

KIC 010427996

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})
010427996-01	OBS	No	374.087193	158.403772	587.7	2.987	25.6	9.4	1.88	6413	4.57	4.15
010427996-02	OBS	No	228.497377	260.302974	1460.1	1.994	24.3	26.6	1.88	6413	7.41	8.01
010427996-03	OBS	No	540.779769	197.004489	167.4	16.062	18.8	2.3	1.88	6413	2.68	2.54

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
010427996-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_SATURATED
010427996-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_SATURATED
010427996-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_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.

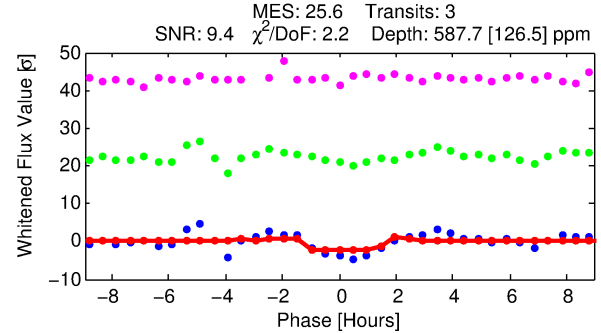
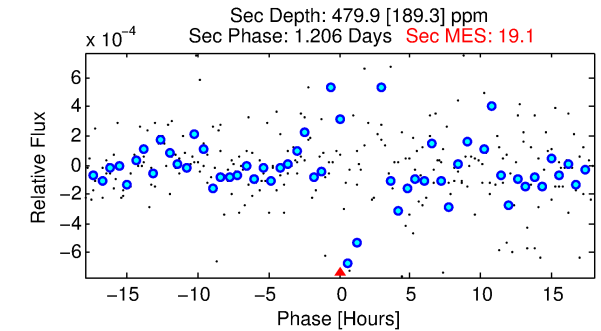
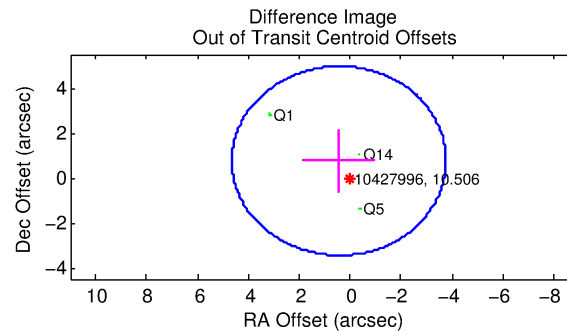
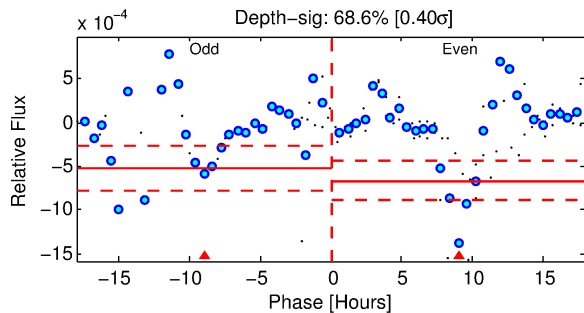
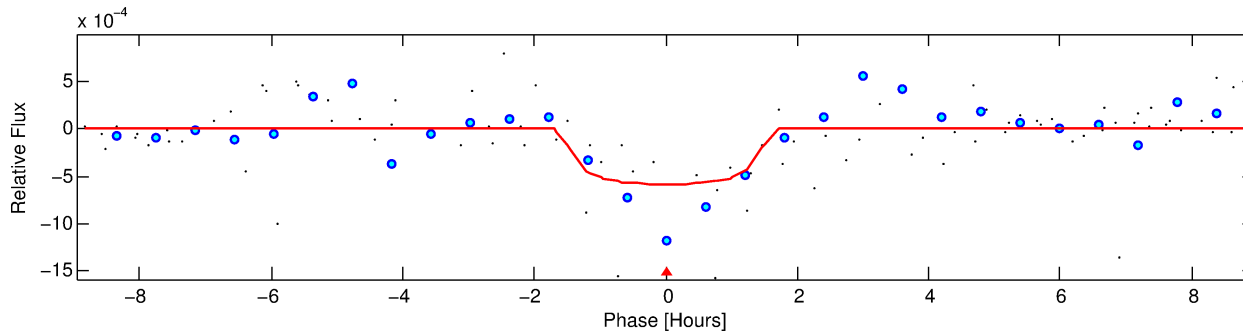
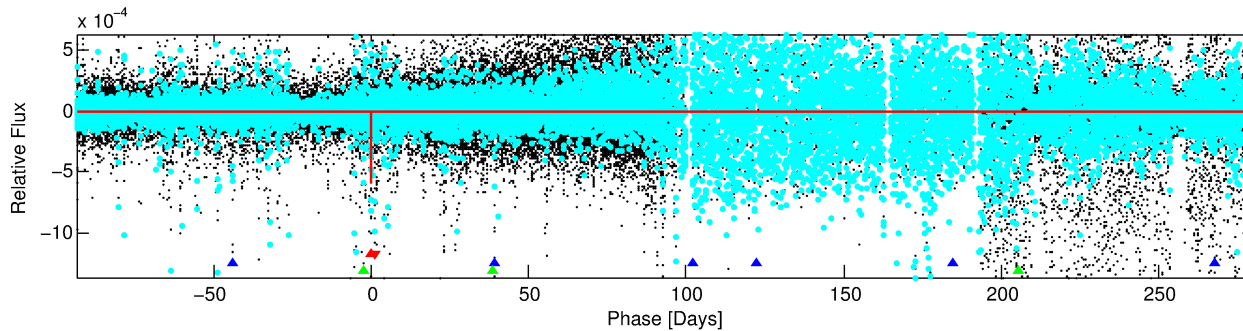
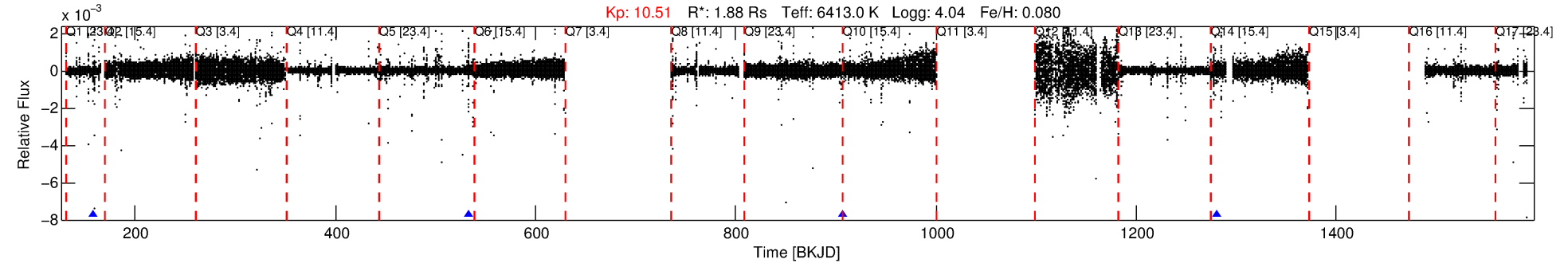
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 010427996-01

No Significant Match Found

DV One-Page Summary

KIC: 10427996 Candidate: 1 of 3 Period: 374.087 d



DV Fit Results:

Period = 374.08719 [0.00453] d
Epoch = 158.4038 [0.0074] BKJD
Rp/R* = 0.0223 [0.0457]
a/R* = 977.82 [10094.53]
b = 0.02 [490.08]
Seff = 4.15 [2.19]
Teq = 364 [48] K
Rp = 4.57 [9.51] Re
a = 1.1366 [0.3670] AU
Ag = 16310.02 [67672.68] [0.24 σ]
Teffp = 6359 [6552] K [0.92 σ]

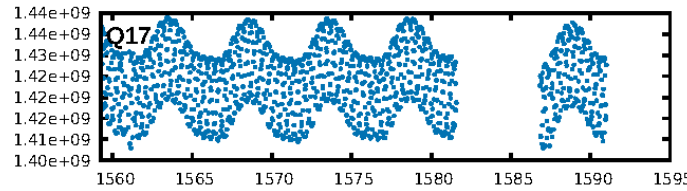
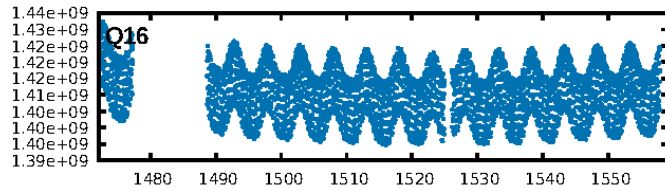
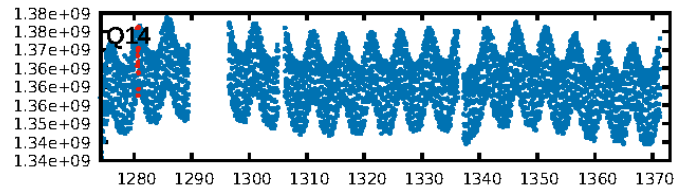
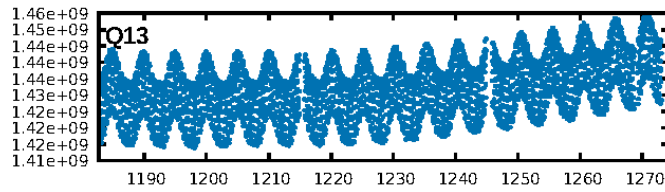
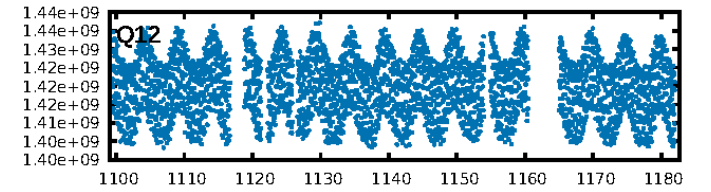
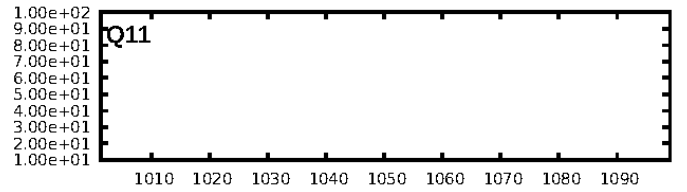
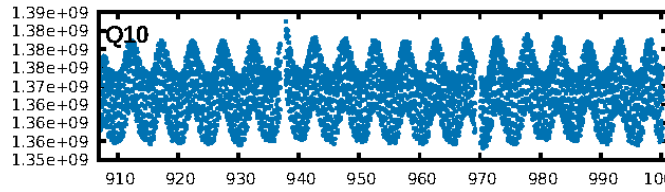
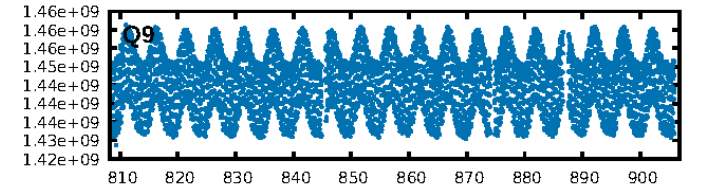
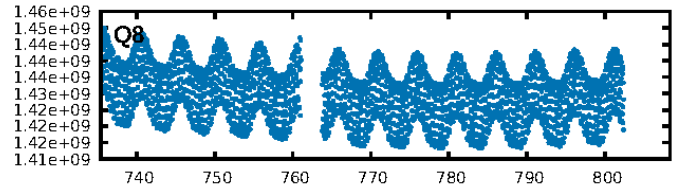
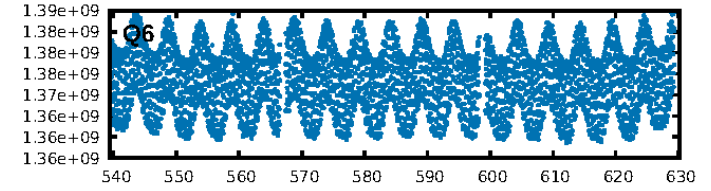
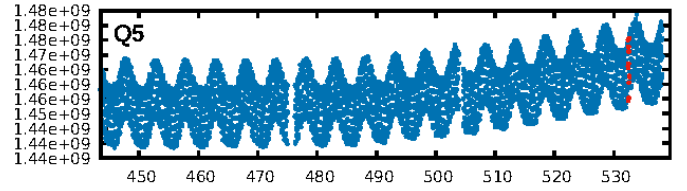
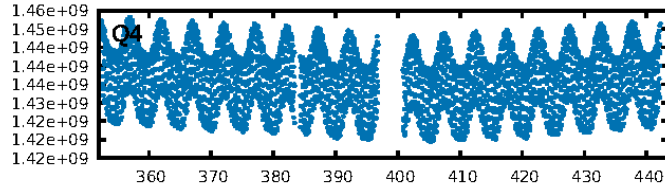
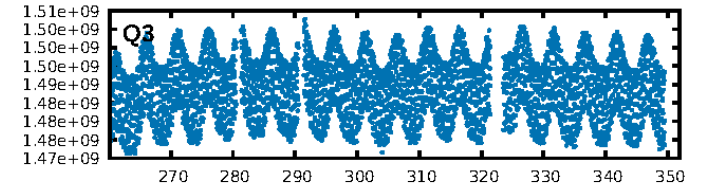
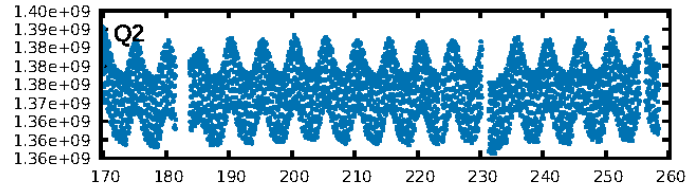
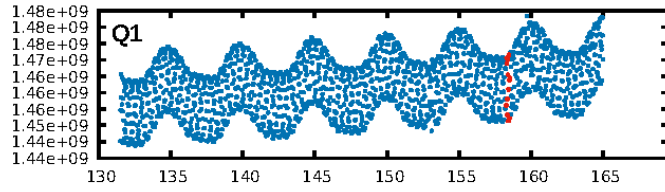
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [972.84 σ]
LongPeriod-sig: 100.0% [244.87 σ]
ModelChiSquare2-sig: 0.0%
ModelChiSquareGof-sig: 71.9%
Bootstrap-pfa: 9.96e-13
RollingBand-fgt: 1.00 [2/2]
GhostDiagnostic-chr: N/A
Centroid-sig: 8.3%
Centroid-so: 0.957 arcsec [1.03 σ]
OotOffset-rm: 0.875 arcsec [0.62 σ]
KicOffset-rm: 0.543 arcsec [0.37 σ]
OotOffset-st: 1/0/0/2 [3]
KicOffset-st: 1/0/0/2 [3]
DiffImageQuality-fgm: 0.67 [2/3]
DiffImageOverlap-fno: 1.00 [3/3]

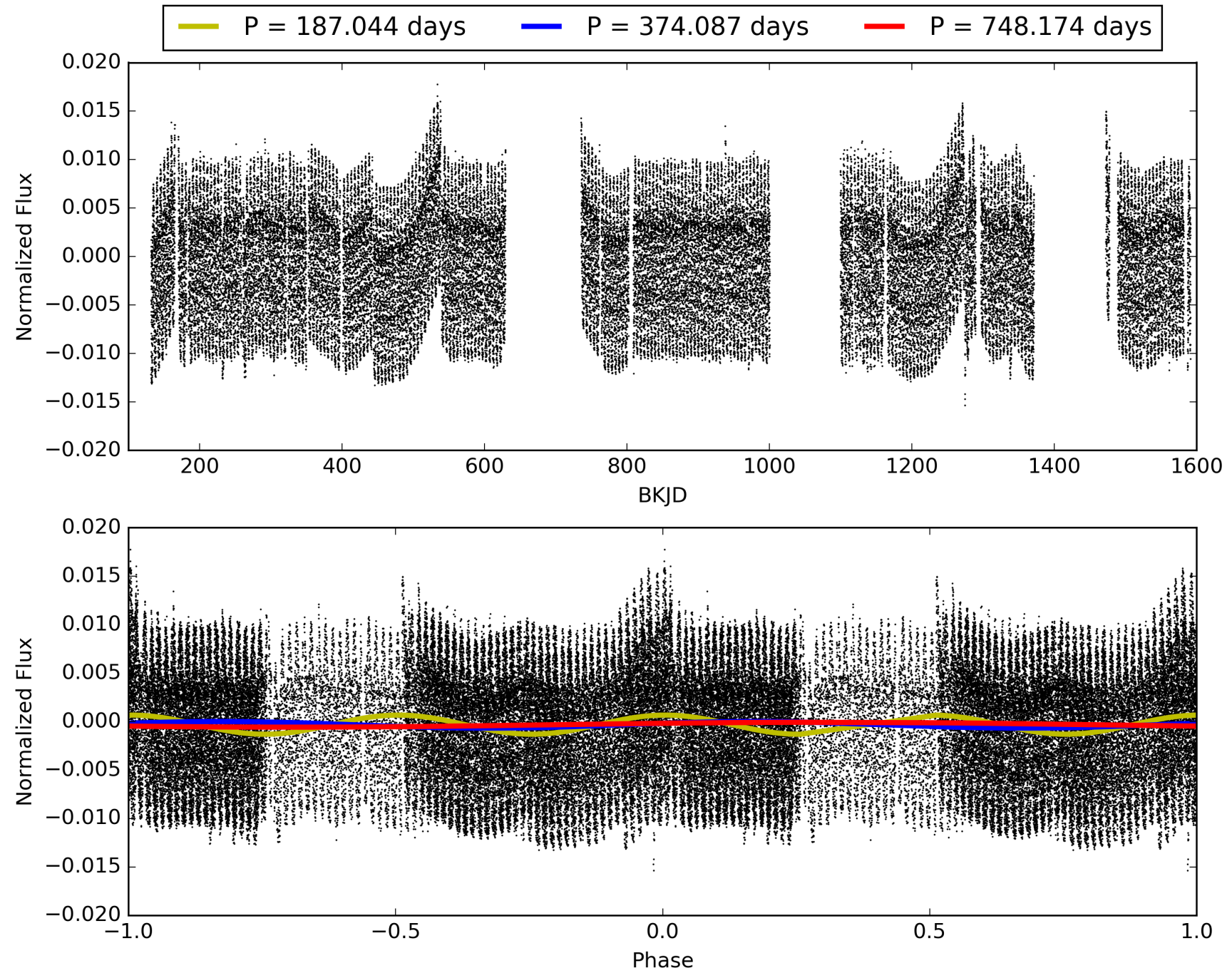
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 17:06:13 Z

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

TCE 010427996-01, PDC Light Curves

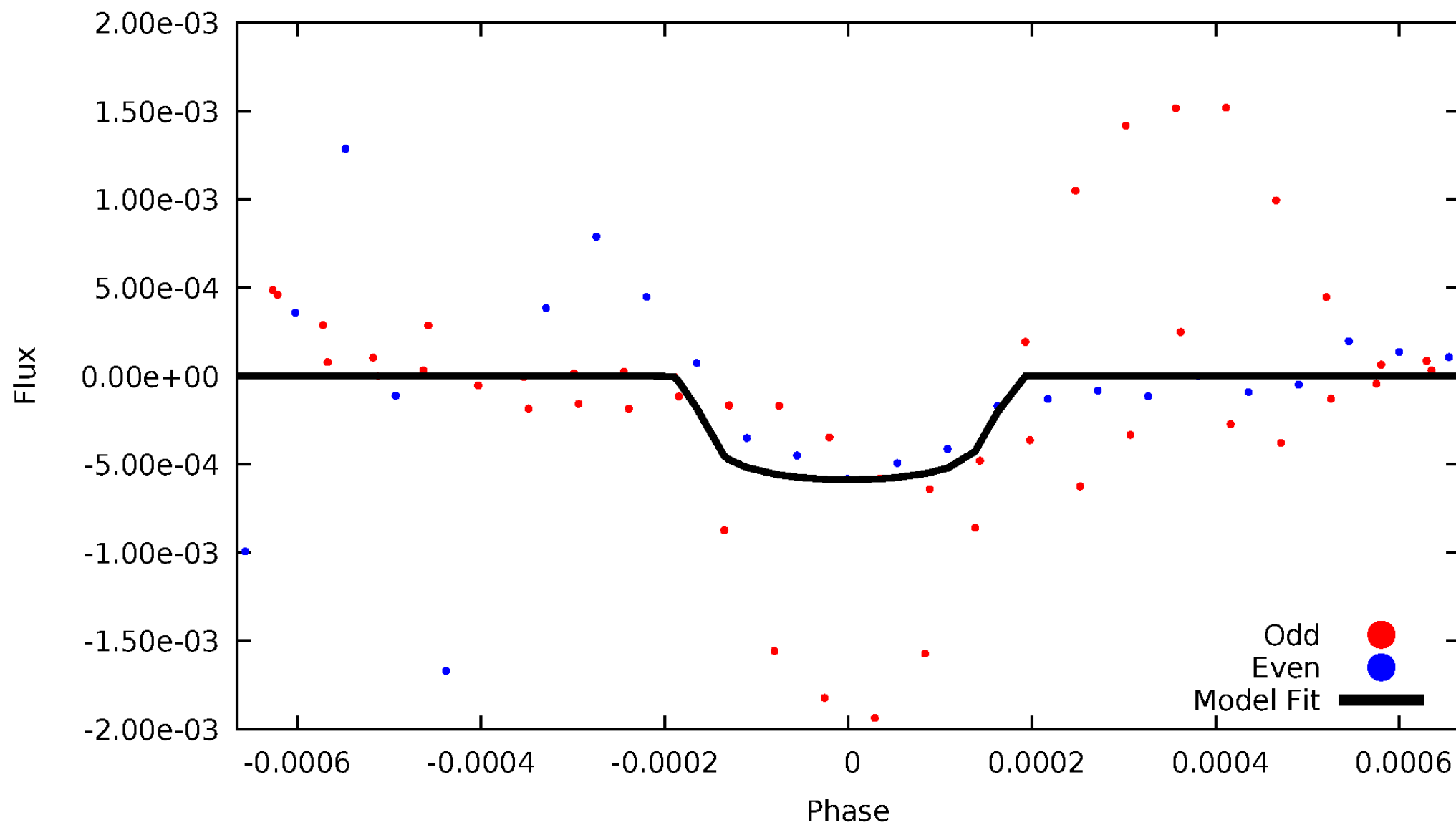


TCE 010427996-01



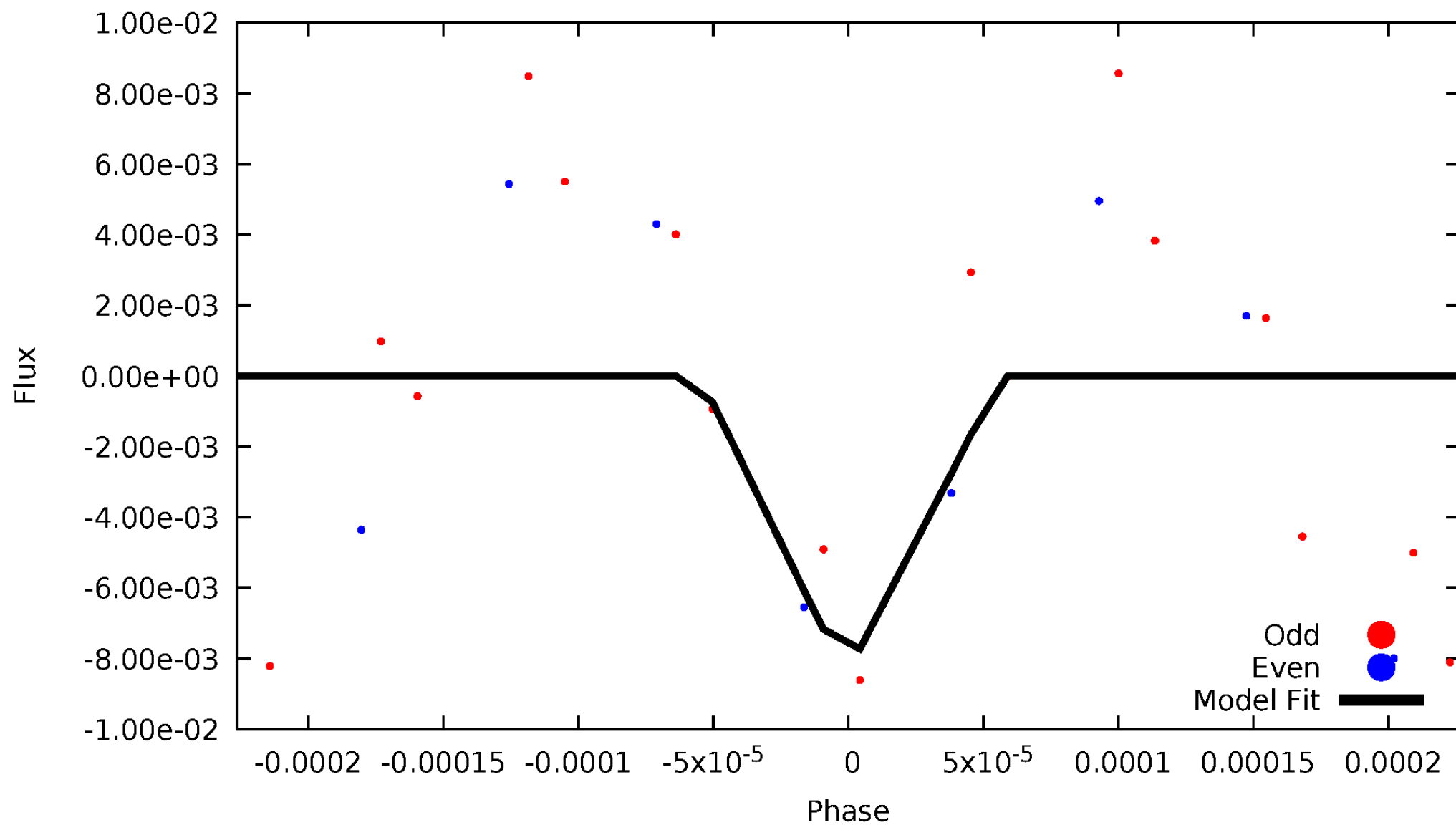
DV Odd/Even

TCE 010427996-01

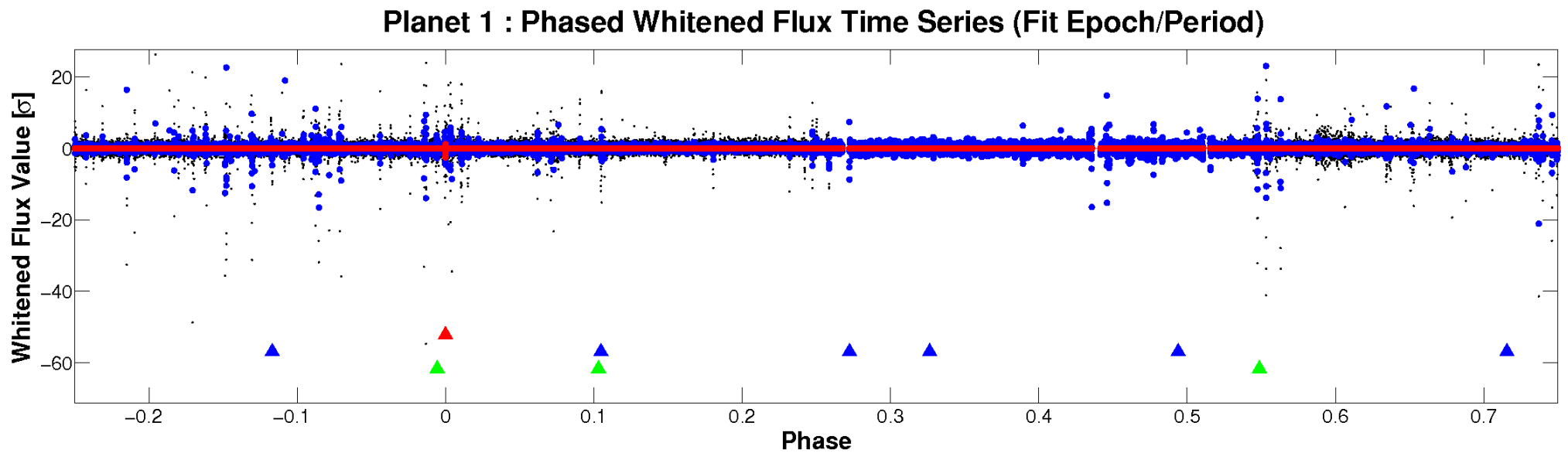
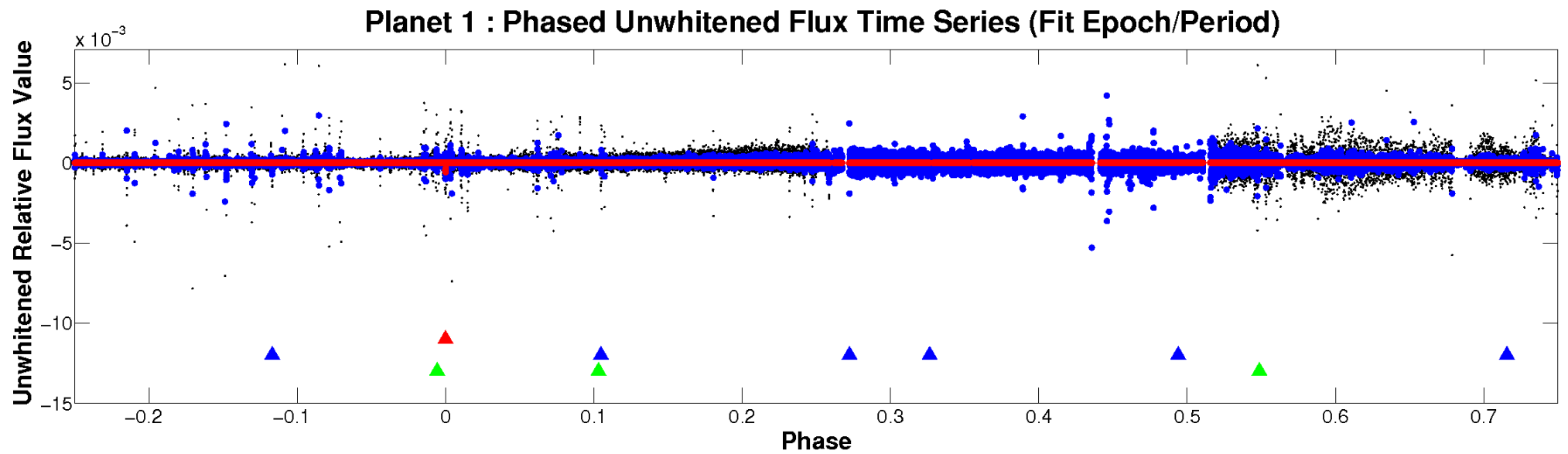


ALT Odd/Even

TCE 010427996-01

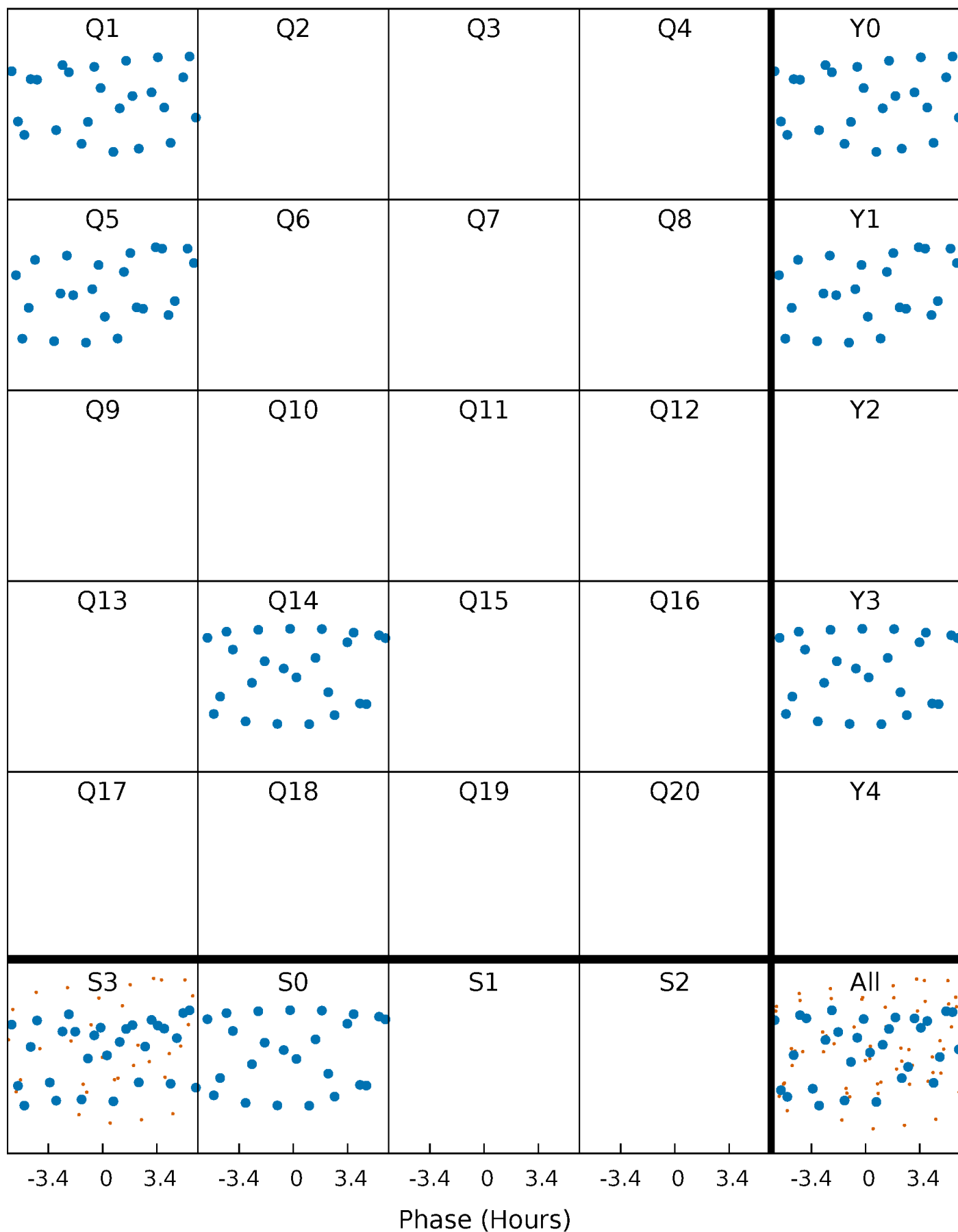


Non-Whitened Vs. Whitened Light Curve



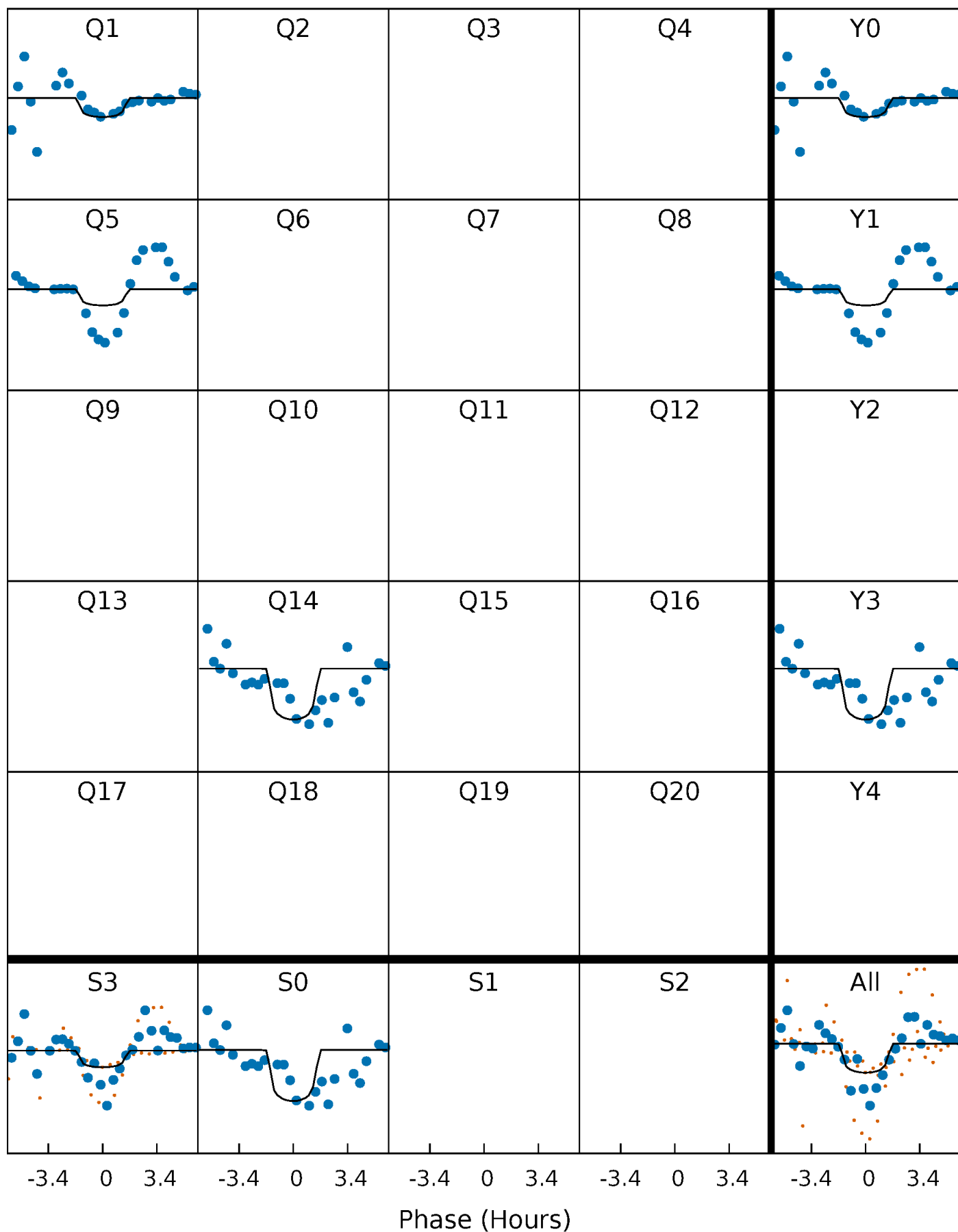
PDC Quarter-Phased Transit Curves

TCE 010427996-01 $P=374.087193$ Days $T_0=158.403772$ (BKJD)



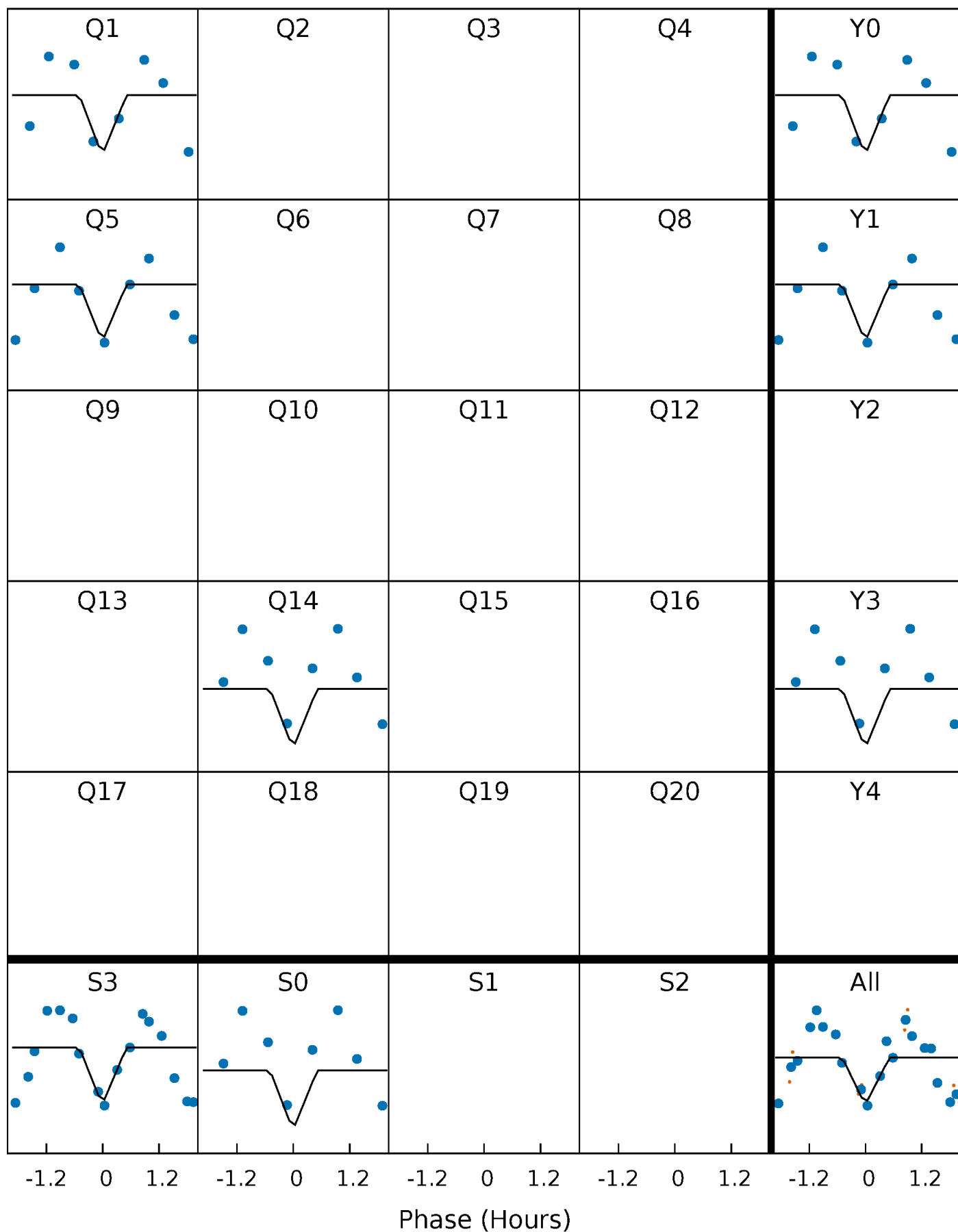
DV Quarter-Phased Transit Curves

TCE 010427996-01 P=374.087193 Days $T_0=158.403772$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

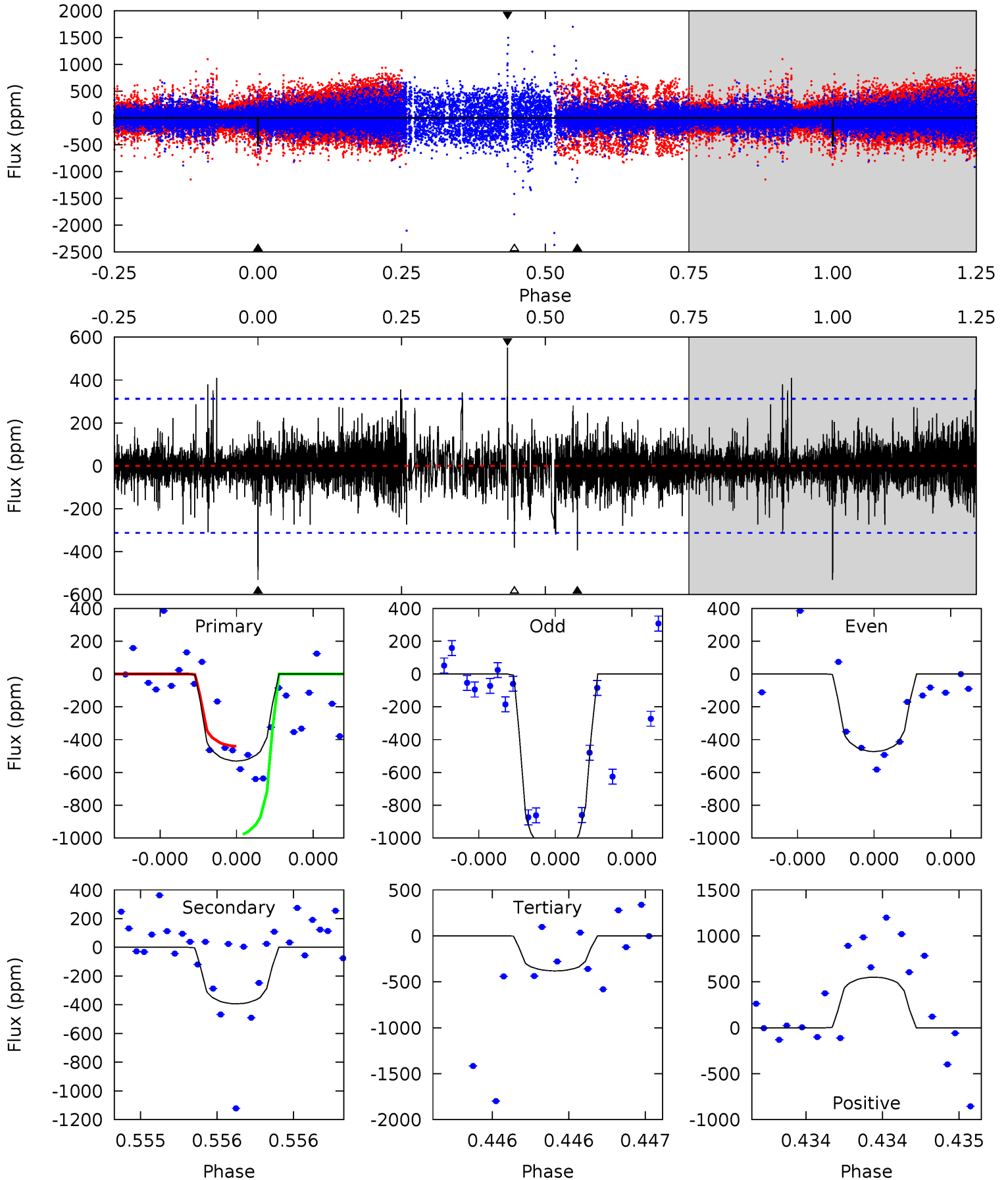
TCE 010427996-01 P=374.090689 Days $T_0=158.348153$ (BKJD)



DV Model-Shift Uniqueness Test

010427996-01, P = 374.087193 Days, E = 158.403772 Days

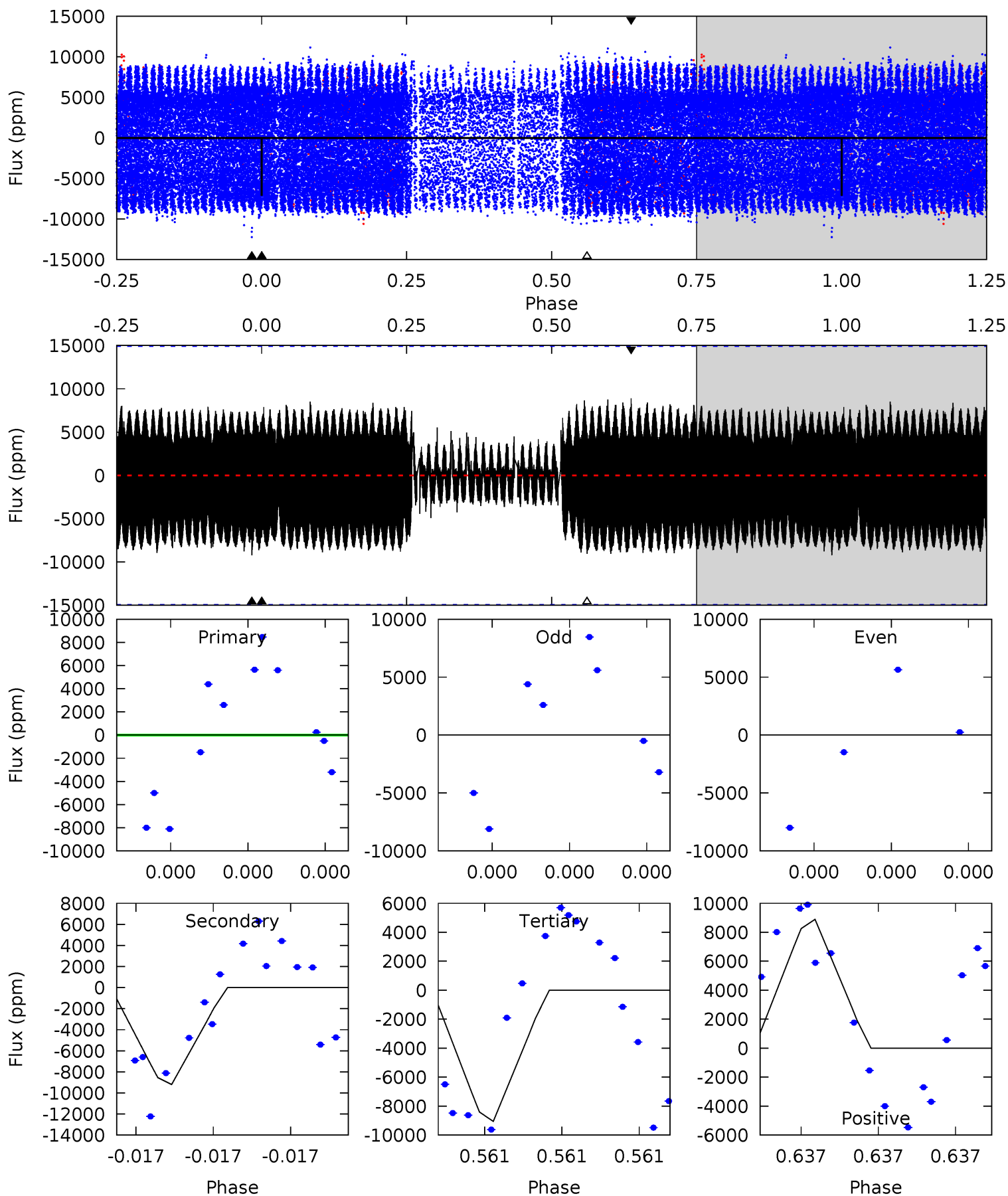
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
9.57	7.10	6.88	9.93	5.64	3.58	1.15	2.69	-0.36	0.22	-2.83	5.72	1.80	0.51	4.65



Alt Model-Shift Uniqueness Test

010427996-01, P = 374.090689 Days, E = 158.348153 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
2.81	3.63	3.57	3.51	5.89	3.96	1.73	-0.76	-0.70	0.06	0.12	0.01	0.84	0.49	0.29



Stellar Parameters For KIC 010427996

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$\rho_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6413^{+179}_{-247}	$4.035^{+0.292}_{-0.157}$	$0.080^{+0.250}_{-0.300}$	$1.881^{+0.536}_{-0.656}$	$1.398^{+0.186}_{-0.280}$	$0.296^{+0.579}_{-0.128}$
	+3%/-4%	+7%/-4%	+312%/-375%	+28%/-35%	+13%/-20%	+196%/-43%
Source	PHO54	PHO54	PHO54	DSEP		

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

Secondary Eclipse Parameters for KIC 010427996-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-394 ± 55	$7.69^{+7.93}_{-5.52}$	499^{+37}_{-42}	4639^{+4030}_{-987}	4535^{+48567}_{-3369}
Alt.	-9200 ± 2537	$17.62^{+9.68}_{-8.43}$	498^{+41}_{-48}	6661^{+3138}_{-1384}	20708^{+58697}_{-12444}

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

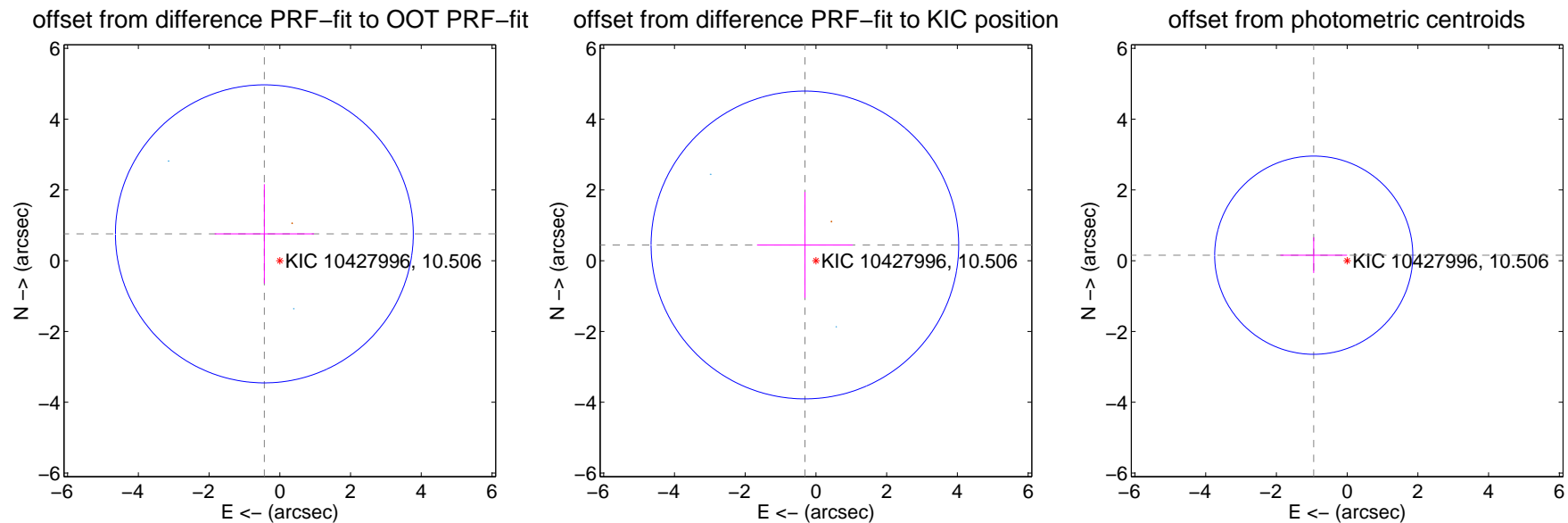
DV Centroid Data

Supplemental centroid analysis for 010427996-01. **Kepler magnitude: 10.51.** Transit SNR 9.38

There are 2 quarters with good PRF difference image offsets

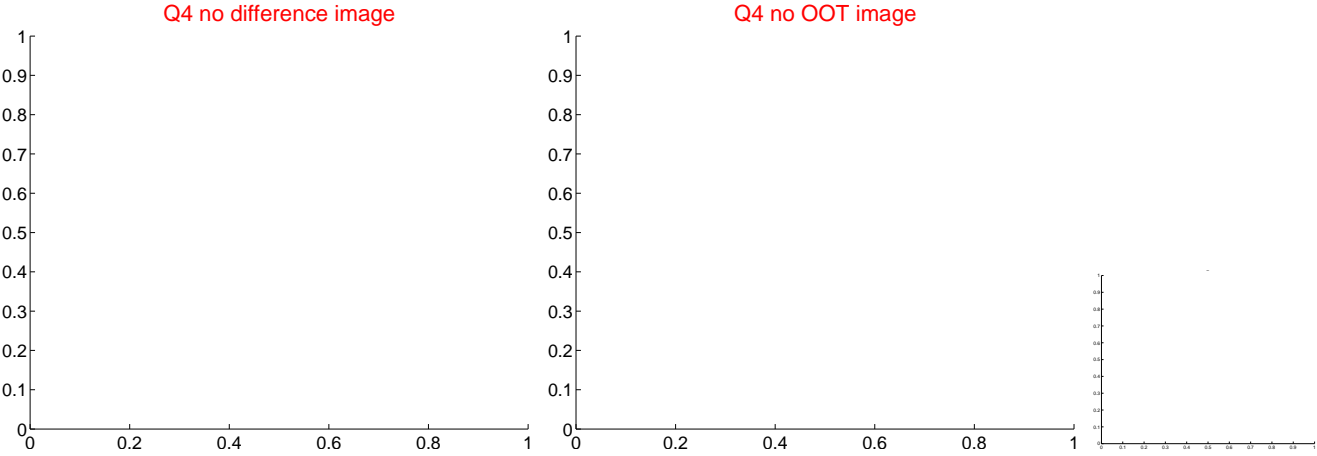
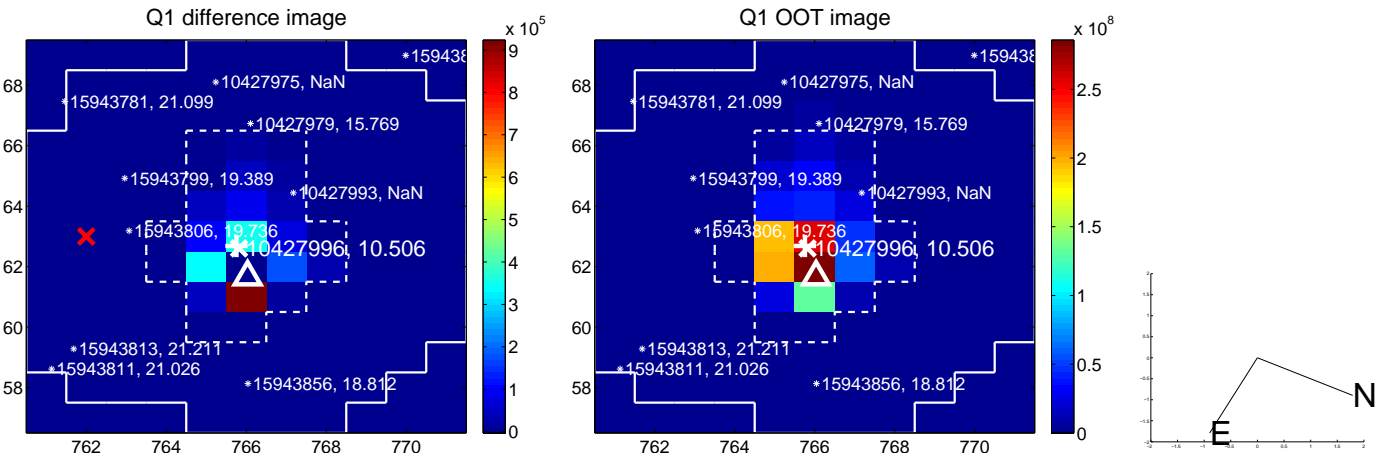
The direct PRF centroid is offset from the target star catalog position by about 0.10 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.875 ± 1.404	0.62	0.437 ± 1.404	0.758 ± 1.403
PRF-fit source offset from KIC position	0.543 ± 1.450	0.37	0.312 ± 1.352	0.444 ± 1.495
photometric centroid source offset	0.96 ± 0.93	1.03	0.94 ± 0.94	0.16 ± 0.50

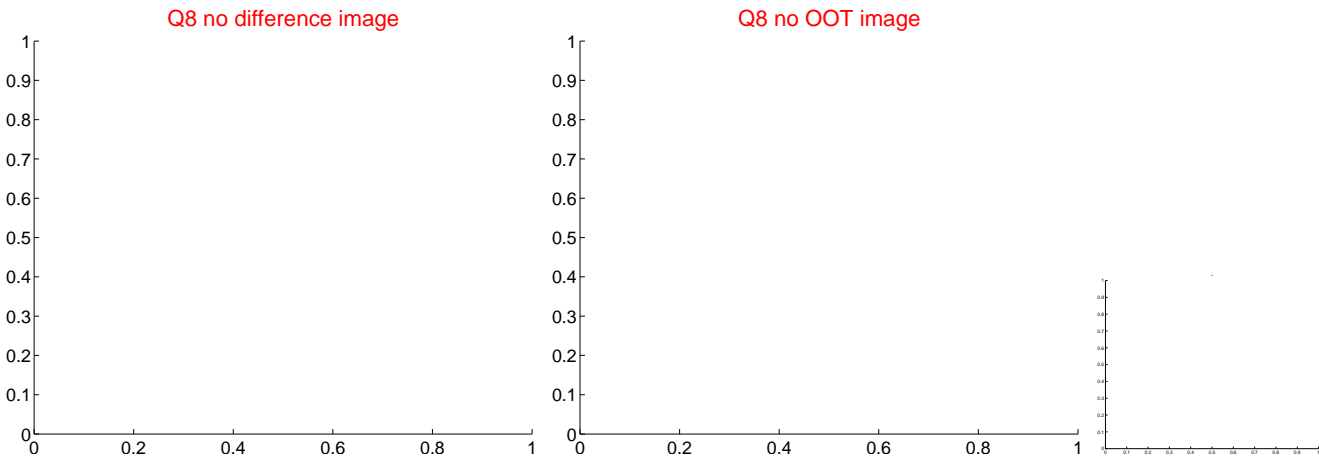
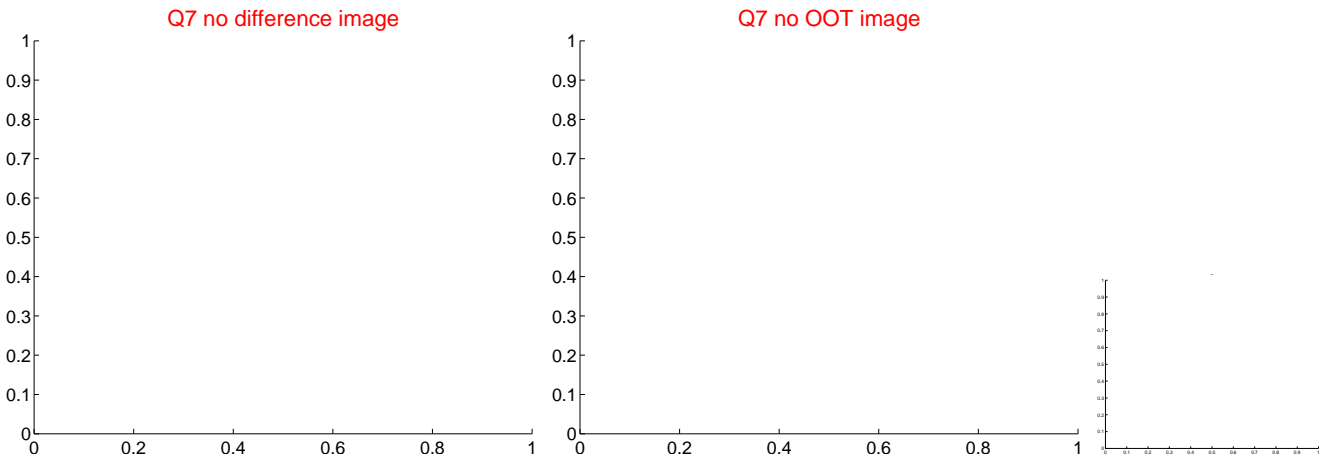
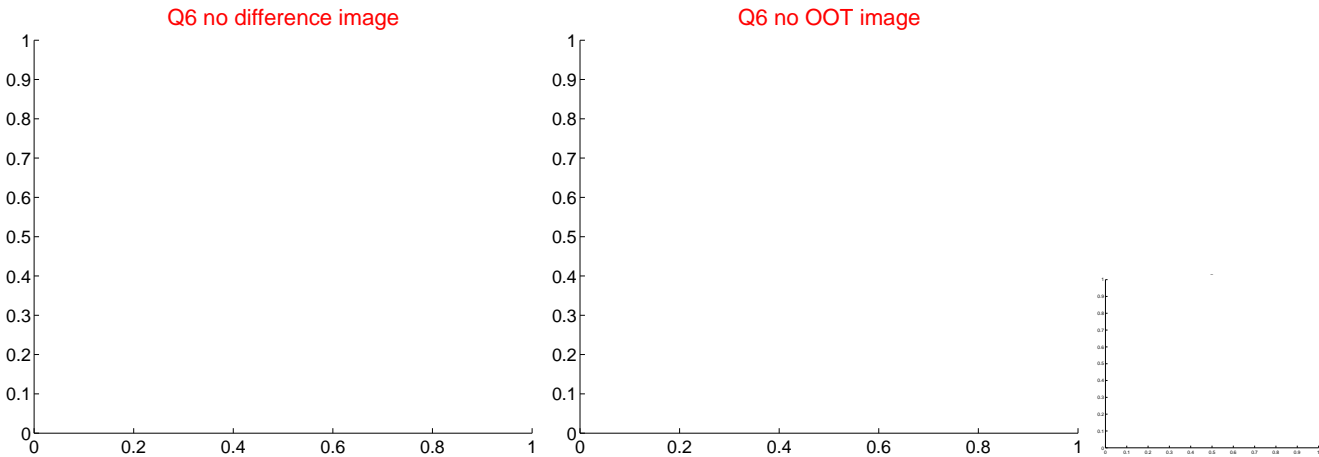
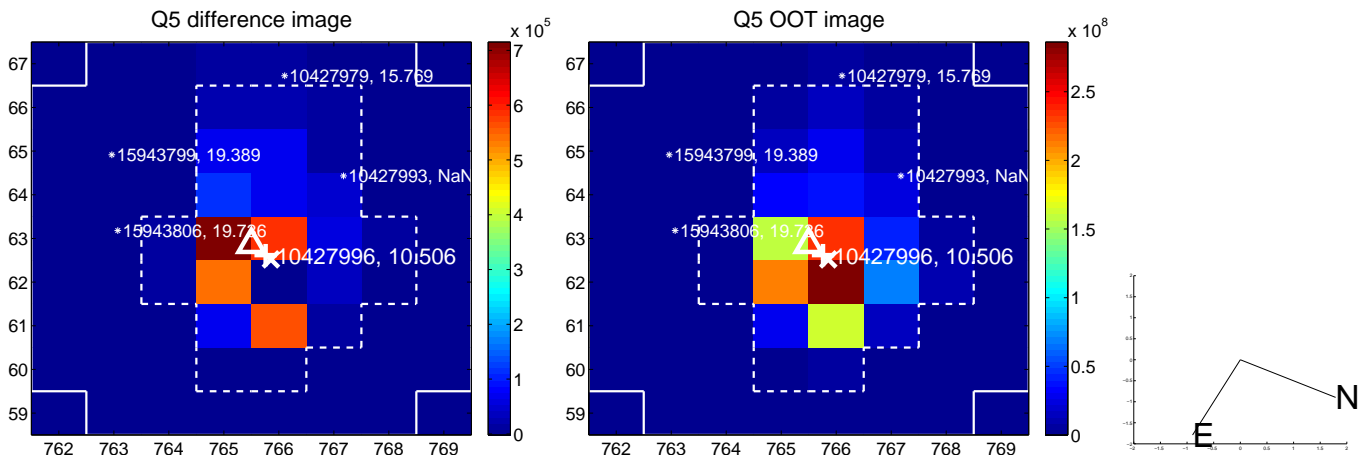


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- 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 ×: KIC target position; +: OOT centroid; △: difference centroid. red ✕: large negative pixel value.

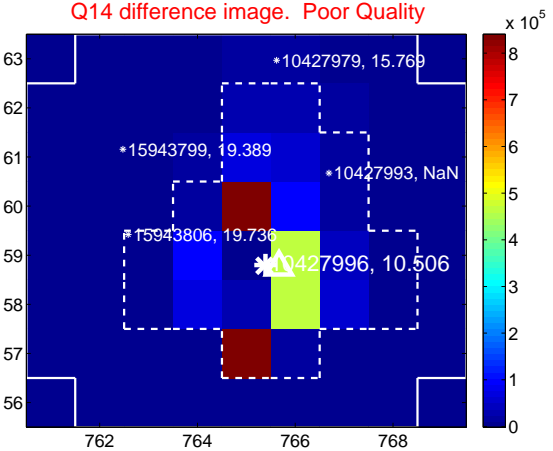
Q13 no difference image



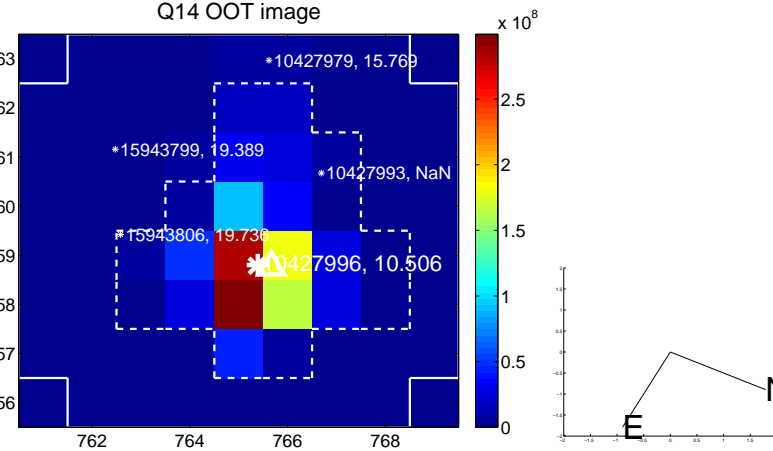
Q13 no OOT image



Q14 difference image. Poor Quality



Q14 OOT image



Q15 no difference image



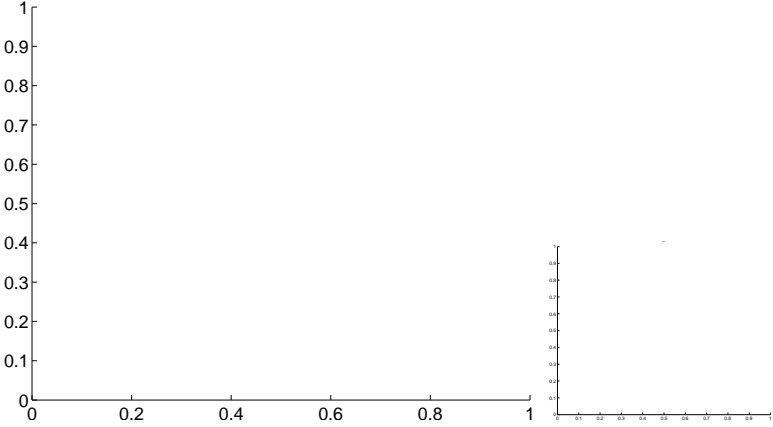
Q15 no OOT image



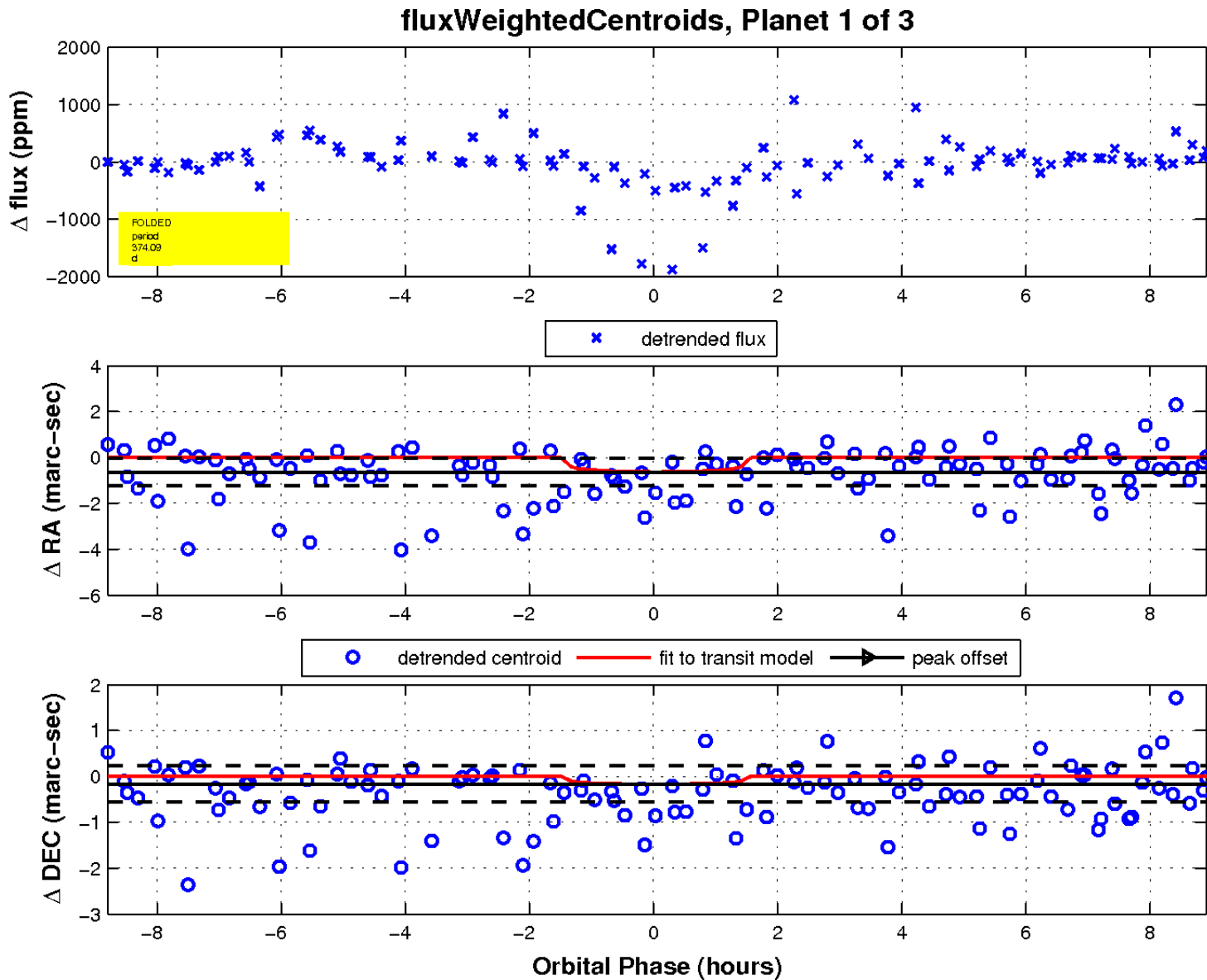
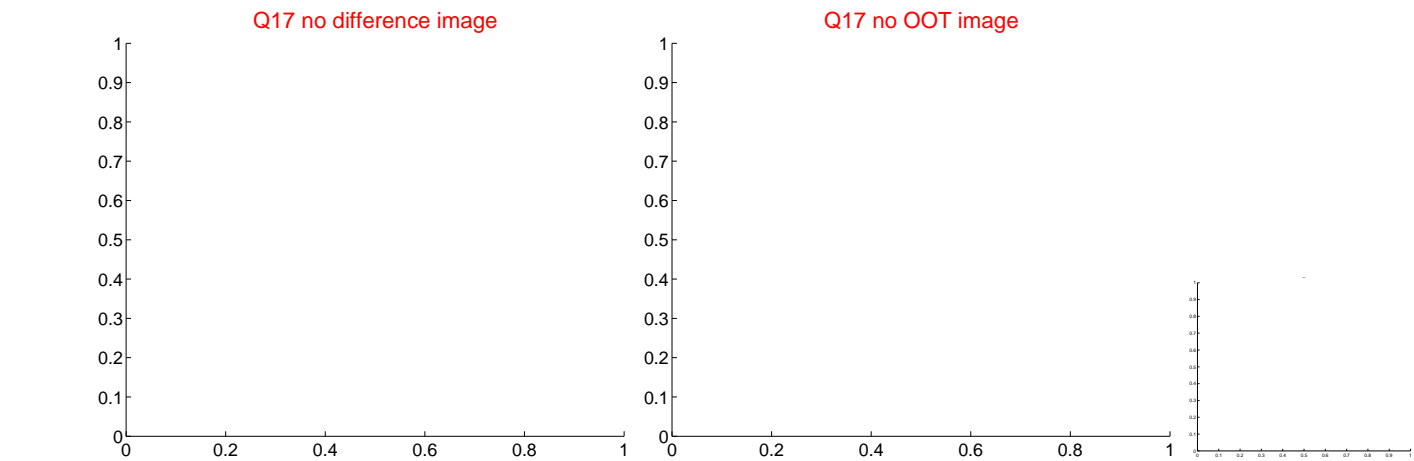
Q16 no difference image



Q16 no OOT image

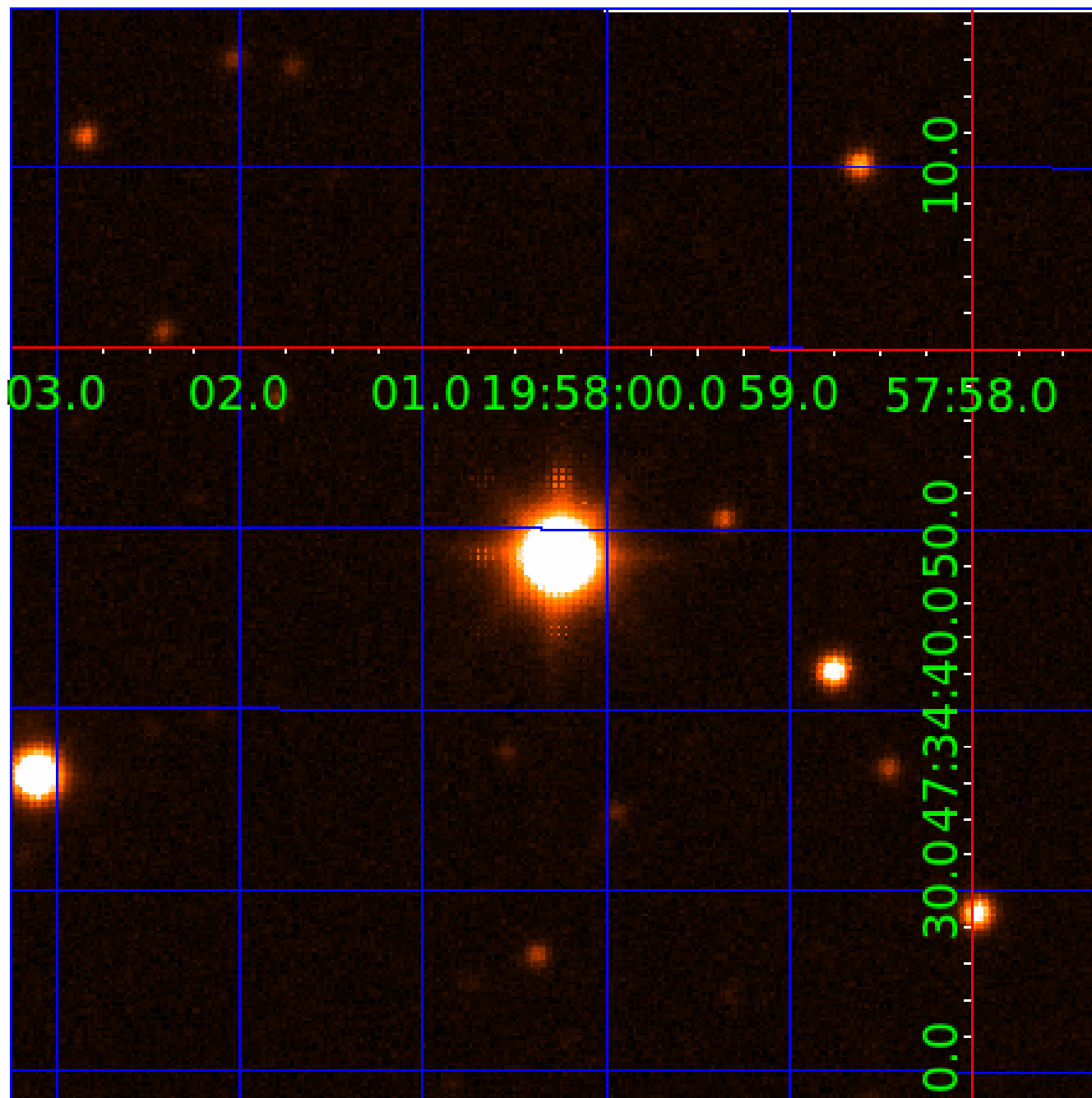


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 010427996

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})
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010427996-02	OBS	No	228.497377	260.302974	1460.1	1.994	24.3	26.6	1.88	6413	7.41	8.01
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Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
010427996-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_SATURATED
010427996-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_SATURATED
010427996-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_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.

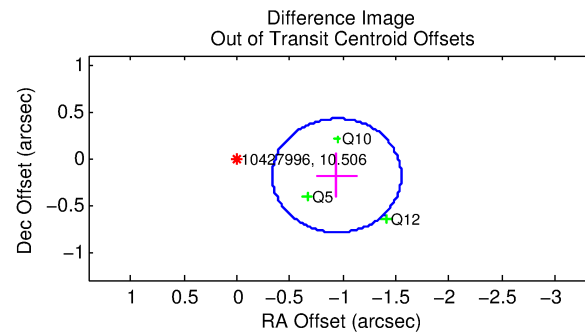
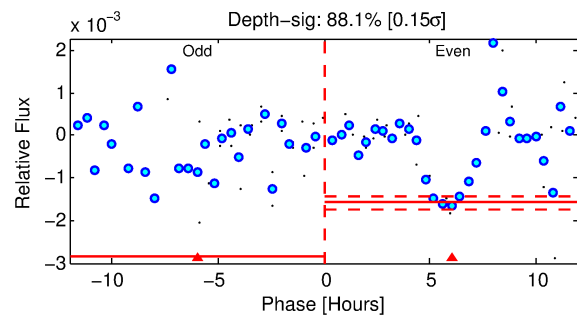
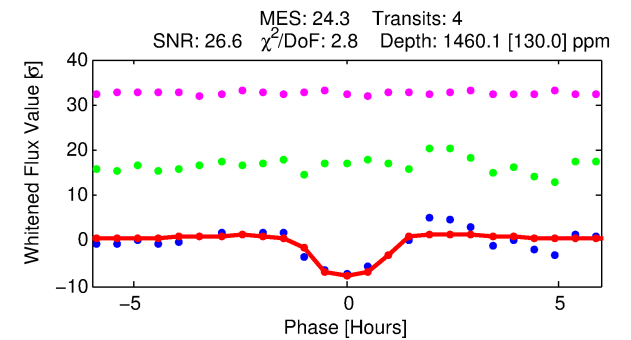
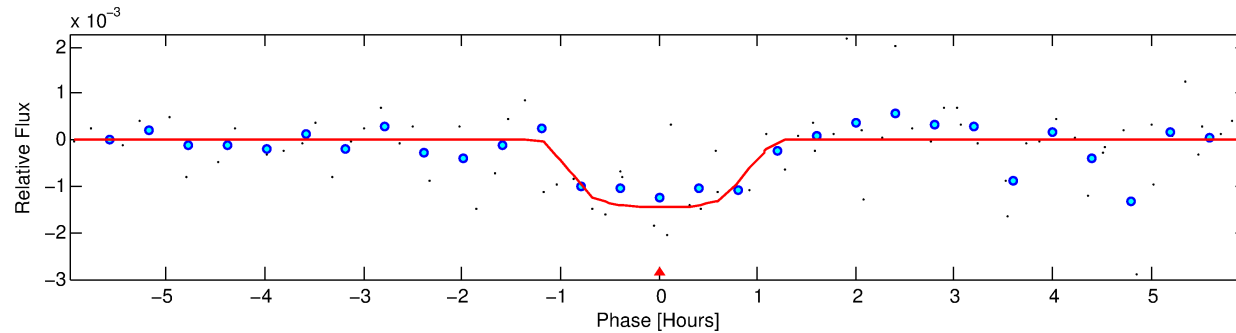
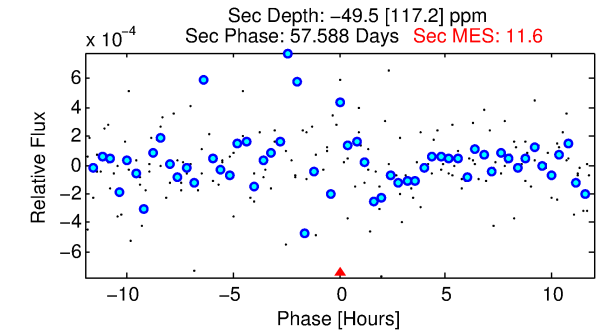
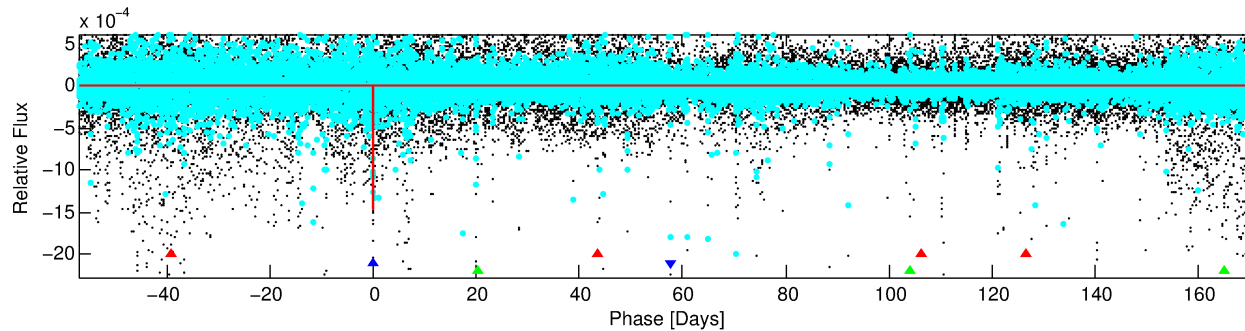
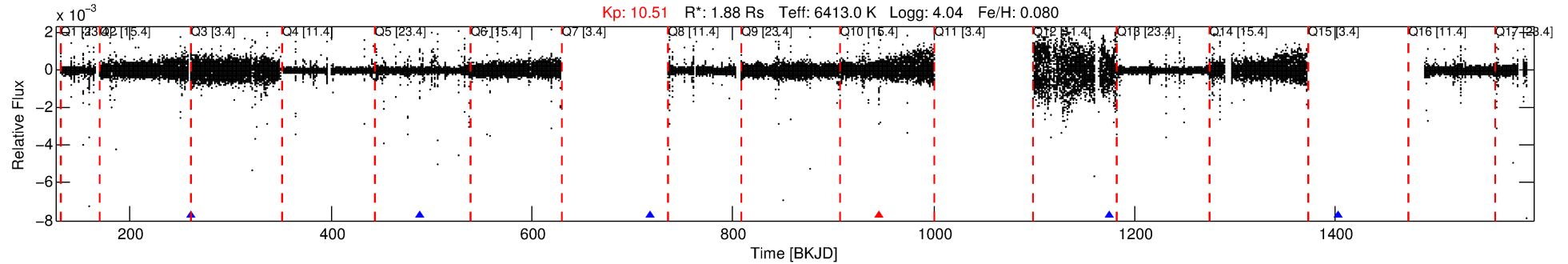
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 010427996-02

No Significant Match Found

DV One-Page Summary

KIC: 10427996 Candidate: 2 of 3 Period: 228.497 d



DV Fit Results:

Period = 228.49738 [0.00210] d
Epoch = 260.3030 [0.0035] BKJD
Rp/R* = 0.0361 [0.0716]
a/R* = 803.65 [8041.27]
b = 0.48 [16.29]
Seff = 8.01 [4.23]
Teq = 429 [57] K
Rp = 7.40 [14.91] Re
a = 0.8182 [0.2642] AU
Ag = N/A
Teffp = N/A

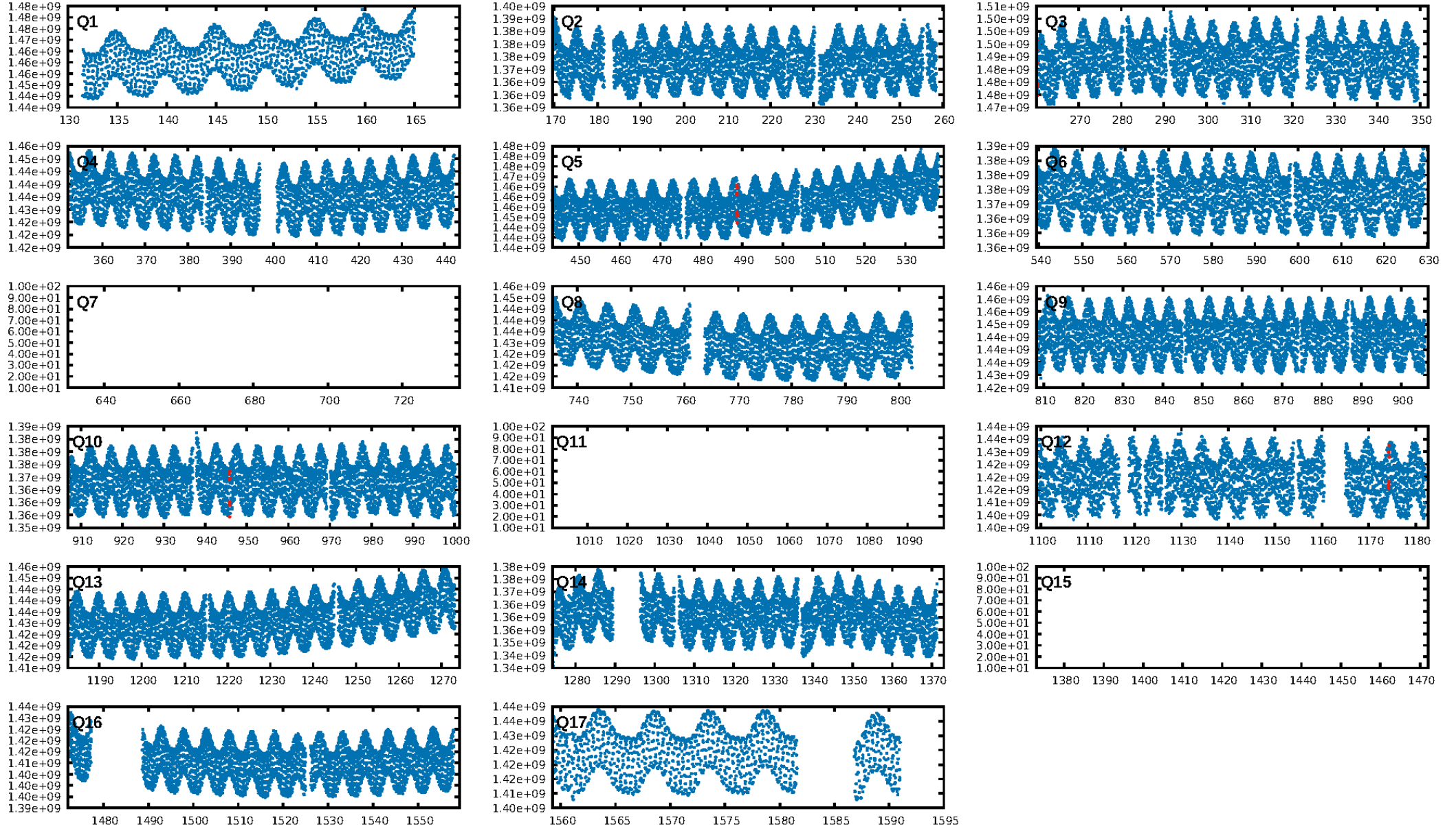
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [972.84%]
ModelChiSquare2-sig: 0.0%
ModelChiSquareGof-sig: 0.0%
Bootstrap-pfa: 2.52e-13
RollingBand-fgt: 0.75 [3/4]
GhostDiagnostic-chr: N/A
Centroid-sig: 10.2%
Centroid-so: 0.029 arcsec [0.17%]
OotOffset-rm: 0.962 arcsec [4.75%]
KicOffset-rm: 1.431 arcsec [4.89%]
OotOffset-st: 1/0/1/1 [3]
KicOffset-st: 1/0/1/1 [3]
DiffImageQuality-fgm: 0.67 [2/3]
DiffImageOverlap-fno: 1.00 [3/3]

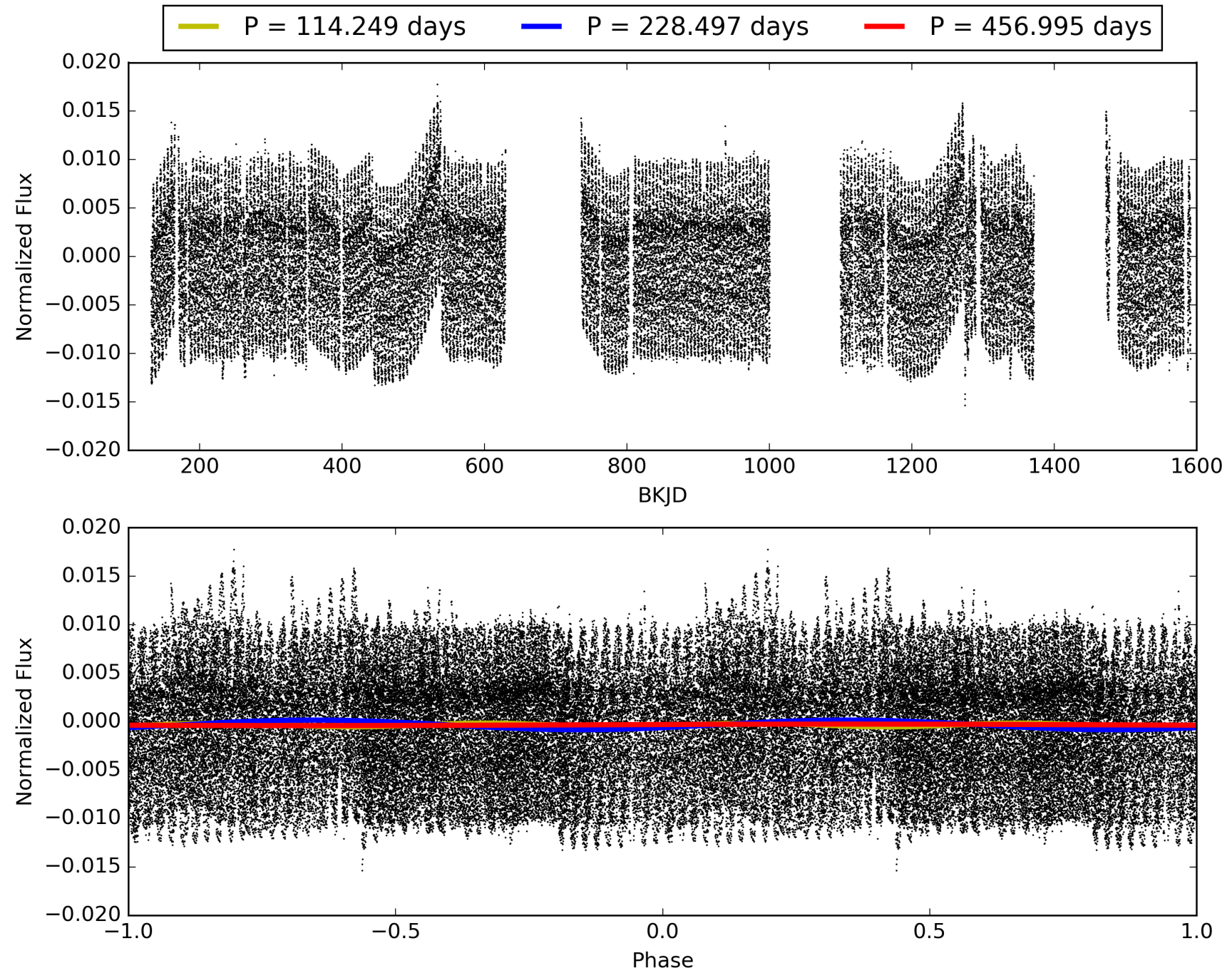
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 17:06:27 Z

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

TCE 010427996-02, PDC Light Curves

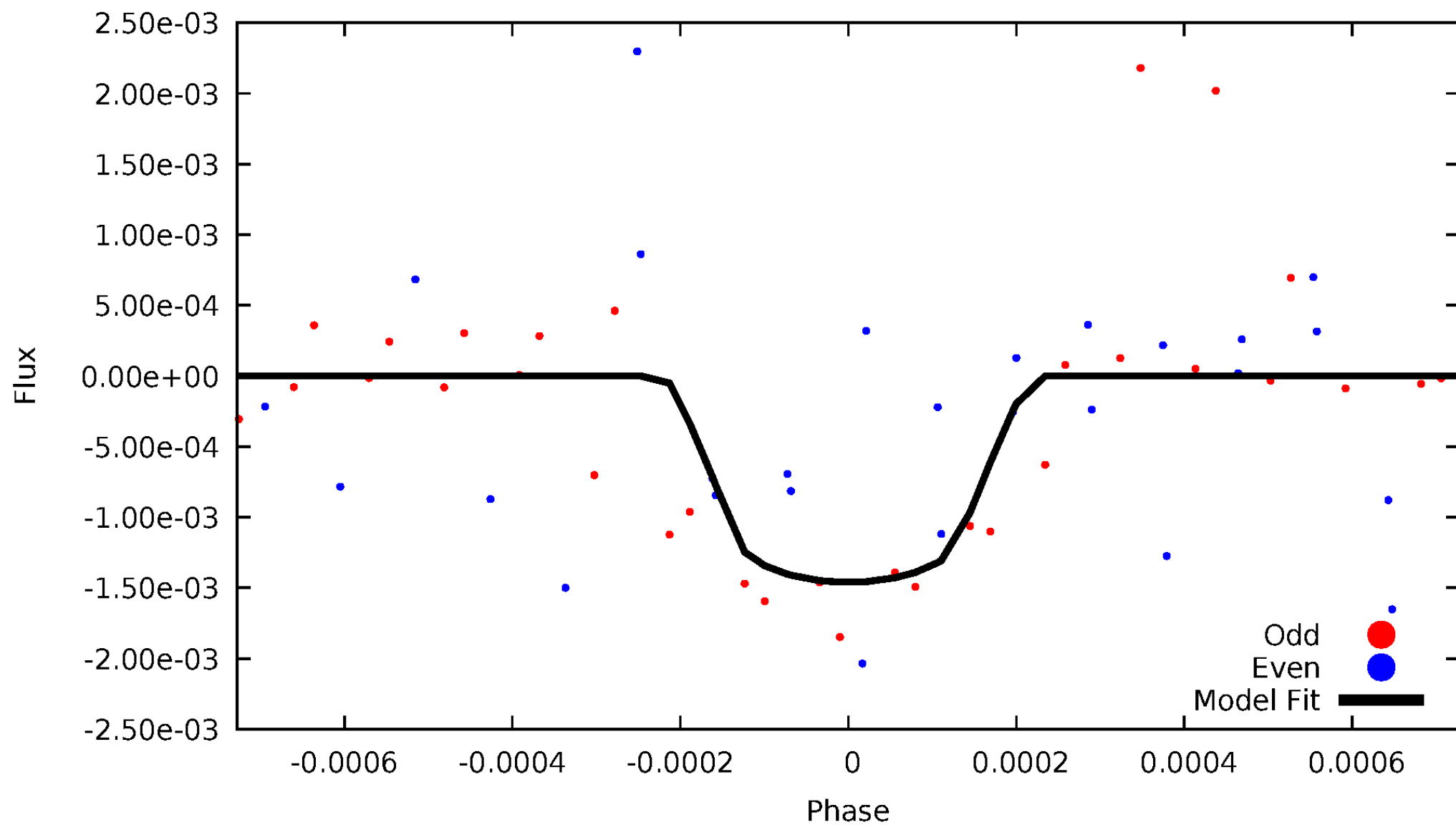


TCE 010427996-02



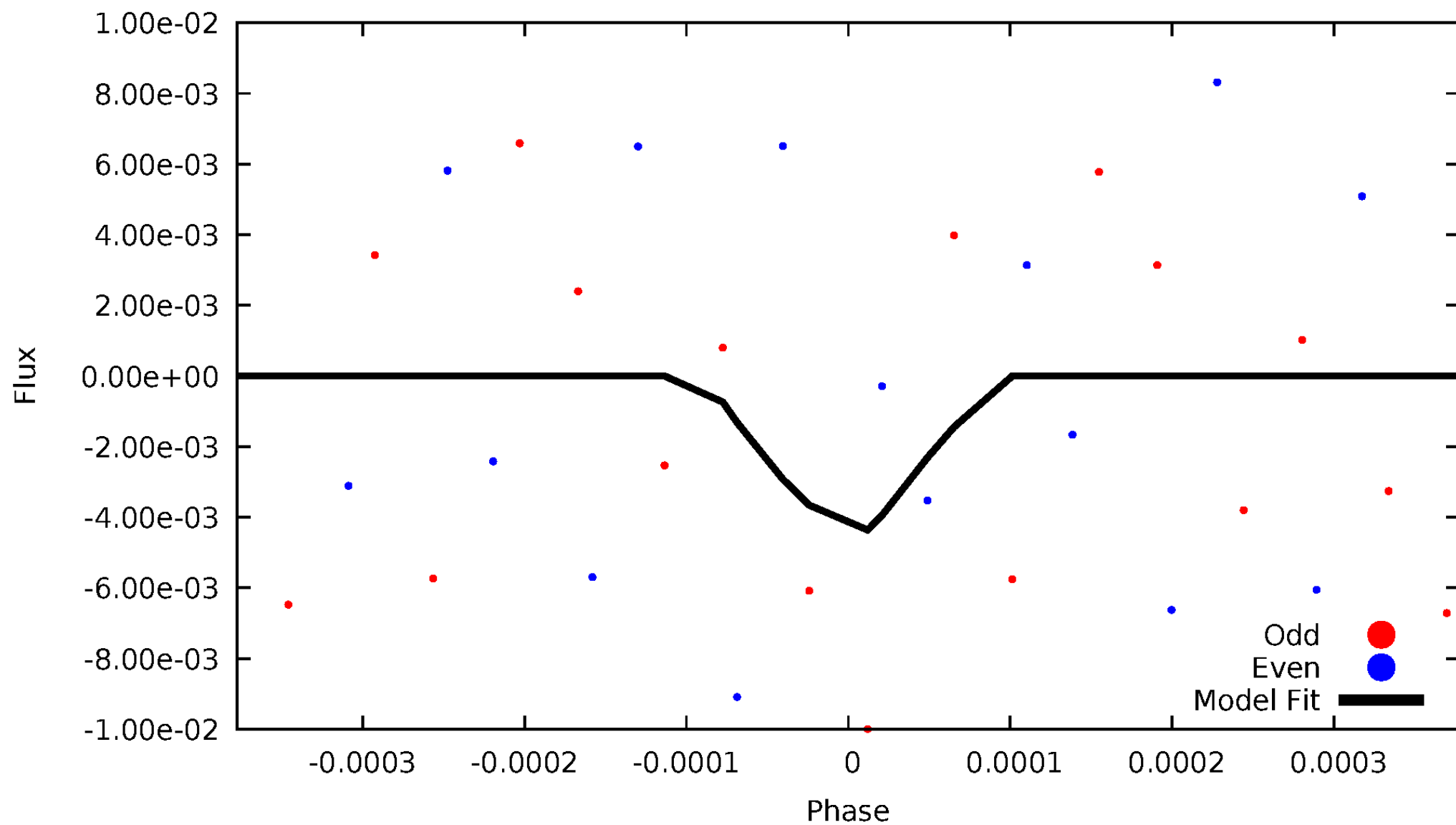
DV Odd/Even

TCE 010427996-02



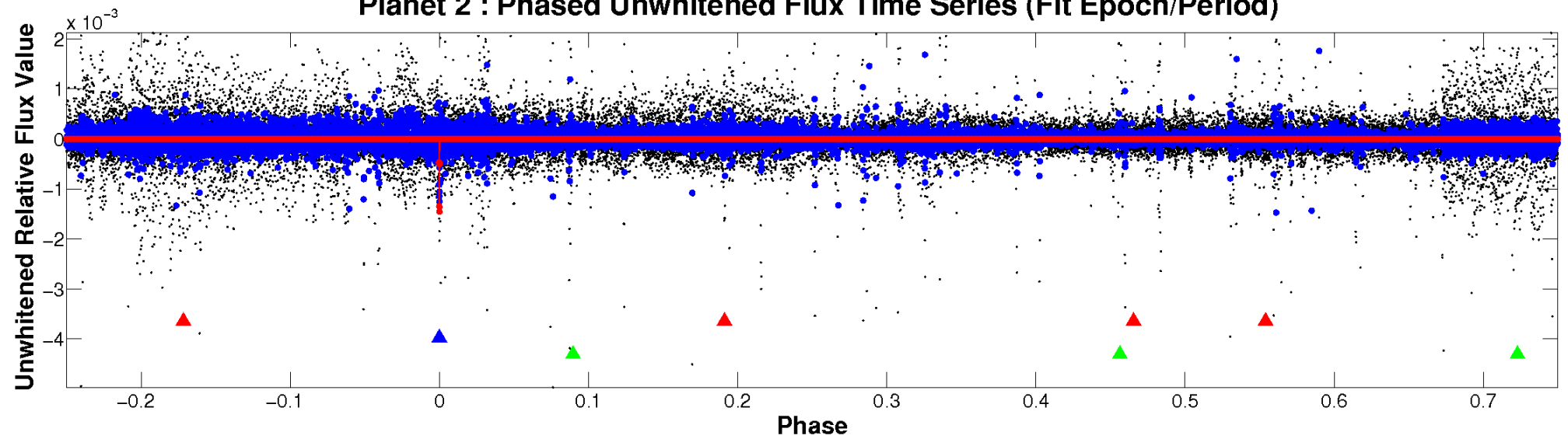
ALT Odd/Even

TCE 010427996-02

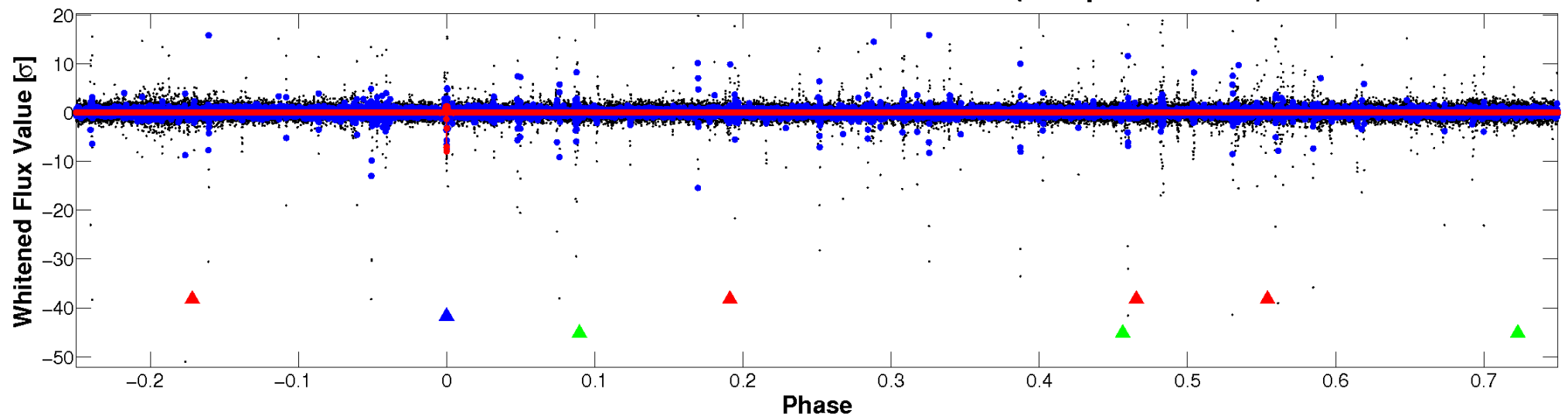


Non-Whitened Vs. Whitened Light Curve

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

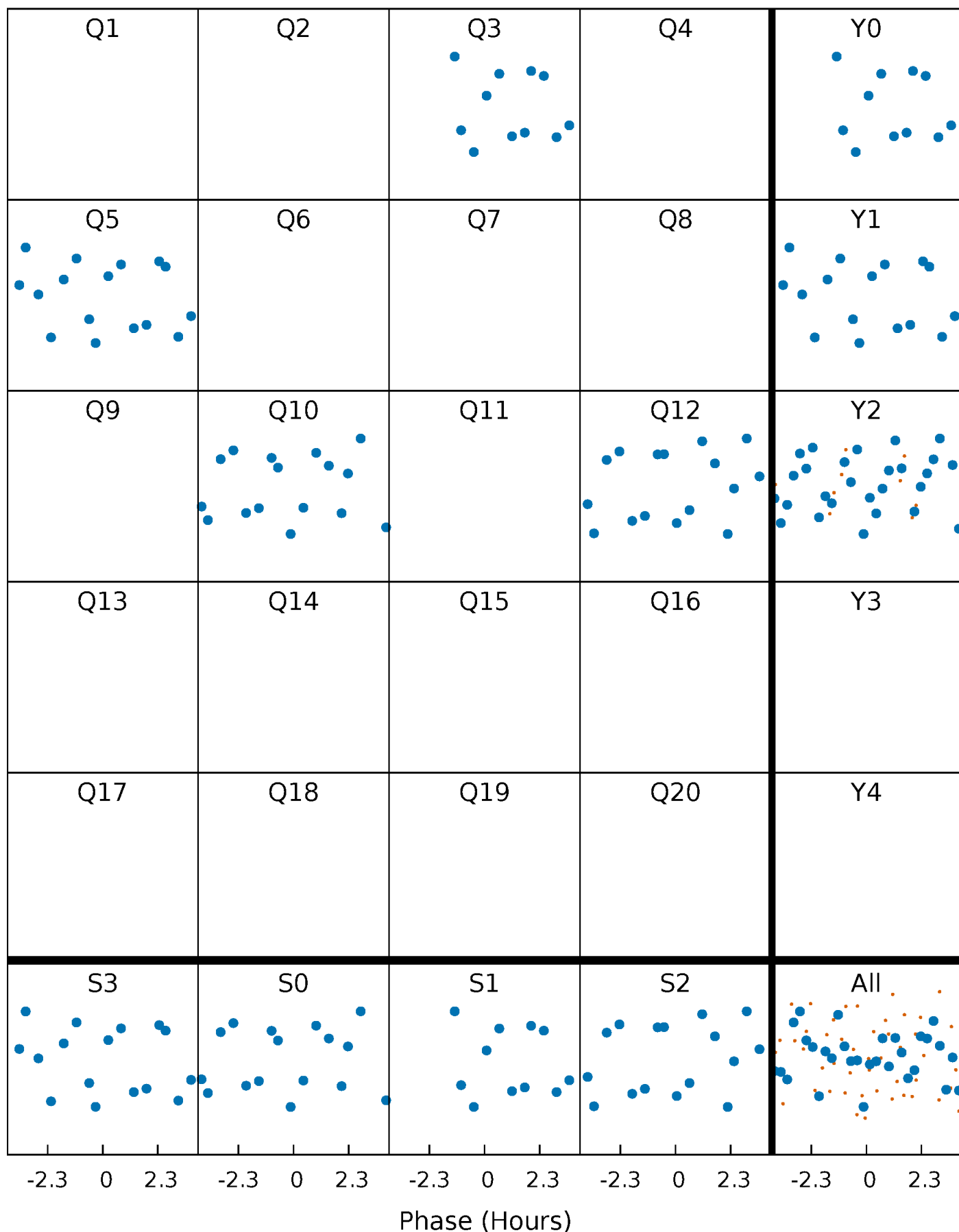


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



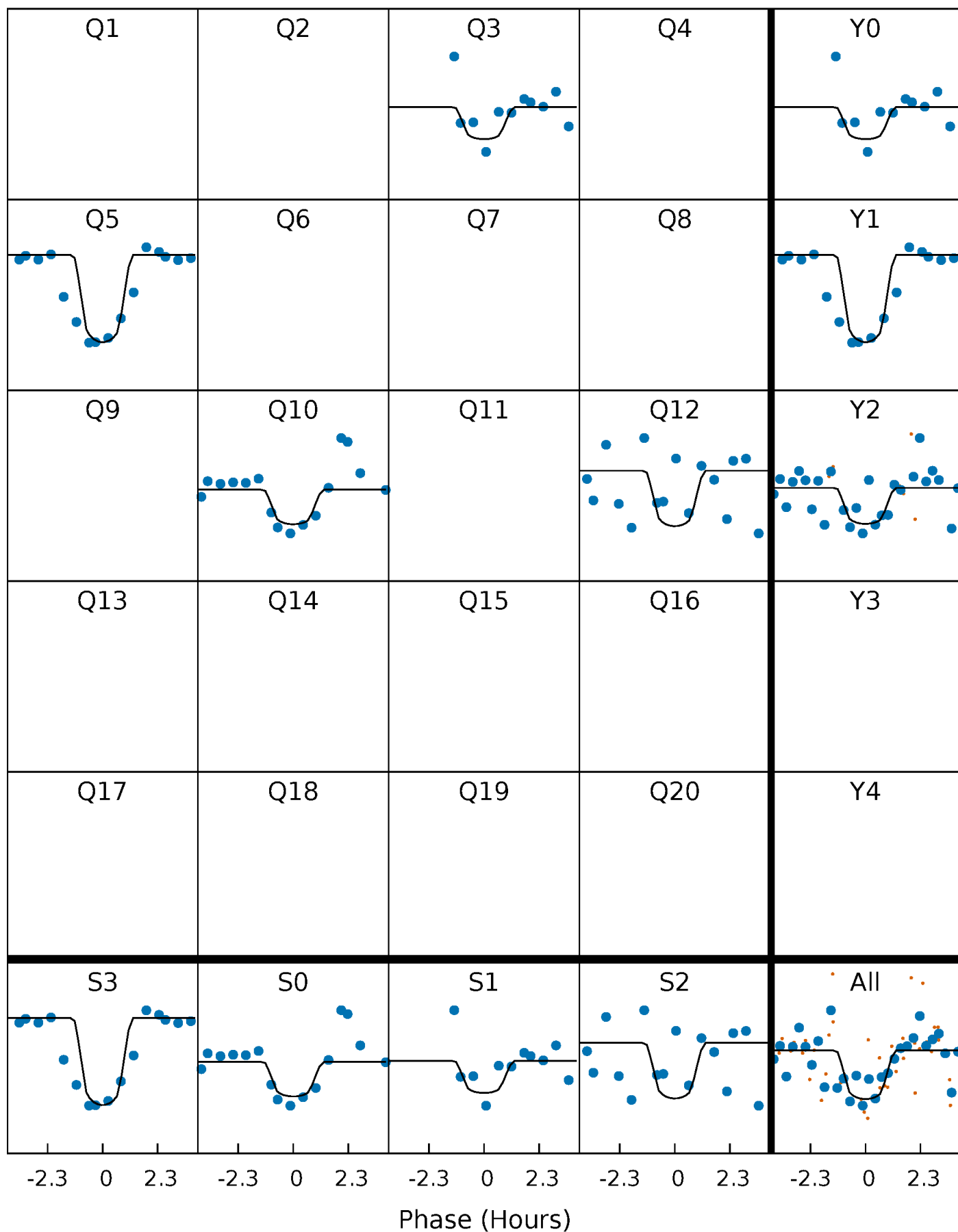
PDC Quarter-Phased Transit Curves

TCE 010427996-02 $P=228.497377$ Days $T_0=260.302974$ (BKJD)



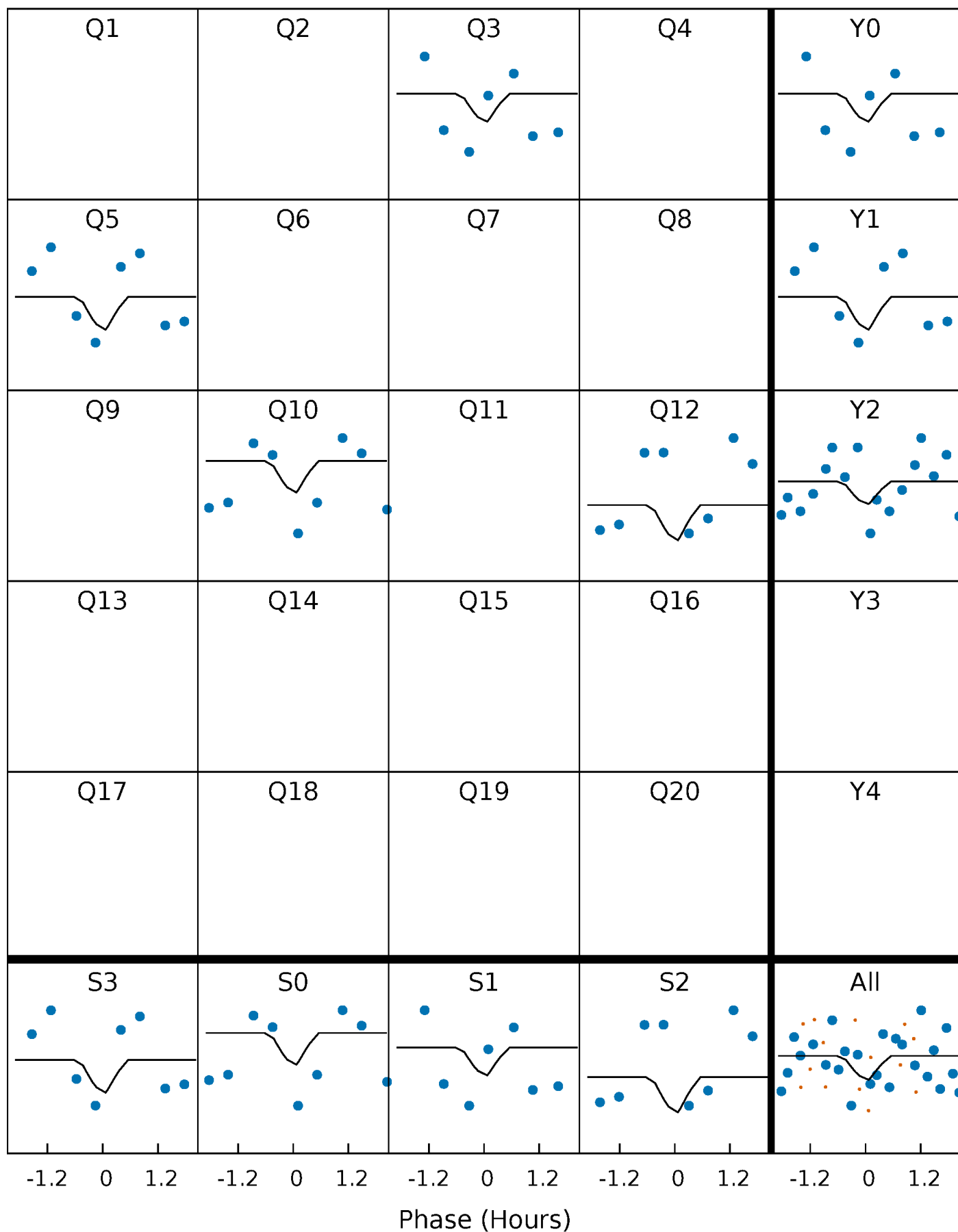
DV Quarter-Phased Transit Curves

TCE 010427996-02 $P=228.497377$ Days $T_0=260.302974$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

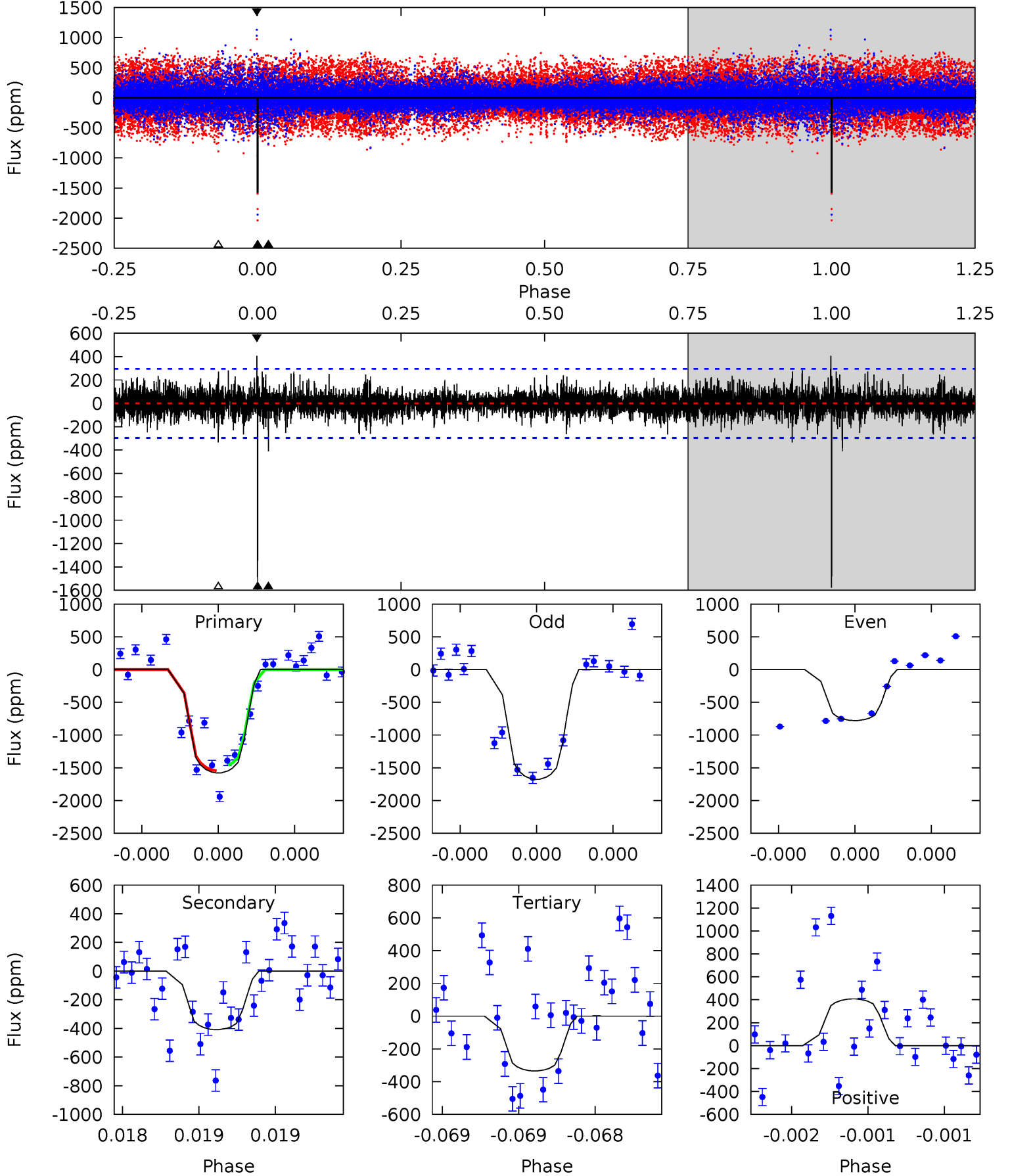
TCE 010427996-02 P=228.496011 Days $T_0=260.302083$ (BKJD)



DV Model-Shift Uniqueness Test

010427996-02, $P = 228.497377$ Days, $E = 31.805597$ Days

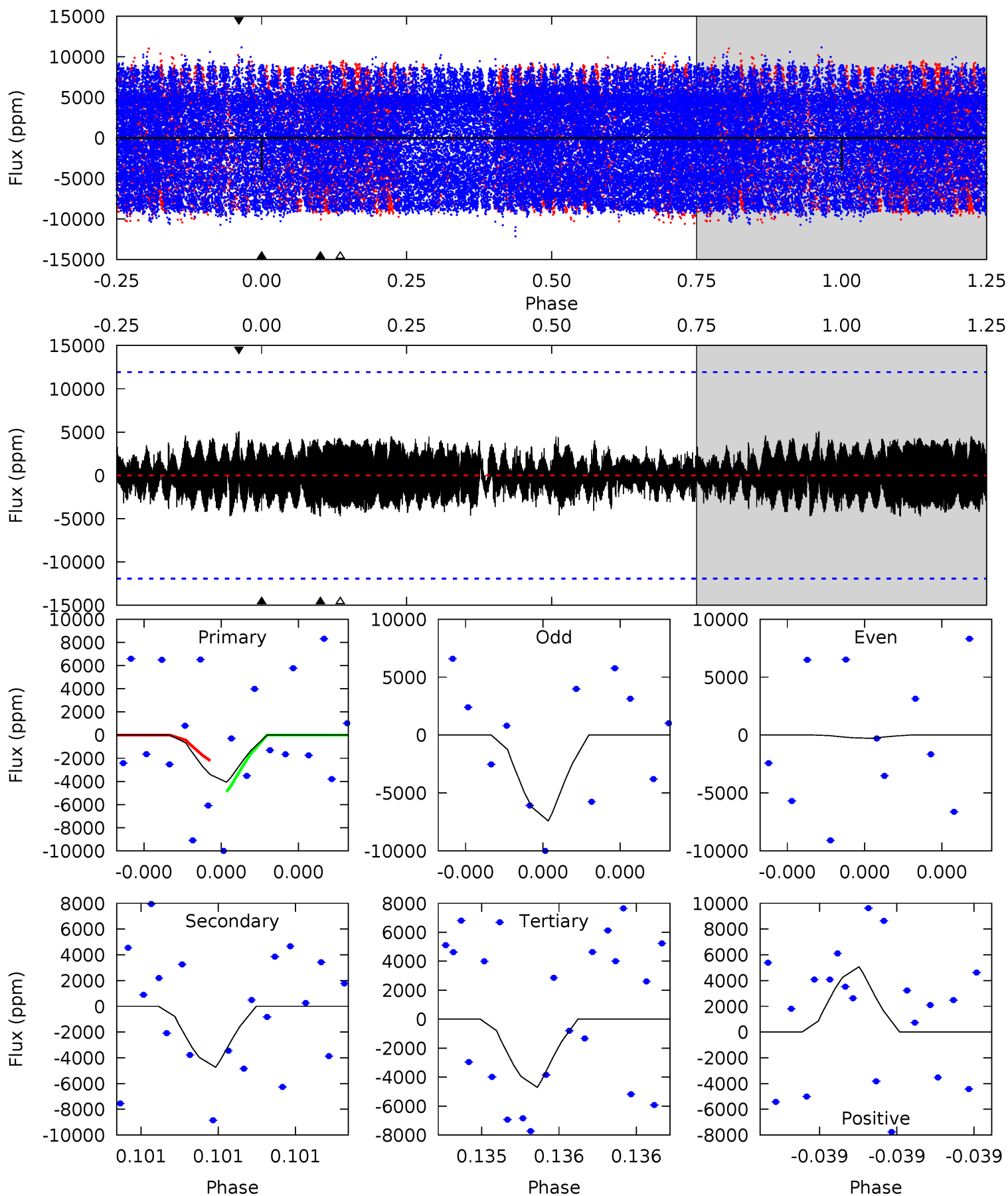
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
29.9	7.74	6.35	7.72	5.60	3.53	1.19	23.6	22.2	1.39	0.02	8.59	0.96	0.21	0.76



Alt Model-Shift Uniqueness Test

010427996-02, P = 228.496011 Days, E = 31.806072 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
1.96	2.28	2.27	2.45	5.76	3.76	0.77	-0.31	-0.48	0.01	-0.16	1.72	0.89	0.52	0.61



Stellar Parameters For KIC 010427996

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$\rho_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6413^{+179}_{-247}	$4.035^{+0.292}_{-0.157}$	$0.080^{+0.250}_{-0.300}$	$1.881^{+0.536}_{-0.656}$	$1.398^{+0.186}_{-0.280}$	$0.296^{+0.579}_{-0.128}$
	+3%/-4%	+7%/-4%	+312%/-375%	+28%/-35%	+13%/-20%	+196%/-43%
Source	PHO54	PHO54	PHO54	DSEP		

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

Secondary Eclipse Parameters for KIC 010427996-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-409 ± 53	$12.13^{+12.68}_{-8.08}$	591^{+45}_{-58}	3978^{+2112}_{-810}	1028^{+7149}_{-784}
Alt.	-4731 ± 2071	$16.08^{+14.13}_{-10.53}$	590^{+47}_{-49}	5725^{+5018}_{-1410}	6125^{+42347}_{-4552}

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

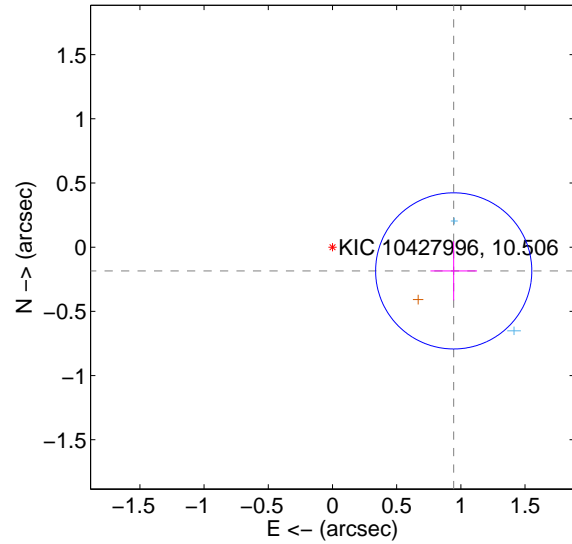
Supplemental centroid analysis for 010427996-02. **Kepler magnitude: 10.51.** Transit SNR 26.56

There are 2 quarters with good PRF difference image offsets

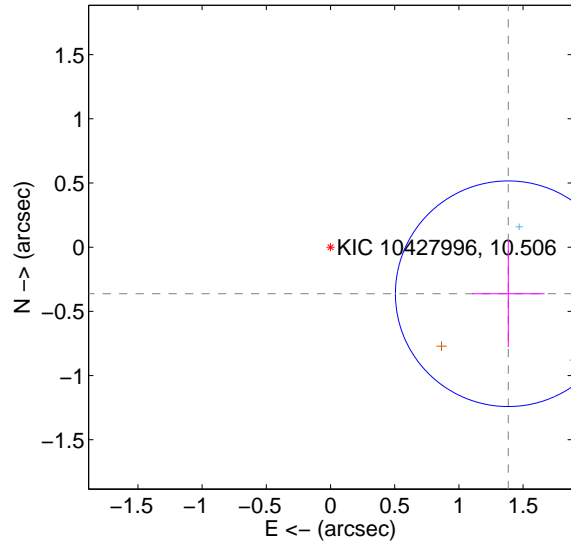
The direct PRF centroid is offset from the target star catalog position by about 0.55 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.962 ± 0.203	4.75	-0.944 ± 0.181	-0.185 ± 0.229
PRF-fit source offset from KIC position	1.431 ± 0.293	4.89	-1.384 ± 0.282	-0.363 ± 0.416
photometric centroid source offset	0.03 ± 0.17	0.17	0.01 ± 0.24	0.03 ± 0.16

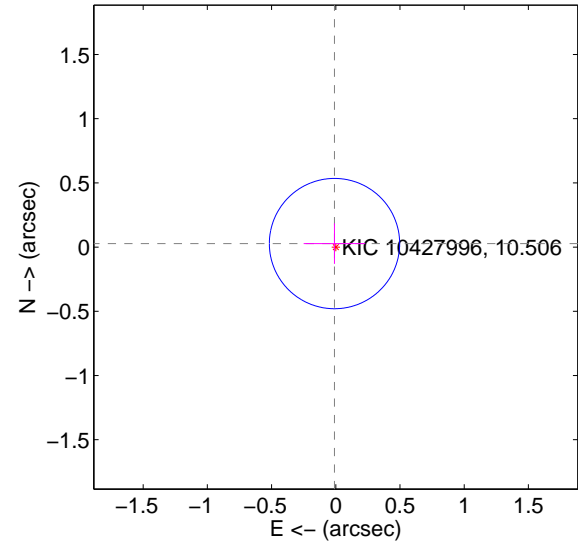
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position



offset from photometric centroids

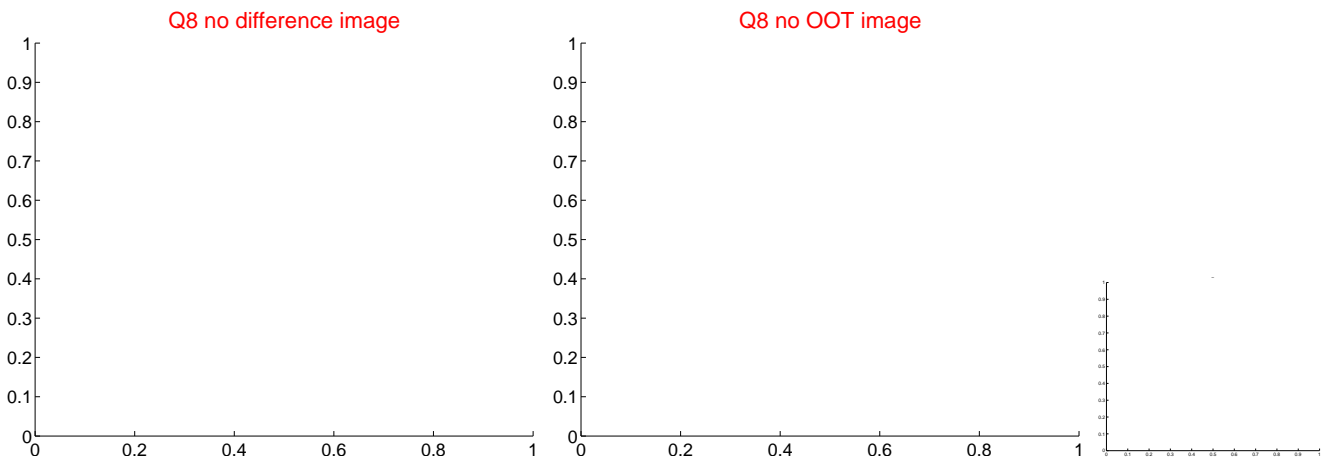
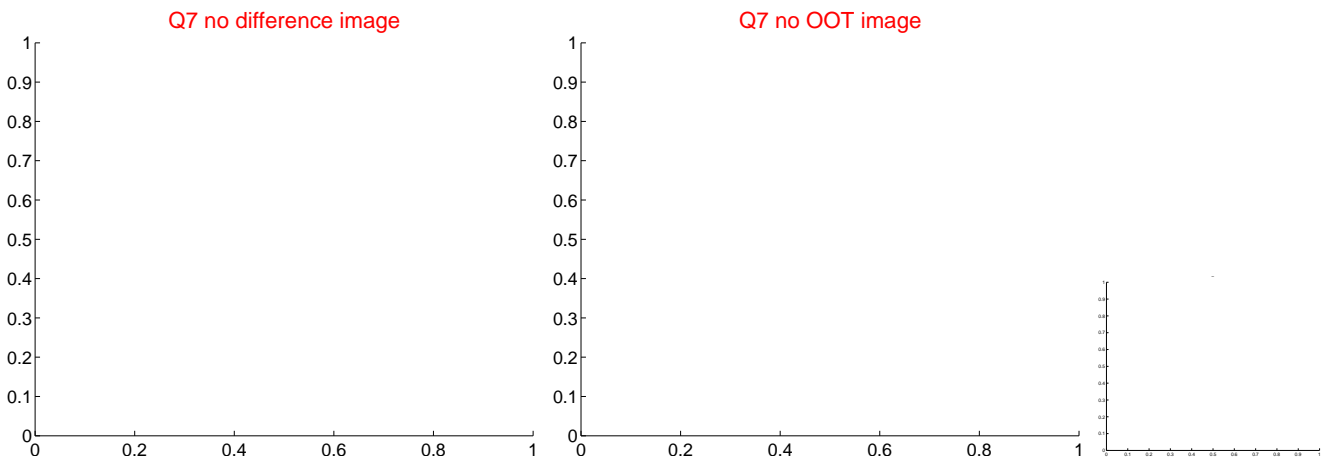
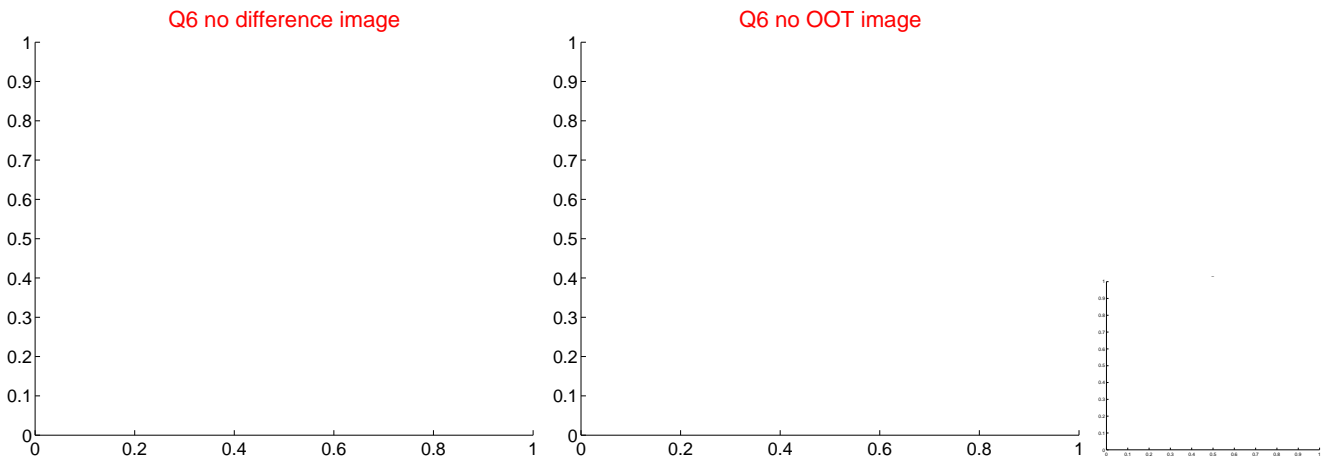
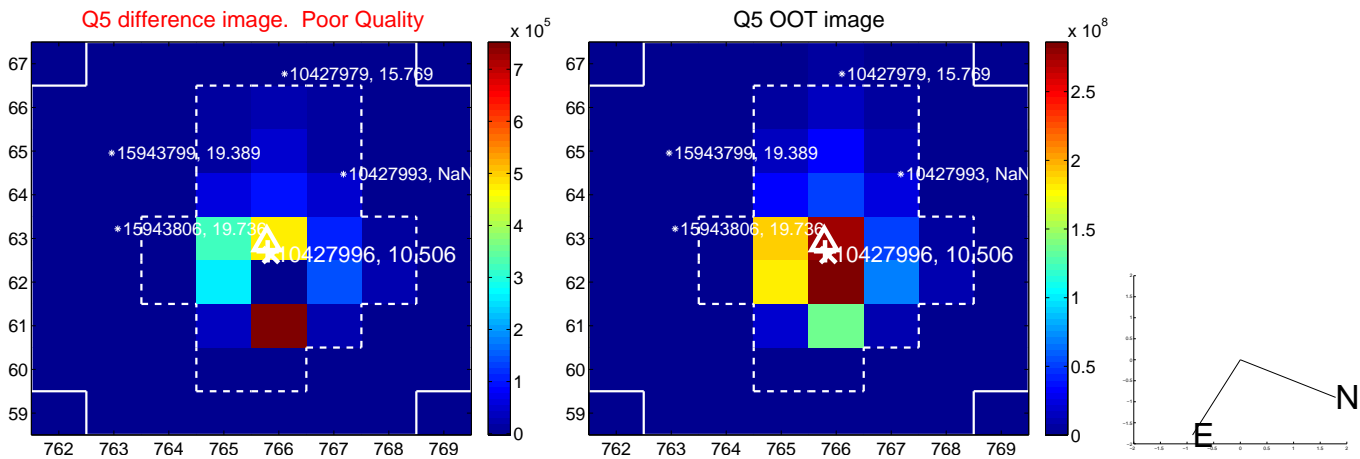


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

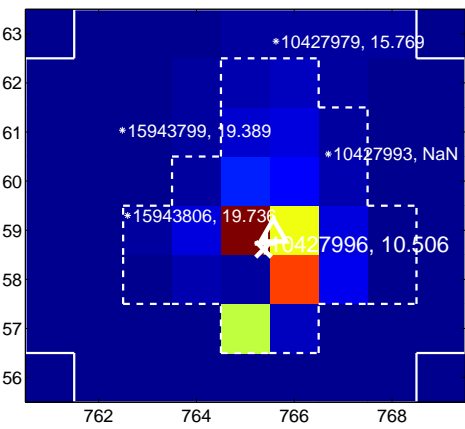
Q9 no difference image



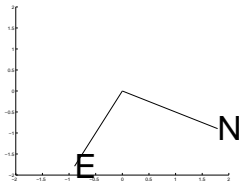
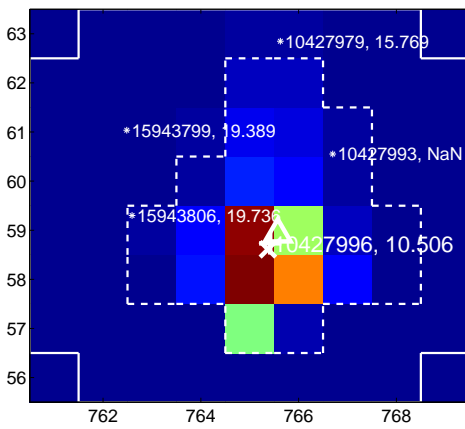
Q9 no OOT image



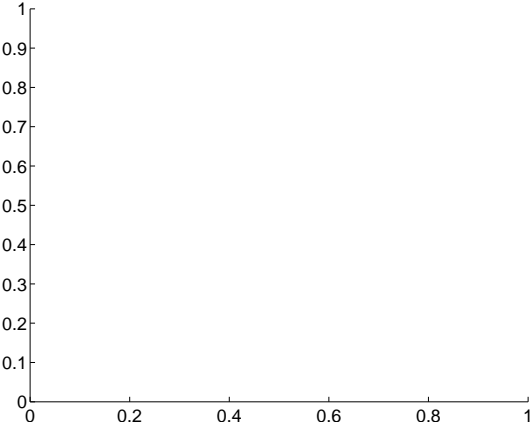
Q10 difference image



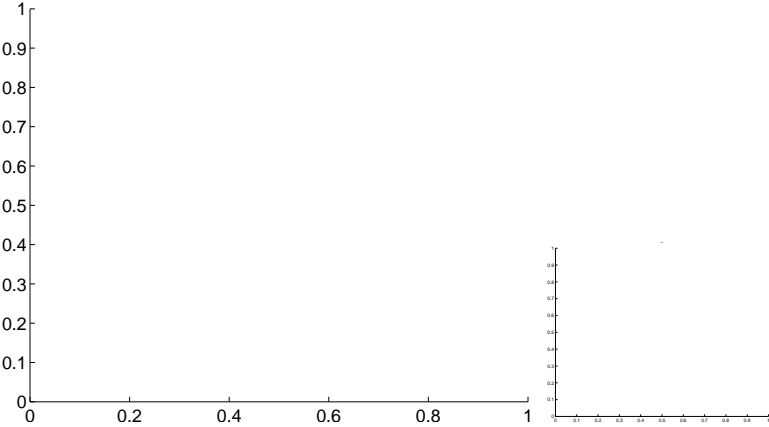
Q10 OOT image



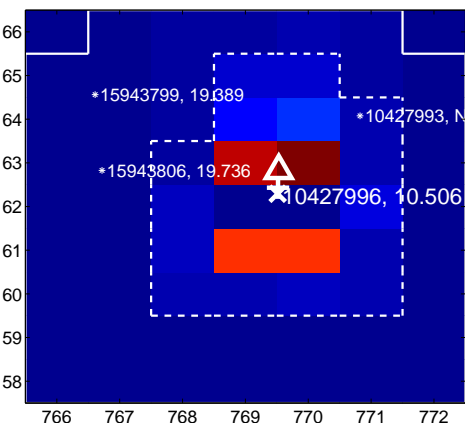
Q11 no difference image



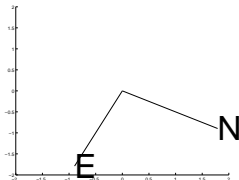
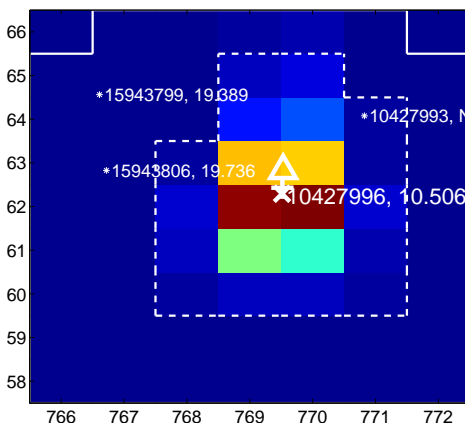
Q11 no OOT image



Q12 difference image



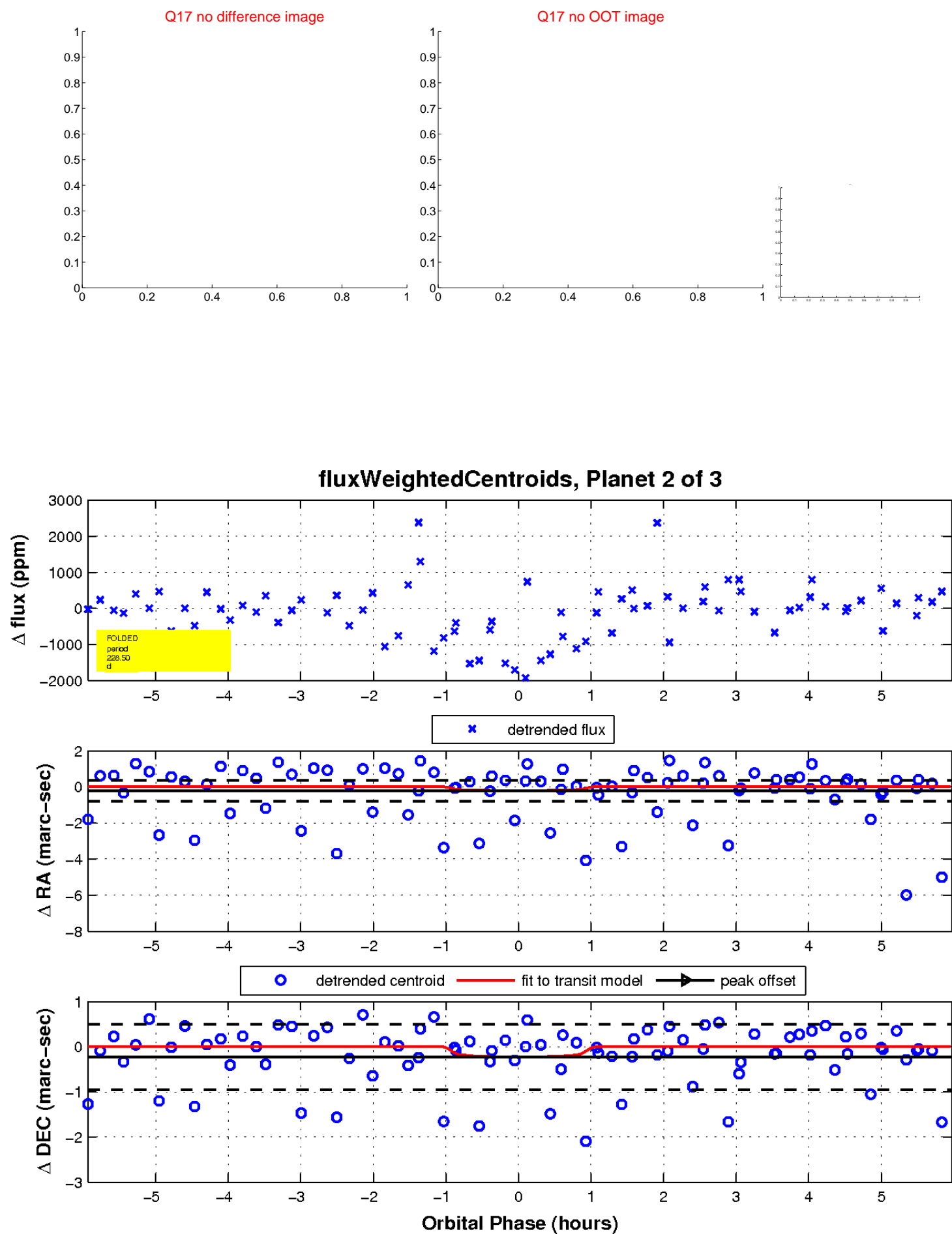
Q12 OOT image



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

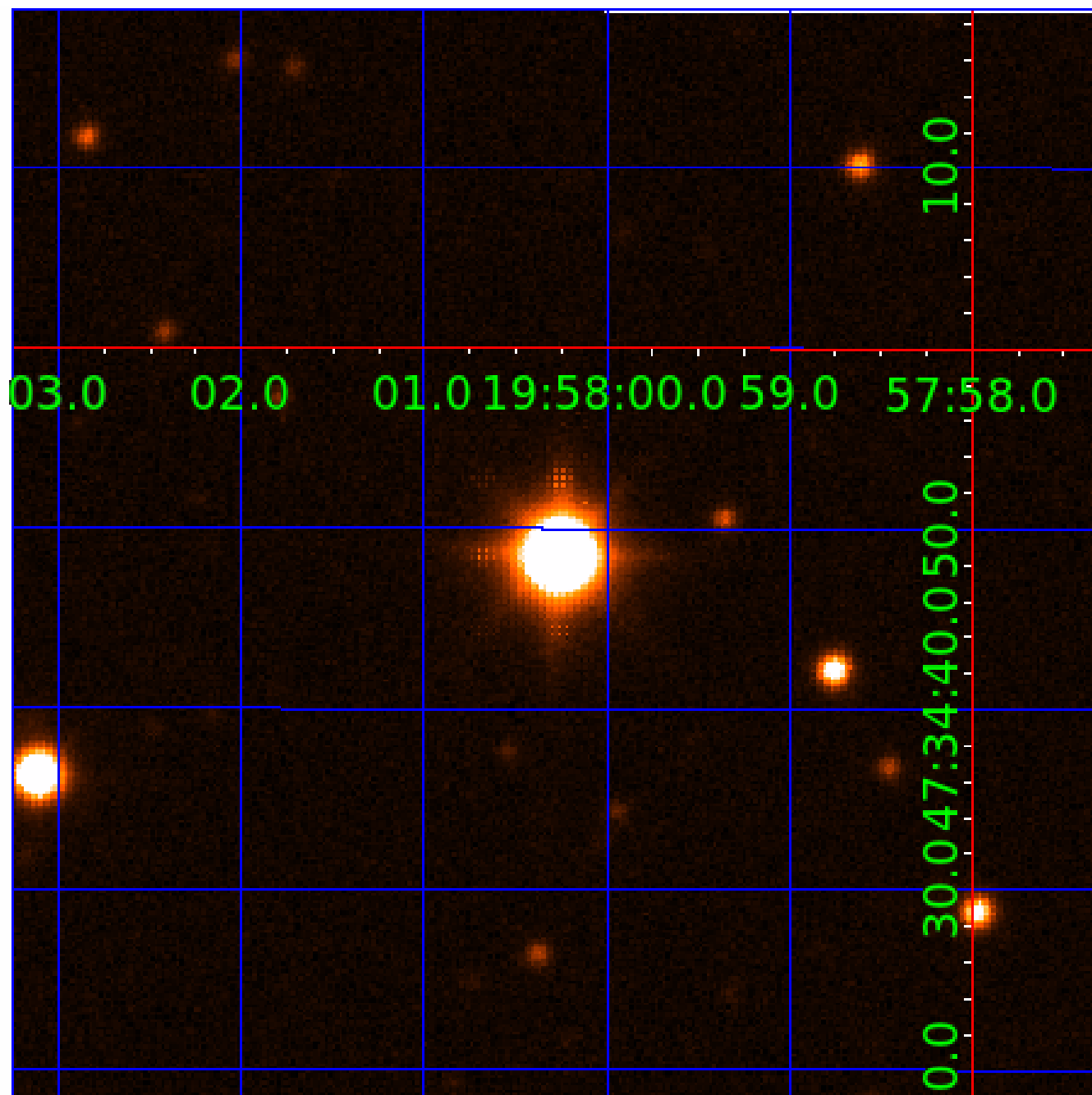


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 010427996

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})
010427996-01	OBS	No	374.087193	158.403772	587.7	2.987	25.6	9.4	1.88	6413	4.57	4.15
010427996-02	OBS	No	228.497377	260.302974	1460.1	1.994	24.3	26.6	1.88	6413	7.41	8.01
010427996-03	OBS	No	540.779769	197.004489	167.4	16.062	18.8	2.3	1.88	6413	2.68	2.54

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
010427996-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_SATURATED
010427996-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_SATURATED
010427996-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_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.

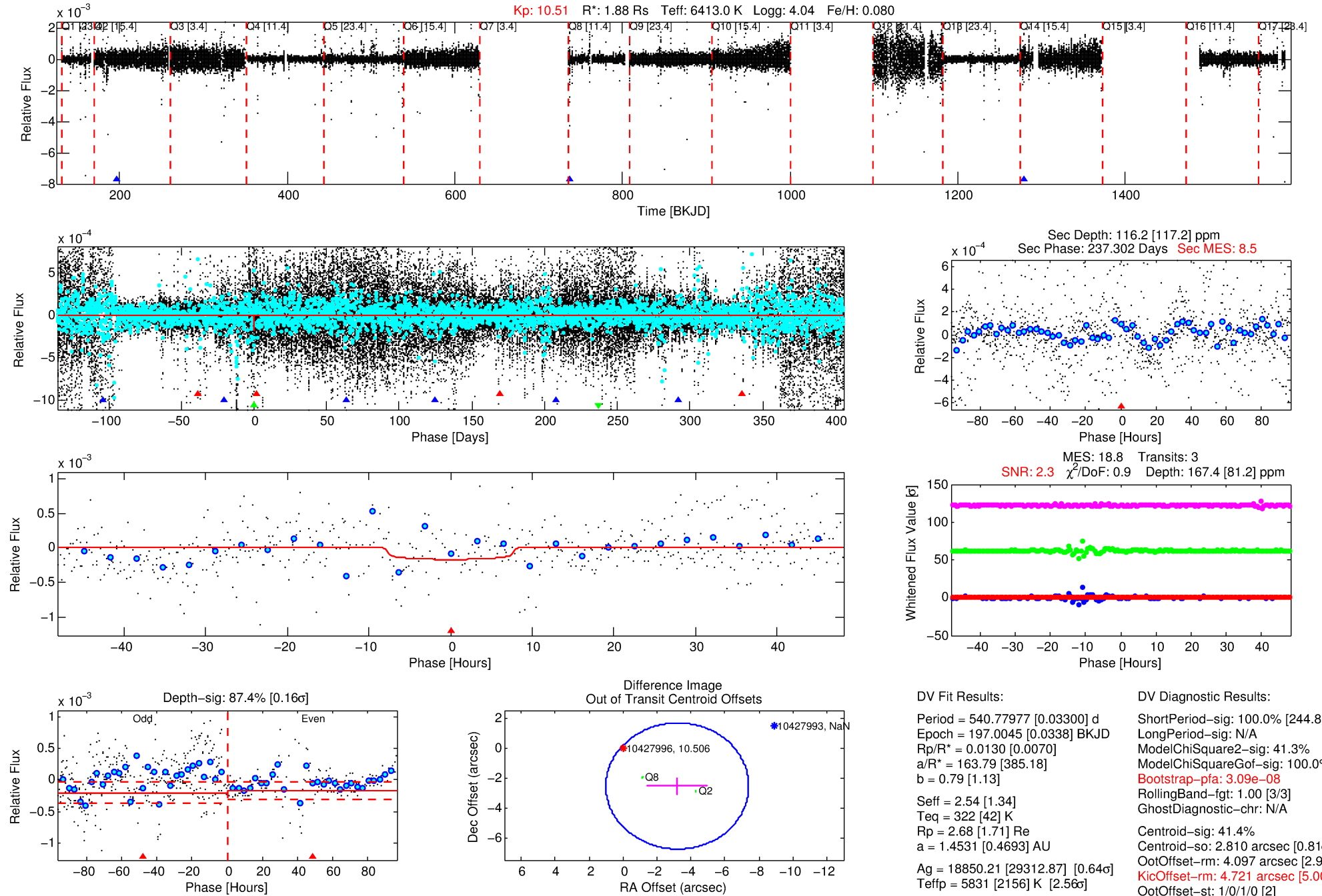
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 010427996-03

No Significant Match Found

DV One-Page Summary

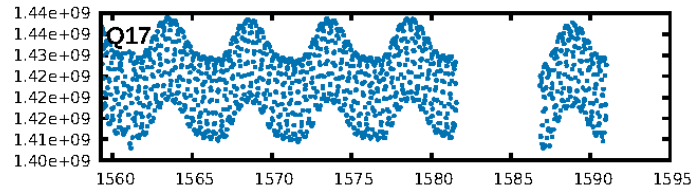
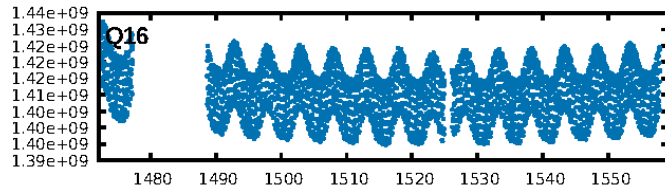
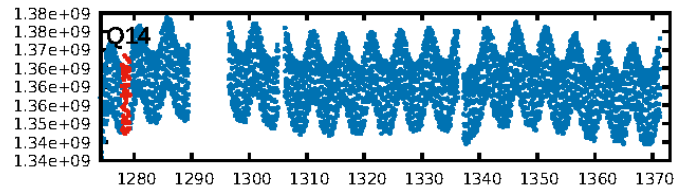
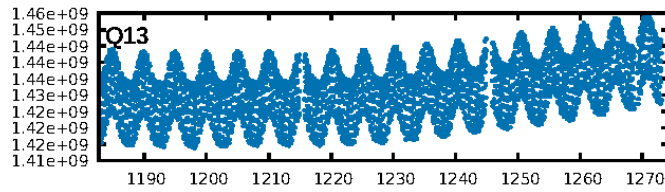
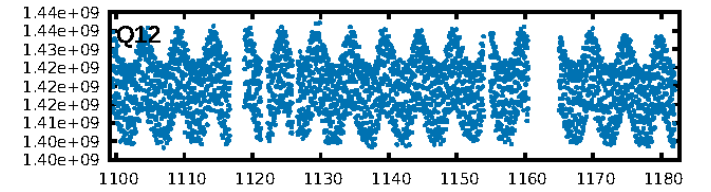
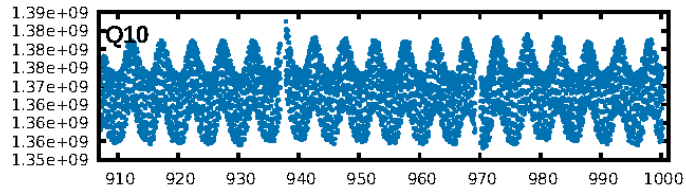
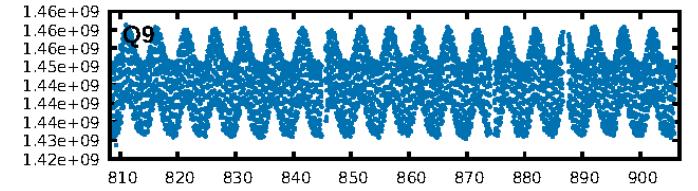
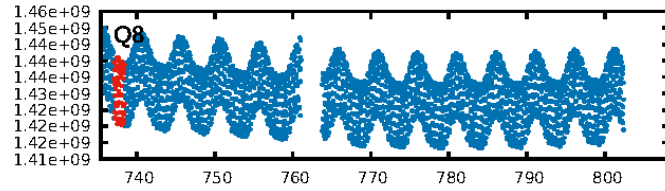
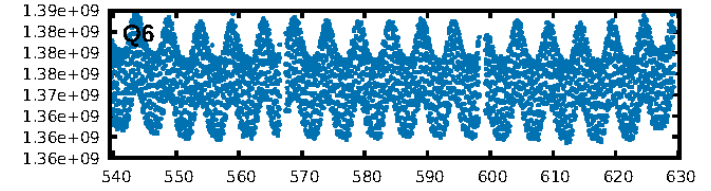
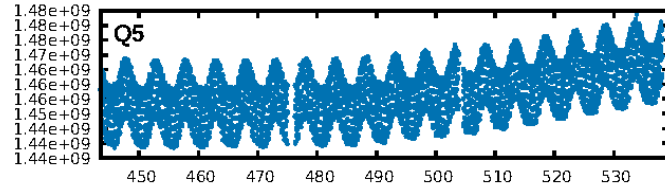
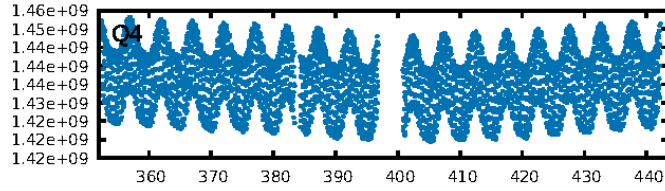
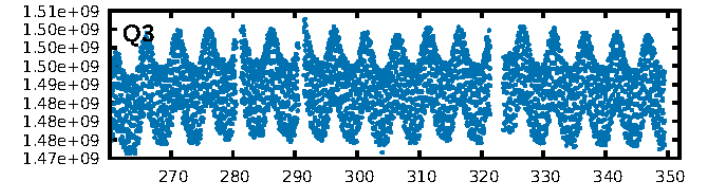
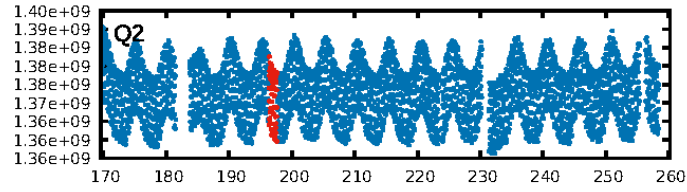
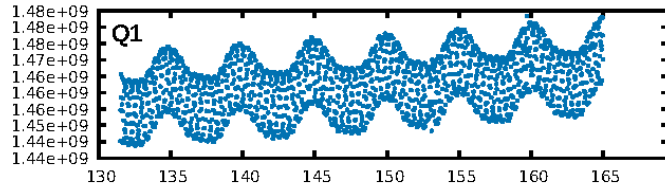
KIC: 10427996 Candidate: 3 of 3 Period: 540.780 d



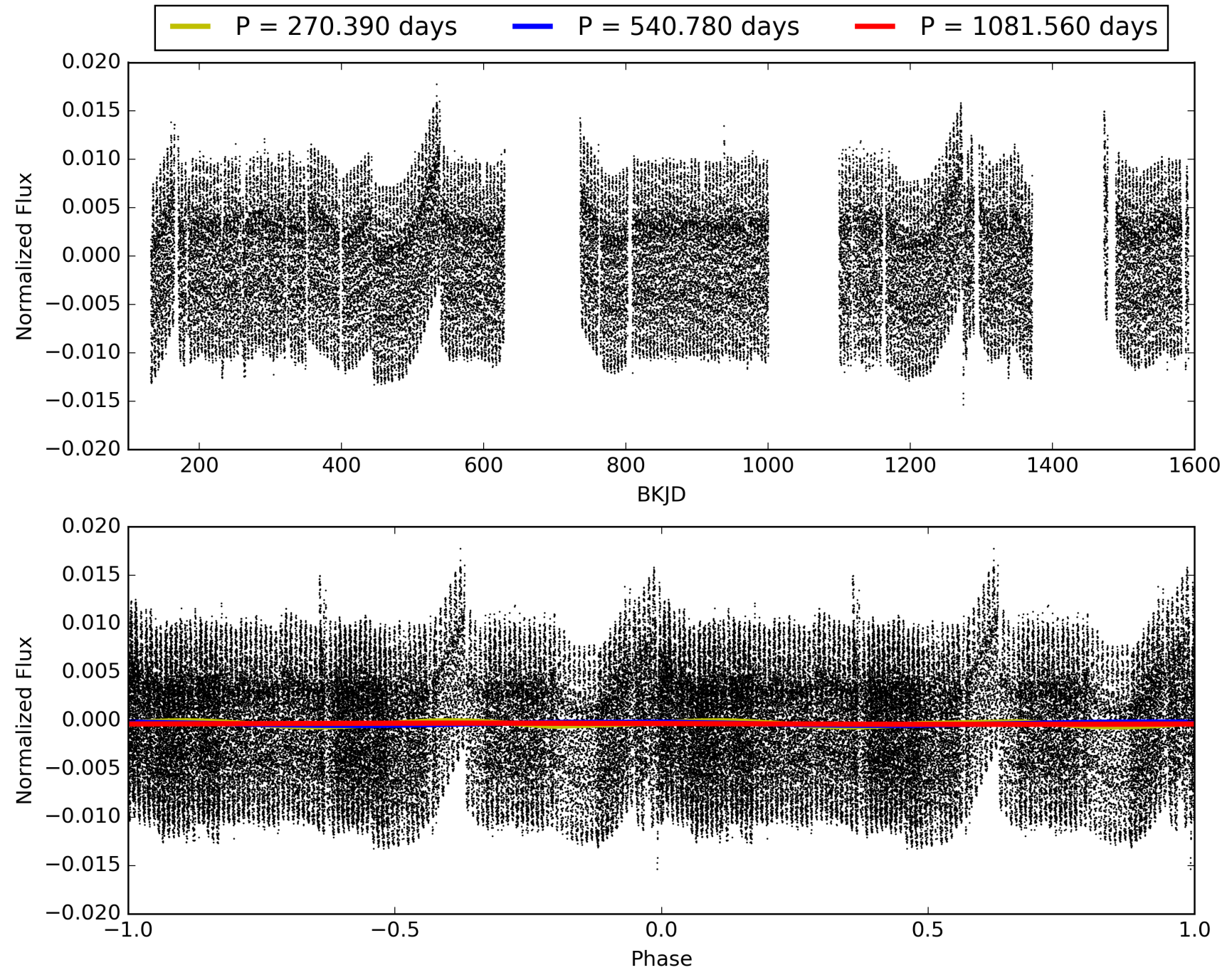
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 17:06:36 Z

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

TCE 010427996-03, PDC Light Curves

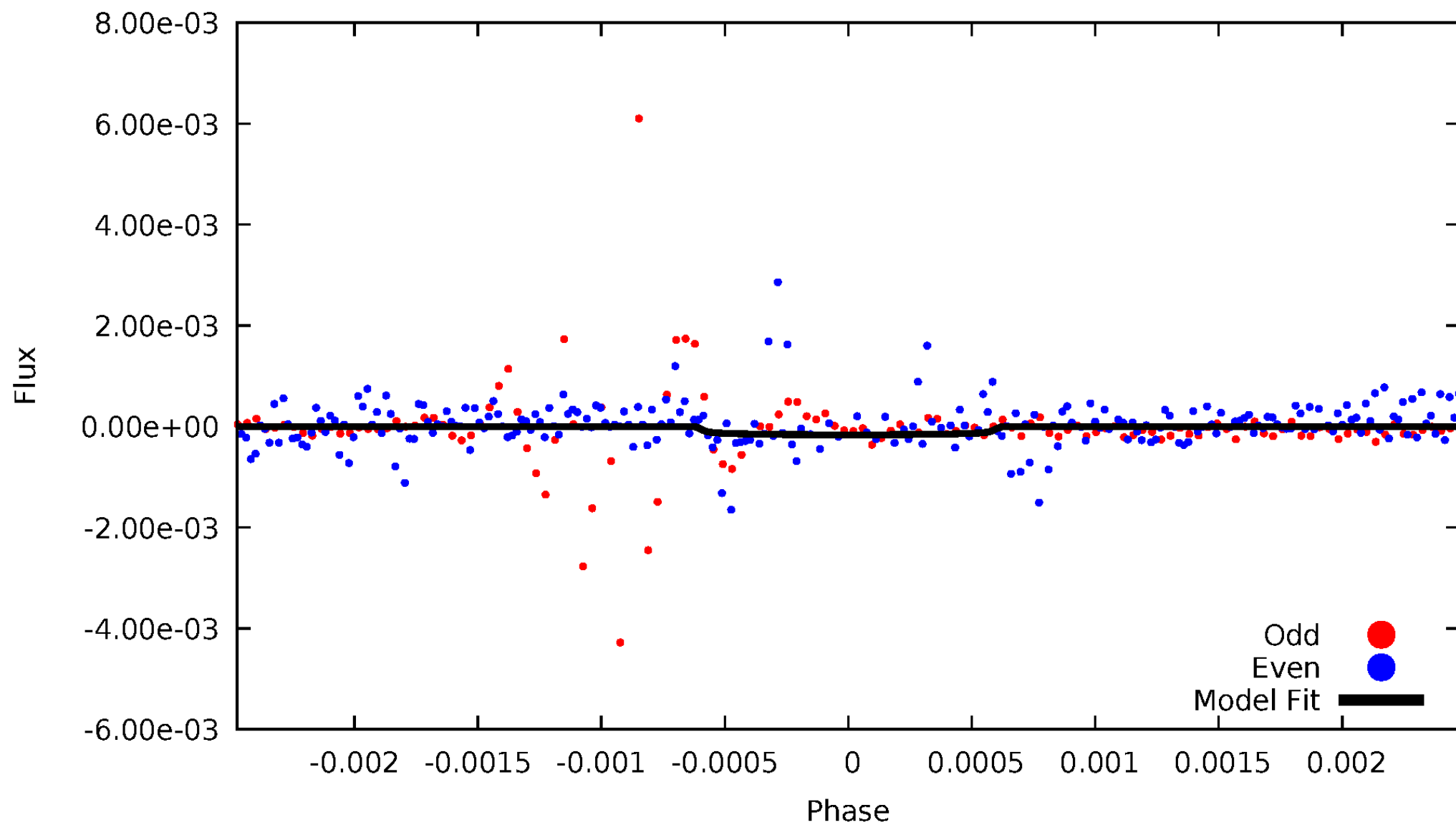


TCE 010427996-03



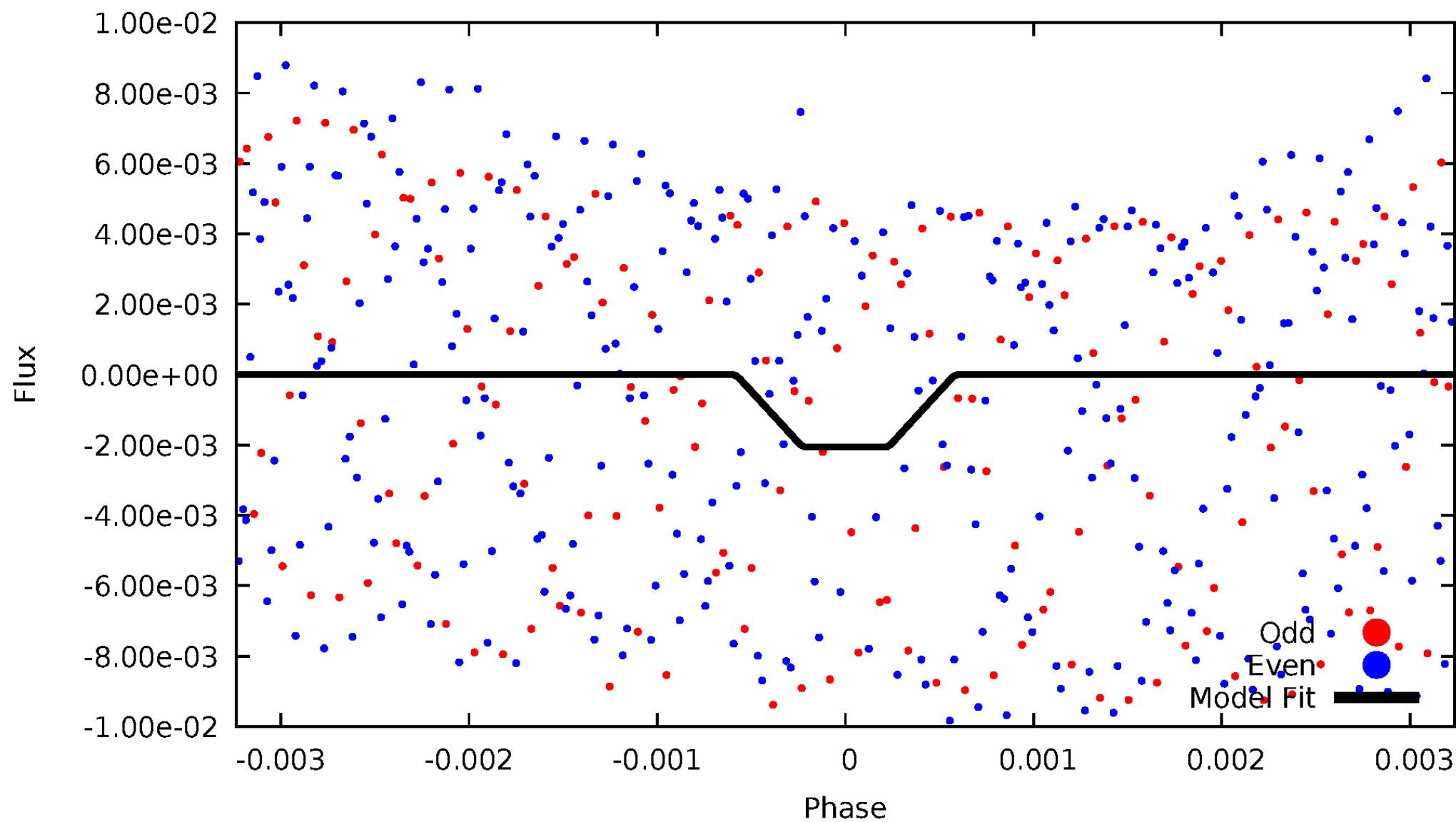
DV Odd/Even

TCE 010427996-03



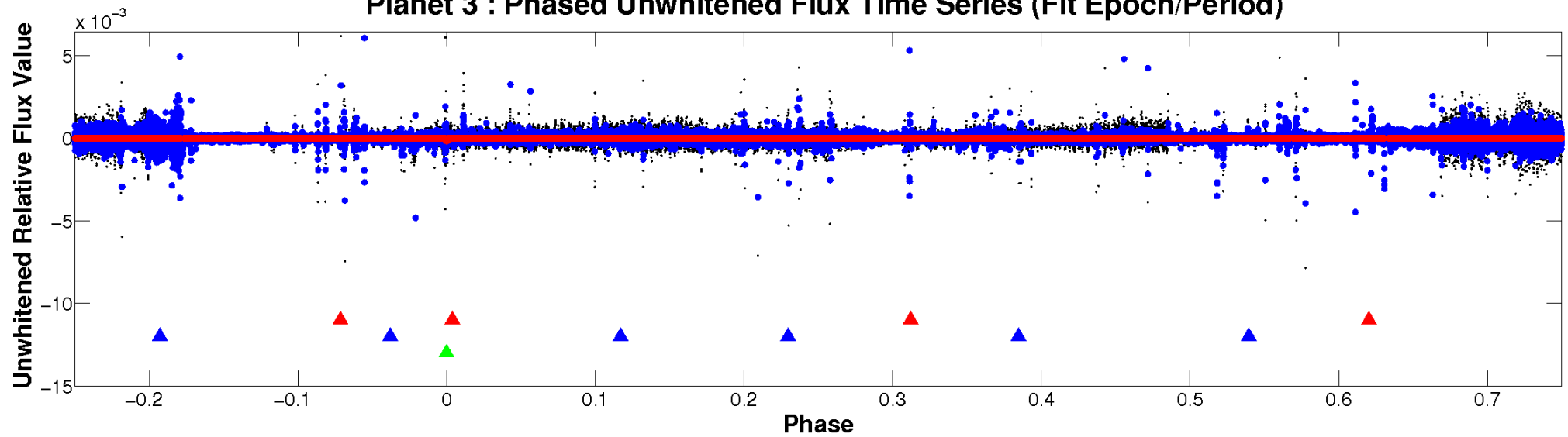
ALT Odd/Even

TCE 010427996-03

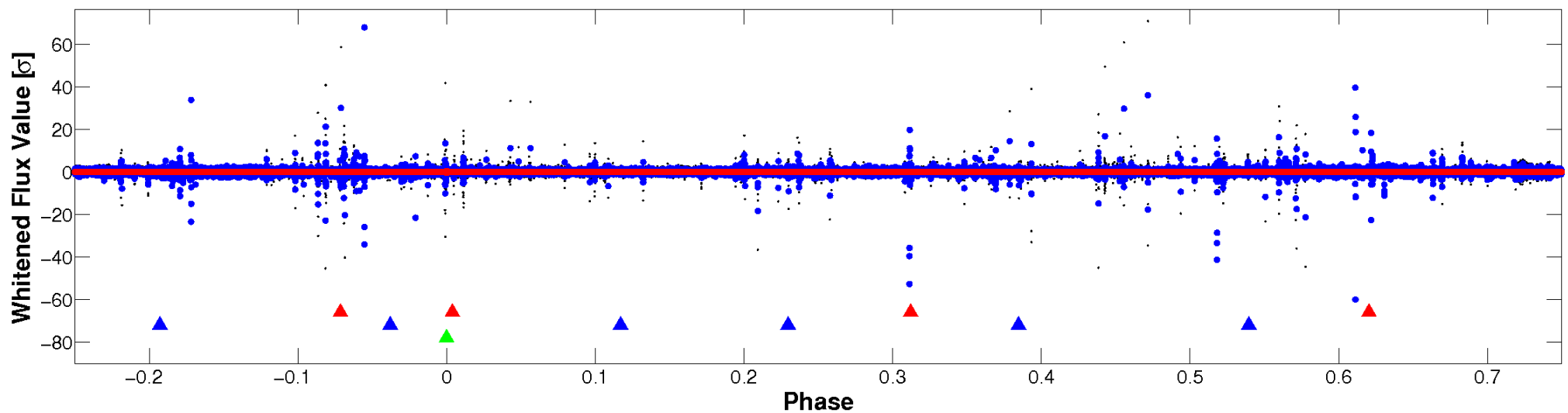


Non-Whitened Vs. Whitened Light Curve

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



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



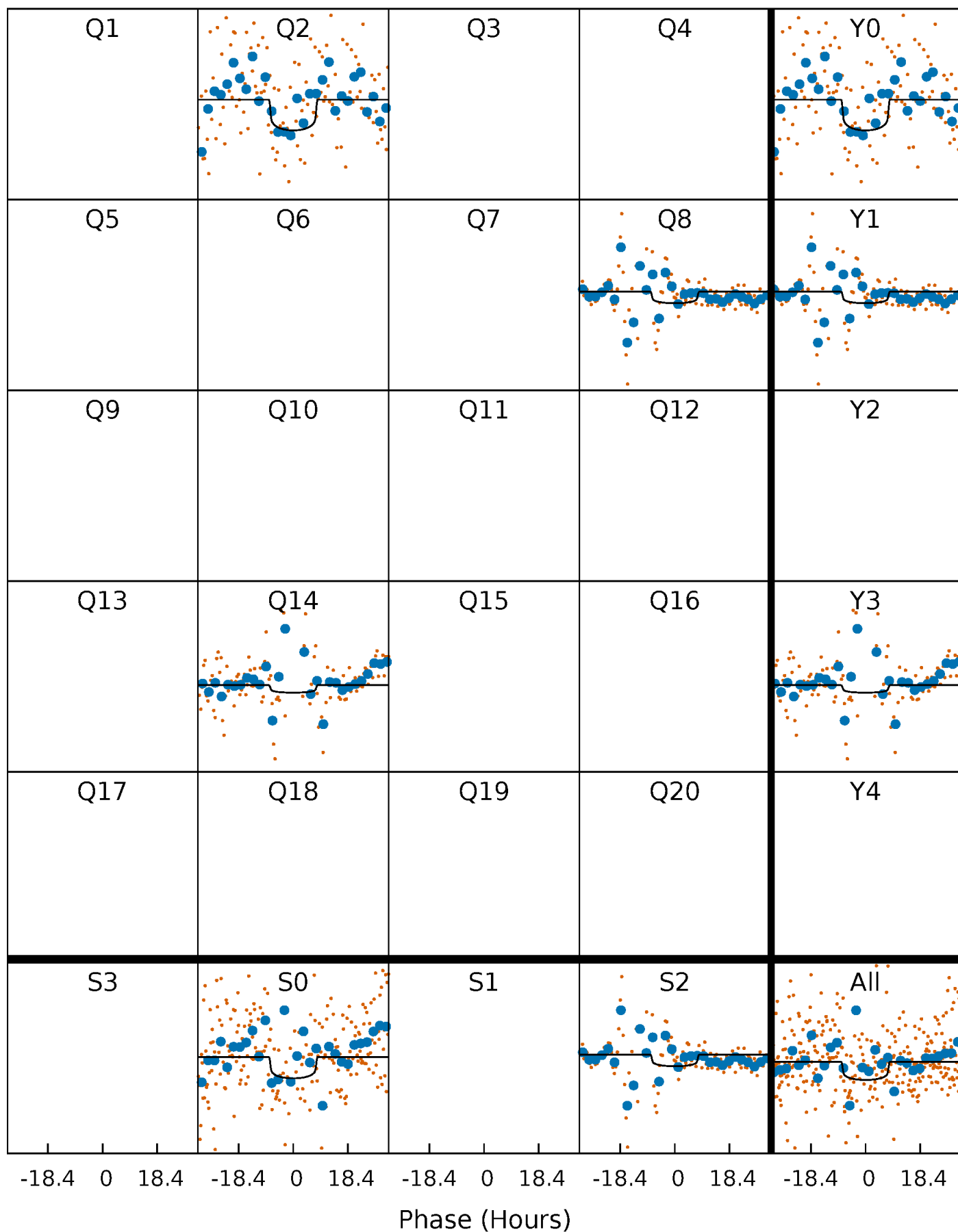
PDC Quarter-Phased Transit Curves

TCE 010427996-03 P=540.779769 Days $T_0=197.004489$ (BKJD)



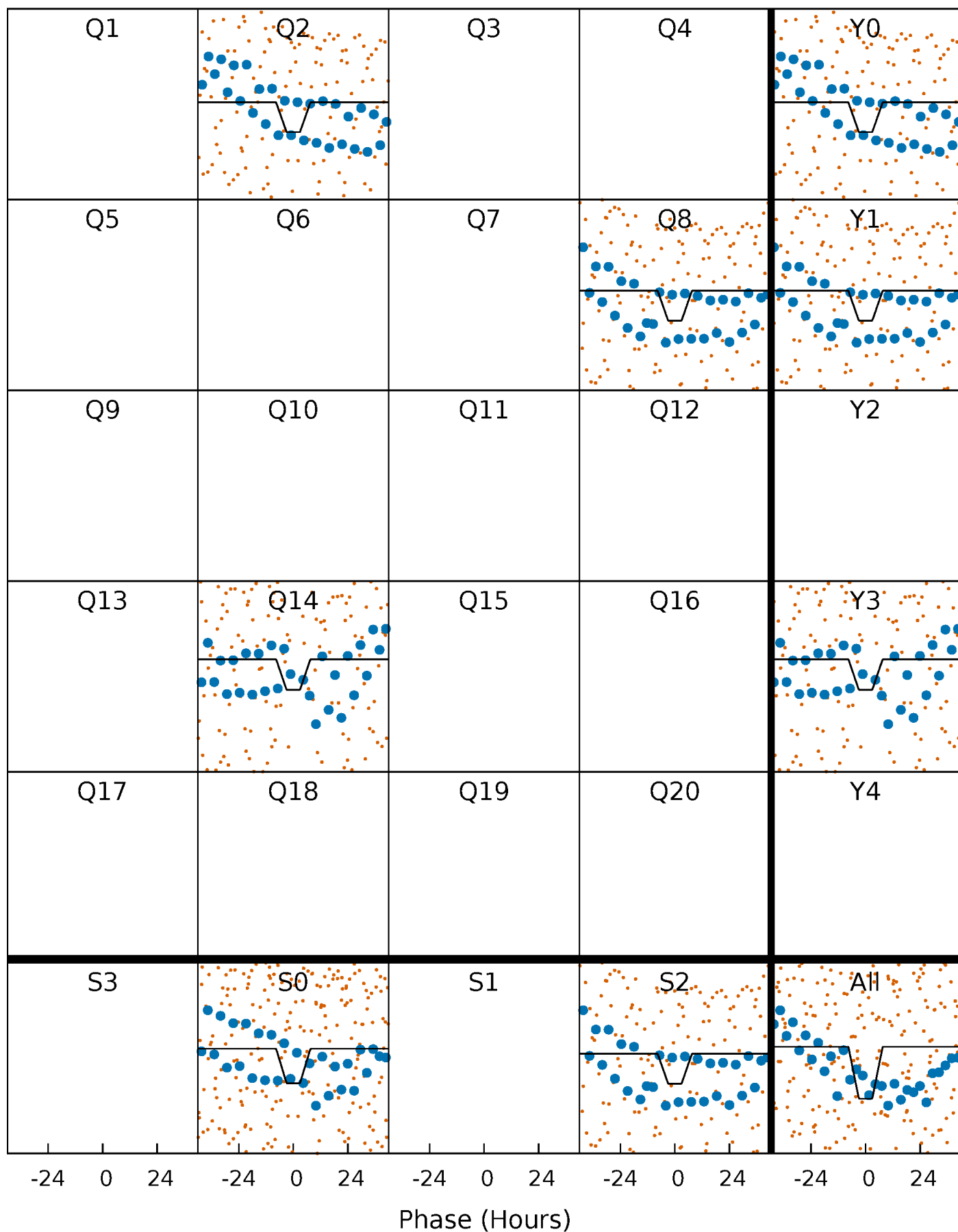
DV Quarter-Phased Transit Curves

TCE 010427996-03 $P=540.779769$ Days $T_0=197.004489$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

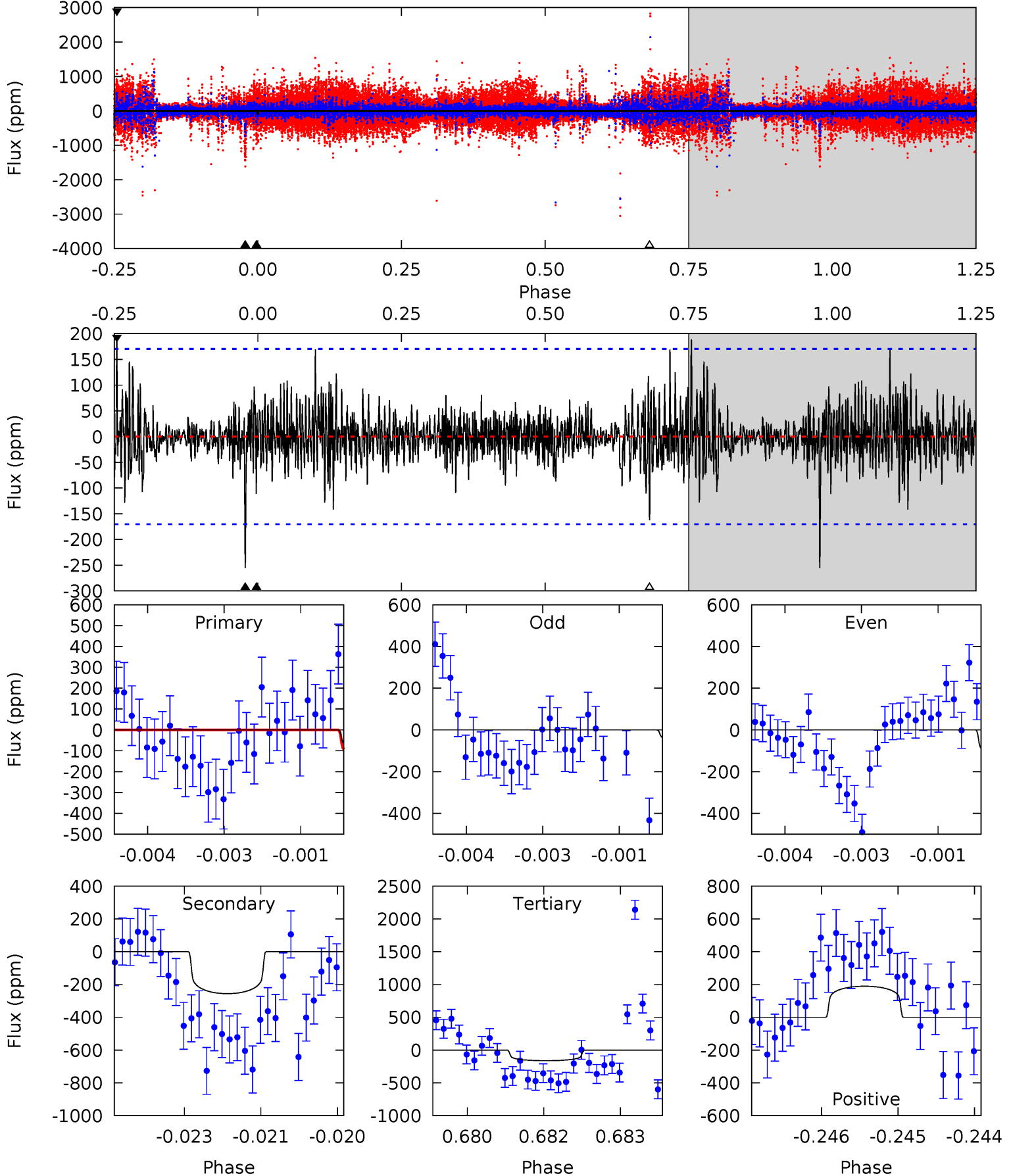
TCE 010427996-03 P=540.760543 Days $T_0=196.997455$ (BKJD)



DV Model-Shift Uniqueness Test

010427996-03, P = 540.779769 Days, E = 197.004489 Days

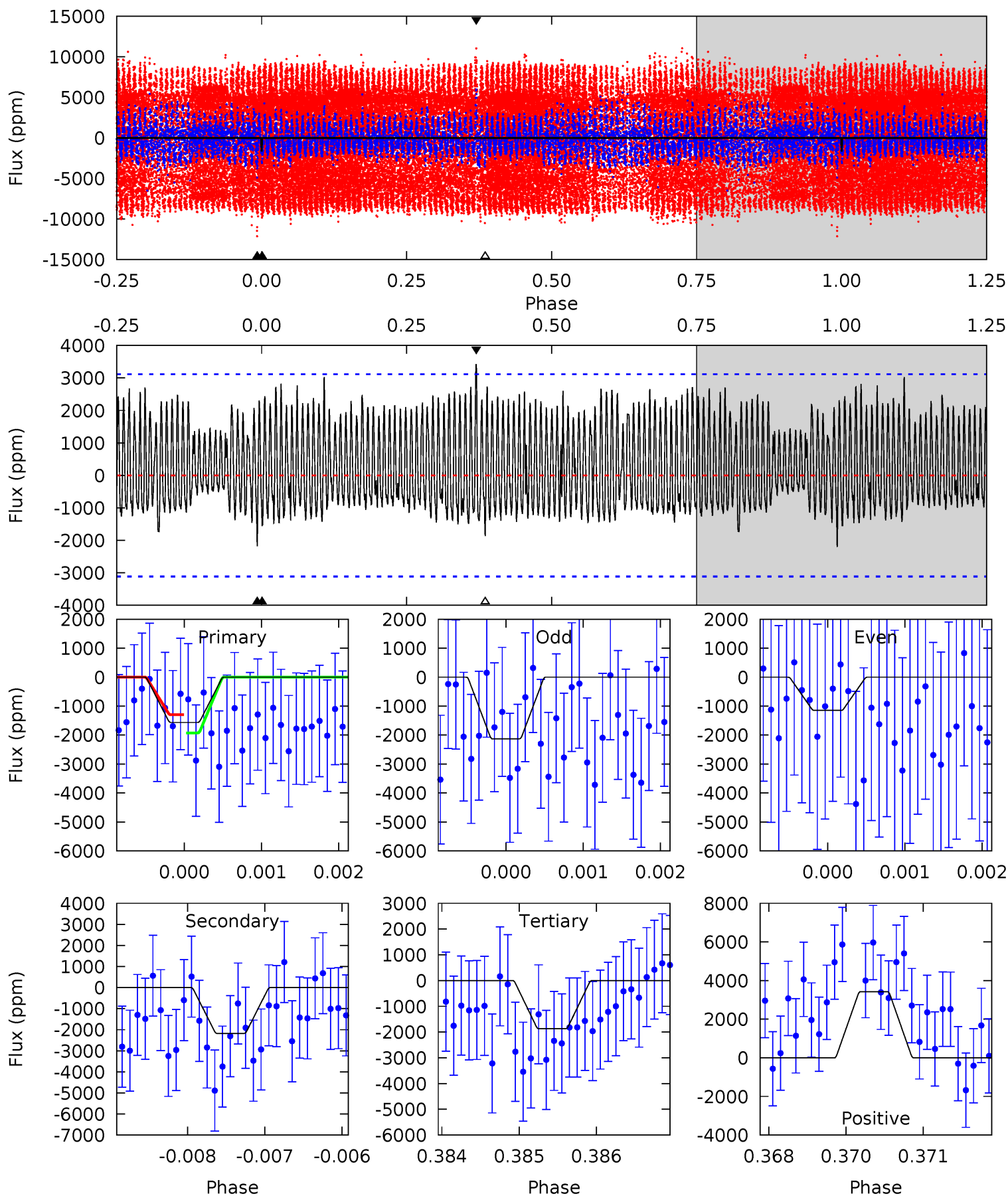
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
2.85	8.12	5.15	6.01	5.41	3.22	1.19	-2.31	-3.16	2.97	2.11	1.14	-1.21	0.43	1.47



Alt Model-Shift Uniqueness Test

010427996-03, P = 540.760543 Days, E = 196.997455 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
2.73	3.79	3.26	5.97	5.42	3.24	2.05	-0.53	-3.24	0.54	-2.17	0.84	1.02	0.61	0.54



Stellar Parameters For KIC 010427996

	$T_{\text{eff}}(K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M(M_{\odot})$	$\rho_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6413^{+179}_{-247}	$4.035^{+0.292}_{-0.157}$	$0.080^{+0.250}_{-0.300}$	$1.881^{+0.536}_{-0.656}$	$1.398^{+0.186}_{-0.280}$	$0.296^{+0.579}_{-0.128}$
	+3%/-4%	+7%/-4%	+312%/-375%	+28%/-35%	+13%/-20%	+196%/-43%
Source	PHO54	PHO54	PHO54	DSEP		

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

Secondary Eclipse Parameters for KIC 010427996-03 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-256 ± 32	$2.59^{+1.44}_{-1.34}$	444^{+34}_{-41}	7085^{+3880}_{-1403}	$42736^{+148565}_{-24764}$
Alt.	-2178 ± 574	$8.90^{+2.17}_{-2.18}$	442^{+35}_{-41}	6492^{+832}_{-657}	31024^{+26513}_{-12539}

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

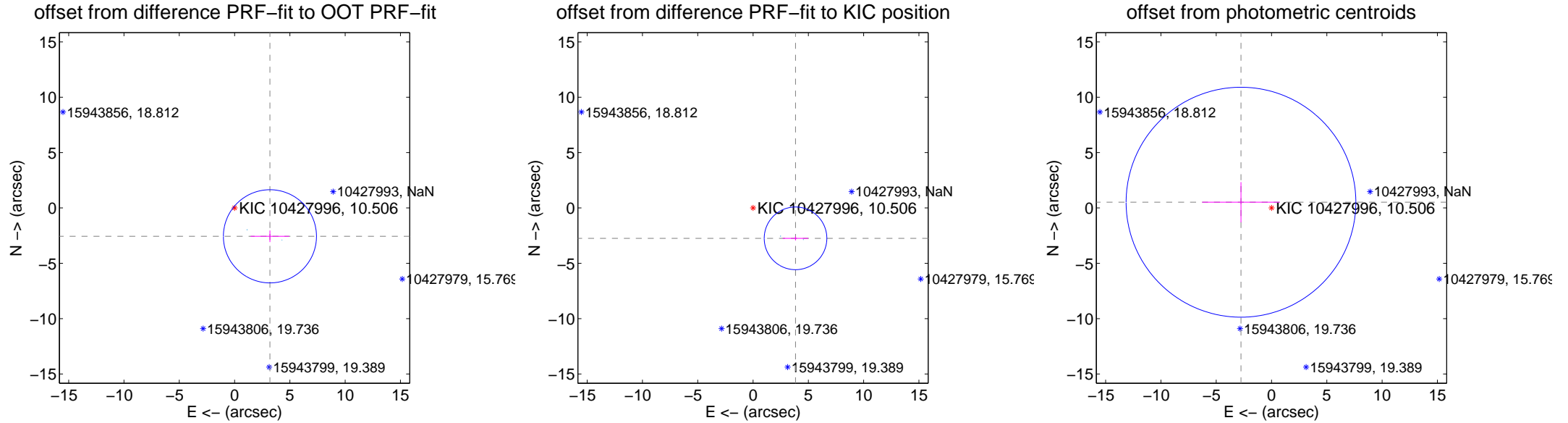
DV Centroid Data

Supplemental centroid analysis for 010427996-03. **Kepler magnitude: 10.51.** Transit SNR 2.34

There are 2 quarters with good PRF difference image offsets

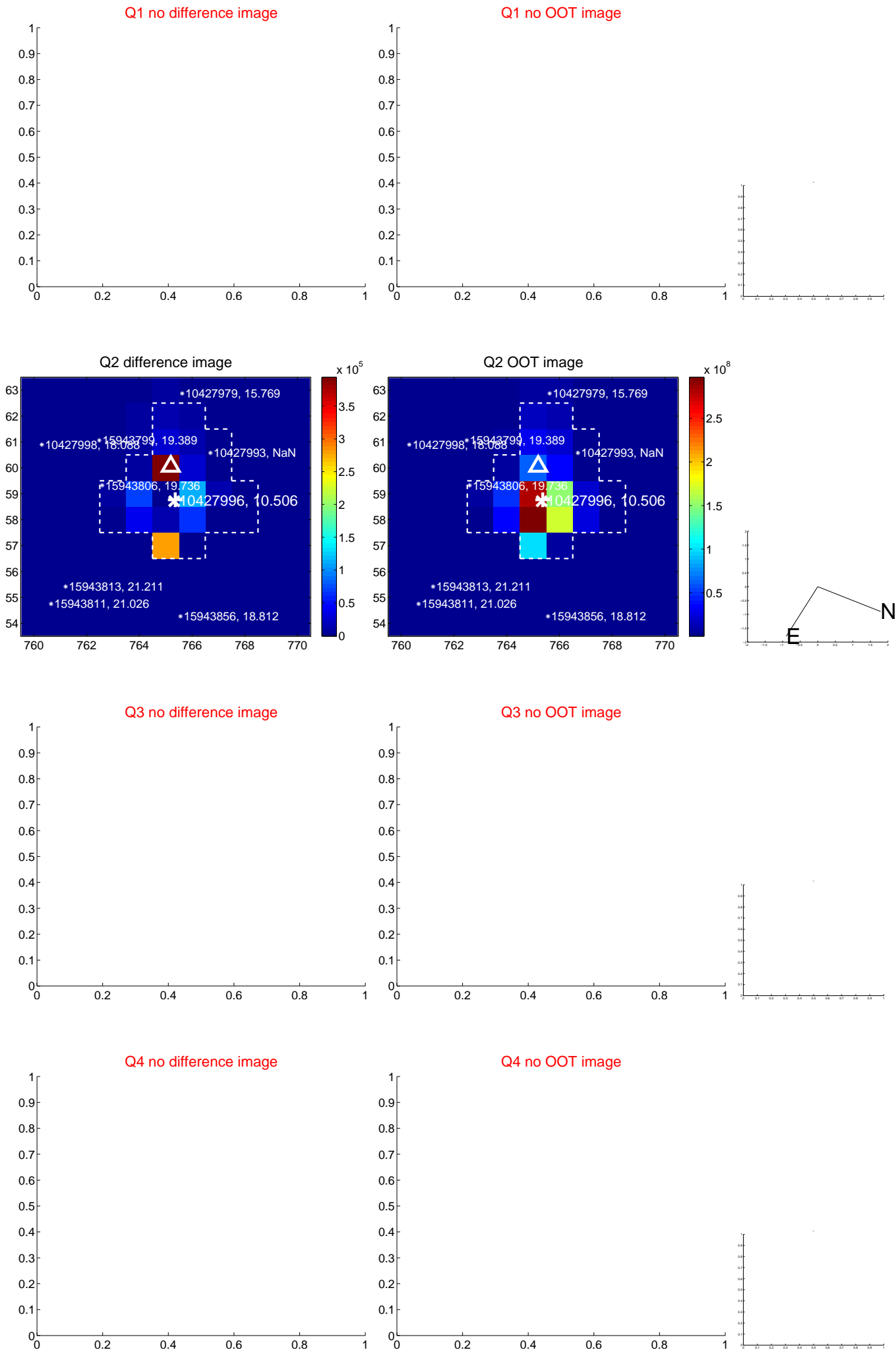
The direct PRF centroid is offset from the target star catalog position by about 1.47 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	4.097 ± 1.403	2.92	-3.197 ± 1.748	-2.562 ± 0.524
PRF-fit source offset from KIC position	4.721 ± 0.944	5.00	-3.841 ± 1.152	-2.745 ± 0.187
photometric centroid source offset	2.81 ± 3.46	0.81	2.76 ± 3.51	0.52 ± 1.81

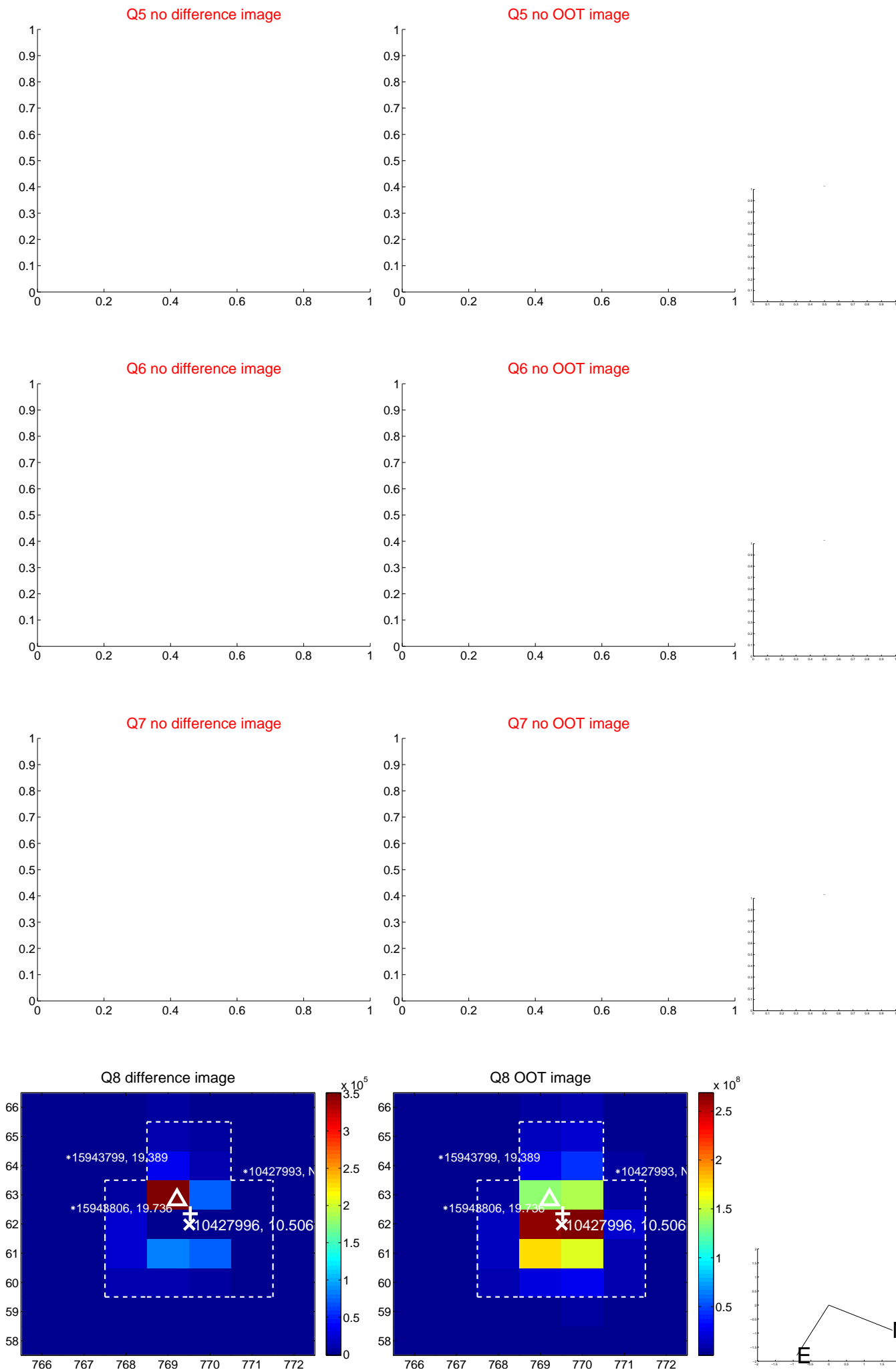


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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



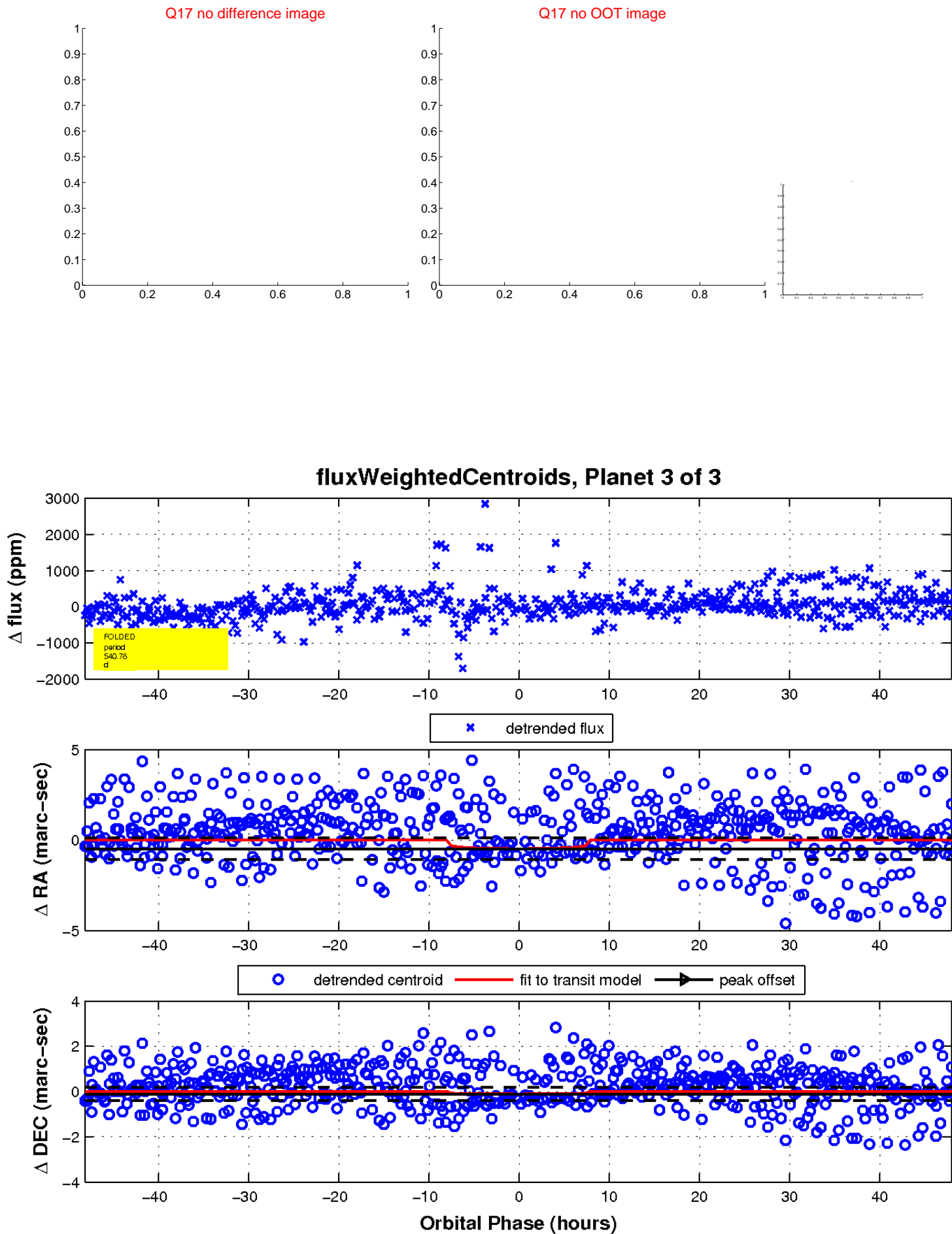
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UKIRT Image

Declination

