

KIC 005816144

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})
005816144-01	OBS	6137.01	12.497055	140.896629	194.2	3.880	9.6	11.0	1.02	6174	1.57	117.52
005816144-02	OBS	6137.02	7.384731	132.162891	154.4	3.927	9.6	11.0	1.02	6174	1.49	236.99

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005816144-01	OBS	PC	1.00	0	0	0	0	CENT_KIC_POS
005816144-02	OBS	FP	0.00	0	0	1	0	CENT_KIC_POS—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.

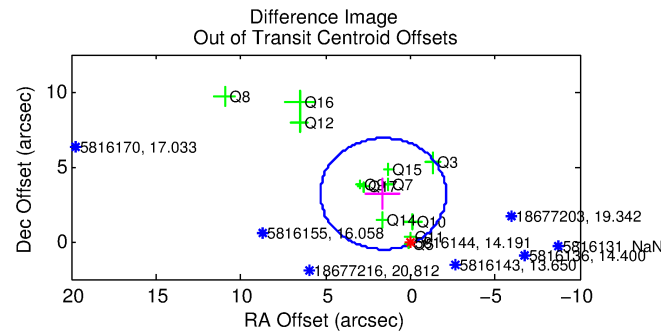
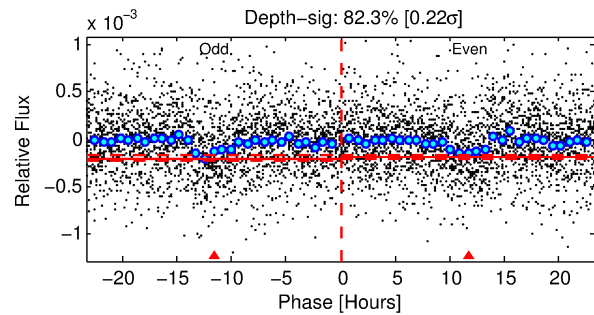
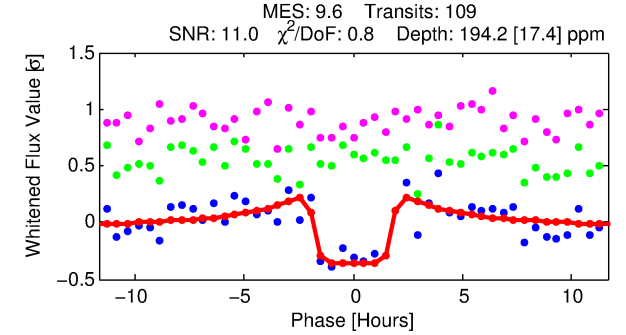
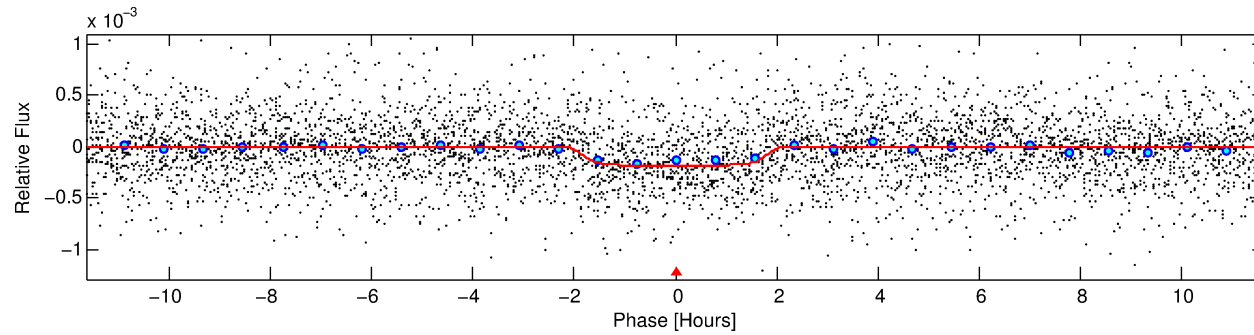
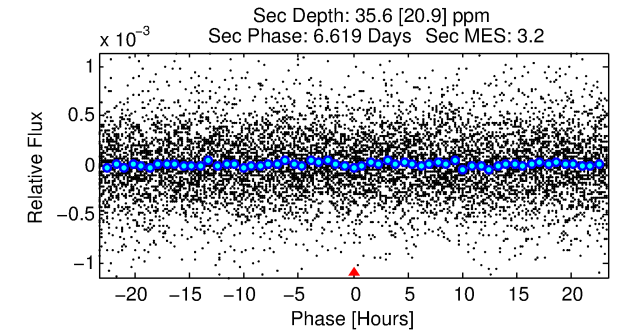
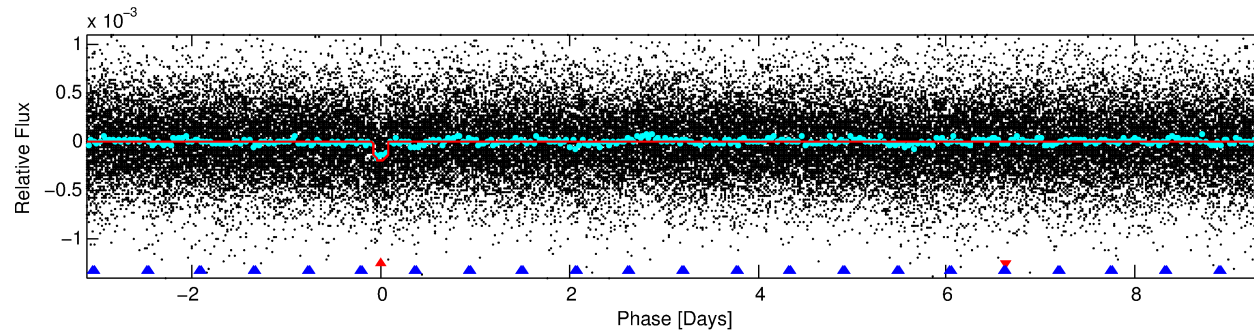
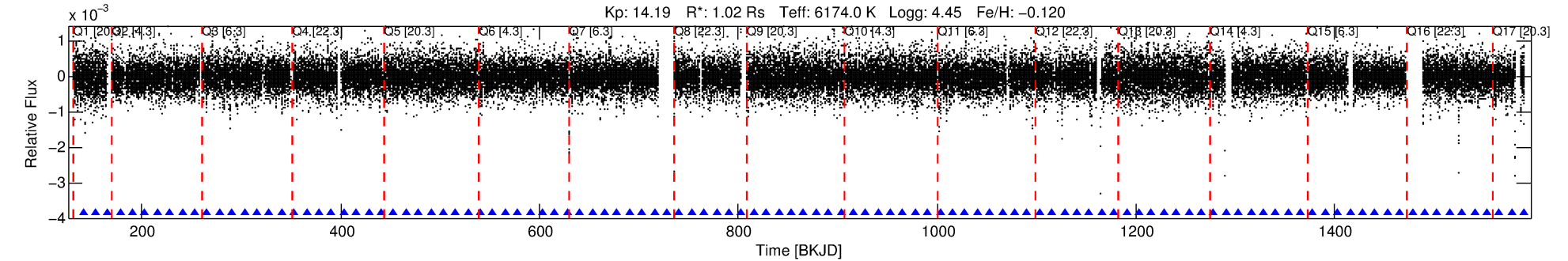
Ephemeris Match Information For 005816144-01

No Significant Match Found

DV One-Page Summary

KIC: 5816144 Candidate: 1 of 2 Period: 12.497 d

KOI: K06137.01 Corr: 0.979



DV Fit Results:

Period = 12.49705 [0.00008] d
Epoch = 140.8966 [0.0048] BKJD
Rp/R* = 0.0141 [0.0066]
a/R* = 15.58 [37.07]
b = 0.79 [1.13]
Seff = 117.52 [50.88]
Teq = 840 [91] K
Rp = 1.57 [0.91] Re
a = 0.1075 [0.0307] AU
Ag = 91.86 [108.61] [0.84σ]
Teffp = 4019 [1121] K [2.83σ]

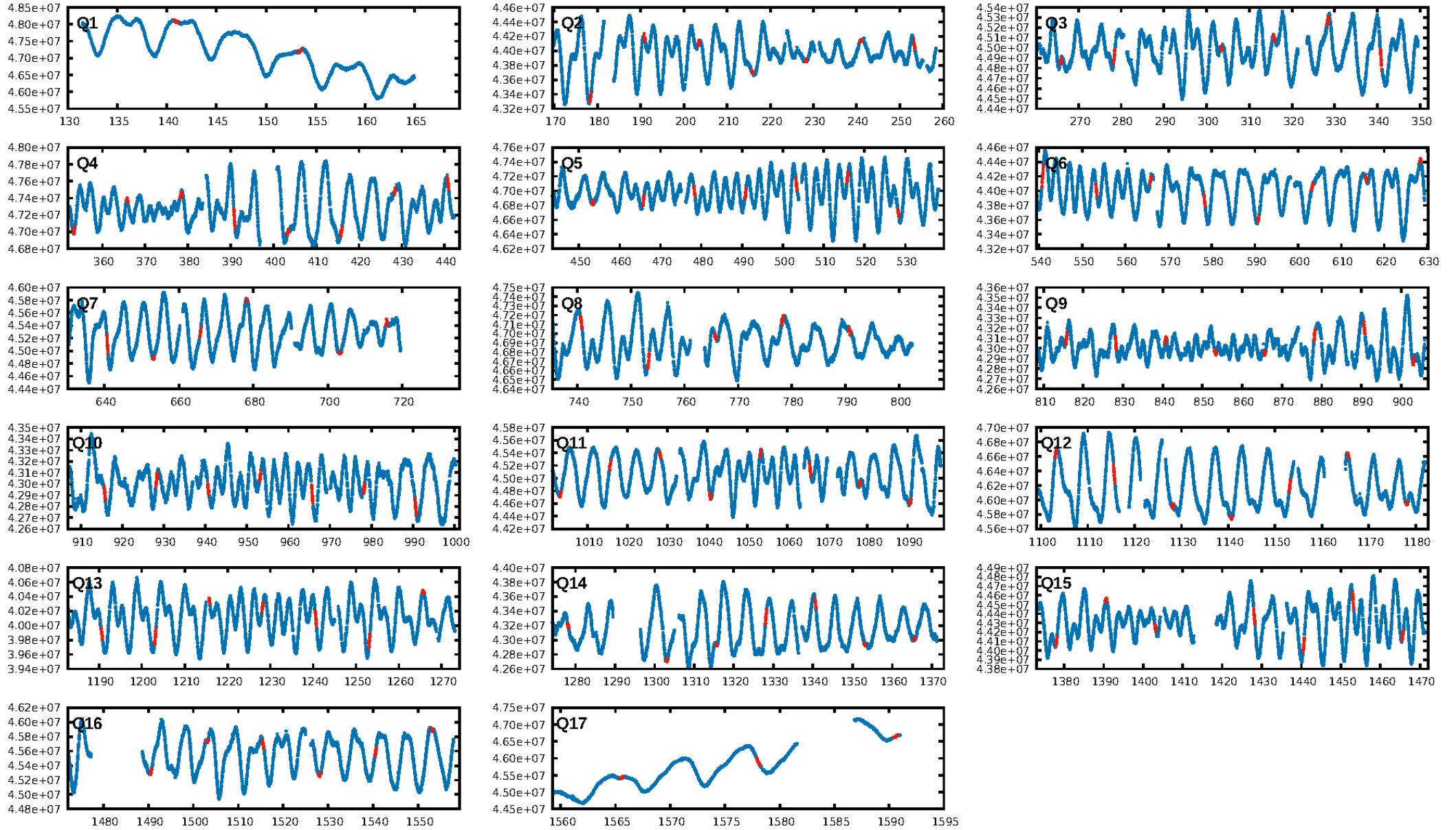
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [22.22σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 100.0%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 9.35e-21
RollingBand-fgt: 1.00 [104/104]
GhostDiagnostic-chr: 9.579
Centroid-sig: 0.9%
Centroid-so: 2.279 arcsec [2.93σ]
OotOffset-rm: 3.566 arcsec [2.88σ]
KicOffset-rm: 0.112 arcsec [0.25σ]
OotOffset-st: 2/4/3/3 [12]
KicOffset-st: 2/4/3/3 [12]
DiffImageQuality-fgm: 0.58 [7/12]
DiffImageOverlap-fno: 1.00 [17/17]

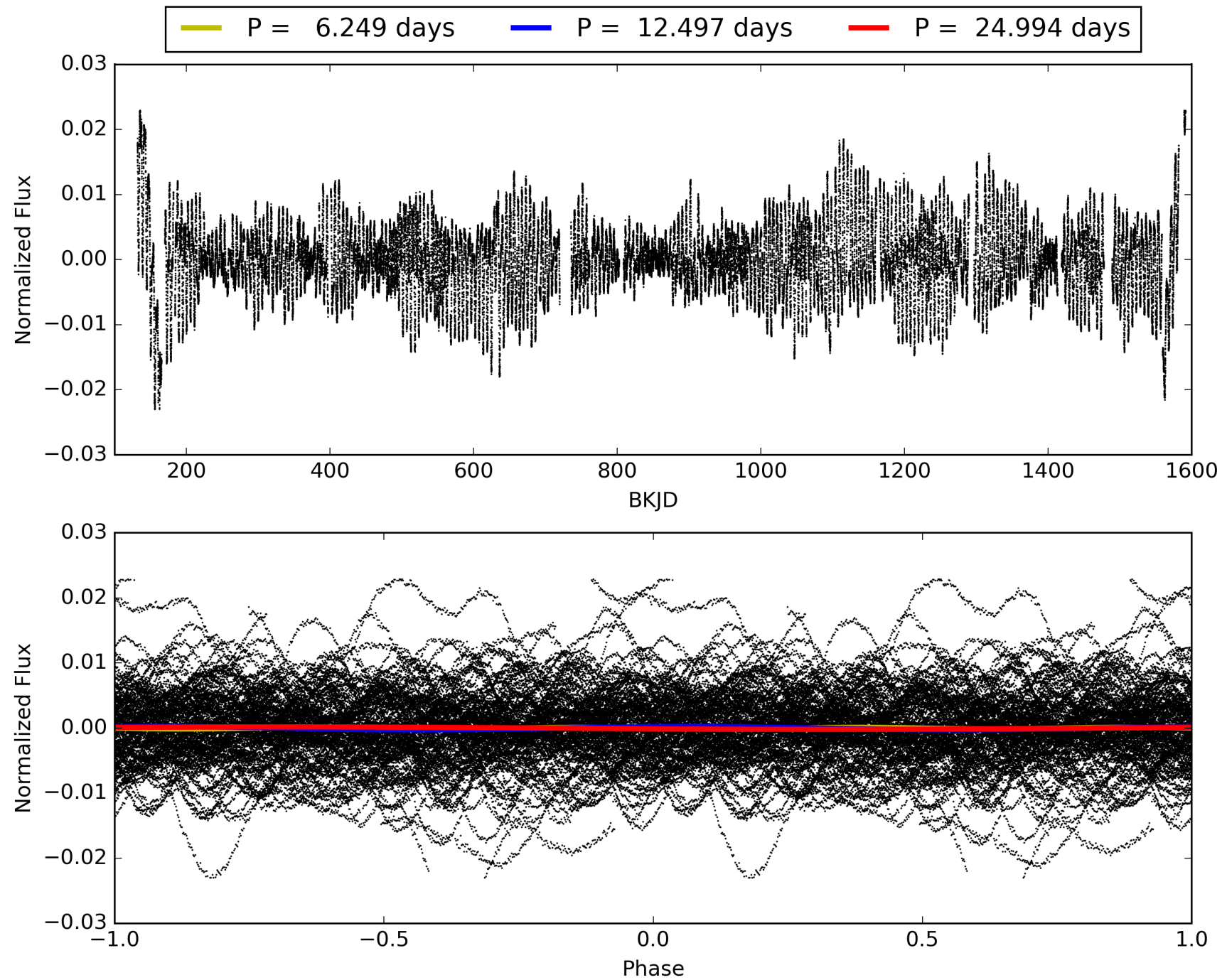
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 12:59:20 Z

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

TCE 005816144-01, PDC Light Curves

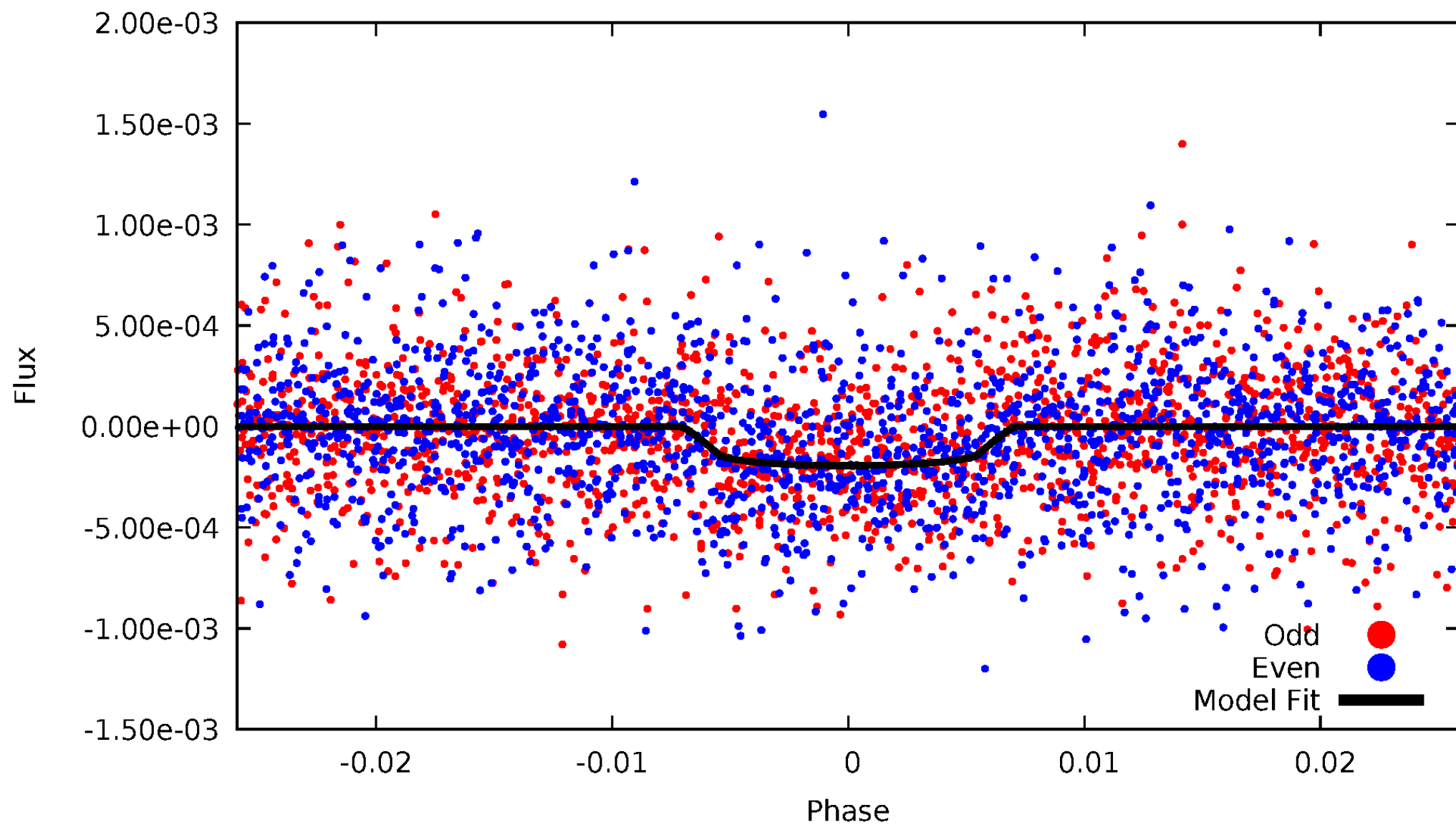


TCE 005816144-01



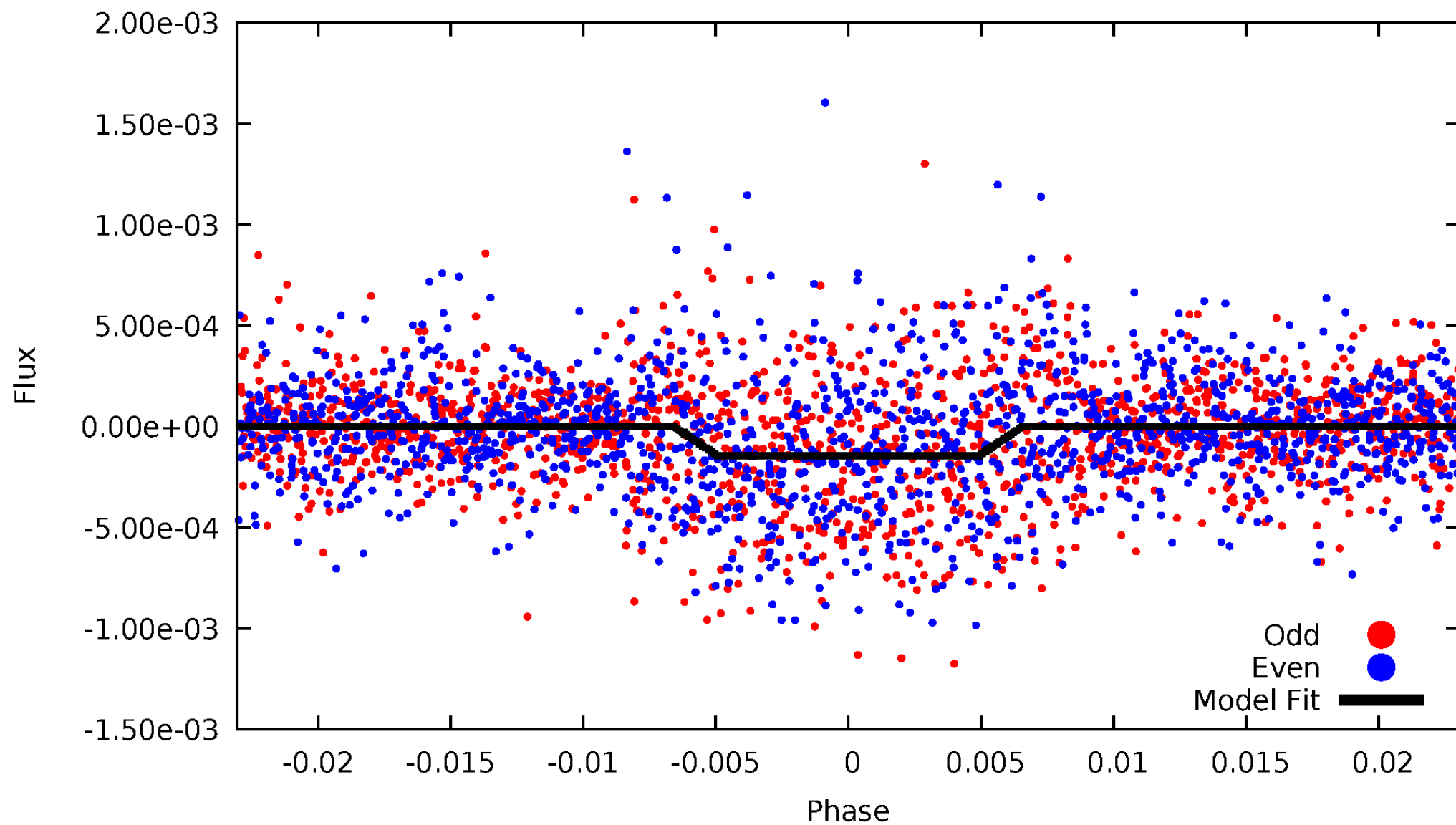
DV Odd/Even

TCE 005816144-01

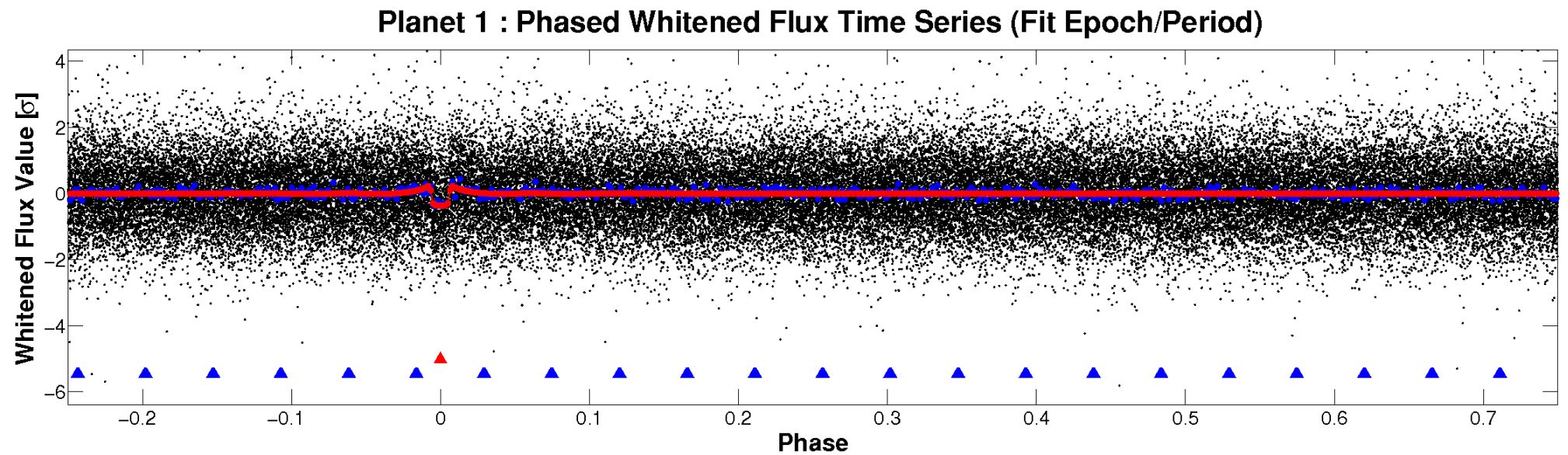
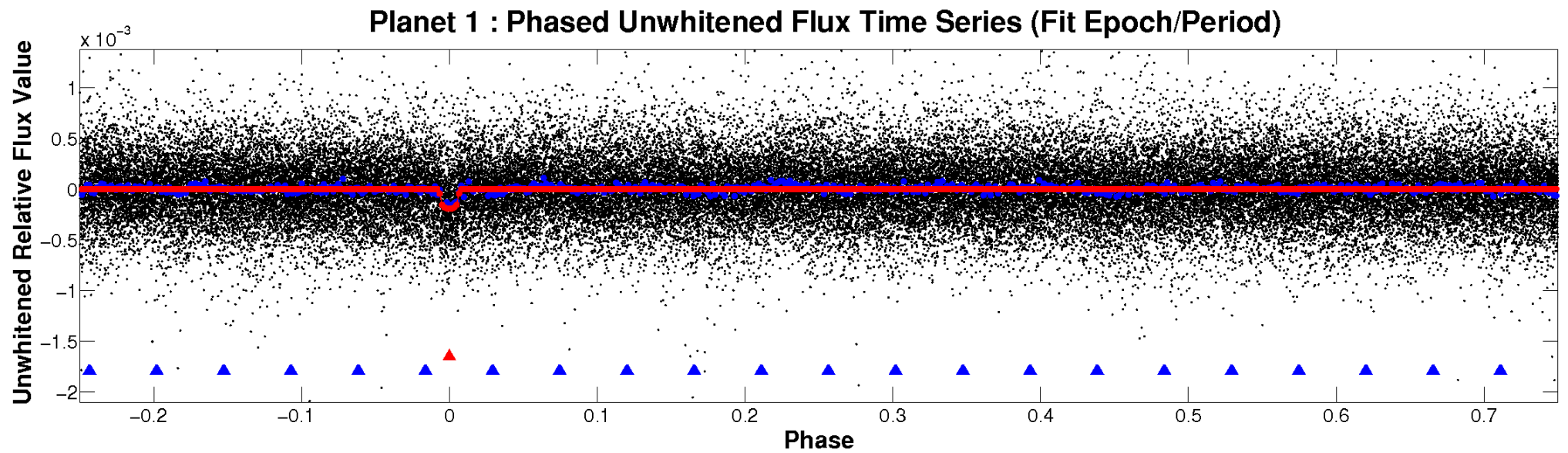


ALT Odd/Even

TCE 005816144-01

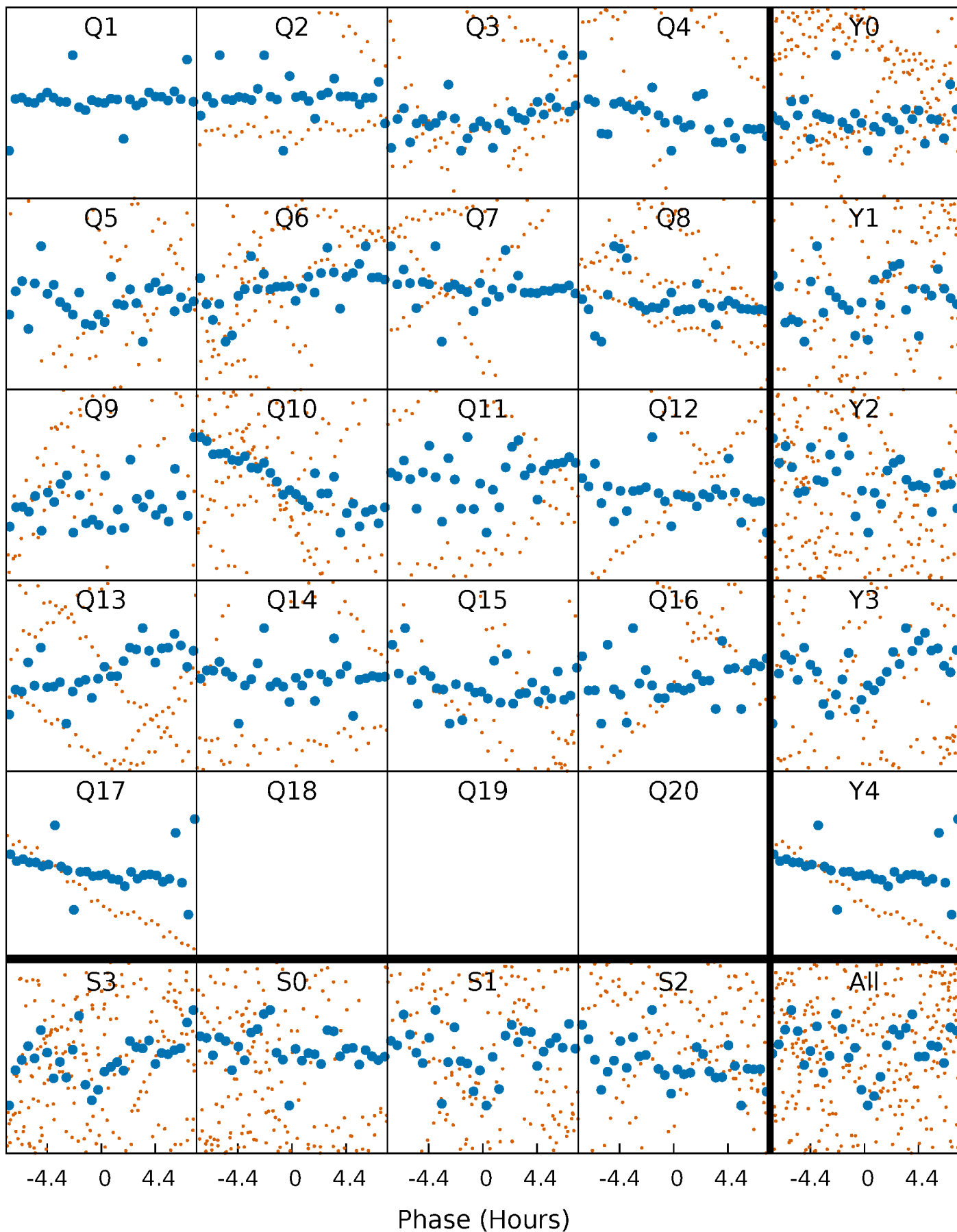


Non-Whitened Vs. Whitened Light Curve



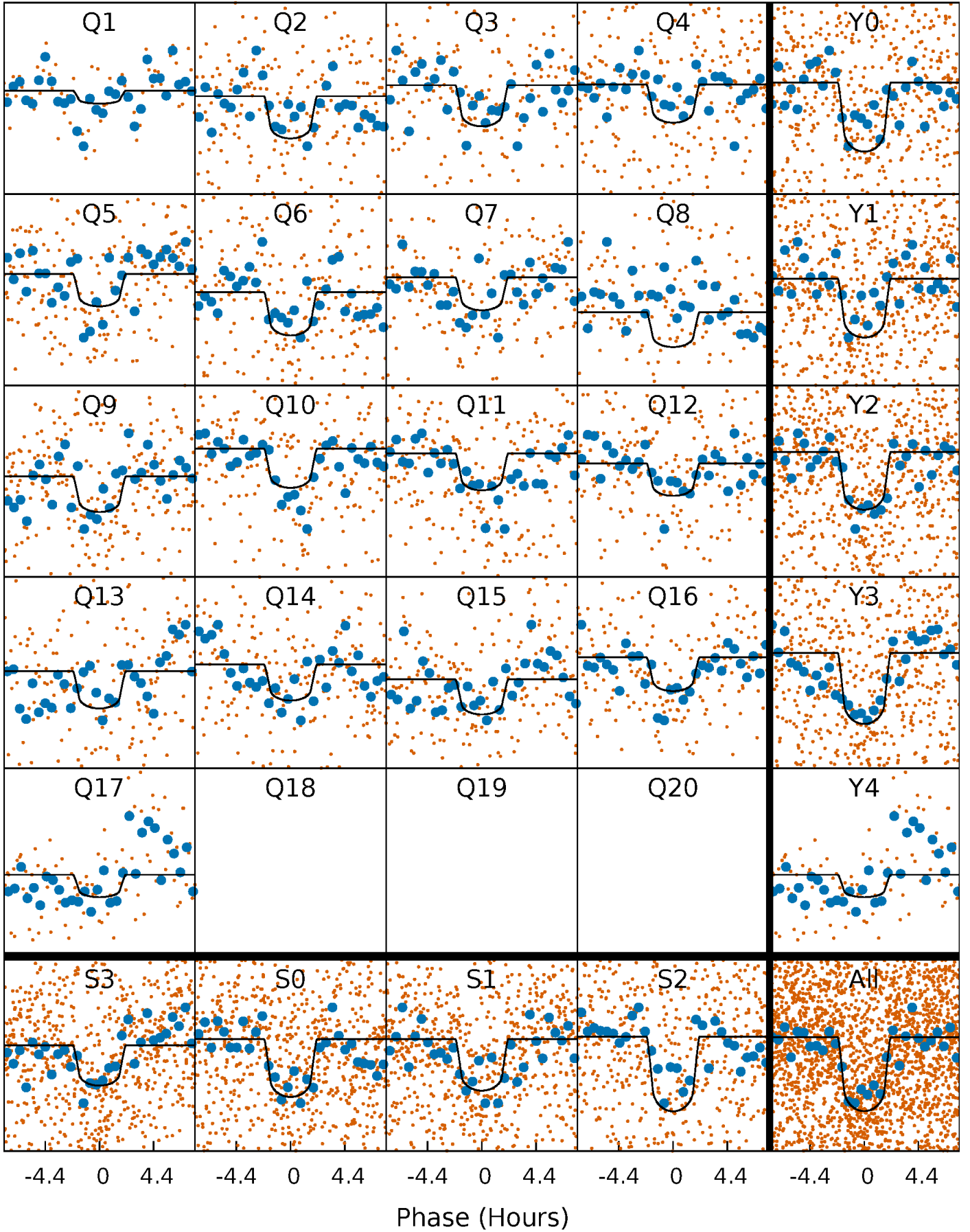
PDC Quarter-Phased Transit Curves

TCE 005816144-01 P= 12.497055 Days $T_0=140.896629$ (BKJD)



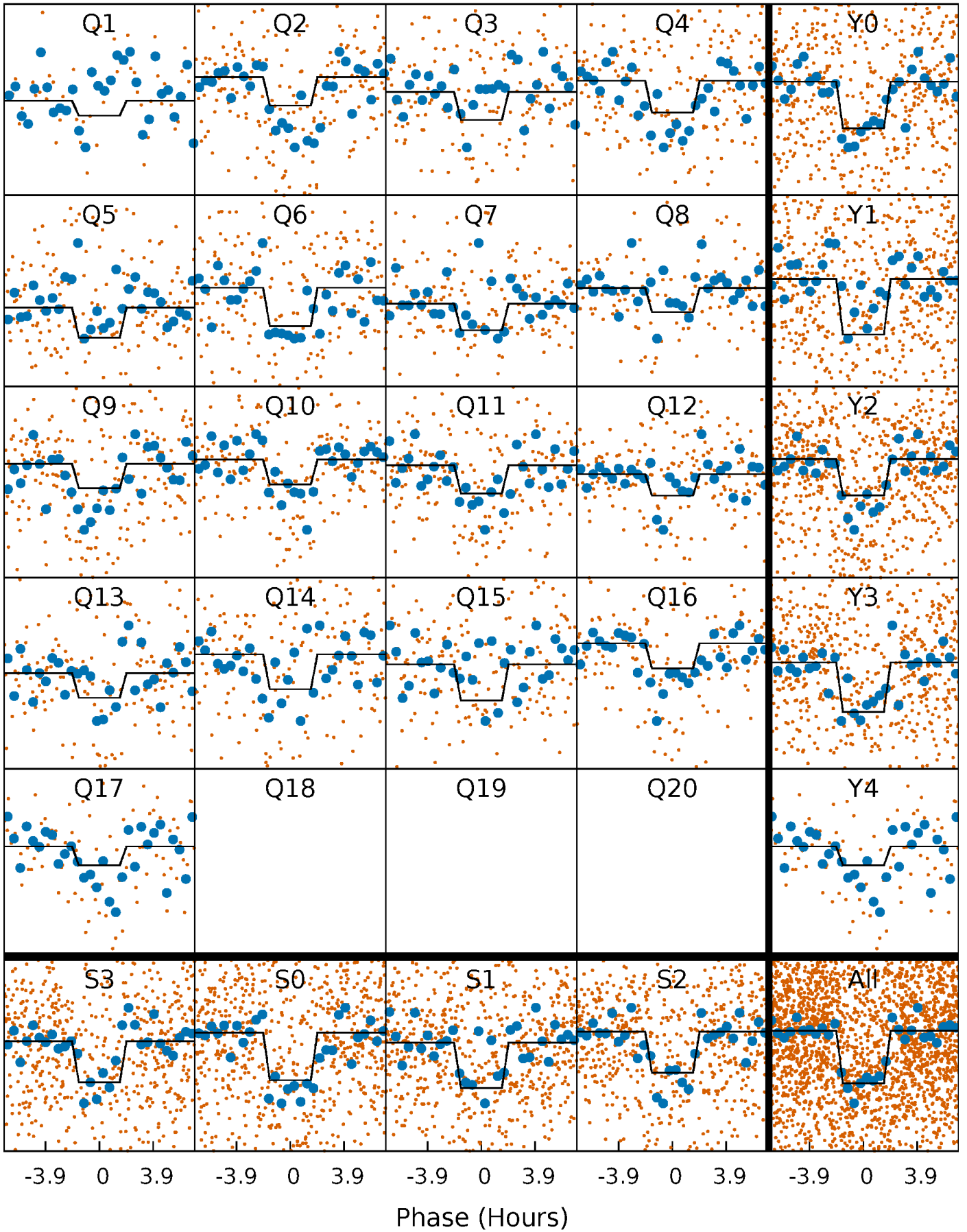
DV Quarter-Phased Transit Curves

TCE 005816144-01 P= 12.497055 Days $T_0=140.896629$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

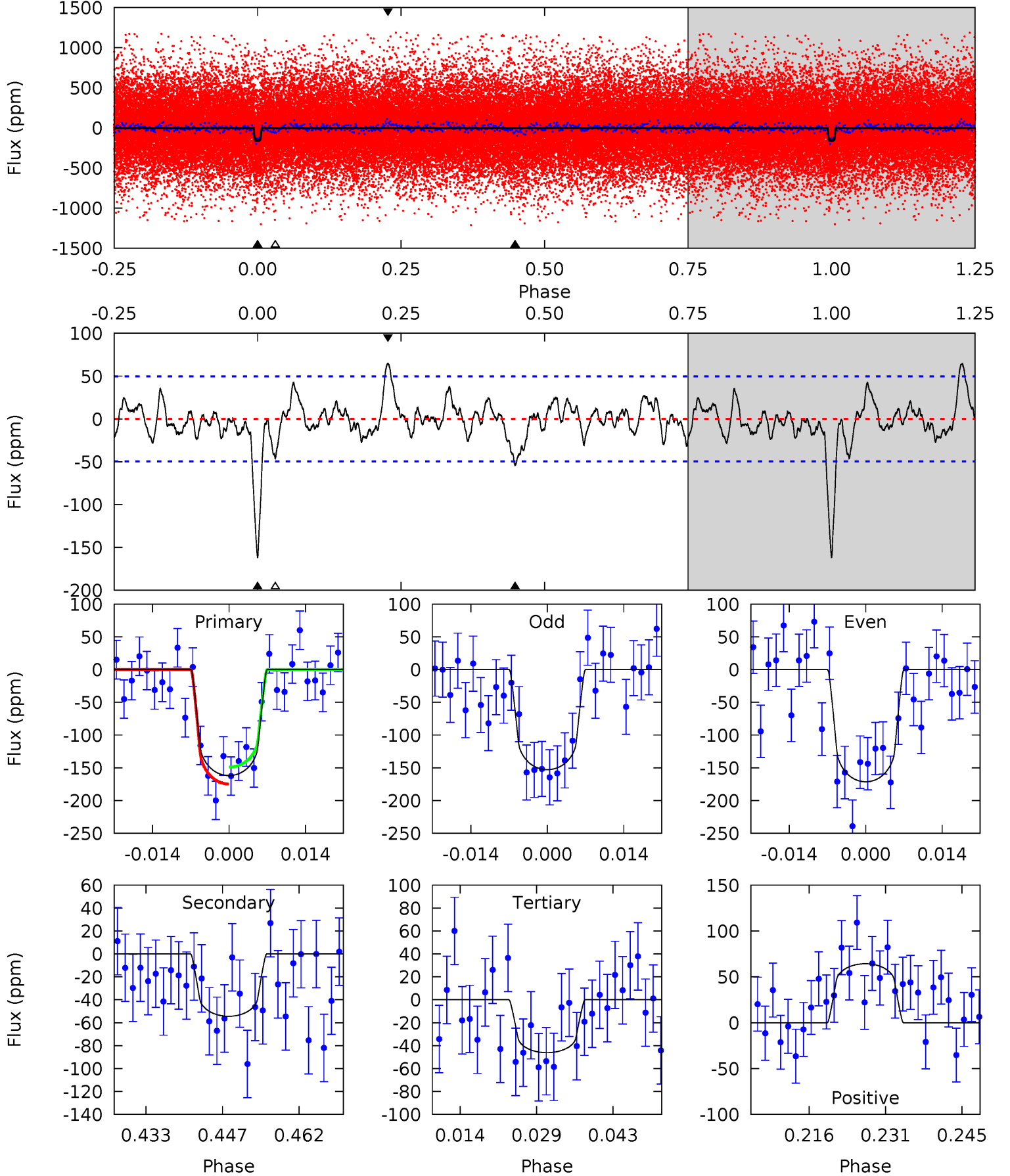
TCE 005816144-01 P= 12.497206 Days $T_0=140.887239$ (BKJD)



DV Model-Shift Uniqueness Test

005816144-01, $P = 12.497055$ Days, $E = 128.399574$ Days

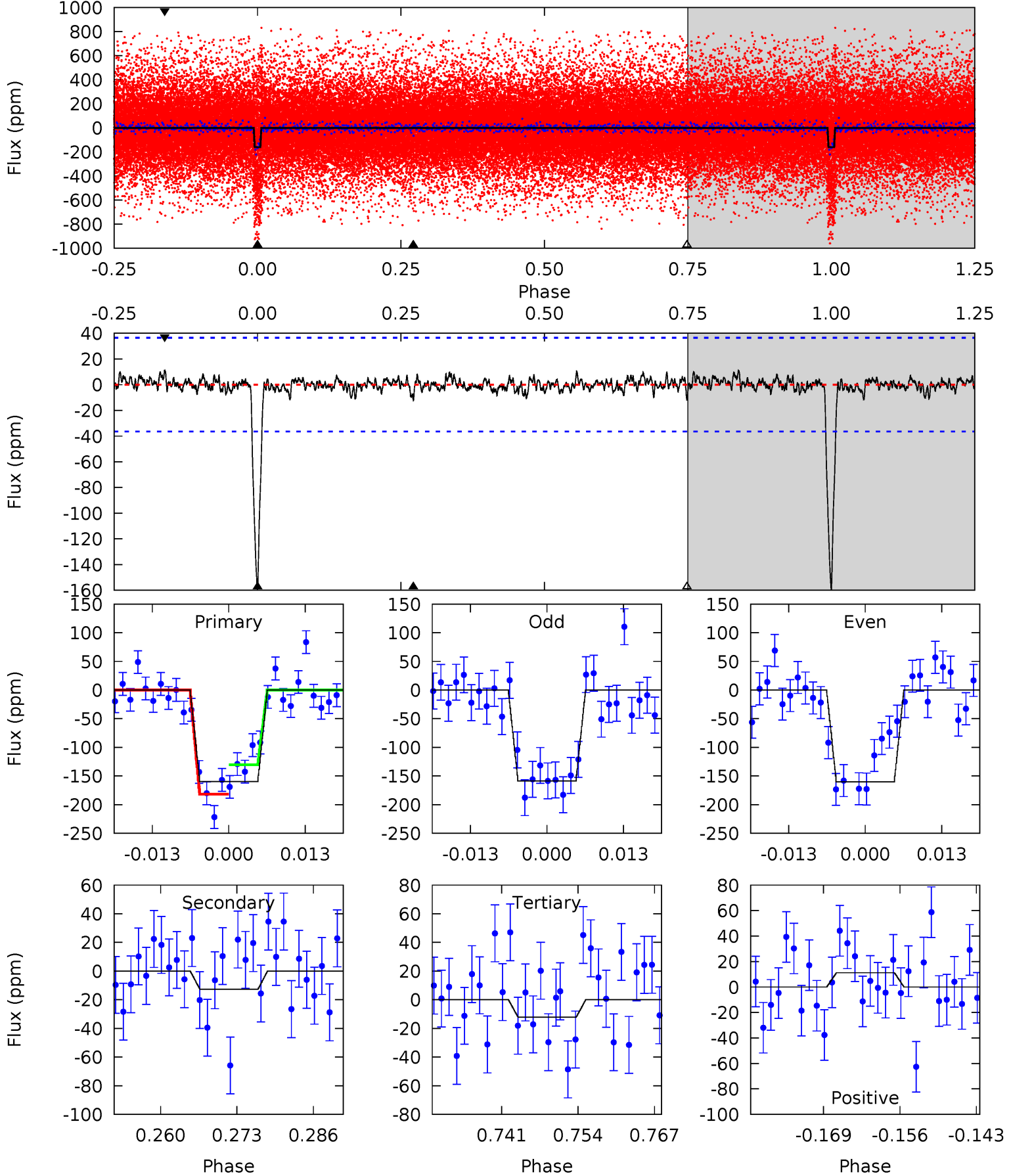
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
16.2	5.43	4.61	6.41	4.96	2.45	1.60	11.6	9.74	0.82	-0.99	0.93	0.87	0.28	1.30



Alt Model-Shift Uniqueness Test

005816144-01, $P = 12.497206$ Days, $E = 128.390033$ Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
21.7	1.73	1.67	1.52	4.98	2.48	0.50	20.1	20.2	0.07	0.21	0.11	1.05	0.07	3.51



Stellar Parameters For KIC 005816144

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6174^{+185}_{-203}	$4.445^{+0.070}_{-0.224}$	$-0.120^{+0.250}_{-0.300}$	$1.021^{+0.349}_{-0.116}$	$1.055^{+0.155}_{-0.127}$	$1.394^{+0.431}_{-0.780}$
	+3%/-3%	+2%/-5%	+208%/-250%	+34%/-11%	+15%/-12%	+31%/-56%
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 005816144-01 / KOI 6137.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-54 ± 10	$1.63^{+0.80}_{-0.75}$	1196^{+85}_{-64}	4620^{+1407}_{-648}	126^{+306}_{-69}
Alt.	-13 ± 7	$1.47^{+0.80}_{-0.78}$	1197^{+93}_{-61}	3633^{+1144}_{-606}	32^{+108}_{-23}

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

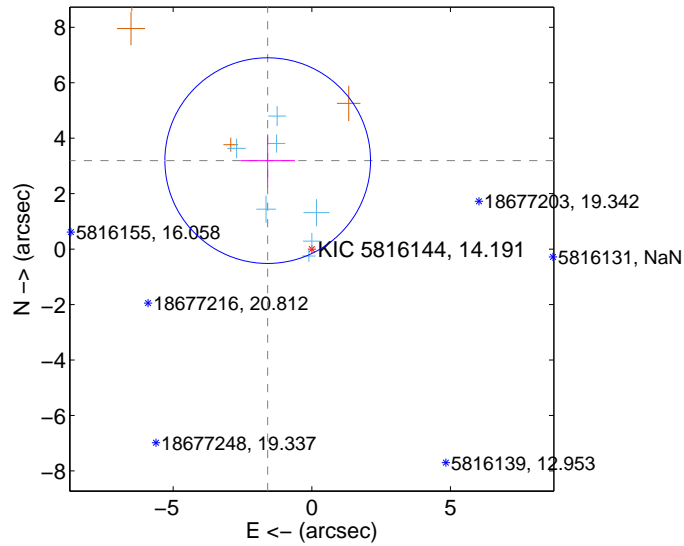
Supplemental centroid analysis for 005816144-01. Kepler magnitude: 14.19. Transit SNR 10.96

There are 7 quarters with good PRF difference image offsets

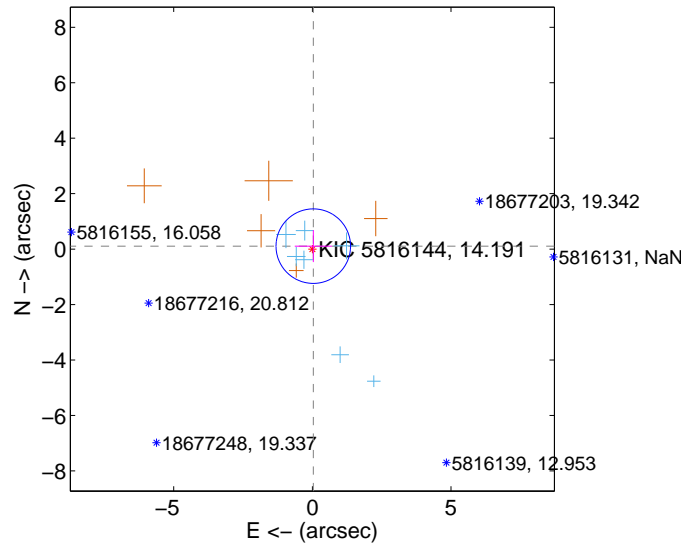
The OOT PRF centroid is offset from the target star catalog position by about 4.45 arcsec so the offset from difference PRF-fit to OOT-fit may be invalid.

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	3.566 ± 1.236	2.88	1.591 ± 0.983	3.191 ± 0.945
PRF-fit source offset from KIC position	0.112 ± 0.448	0.25	-0.034 ± 0.669	0.107 ± 0.576
photometric centroid source offset	2.28 ± 0.78	2.93	-0.97 ± 0.73	-2.06 ± 0.79

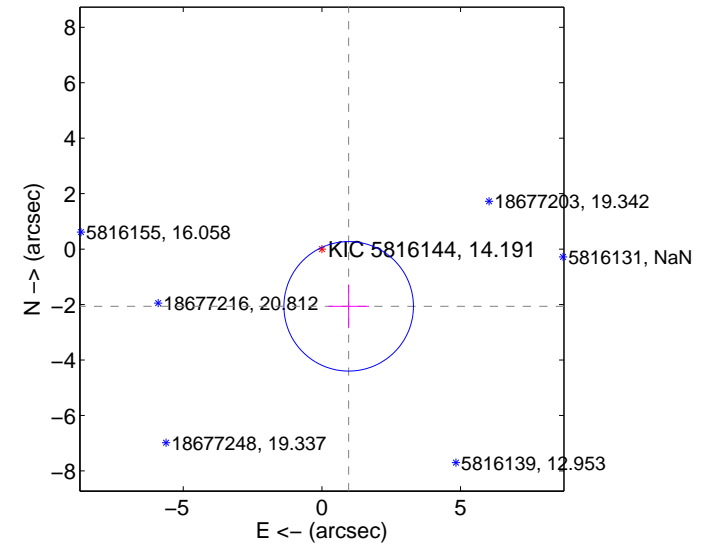
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

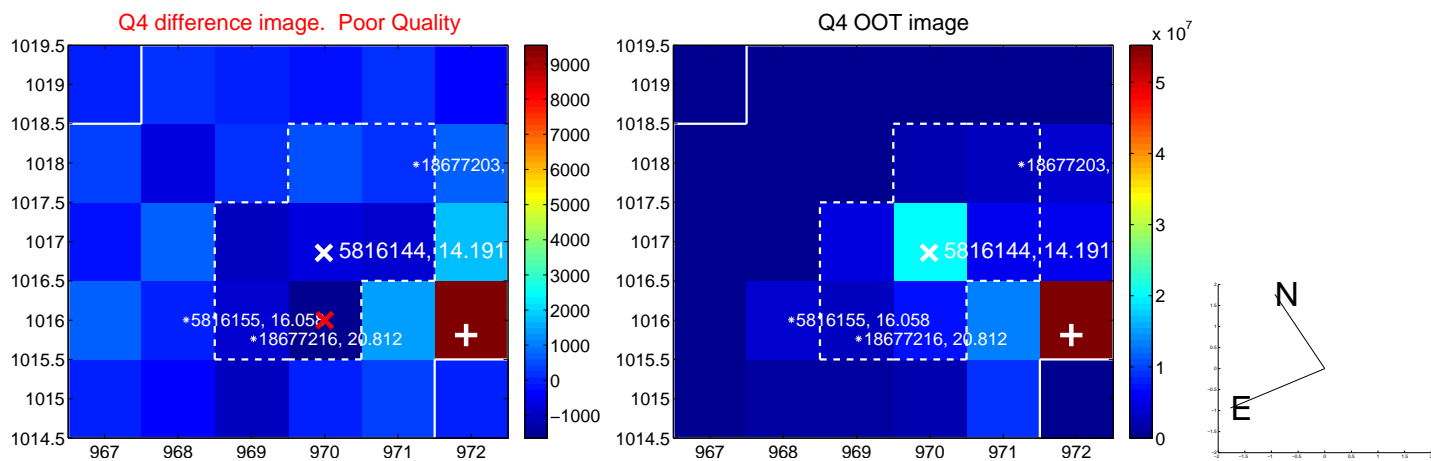
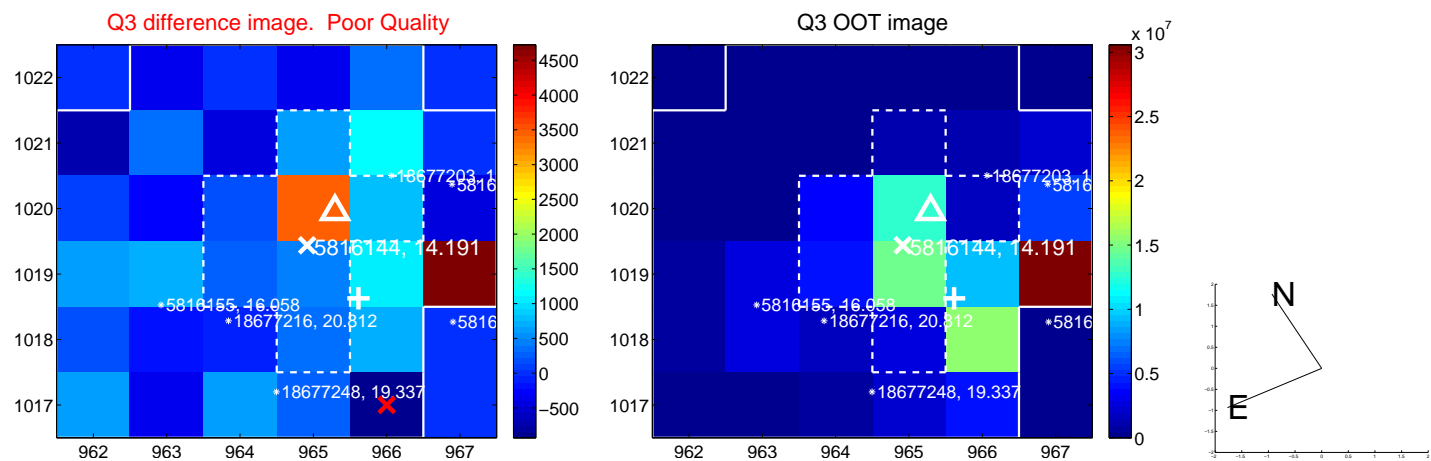
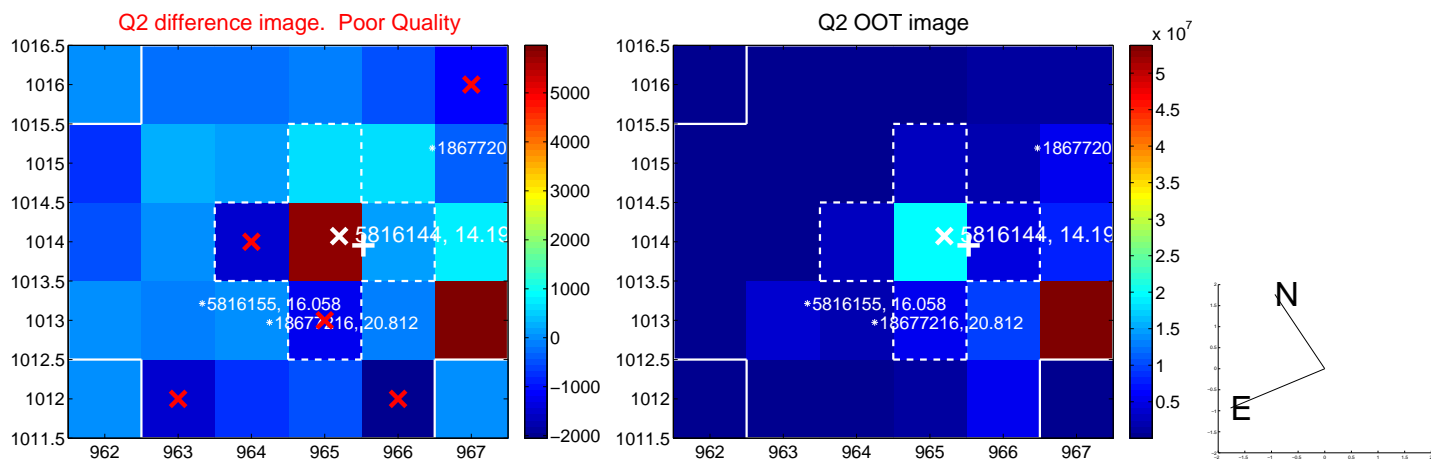
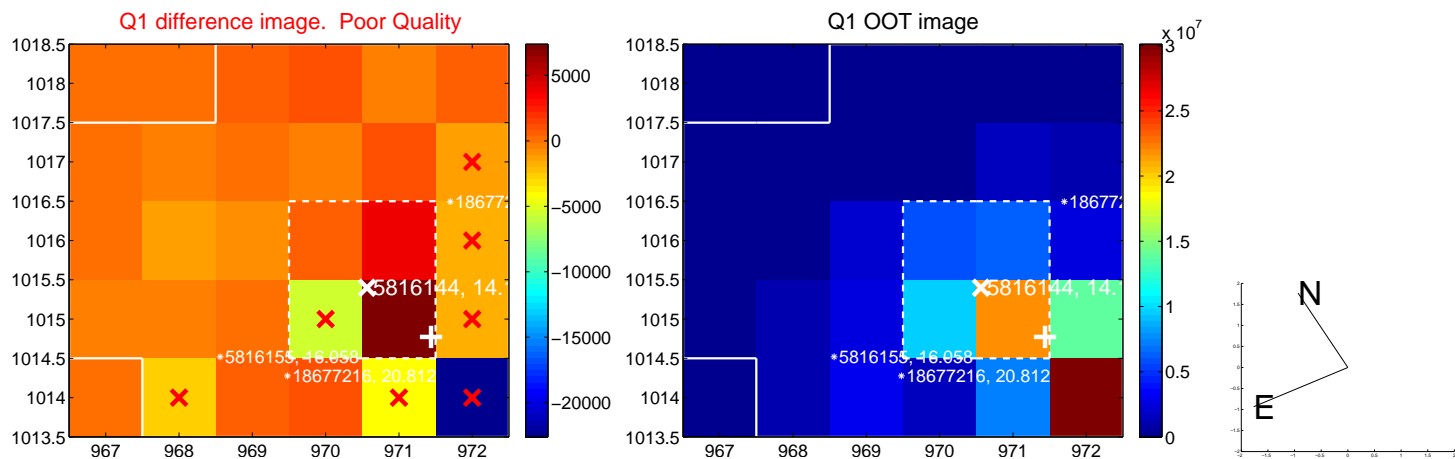


offset from photometric centroids

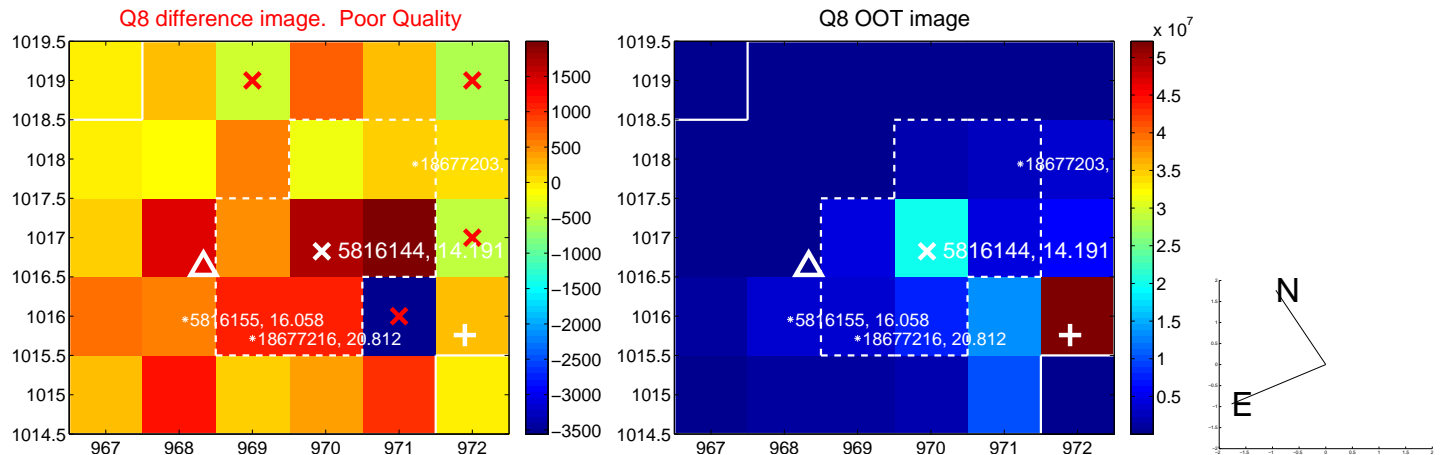
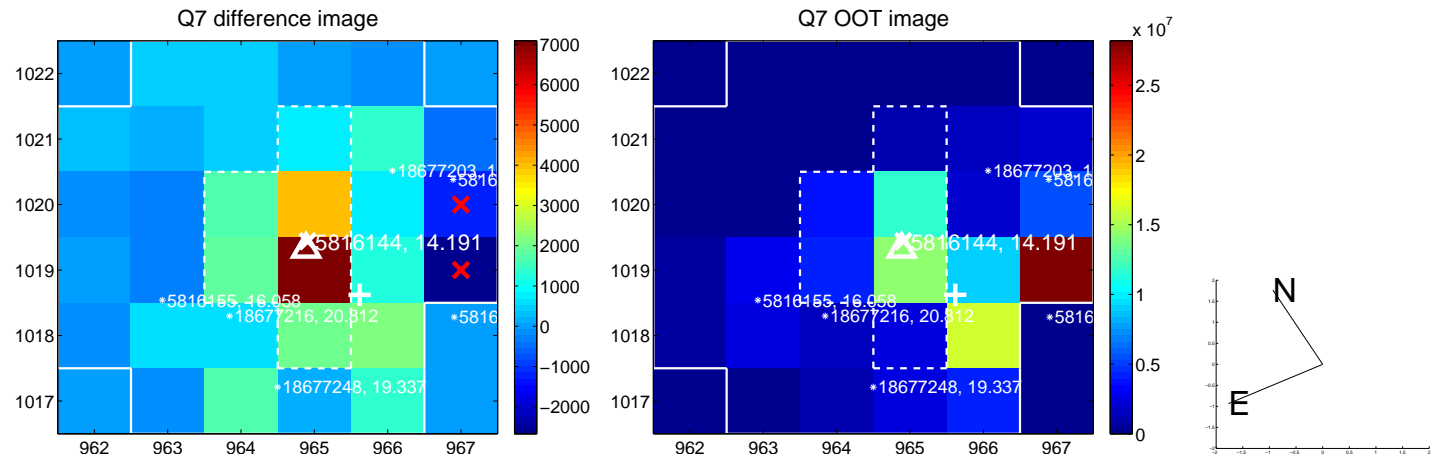
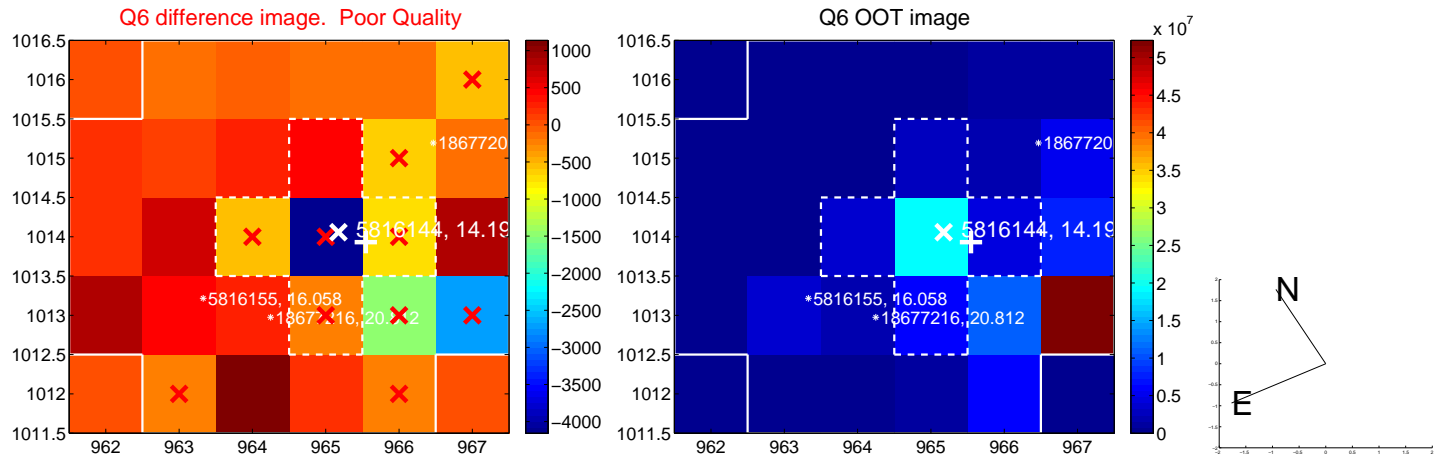
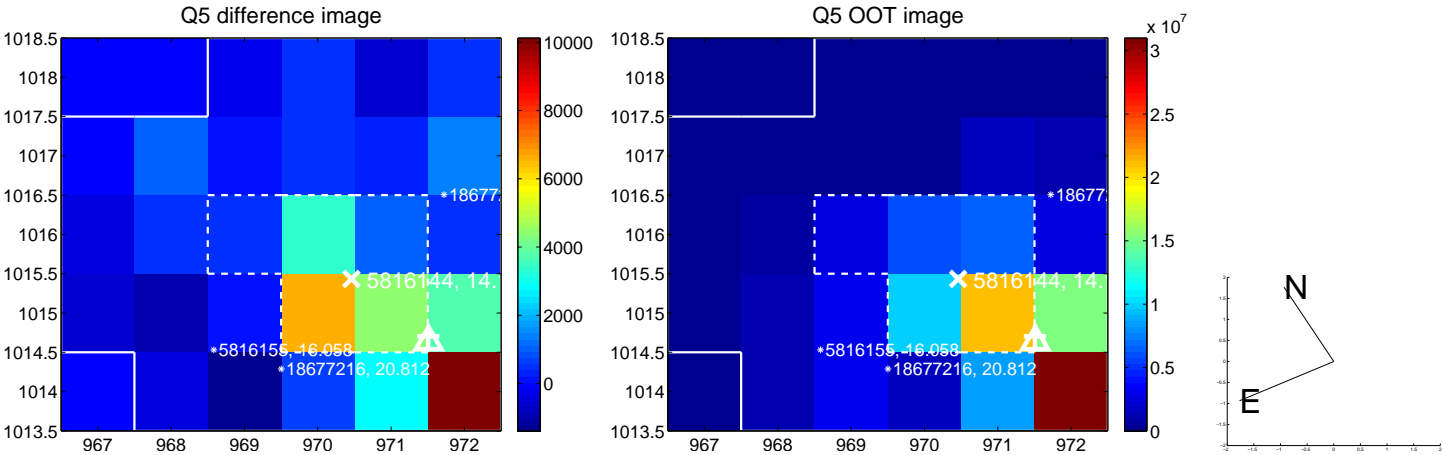


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

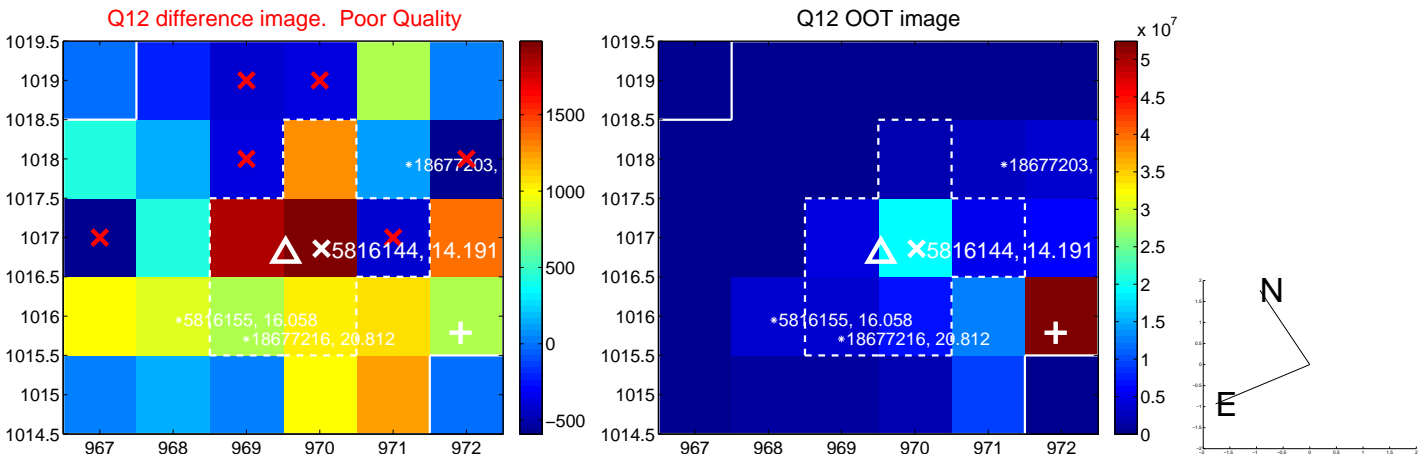
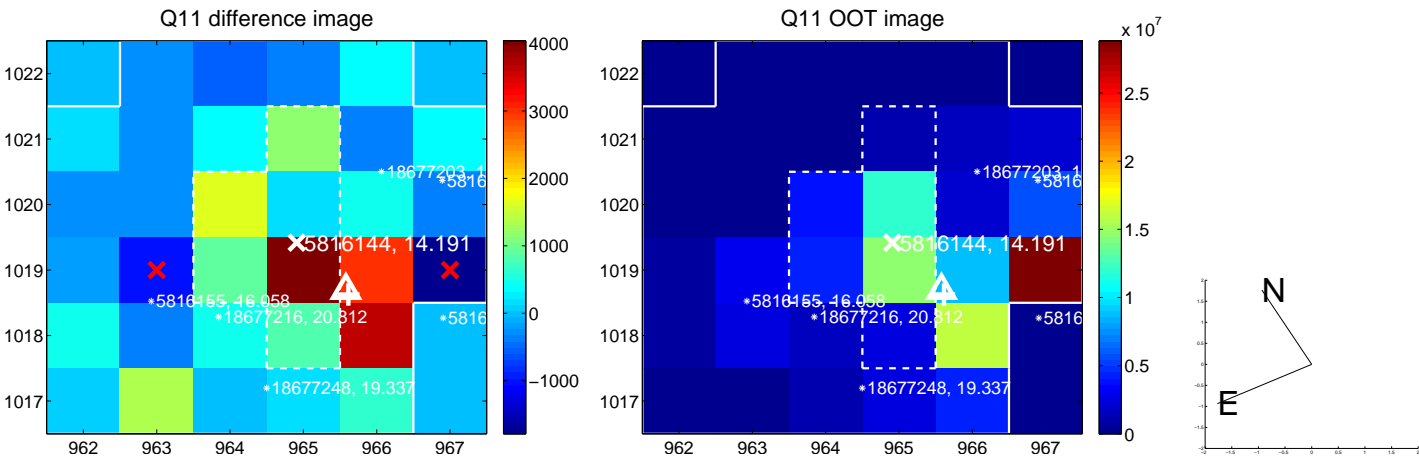
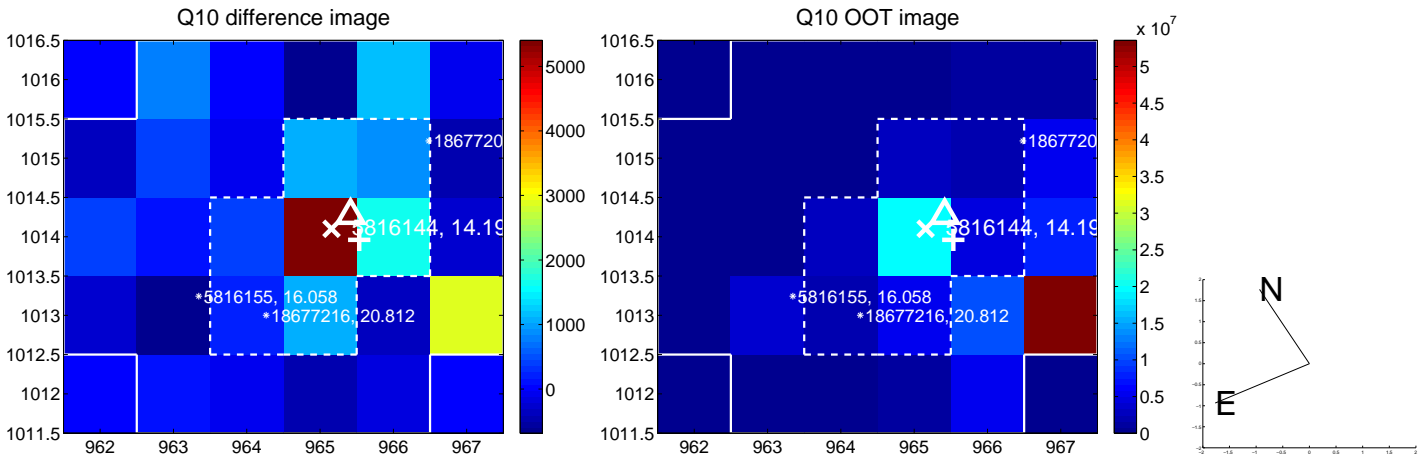
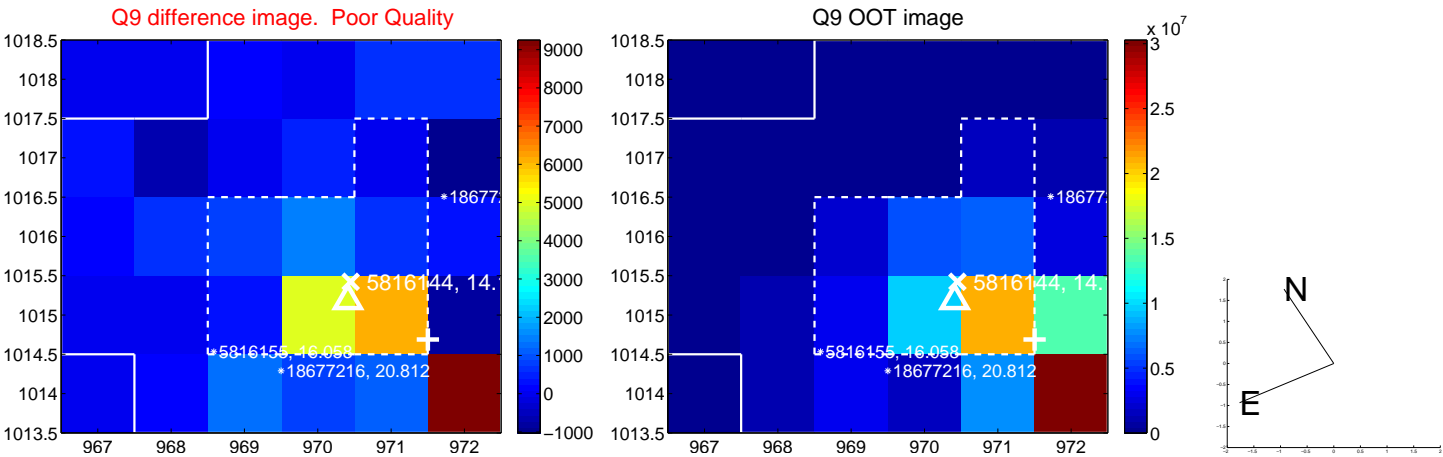
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



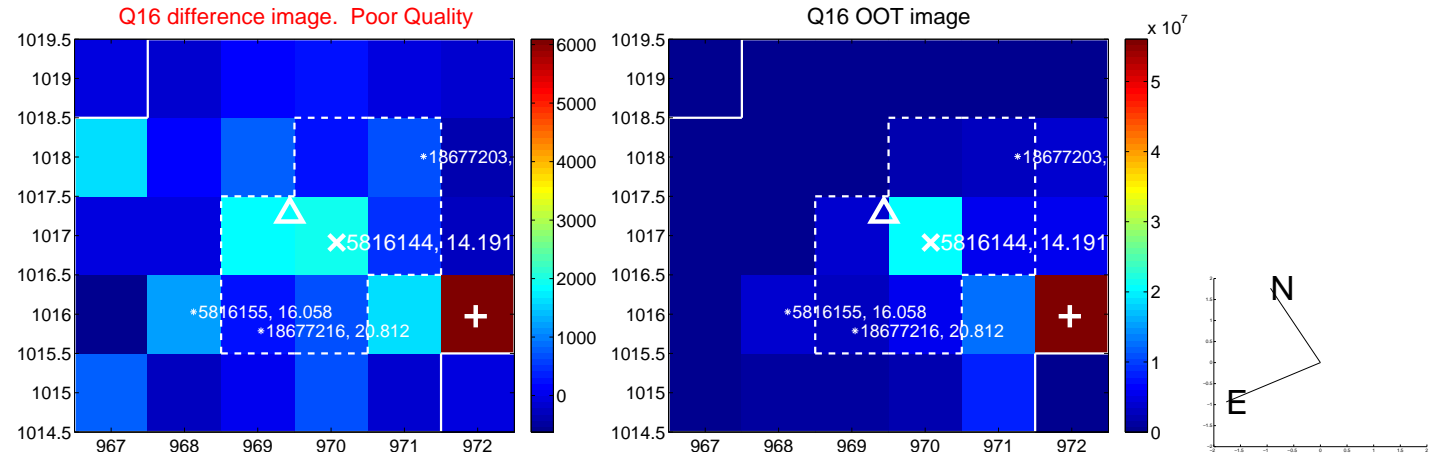
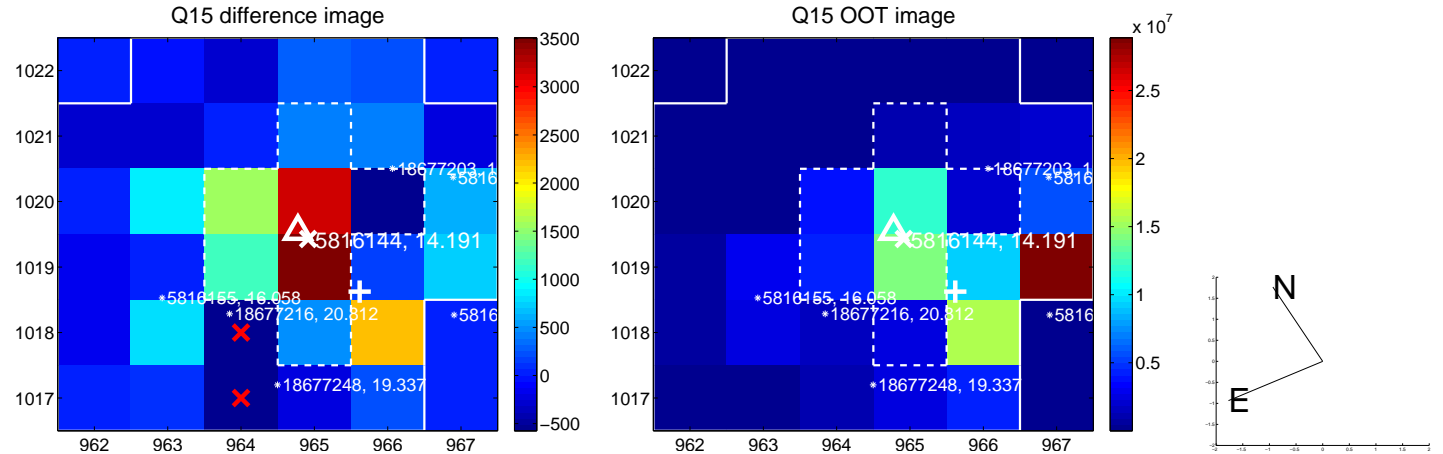
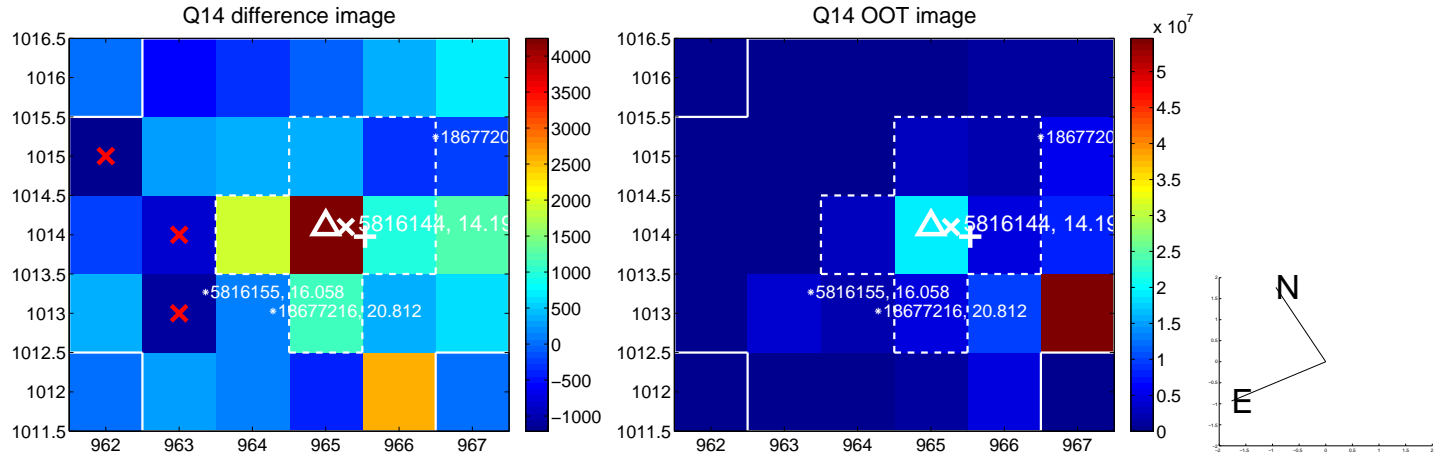
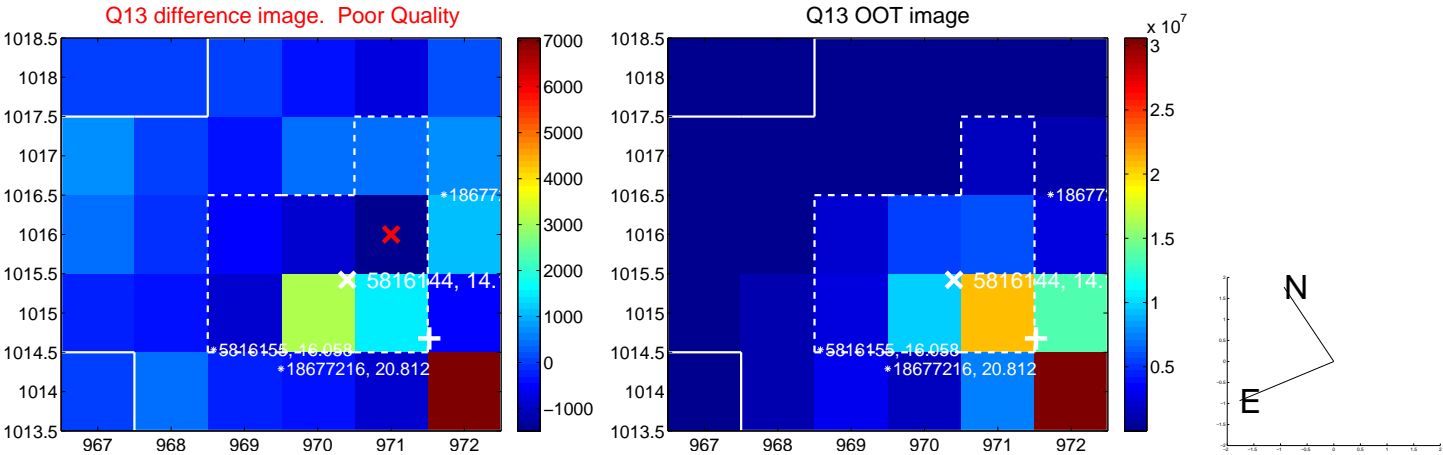
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



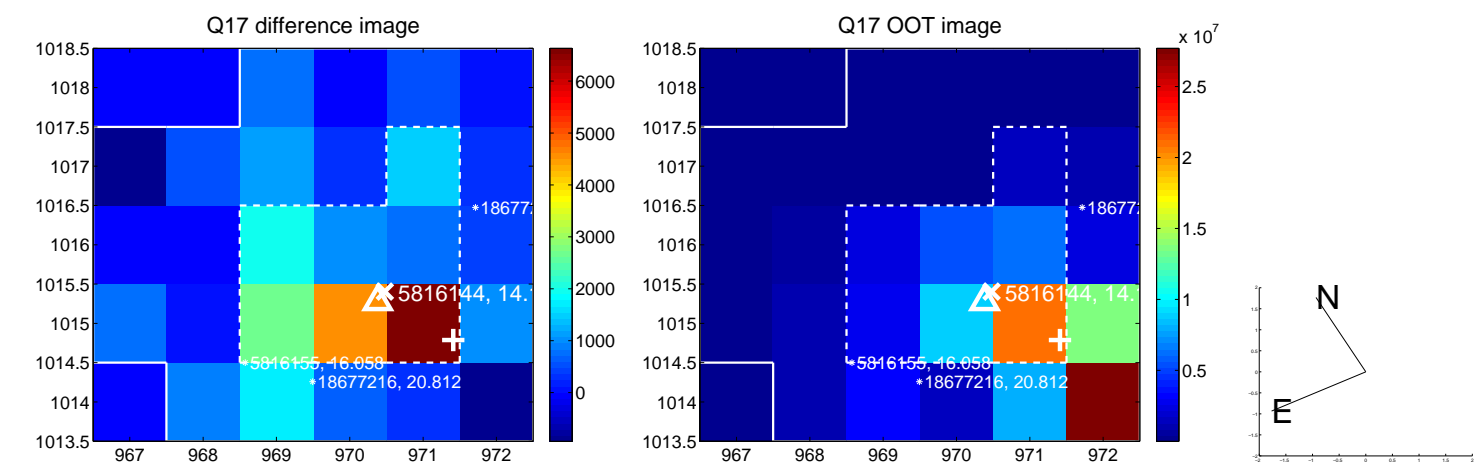
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



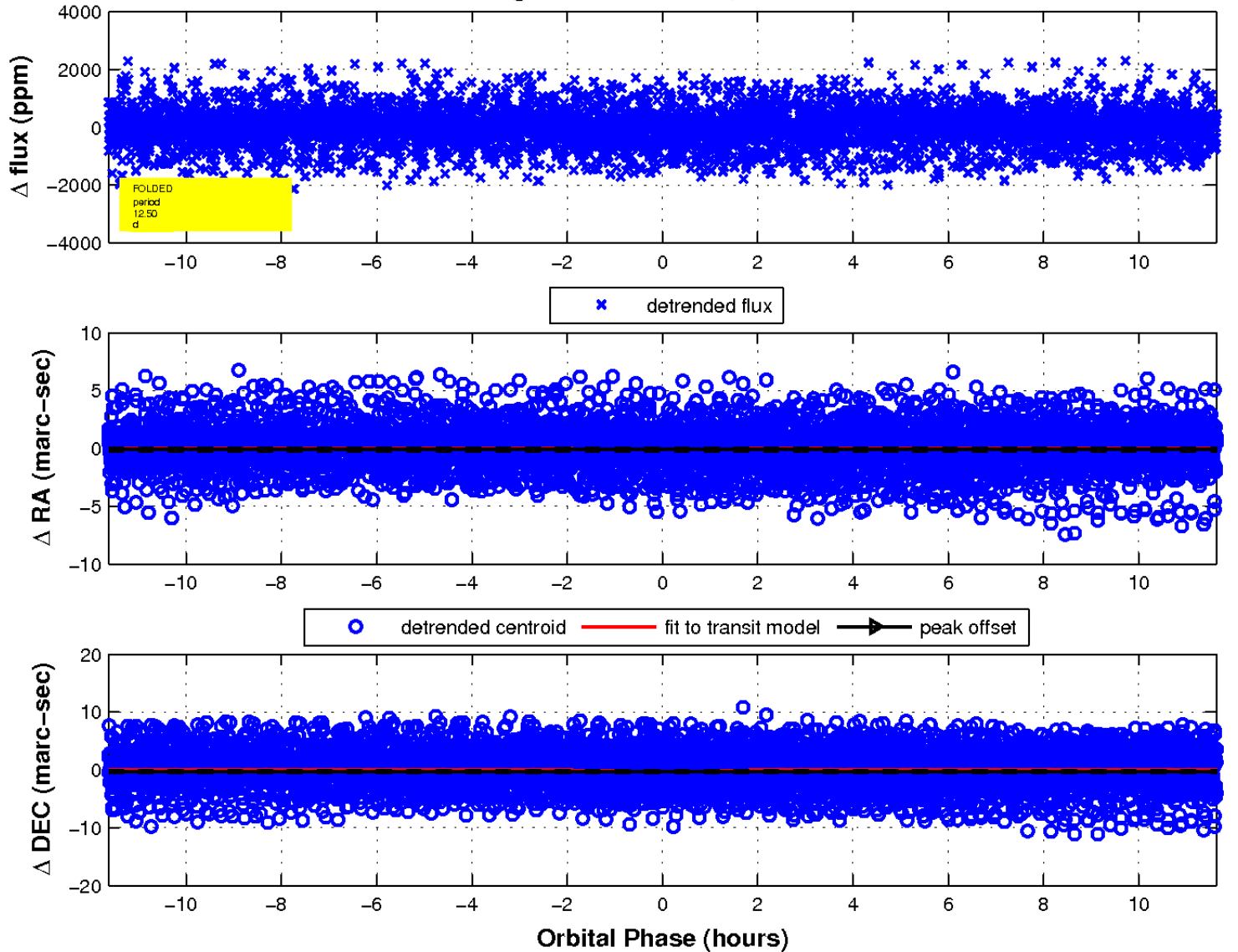
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

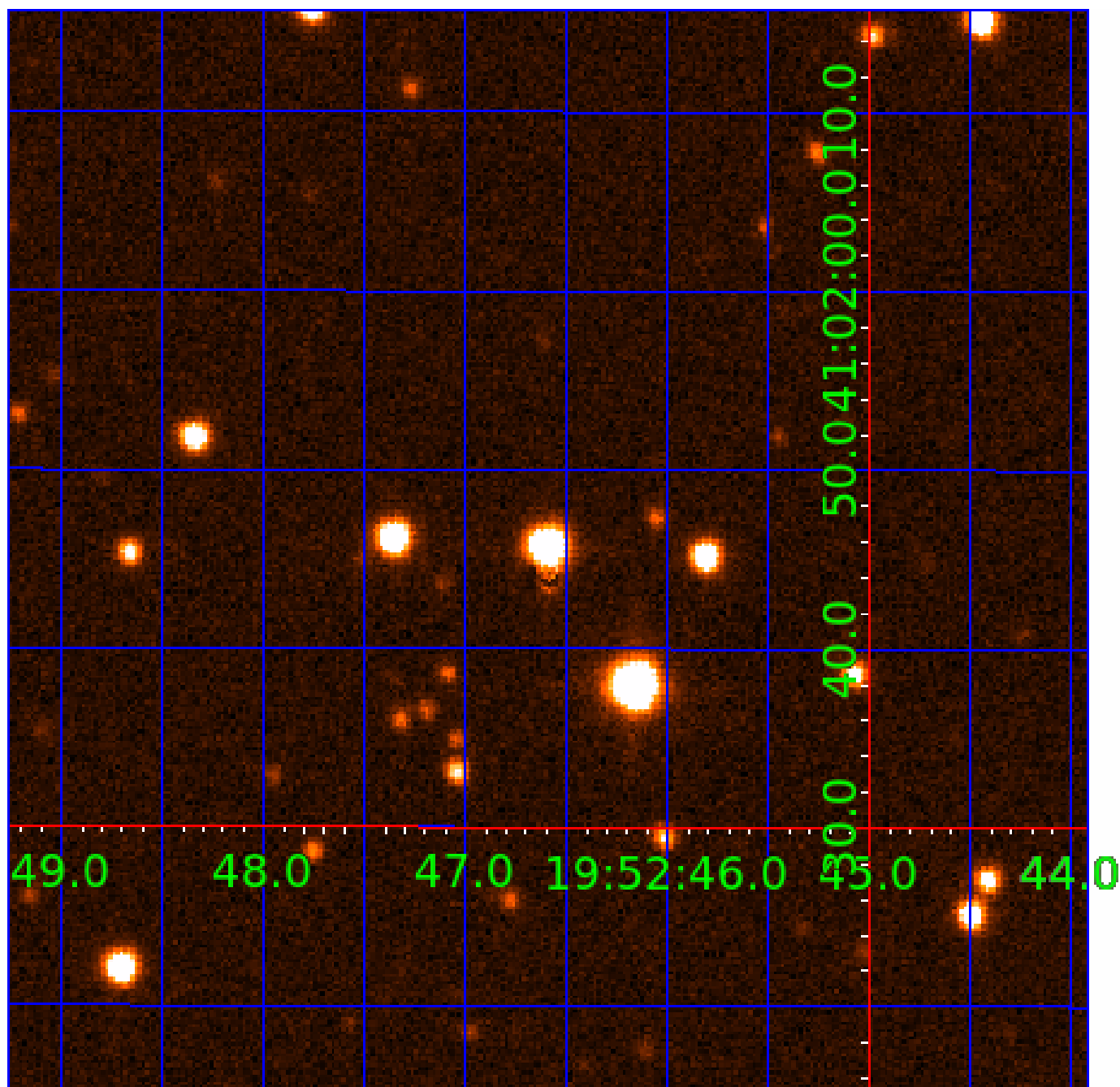


fluxWeightedCentroids, Planet 1 of 2



UKIRT Image

Declination



KIC 005816144

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})
005816144-01	OBS	6137.01	12.497055	140.896629	194.2	3.880	9.6	11.0	1.02	6174	1.57	117.52
005816144-02	OBS	6137.02	7.384731	132.162891	154.4	3.927	9.6	11.0	1.02	6174	1.49	236.99

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005816144-01	OBS	PC	1.00	0	0	0	0	CENT_KIC_POS
005816144-02	OBS	FP	0.00	0	0	1	0	CENT_KIC_POS—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.

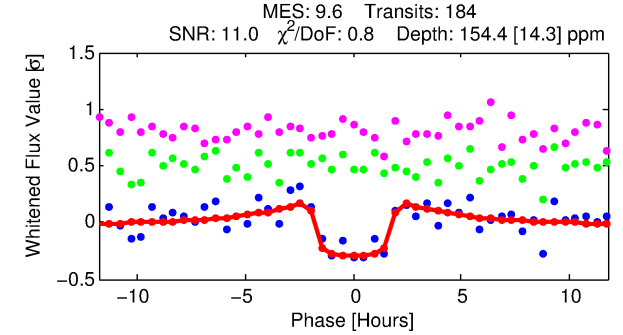
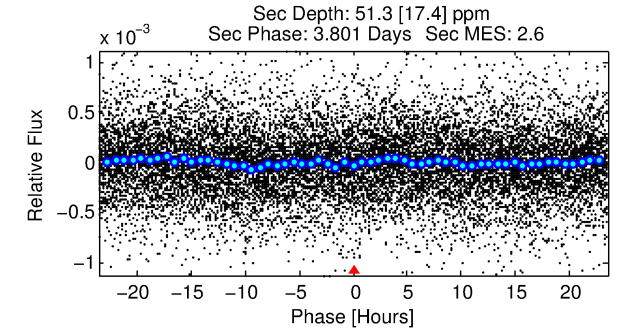
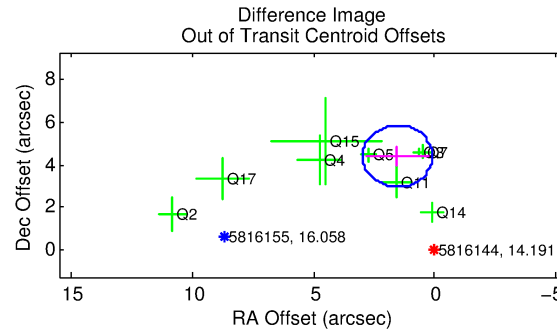
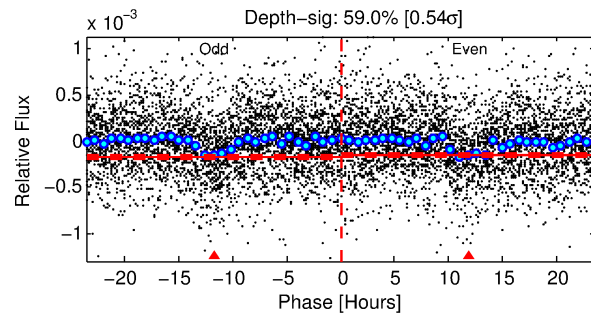
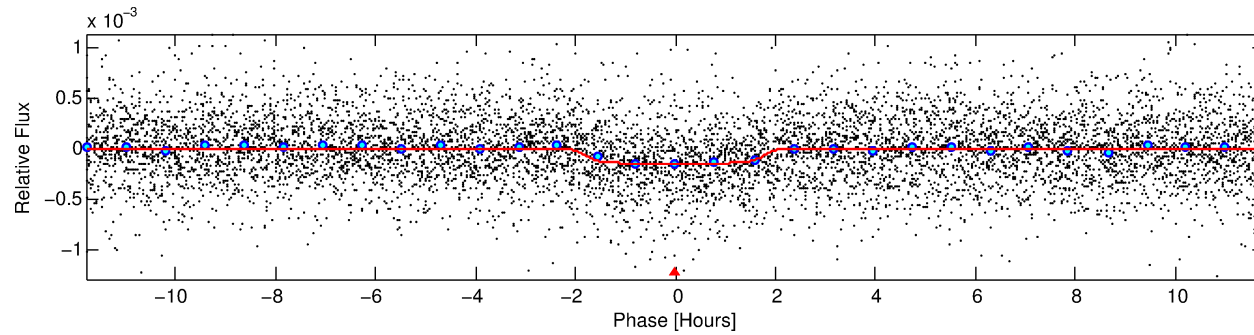
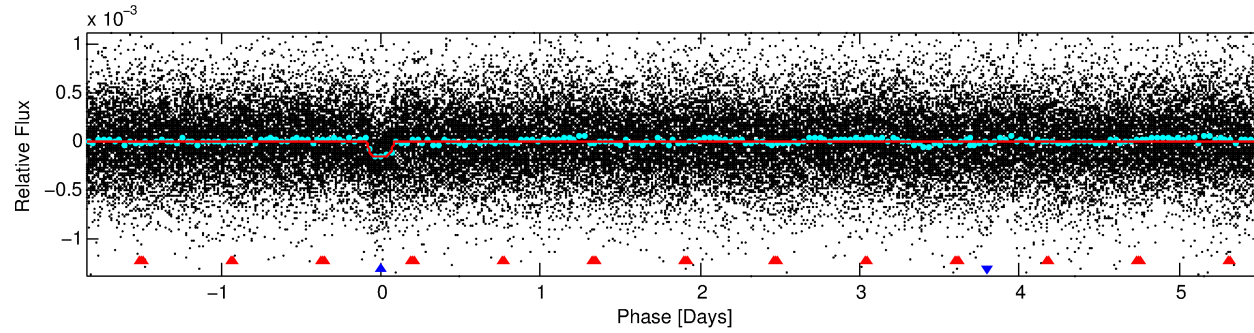
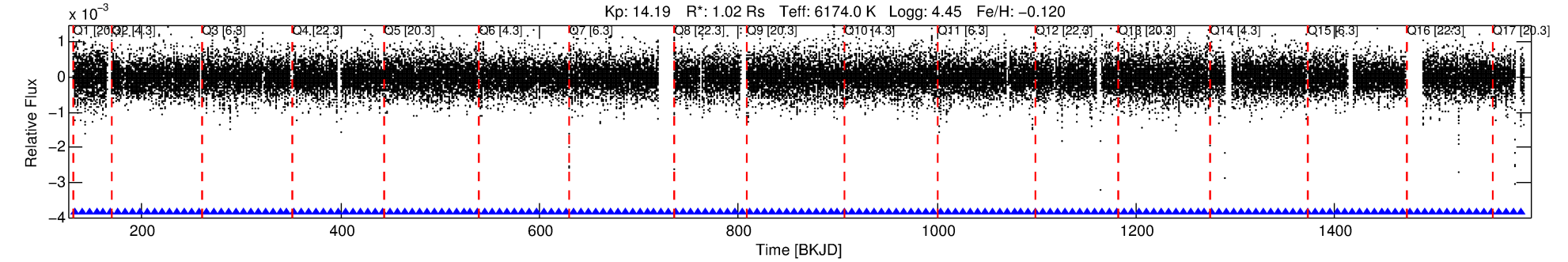
Ephemeris Match Information For 005816144-02

No Significant Match Found

DV One-Page Summary

KIC: 5816144 Candidate: 2 of 2 Period: 7.385 d

KOI: K06137.02 Corr: 0.951



DV Fit Results:

Period = 7.38473 [0.00004] d
Epoch = 132.1629 [0.0042] BKJD
Rp/R* = 0.0134 [0.0034]
a/R* = 6.76 [8.64]
b = 0.90 [0.28]
Seff = 236.99 [102.61]
Teff = 1000 [108] K
Rp = 1.49 [0.63] Re
a = 0.0757 [0.0216] AU
Ag = 72.71 [53.33] [1.34 σ]
Teffp = 4517 [701] K [4.96 σ]

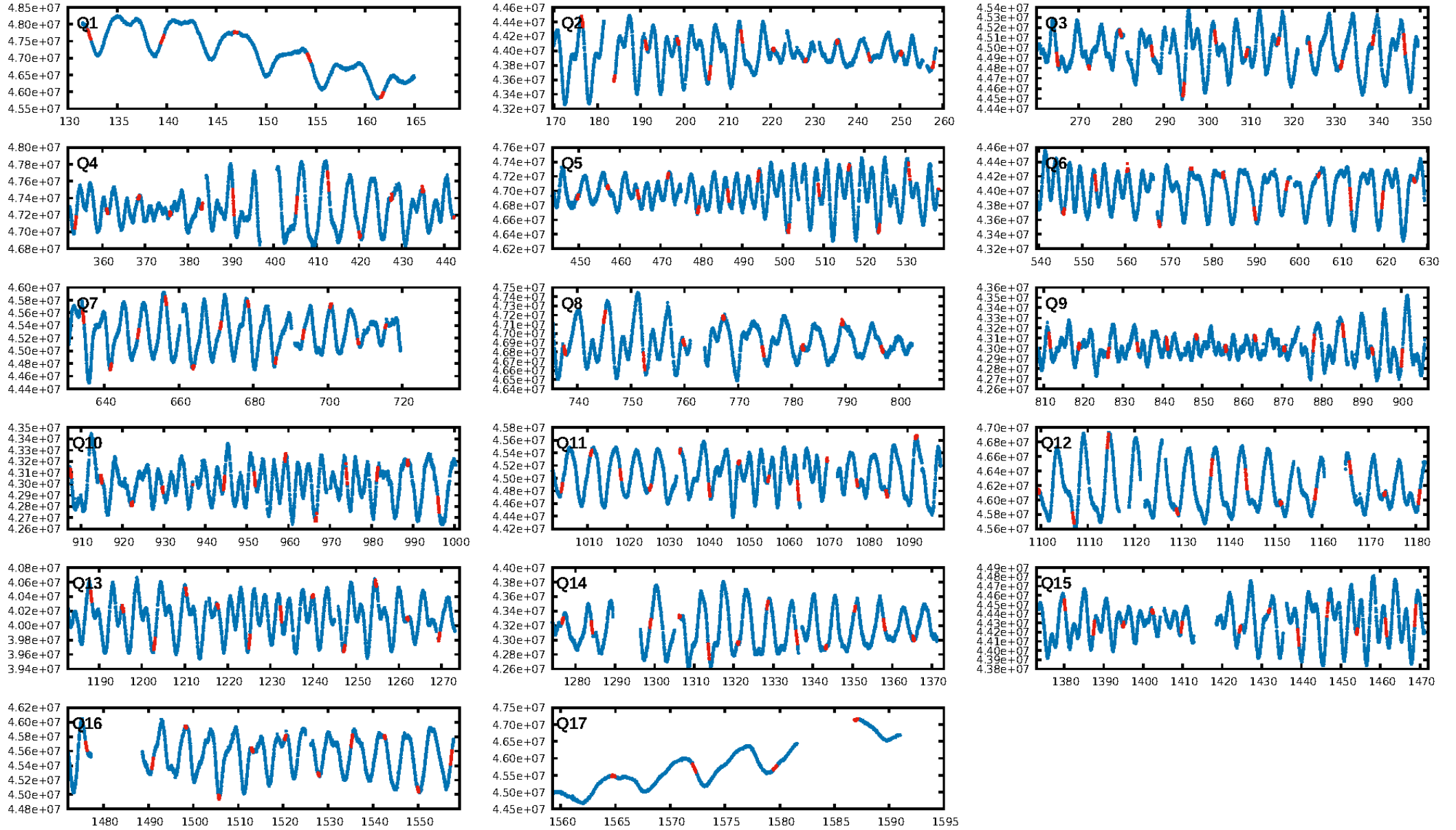
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [22.22 σ]
ModelChiSquare2-sig: 100.0%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 3.82e-21
RollingBand-fgt: 1.00 [175/175]
GhostDiagnostic-chr: 0.07836
Centroid-sig: 0.2%
Centroid-so: 2.240 arcsec [2.95 σ]
OotOffset-rm: 4.655 arcsec [9.71 σ]
KicOffset-rm: 0.331 arcsec [0.56 σ]
OotOffset-st: 2/4/1/2 [9]
KicOffset-st: 2/4/1/2 [9]
DiffImageQuality-fgm: 0.44 [4/9]
DiffImageOverlap-fno: 1.00 [17/17]

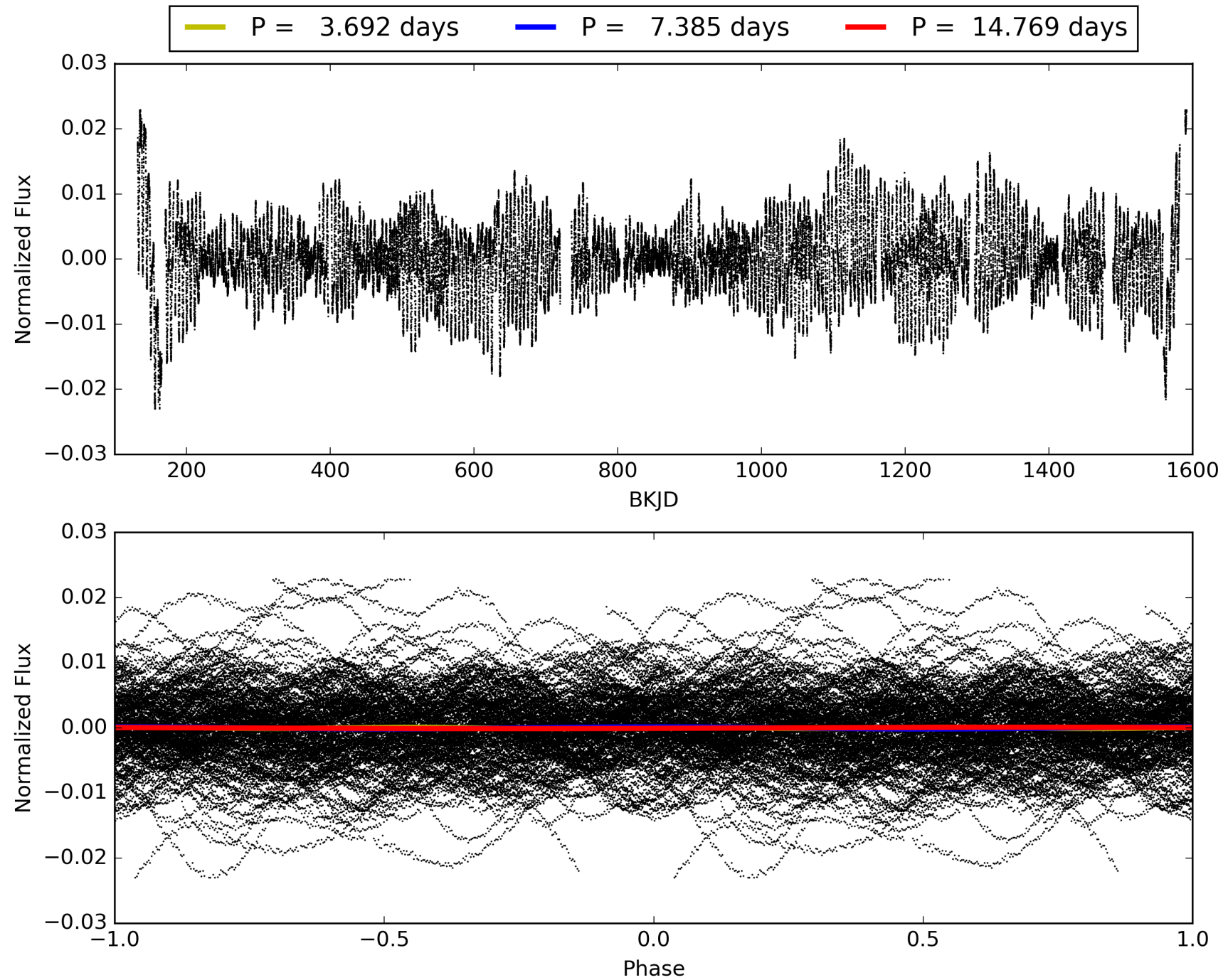
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 12:59:27 Z

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

TCE 005816144-02, PDC Light Curves

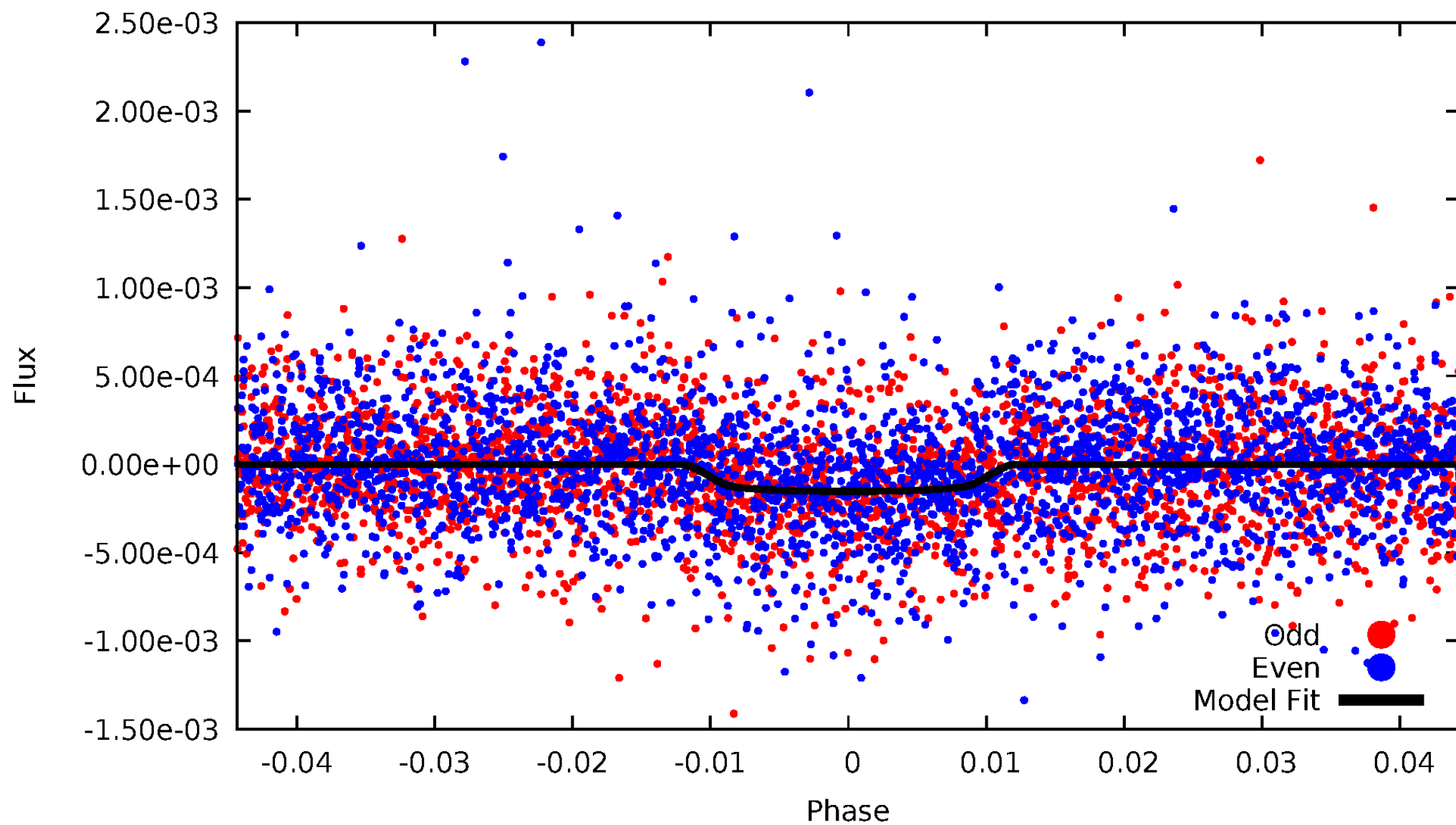


TCE 005816144-02



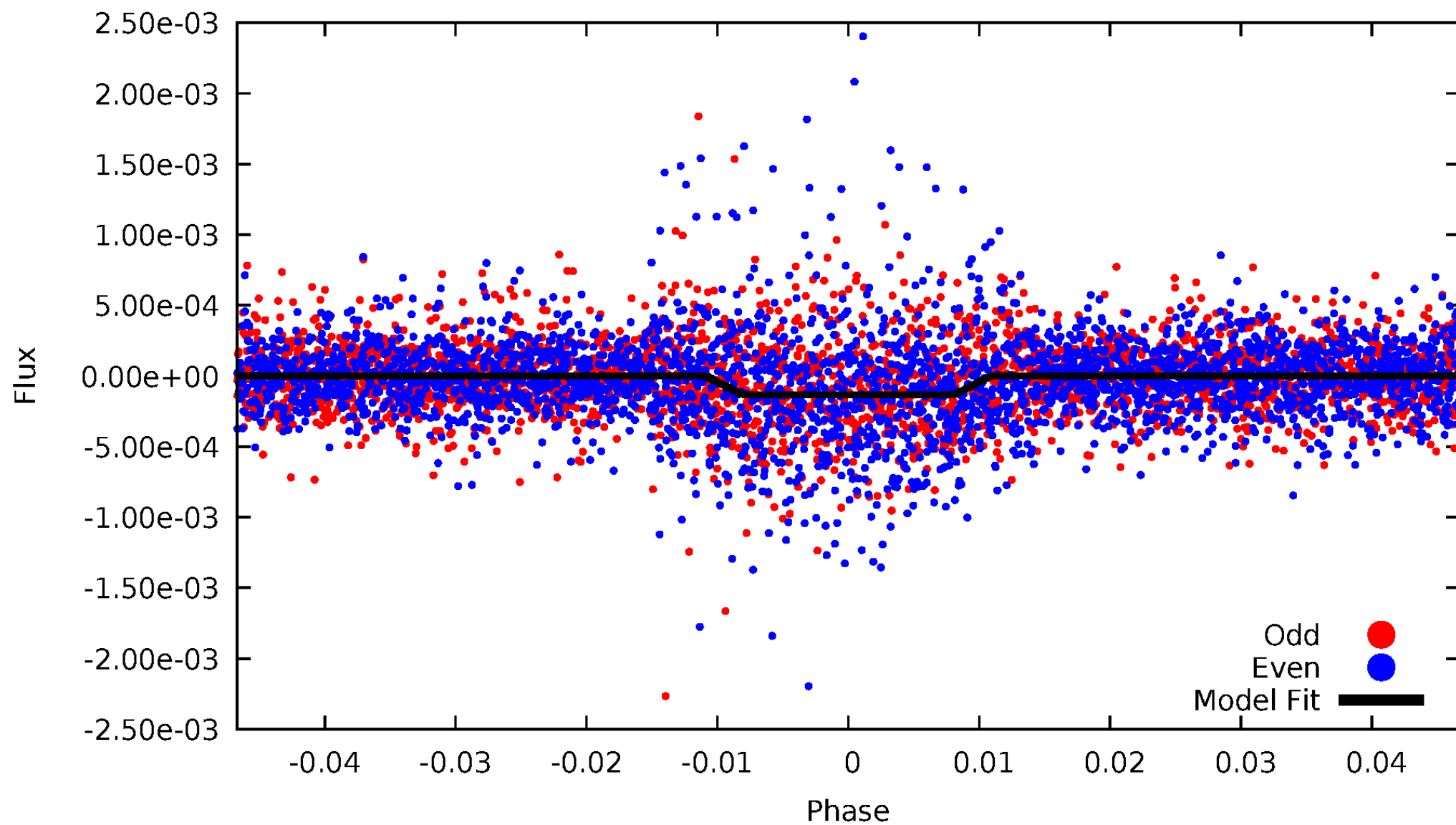
DV Odd/Even

TCE 005816144-02



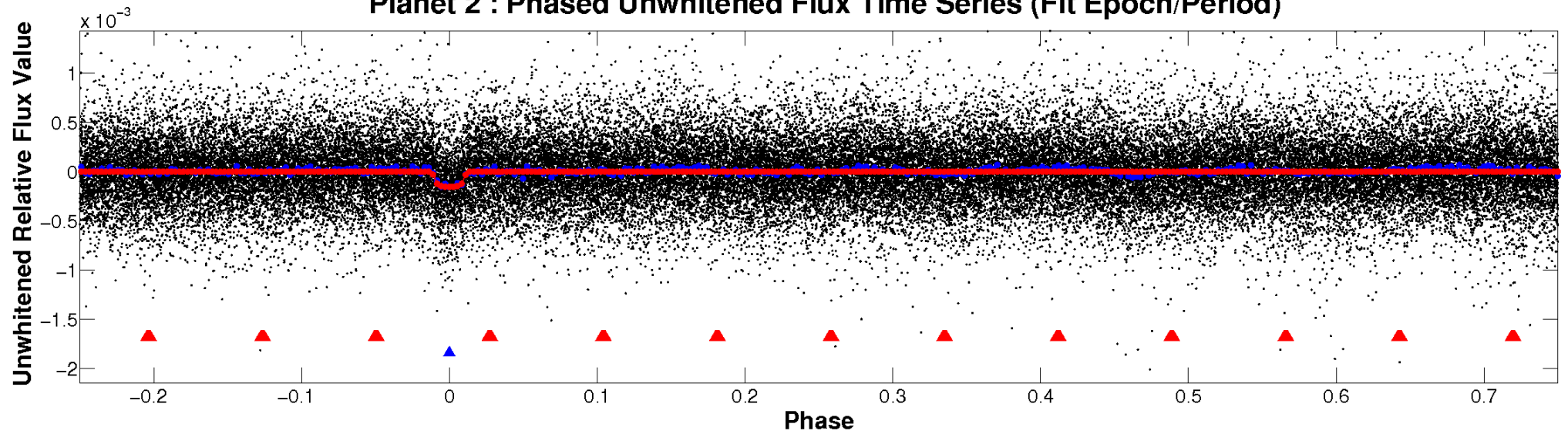
ALT Odd/Even

TCE 005816144-02

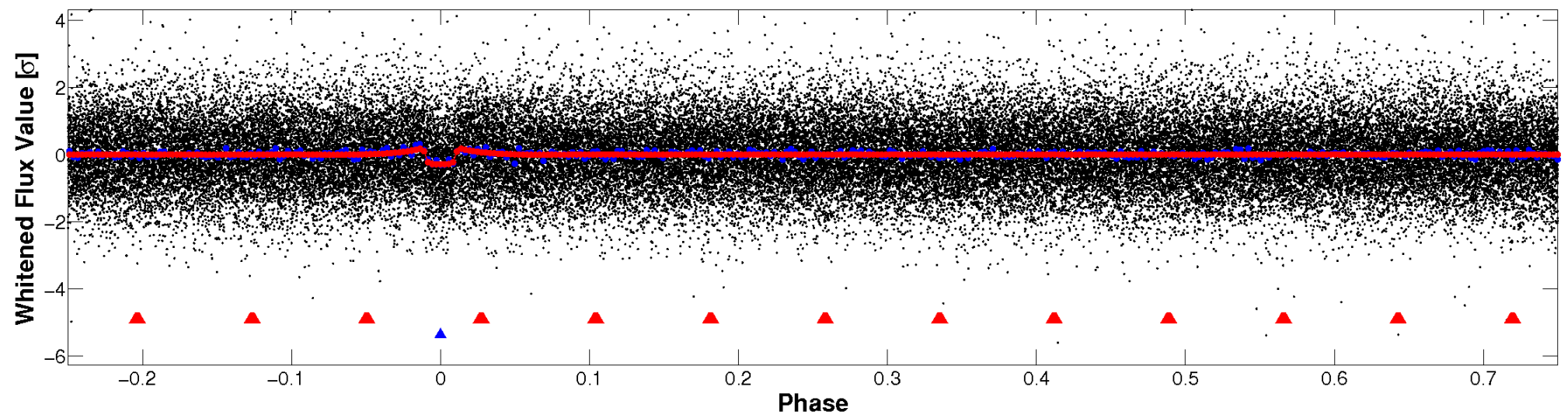


Non-Whitened Vs. Whitened Light Curve

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

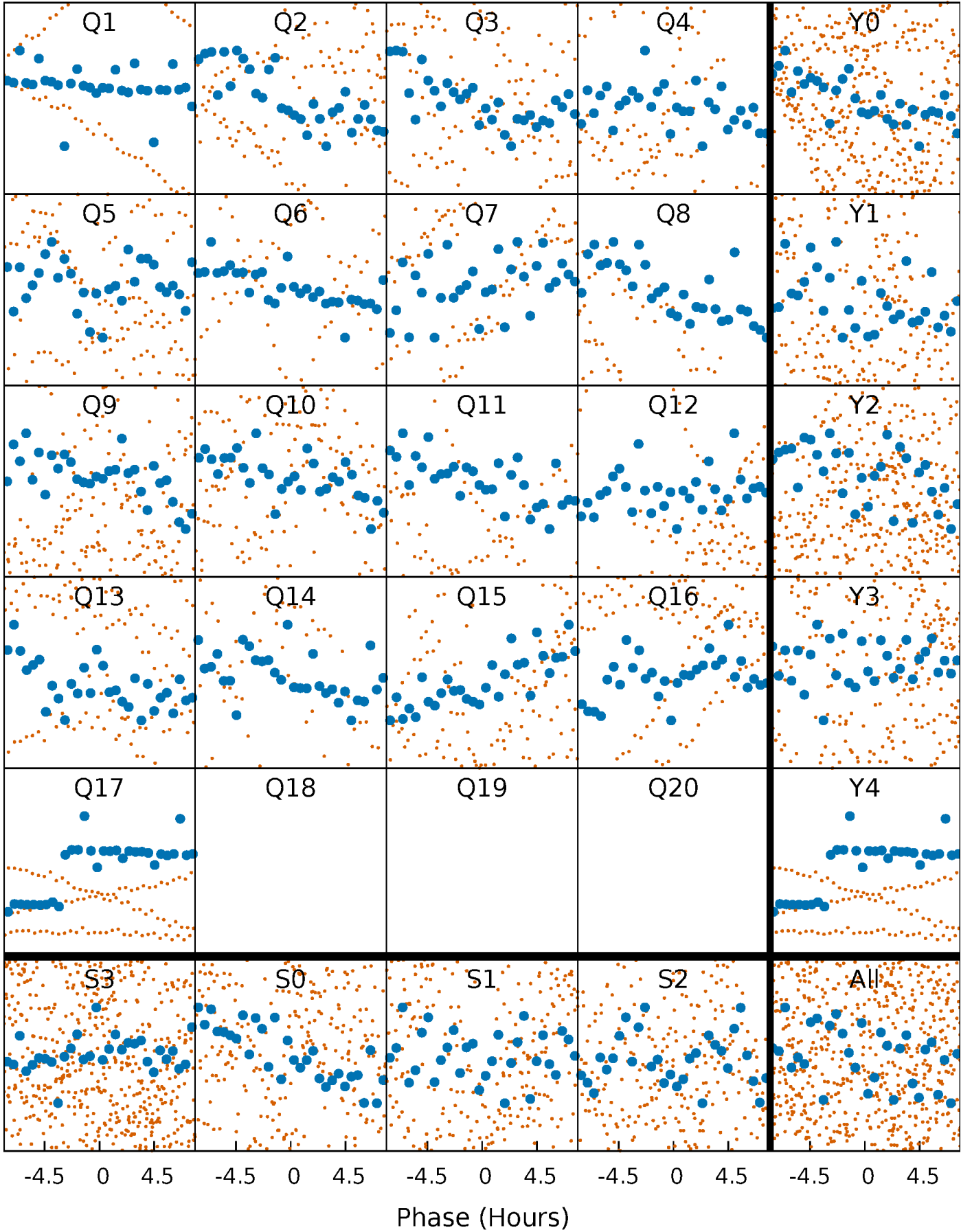


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



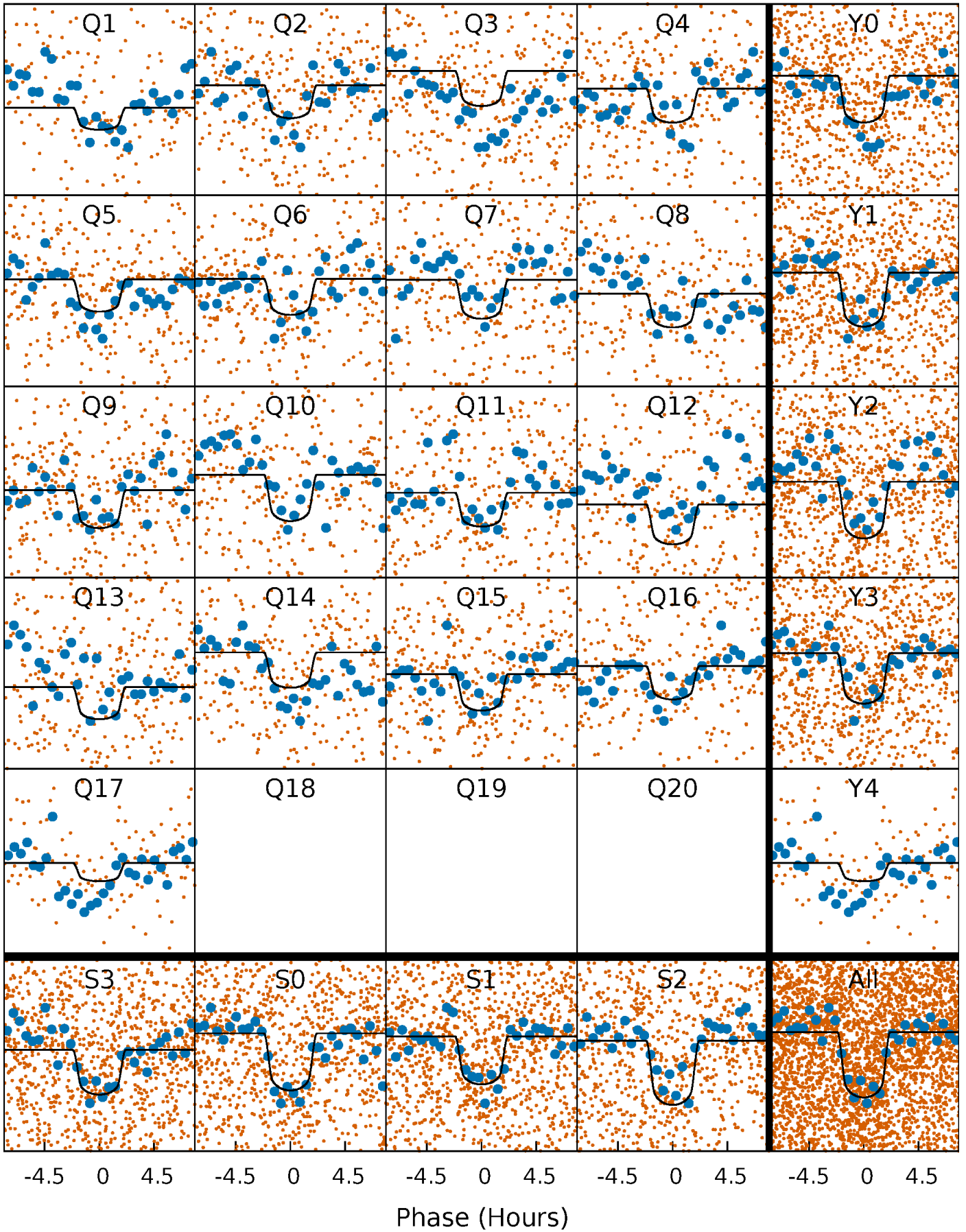
PDC Quarter-Phased Transit Curves

TCE 005816144-02 P= 7.384731 Days $T_0=132.162891$ (BKJD)



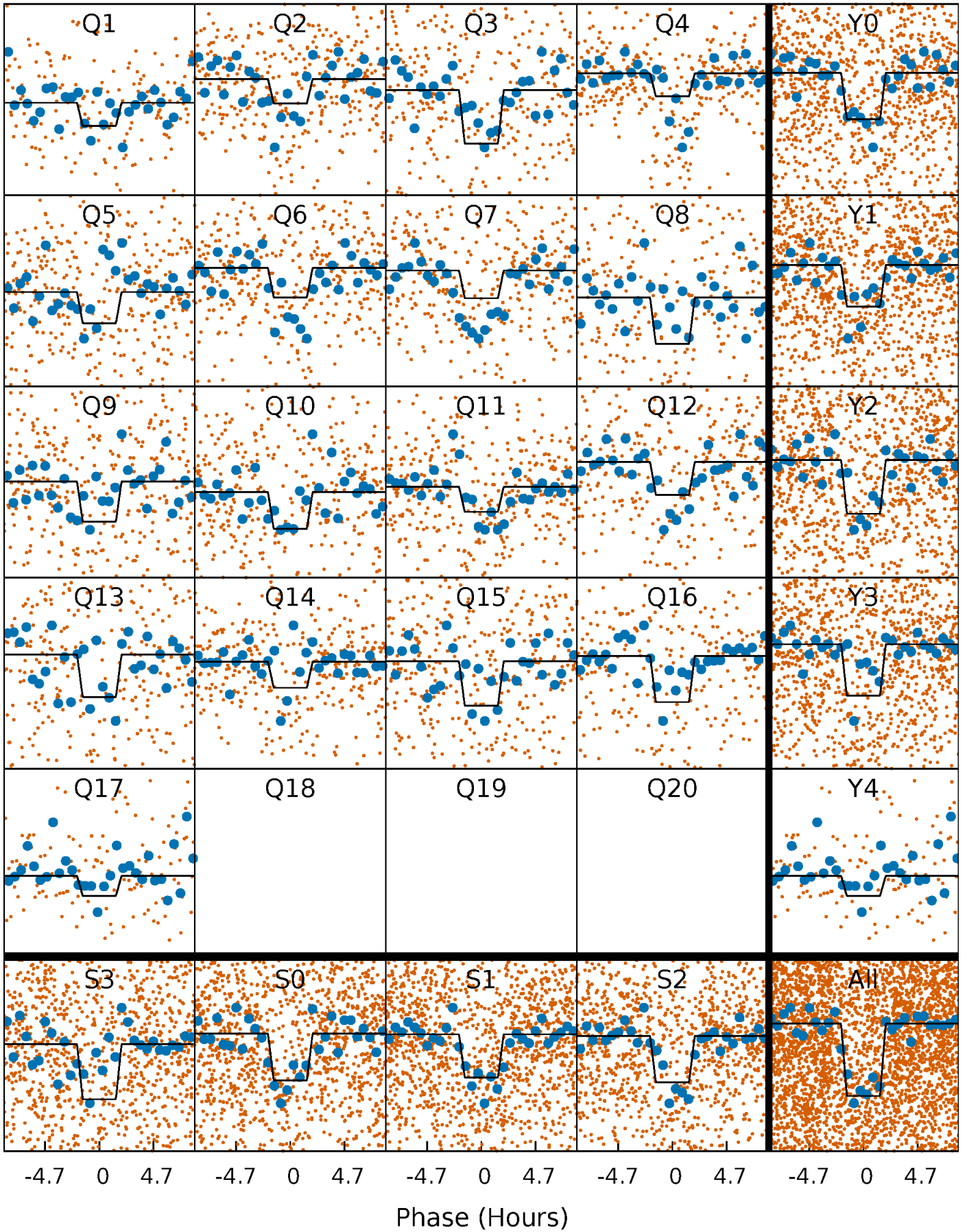
DV Quarter-Phased Transit Curves

TCE 005816144-02 P= 7.384731 Days $T_0=132.162891$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

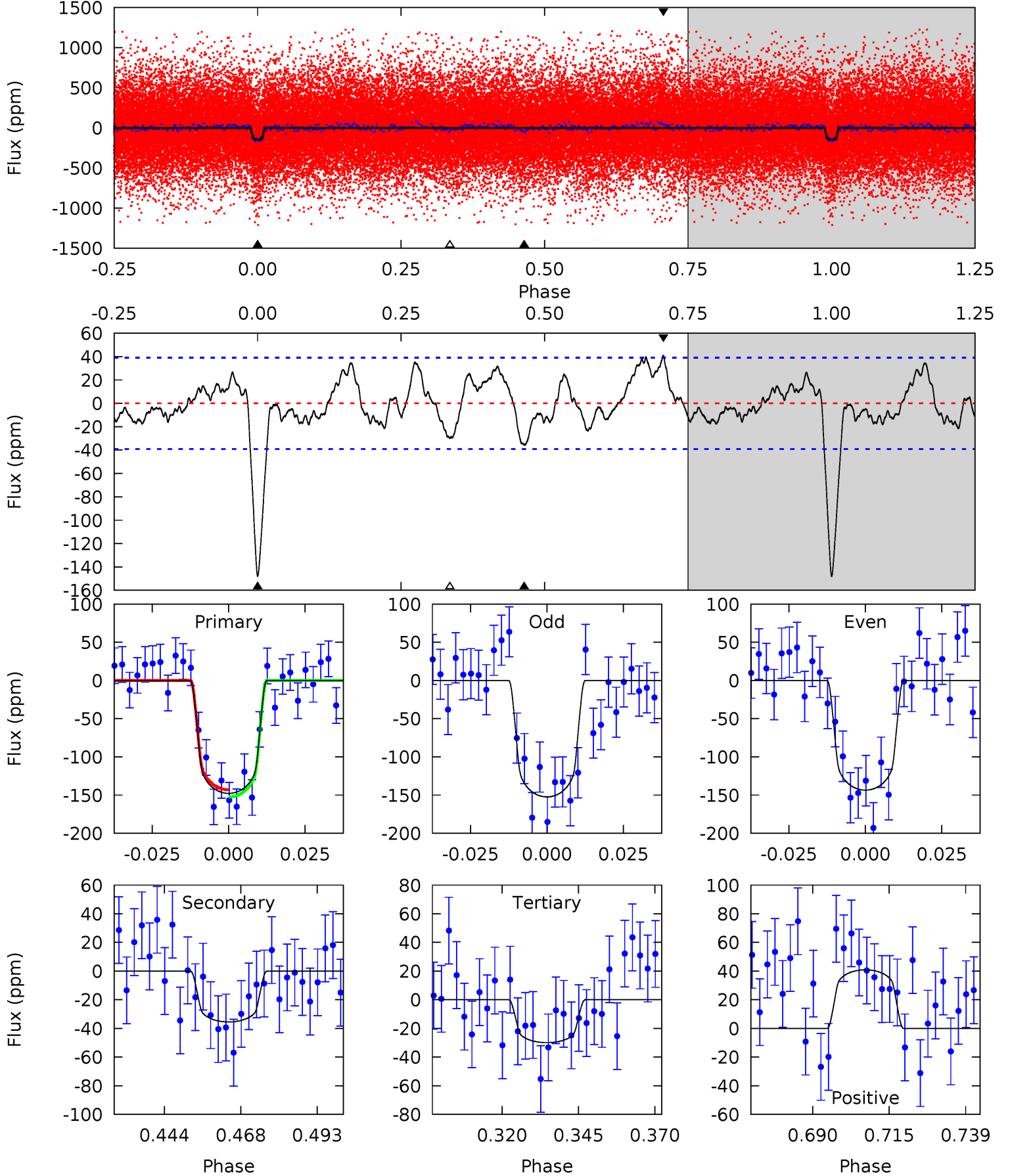
TCE 005816144-02 P= 7.384676 Days $T_0=132.168569$ (BKJD)



DV Model-Shift Uniqueness Test

005816144-02, P = 7.384731 Days, E = 124.778160 Days

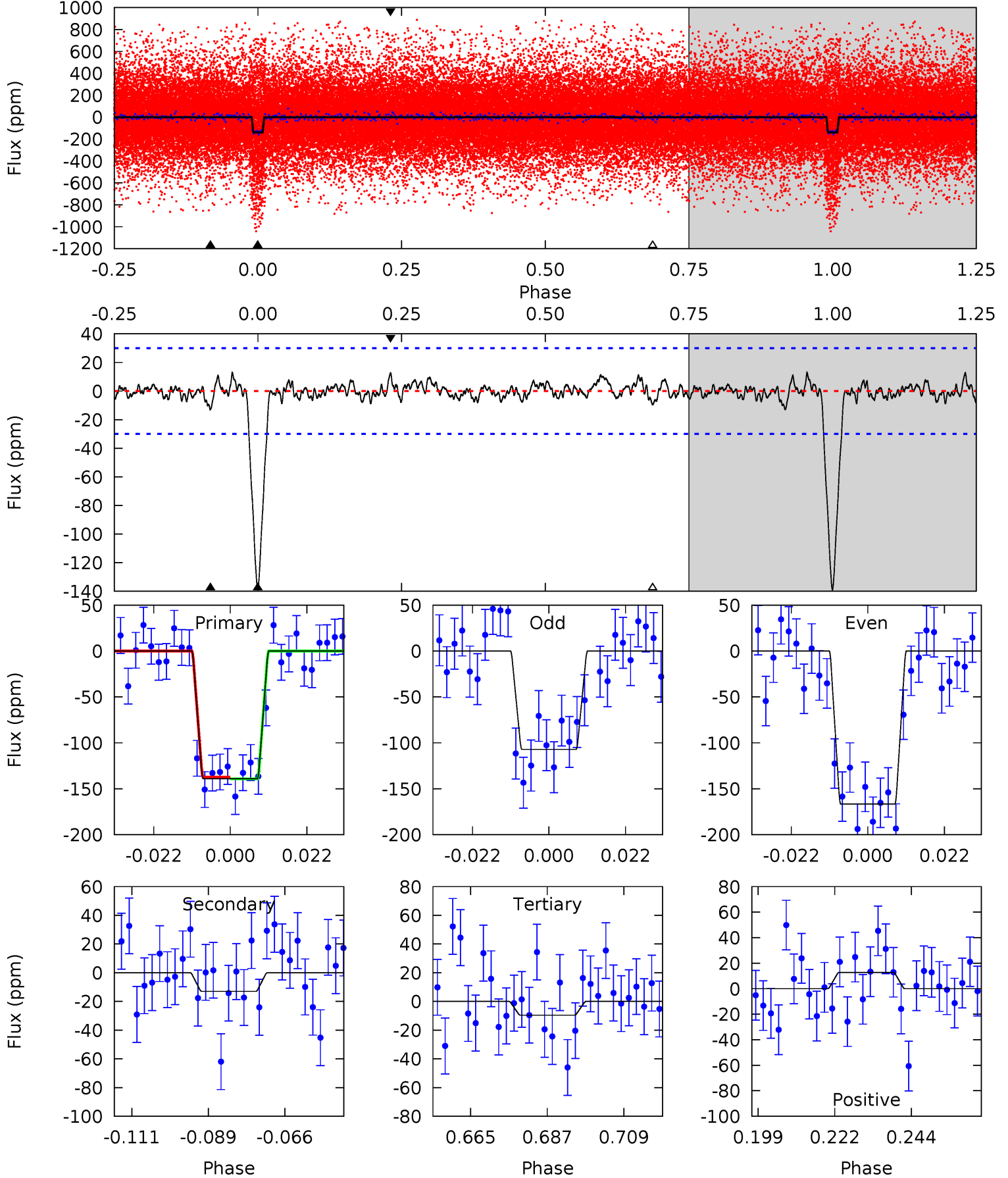
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
18.3	4.40	3.71	5.07	4.85	2.25	2.00	14.6	13.3	0.69	-0.67	0.55	1.03	0.22	0.59



Alt Model-Shift Uniqueness Test

005816144-02, P = 7.384676 Days, E = 124.783893 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
22.6	2.10	1.55	2.08	4.87	2.29	0.66	21.0	20.5	0.55	0.02	4.83	1.00	0.09	0.16



Stellar Parameters For KIC 005816144

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	6174^{+185}_{-203}	$4.445^{+0.070}_{-0.224}$	$-0.120^{+0.250}_{-0.300}$	$1.021^{+0.349}_{-0.116}$	$1.055^{+0.155}_{-0.127}$	$1.394^{+0.431}_{-0.780}$
	+3%/-3%	+2%/-5%	+208%/-250%	+34%/-11%	+15%/-12%	+31%/-56%
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 005816144-02 / KOI 6137.02

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-35 ± 8	$1.53^{+0.45}_{-0.40}$	1425^{+121}_{-77}	4333^{+610}_{-393}	44^{+43}_{-19}
Alt.	-13 ± 6	$1.34^{+0.50}_{-0.41}$	1425^{+116}_{-73}	3773^{+617}_{-501}	21^{+29}_{-13}

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

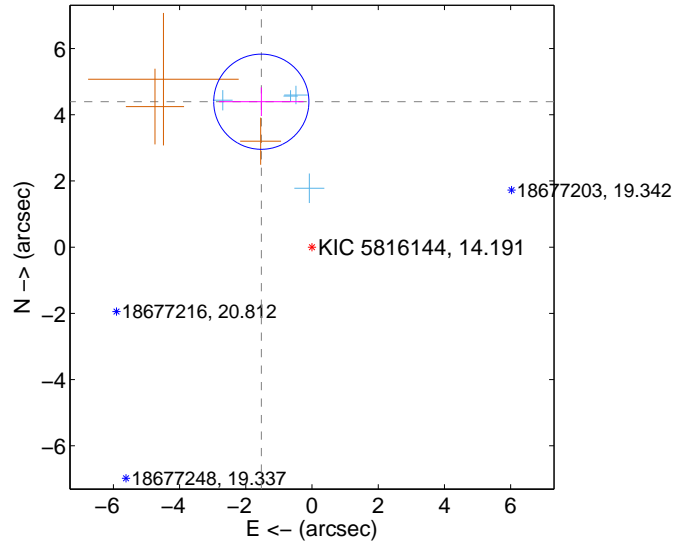
Supplemental centroid analysis for 005816144-02. Kepler magnitude: 14.19. Transit SNR 10.98

There are 4 quarters with good PRF difference image offsets

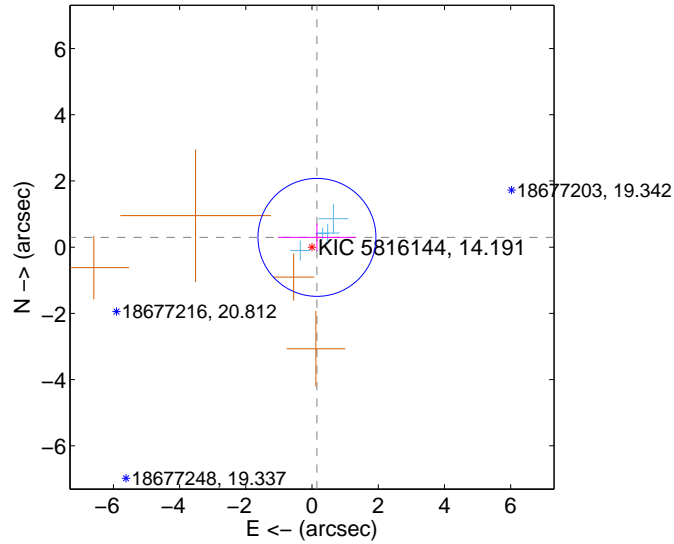
The OOT PRF centroid is offset from the target star catalog position by about 4.48 arcsec so the offset from difference PRF-fit to OOT-fit may be invalid.

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	4.655 ± 0.479	9.71	1.533 ± 1.277	4.395 ± 0.433
PRF-fit source offset from KIC position	0.331 ± 0.594	0.56	-0.149 ± 1.172	0.296 ± 0.412
photometric centroid source offset	2.24 ± 0.76	2.95	-0.39 ± 0.71	-2.20 ± 0.76

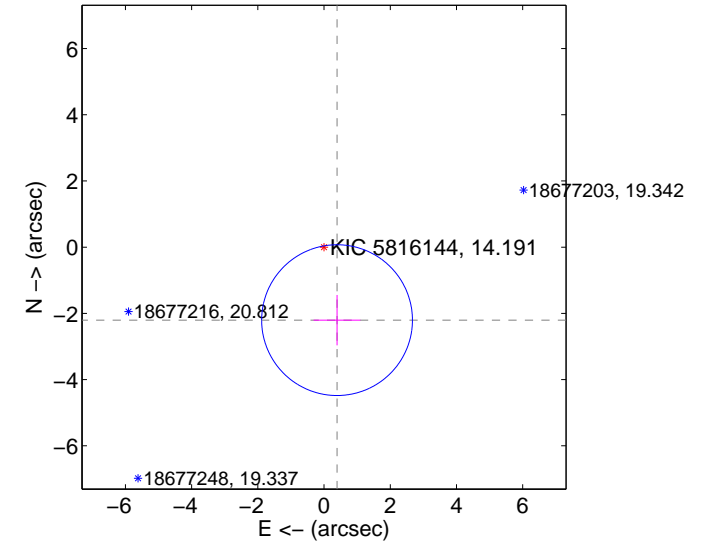
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

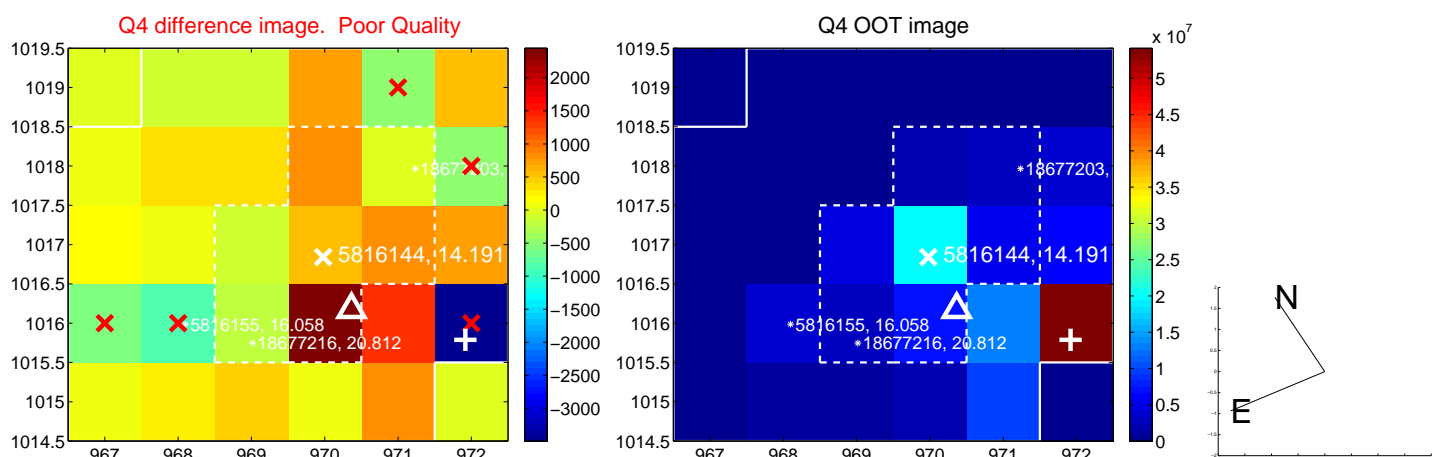
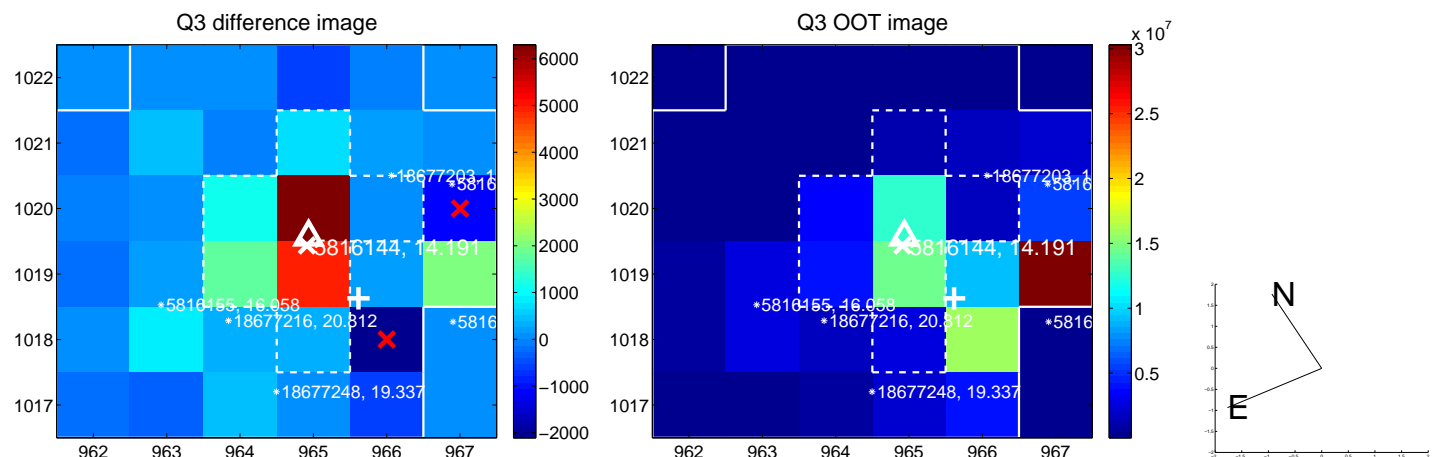
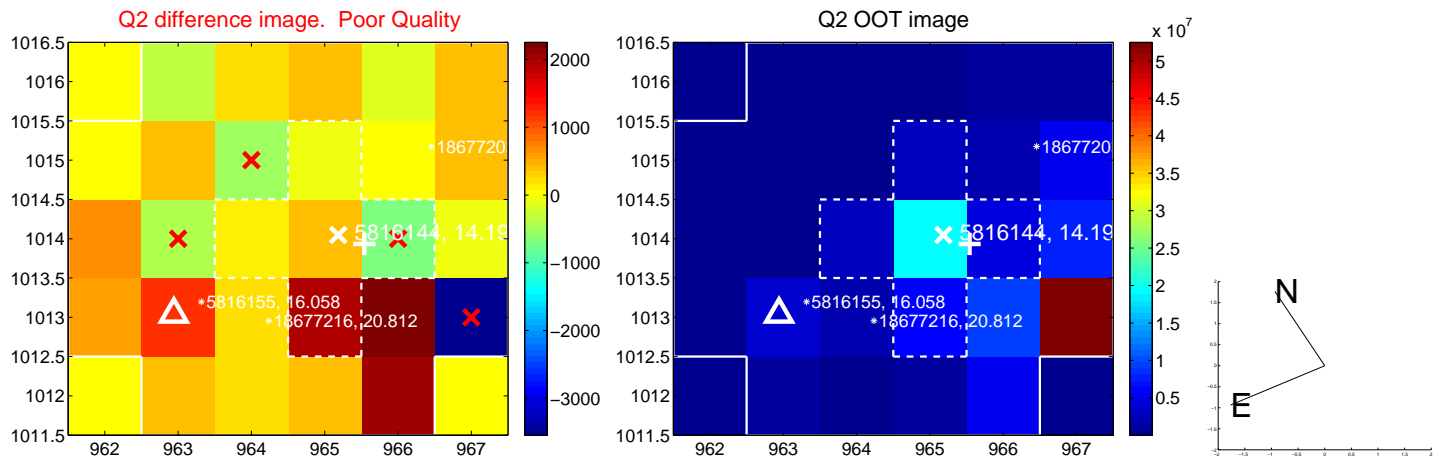
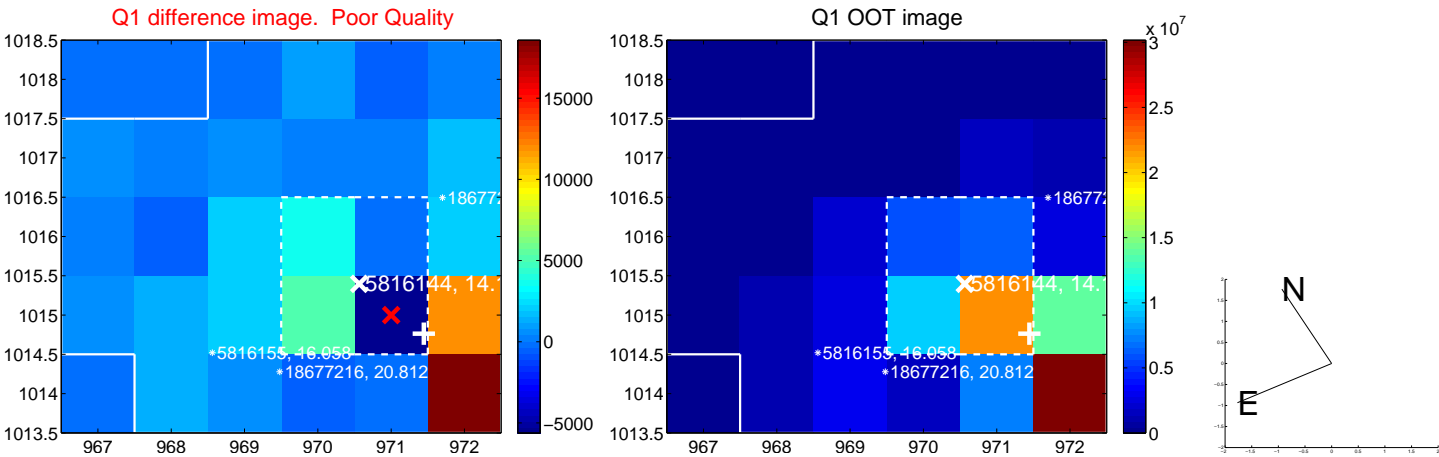


offset from photometric centroids

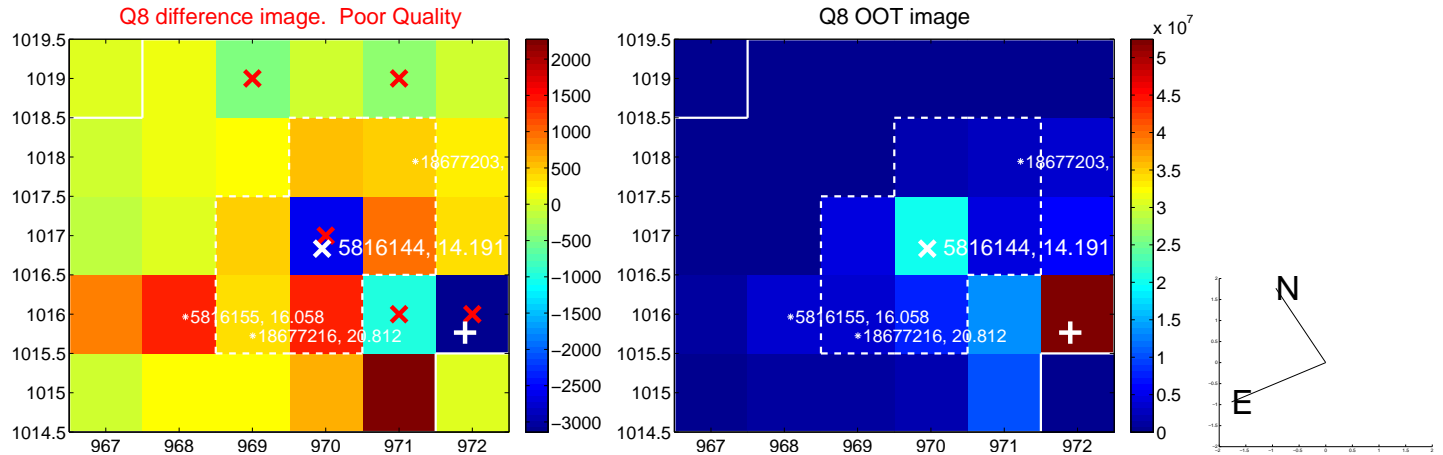
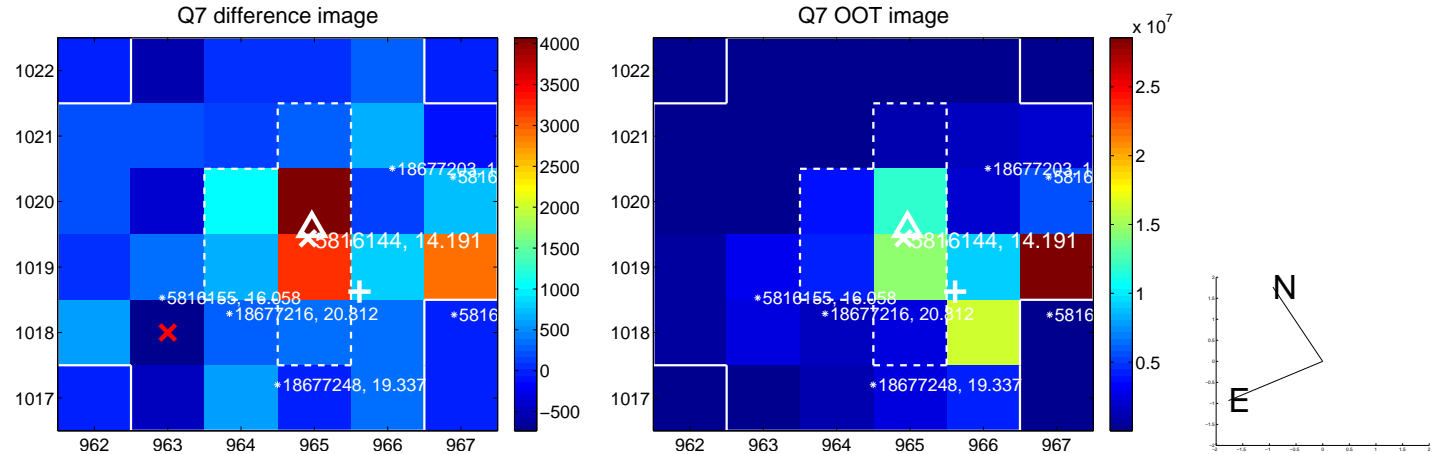
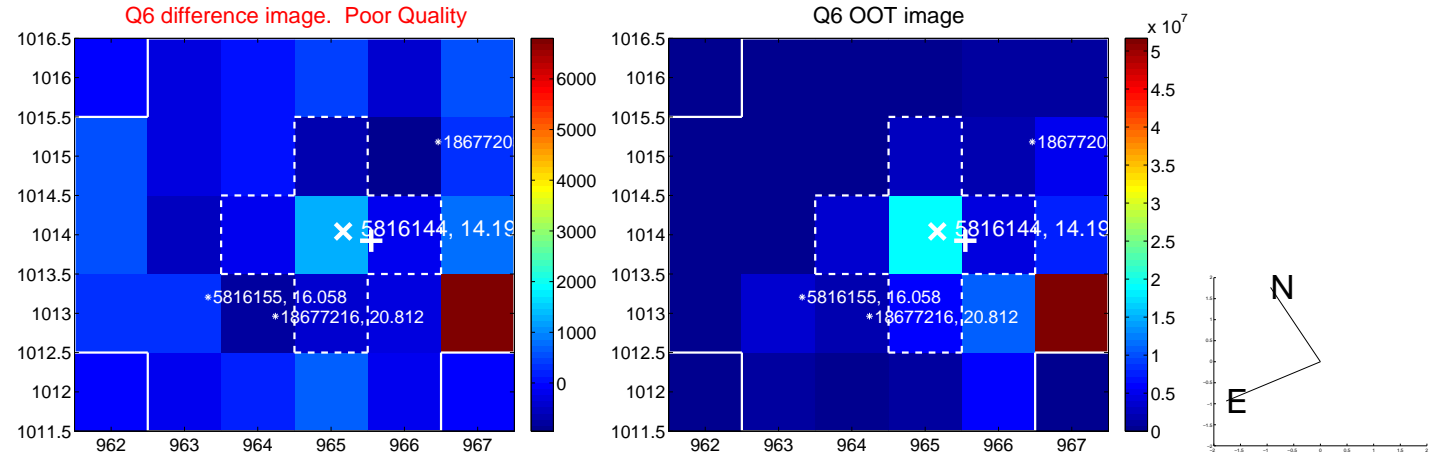
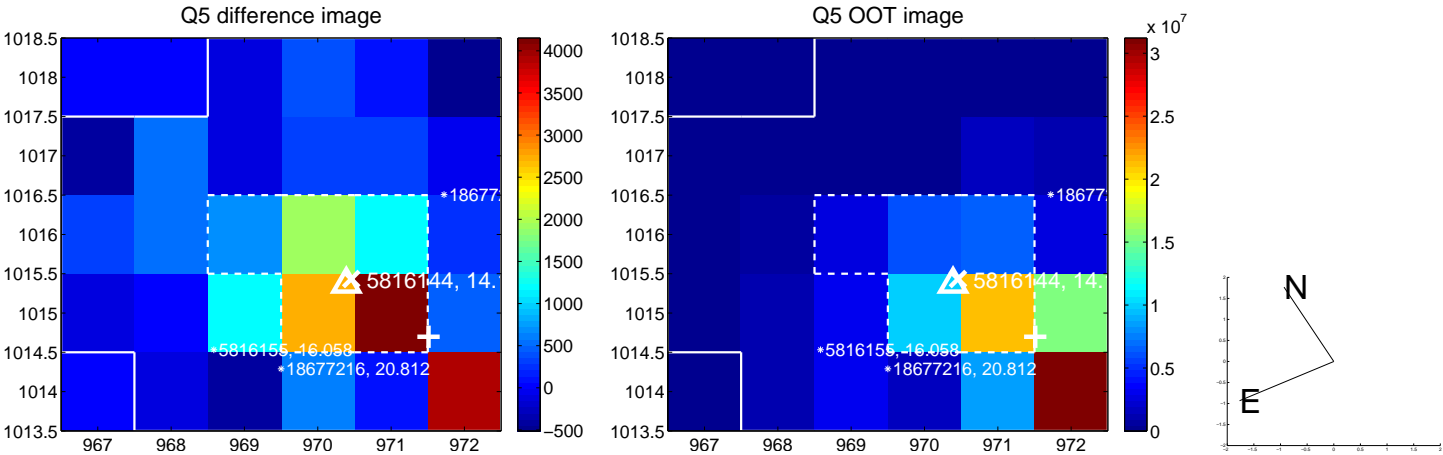


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

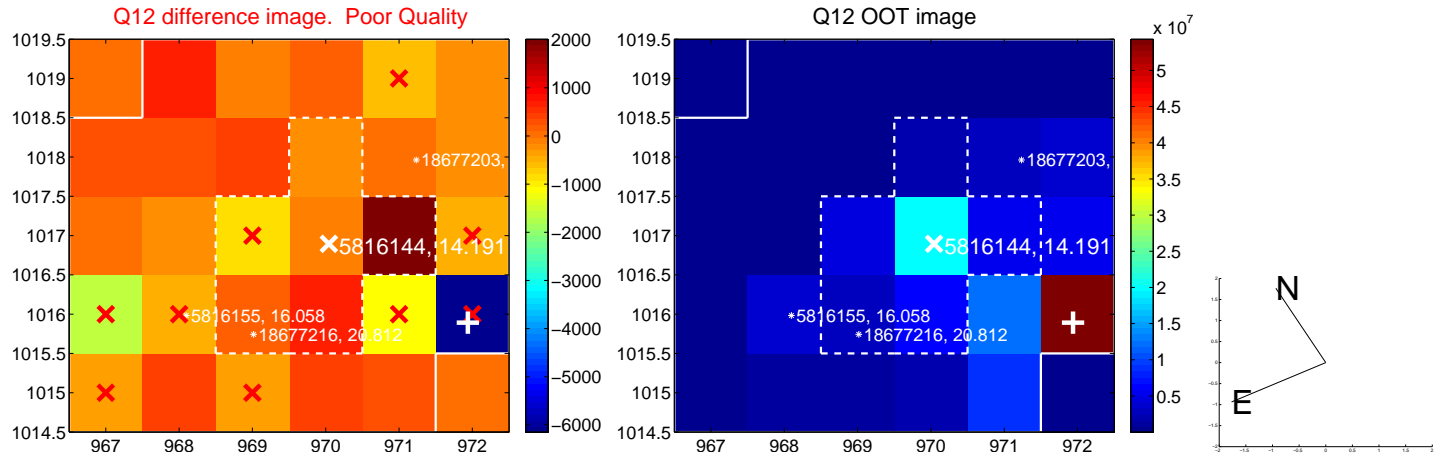
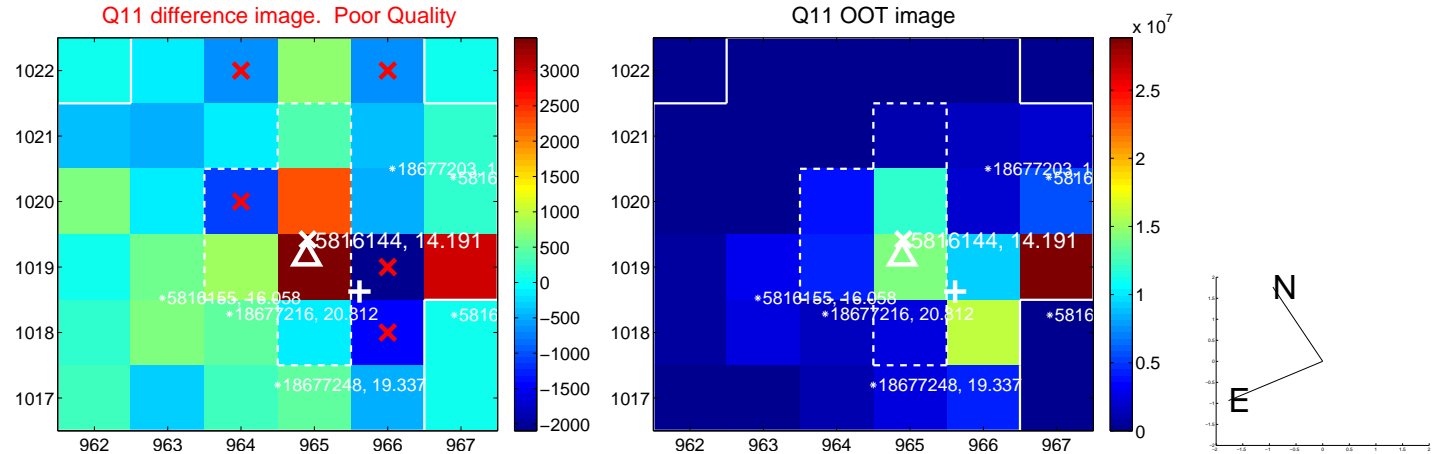
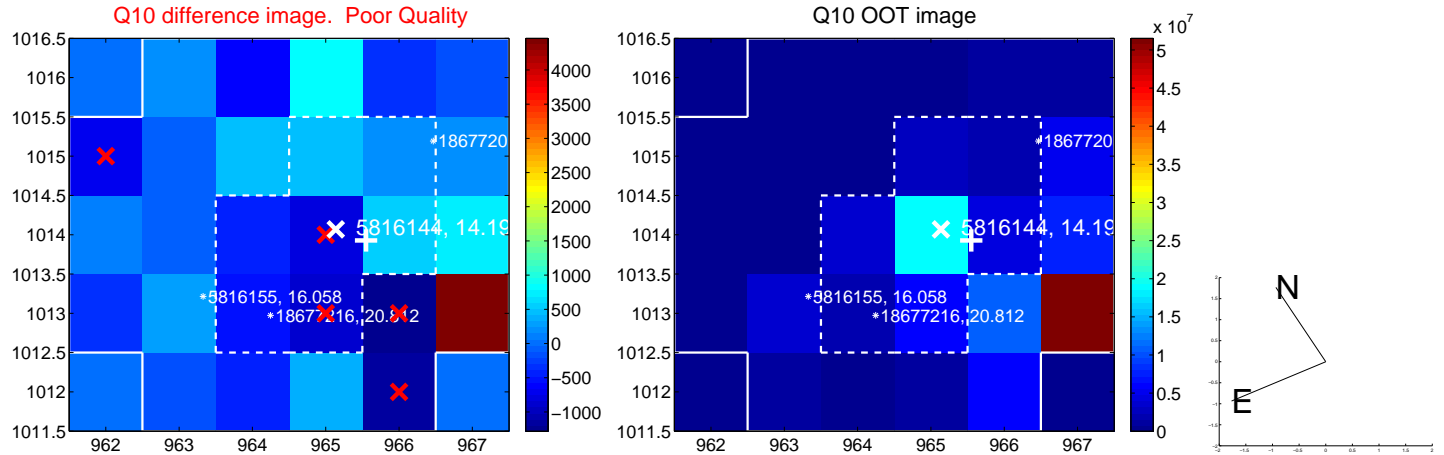
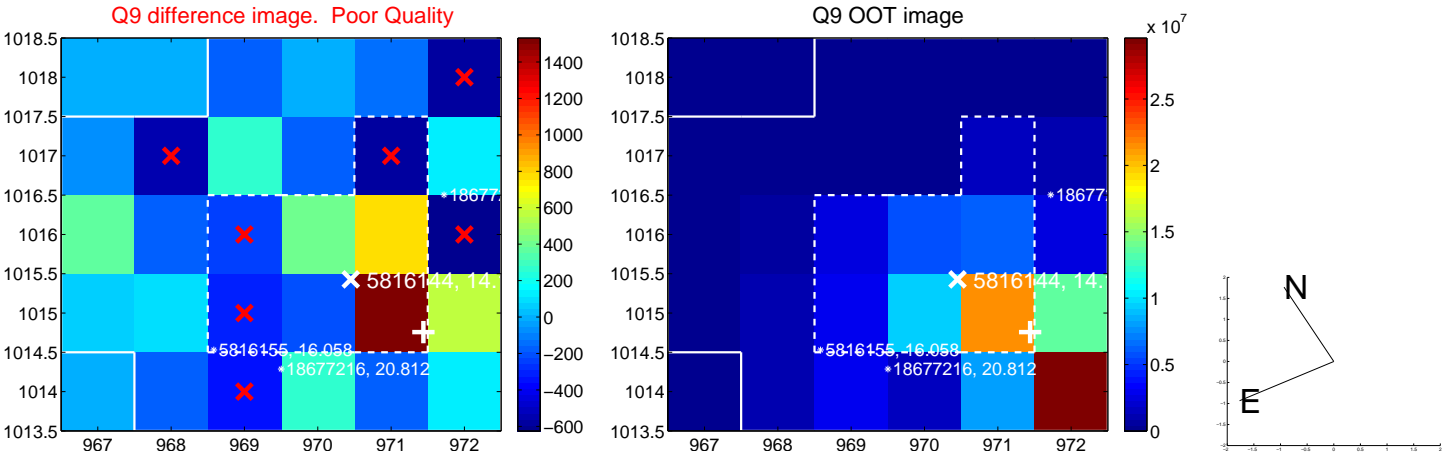
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



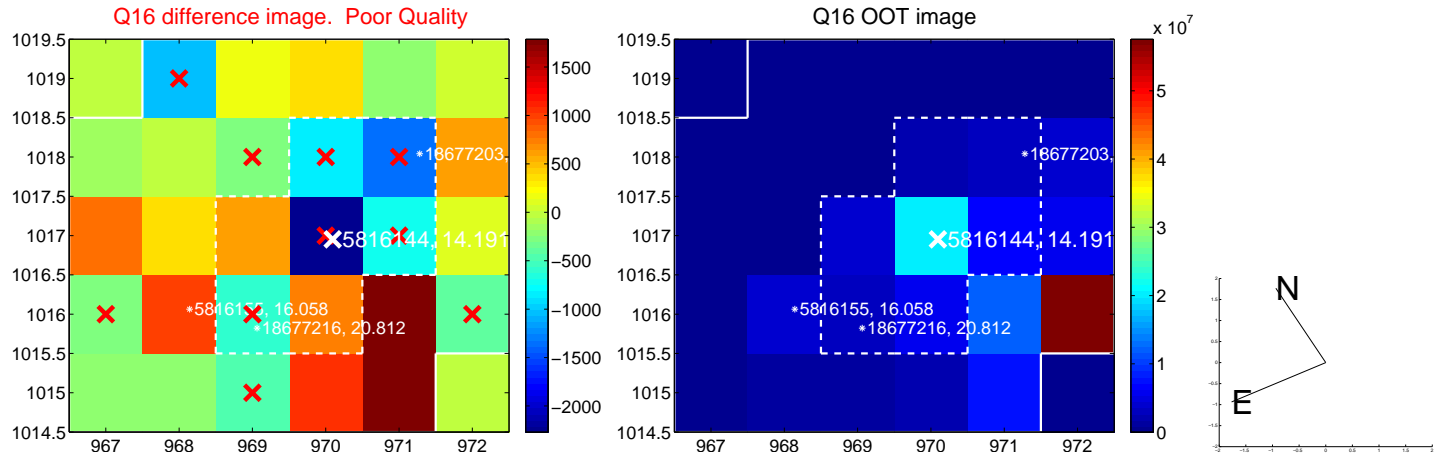
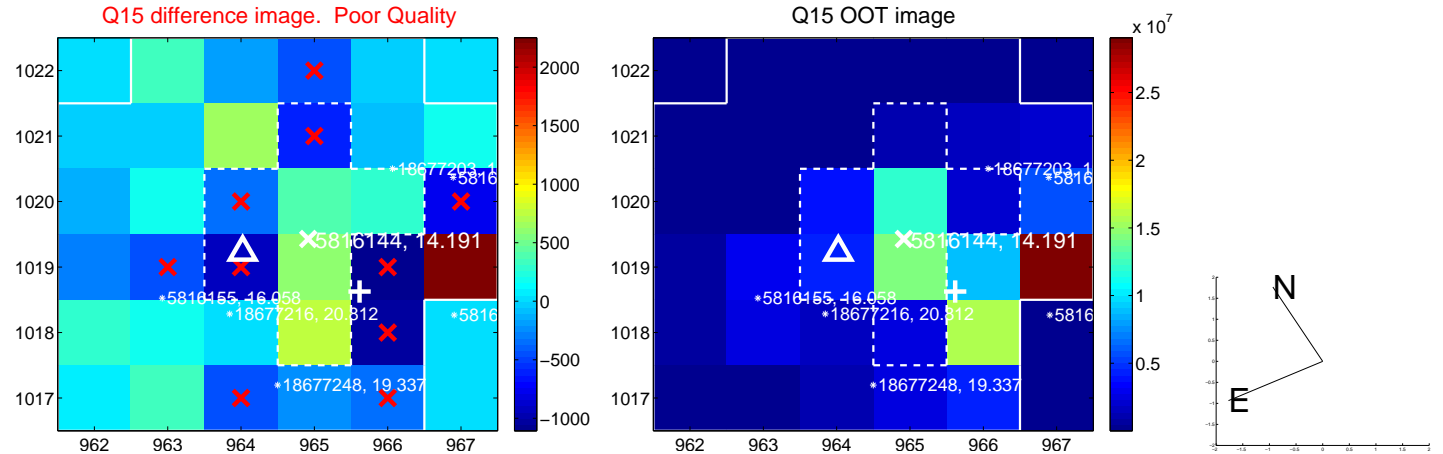
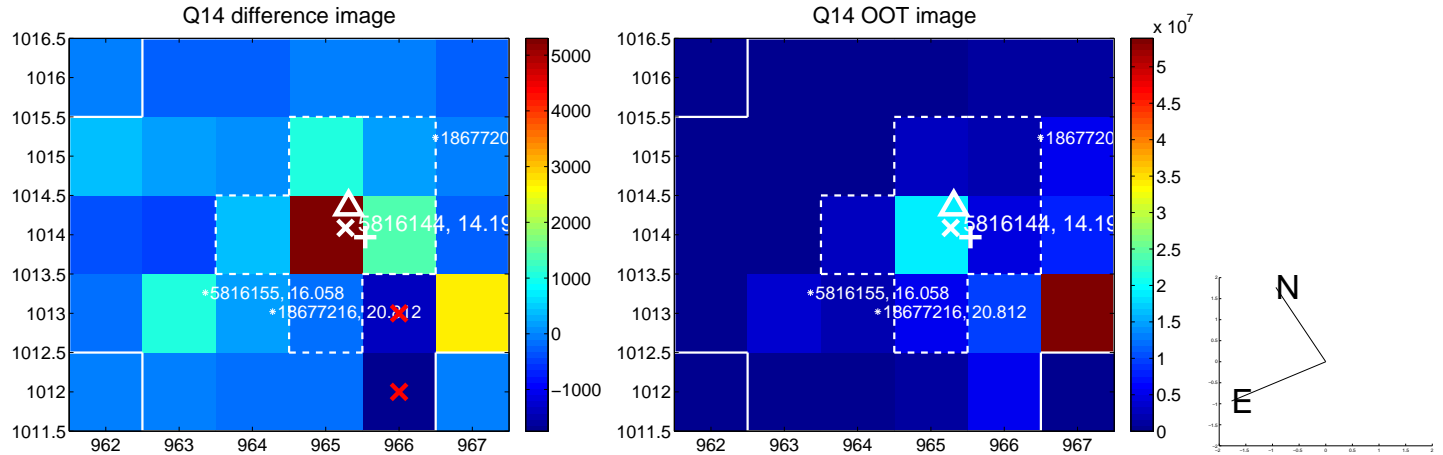
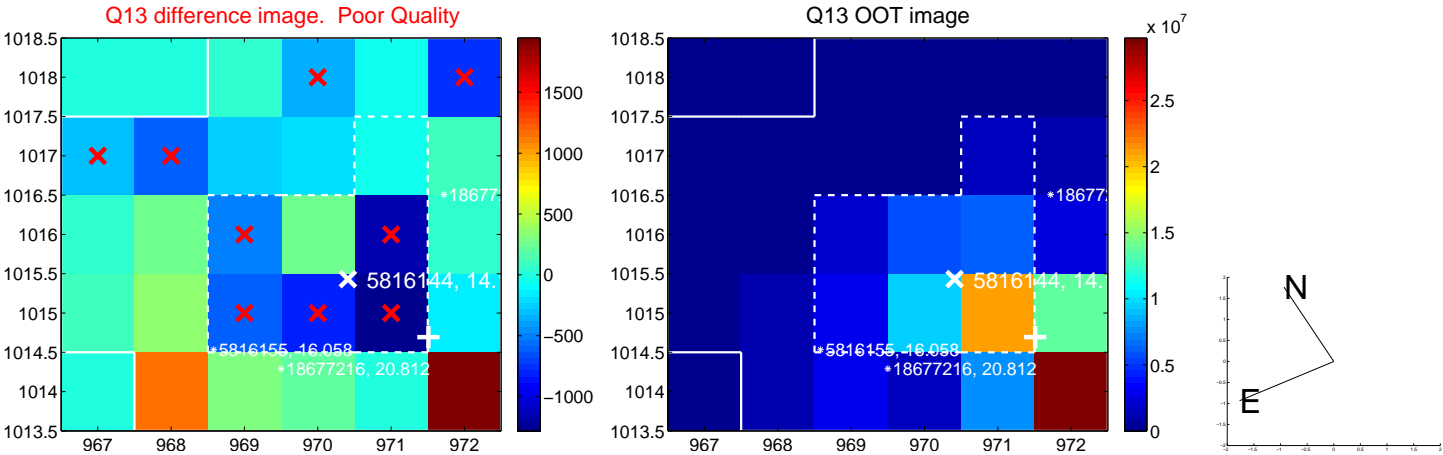
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



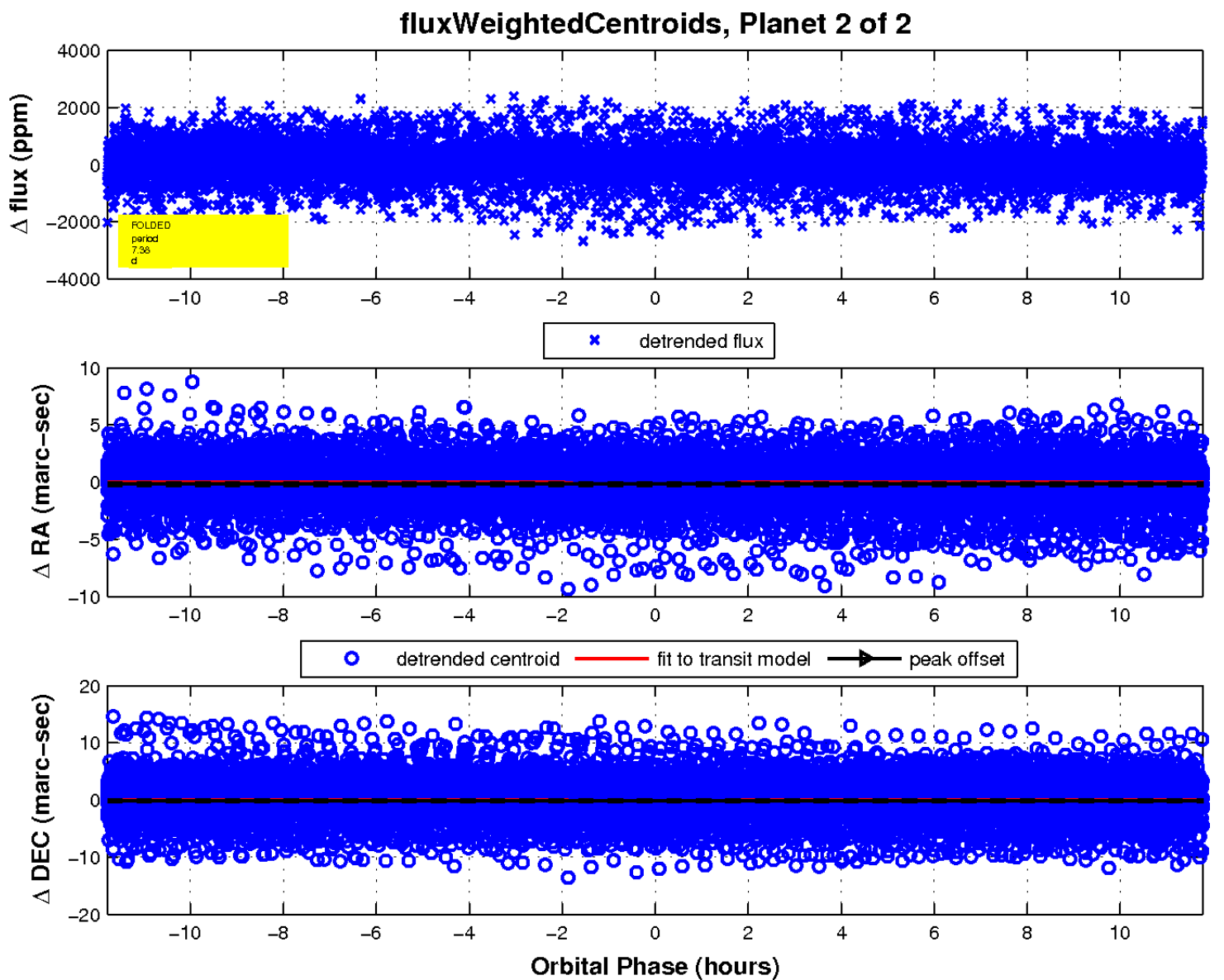
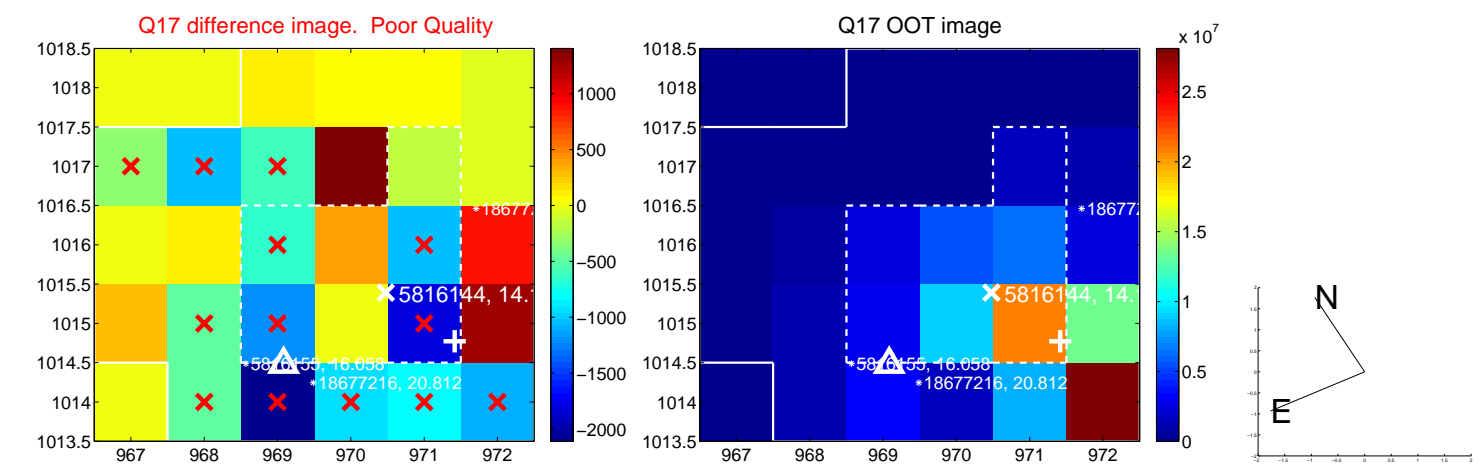
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



UKIRT Image

Declination

