

KIC 006153201

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})
006153201-01	OBS	No	3.494707	134.785052	135.1	10.559	12.5	11.8	1.08	6214	1.70	686.08
006153201-02	OBS	No	3.494920	132.098121	118.7	11.683	12.6	13.1	1.08	6214	1.19	686.02

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
006153201-01	OBS	FP	0.00	1	0	0	0	LPP_DV
006153201-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA—LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—SAME_NTL_PERIOD—CENT_FEW_DIFFS

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 006153201-01

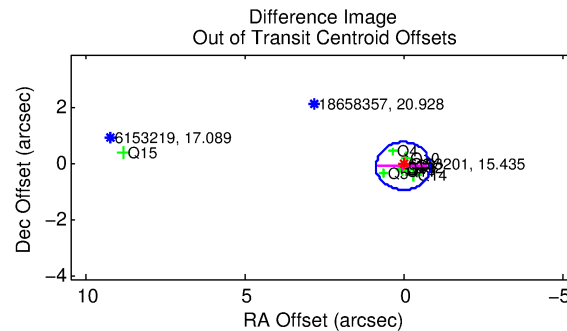
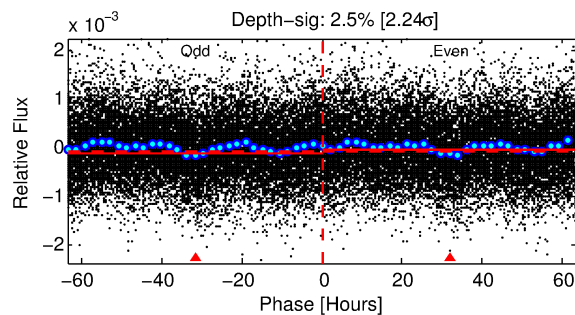
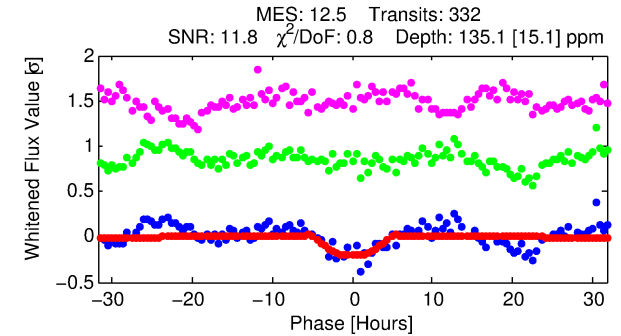
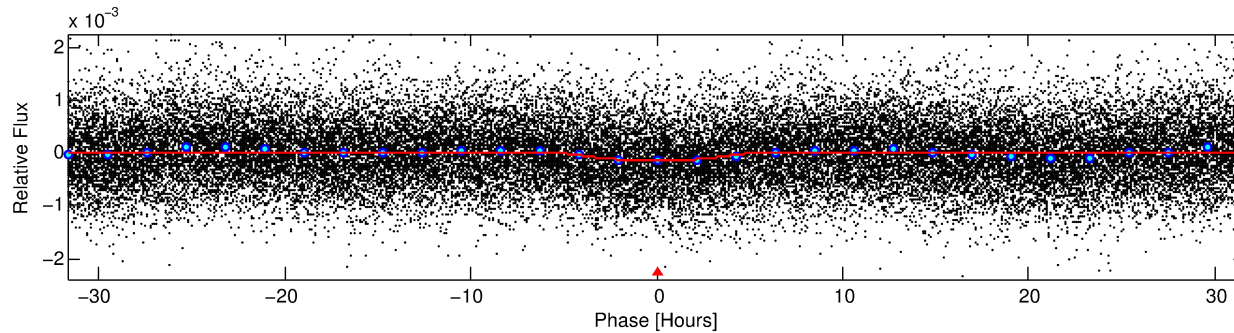
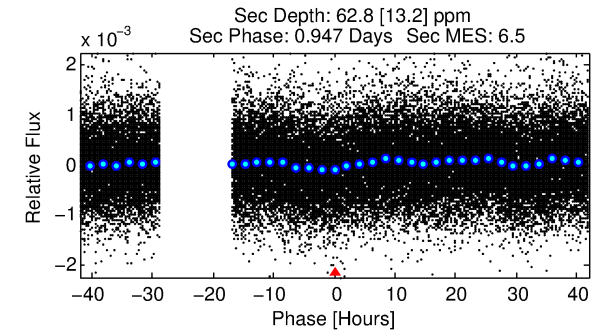
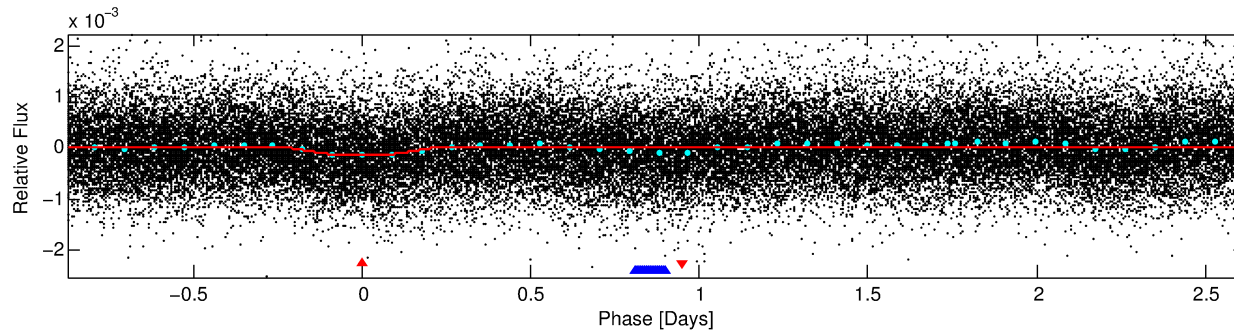
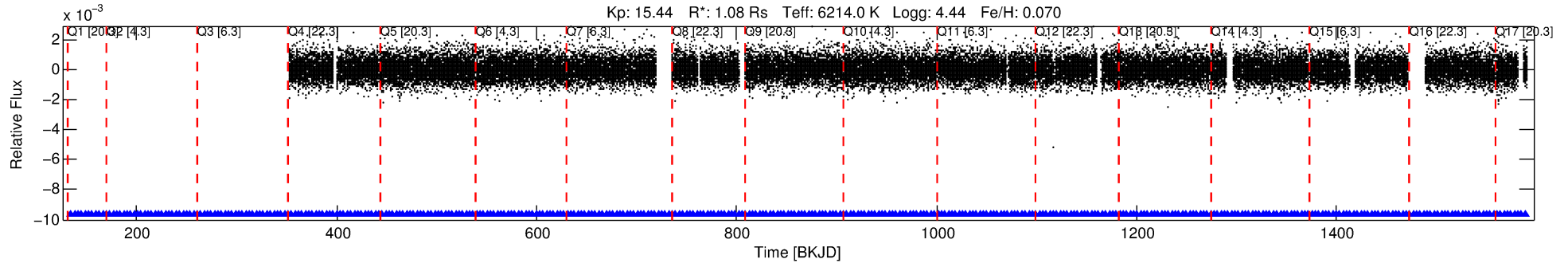
No Significant Match Found

DV One-Page Summary

KIC: 6153201 Candidate: 1 of 2 Period: 3.495 d

KOI: K01038 Corr: No Ephemeris Match

Kp: 15.44 R*: 1.08 Rs Teff: 6214.0 K Logg: 4.44 Fe/H: 0.070



DV Fit Results:

Period = 3.49471 [0.00010] d
Epoch = 134.7851 [0.0236] BKJD
Rp/R* = 0.0145 [0.0011]
a/R* = 1.18 [0.06]
b = 0.98 [0.01]
Seff = 686.08 [264.94]
Teq = 1305 [126] K
Rp = 1.70 [0.51] Re
a = 0.0475 [0.0115] AU
Ag = 26.81 [11.64] [2.22σ]
Teffp = 4591 [356] K [8.71σ]

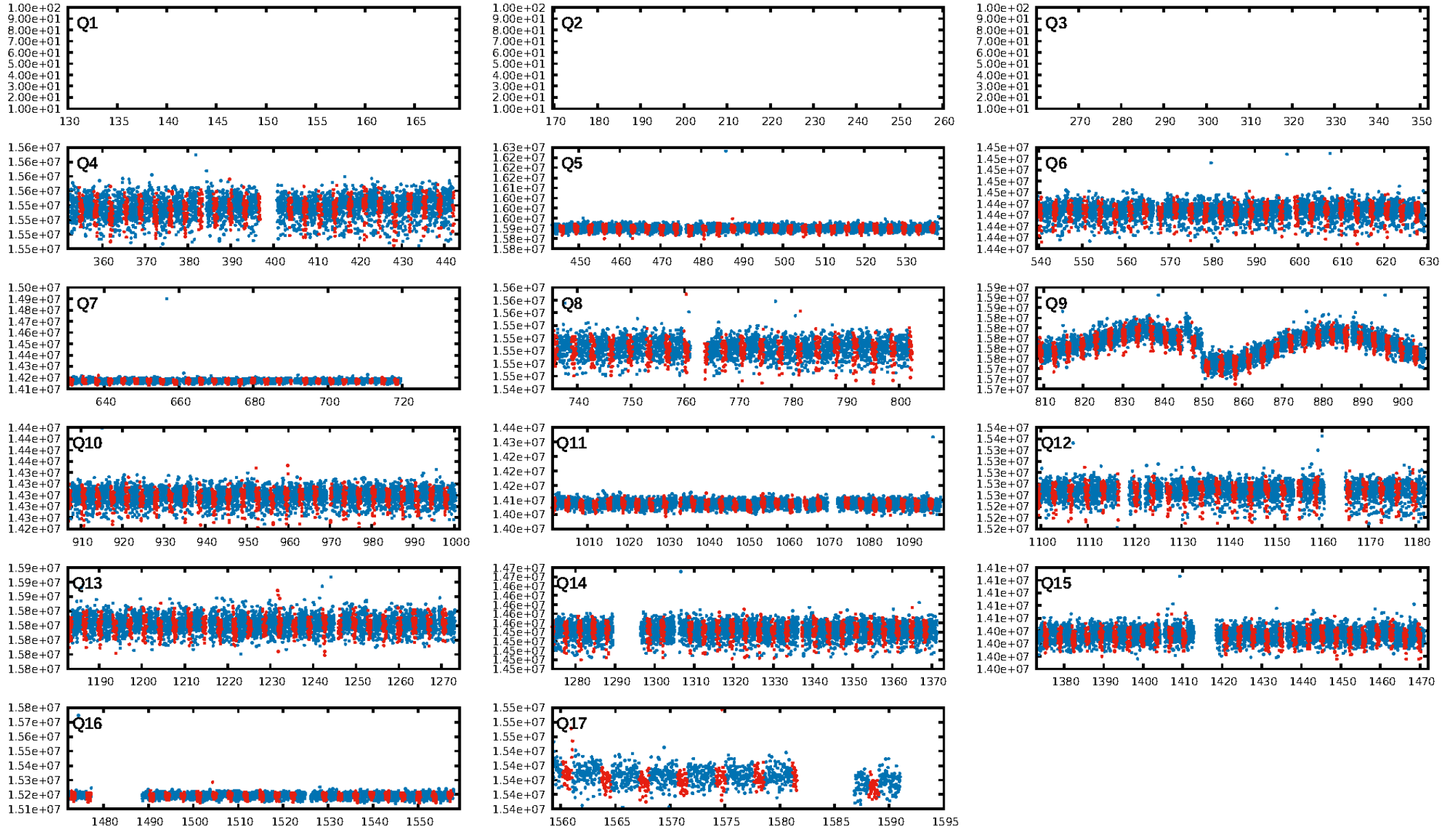
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 0.0% [0.00σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 1.85e-37
RollingBand-fgt: 1.00 [324/324]
GhostDiagnostic-chr: N/A
Centroid-sig: 0.0%
Centroid-so: 10.260 arcsec [6.53σ]
OotOffset-rm: 0.085 arcsec [0.30σ]
KicOffset-rm: 0.138 arcsec [0.21σ]
OotOffset-st: 3/2/3/3 [11]
KicOffset-st: 3/2/3/3 [11]
DiffImageQuality-fgm: 1.00 [11/11]
DiffImageOverlap-fno: 0.00 [0/14]

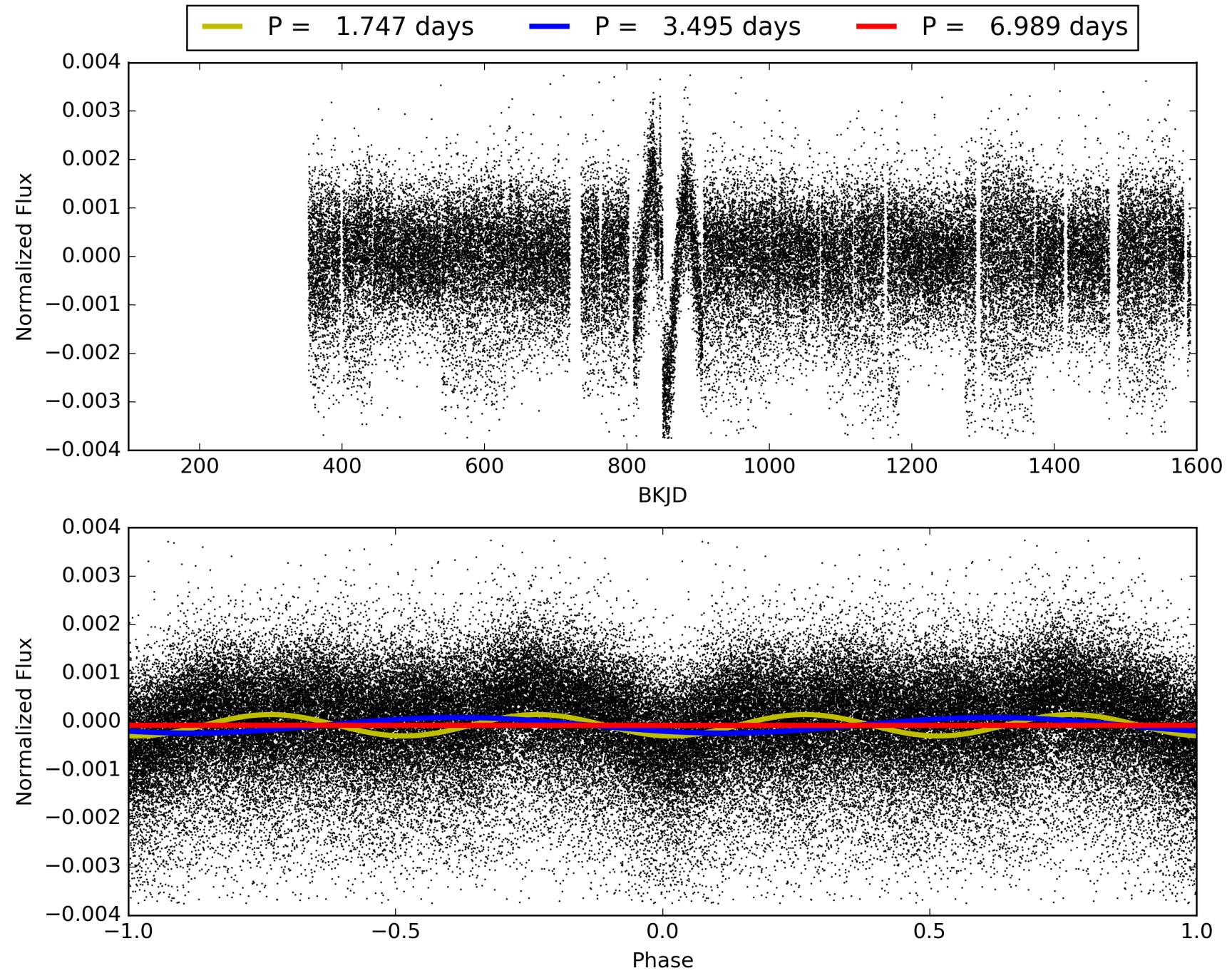
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 01:58:50 Z

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

TCE 006153201-01, PDC Light Curves

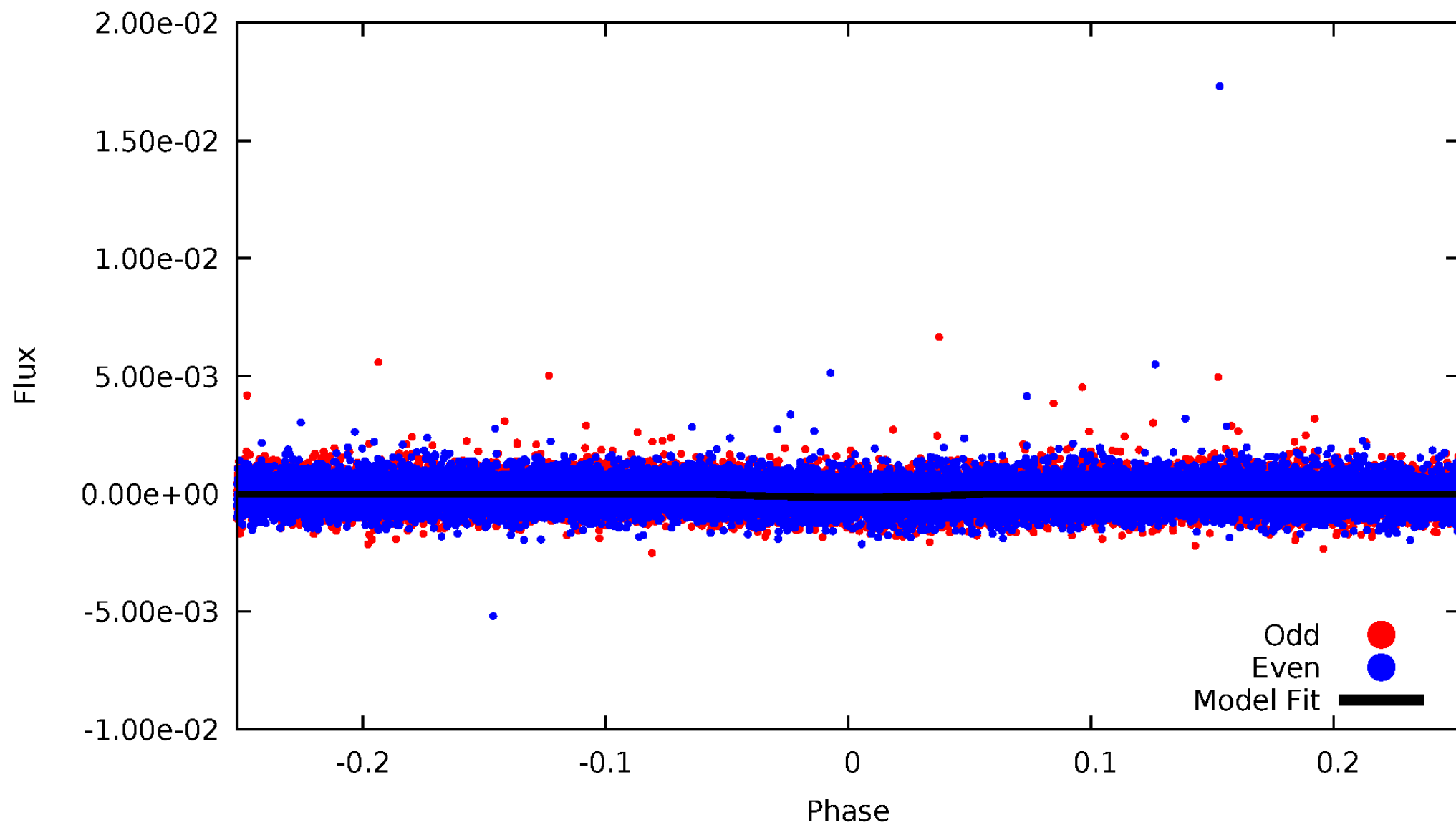


TCE 006153201-01



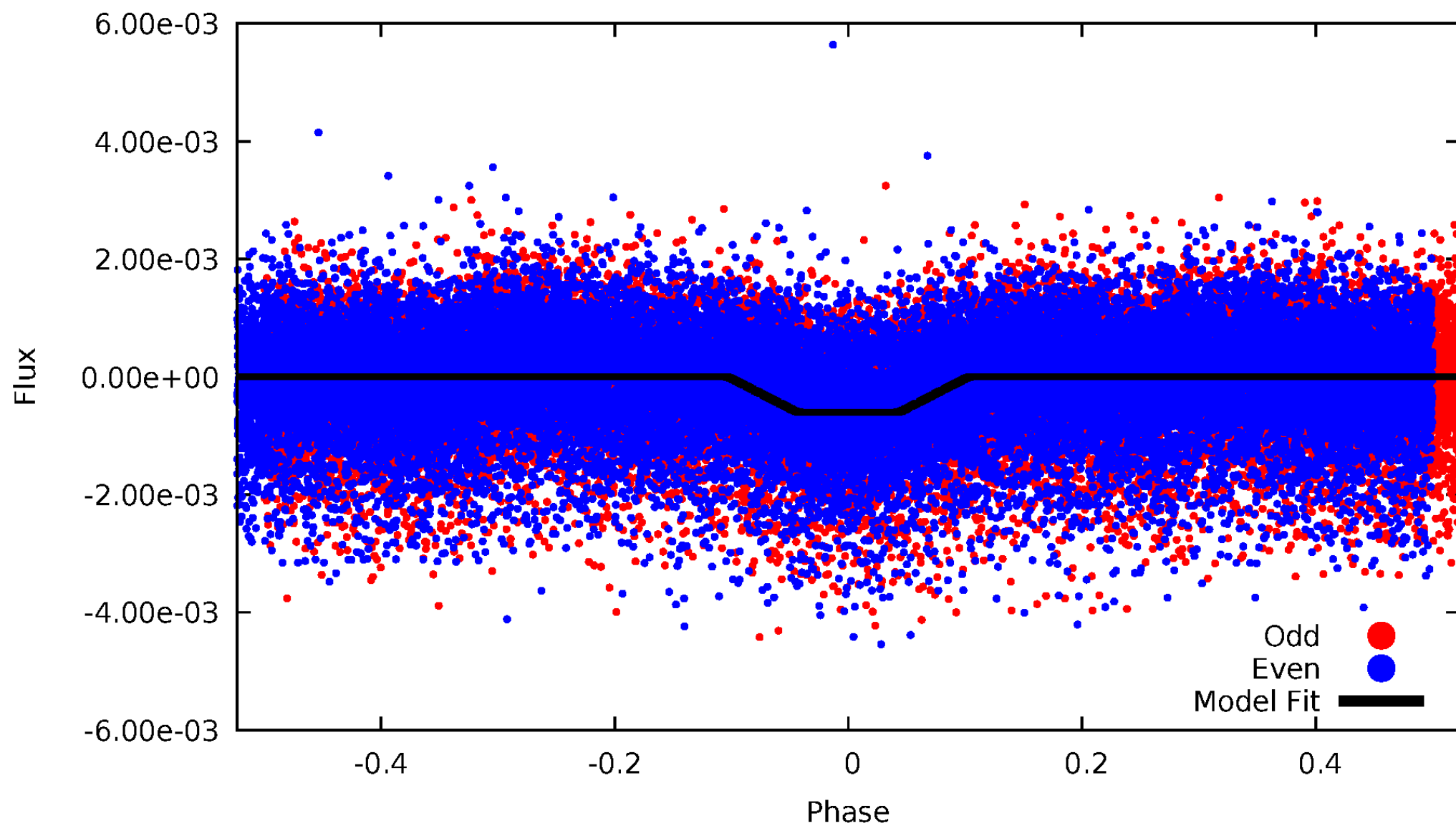
DV Odd/Even

TCE 006153201-01



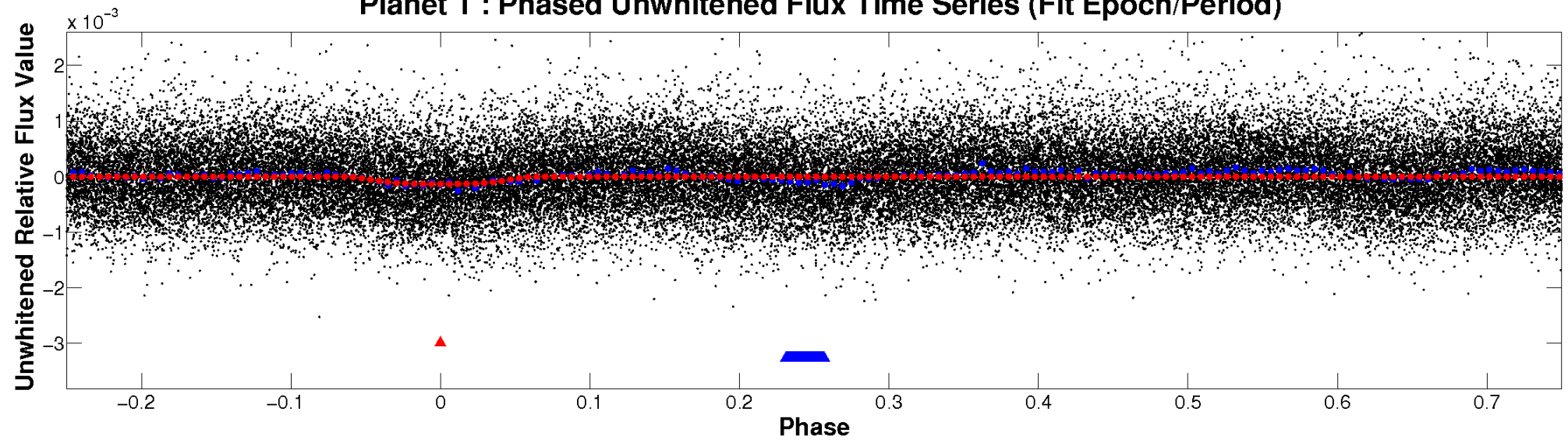
ALT Odd/Even

TCE 006153201-01

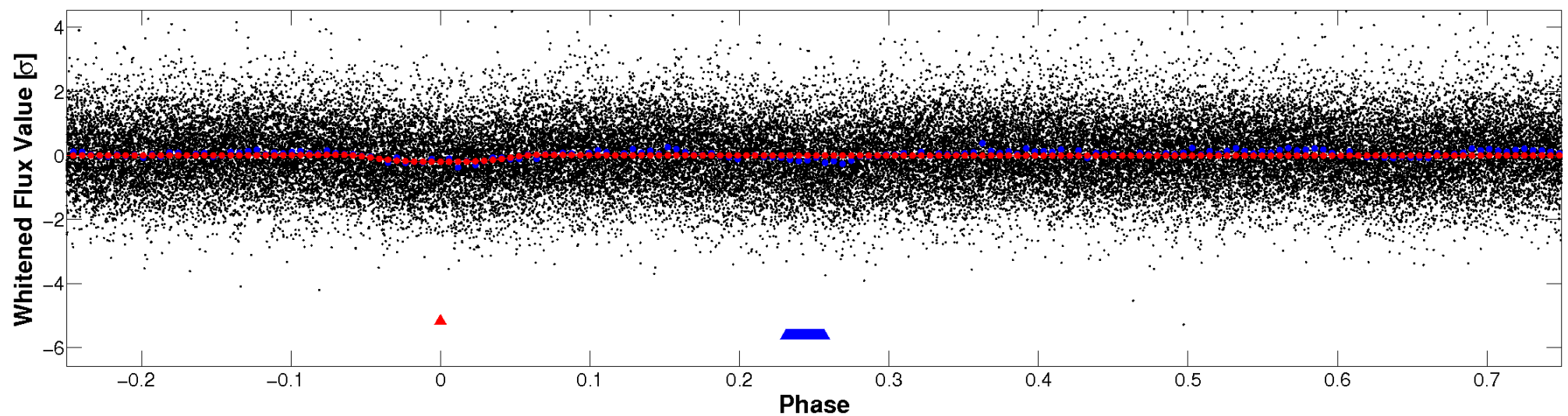


Non-Whitened Vs. Whitened Light Curve

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

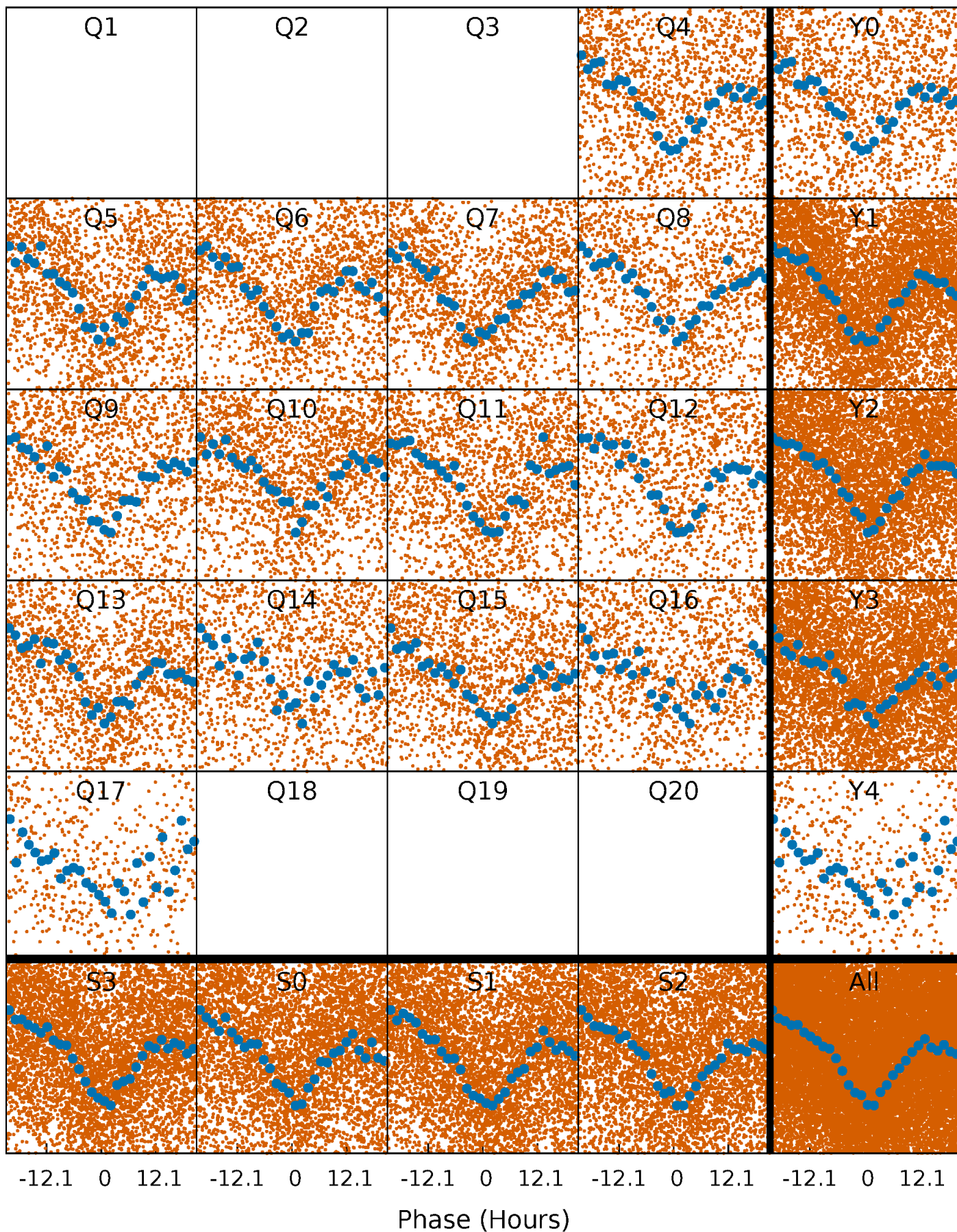


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



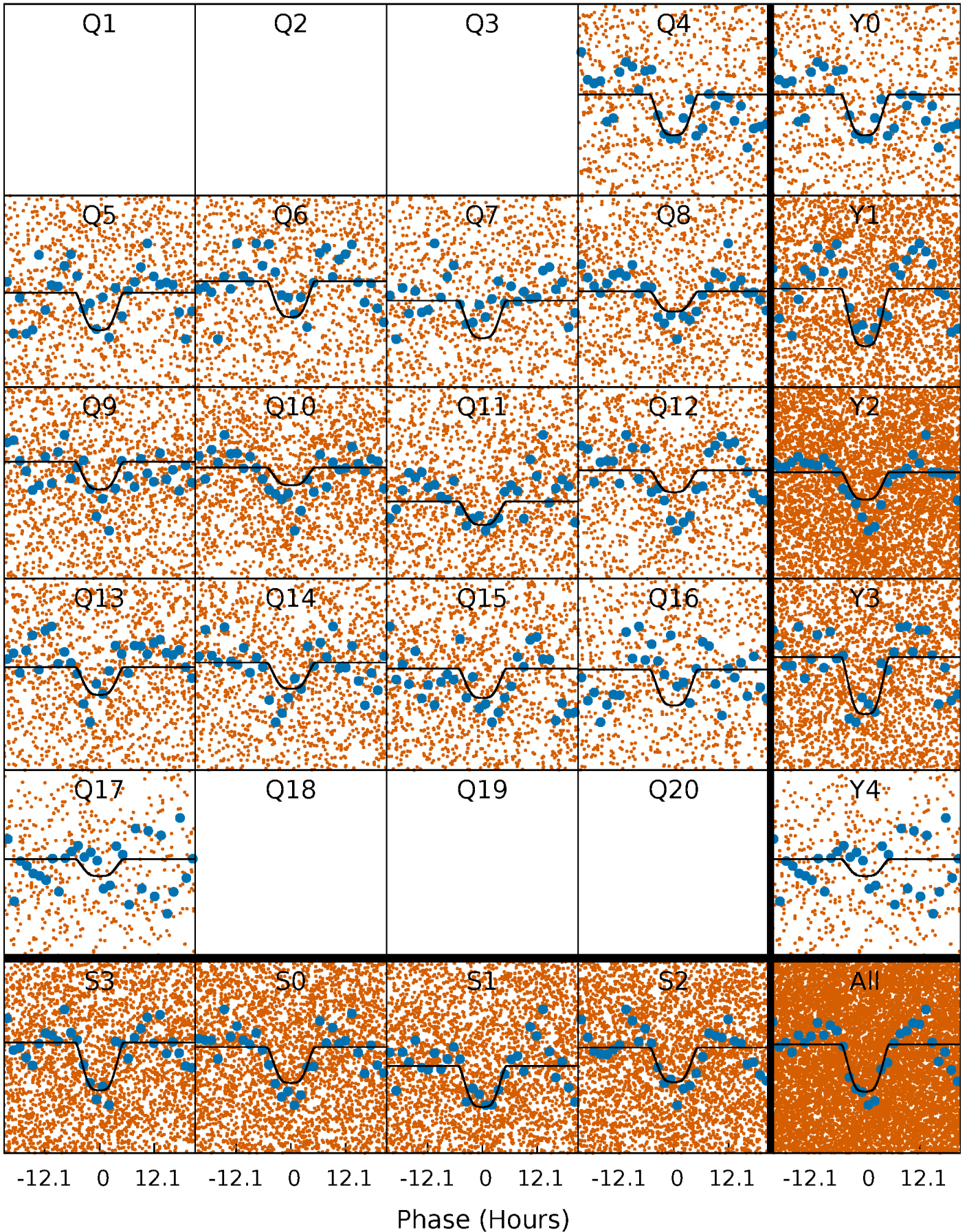
PDC Quarter-Phased Transit Curves

TCE 006153201-01 P= 3.494707 Days $T_0=134.785052$ (BKJD)



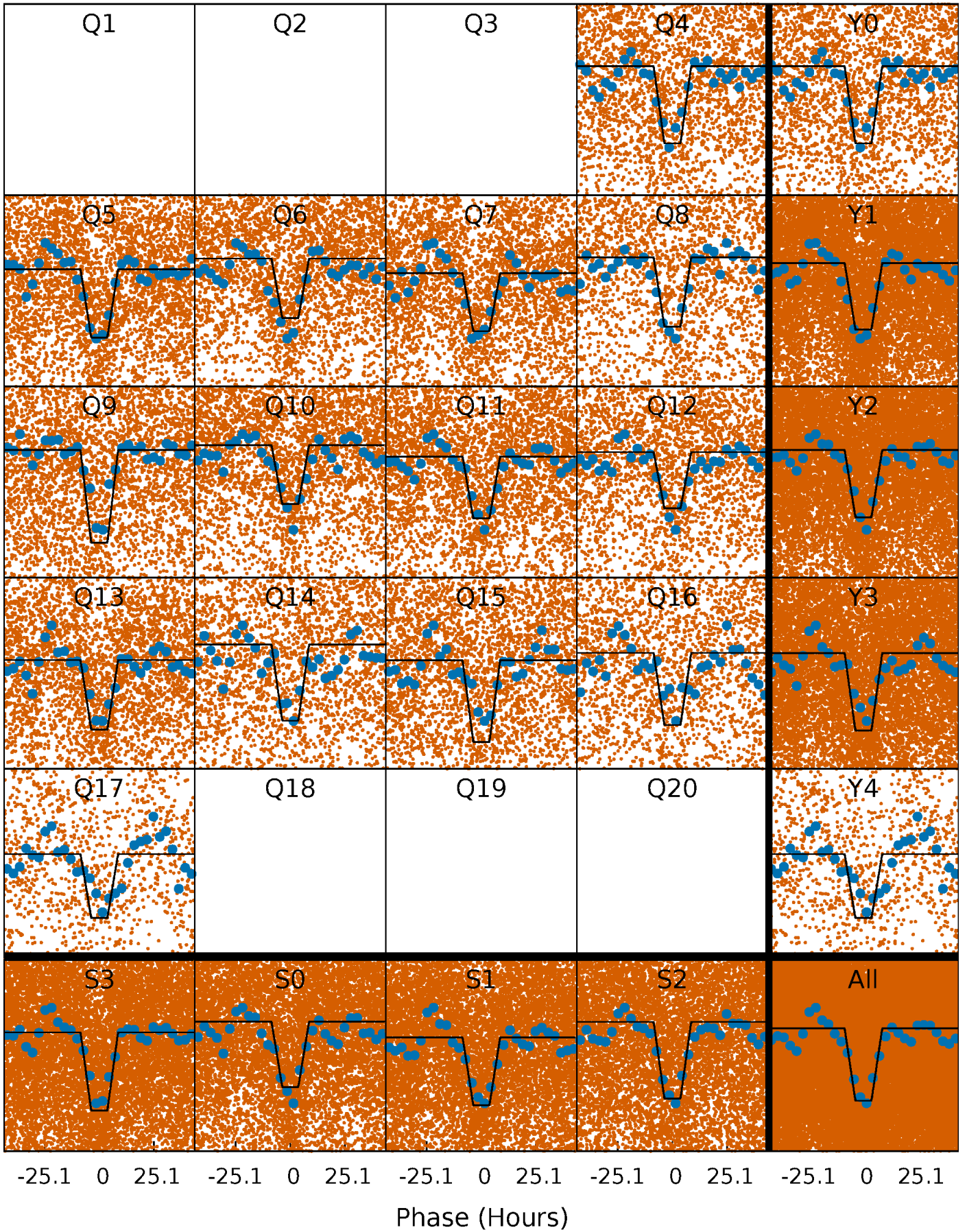
DV Quarter-Phased Transit Curves

TCE 006153201-01 P= 3.494707 Days $T_0=134.785052$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

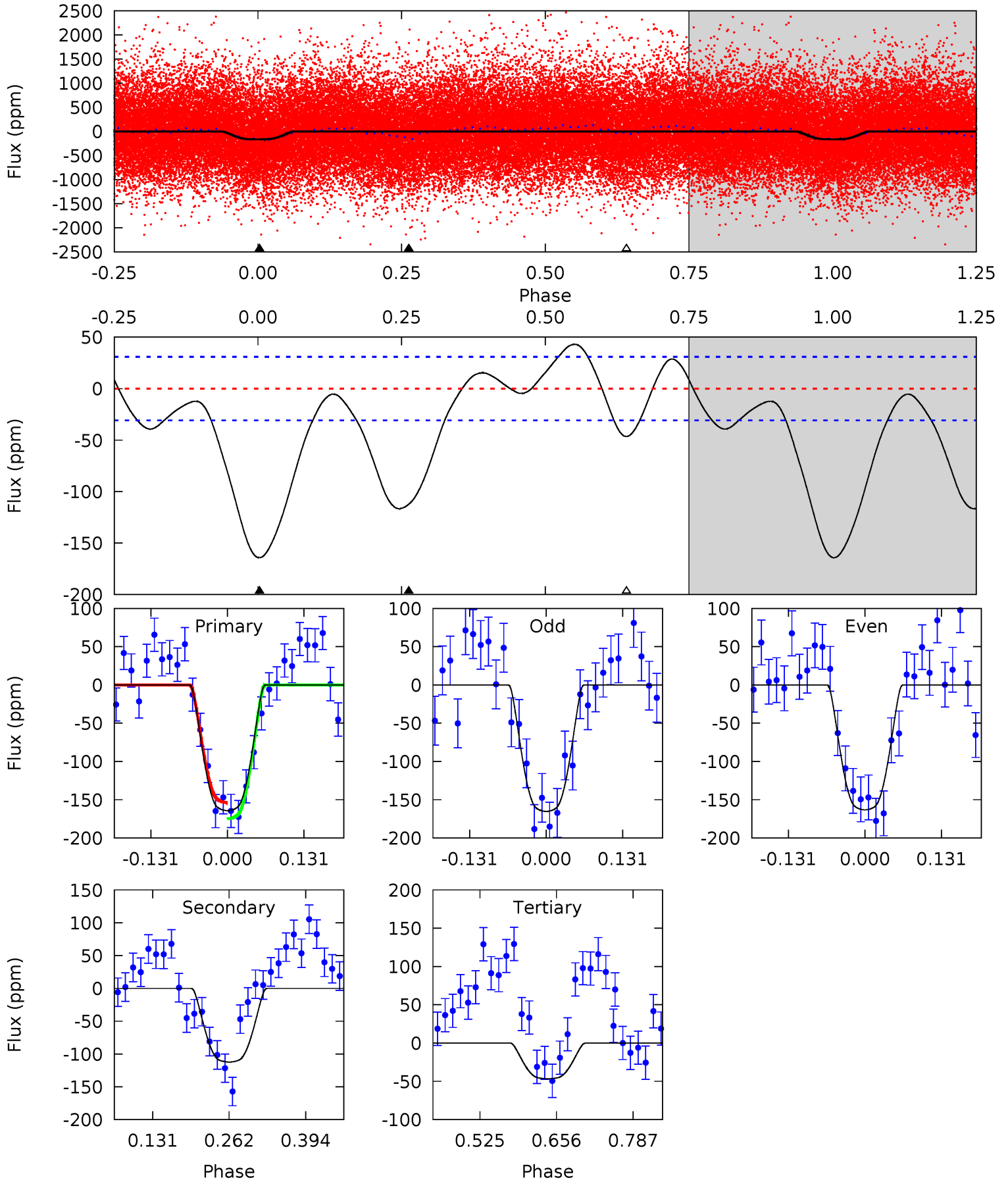
TCE 006153201-01 P= 3.494683 Days $T_0=134.809902$ (BKJD)



DV Model-Shift Uniqueness Test

006153201-01, P = 3.494707 Days, E = 134.785052 Days

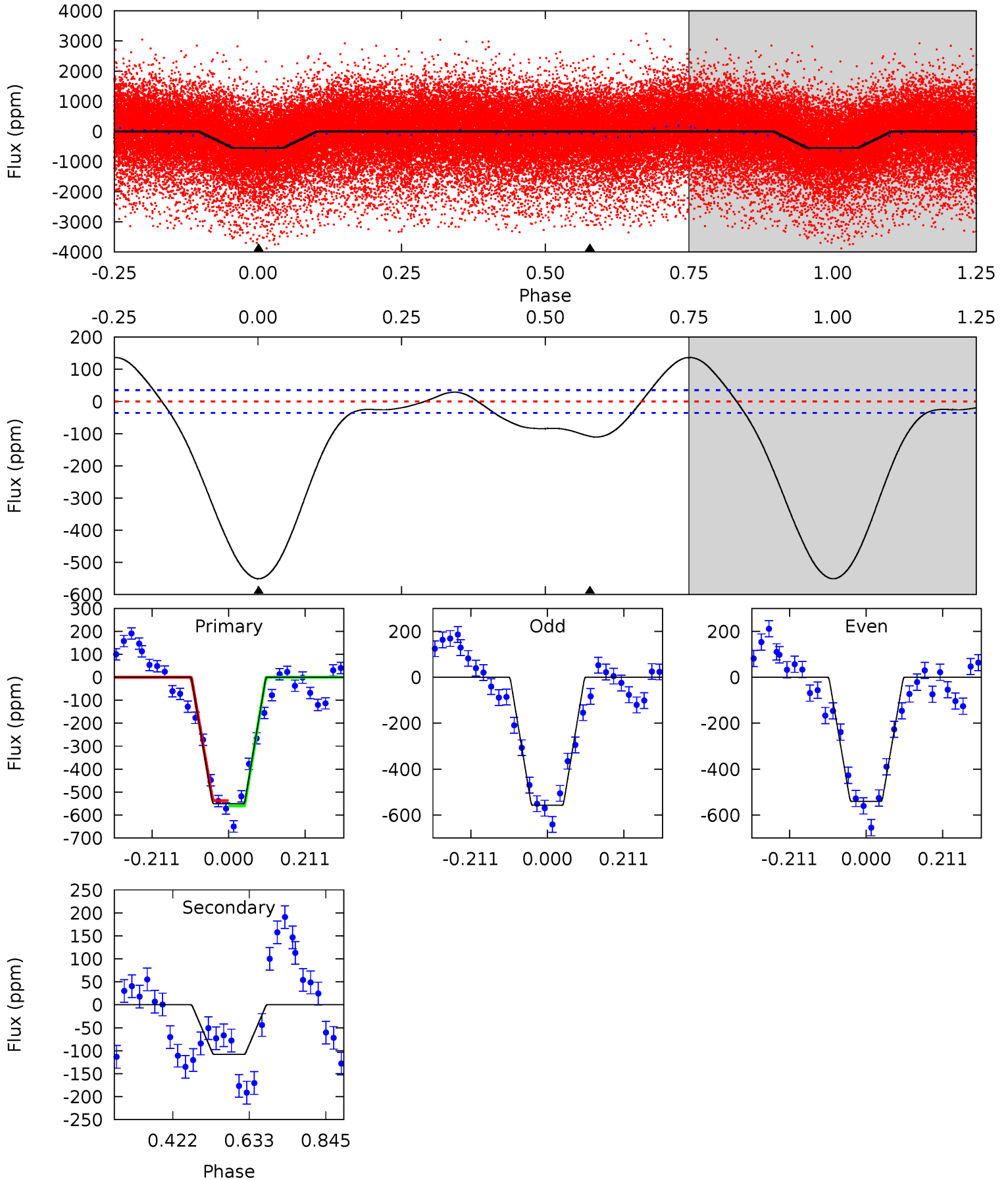
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
24.0	16.4	6.79	0	4.51	1.51	3.75	17.2	24.0	9.59	16.4	0.15	0.94	0.21	1.54



Alt Model-Shift Uniqueness Test

006153201-01, P = 3.494683 Days, E = 134.809902 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
68.8	13.5	0	0	4.41	1.25	2.70	68.8	68.8	13.5	13.5	1.09	0.99	0.20	1.48



Stellar Parameters For KIC 006153201

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	M (M_{\odot})	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	6214^{+196}_{-261}	$4.442^{+0.062}_{-0.188}$	$0.070^{+0.200}_{-0.350}$	$1.076^{+0.313}_{-0.134}$	$1.169^{+0.125}_{-0.188}$	$1.321^{+0.436}_{-0.675}$
	+3%/-4%	+1%/-4%	+286%/-500%	+29%/-12%	+11%/-16%	+33%/-51%
Source	KIC0	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 006153201-01 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-112 ± 7	$1.75^{+0.27}_{-0.20}$	1859^{+130}_{-104}	5350^{+249}_{-282}	44^{+11}_{-11}
Alt.	-108 ± 8	$2.93^{+0.48}_{-0.28}$	1850^{+136}_{-104}	4255^{+146}_{-151}	15^{+3}_{-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 $T_{obs} \gg T_{max}$ AND $A_{obs} \gg 1.0$

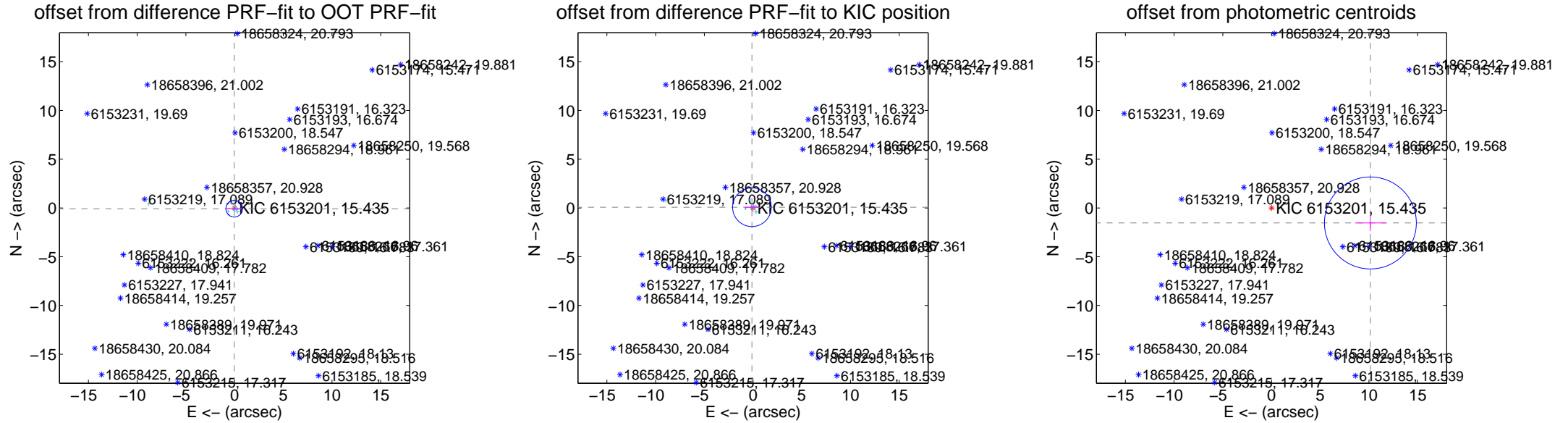
DV Centroid Data

Supplemental centroid analysis for 006153201-01. Kepler magnitude: 15.44. Transit SNR 11.75

There are 11 quarters with good PRF difference image offsets

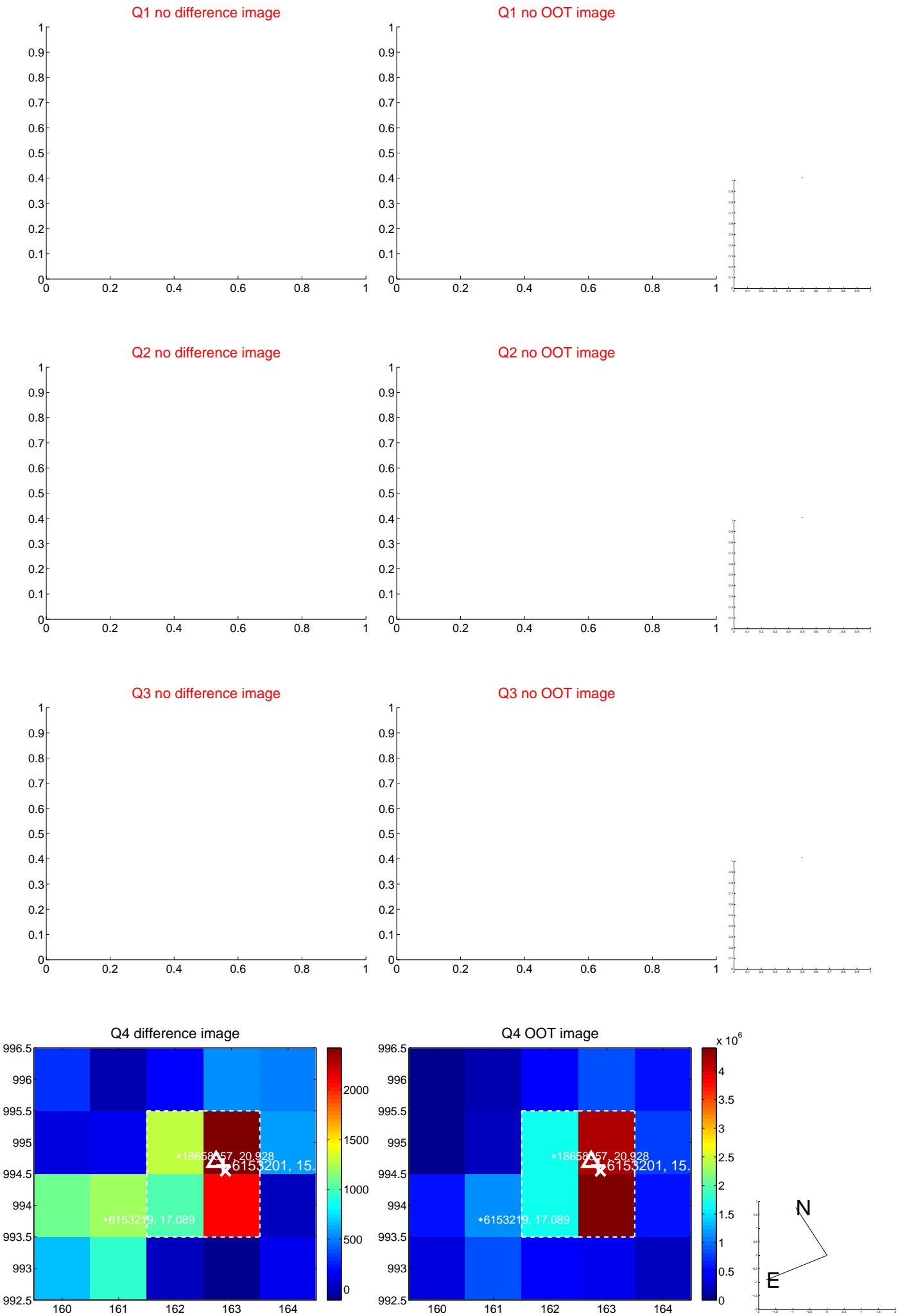
The direct PRF centroid is offset from the target star catalog position by about 0.36 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.085 ± 0.284	0.30	0.035 ± 0.762	-0.078 ± 0.106
PRF-fit source offset from KIC position	0.138 ± 0.661	0.21	0.116 ± 0.748	0.075 ± 0.115
photometric centroid source offset	10.26 ± 1.57	6.53	-10.14 ± 1.58	-1.54 ± 0.84

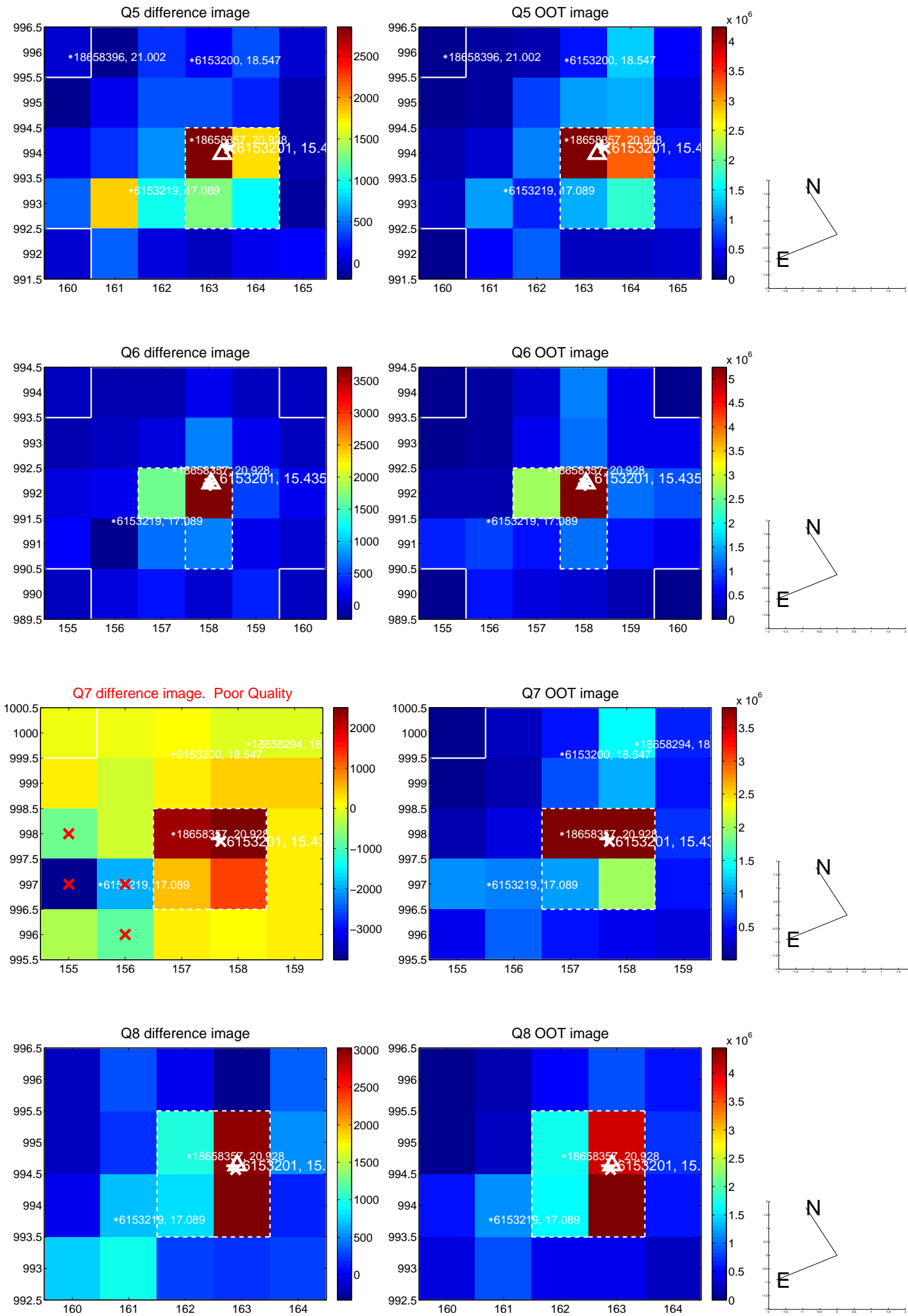


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

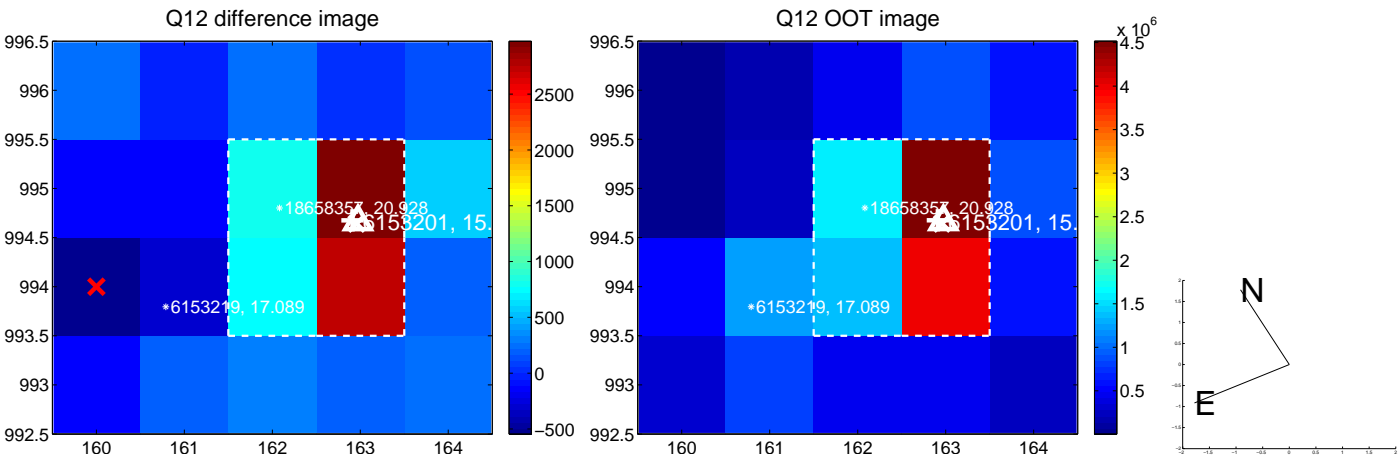
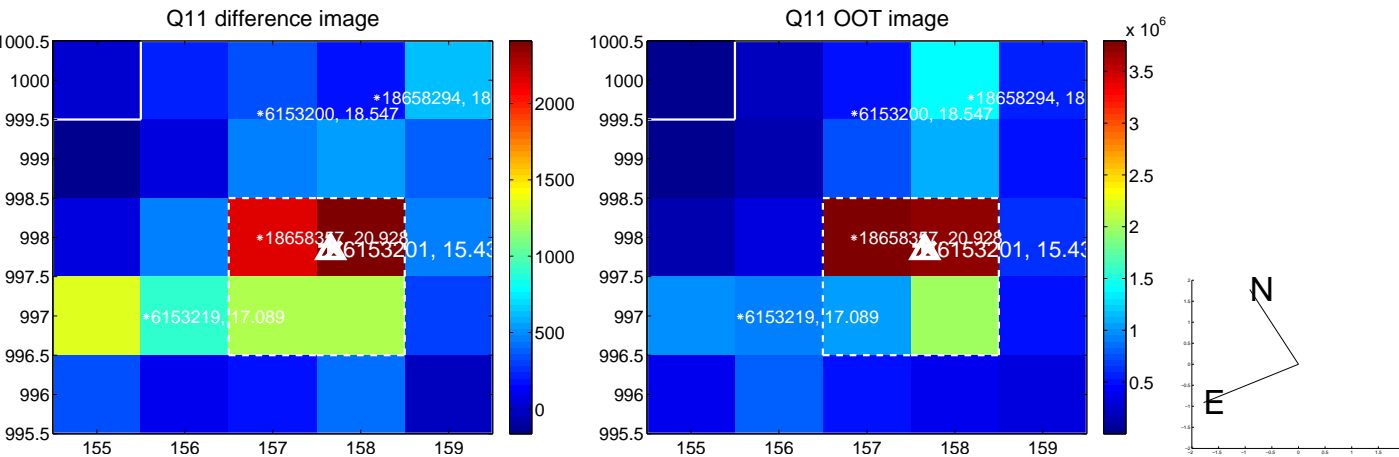
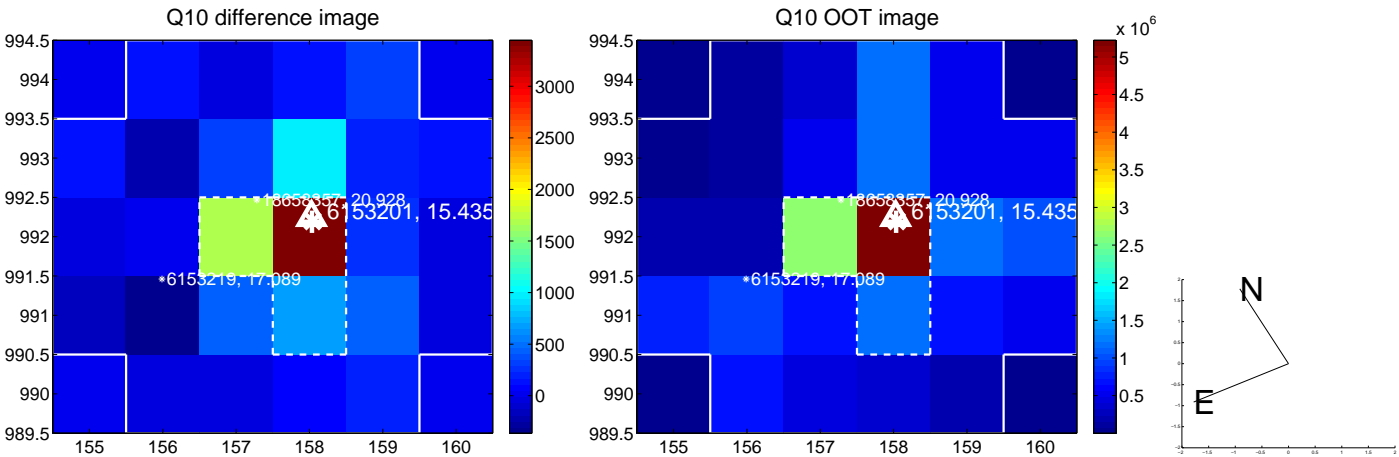
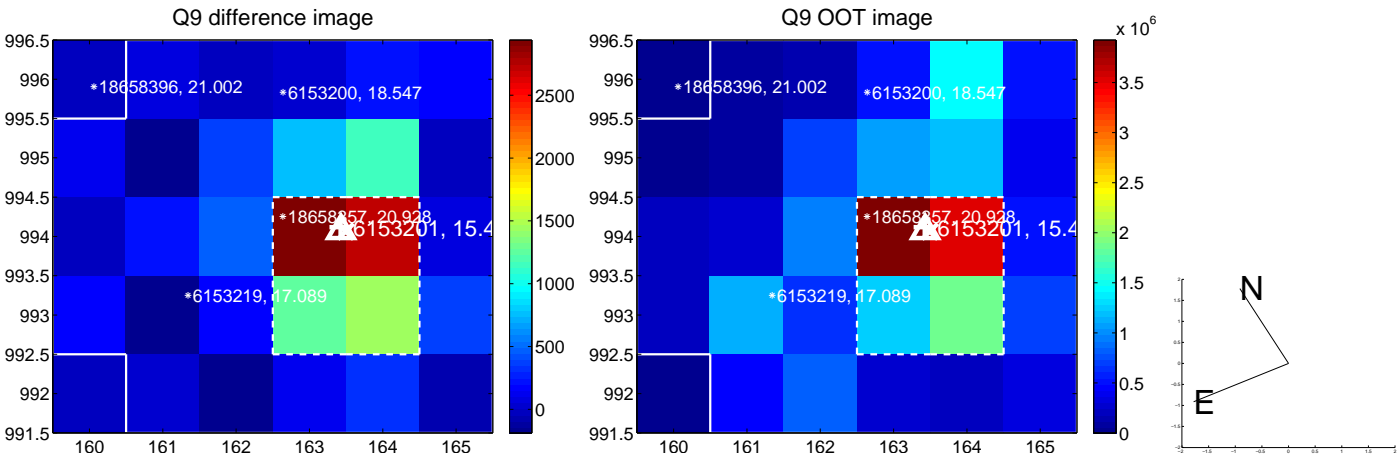
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ✕: large negative pixel value.



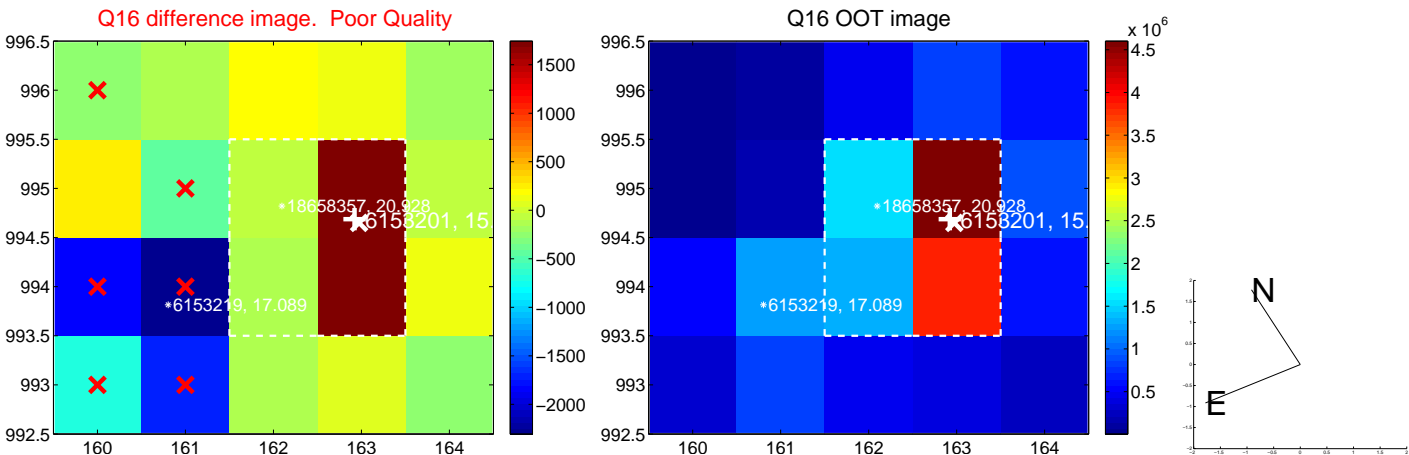
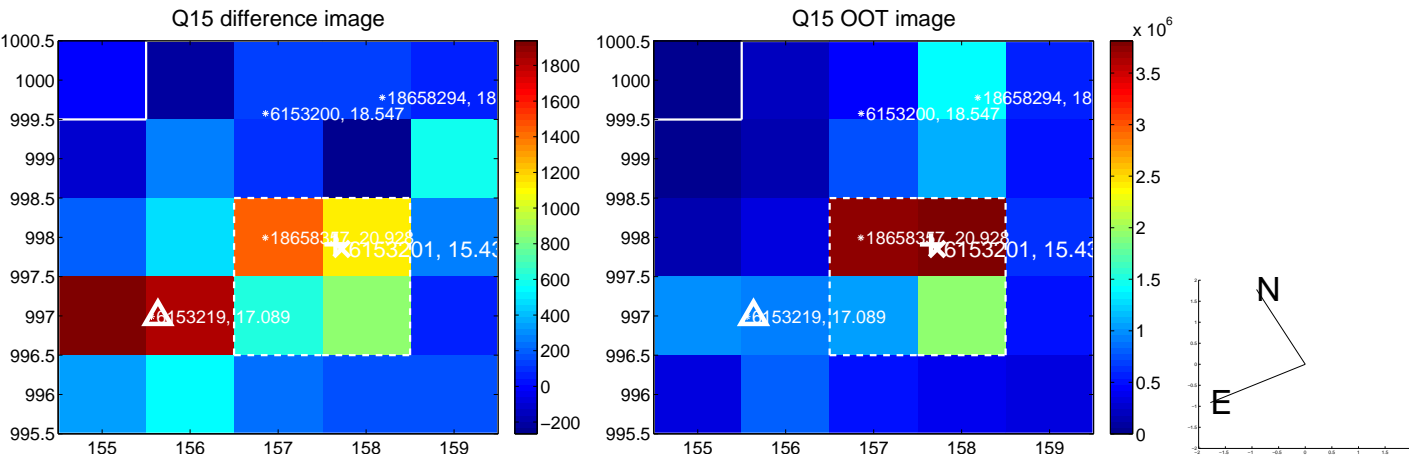
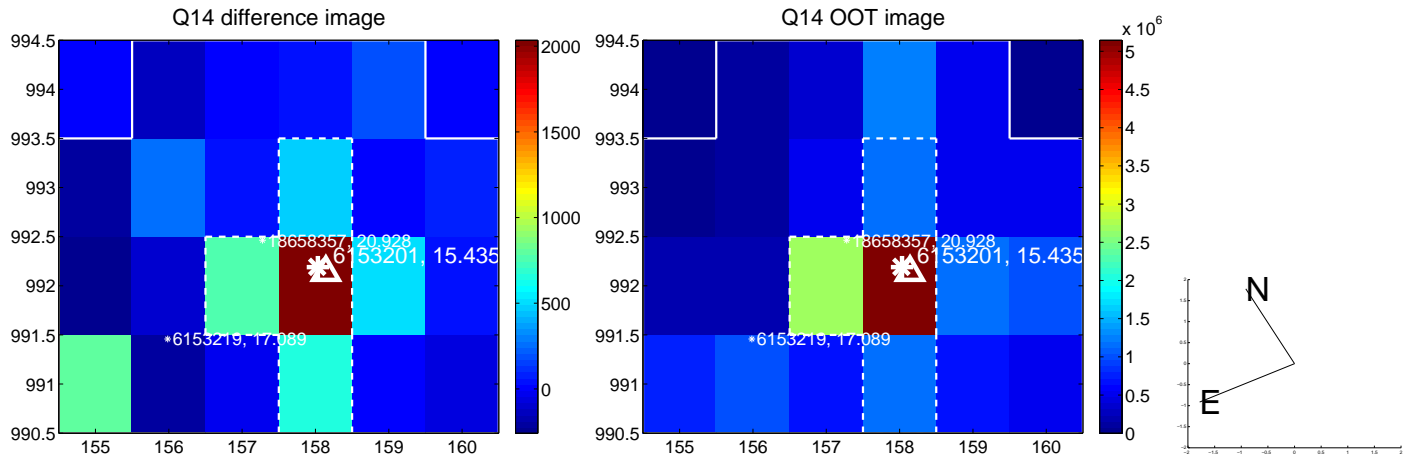
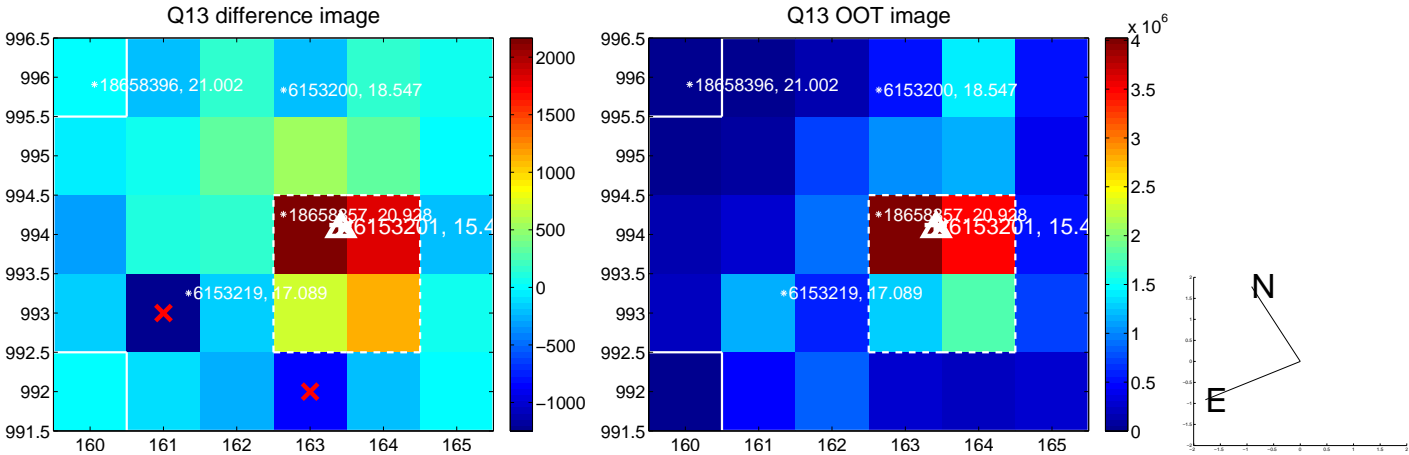
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



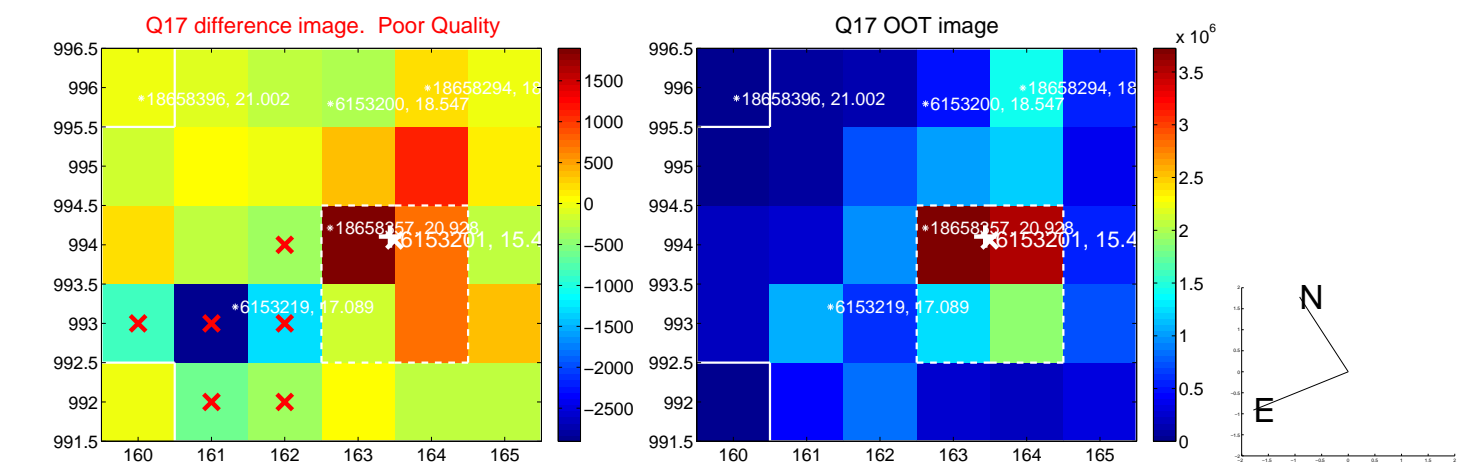
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



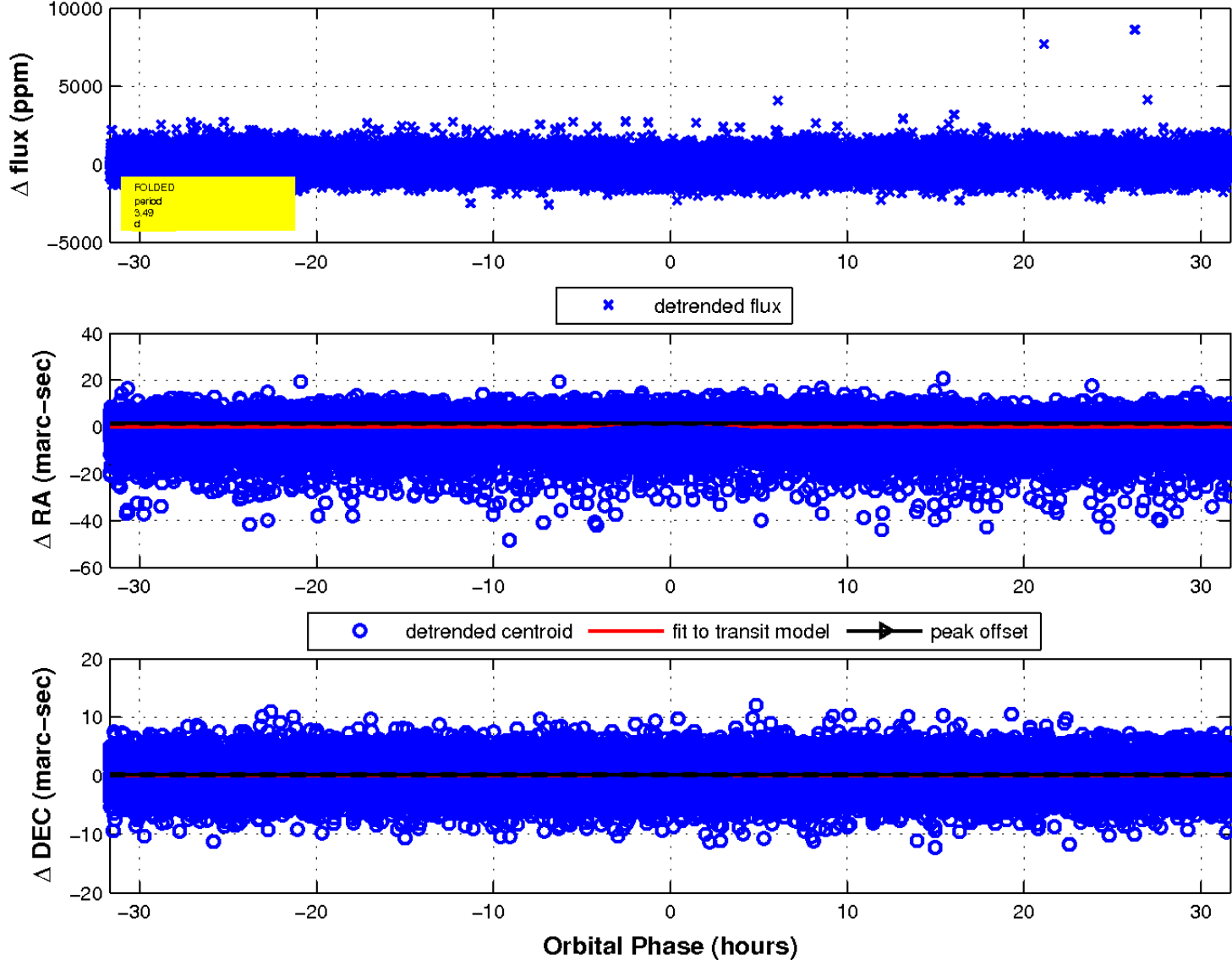
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

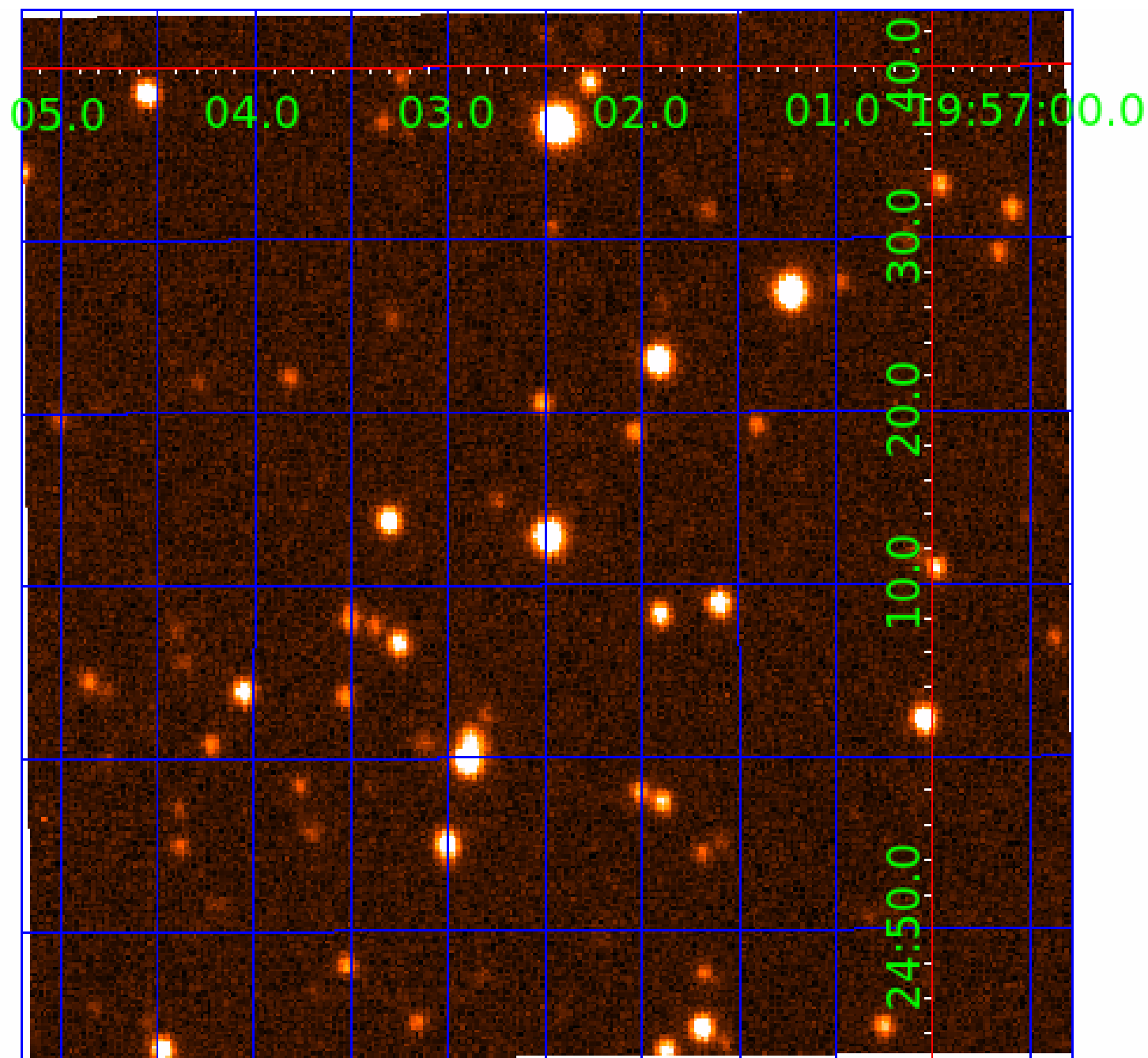


fluxWeightedCentroids, Planet 1 of 2



UKIRT Image

Declination



KIC 006153201

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})
006153201-01	OBS	No	3.494707	134.785052	135.1	10.559	12.5	11.8	1.08	6214	1.70	686.08
006153201-02	OBS	No	3.494920	132.098121	118.7	11.683	12.6	13.1	1.08	6214	1.19	686.02

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
006153201-01	OBS	FP	0.00	1	0	0	0	LPP_DV
006153201-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA—LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—SAME_NTL_PERIOD—CENT_FEW_DIFFS

Notes: OBS = Observed. INJ = Injected. INV = Inverted. SCR = Scrambled.

N = Not Transit-Like. S = Stellar Eclipse. C = Centroid Offset. E = Ephemeris Match.

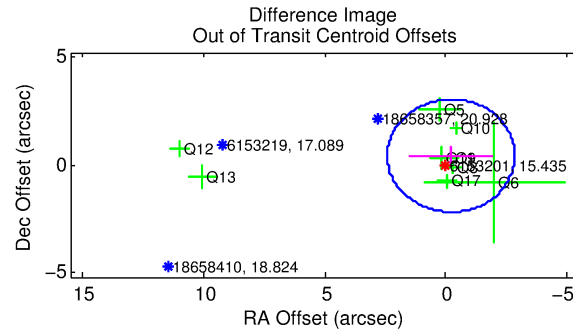
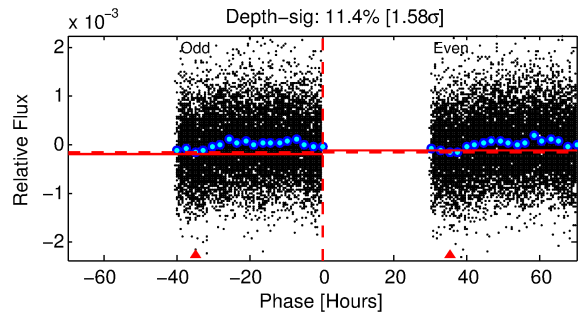
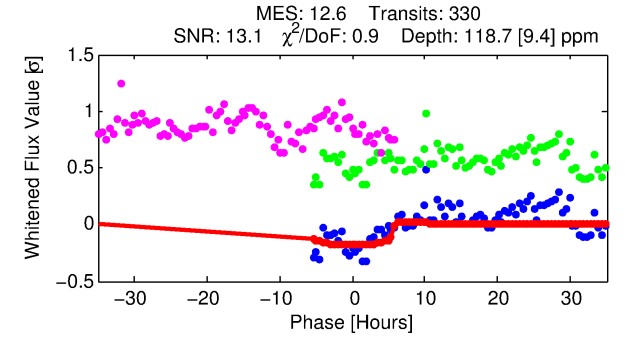
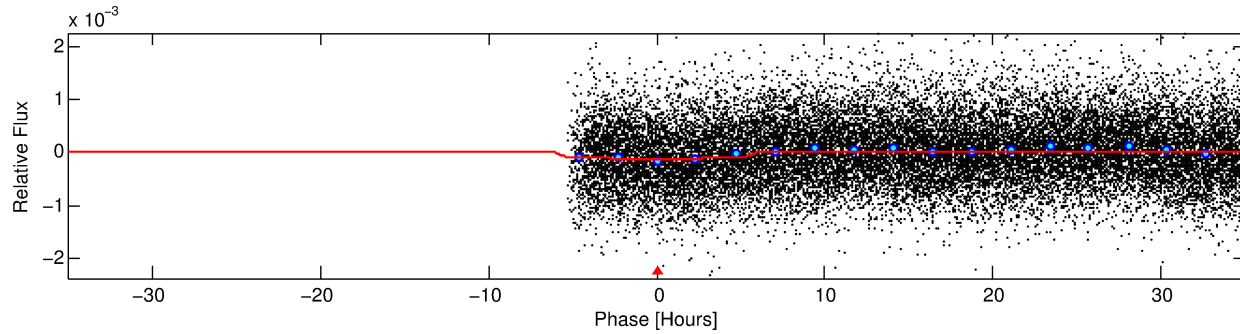
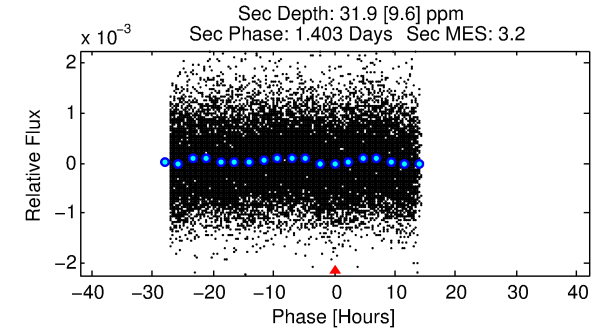
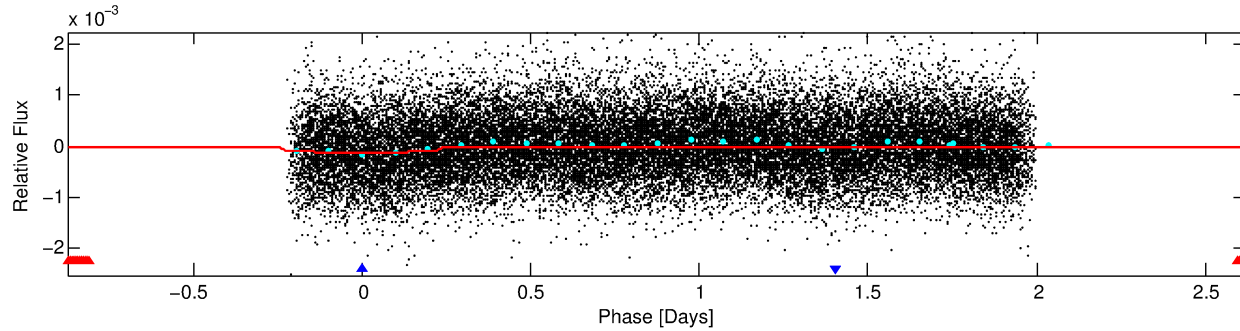
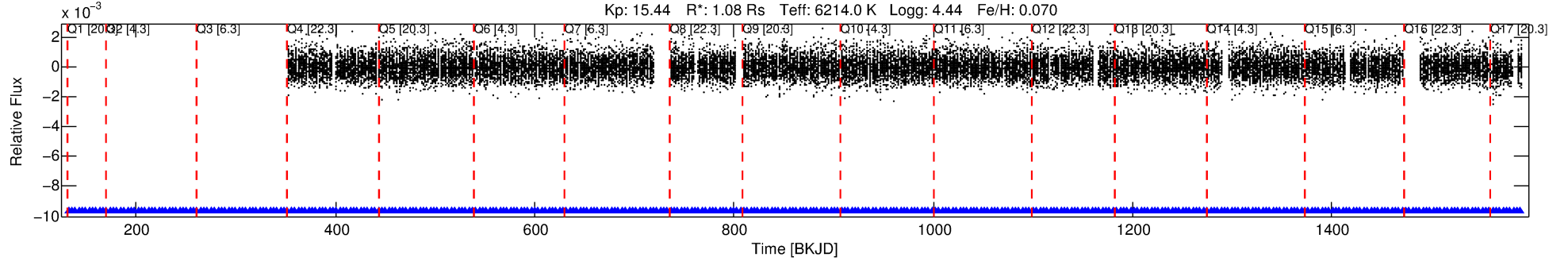
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 006153201-02

No Significant Match Found

DV One-Page Summary

KIC: 6153201 Candidate: 2 of 2 Period: 3.495 d
KOI: K01038 Corr: No Ephemeris Match



DV Fit Results:

Period = 3.49492 [0.00006] d
Epoch = 132.0981 [0.0393] BKJD
Rp/R* = 0.0101 [0.0131]
a/R* = 2.23 [11.36]
b = 0.40 [13.65]
Seff = 686.02 [264.91]
Teq = 1305 [126] K
Rp = 1.19 [1.58] Re
a = 0.0475 [0.0115] AU
Ag = 27.96 [73.47] [0.37σ]
Teffp = 4639 [3028] K [1.10σ]

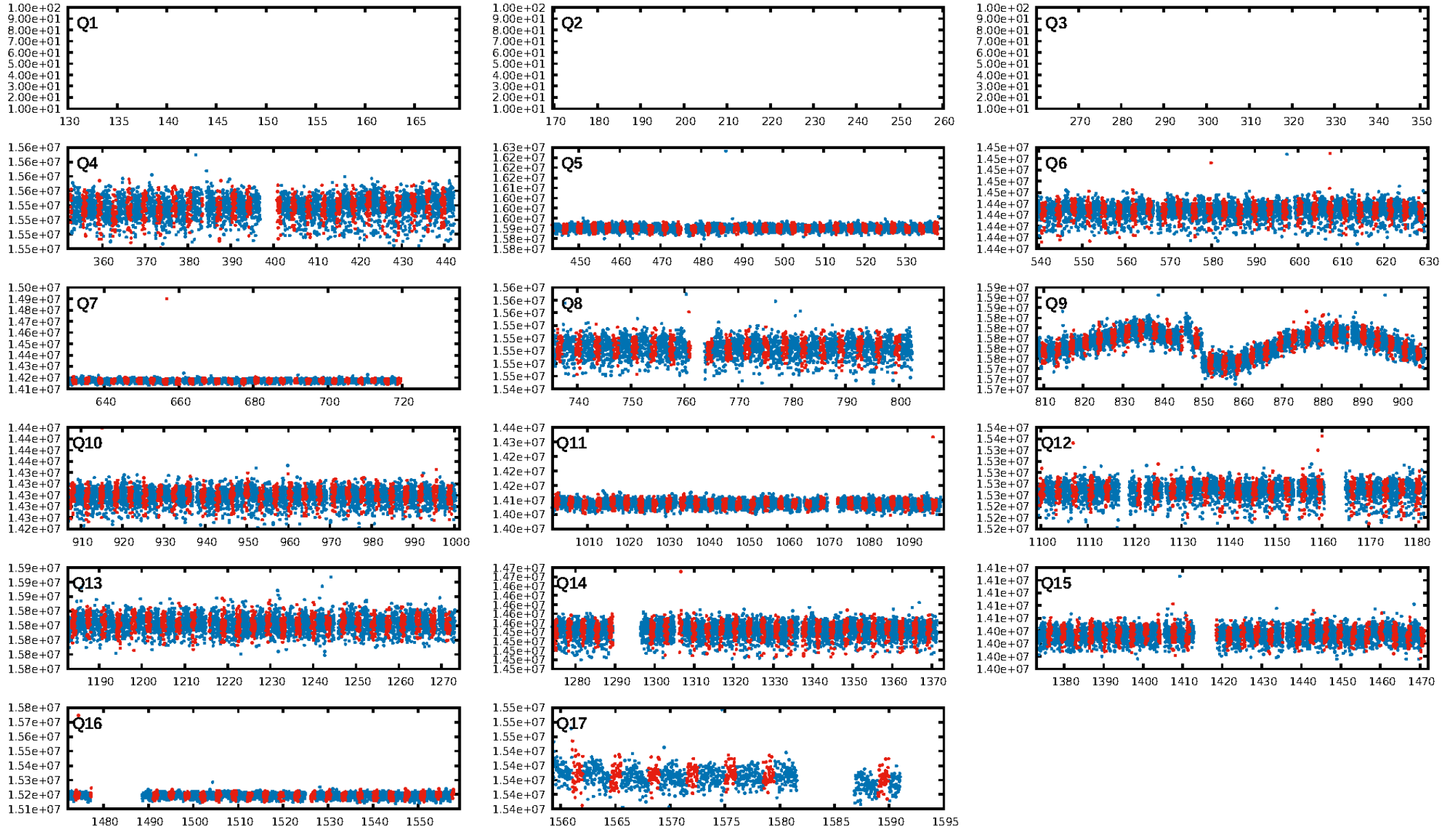
DV Diagnostic Results:

ShortPeriod-sig: 0.0% [0.00σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 1.24e-37
RollingBand-fgt: 1.00 [323/323]
GhostDiagnostic-chr: N/A
Centroid-sig: 0.0%
Centroid-so: 12.575 arcsec [8.31σ]
OotOffset-rm: 0.469 arcsec [0.53σ]
KicOffset-rm: 0.673 arcsec [1.38σ]
OotOffset-st: 2/1/2/4 [9]
KicOffset-st: 2/1/2/4 [9]
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DiffImageOverlap-fno: 0.00 [0/14]

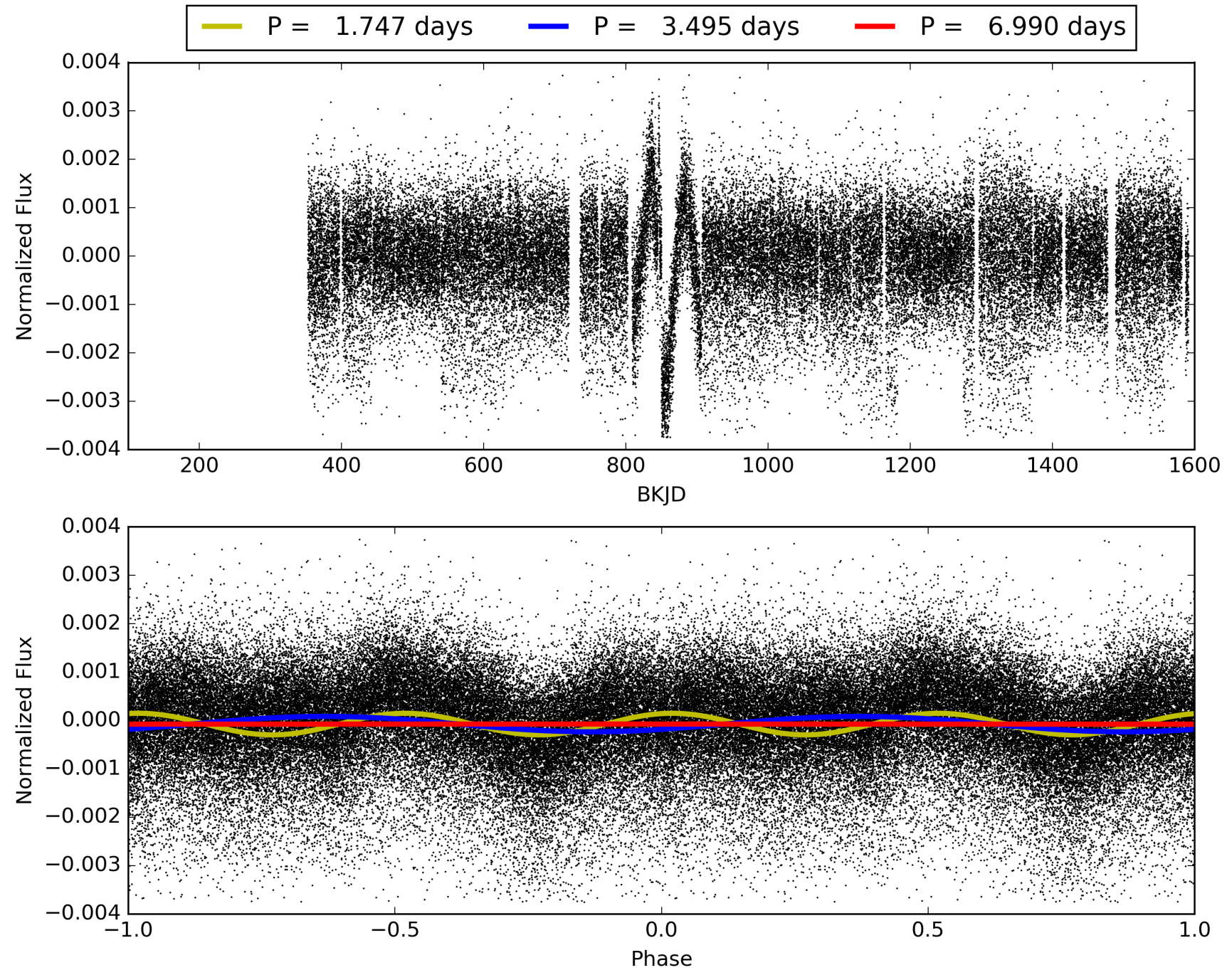
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 01:59:00 Z

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TCE 006153201-02, PDC Light Curves

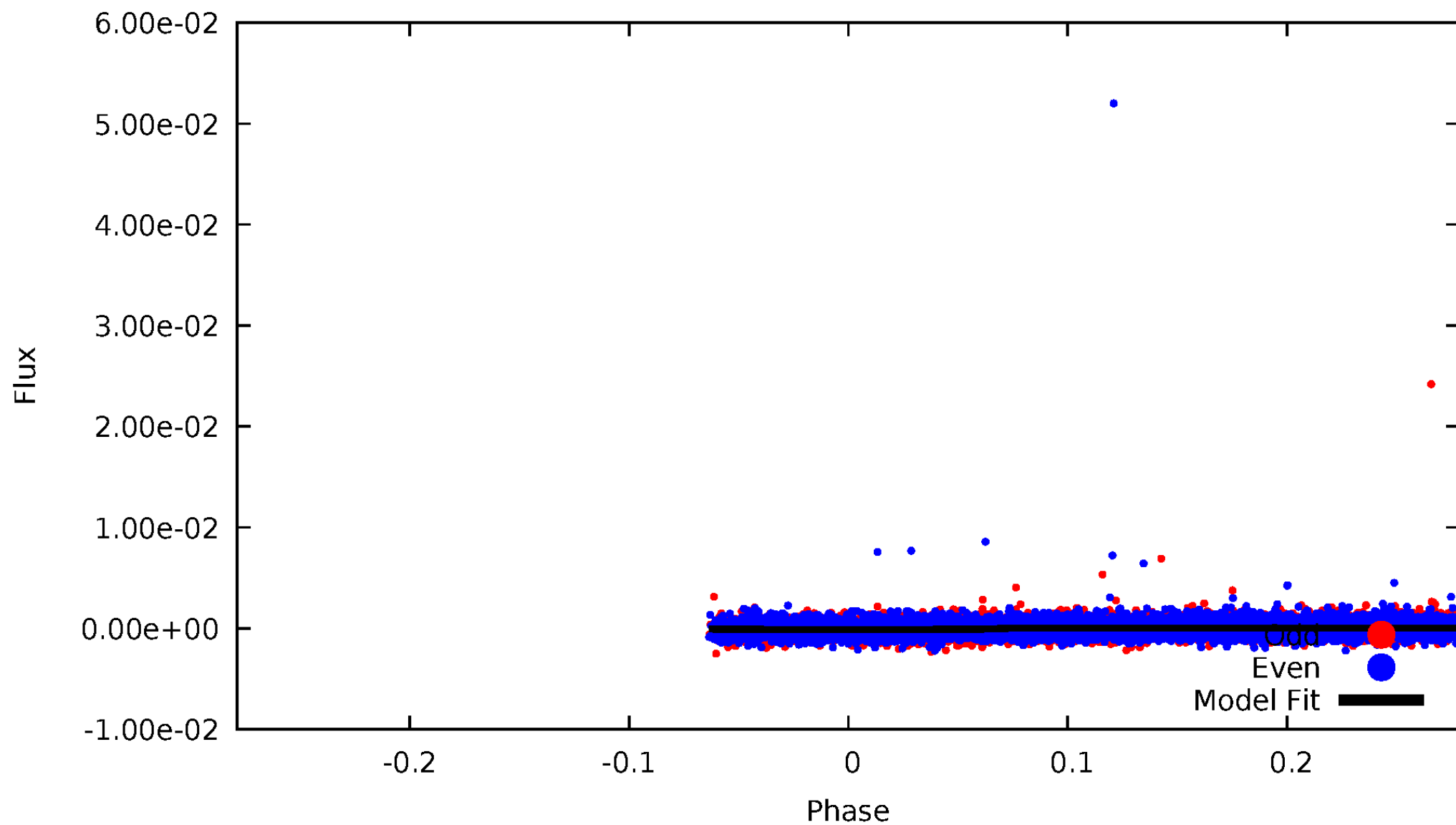


TCE 006153201-02



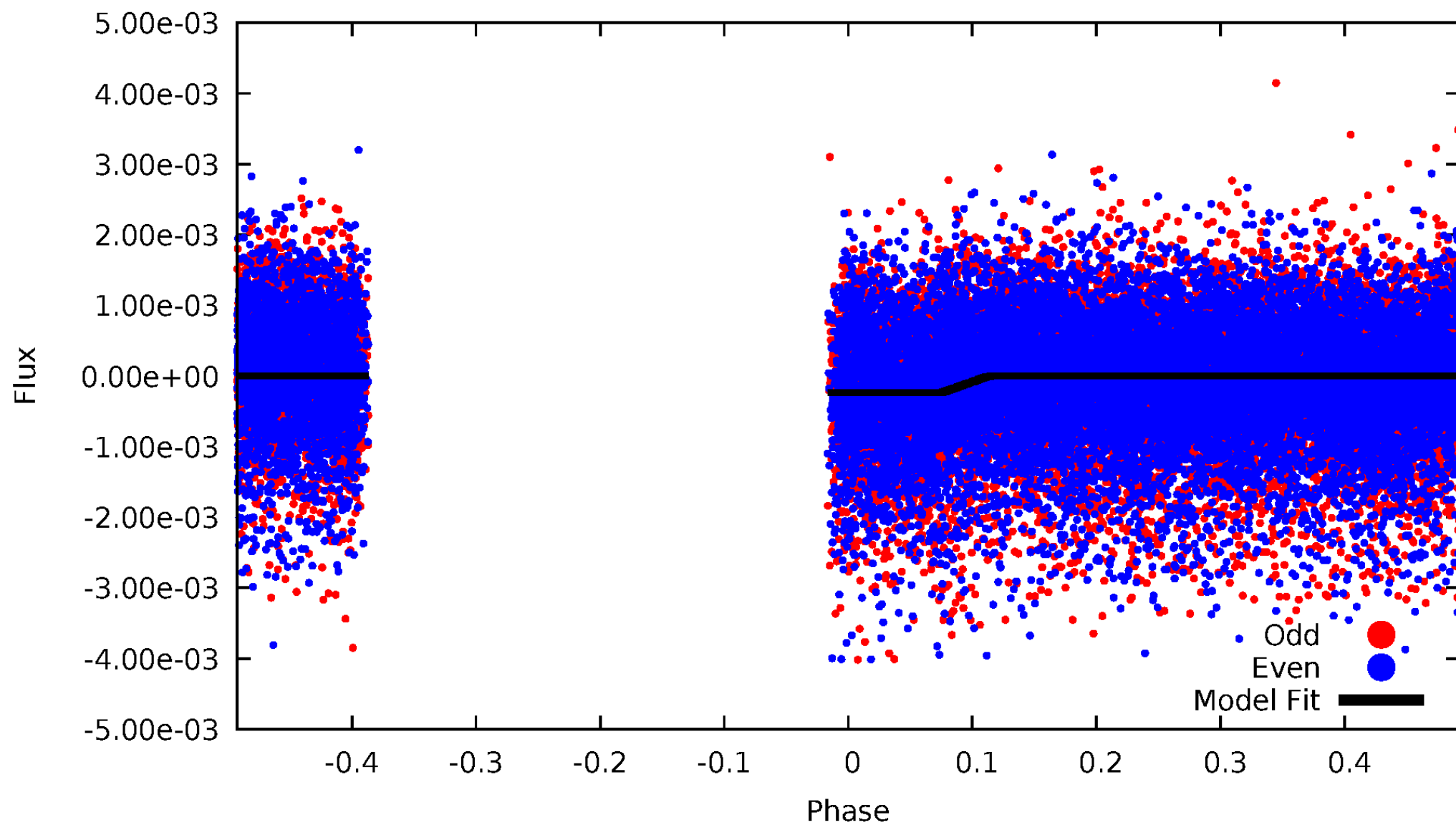
DV Odd/Even

TCE 006153201-02



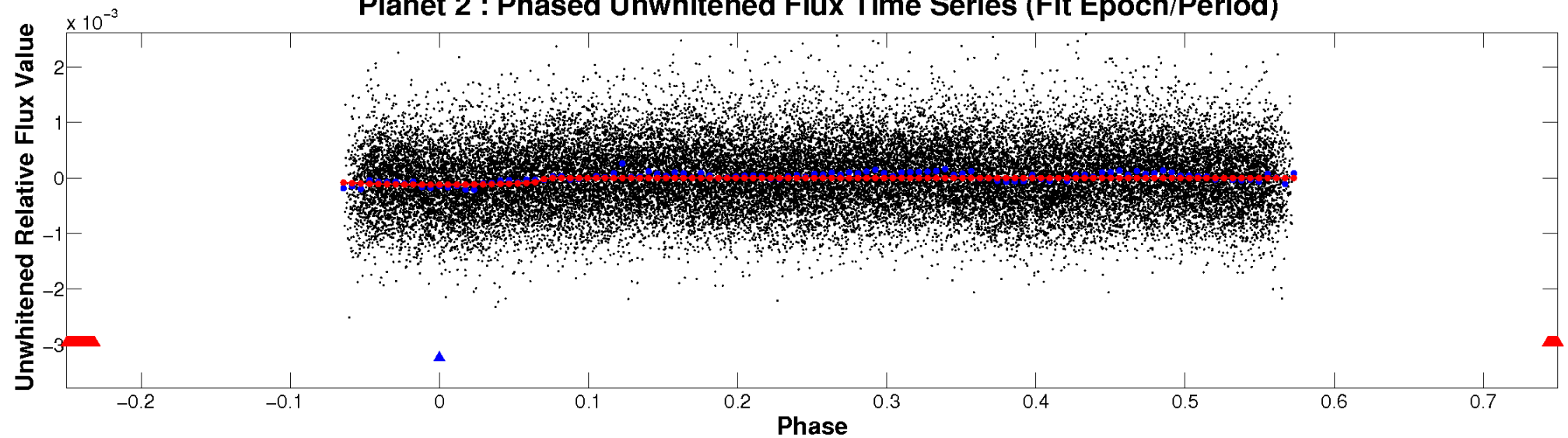
ALT Odd/Even

TCE 006153201-02

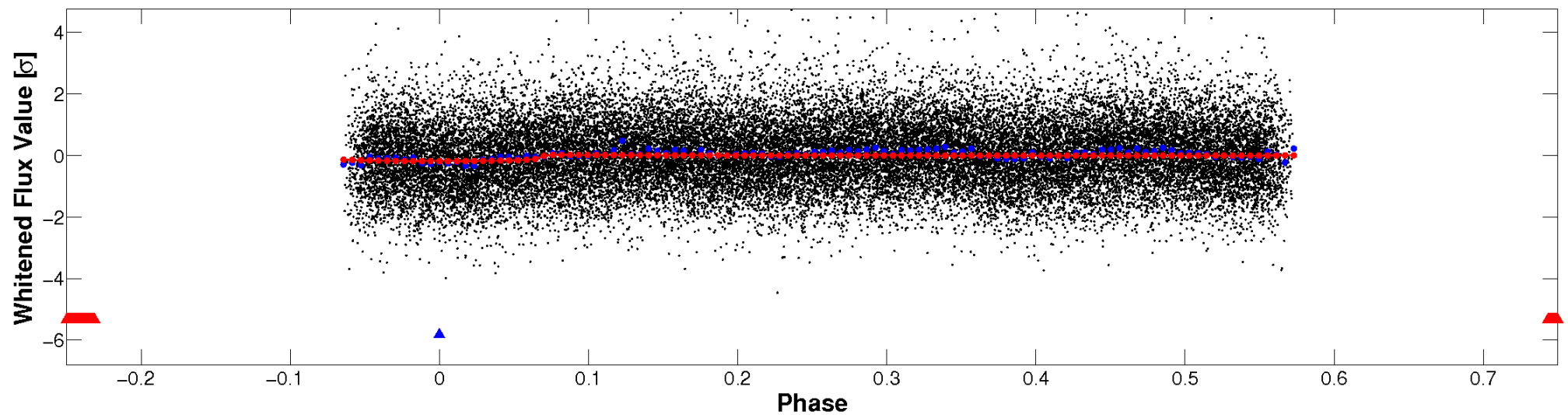


Non-Whitened Vs. Whitened Light Curve

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

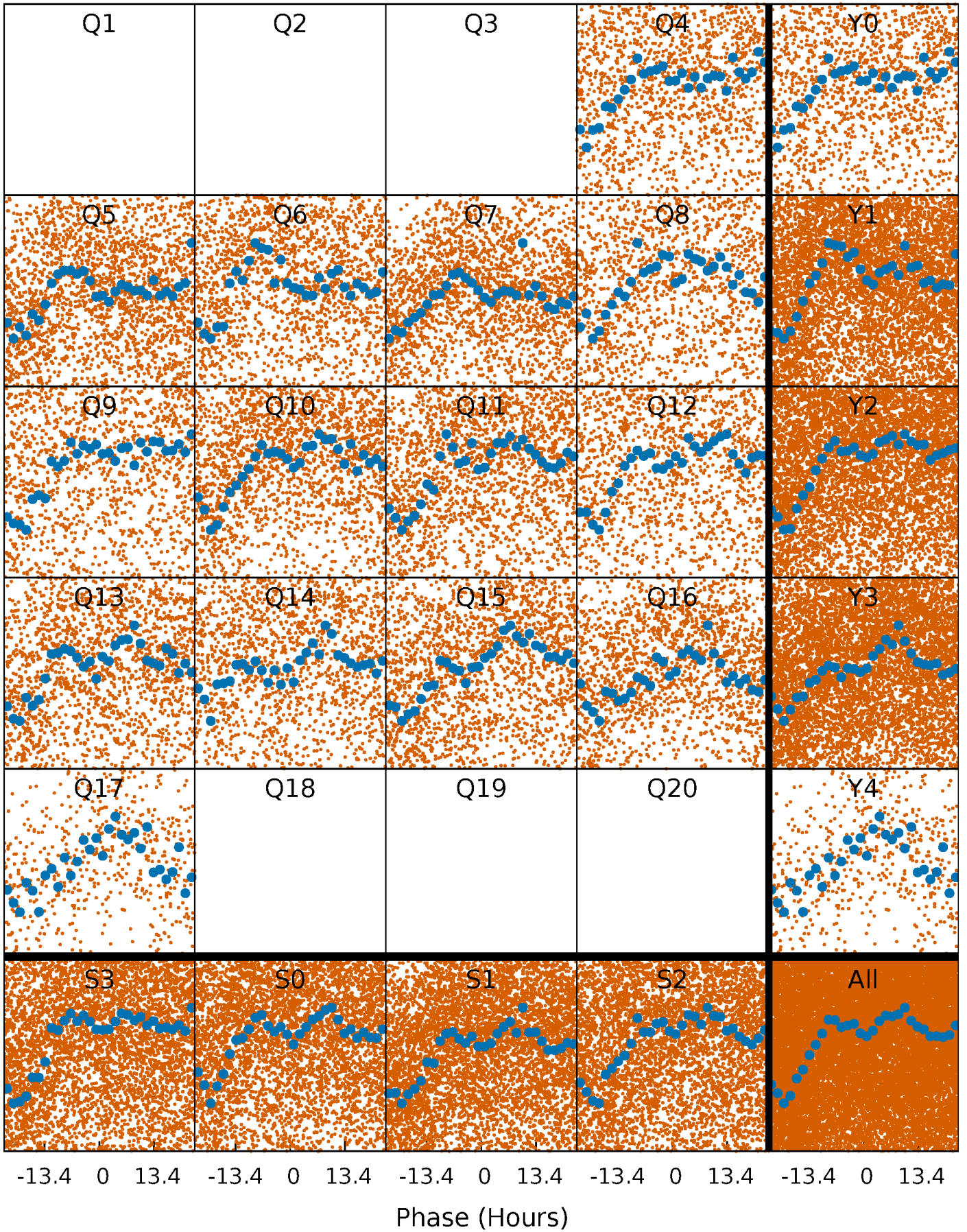


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



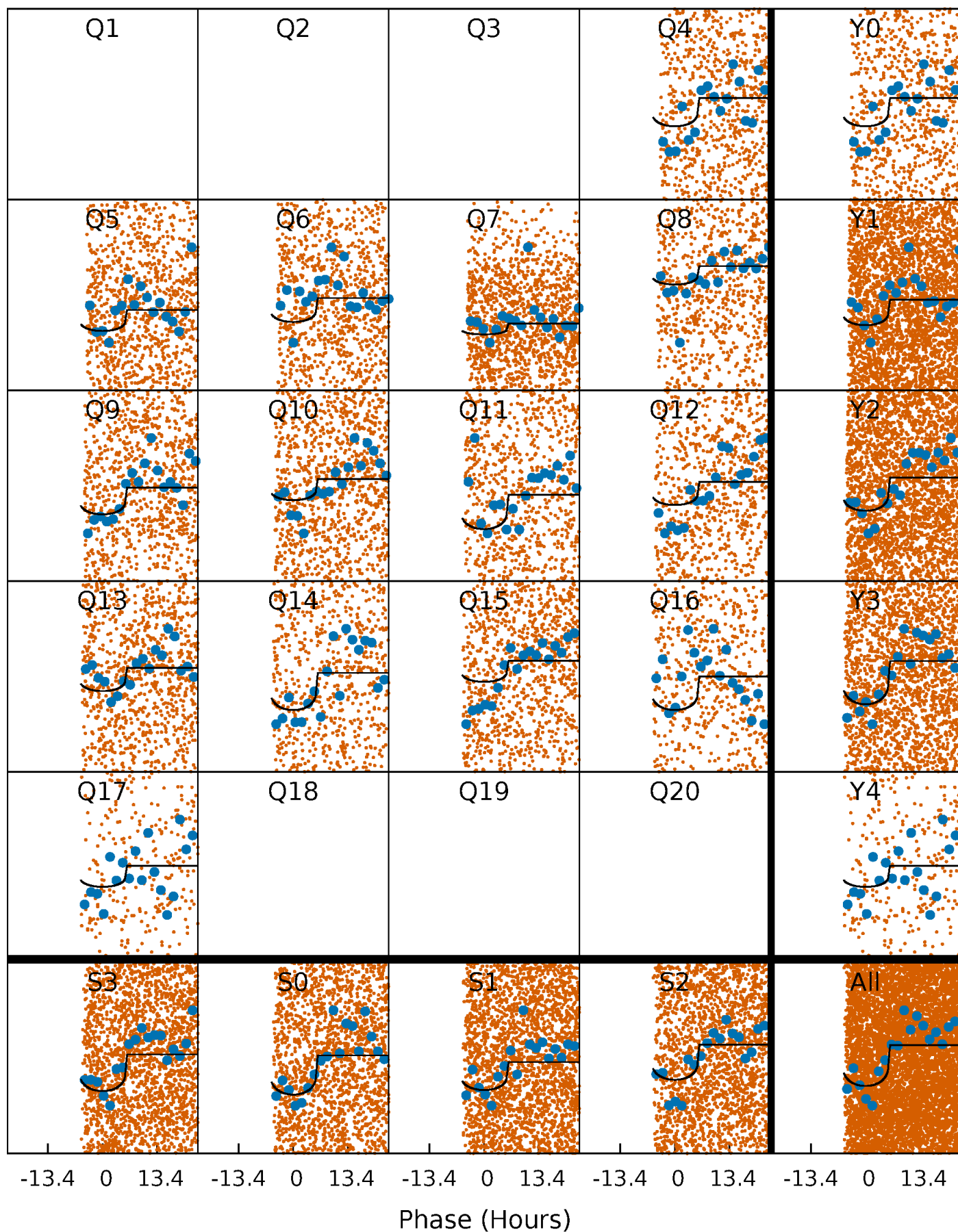
PDC Quarter-Phased Transit Curves

TCE 006153201-02 P= 3.494920 Days $T_0=132.098121$ (BKJD)



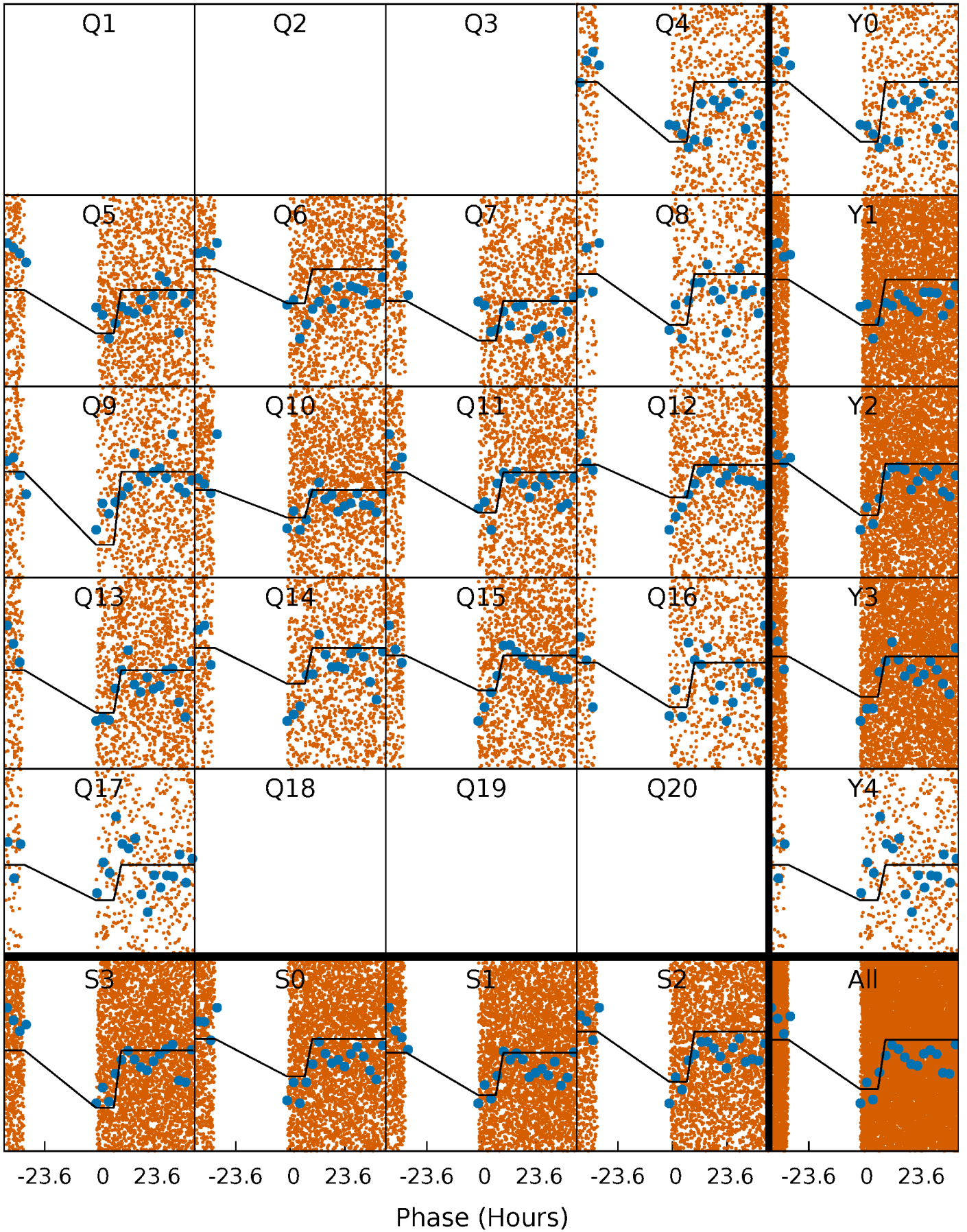
DV Quarter-Phased Transit Curves

TCE 006153201-02 P= 3.494920 Days $T_0=132.098121$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

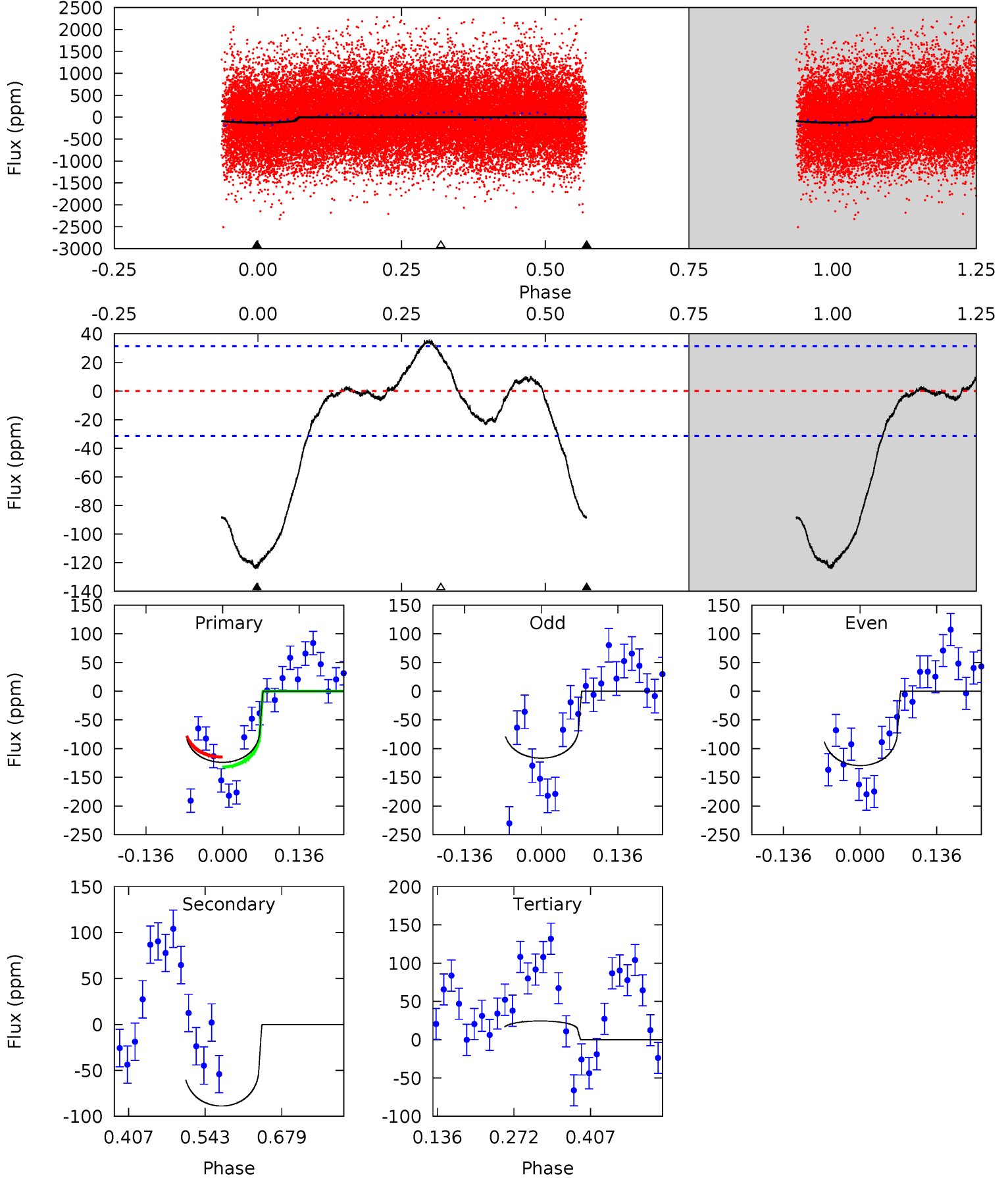
TCE 006153201-02 P= 3.494862 Days $T_0=131.957549$ (BKJD)



DV Model-Shift Uniqueness Test

006153201-02, P = 3.494920 Days, E = 132.098121 Days

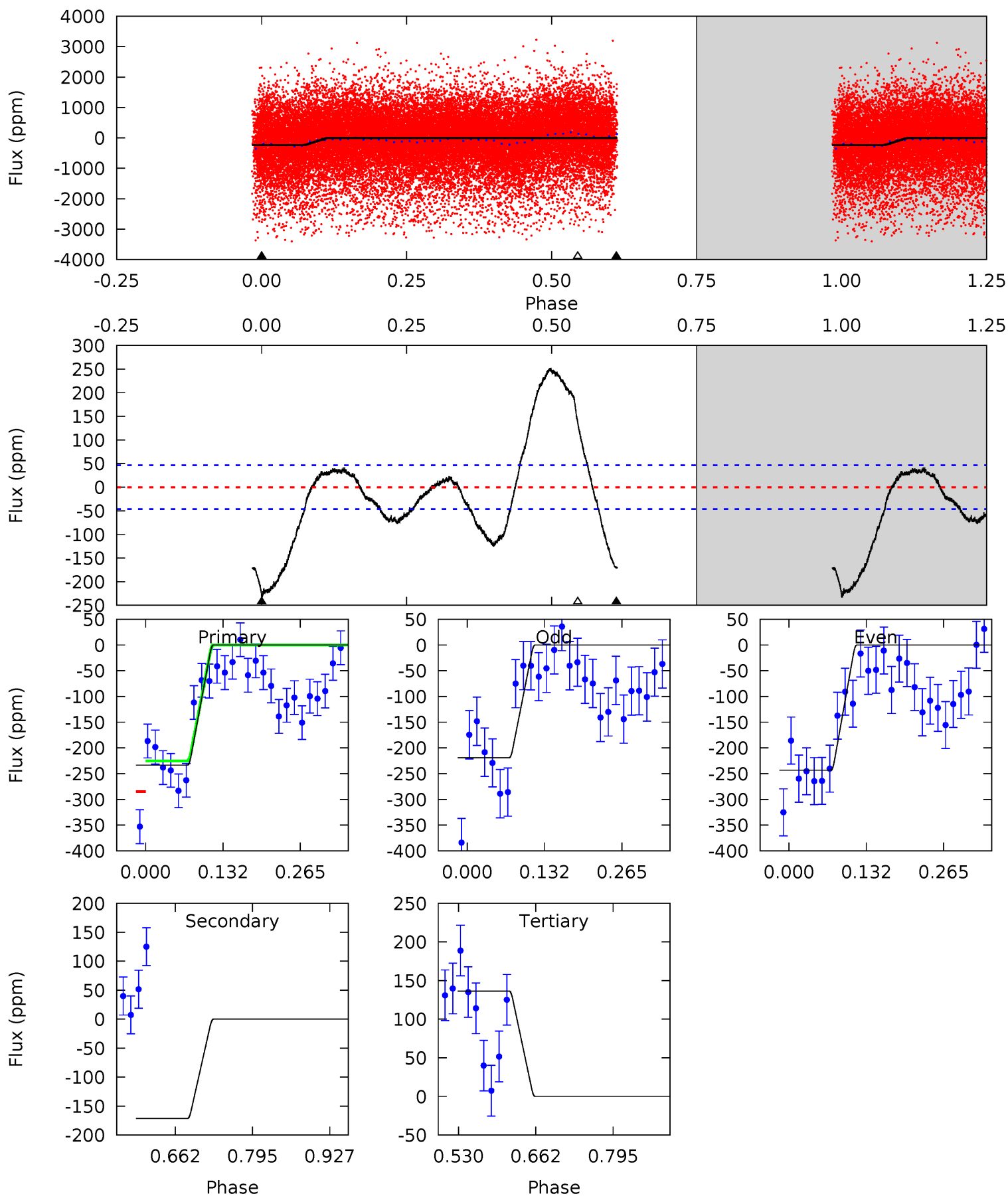
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
17.7	12.7	-3.51	0	4.50	1.49	2.26	21.2	17.7	16.2	12.7	0.93	1.00	0.23	1.20



Alt Model-Shift Uniqueness Test

006153201-02, P = 3.494862 Days, E = 131.957549 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
22.7	16.6	-13.2	0	4.51	1.50	11.0	35.9	22.7	29.9	16.6	1.19	0.99	0.52	1.61



Stellar Parameters For KIC 006153201

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6214^{+196}_{-261}	$4.442^{+0.062}_{-0.188}$	$0.070^{+0.200}_{-0.350}$	$1.076^{+0.313}_{-0.134}$	$1.169^{+0.125}_{-0.188}$	$1.321^{+0.436}_{-0.675}$
	+3%/-4%	+1%/-4%	+286%/-500%	+29%/-12%	+11%/-16%	+33%/-51%
Source	KIC0	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 006153201-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-89 ± 7	$1.60^{+1.41}_{-1.04}$	1848^{+119}_{-103}	5236^{+4069}_{-1158}	41^{+302}_{-30}
Alt.	-171 ± 10	$2.12^{+1.65}_{-1.30}$	1856^{+129}_{-94}	5394^{+3569}_{-1118}	45^{+254}_{-30}

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

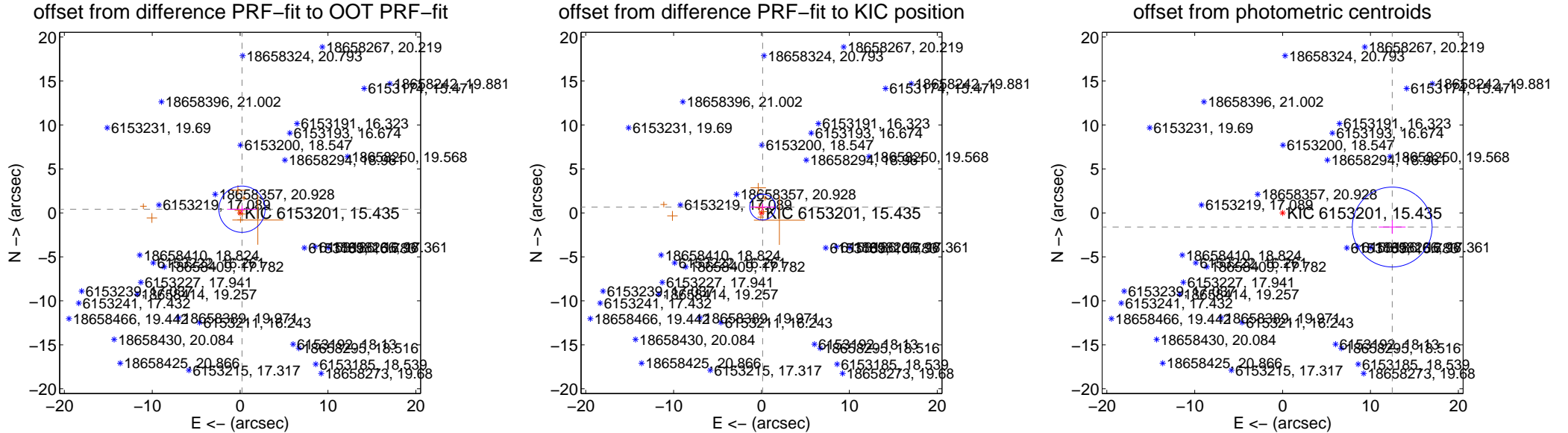
DV Centroid Data

Supplemental centroid analysis for 006153201-02. Kepler magnitude: 15.44. Transit SNR 13.15

There are 0 quarters with good PRF difference image offsets

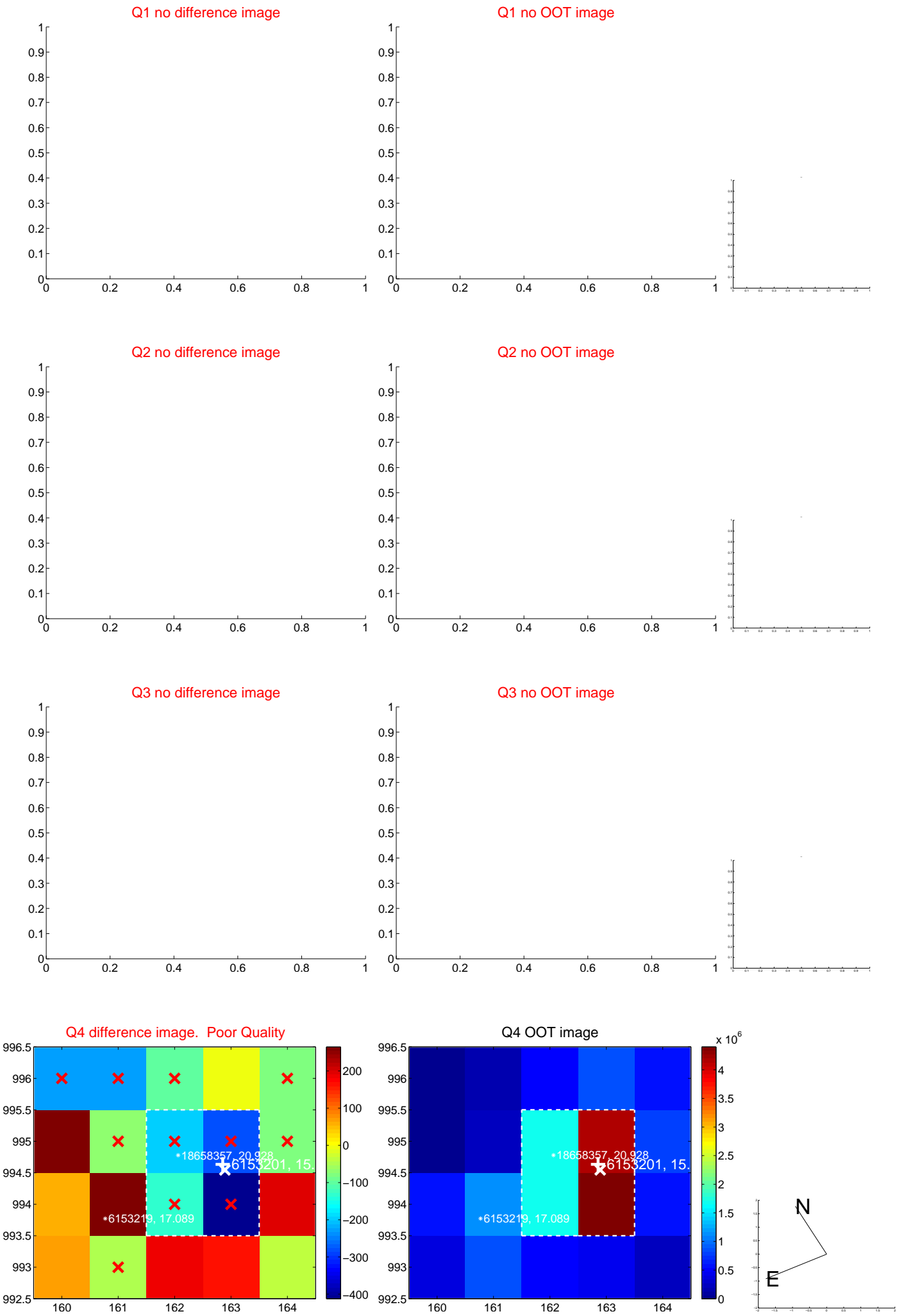
The direct PRF centroid is offset from the target star catalog position by about 0.31 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.469 ± 0.877	0.53	-0.214 ± 1.699	0.417 ± 0.380
PRF-fit source offset from KIC position	0.673 ± 0.489	1.38	-0.128 ± 1.445	0.661 ± 0.394
photometric centroid source offset	12.58 ± 1.51	8.31	-12.47 ± 1.52	-1.61 ± 0.77

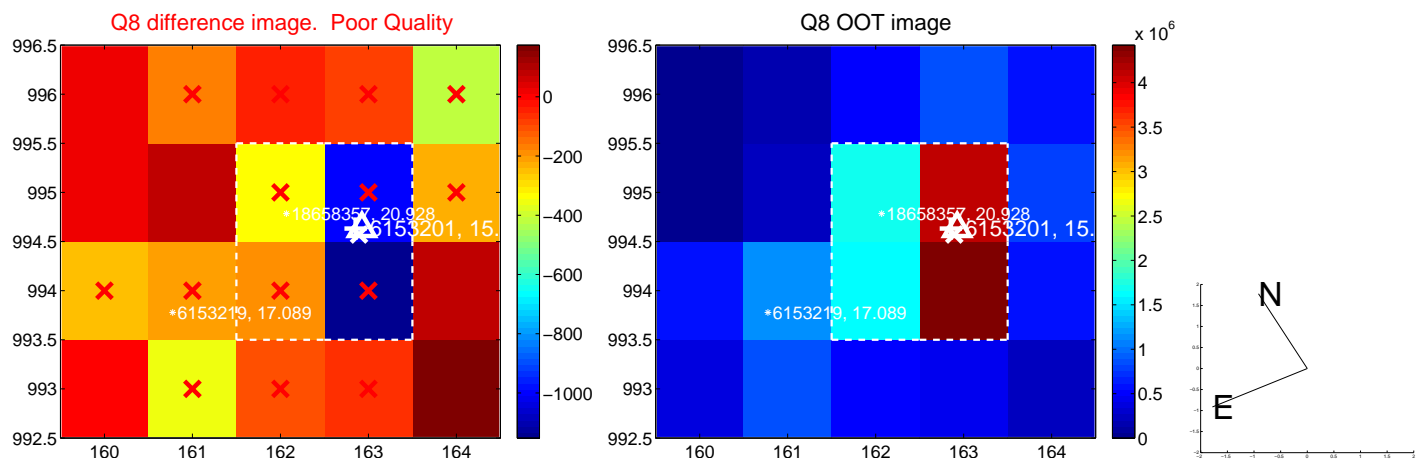
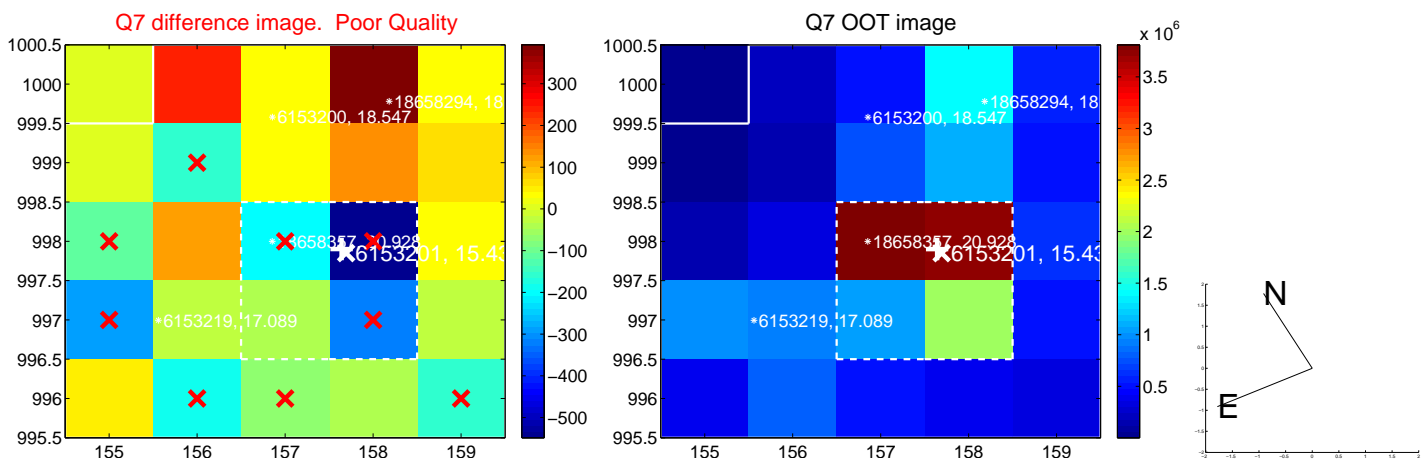
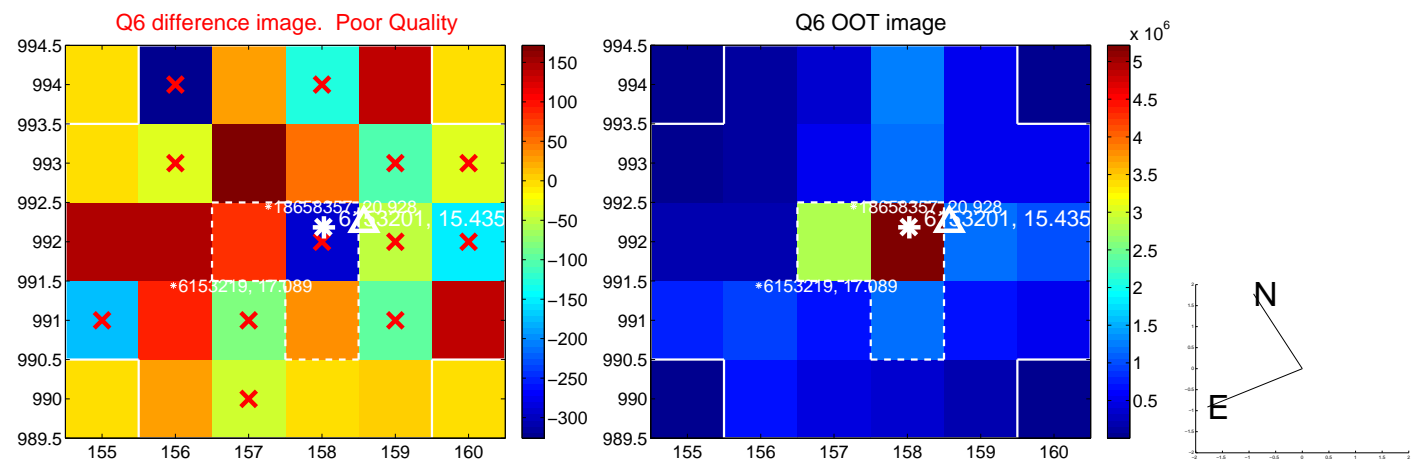
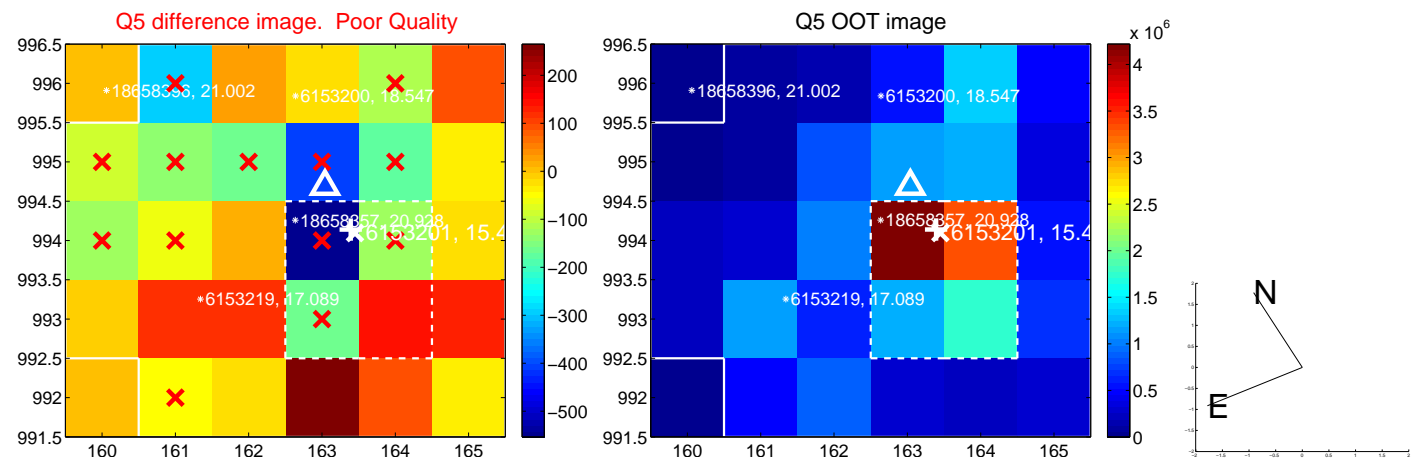


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

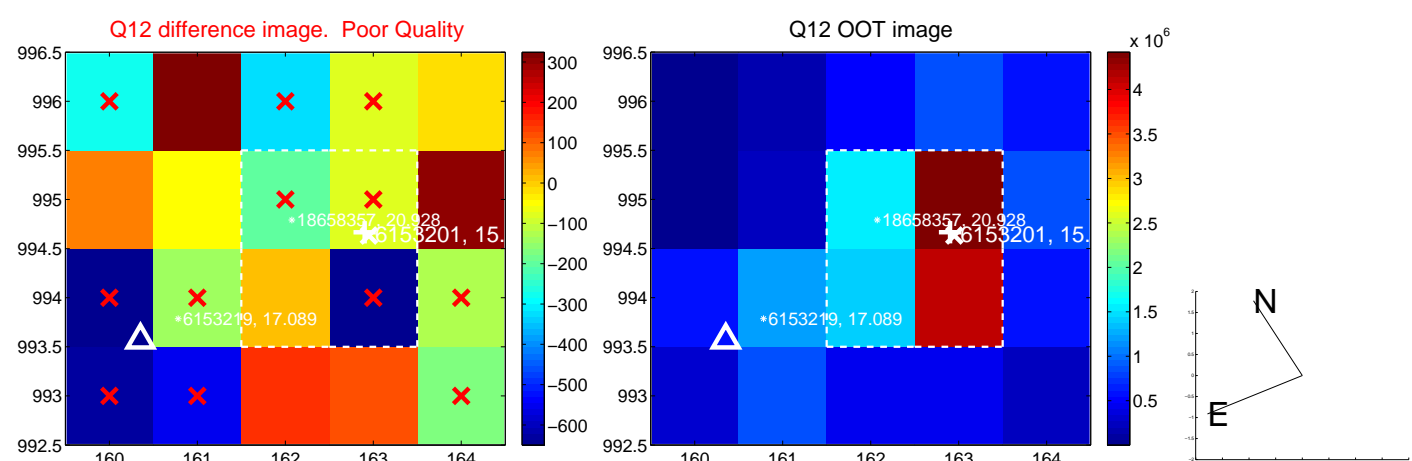
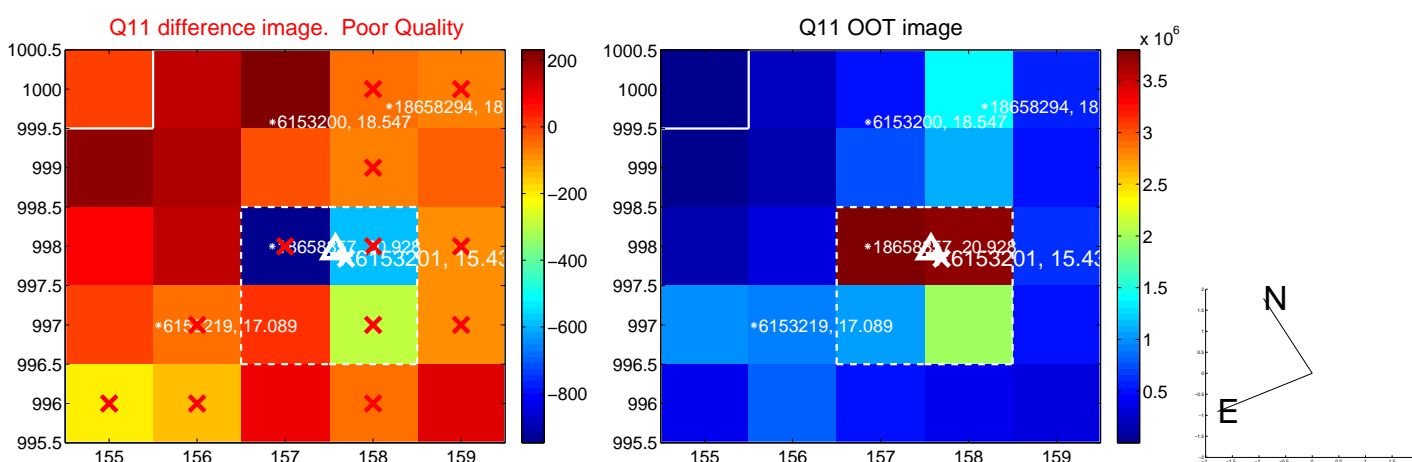
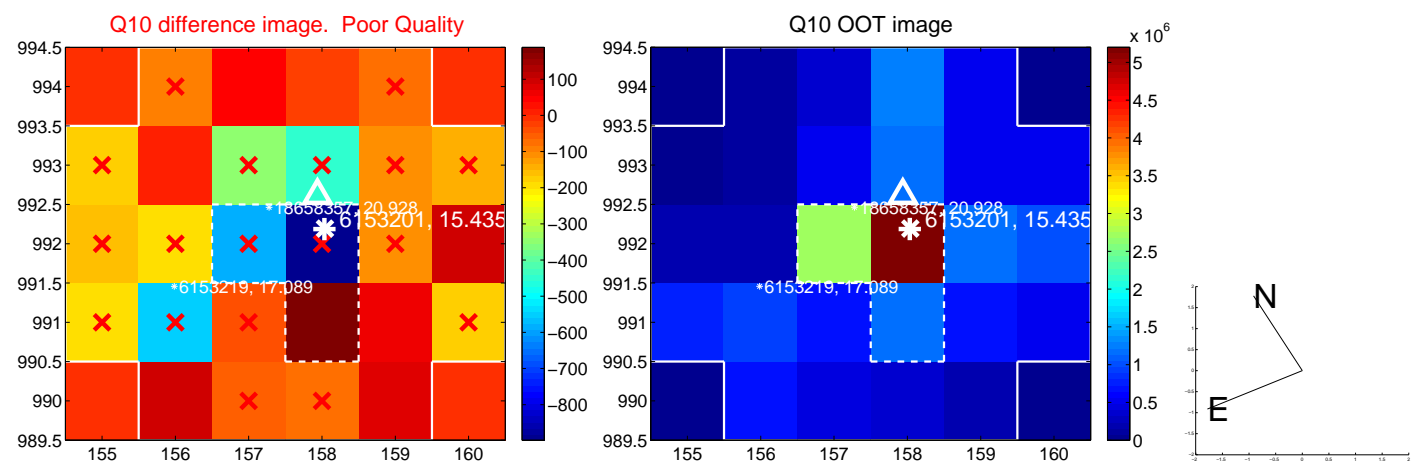
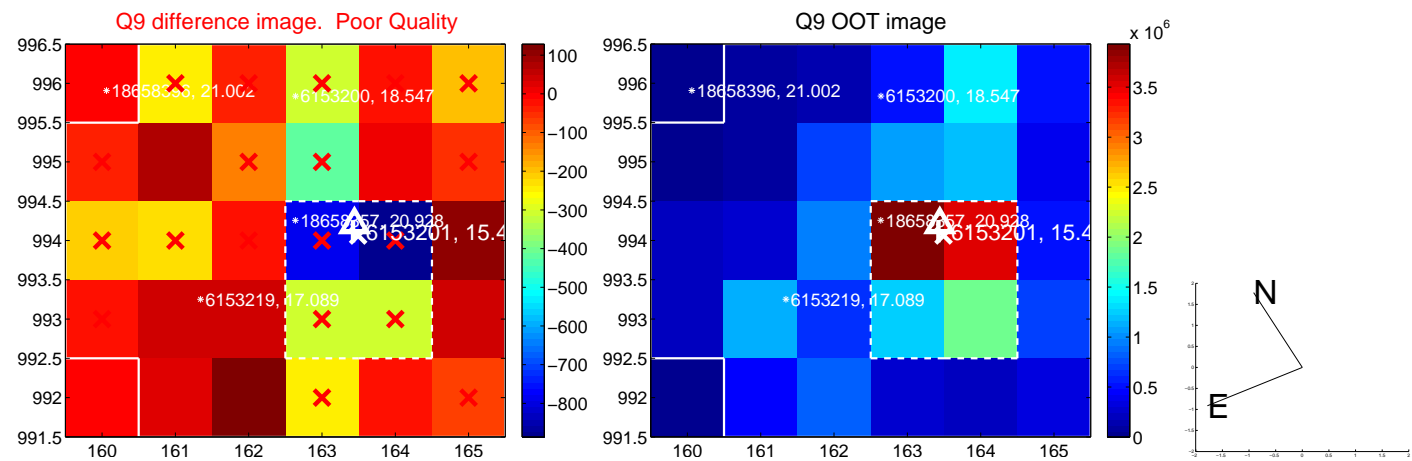
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ✕: large negative pixel value.



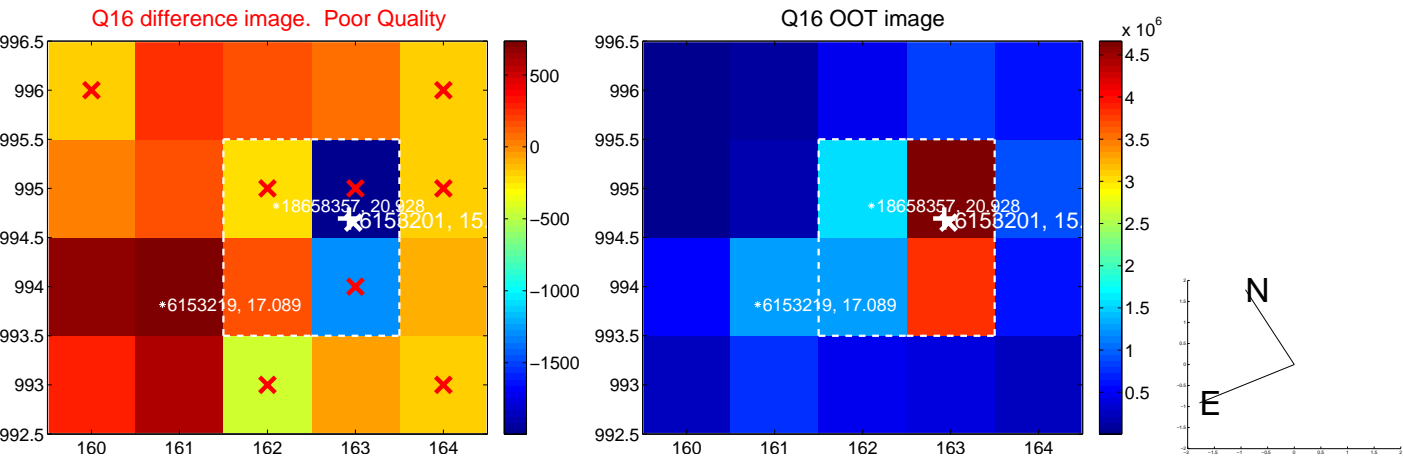
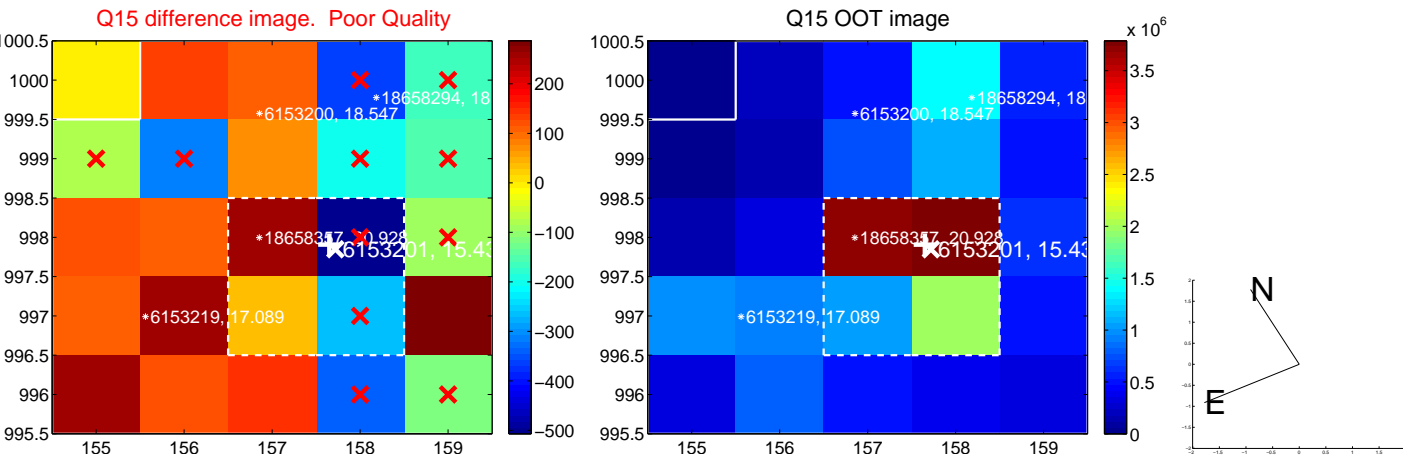
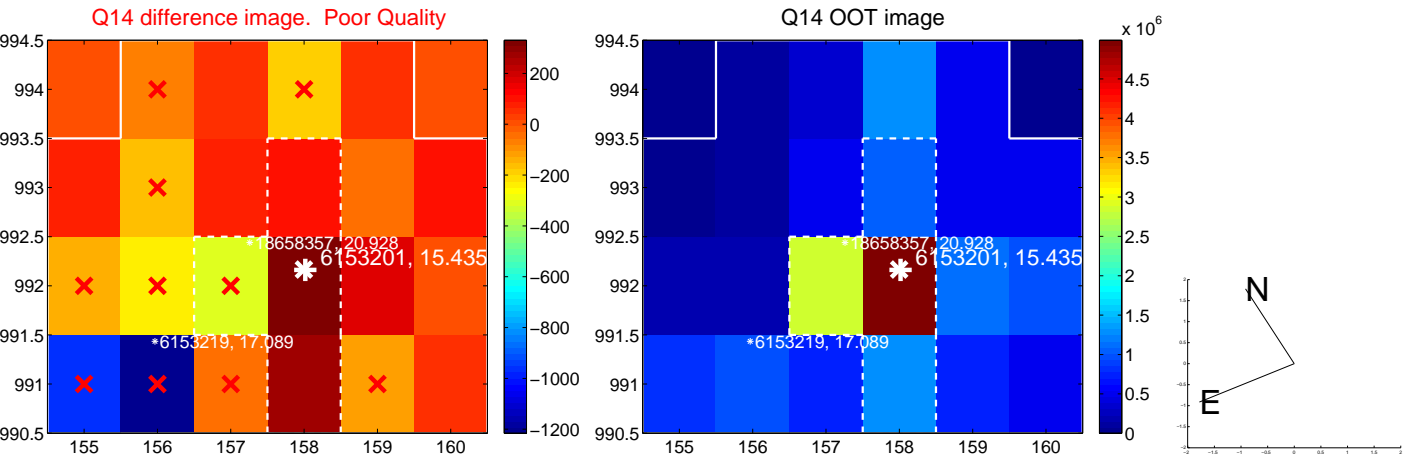
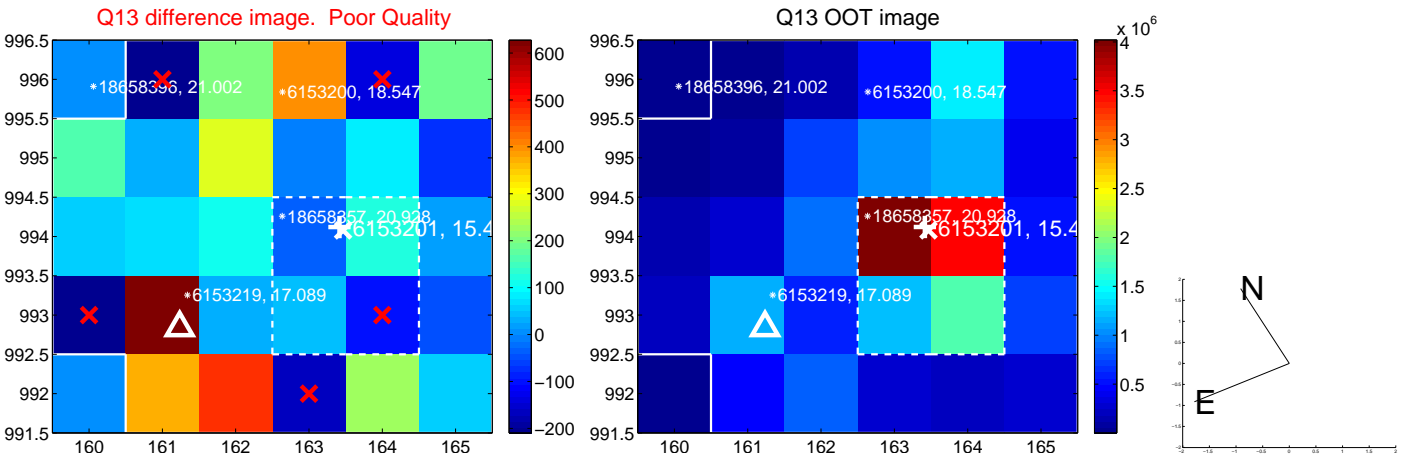
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



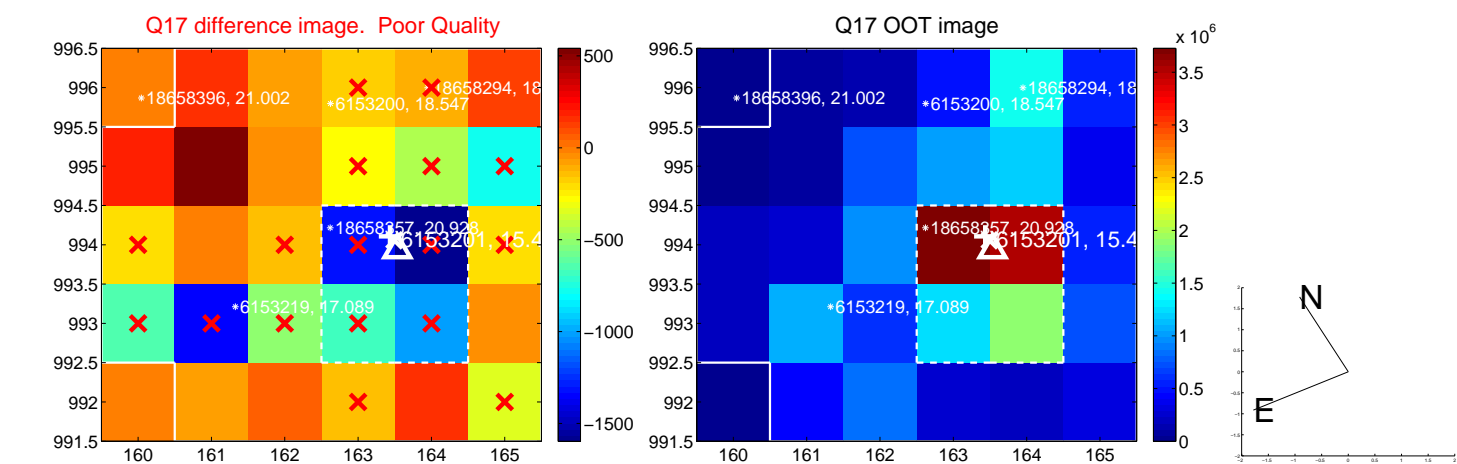
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



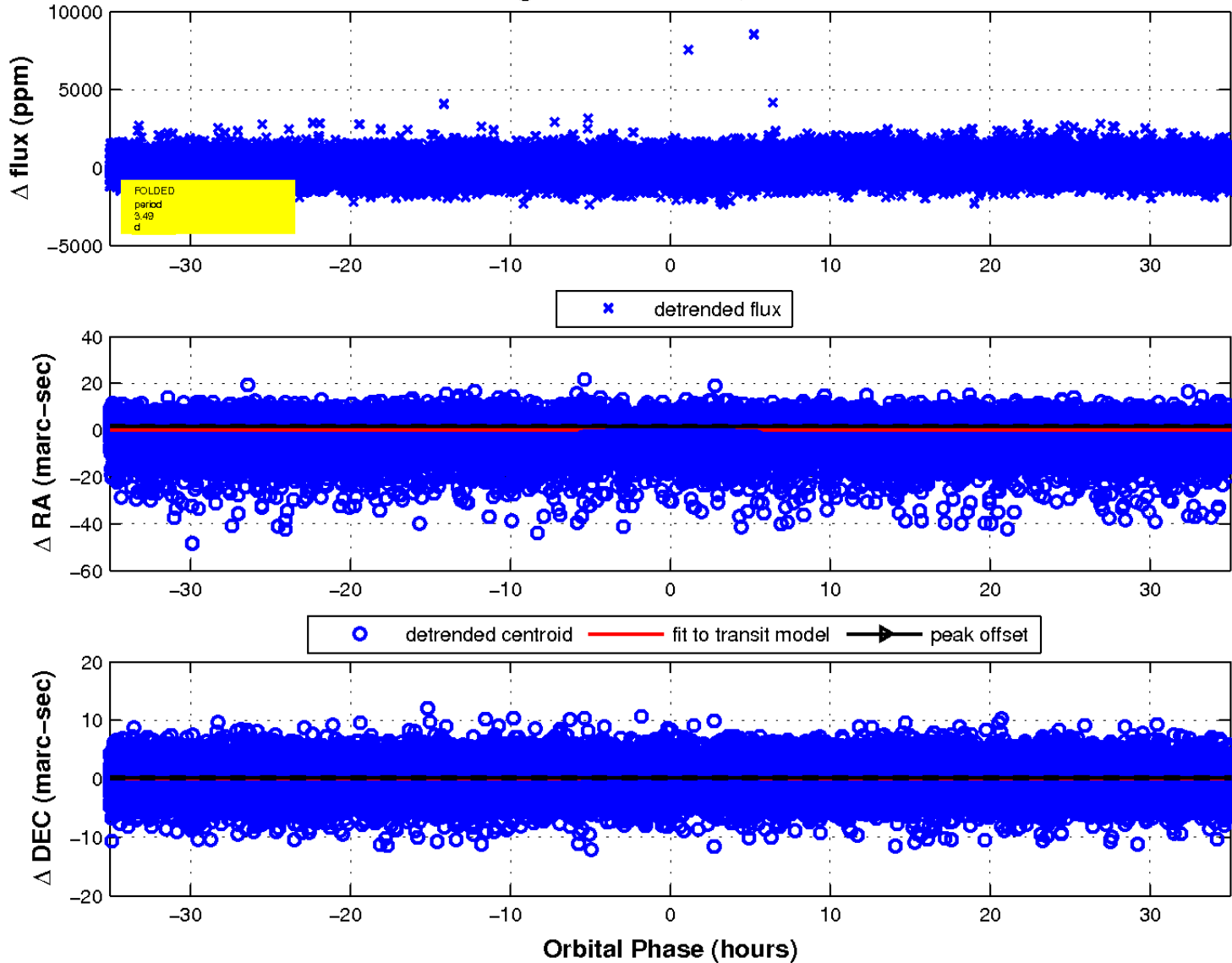
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



fluxWeightedCentroids, Planet 2 of 2



UKIRT Image

Declination

