

KIC 005036530

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})
005036530-01	OBS	6503.01	2.730955	131.938935	20.3	11.714	7.2	6.0	1.52	6333	0.82	1885.30
005036530-02	OBS	No	220.008404	313.756086	452.5	20.836	12.2	10.4	1.52	6333	3.37	5.42

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005036530-01	OBS	FP	0.00	1	0	0	0	LPP_DV
005036530-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—TRANS_GAPPED—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 005036530-01

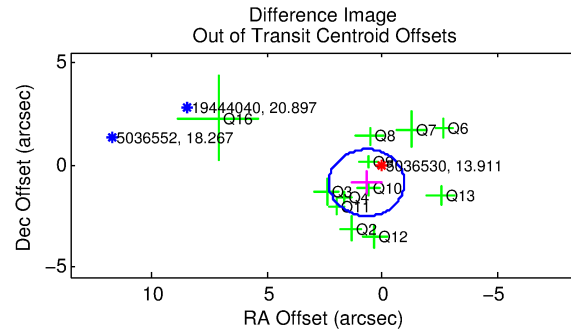
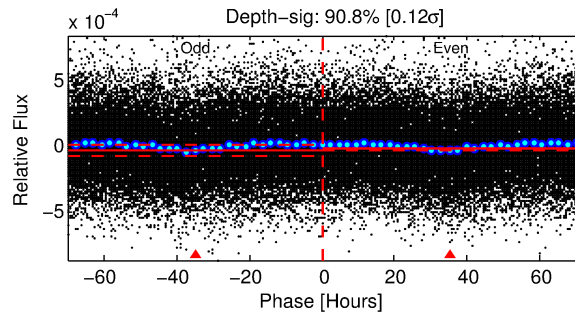
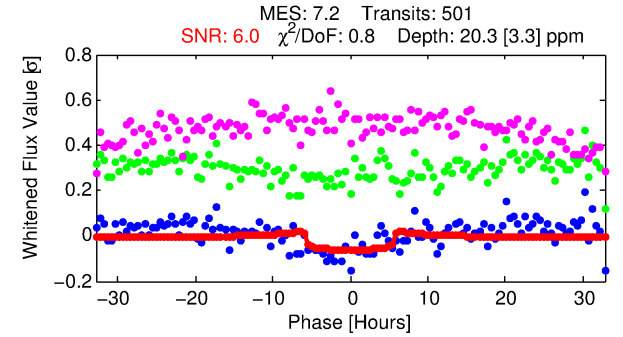
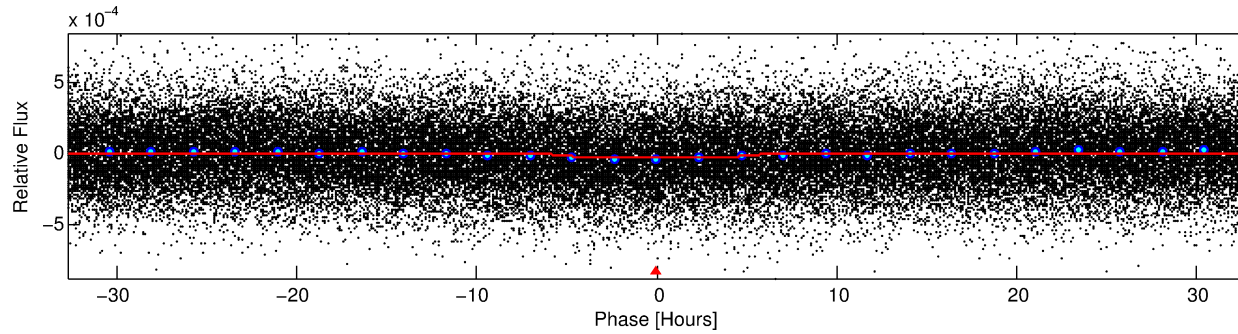
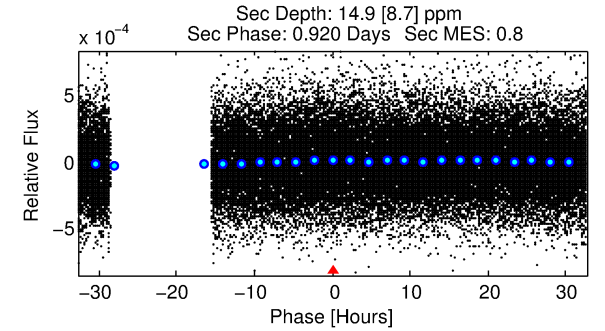
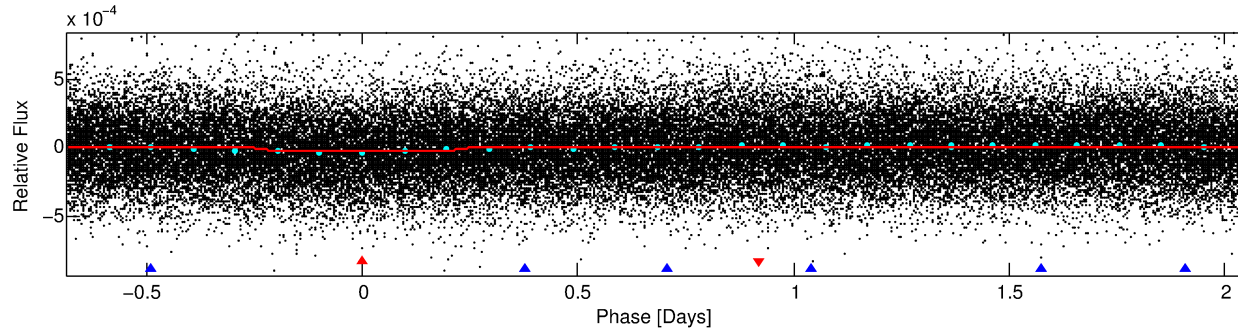
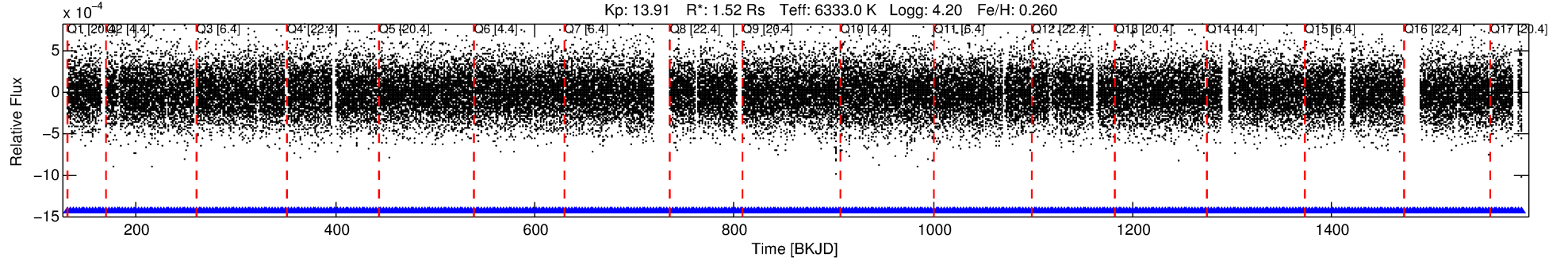
No Significant Match Found

DV One-Page Summary

KIC: 5036530 Candidate: 1 of 2 Period: 2.731 d

KOI: K06503 Corr: No Ephemeris Match

Kp: 13.91 R*: 1.52 Rs Teff: 6333.0 K Logg: 4.20 Fe/H: 0.260



DV Fit Results:

Period = 2.73096 [0.00006] d
Epoch = 131.9389 [0.0142] BKJD
Rp/R* = 0.0049 [0.0016]
a/R* = 1.20 [0.61]
b = 0.92 [0.29]
Seff = 1885.30 [397.50]
Teq = 1680 [89] K
Rp = 0.82 [0.29] Re
a = 0.0421 [0.0060] AU
Ag = 21.61 [19.05] [1.08σ]
Teffp = 5601 [1203] K [3.25σ]

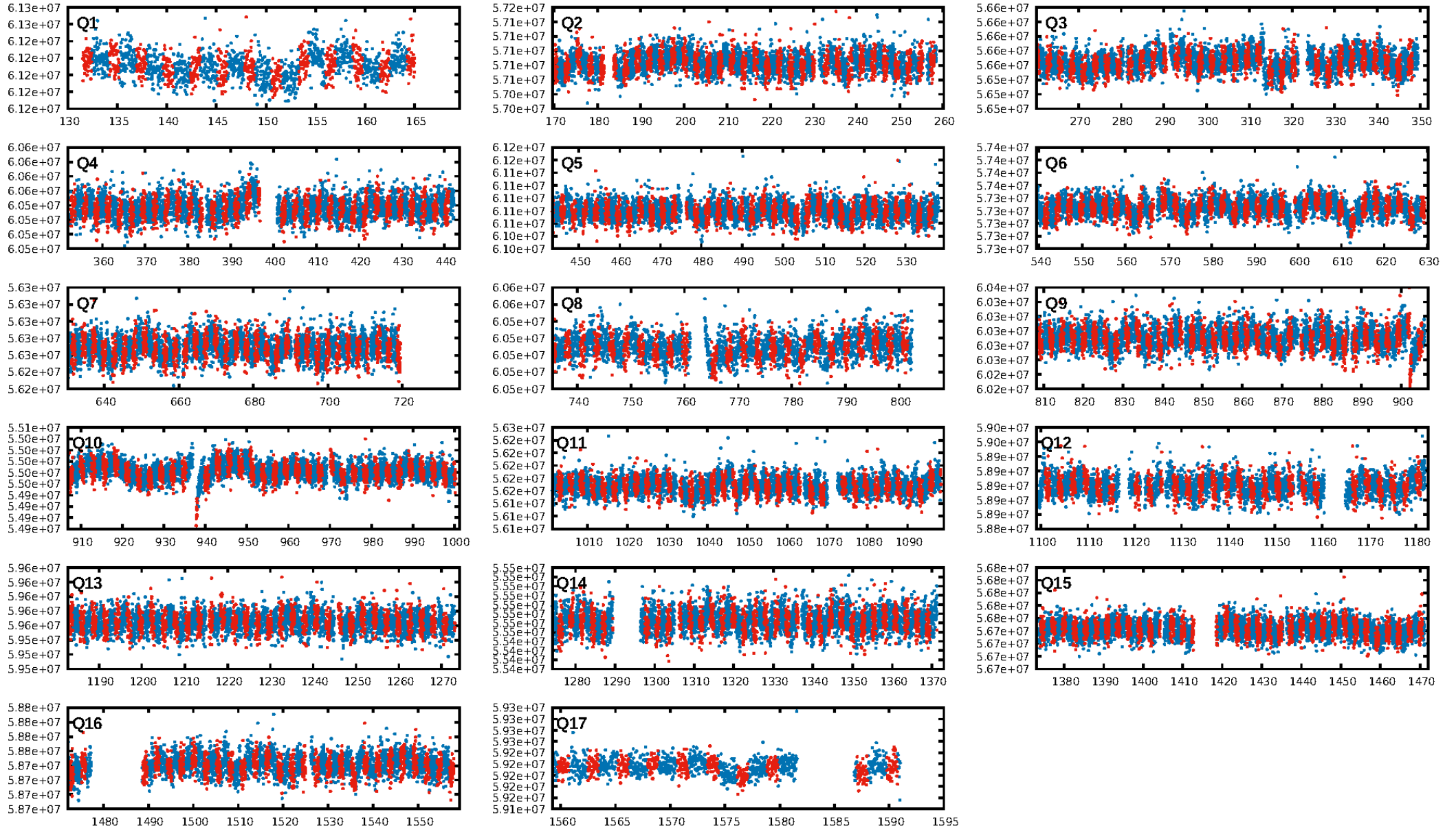
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [218.16σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 2.93e-11
RollingBand-fgt: 1.00 [478/478]
GhostDiagnostic-chr: 1.749
Centroid-sig: 2.7%
Centroid-so: 2.818 arcsec [1.77σ]
OotOffset-rm: 1.120 arcsec [2.06σ]
KicOffset-rm: 1.111 arcsec [1.79σ]
OotOffset-st: 3/3/4/2 [12]
KicOffset-st: 3/3/4/2 [12]
DiffImageQuality-fgm: 0.58 [7/12]
DiffImageOverlap-fno: 1.00 [17/17]

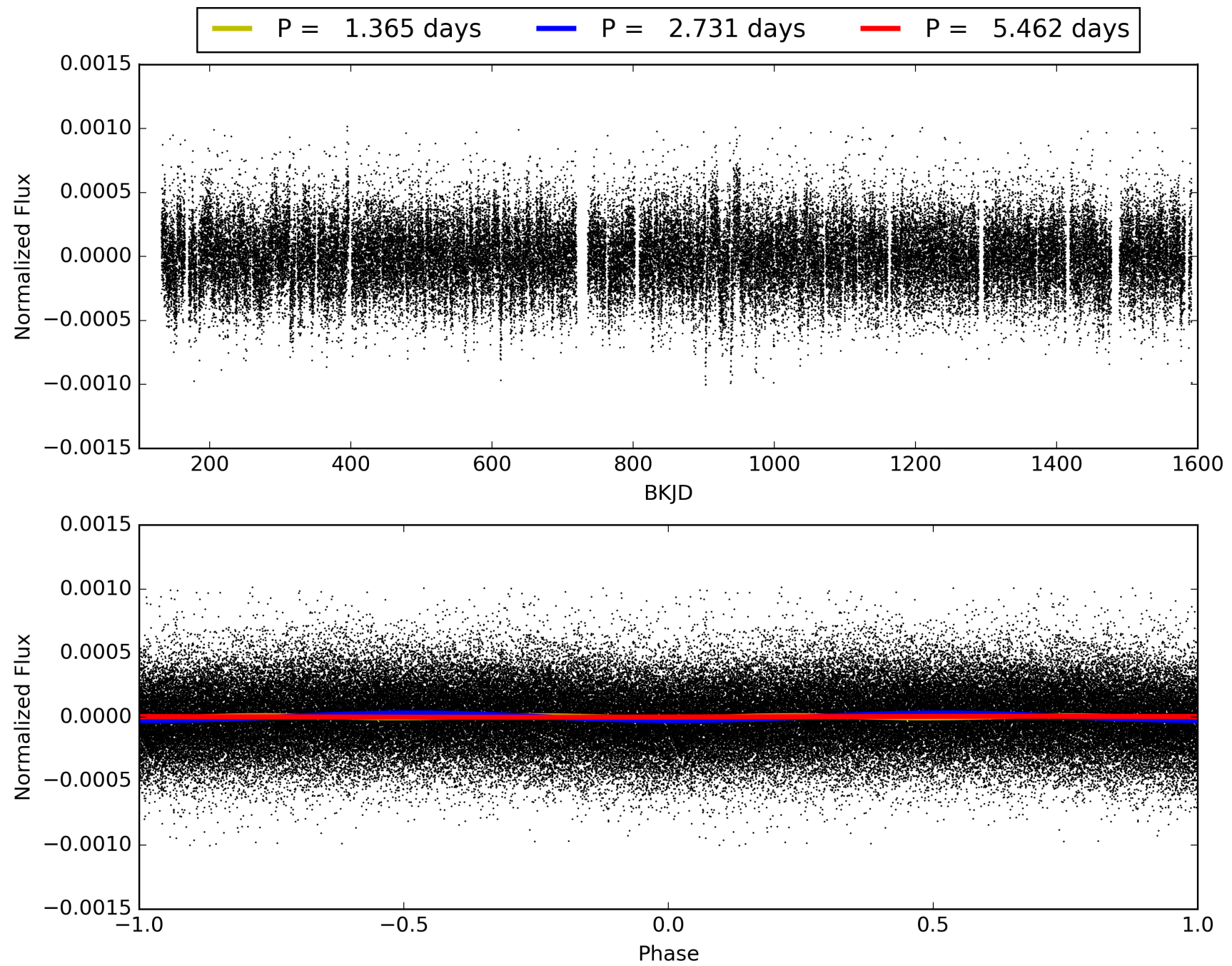
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 11:50:54 Z

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

TCE 005036530-01, PDC Light Curves

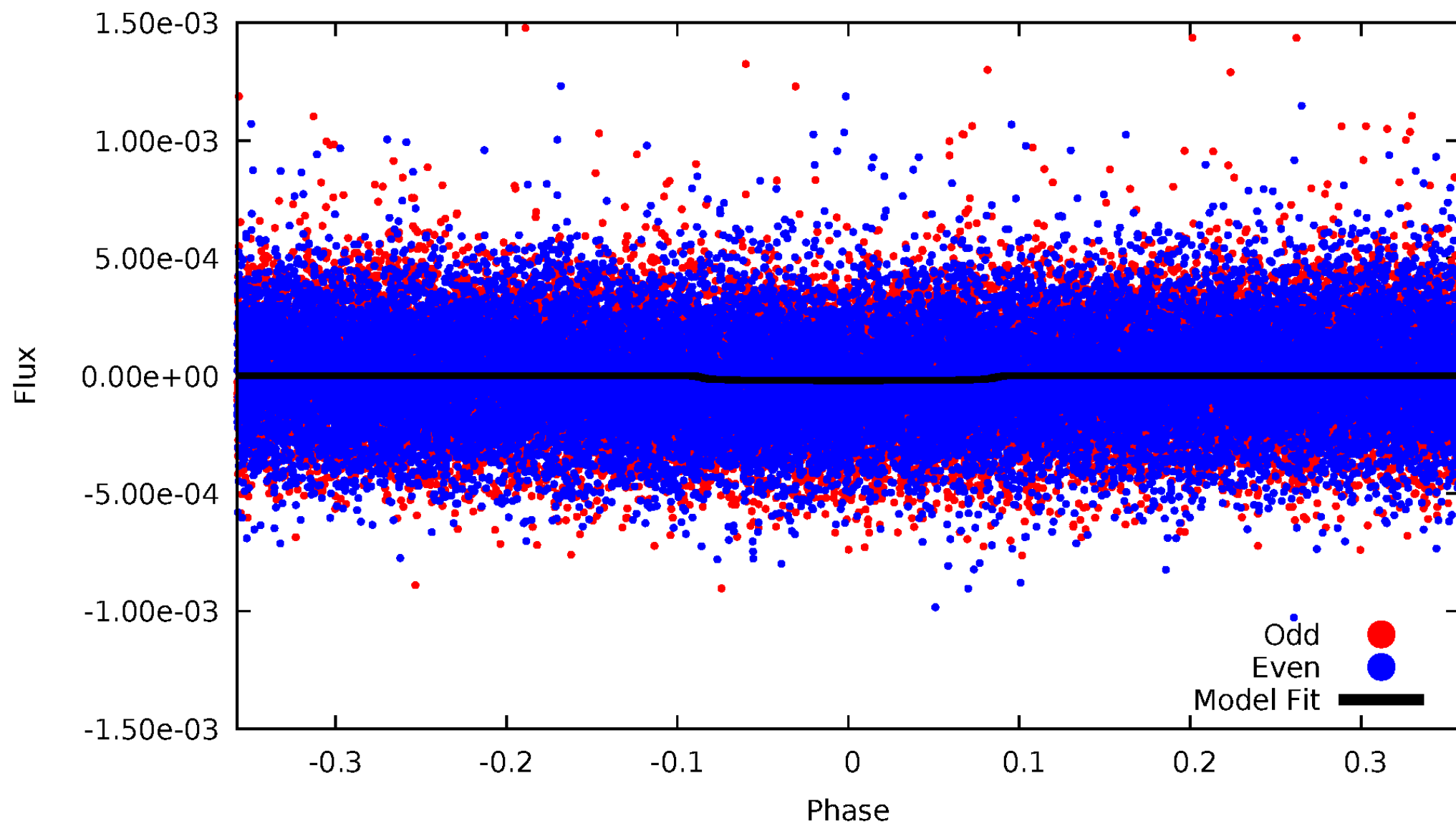


TCE 005036530-01



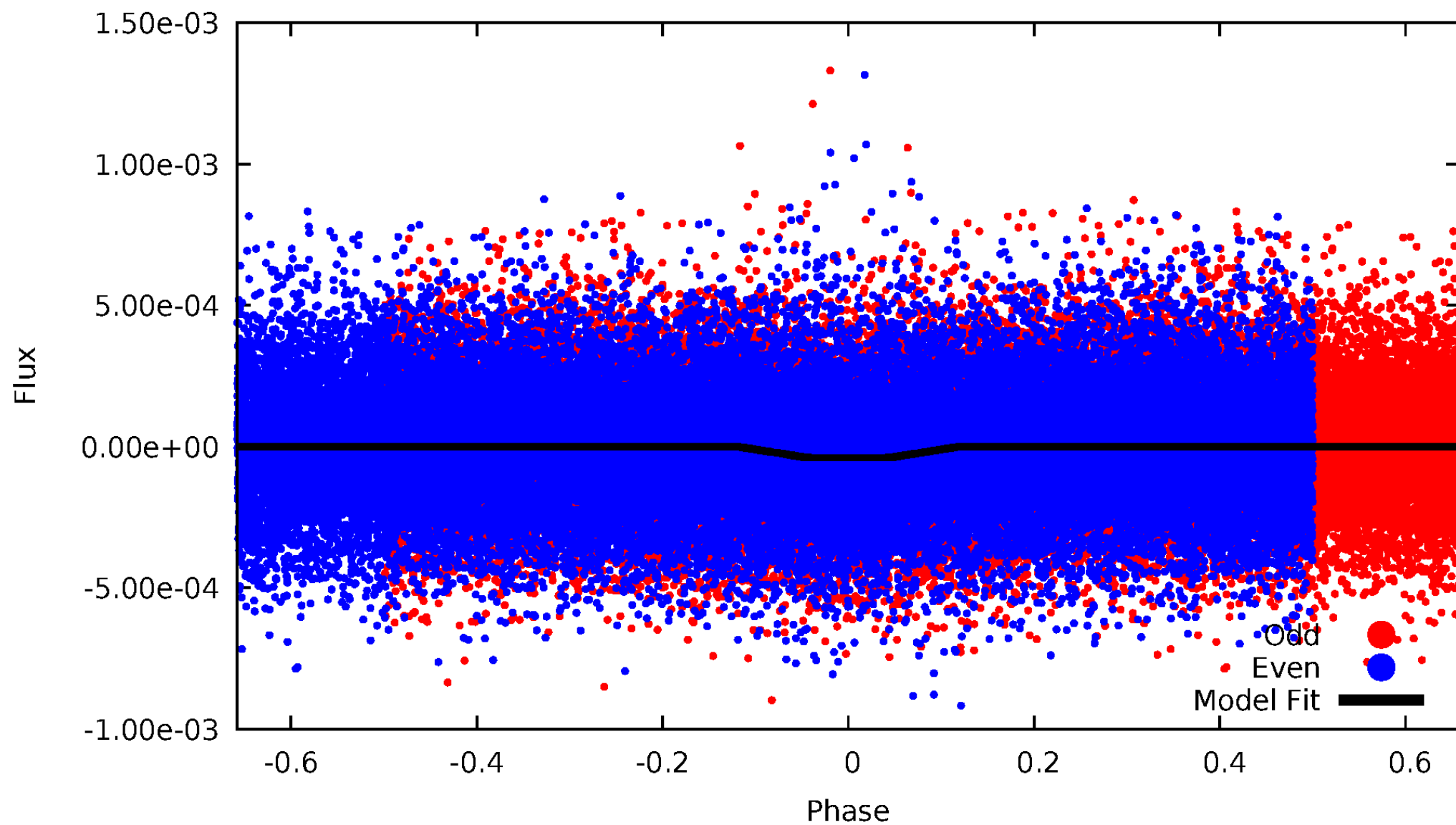
DV Odd/Even

TCE 005036530-01



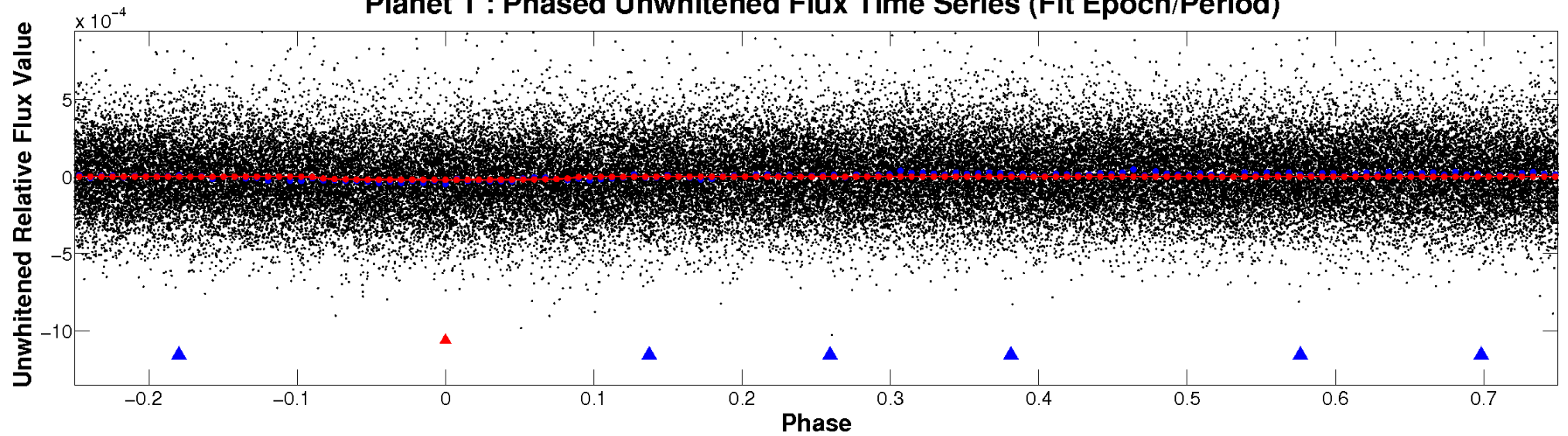
ALT Odd/Even

TCE 005036530-01

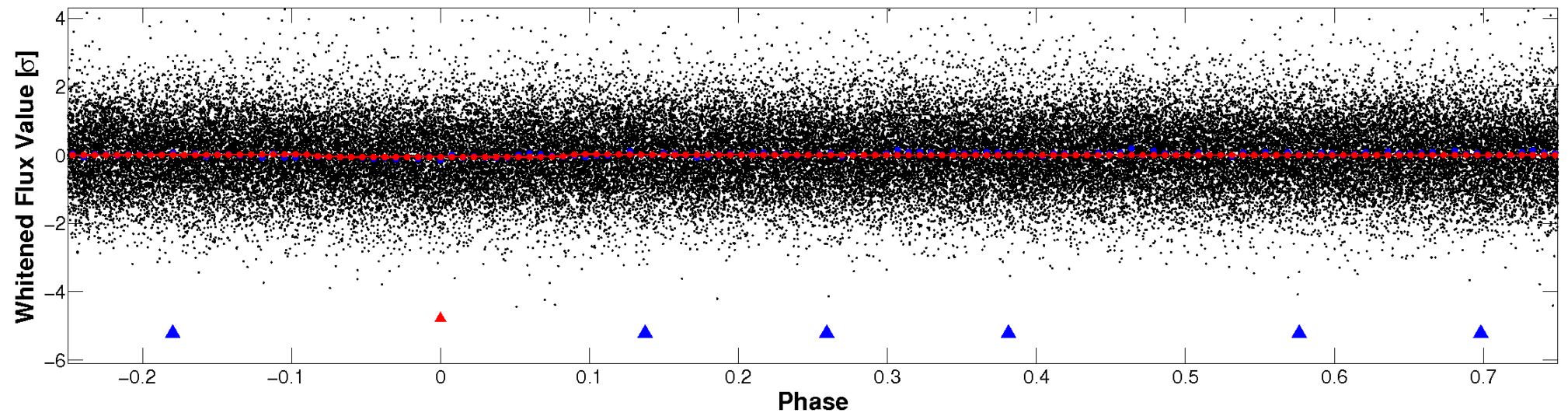


Non-Whitened Vs. Whitened Light Curve

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

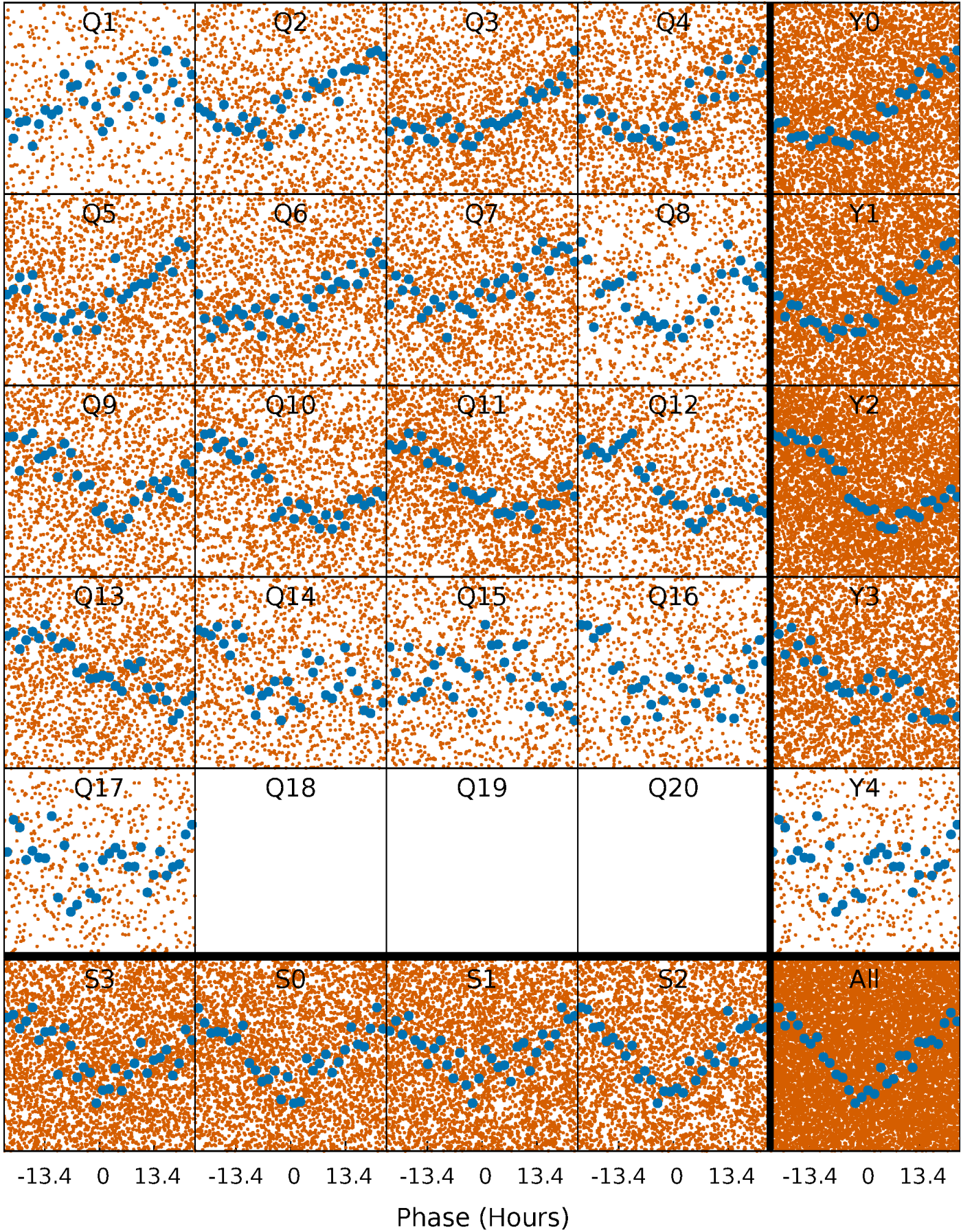


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



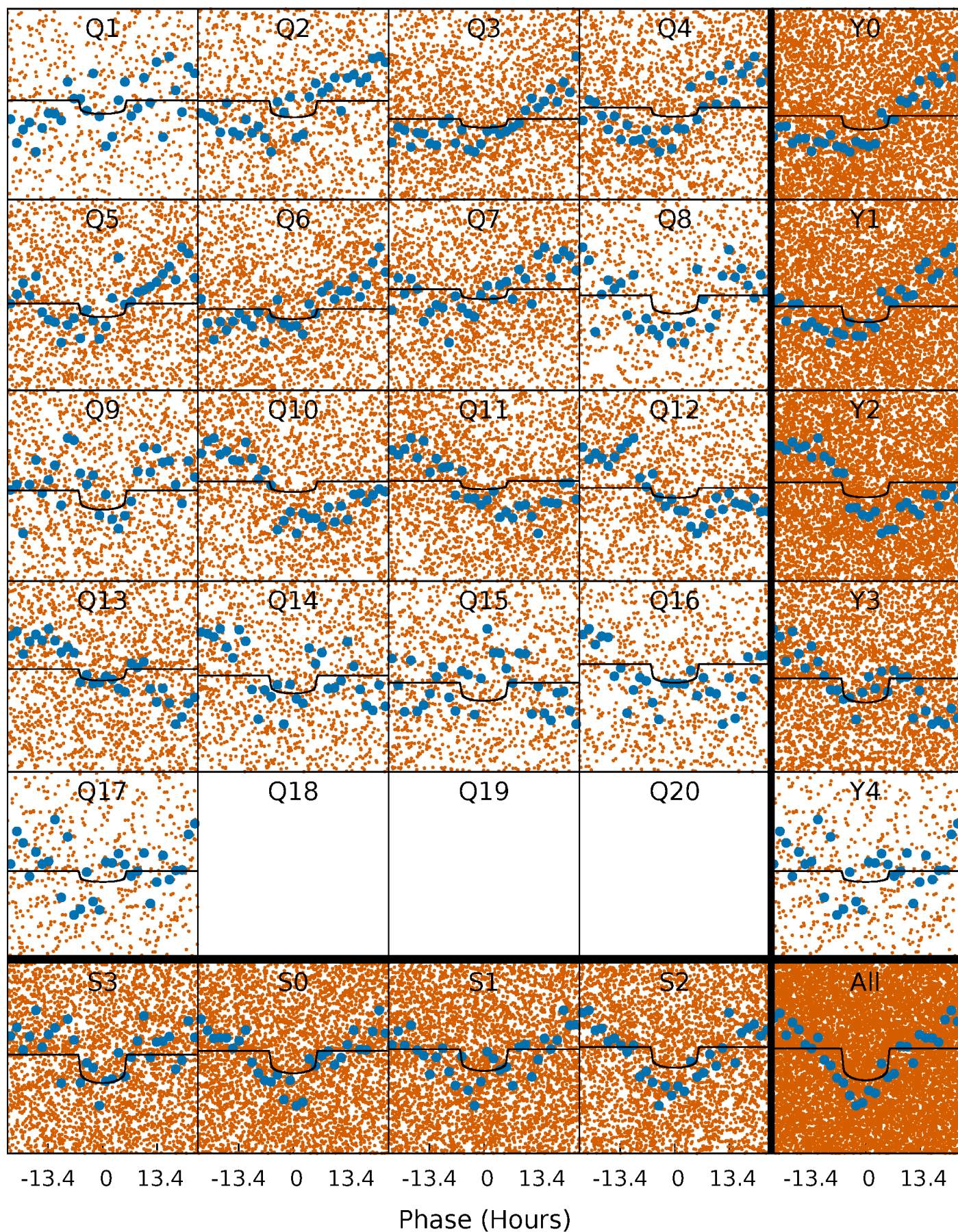
PDC Quarter-Phased Transit Curves

TCE 005036530-01 P= 2.730955 Days $T_0=131.938935$ (BKJD)



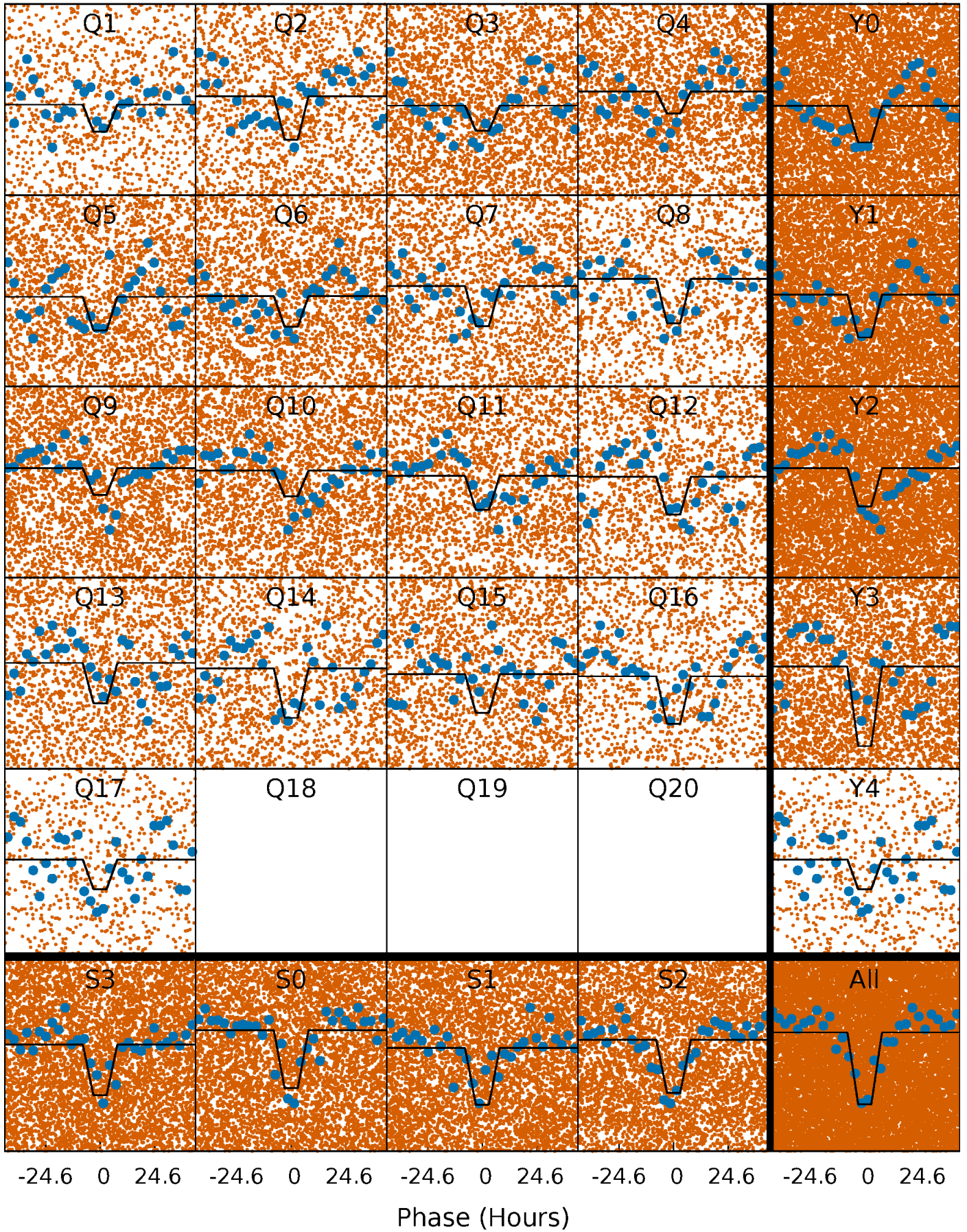
DV Quarter-Phased Transit Curves

TCE 005036530-01 P= 2.730955 Days $T_0=131.938935$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

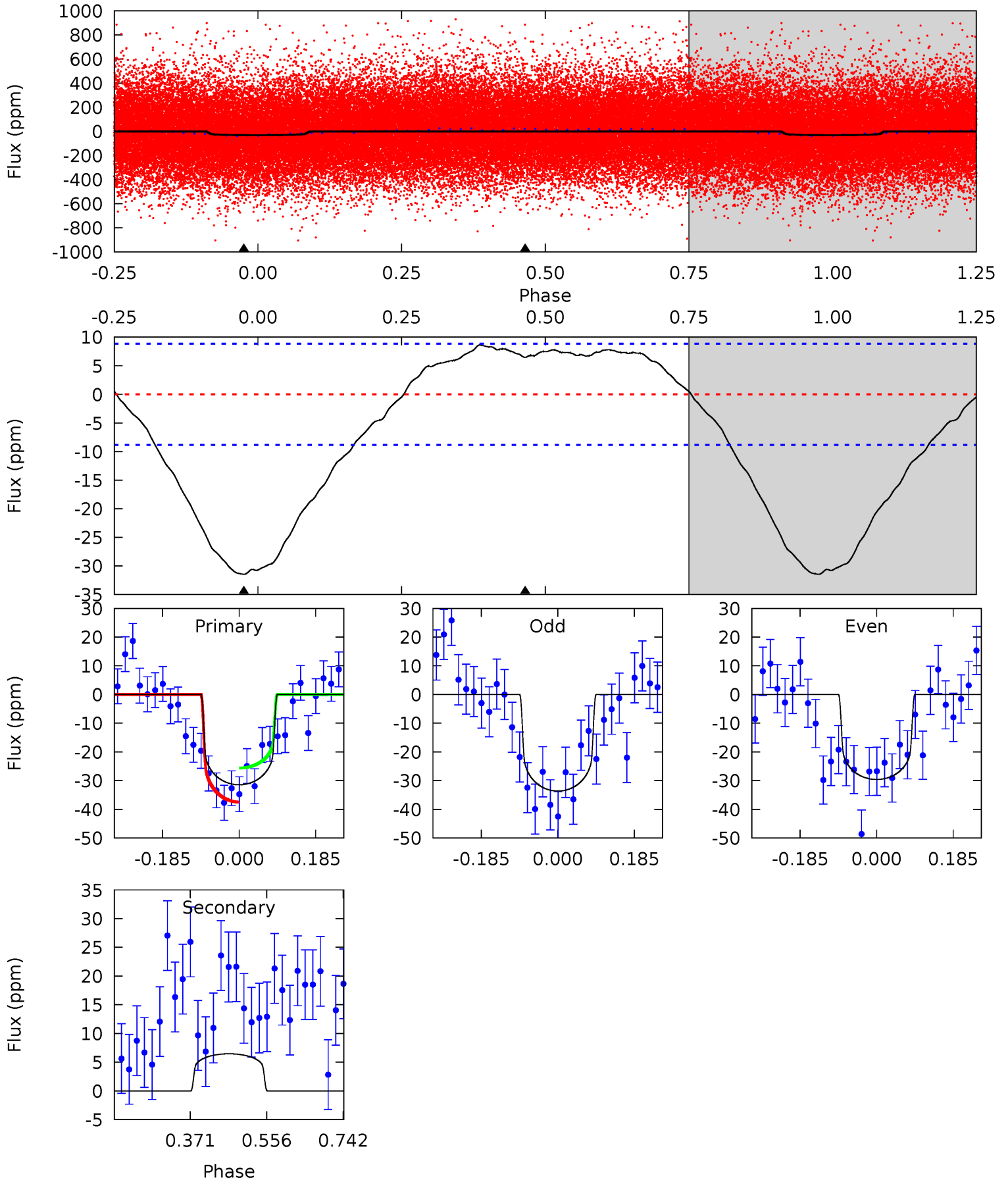
TCE 005036530-01 P= 2.730662 Days $T_0=131.970360$ (BKJD)



DV Model-Shift Uniqueness Test

005036530-01, P = 2.730955 Days, E = 129.207980 Days

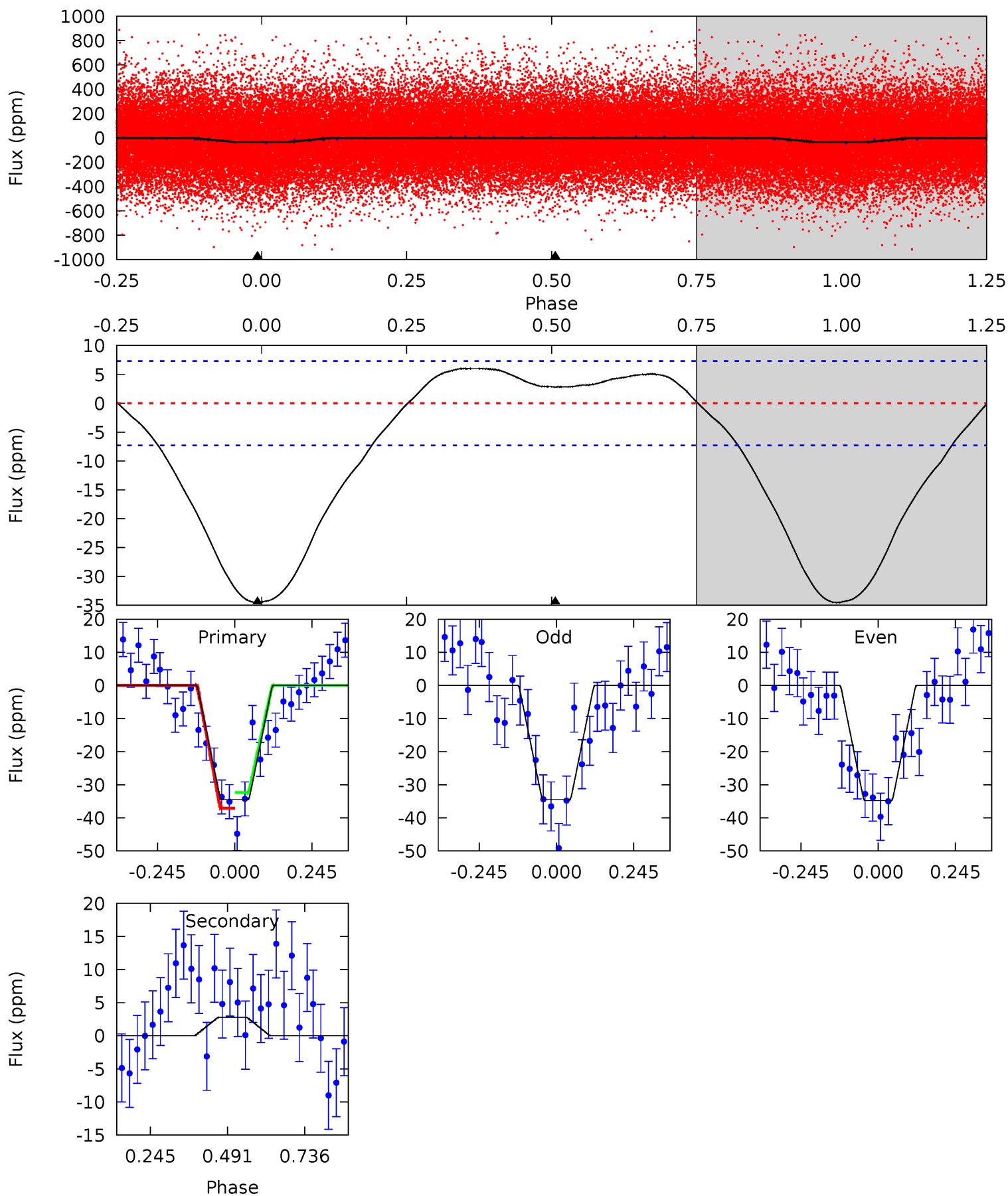
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
15.8	-3.24	0	0	4.43	1.32	2.33	15.8	15.8	-3.24	-3.24	1.01	0.97	0.21	2.98



Alt Model-Shift Uniqueness Test

005036530-01, P = 2.730662 Days, E = 129.239698 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
20.6	-1.67	0	0	4.37	1.16	1.04	20.6	20.6	-1.67	-1.67	0.09	1.23	0.15	1.43



Stellar Parameters For KIC 005036530

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	6333^{+69}_{-88}	$4.198^{+0.110}_{-0.110}$	$0.260^{+0.150}_{-0.200}$	$1.523^{+0.259}_{-0.212}$	$1.338^{+0.088}_{-0.098}$	$0.534^{+0.271}_{-0.179}$
	+1%/-1%	+3%/-3%	+58%/-77%	+17%/-14%	+7%/-7%	+51%/-34%
Source	SPE90	SPE90	SPE90	DSEP		

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

Secondary Eclipse Parameters for KIC 005036530-01 / KOI 6503.01

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	6 ± 2	$0.80^{+0.29}_{-0.25}$	2338^{+103}_{-92}	-4685^{+522}_{-889}	$-9.127^{+4.308}_{-11.571}$
Alt.	3 ± 2	$1.02^{+0.28}_{-0.26}$	2351^{+93}_{-96}	-3771^{+459}_{-486}	$-2.600^{+1.642}_{-2.738}$

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 $A_{obs} \gg 1.0$

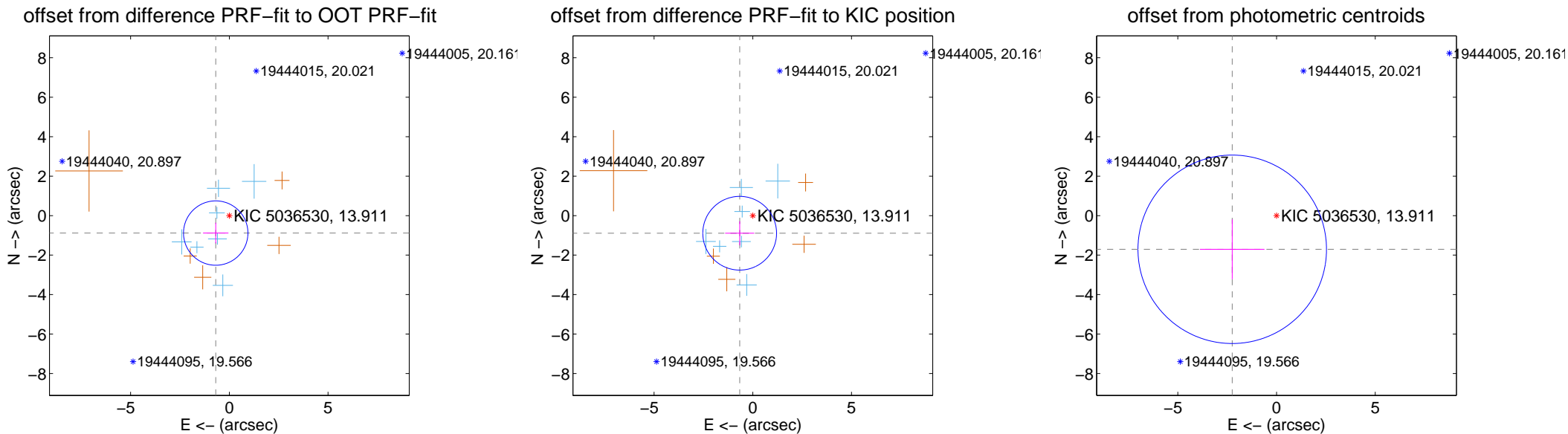
DV Centroid Data

Supplemental centroid analysis for 005036530-01. Kepler magnitude: 13.91. Transit SNR 5.95

There are 7 quarters with good PRF difference image offsets

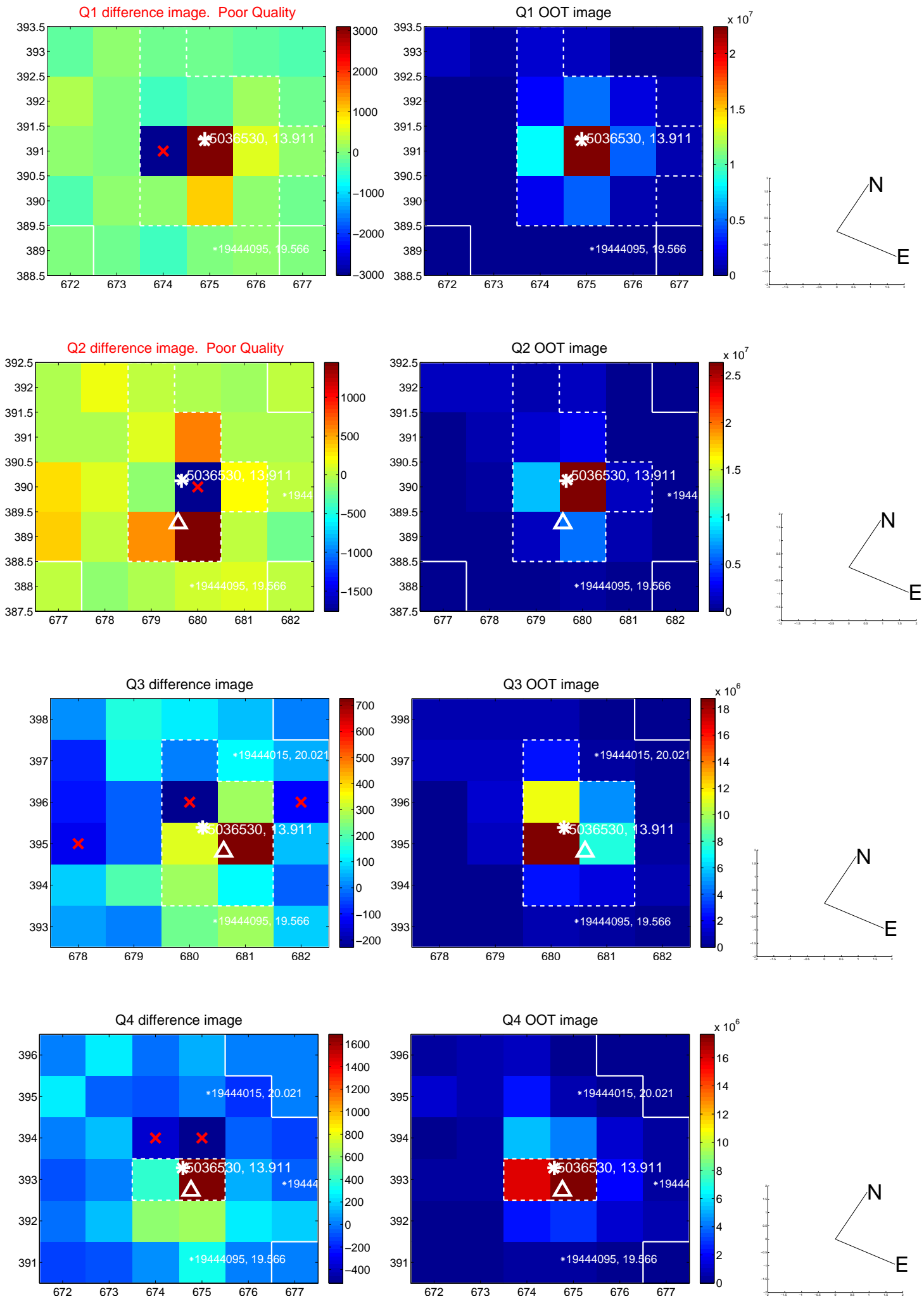
The direct PRF centroid is offset from the target star catalog position by about 0.05 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	1.120 ± 0.544	2.06	0.689 ± 0.642	-0.883 ± 0.522
PRF-fit source offset from KIC position	1.111 ± 0.623	1.79	0.664 ± 0.736	-0.891 ± 0.610
photometric centroid source offset	2.82 ± 1.59	1.77	2.24 ± 1.63	-1.71 ± 1.51

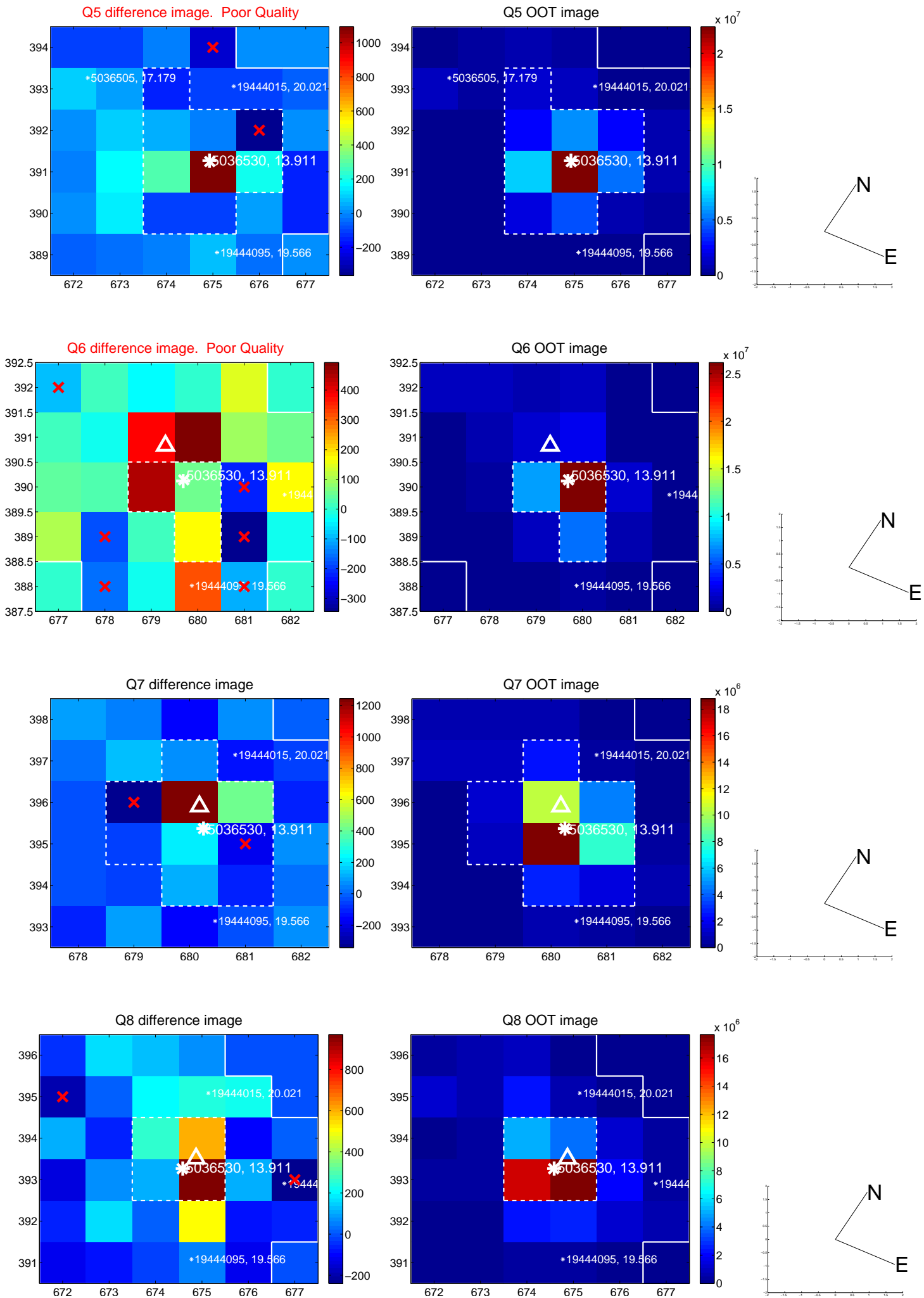


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

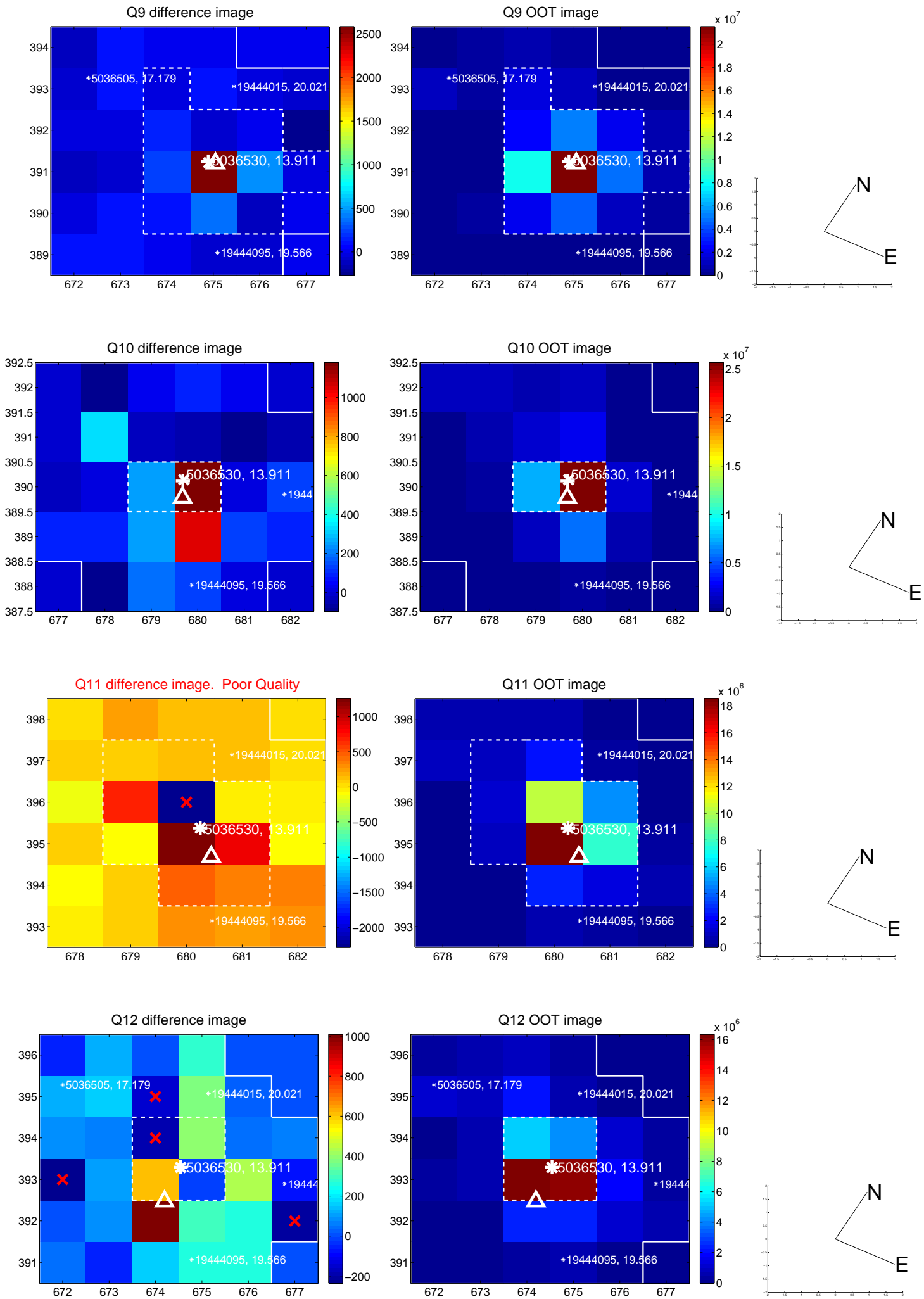
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



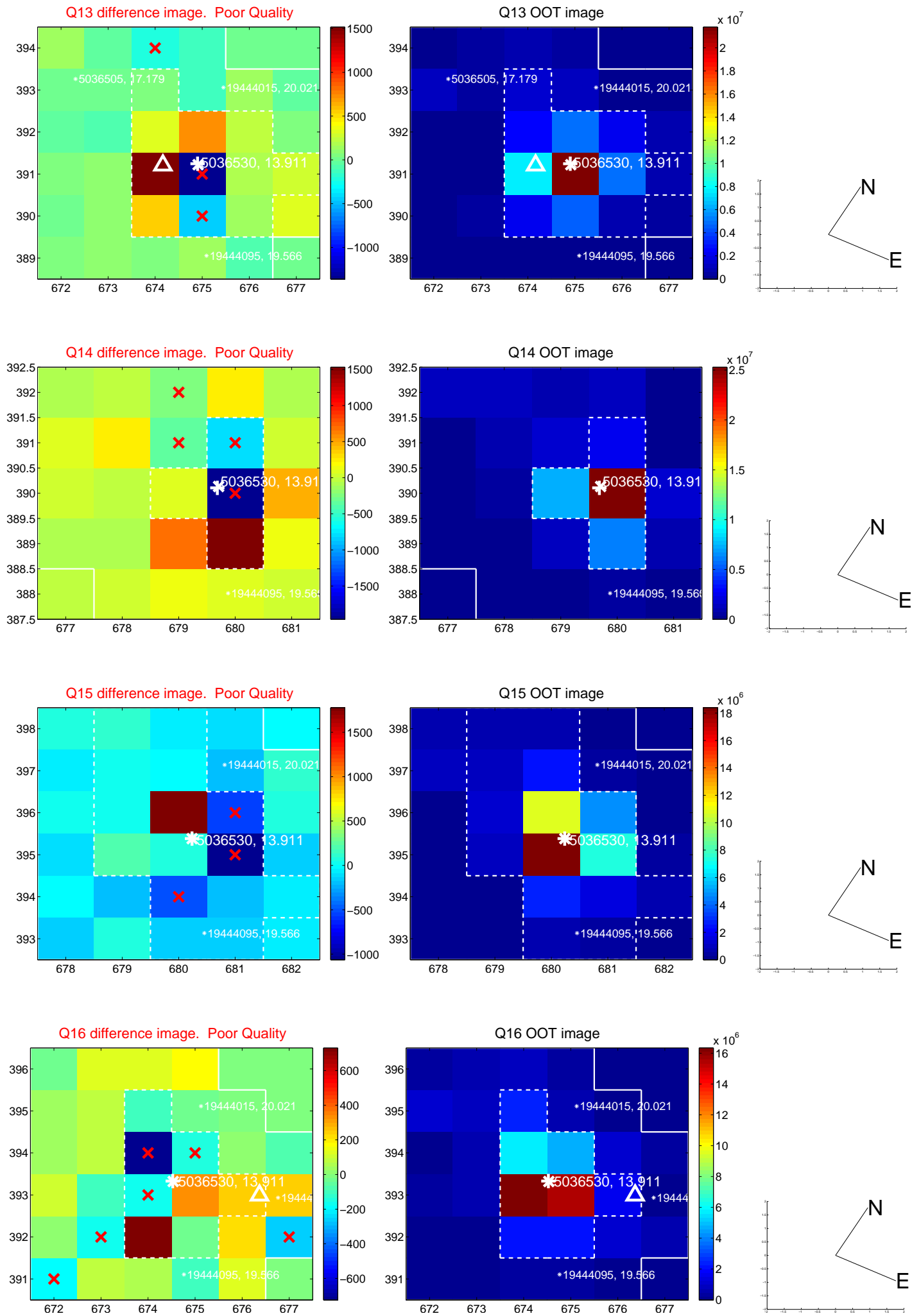
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



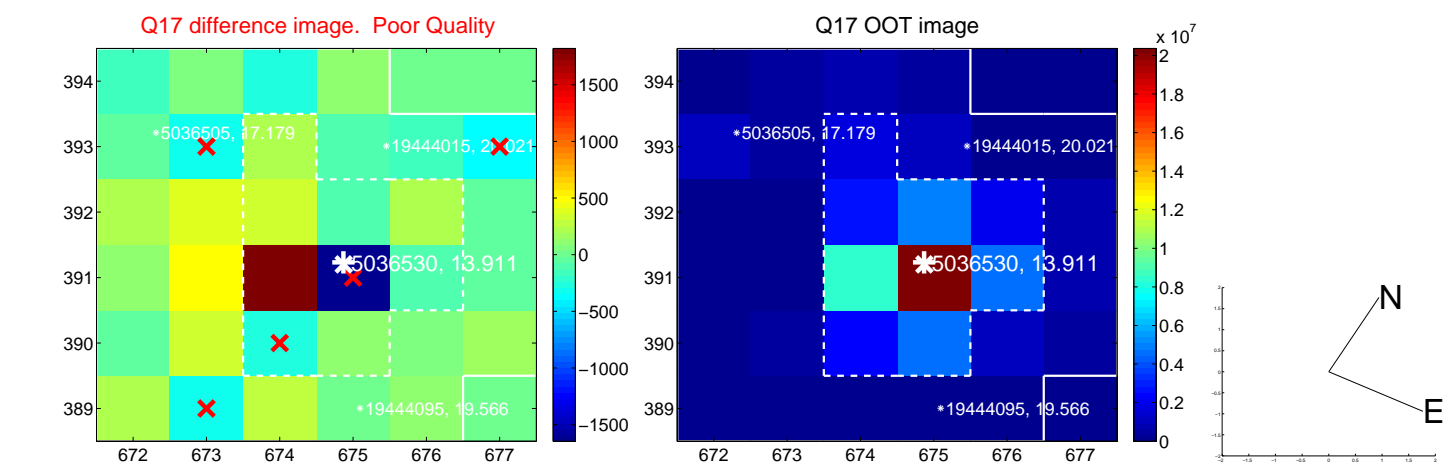
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



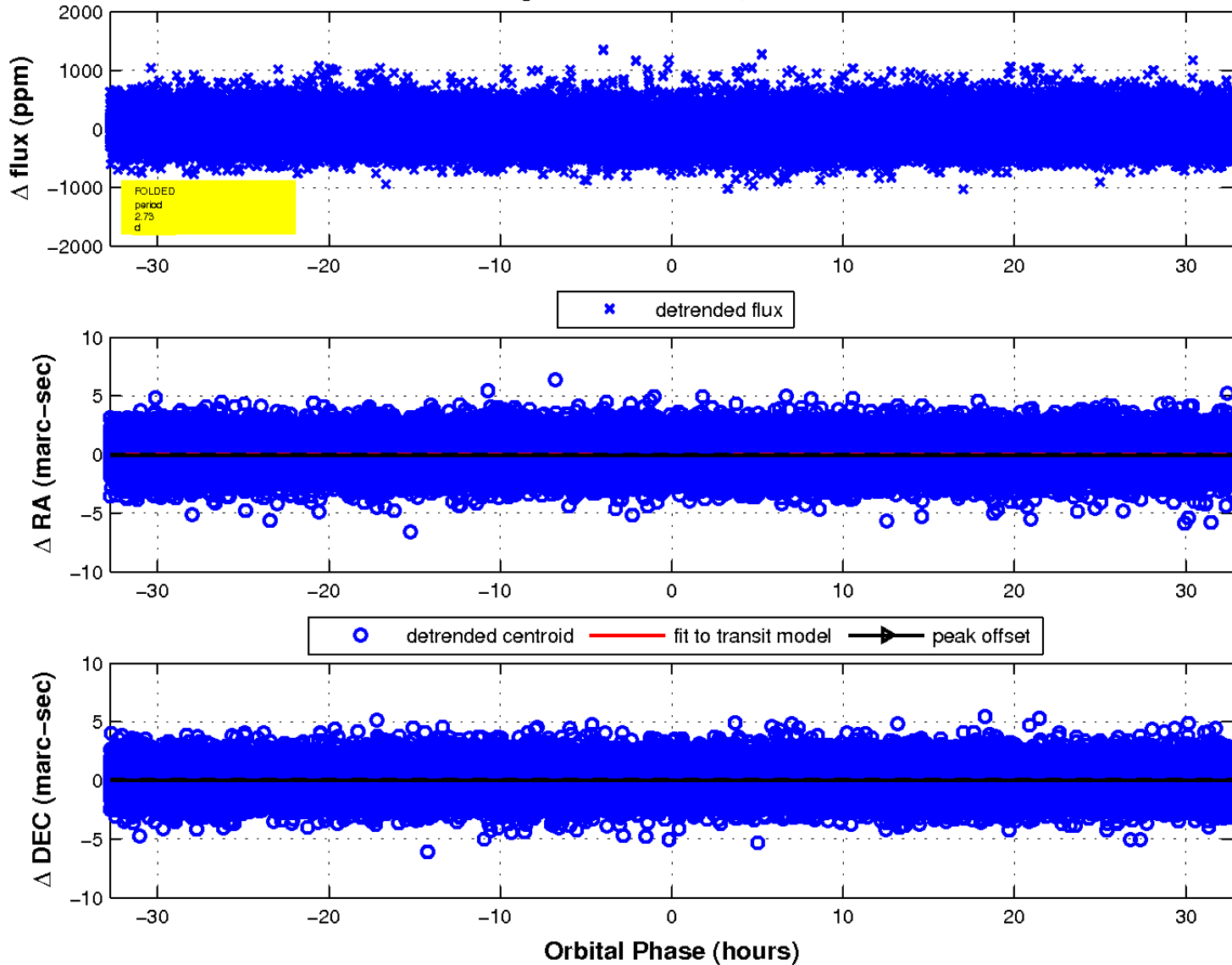
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

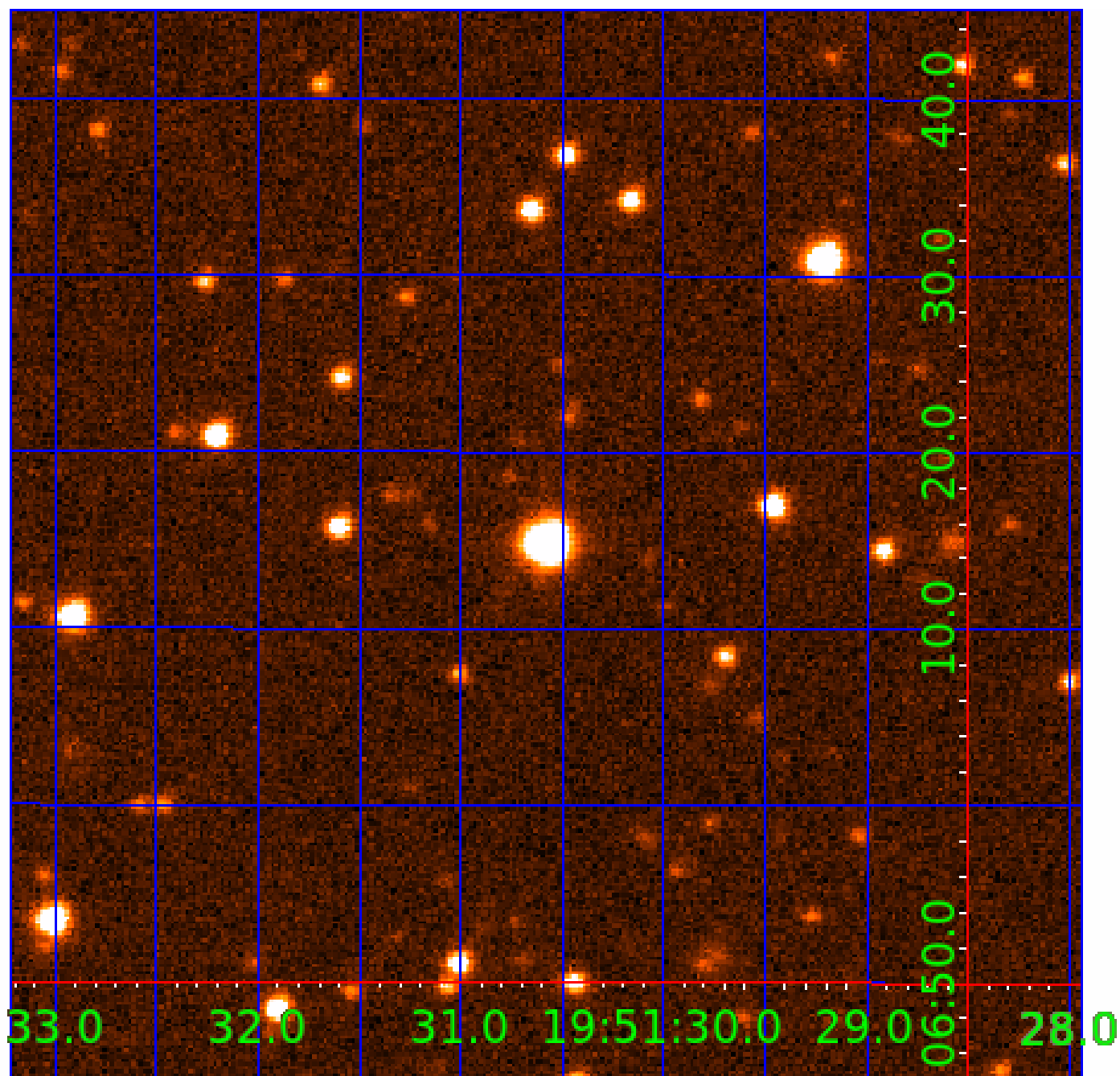


fluxWeightedCentroids, Planet 1 of 2



UKIRT Image

Declination



KIC 005036530

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})
005036530-01	OBS	6503.01	2.730955	131.938935	20.3	11.714	7.2	6.0	1.52	6333	0.82	1885.30
005036530-02	OBS	No	220.008404	313.756086	452.5	20.836	12.2	10.4	1.52	6333	3.37	5.42

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005036530-01	OBS	FP	0.00	1	0	0	0	LPP_DV
005036530-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—TRANS_GAPPED—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 005036530-02

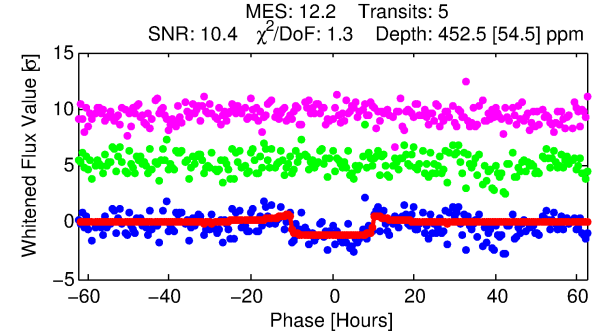
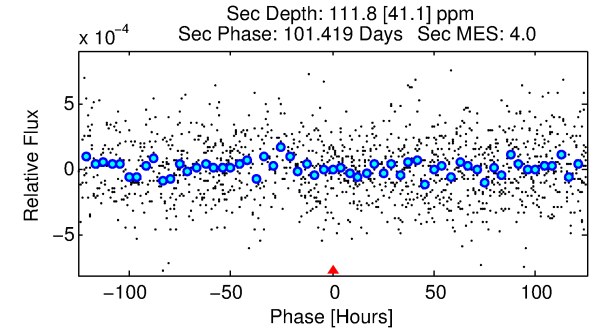
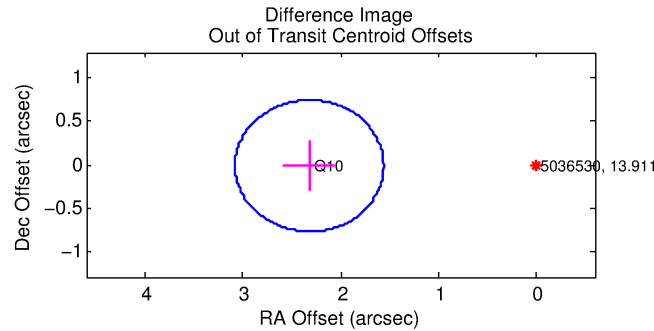
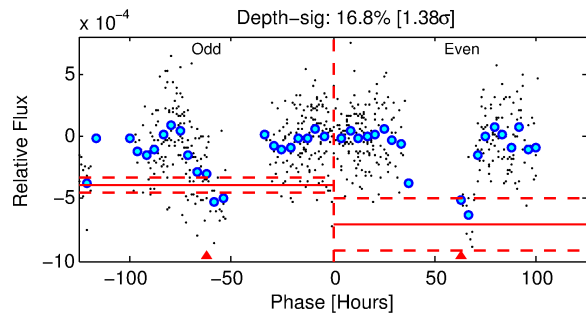
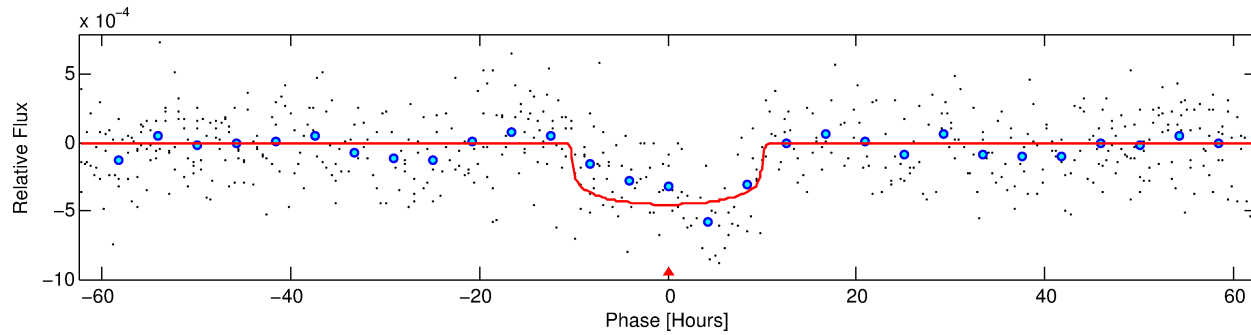
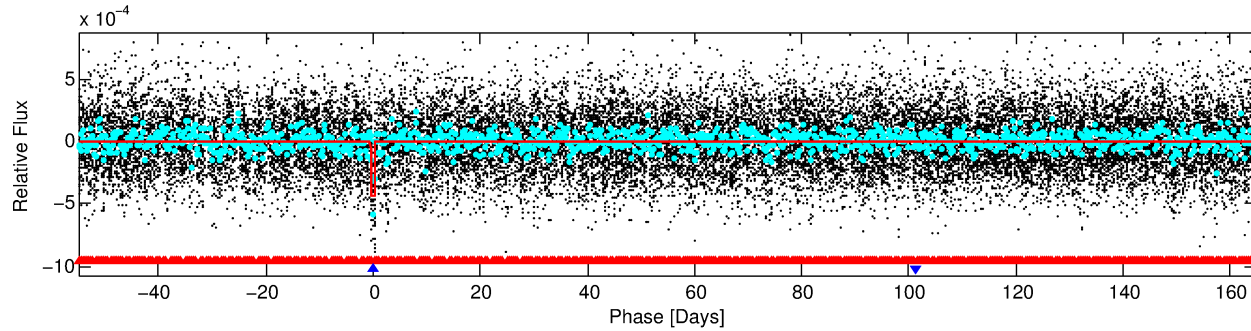
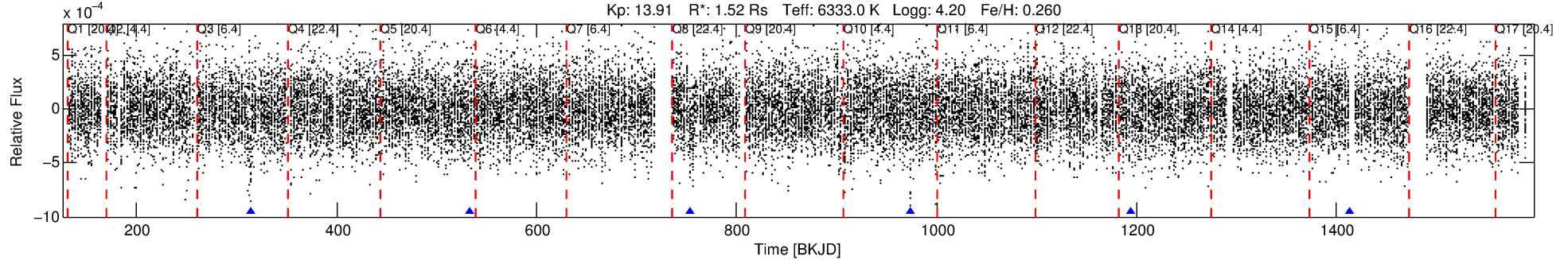
No Significant Match Found

DV One-Page Summary

KIC: 5036530 Candidate: 2 of 2 Period: 220.008 d

KOI: K06503 Corr: No Ephemeris Match

Kp: 13.91 R*: 1.52 Rs Teff: 6333.0 K Logg: 4.20 Fe/H: 0.260



DV Fit Results:

Period = 220.00840 [0.00809] d
Epoch = 313.7561 [0.0194] BKJD
Rp/R* = 0.0203 [0.0044]
a/R* = 68.04 [70.15]
b = 0.57 [1.20]
Seff = 5.42 [1.14]
Teq = 389 [21] K
Rp = 3.37 [0.93] Re
a = 0.7855 [0.1110] AU
Ag = 3341.67 [2020.15] [1.65σ]
Teffp = 4573 [654] K [6.39σ]

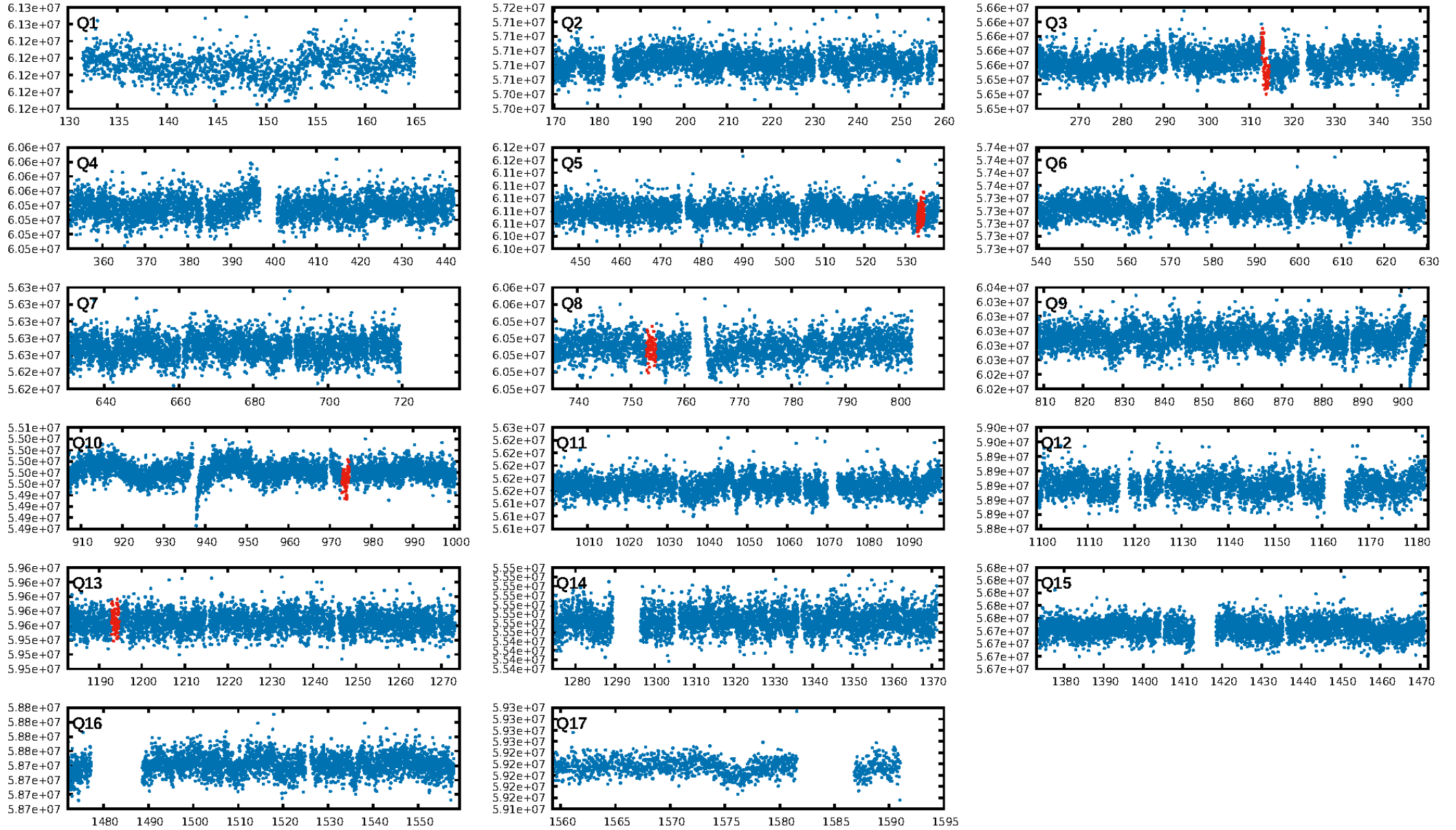
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [218.16σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 14.1%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 1.33e-18
RollingBand-fgt: 1.00 [5/5]
GhostDiagnostic-chr: 2.105
Centroid-sig: 0.0%
Centroid-so: 1.861 arcsec [3.46σ]
OotOffset-rm: 2.320 arcsec [9.15σ]
KicOffset-rm: 2.235 arcsec [8.81σ]
OotOffset-st: 1/0/0/0 [1]
KicOffset-st: 1/0/0/0 [1]
DiffImageQuality-fgm: 1.00 [1/1]
DiffImageOverlap-fno: 0.00 [0/4]

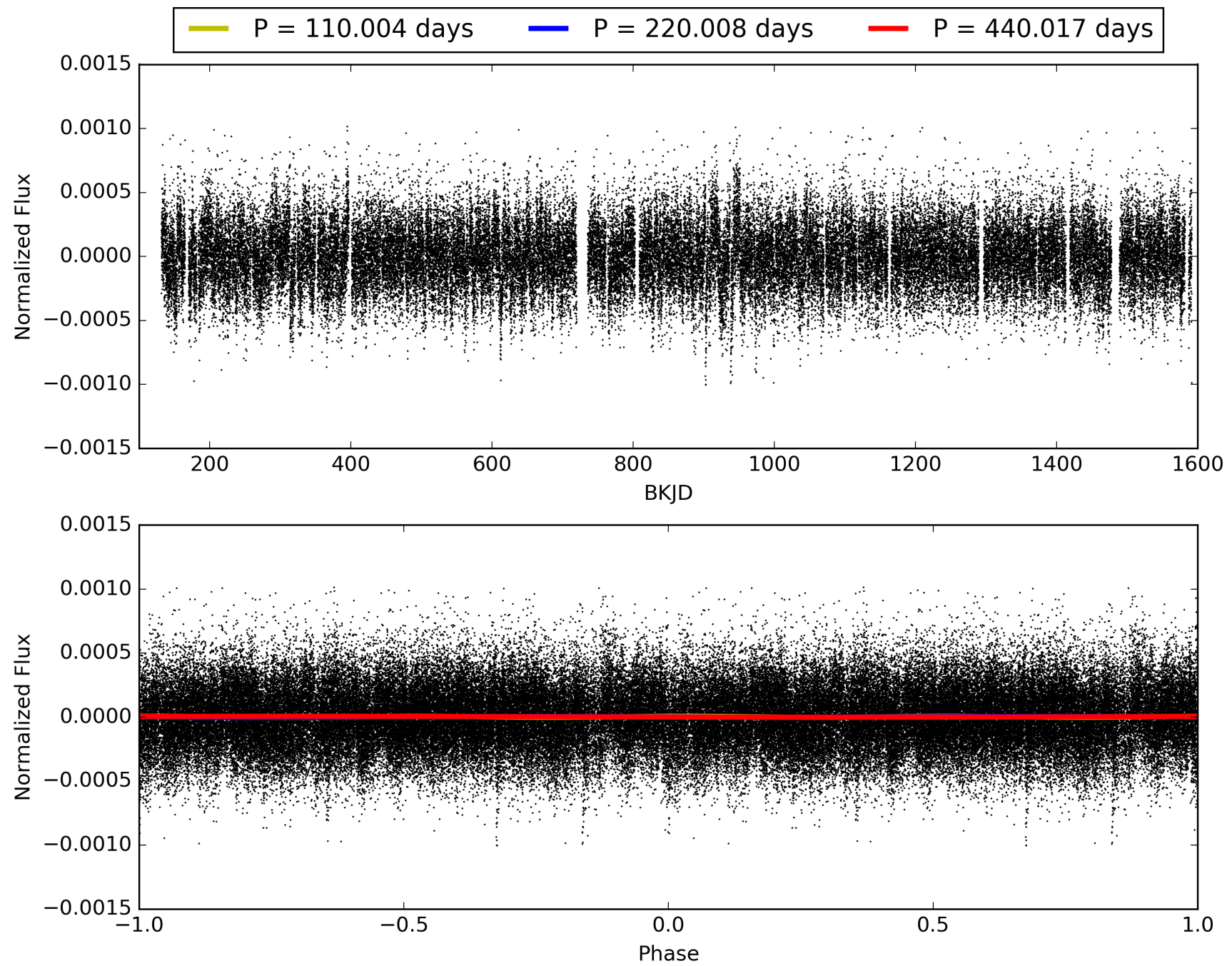
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 11:51:06 Z

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

TCE 005036530-02, PDC Light Curves

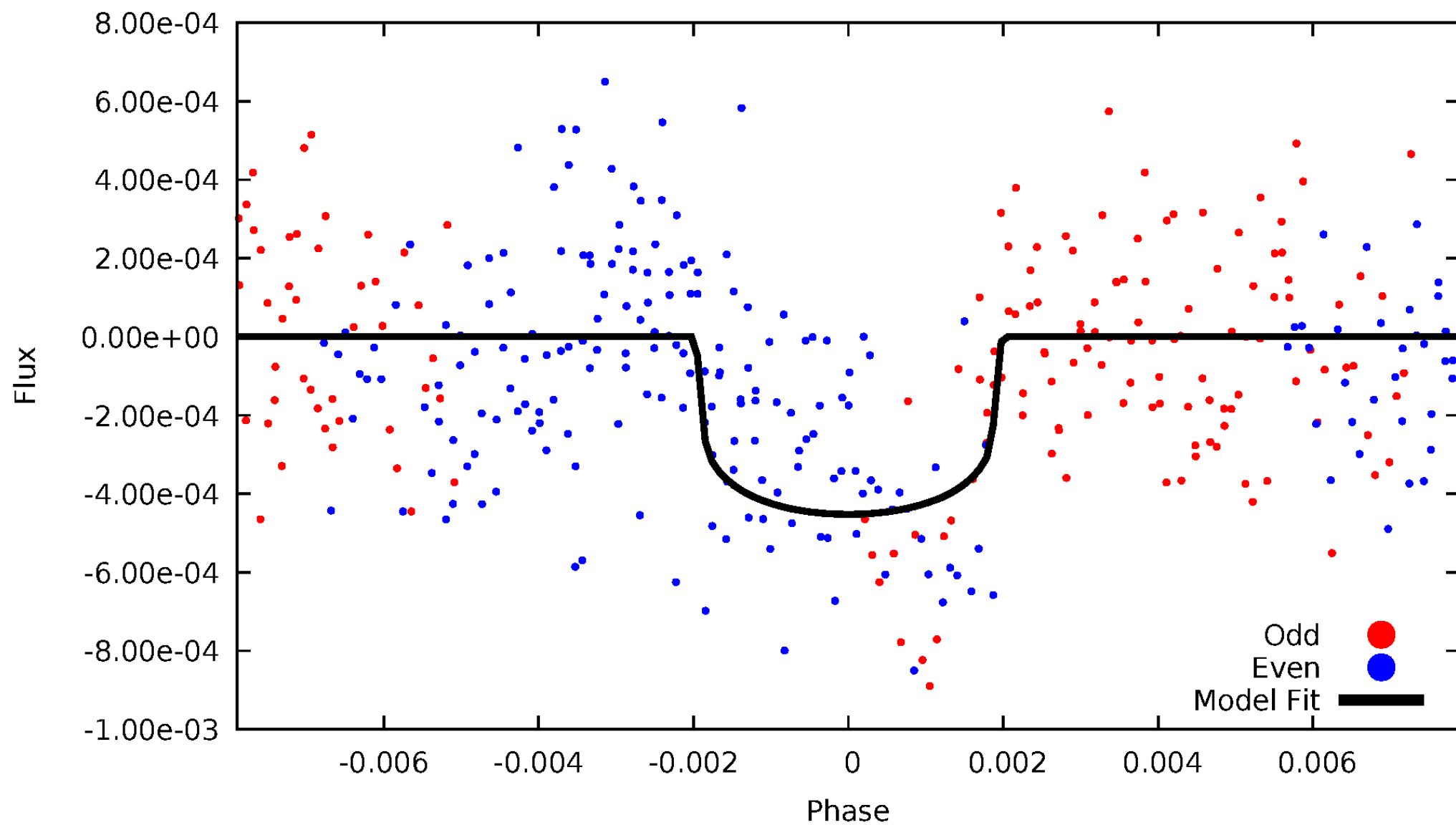


TCE 005036530-02



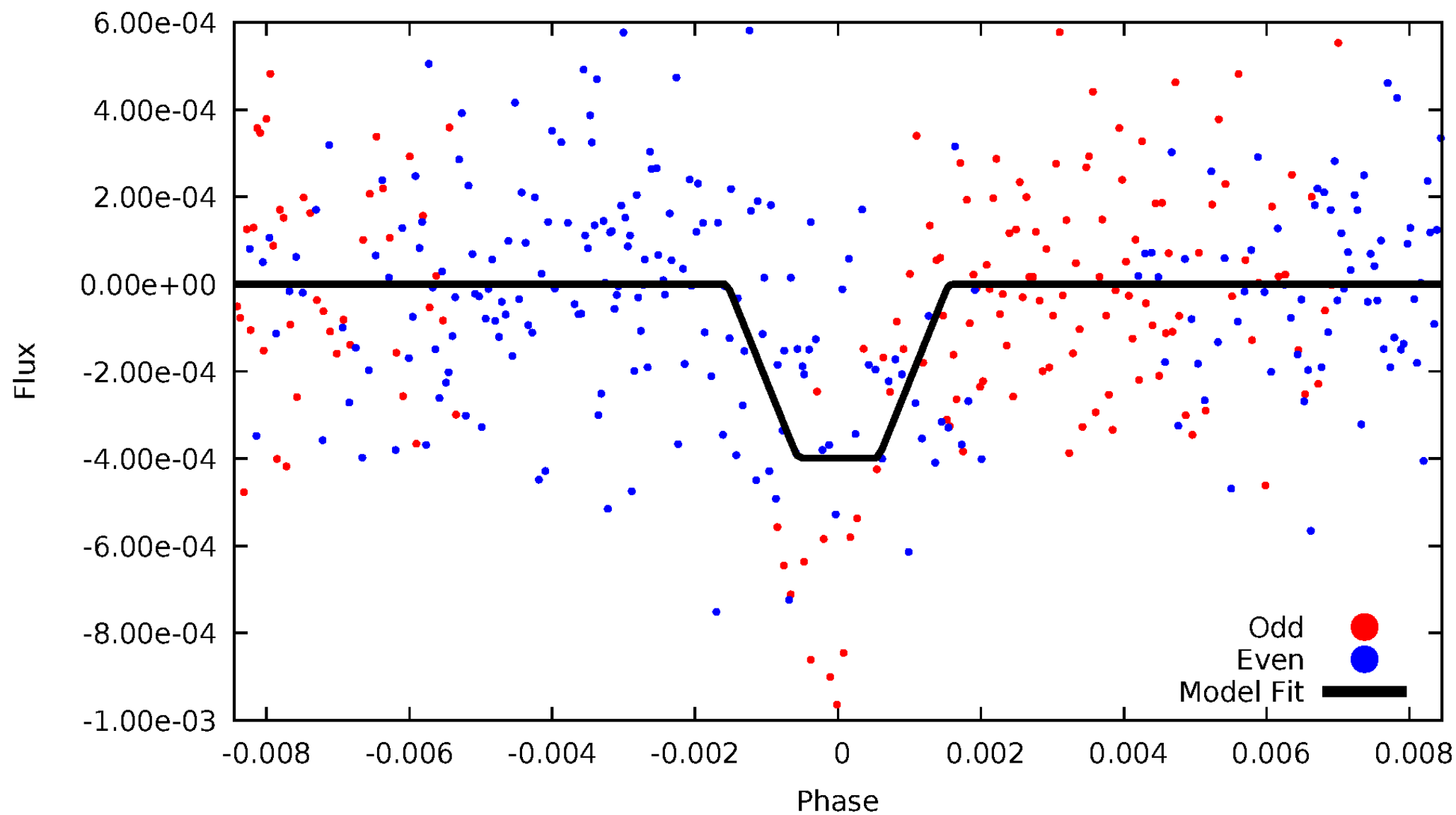
DV Odd/Even

TCE 005036530-02



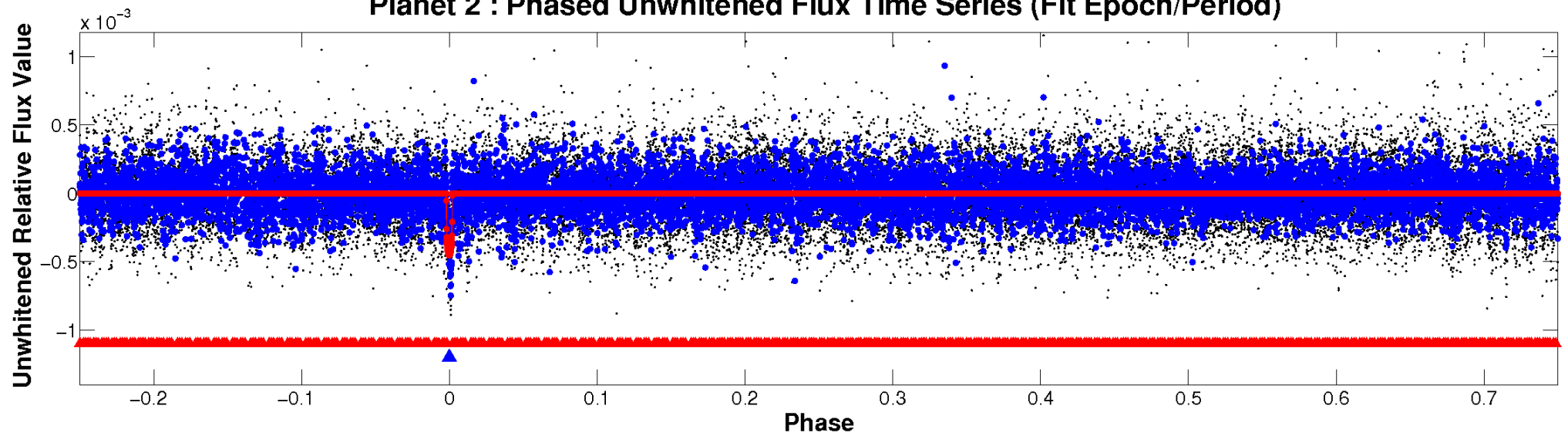
ALT Odd/Even

TCE 005036530-02

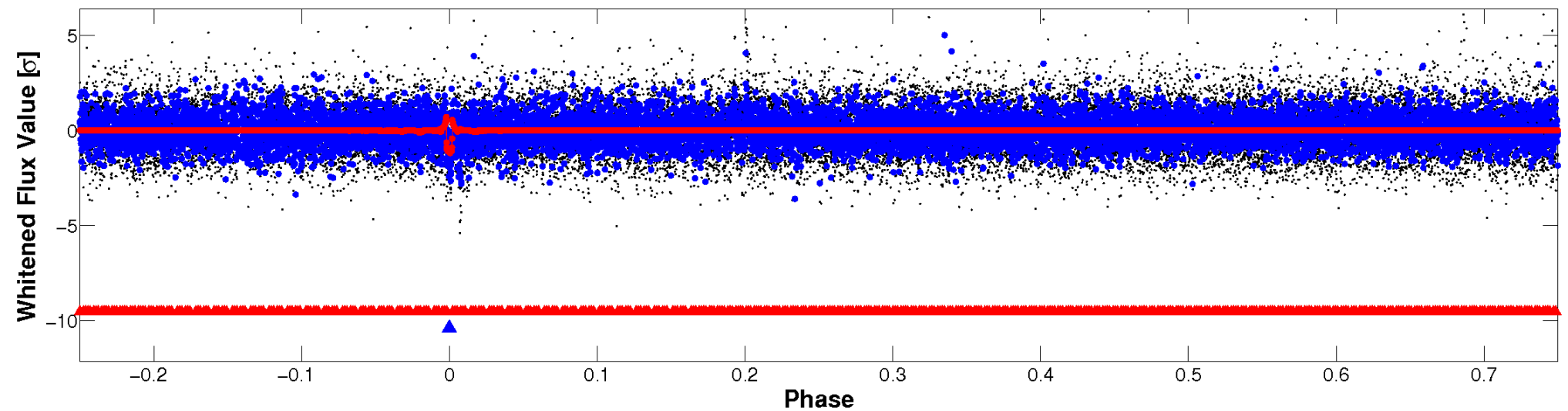


Non-Whitened Vs. Whitened Light Curve

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



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



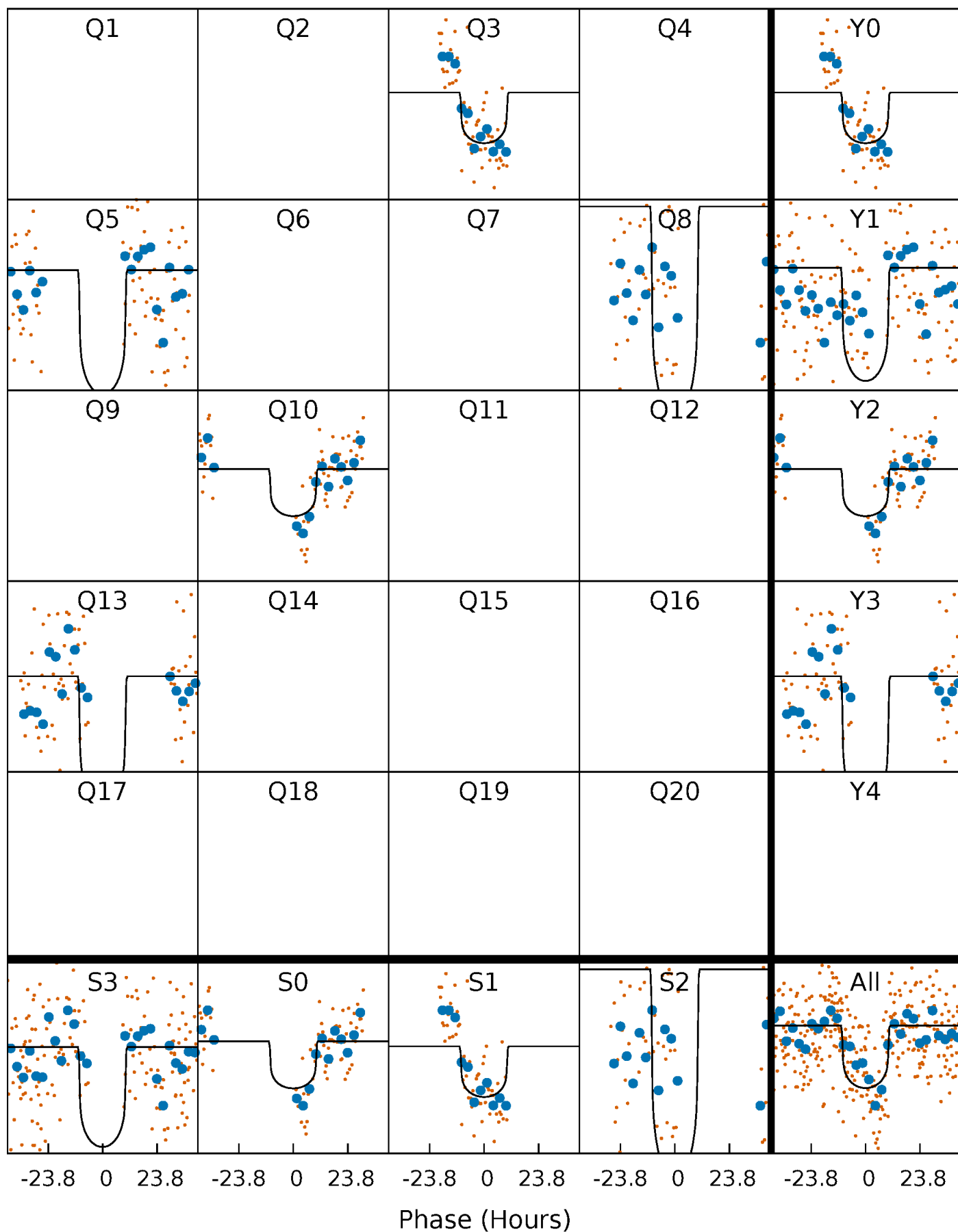
PDC Quarter-Phased Transit Curves

TCE 005036530-02 P=220.008404 Days $T_0=313.756086$ (BKJD)



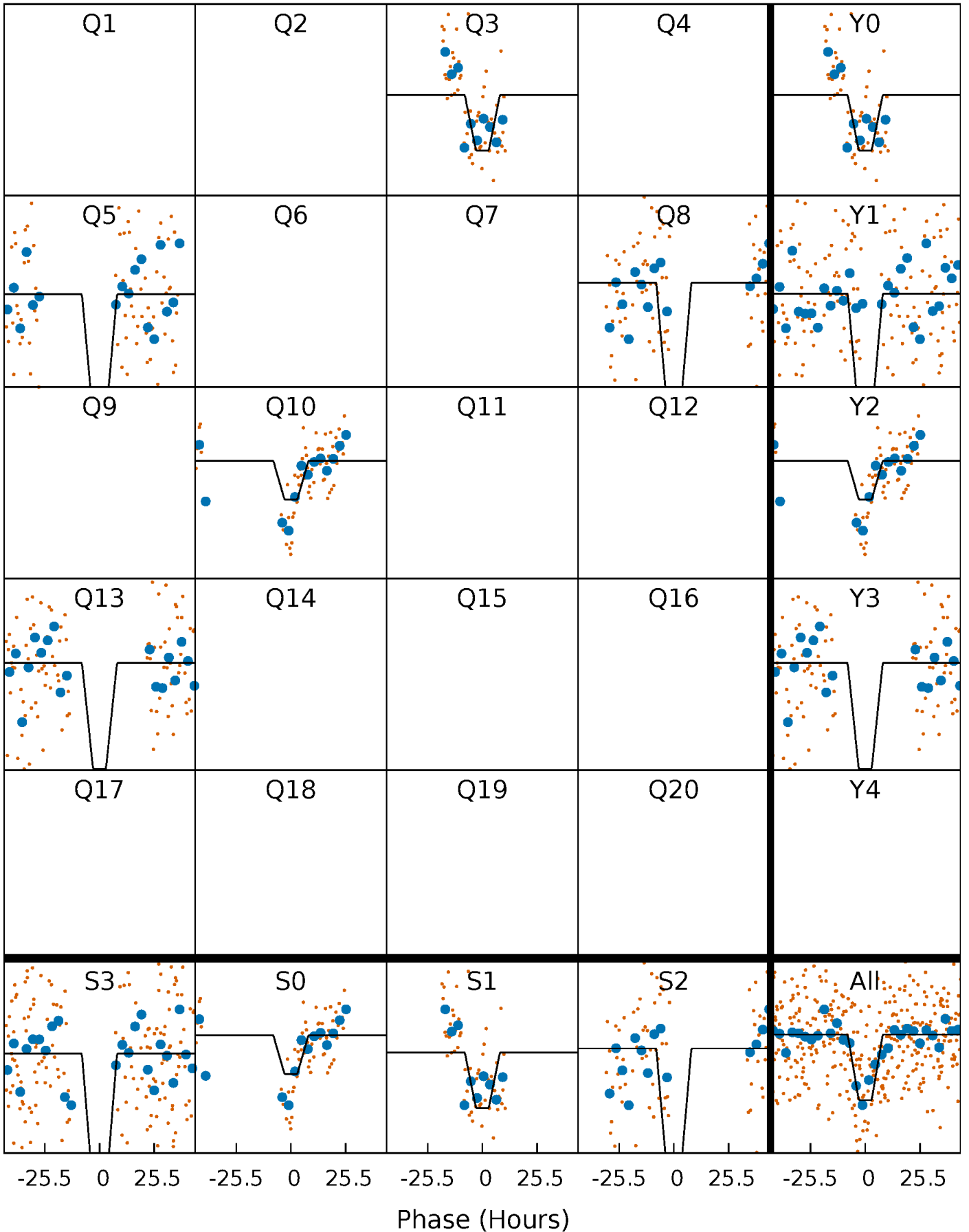
DV Quarter-Phased Transit Curves

TCE 005036530-02 $P=220.008404$ Days $T_0=313.756086$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

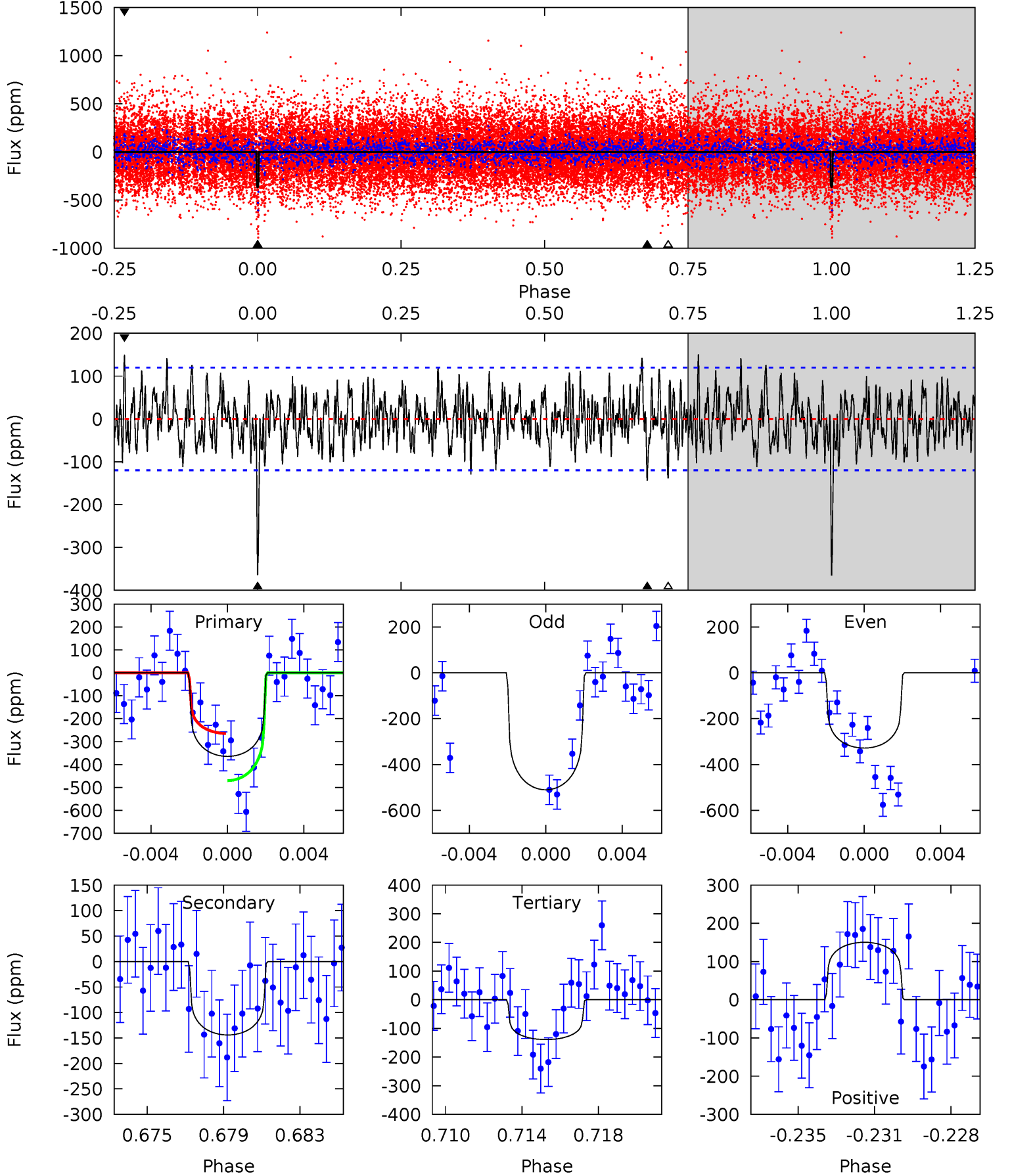
TCE 005036530-02 P=220.096686 Days $T_0=313.725437$ (BKJD)



DV Model-Shift Uniqueness Test

005036530-02, P = 220.008404 Days, E = 93.747682 Days

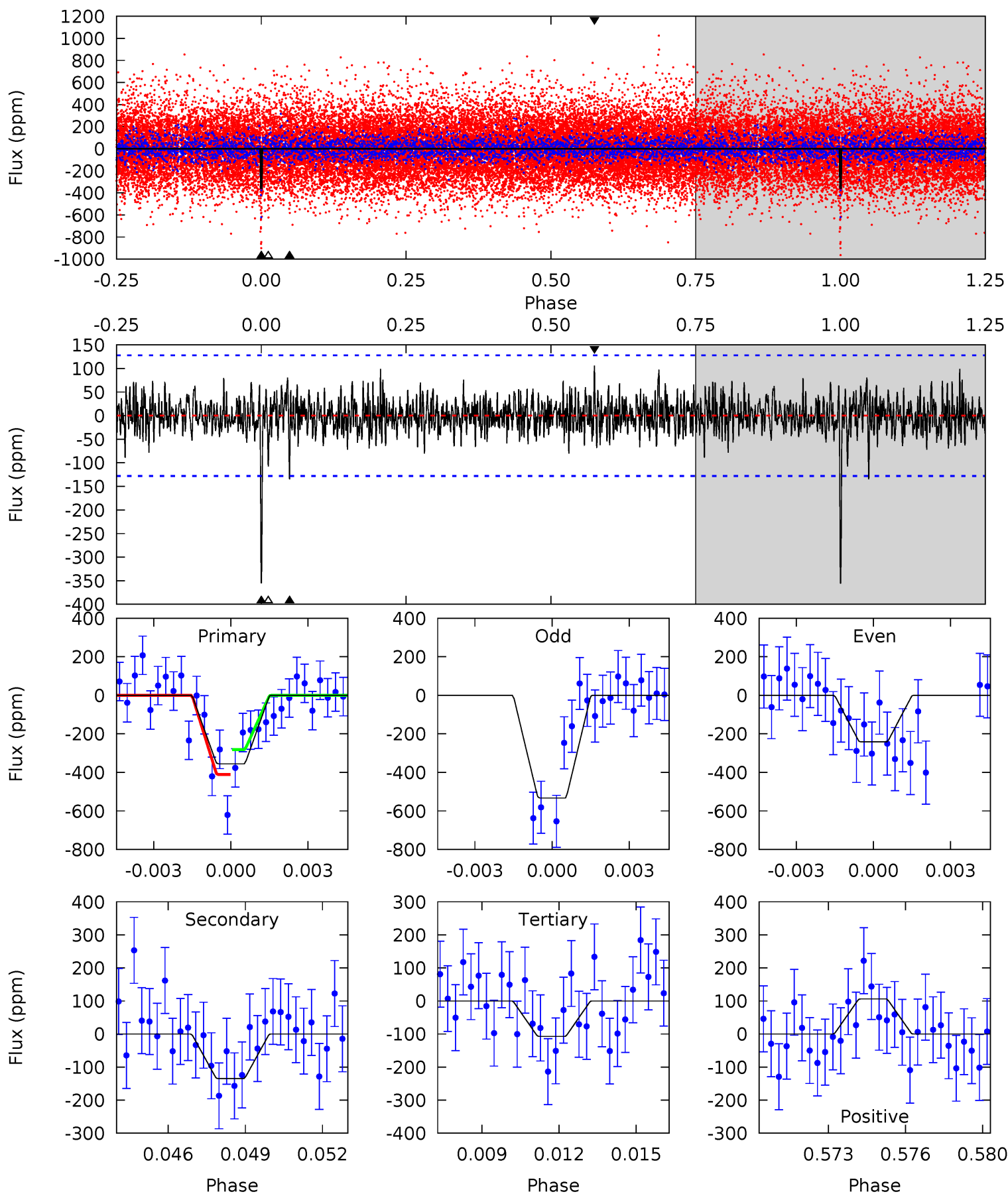
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
15.8	6.26	6.03	6.53	5.20	2.88	2.00	9.80	9.30	0.22	-0.27	3.29	1.43	0.29	4.46



Alt Model-Shift Uniqueness Test

005036530-02, P = 220.096686 Days, E = 93.628751 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
14.6	5.53	4.40	4.35	5.25	2.96	1.16	10.2	10.2	1.13	1.18	5.74	1.22	0.23	2.65



Stellar Parameters For KIC 005036530

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	6333^{+69}_{-88}	$4.198^{+0.110}_{-0.110}$	$0.260^{+0.150}_{-0.200}$	$1.523^{+0.259}_{-0.212}$	$1.338^{+0.088}_{-0.098}$	$0.534^{+0.271}_{-0.179}$
	+1%/-1%	+3%/-3%	+58%/-77%	+17%/-14%	+7%/-7%	+51%/-34%
Source	SPE90	SPE90	SPE90	DSEP		

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

Secondary Eclipse Parameters for KIC 005036530-02 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-144 ± 23	$3.34^{+0.83}_{-0.79}$	543^{+23}_{-22}	4948^{+657}_{-412}	4222^{+3476}_{-1551}
Alt.	-135 ± 24	$3.29^{+0.81}_{-0.75}$	543^{+23}_{-22}	4940^{+617}_{-425}	4248^{+2934}_{-1647}

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

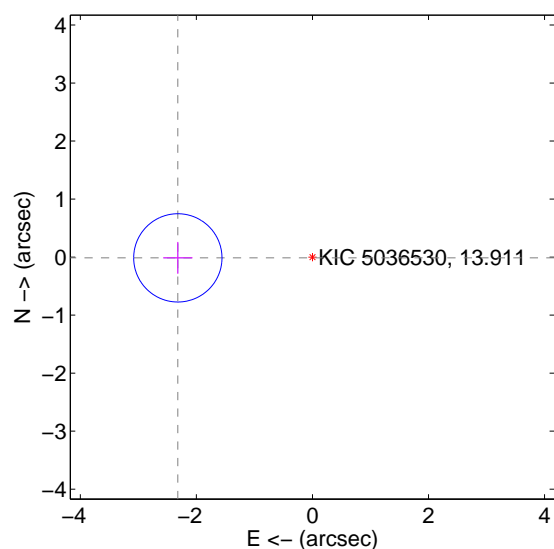
Supplemental centroid analysis for 005036530-02. Kepler magnitude: 13.91. Transit SNR 10.38

There are 1 quarters with good PRF difference image offsets

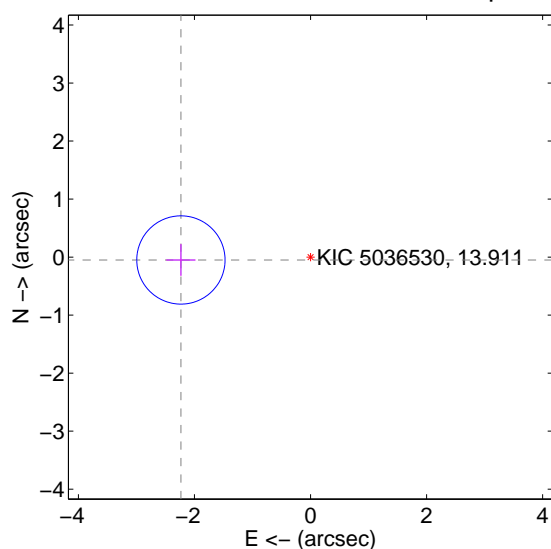
The direct PRF centroid is offset from the target star catalog position by about 0.09 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	2.320 ± 0.254	9.15	2.320 ± 0.254	-0.013 ± 0.274
PRF-fit source offset from KIC position	2.235 ± 0.254	8.81	2.234 ± 0.254	-0.050 ± 0.274
photometric centroid source offset	1.86 ± 0.54	3.46	-0.86 ± 0.57	-1.65 ± 0.53

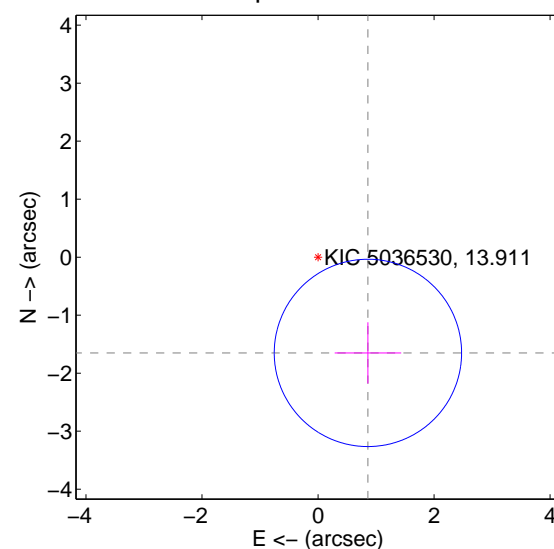
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

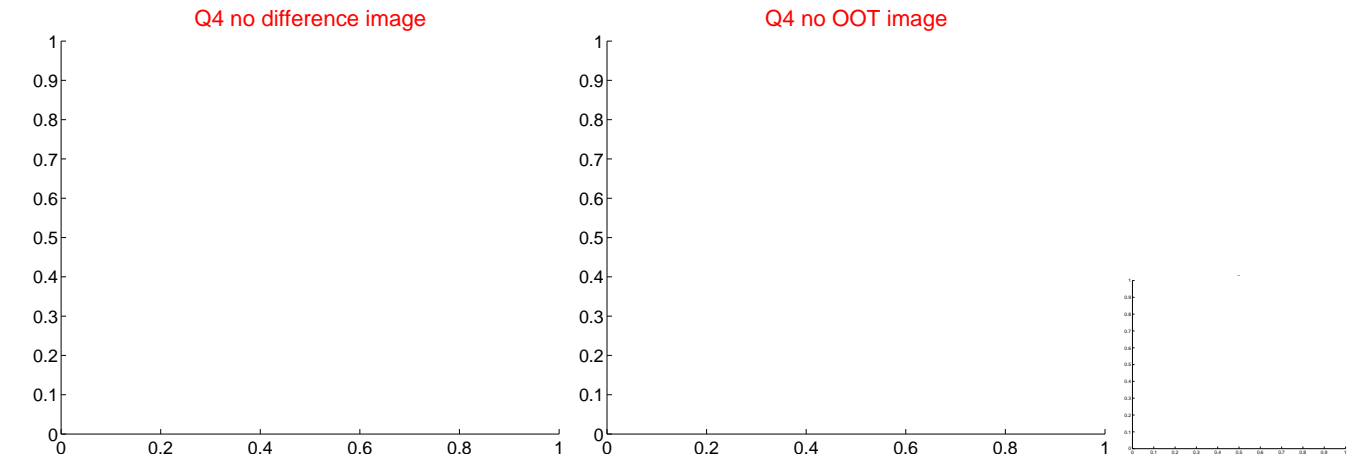
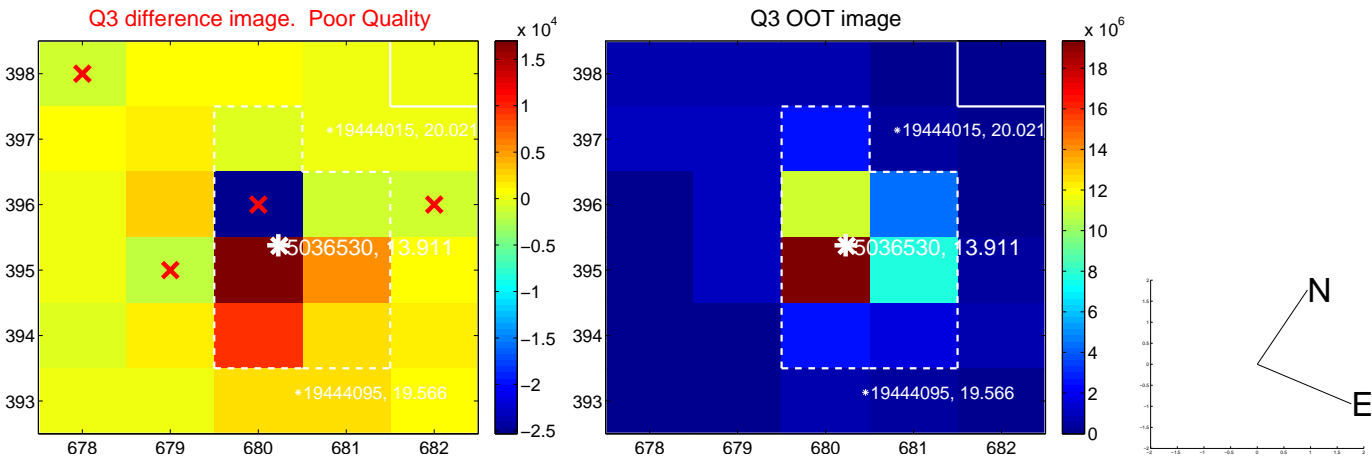
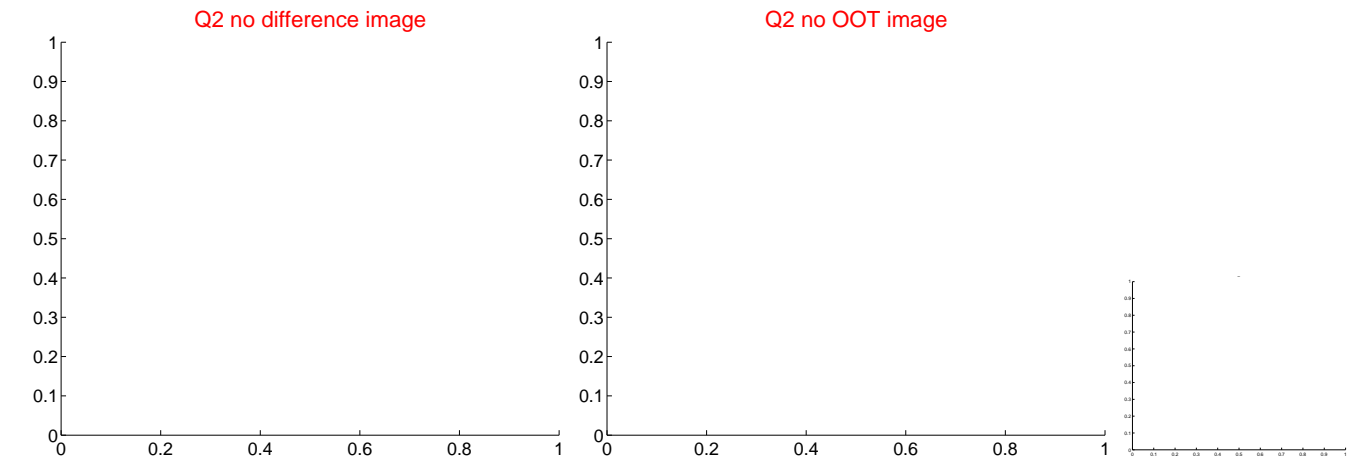
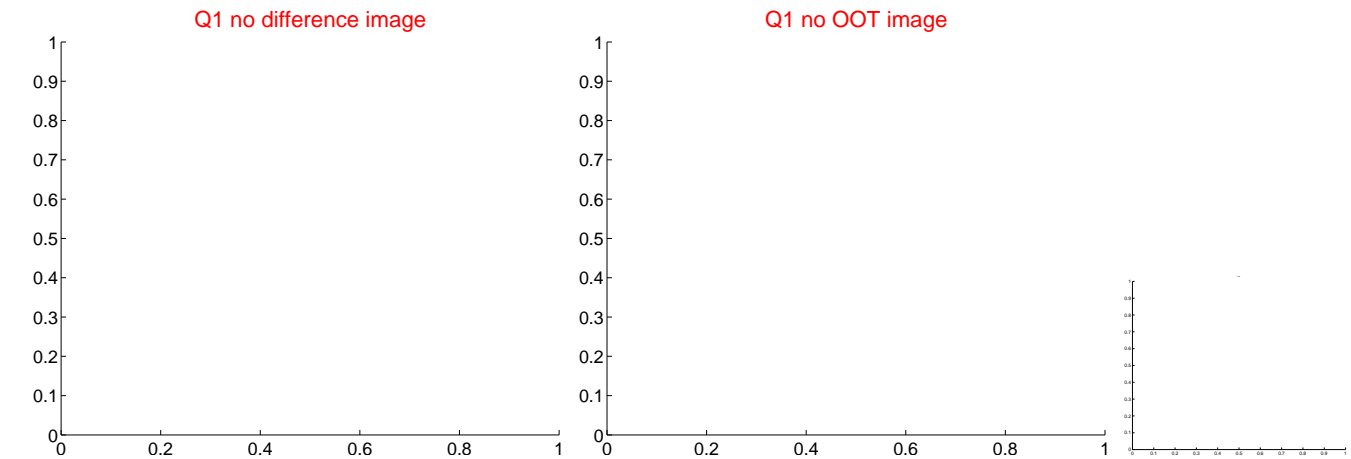


offset from photometric centroids

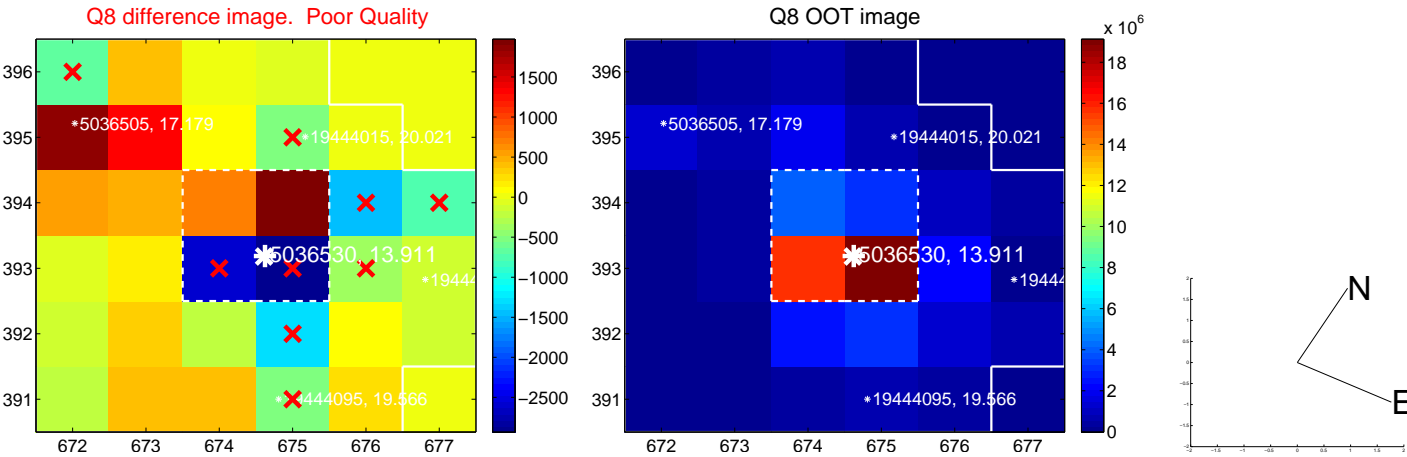
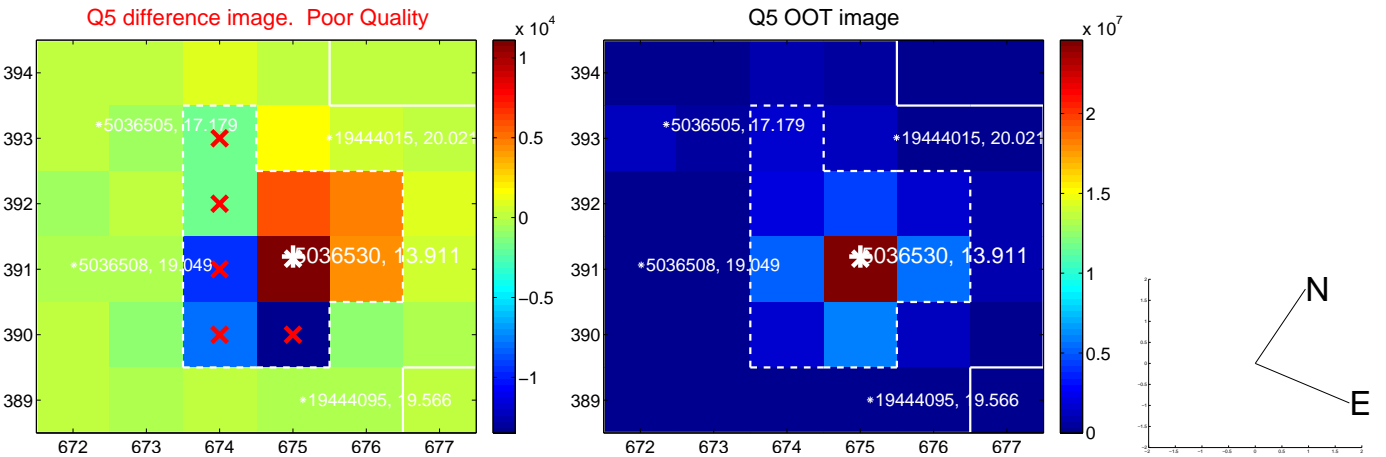


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

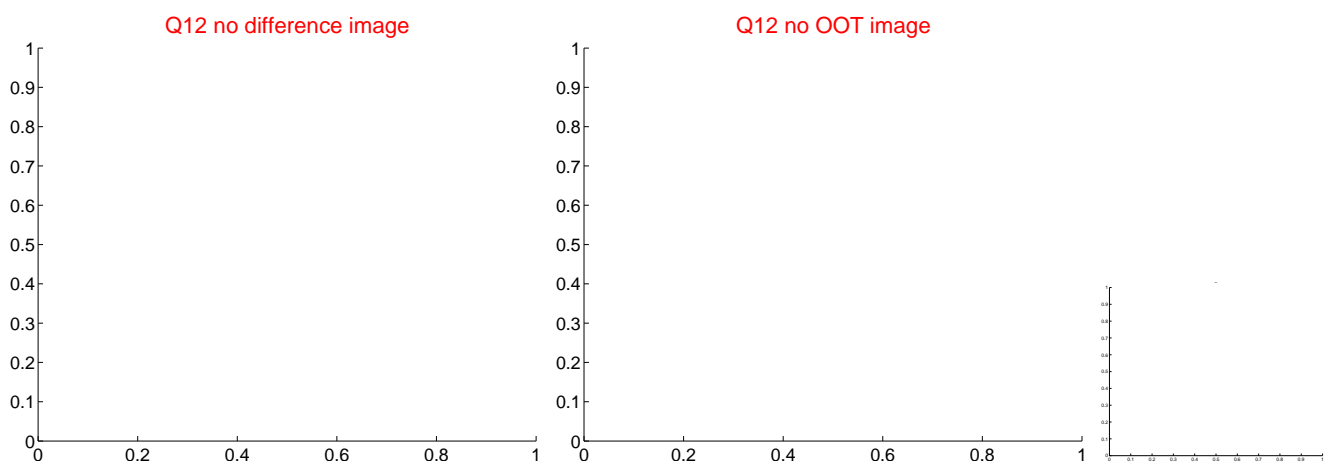
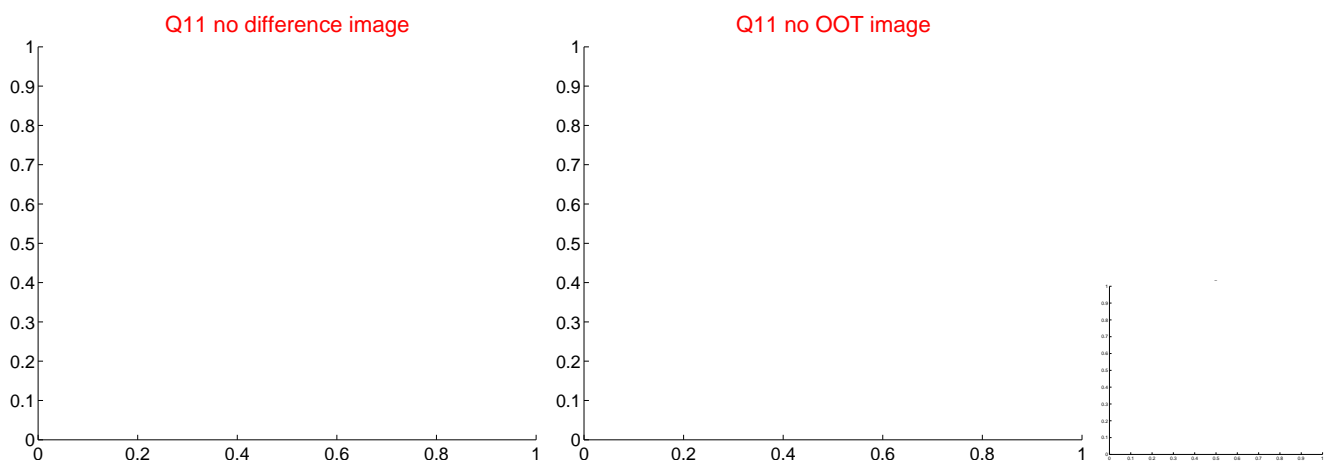
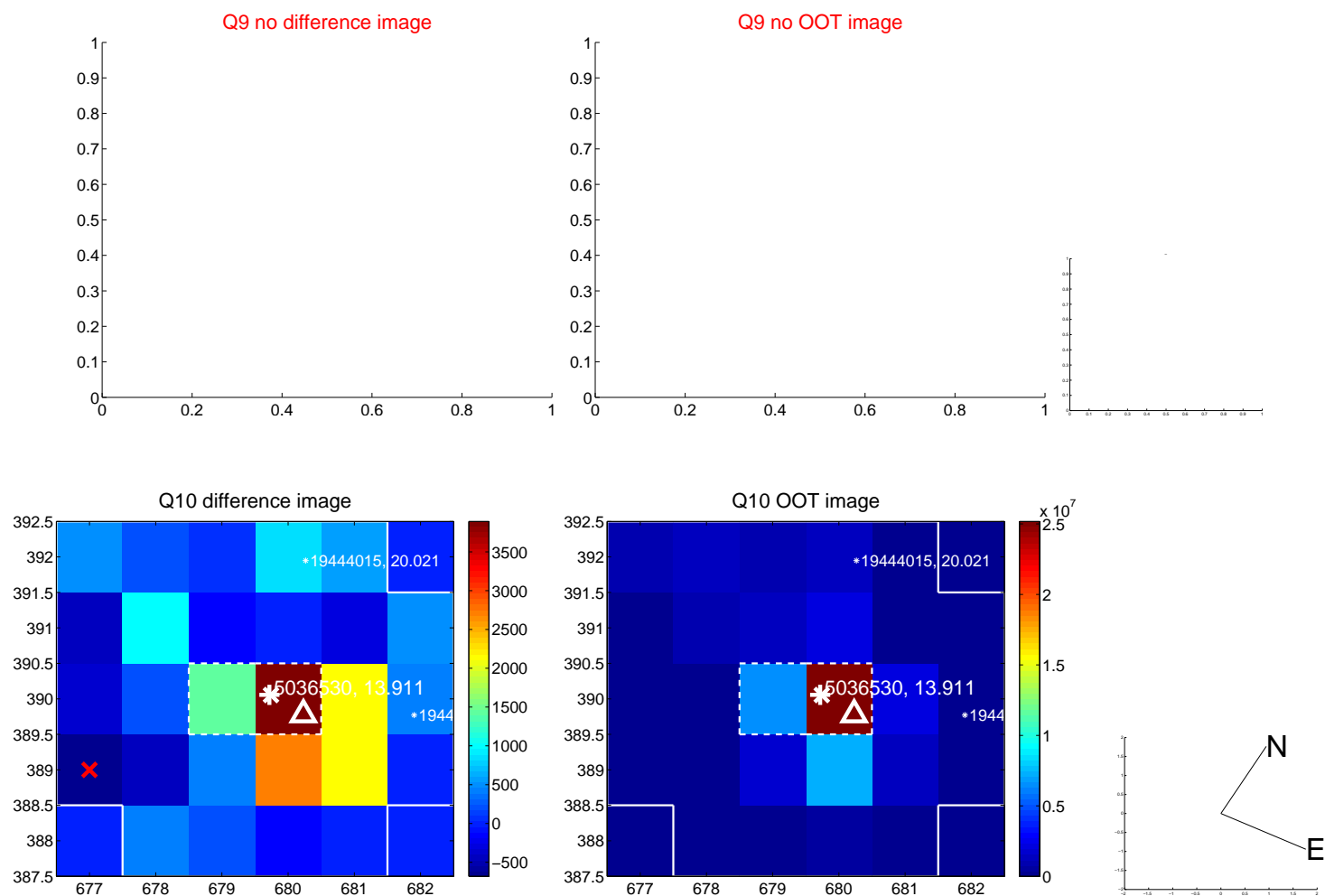
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



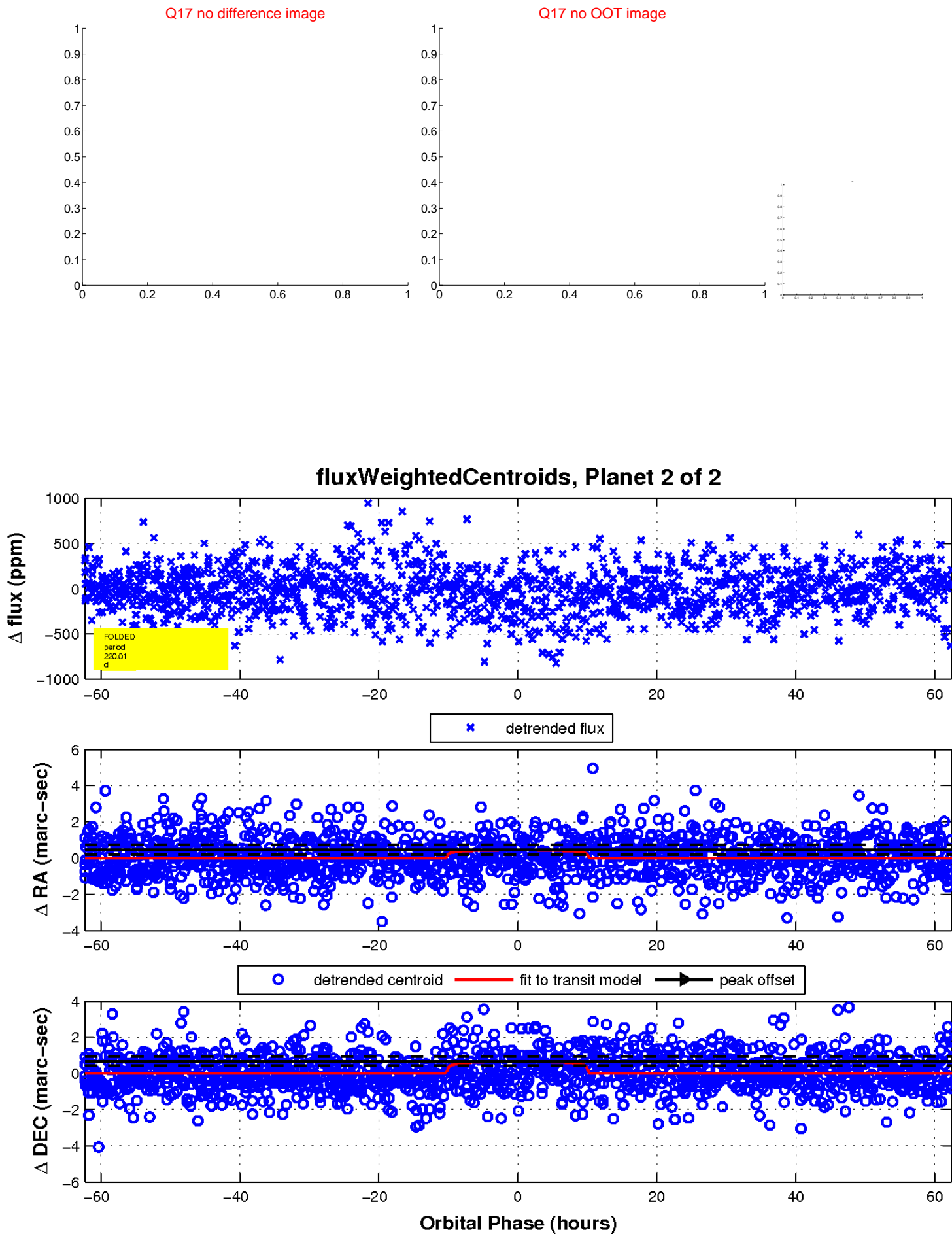
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value



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.



UKIRT Image

Declination

