

KIC 005389030

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})
005389030-01	OBS	No	0.559643	132.044620	19.6	1.386	8.5	8.1	0.86	6047	0.46	5315.09
005389030-02	OBS	No	0.559649	131.760982	25.6	1.404	8.3	11.1	0.86	6047	0.44	5315.02

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005389030-01	OBS	FP	0.00	1	0	0	0	LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
005389030-02	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—SAME_NTL_PERIOD

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

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

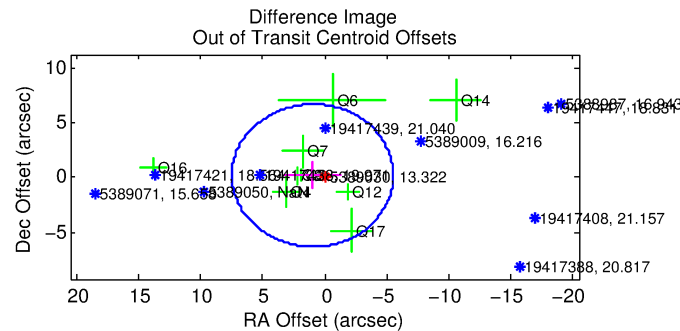
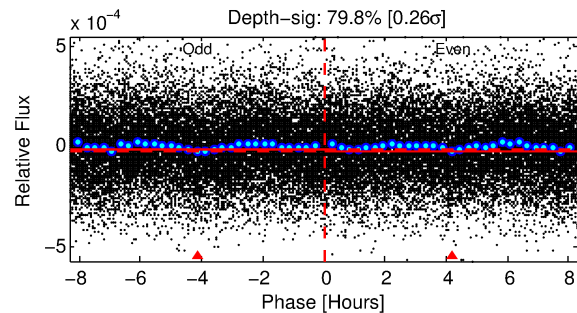
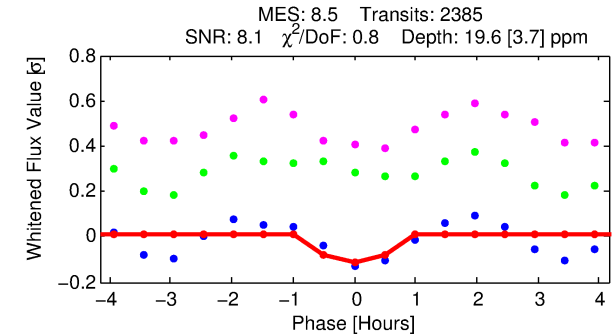
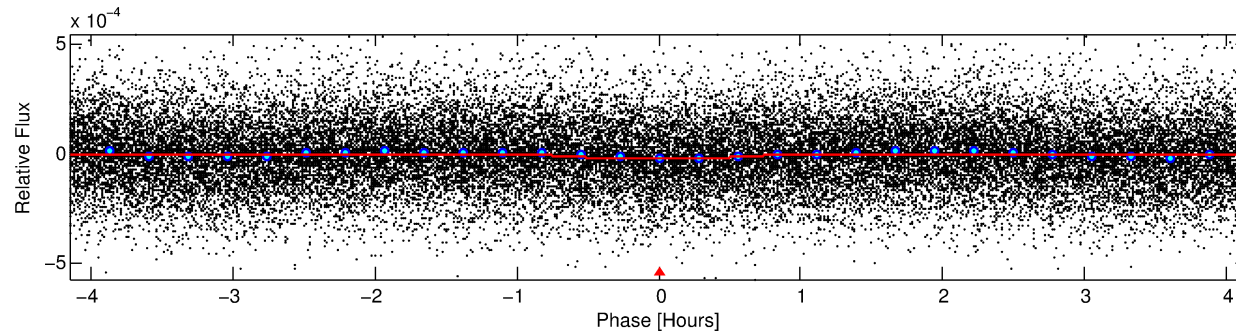
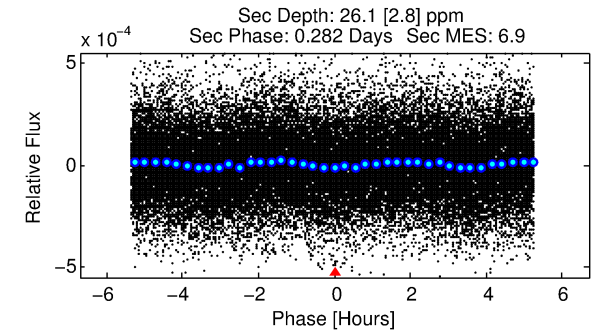
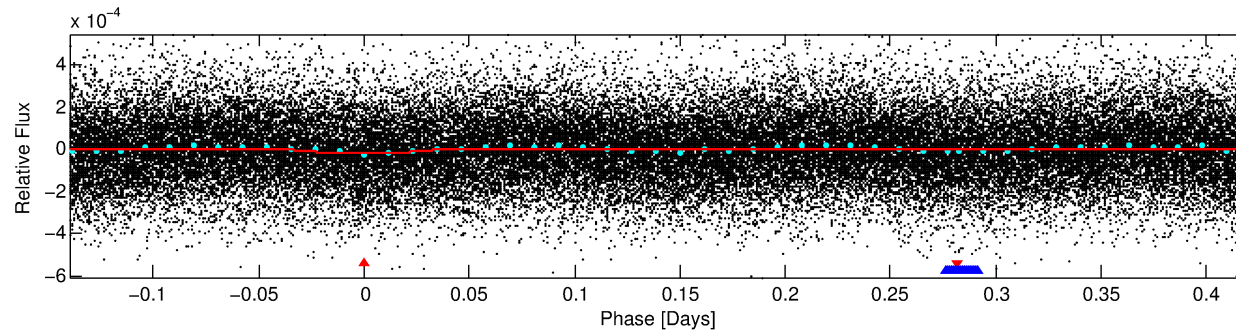
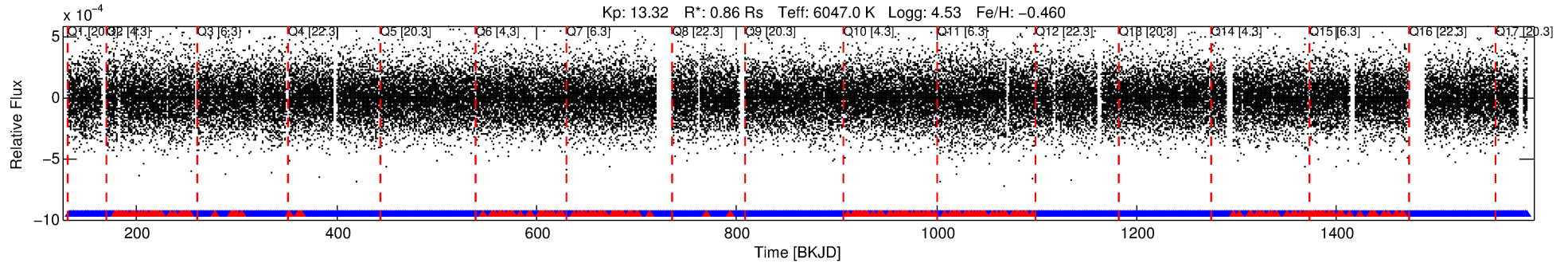
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 005389030-01

No Significant Match Found

DV One-Page Summary

KIC: 5389030 Candidate: 1 of 2 Period: 0.560 d



DV Fit Results:

Period = 0.55964 [0.00001] d
Epoch = 132.0446 [0.0024] BKJD
Rp/R* = 0.0048 [0.0014]
a/R* = 1.59 [1.41]
b = 0.92 [0.26]
Seff = 5315.09 [2011.78]
Teq = 2177 [206] K
Rp = 0.46 [0.18] Re
a = 0.0129 [0.0032] AU
Ag = 11.59 [7.85] [1.35σ]
Teffp = 6211 [904] K [4.35σ]

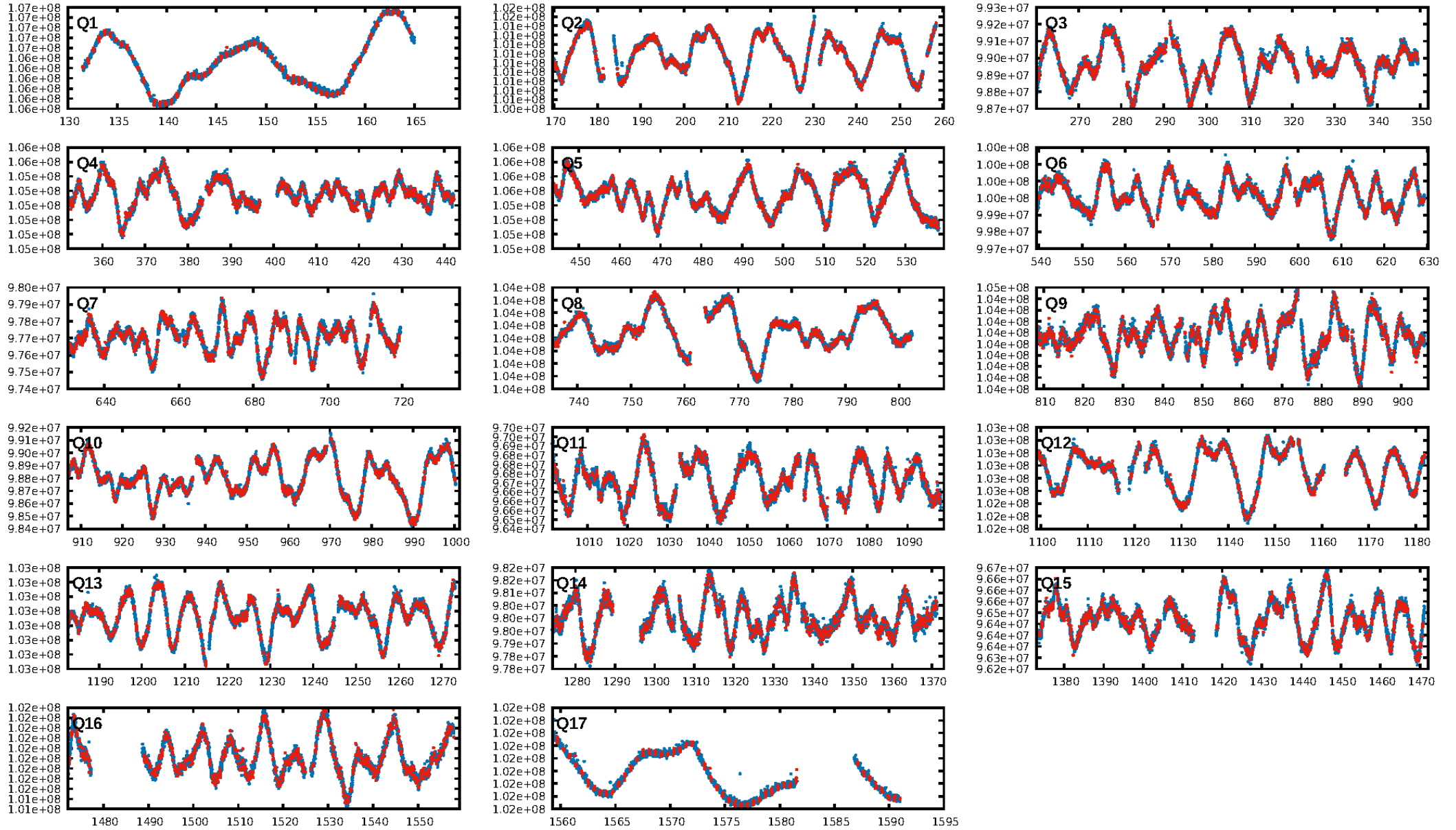
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 0.0% [0.00σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 3.92e-12
RollingBand-fgt: 0.91 [2063/2277]
GhostDiagnostic-chr: -3.329
Centroid-sig: N/A
Centroid-so: 3.115 arcsec [2.07σ]
OotOffset-rm: 0.992 arcsec [0.46σ]
KicOffset-rm: 1.015 arcsec [0.61σ]
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]

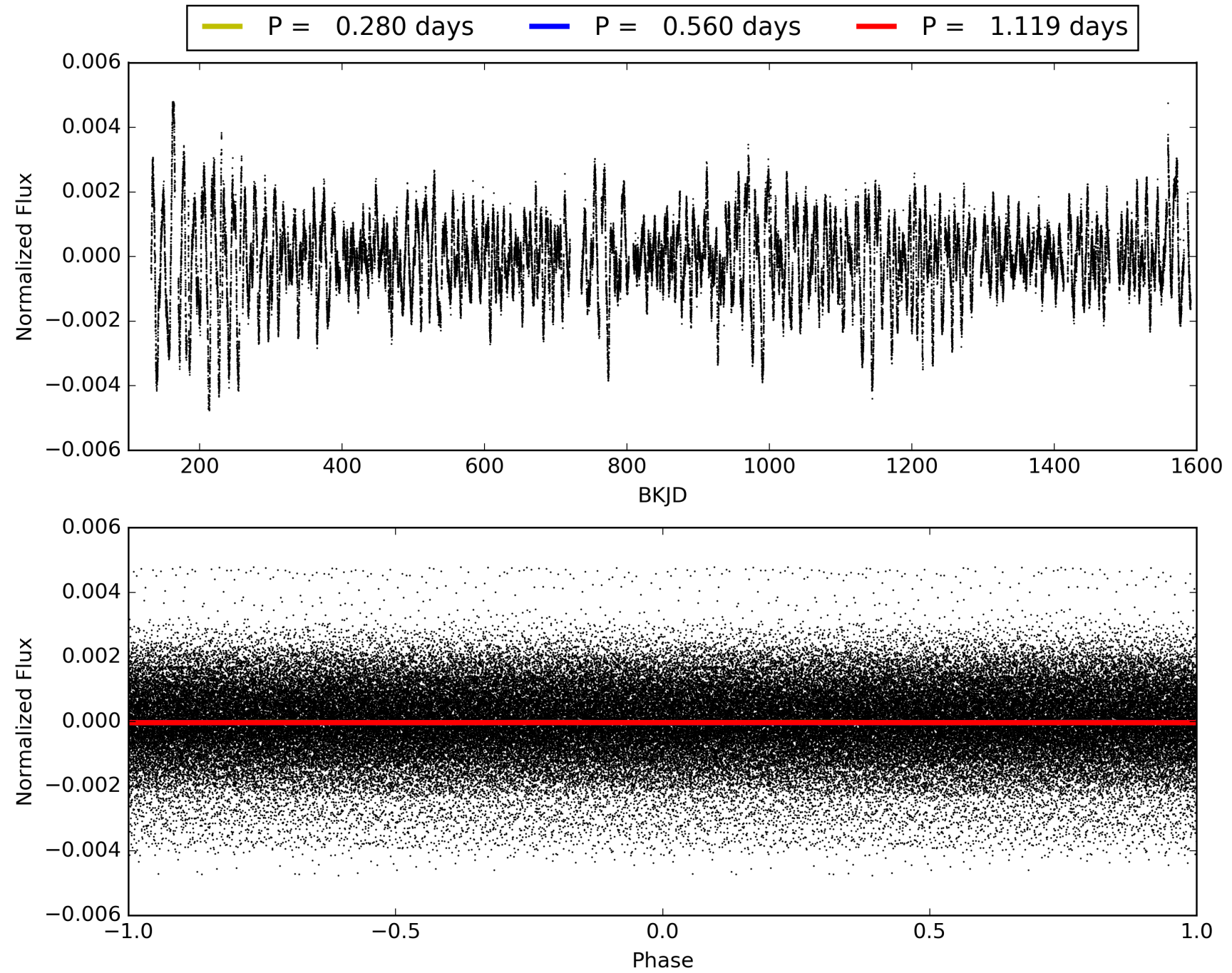
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 22:46:42 Z

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

TCE 005389030-01, PDC Light Curves

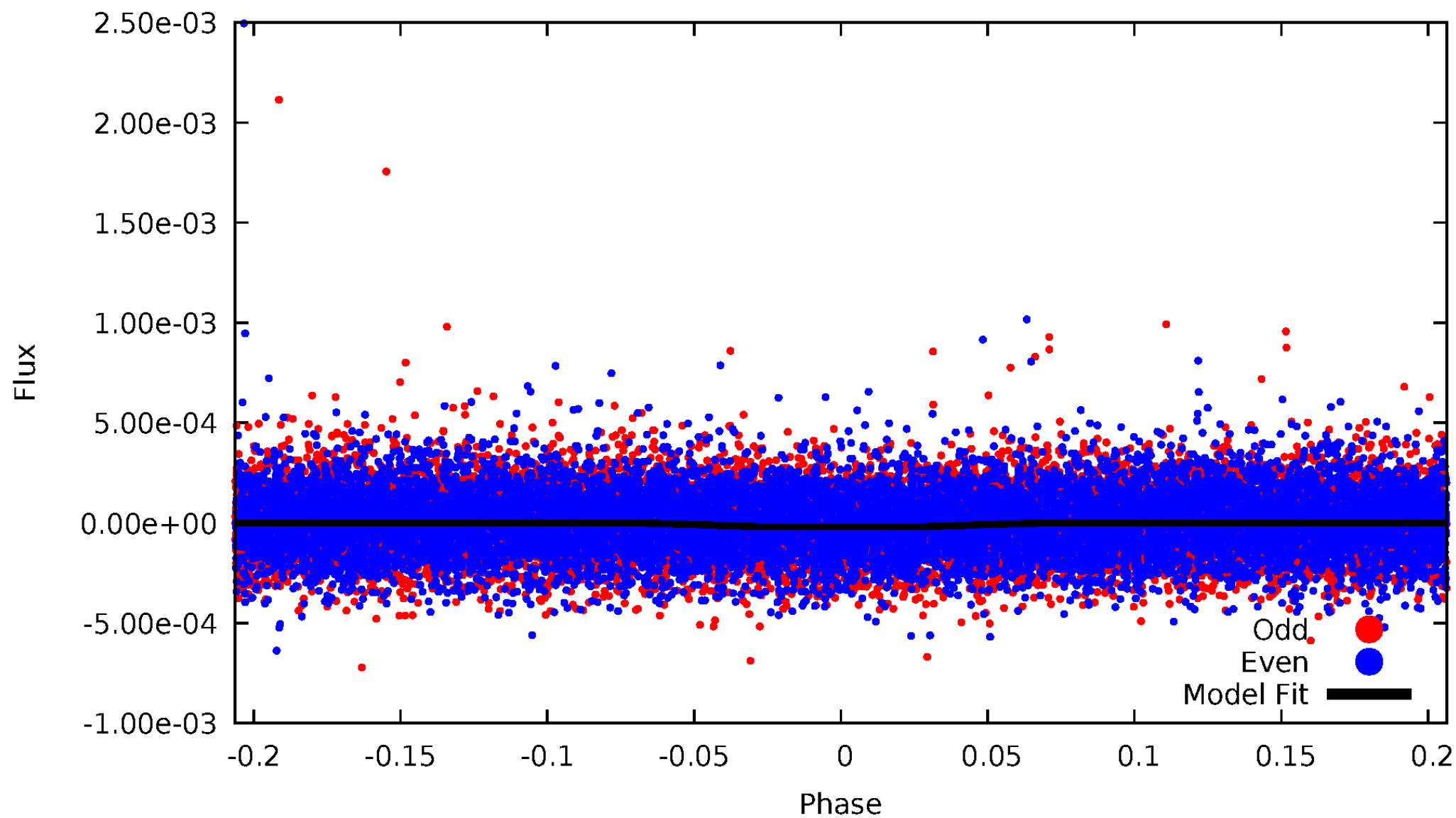


TCE 005389030-01



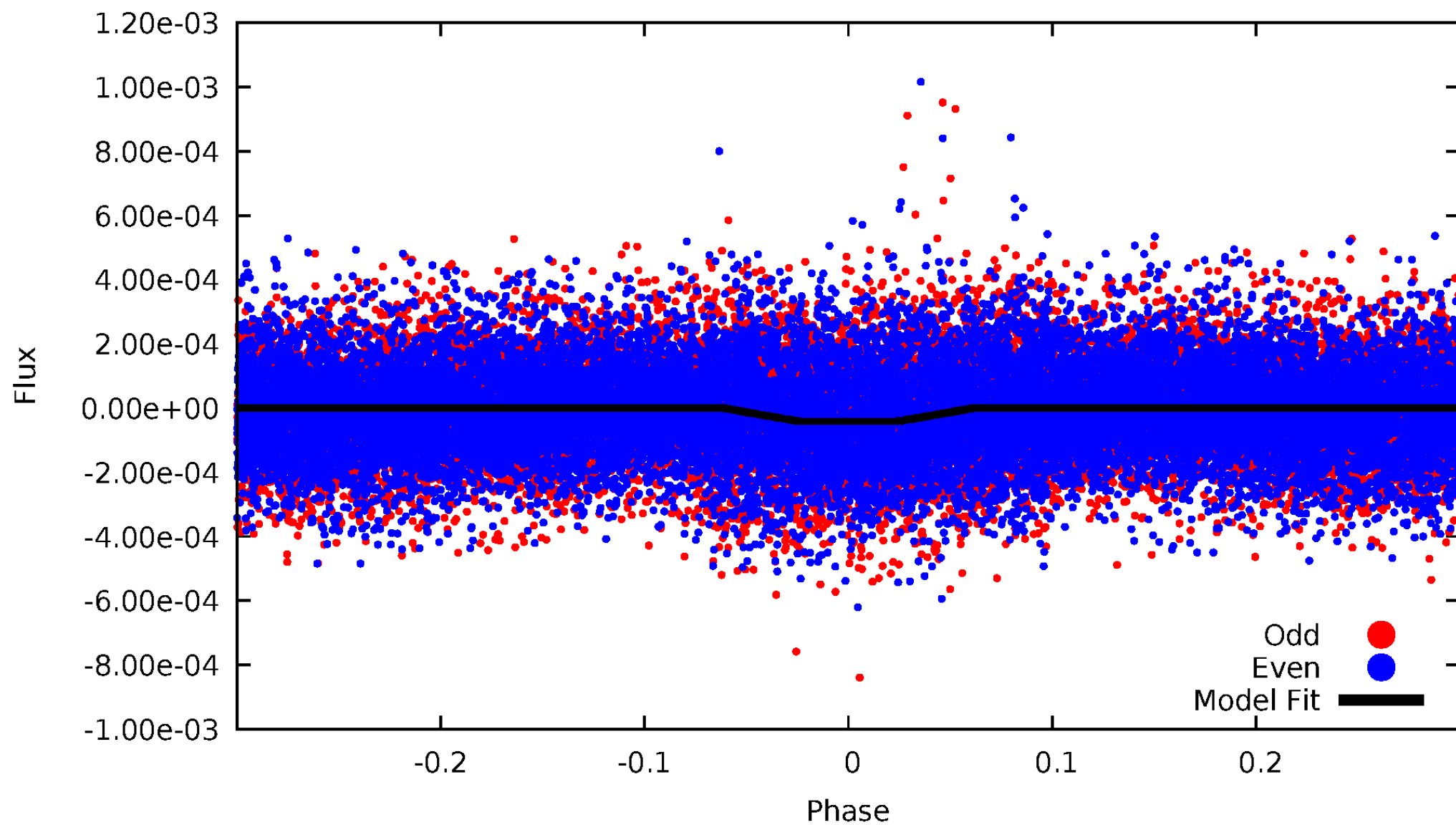
DV Odd/Even

TCE 005389030-01



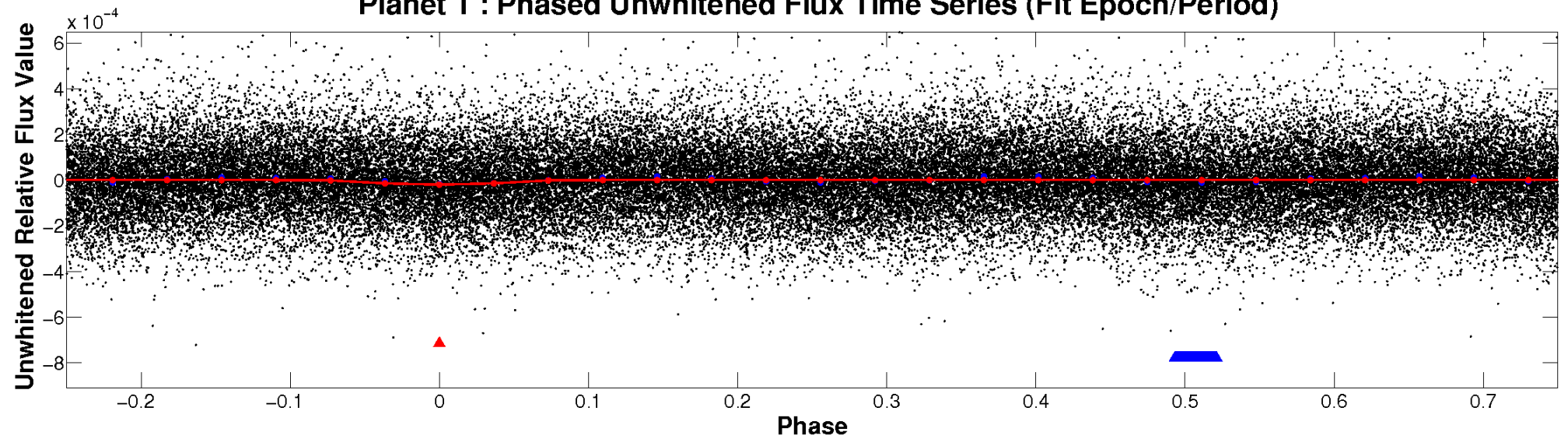
ALT Odd/Even

TCE 005389030-01

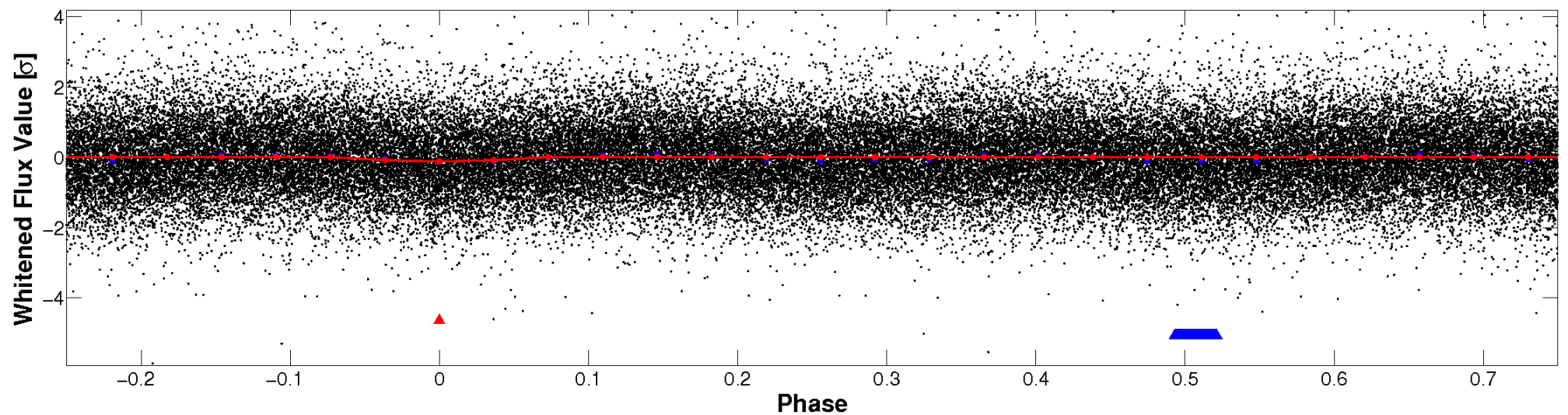


Non-Whitened Vs. Whitened Light Curve

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

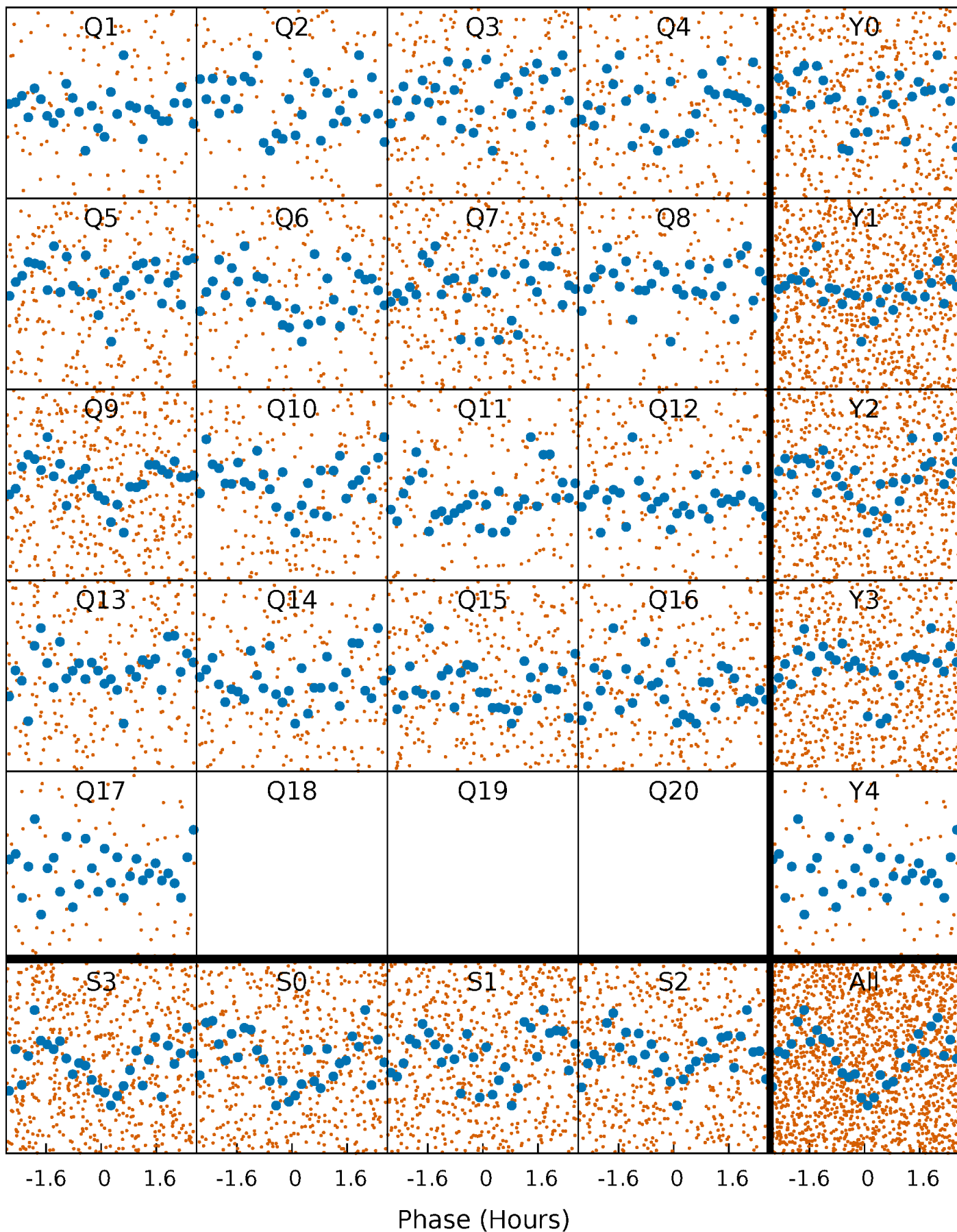


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



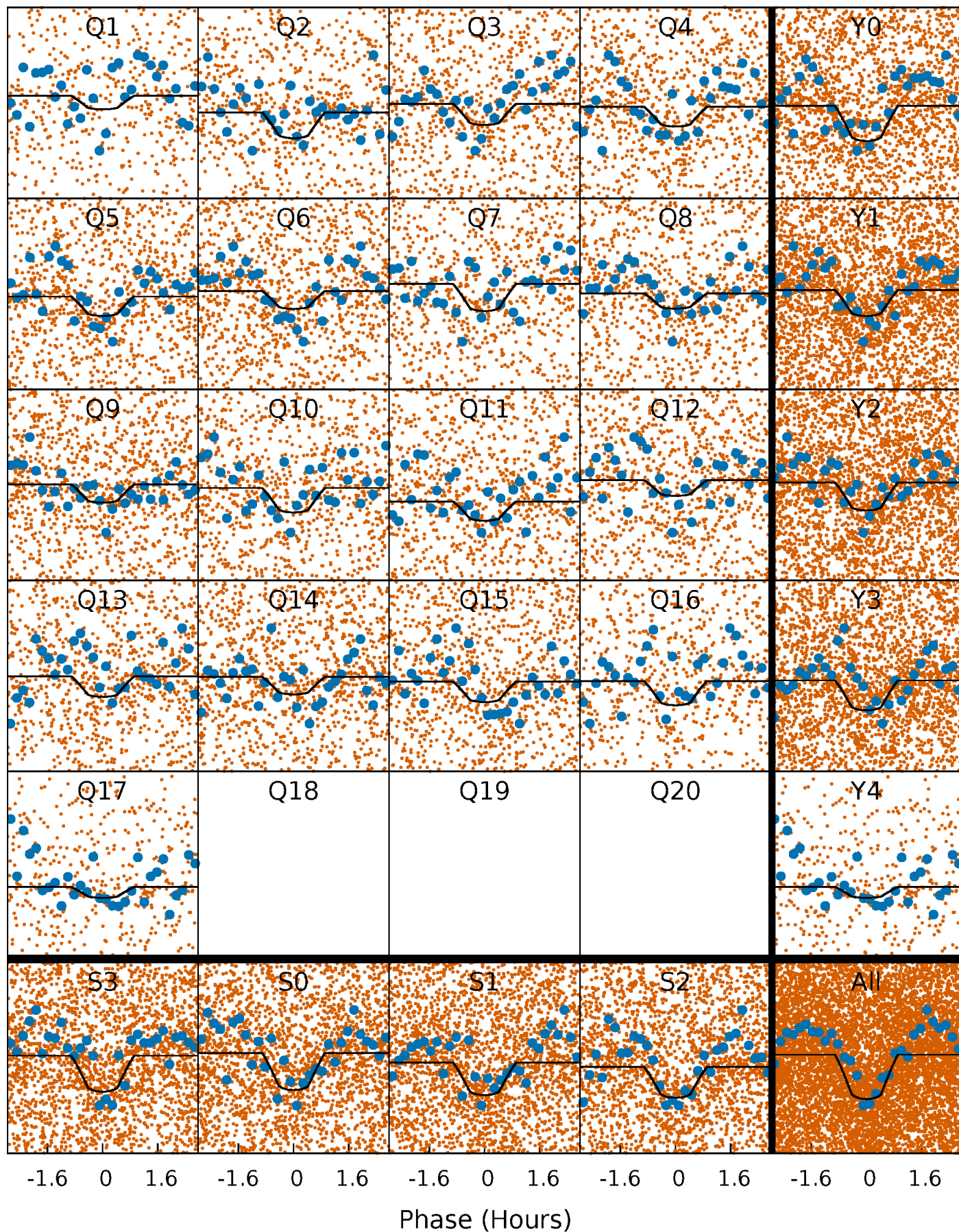
PDC Quarter-Phased Transit Curves

TCE 005389030-01 P= 0.559643 Days $T_0=132.044620$ (BKJD)



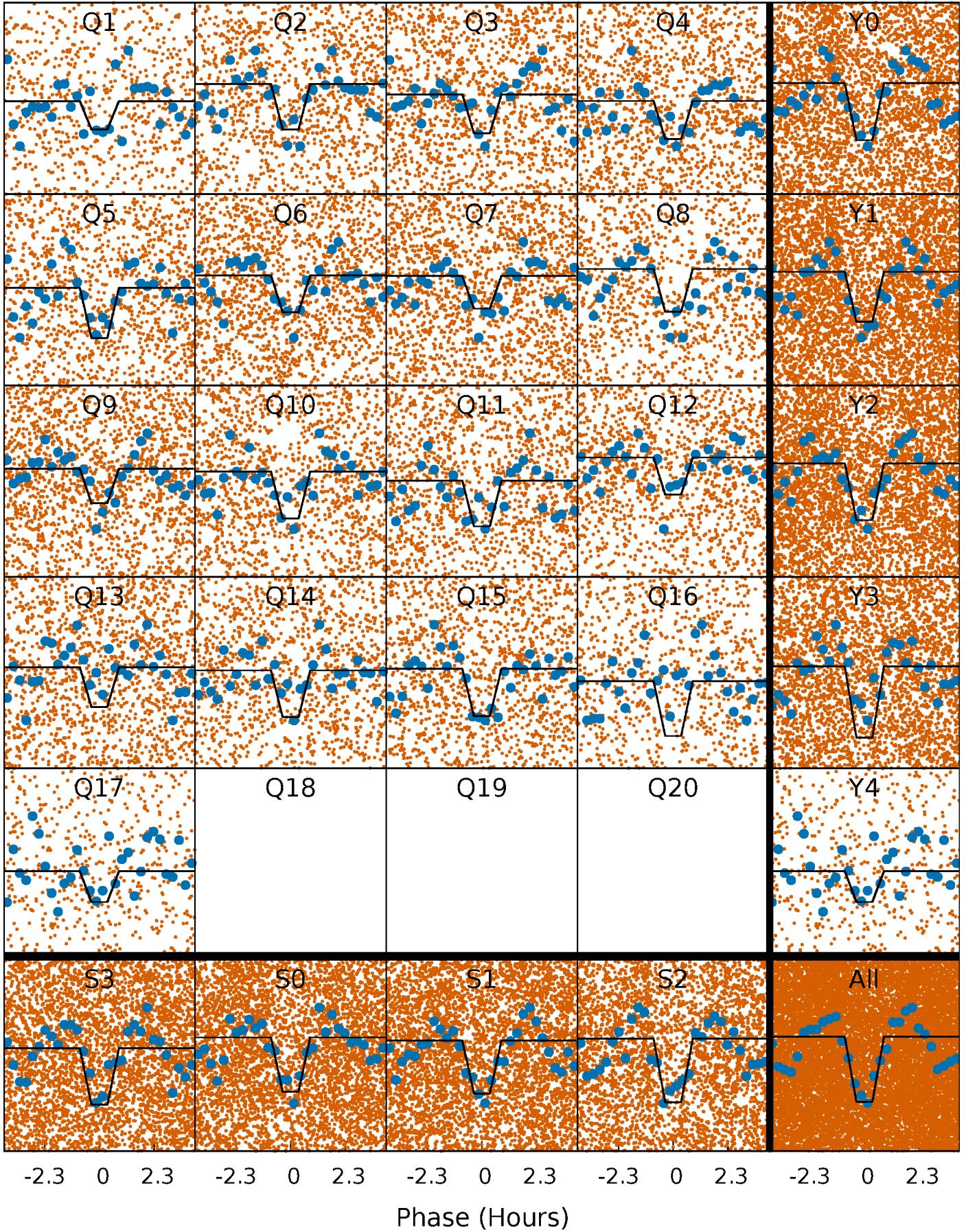
DV Quarter-Phased Transit Curves

TCE 005389030-01 P= 0.559643 Days $T_0=132.044620$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

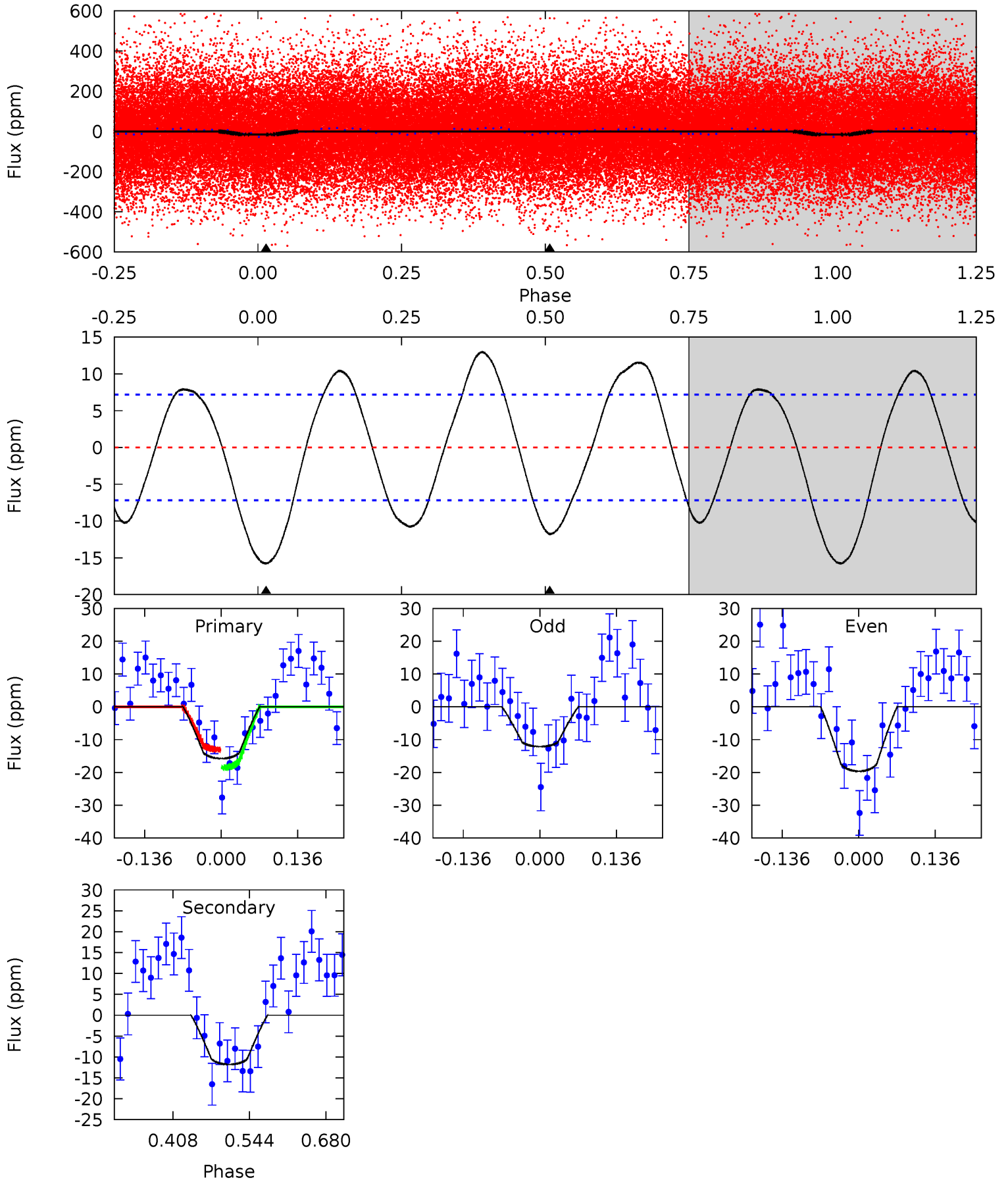
TCE 005389030-01 P= 0.559656 Days $T_0=132.035133$ (BKJD)



DV Model-Shift Uniqueness Test

005389030-01, P = 0.559643 Days, E = 131.484977 Days

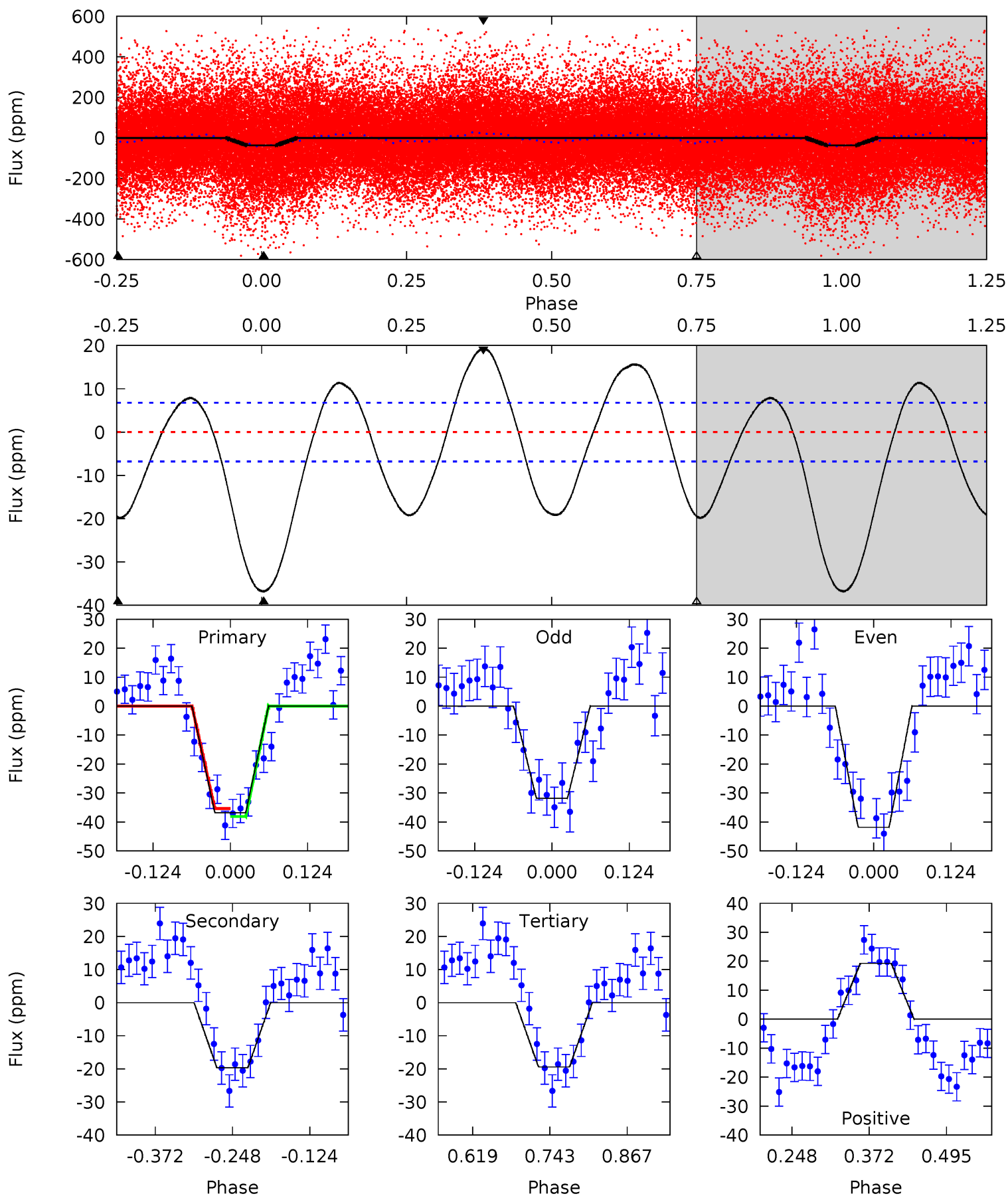
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
9.89	7.39	0	0	4.50	1.49	4.63	9.89	9.89	7.39	7.39	2.38	0.84	0.45	1.74



Alt Model-Shift Uniqueness Test

005389030-01, P = 0.559656 Days, E = 131.475477 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
24.5	13.1	13.0	12.8	4.52	1.54	8.38	11.6	11.7	0.14	0.26	3.33	0.89	0.34	0.92



Stellar Parameters For KIC 005389030

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6047^{+163}_{-163}	$4.532^{+0.050}_{-0.200}$	$-0.460^{+0.300}_{-0.300}$	$0.862^{+0.250}_{-0.083}$	$0.921^{+0.097}_{-0.108}$	$2.025^{+0.418}_{-1.078}$
	+3%/-3%	+1%/-4%	+65%/-65%	+29%/-10%	+11%/-12%	+21%/-53%
Source	PHO1	KIC0	KIC0	DSEP		

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

Secondary Eclipse Parameters for KIC 005389030-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-12 ± 2	$0.47^{+0.15}_{-0.14}$	3109^{+202}_{-139}	5117^{+876}_{-590}	$4.827^{+4.621}_{-2.091}$
Alt.	-20 ± 2	$0.62^{+0.15}_{-0.13}$	3111^{+206}_{-145}	5032^{+602}_{-415}	$4.514^{+2.816}_{-1.528}$

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

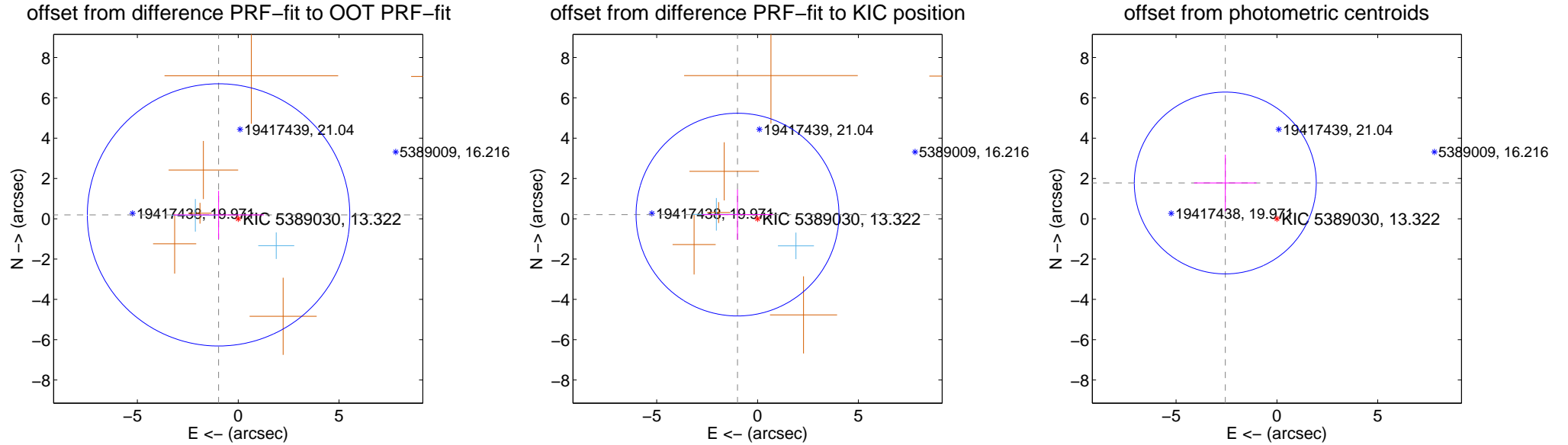
DV Centroid Data

Supplemental centroid analysis for 005389030-01. Kepler magnitude: 13.32. Transit SNR 8.10

There are 2 quarters with good PRF difference image offsets

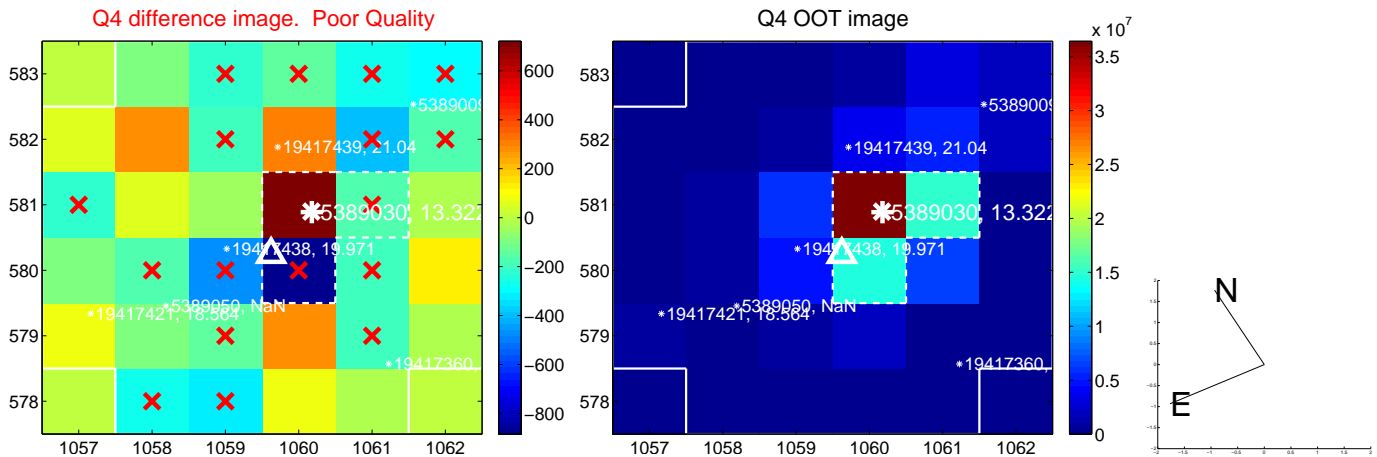
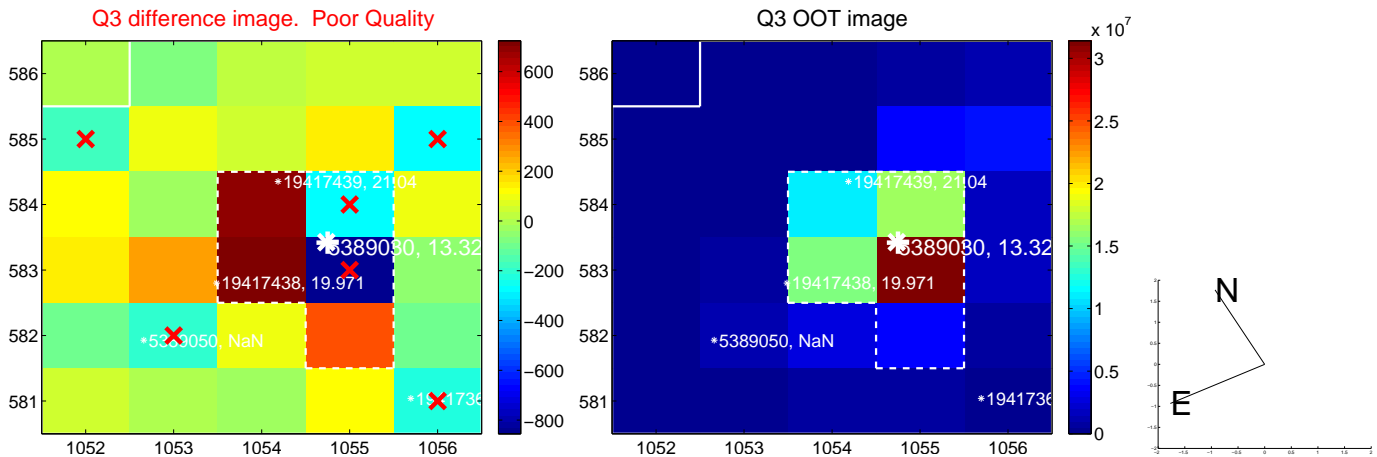
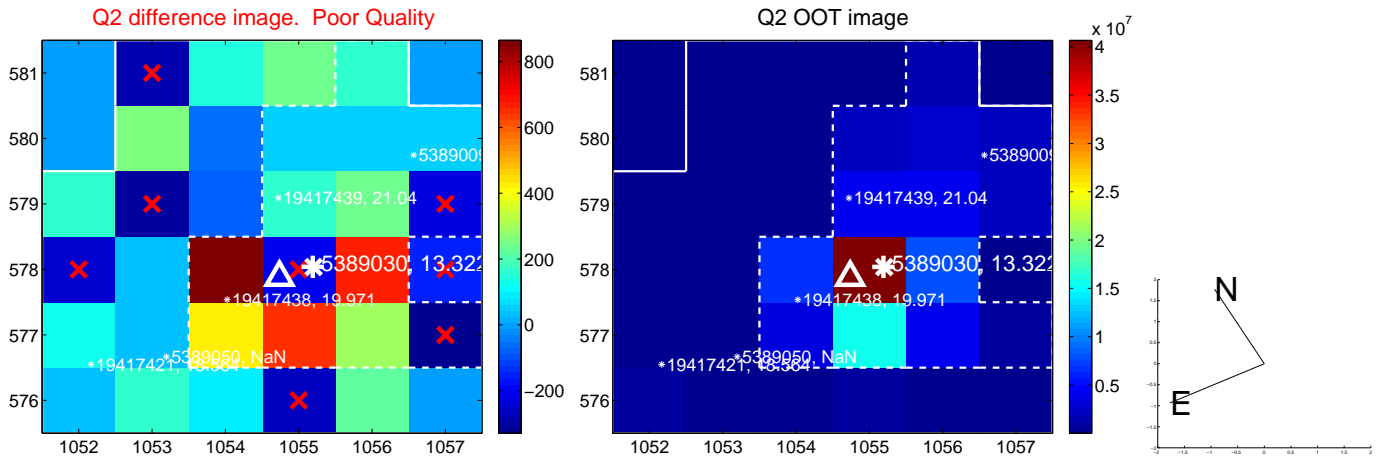
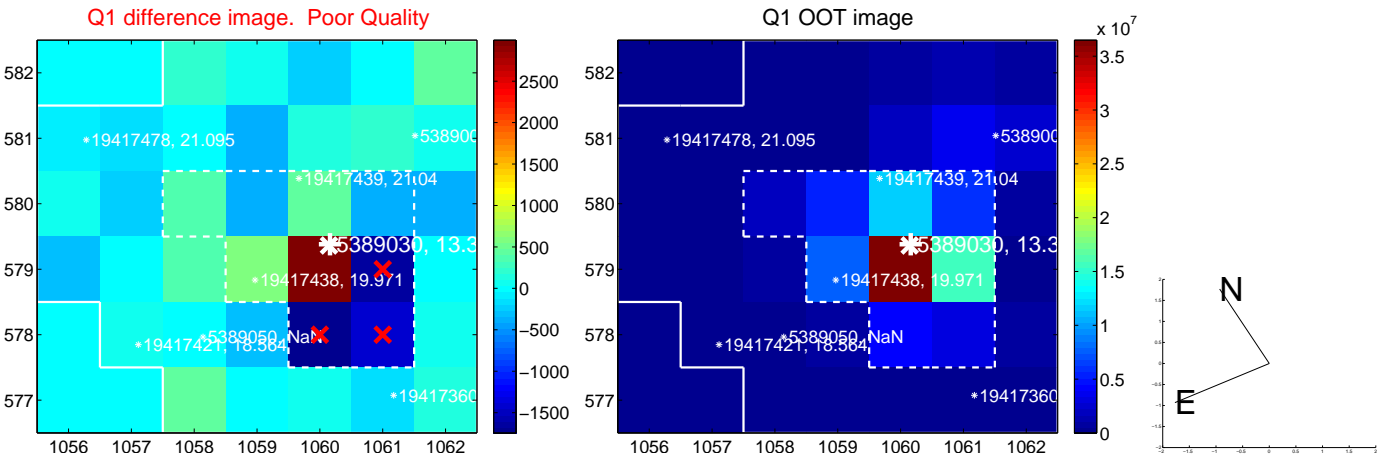
The direct PRF centroid is offset from the target star catalog position by about 0.09 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.992 ± 2.169	0.46	0.973 ± 2.247	0.193 ± 1.195
PRF-fit source offset from KIC position	1.015 ± 1.677	0.61	0.993 ± 1.759	0.206 ± 1.249
photometric centroid source offset	3.11 ± 1.50	2.07	2.56 ± 1.55	1.78 ± 1.41

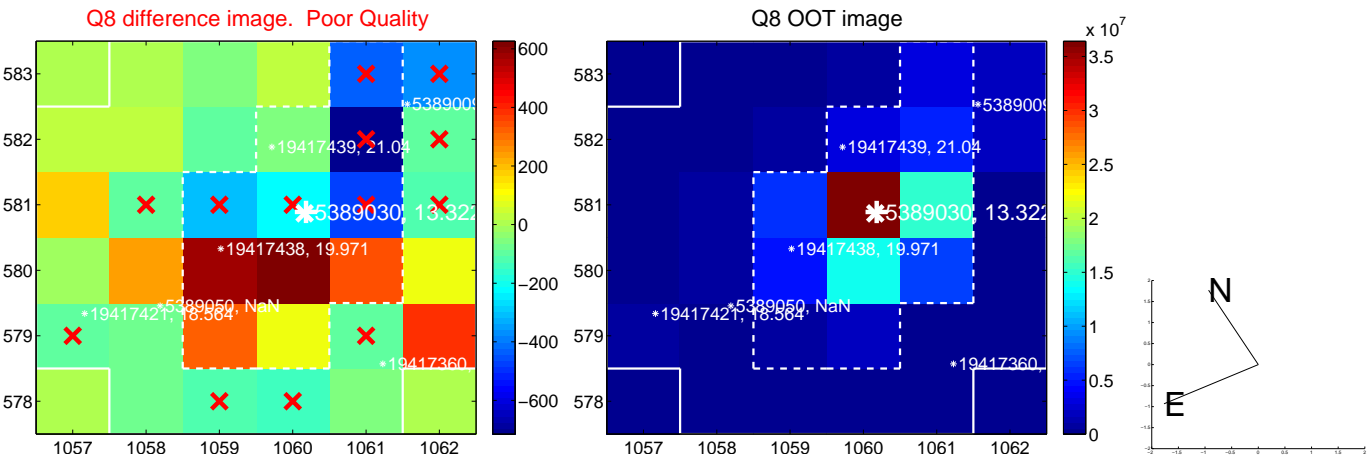
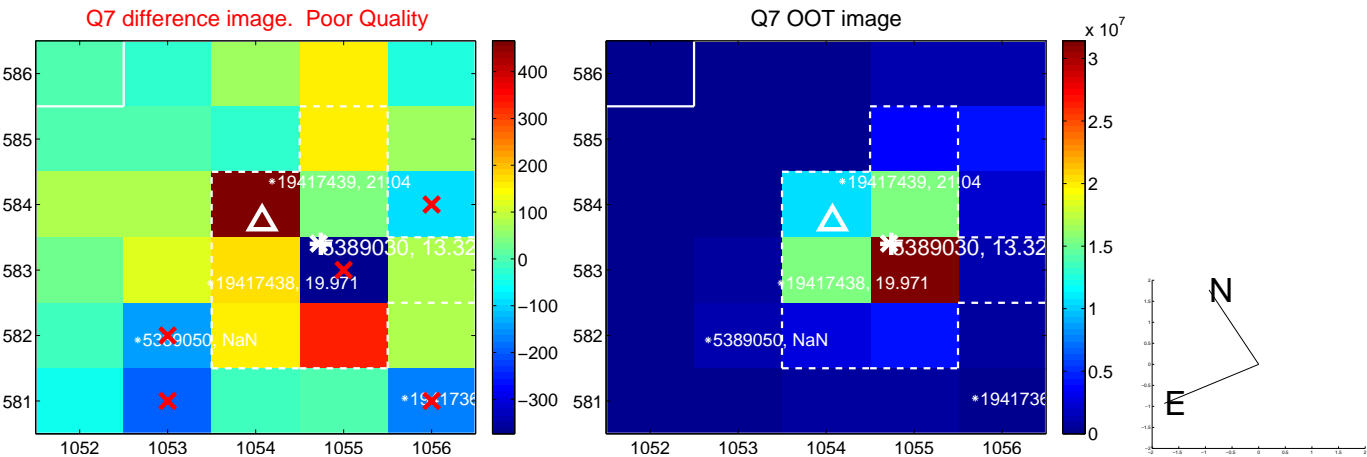
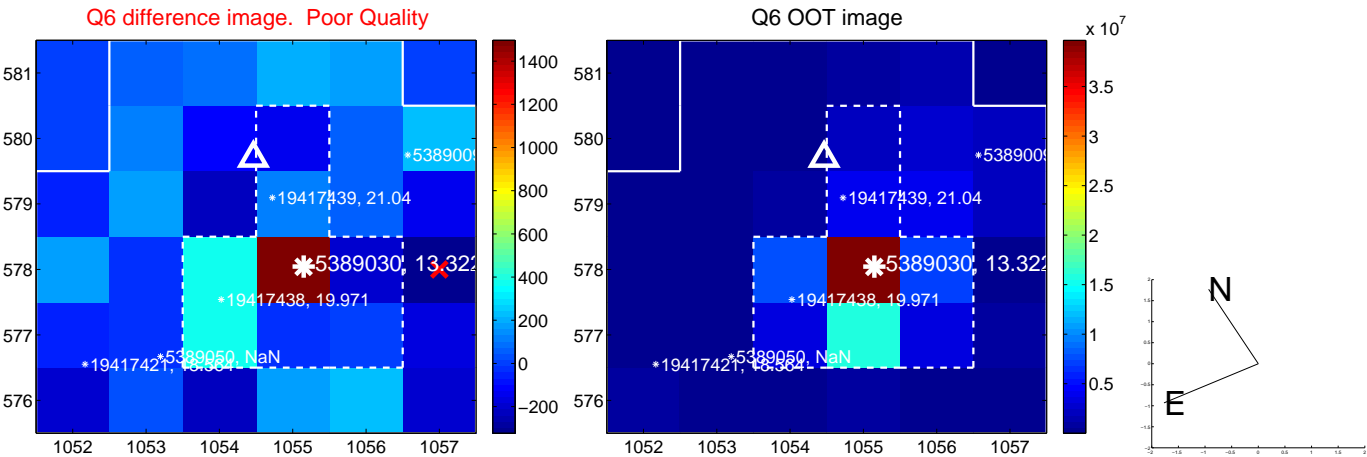
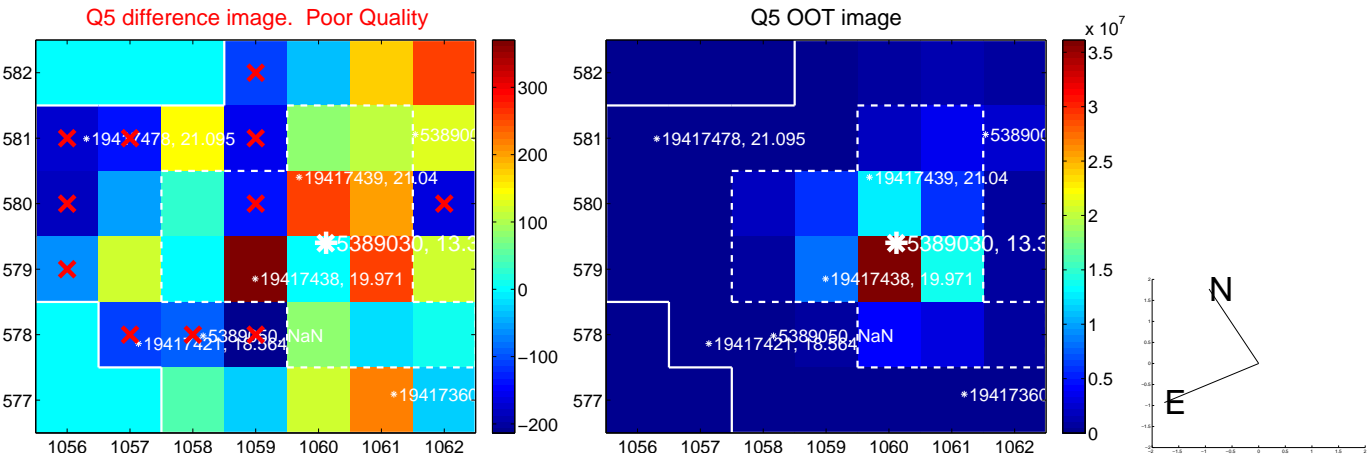


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

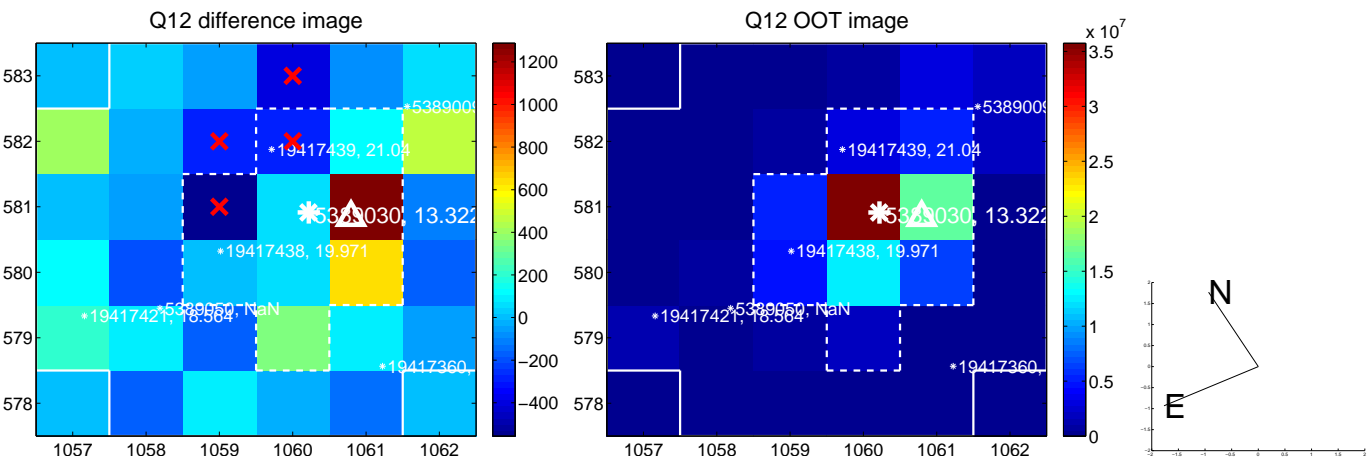
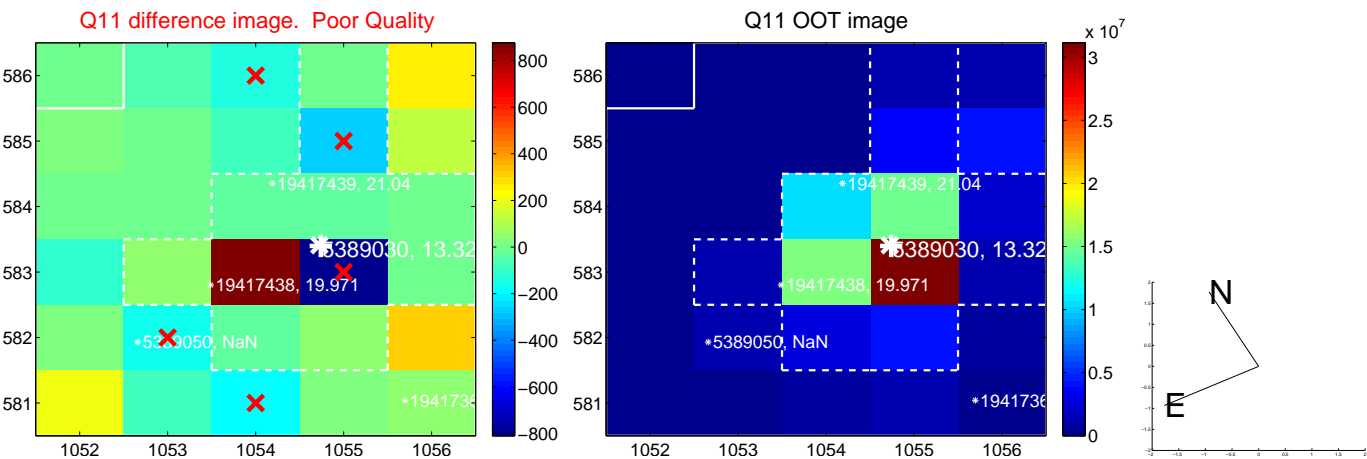
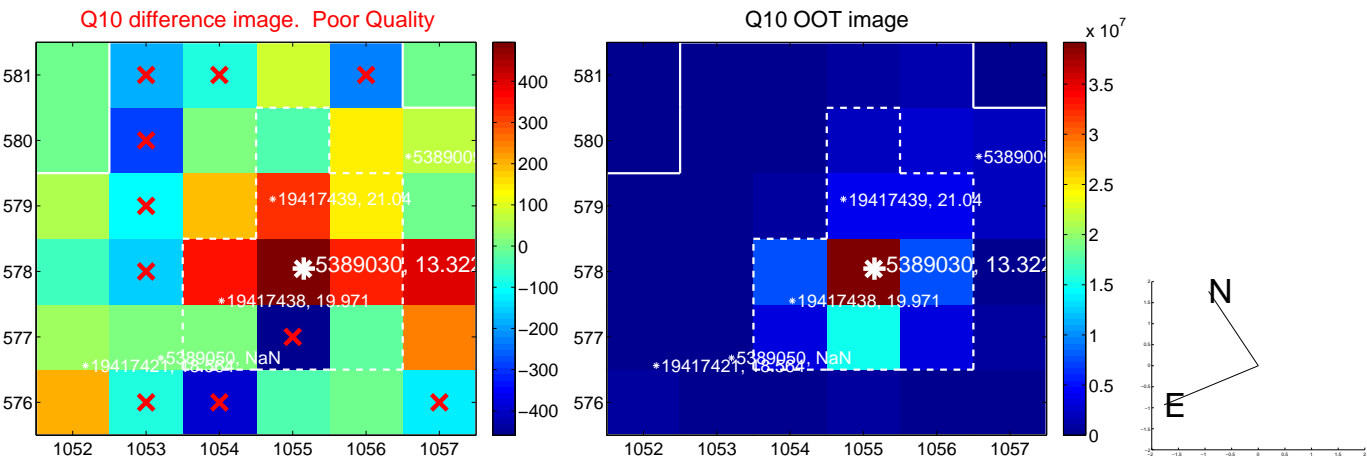
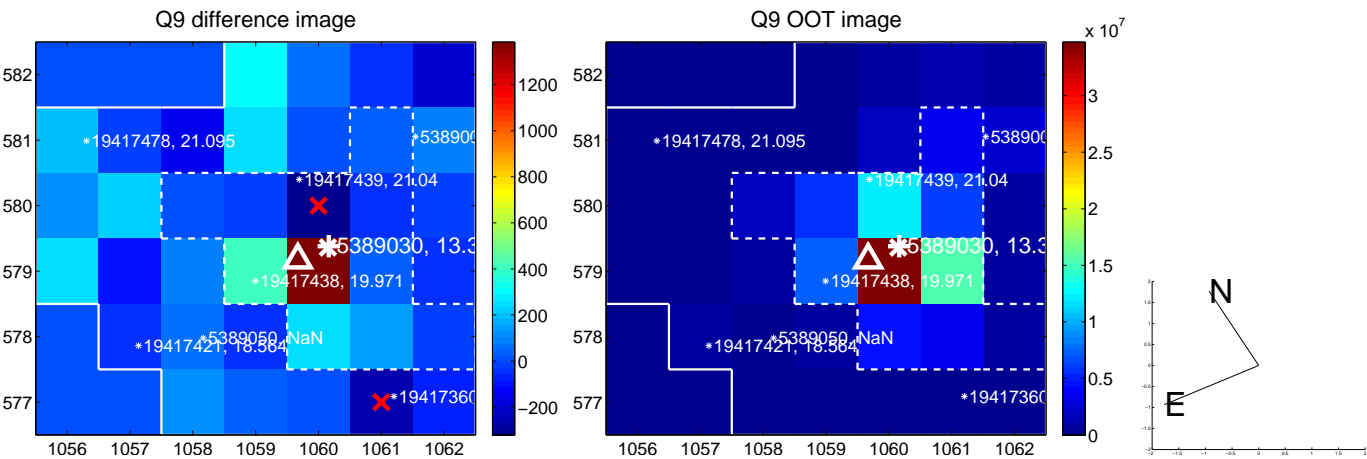
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



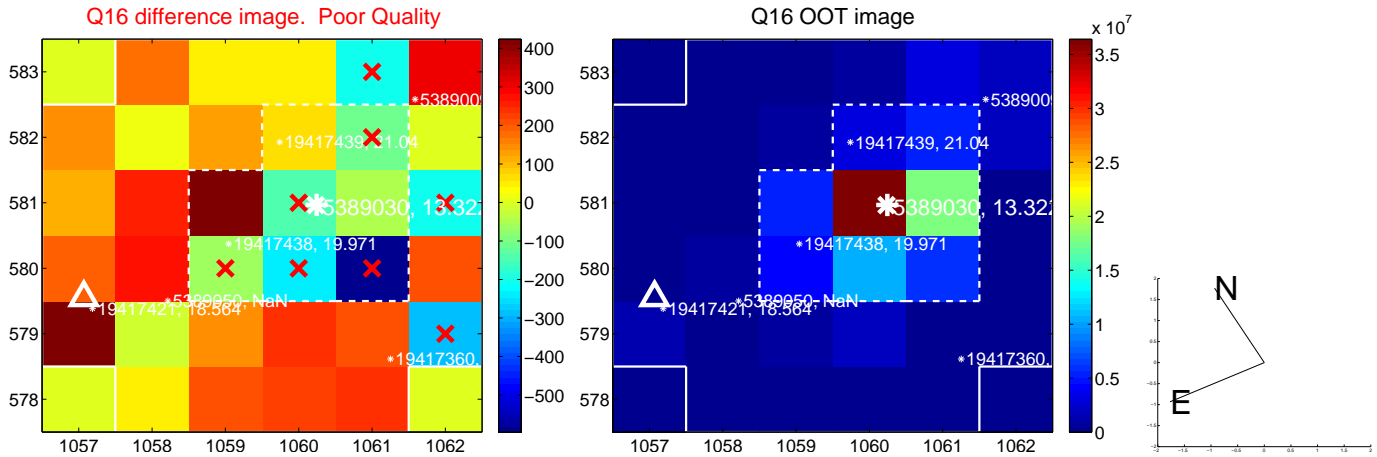
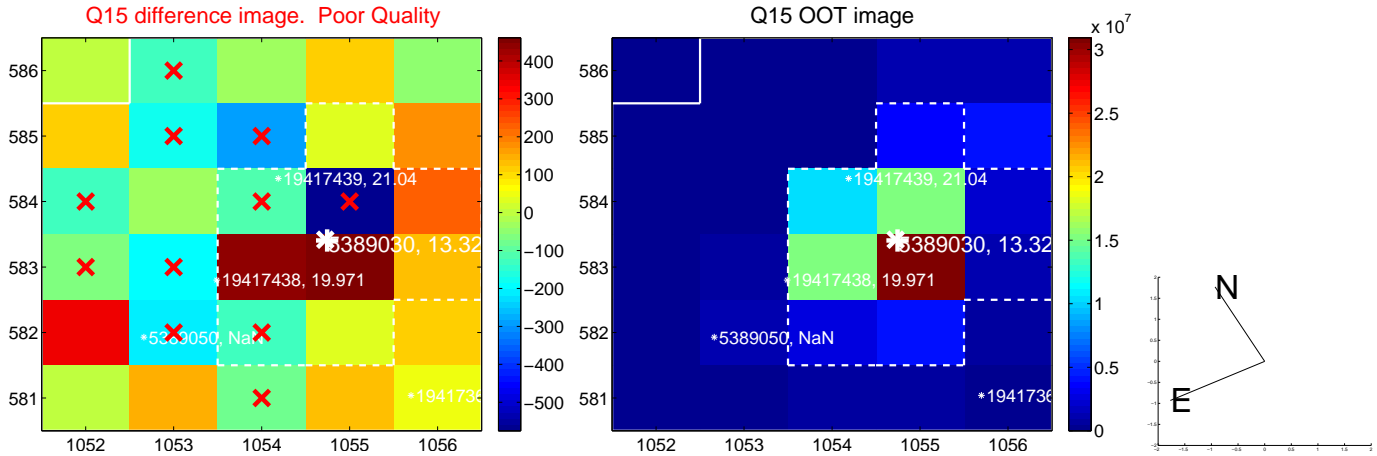
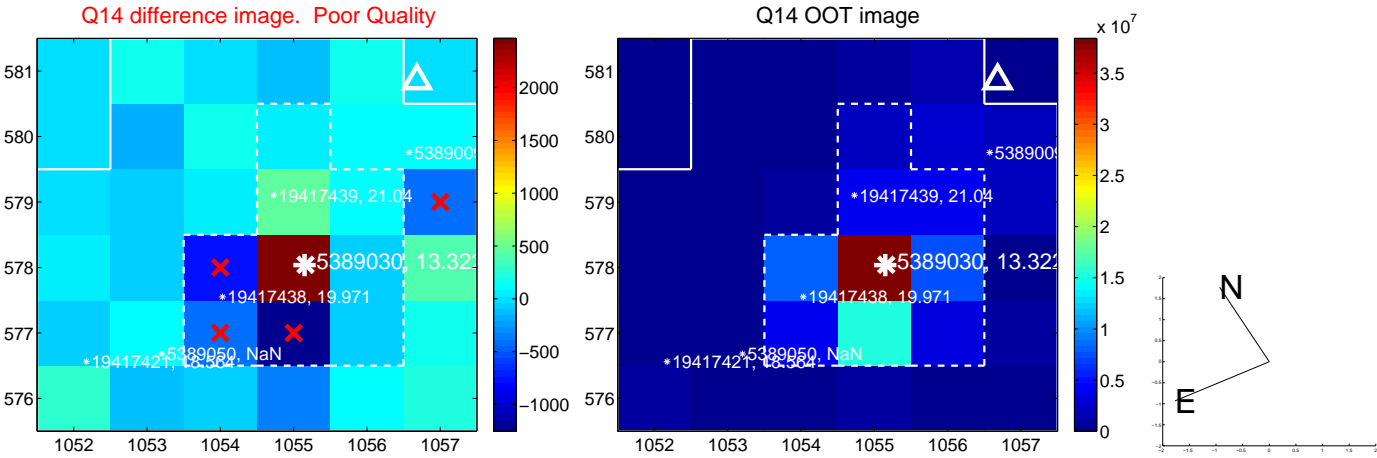
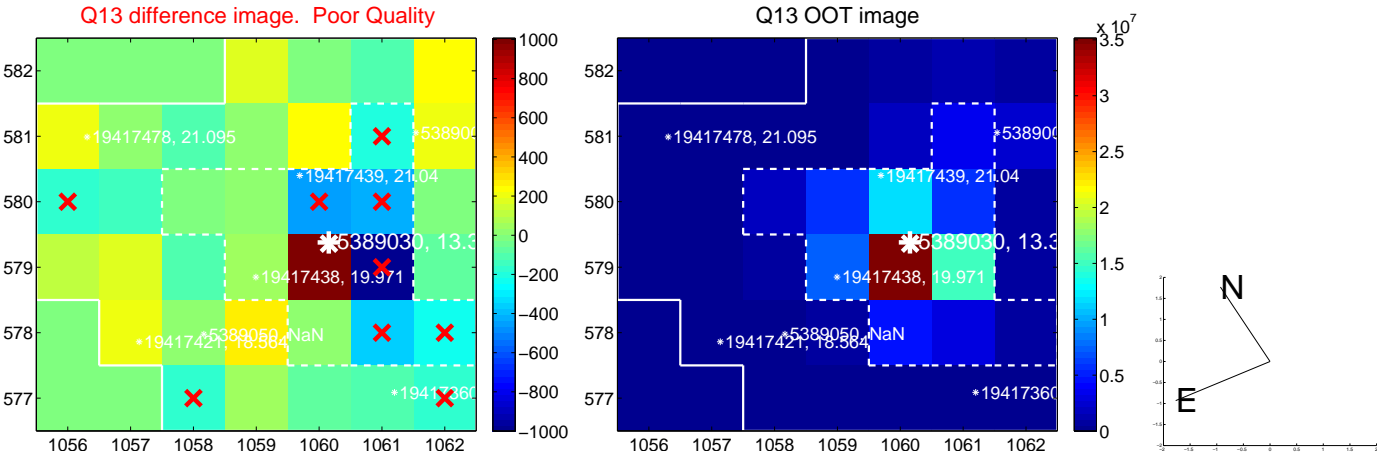
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



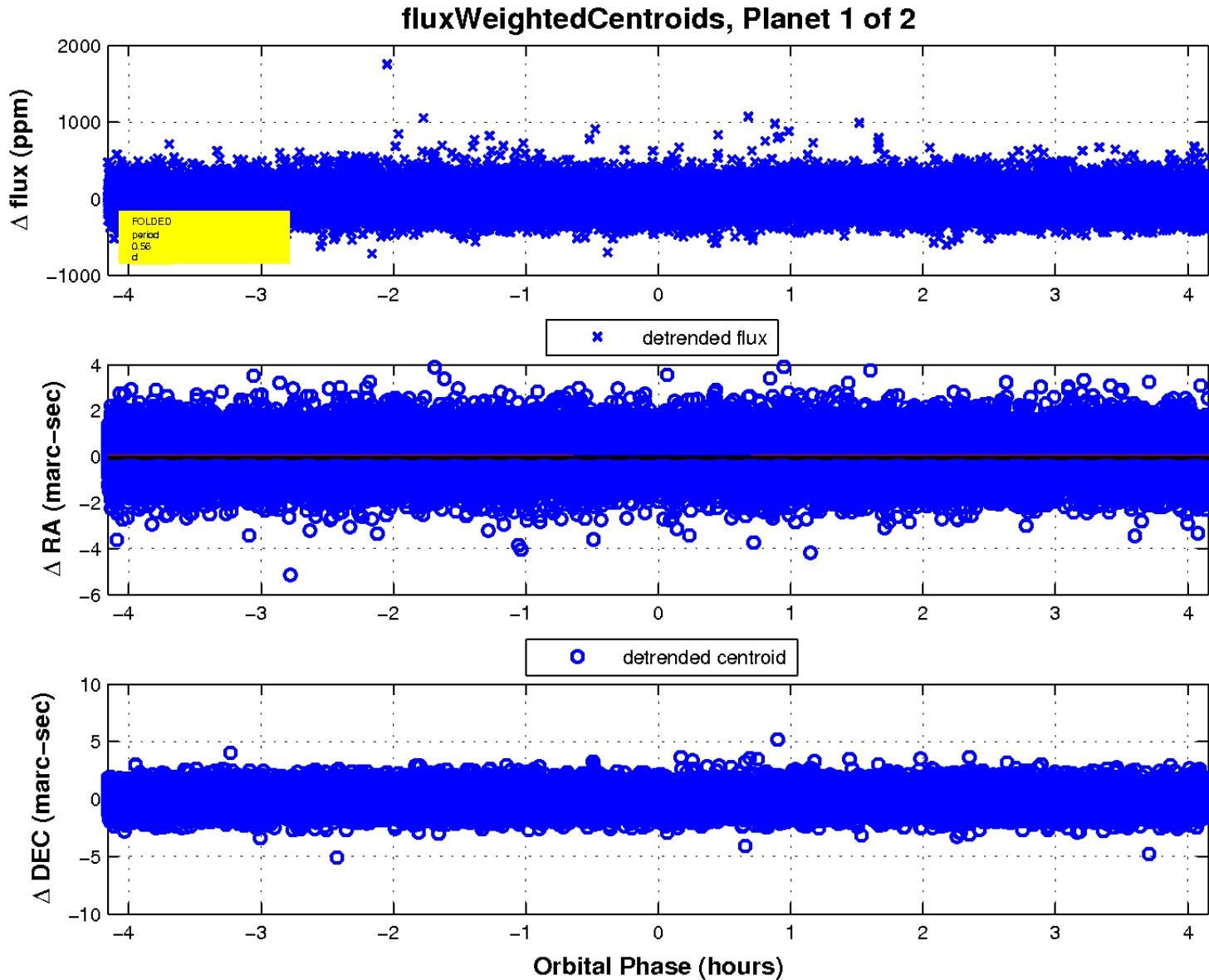
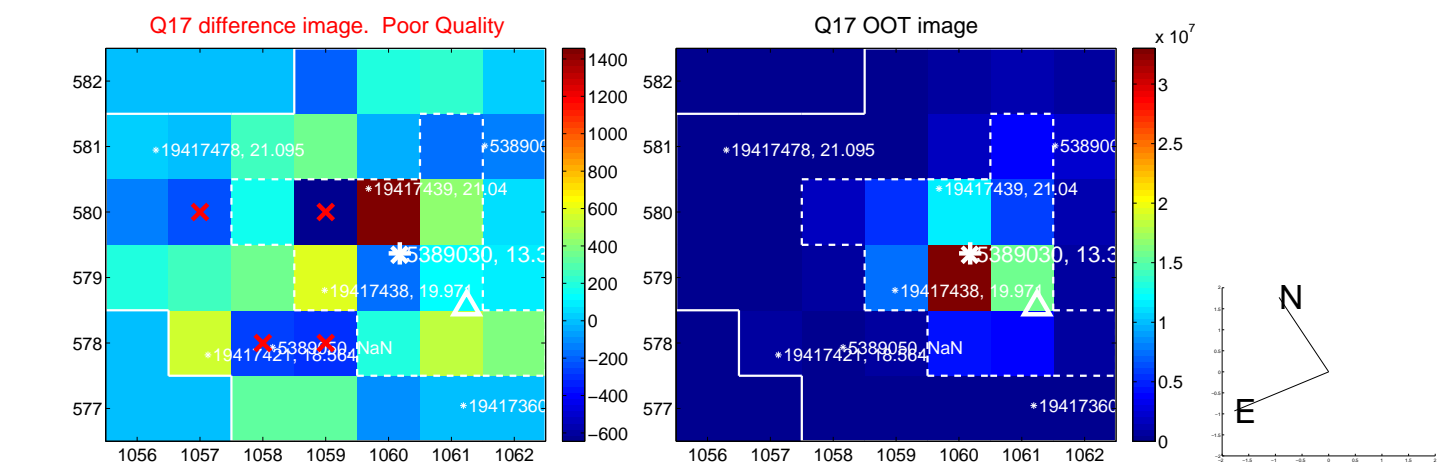
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

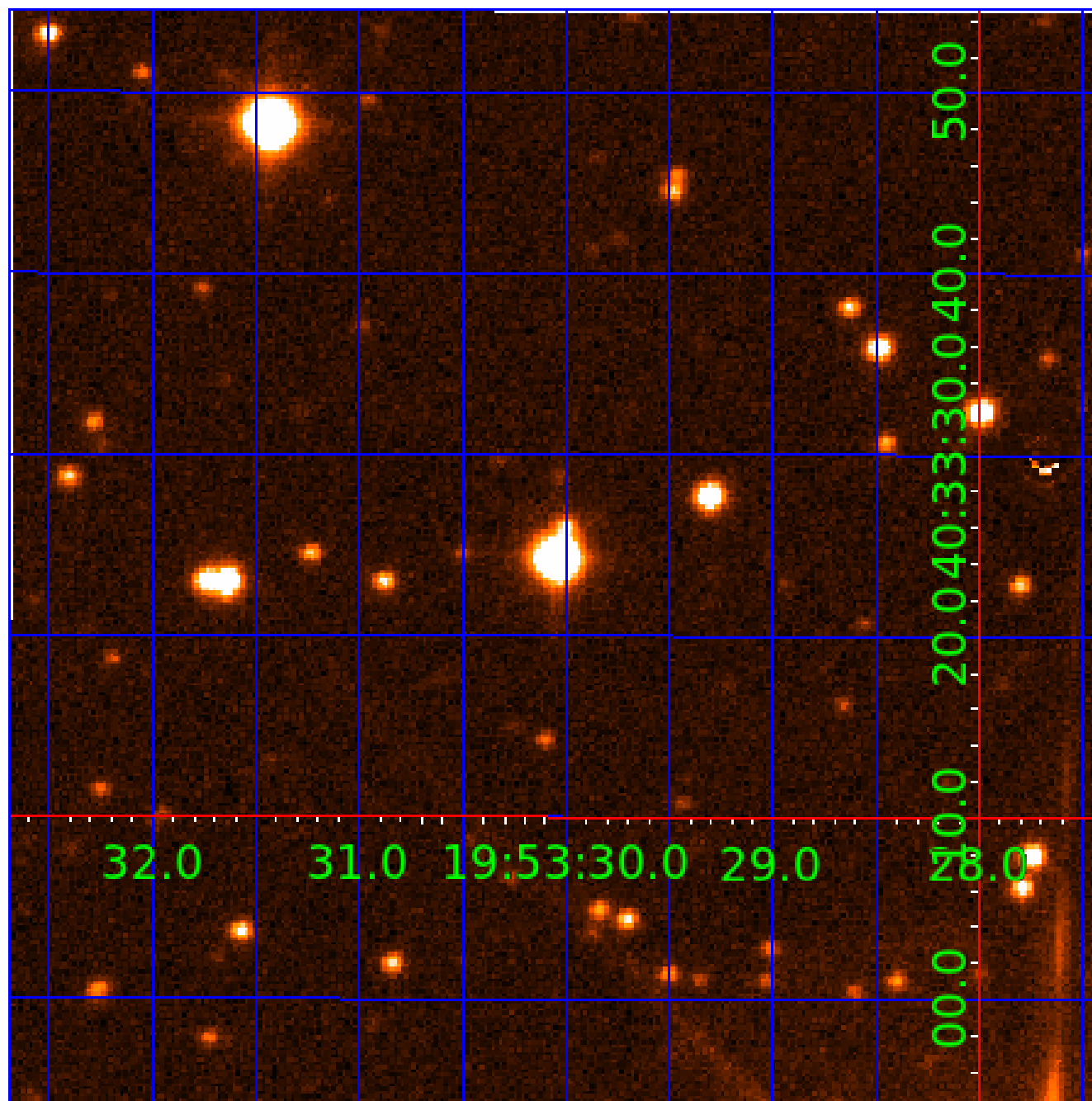


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 005389030

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})
005389030-01	OBS	No	0.559643	132.044620	19.6	1.386	8.5	8.1	0.86	6047	0.46	5315.09
005389030-02	OBS	No	0.559649	131.760982	25.6	1.404	8.3	11.1	0.86	6047	0.44	5315.02

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005389030-01	OBS	FP	0.00	1	0	0	0	LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
005389030-02	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—SAME_NTL_PERIOD

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

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

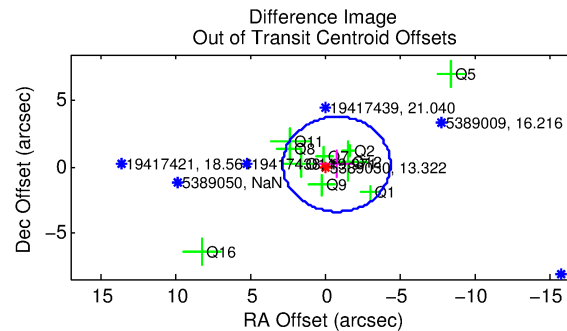
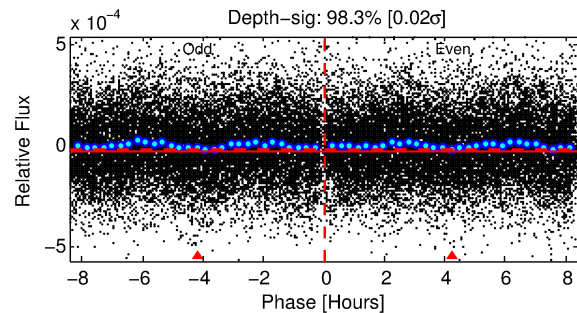
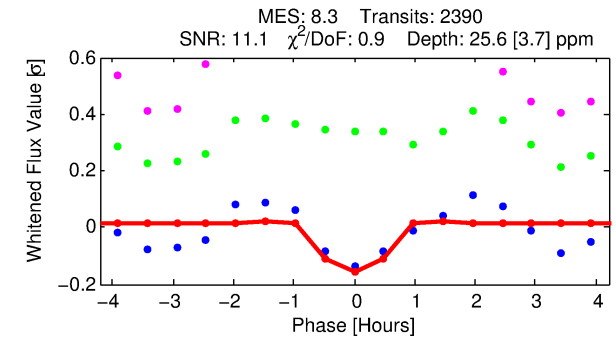
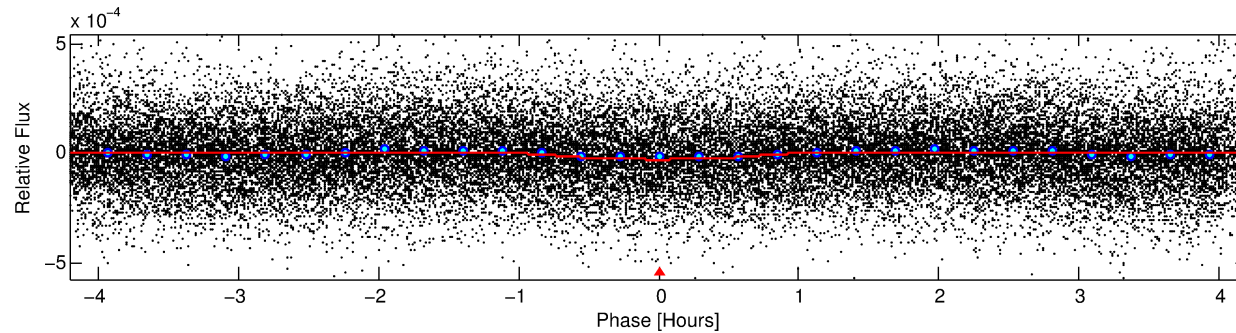
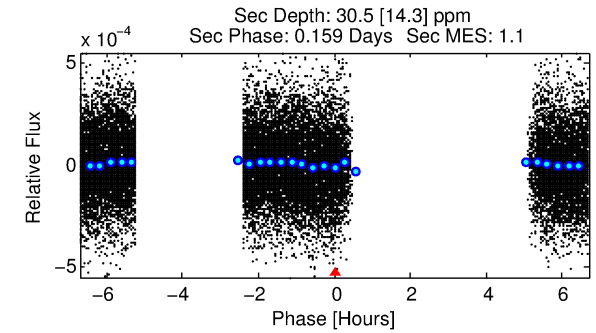
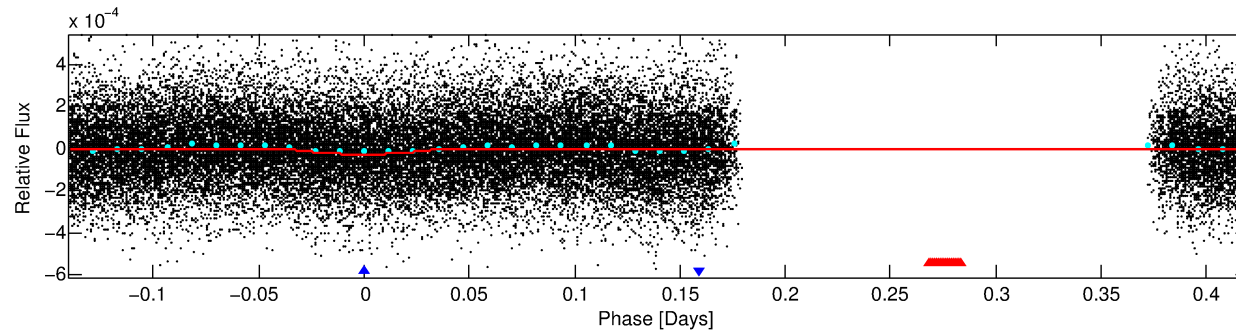
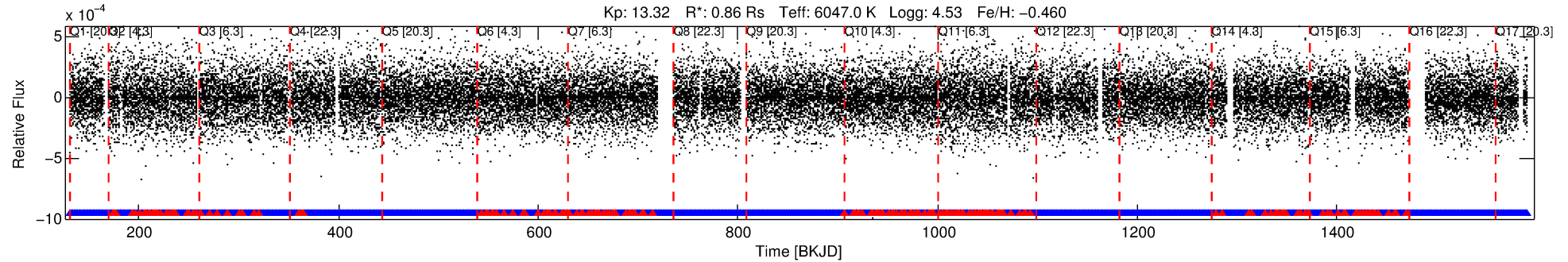
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 005389030-02

No Significant Match Found

DV One-Page Summary

KIC: 5389030 Candidate: 2 of 2 Period: 0.560 d



DV Fit Results:

Period = 0.55965 [0.00001] d
Epoch = 131.7610 [0.0019] BKJD
Rp/R* = 0.0047 [0.0029]
a/R* = 2.99 [8.30]
b = 0.30 [9.54]
Seff = 5315.02 [2011.76]
Teff = 2177 [206] K
Rp = 0.44 [0.30] Re
a = 0.0129 [0.0032] AU
Ag = 14.37 [19.79] [0.68σ]
Teffp = 6554 [2184] K [2.00σ]

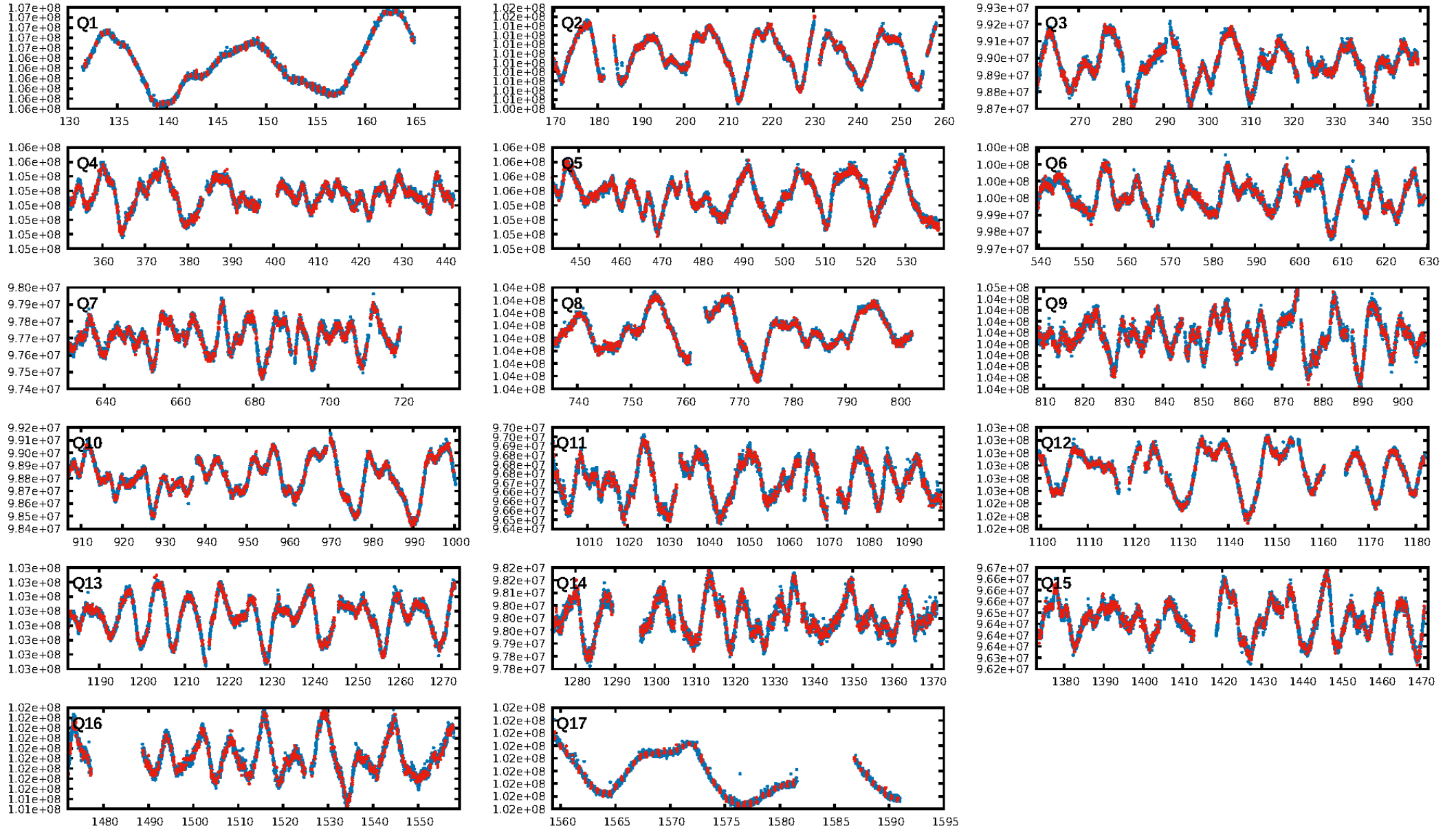
DV Diagnostic Results:

ShortPeriod-sig: 0.0% [0.00σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 9.34e-12
RollingBand-fgt: 0.90 [2063/2282]
GhostDiagnostic-chr: 2.092
Centroid-sig: N/A
Centroid-so: 0.492 arcsec [0.46σ]
OotOffset-rm: 0.822 arcsec [0.69σ]
OotOffset-st: 2/2/3/3 [10]
KicOffset-rm: 0.847 arcsec [0.58σ]
KicOffset-st: 2/2/3/3 [10]
DiffImageQuality-fgm: 0.40 [4/10]
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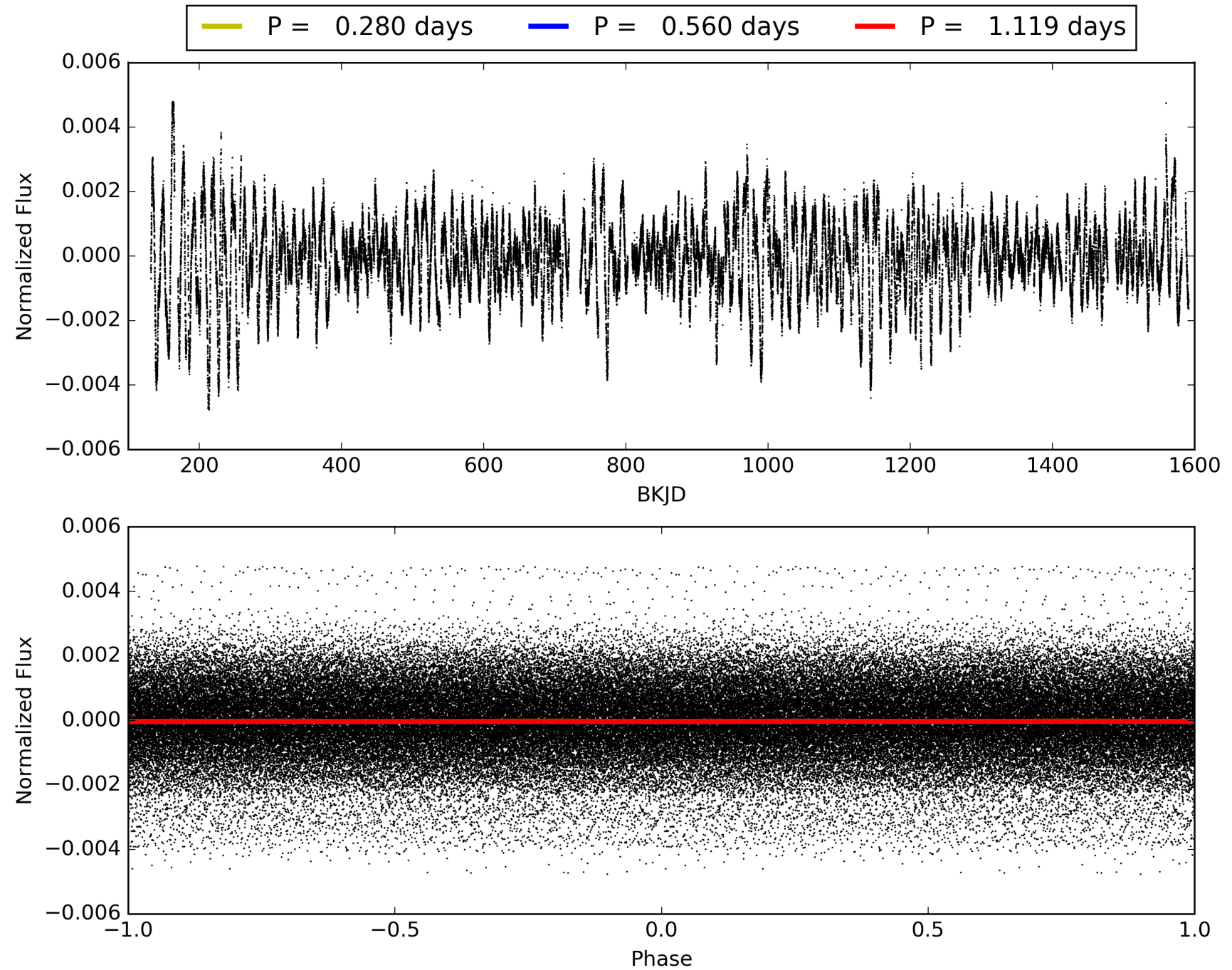
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 22:46:53 Z

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

TCE 005389030-02, PDC Light Curves

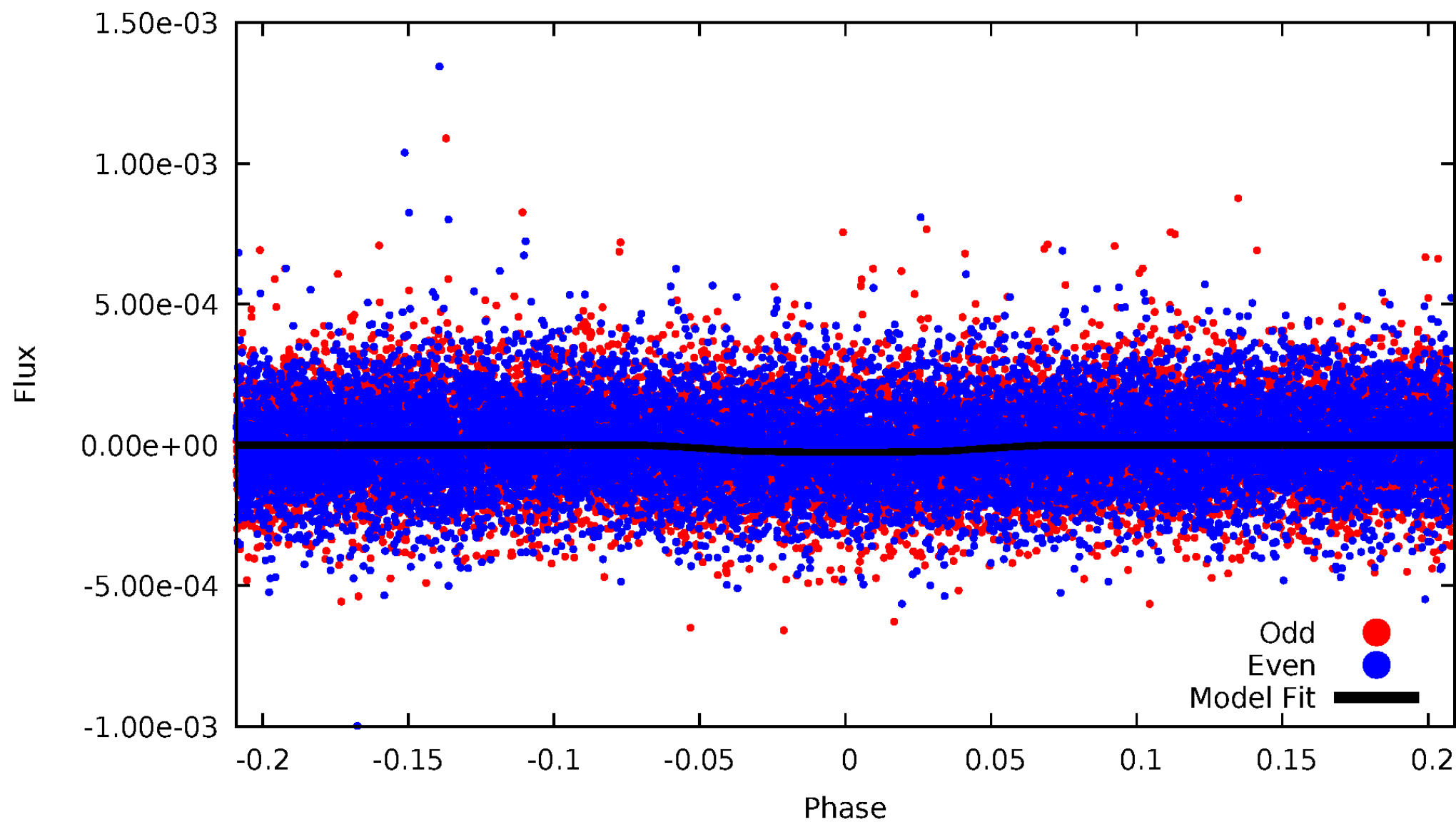


TCE 005389030-02



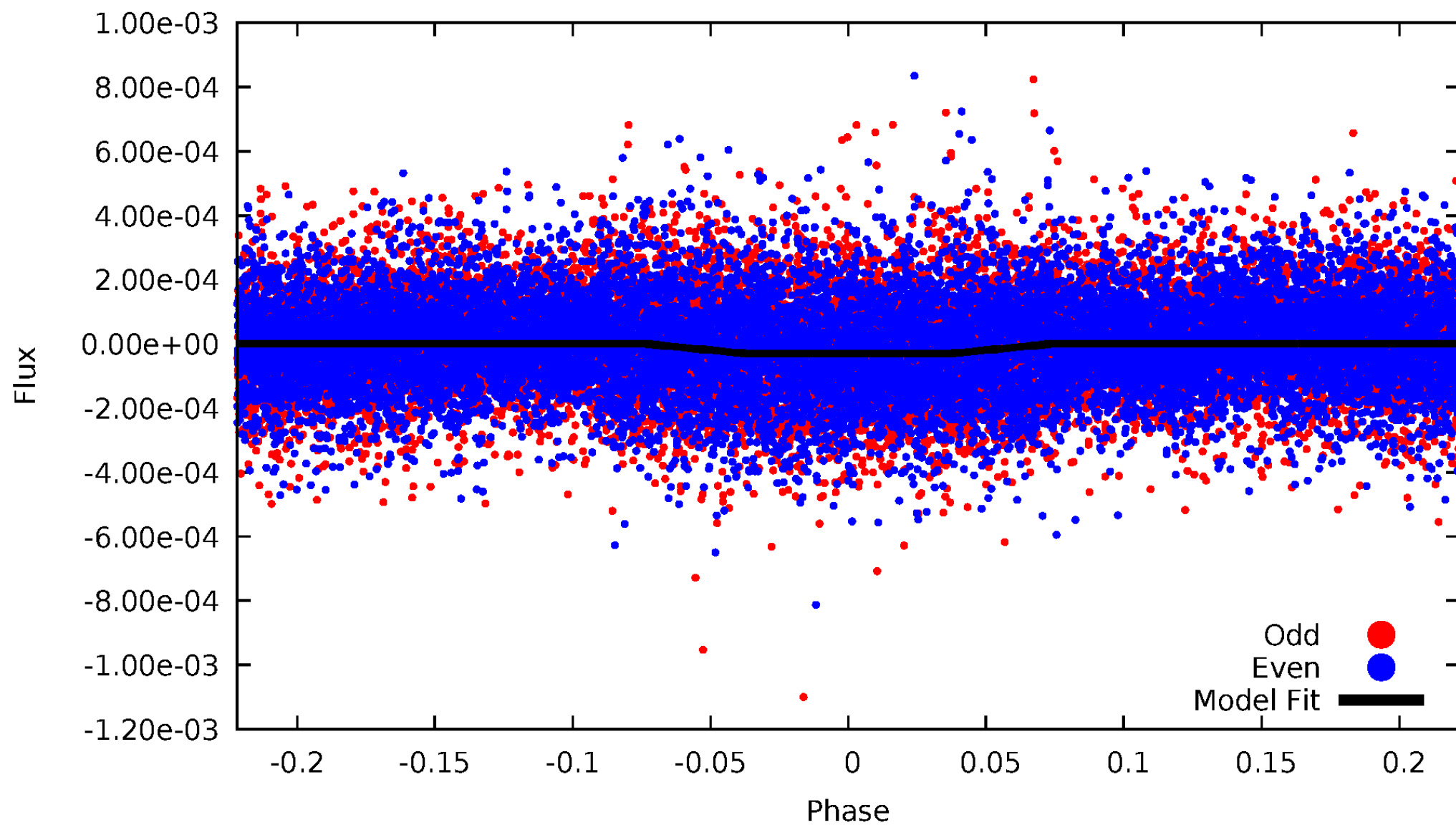
DV Odd/Even

TCE 005389030-02



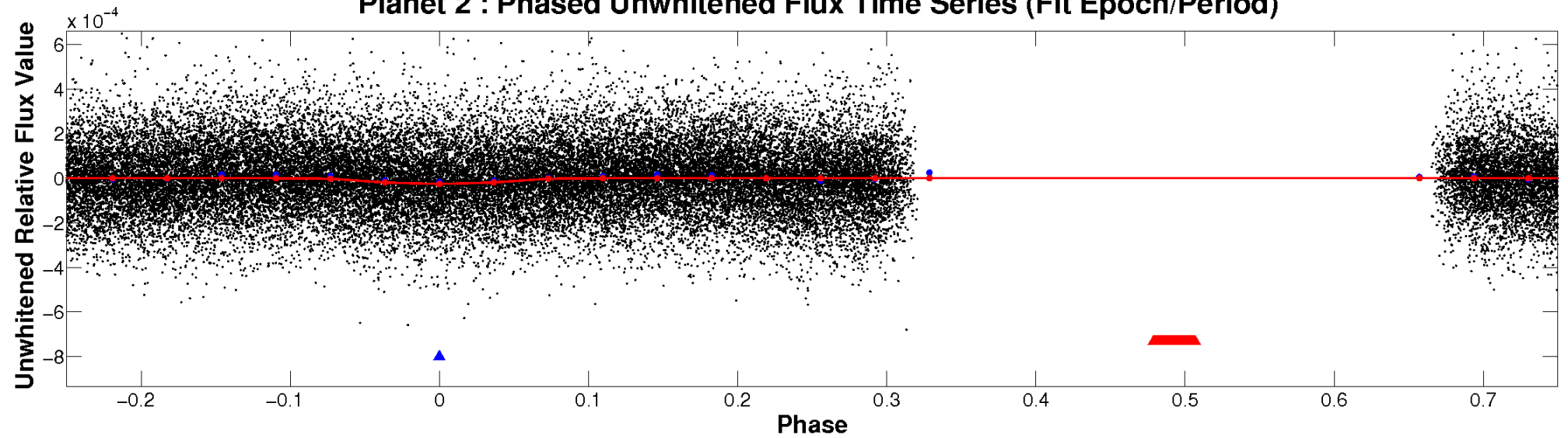
ALT Odd/Even

TCE 005389030-02

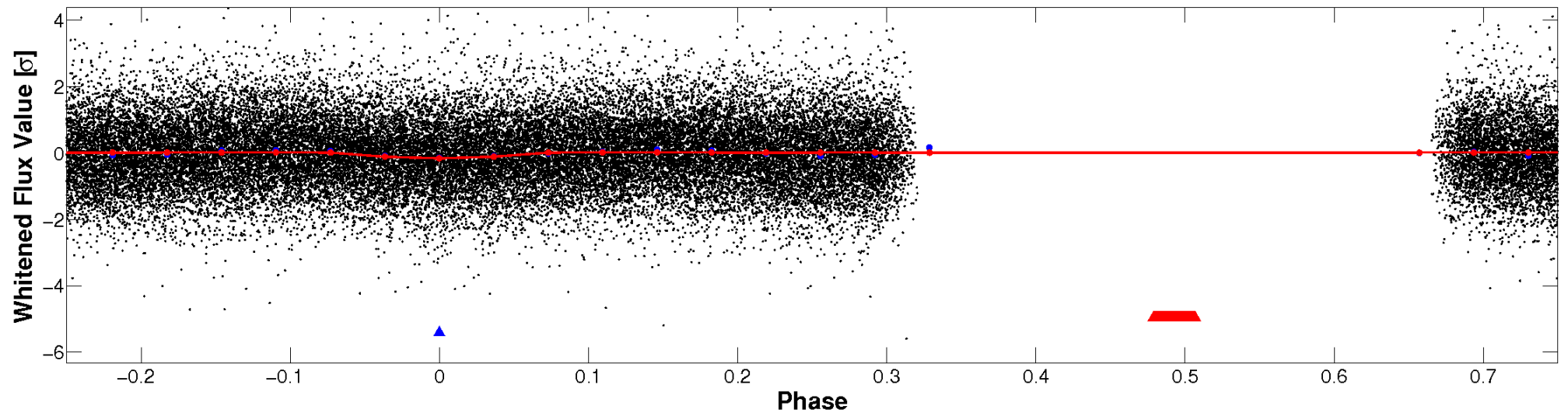


Non-Whitened Vs. Whitened Light Curve

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

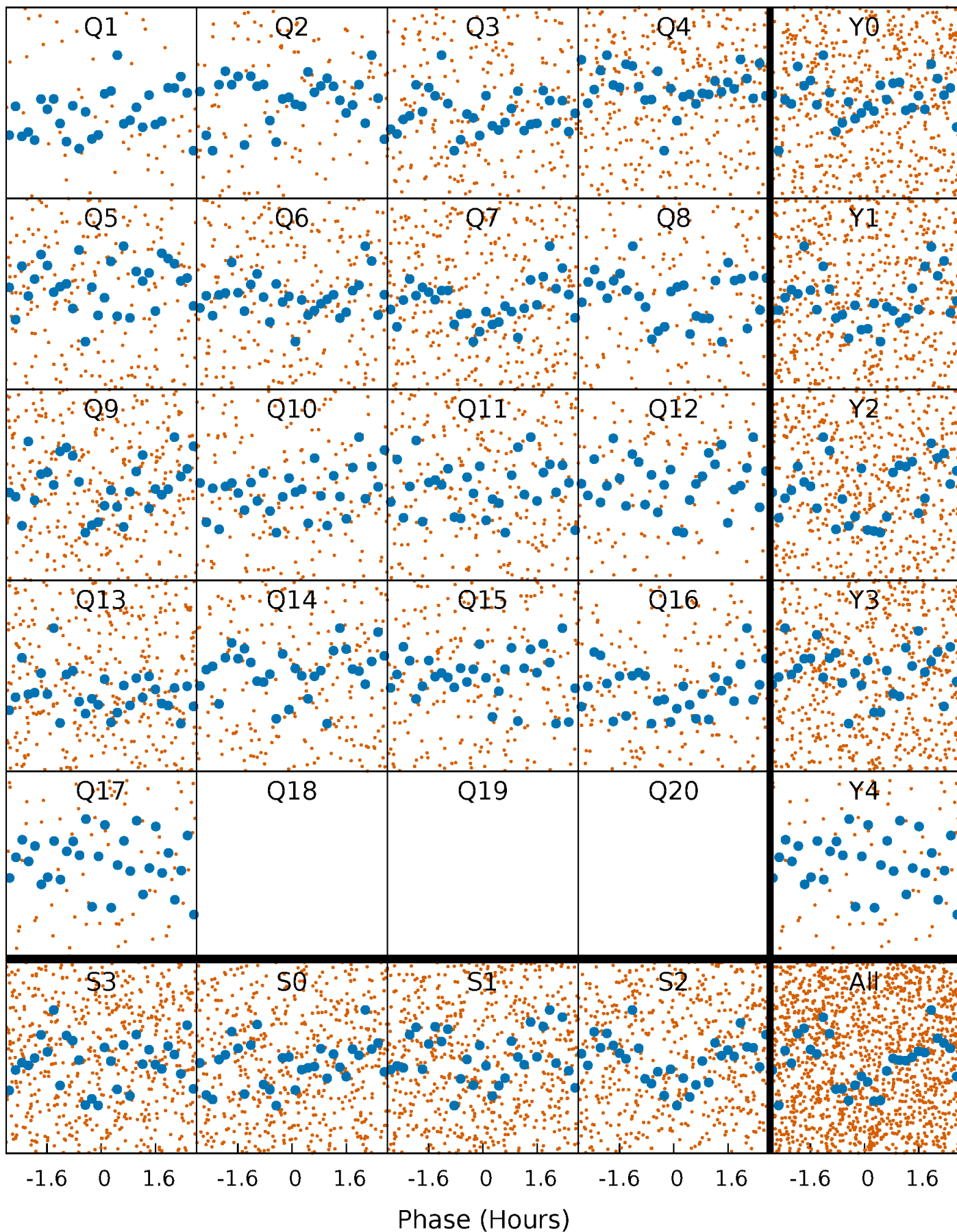


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



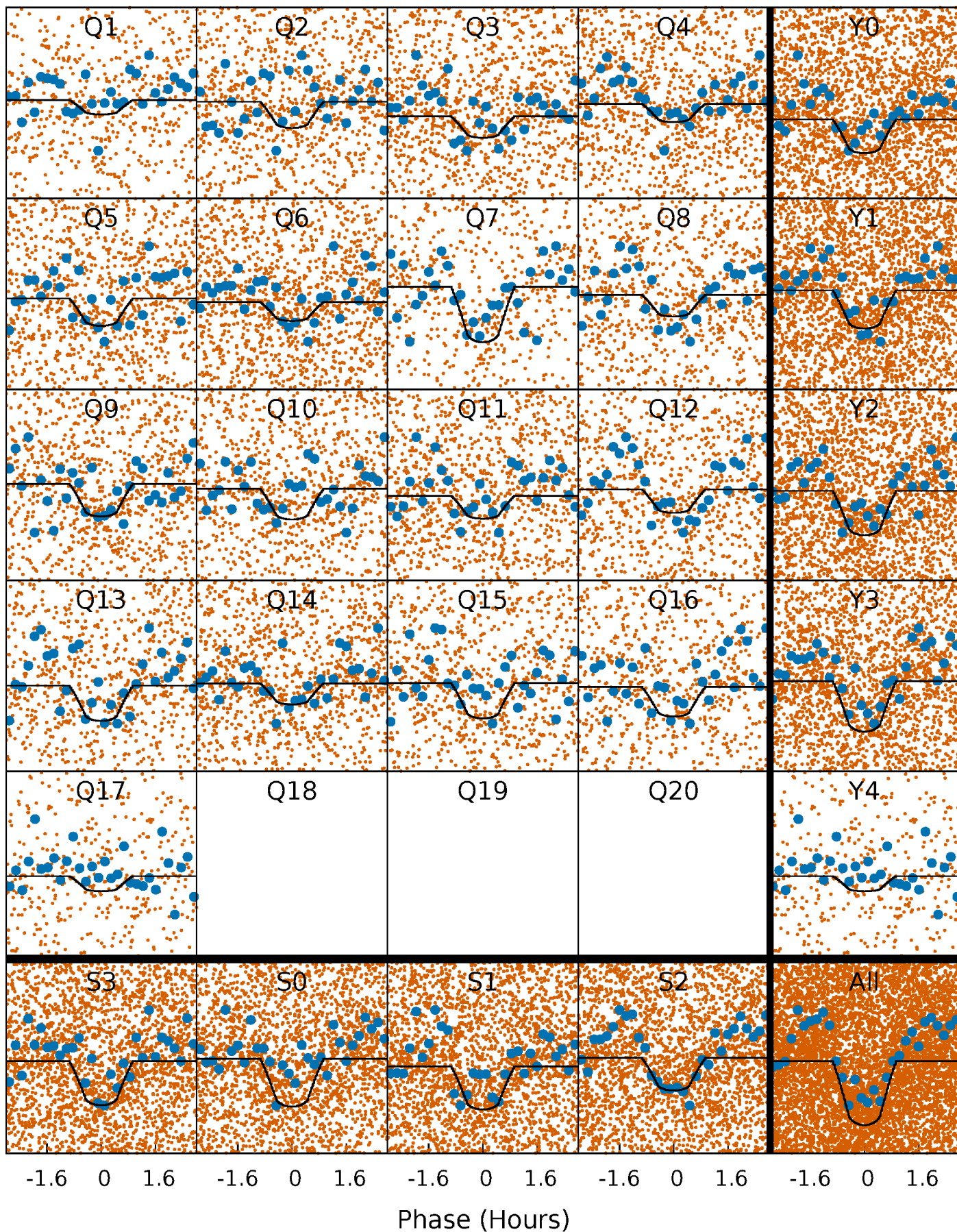
PDC Quarter-Phased Transit Curves

TCE 005389030-02 P= 0.559649 Days $T_0=131.760982$ (BKJD)



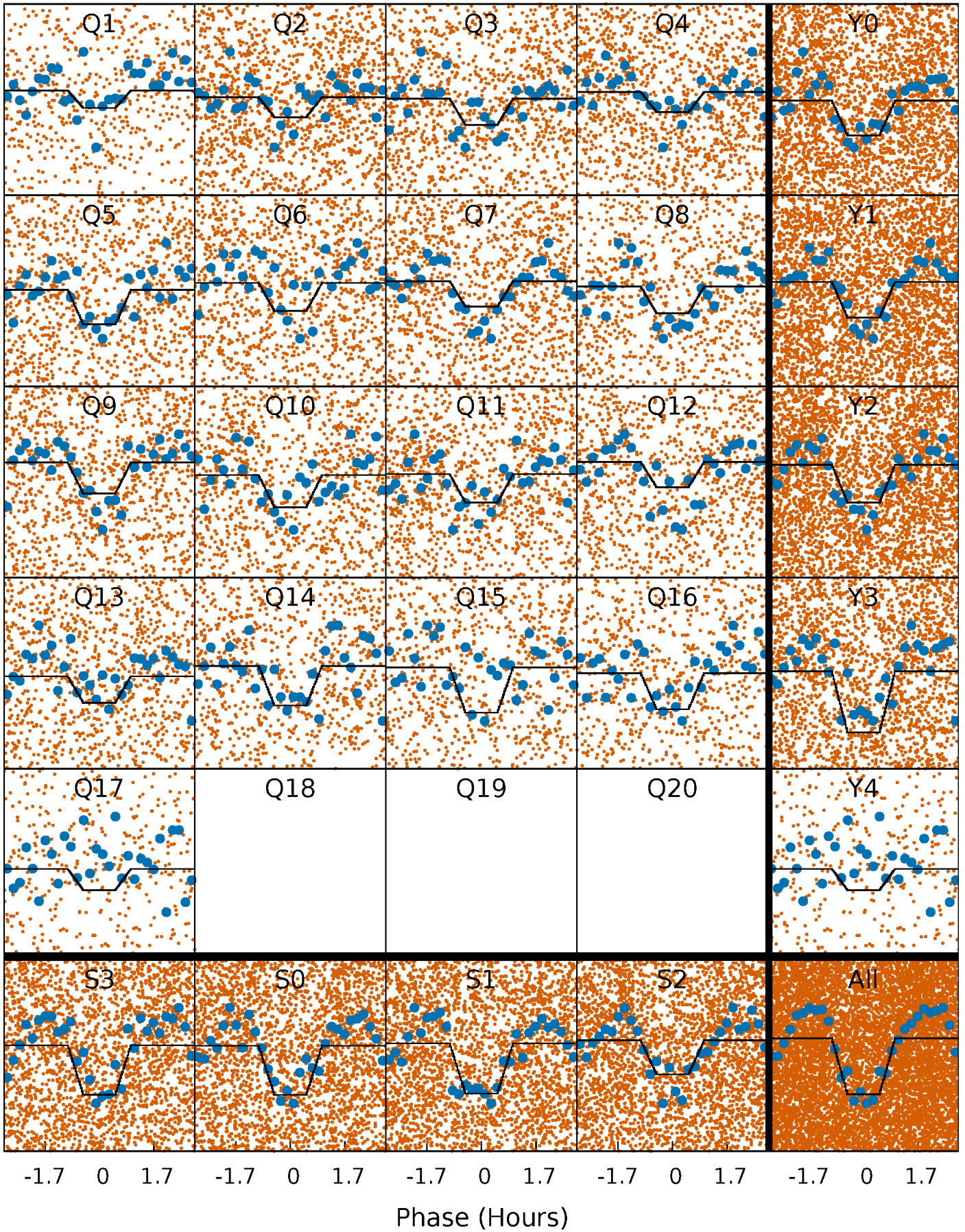
DV Quarter-Phased Transit Curves

TCE 005389030-02 P= 0.559649 Days $T_0=131.760982$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

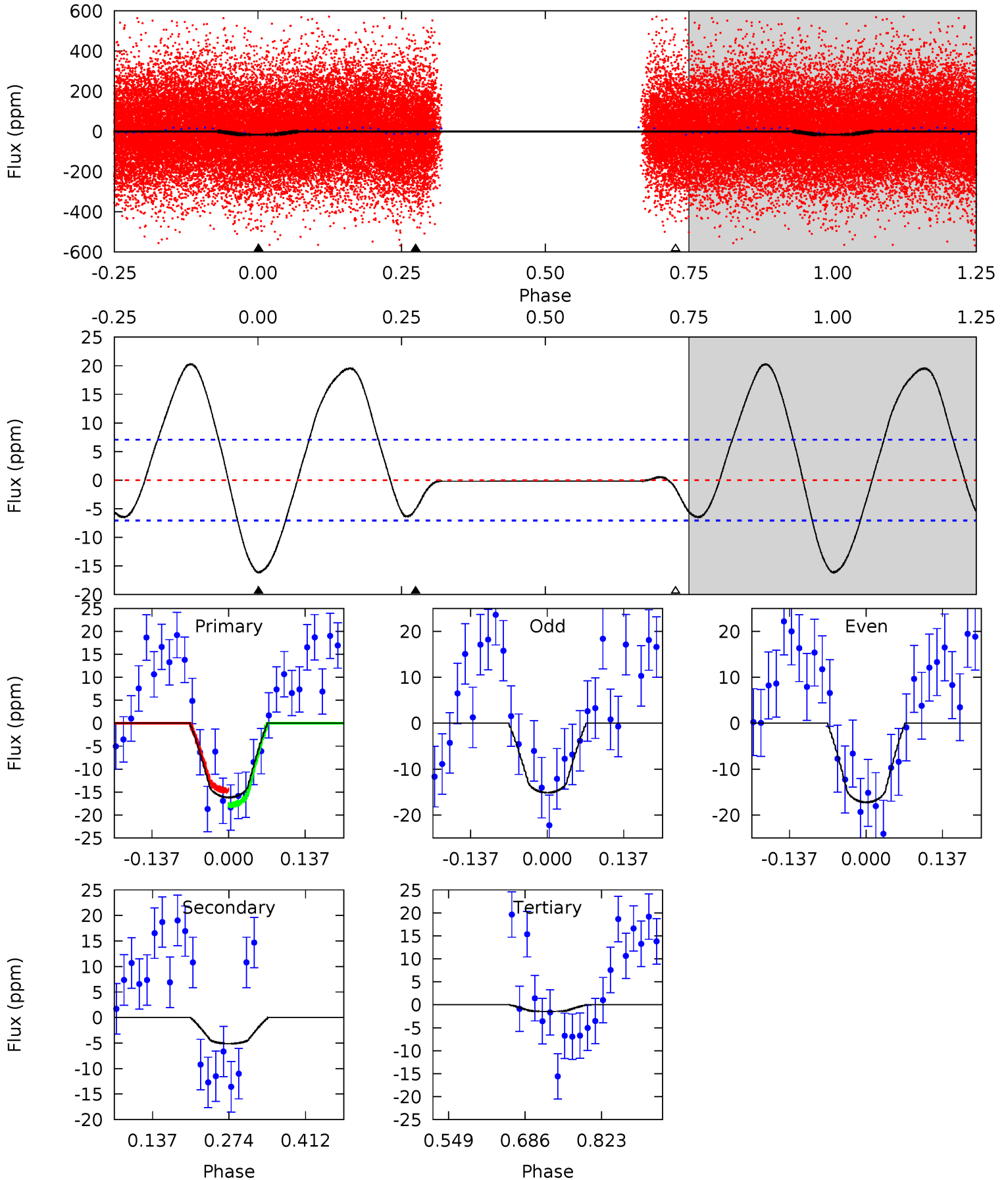
TCE 005389030-02 P= 0.559651 Days $T_0=131.761402$ (BKJD)



DV Model-Shift Uniqueness Test

005389030-02, P = 0.559649 Days, E = 131.201333 Days

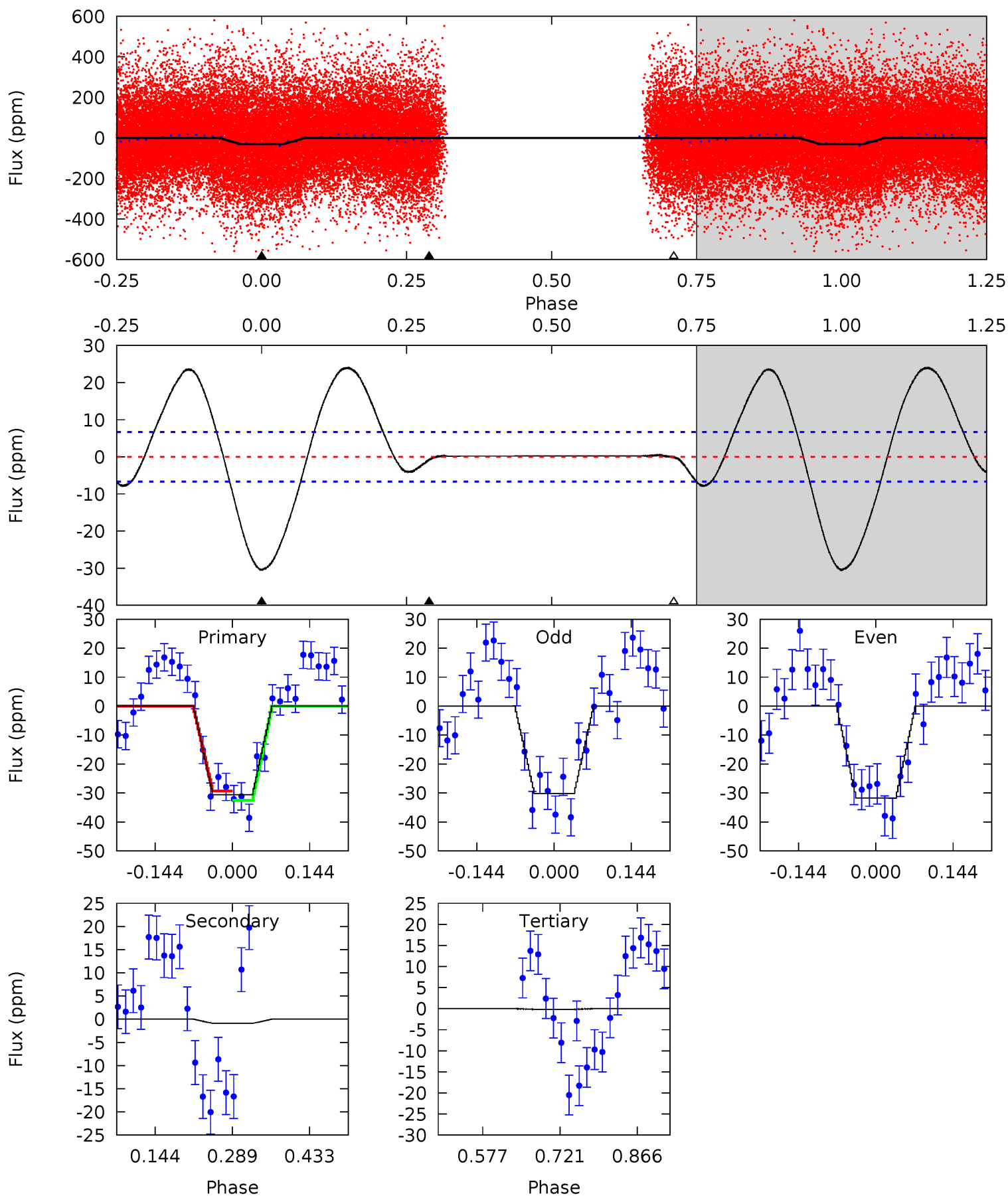
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
10.3	3.25	0.93	0	4.50	1.49	4.27	9.35	10.3	2.32	3.25	0.66	0.92	0.56	1.00



Alt Model-Shift Uniqueness Test

005389030-02, P = 0.559651 Days, E = 131.201751 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
20.5	0.61	0.12	0	4.49	1.46	5.26	20.4	20.5	0.49	0.61	0.52	0.95	0.44	1.12



Stellar Parameters For KIC 005389030

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6047^{+163}_{-163}	$4.532^{+0.050}_{-0.200}$	$-0.460^{+0.300}_{-0.300}$	$0.862^{+0.250}_{-0.083}$	$0.921^{+0.097}_{-0.108}$	$2.025^{+0.418}_{-1.078}$
	+3%/-3%	+1%/-4%	+65%/-65%	+29%/-10%	+11%/-12%	+21%/-53%
Source	PHO1	KIC0	KIC0	DSEP		

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

Secondary Eclipse Parameters for KIC 005389030-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-5 ± 2	$0.49^{+0.27}_{-0.25}$	3102^{+230}_{-135}	4154^{+1516}_{-841}	$1.877^{+5.674}_{-1.205}$
Alt.	-1 ± 1	$0.56^{+0.32}_{-0.27}$	3102^{+213}_{-137}	-2706^{+6379}_{-736}	$0.205^{+0.947}_{-0.401}$

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 $A_{obs} \gg 1.0$

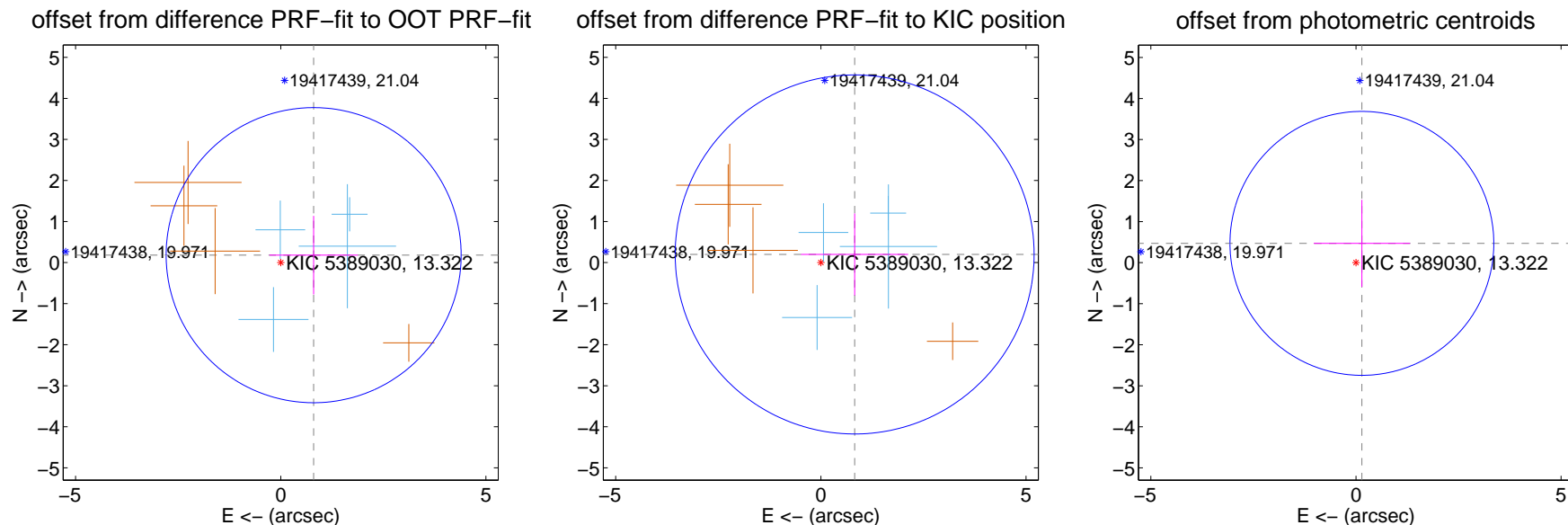
DV Centroid Data

Supplemental centroid analysis for 005389030-02. Kepler magnitude: 13.32. Transit SNR 11.11

There are 4 quarters with good PRF difference image offsets

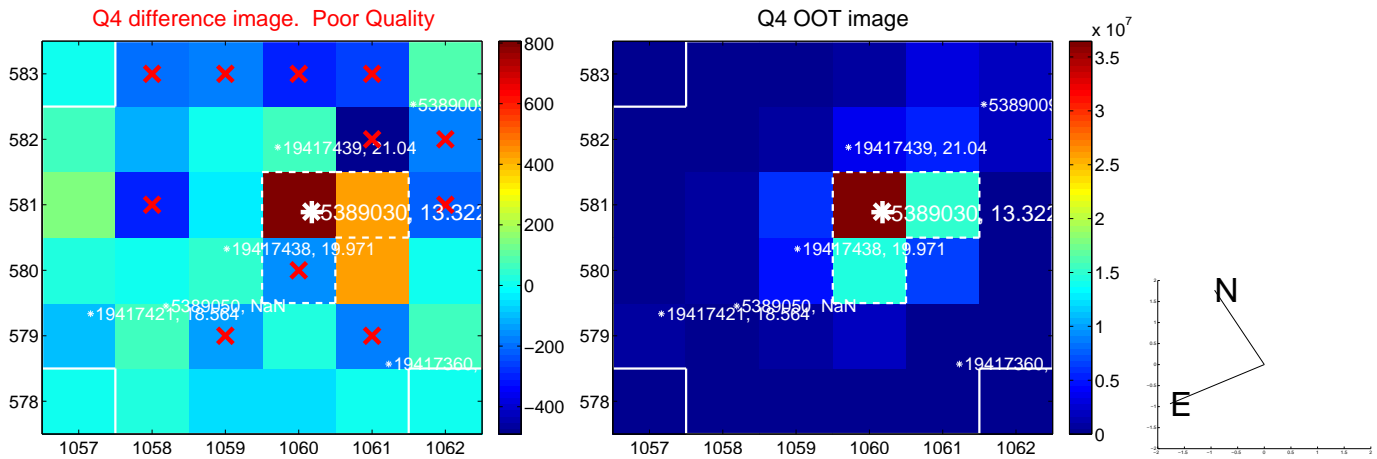
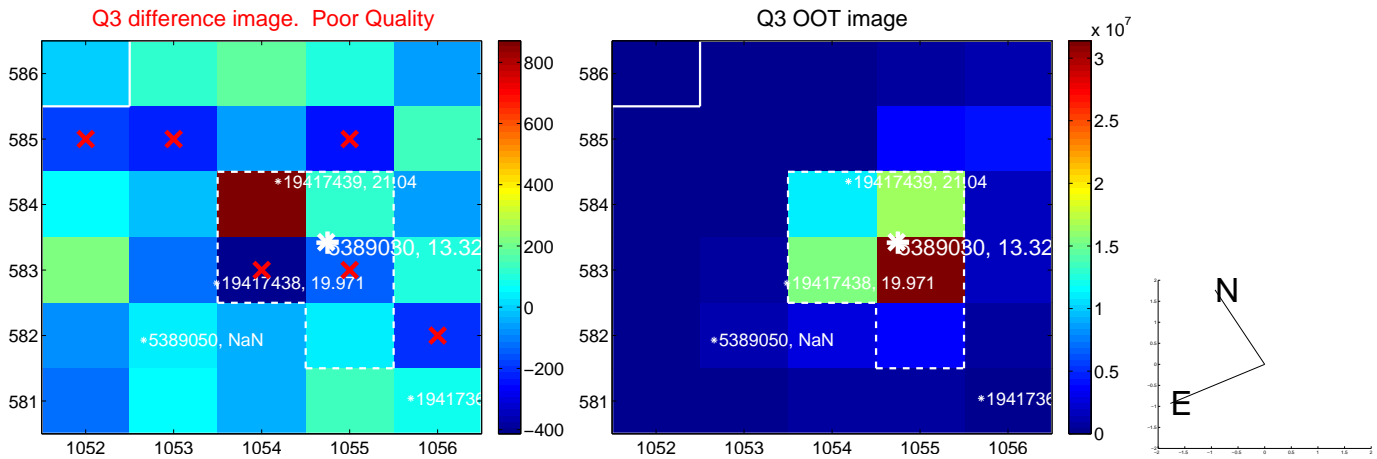
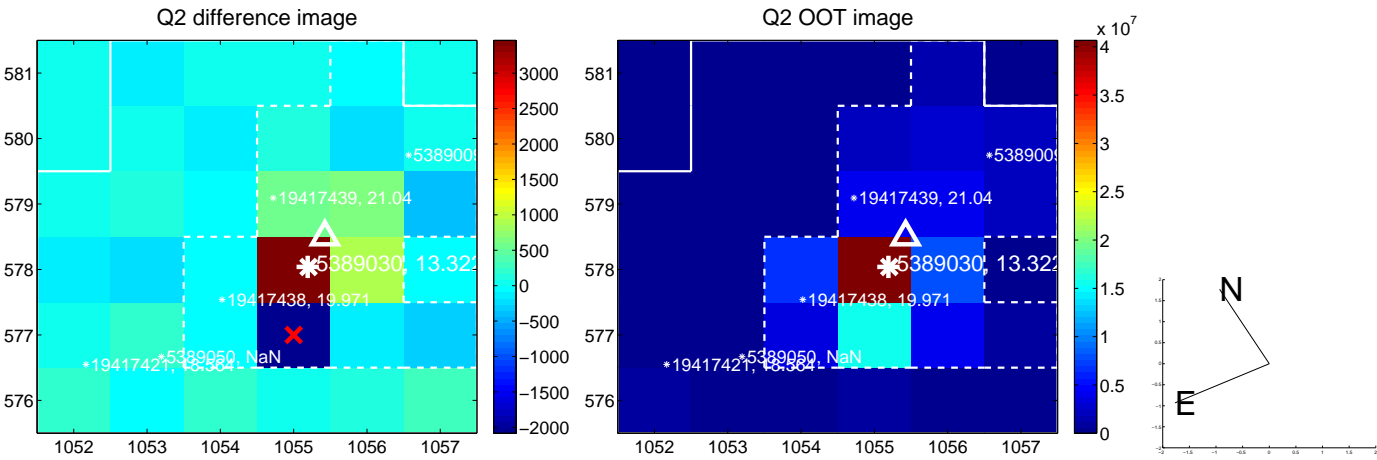
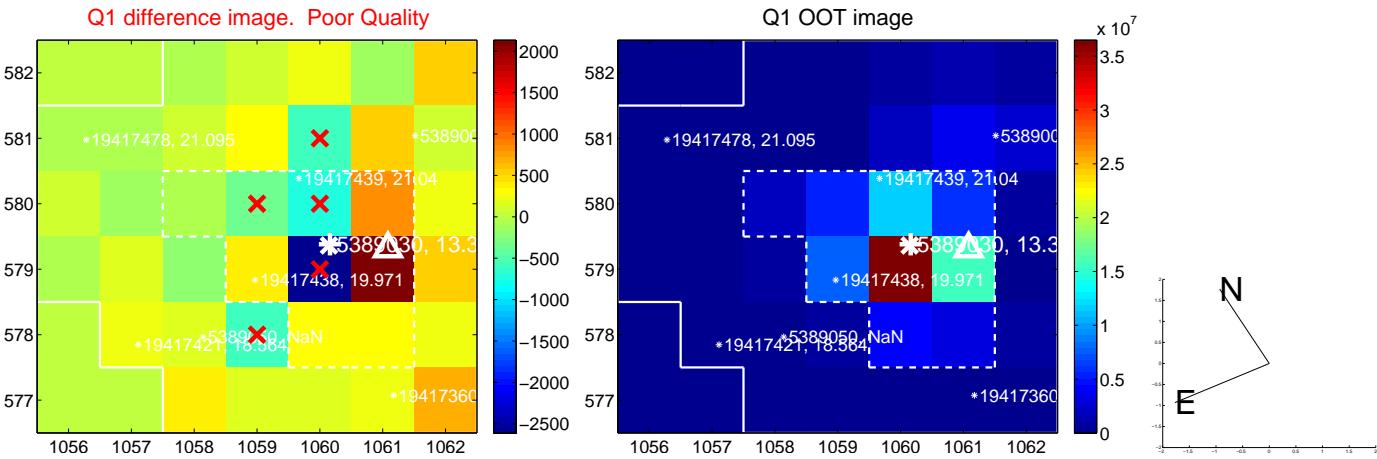
The direct PRF centroid is offset from the target star catalog position by about 0.05 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.822 ± 1.198	0.69	-0.802 ± 1.078	0.181 ± 0.958
PRF-fit source offset from KIC position	0.847 ± 1.458	0.58	-0.824 ± 1.306	0.198 ± 1.000
photometric centroid source offset	0.49 ± 1.07	0.46	-0.14 ± 1.17	0.47 ± 1.06

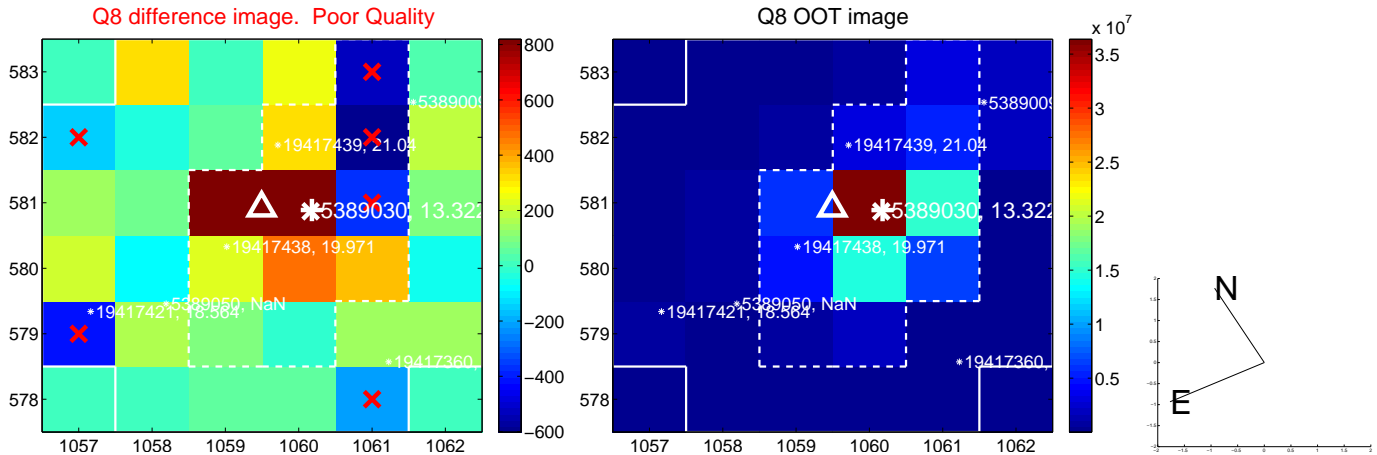
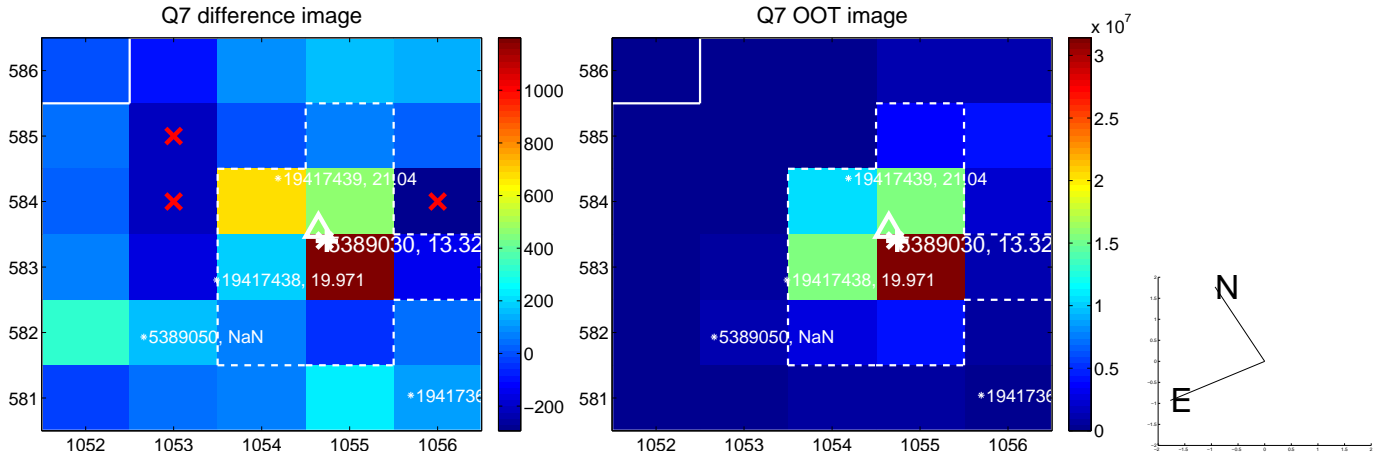
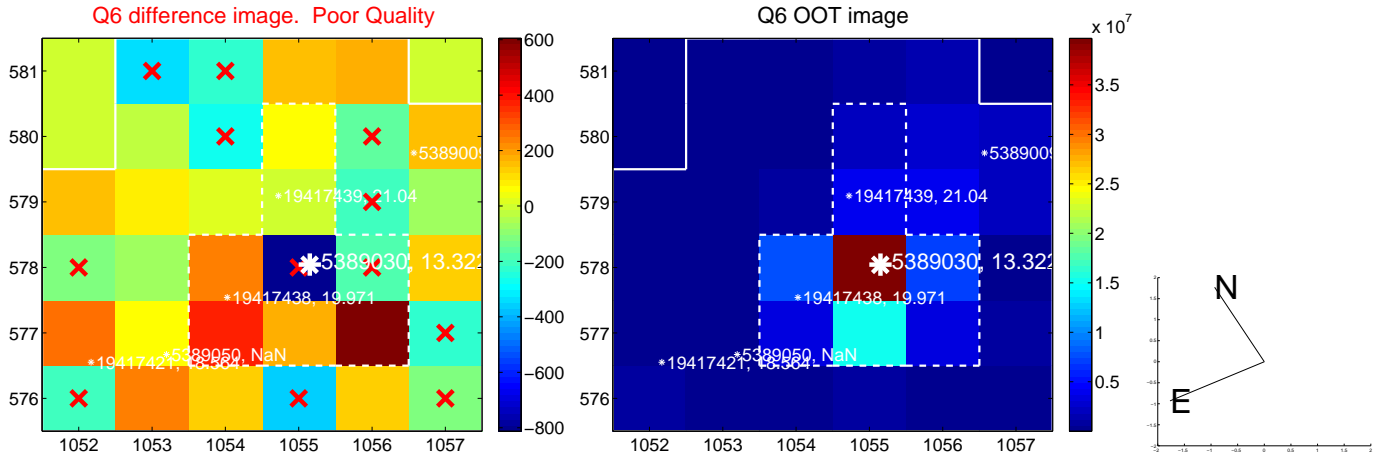
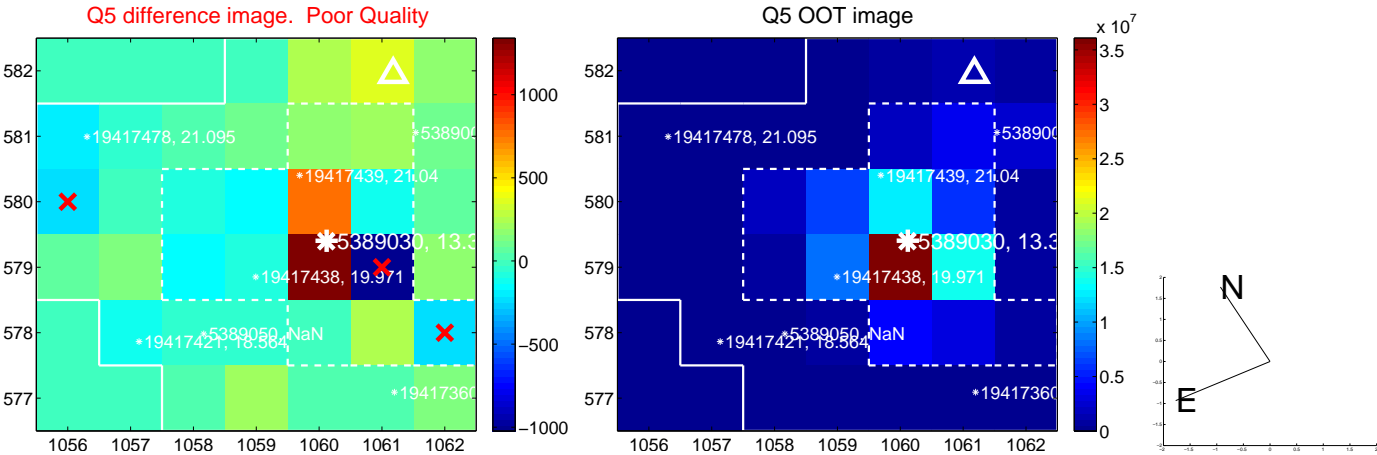


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ . Red *: target star. Blue *: Other stars. Text next to a star gives its KIC ID and kepmag. KIC IDs > 15,000,000 are from the UKIRT catalog.

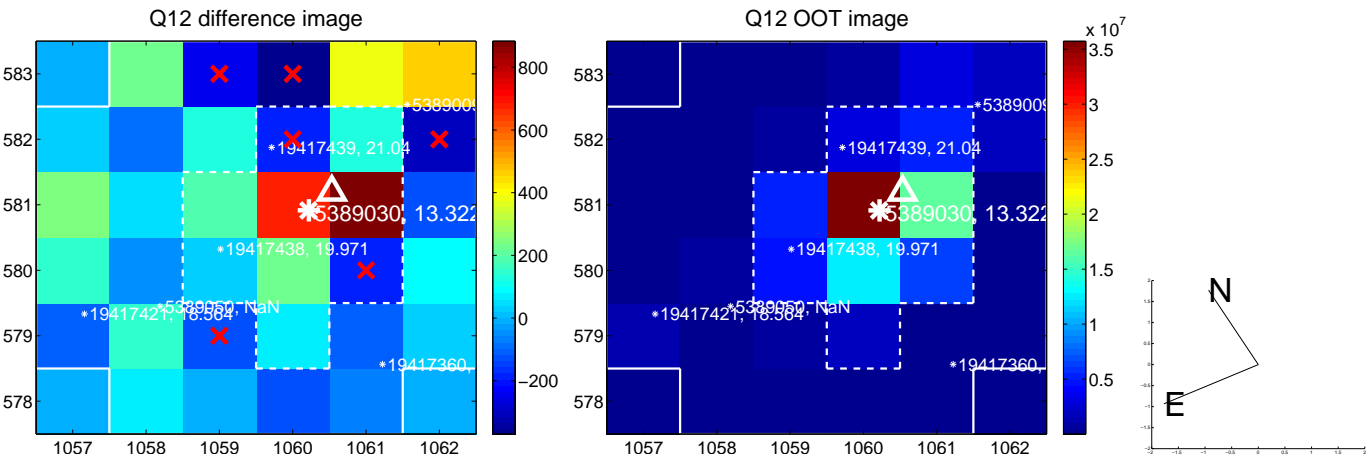
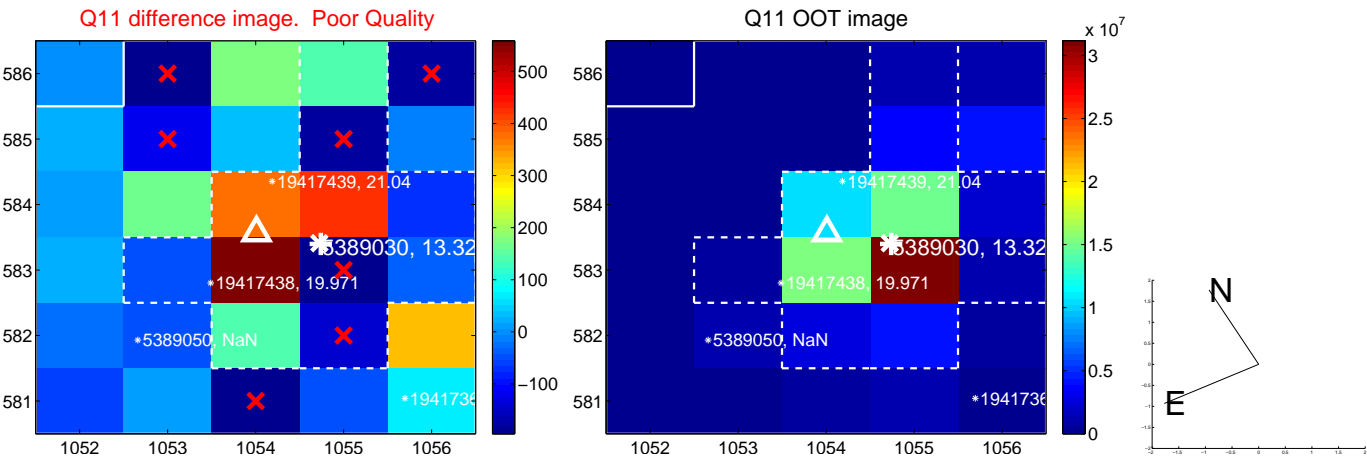
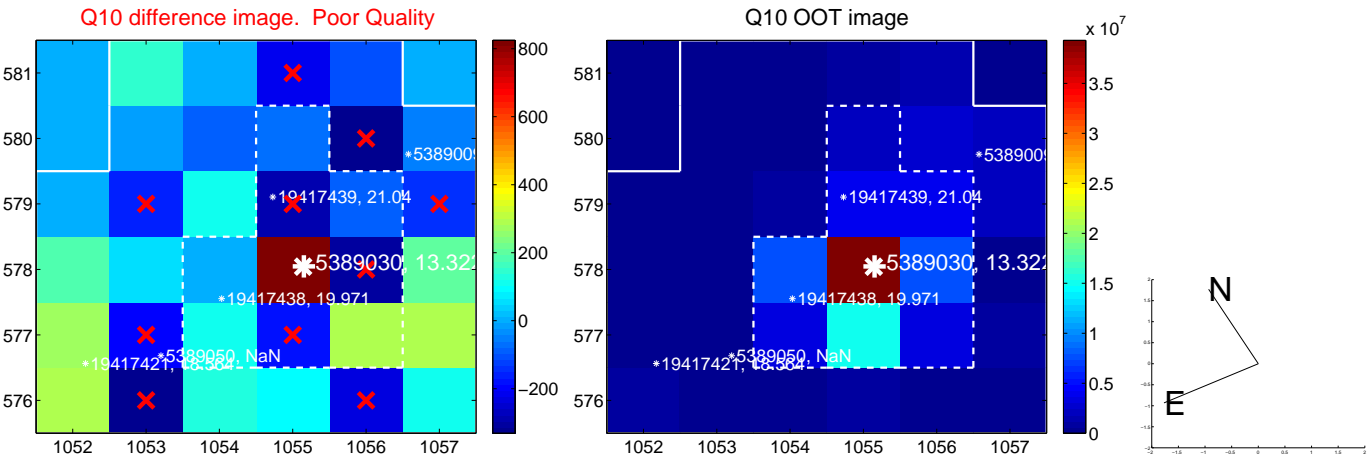
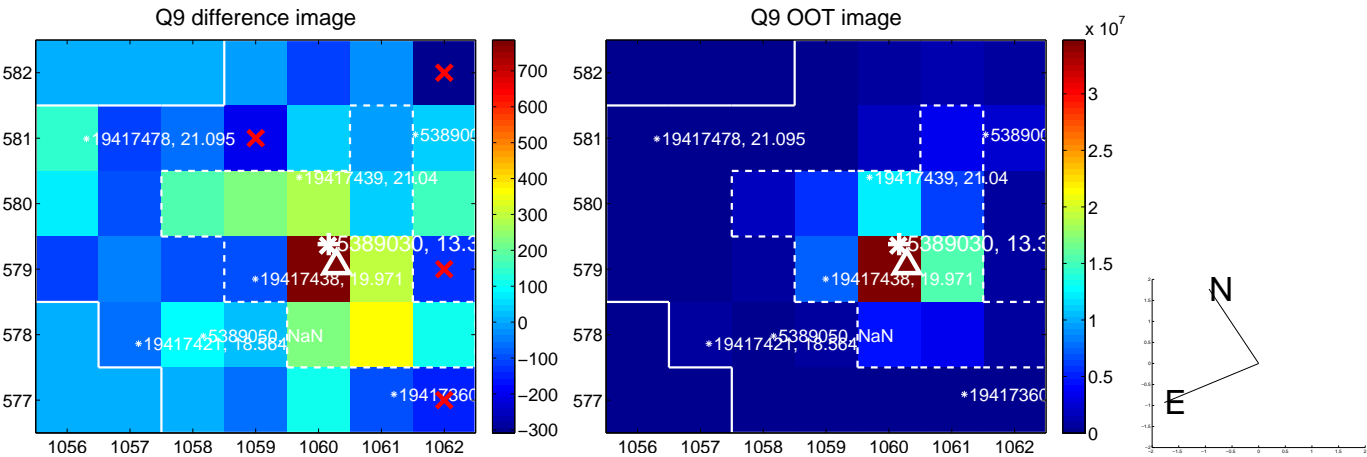
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



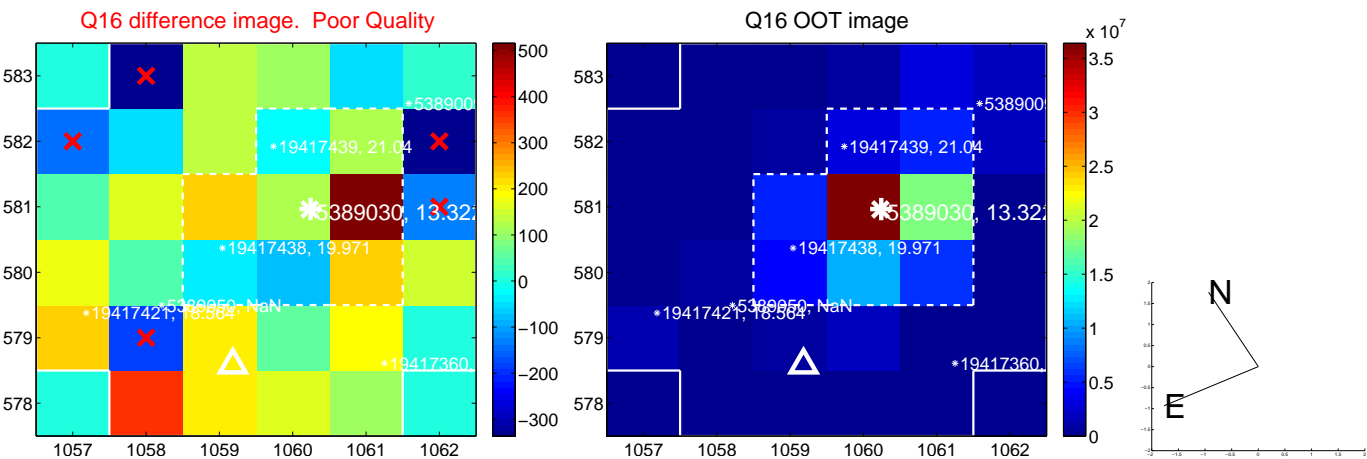
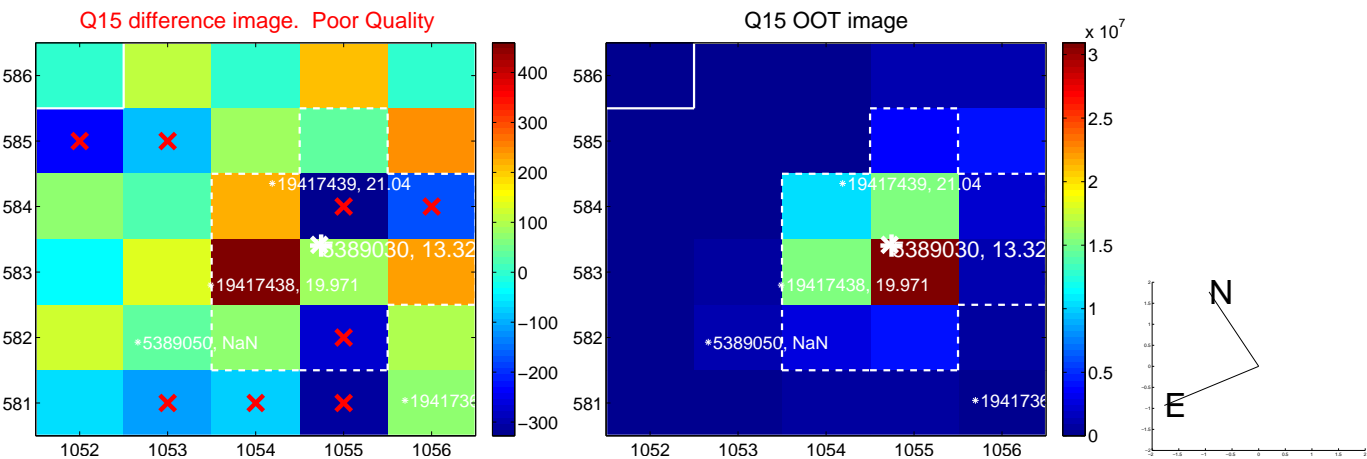
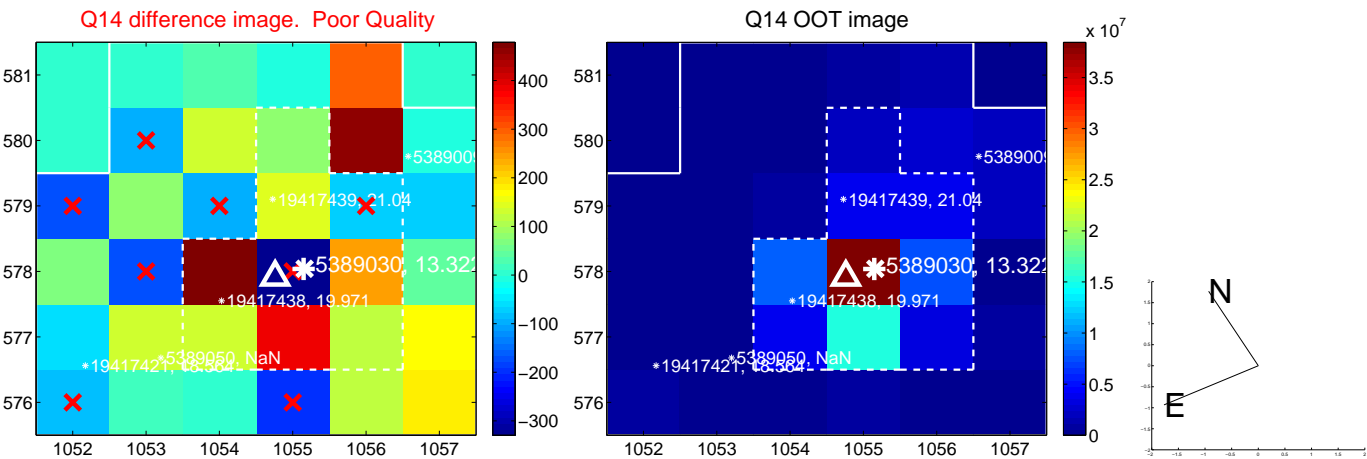
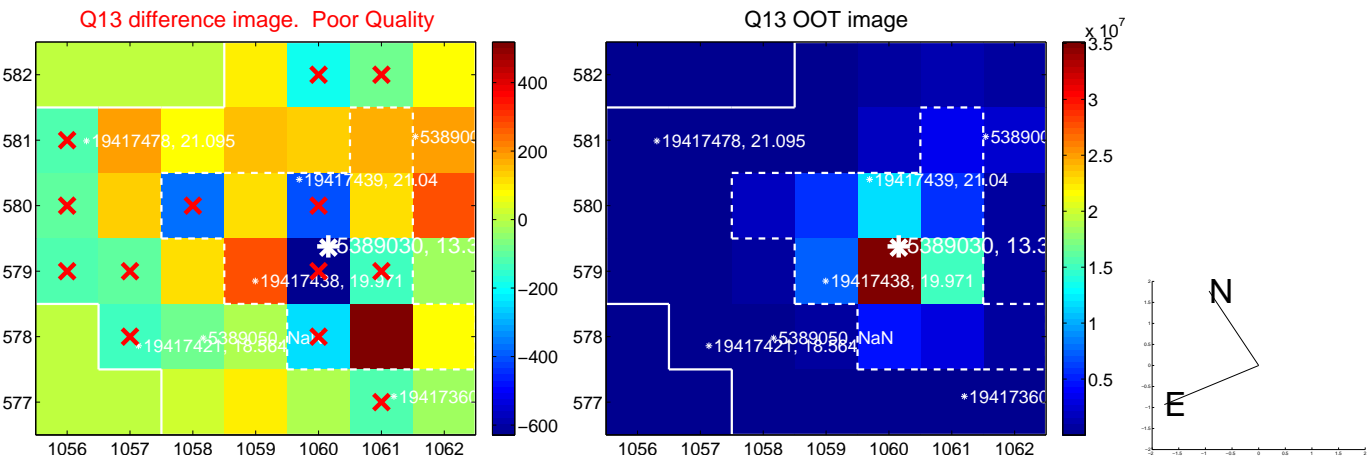
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



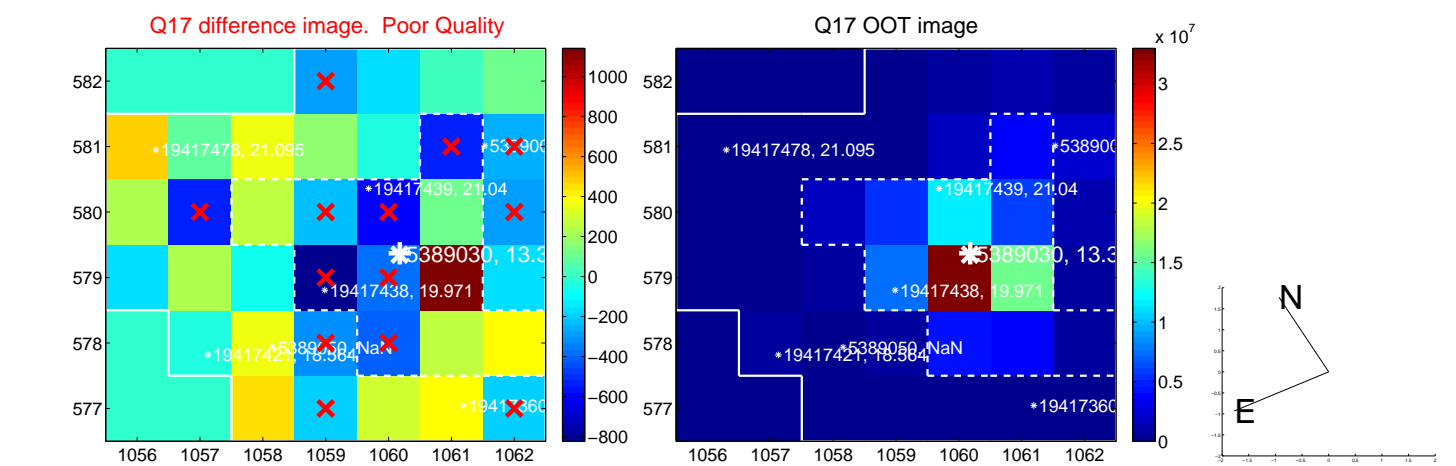
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



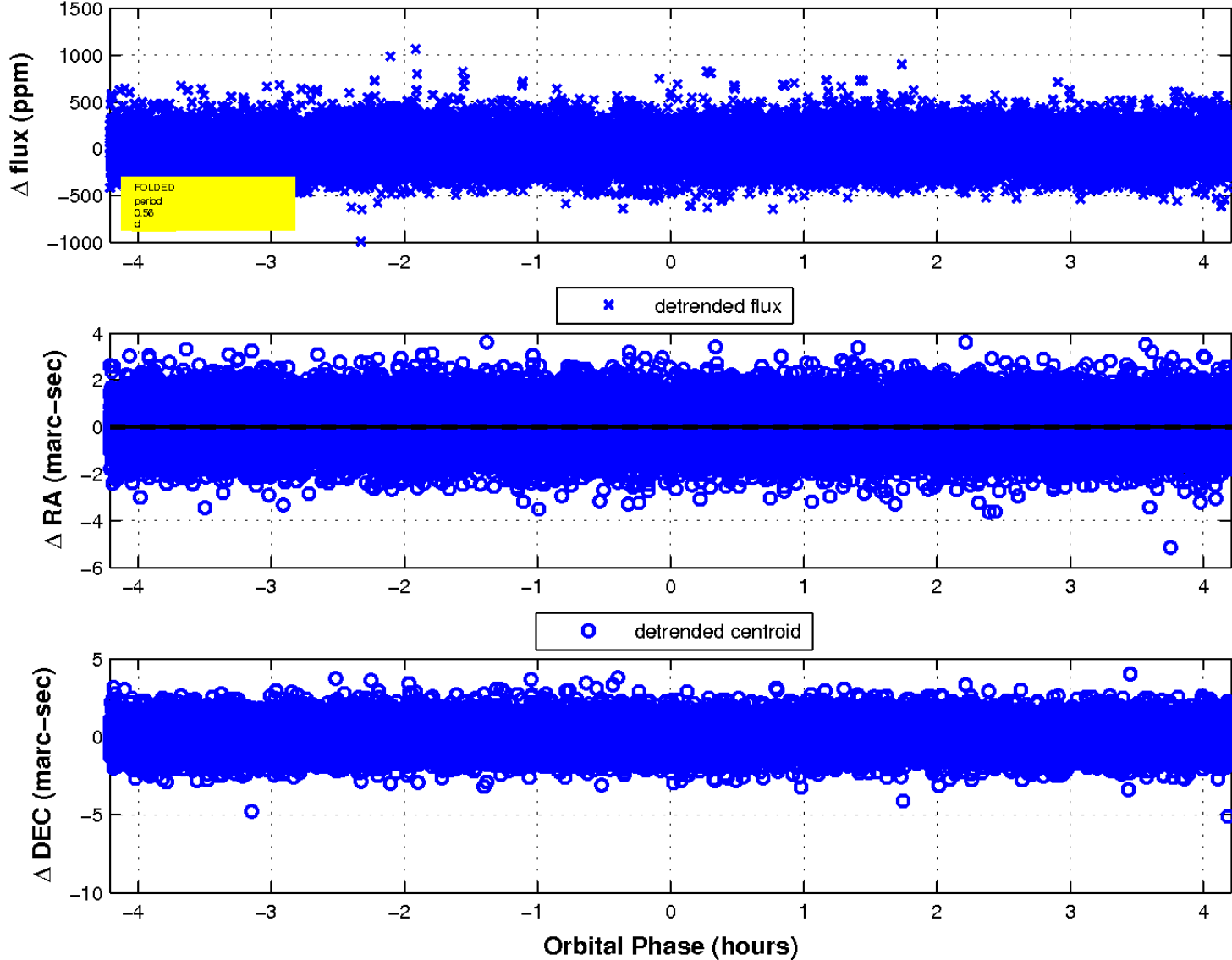
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



fluxWeightedCentroids, Planet 2 of 2



UKIRT Image

Declination

