

KIC 005620305

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})
005620305-01	OBS	No	1.465857	131.748556	55.1	9.014	10.4	11.9	7.76	5029	5.59	0.00
005620305-02	OBS	No	467.401936	174.012799	943.8	15.177	11.6	10.4	7.76	5029	48.39	15.22

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005620305-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—CENT_SATURATED
005620305-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_SATURATED

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

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

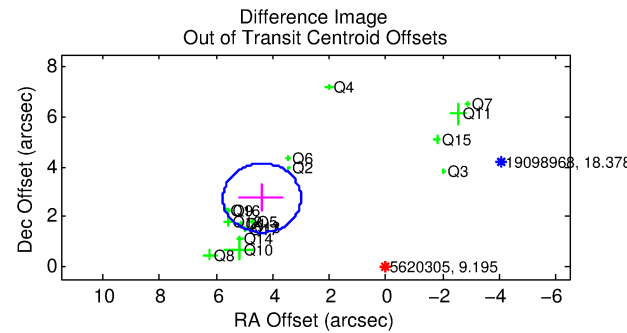
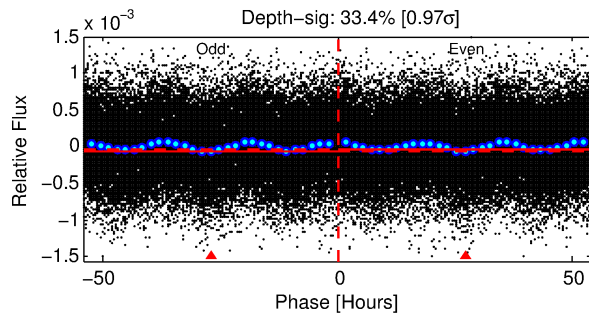
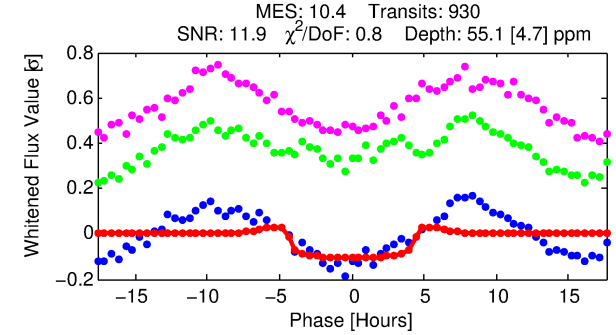
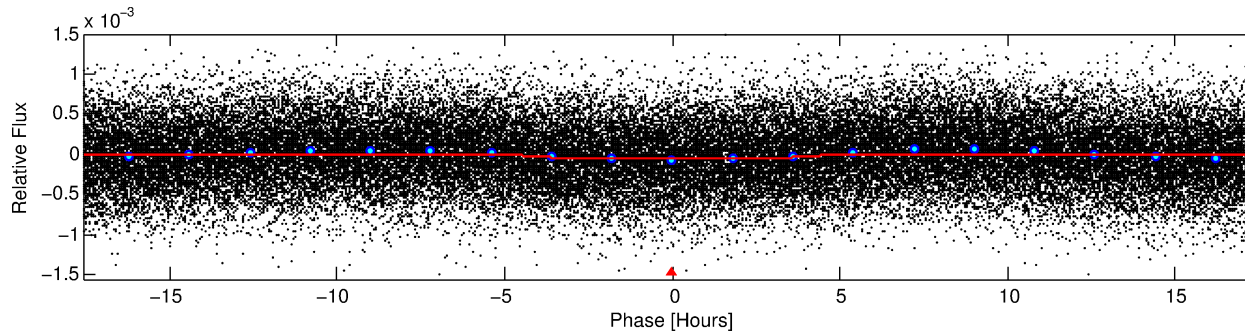
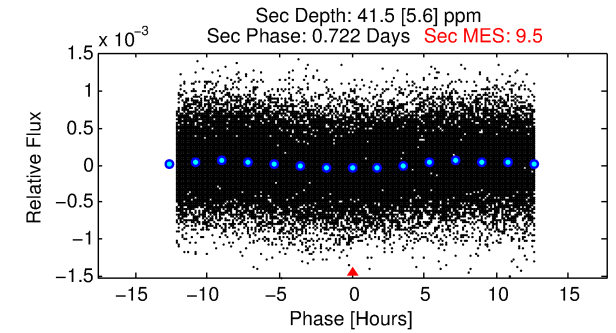
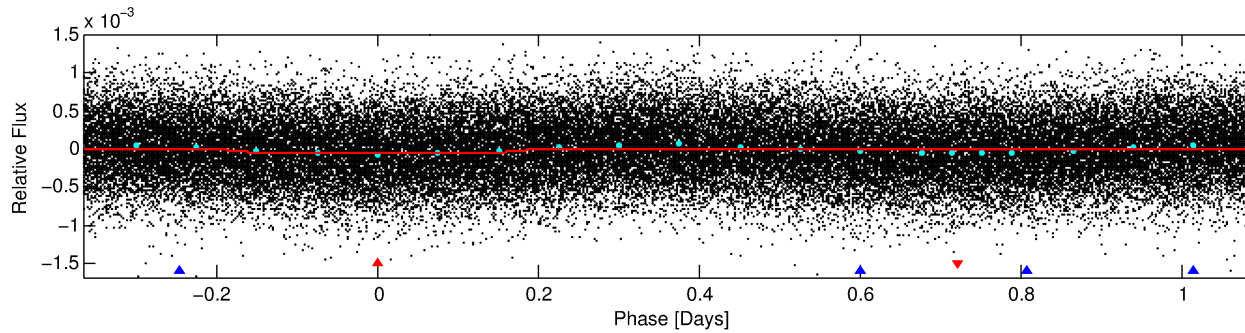
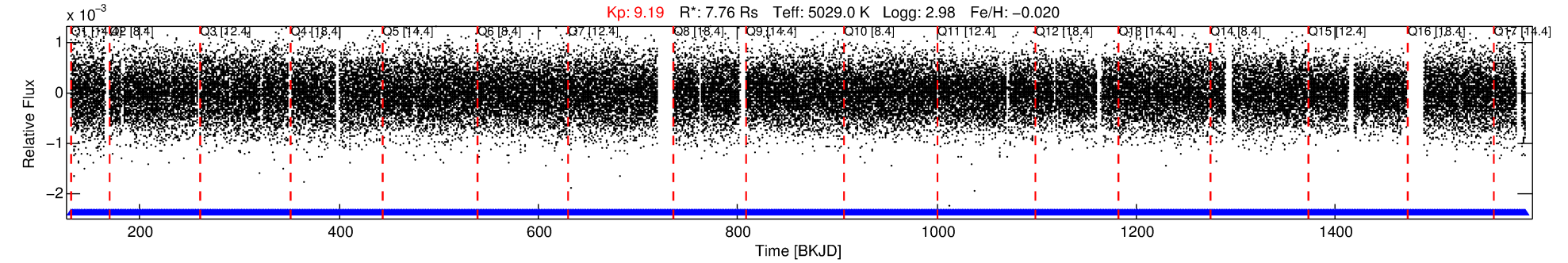
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 005620305-01

No Significant Match Found

DV One-Page Summary

KIC: 5620305 Candidate: 1 of 2 Period: 1.466 d



DV Fit Results:

Period = 1.46586 [0.00002] d
Epoch = 131.7486 [0.0063] BKJD
Rp/R* = 0.0066 [0.0058]
a/R* = 1.39 [2.06]
b = 0.11 [27.50]
Seff = N/A
Teq = N/A
Rp = 5.59 [5.29] Re
a = N/A
Ag = N/A
Teffp = N/A

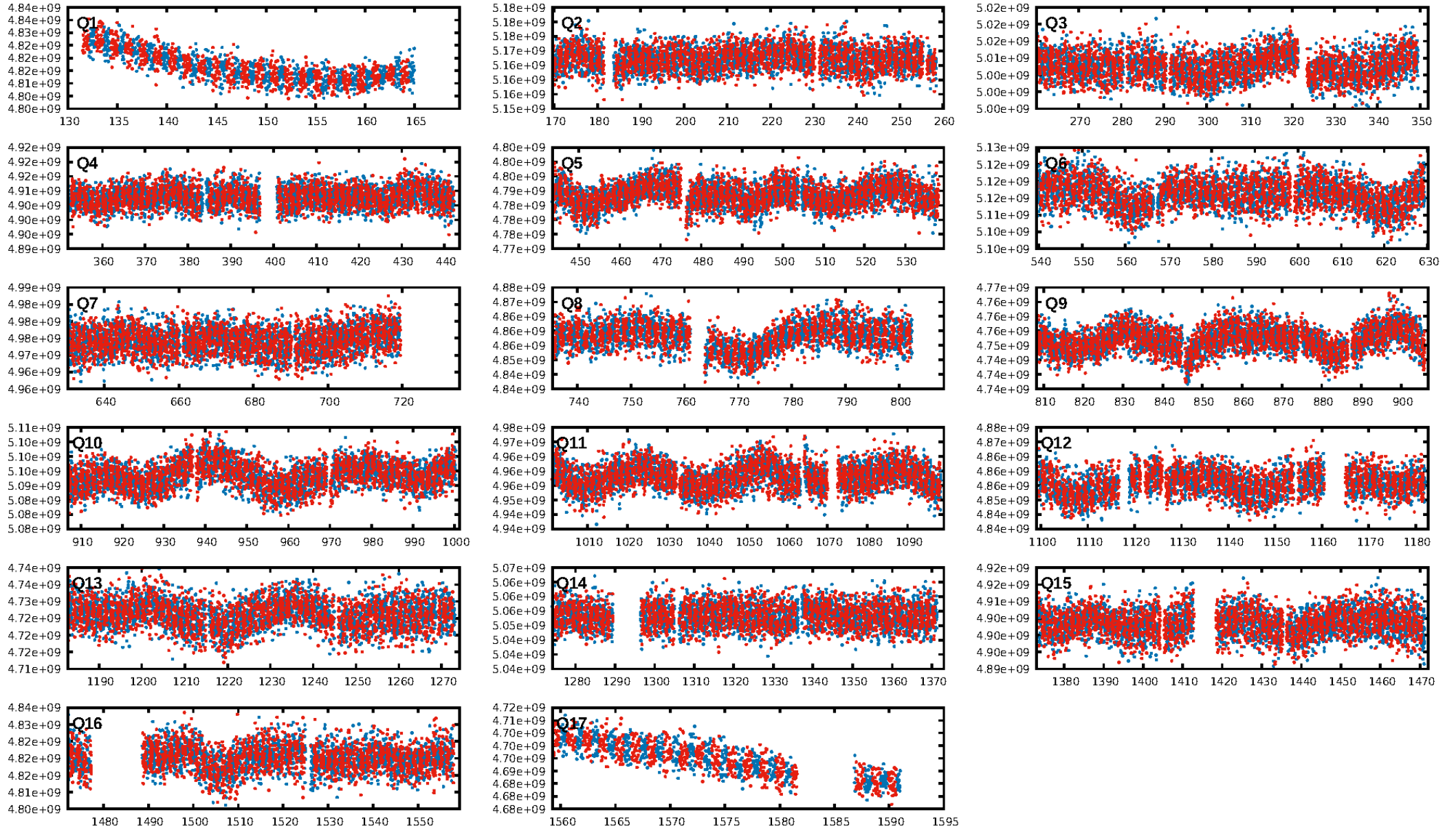
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [633.50σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 5.35e-13
RollingBand-fgt: 1.00 [888/888]
GhostDiagnostic-chr: N/A
Centroid-sig: N/A
Centroid-so: 1.244 arcsec [5.11σ]
OotOffset-rm: 5.176 arcsec [11.26σ]
KicOffset-rm: 4.278 arcsec [9.48σ]
OotOffset-st: 4/4/4/5 [17]
KicOffset-st: 4/4/4/5 [17]
DiffImageQuality-fgm: 0.00 [0/17]
DiffImageOverlap-fno: 1.00 [17/17]

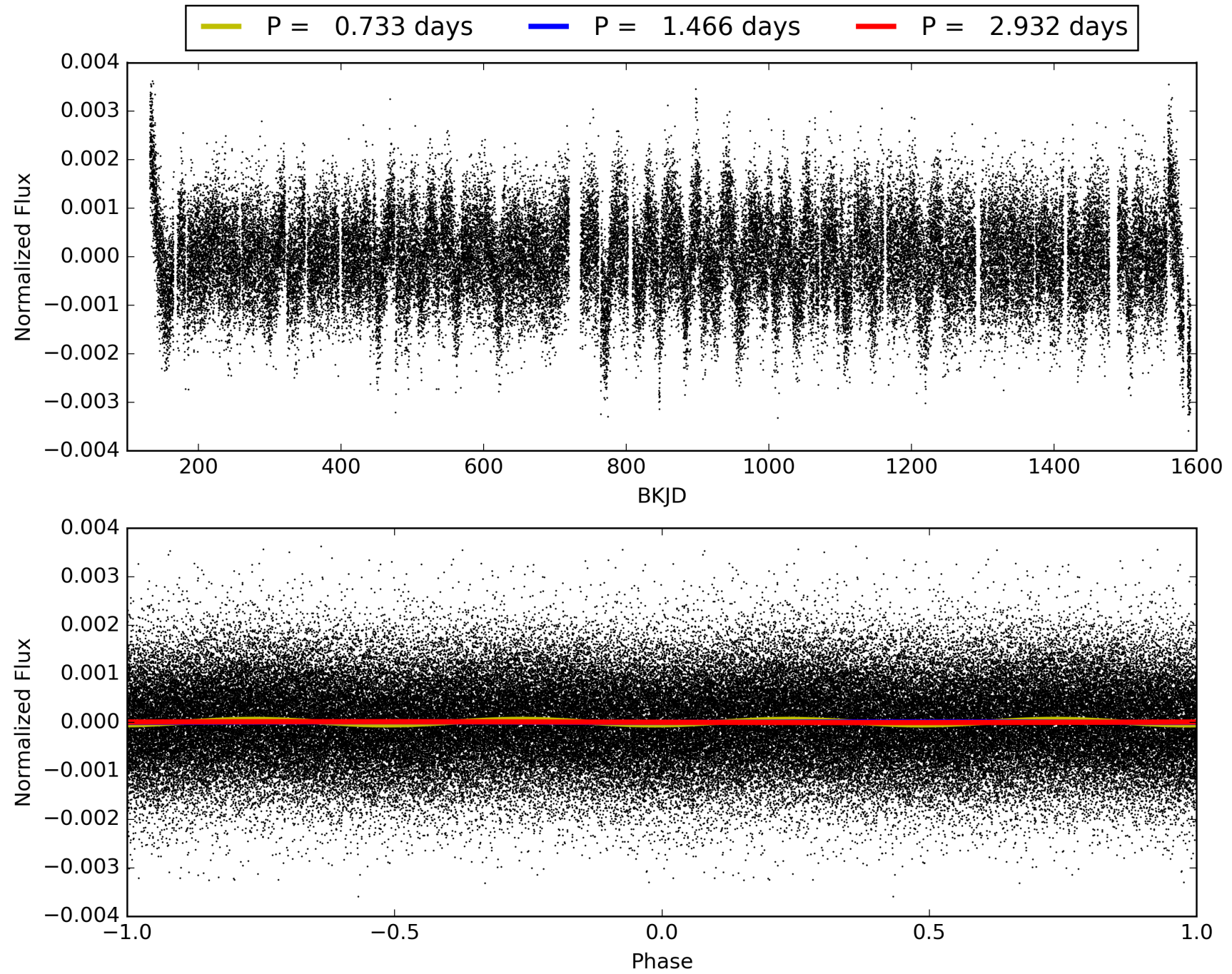
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 18:46:43 Z

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

TCE 005620305-01, PDC Light Curves

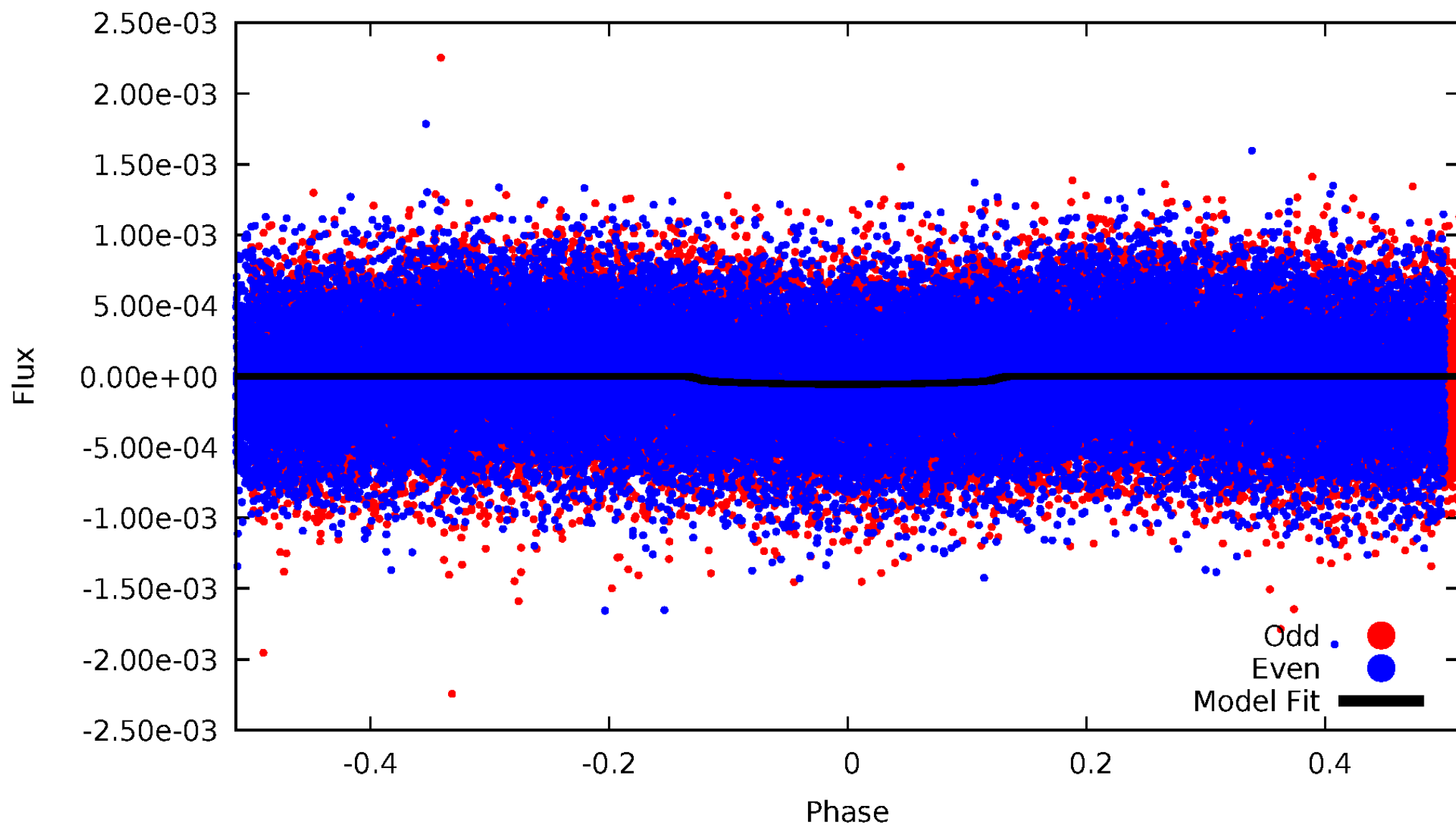


TCE 005620305-01



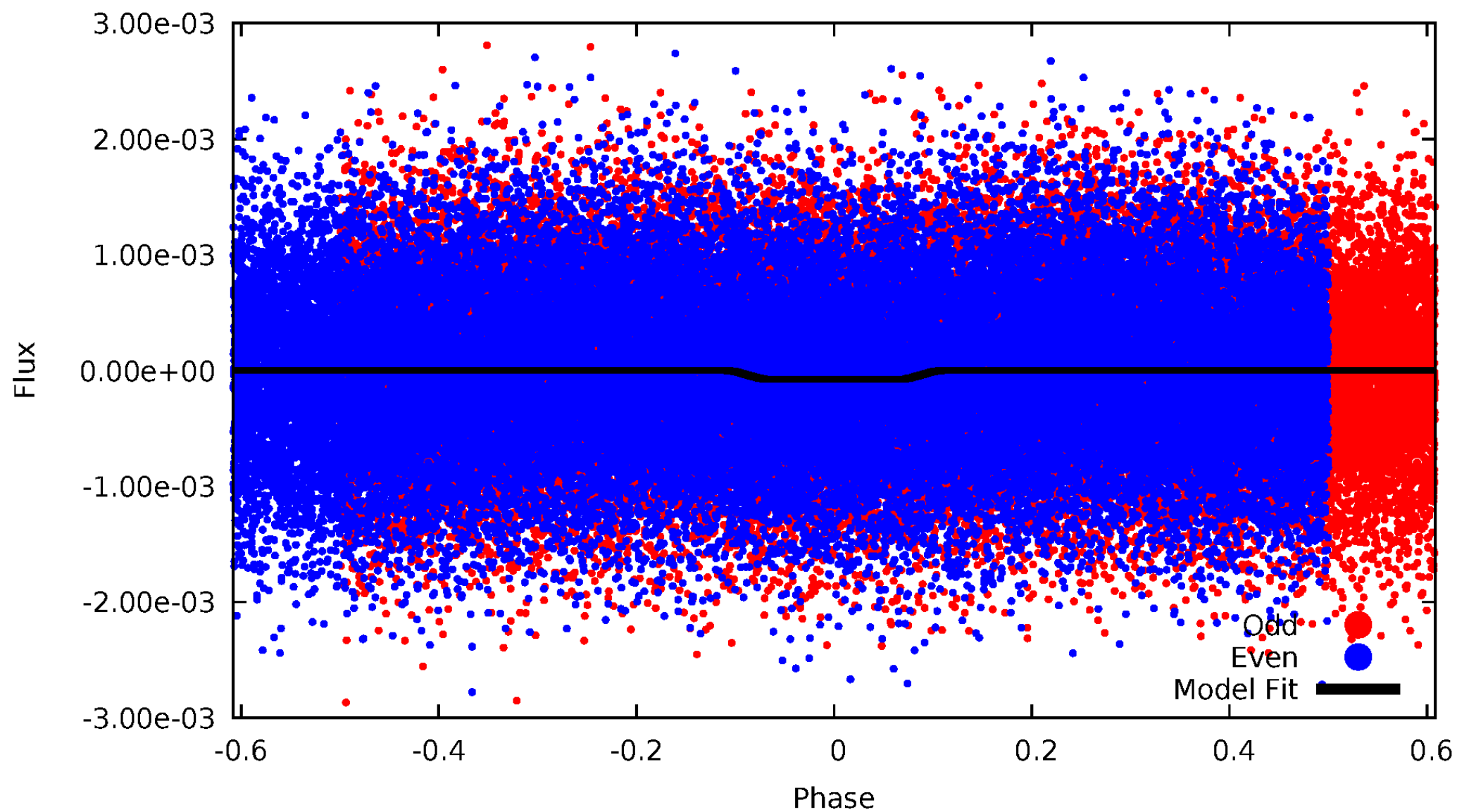
DV Odd/Even

TCE 005620305-01

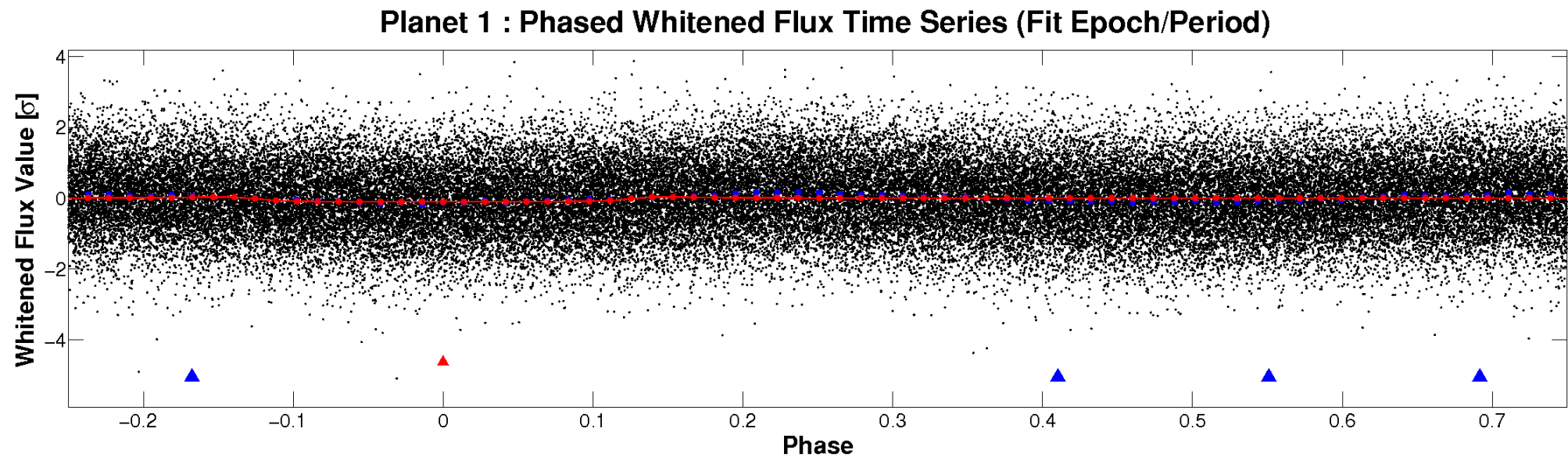
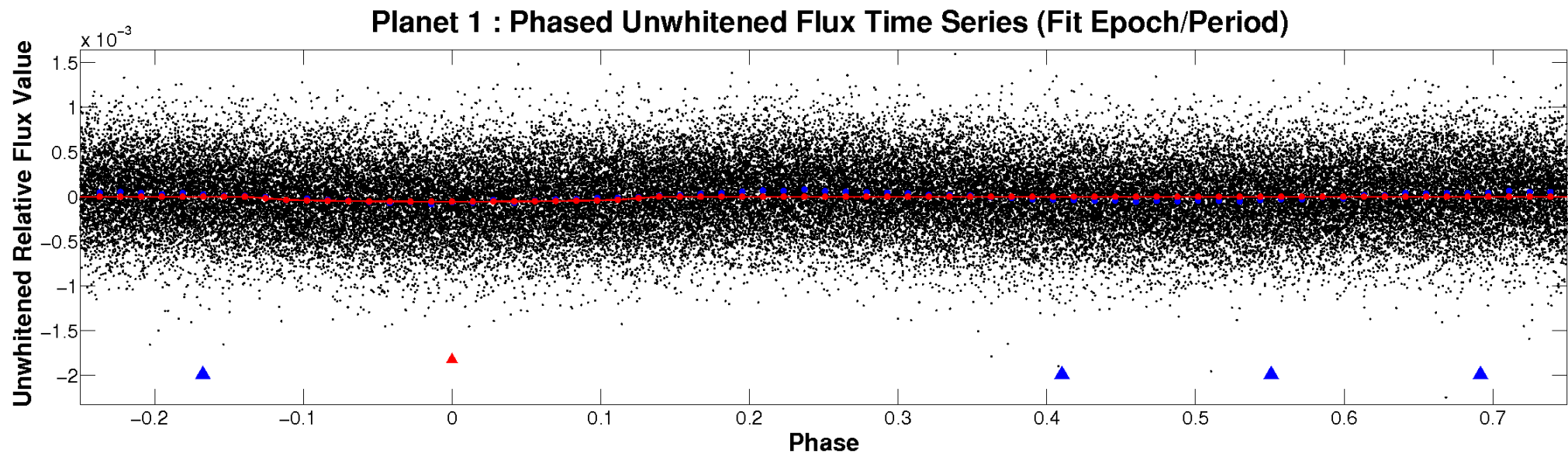


ALT Odd/Even

TCE 005620305-01

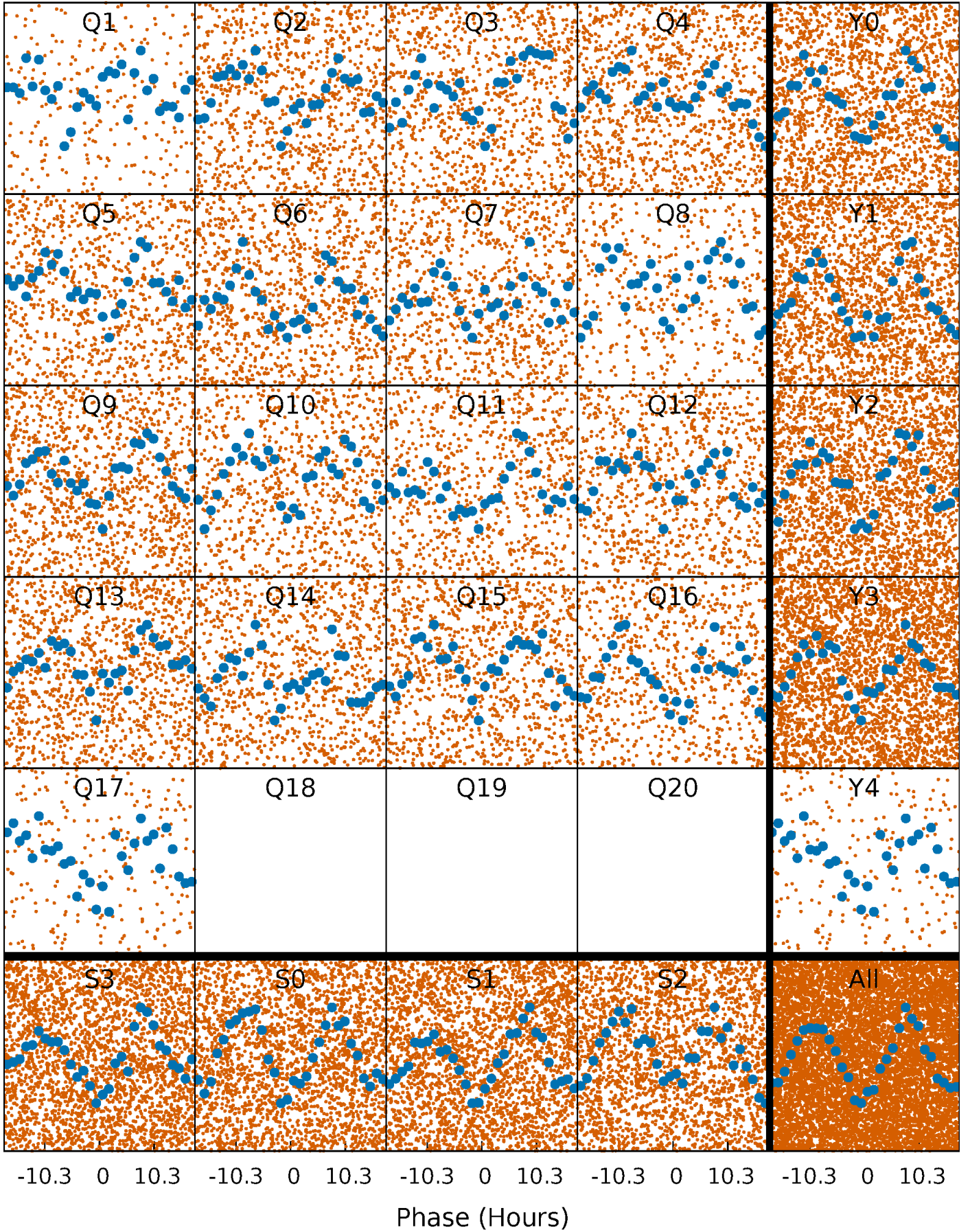


Non-Whitened Vs. Whitened Light Curve



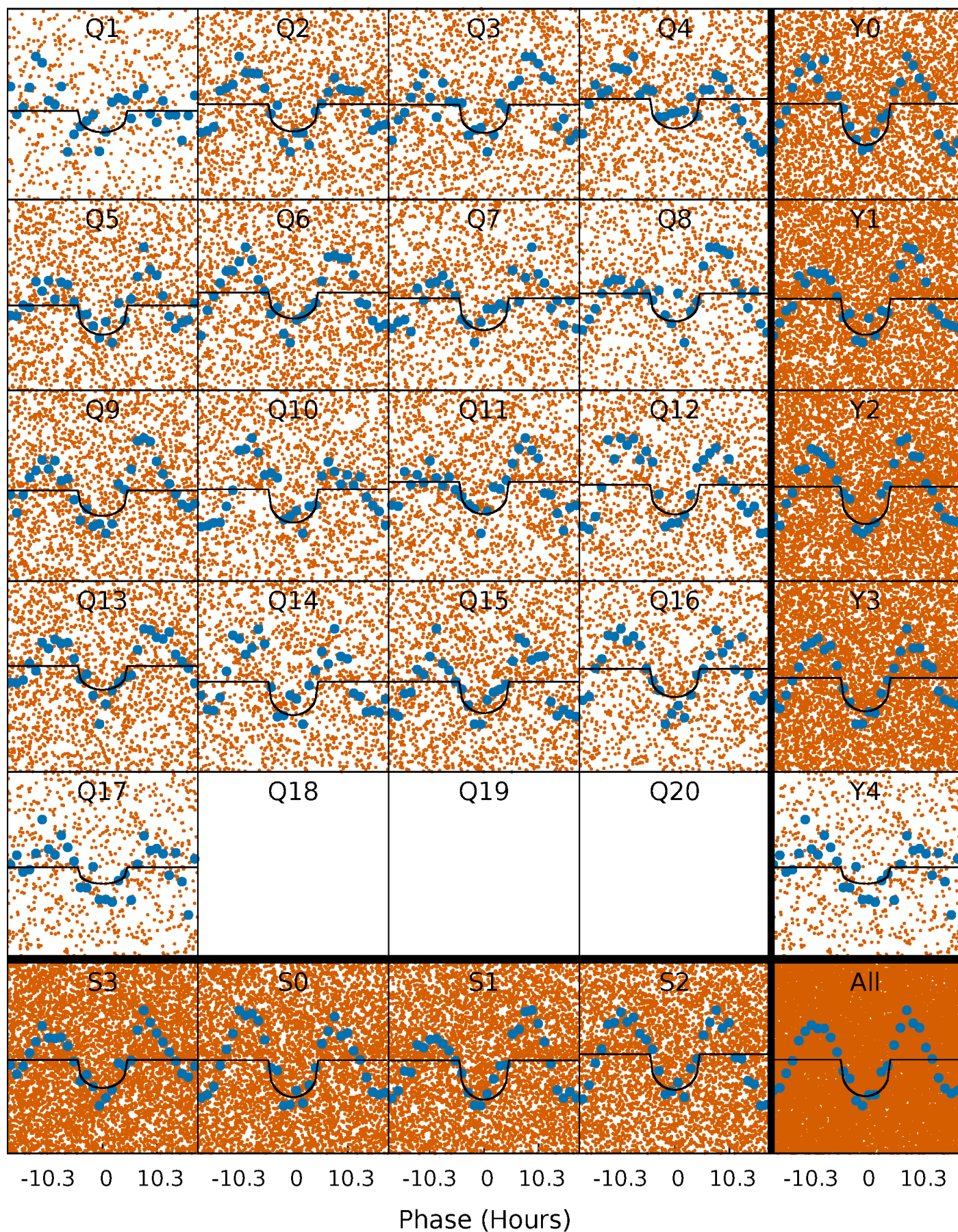
PDC Quarter-Phased Transit Curves

TCE 005620305-01 P= 1.465857 Days $T_0=131.748556$ (BKJD)



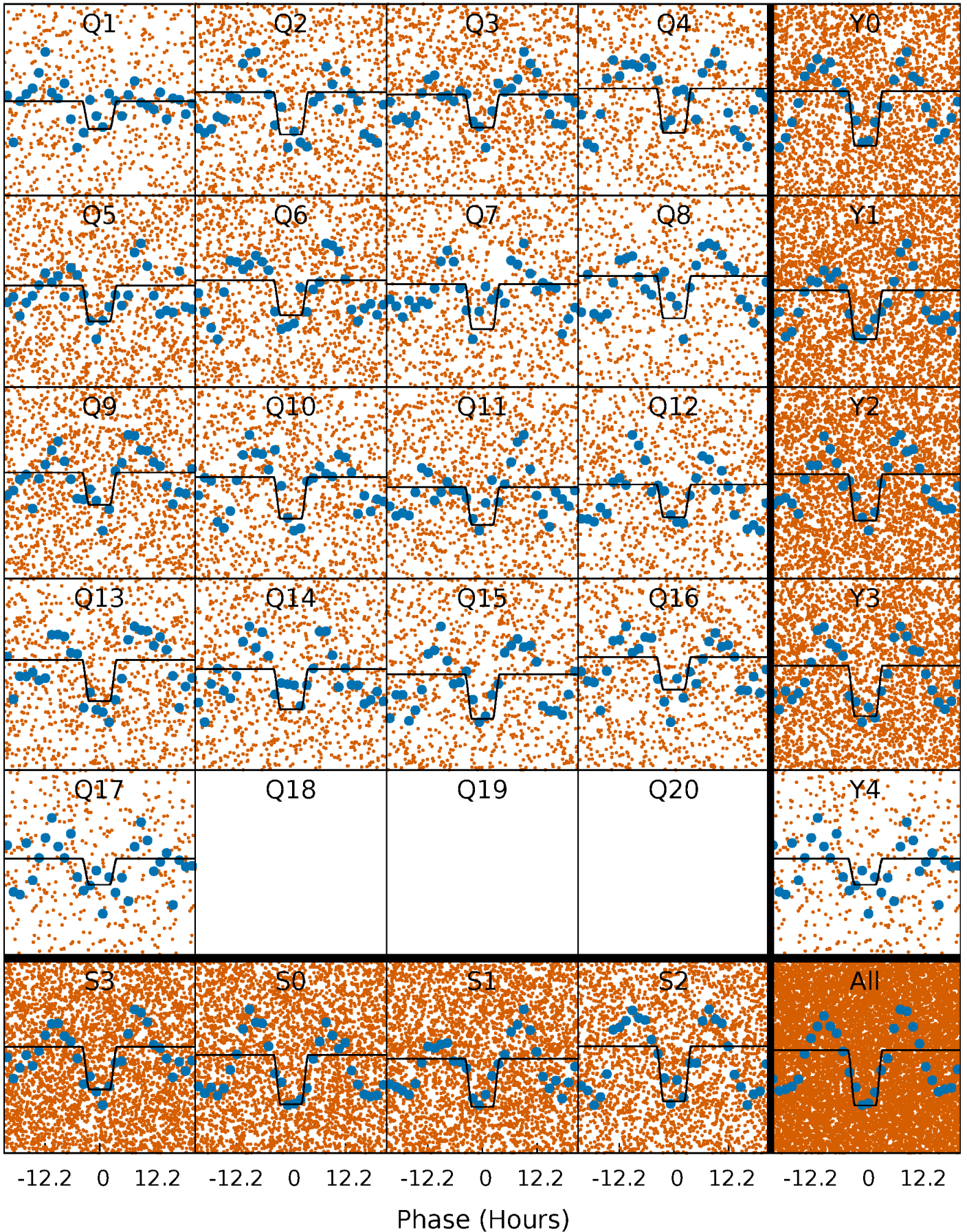
DV Quarter-Phased Transit Curves

TCE 005620305-01 P= 1.465857 Days $T_0=131.748556$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

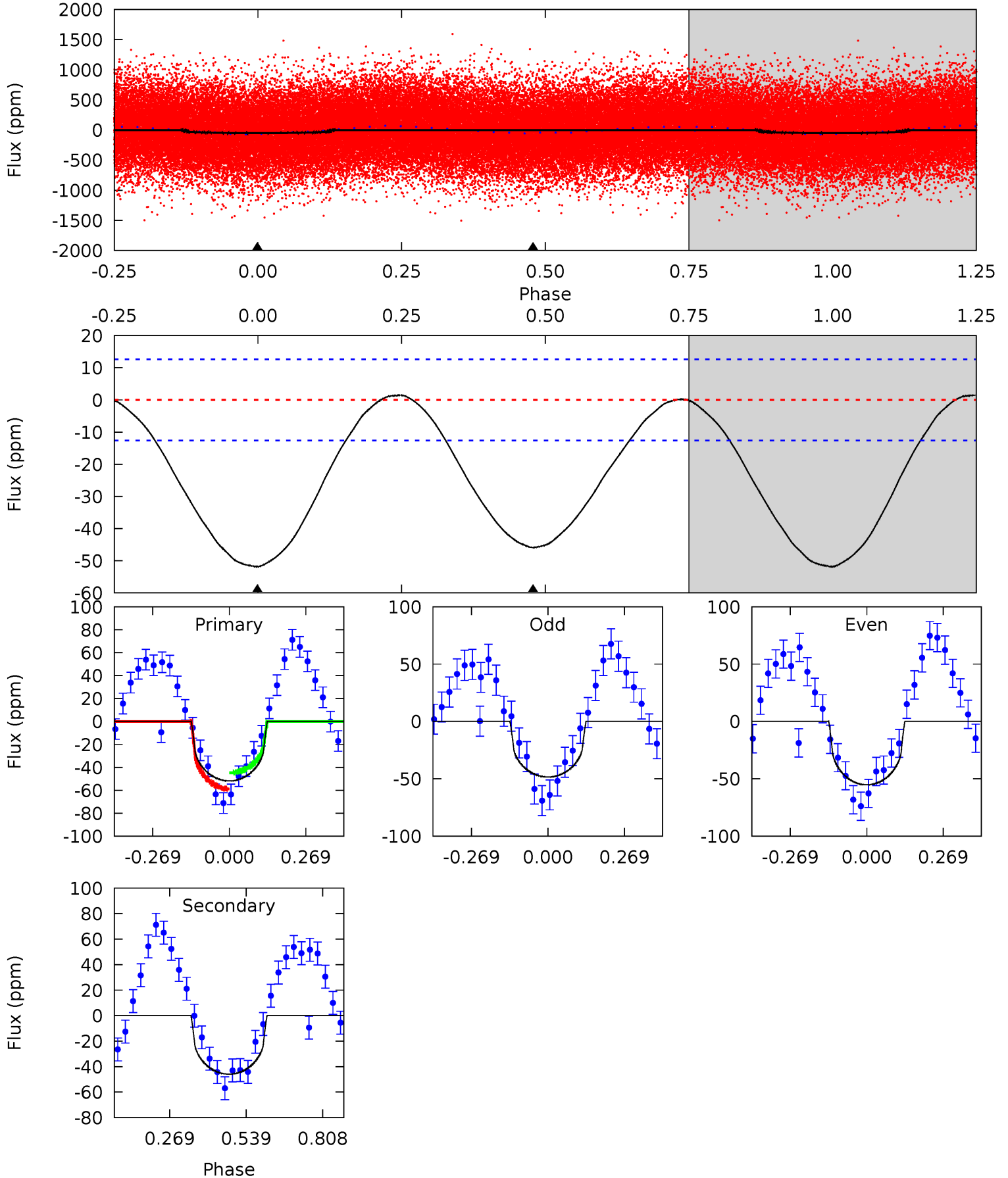
TCE 005620305-01 P= 1.465858 Days $T_0=131.732249$ (BKJD)



DV Model-Shift Uniqueness Test

005620305-01, P = 1.465857 Days, E = 130.282699 Days

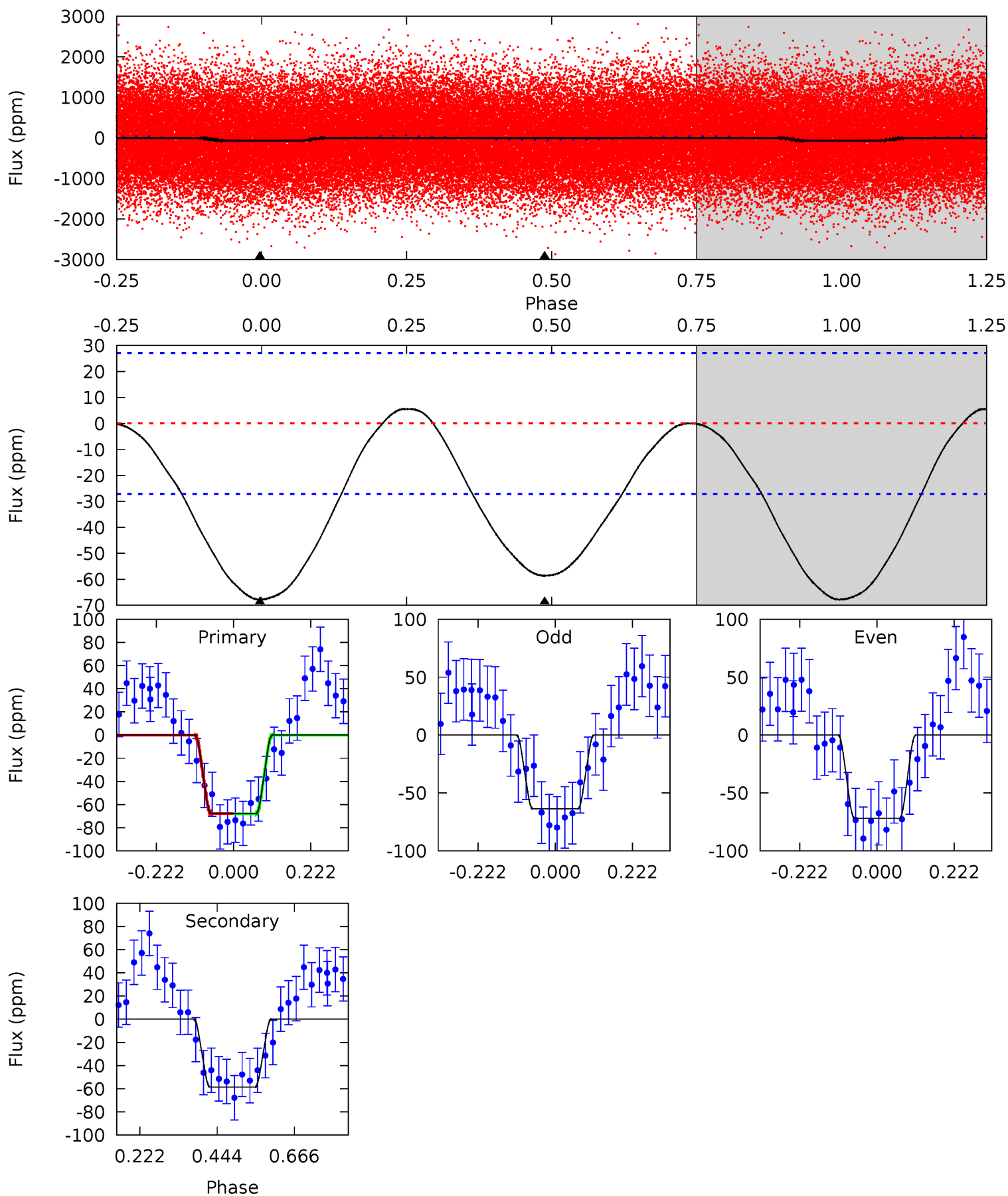
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
17.9	15.8	0	0	4.35	1.10	0.42	17.9	17.9	15.8	15.8	1.17	1.04	0.03	2.44



Alt Model-Shift Uniqueness Test

005620305-01, P = 1.465858 Days, E = 130.266391 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	9.51	0	0	4.39	1.22	0.46	11.0	11.0	9.51	9.51	0.65	1.00	0.08	0.03



Stellar Parameters For KIC 005620305

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5029^{+40}_{-140}	$2.977^{+0.202}_{-0.109}$	$-0.020^{+0.100}_{-0.200}$	$7.762^{+2.227}_{-2.722}$	$2.085^{+0.594}_{-0.890}$	$0.006^{+0.008}_{-0.002}$
	+1%/-3%	+7%/-4%	+500%/-1000%	+29%/-35%	+28%/-43%	+132%/-37%
Source	SPE13	SPE13	SPE13	DSEP		

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

Secondary Eclipse Parameters for KIC 005620305-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-46 ± 3	$6.22^{+4.56}_{-3.73}$	4714^{+274}_{-390}	4122^{+2789}_{-7370}	$0.655^{+3.251}_{-0.431}$
Alt.	-59 ± 6	$7.27^{+5.37}_{-4.11}$	4718^{+285}_{-361}	4085^{+2519}_{-7418}	$0.640^{+2.759}_{-0.427}$

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 $A_{obs} \gg 1.0$

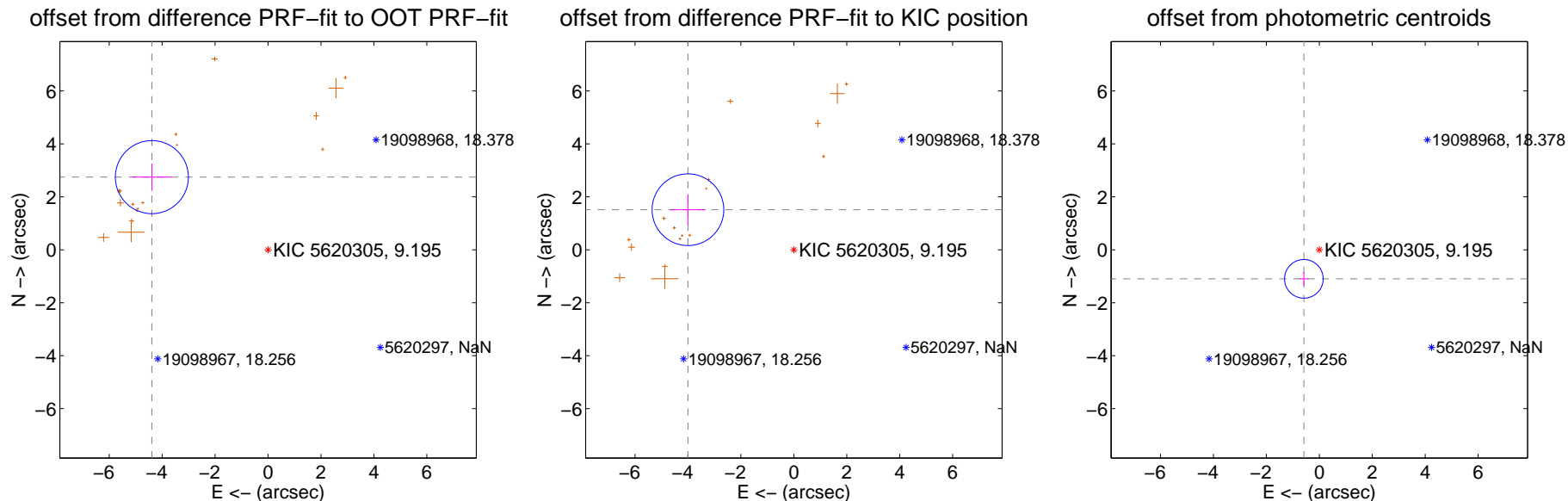
DV Centroid Data

Supplemental centroid analysis for 005620305-01. **Kepler magnitude: 9.20.** Transit SNR 11.93

There are 0 quarters with good PRF difference image offsets

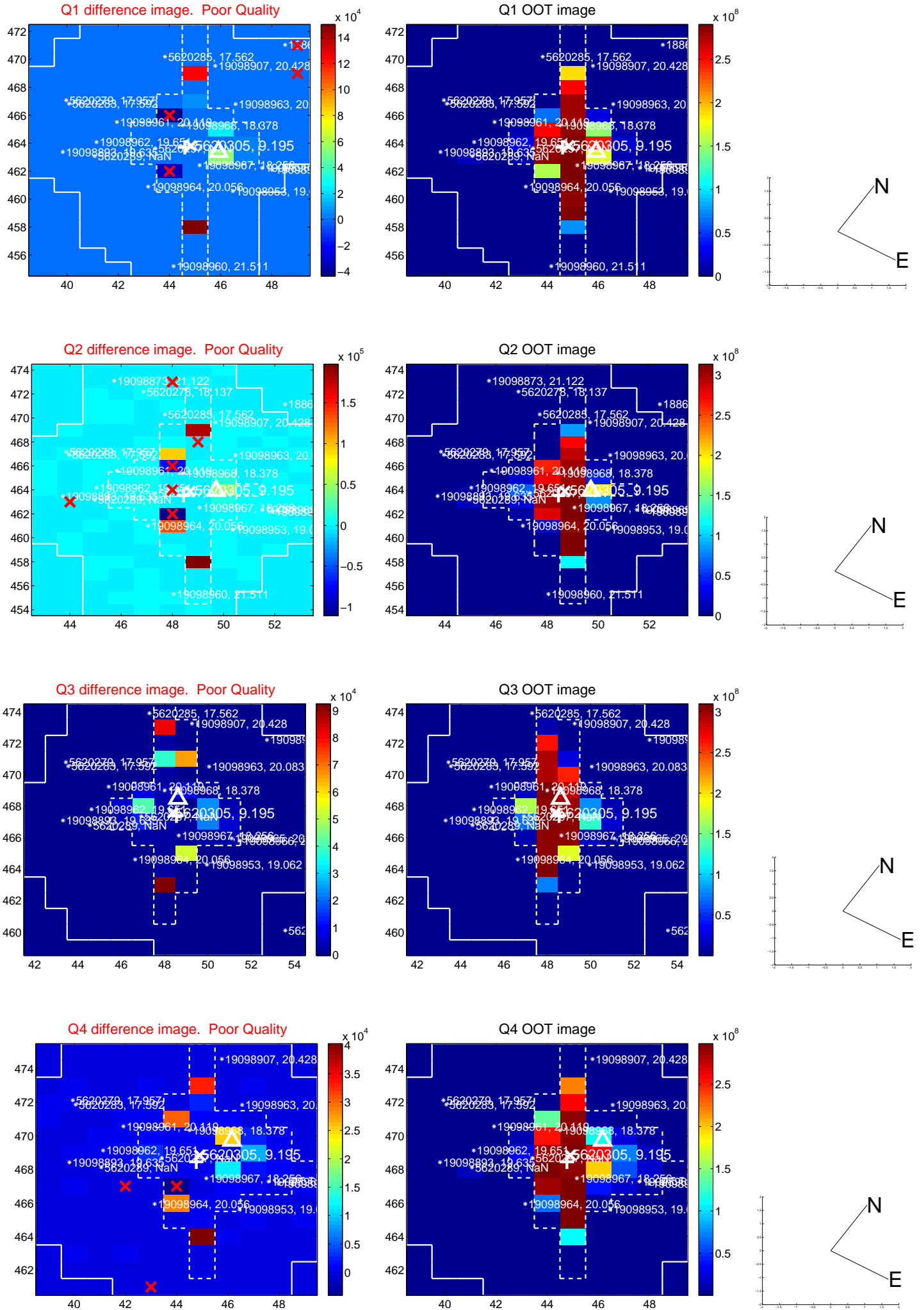
The direct PRF centroid is offset from the target star catalog position by about 1.25 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	5.176 ± 0.460	11.26	4.389 ± 0.759	2.745 ± 0.517
PRF-fit source offset from KIC position	4.278 ± 0.451	9.48	4.001 ± 0.665	1.514 ± 0.584
photometric centroid source offset	1.24 ± 0.24	5.11	0.58 ± 0.17	-1.10 ± 0.26

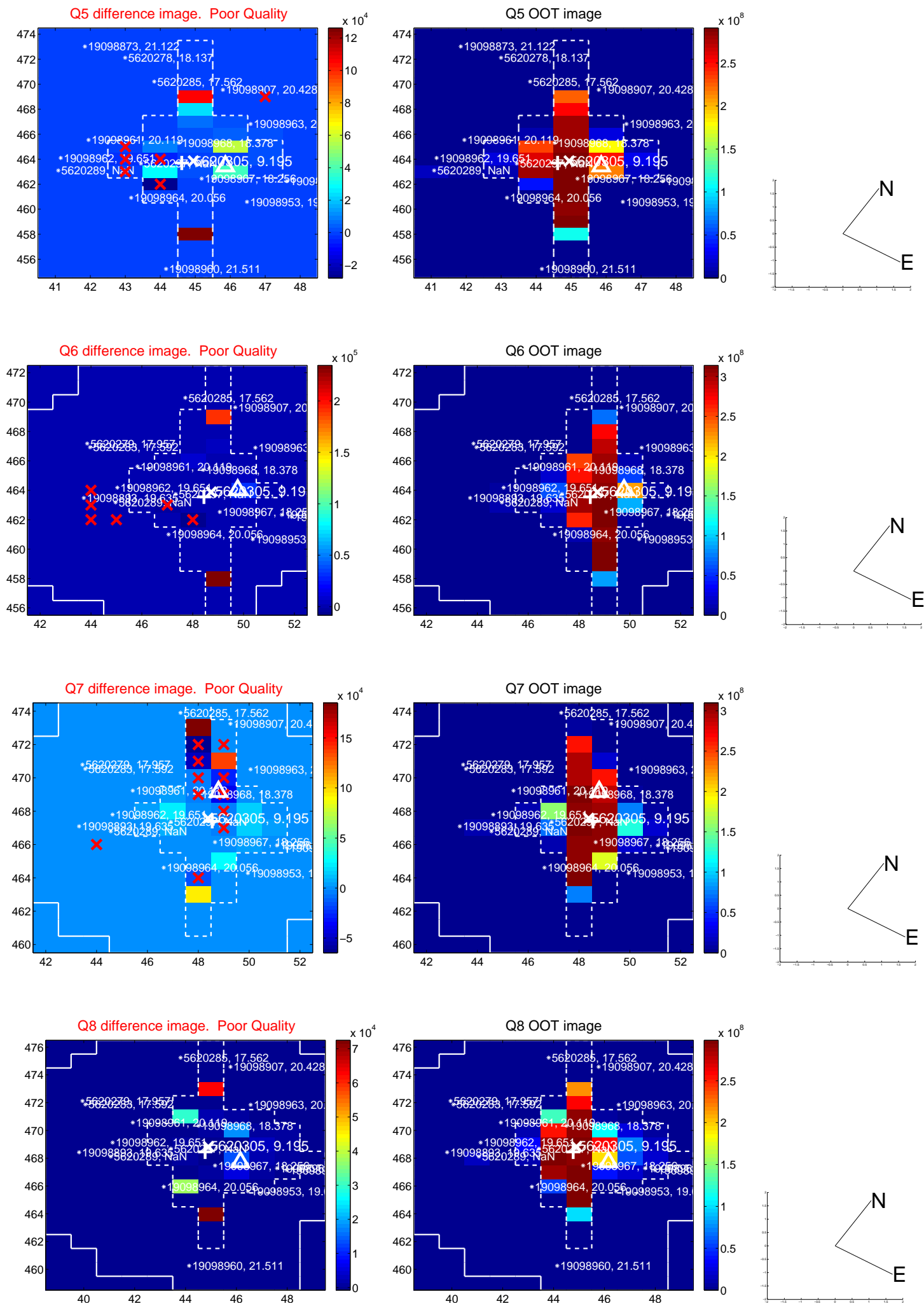


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

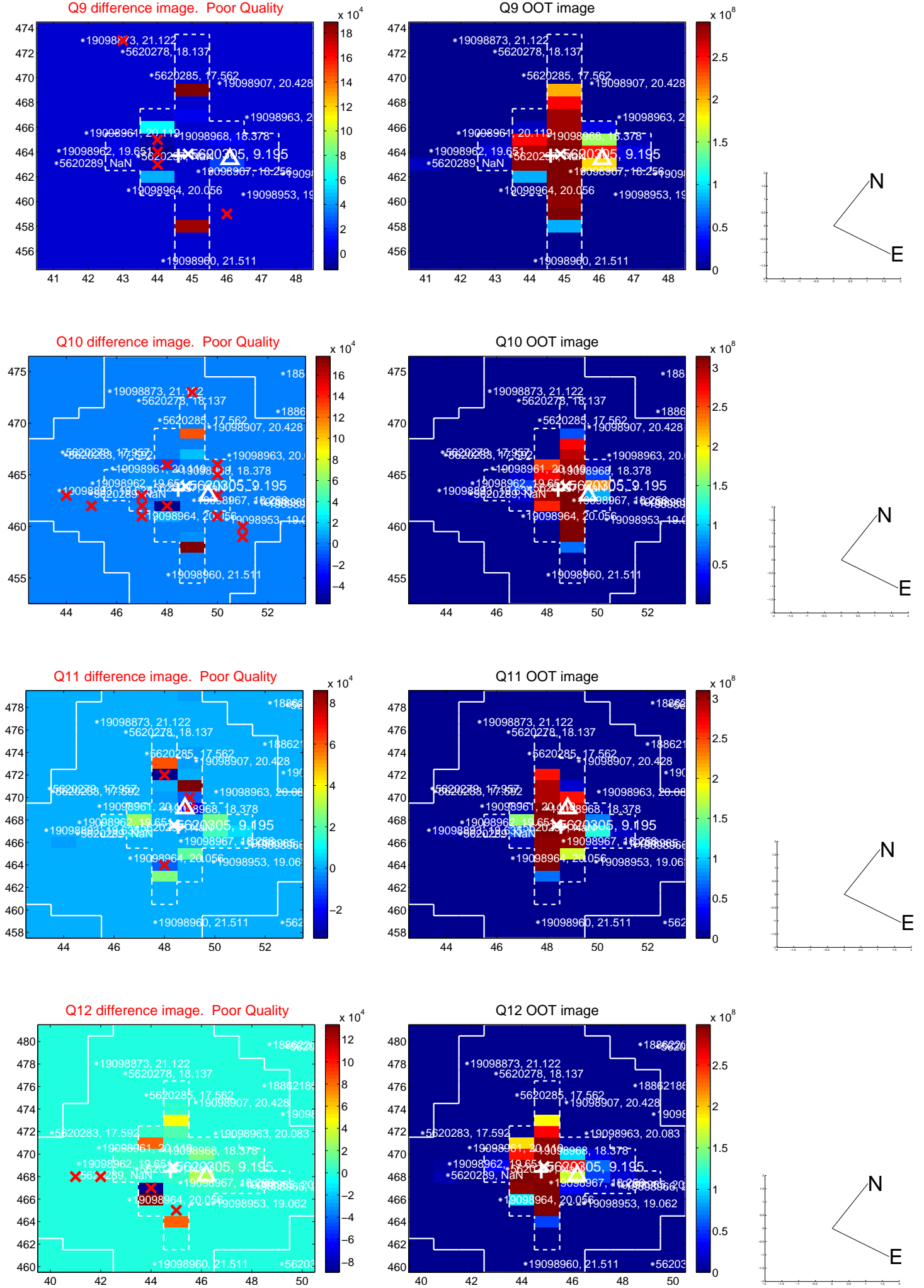
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



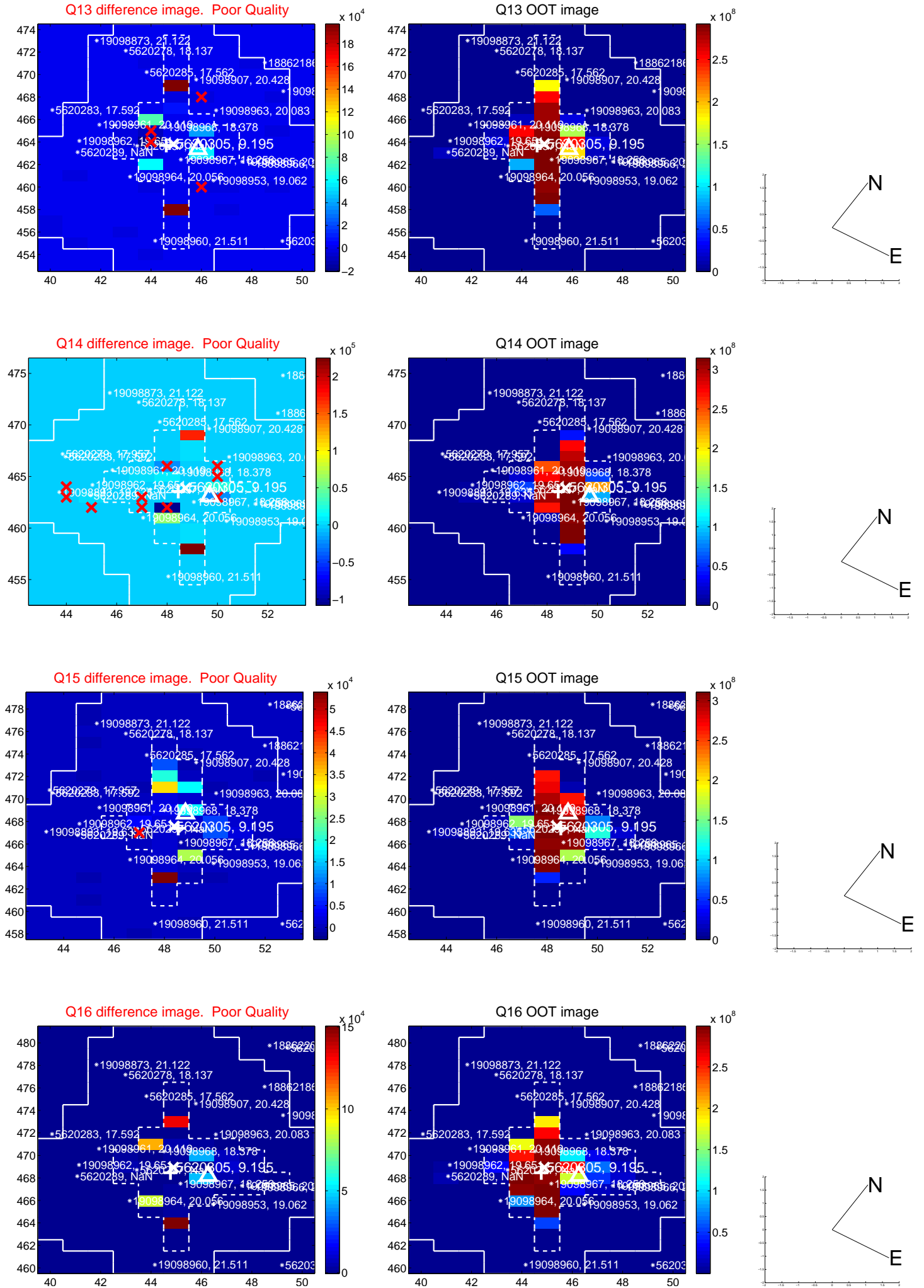
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



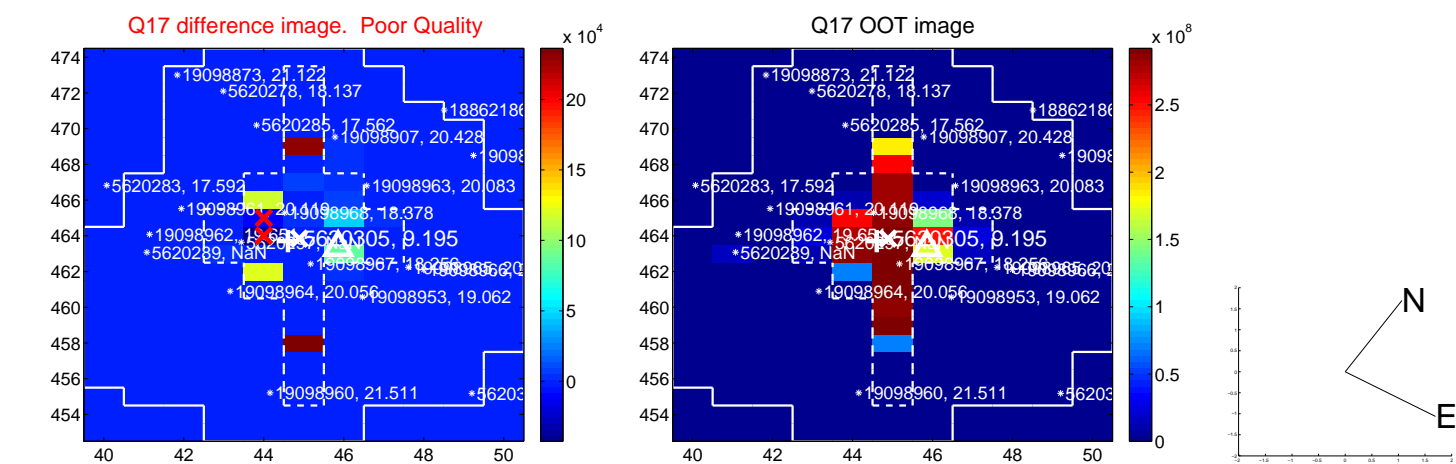
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



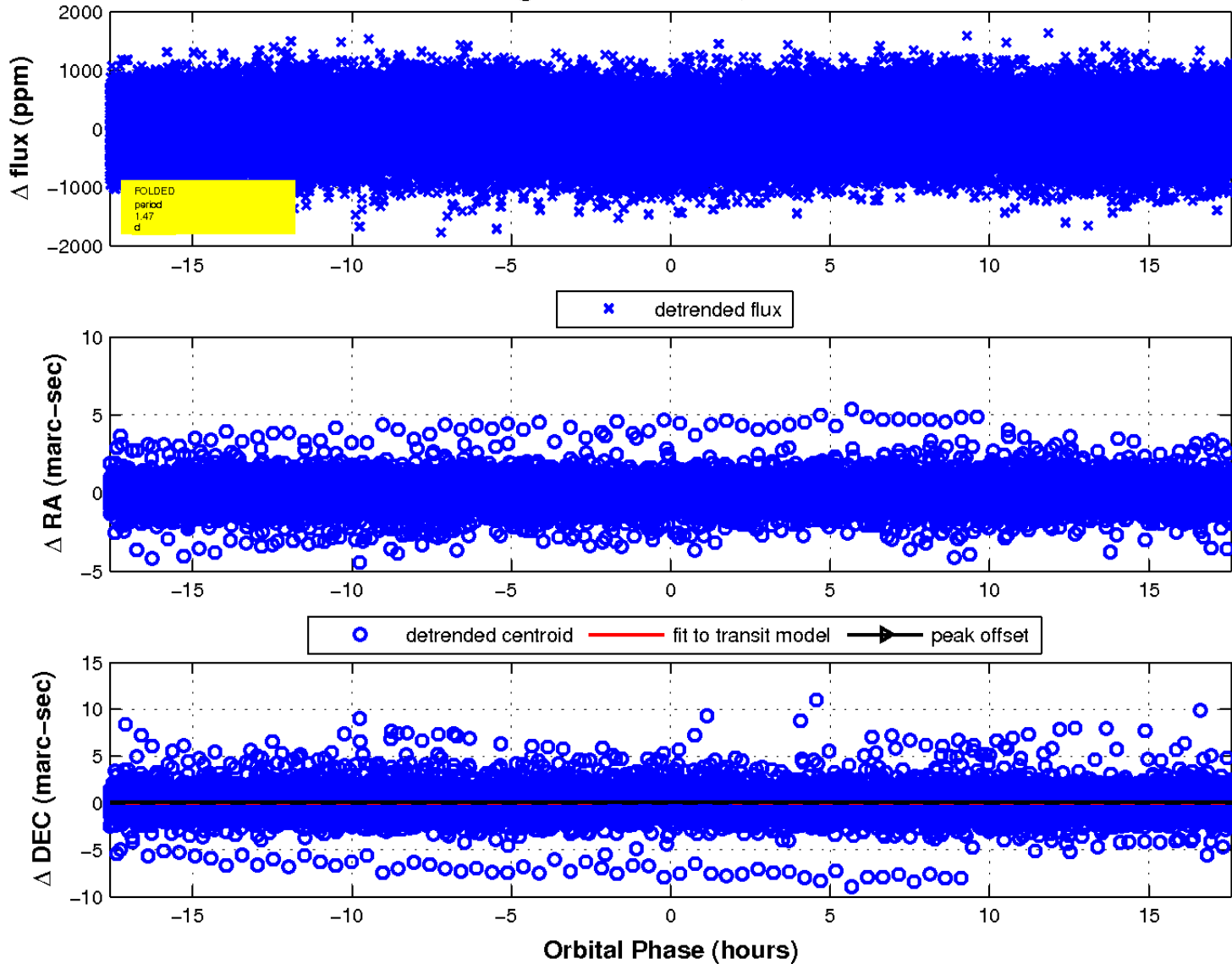
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

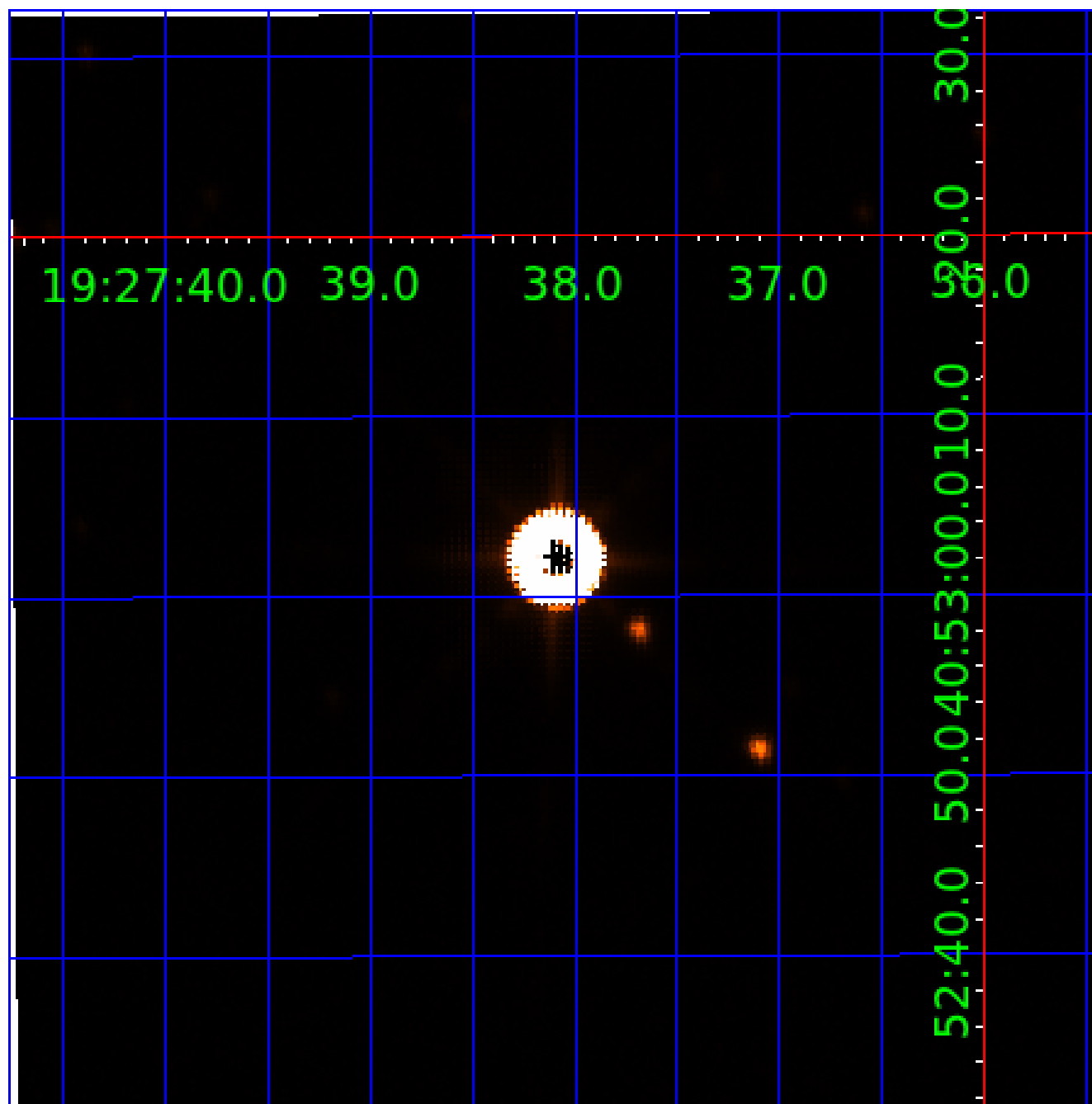


fluxWeightedCentroids, Planet 1 of 2



UKIRT Image

Declination



KIC 005620305

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})
005620305-01	OBS	No	1.465857	131.748556	55.1	9.014	10.4	11.9	7.76	5029	5.59	0.00
005620305-02	OBS	No	467.401936	174.012799	943.8	15.177	11.6	10.4	7.76	5029	48.39	15.22

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005620305-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—CENT_SATURATED
005620305-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_SATURATED

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

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

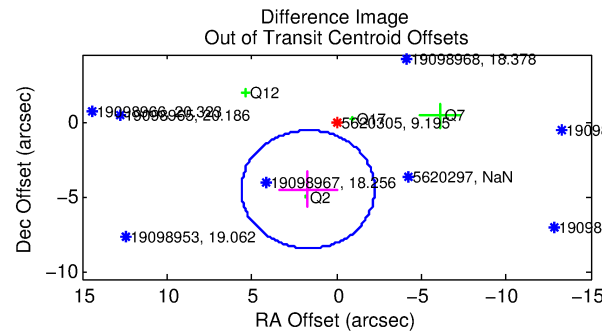
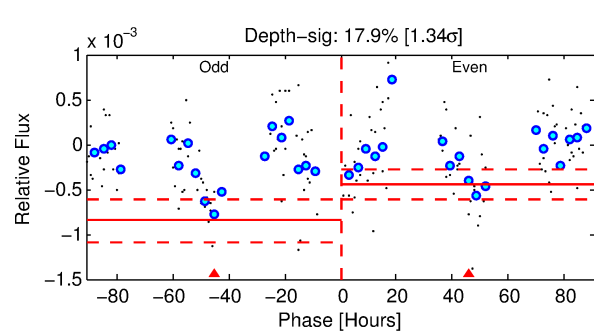
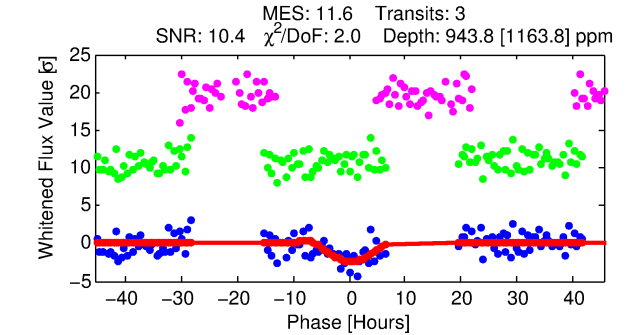
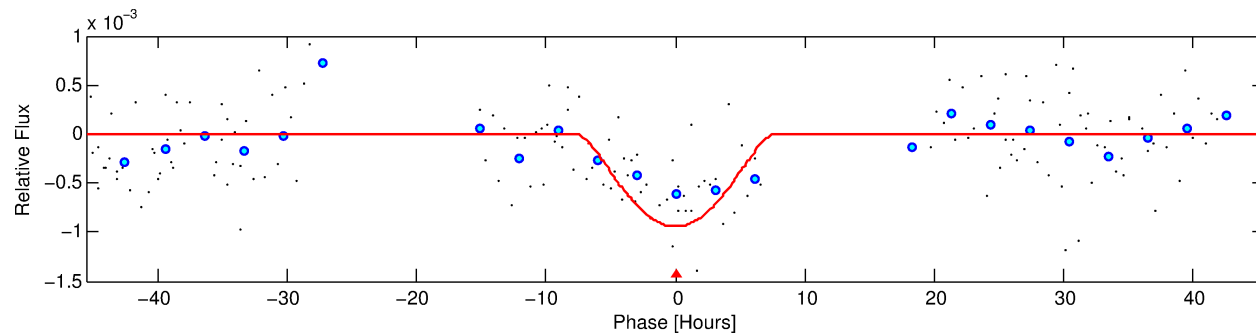
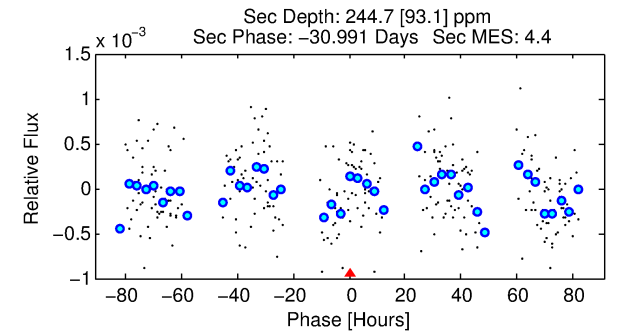
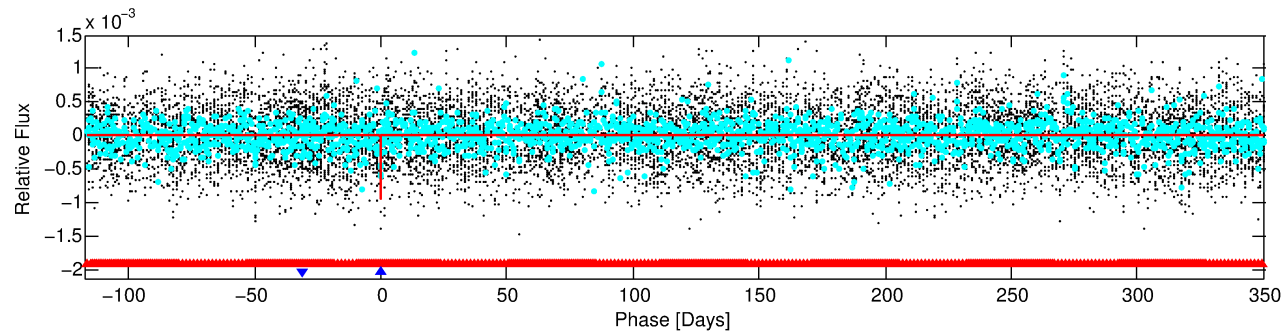
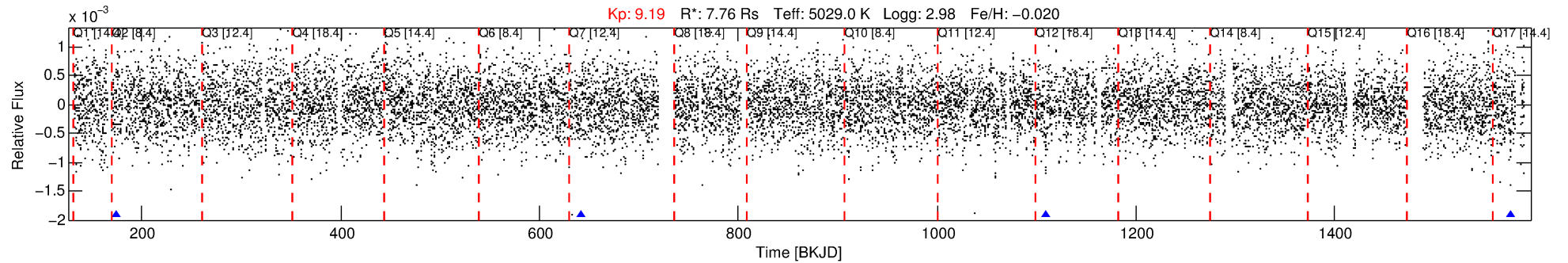
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 005620305-02

No Significant Match Found

DV One-Page Summary

KIC: 5620305 Candidate: 2 of 2 Period: 467.402 d



DV Fit Results:

Period = 467.40194 [0.06661] d
Epoch = 174.0128 [0.1462] BKJD
Rp/R* = 0.0571 [0.2897]
a/R* = 80.67 [95.26]
b = 1.00 [0.37]
Seff = 15.22 [6.15]
Teq = 504 [51] K
Rp = 48.39 [245.97] Re
a = 1.5059 [0.4225] AU
Ag = 130.41 [1324.50] [0.10 σ]
Teffp = 2632 [6678] K [0.32 σ]

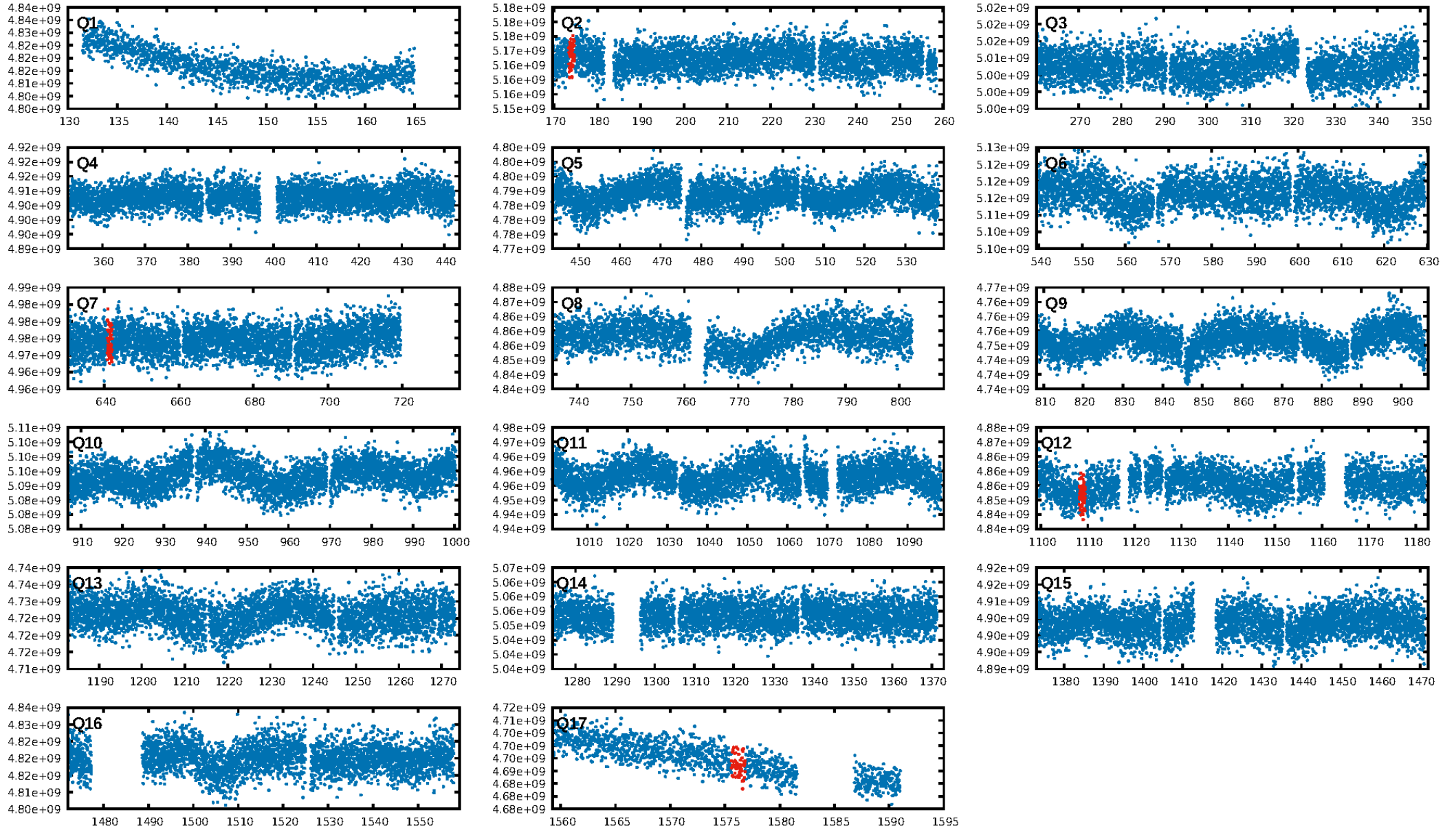
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [633.50 σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 0.2%
ModelChiSquareGof-sig: 99.9%
Bootstrap-pfa: 2.41e-20
RollingBand-fgt: 1.00 [2/2]
GhostDiagnostic-chr: N/A
Centroid-sig: N/A
Centroid-so: 0.321 arcsec [1.33 σ]
OotOffset-rm: 4.816 arcsec [3.67 σ]
KicOffset-rm: 6.648 arcsec [5.69 σ]
OotOffset-st: 1/1/1/1 [4]
KicOffset-st: 1/1/1/1 [4]
DiffImageQuality-fgm: 0.00 [0/4]
DiffImageOverlap-fno: 0.00 [0/4]

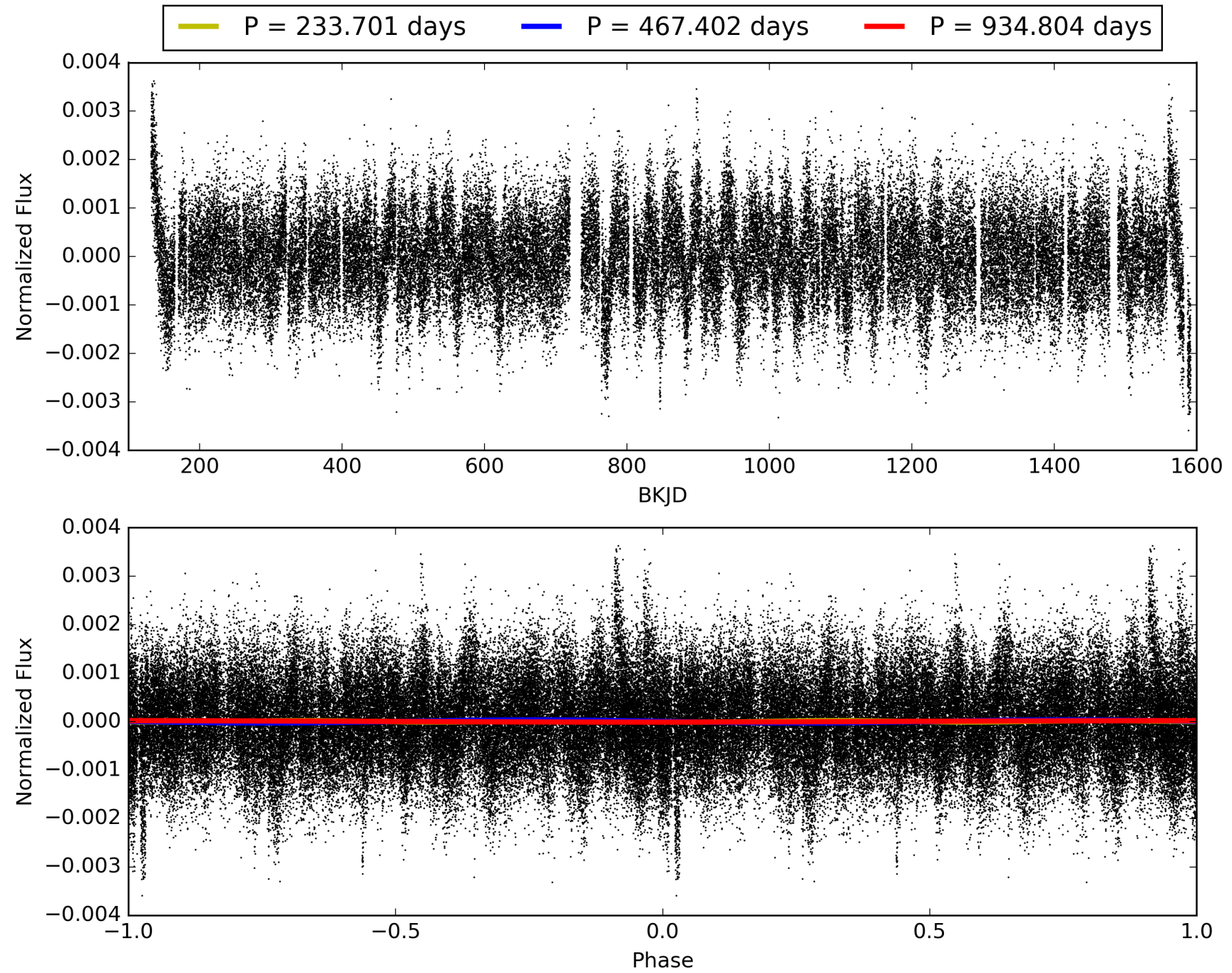
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 18:46:55 Z

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

TCE 005620305-02, PDC Light Curves

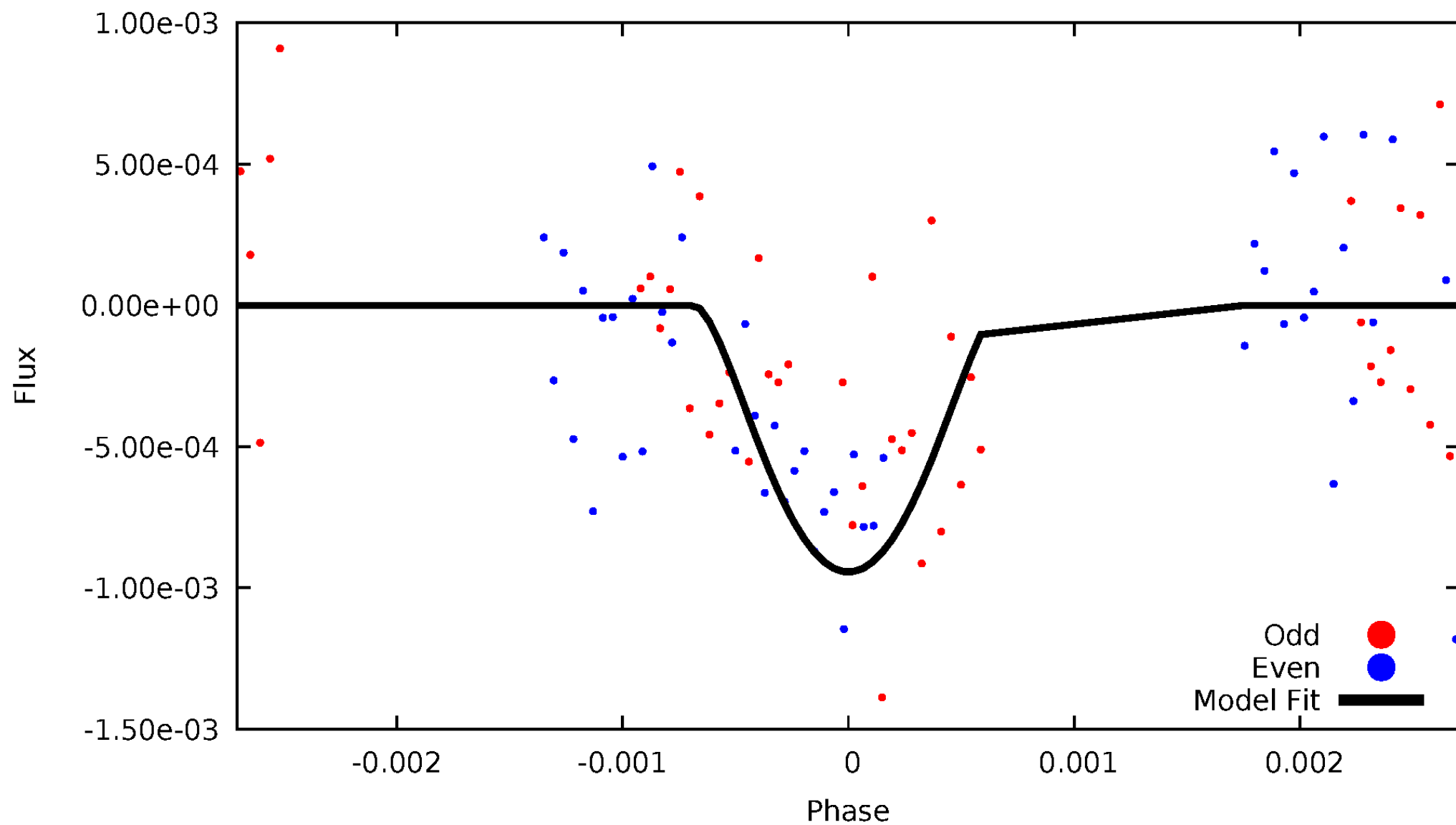


TCE 005620305-02



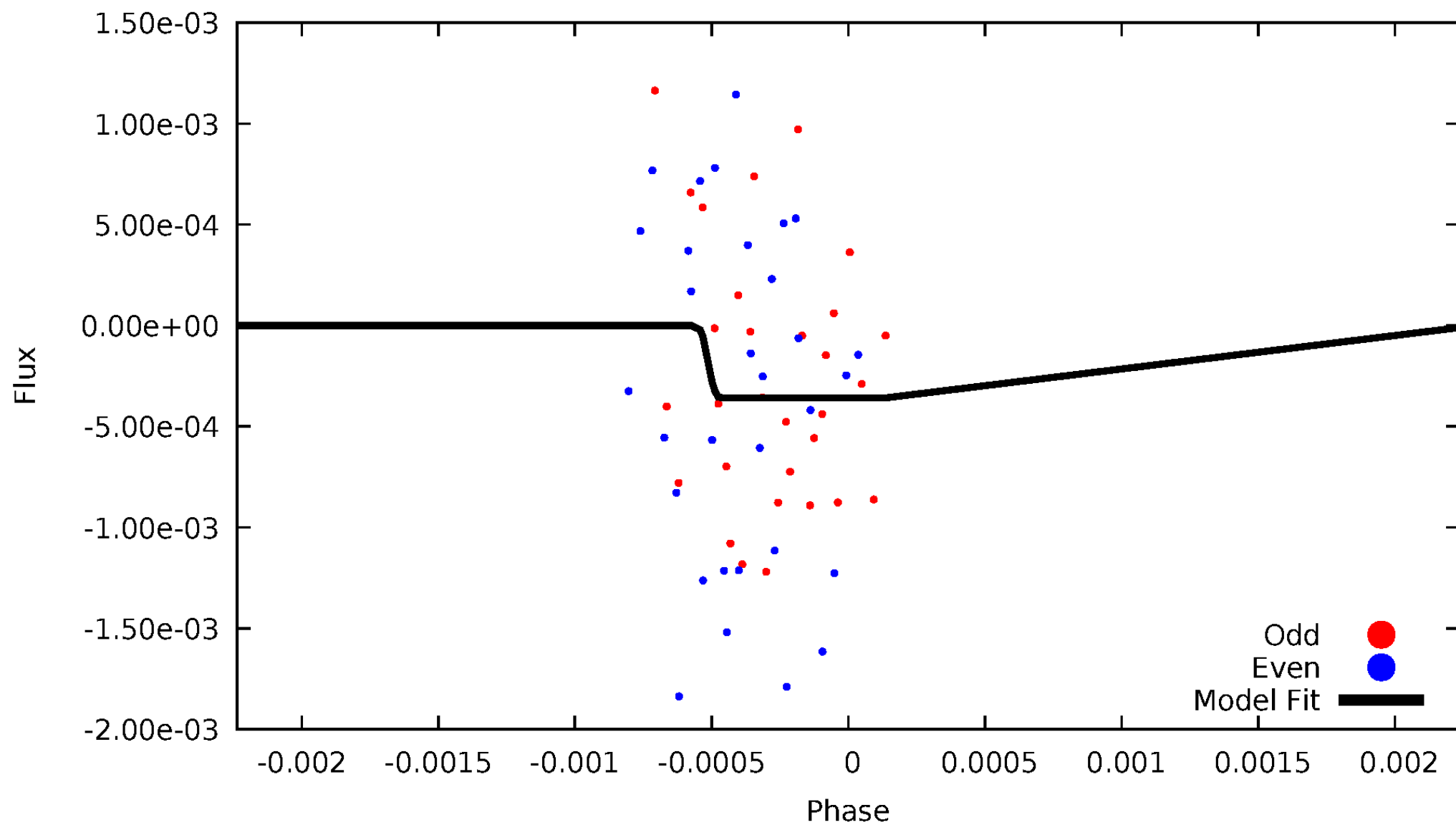
DV Odd/Even

TCE 005620305-02



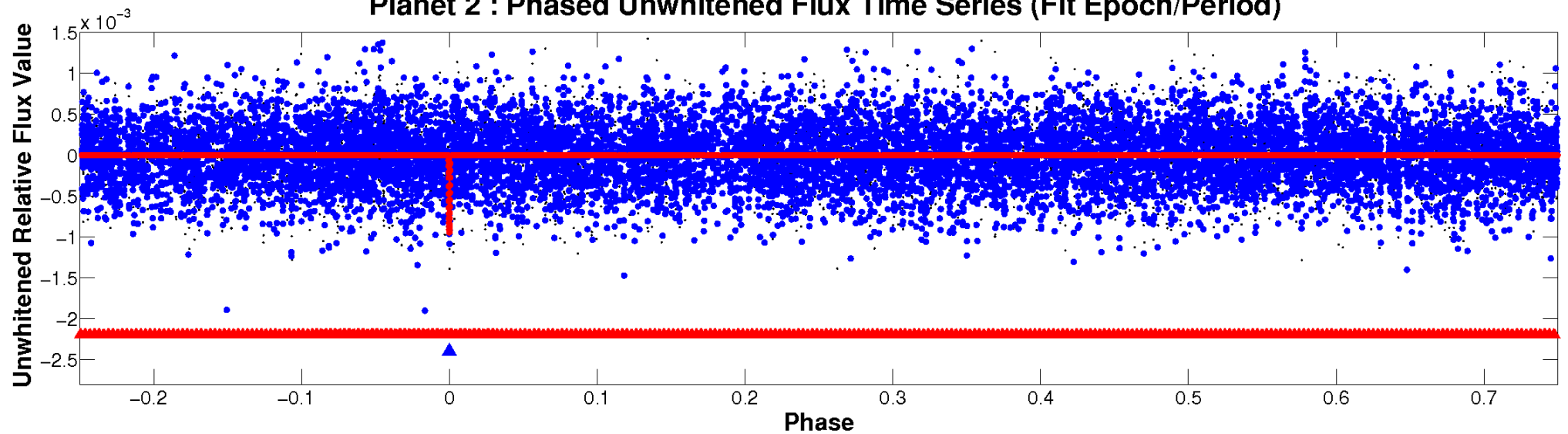
ALT Odd/Even

TCE 005620305-02

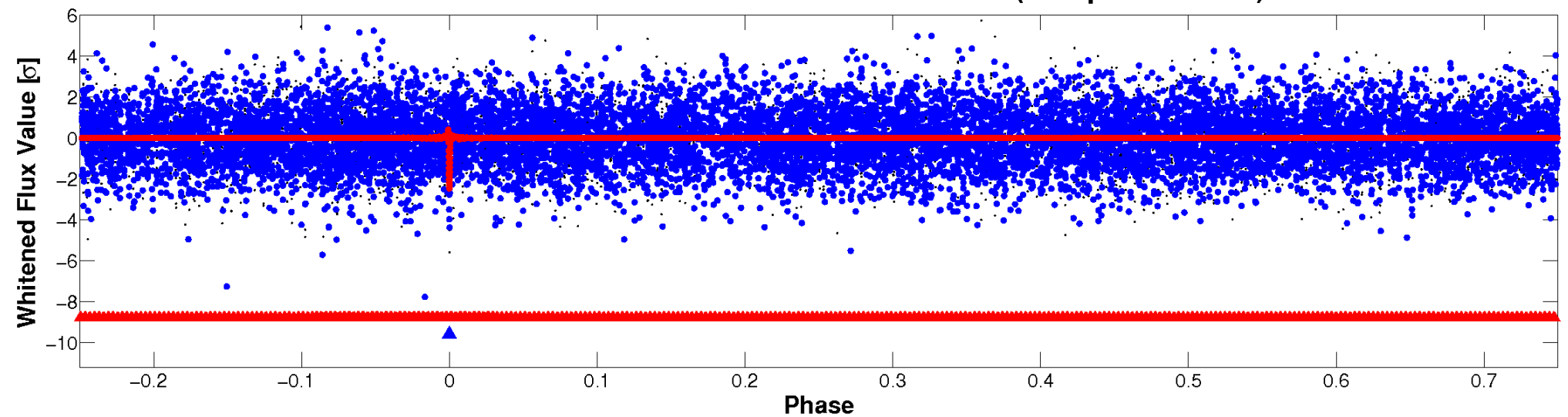


Non-Whitened Vs. Whitened Light Curve

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

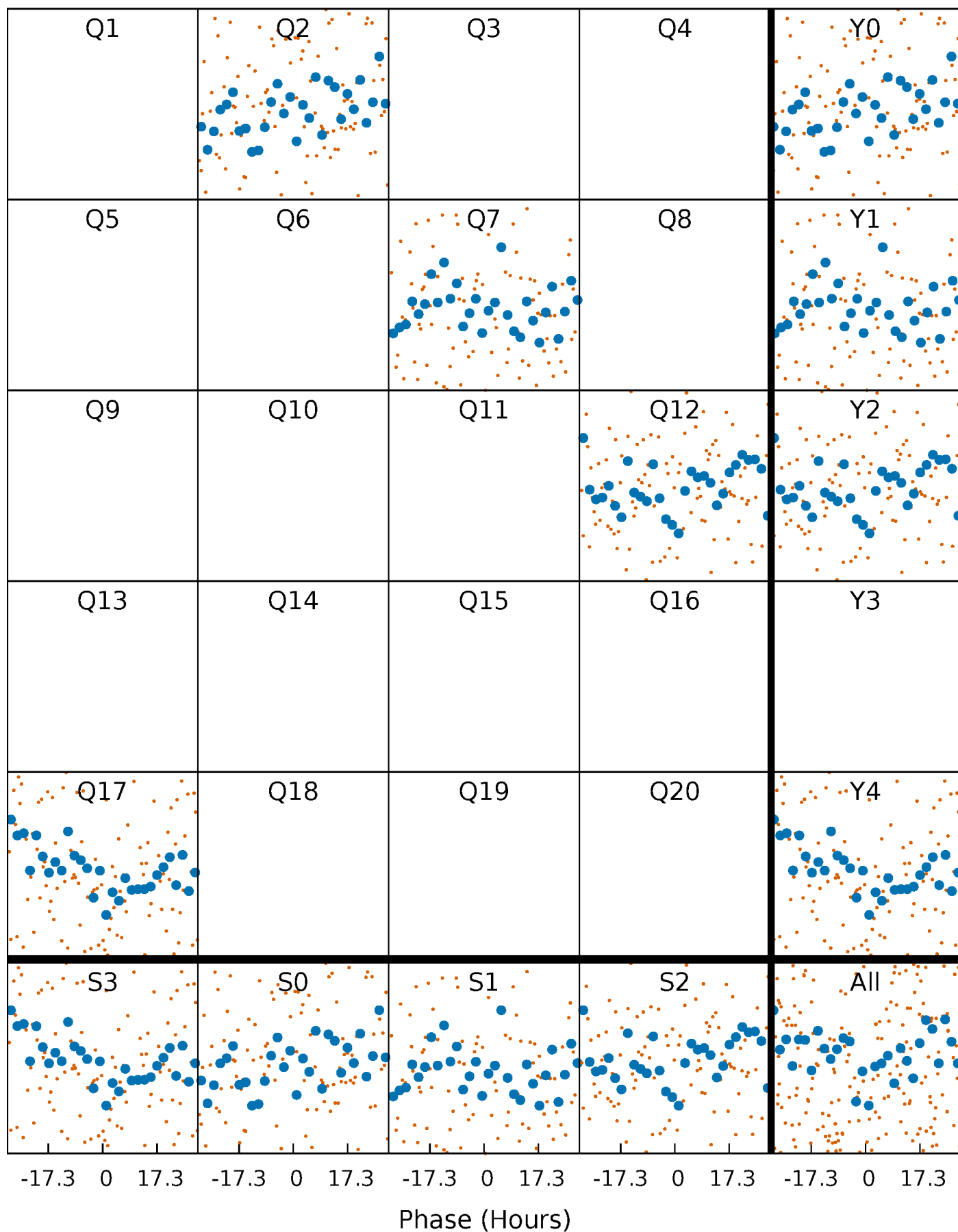


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



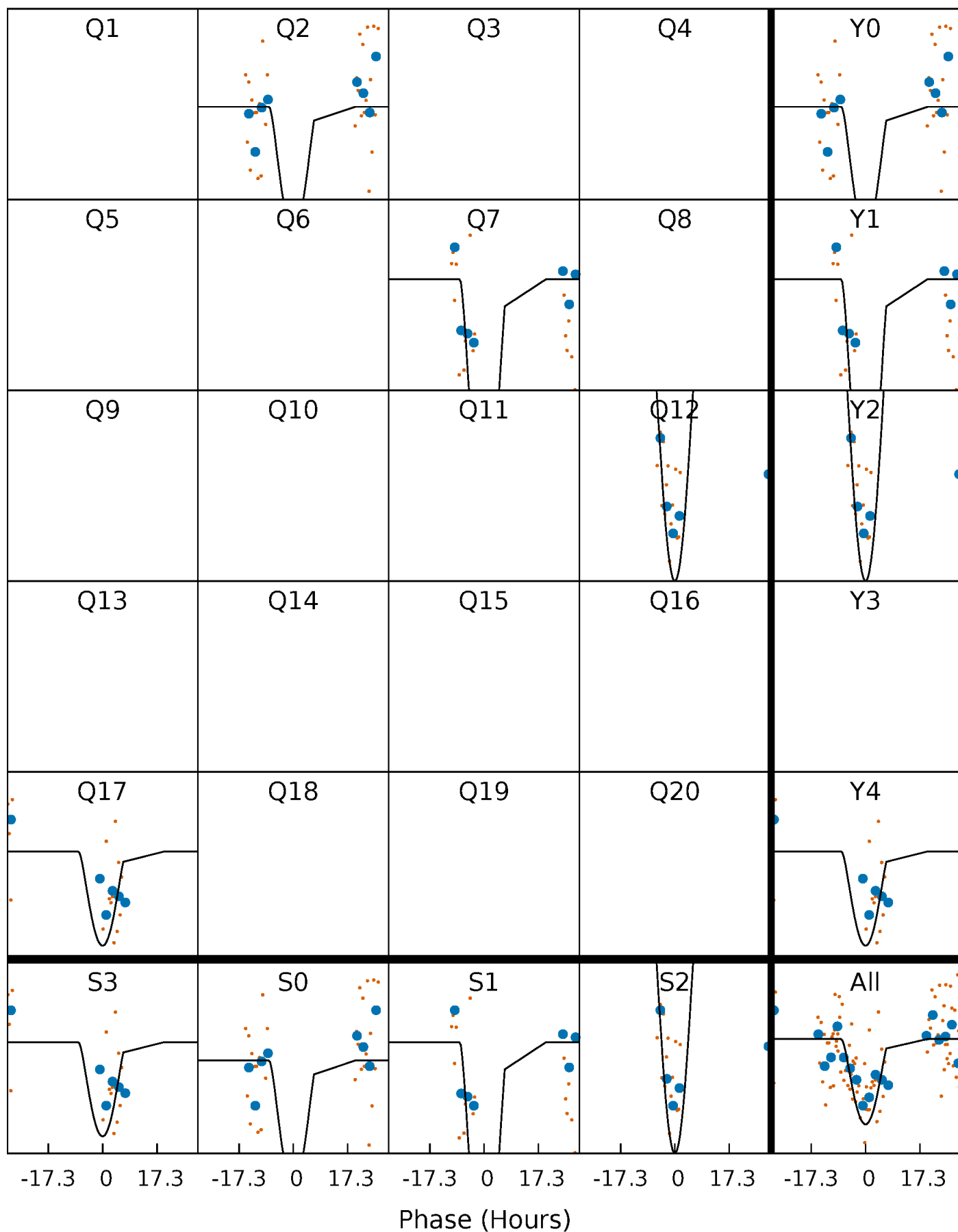
PDC Quarter-Phased Transit Curves

TCE 005620305-02 P=467.401936 Days $T_0=174.012799$ (BKJD)



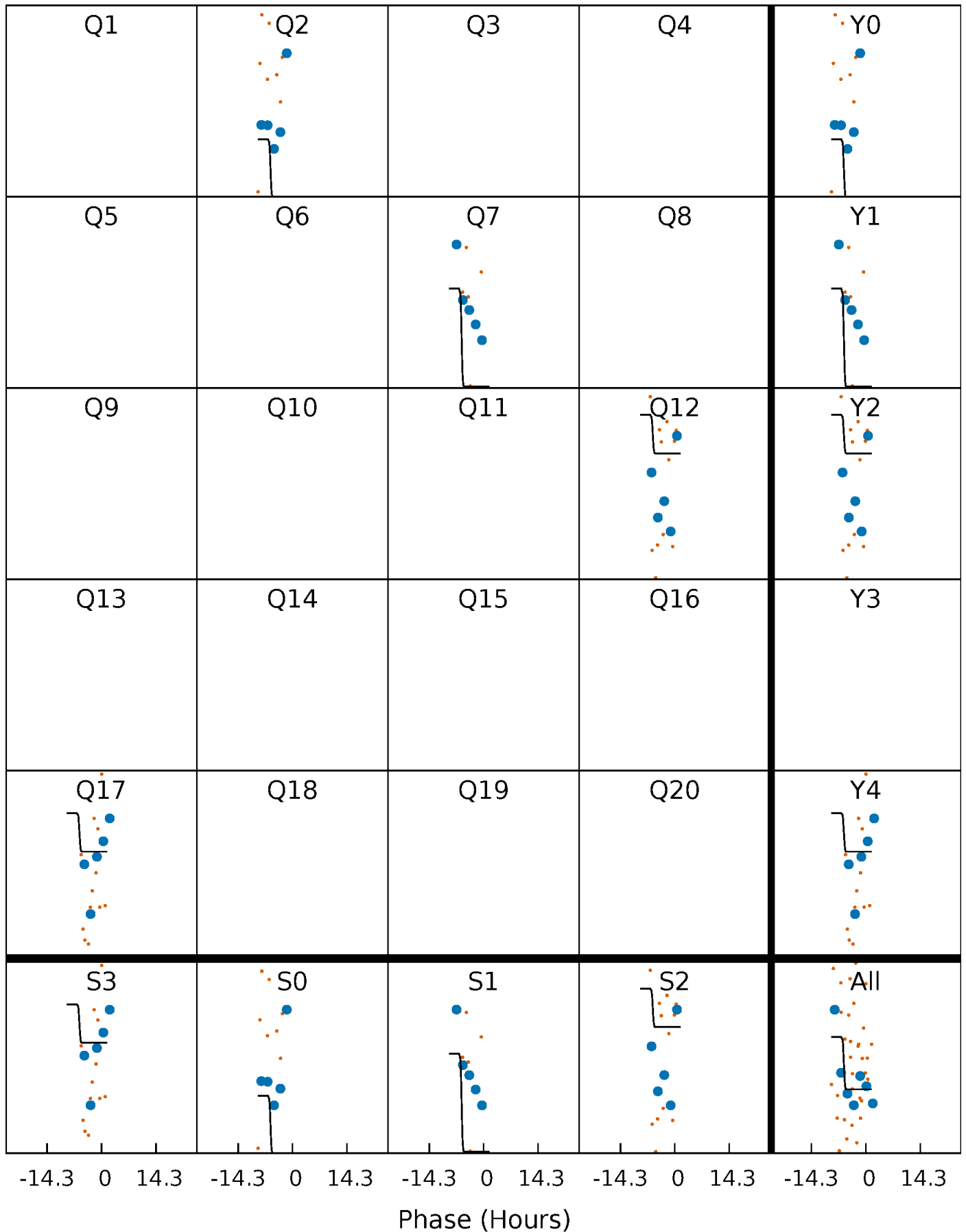
DV Quarter-Phased Transit Curves

TCE 005620305-02 P=467.401936 Days $T_0=174.012799$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

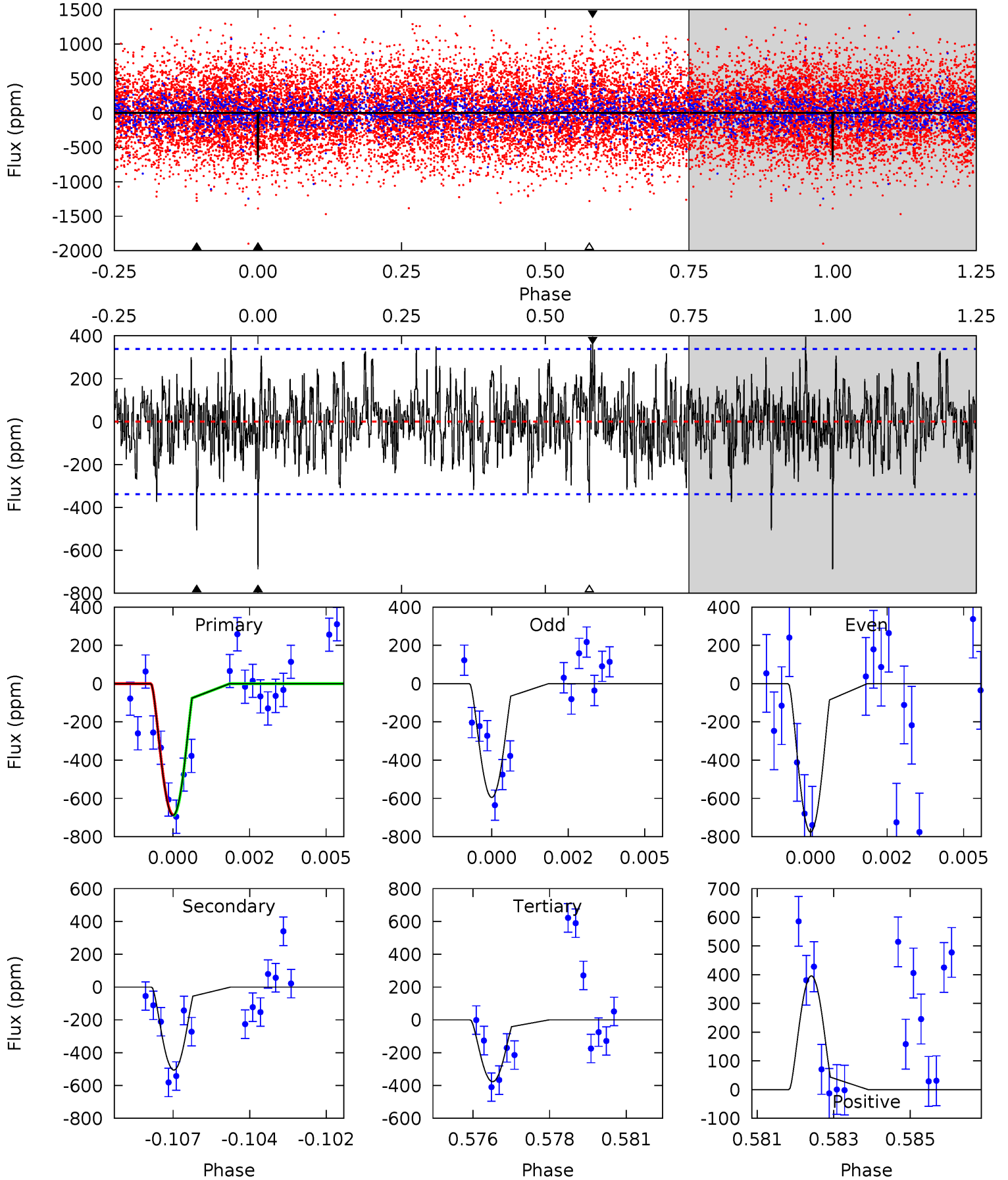
TCE 005620305-02 P=467.556845 Days $T_0=173.758596$ (BKJD)



DV Model-Shift Uniqueness Test

005620305-02, P = 467.401936 Days, E = 174.012799 Days

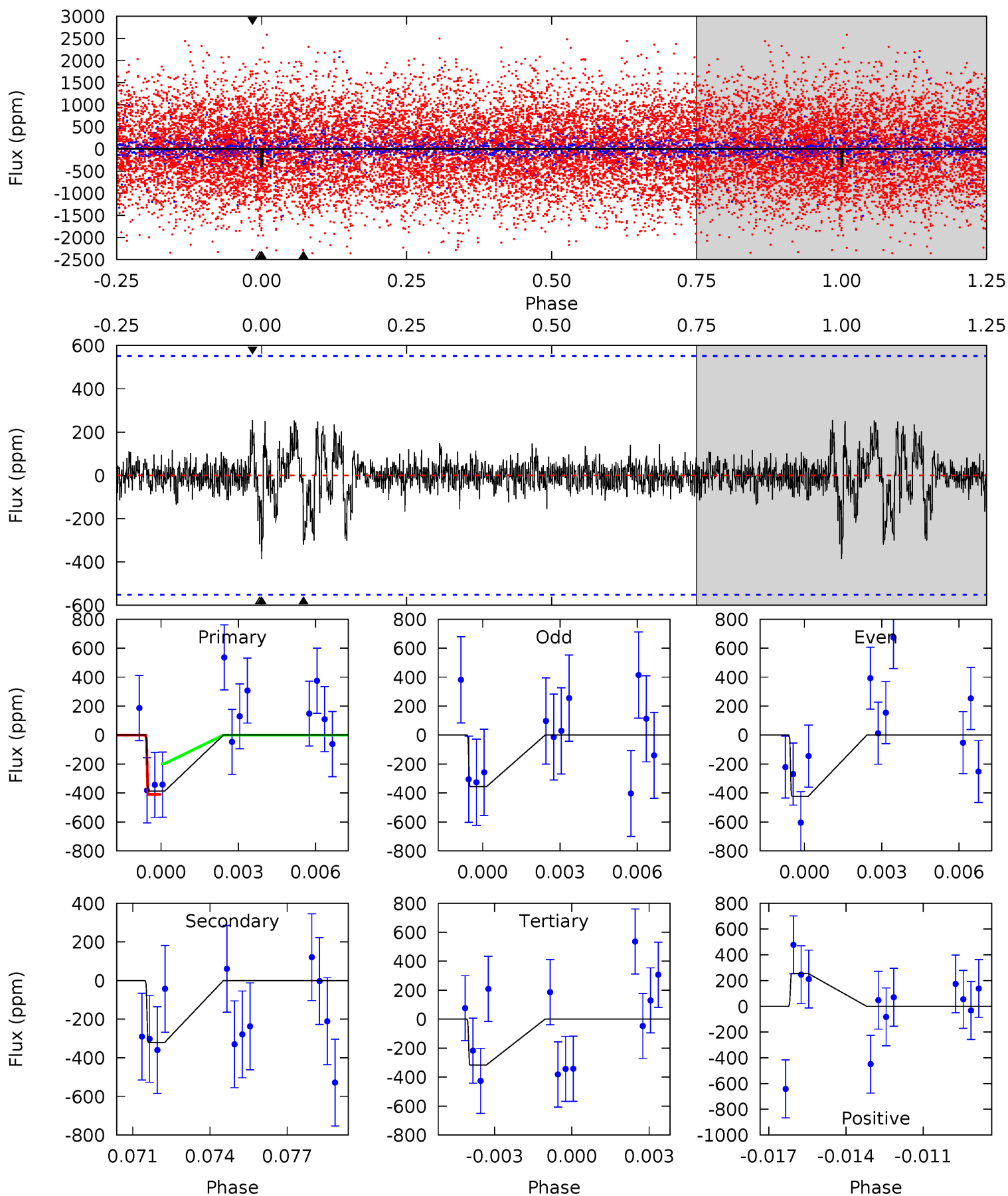
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
10.8	7.91	5.89	6.19	5.30	3.04	1.86	4.87	4.58	2.01	1.72	1.41	0.94	0.37	0.06



Alt Model-Shift Uniqueness Test

005620305-02, P = 467.556845 Days, E = 173.758596 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
3.69	3.06	3.03	2.44	5.26	2.98	0.62	0.66	1.25	0.03	0.62	0.32	1.00	0.40	0.62



Stellar Parameters For KIC 005620305

	$T_{\text{eff}}(K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5029^{+40}_{-140}	$2.977^{+0.202}_{-0.109}$	$-0.020^{+0.100}_{-0.200}$	$7.762^{+2.227}_{-2.722}$	$2.085^{+0.594}_{-0.890}$	$0.006^{+0.008}_{-0.002}$
	+1%/-3%	+7%/-4%	+500%/-1000%	+29%/-35%	+28%/-43%	+132%/-37%
Source	SPE13	SPE13	SPE13	DSEP		

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

Secondary Eclipse Parameters for KIC 005620305-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-505 ± 64	$196.88^{+190.85}_{-138.27}$	692^{+42}_{-55}	2377^{+905}_{-333}	16^{+170}_{-12}
Alt.	-321 ± 105	$167.52^{+188.61}_{-119.41}$	688^{+41}_{-48}	2330^{+891}_{-351}	14^{+156}_{-11}

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

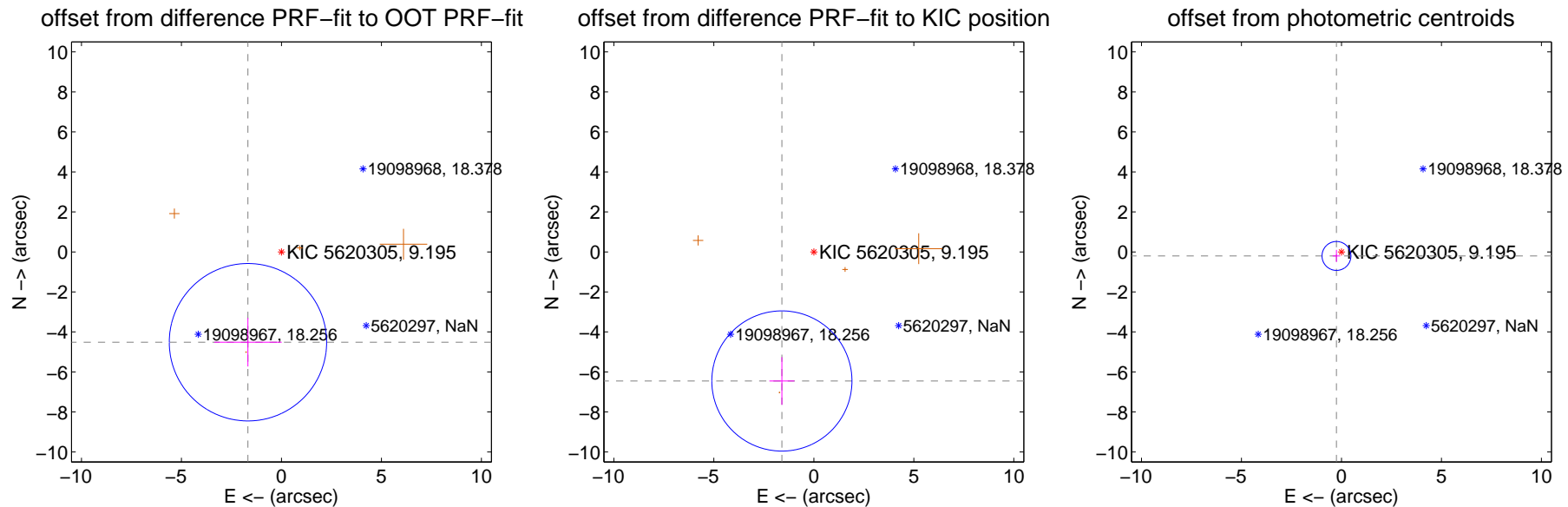
DV Centroid Data

Supplemental centroid analysis for 005620305-02. **Kepler magnitude: 9.20.** Transit SNR 10.36

There are 0 quarters with good PRF difference image offsets

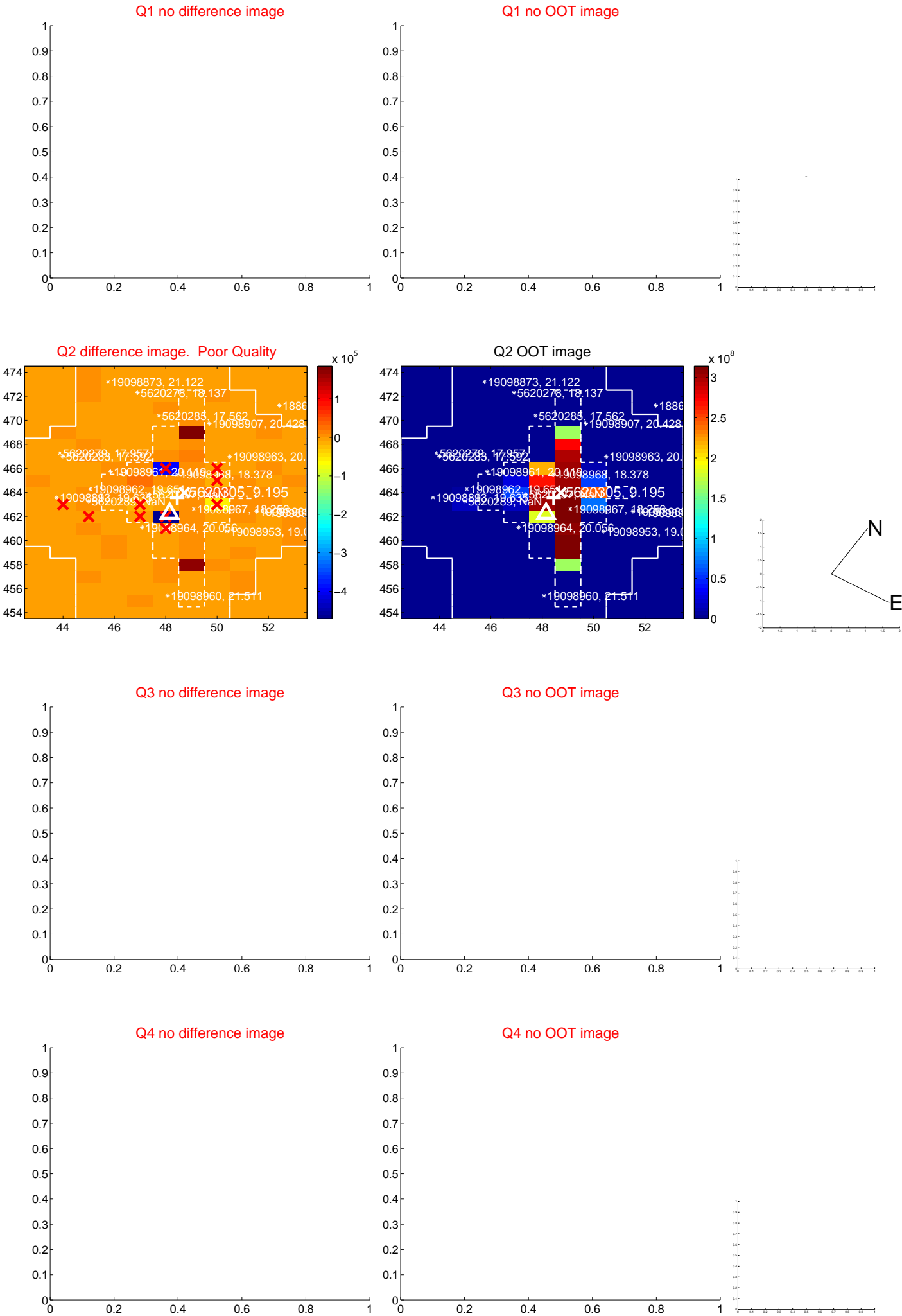
The direct PRF centroid is offset from the target star catalog position by about 1.26 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	4.816 ± 1.312	3.67	1.675 ± 1.689	-4.515 ± 1.212
PRF-fit source offset from KIC position	6.648 ± 1.168	5.69	1.598 ± 0.628	-6.453 ± 1.193
photometric centroid source offset	0.32 ± 0.24	1.33	0.25 ± 0.19	-0.20 ± 0.30



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



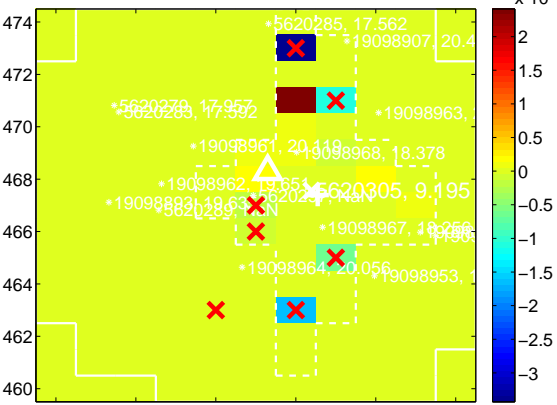
Q6 no difference image



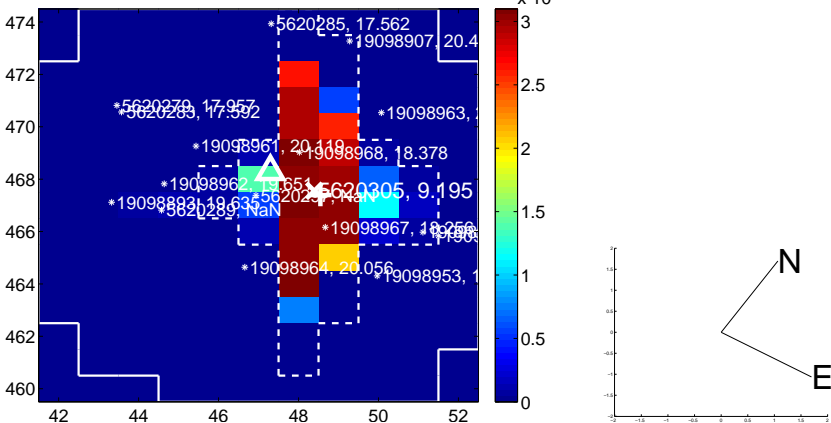
Q6 no OOT image



Q7 difference image. Poor Quality



Q7 OOT image



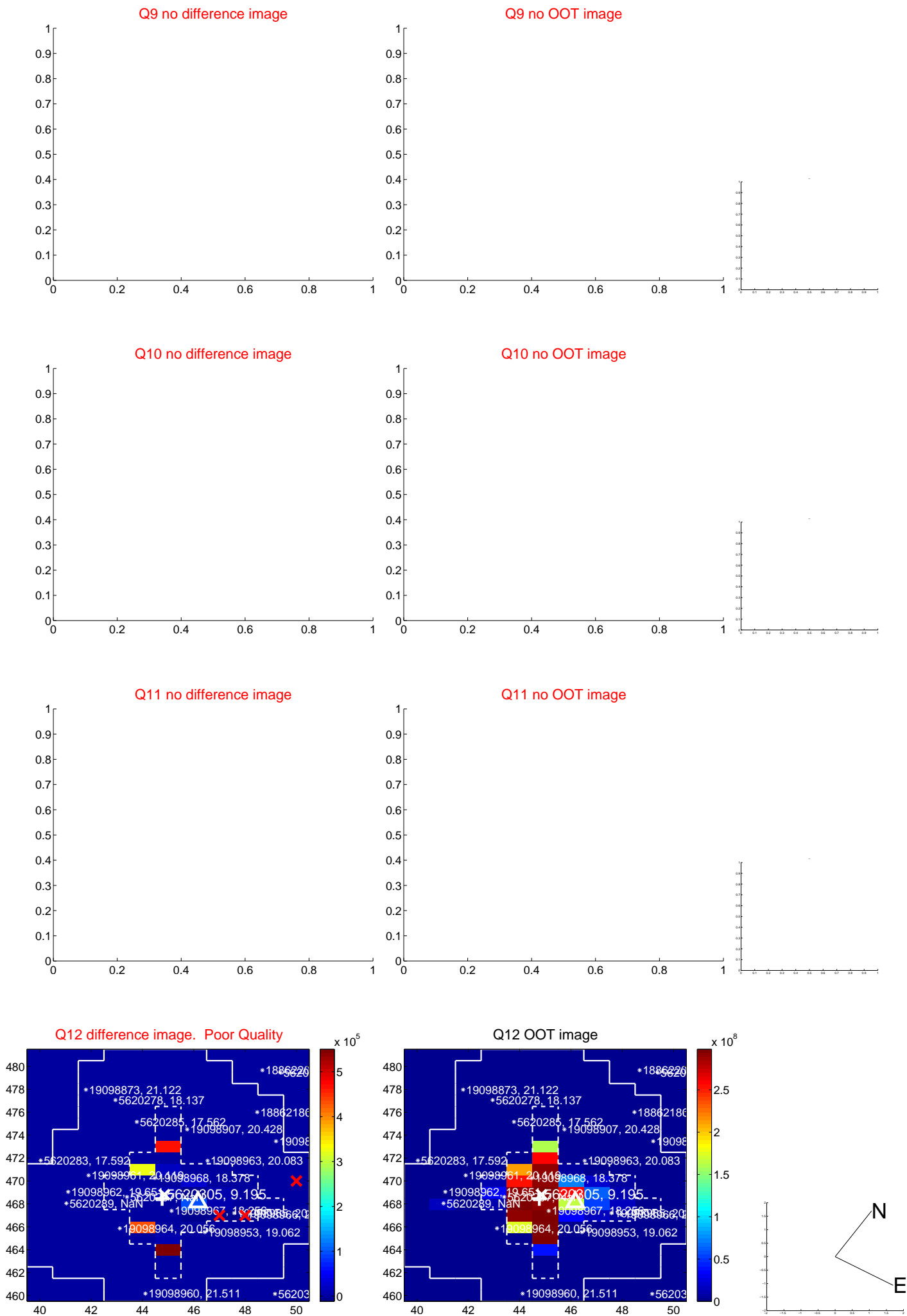
Q8 no difference image



Q8 no OOT image



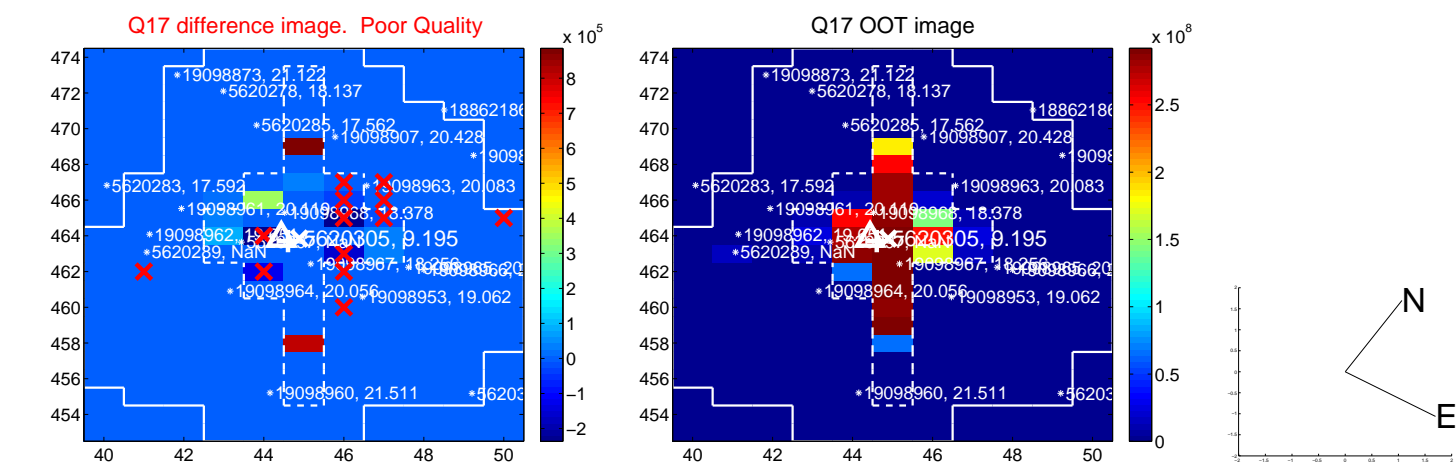
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



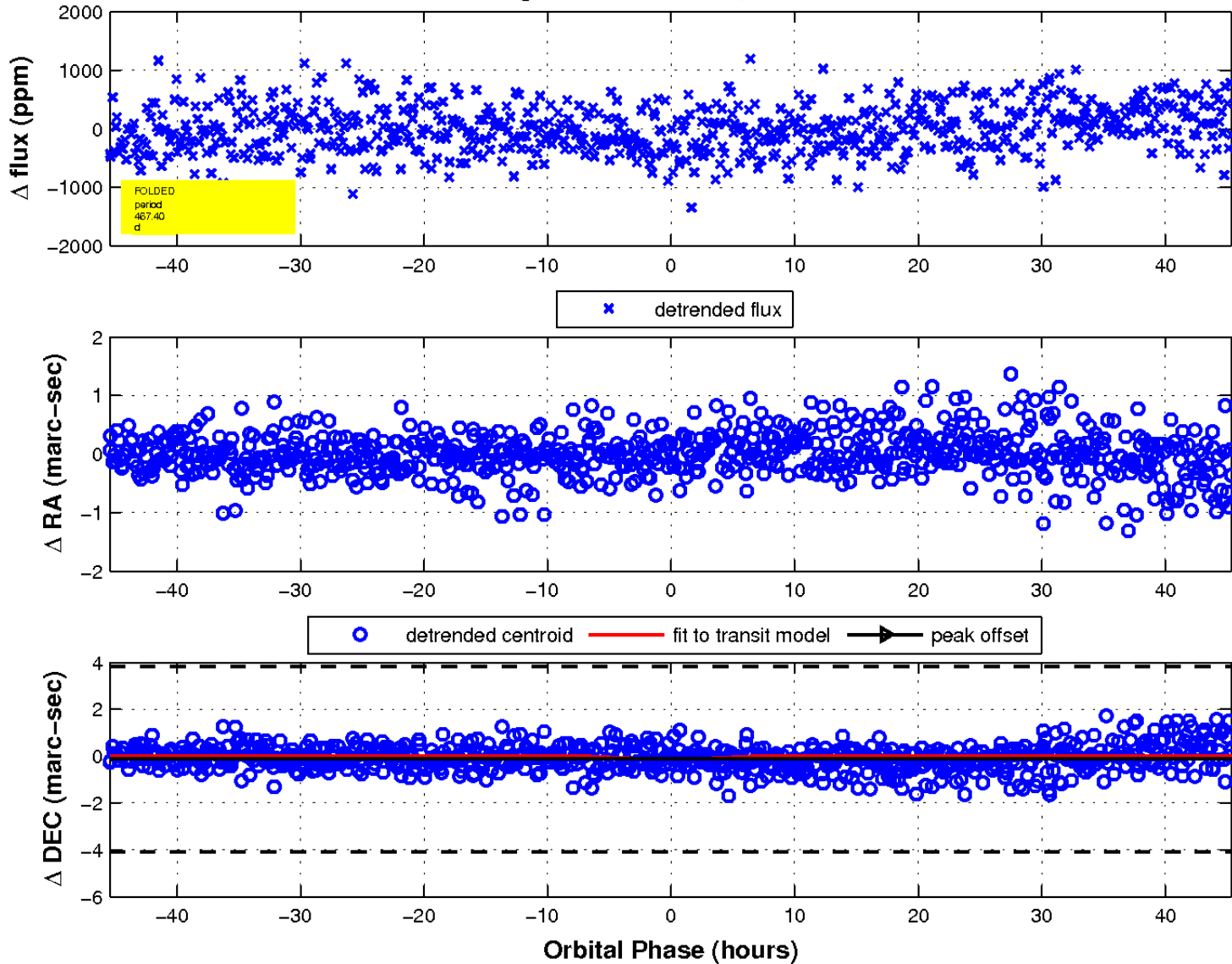
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



fluxWeightedCentroids, Planet 2 of 2



UKIRT Image

Declination

