

KIC 005560731

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})
005560731-01	OBS	No	1.603115	132.009752	45.7	6.020	17.5	14.2	3.75	6675	2.56	24386.72
005560731-02	OBS	No	1.603089	131.582511	159.6	6.000	12.3	-1.0	3.75	6675	4.78	24387.24
005560731-03	OBS	No	85.237731	194.635610	263.6	4.752	8.0	8.0	3.75	6675	6.49	121.97
005560731-05	OBS	No	78.723431	190.620787	300.1	5.337	7.8	8.2	3.75	6675	7.12	135.61

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005560731-01	OBS	FP	0.00	1	0	0	0	LPP_DV—MOD_NONUNIQ_DV
005560731-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA—LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—SAME_NTL_PERIOD—CENT_NOFITS
005560731-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
005560731-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_TRACKER—TRANS_GAPPED—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT

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

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

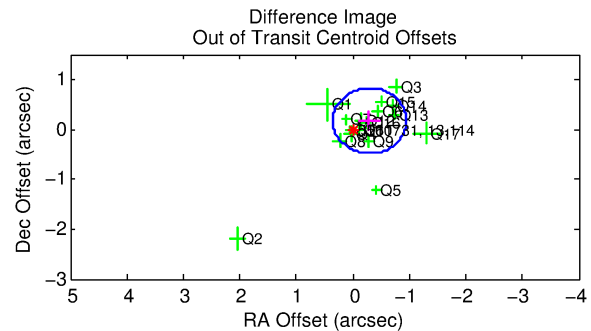
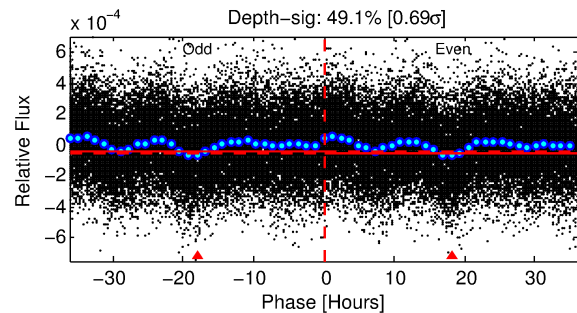
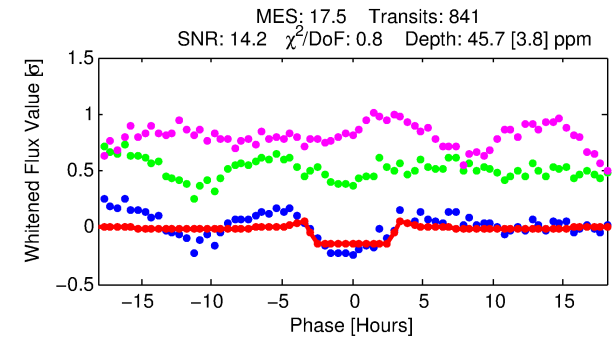
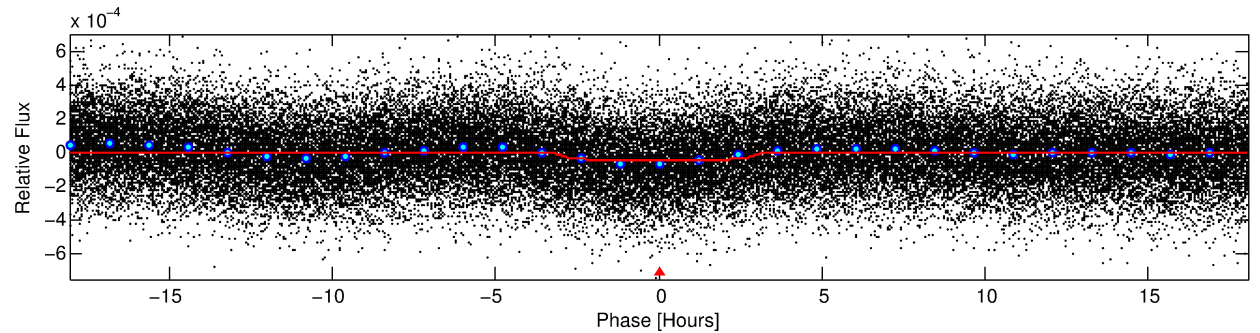
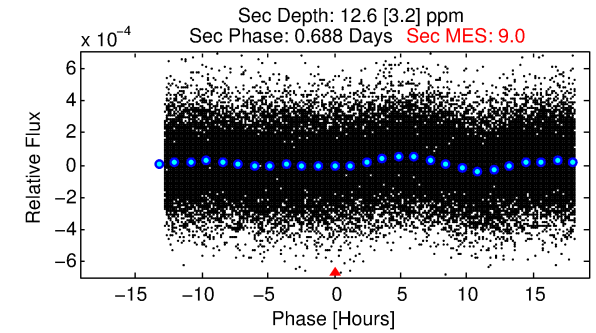
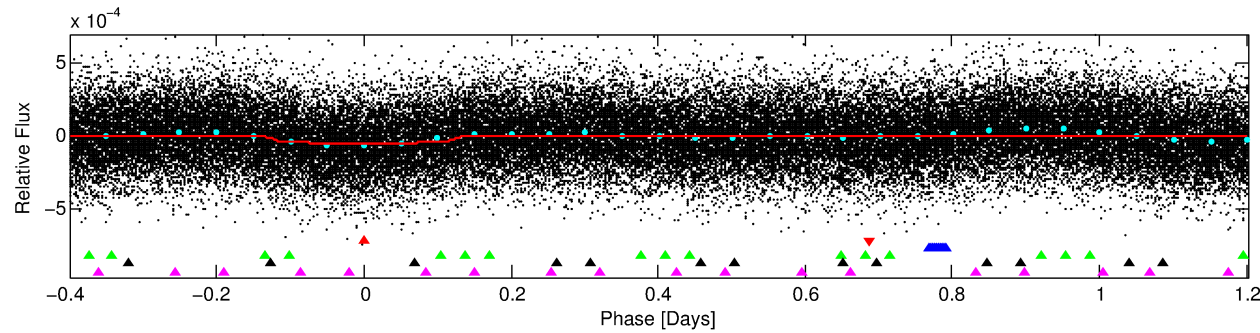
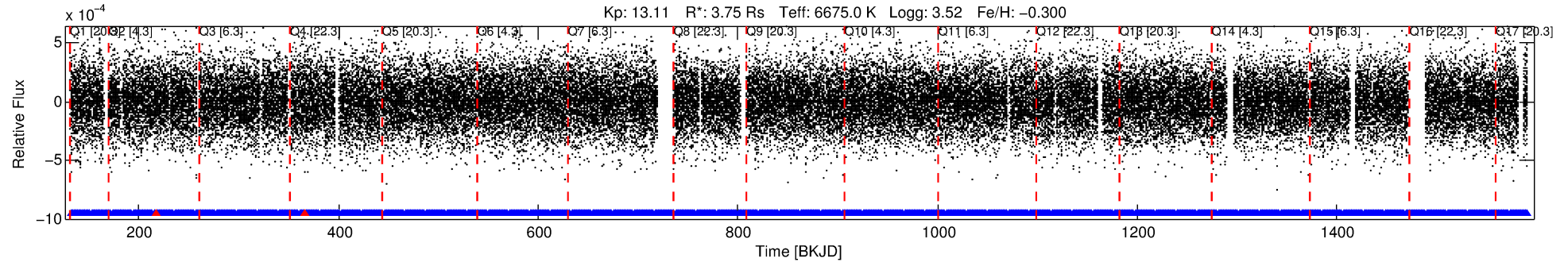
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 005560731-01

No Significant Match Found

DV One-Page Summary

KIC: 5560731 Candidate: 1 of 5 Period: 1.603 d



DV Fit Results:

Period = 1.60311 [0.00001] d
Epoch = 132.0098 [0.0028] BKJD
Rp/R* = 0.0062 [0.0028]
a/R* = 2.13 [4.08]
b = 0.02 [11.68]
Seff = 24386.72 [15014.28]
Teq = 3187 [490] K
Rp = 2.56 [1.54] Re
a = 0.0321 [0.0121] AU
Ag = 1.09 [1.22] [0.07σ]
Teffp = 5033 [1195] K [1.43σ]

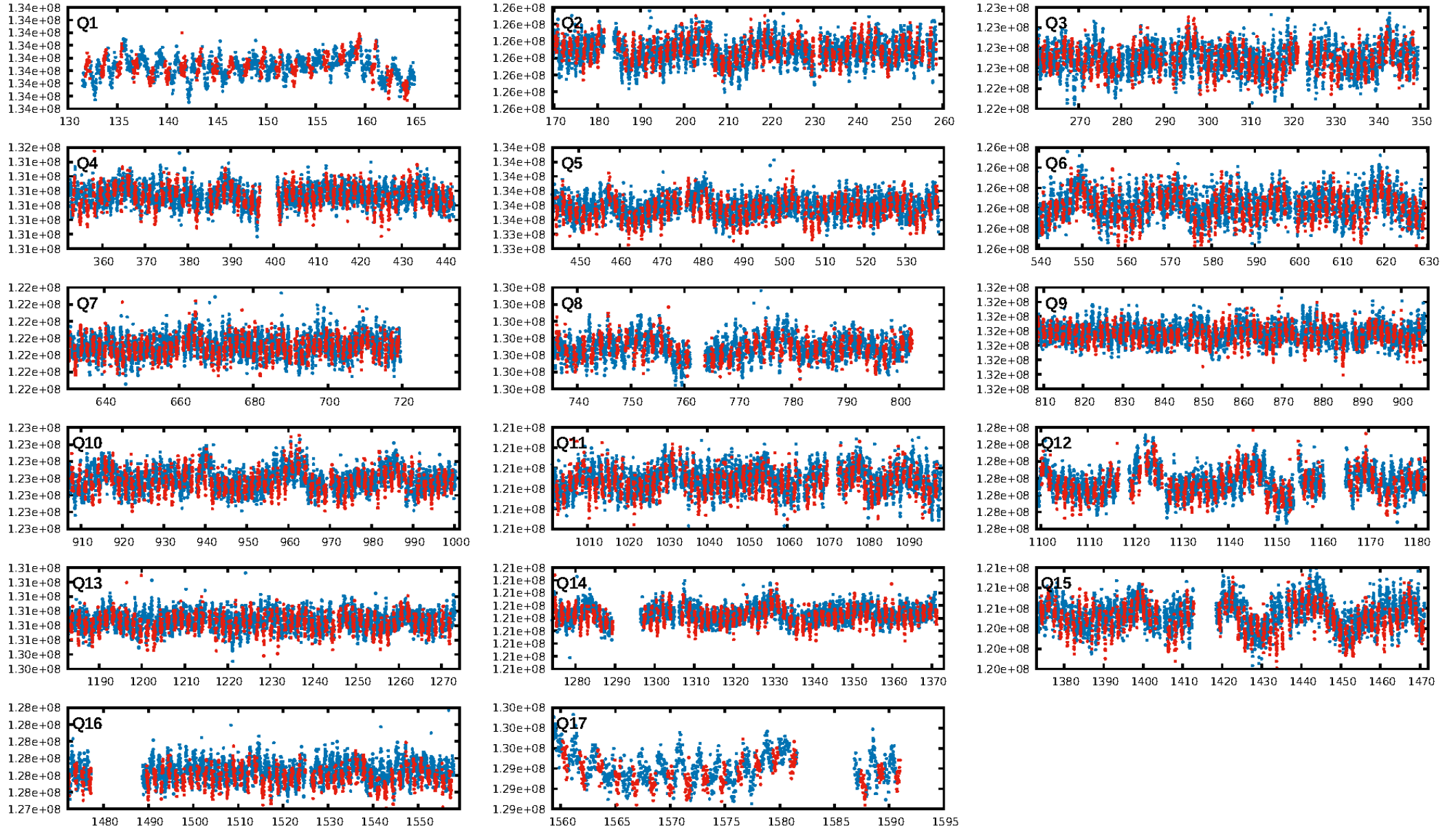
DV Diagnostic Results:

ShortPeriod-sig: 0.0% [0.00σ]
LongPeriod-sig: 100.0% [230.07σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 1.01e-31
RollingBand-fgt: 1.00 [801/803]
GhostDiagnostic-chr: 1.872
Centroid-sig: 0.1%
Centroid-so: 0.784 arcsec [1.66σ]
OotOffset-rm: 0.336 arcsec [1.54σ]
KicOffset-rm: 0.257 arcsec [1.17σ]
OotOffset-st: 4/4/4/5 [17]
KicOffset-st: 4/4/4/5 [17]
DiffImageQuality-fgm: 0.94 [16/17]
DiffImageOverlap-fno: 1.00 [17/17]

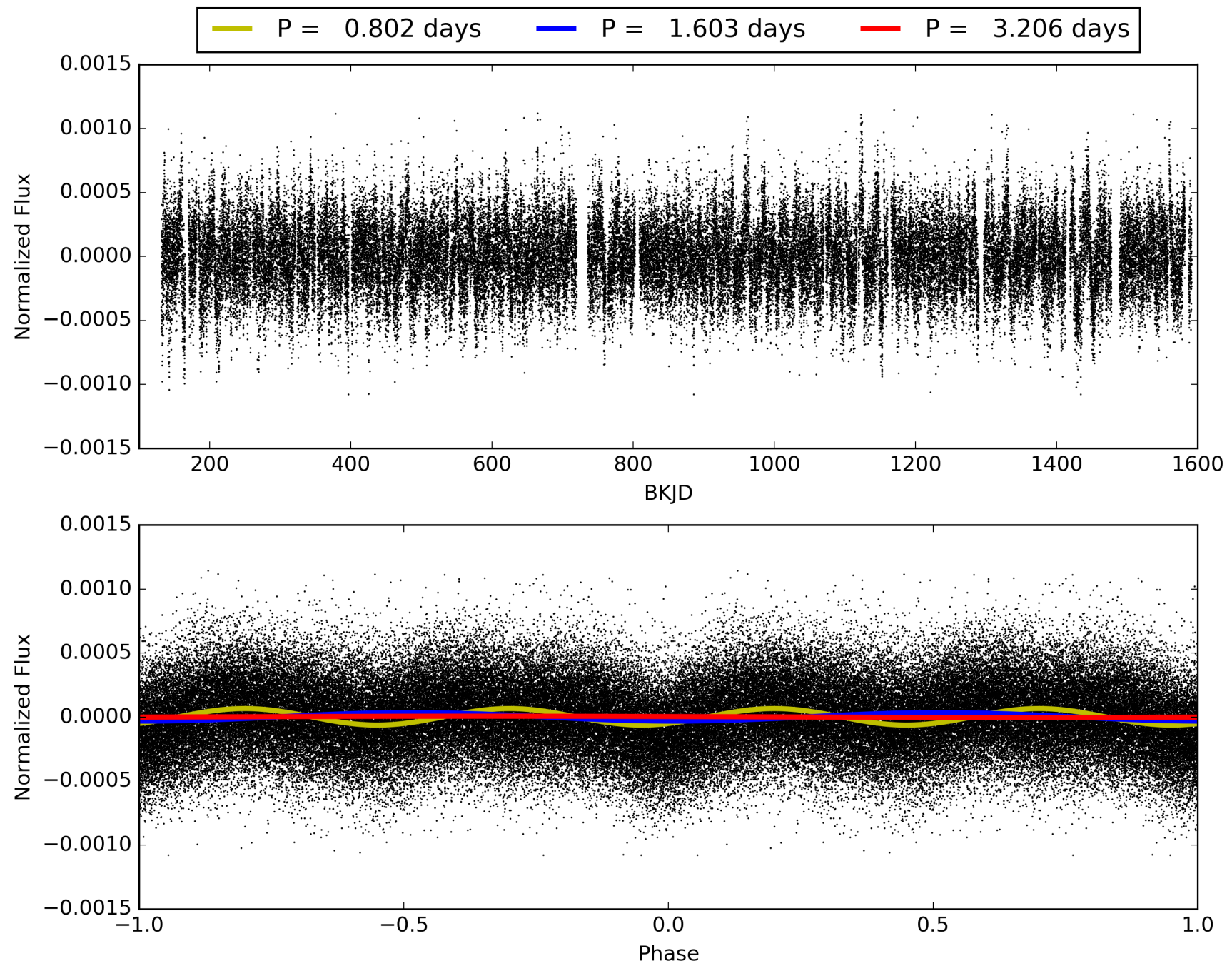
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 14:08:54 Z

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

TCE 005560731-01, PDC Light Curves

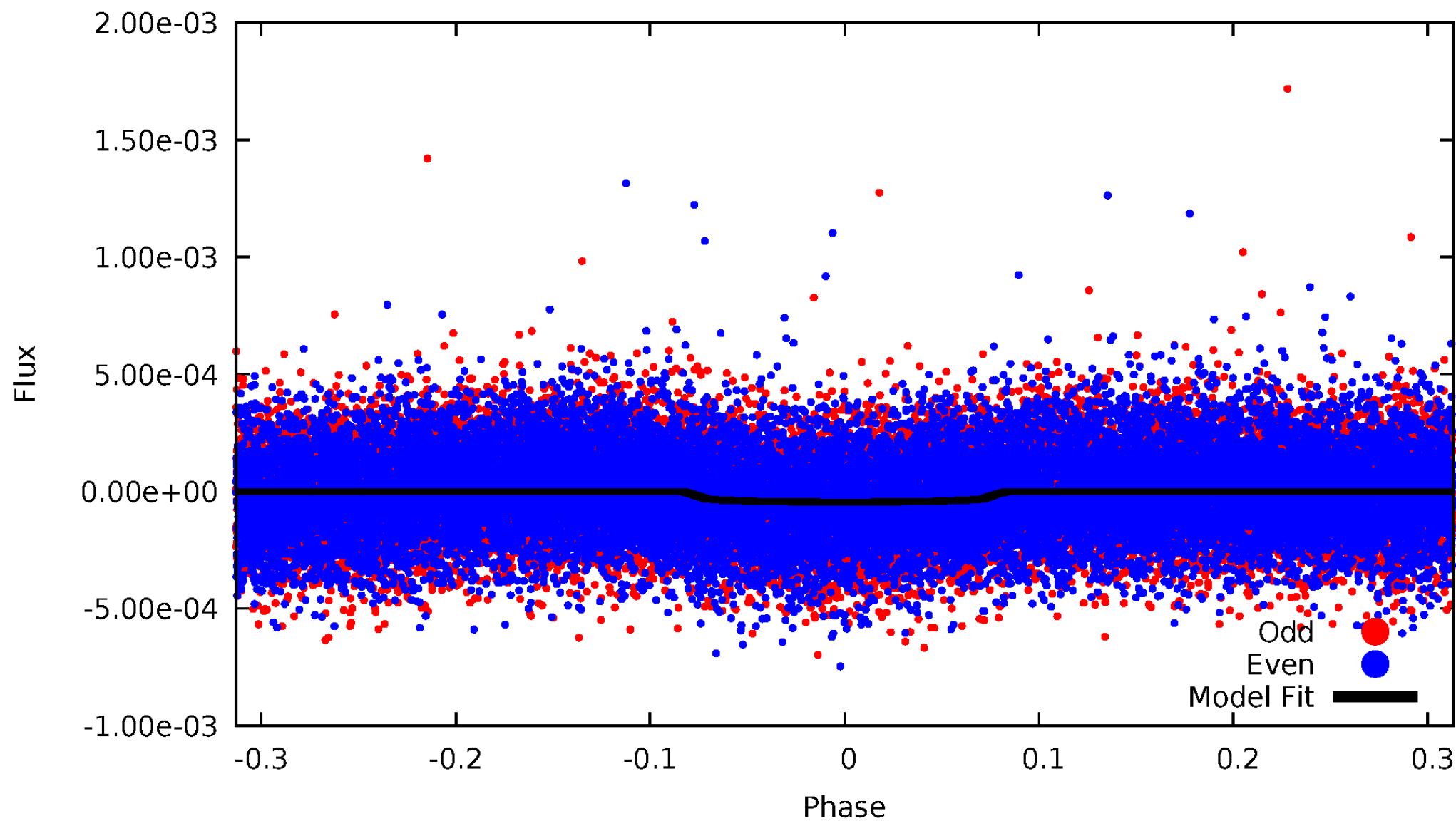


TCE 005560731-01



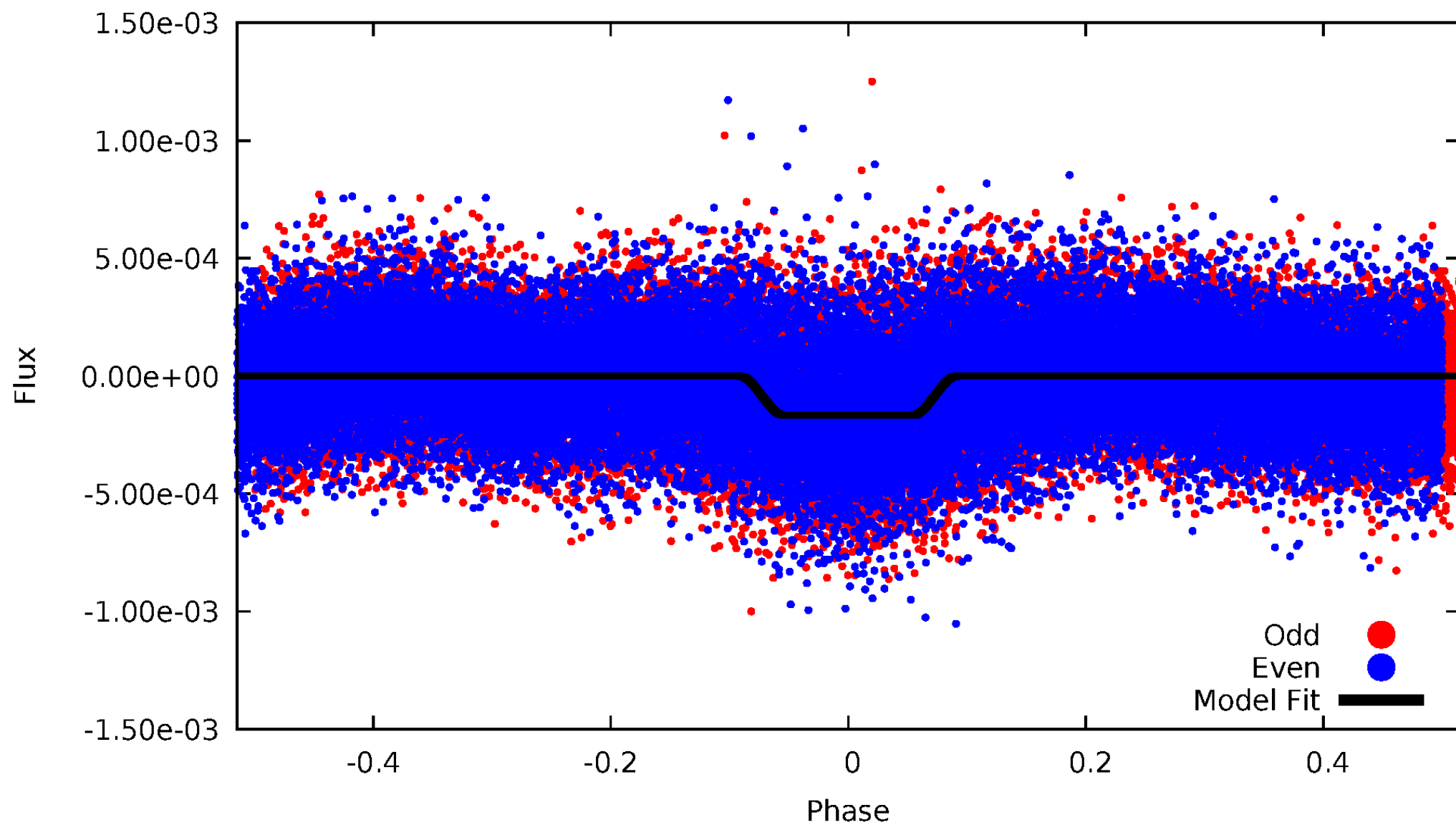
DV Odd/Even

TCE 005560731-01

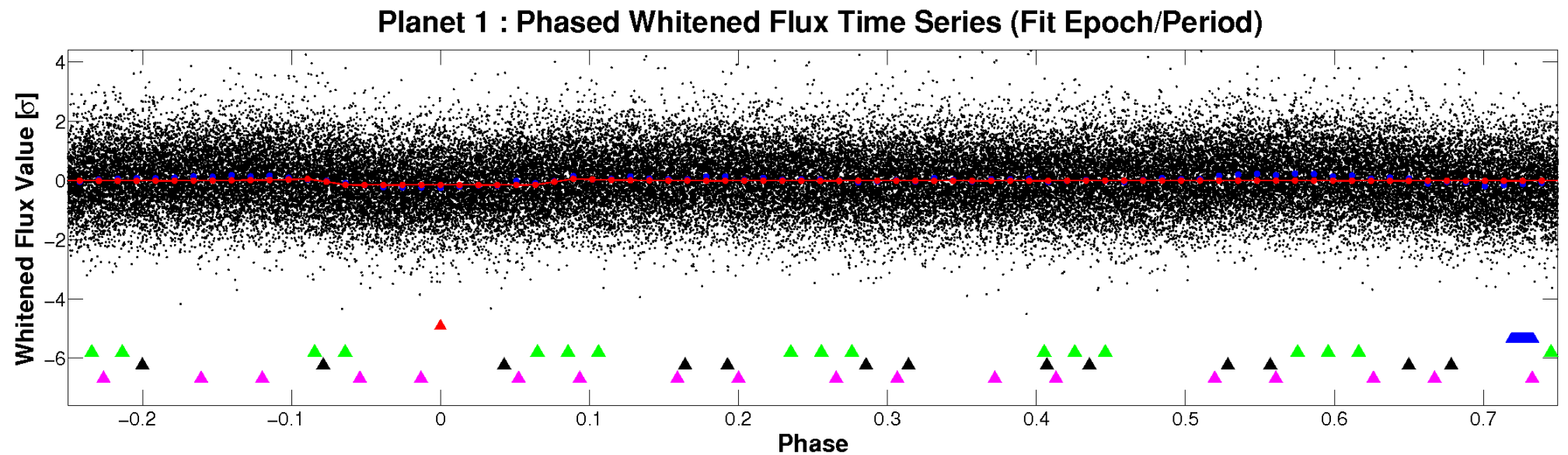
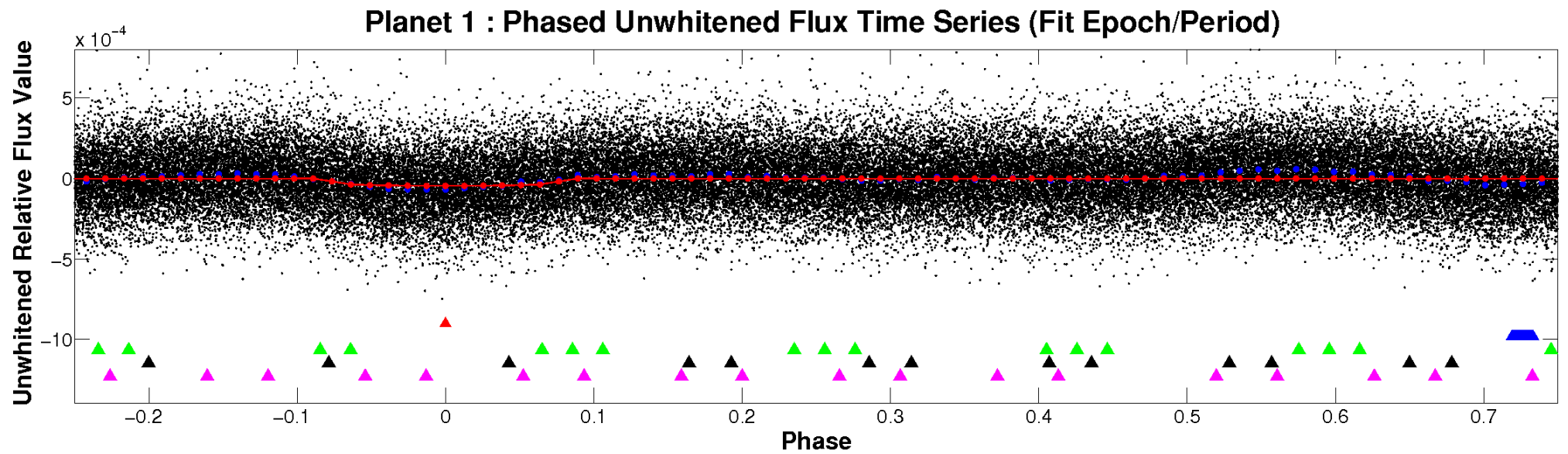


ALT Odd/Even

TCE 005560731-01

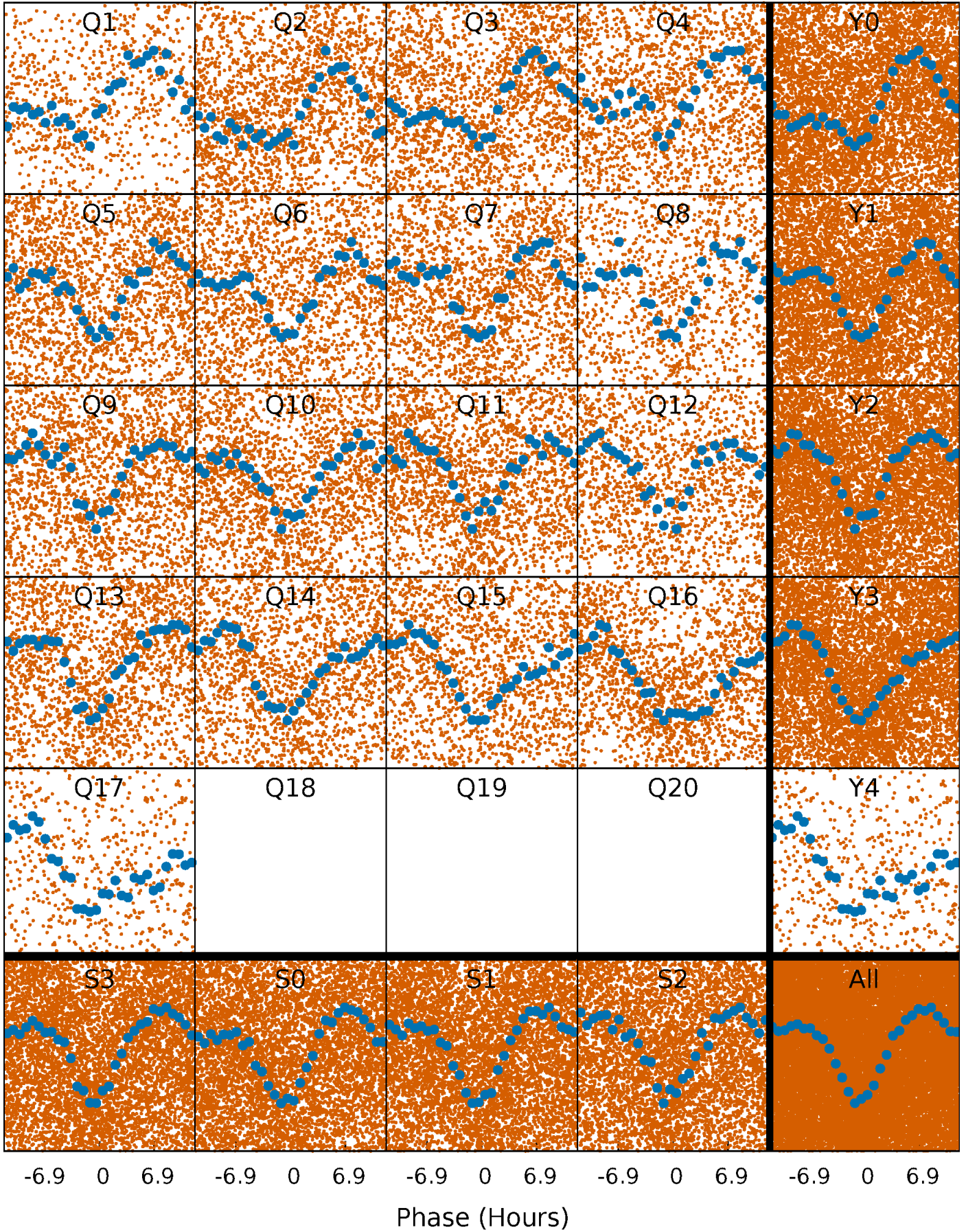


Non-Whitened Vs. Whitened Light Curve



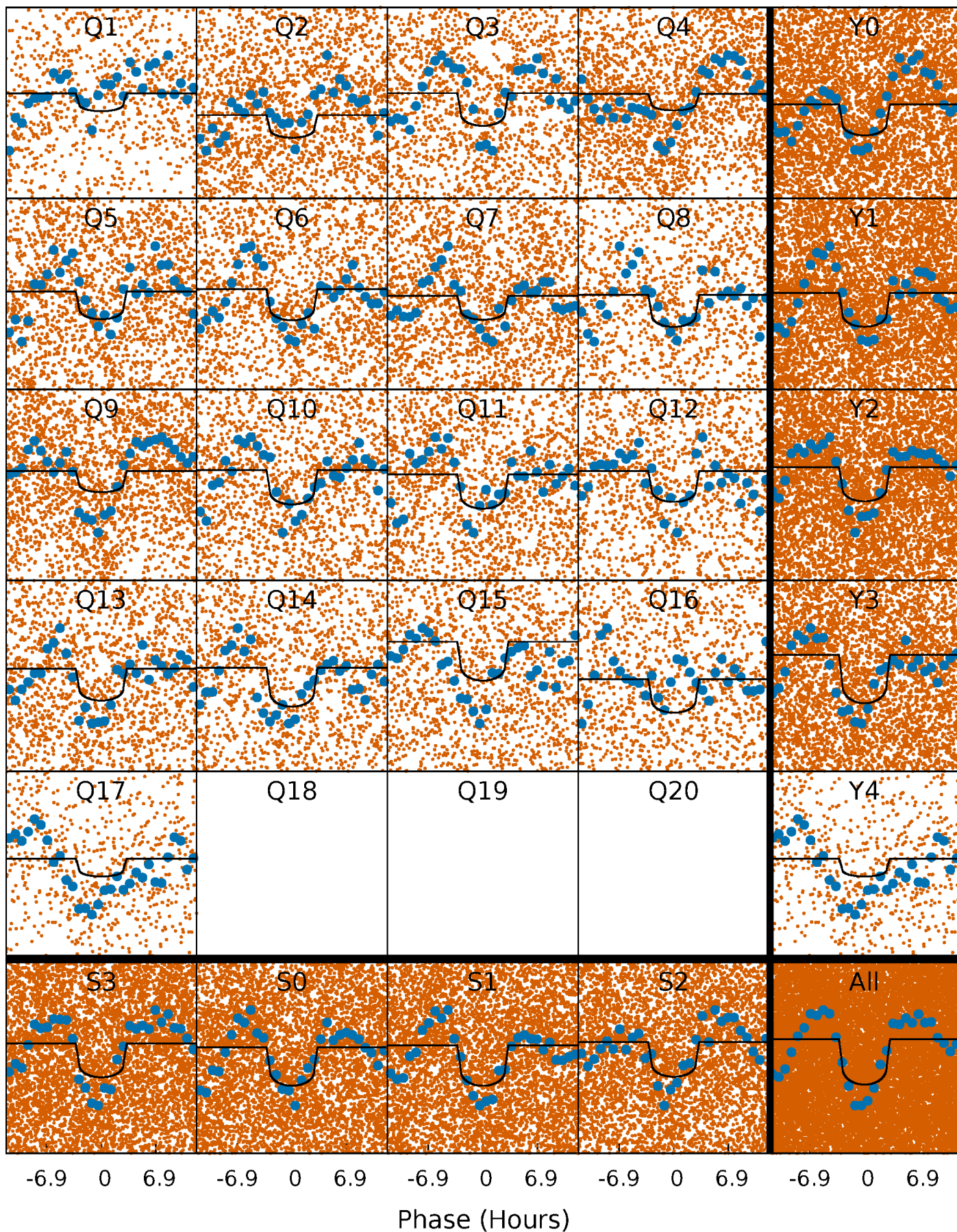
PDC Quarter-Phased Transit Curves

TCE 005560731-01 P= 1.603115 Days $T_0=132.009752$ (BKJD)



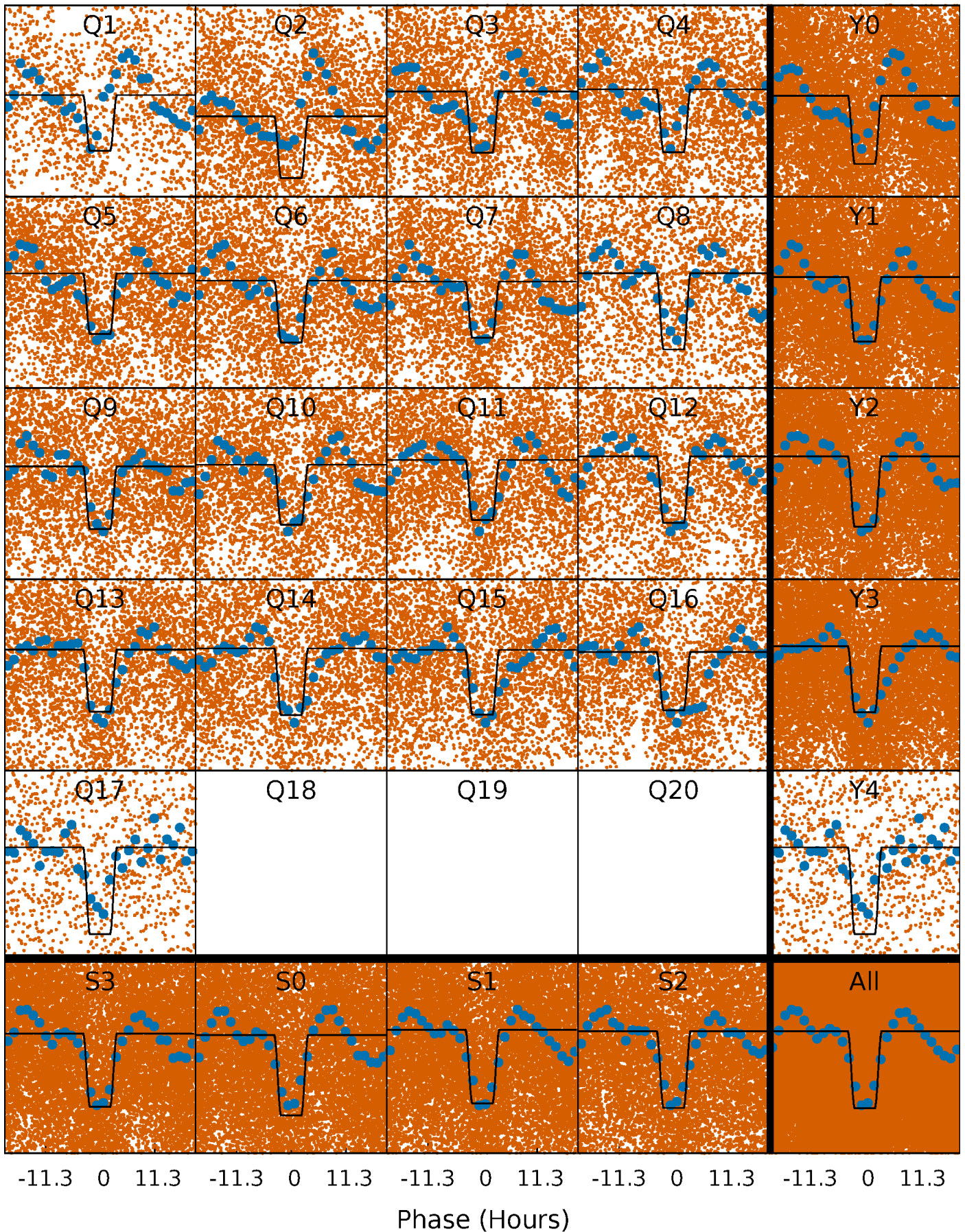
DV Quarter-Phased Transit Curves

TCE 005560731-01 P= 1.603115 Days $T_0=132.009752$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

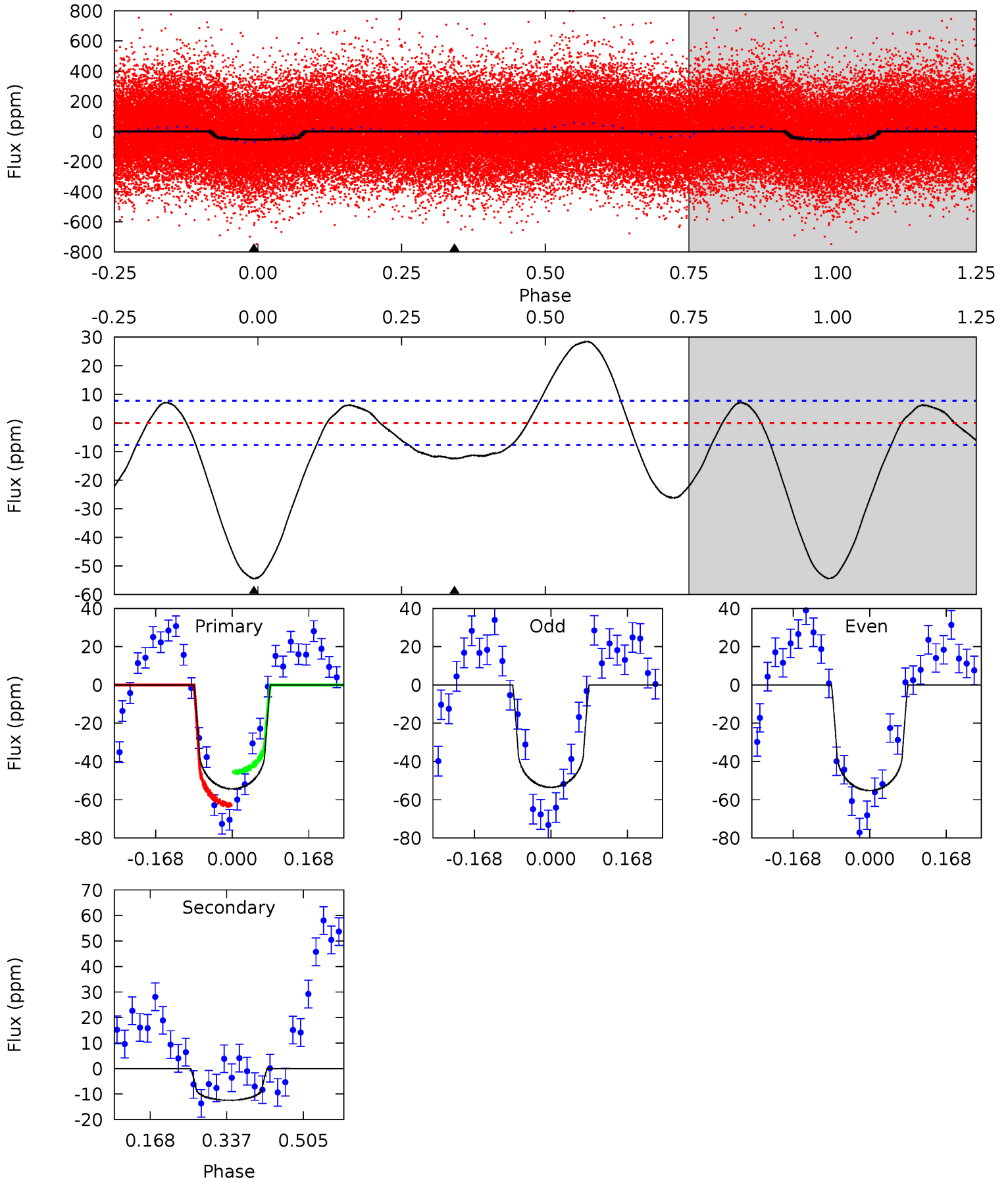
TCE 005560731-01 P= 1.603034 Days $T_0=132.017774$ (BKJD)



DV Model-Shift Uniqueness Test

005560731-01, P = 1.603115 Days, E = 130.406637 Days

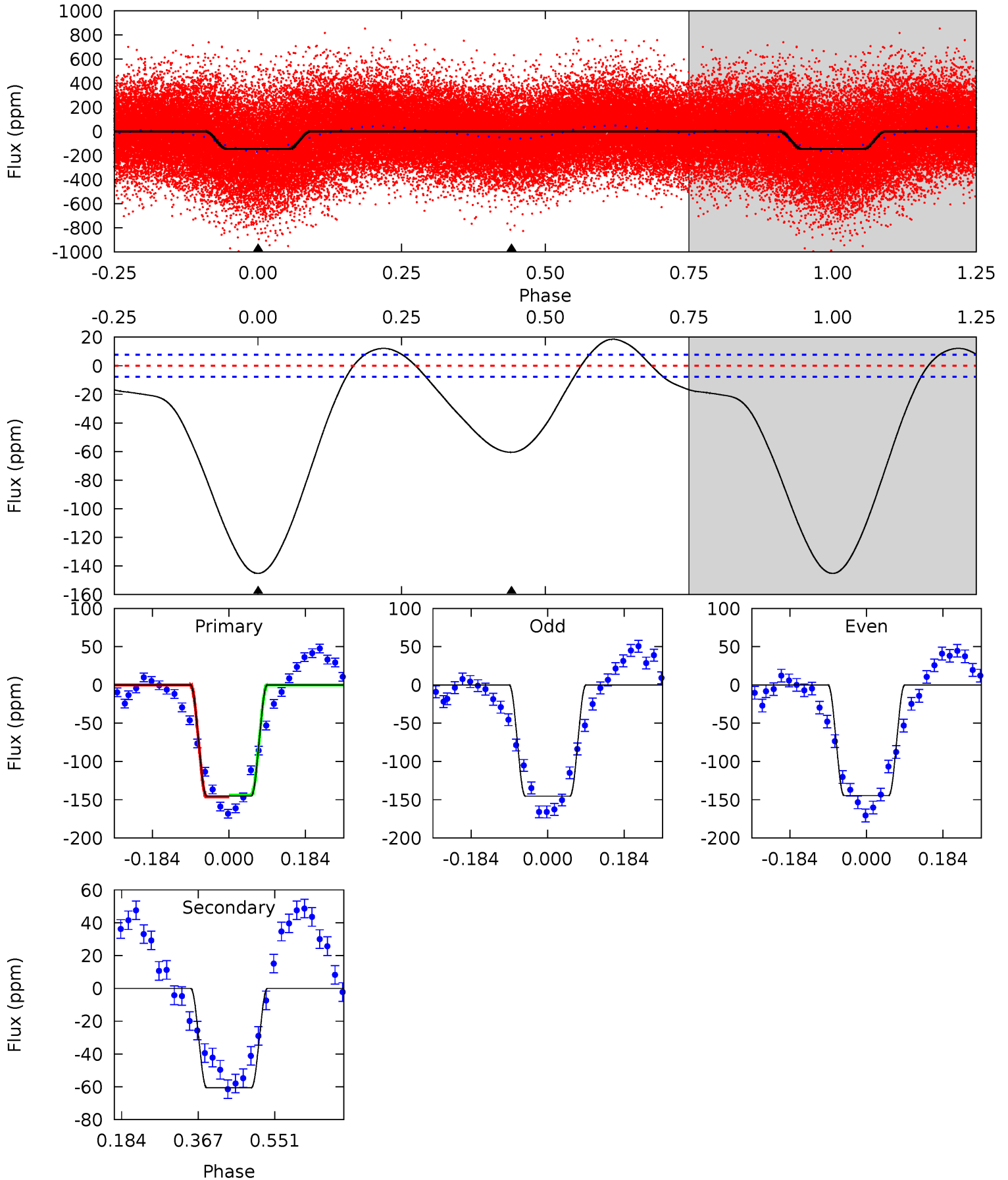
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
31.3	7.16	0	0	4.45	1.38	11.1	31.3	31.3	7.16	7.16	0.48	0.98	0.34	5.00



Alt Model-Shift Uniqueness Test

005560731-01, P = 1.603034 Days, E = 130.414740 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
83.7	34.9	0	0	4.44	1.33	7.78	83.7	83.7	34.9	34.9	0.21	0.97	0.11	0.80



Stellar Parameters For KIC 005560731

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6675^{+182}_{-223}	$3.522^{+0.352}_{-0.088}$	$-0.300^{+0.350}_{-0.250}$	$3.755^{+0.371}_{-1.482}$	$1.711^{+0.199}_{-0.398}$	$0.045^{+0.128}_{-0.013}$
	+3%/-3%	+10%/-2%	+117%/-83%	+10%/-39%	+12%/-23%	+281%/-29%
Source	PHO1	FLK73	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 005560731-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-12 ± 2	$2.32^{+1.14}_{-1.07}$	4363^{+243}_{-402}	4813^{+1773}_{-966}	$1.267^{+3.134}_{-0.695}$
Alt.	-61 ± 2	$5.03^{+1.36}_{-1.50}$	4378^{+246}_{-378}	4951^{+710}_{-567}	$1.356^{+1.233}_{-0.506}$

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 $A_{obs} \gg 1.0$

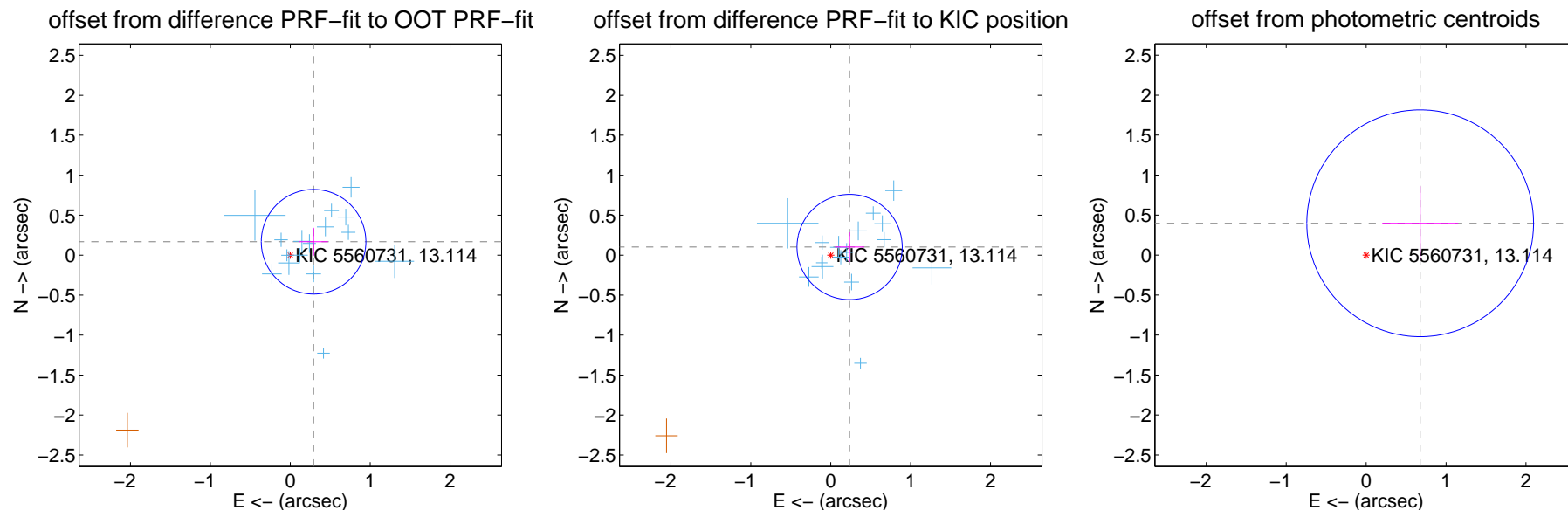
DV Centroid Data

Supplemental centroid analysis for 005560731-01. Kepler magnitude: 13.11. Transit SNR 14.22

There are 16 quarters with good PRF difference image offsets

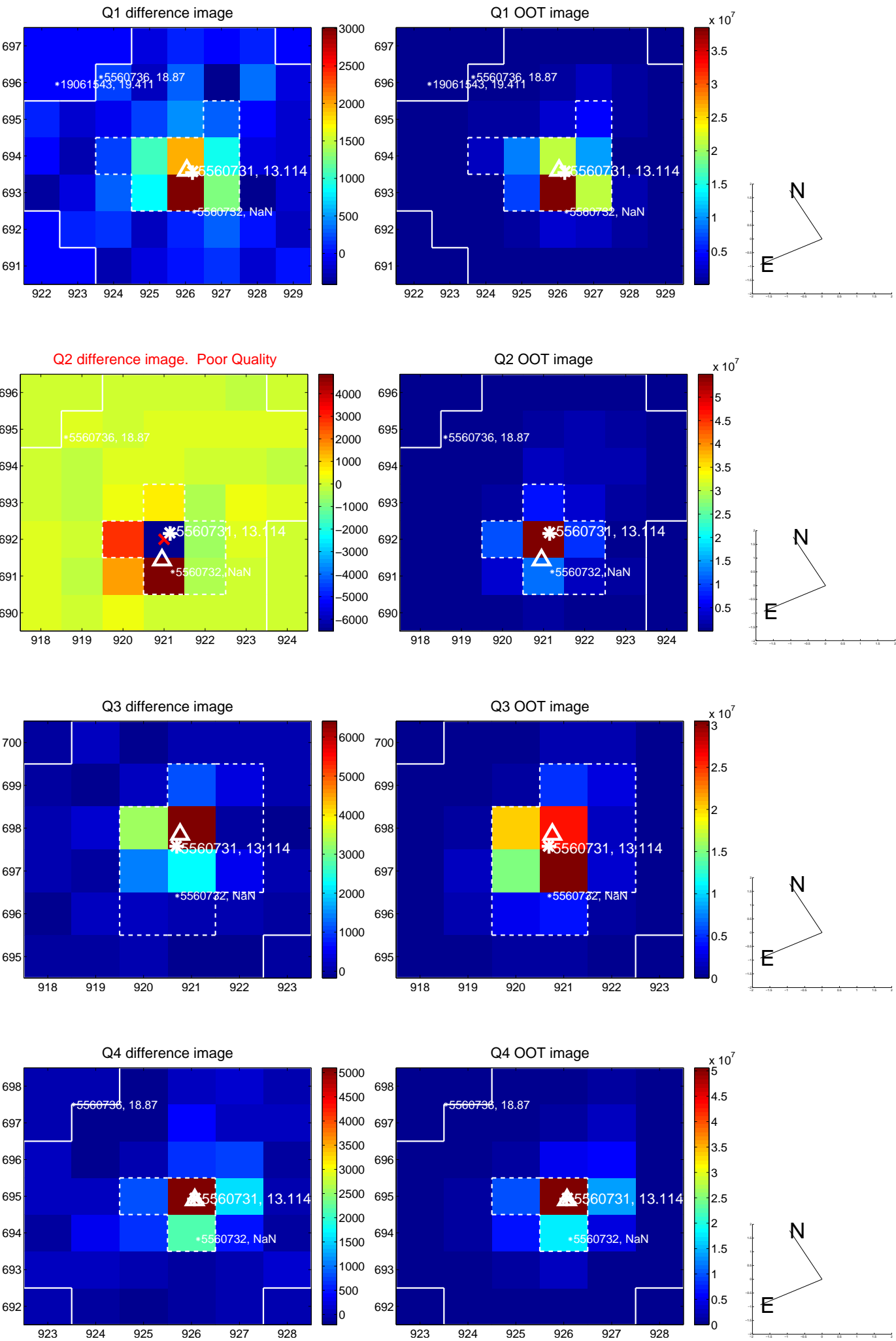
The direct PRF centroid is offset from the target star catalog position by about 0.09 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.336 ± 0.218	1.54	-0.292 ± 0.181	0.168 ± 0.174
PRF-fit source offset from KIC position	0.257 ± 0.219	1.17	-0.236 ± 0.184	0.102 ± 0.184
photometric centroid source offset	0.78 ± 0.47	1.66	-0.68 ± 0.48	0.40 ± 0.46

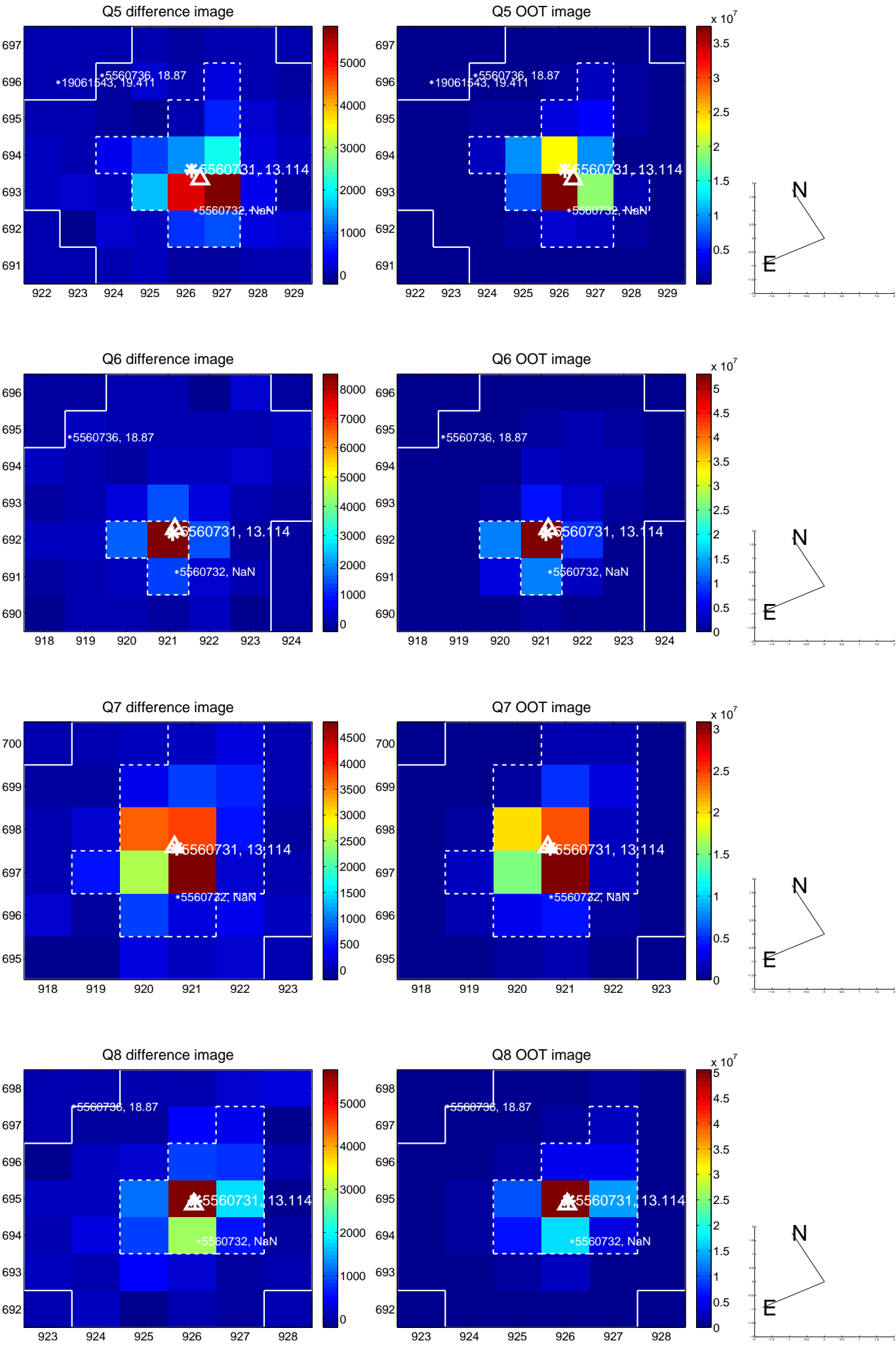


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

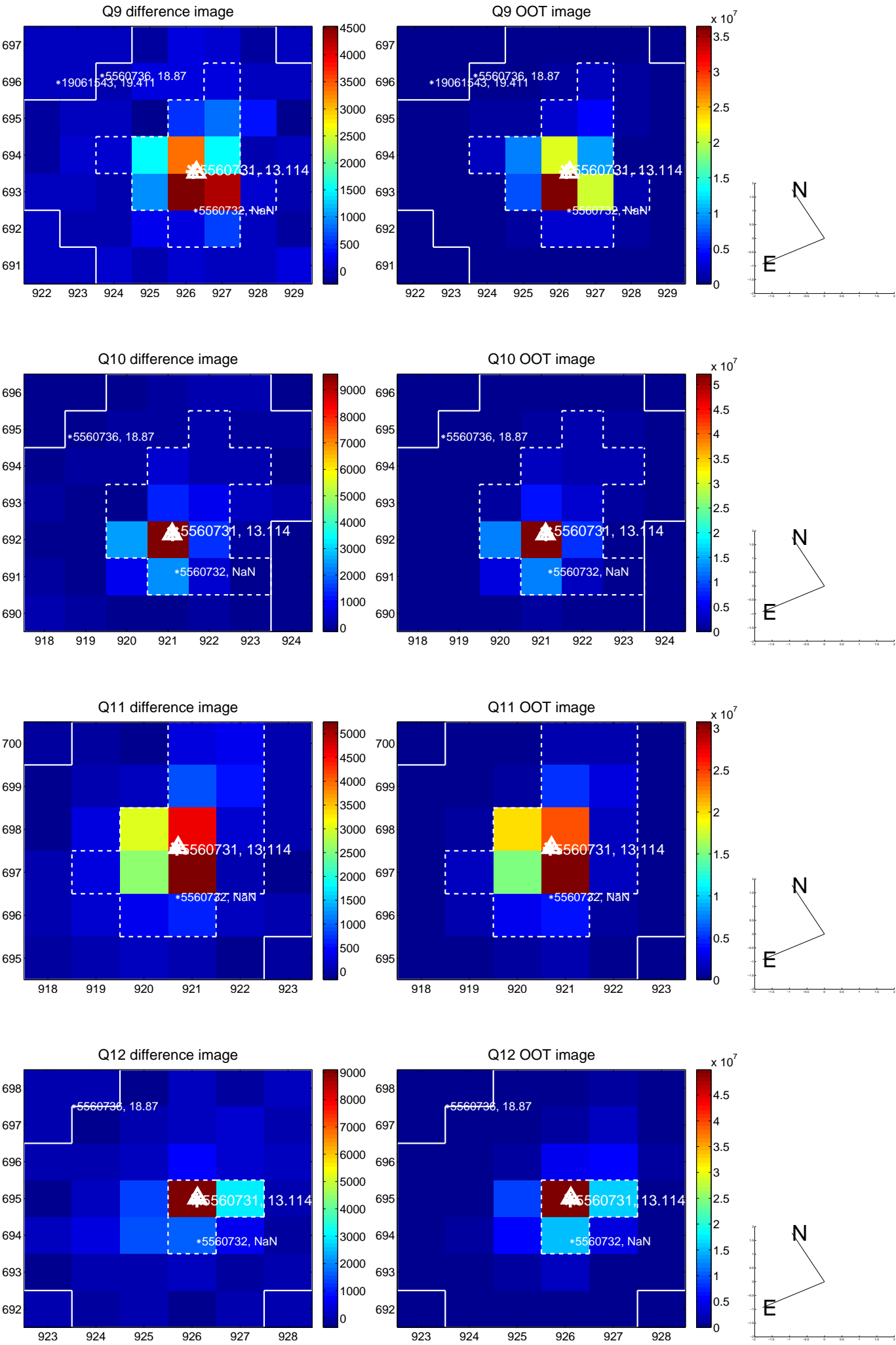
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



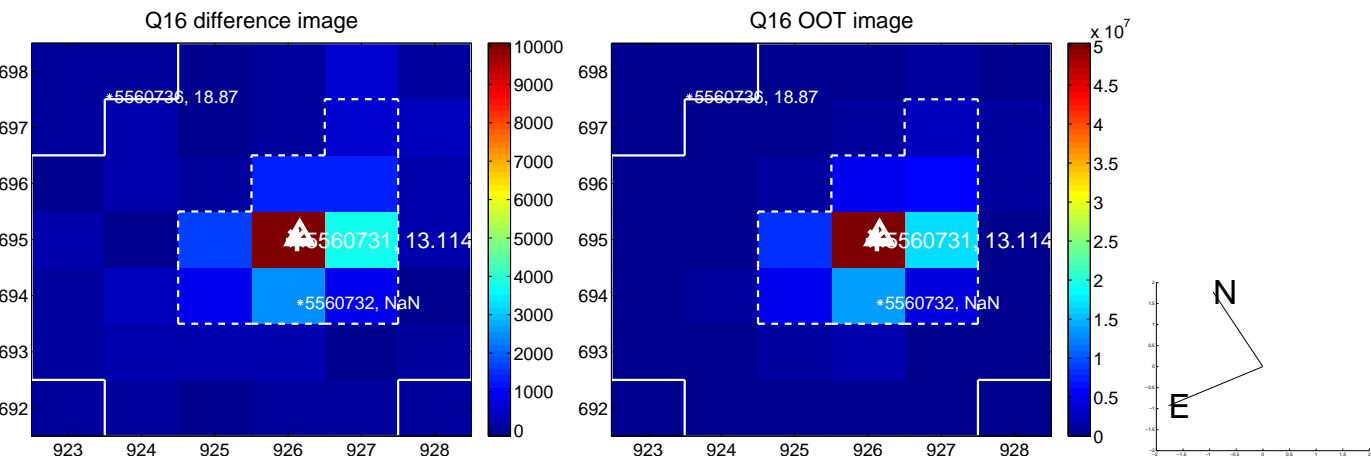
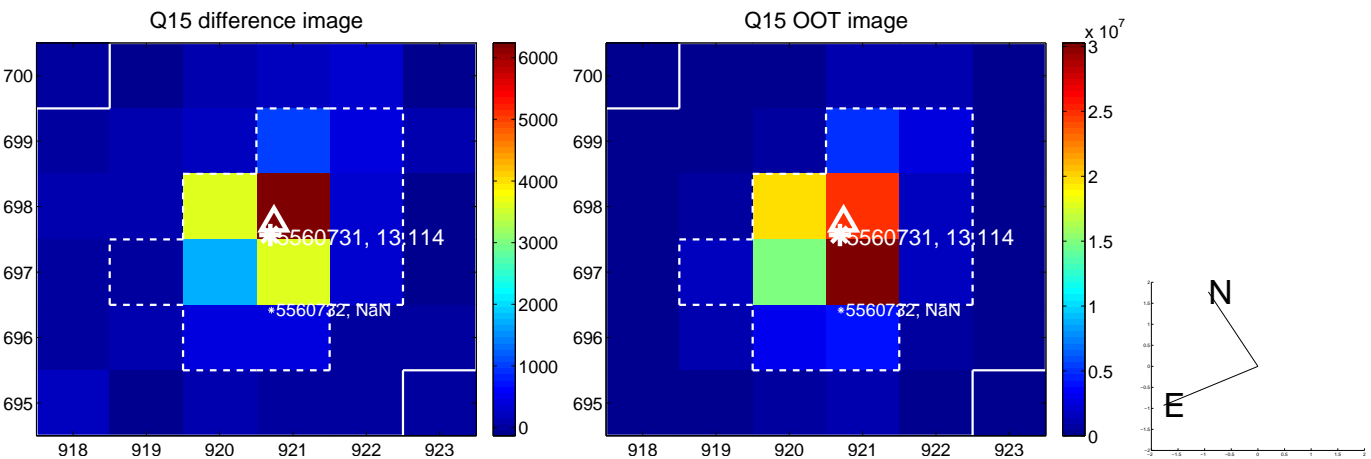
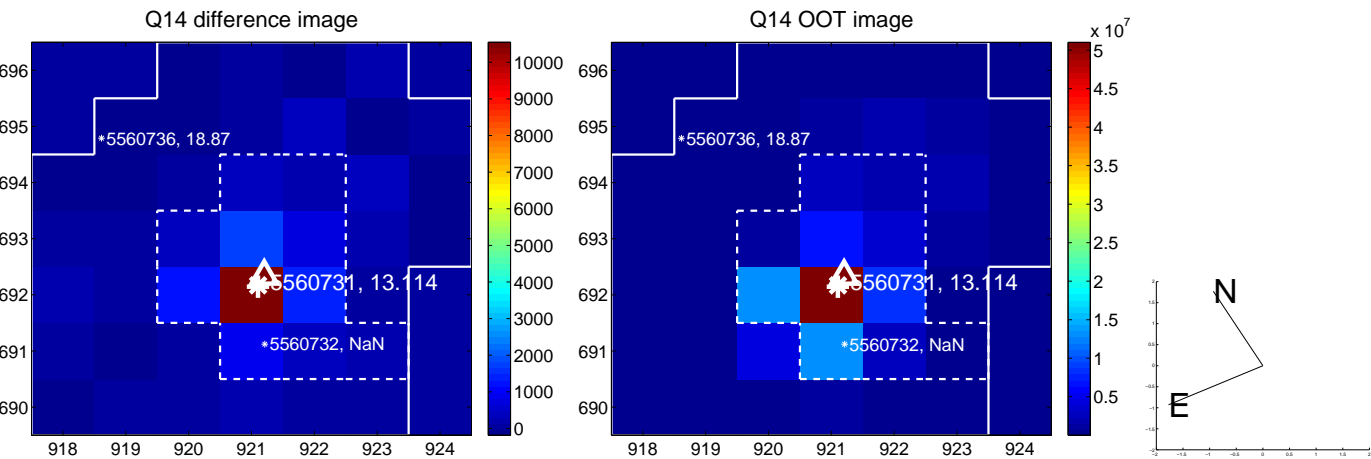
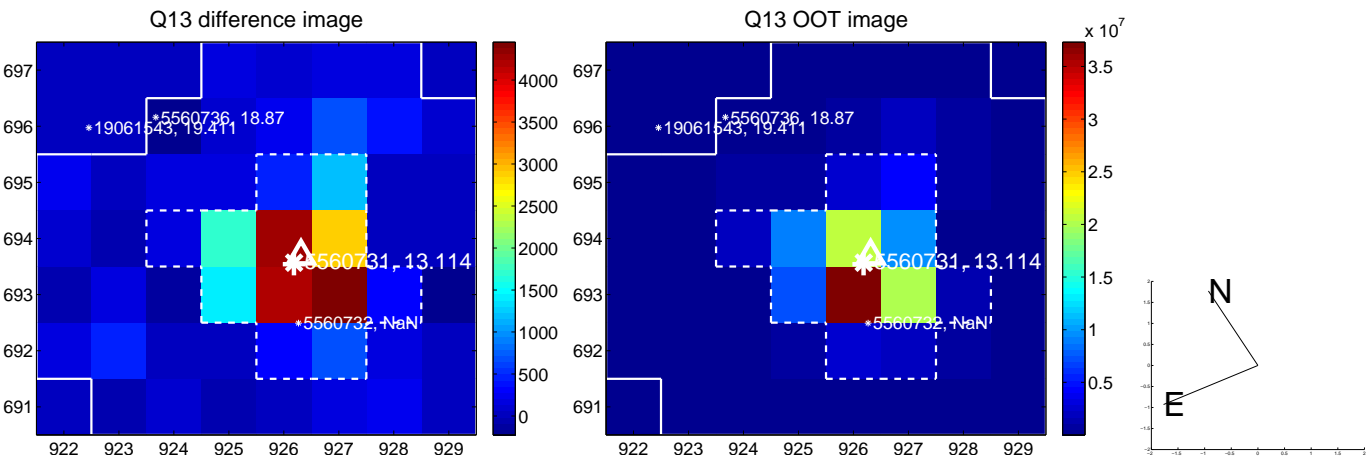
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



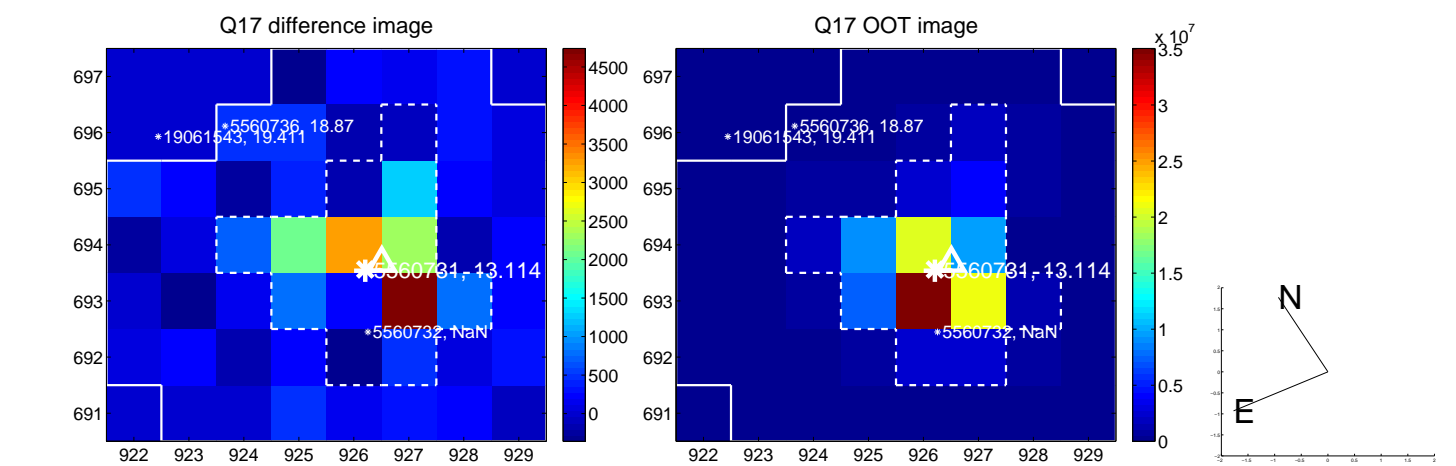
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



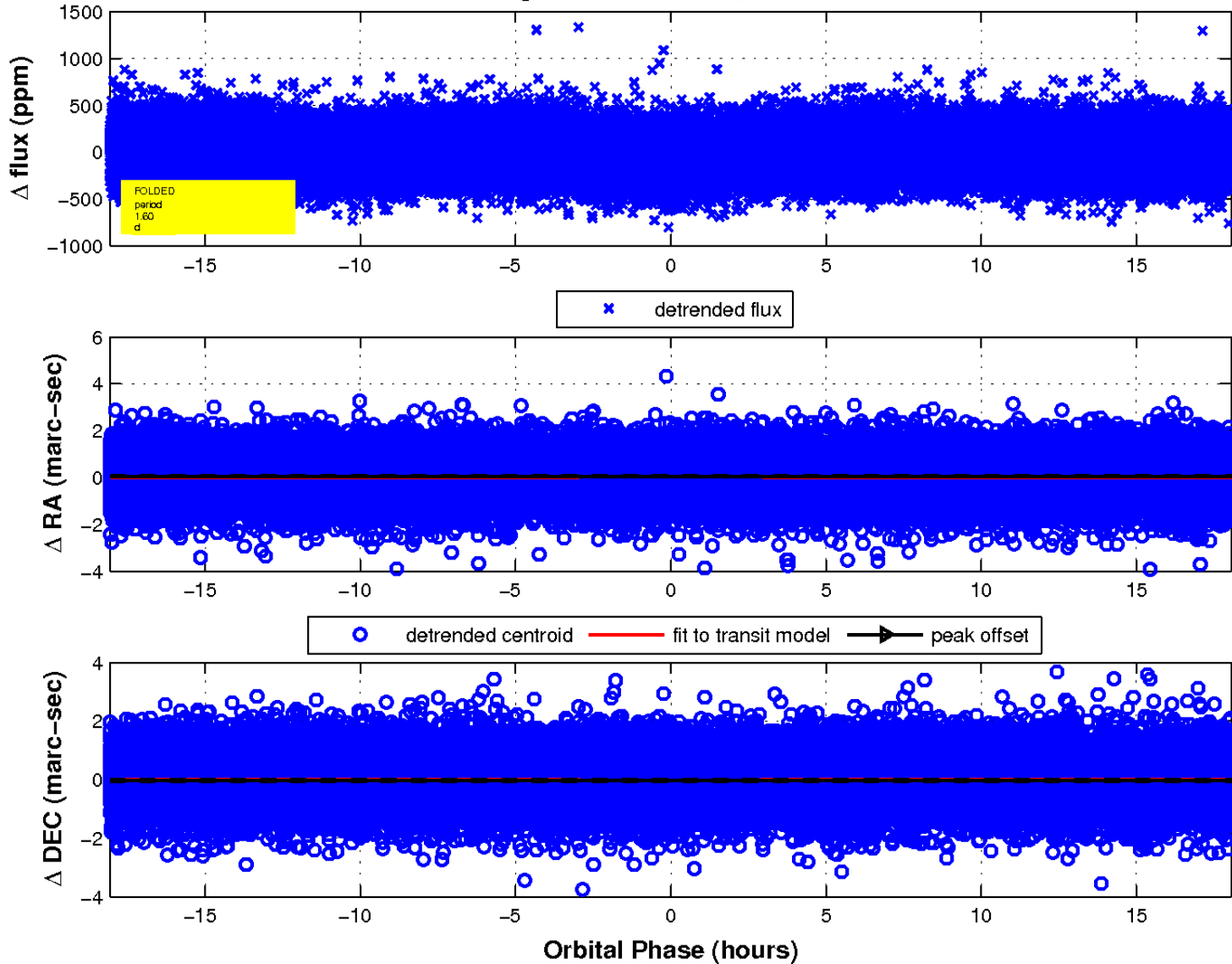
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

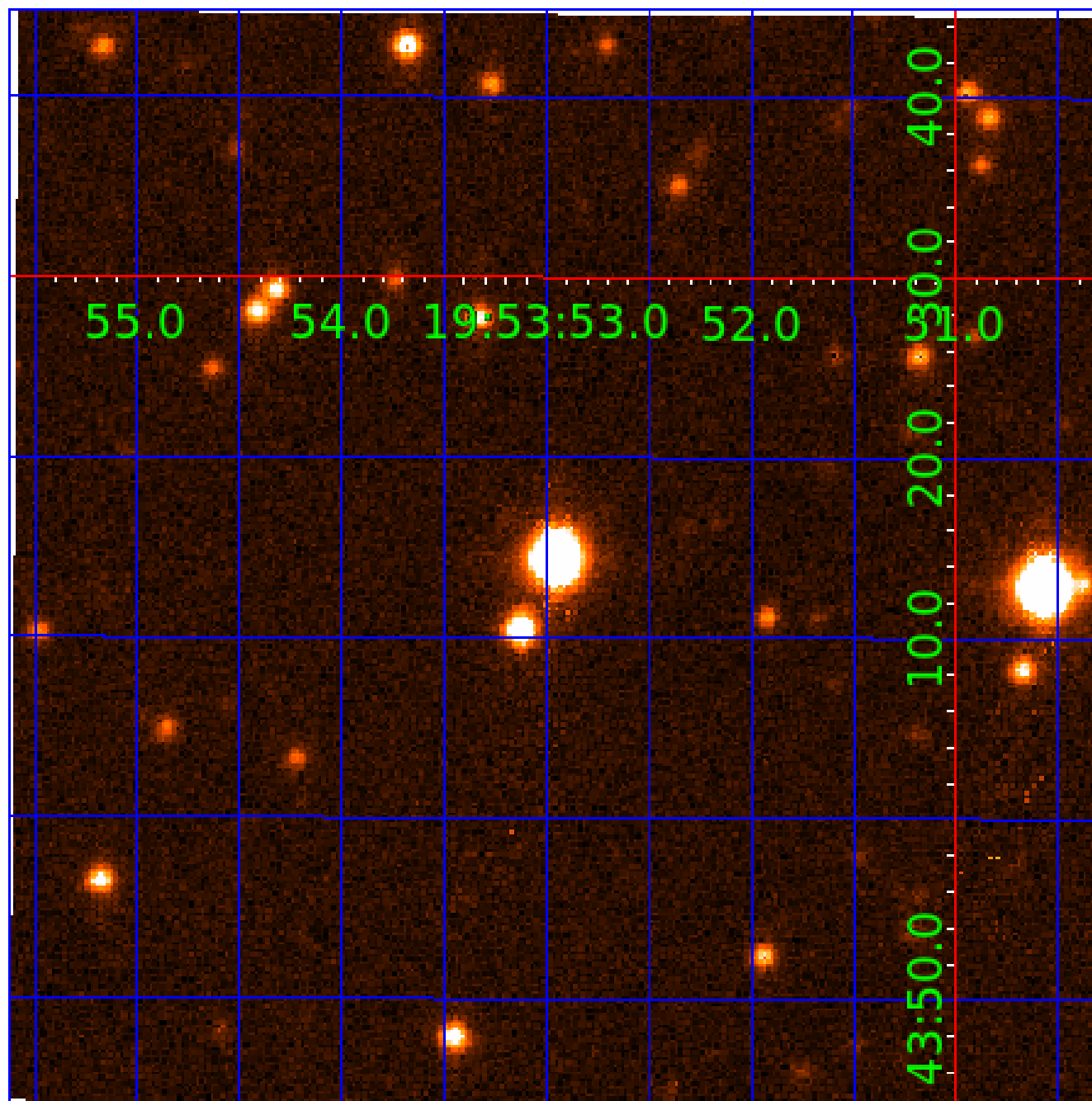


fluxWeightedCentroids, Planet 1 of 5



UKIRT Image

Declination



KIC 005560731

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})
005560731-01	OBS	No	1.603115	132.009752	45.7	6.020	17.5	14.2	3.75	6675	2.56	24386.72
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005560731-05	OBS	No	78.723431	190.620787	300.1	5.337	7.8	8.2	3.75	6675	7.12	135.61

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005560731-01	OBS	FP	0.00	1	0	0	0	LPP_DV—MOD_NONUNIQ_DV
005560731-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA—LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—SAME_NTL_PERIOD—CENT_NOFITS
005560731-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
005560731-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_TRACKER—TRANS_GAPPED—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT

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

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

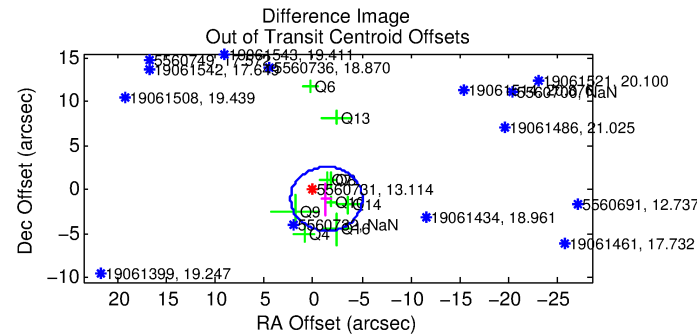
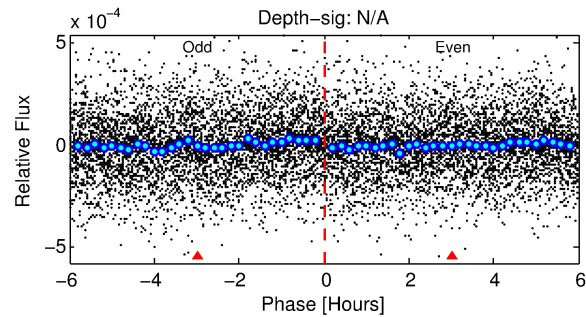
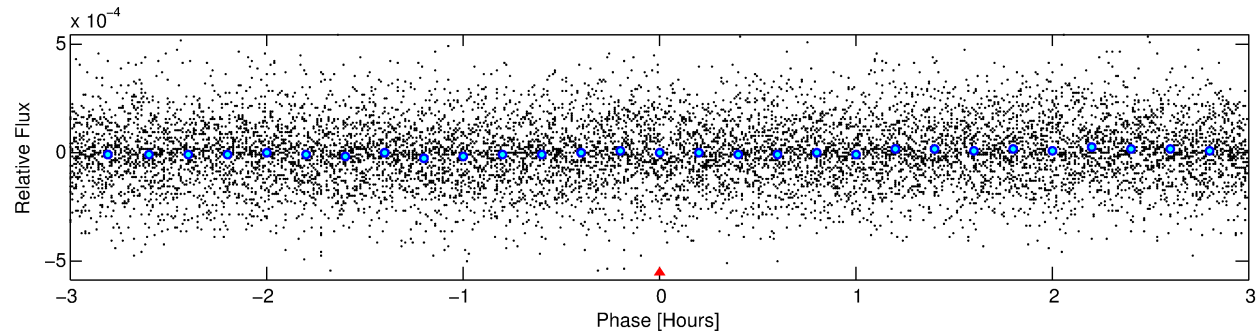
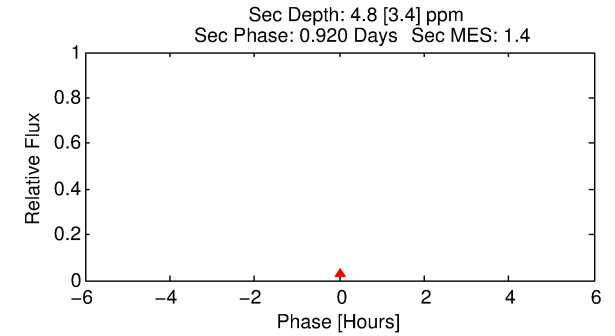
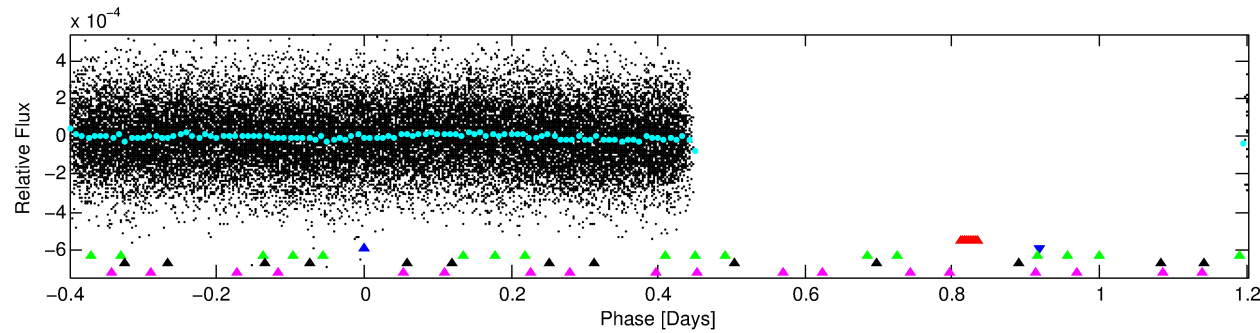
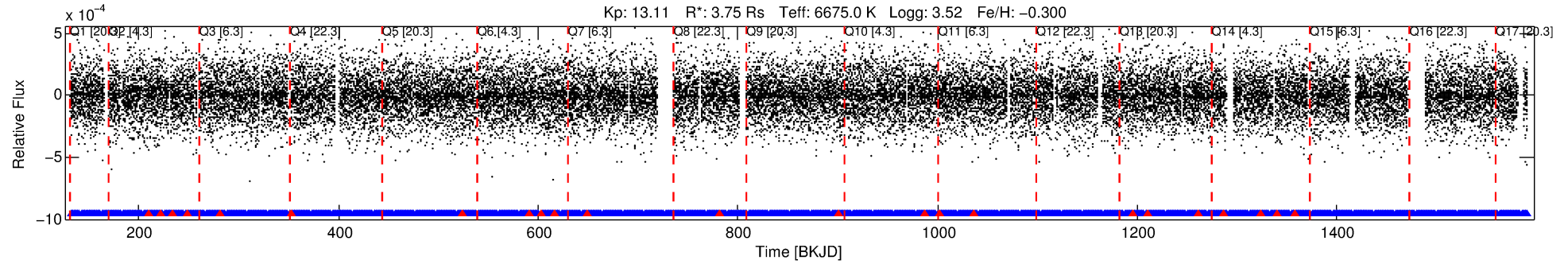
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 005560731-02

No Significant Match Found

DV One-Page Summary

KIC: 5560731 Candidate: 2 of 5 Period: 1.603 d



TPS TCE Results:

Period = 1.60309 d
Epoch = 131.5825 BKJD

DV fit results are unavailable

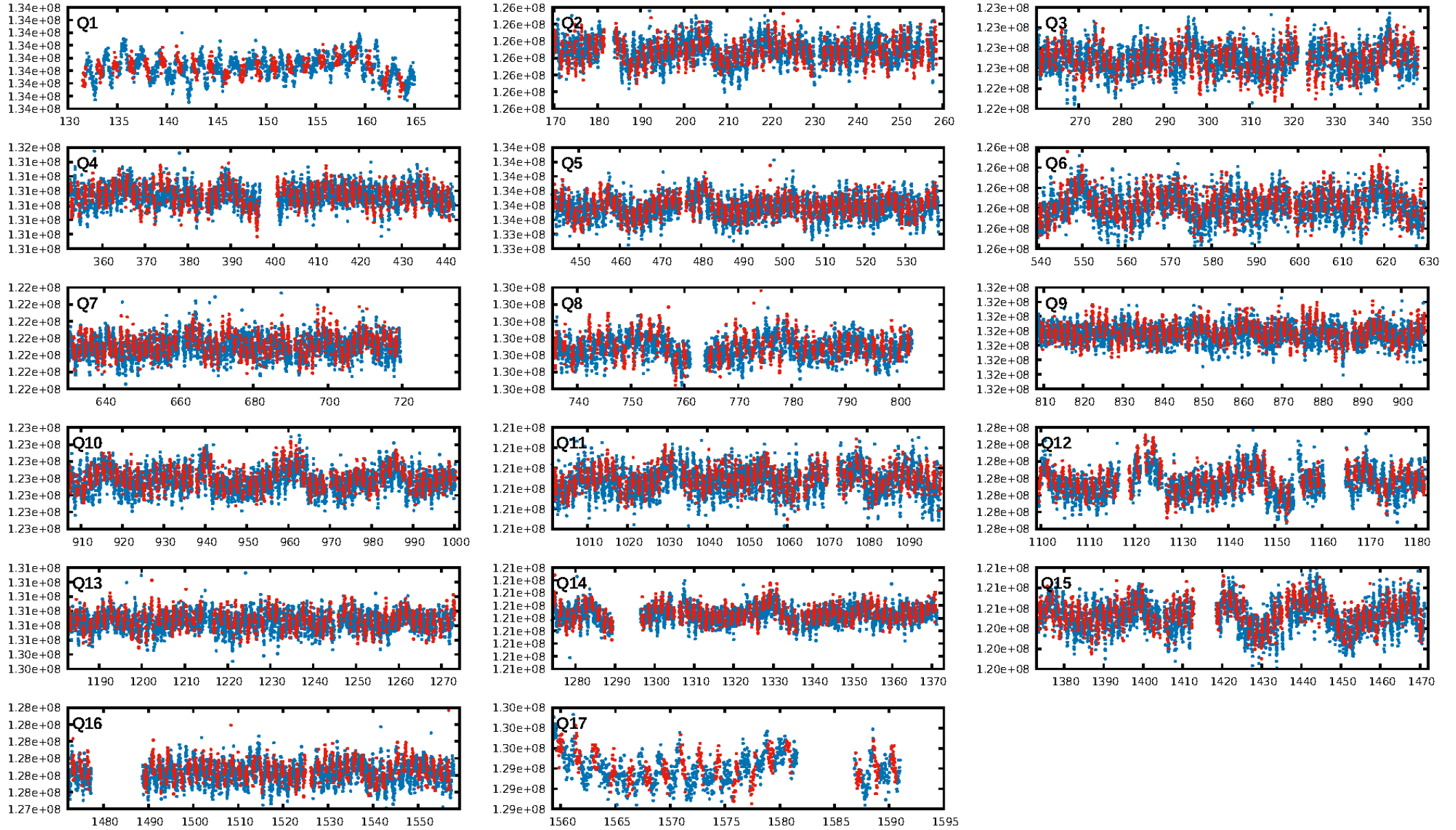
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 0.0% [0.00σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 4.83e-16
RollingBand-fgt: 0.97 [781/804]
GhostDiagnostic-chr: 1.053
Centroid-sig: 69.9%
Centroid-so: 1.001 arcsec [0.47σ]
OotOffset-rm: 1.703 arcsec [1.40σ]
KicOffset-rm: 1.709 arcsec [1.40σ]
OotOffset-st: 3/1/3/2 [9]
KicOffset-st: 3/1/3/2 [9]
DiffImageQuality-fgm: 0.22 [2/9]
DiffImageOverlap-fno: 1.00 [17/17]

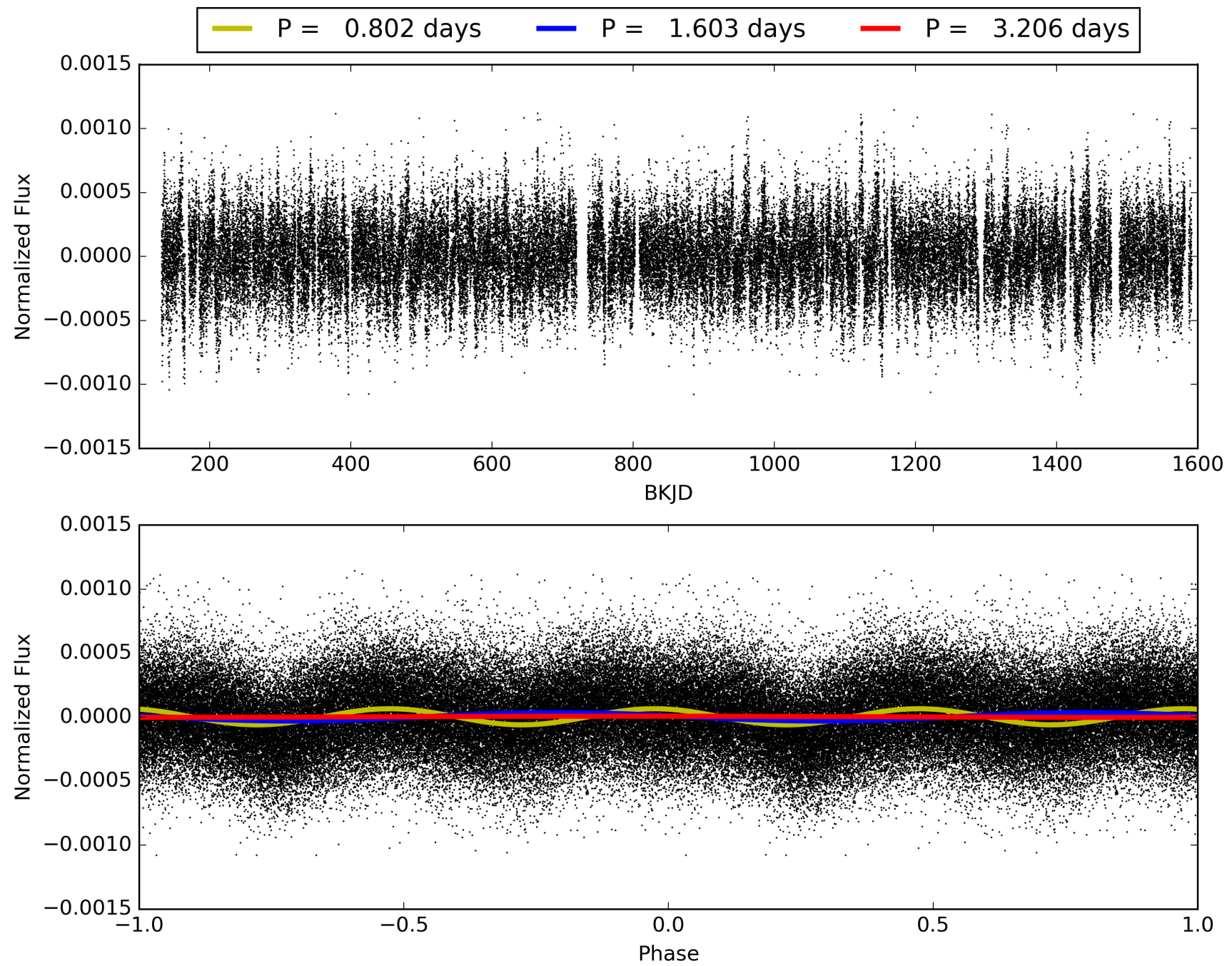
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 14:09:05 Z

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

TCE 005560731-02, PDC Light Curves

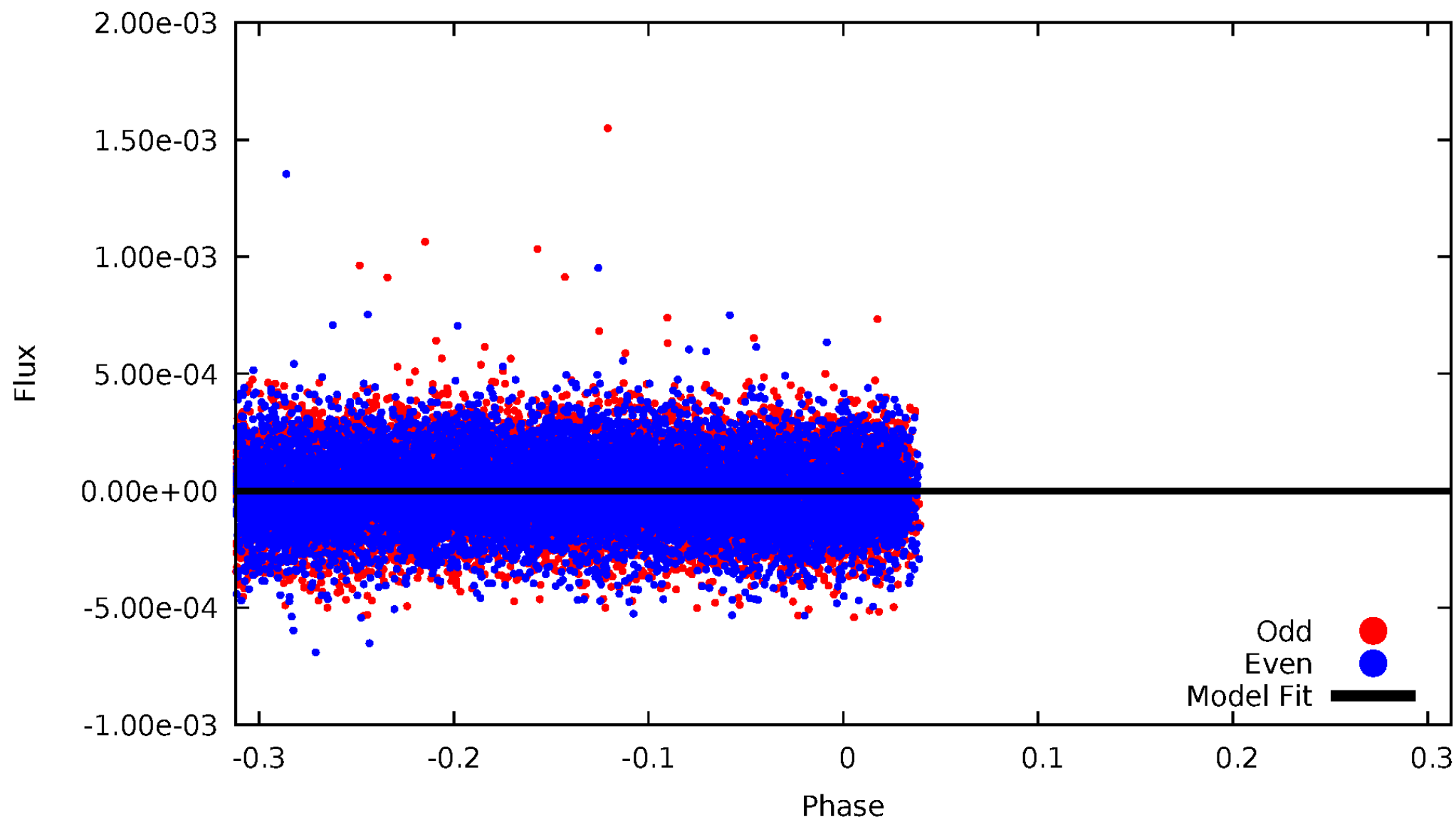


TCE 005560731-02



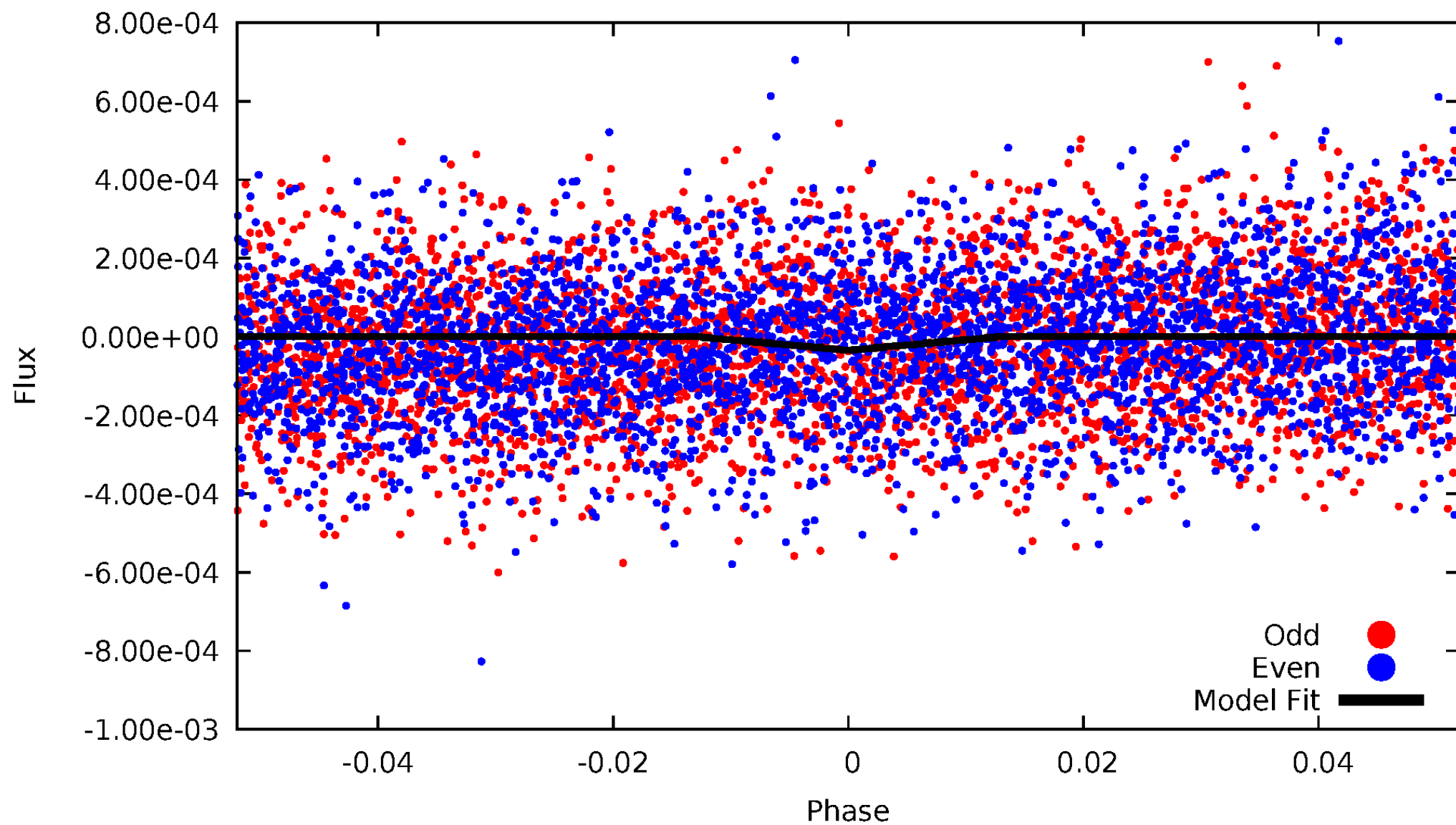
DV Odd/Even

TCE 005560731-02



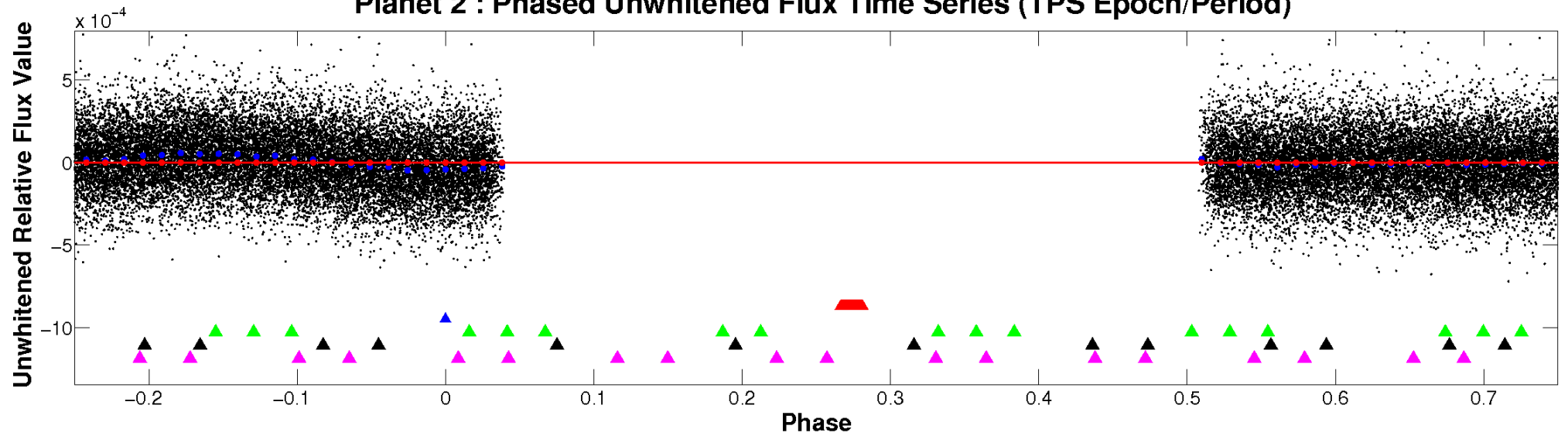
ALT Odd/Even

TCE 005560731-02

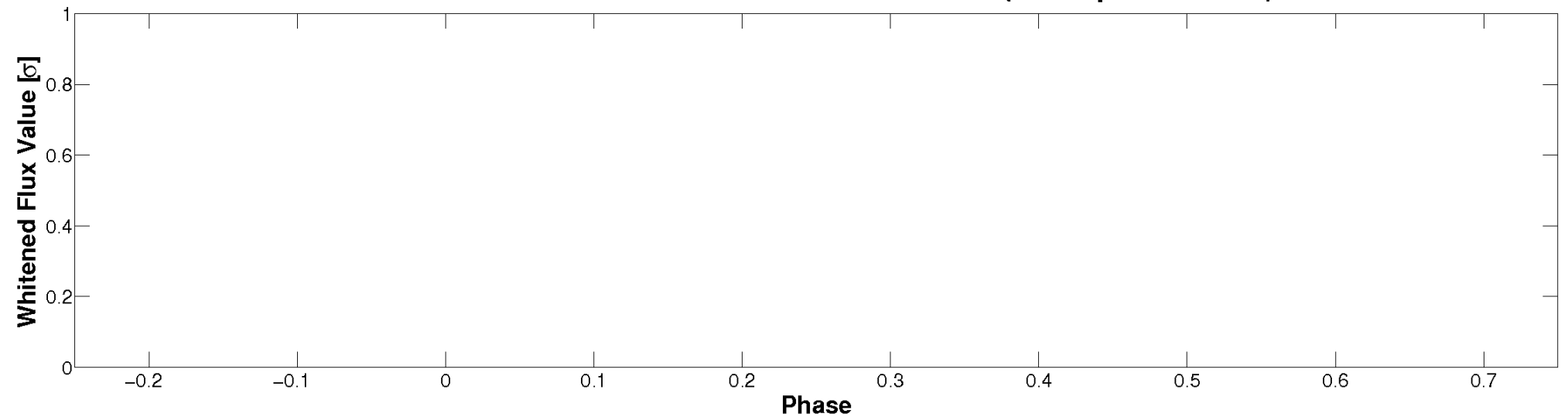


Non-Whitened Vs. Whitened Light Curve

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

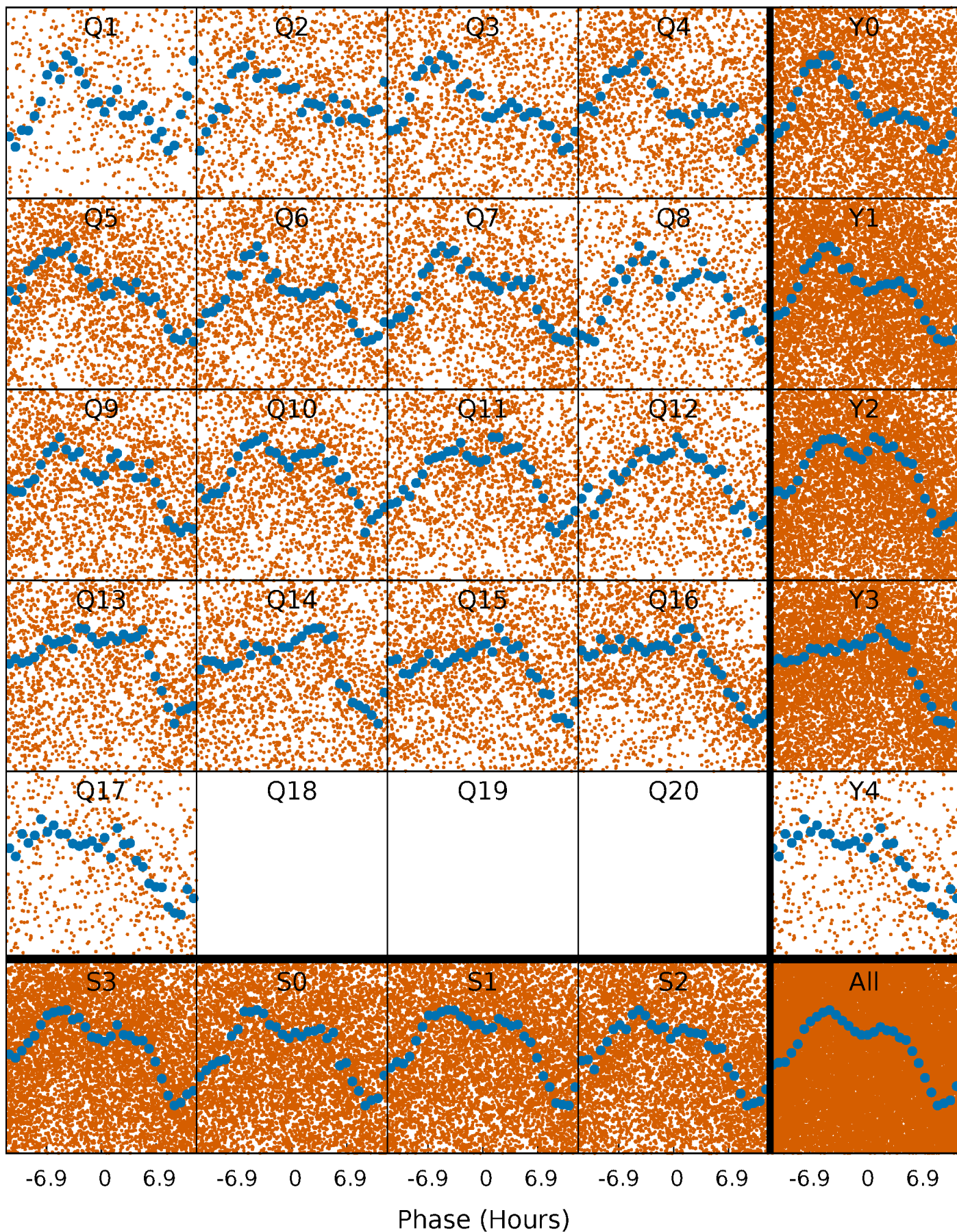


Planet 2 : Phased Whitened Flux Time Series (TPS Epoch/Period)



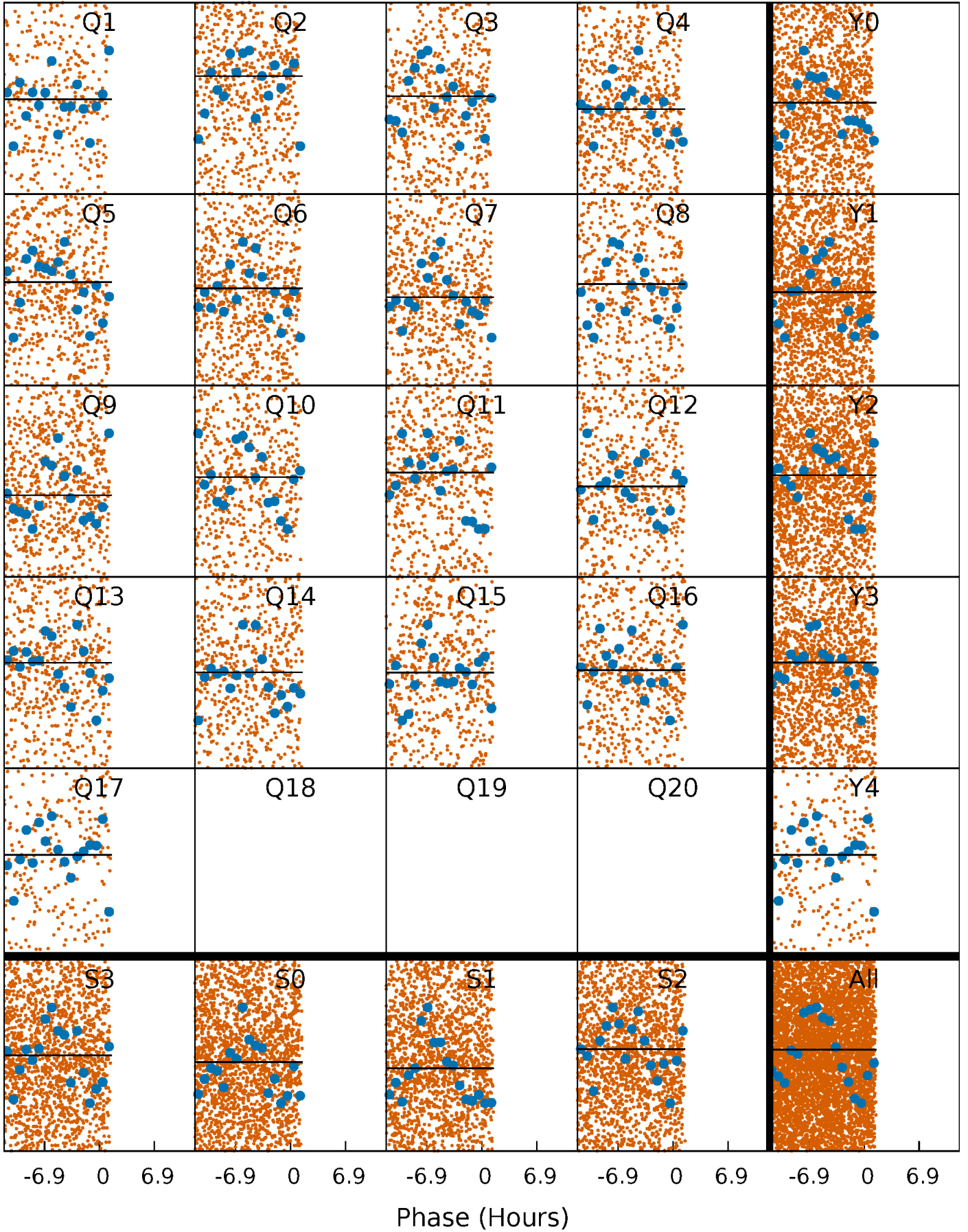
PDC Quarter-Phased Transit Curves

TCE 005560731-02 P= 1.603089 Days $T_0=131.582511$ (BKJD)



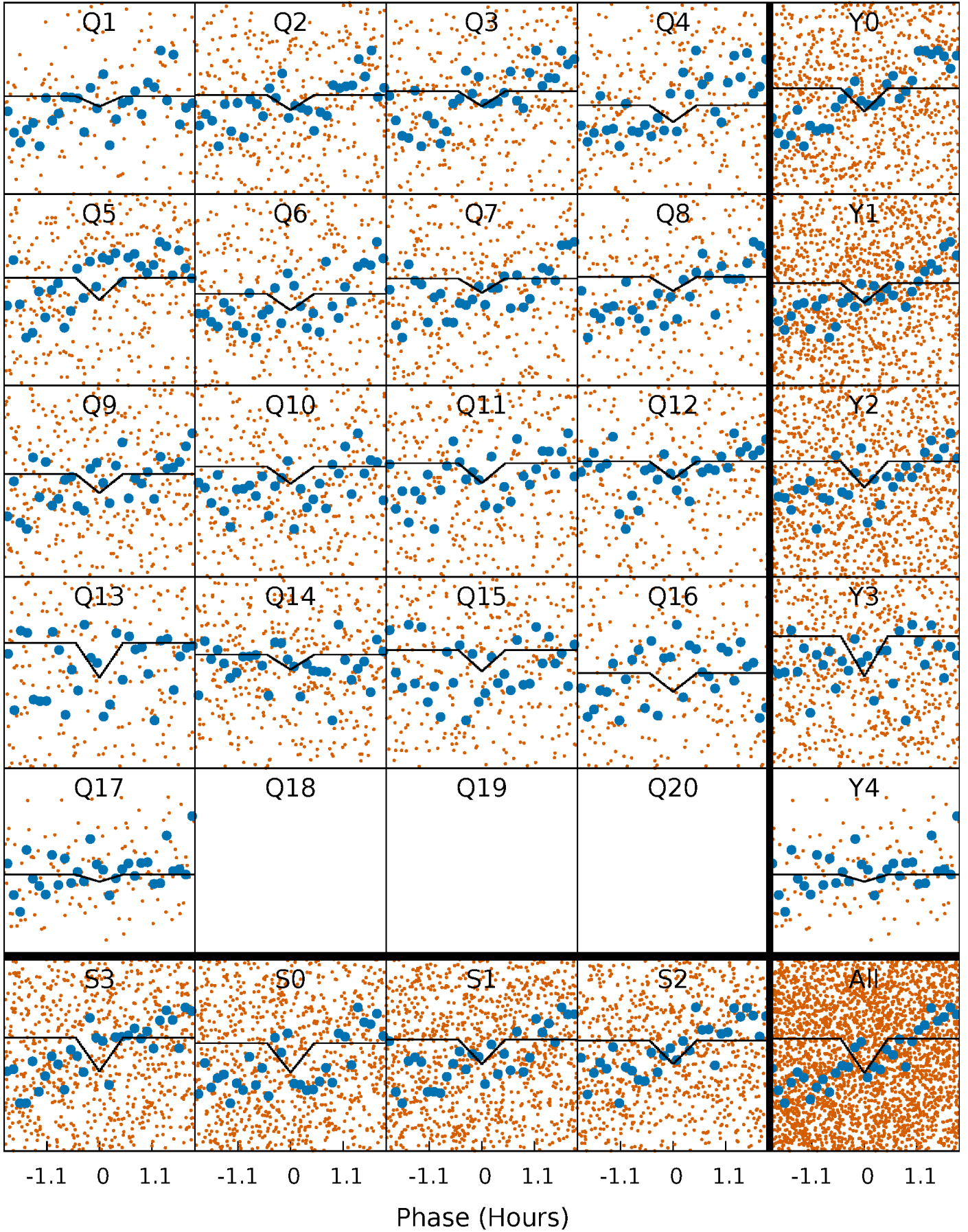
DV Quarter-Phased Transit Curves

TCE 005560731-02 $P = 1.603089$ Days $T_0 = 131.582511$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

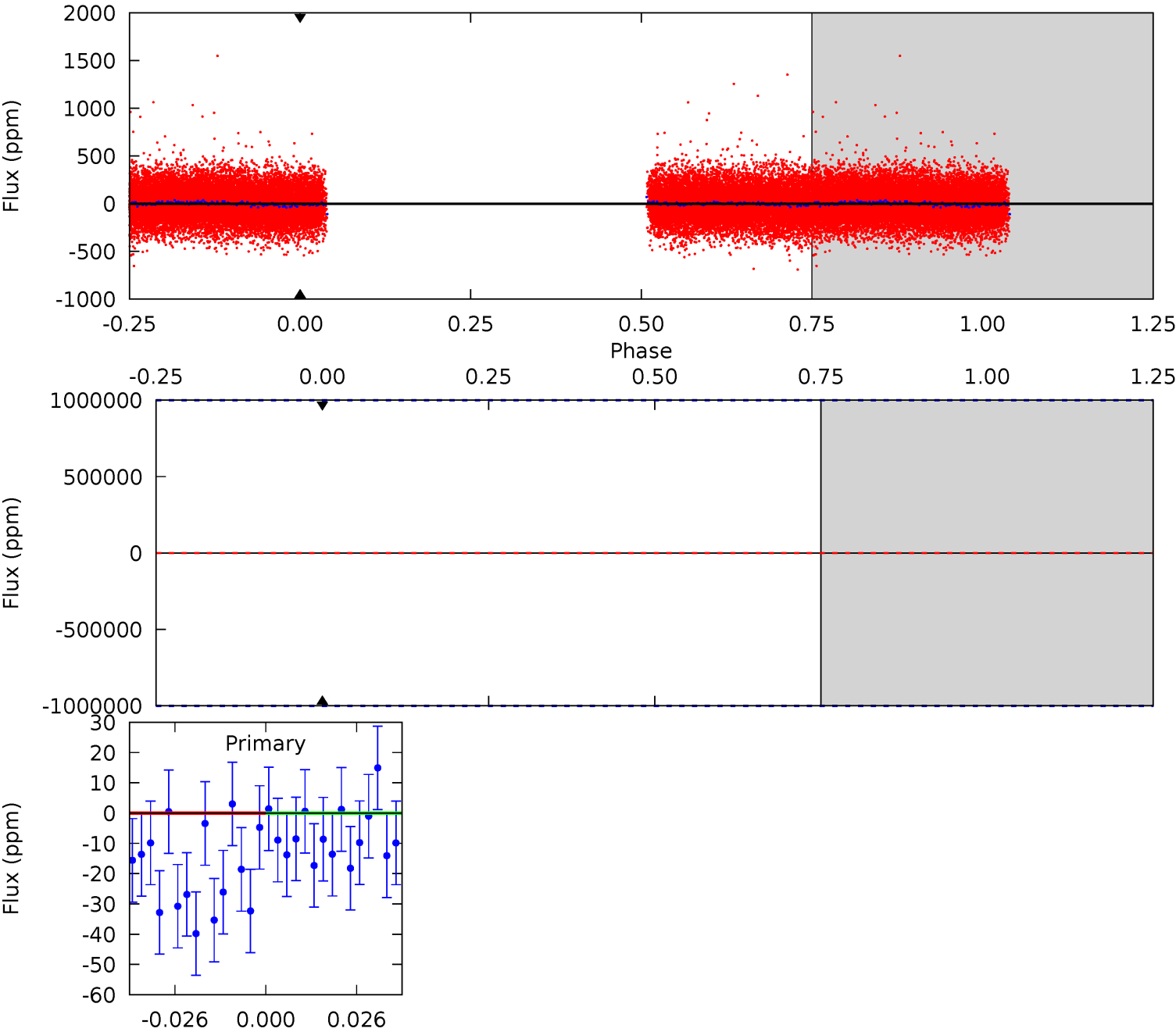
TCE 005560731-02 $P = 1.603089$ Days $T_0 = 132.801396$ (BKJD)



DV Model-Shift Uniqueness Test

005560731-02, P = 1.603089 Days, E = 129.979422 Days

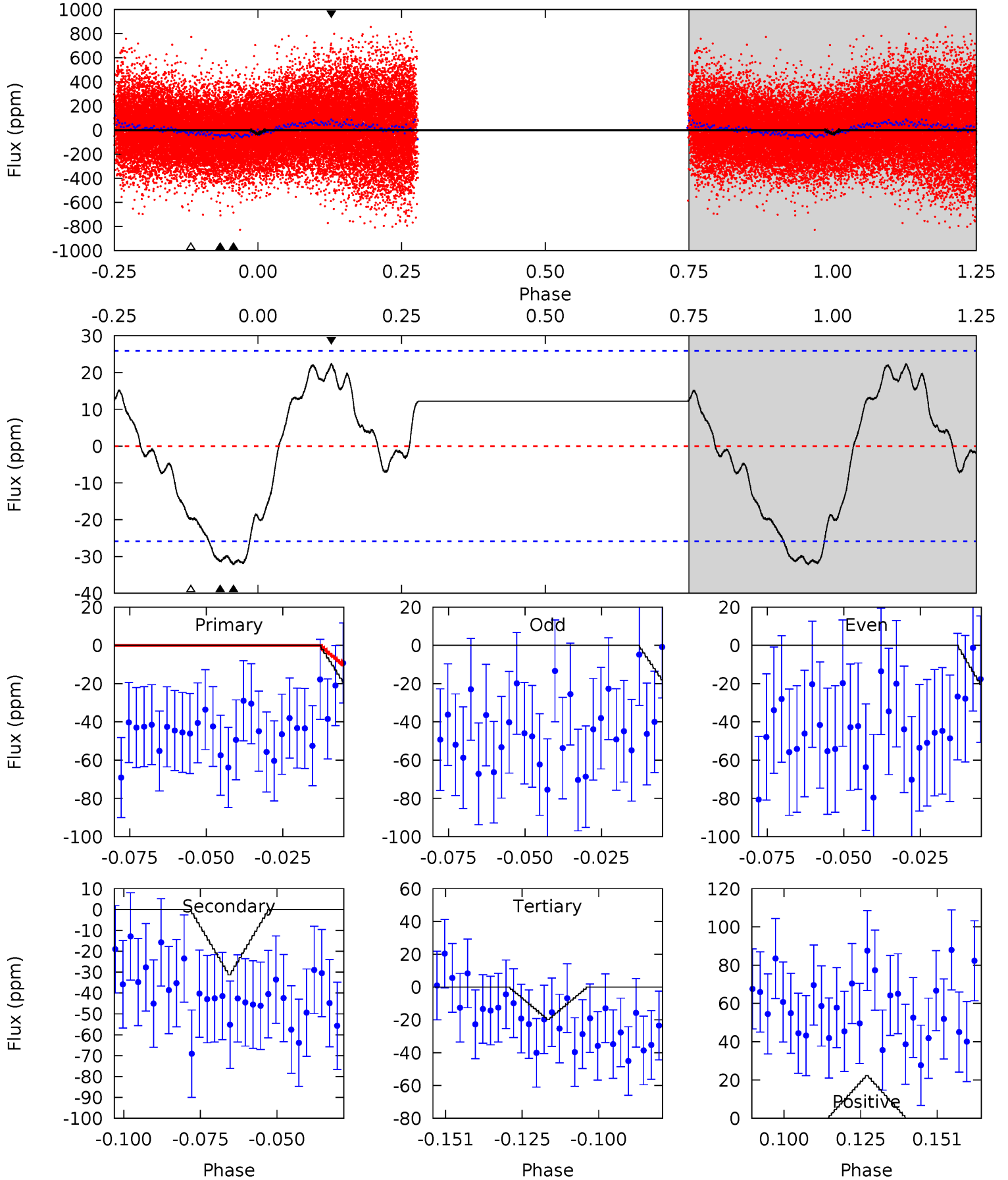
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
0	0	0	0	1.00	1.00	1.00	0	0	0	0	0	0	0	0



Alt Model-Shift Uniqueness Test

005560731-02, P = 1.603089 Days, E = 131.198307 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
6.02	5.87	3.71	4.18	4.85	2.24	2.49	2.31	1.84	2.16	1.69	0.40	1.17	0.41	3.09



Stellar Parameters For KIC 005560731

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6675^{+182}_{-223}	$3.522^{+0.352}_{-0.088}$	$-0.300^{+0.350}_{-0.250}$	$3.755^{+0.371}_{-1.482}$	$1.711^{+0.199}_{-0.398}$	$0.045^{+0.128}_{-0.013}$
	+3%/-3%	+10%/-2%	+117%/-83%	+10%/-39%	+12%/-23%	+281%/-29%
Source	PHO1	FLK73	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 005560731-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	0 ± 1000000	$24.76^{+32.37}_{-16.85}$	4372^{+240}_{-434}	-5675^{+40906}_{-29294}	$-1.659^{+180.547}_{-159.491}$
Alt.	-31 ± 5	$26.56^{+31.75}_{-17.74}$	4375^{+254}_{-399}	-3786^{+755}_{-222}	$0.025^{+0.188}_{-0.020}$

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

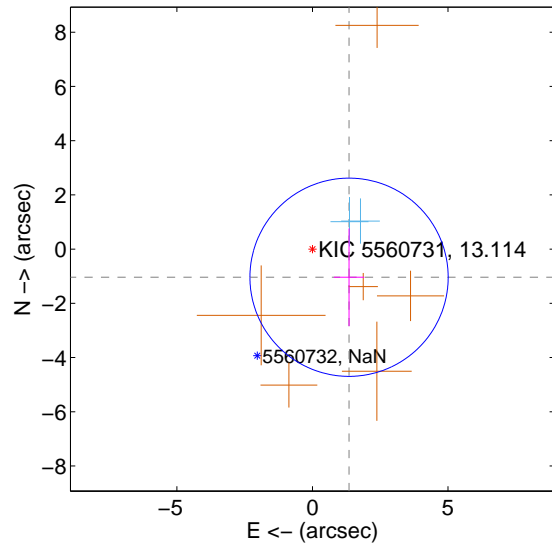
Supplemental centroid analysis for 005560731-02. Kepler magnitude: 13.11. Transit SNR -1.00

There are 2 quarters with good PRF difference image offsets

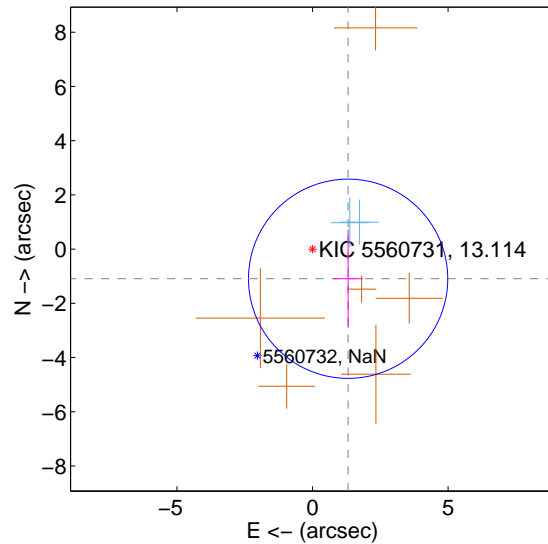
The direct PRF centroid is offset from the target star catalog position by about 0.11 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	1.703 ± 1.219	1.40	-1.350 ± 0.562	-1.038 ± 1.800
PRF-fit source offset from KIC position	1.709 ± 1.225	1.40	-1.313 ± 0.540	-1.094 ± 1.808
photometric centroid source offset	1.00 ± 2.15	0.47	0.79 ± 2.19	0.62 ± 2.07

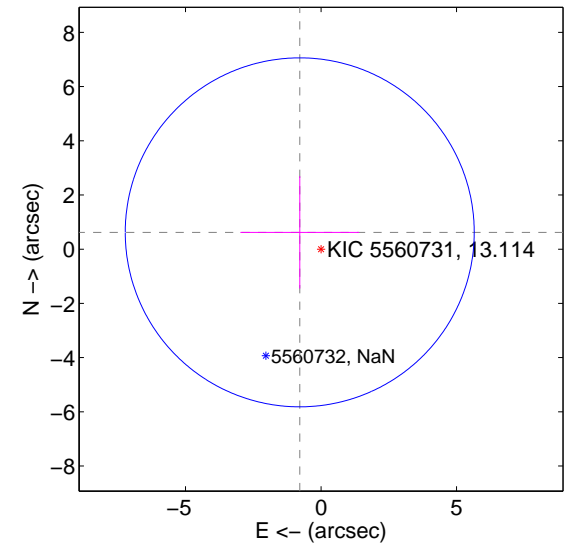
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

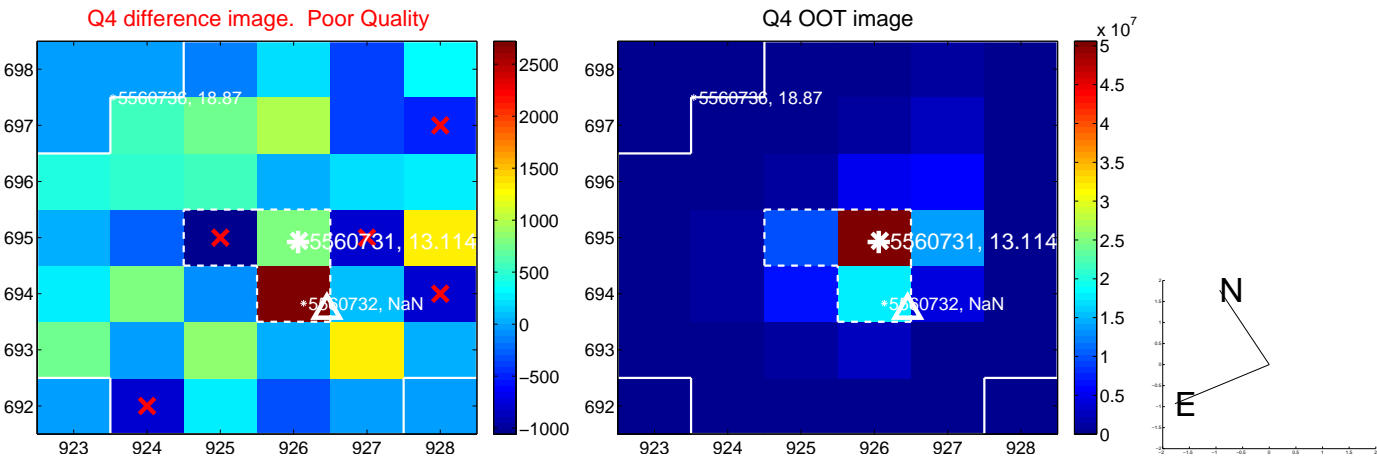
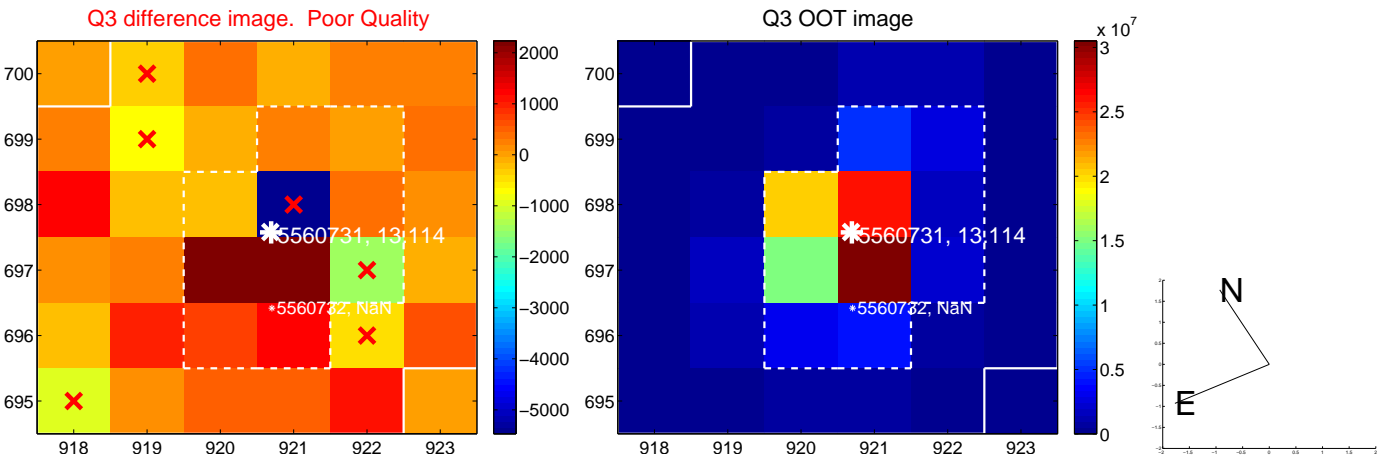
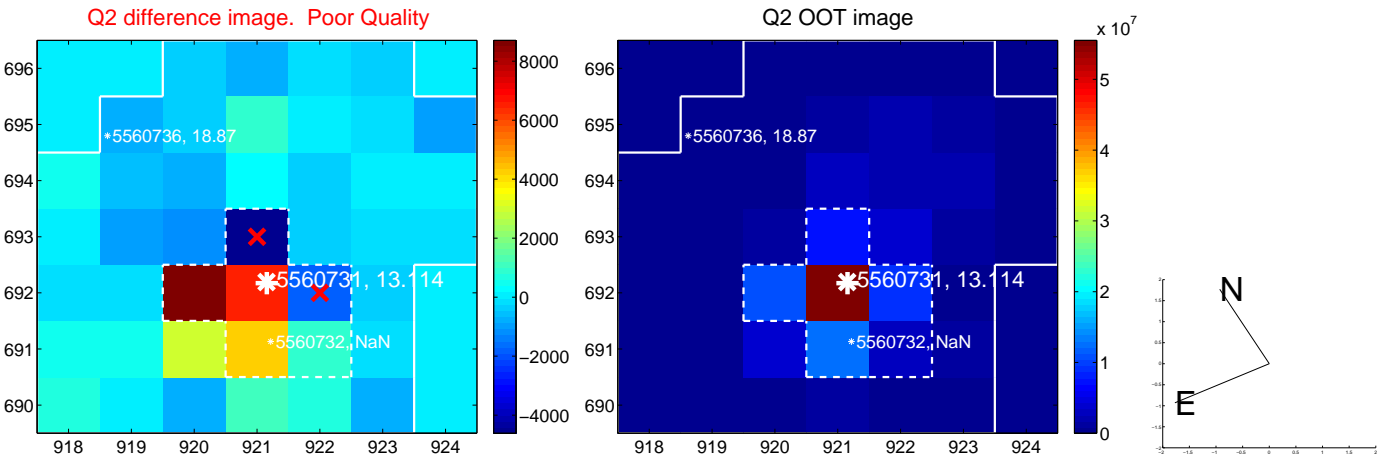
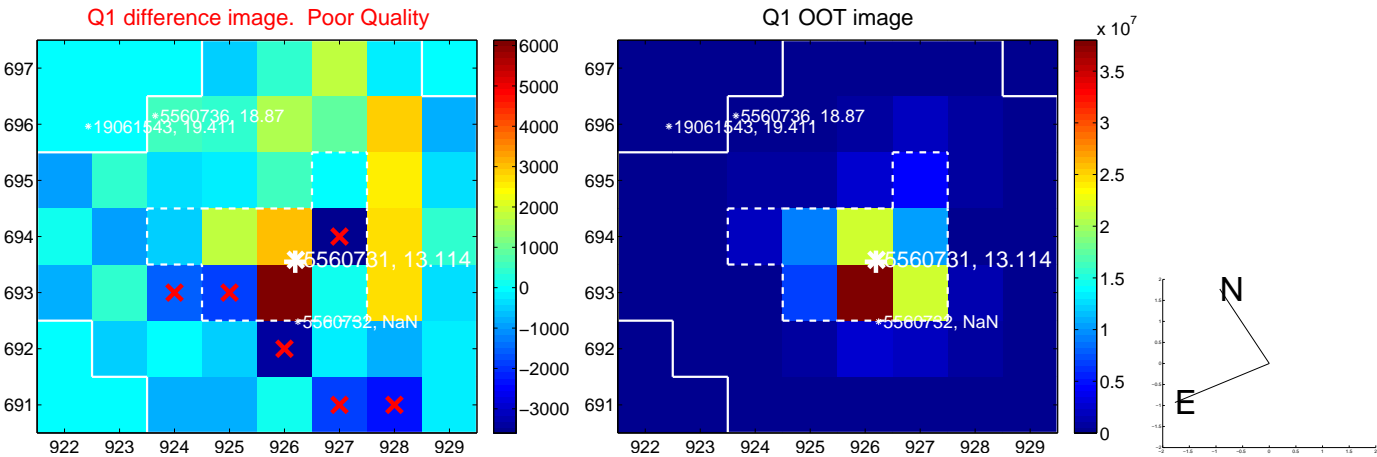


offset from photometric centroids

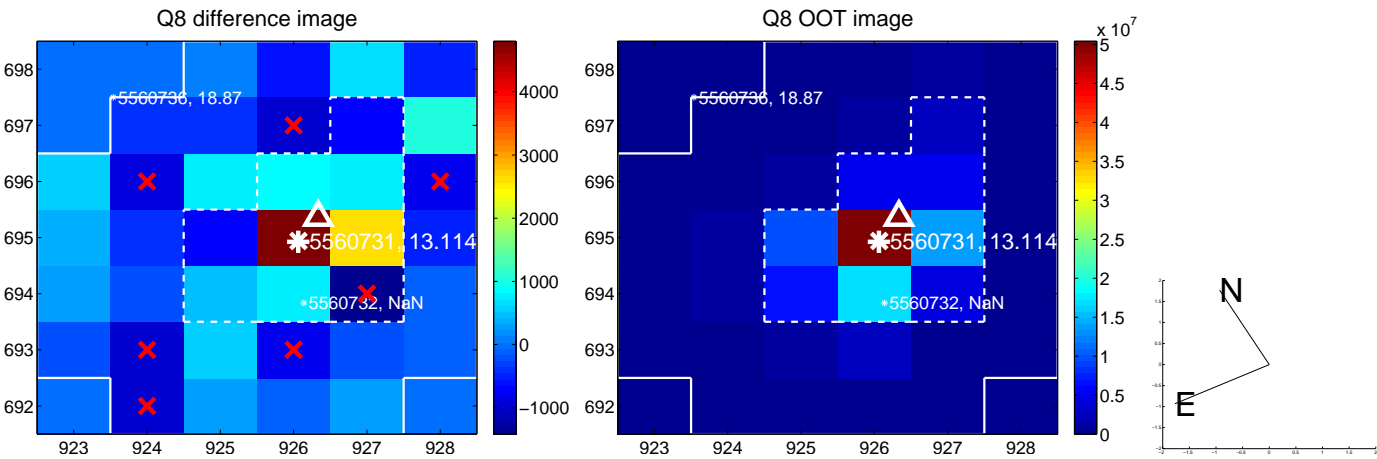
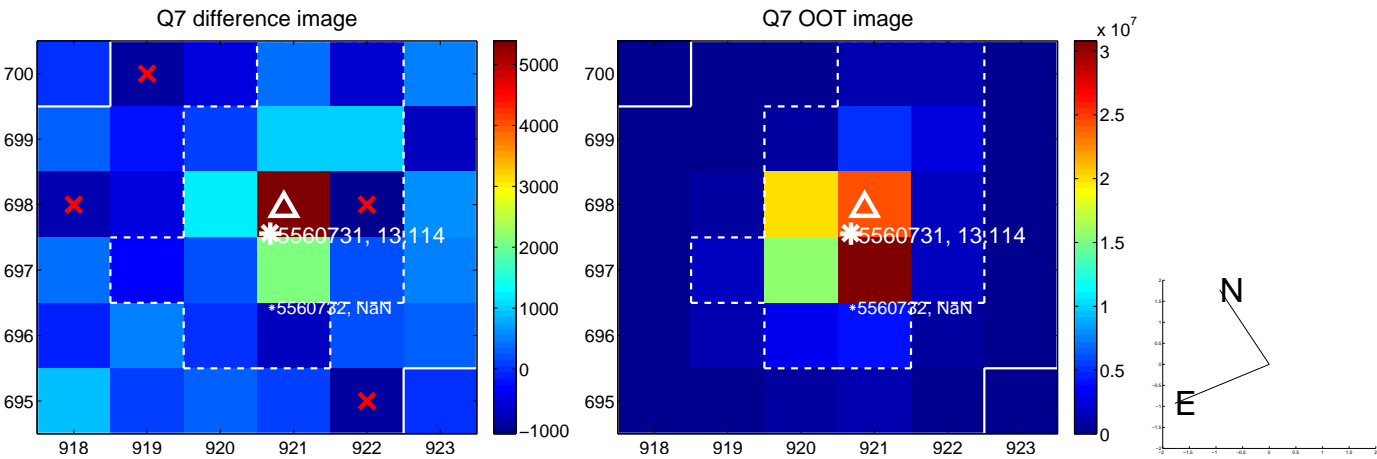
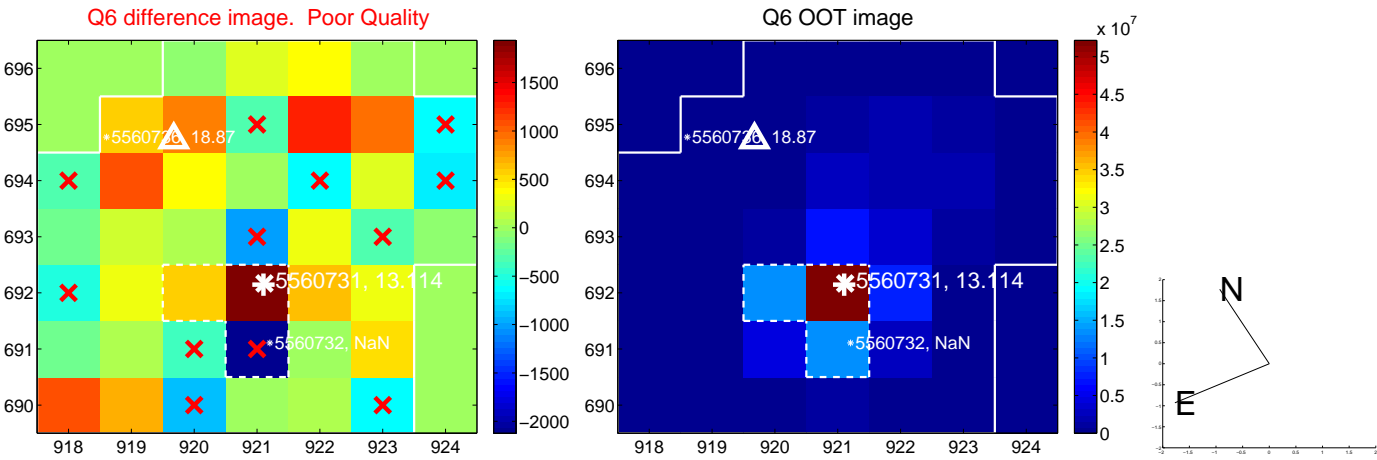
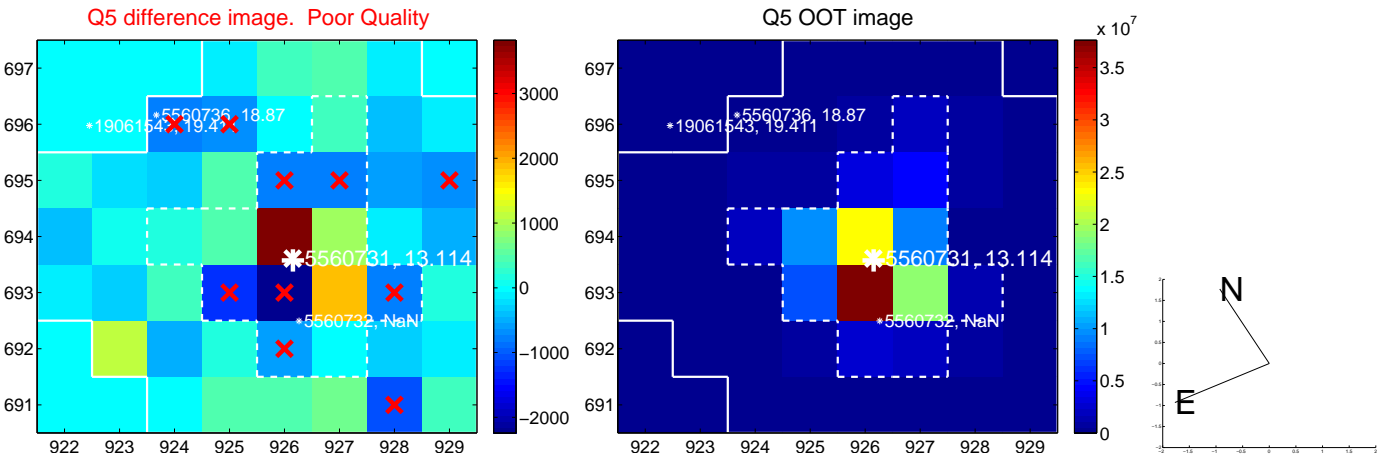


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

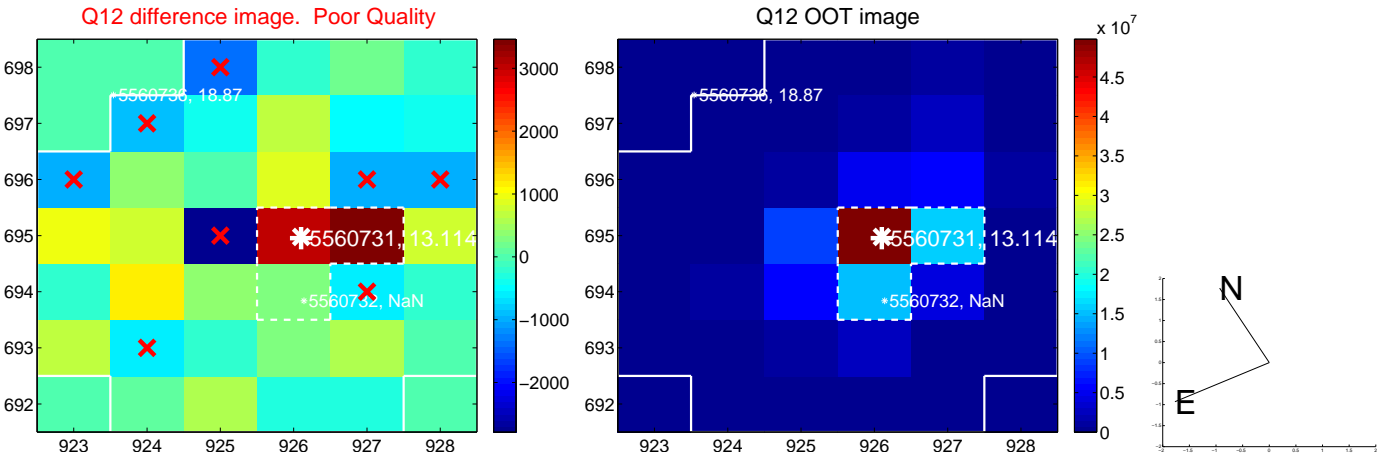
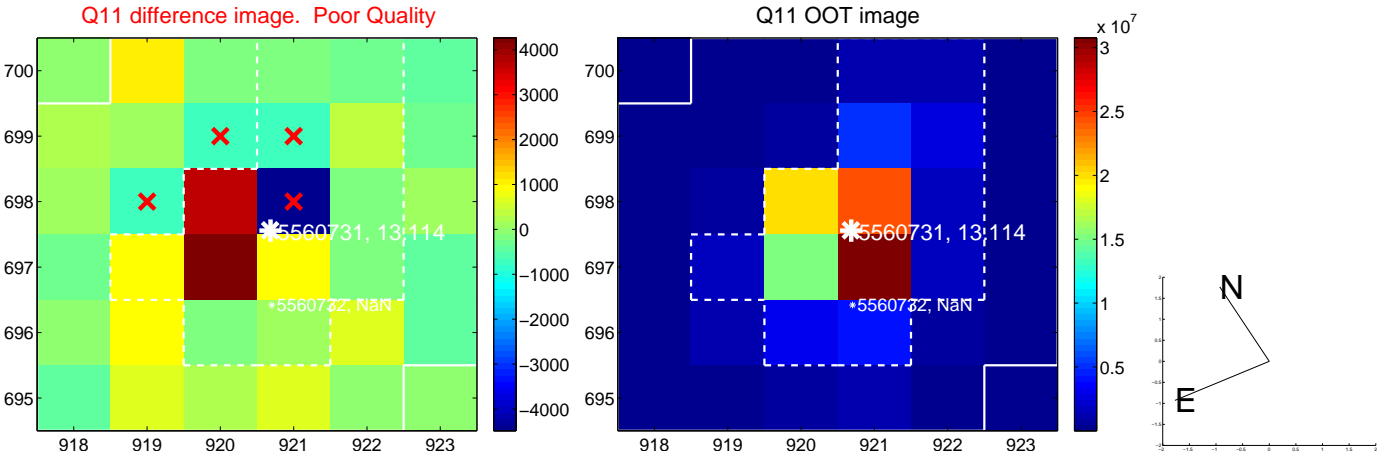
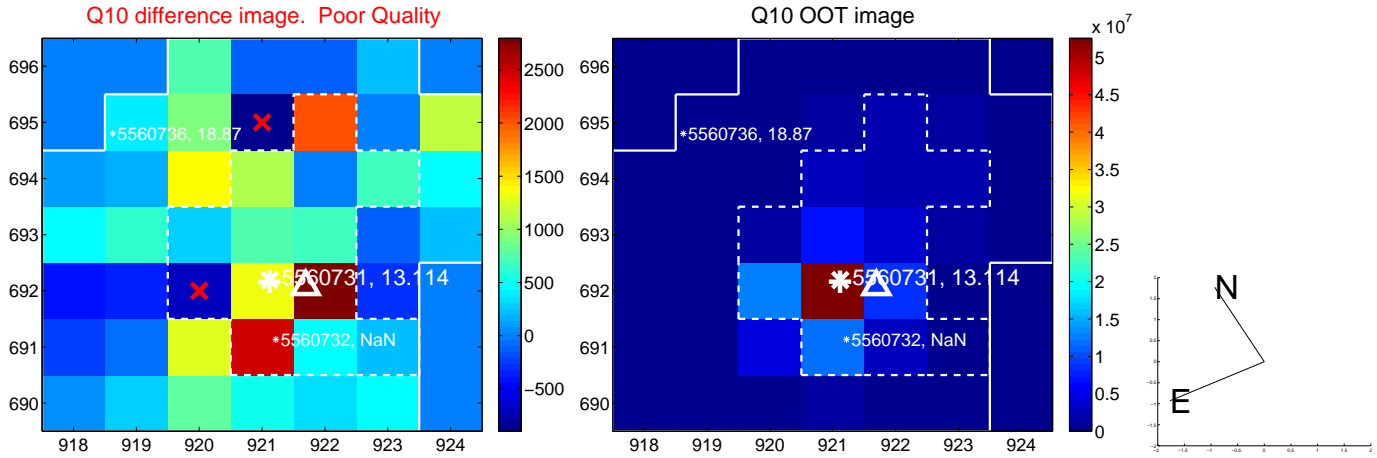
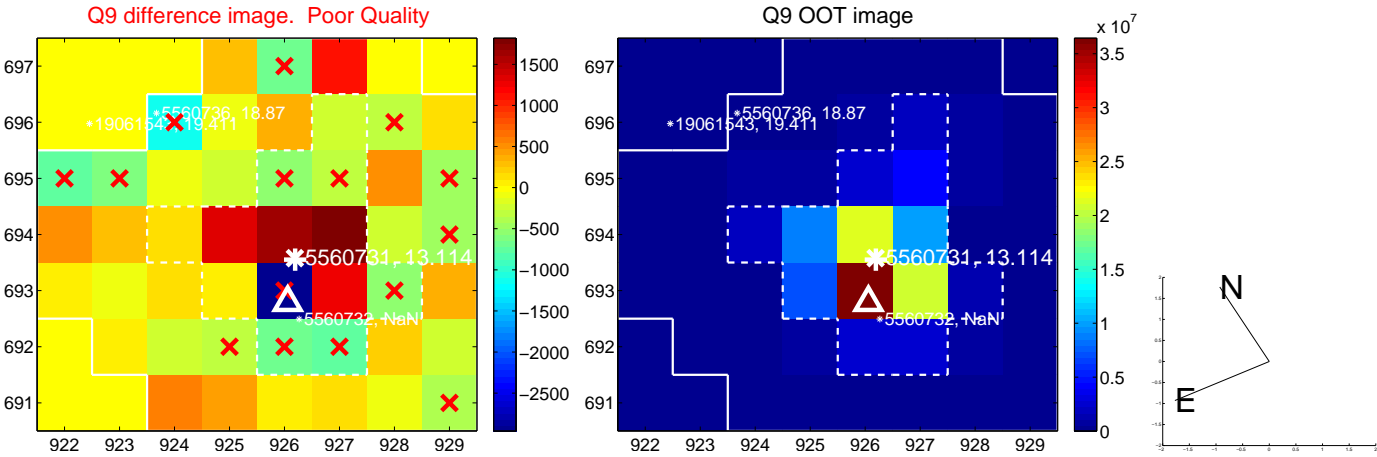
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



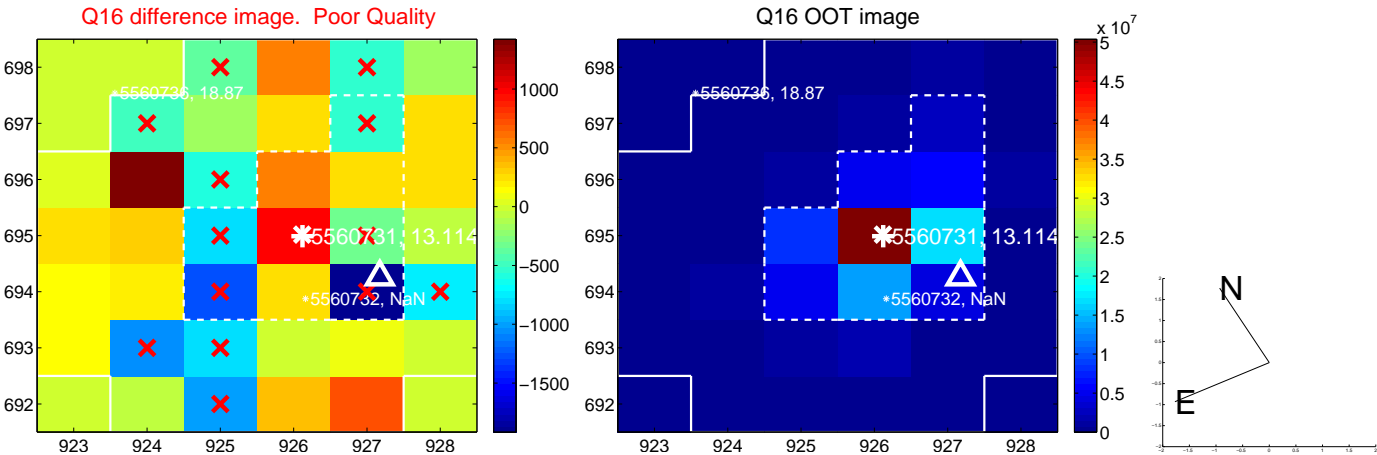
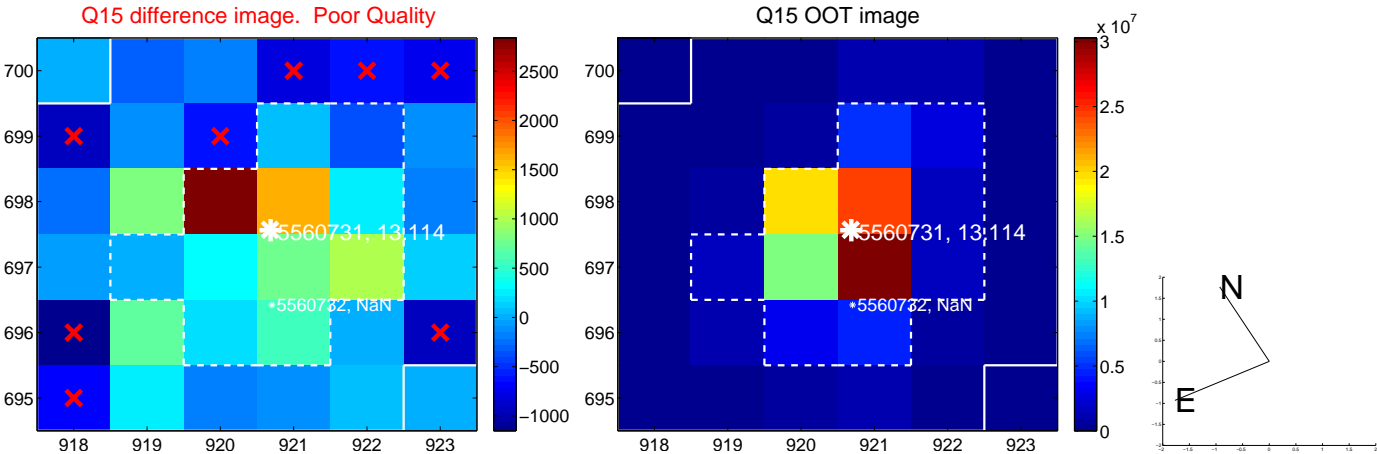
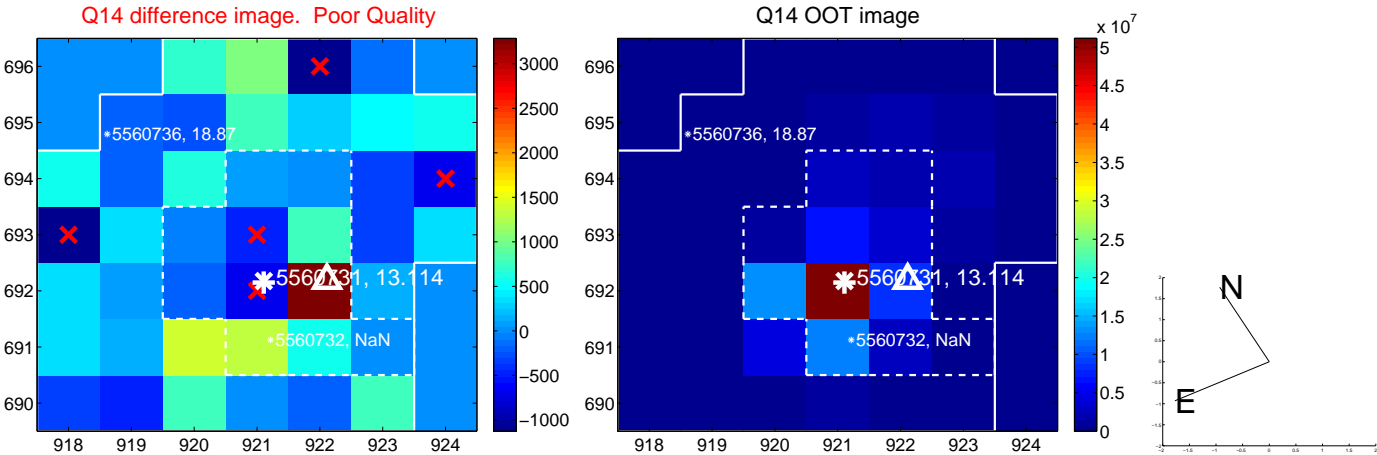
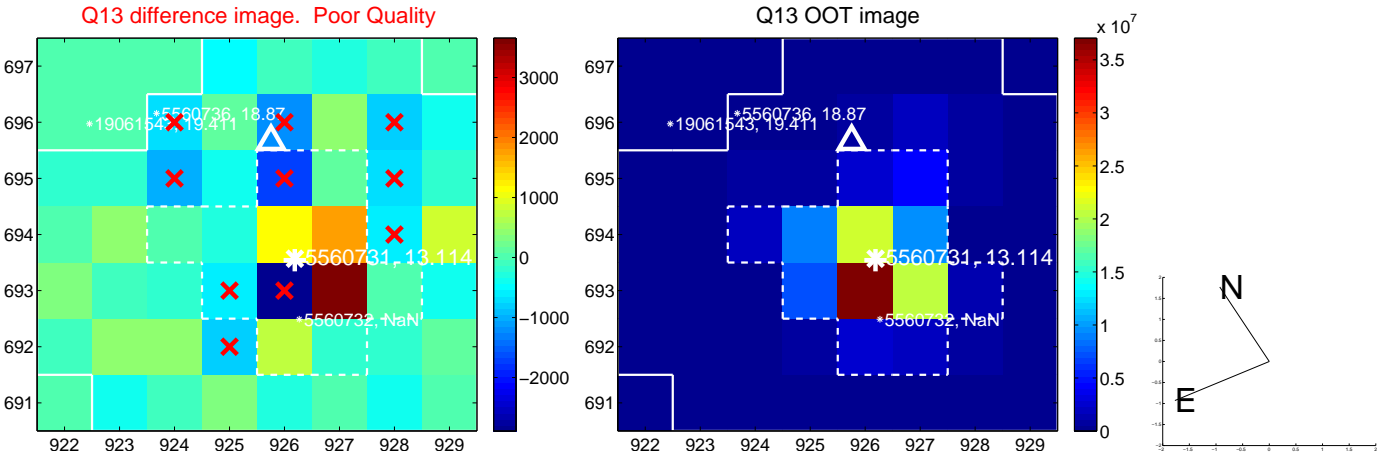
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



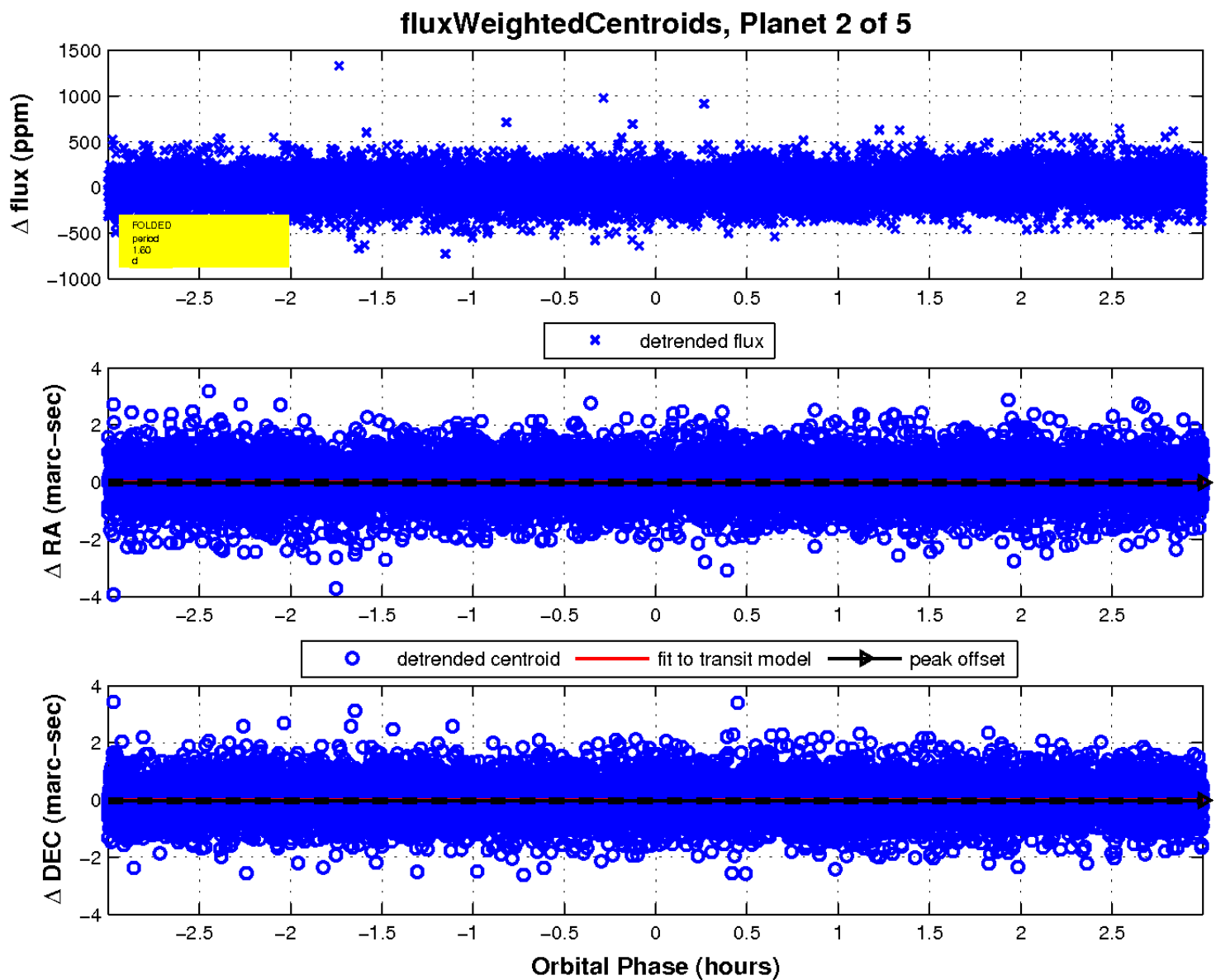
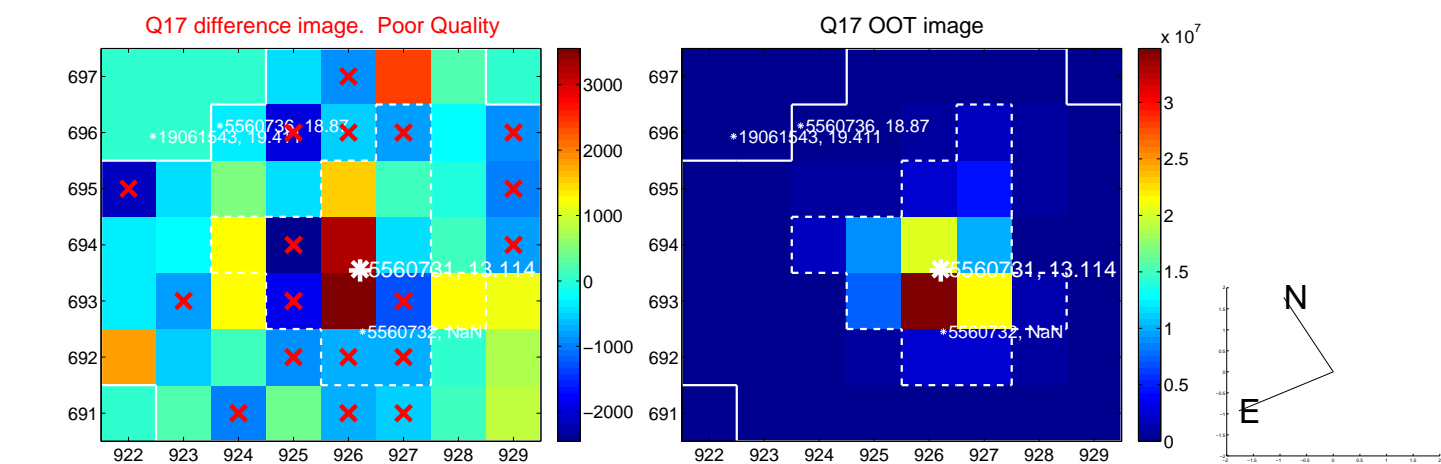
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

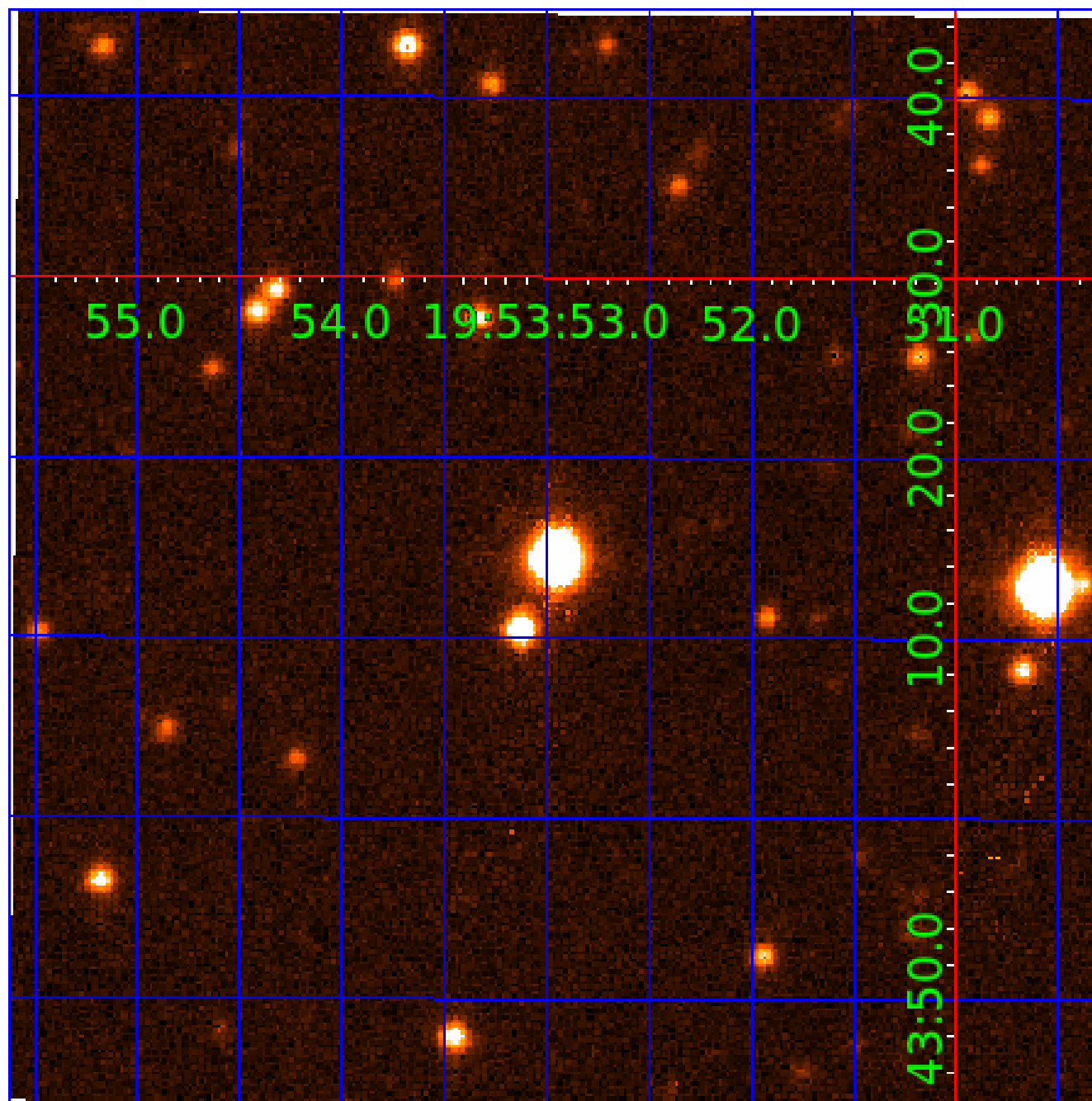


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 005560731

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})
005560731-01	OBS	No	1.603115	132.009752	45.7	6.020	17.5	14.2	3.75	6675	2.56	24386.72
005560731-02	OBS	No	1.603089	131.582511	159.6	6.000	12.3	-1.0	3.75	6675	4.78	24387.24
005560731-03	OBS	No	85.237731	194.635610	263.6	4.752	8.0	8.0	3.75	6675	6.49	121.97
005560731-05	OBS	No	78.723431	190.620787	300.1	5.337	7.8	8.2	3.75	6675	7.12	135.61

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005560731-01	OBS	FP	0.00	1	0	0	0	LPP_DV—MOD_NONUNIQ_DV
005560731-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA—LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—SAME_NTL_PERIOD—CENT_NOFITS
005560731-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
005560731-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_TRACKER—TRANS_GAPPED—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT

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

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

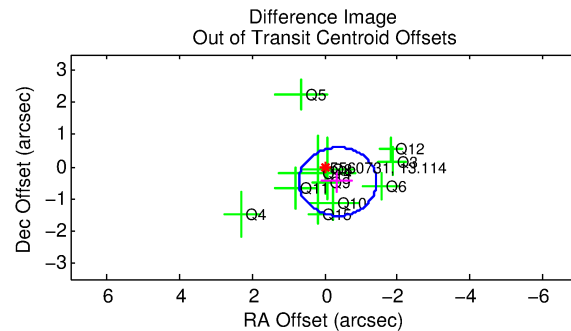
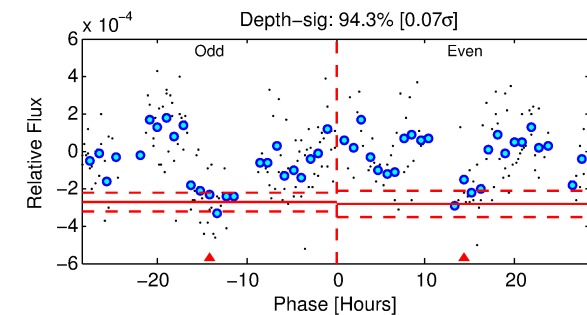
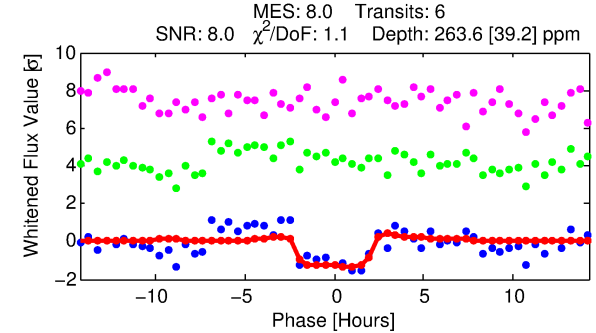
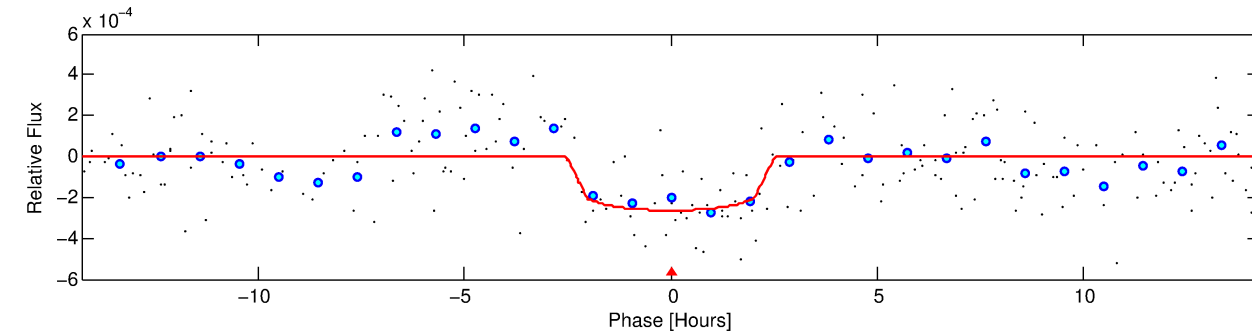
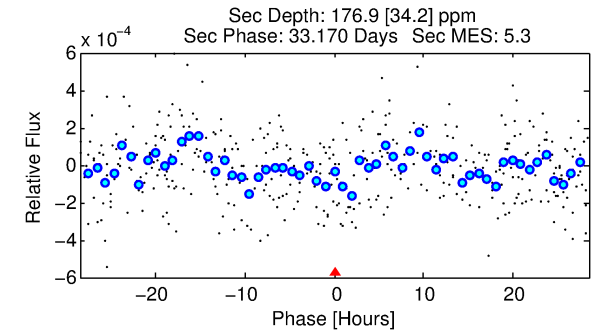
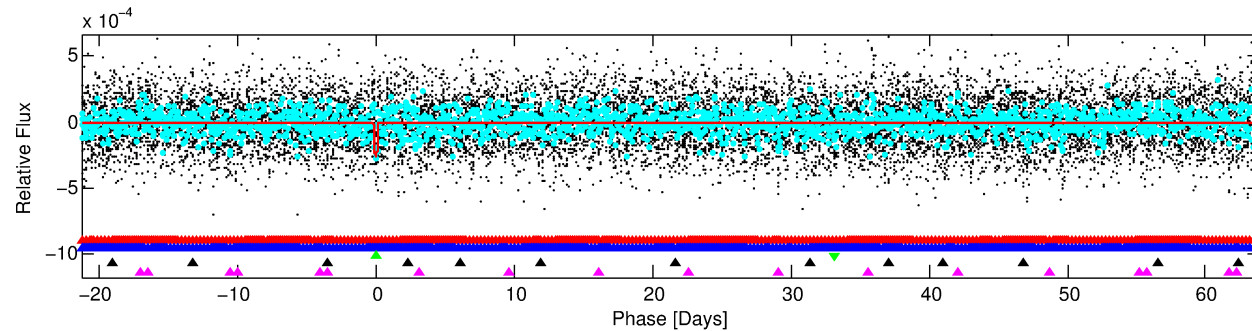
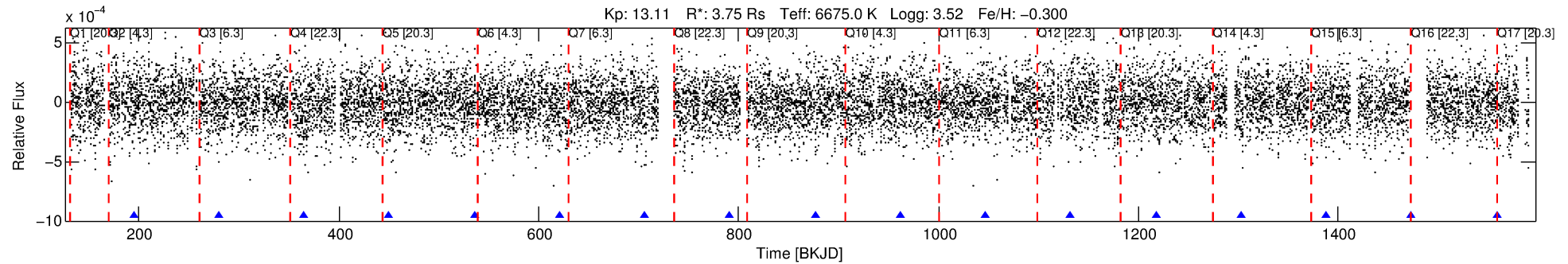
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 005560731-03

No Significant Match Found

DV One-Page Summary

KIC: 5560731 Candidate: 3 of 5 Period: 85.238 d



DV Fit Results:

Period = 85.23773 [0.00146] d
Epoch = 194.6356 [0.0126] BKJD
Rp/R* = 0.0158 [0.0290]
a/R* = 104.43 [1094.93]
b = 0.67 [8.57]
Seff = 121.97 [75.10]
Teq = 847 [130] K
Rp = 6.49 [12.14] Re
a = 0.4534 [0.1710] AU
Ag = 475.30 [1765.09] [0.27σ]
Teffp = 6118 [5608] K [0.94σ]

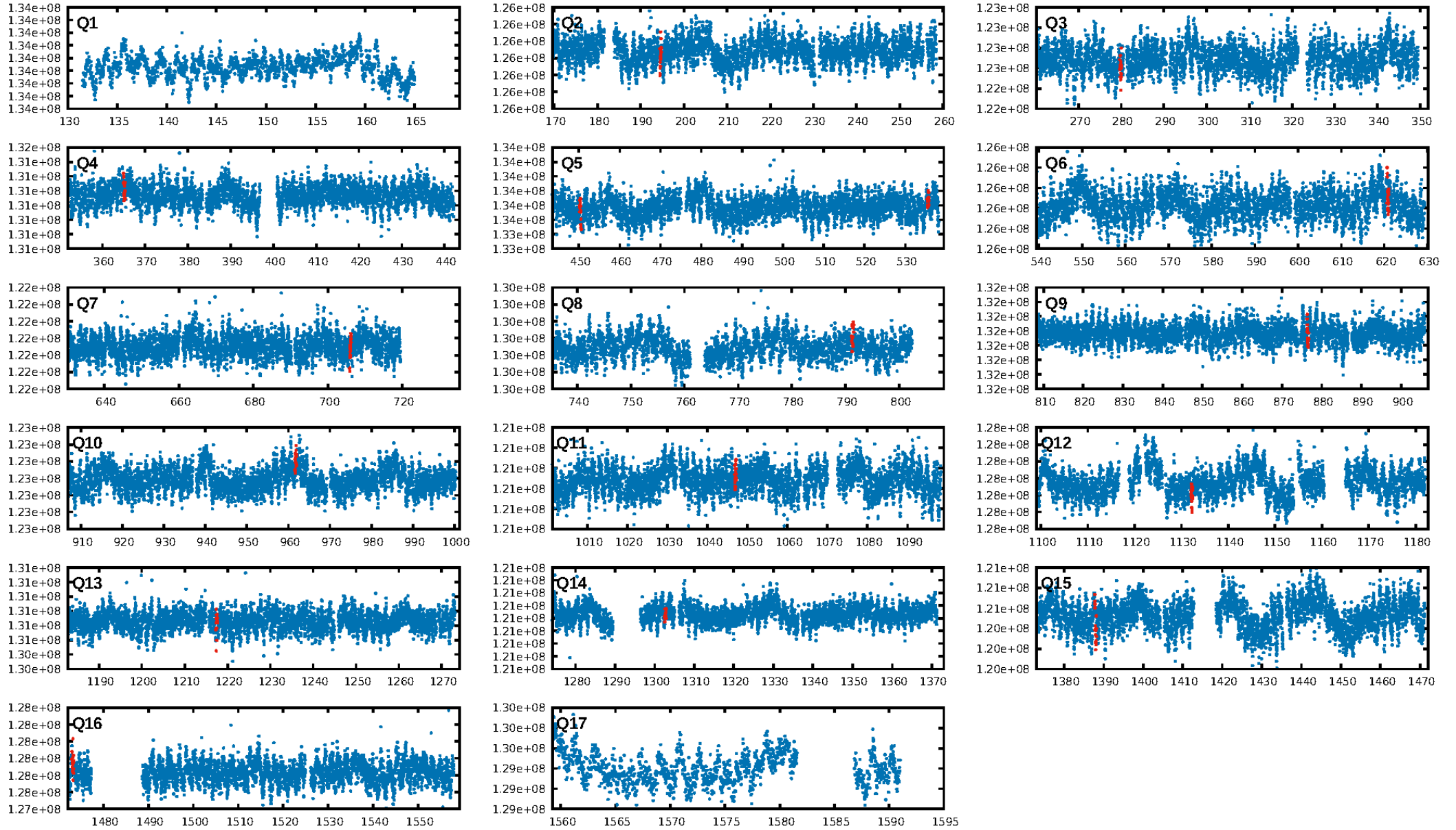
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [21.88σ]
LongPeriod-sig: 100.0% [108.03σ]
ModelChiSquare2-sig: 93.9%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 9.28e-09
RollingBand-fgt: 1.00 [6/6]
GhostDiagnostic-chr: 34.01
Centroid-sig: 79.2%
Centroid-so: 0.389 arcsec [0.58σ]
OotOffset-rm: 0.585 arcsec [1.65σ]
KicOffset-rm: 0.613 arcsec [1.77σ]
OotOffset-st: 3/3/3/2 [11]
KicOffset-st: 3/3/3/2 [11]
DiffImageQuality-fgm: 0.55 [6/11]
DiffImageOverlap-fno: 0.00 [0/13]

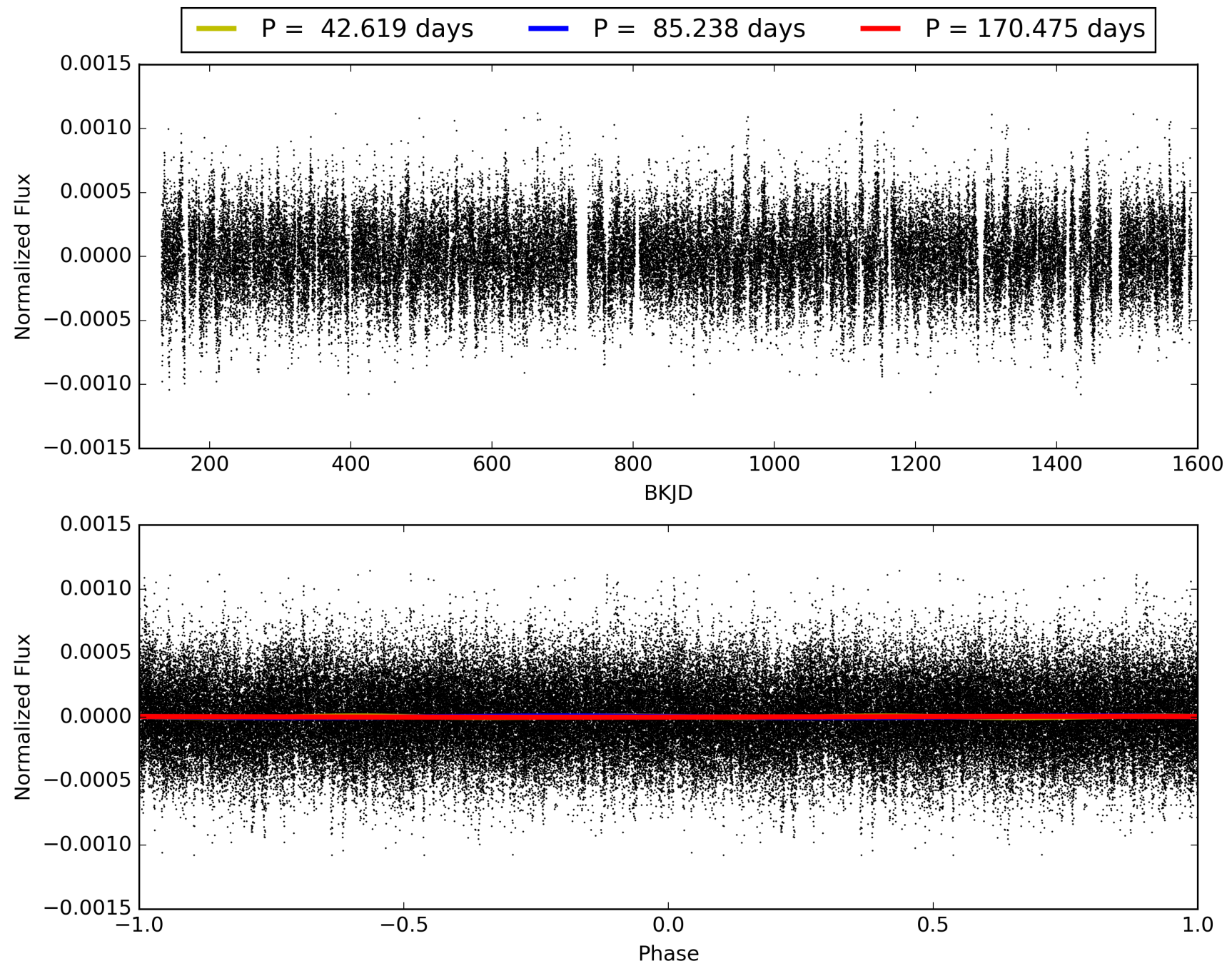
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 14:09:10 Z

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

TCE 005560731-03, PDC Light Curves

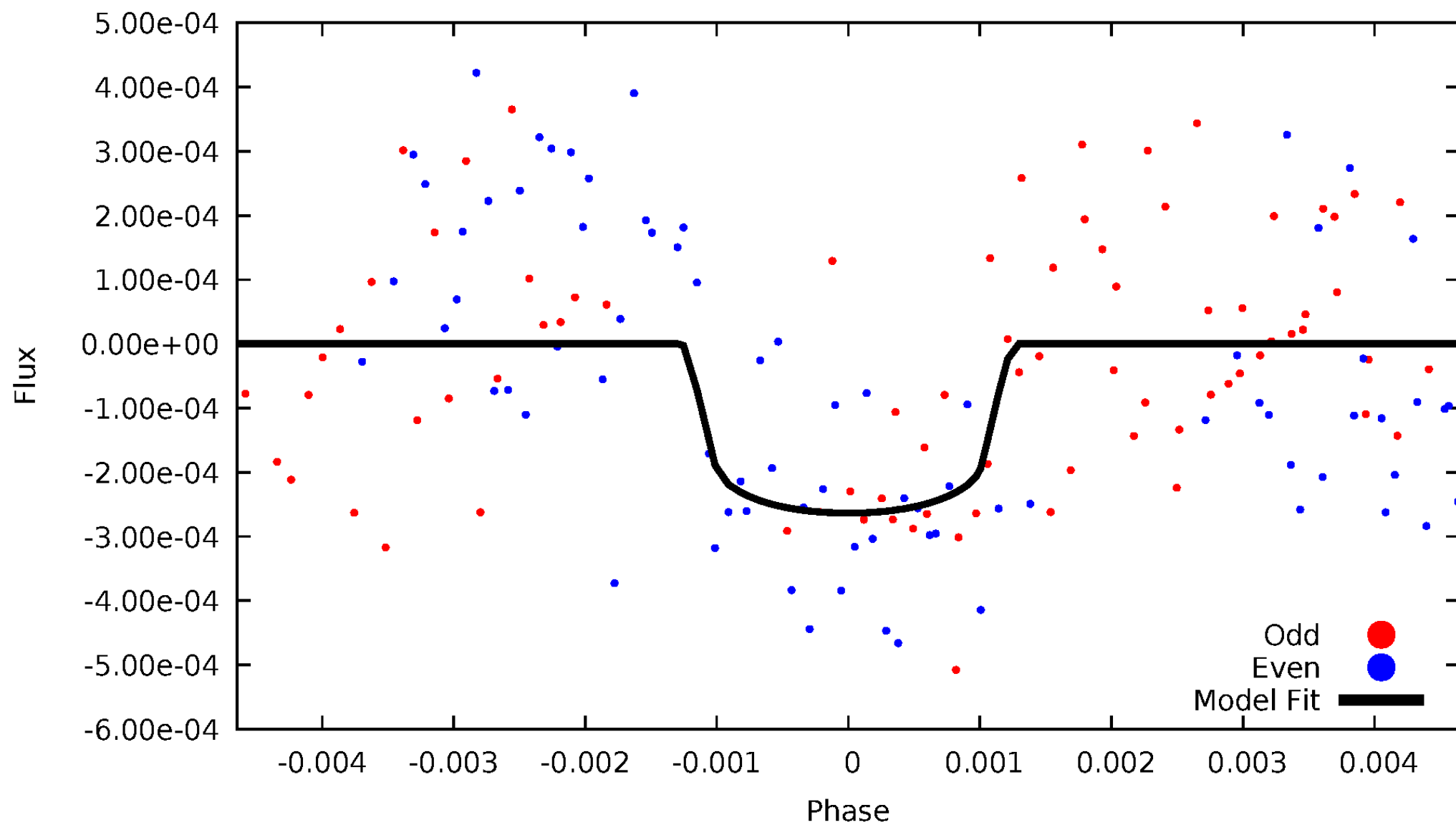


TCE 005560731-03



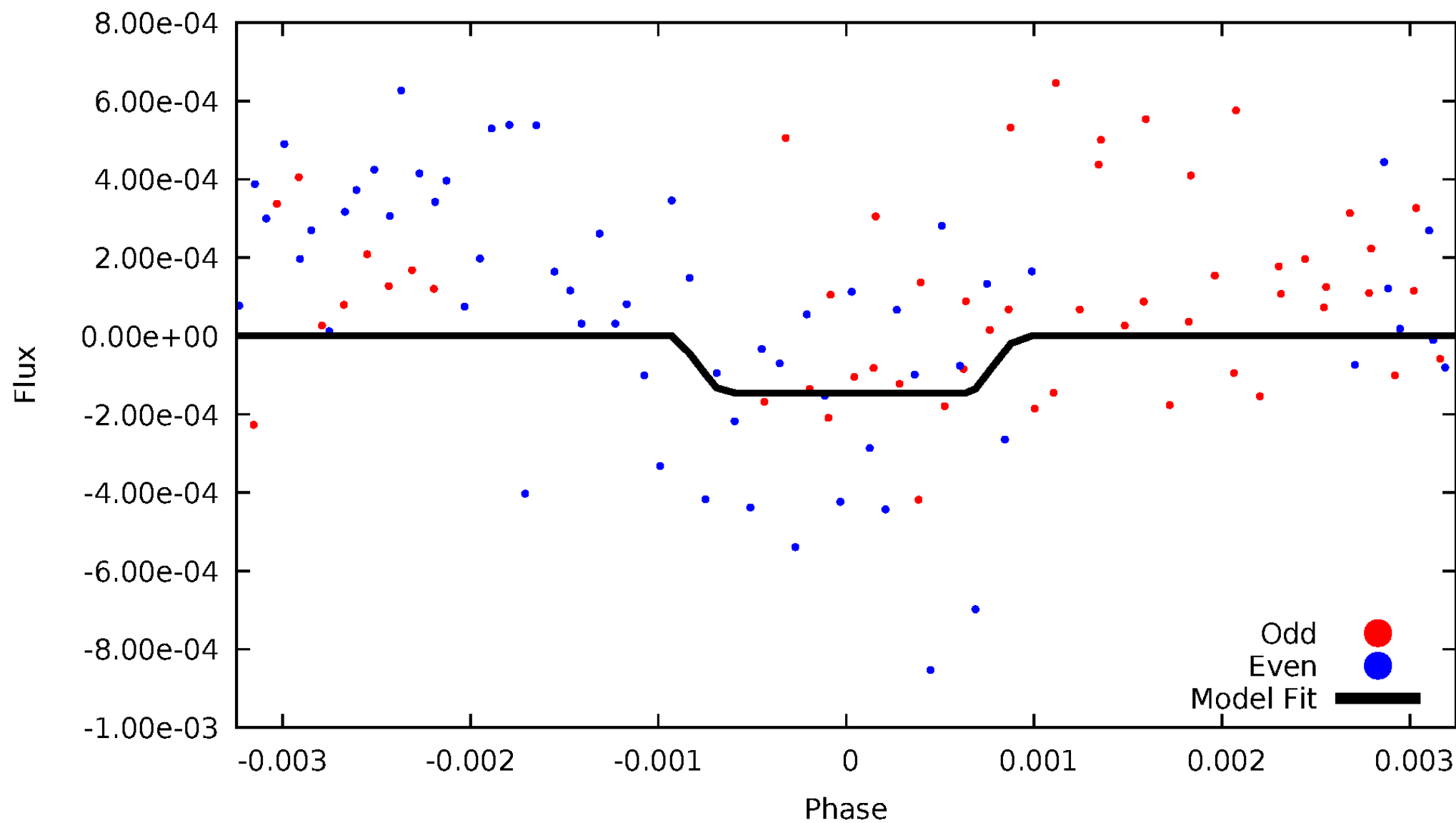
DV Odd/Even

TCE 005560731-03



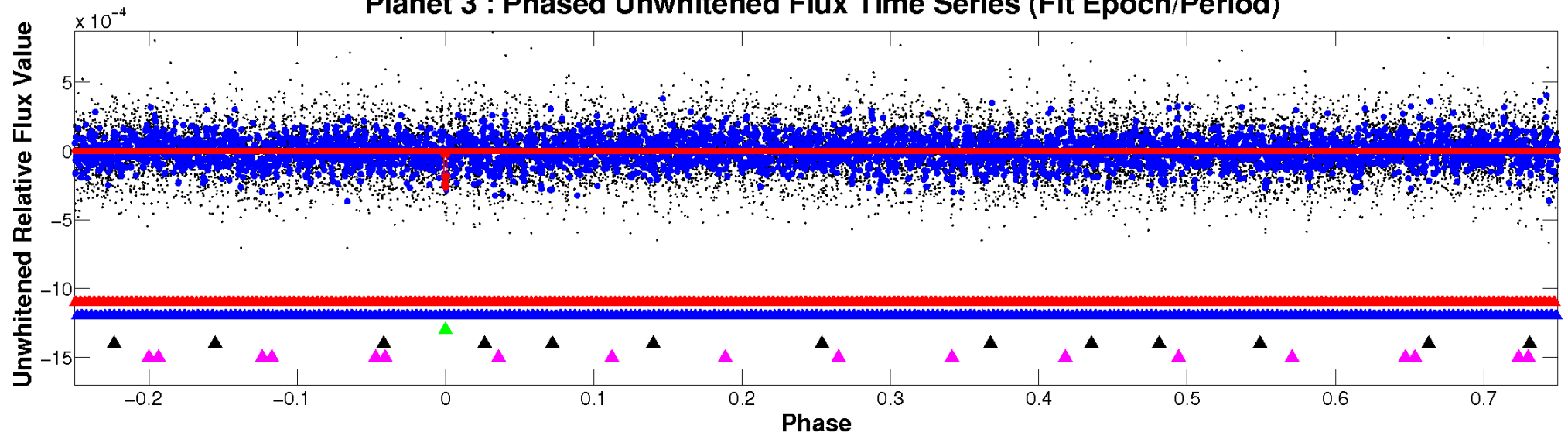
ALT Odd/Even

TCE 005560731-03

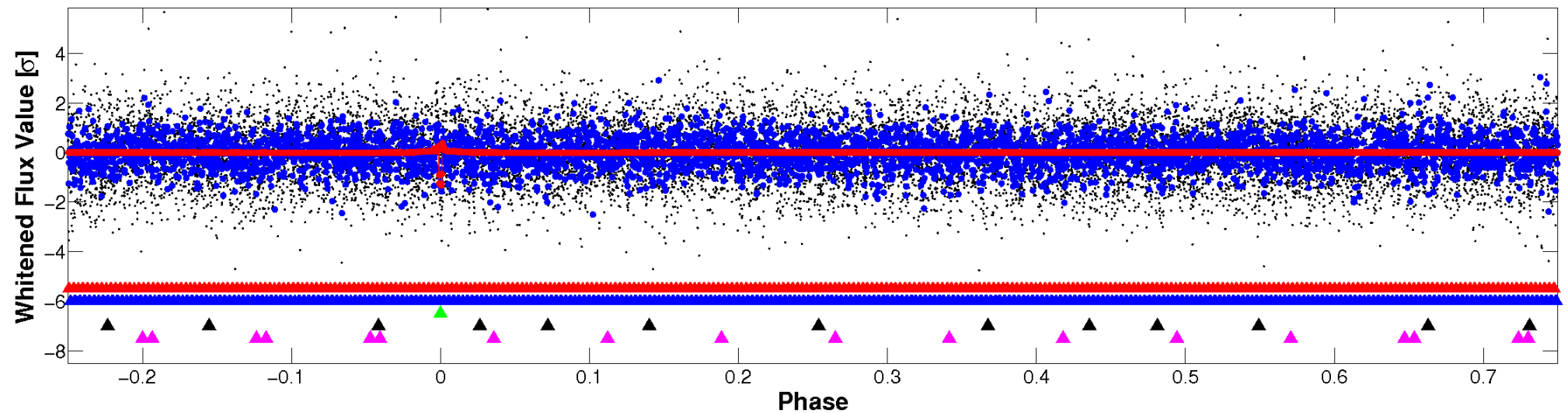


Non-Whitened Vs. Whitened Light Curve

Planet 3 : Phased Unwhitened Flux Time Series (Fit Epoch/Period)

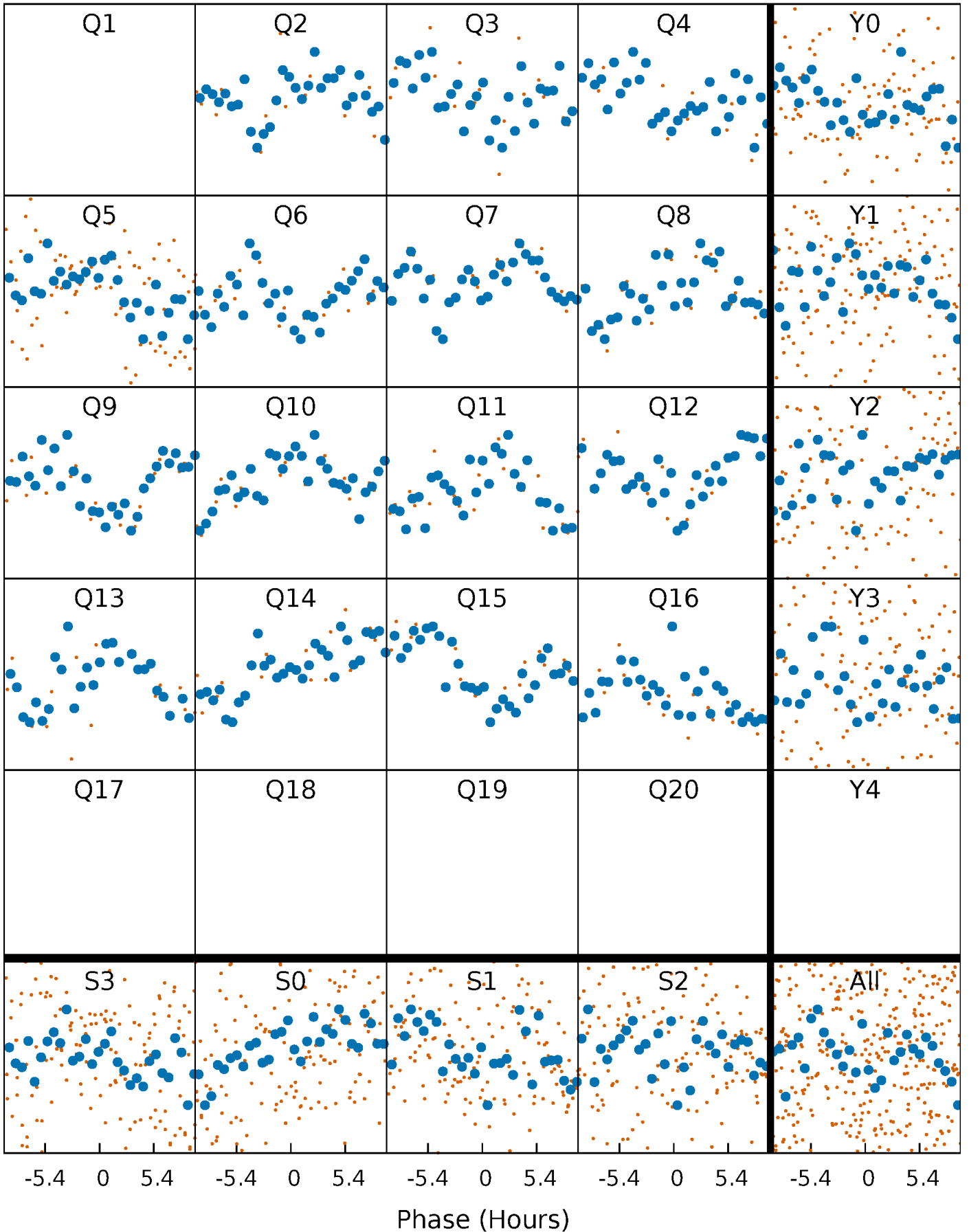


Planet 3 : Phased Whitened Flux Time Series (Fit Epoch/Period)



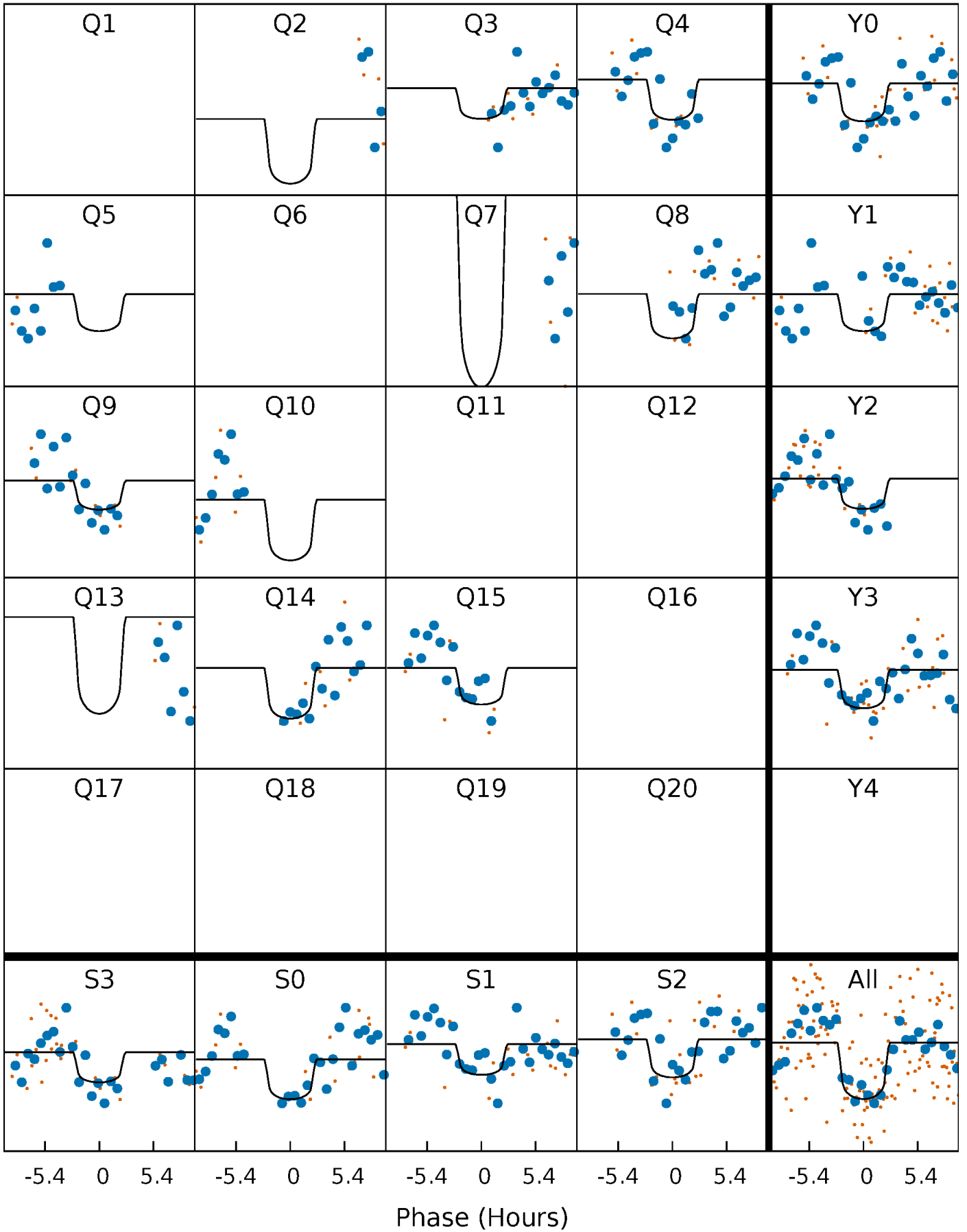
PDC Quarter-Phased Transit Curves

TCE 005560731-03 P= 85.237731 Days $T_0=194.635610$ (BKJD)



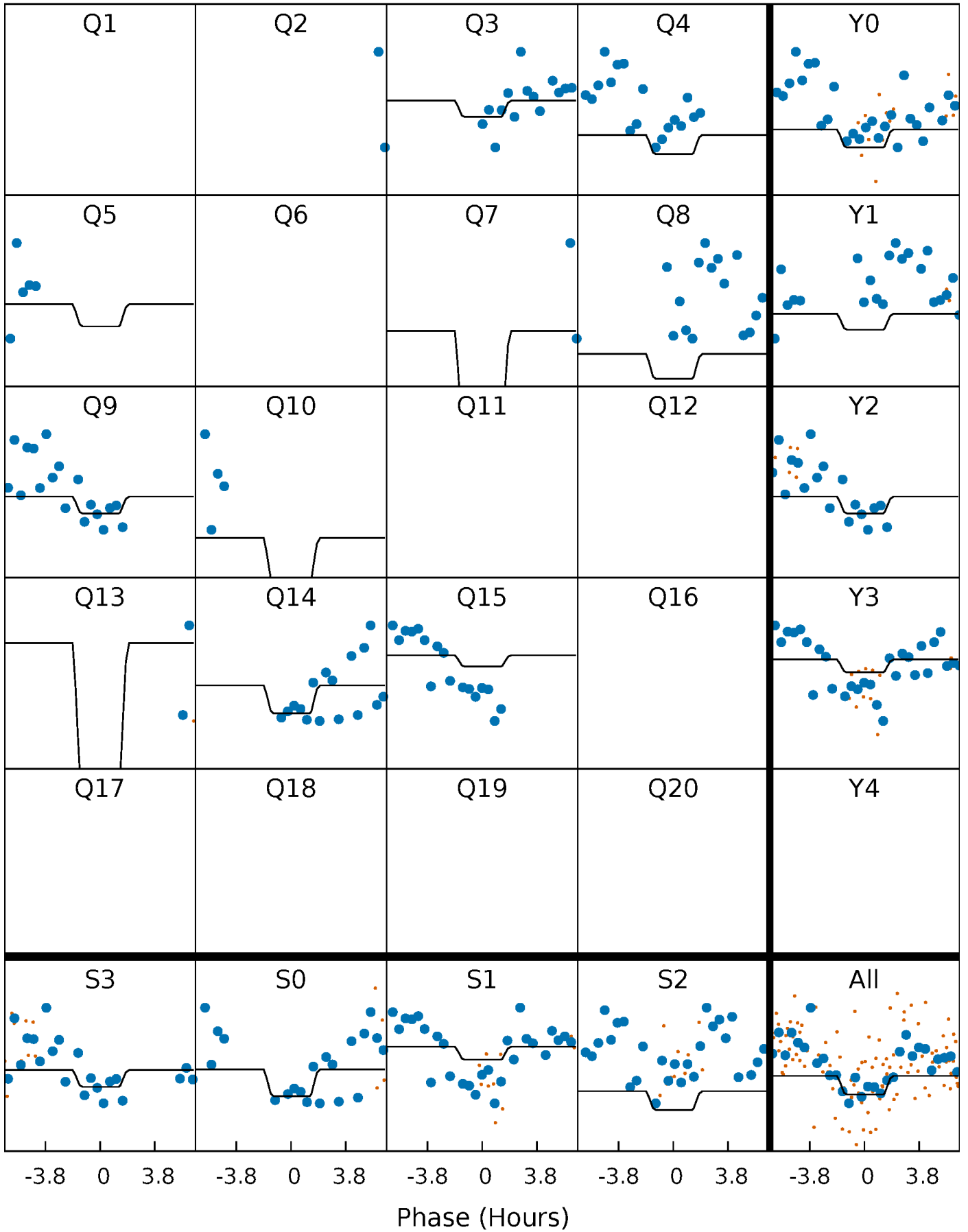
DV Quarter-Phased Transit Curves

TCE 005560731-03 P= 85.237731 Days $T_0=194.635610$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

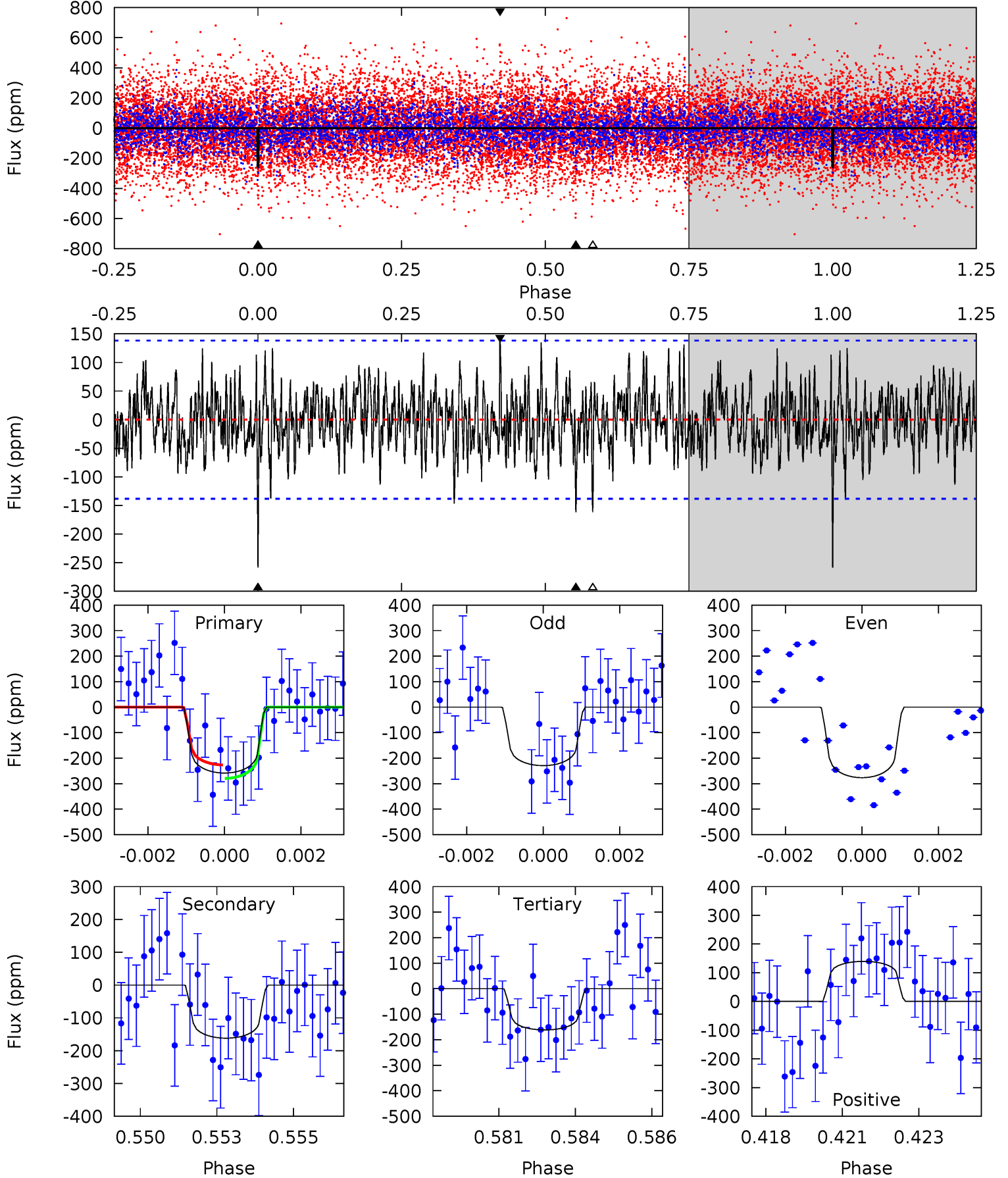
TCE 005560731-03 $P = 85.234434$ Days $T_0 = 194.675882$ (BKJD)



DV Model-Shift Uniqueness Test

005560731-03, P = 85.237731 Days, E = 109.397879 Days

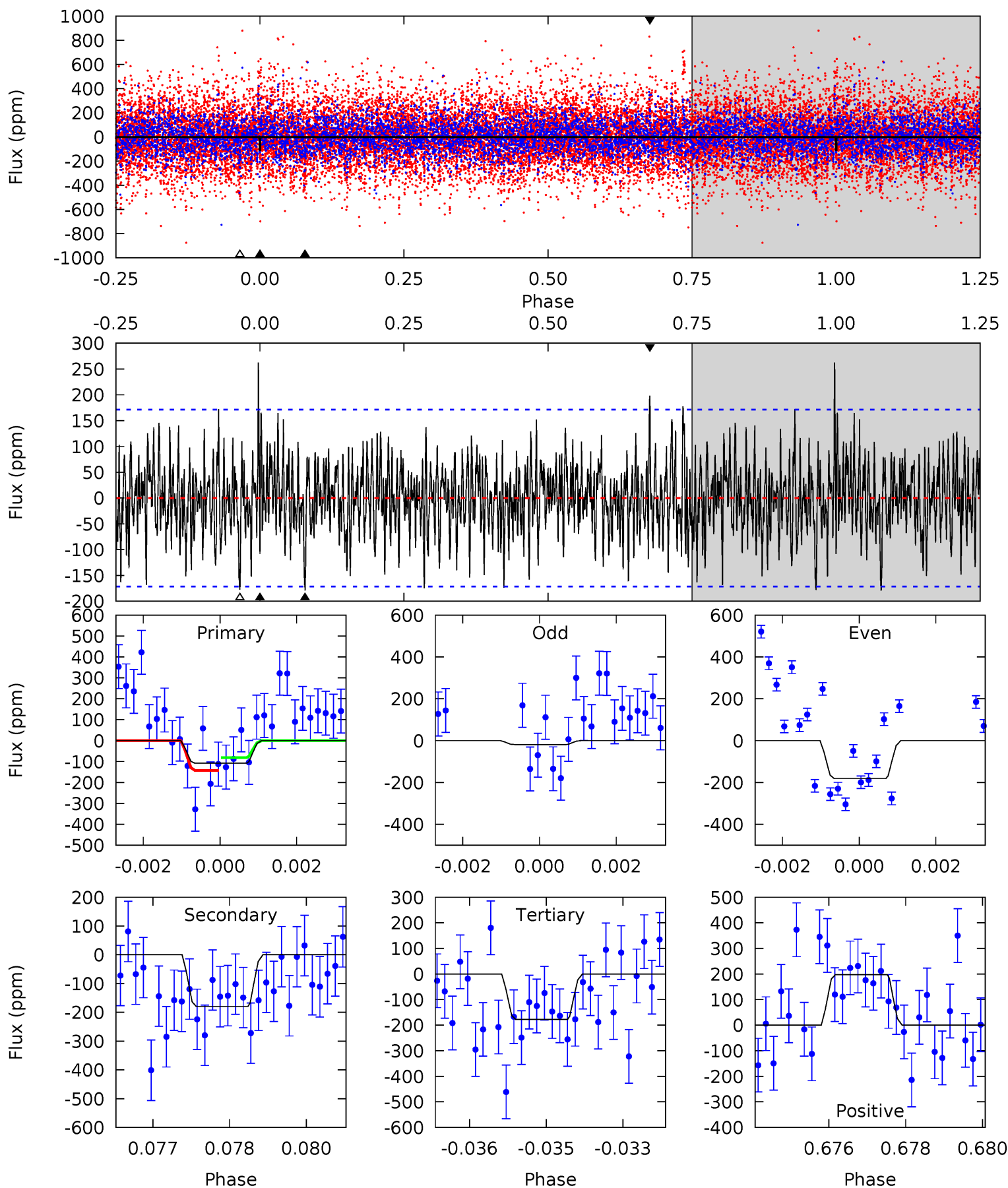
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
9.89	6.20	6.19	5.35	5.30	3.04	1.71	3.70	4.54	0.01	0.85	0.88	0.96	0.35	0.99



Alt Model-Shift Uniqueness Test

005560731-03, P = 85.234434 Days, E = 109.441448 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
3.38	5.59	5.55	6.17	5.34	3.12	1.89	-2.17	-2.79	0.04	-0.58	2.52	0.87	0.59	0.94



Stellar Parameters For KIC 005560731

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6675^{+182}_{-223}	$3.522^{+0.352}_{-0.088}$	$-0.300^{+0.350}_{-0.250}$	$3.755^{+0.371}_{-1.482}$	$1.711^{+0.199}_{-0.398}$	$0.045^{+0.128}_{-0.013}$
	+3%/-3%	+10%/-2%	+117%/-83%	+10%/-39%	+12%/-23%	+281%/-29%
Source	PHO1	FLK73	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 005560731-03 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-162 ± 26	$10.16^{+9.73}_{-7.26}$	1160^{+64}_{-116}	4705^{+4082}_{-998}	178^{+1902}_{-133}
Alt.	-179 ± 32	$9.08^{+9.15}_{-6.25}$	1160^{+66}_{-110}	4960^{+4670}_{-1121}	234^{+2328}_{-176}

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 $A_{obs} \gg 1.0$

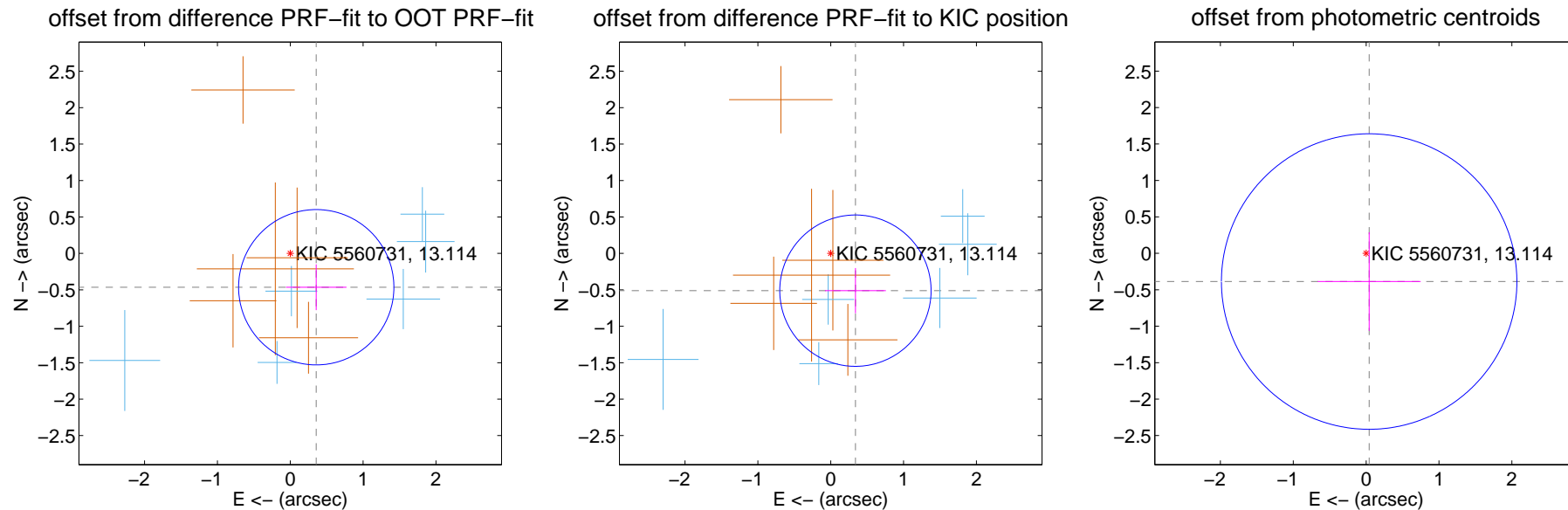
DV Centroid Data

Supplemental centroid analysis for 005560731-03. Kepler magnitude: 13.11. Transit SNR 8.02

There are 6 quarters with good PRF difference image offsets

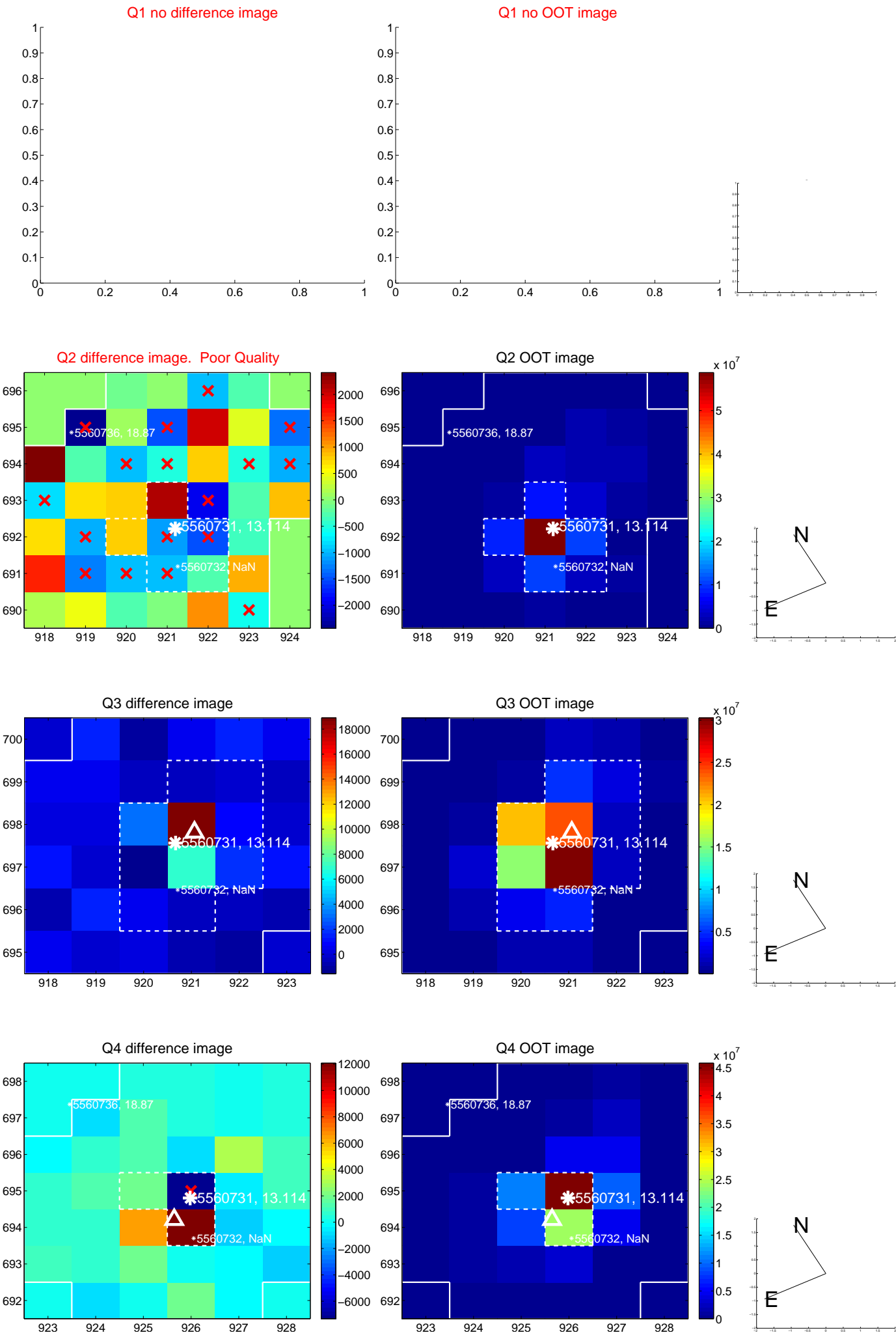
The direct PRF centroid is offset from the target star catalog position by about 0.02 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.585 ± 0.355	1.65	-0.357 ± 0.415	-0.464 ± 0.315
PRF-fit source offset from KIC position	0.613 ± 0.346	1.77	-0.339 ± 0.418	-0.511 ± 0.310
photometric centroid source offset	0.39 ± 0.68	0.58	-0.04 ± 0.71	-0.39 ± 0.68

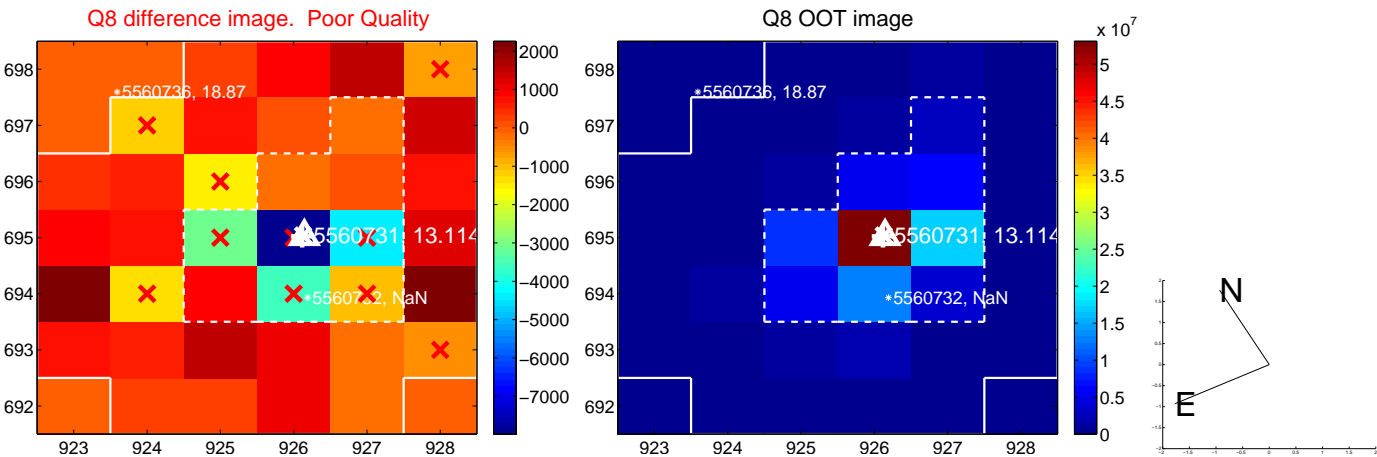
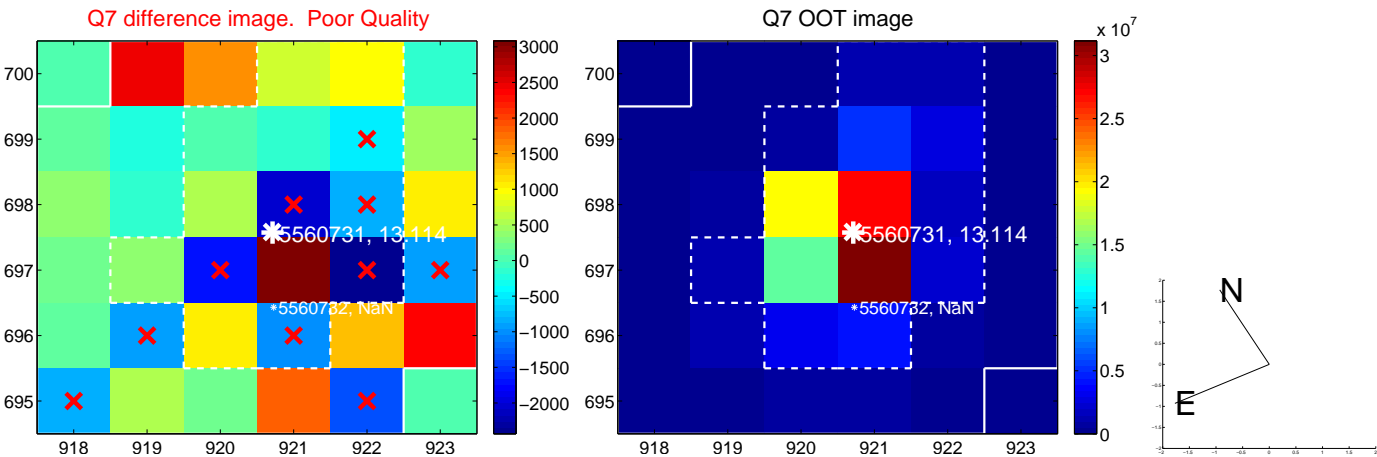
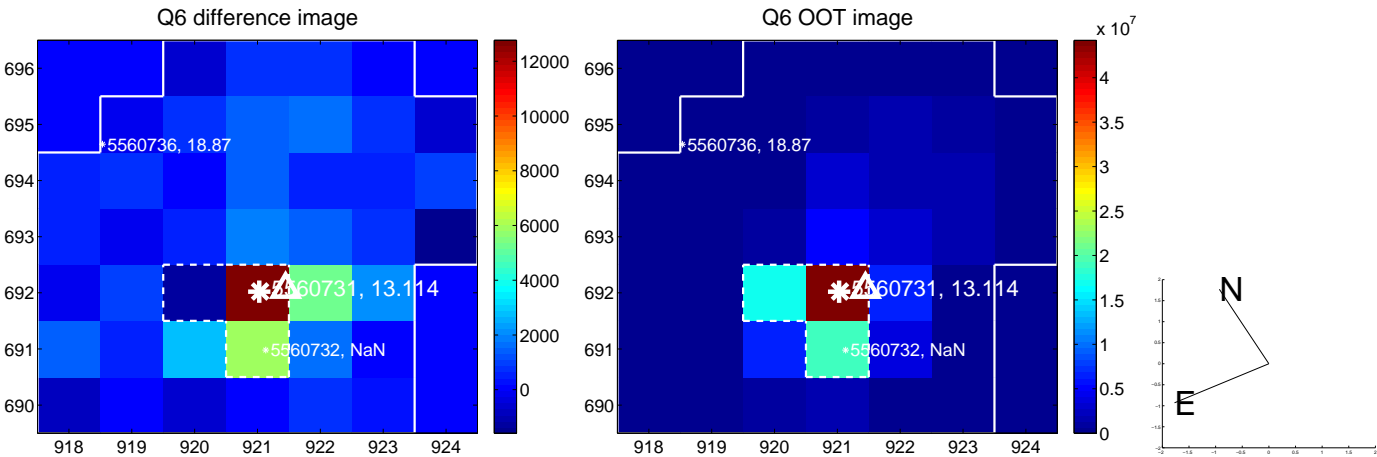
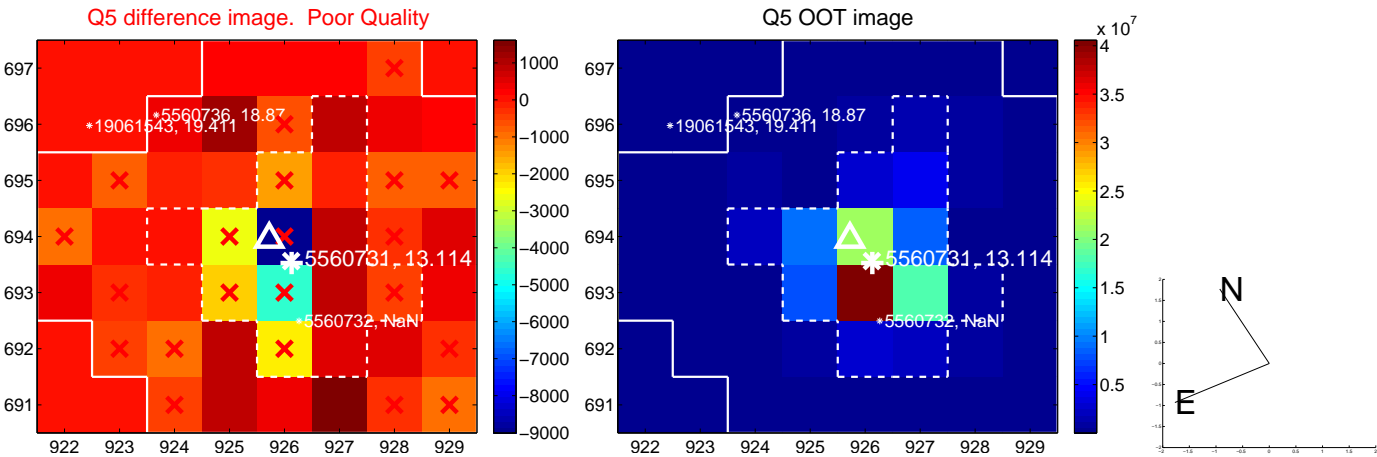


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets**; **Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

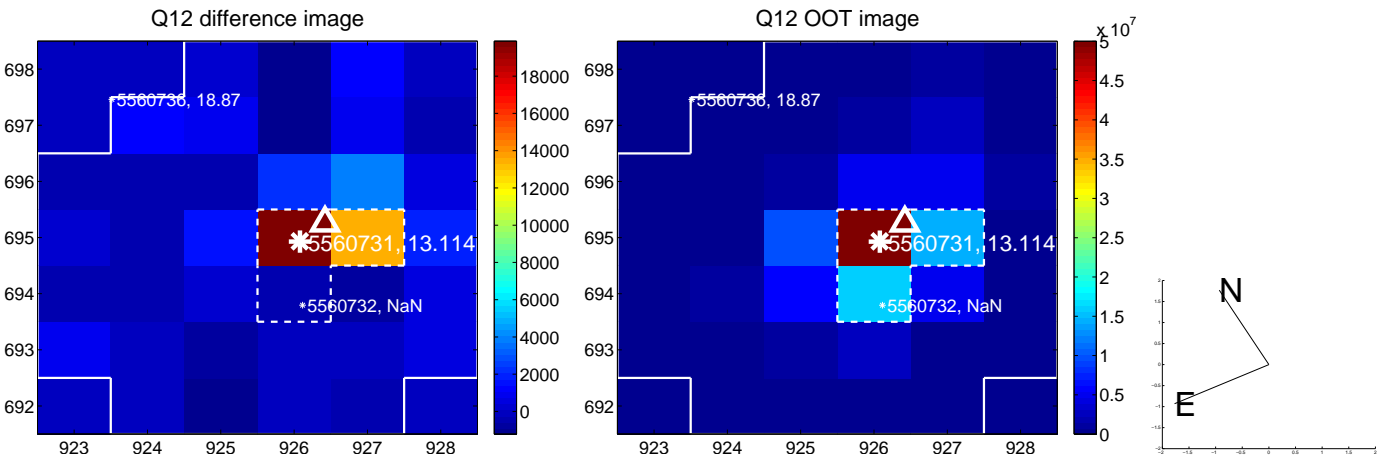
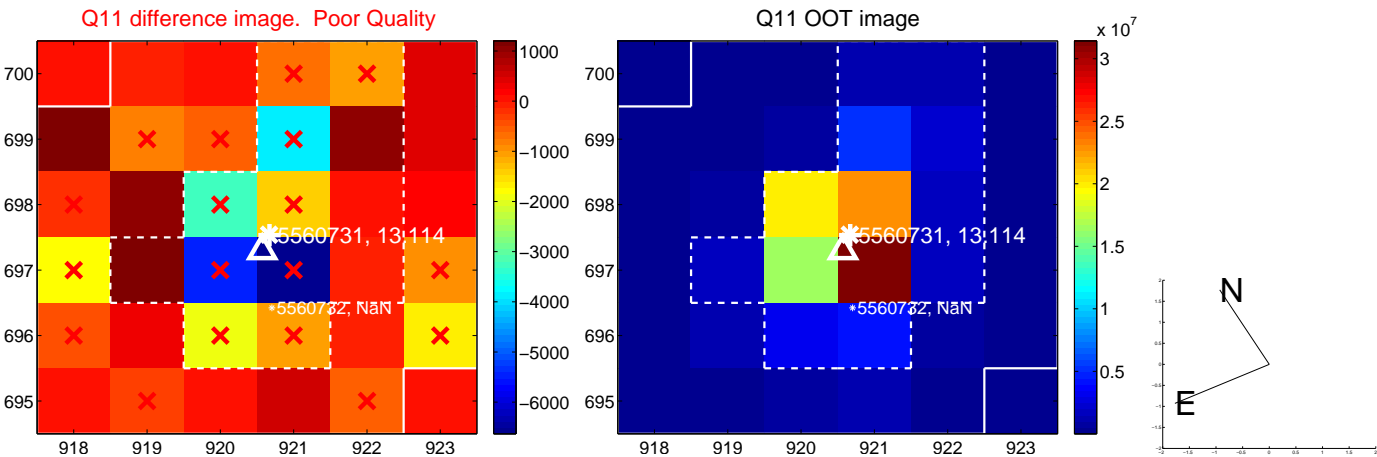
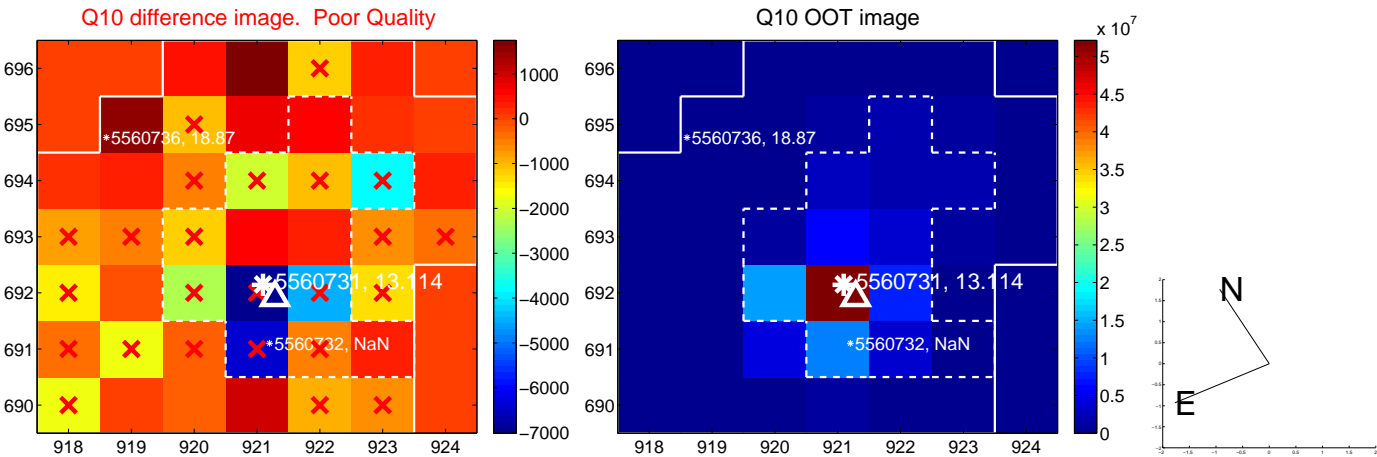
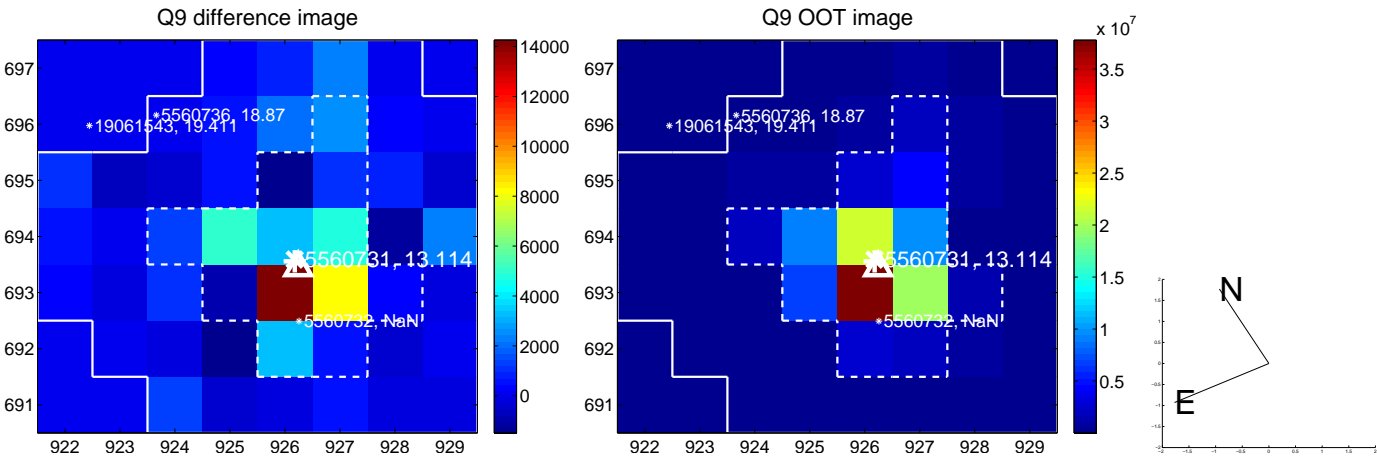
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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.

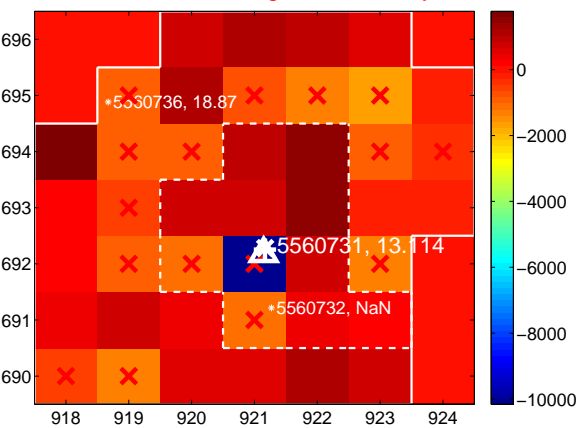
Q13 no difference image



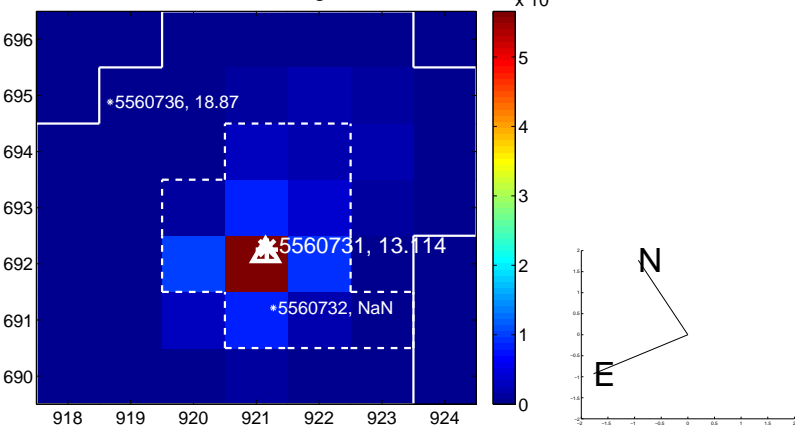
Q13 no OOT image



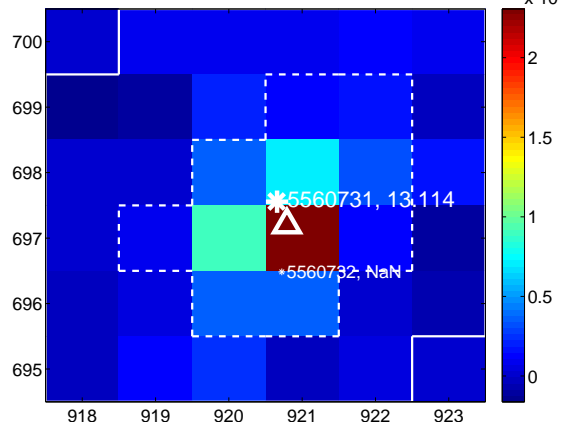
Q14 difference image. Poor Quality



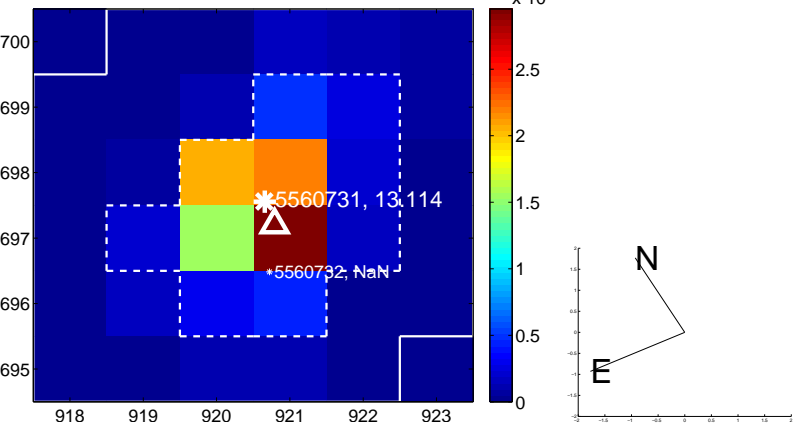
Q14 OOT image



Q15 difference image



Q15 OOT image



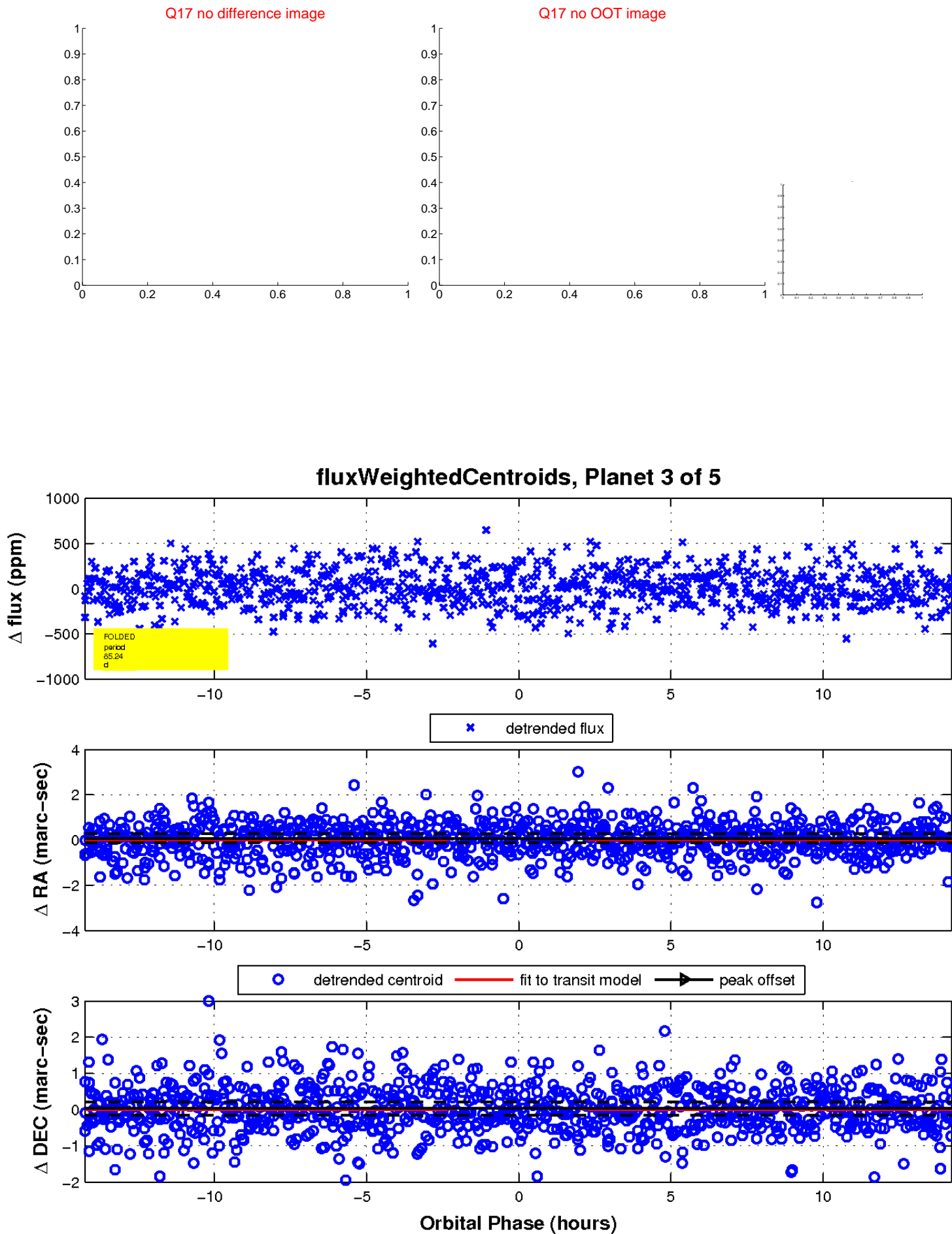
Q16 no difference image



Q16 no OOT image

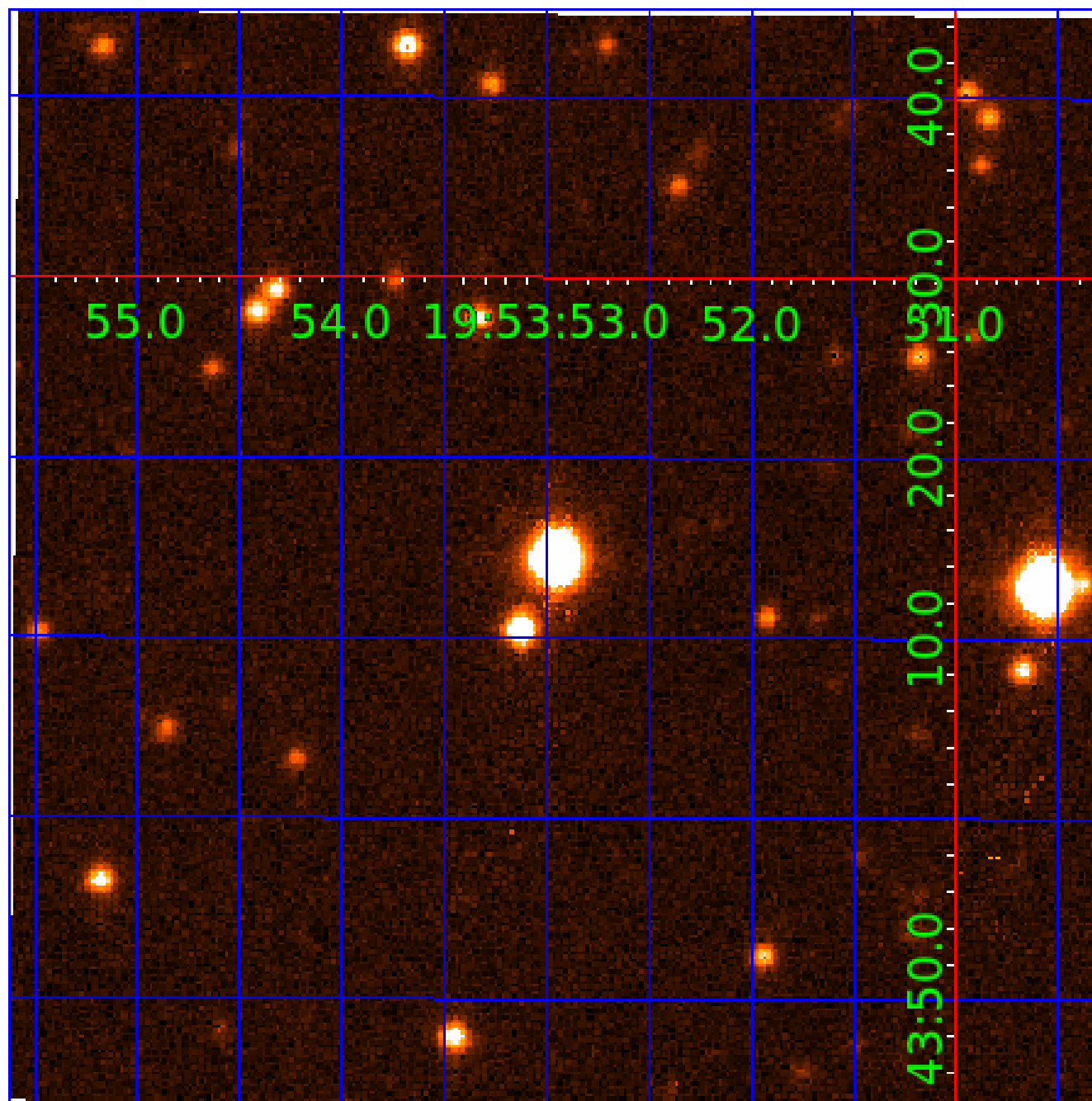


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 005560731

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})
005560731-01	OBS	No	1.603115	132.009752	45.7	6.020	17.5	14.2	3.75	6675	2.56	24386.72
005560731-02	OBS	No	1.603089	131.582511	159.6	6.000	12.3	-1.0	3.75	6675	4.78	24387.24
005560731-03	OBS	No	85.237731	194.635610	263.6	4.752	8.0	8.0	3.75	6675	6.49	121.97
005560731-05	OBS	No	78.723431	190.620787	300.1	5.337	7.8	8.2	3.75	6675	7.12	135.61

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005560731-01	OBS	FP	0.00	1	0	0	0	LPP_DV—MOD_NONUNIQ_DV
005560731-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA—LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—SAME_NTL_PERIOD—CENT_NOFITS
005560731-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
005560731-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_TRACKER—TRANS_GAPPED—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT

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

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

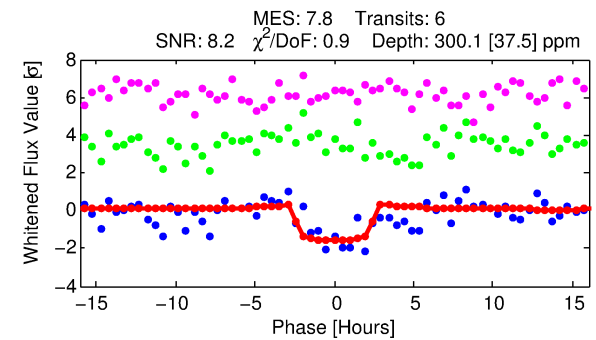
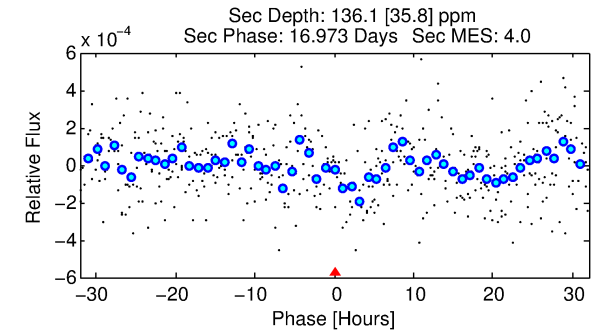
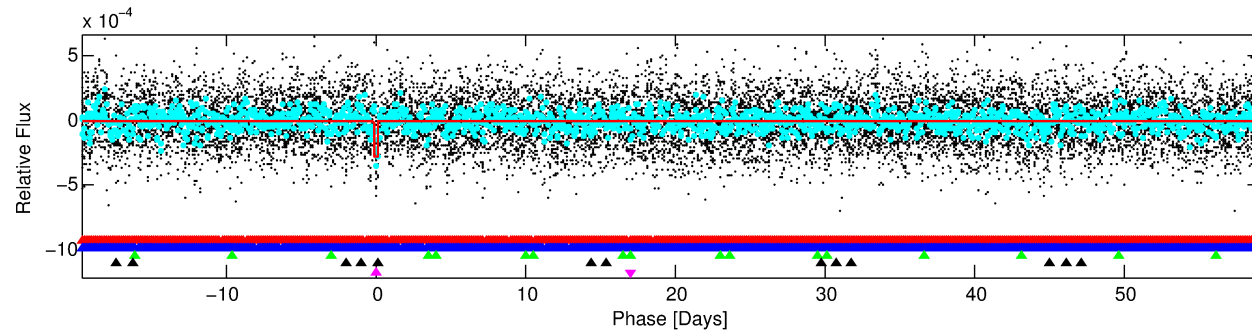
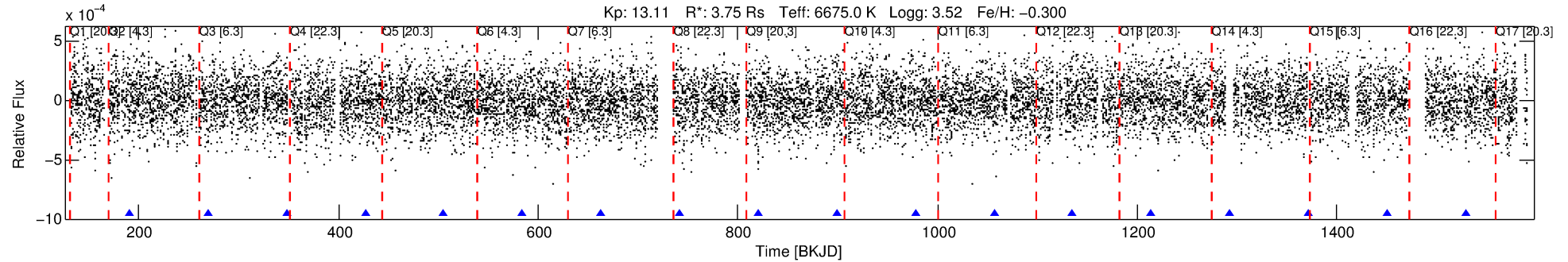
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 005560731-05

No Significant Match Found

DV One-Page Summary

KIC: 5560731 Candidate: 5 of 5 Period: 78.723 d

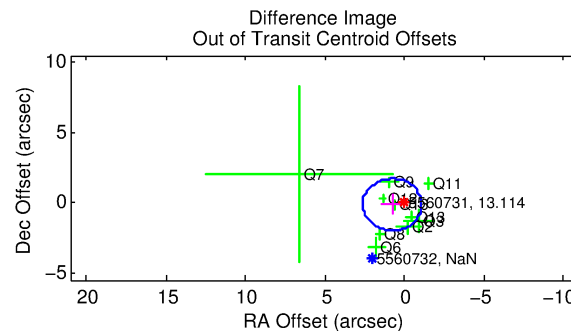
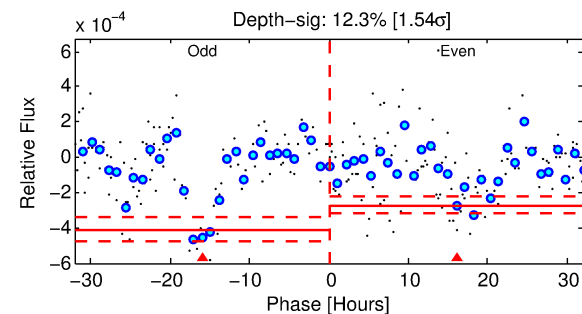
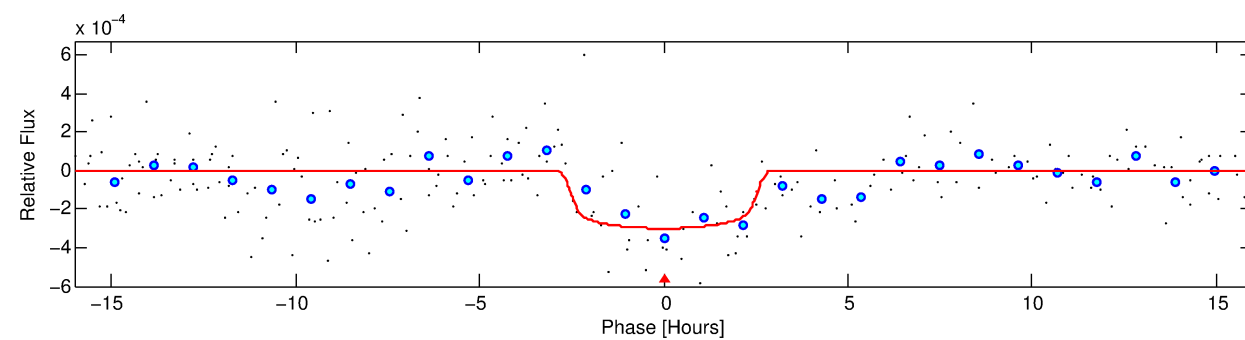


DV Fit Results:

Period = 78.72343 [0.00108] d
Epoch = 190.6208 [0.0127] BKJD
Rp/R* = 0.0174 [0.0079]
a/R* = 73.82 [190.65]
b = 0.78 [1.32]
Seff = 135.61 [83.49]
Teq = 870 [134] K
Rp = 7.12 [4.29] Re
a = 0.4300 [0.1622] AU
Ag = 272.81 [305.59] [0.89σ]
Teffp = 5468 [1305] K [3.50σ]

DV Diagnostic Results:

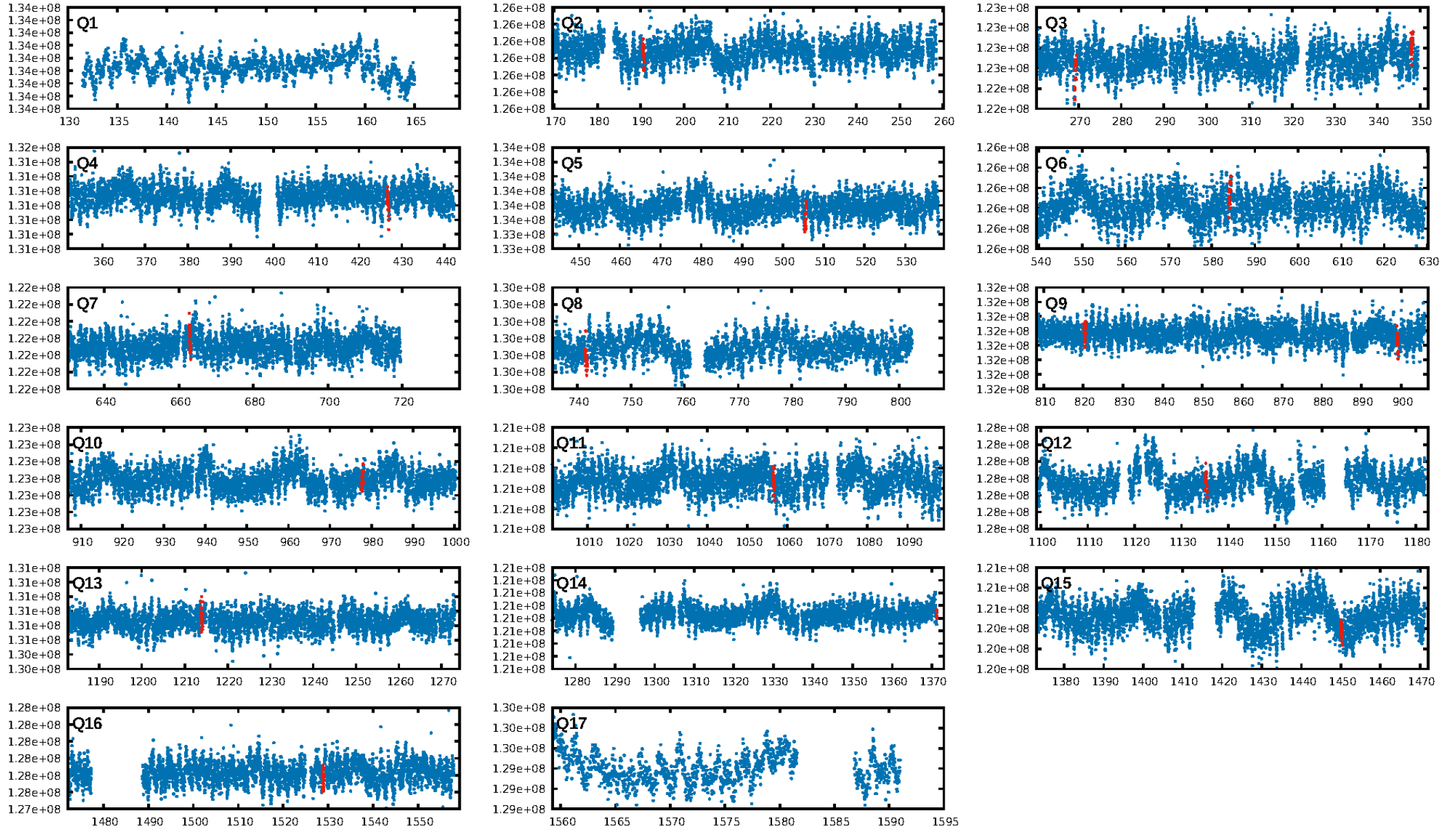
ShortPeriod-sig: 100.0% [230.07σ]
LongPeriod-sig: 100.0% [21.88σ]
ModelChiSquare2-sig: 65.3%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 1.95e-08
RollingBand-fgt: 1.00 [6/6]
GhostDiagnostic-chr: -0.4197
Centroid-sig: 56.0%
Centroid-so: 0.738 arcsec [1.27σ]
OotOffset-rm: 0.770 arcsec [1.25σ]
OotOffset-st: 2/3/3/2 [10]
KicOffset-rm: 0.781 arcsec [1.24σ]
KicOffset-st: 2/3/3/2 [10]
DiffImageQuality-fgm: 0.50 [5/10]
DiffImageOverlap-fno: 0.00 [0/12]



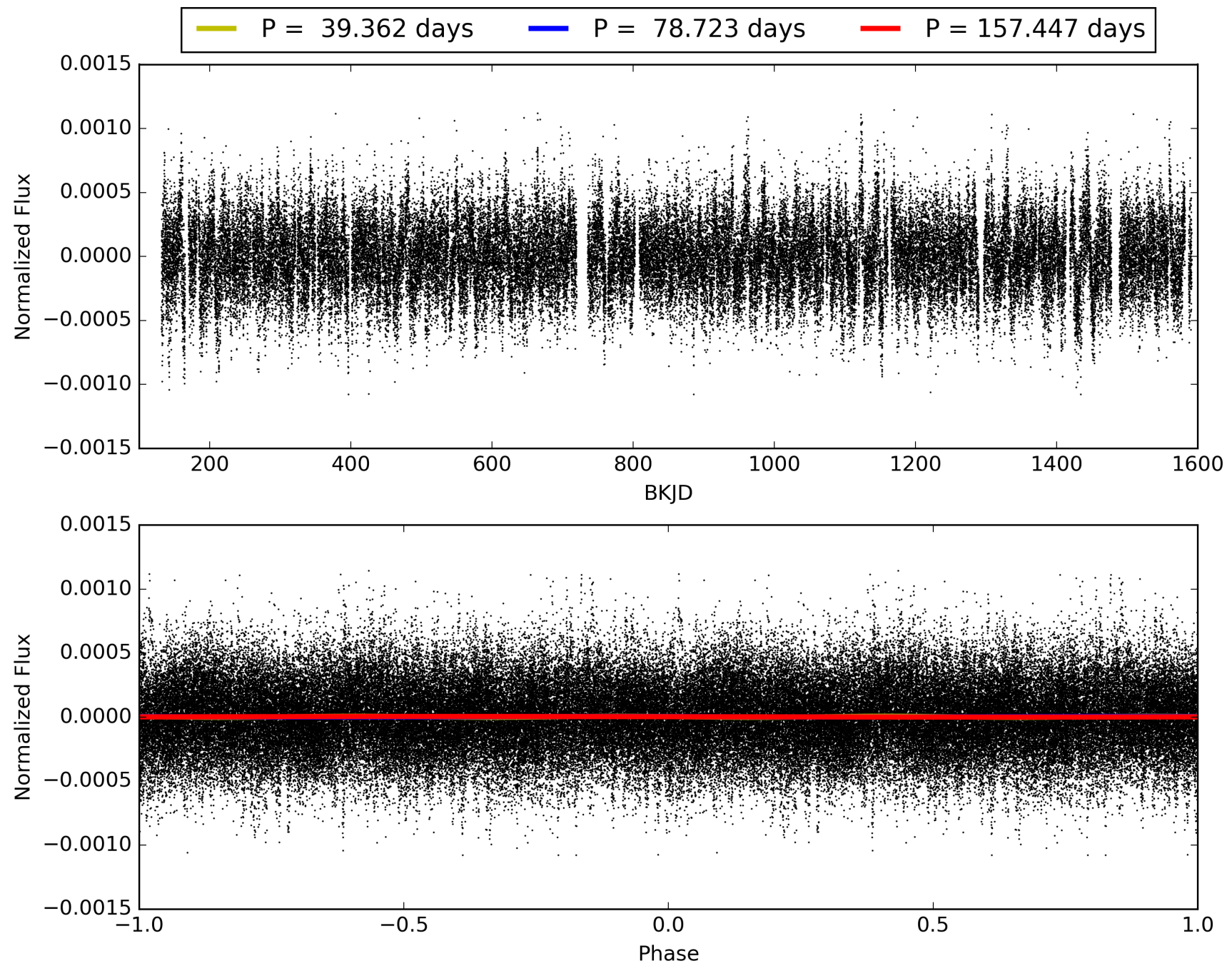
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 14:09:19 Z

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

TCE 005560731-05, PDC Light Curves

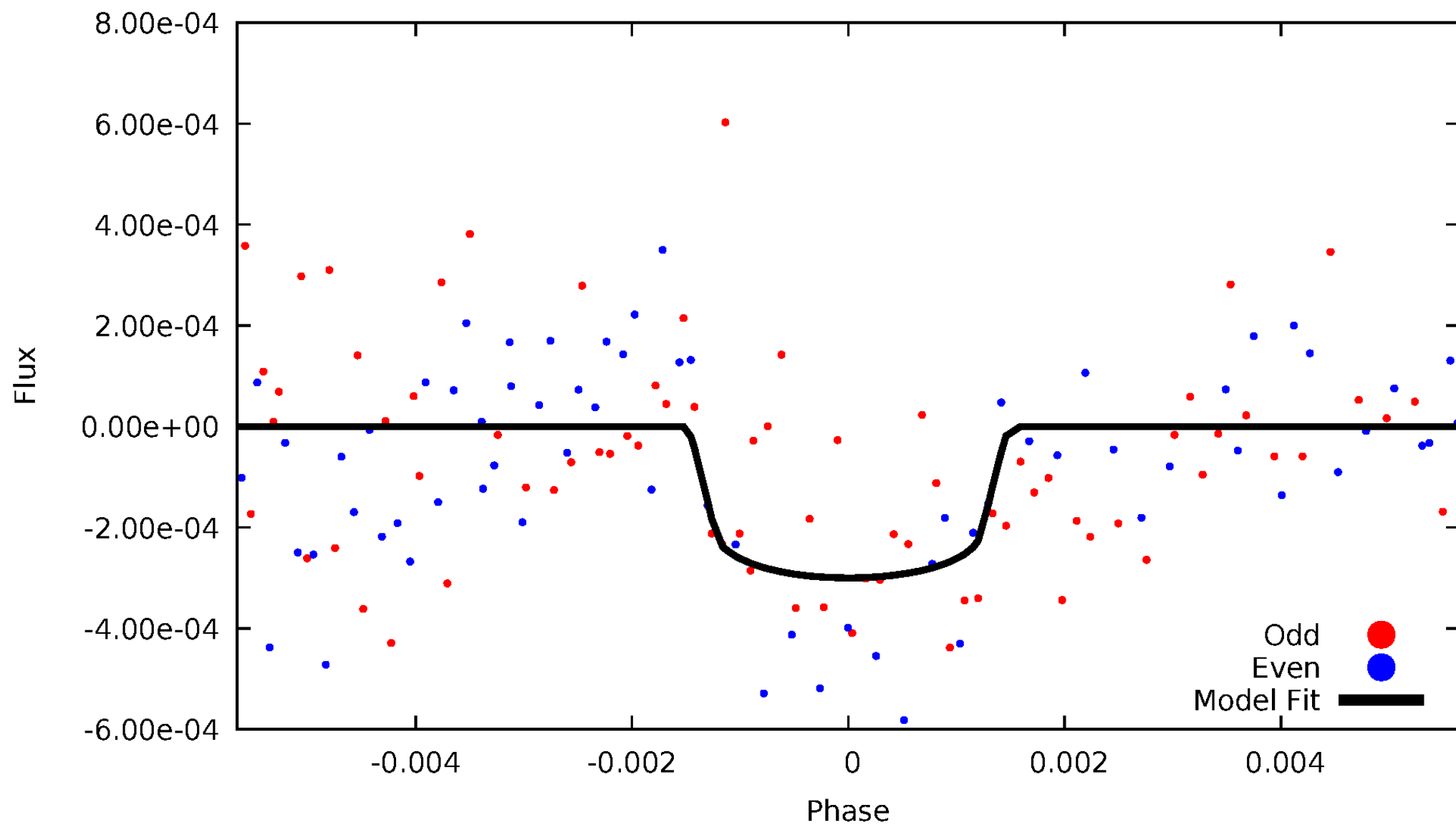


TCE 005560731-05



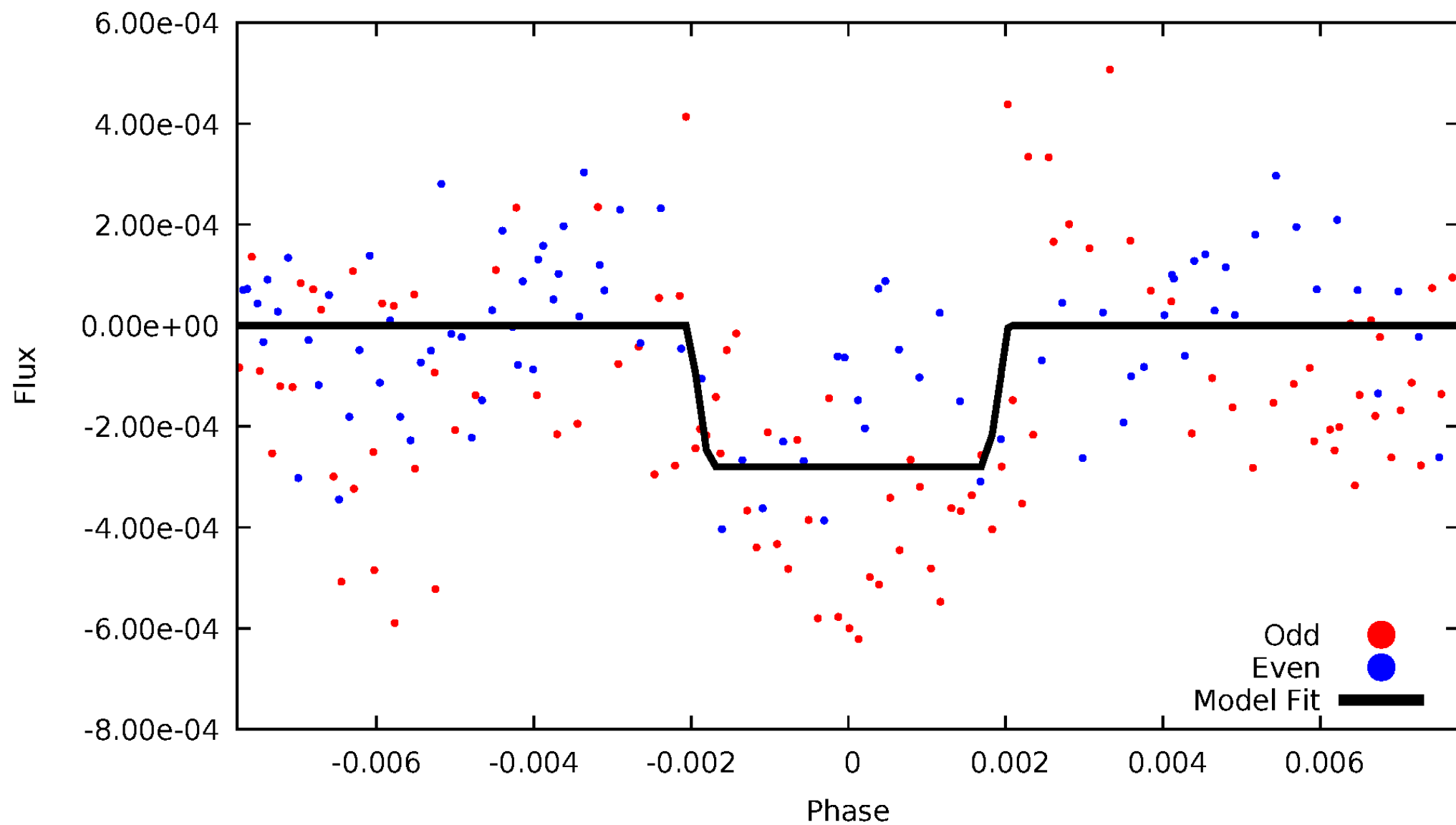
DV Odd/Even

TCE 005560731-05



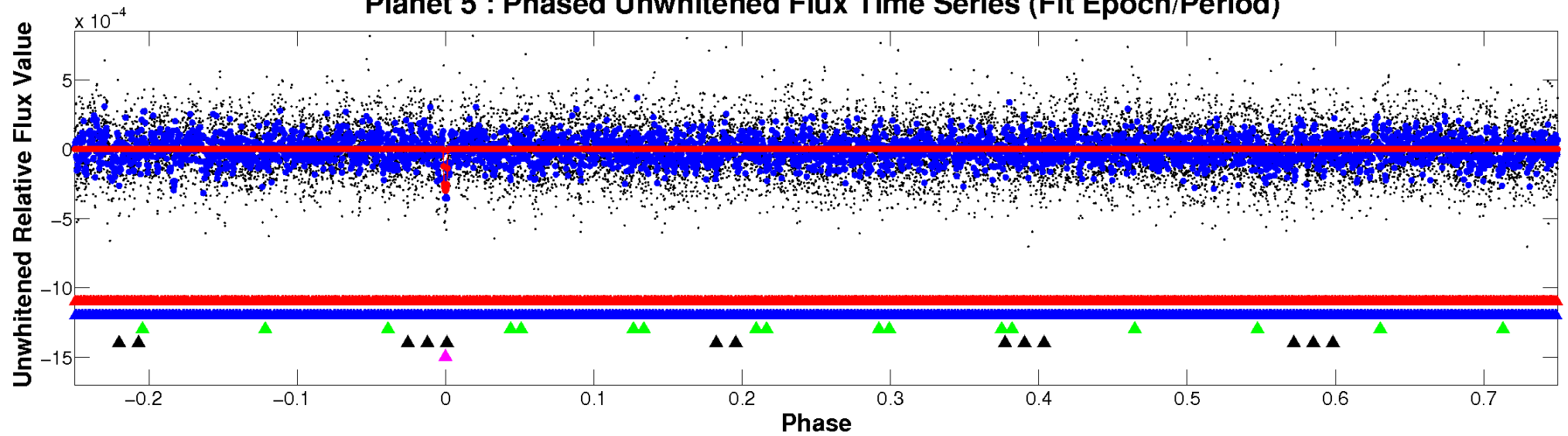
ALT Odd/Even

TCE 005560731-05

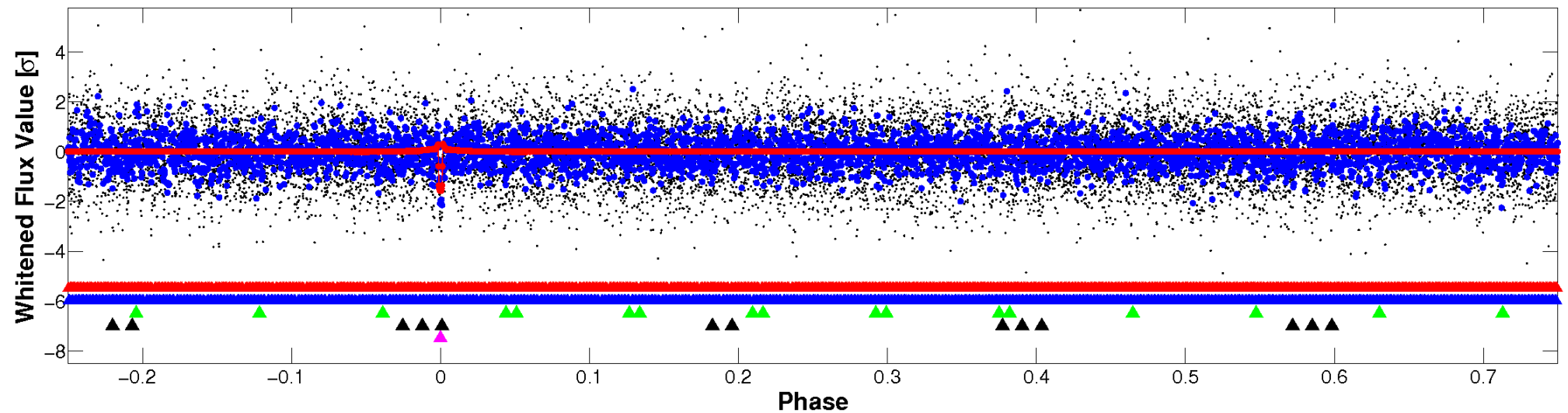


Non-Whitened Vs. Whitened Light Curve

Planet 5 : Phased Unwhitened Flux Time Series (Fit Epoch/Period)

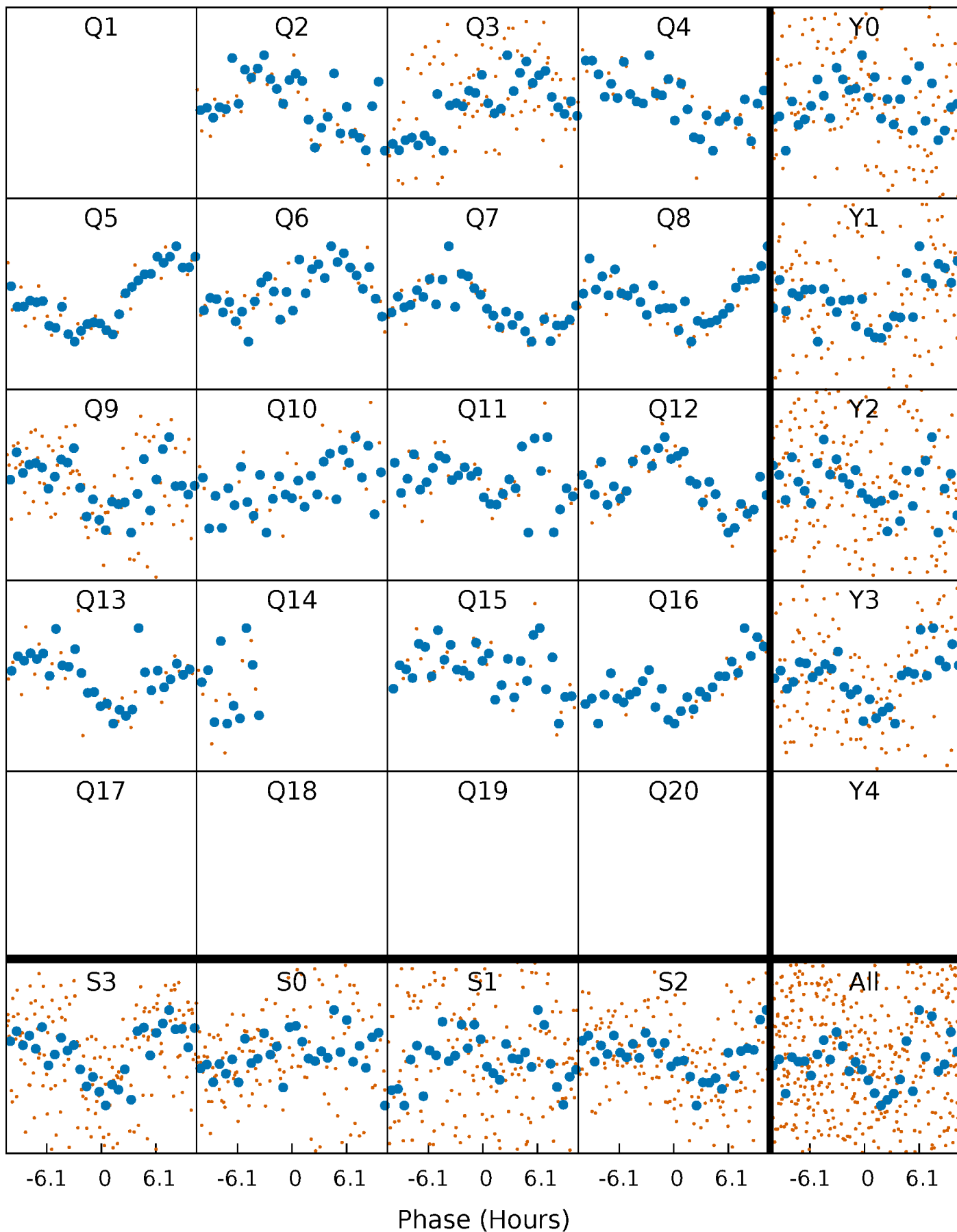


Planet 5 : Phased Whitened Flux Time Series (Fit Epoch/Period)



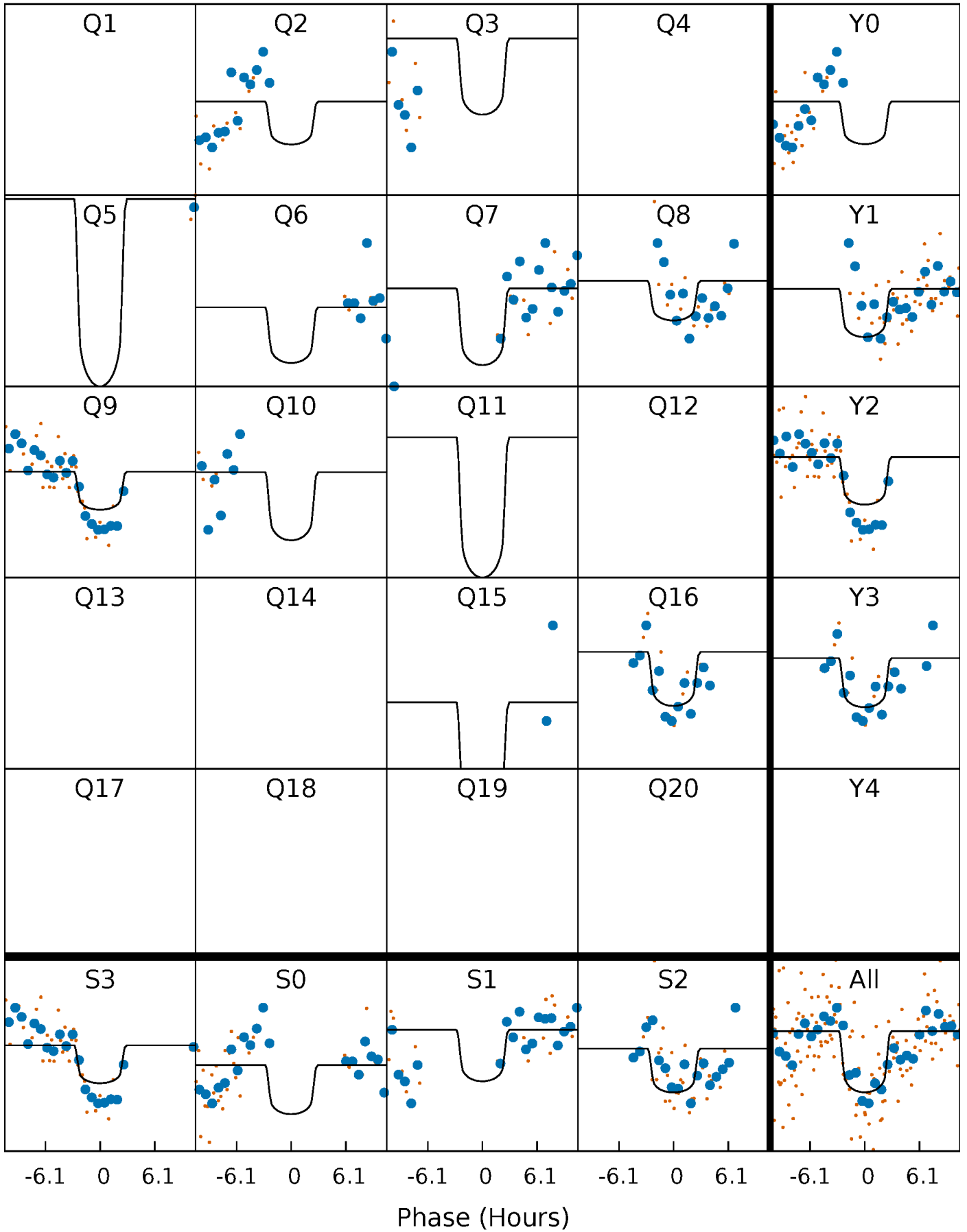
PDC Quarter-Phased Transit Curves

TCE 005560731-05 $P = 78.723431$ Days $T_0 = 190.620787$ (BKJD)



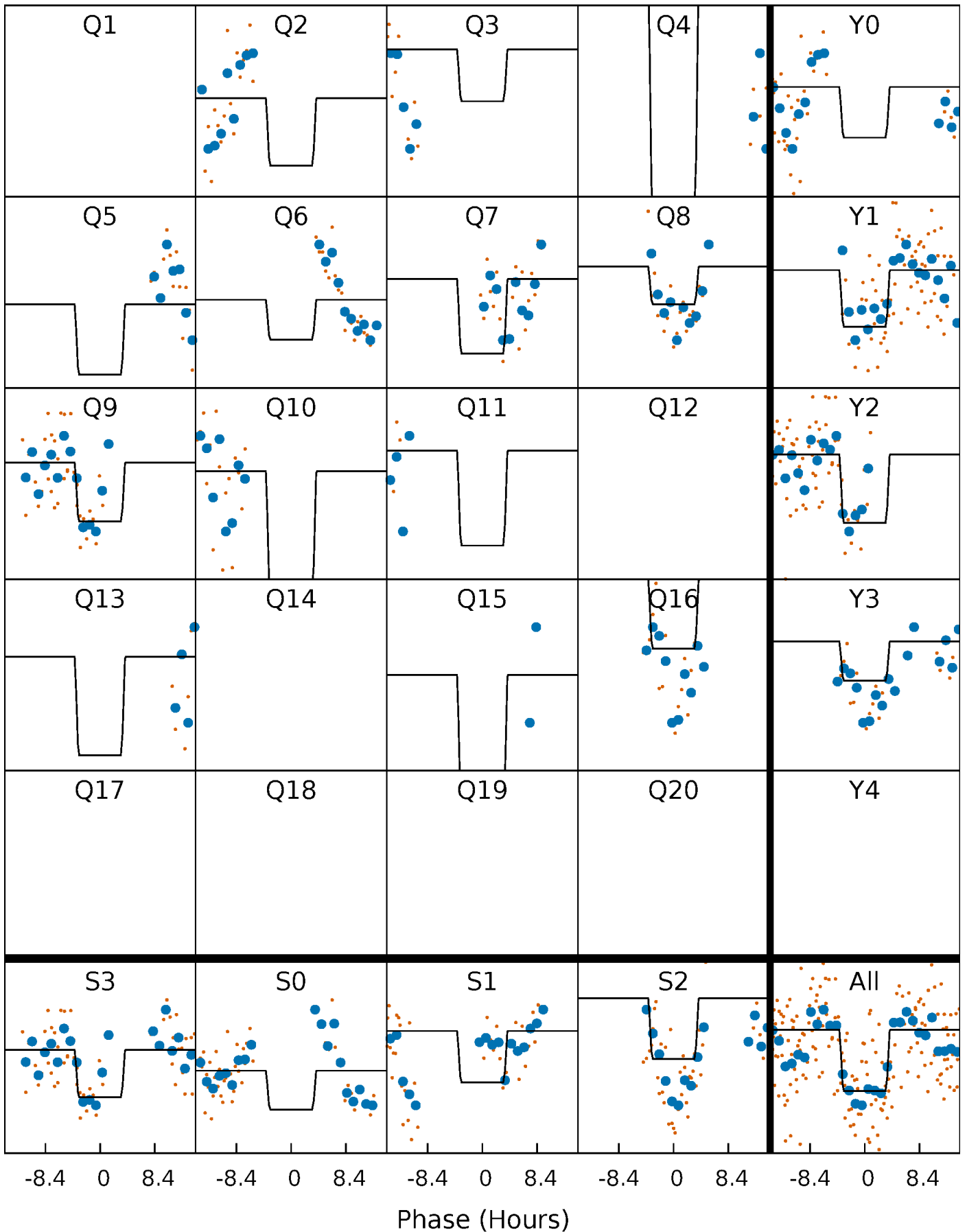
DV Quarter-Phased Transit Curves

TCE 005560731-05 $P = 78.723431$ Days $T_0 = 190.620787$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

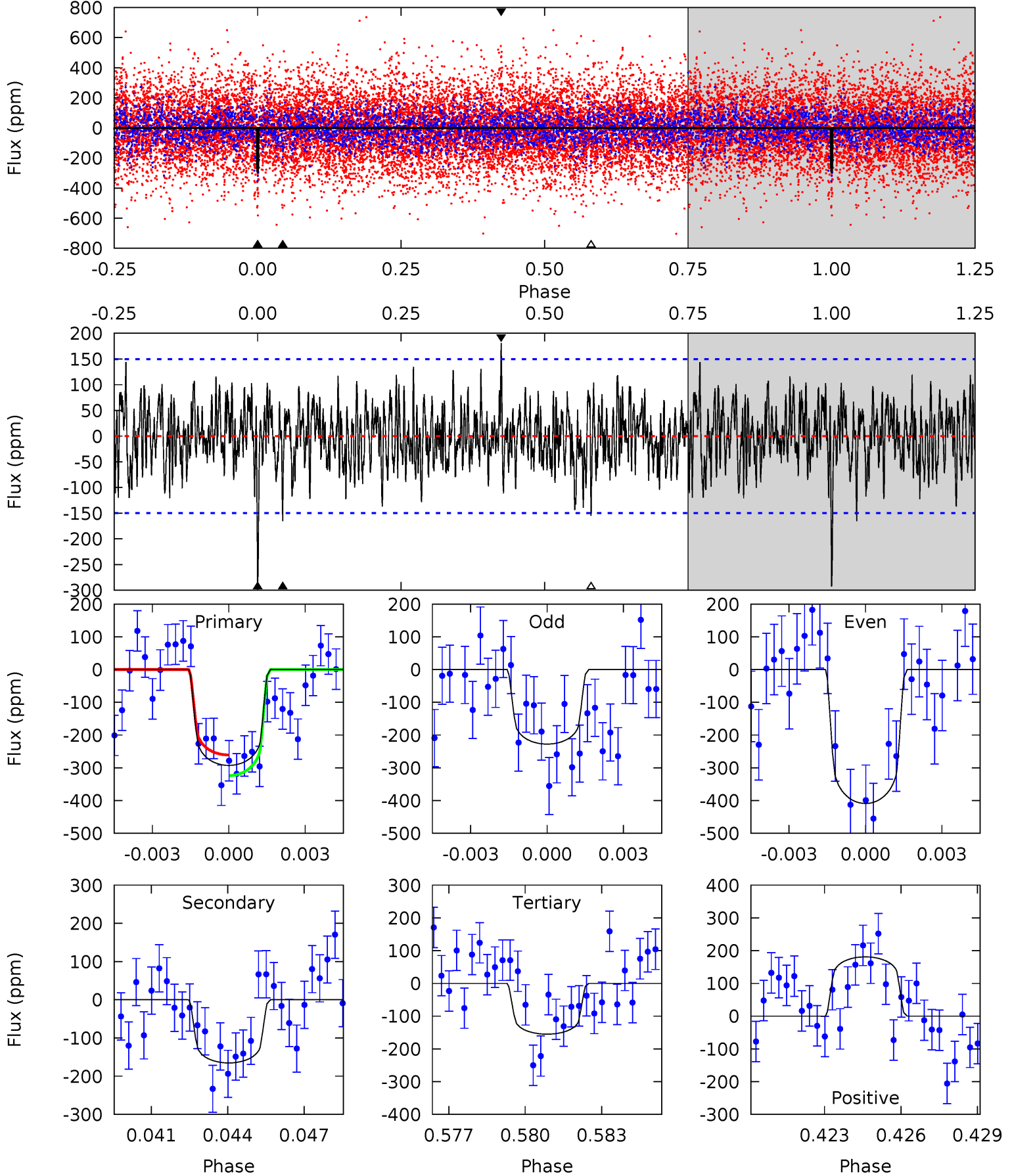
TCE 005560731-05 $P = 78.715367$ Days $T_0 = 190.750178$ (BKJD)



DV Model-Shift Uniqueness Test

005560731-05, P = 78.723431 Days, E = 111.897356 Days

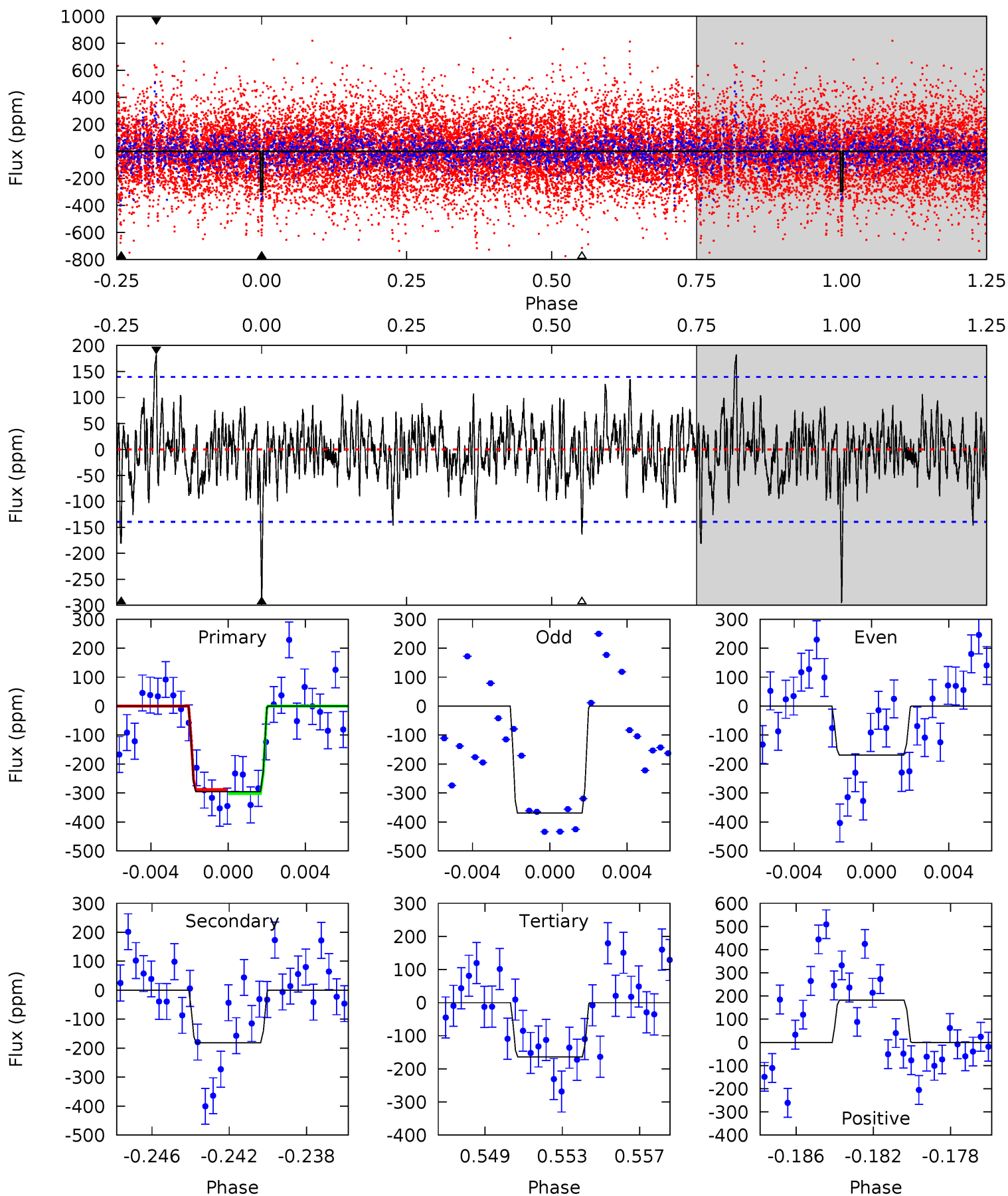
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
10.3	5.80	5.44	6.35	5.26	2.98	1.69	4.84	3.93	0.36	-0.55	3.09	0.95	0.38	1.11



Alt Model-Shift Uniqueness Test

005560731-05, P = 78.715367 Days, E = 112.034811 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
11.0	6.75	6.10	6.79	5.20	2.88	1.63	4.91	4.22	0.66	-0.04	3.60	0.97	0.38	0.27



Stellar Parameters For KIC 005560731

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6675^{+182}_{-223}	$3.522^{+0.352}_{-0.088}$	$-0.300^{+0.350}_{-0.250}$	$3.755^{+0.371}_{-1.482}$	$1.711^{+0.199}_{-0.398}$	$0.045^{+0.128}_{-0.013}$
	+3%/-3%	+10%/-2%	+117%/-83%	+10%/-39%	+12%/-23%	+281%/-29%
Source	PHO1	FLK73	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 005560731-05 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-165 ± 28	$6.71^{+3.22}_{-3.06}$	1192^{+68}_{-116}	5630^{+2077}_{-820}	364^{+891}_{-192}
Alt.	-181 ± 27	$6.33^{+3.58}_{-2.99}$	1188^{+70}_{-110}	5928^{+2389}_{-1014}	437^{+1197}_{-251}

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 $A_{obs} \gg 1.0$

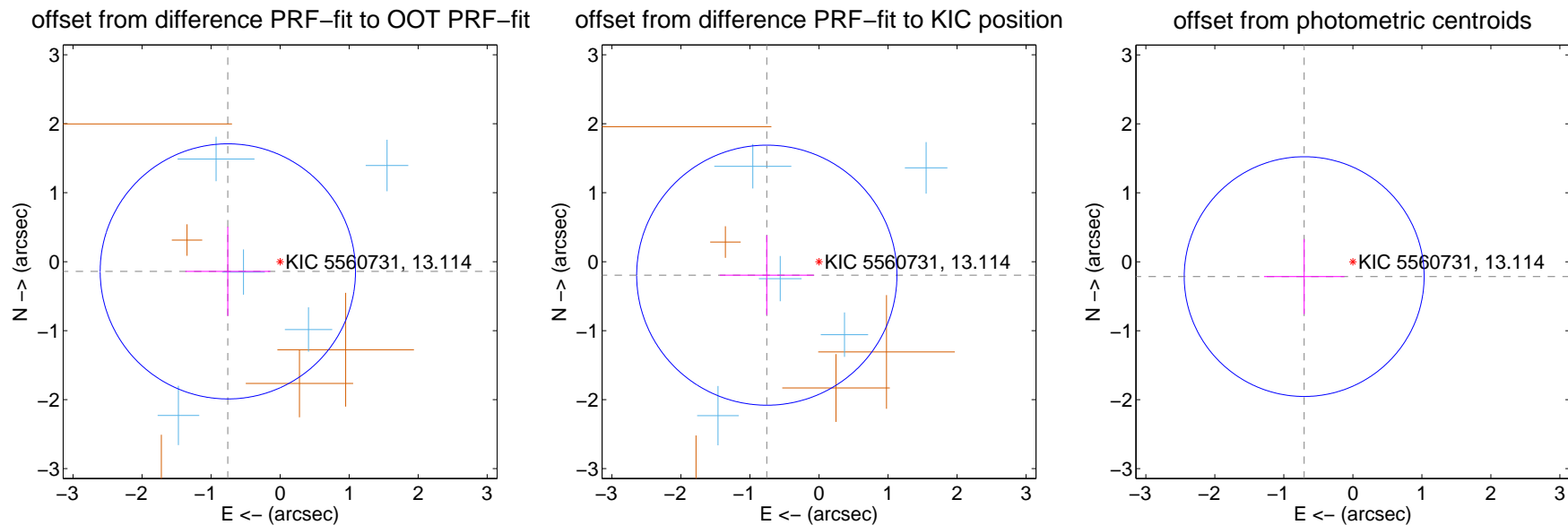
DV Centroid Data

Supplemental centroid analysis for 005560731-05. Kepler magnitude: 13.11. Transit SNR 8.23

There are 5 quarters with good PRF difference image offsets

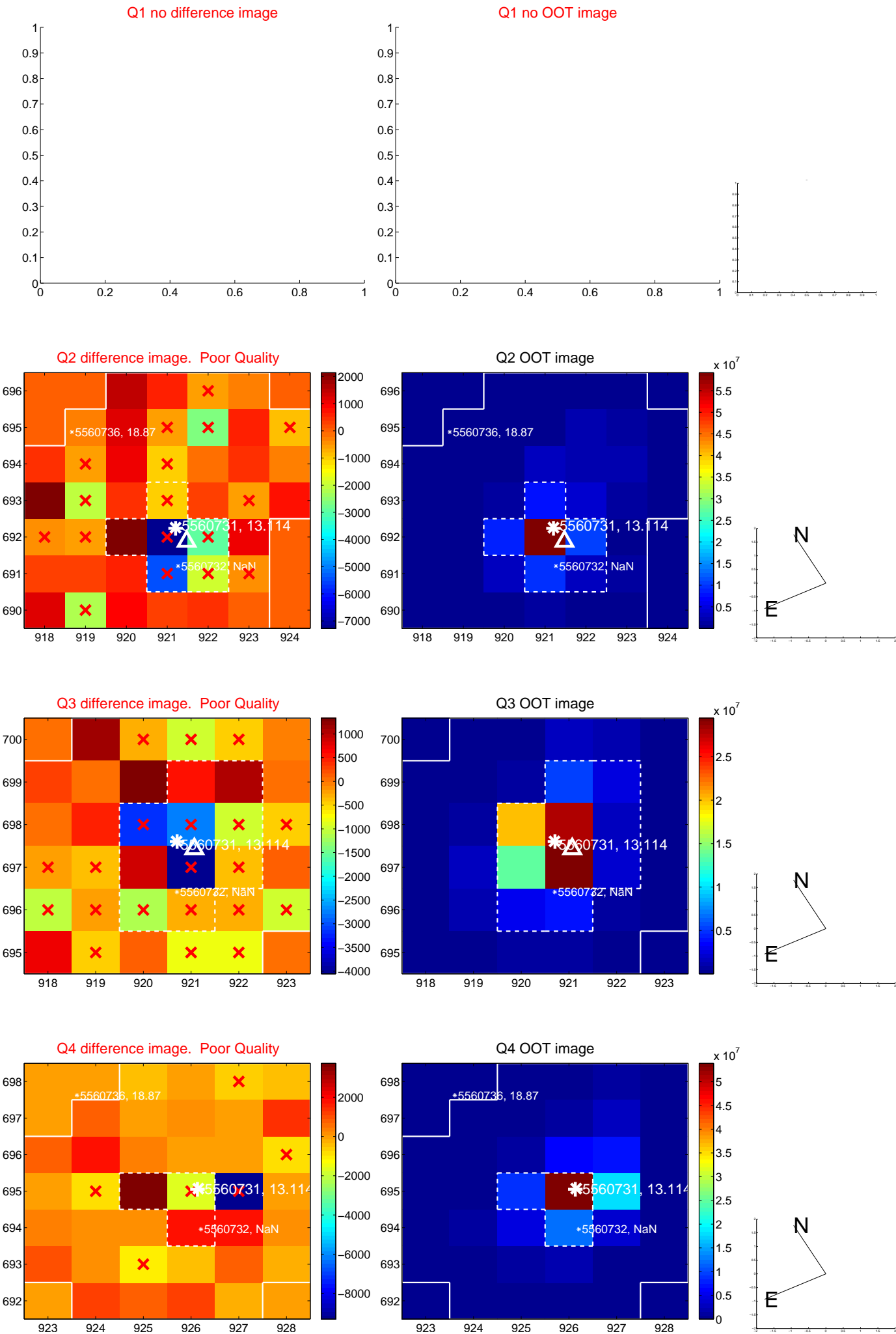
The direct PRF centroid is offset from the target star catalog position by about 0.10 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.770 ± 0.616	1.25	0.757 ± 0.615	-0.140 ± 0.645
PRF-fit source offset from KIC position	0.781 ± 0.628	1.24	0.756 ± 0.682	-0.196 ± 0.576
photometric centroid source offset	0.74 ± 0.58	1.27	0.71 ± 0.58	-0.22 ± 0.54



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.

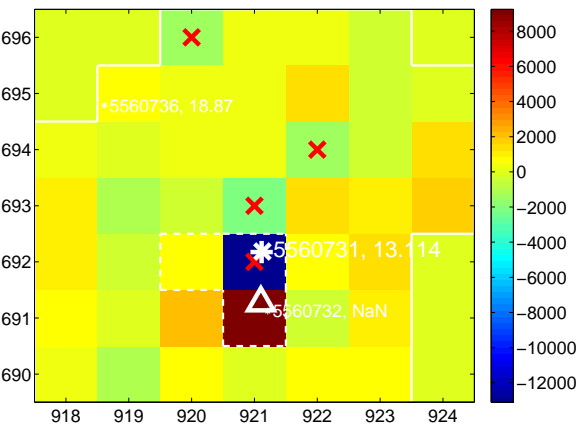
Q5 no difference image



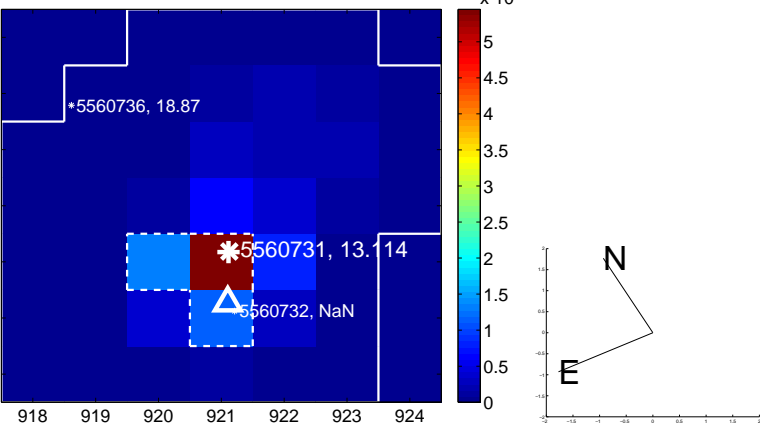
Q5 no OOT image



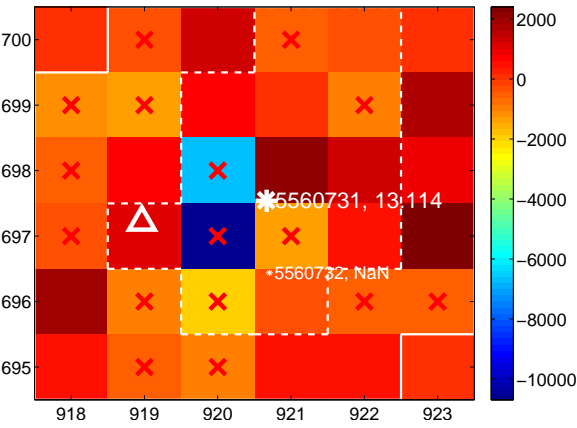
Q6 difference image. Poor Quality



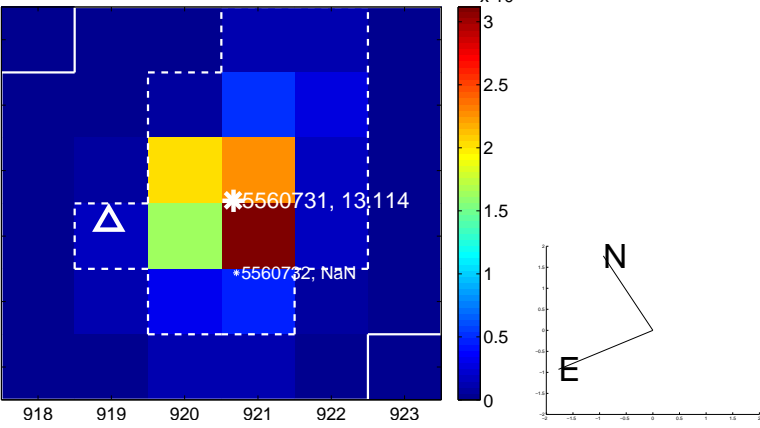
Q6 OOT image



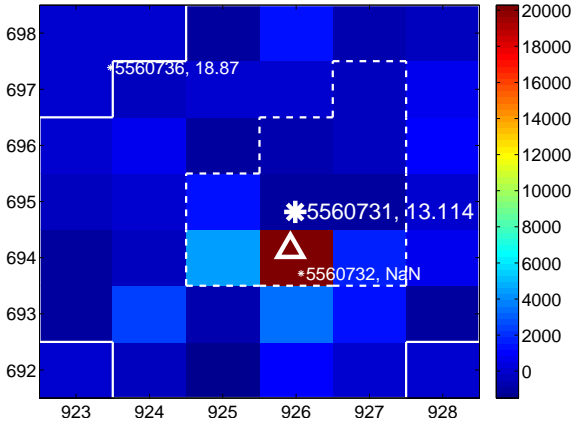
Q7 difference image. Poor Quality



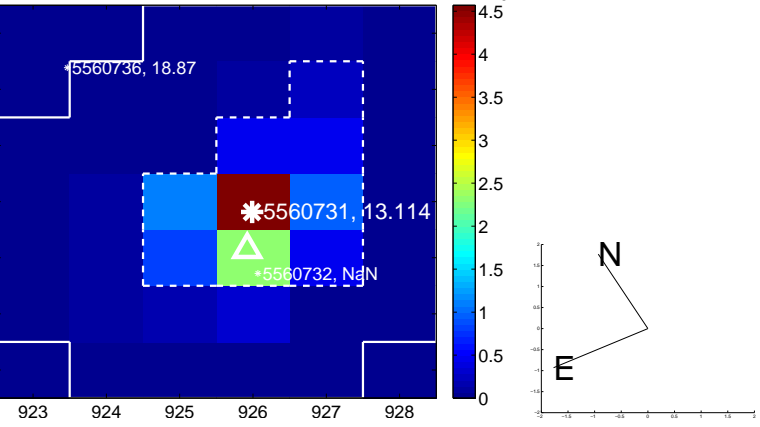
Q7 OOT image



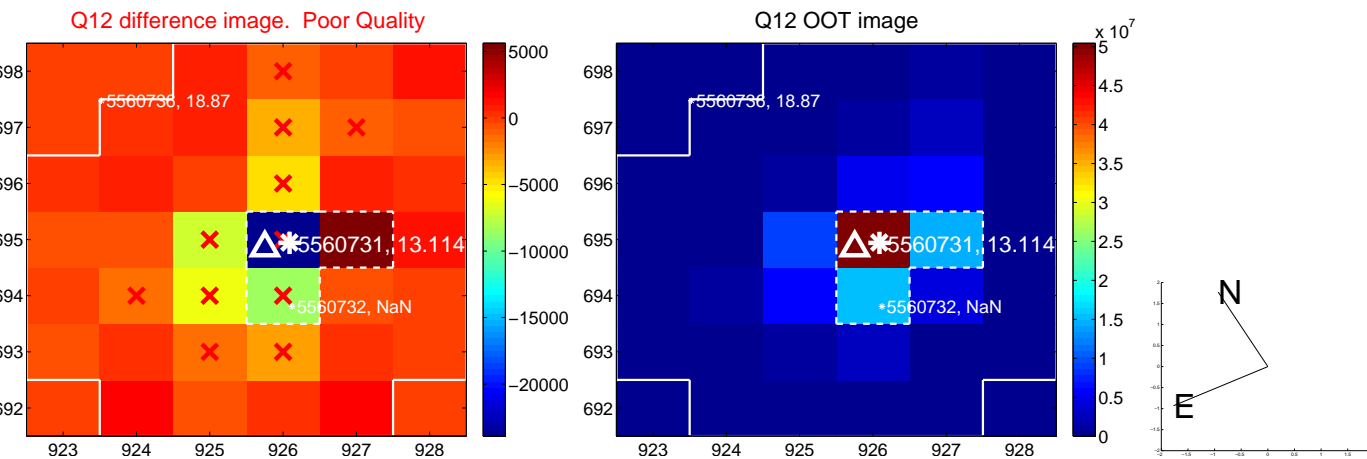
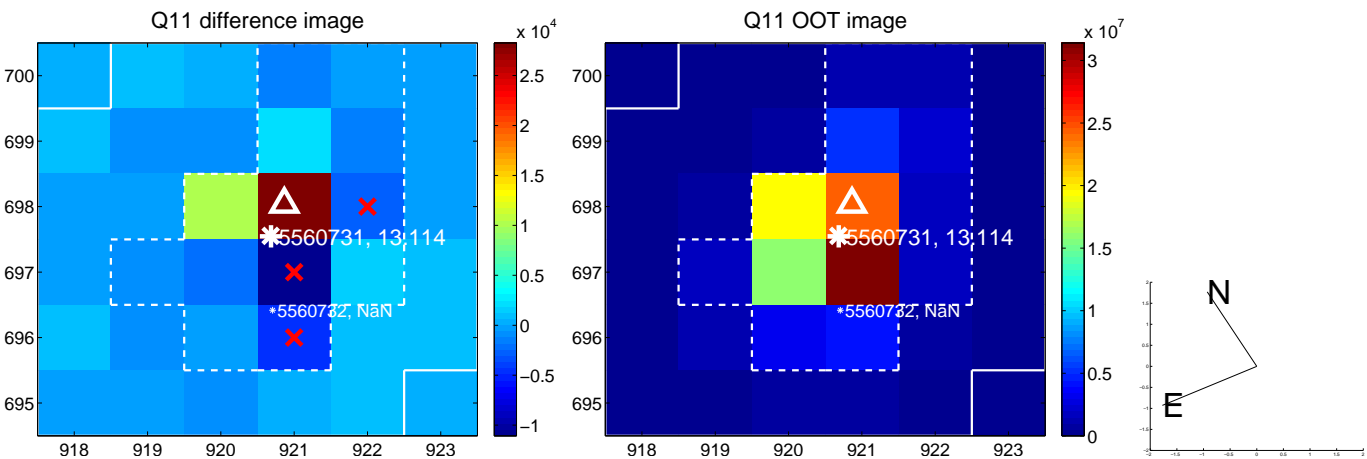
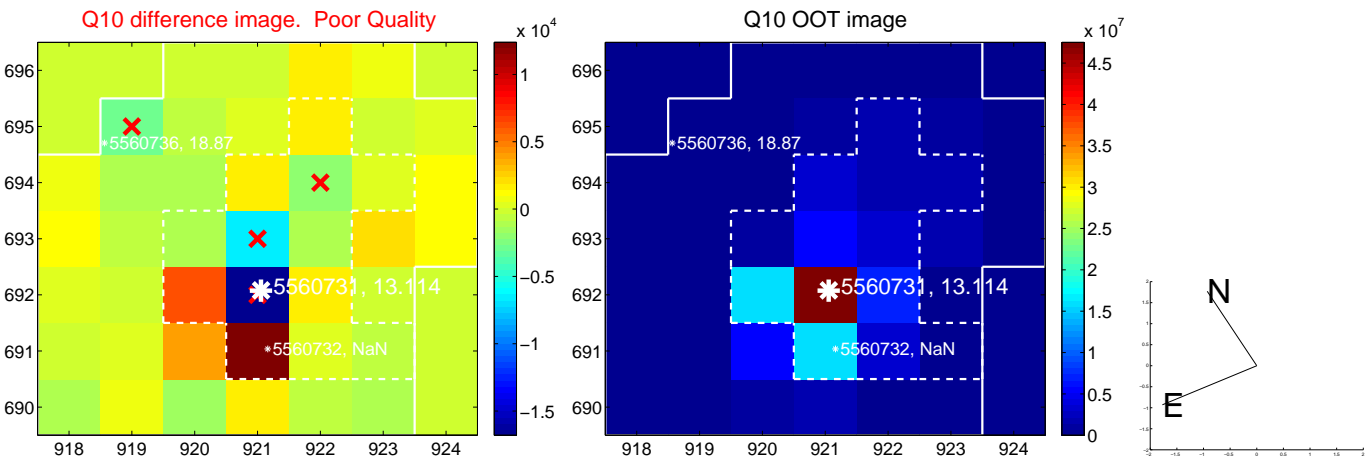
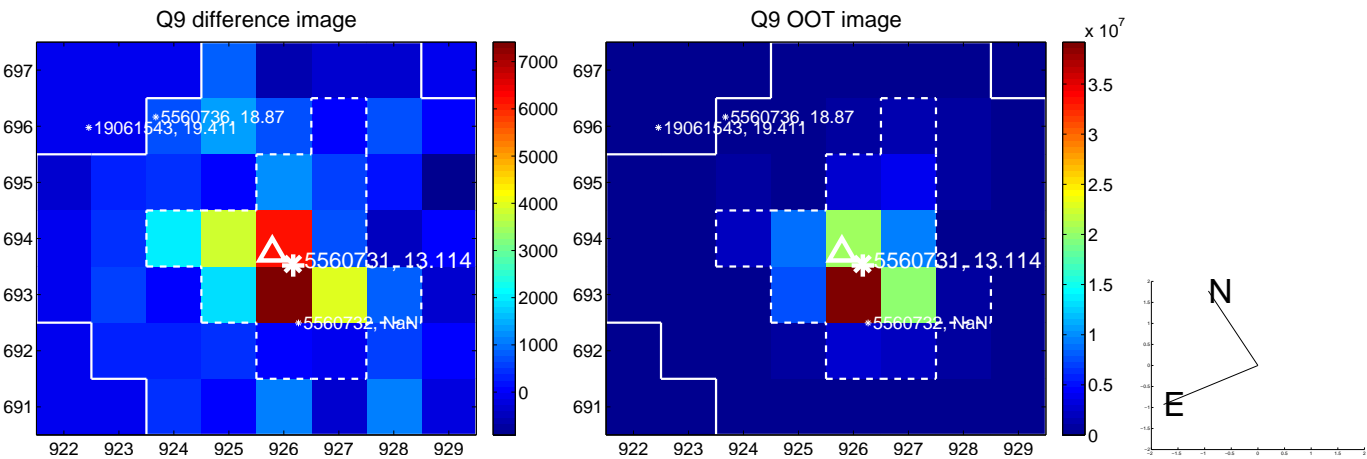
Q8 difference image



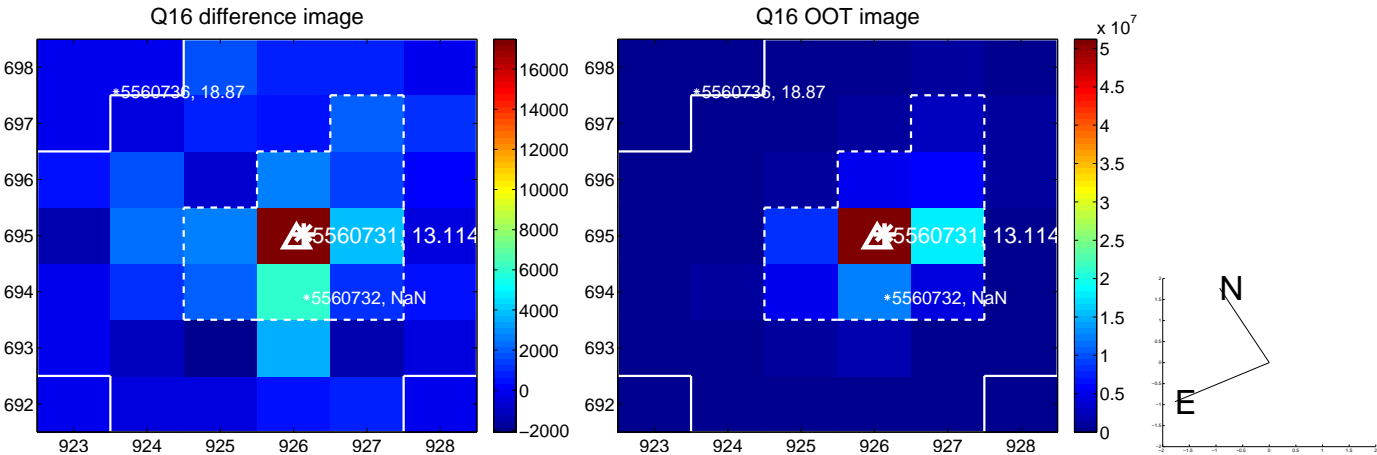
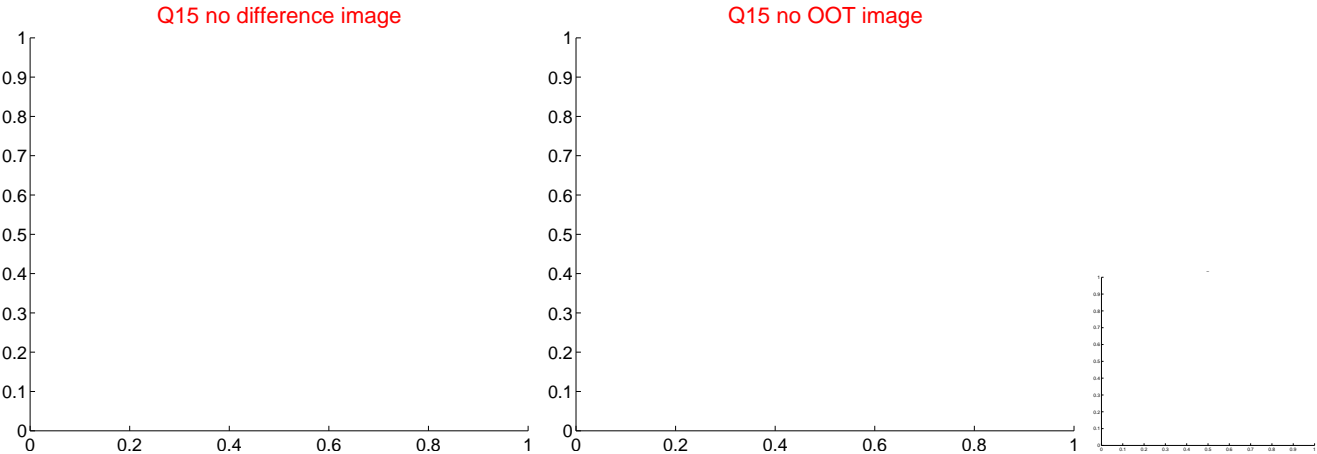
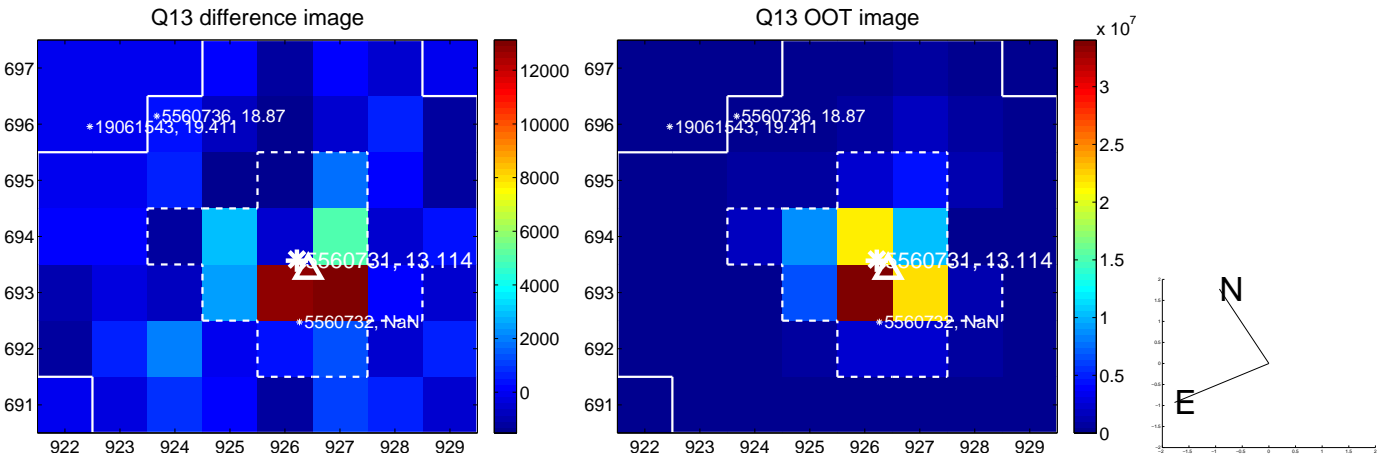
Q8 OOT image



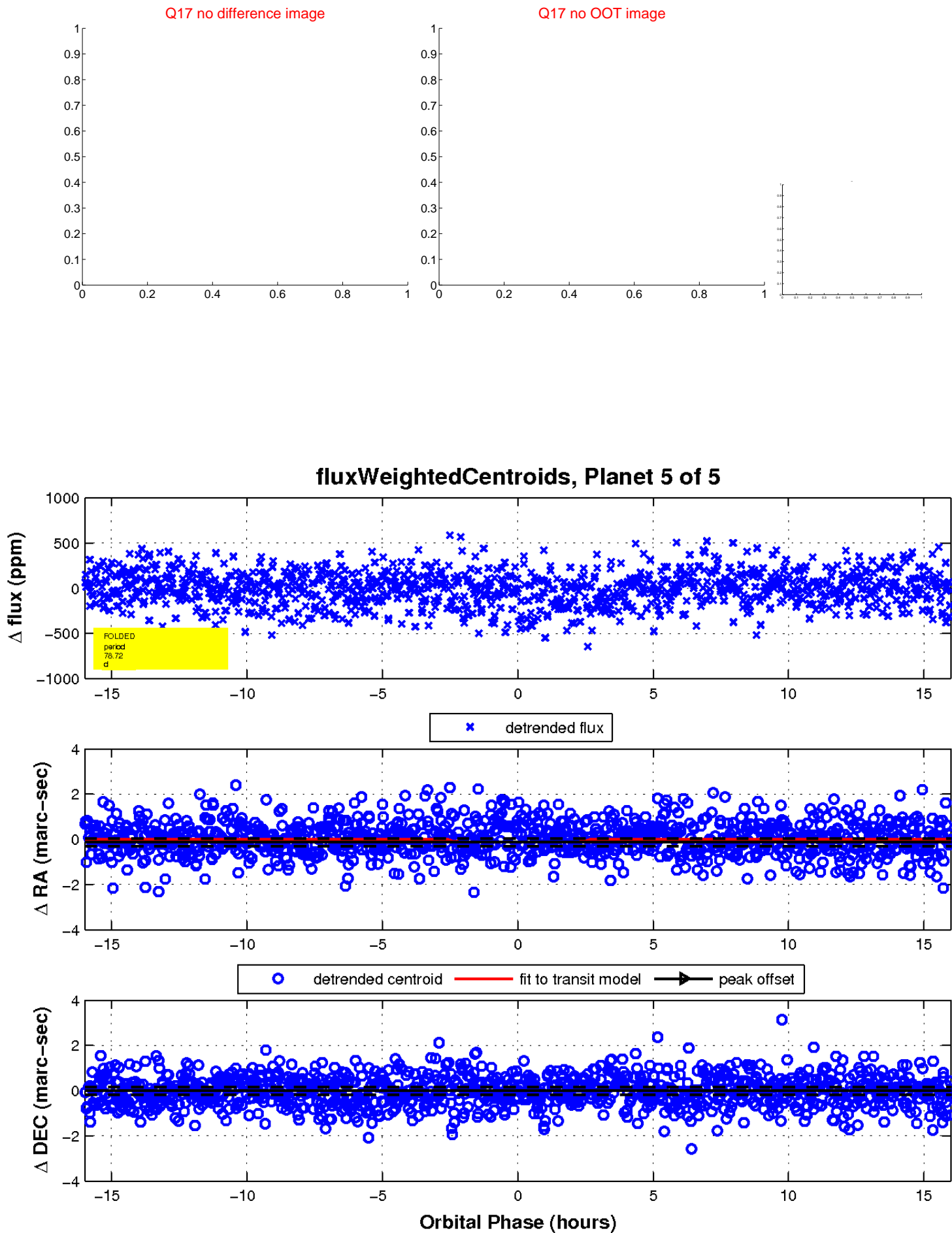
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

