

KIC 006033489

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})
006033489-01	OBS	No	370.698841	309.151240	522.0	19.540	9.2	9.3	0.90	5853	2.70	0.83
006033489-02	OBS	No	493.962175	144.377352	434.3	27.064	9.4	11.9	0.90	5853	2.02	0.57

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
006033489-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL_SKYE—CENT_FEW_DIFFS
006033489-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL_SKYE—ALL_TRANS_CHASES—INCONSISTENT_TRANS—CENT_FEW_DIFFS

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

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

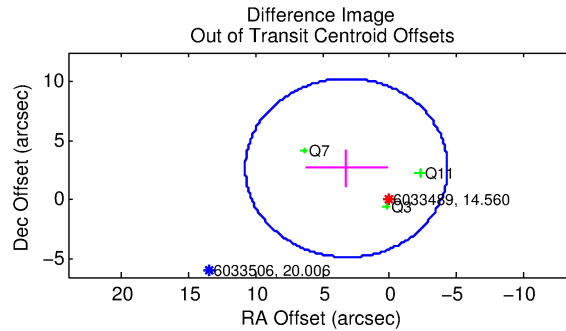
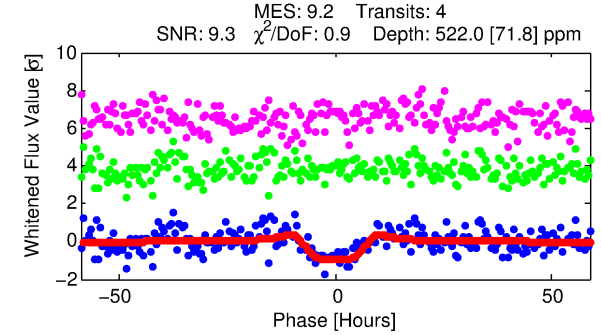
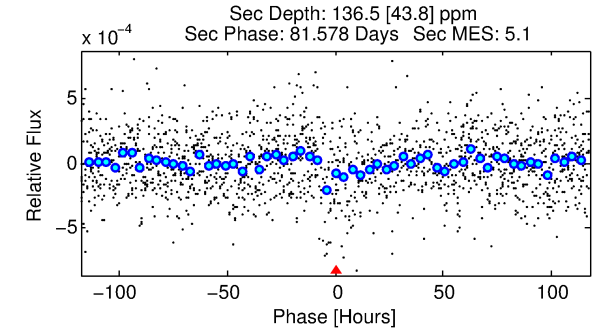
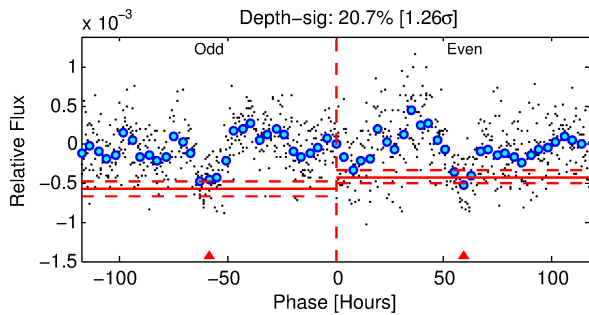
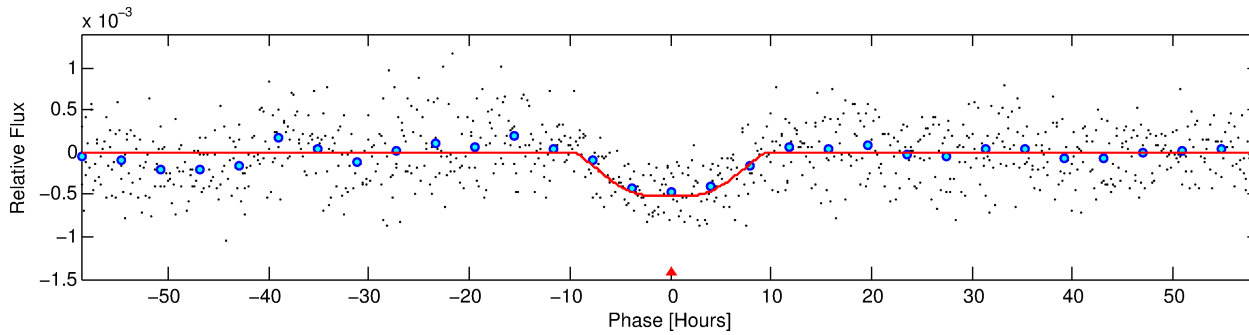
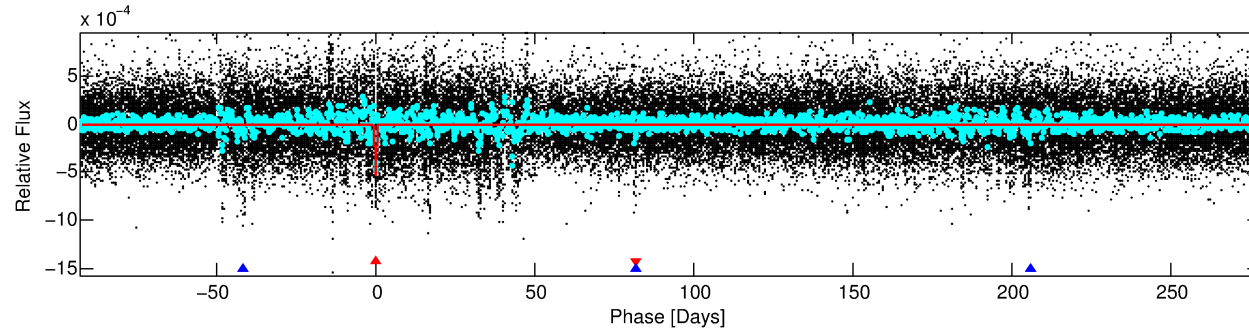
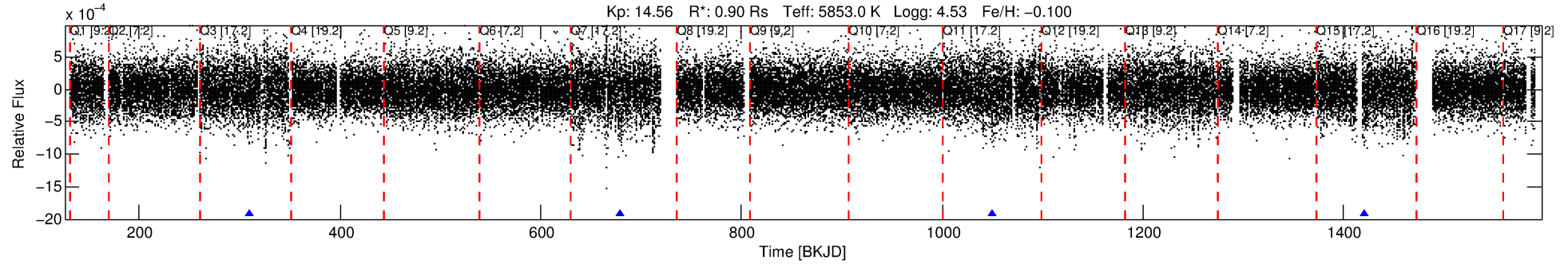
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 006033489-01

No Significant Match Found

DV One-Page Summary

KIC: 6033489 Candidate: 1 of 2 Period: 370.699 d



DV Fit Results:

Period = 370.69884 [0.01828] d
Epoch = 309.1512 [0.0342] BKJD
Rp/R* = 0.0276 [0.0025]
a/R* = 49.94 [7.54]
b = 0.97 [0.01]
Seff = 0.83 [0.32]
Teq = 244 [24] K
Rp = 2.70 [0.82] Re
a = 1.0060 [0.2505] AU
Ag = 10434.82 [5425.24] [1.92 σ]
Teffp = 3806 [367] K [9.68 σ]

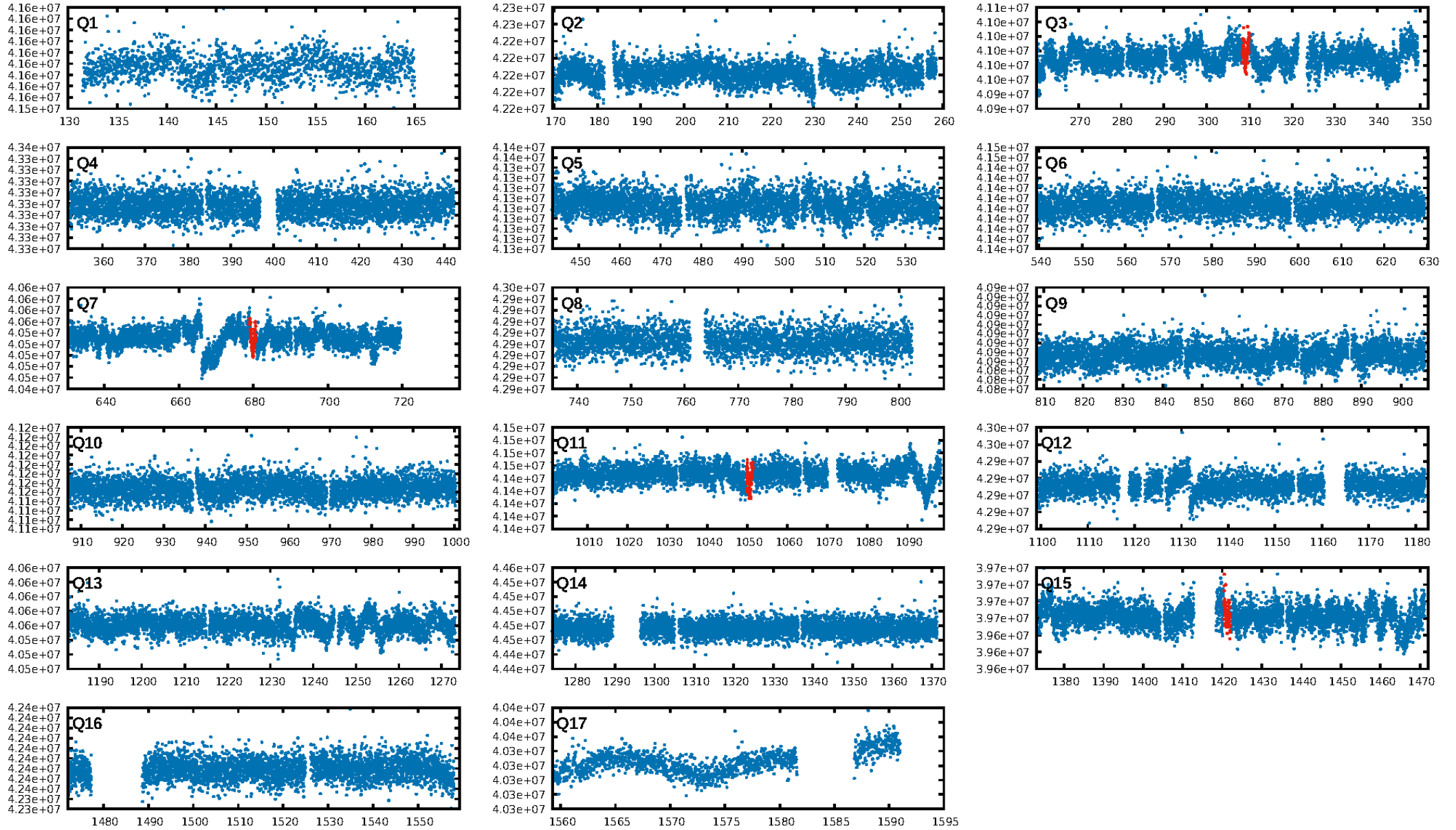
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [88.62 σ]
ModelChiSquare2-sig: 6.8%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 1.56e-11
RollingBand-fgt: 1.00 [4/4]
GhostDiagnostic-chr: -1.053
Centroid-sig: 0.9%
Centroid-so: 2.965 arcsec [2.03 σ]
OotOffset-rm: 4.201 arcsec [1.67 σ]
KicOffset-rm: 4.297 arcsec [1.62 σ]
OotOffset-st: 0/3/0/0 [3]
KicOffset-st: 0/3/0/0 [3]
DiffImageQuality-fgm: 0.00 [0/3]
DiffImageOverlap-fno: 1.00 [4/4]

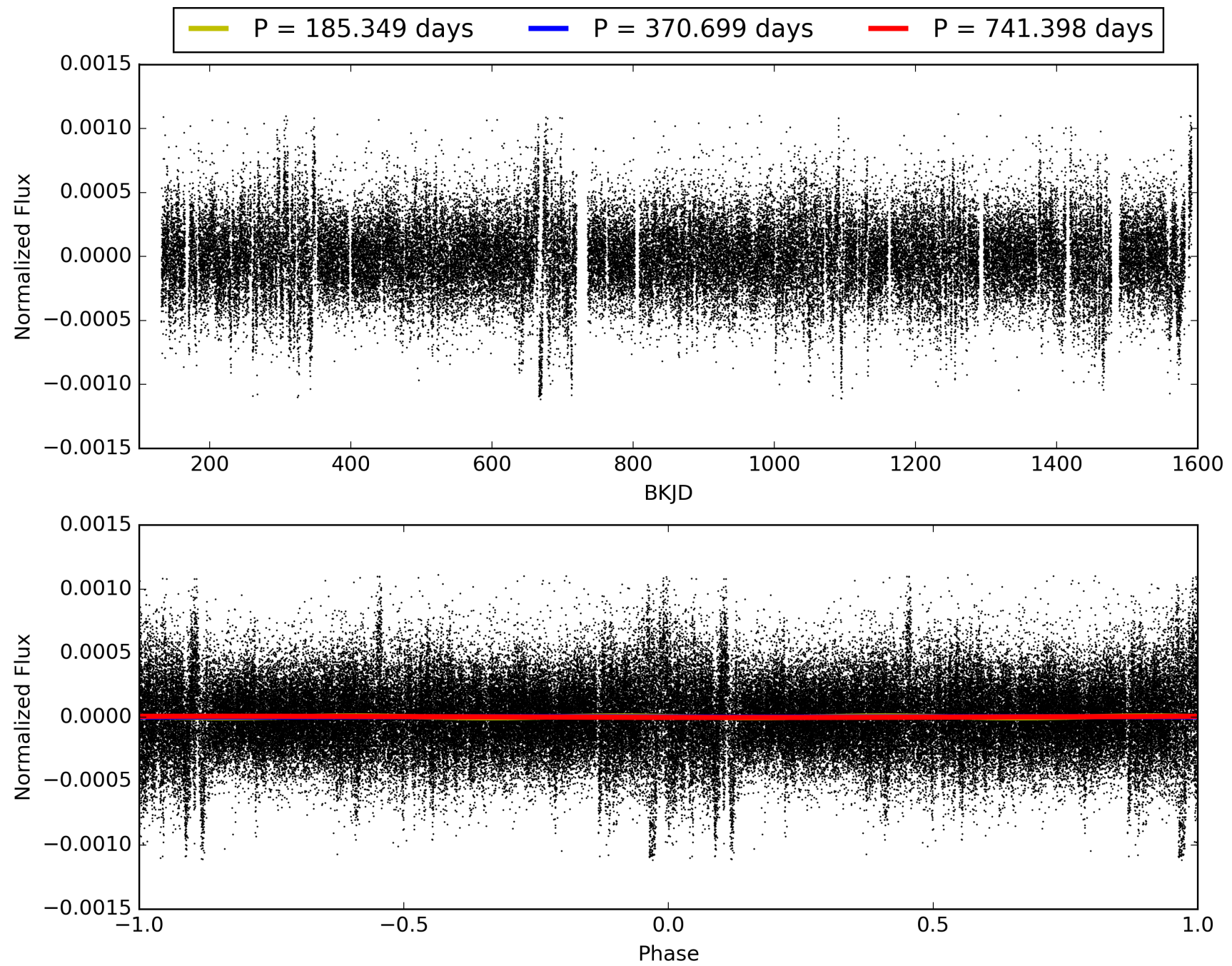
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 22:11:14 Z

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

TCE 006033489-01, PDC Light Curves

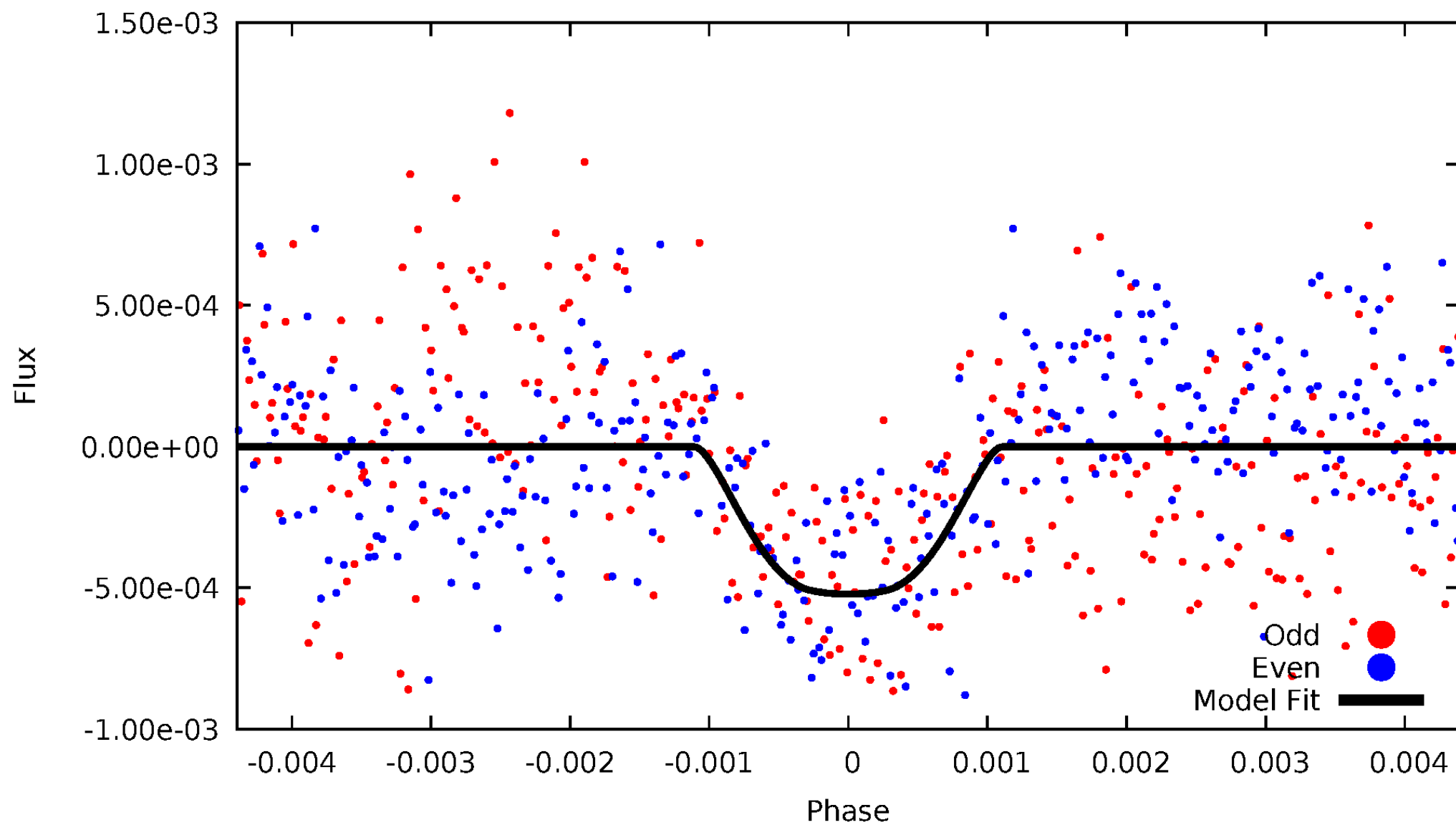


TCE 006033489-01



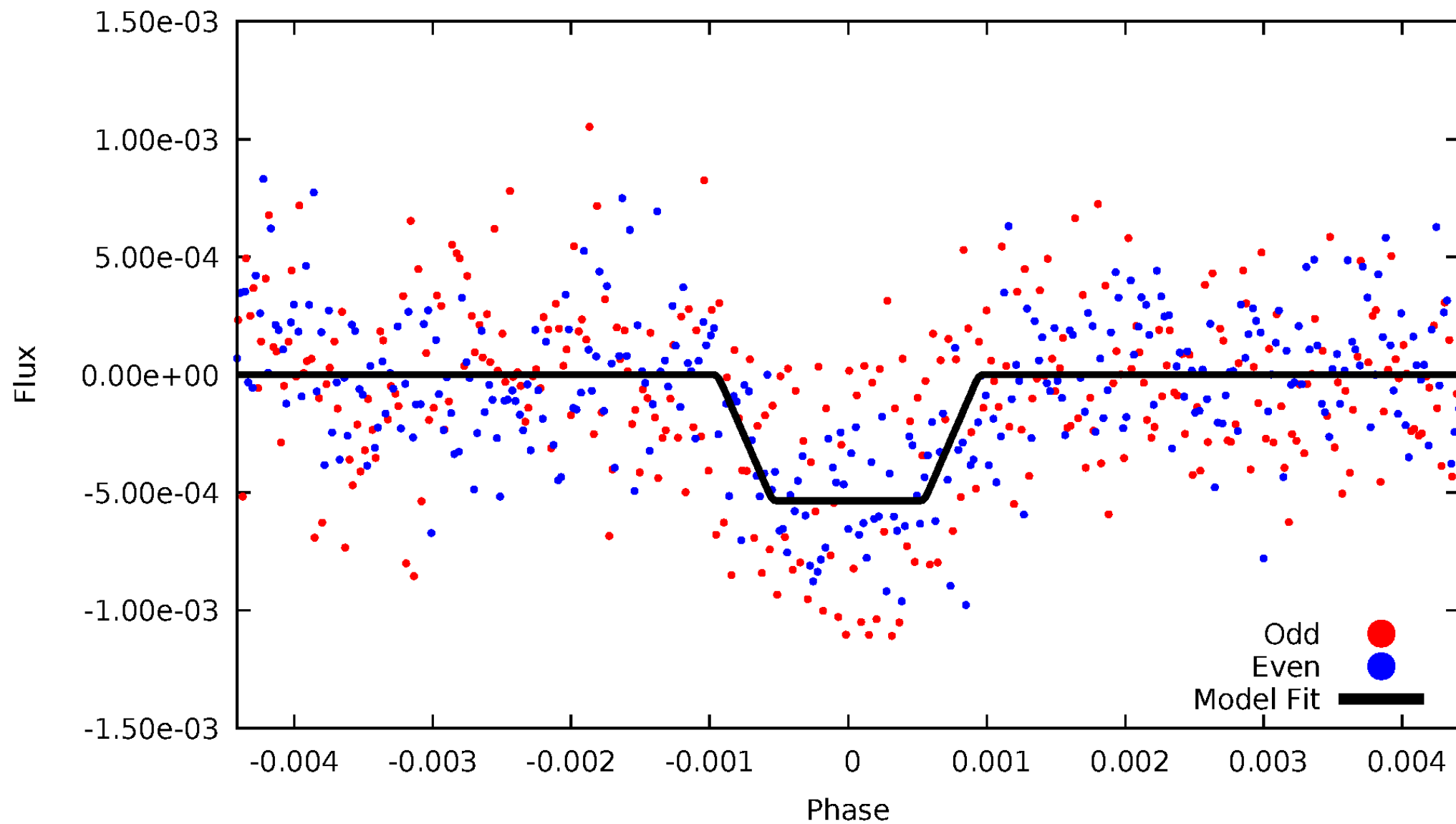
DV Odd/Even

TCE 006033489-01



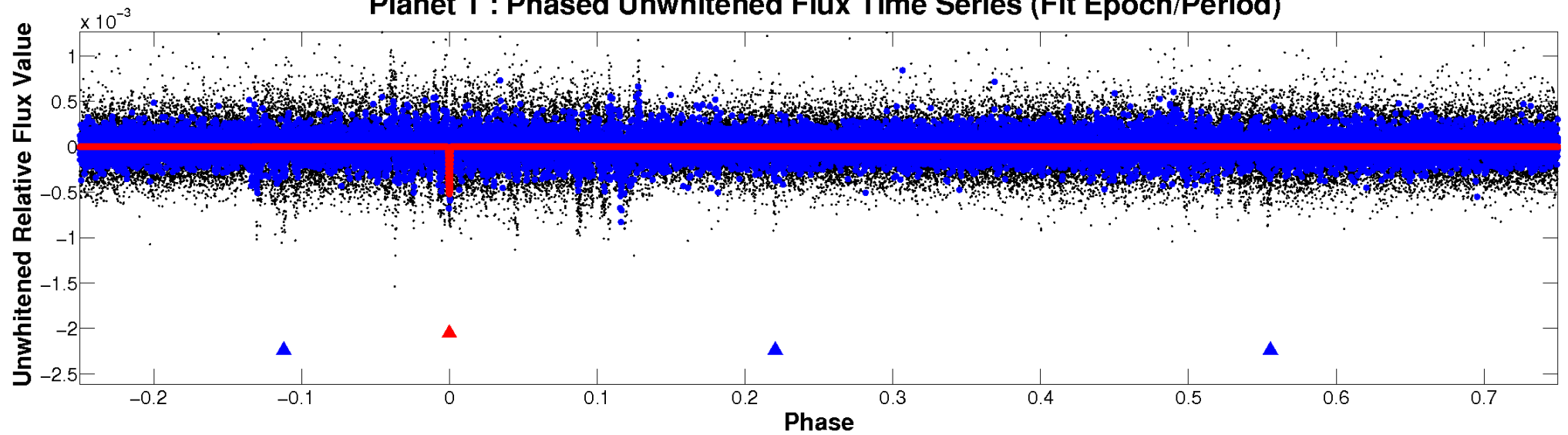
ALT Odd/Even

TCE 006033489-01

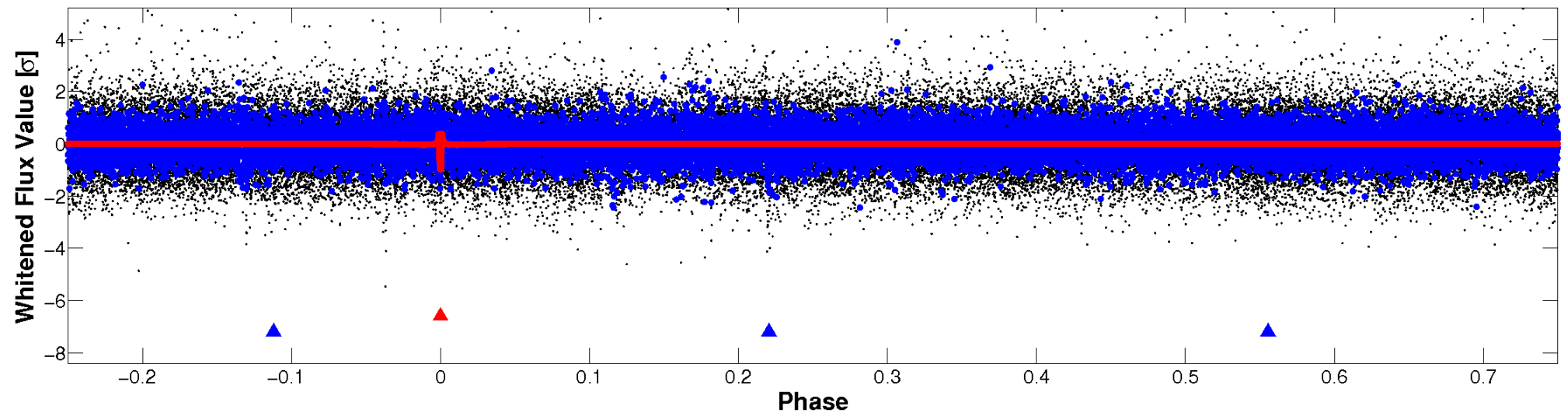


Non-Whitened Vs. Whitened Light Curve

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

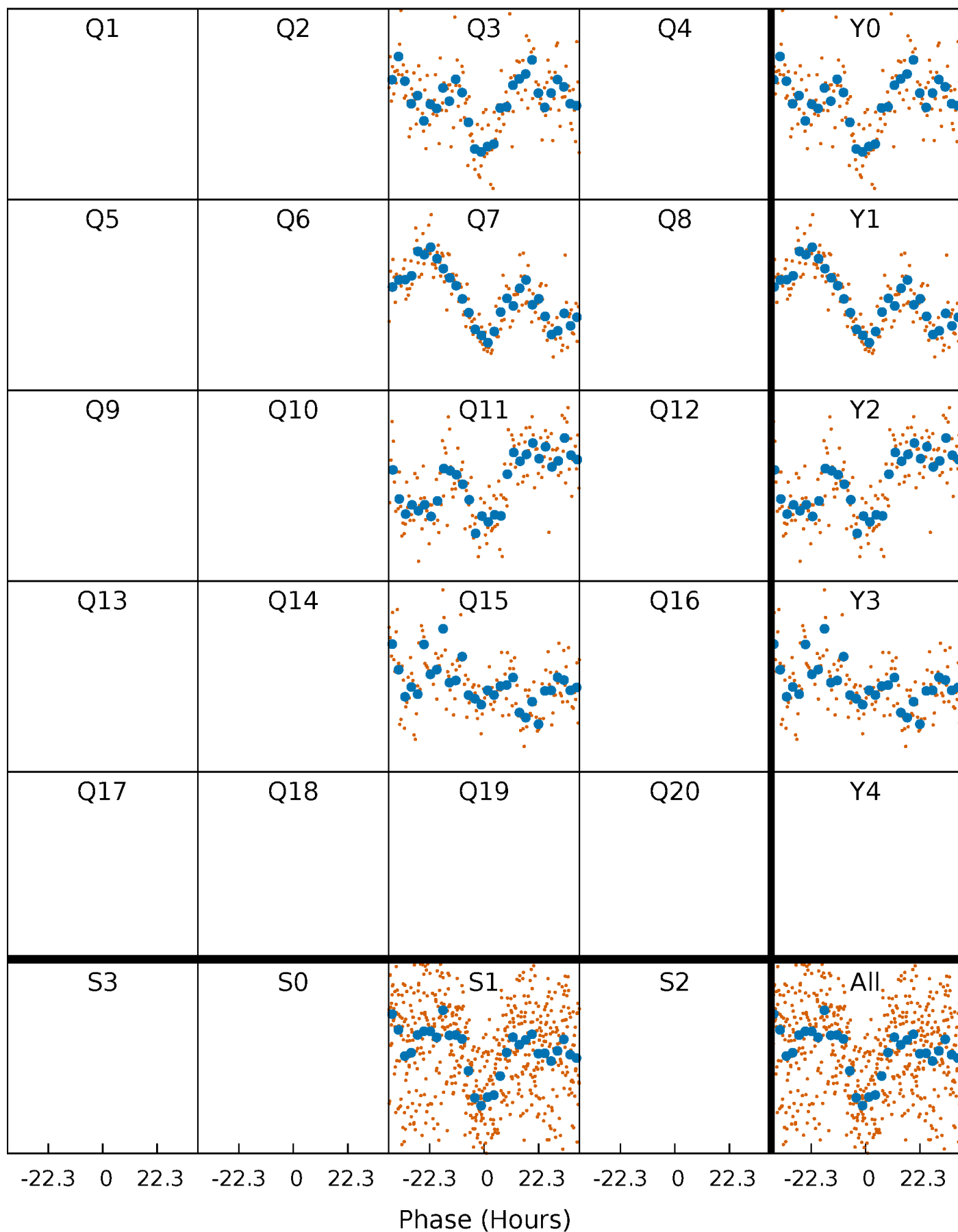


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



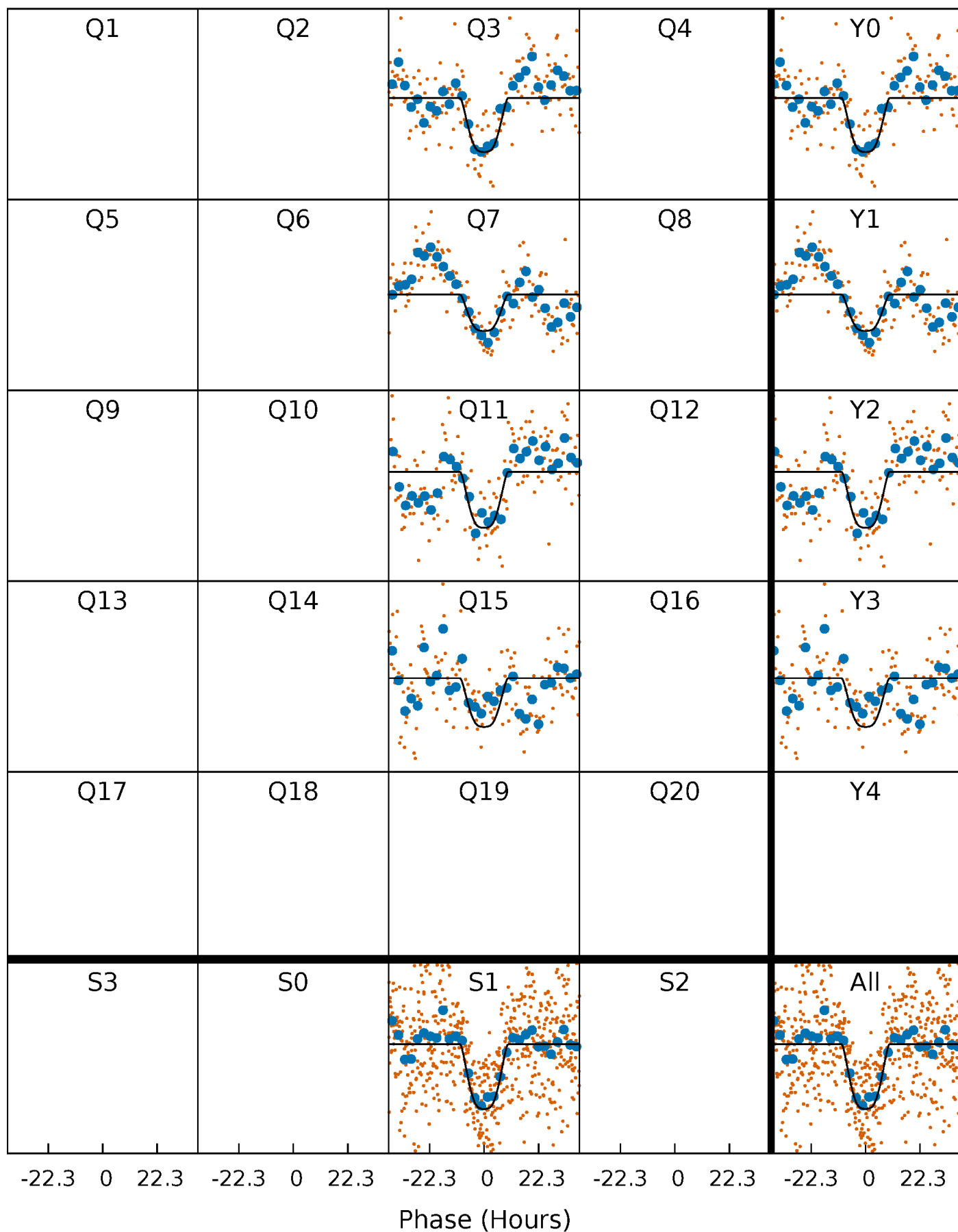
PDC Quarter-Phased Transit Curves

TCE 006033489-01 P=370.698841 Days $T_0=309.151240$ (BKJD)



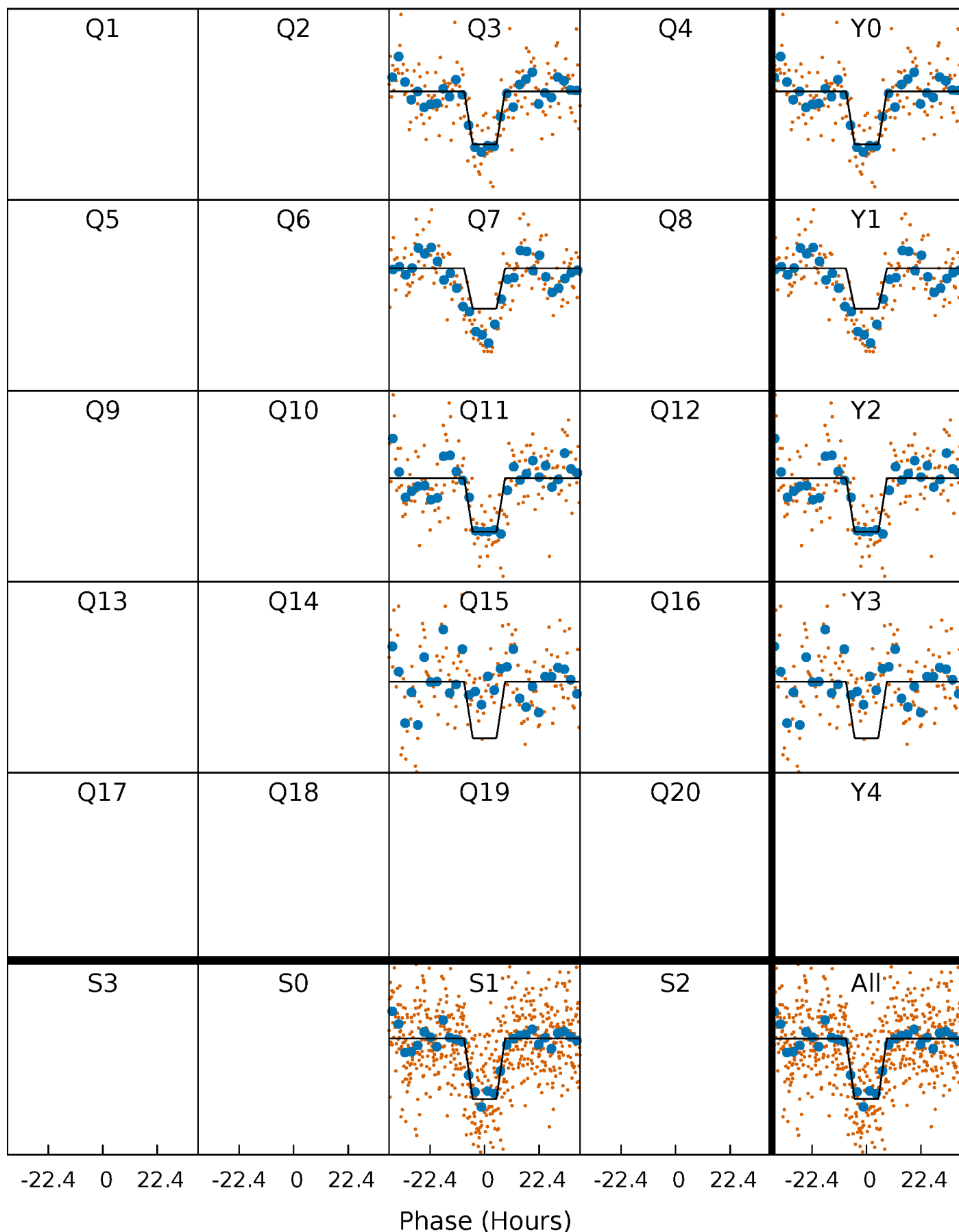
DV Quarter-Phased Transit Curves

TCE 006033489-01 P=370.698841 Days $T_0=309.151240$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

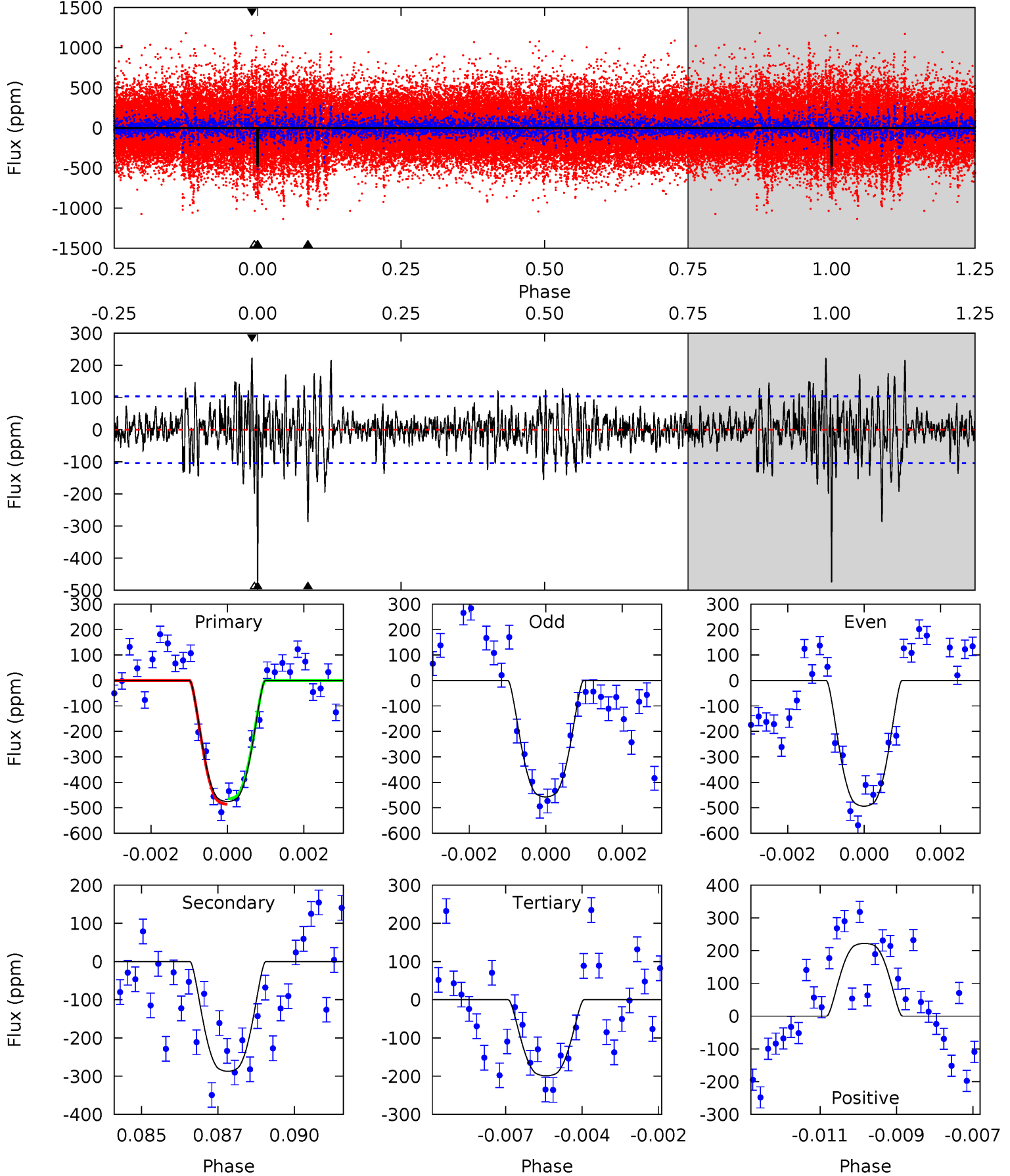
TCE 006033489-01 P=370.692023 Days $T_0=309.161353$ (BKJD)



DV Model-Shift Uniqueness Test

006033489-01, P = 370.698841 Days, E = 309.151240 Days

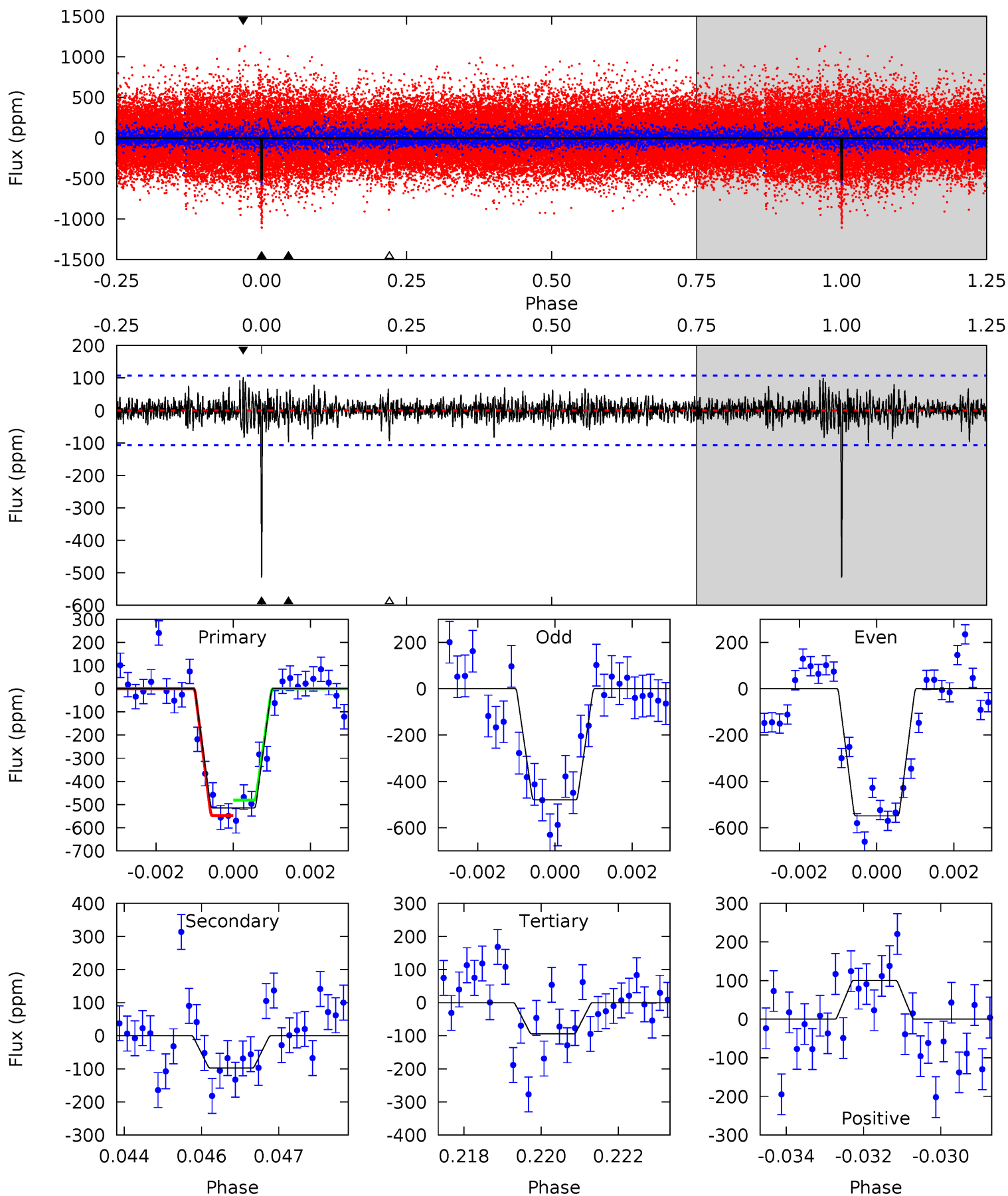
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
24.3	14.7	10.2	11.3	5.31	3.06	2.55	14.1	12.9	4.51	3.33	0.93	0.96	0.32	0.53



Alt Model-Shift Uniqueness Test

006033489-01, P = 370.692023 Days, E = 309.161353 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
25.5	4.84	4.69	4.98	5.34	3.11	1.10	20.9	20.6	0.16	-0.14	1.73	0.94	0.16	1.65



Stellar Parameters For KIC 006033489

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5853^{+157}_{-175}	$4.529^{+0.036}_{-0.204}$	$-0.100^{+0.300}_{-0.300}$	$0.895^{+0.260}_{-0.087}$	$0.990^{+0.116}_{-0.116}$	$1.941^{+0.383}_{-0.997}$
	+3%/-3%	+1%/-5%	+300%/-300%	+29%/-10%	+12%/-12%	+20%/-51%
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 006033489-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-287 ± 20	$2.84^{+0.46}_{-0.34}$	349^{+24}_{-15}	4712^{+228}_{-195}	19477^{+5514}_{-4843}
Alt.	-97 ± 20	$2.41^{+0.40}_{-0.36}$	350^{+23}_{-16}	4110^{+240}_{-236}	9299^{+3683}_{-2963}

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

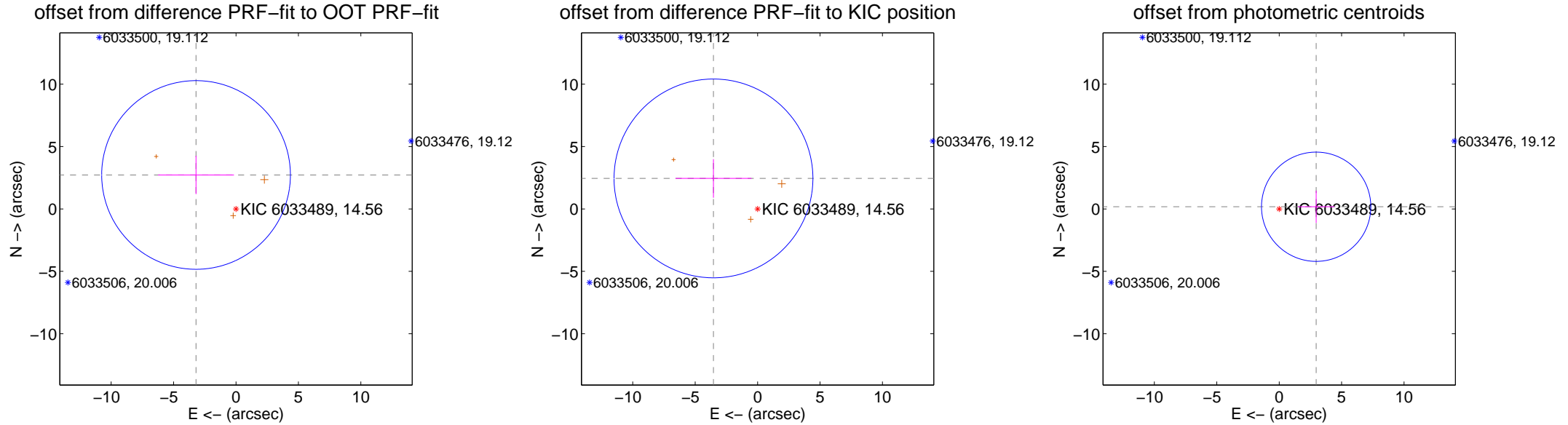
DV Centroid Data

Supplemental centroid analysis for 006033489-01. Kepler magnitude: 14.56. Transit SNR 9.25

There are 0 quarters with good PRF difference image offsets

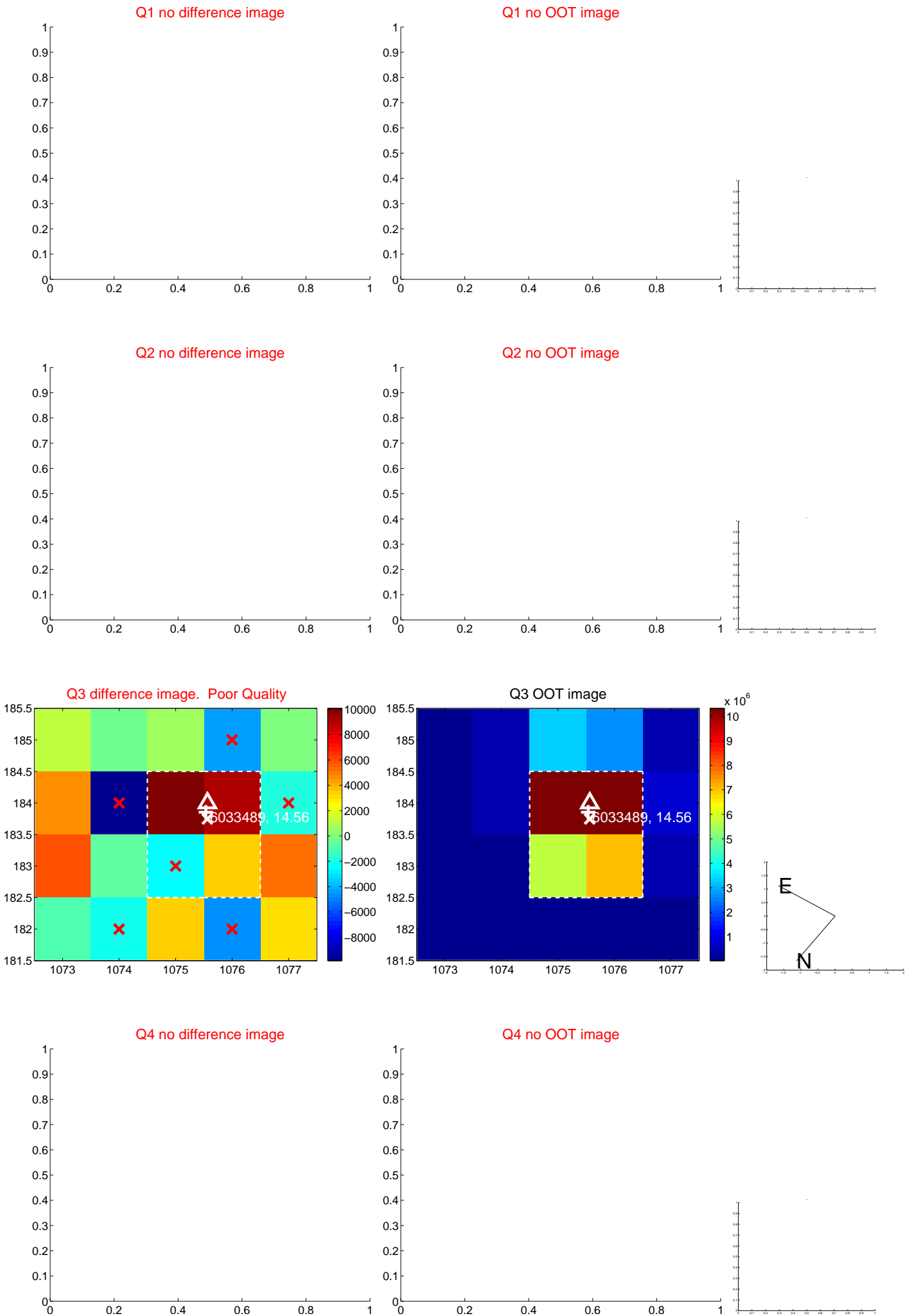
The direct PRF centroid is offset from the target star catalog position by about 0.48 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	4.201 ± 2.519	1.67	3.200 ± 3.038	2.722 ± 1.535
PRF-fit source offset from KIC position	4.297 ± 2.654	1.62	3.533 ± 3.045	2.445 ± 1.547
photometric centroid source offset	2.97 ± 1.46	2.03	-2.96 ± 1.46	0.18 ± 1.29

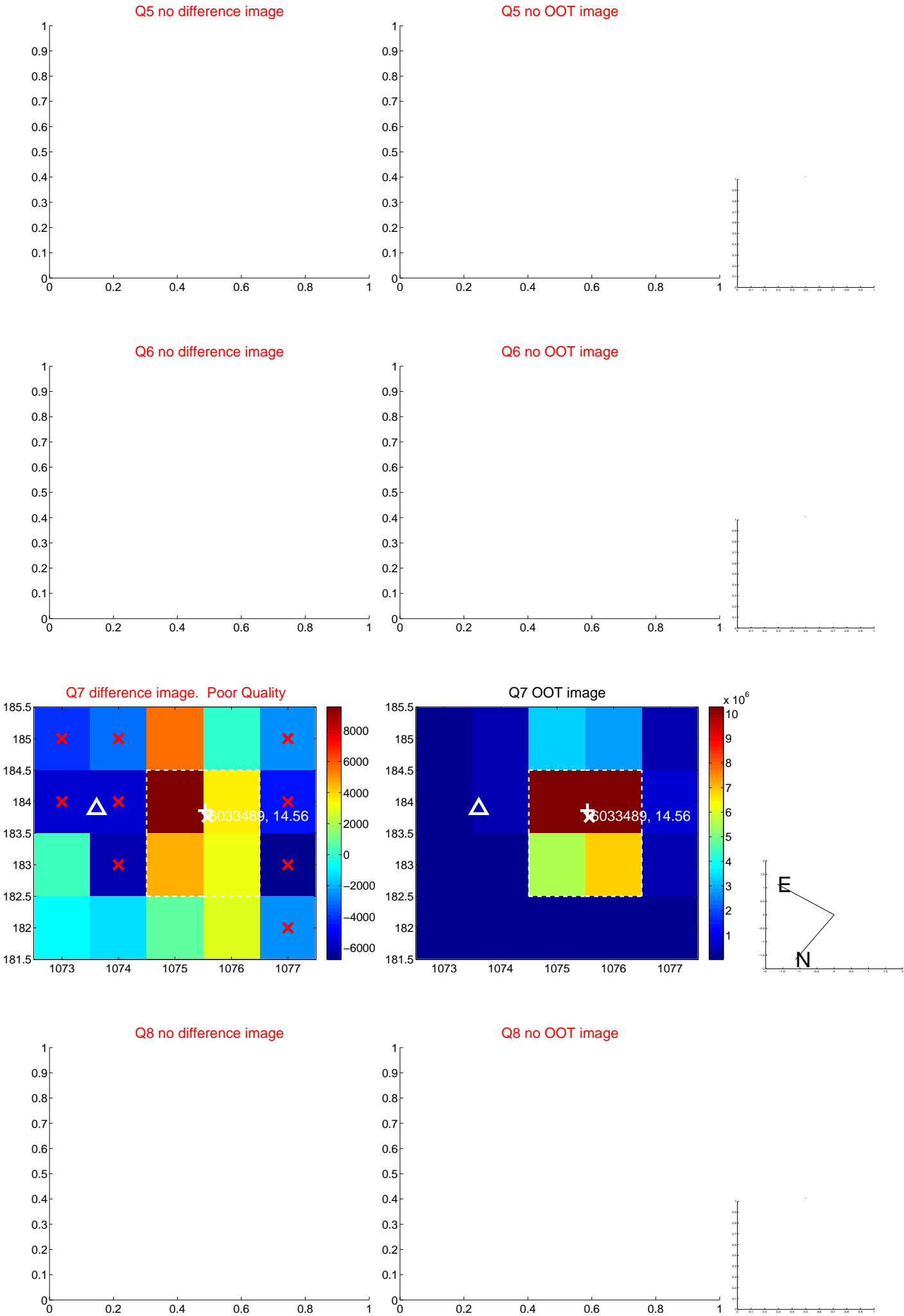


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

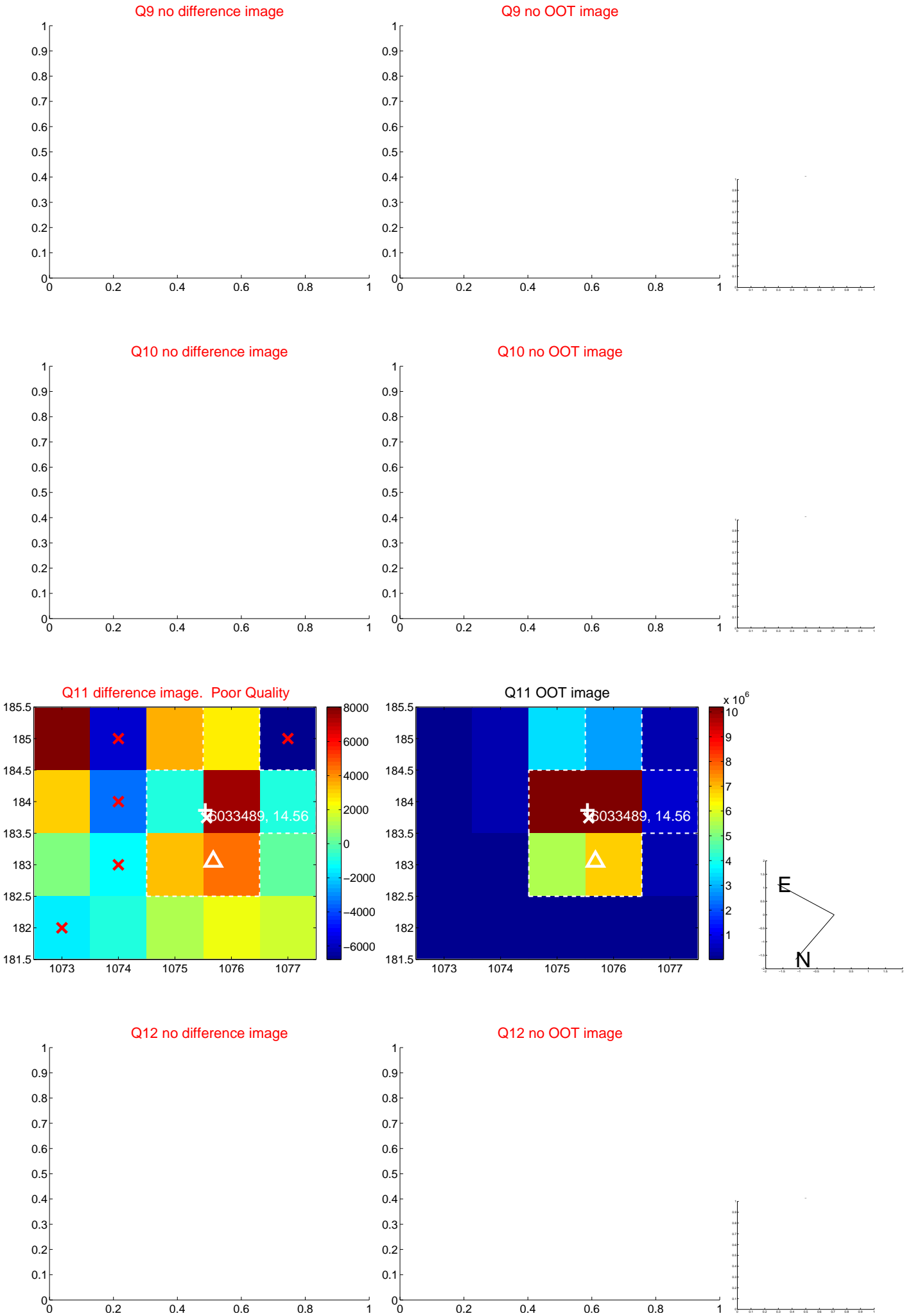
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



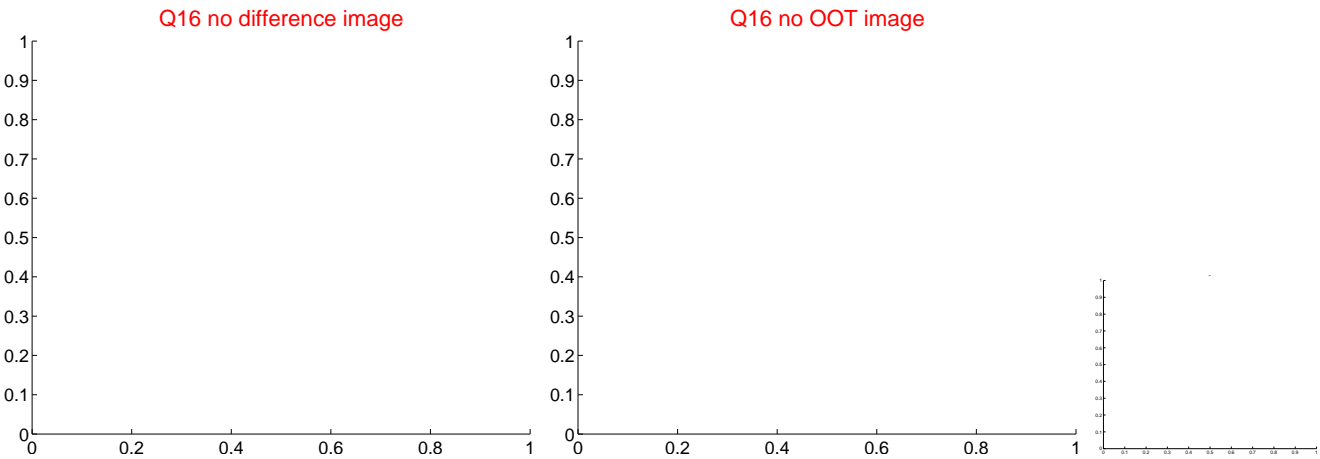
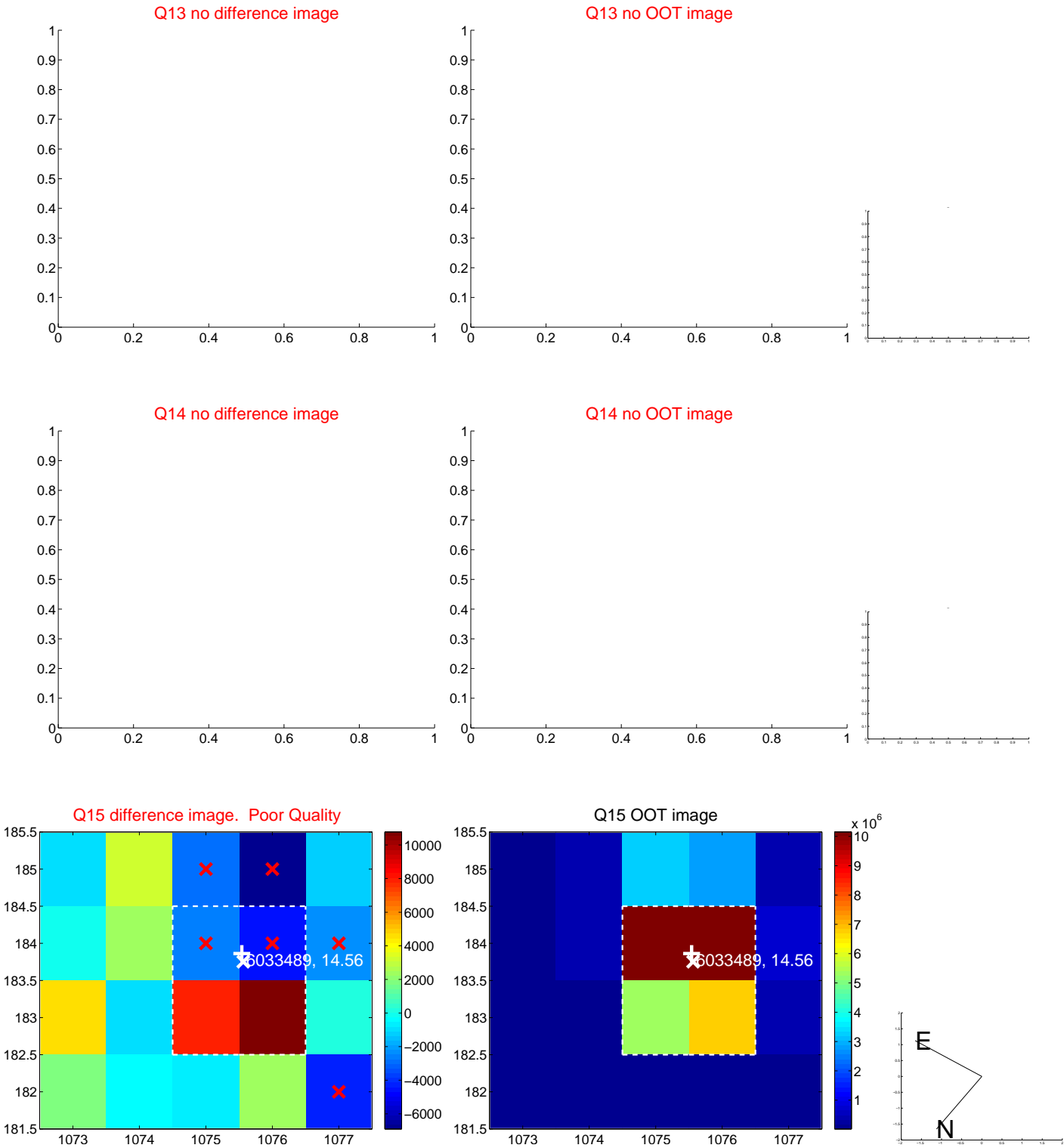
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



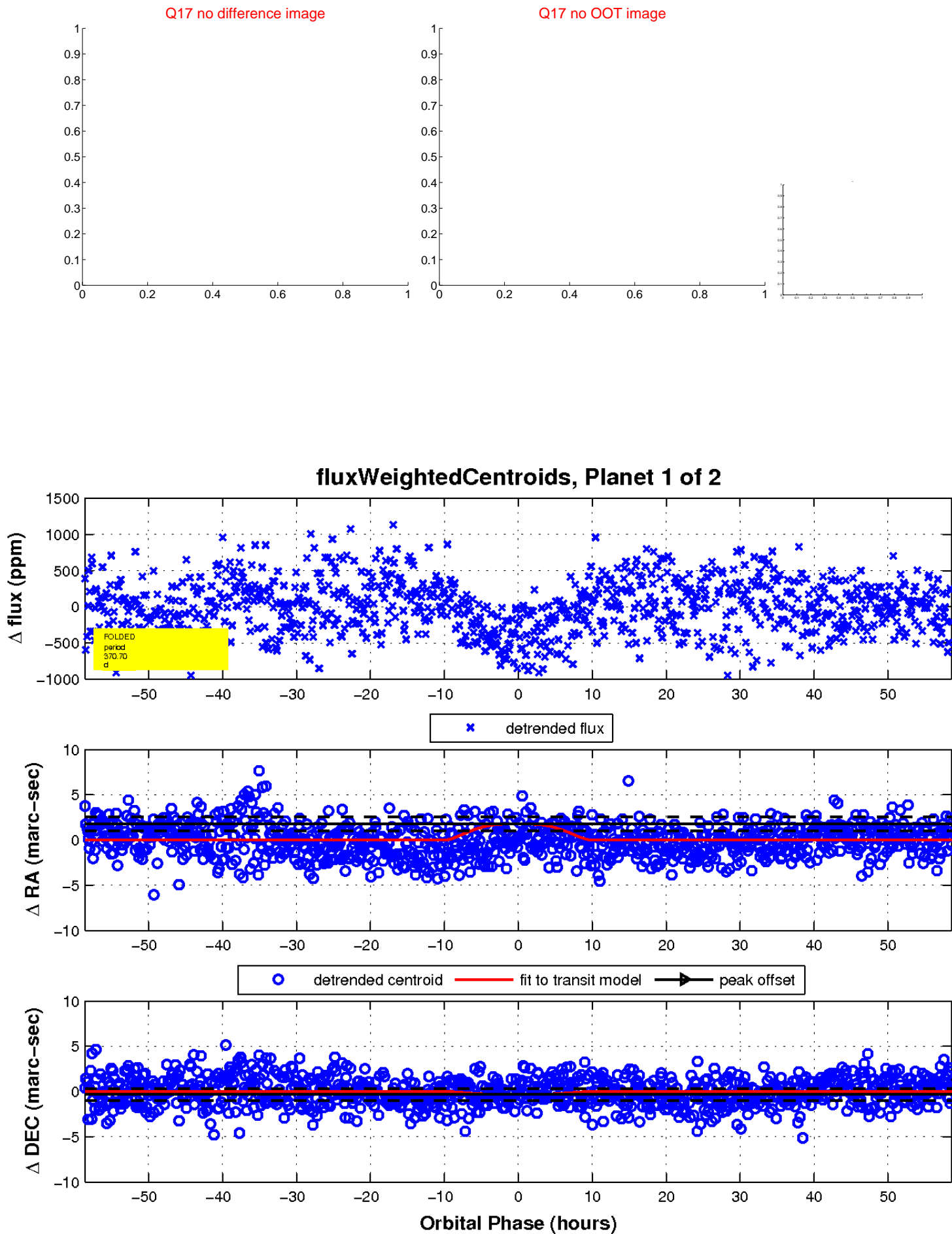
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

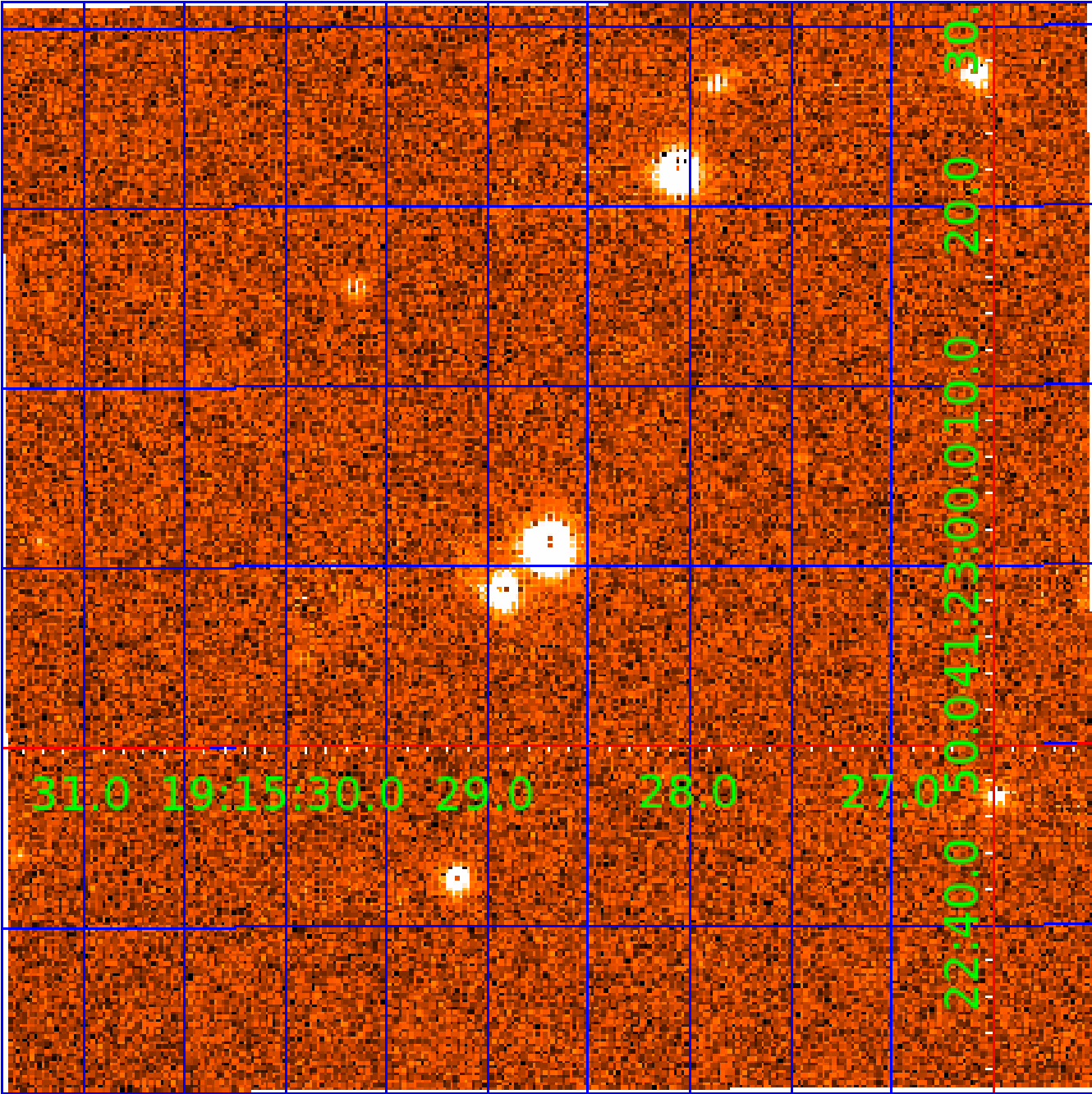


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 006033489

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})
006033489-01	OBS	No	370.698841	309.151240	522.0	19.540	9.2	9.3	0.90	5853	2.70	0.83
006033489-02	OBS	No	493.962175	144.377352	434.3	27.064	9.4	11.9	0.90	5853	2.02	0.57

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
006033489-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL_SKYE—CENT_FEW_DIFFS
006033489-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL_SKYE—ALL_TRANS_CHASES—INCONSISTENT_TRANS—CENT_FEW_DIFFS

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

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

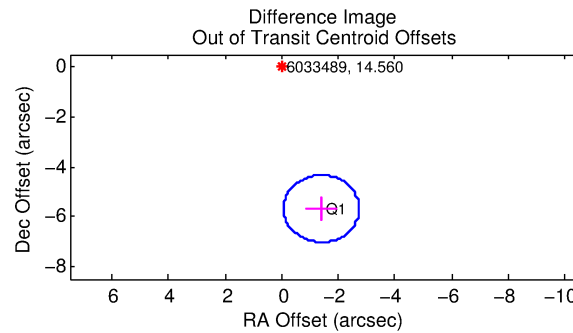
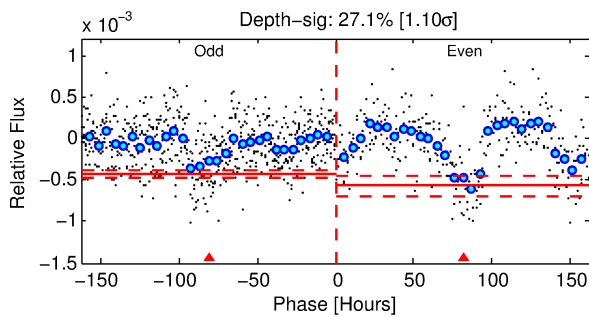
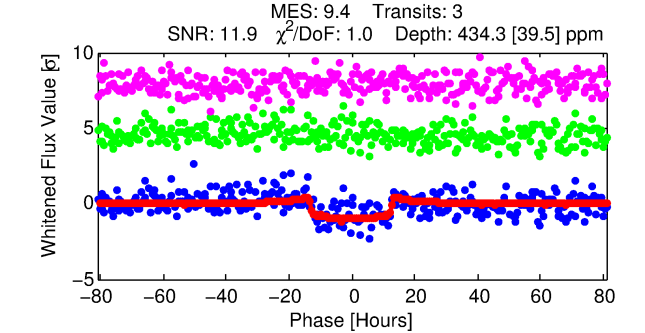
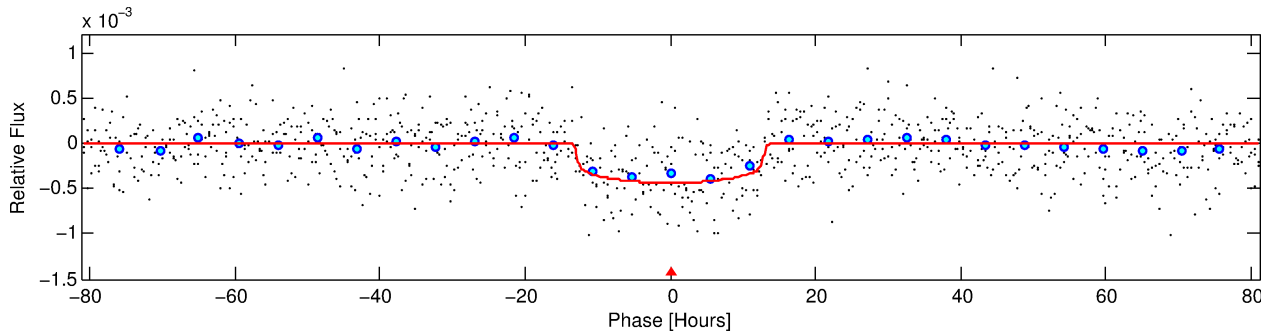
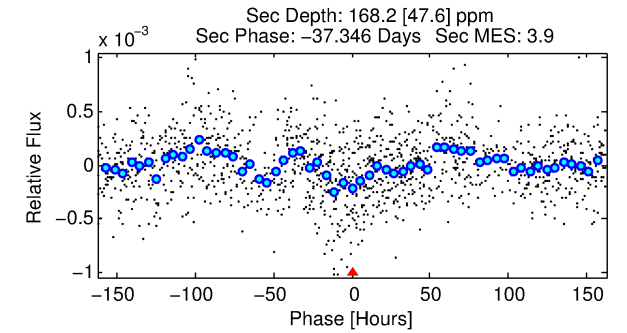
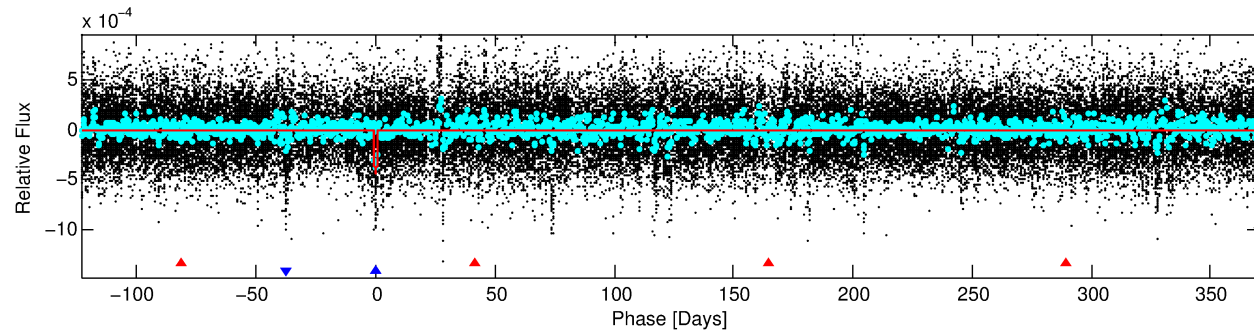
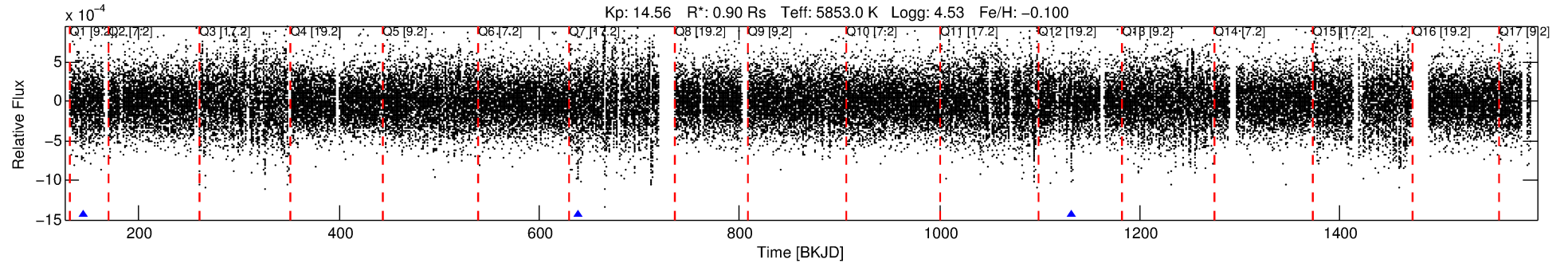
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 006033489-02

No Significant Match Found

DV One-Page Summary

KIC: 6033489 Candidate: 2 of 2 Period: 493.962 d



DV Fit Results:

Period = 493.96217 [0.01527] d
Epoch = 144.3774 [0.0212] BKJD
Rp/R* = 0.0206 [0.0029]
a/R* = 98.60 [59.29]
b = 0.74 [0.38]
Seff = 0.57 [0.22]
Teq = 221 [21] K
Rp = 2.01 [0.65] Re
a = 1.2182 [0.3034] AU
Ag = 33832.83 [18327.70] [1.85σ]
Teffp = 4641 [481] K [9.17σ]

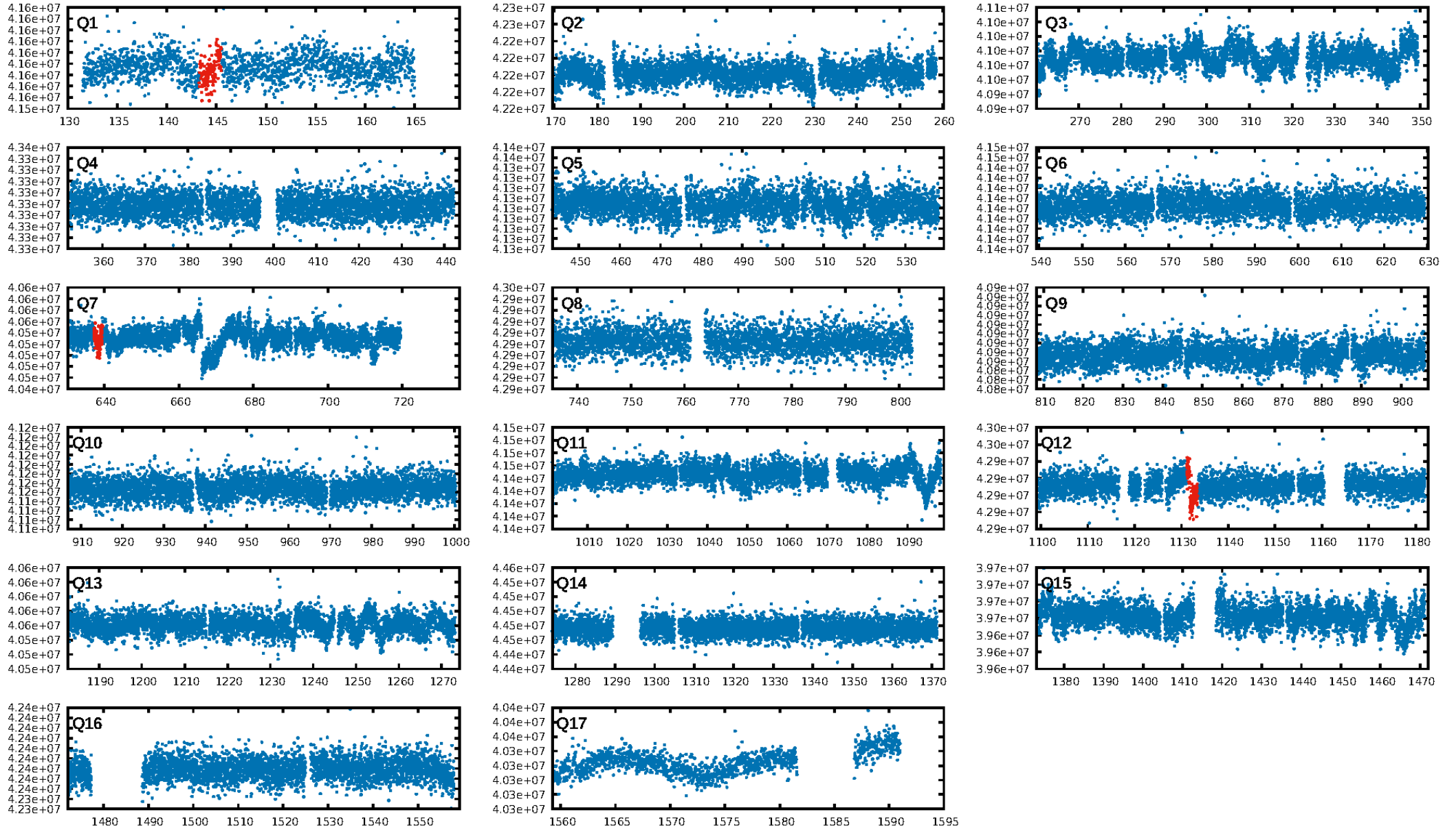
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [88.62σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 9.0%
ModelChiSquareGof-sig: 99.6%
Bootstrap-pfa: 6.55e-12
RollingBand-fgt: 1.00 [2/2]
GhostDiagnostic-chr: -1.748
Centroid-sig: 1.5%
Centroid-so: 1.714 arcsec [1.92σ]
OotOffset-rm: 5.853 arcsec [13.06σ]
KicOffset-rm: 6.002 arcsec [13.46σ]
OotOffset-st: 0/0/0/1 [1]
KicOffset-st: 0/0/0/1 [1]
DiffImageQuality-fgm: 0.00 [0/1]
DiffImageOverlap-fno: 1.00 [2/2]

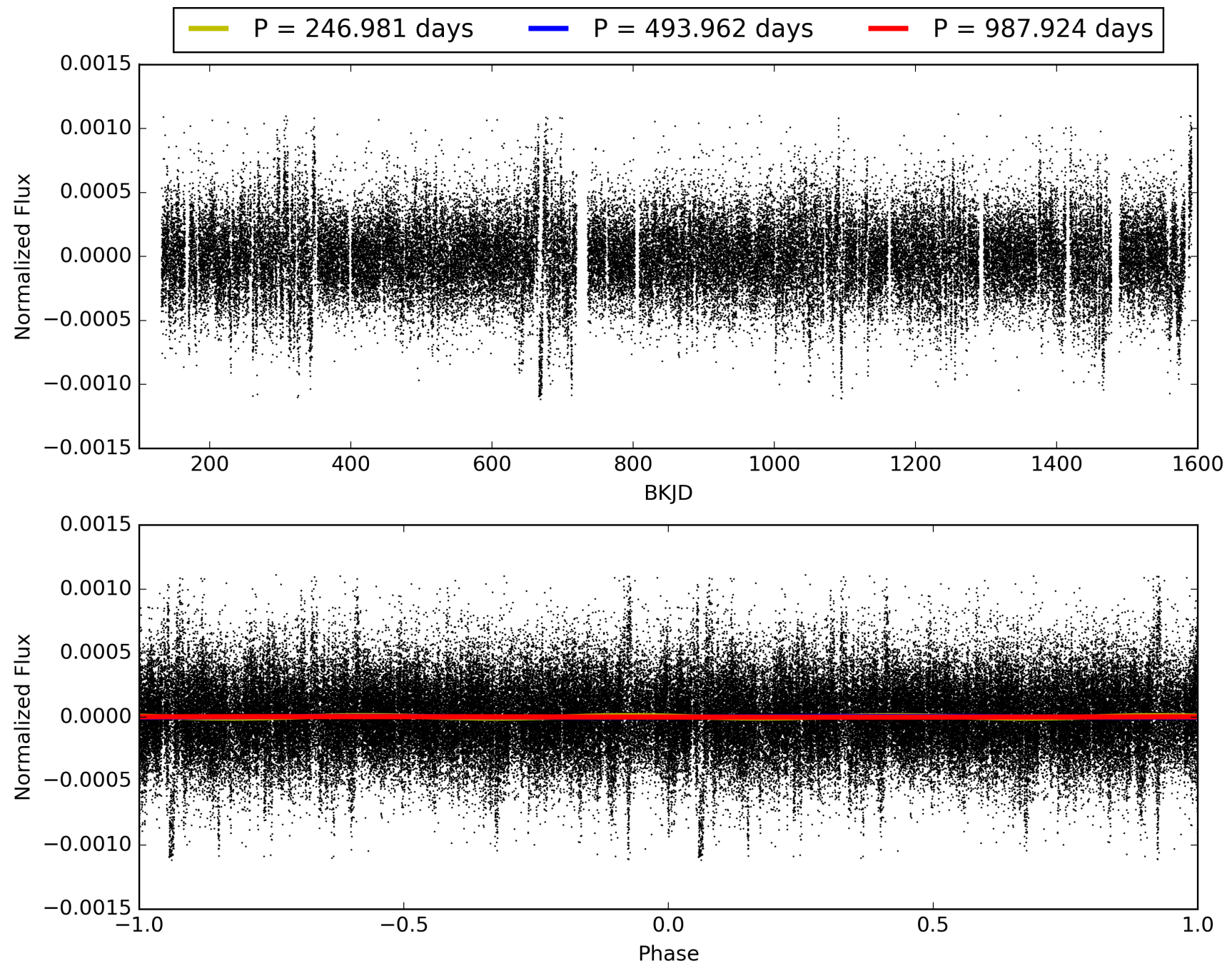
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 22:11:23 Z

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

TCE 006033489-02, PDC Light Curves

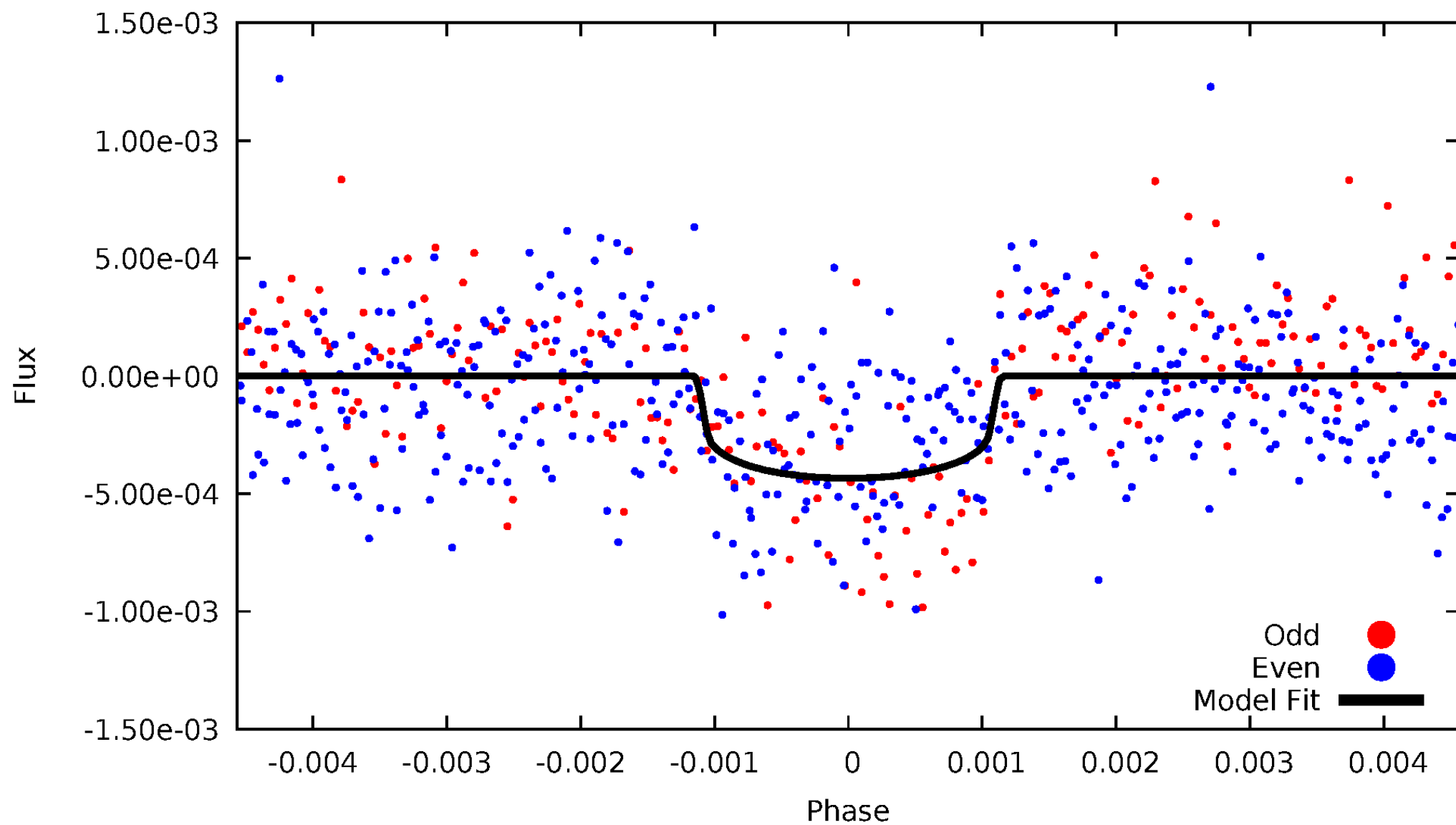


TCE 006033489-02



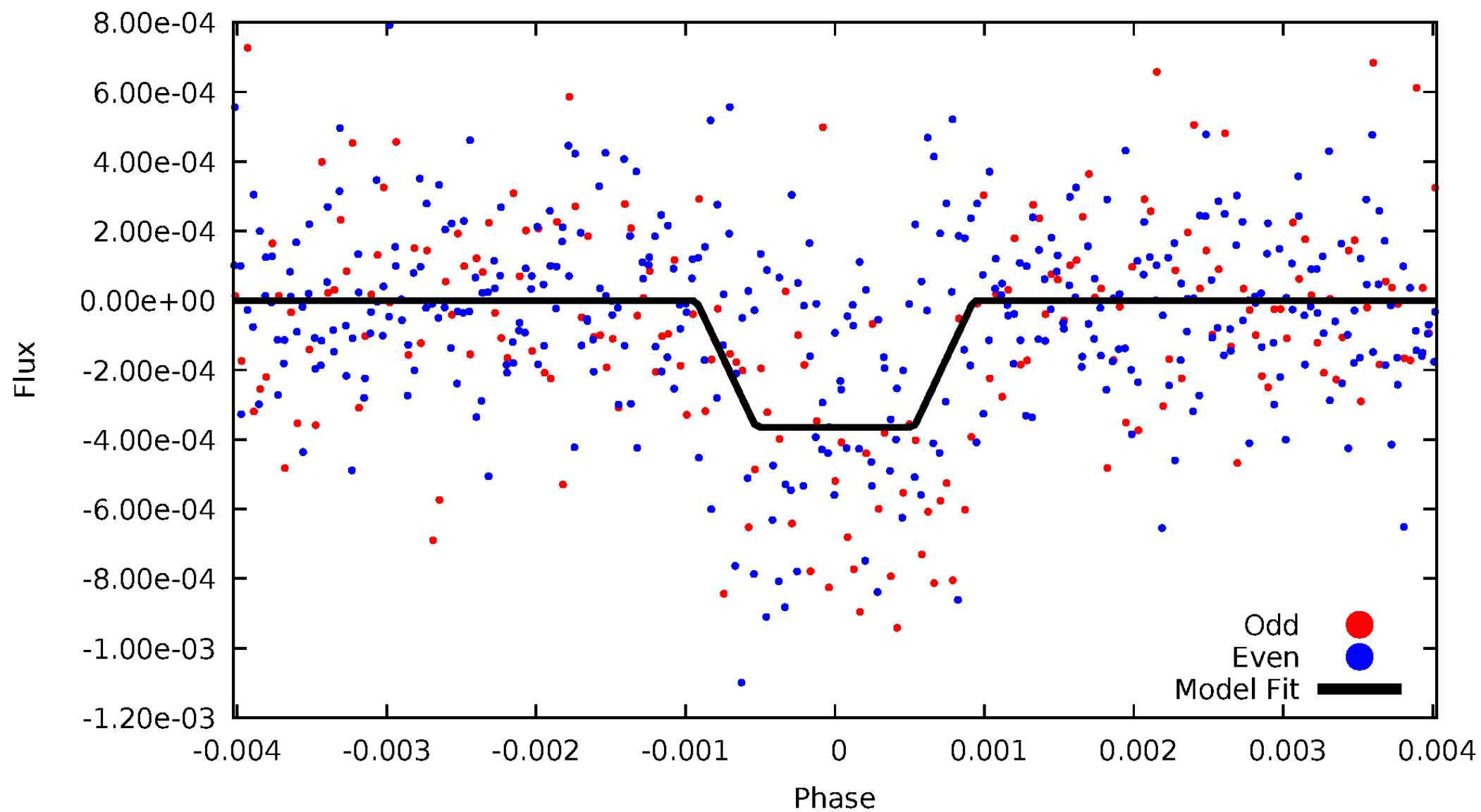
DV Odd/Even

TCE 006033489-02



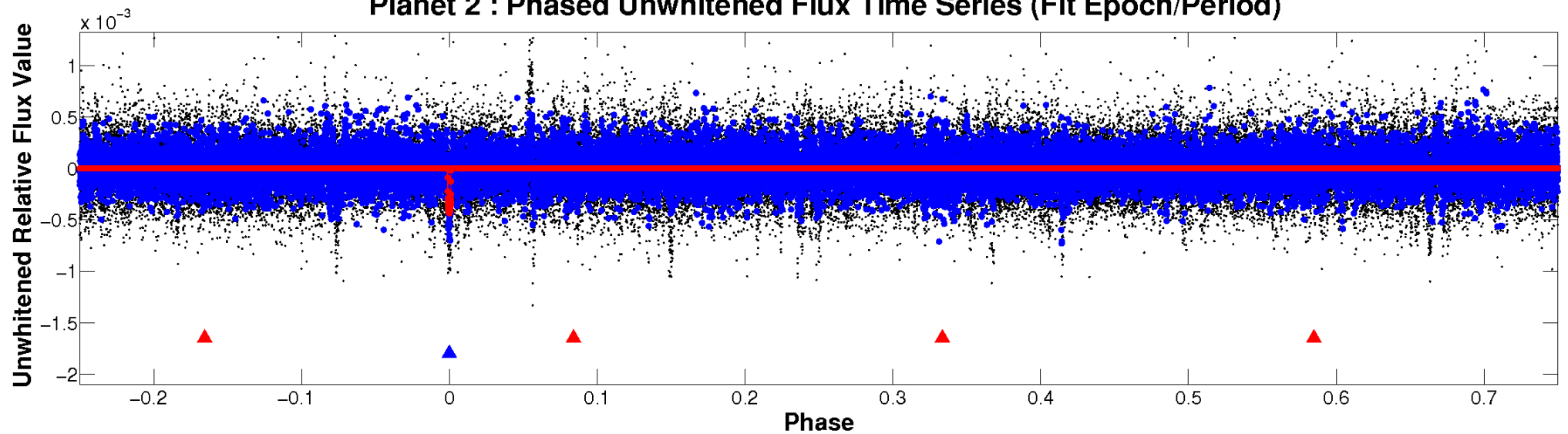
ALT Odd/Even

TCE 006033489-02

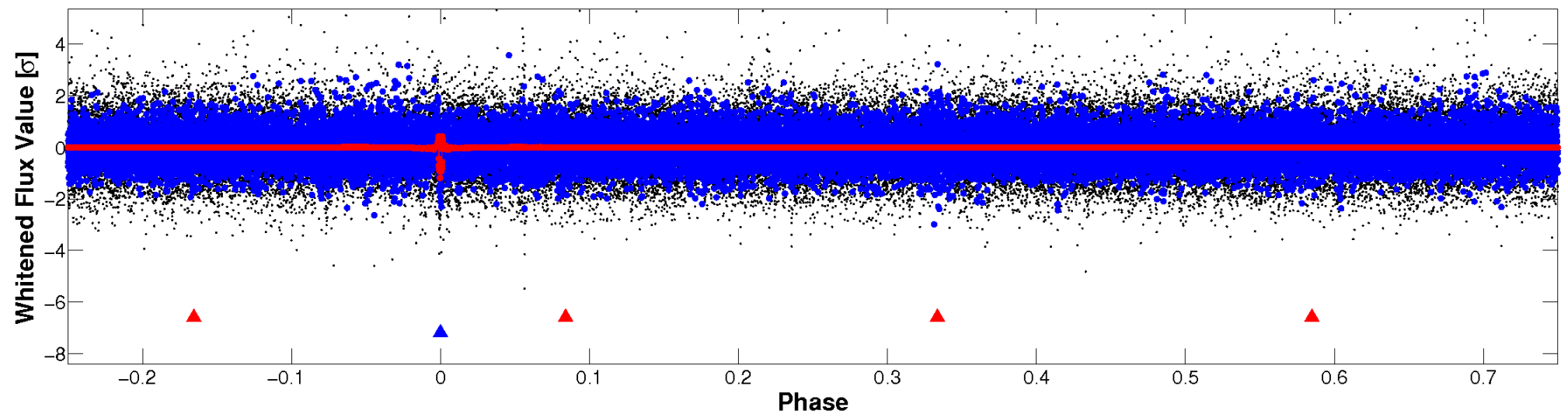


Non-Whitened Vs. Whitened Light Curve

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

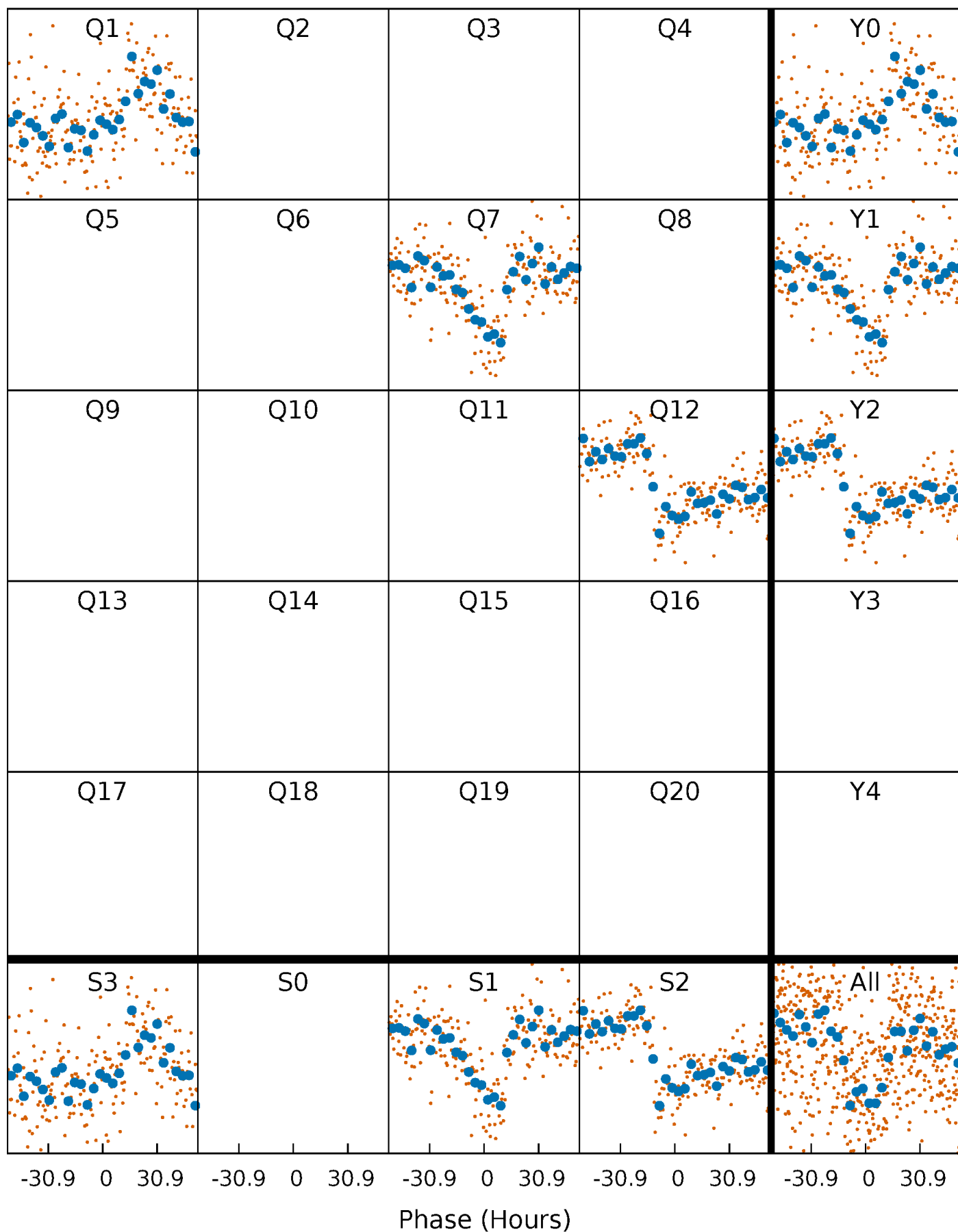


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



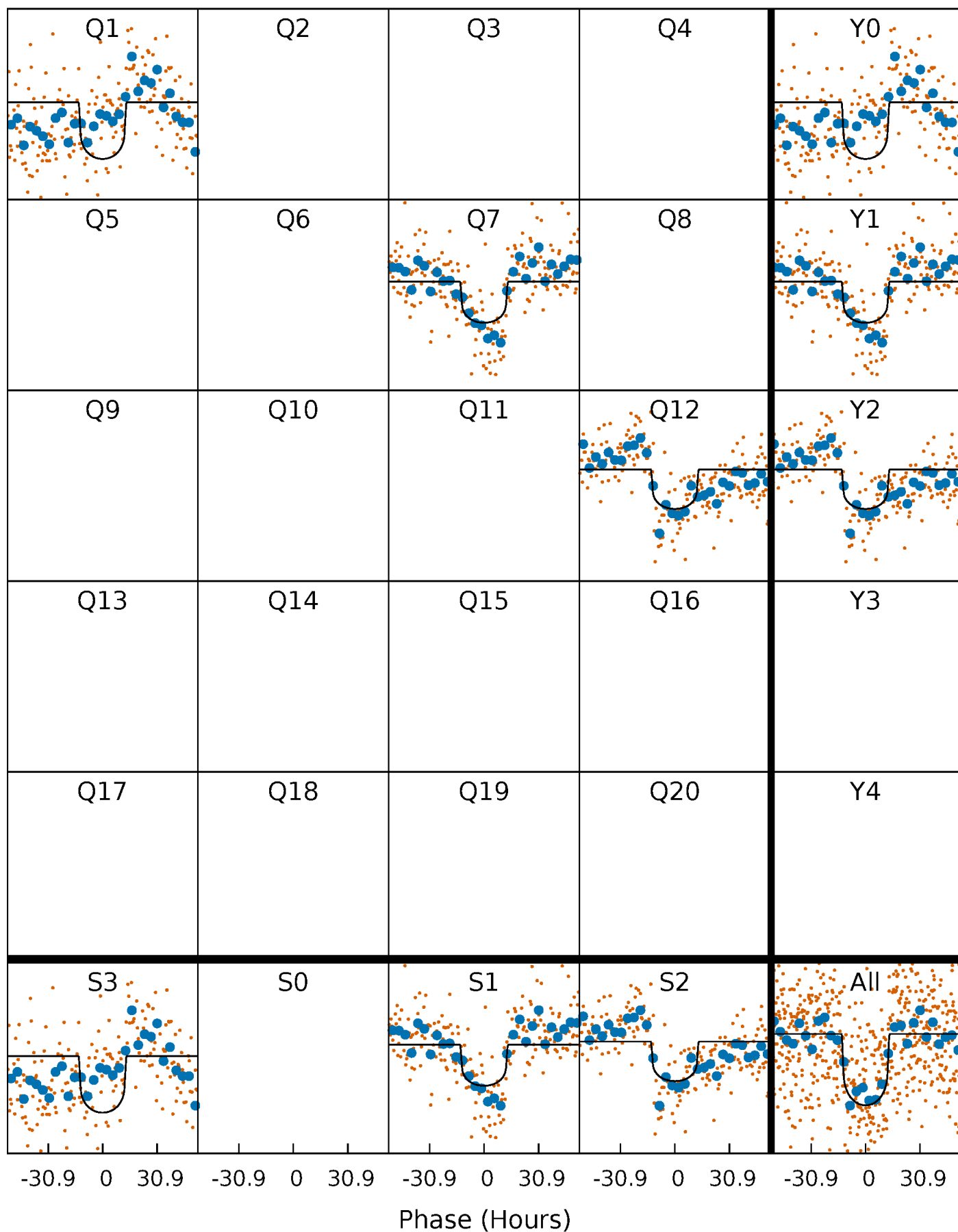
PDC Quarter-Phased Transit Curves

TCE 006033489-02 $P=493.962175$ Days $T_0=144.377352$ (BKJD)



DV Quarter-Phased Transit Curves

TCE 006033489-02 $P=493.962175$ Days $T_0=144.377352$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

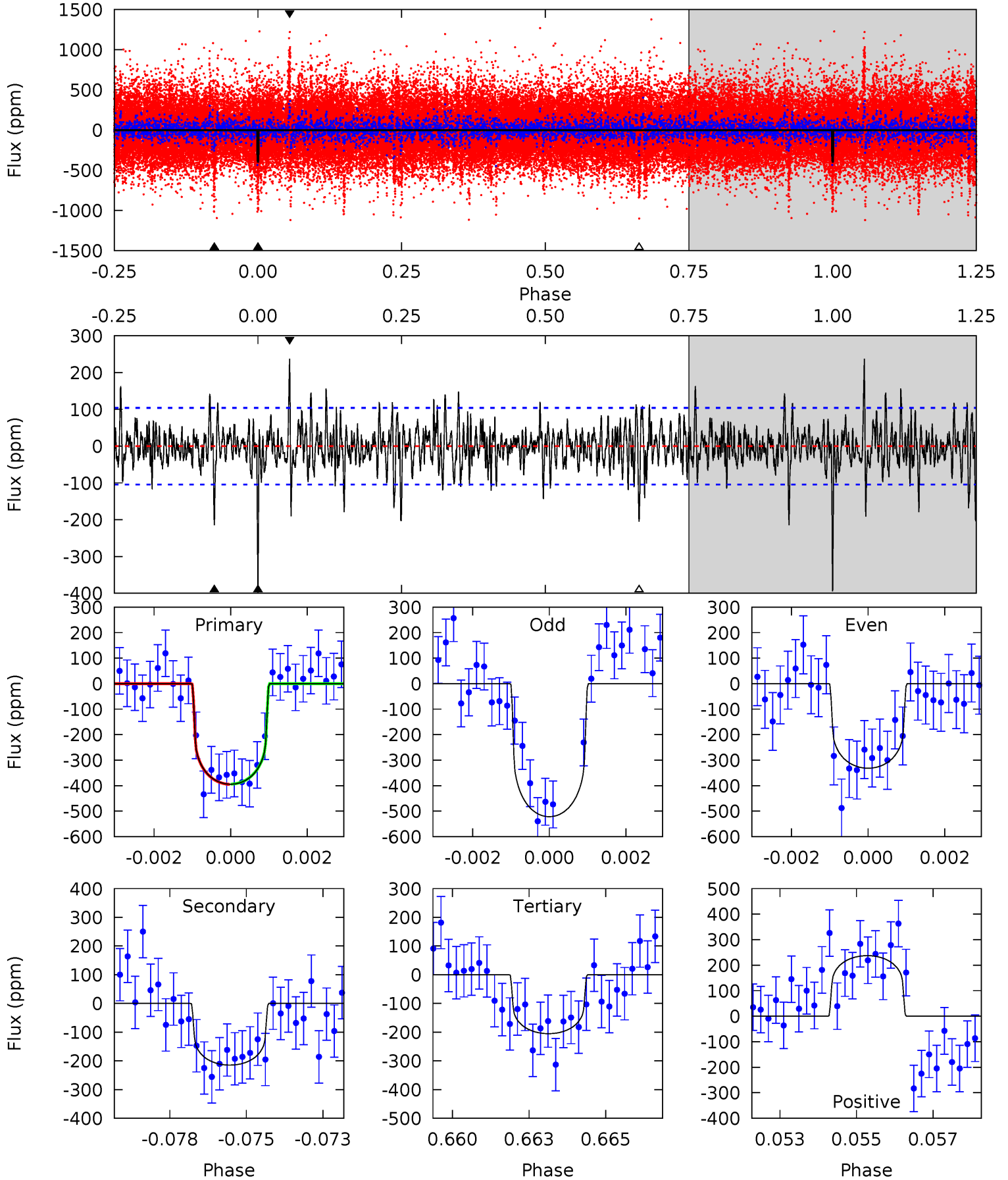
TCE 006033489-02 P=493.736110 Days $T_0=144.672525$ (BKJD)



DV Model-Shift Uniqueness Test

006033489-02, P = 493.962175 Days, E = 144.377352 Days

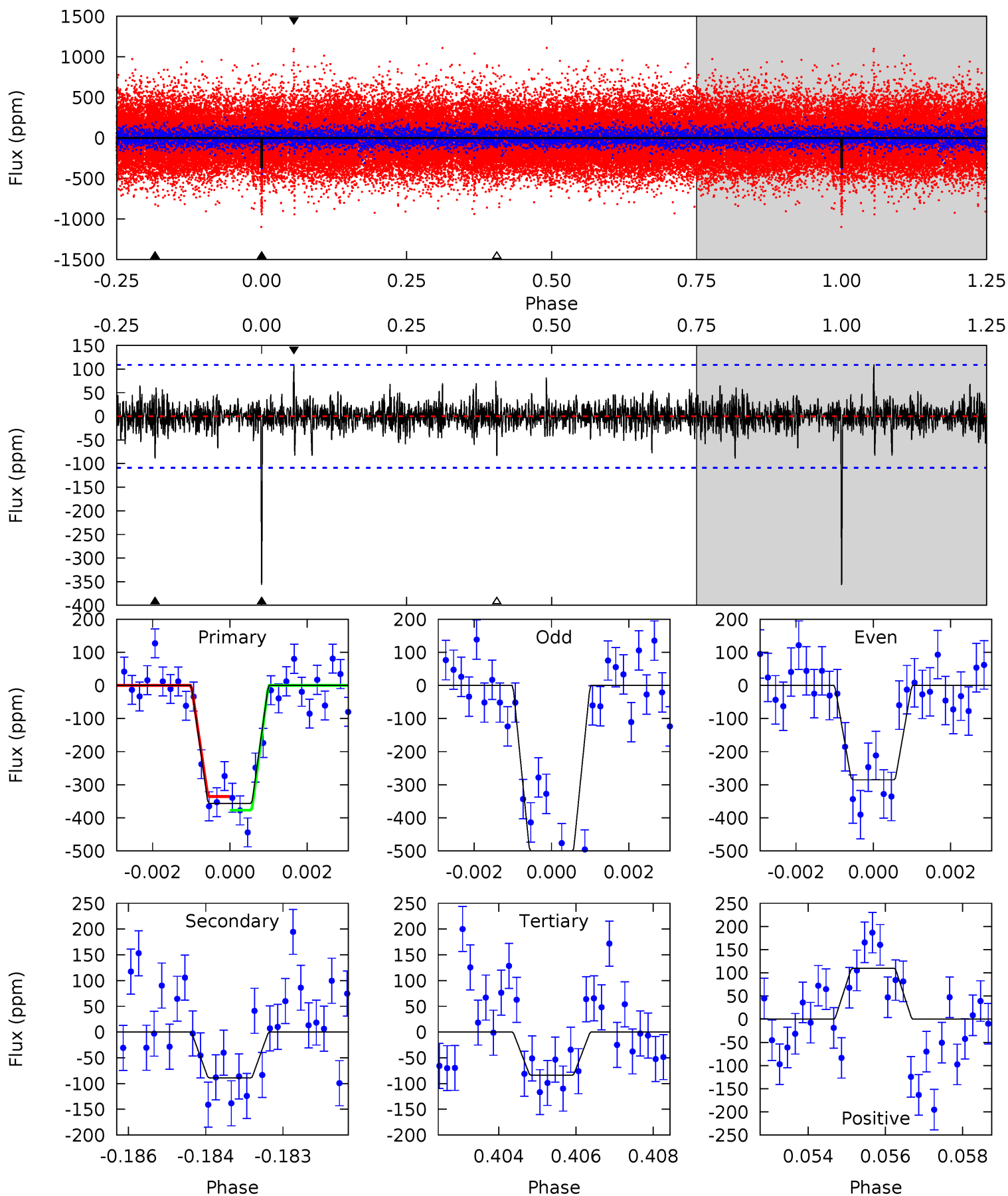
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
20.1	10.9	10.4	12.1	5.30	3.05	2.43	9.63	7.99	0.49	-1.15	4.57	0.81	0.38	0.03



Alt Model-Shift Uniqueness Test

006033489-02, P = 493.736110 Days, E = 144.672525 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
17.5	4.37	4.10	5.38	5.34	3.11	0.98	13.4	12.1	0.26	-1.02	5.04	0.72	0.24	1.02



Stellar Parameters For KIC 006033489

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5853^{+157}_{-175}	$4.529^{+0.036}_{-0.204}$	$-0.100^{+0.300}_{-0.300}$	$0.895^{+0.260}_{-0.087}$	$0.990^{+0.116}_{-0.116}$	$1.941^{+0.383}_{-0.997}$
	+3%/-3%	+1%/-5%	+300%/-300%	+29%/-10%	+12%/-12%	+20%/-51%
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 006033489-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-215 ± 20	$2.11^{+0.41}_{-0.33}$	317^{+21}_{-14}	5028^{+360}_{-334}	38181^{+15660}_{-10310}
Alt.	-89 ± 20	$1.96^{+0.41}_{-0.34}$	318^{+22}_{-14}	4326^{+375}_{-283}	18210^{+10057}_{-6243}

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

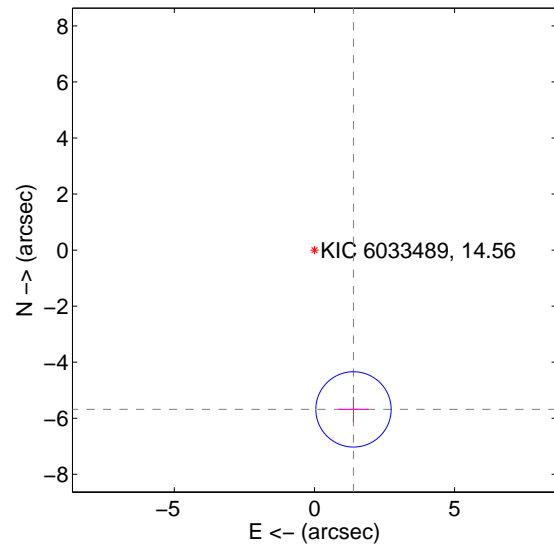
Supplemental centroid analysis for 006033489-02. Kepler magnitude: 14.56. Transit SNR 11.86

There are 0 quarters with good PRF difference image offsets

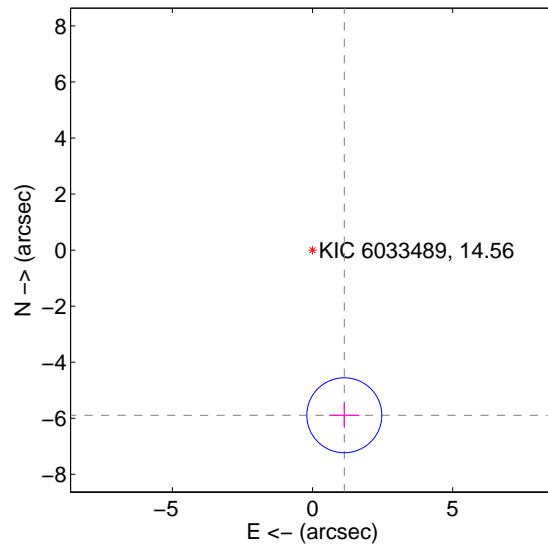
The direct PRF centroid is offset from the target star catalog position by about 0.33 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	5.853 ± 0.448	13.06	-1.393 ± 0.536	-5.685 ± 0.442
PRF-fit source offset from KIC position	6.002 ± 0.446	13.46	-1.134 ± 0.536	-5.894 ± 0.442
photometric centroid source offset	1.71 ± 0.89	1.92	-0.90 ± 0.78	-1.46 ± 0.93

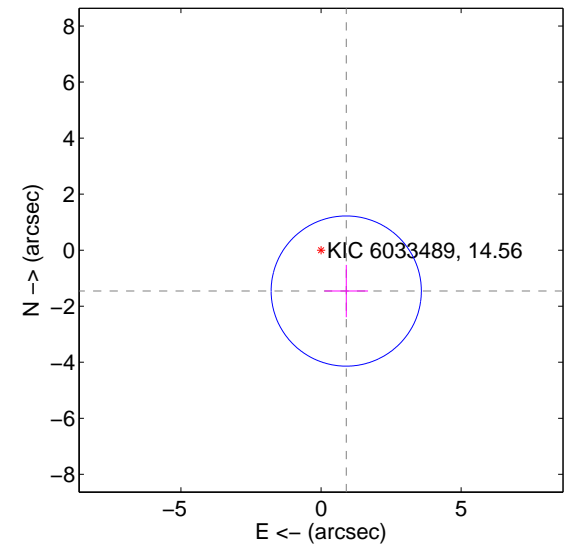
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

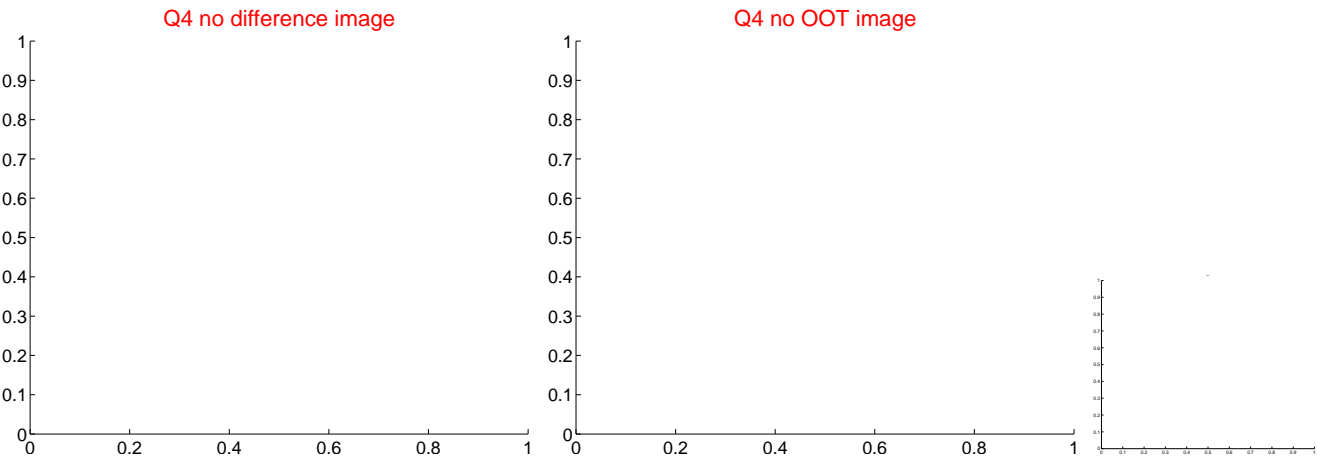
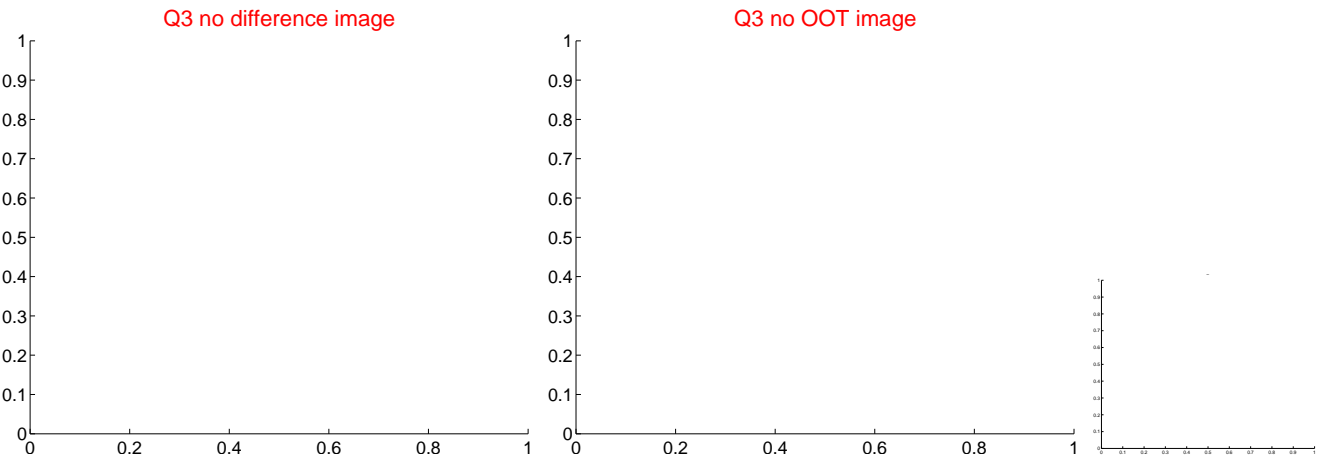
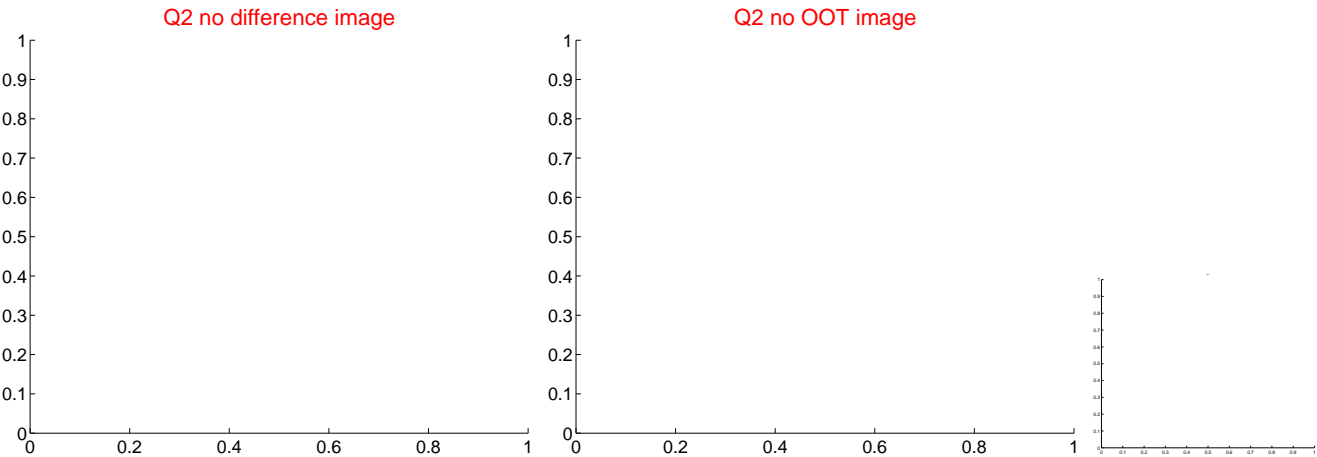
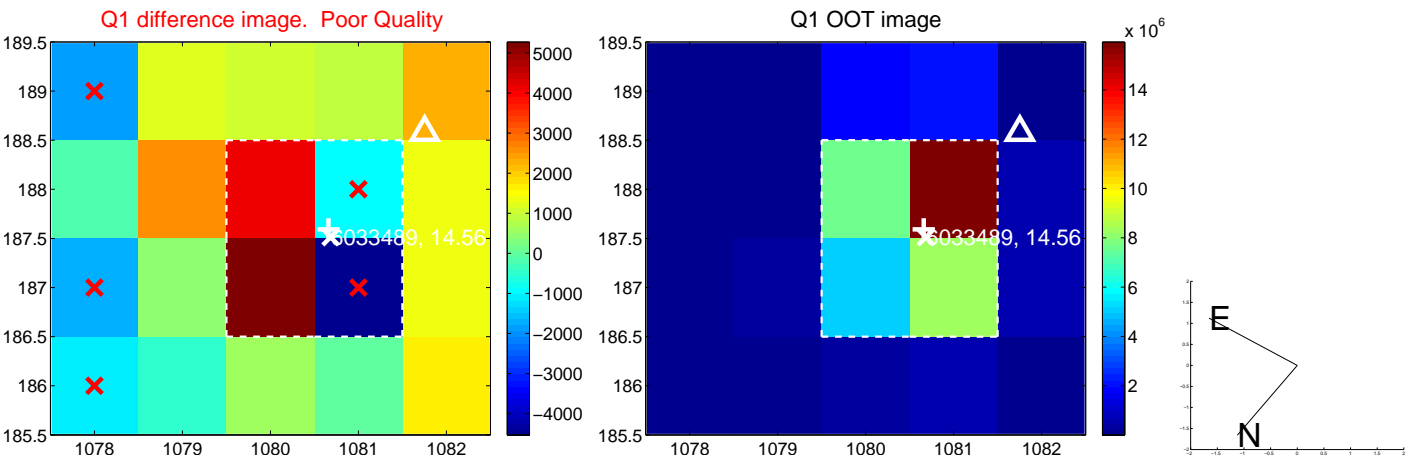


offset from photometric centroids



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.

Q5 no difference image



Q5 no OOT image



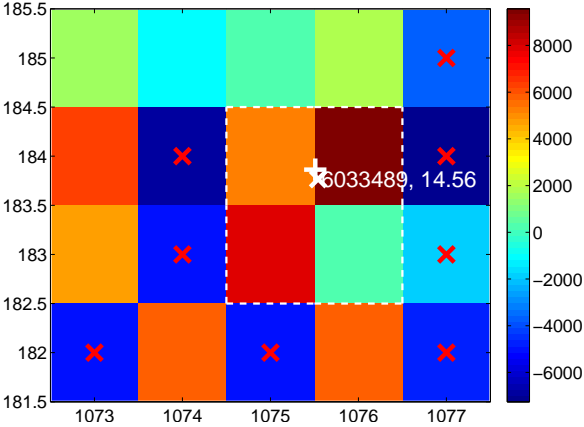
Q6 no difference image



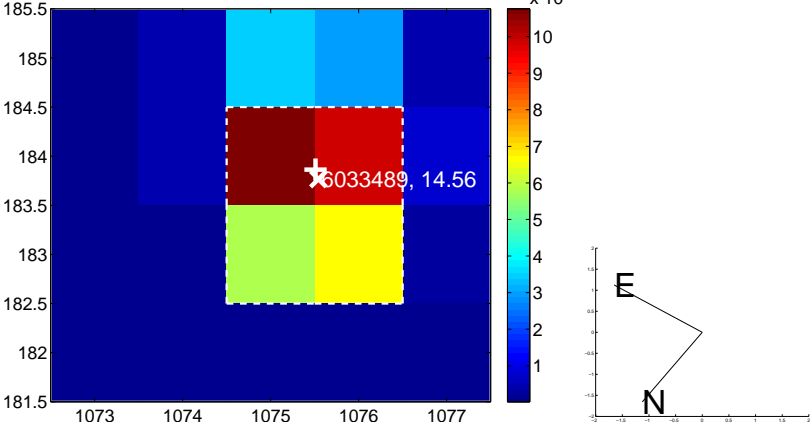
Q6 no OOT image



Q7 difference image. Poor Quality



Q7 OOT image



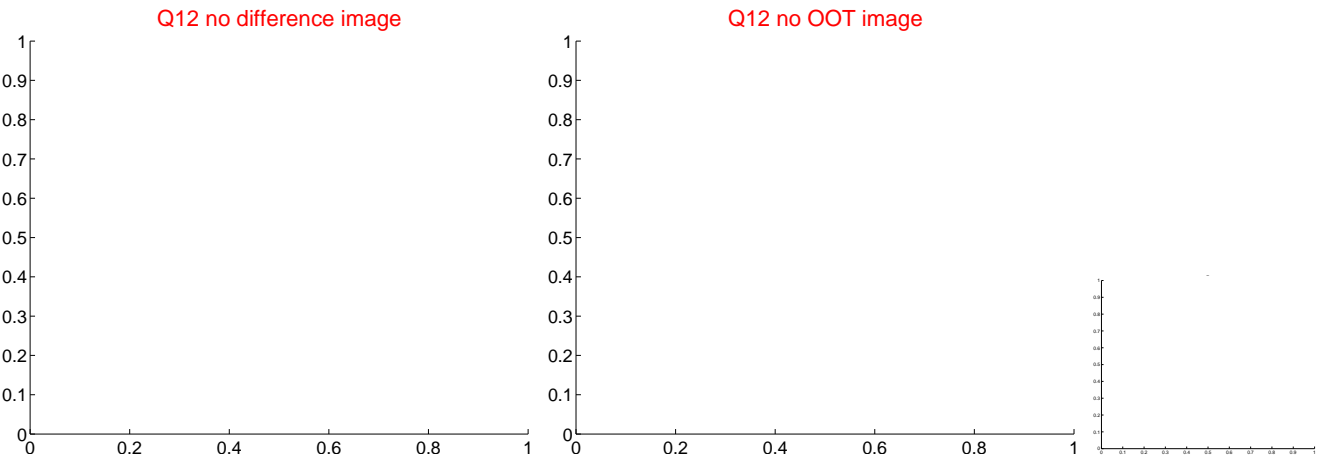
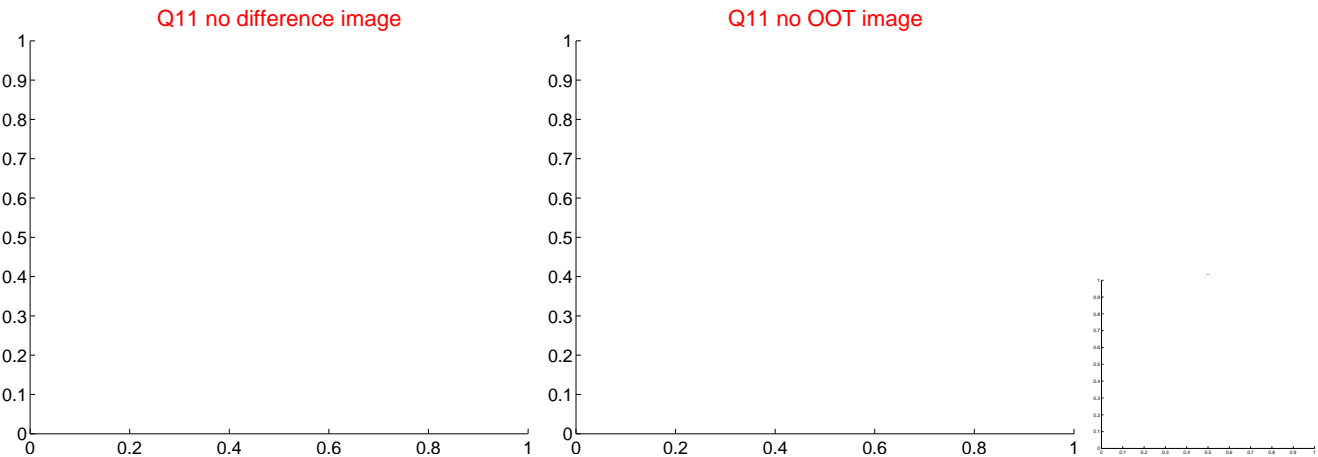
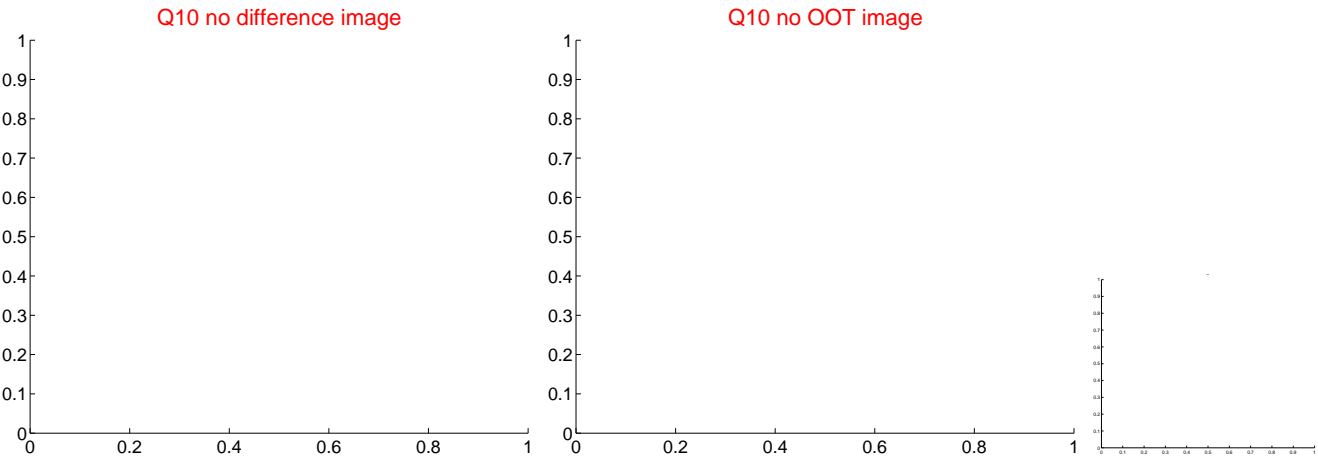
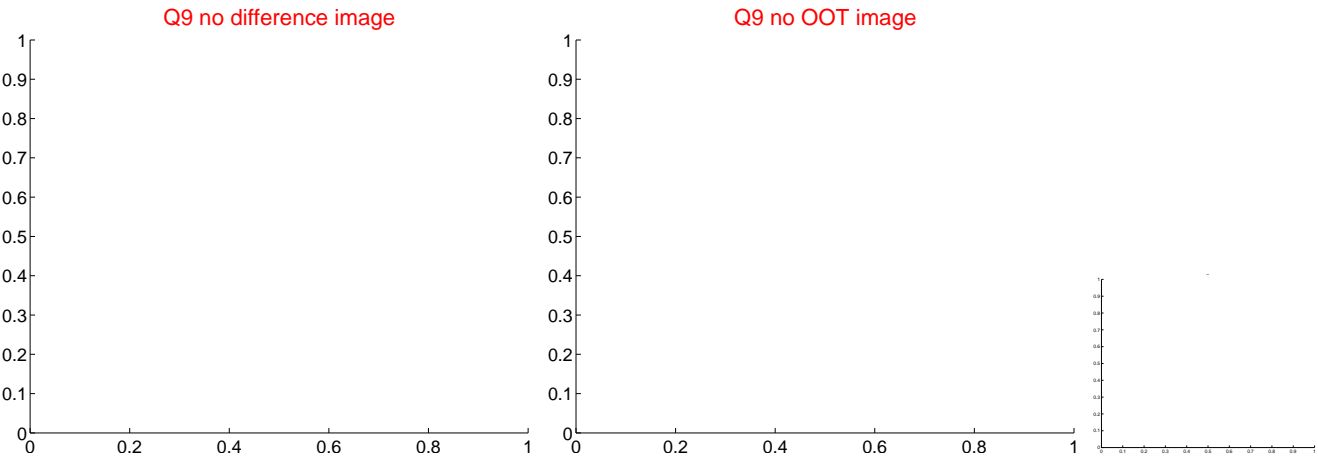
Q8 no difference image



Q8 no OOT image



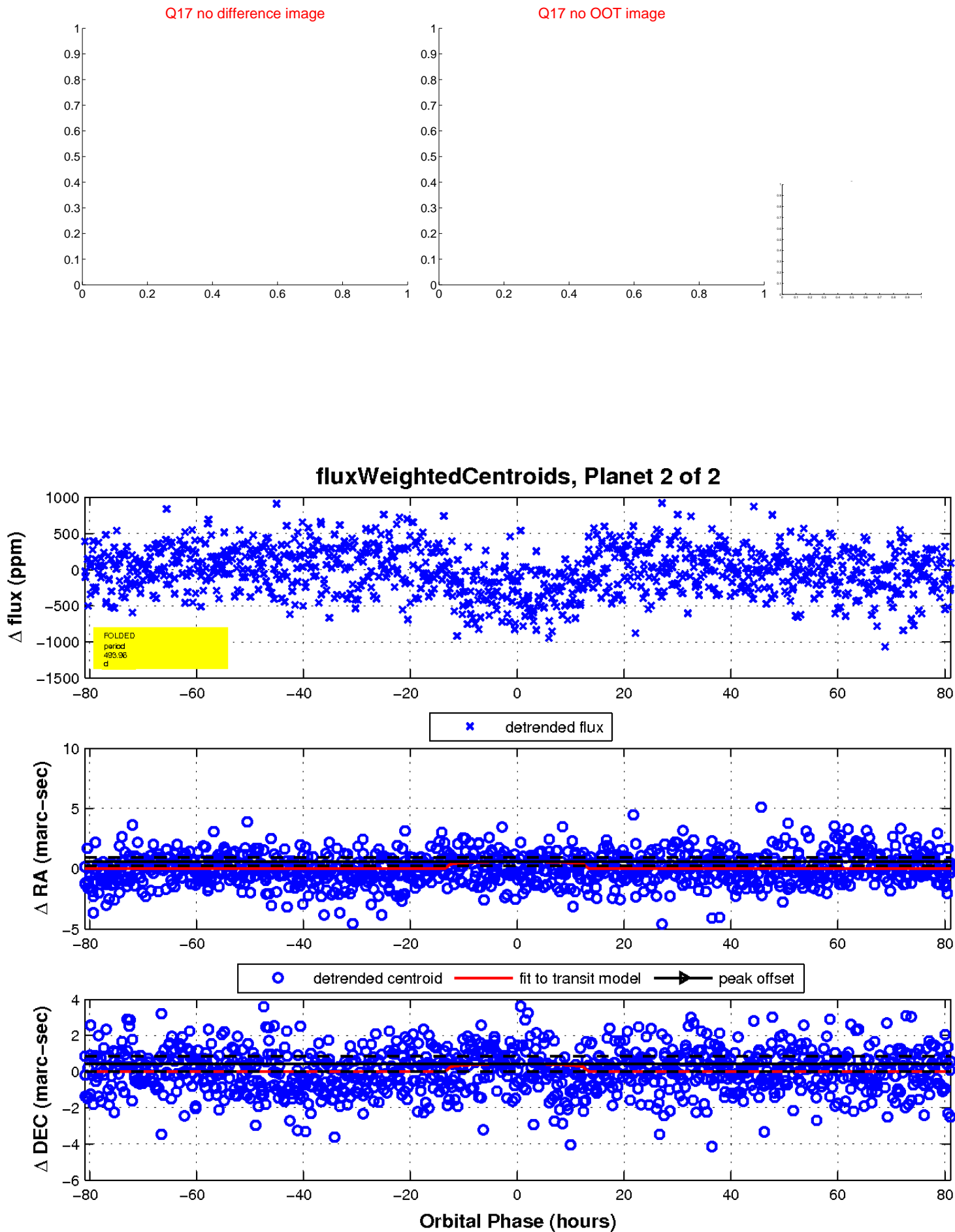
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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.



UKIRT Image

Declination

