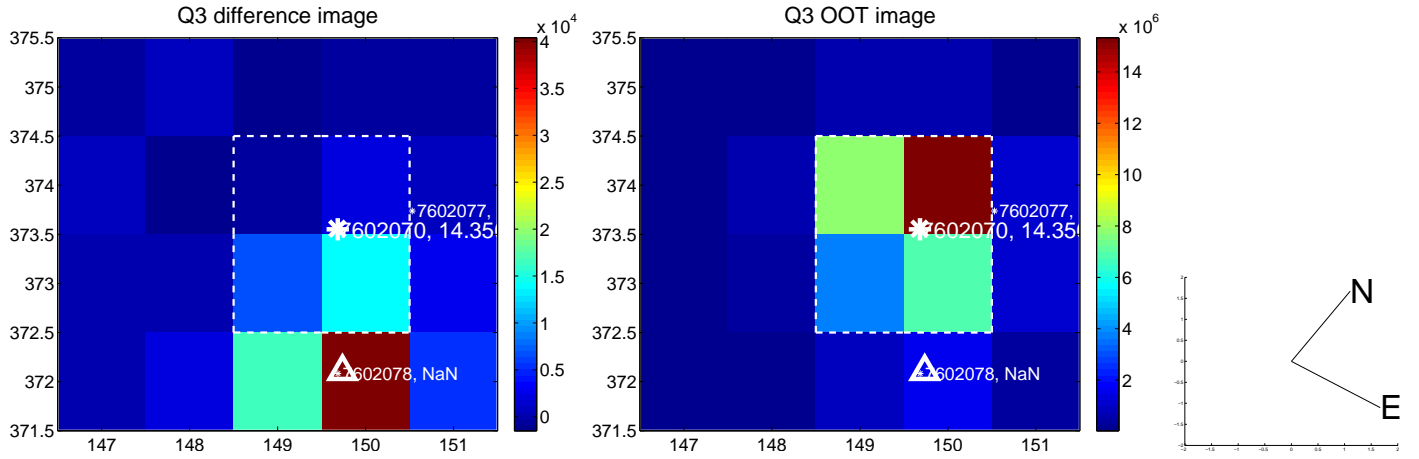
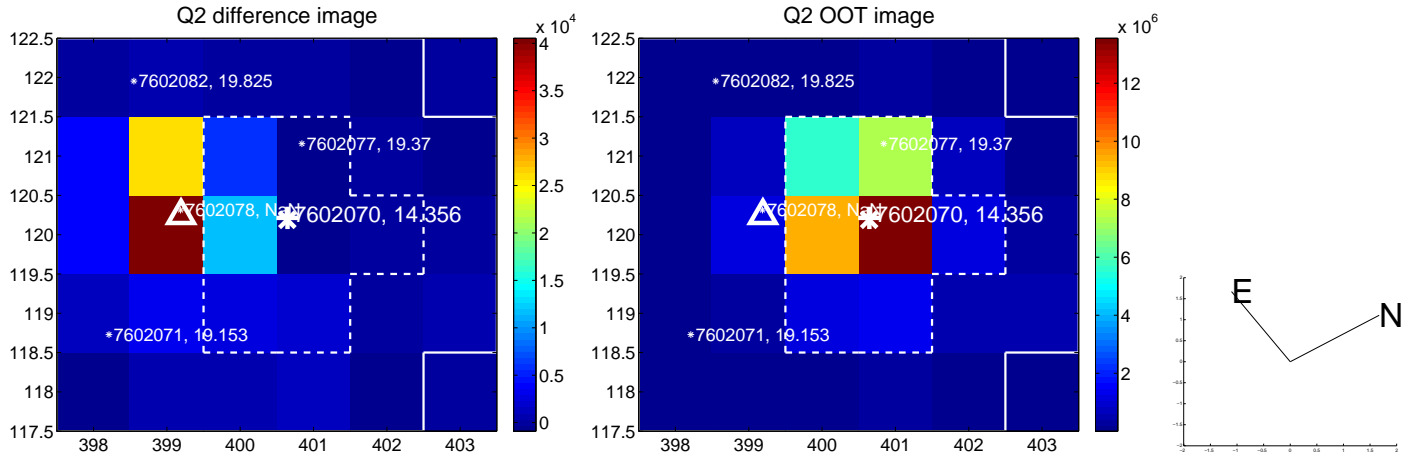
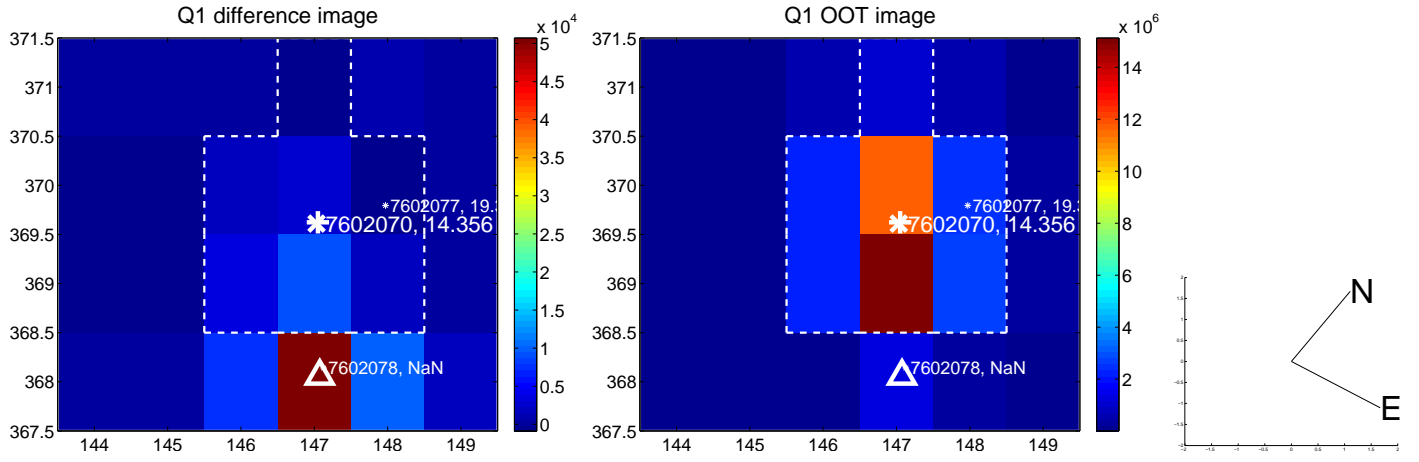
The direct PRF centroid is offset from the target star catalog position by about 0.11 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	5.835 ± 0.079	74.18	3.332 ± 0.073	-4.790 ± 0.074
PRF-fit source offset from KIC position	5.831 ± 0.077	76.03	3.374 ± 0.073	-4.755 ± 0.072
photometric centroid source offset	18.78 ± 0.29	64.39	11.21 ± 0.29	-15.06 ± 0.29

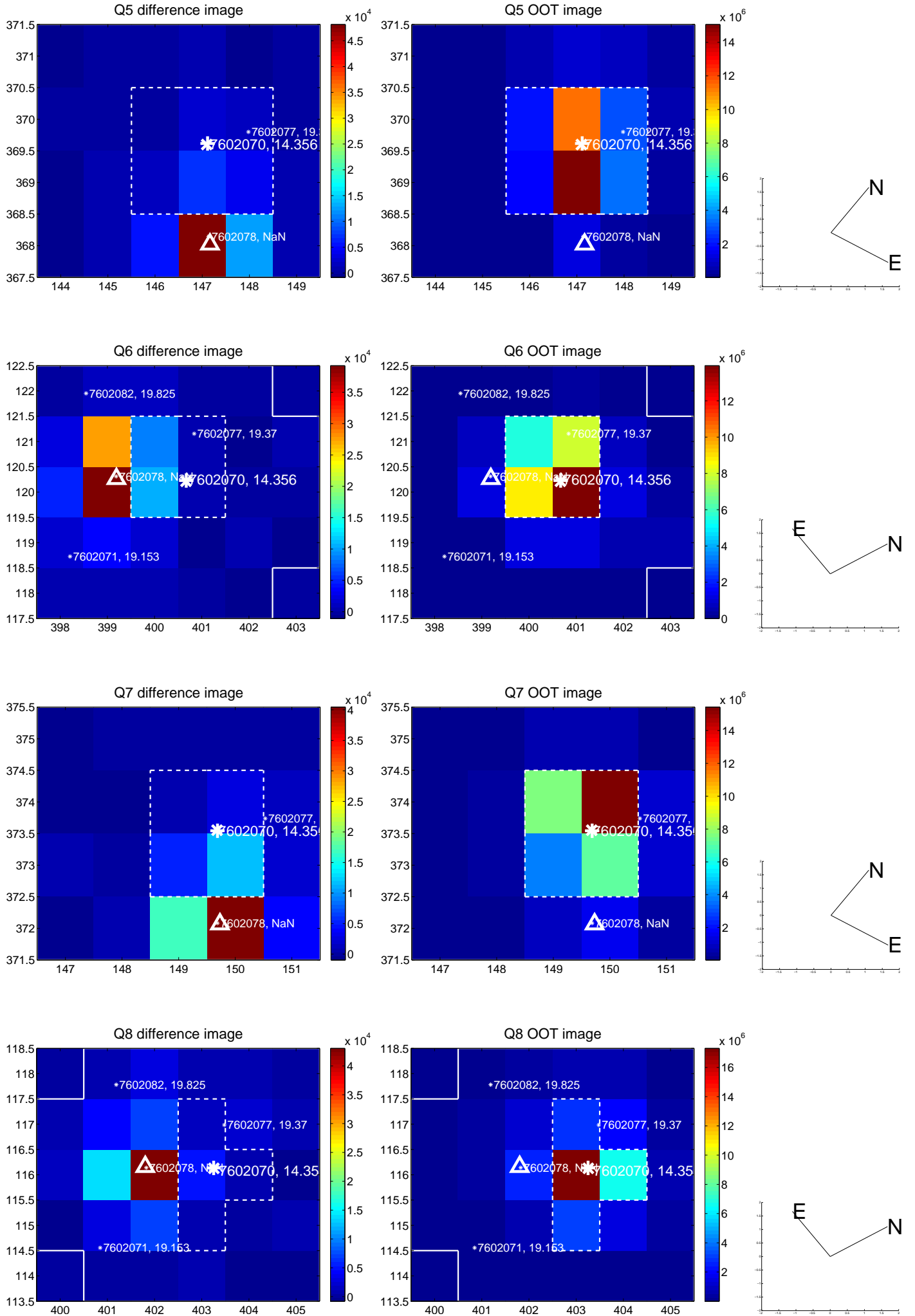


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

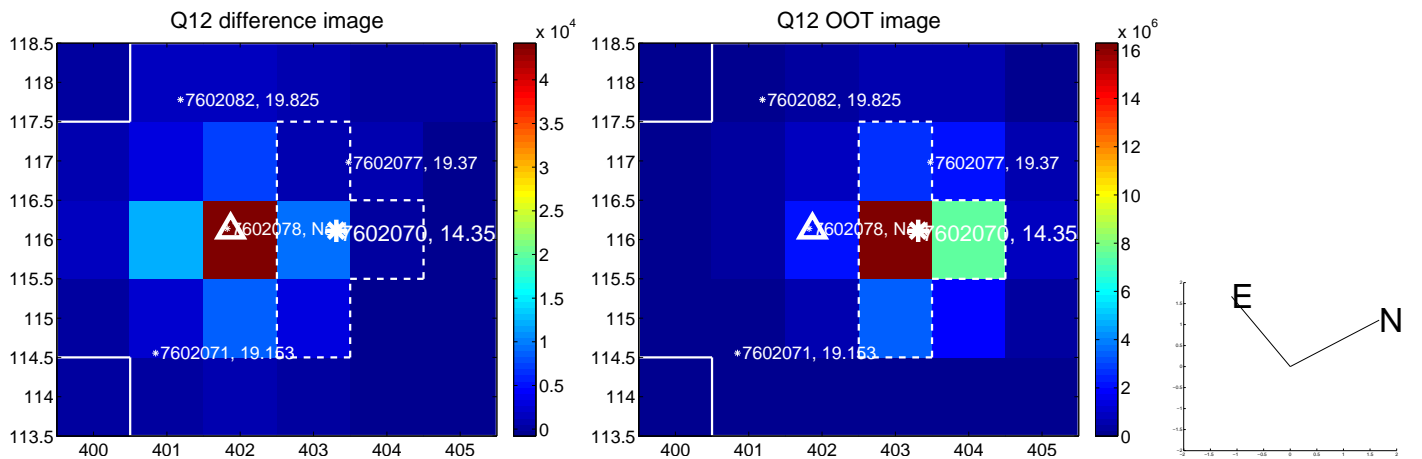
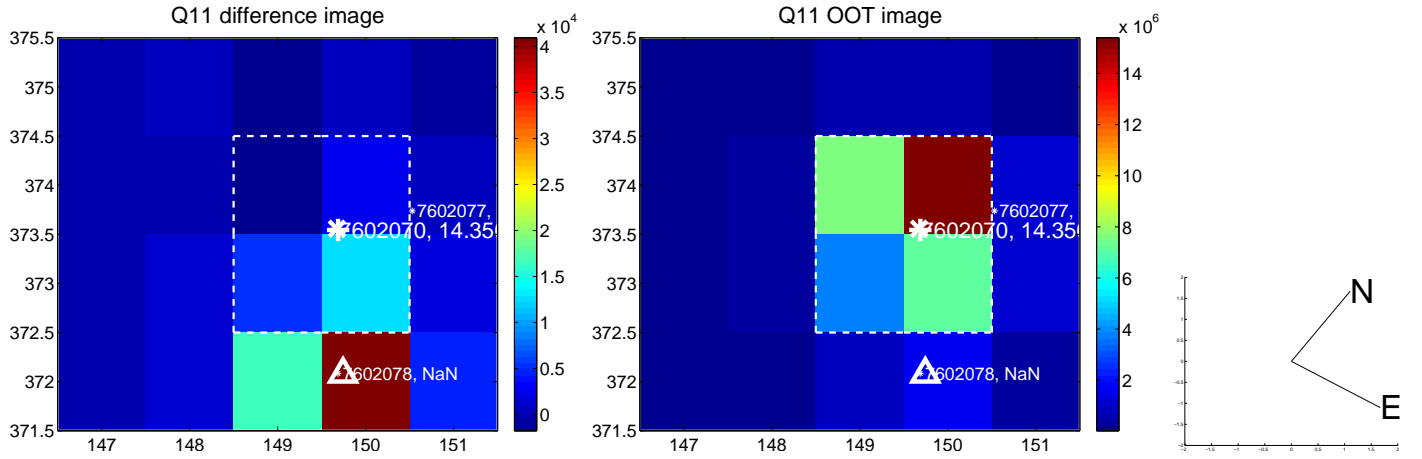
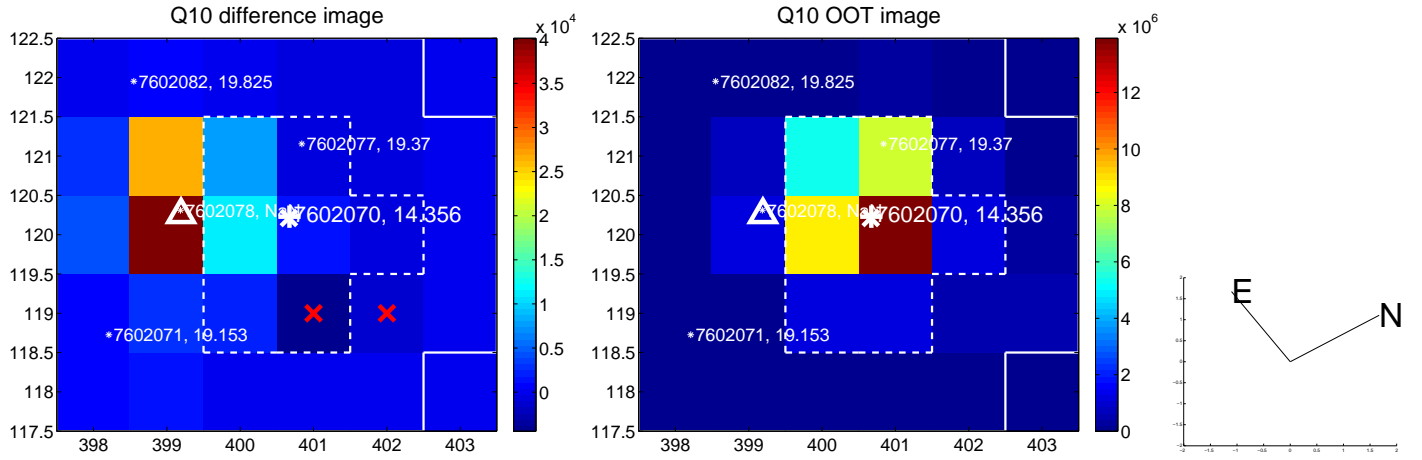
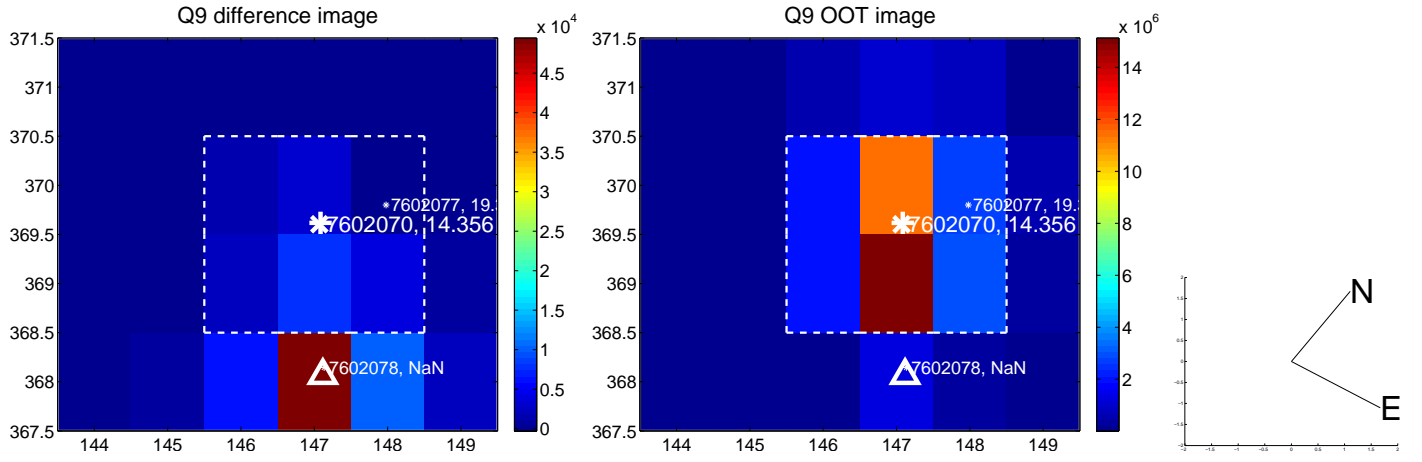
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



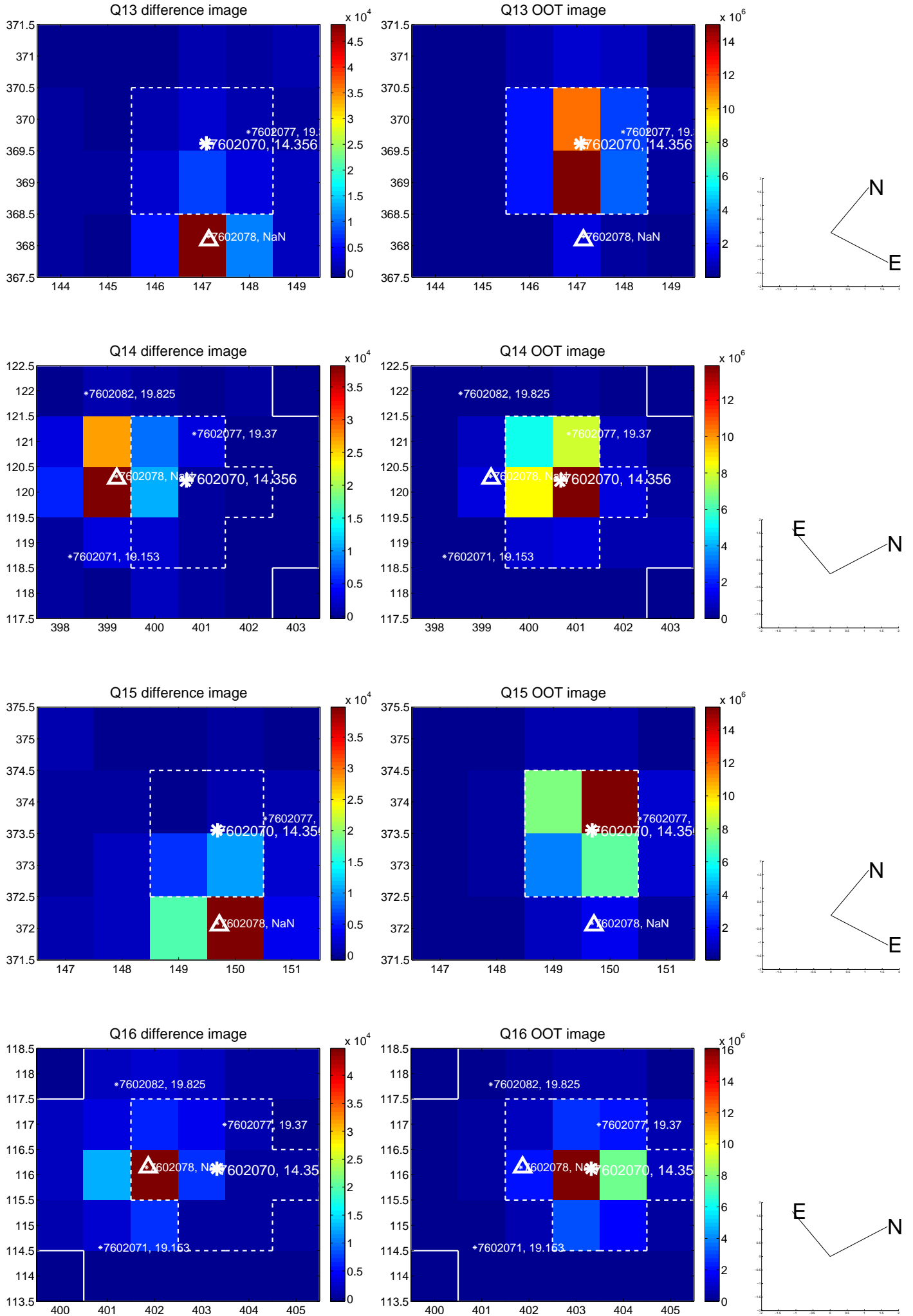
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



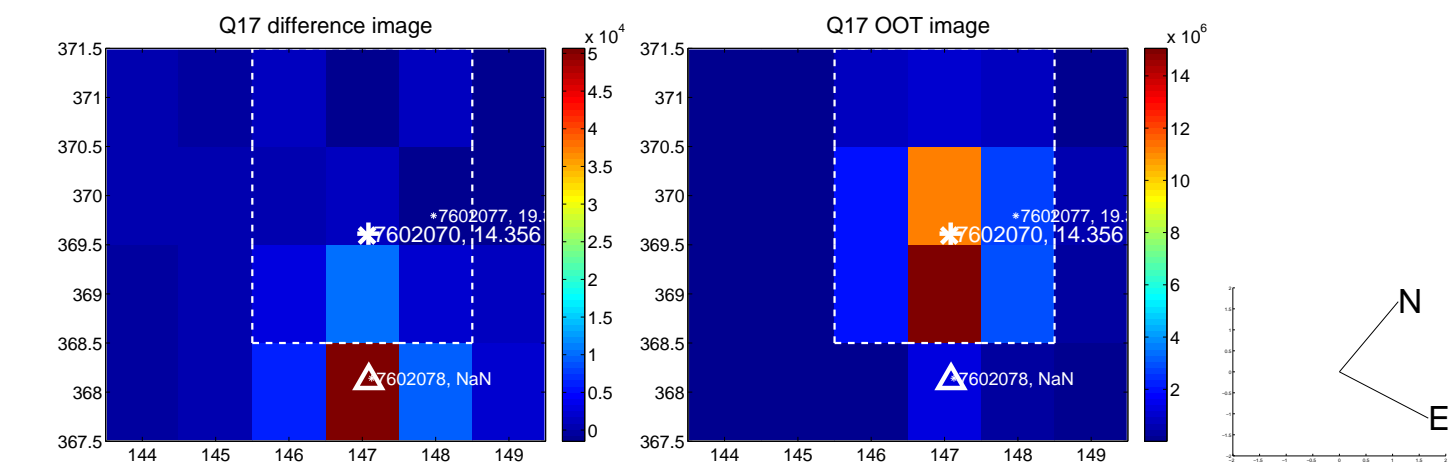
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



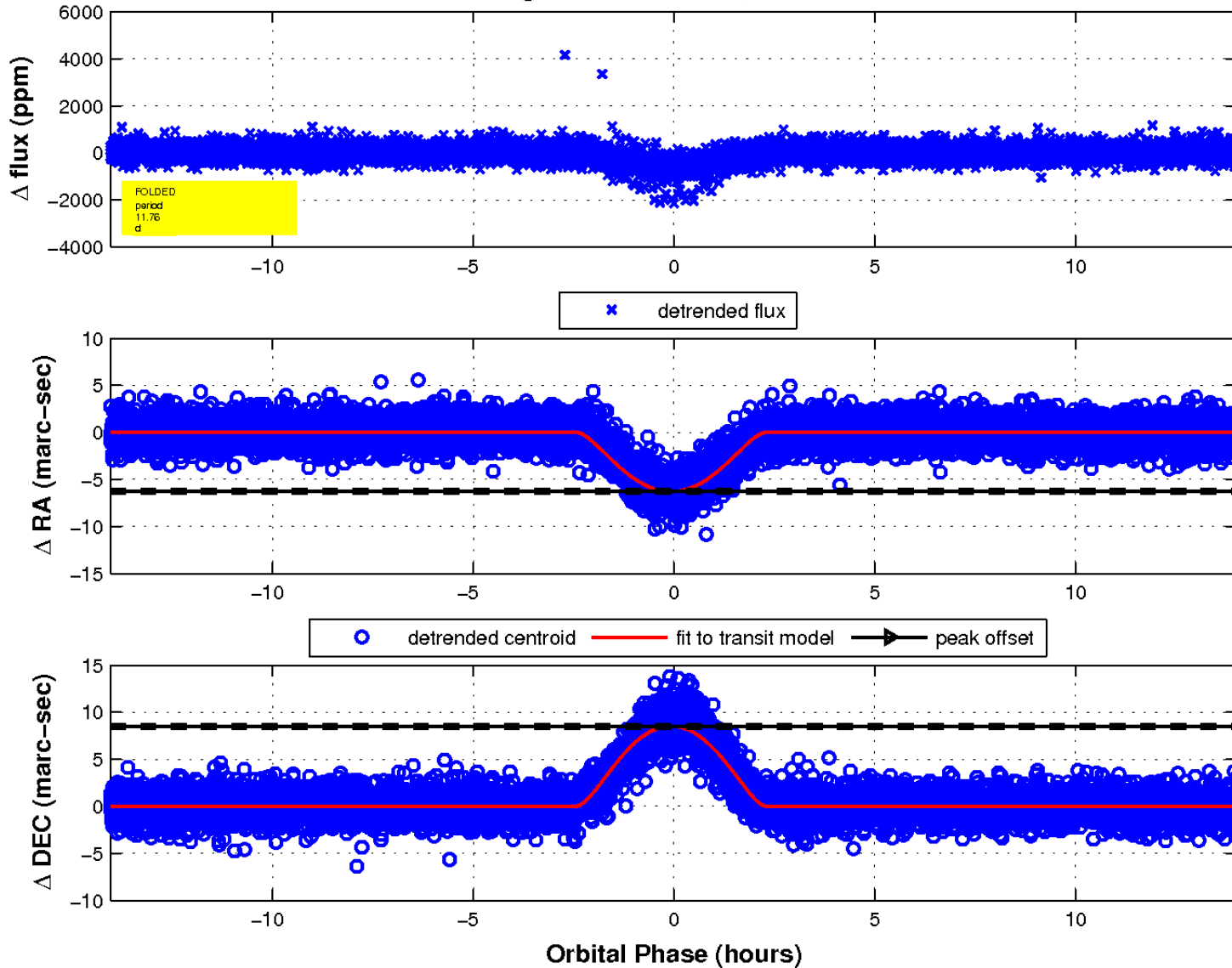
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

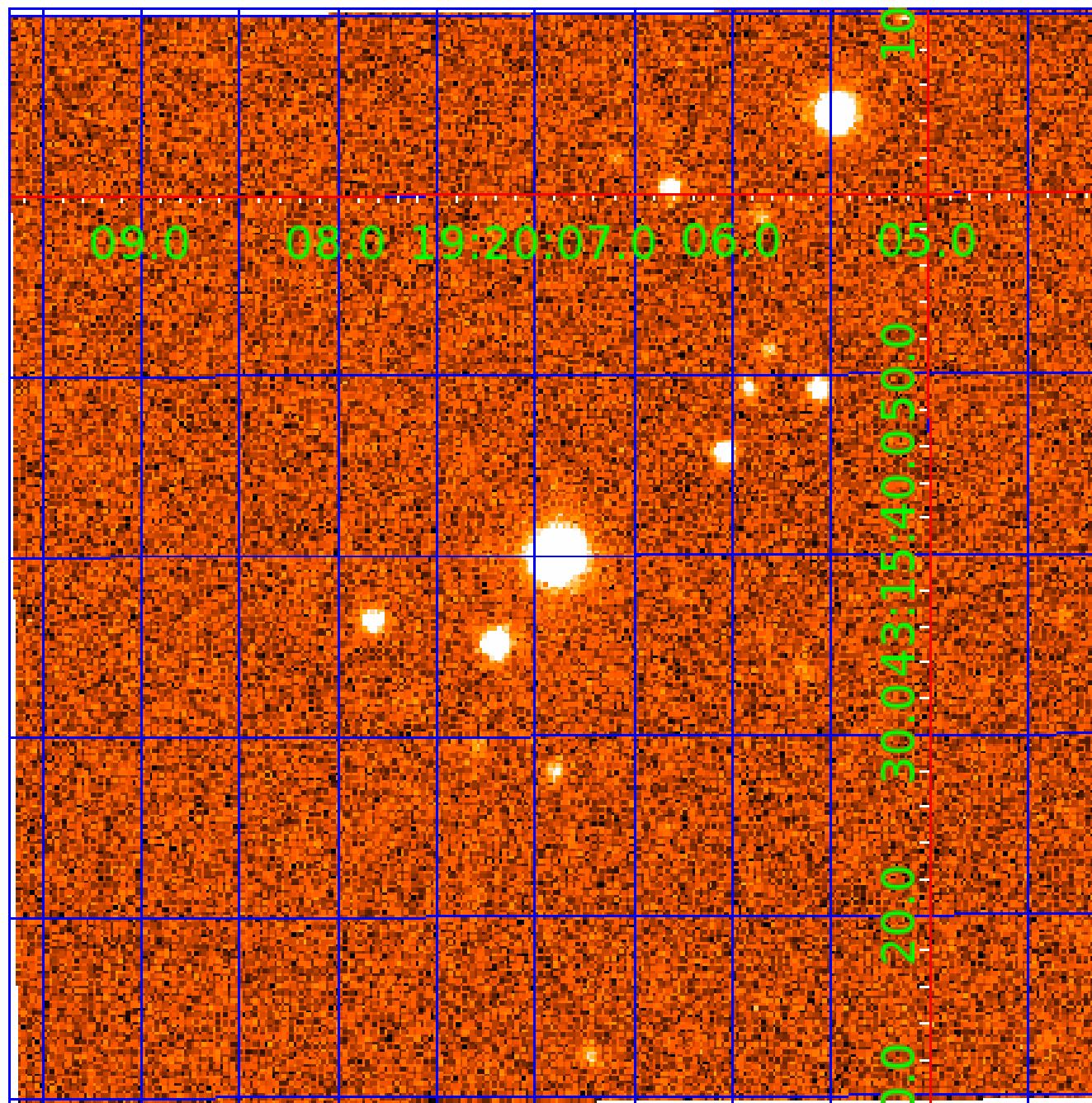


fluxWeightedCentroids, Planet 1 of 3



UKIRT Image

Declination



KIC 007602070

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})
007602070-01	OBS	0514.01	11.755597	140.806966	567.4	4.682	38.9	37.7	0.81	5644	3.47	62.30
007602070-02	OBS	No	11.755652	132.313857	570.7	3.155	32.8	34.2	0.81	5644	3.84	62.30

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
007602070-01	OBS	FP	0.00	0	1	1	0	MOD_SEC_DV—MOD_SEC_ALT—HAS_SEC_TCE—CENT_RESOLVED_OFFSET—HALO_GHOST
007602070-02	OBS	FP	0.00	1	1	1	0	IS_SEC_TCE—CENT_RESOLVED_OFFSET—HALO_GHOST

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.

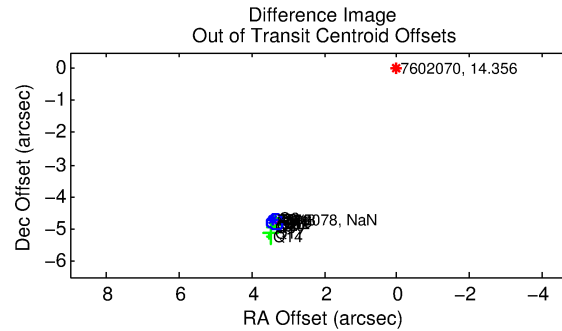
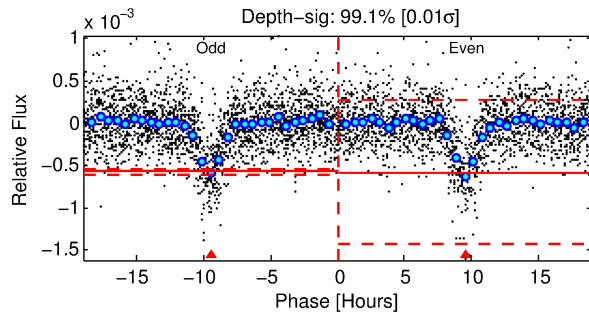
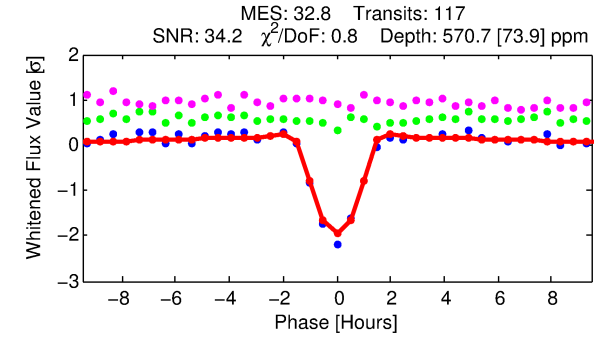
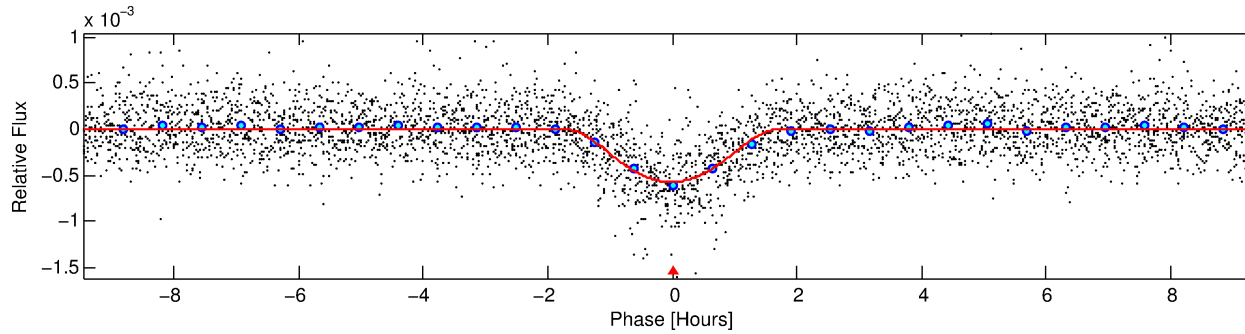
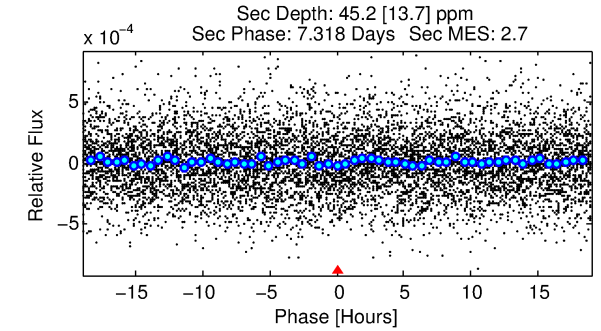
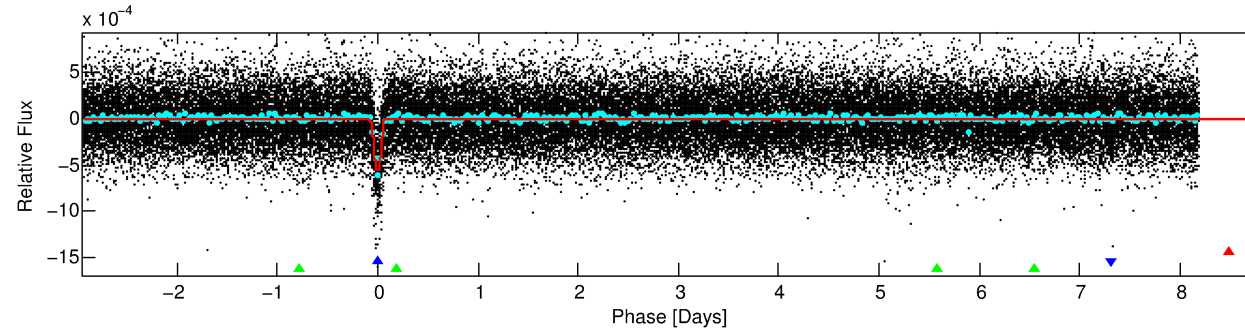
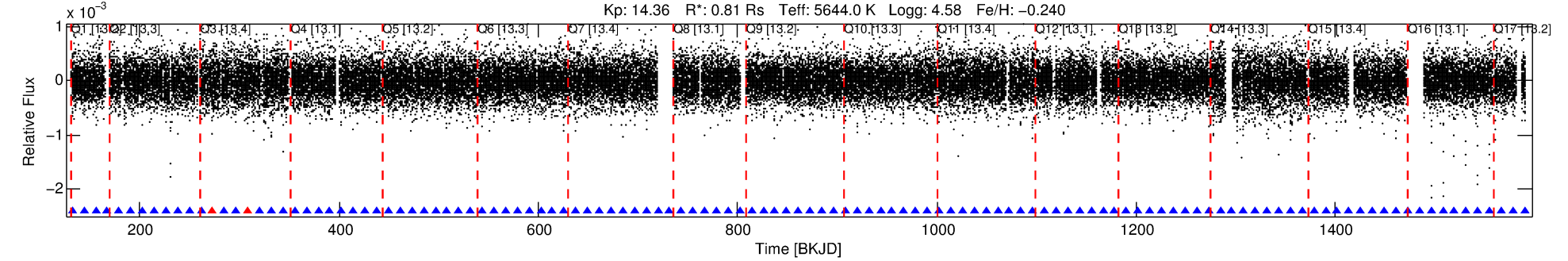
Ephemeris Match Information For 007602070-02

No Significant Match Found

DV One-Page Summary

KIC: 7602070 Candidate: 2 of 3 Period: 11.756 d
KOI: K00514 Corr: No Ephemeris Match

Kp: 14.36 R*: 0.81 Rs Teff: 5644.0 K Logg: 4.58 Fe/H: -0.240



DV Fit Results:

Period = 11.75565 [0.00003] d
Epoch = 132.3139 [0.0020] BKJD
Rp/R* = 0.0436 [0.0484]
a/R* = 8.58 [2.35]
b = 1.00 [0.07]
Seff = 62.30 [17.62]
Teq = 716 [51] K
Rp = 3.84 [4.34] Re
a = 0.0974 [0.0174] AU
Ag = 16.01 [36.13] [0.42σ]
Teffp = 2216 [1243] K [1.20σ]

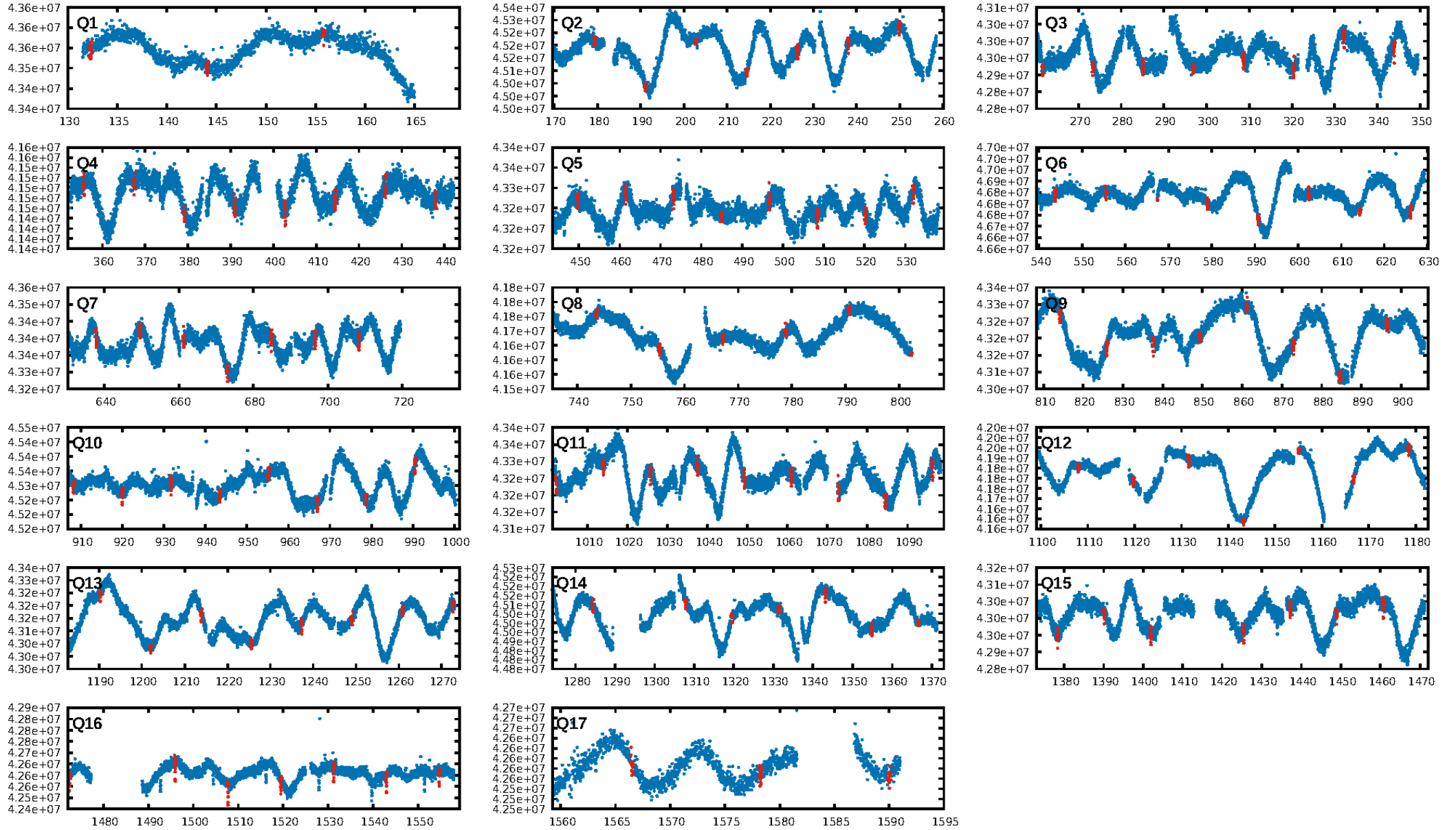
DV Diagnostic Results:

ShortPeriod-sig: 0.0% [0.00σ]
LongPeriod-sig: 100.0% [719.72σ]
ModelChiSquare2-sig: 9.6%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 7.91e-217
RollingBand-fgt: 0.98 [109/111]
GhostDiagnostic-chr: -0.1188
Centroid-sig: 0.0%
Centroid-so: 19.958 arcsec [58.52σ]
OotOffset-rm: 5.849 arcsec [75.11σ]
KicOffset-rm: 5.857 arcsec [77.87σ]
OotOffset-st: 4/4/4/4 [16]
KicOffset-st: 4/4/4/4 [16]
DiffImageQuality-fgm: 1.00 [16/16]
DiffImageOverlap-fno: 1.00 [17/17]

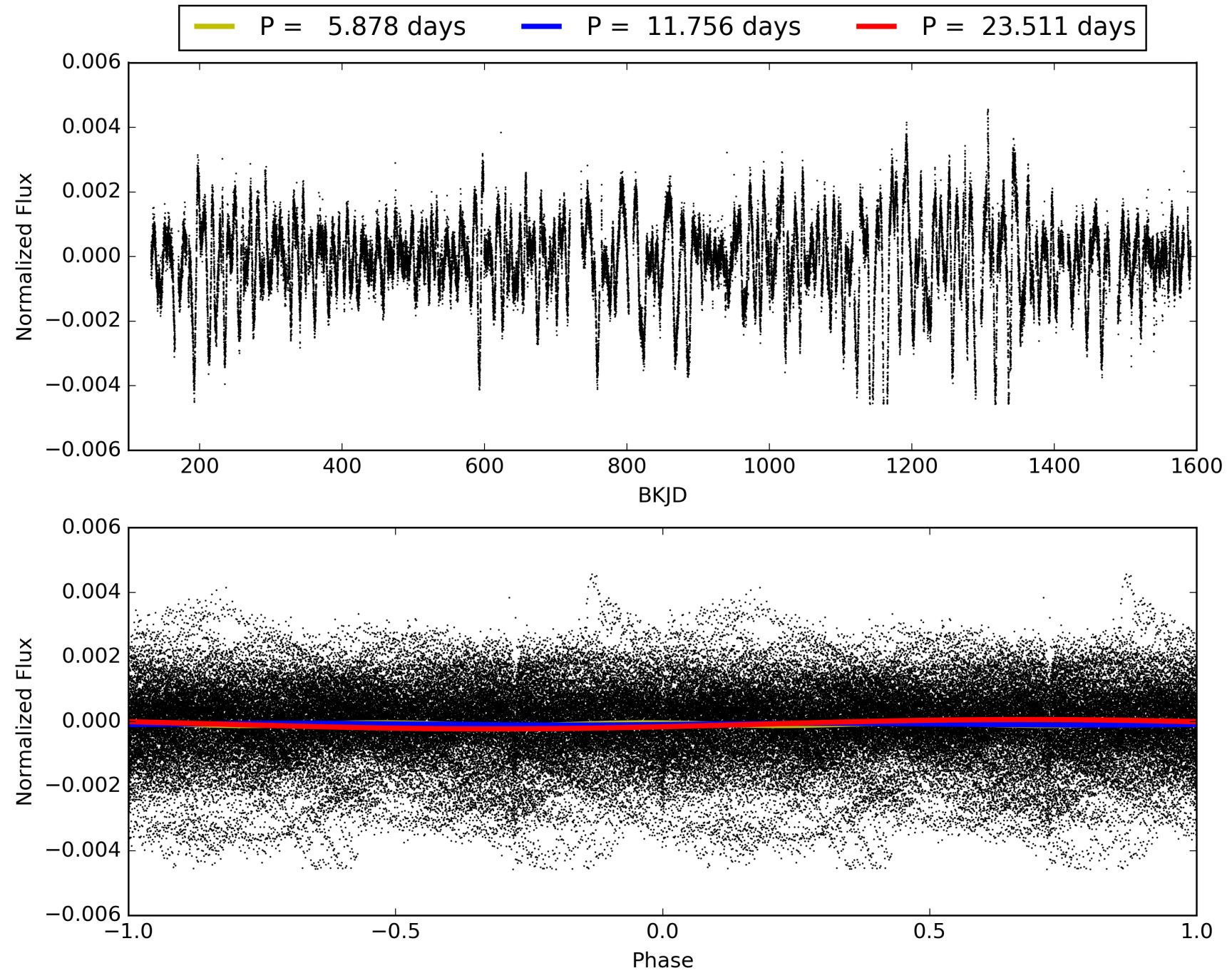
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 01:46:57 Z

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TCE 007602070-02, PDC Light Curves

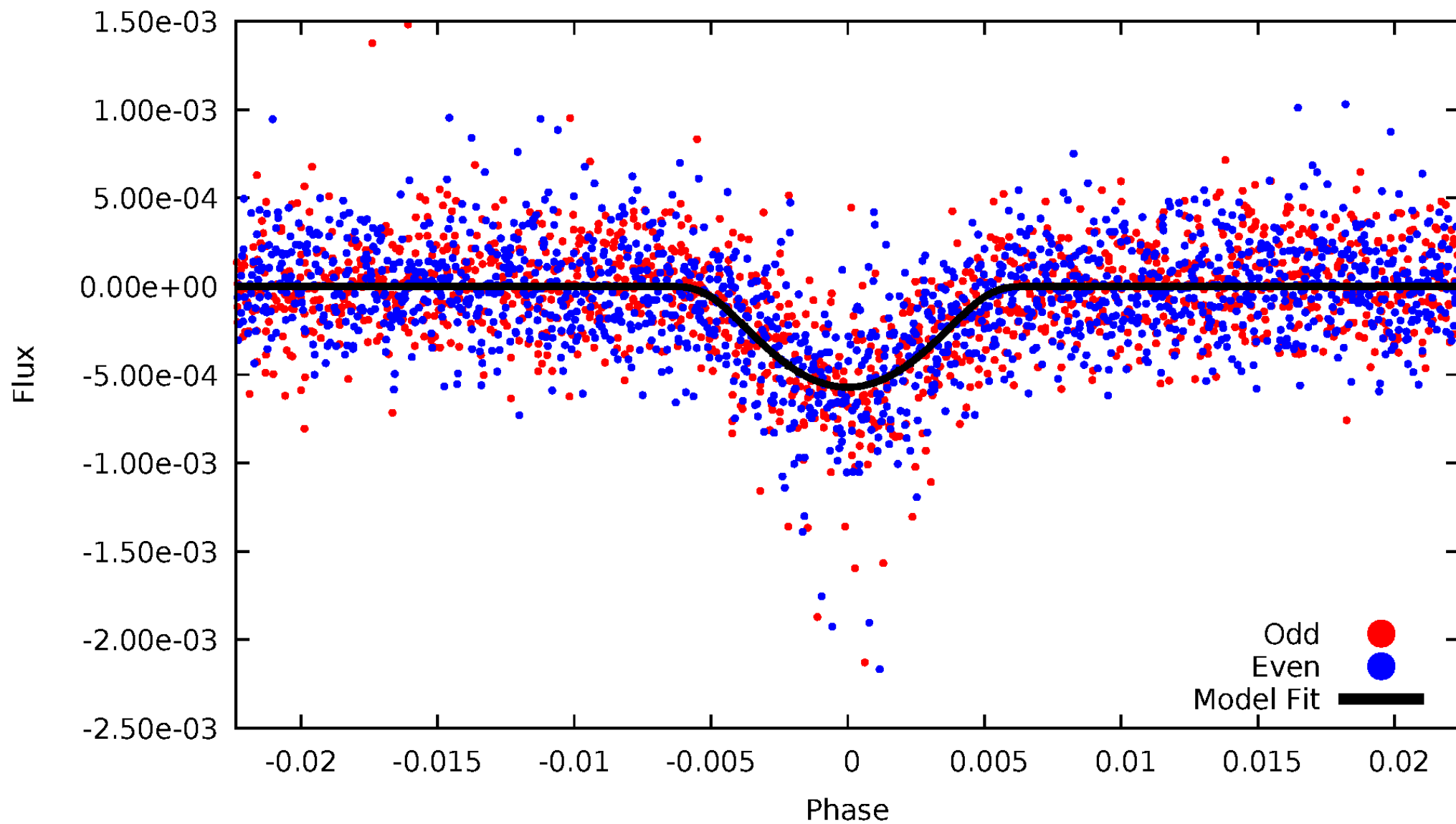


TCE 007602070-02



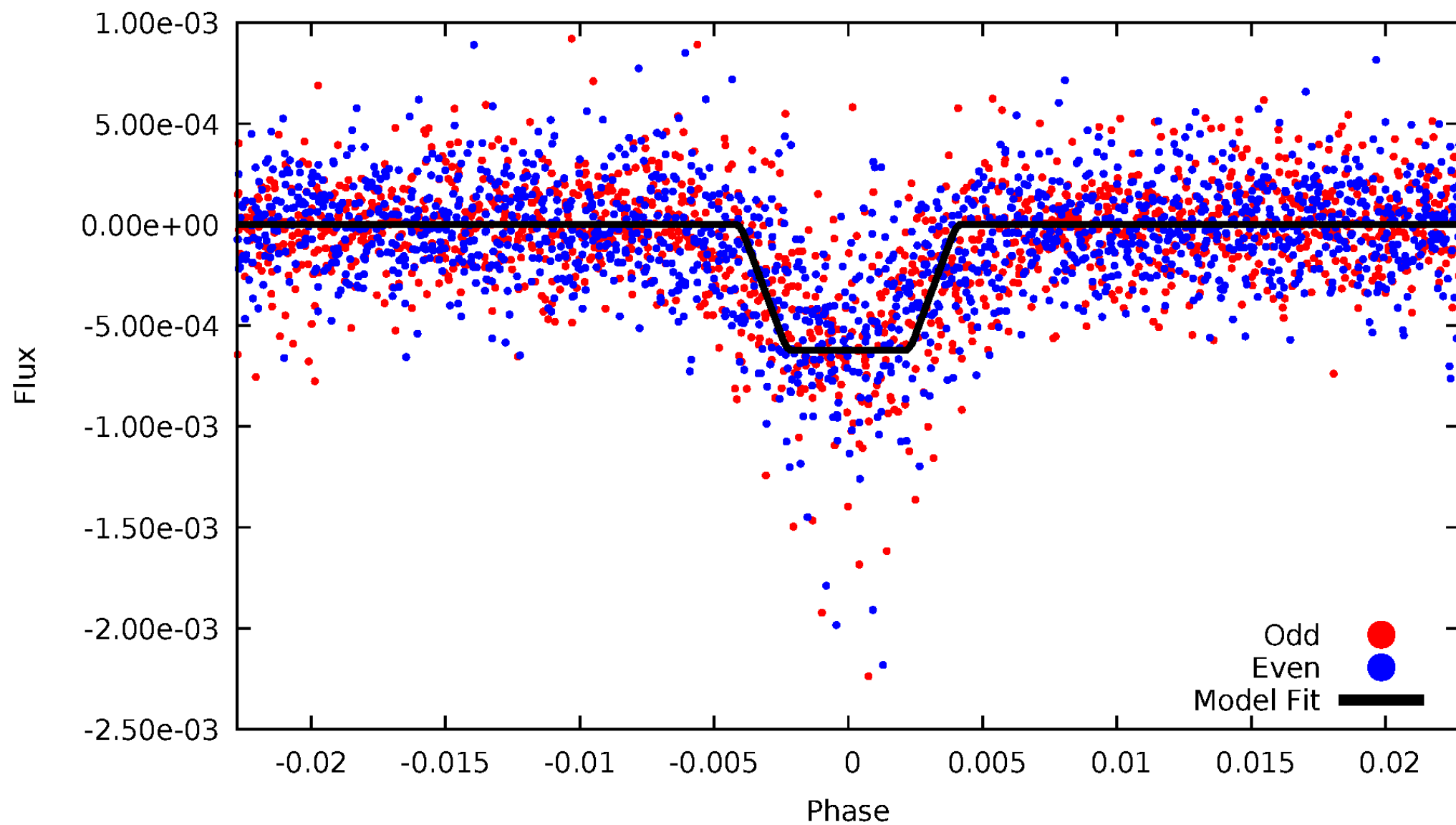
DV Odd/Even

TCE 007602070-02



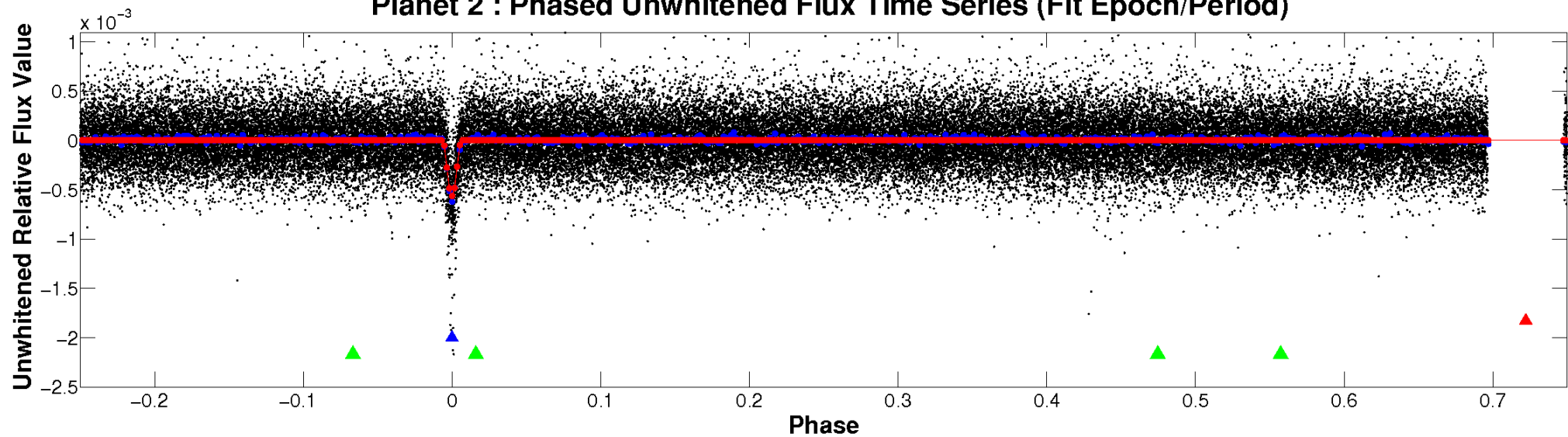
ALT Odd/Even

TCE 007602070-02

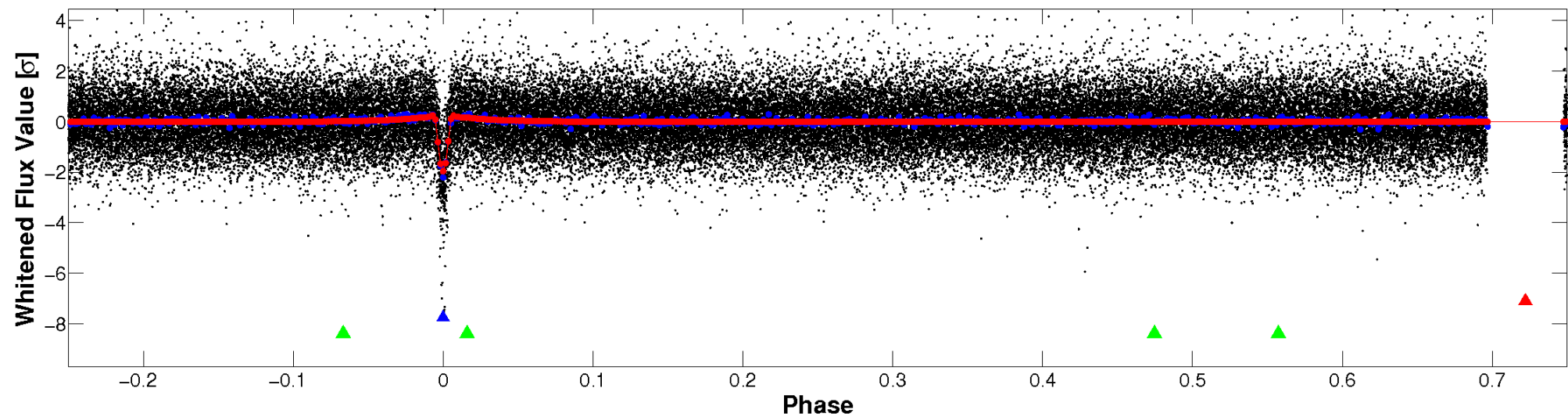


Non-Whitened Vs. Whitened Light Curve

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

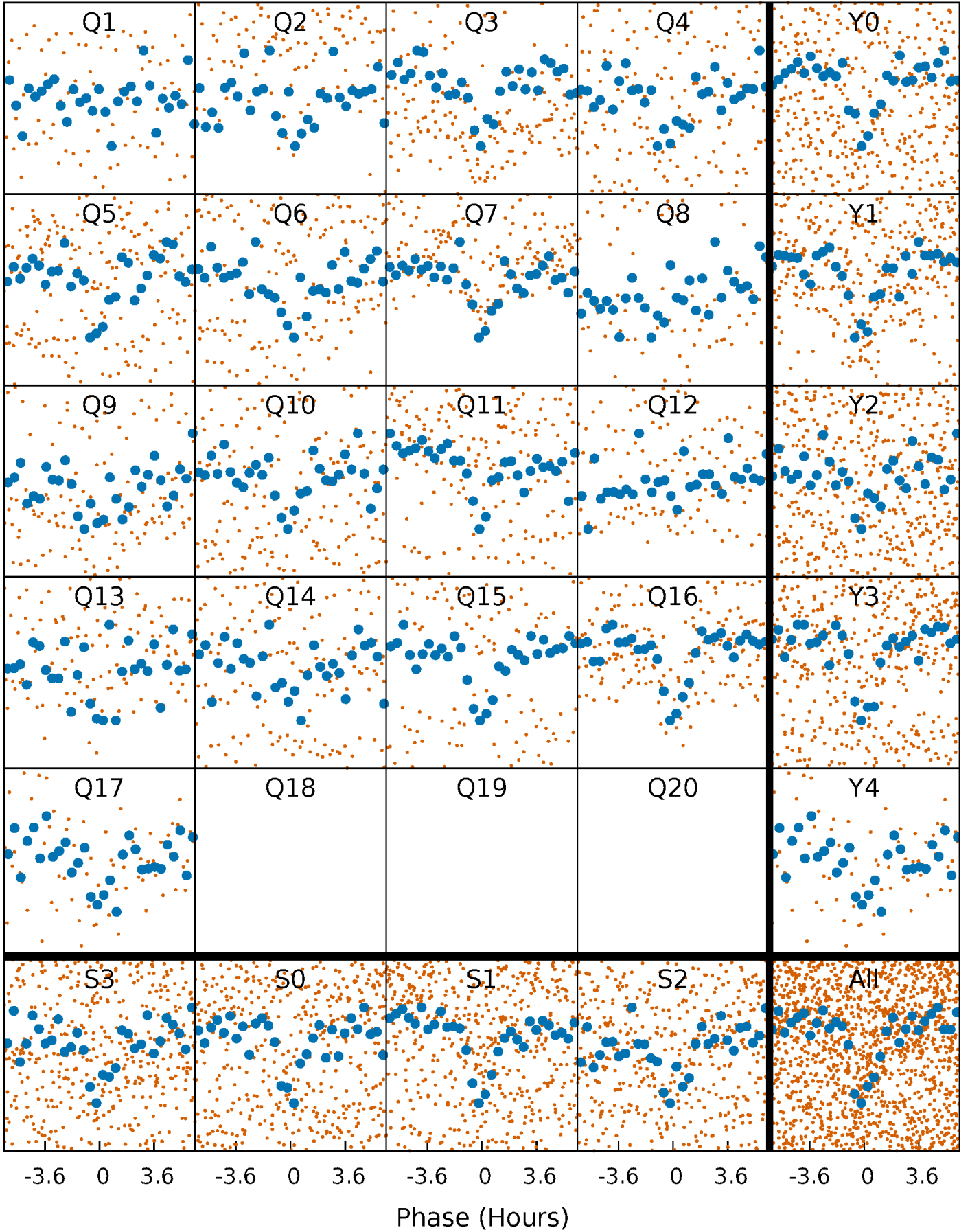


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



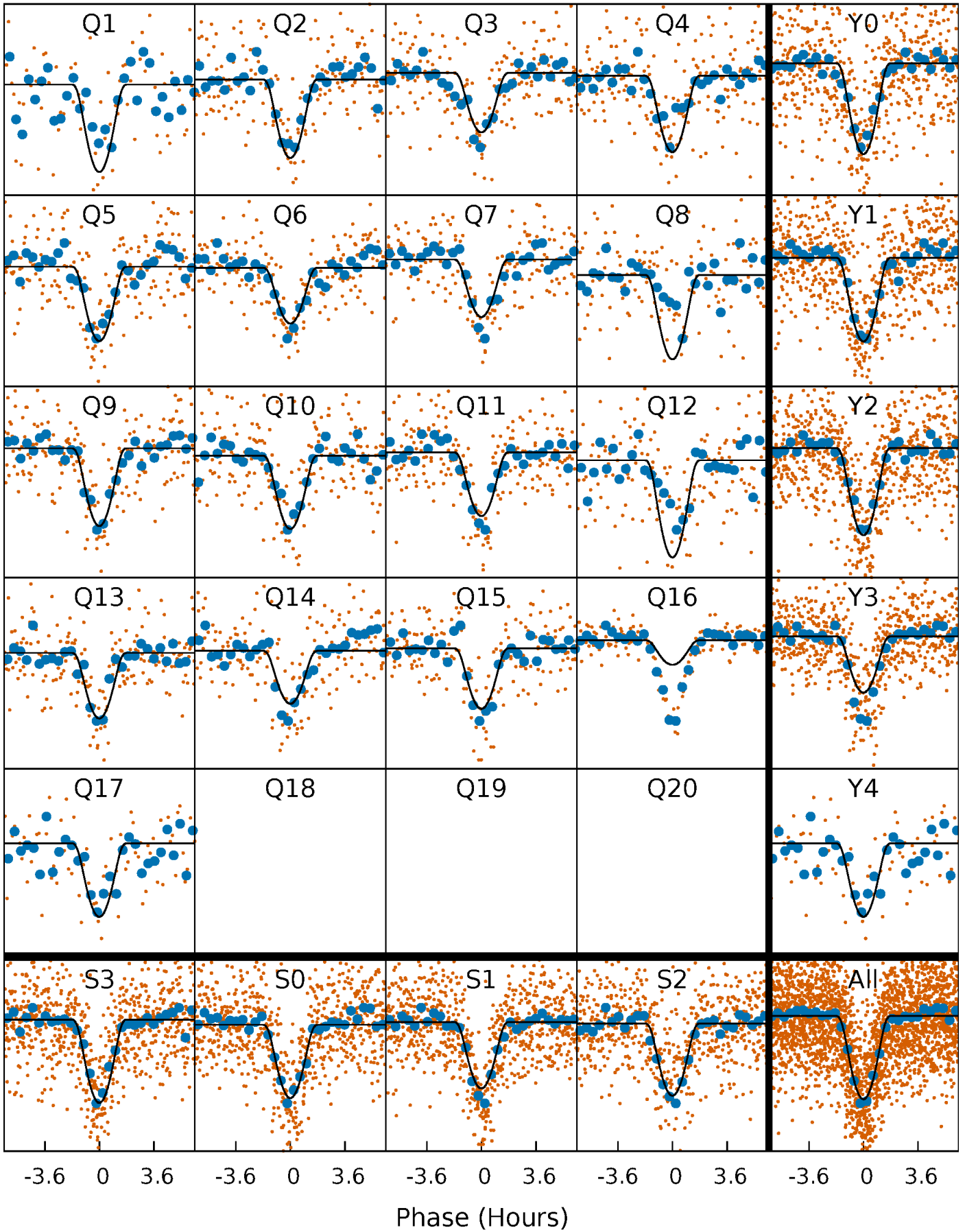
PDC Quarter-Phased Transit Curves

TCE 007602070-02 P= 11.755652 Days $T_0=132.313857$ (BKJD)



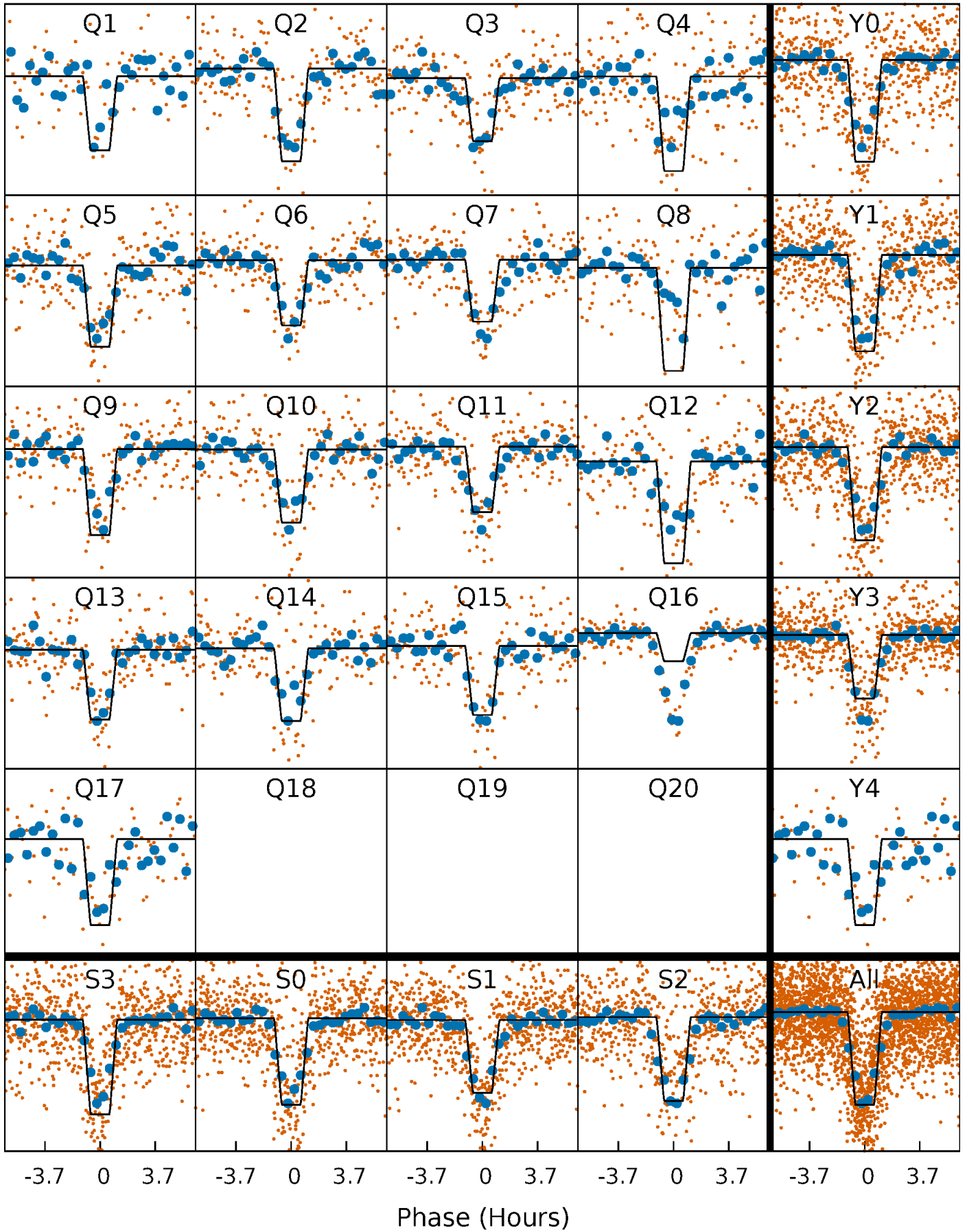
DV Quarter-Phased Transit Curves

TCE 007602070-02 P= 11.755652 Days $T_0=132.313857$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

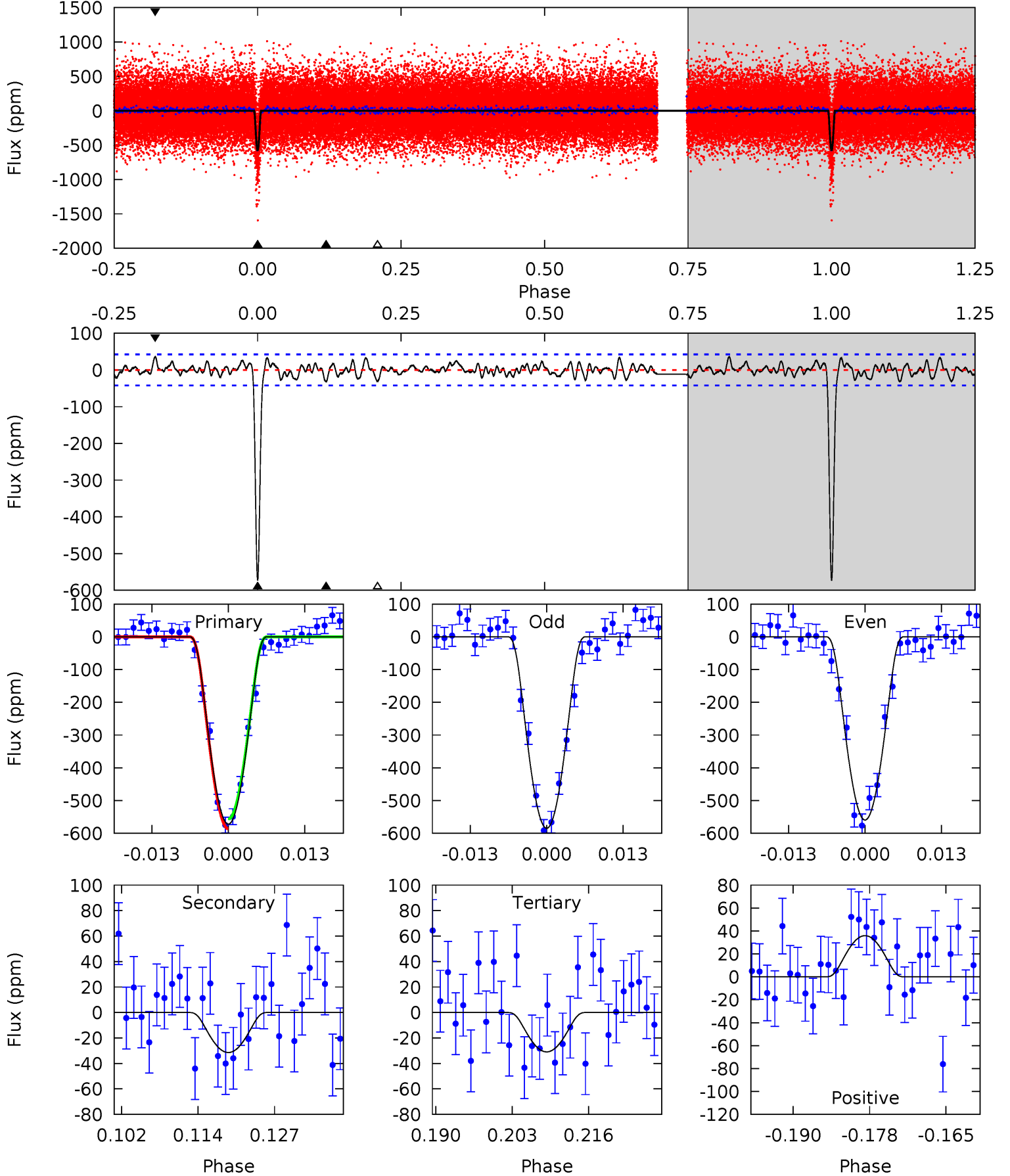
TCE 007602070-02 P= 11.755615 Days $T_0=132.316789$ (BKJD)



DV Model-Shift Uniqueness Test

007602070-02, $P = 11.755652$ Days, $E = 120.558205$ Days

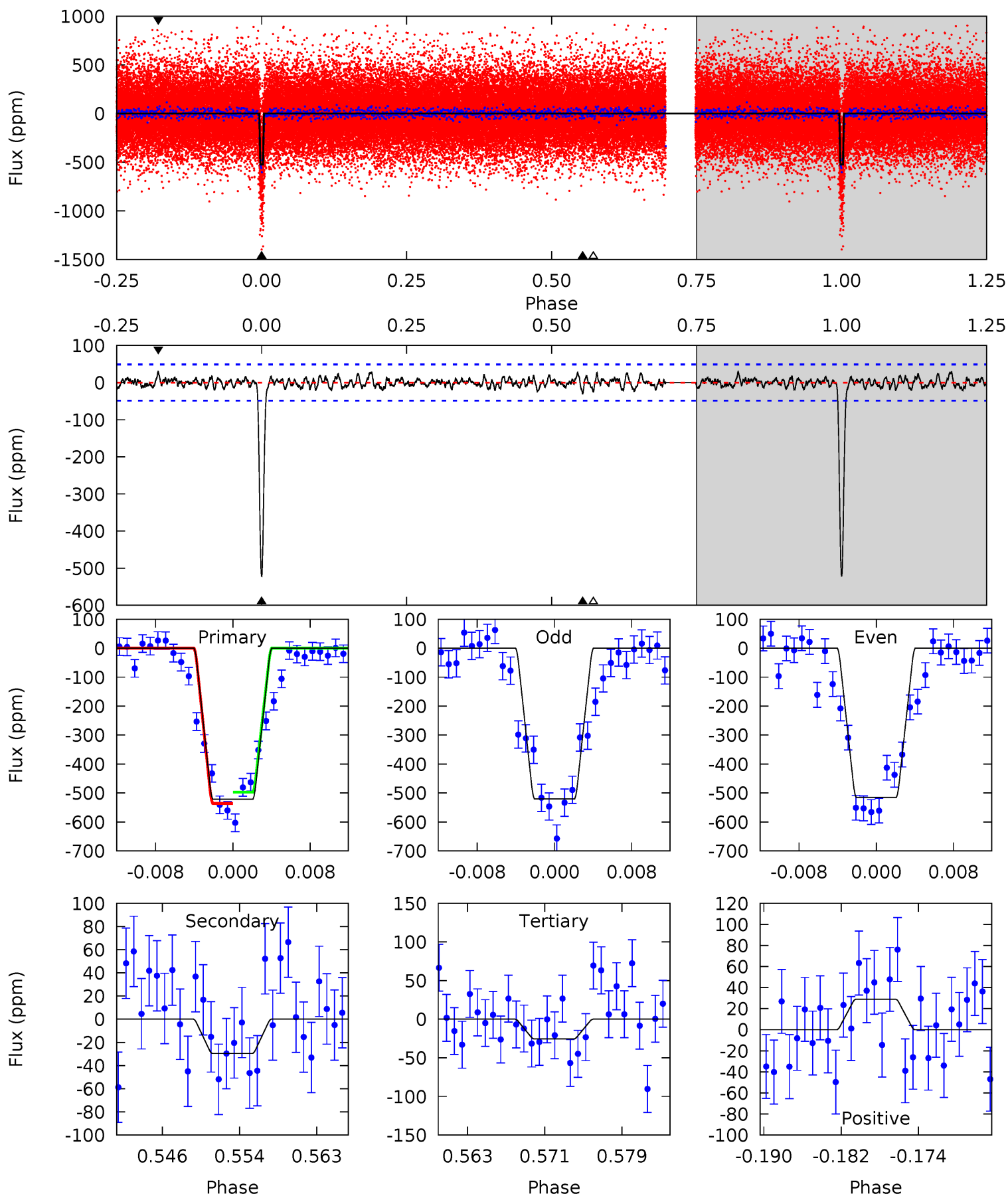
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
67.2	3.69	3.63	4.22	4.98	2.49	1.41	63.6	63.0	0.06	-0.53	1.48	1.10	0.06	1.77



Alt Model-Shift Uniqueness Test

007602070-02, P = 11.755615 Days, E = 120.561174 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
54.2	3.08	2.65	3.01	5.06	2.64	0.99	51.6	51.2	0.43	0.07	0.29	1.13	0.05	2.03



Stellar Parameters For KIC 007602070

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5644^{+152}_{-152}	$4.575^{+0.036}_{-0.144}$	$-0.240^{+0.300}_{-0.300}$	$0.806^{+0.169}_{-0.068}$	$0.900^{+0.078}_{-0.107}$	$2.422^{+0.457}_{-0.979}$
	+3%/-3%	+1%/-3%	+125%/-125%	+21%/-8%	+9%/-12%	+19%/-40%
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 007602070-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-31 ± 9	$4.97^{+4.05}_{-3.07}$	1021^{+52}_{-40}	2553^{+861}_{-340}	$6.026^{+38.720}_{-4.157}$
Alt.	-30 ± 10	$3.99^{+3.61}_{-2.69}$	1021^{+53}_{-41}	2727^{+1154}_{-444}	$9.147^{+88.193}_{-6.706}$

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

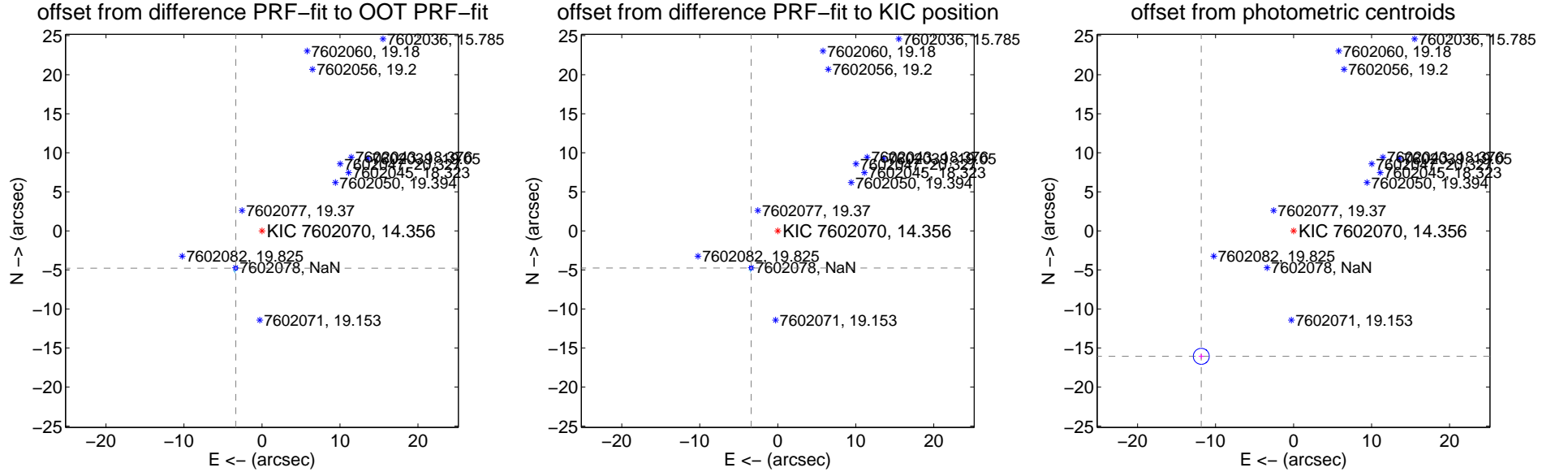
DV Centroid Data

Supplemental centroid analysis for 007602070-02. Kepler magnitude: 14.36. Transit SNR 34.24

There are 16 quarters with good PRF difference image offsets

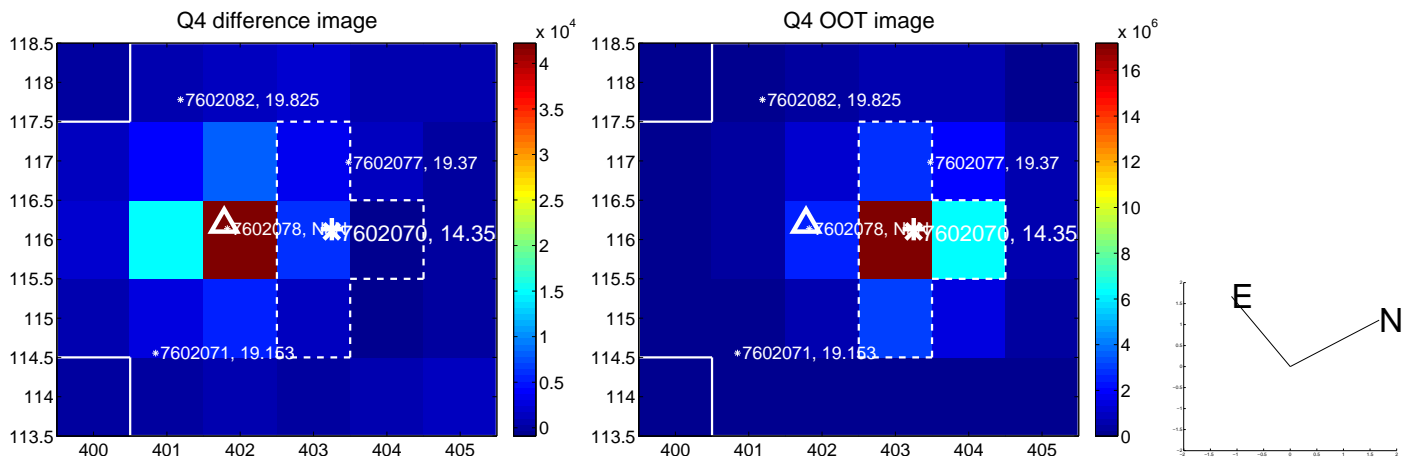
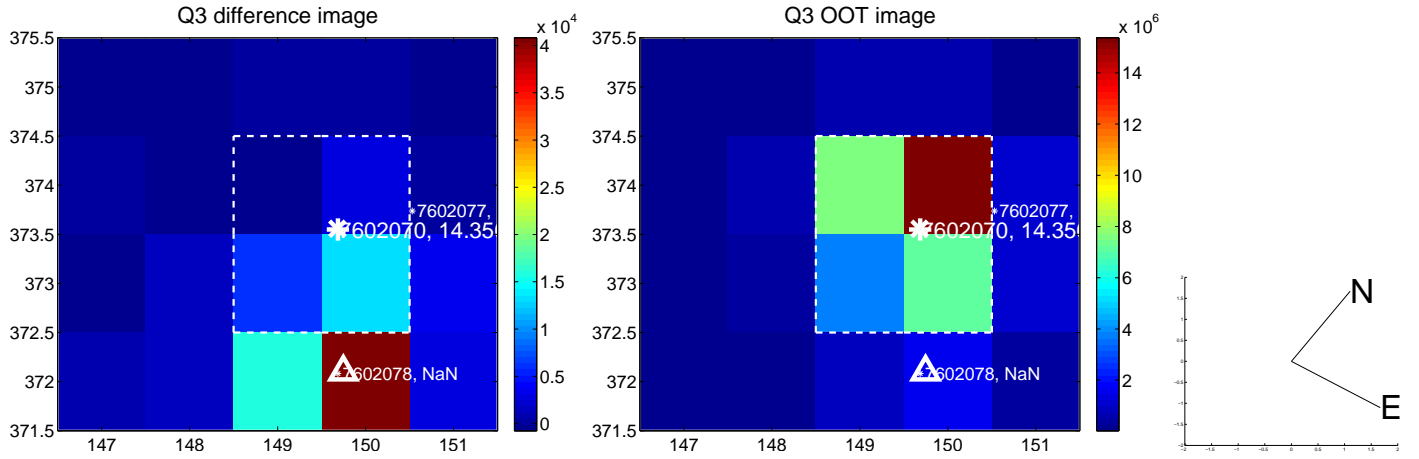
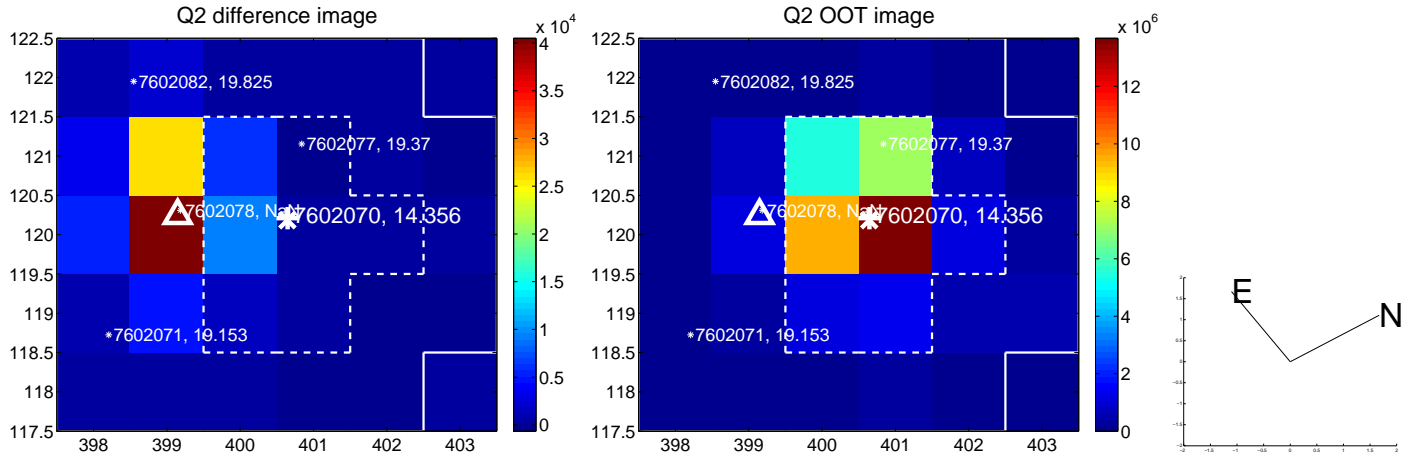
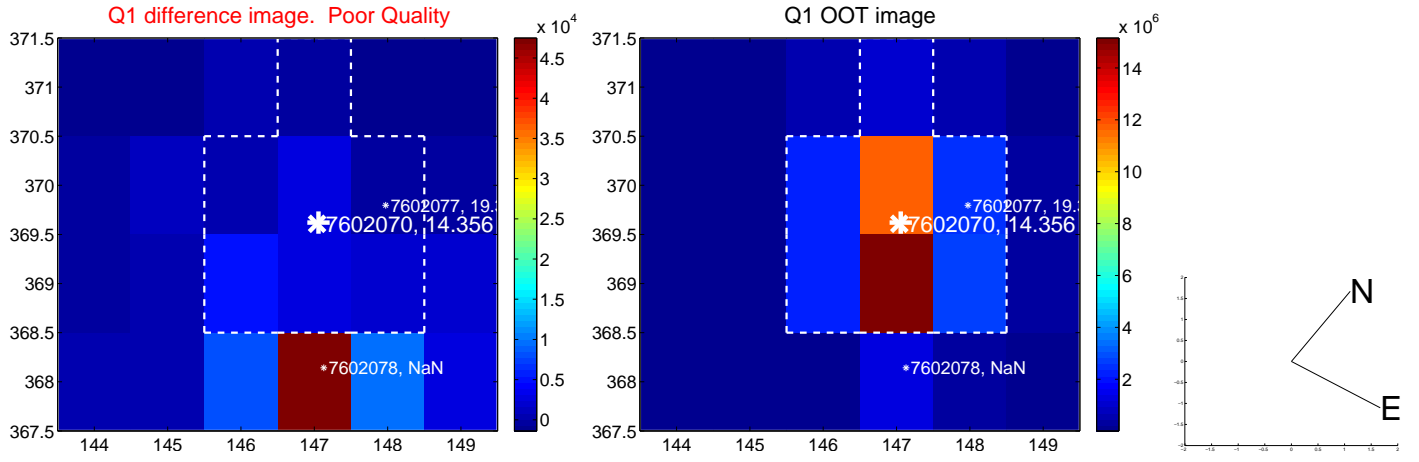
The direct PRF centroid is offset from the target star catalog position by about 0.11 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	5.849 \pm 0.078	75.11	3.359 \pm 0.071	-4.788 \pm 0.076
PRF-fit source offset from KIC position	5.857 \pm 0.075	77.87	3.408 \pm 0.071	-4.763 \pm 0.074
photometric centroid source offset	19.96 \pm 0.34	58.52	11.83 \pm 0.34	-16.07 \pm 0.34

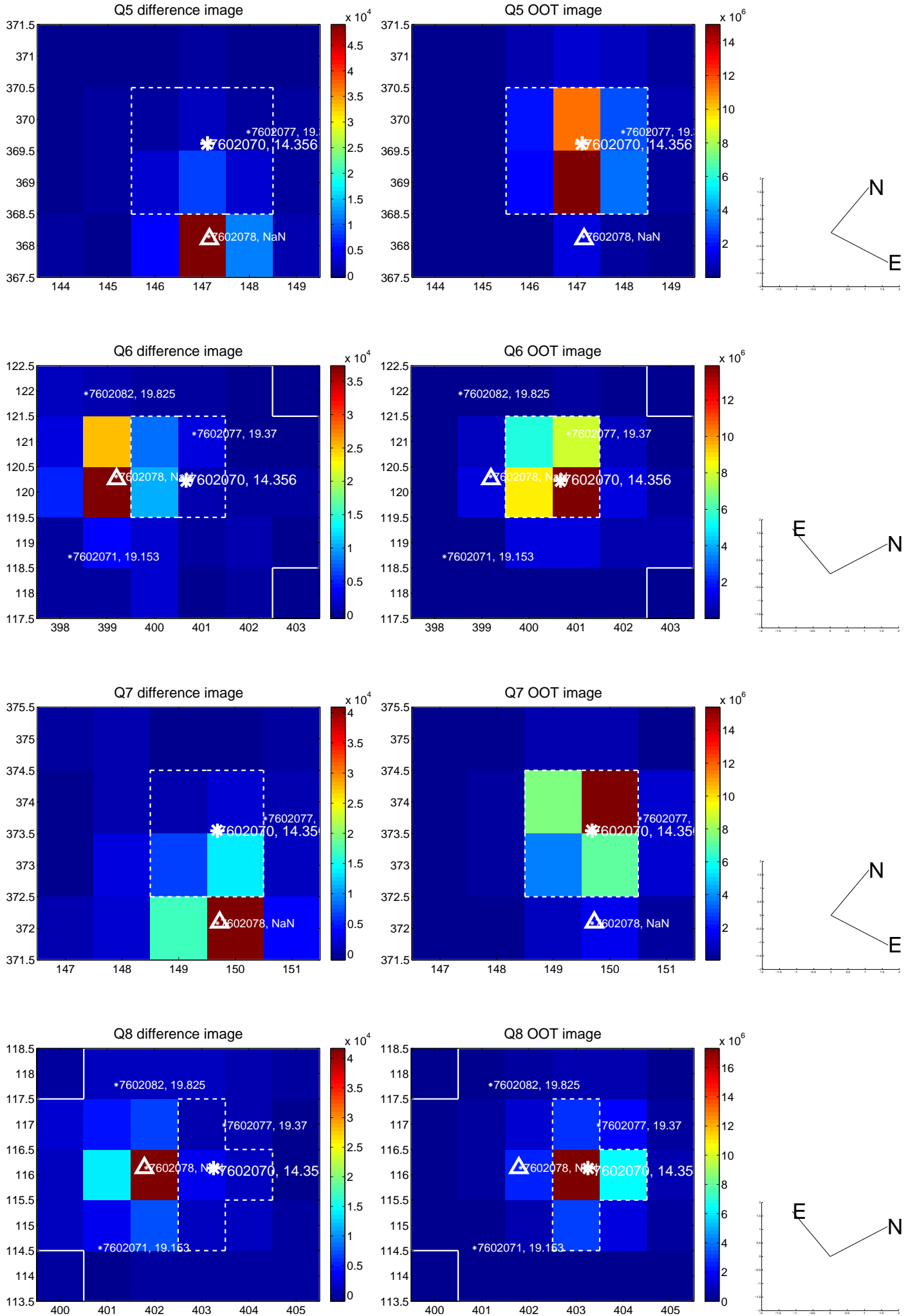


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

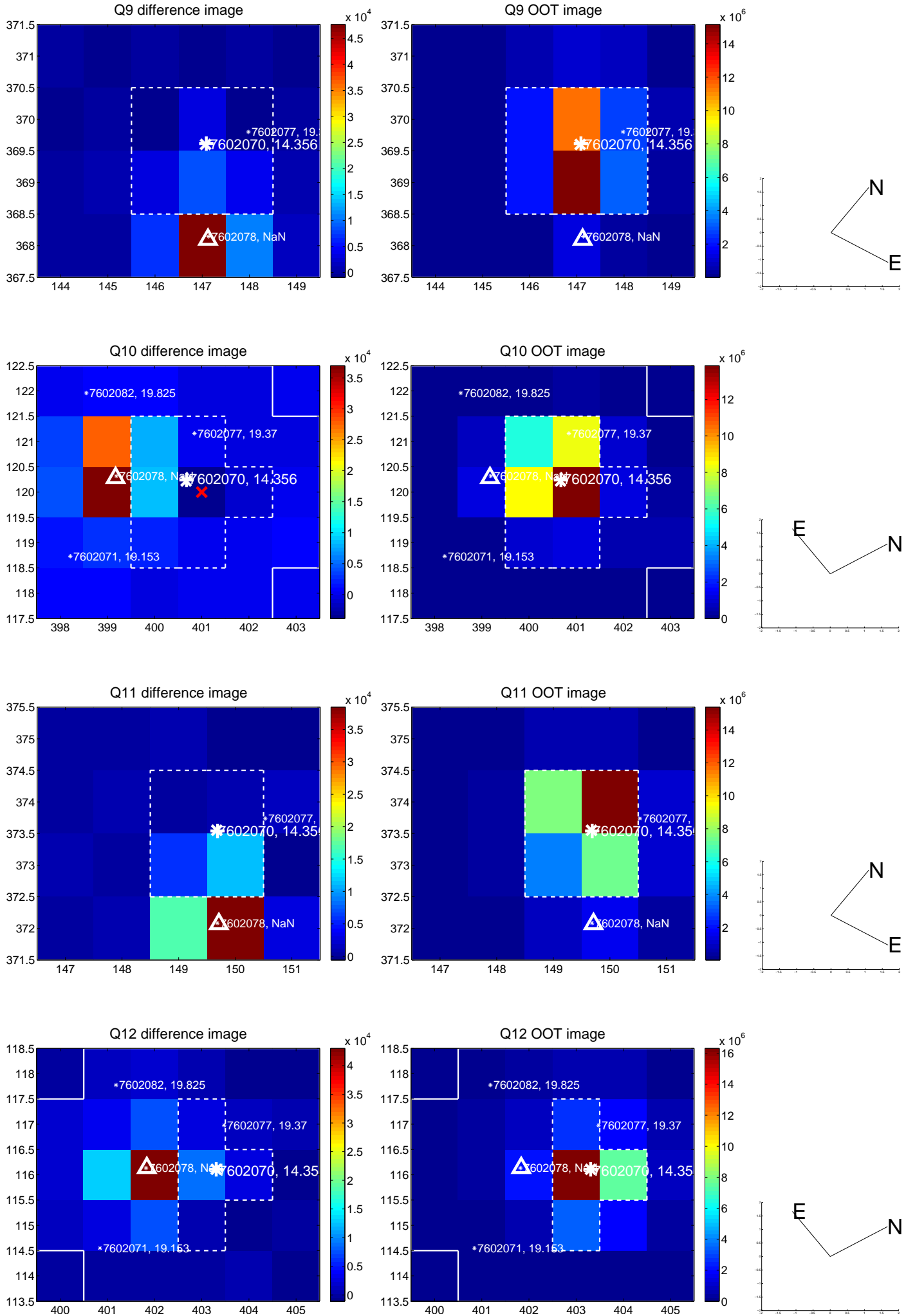
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



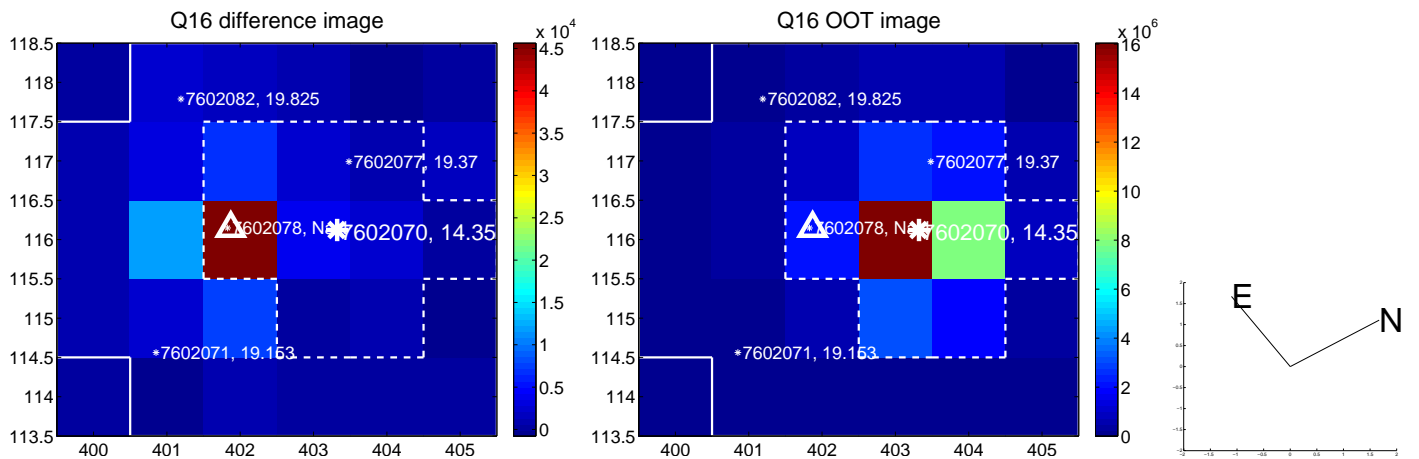
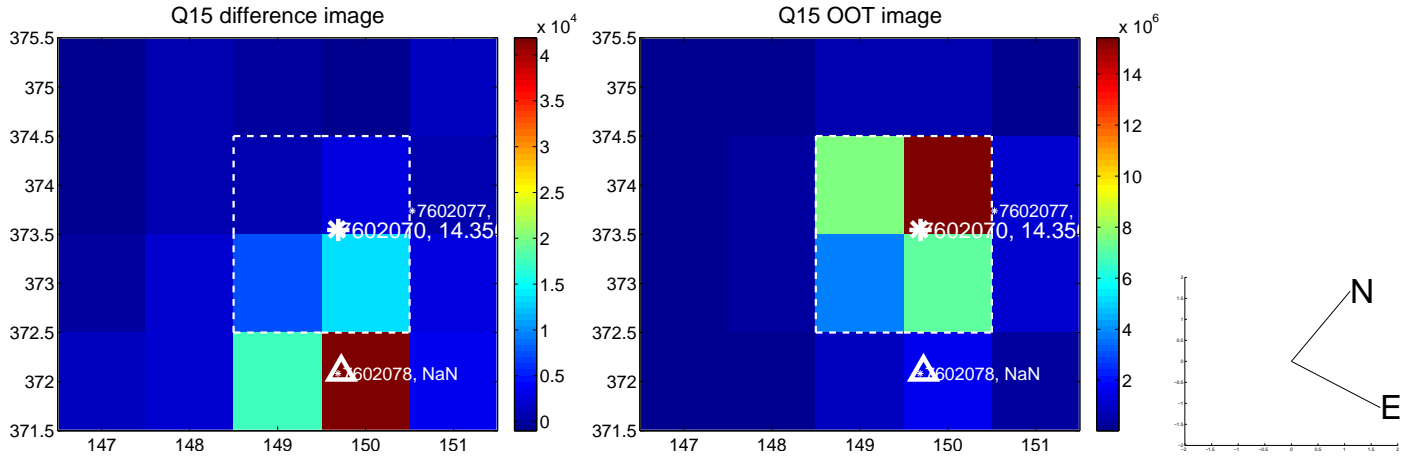
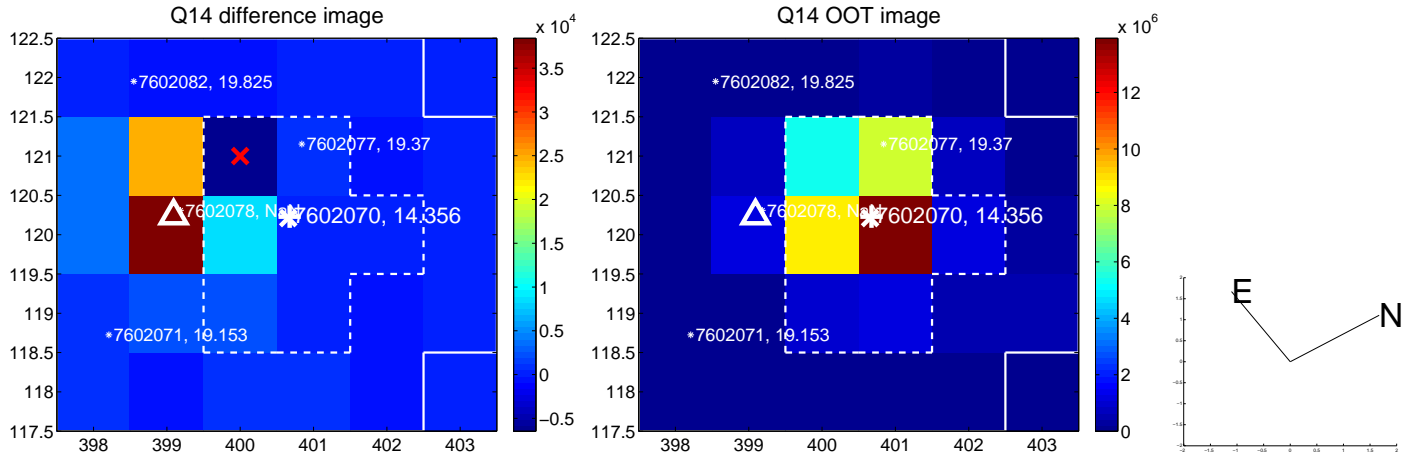
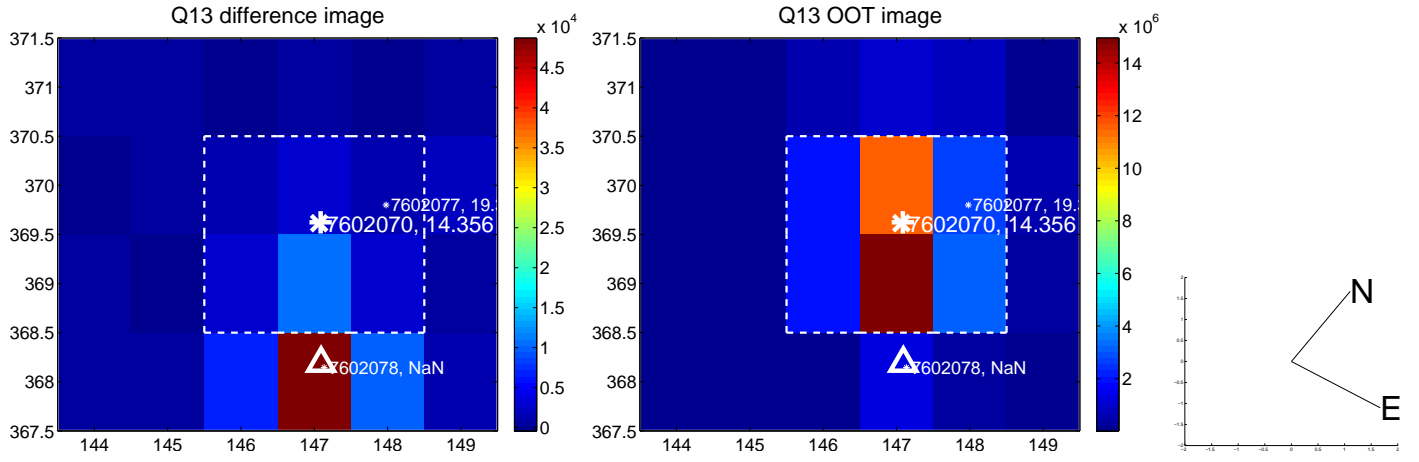
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



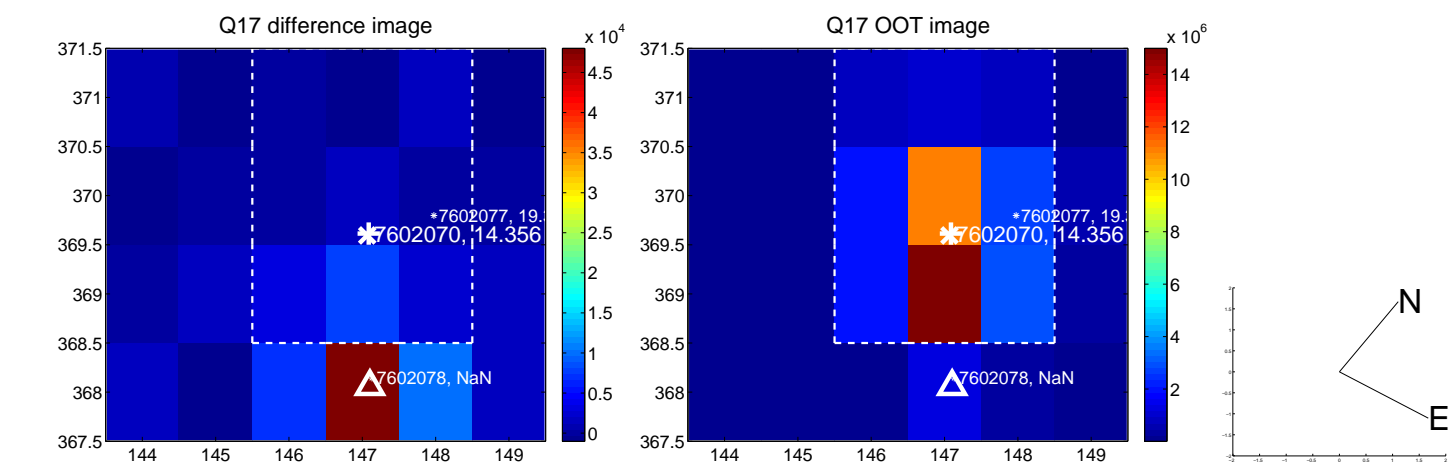
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



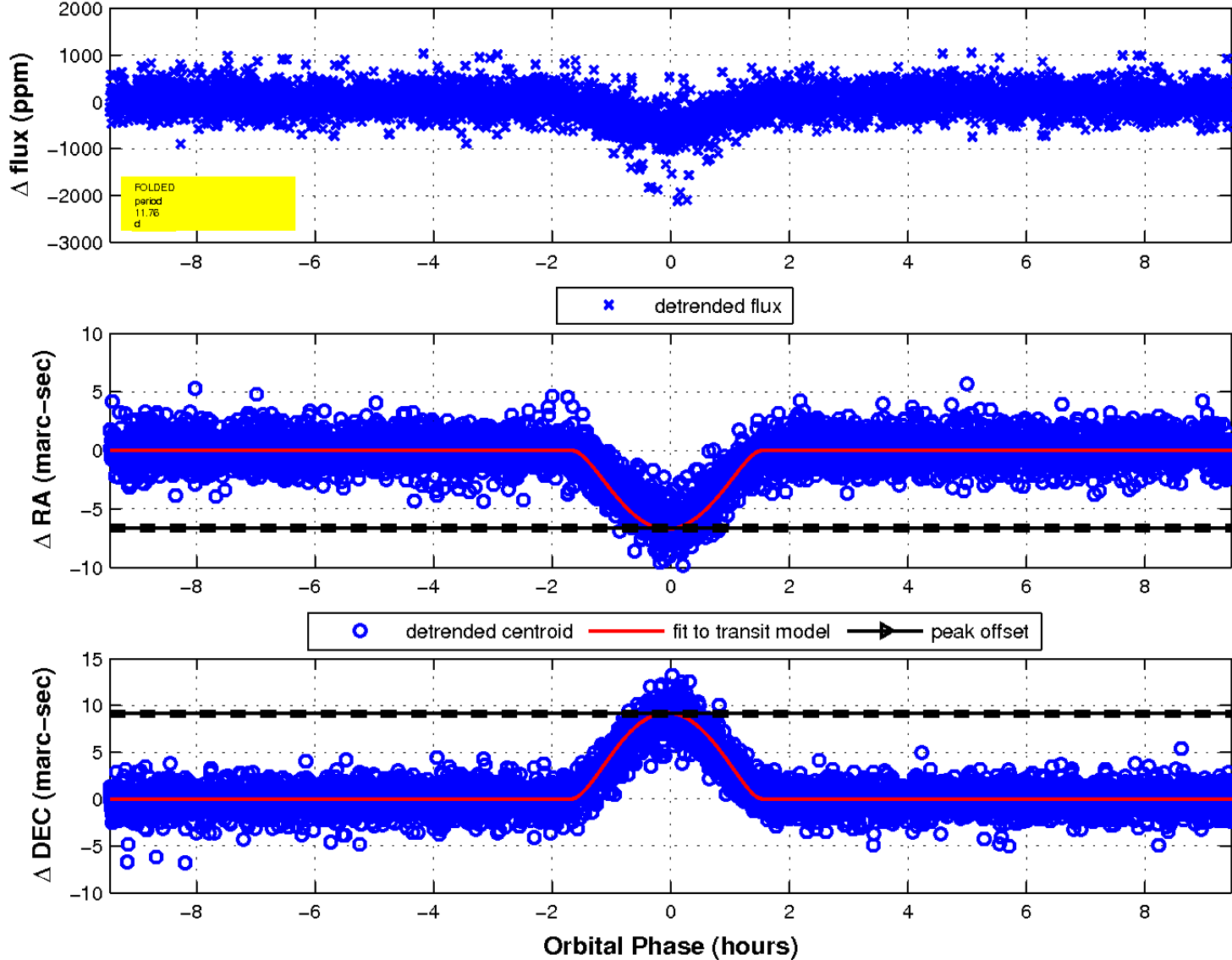
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



fluxWeightedCentroids, Planet 2 of 3



UKIRT Image

Declination

