

KIC 009787349

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})
009787349-01	OBS	No	353.912602	283.601514	510.1	4.520	15.6	5.4	3.00	5938	7.23	8.36
009787349-03	OBS	No	252.348852	223.305078	756.1	5.756	11.4	7.4	3.00	5938	10.48	13.12
009787349-04	OBS	No	552.540831	423.338703	642.2	4.704	12.0	6.9	3.00	5938	7.61	4.62
009787349-05	OBS	No	364.250475	447.576271	377.2	1.417	10.3	5.4	3.00	5938	6.24	8.04
009787349-06	OBS	No	563.231748	422.575976	490.9	3.557	14.9	5.8	3.00	5938	7.46	4.50

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009787349-01	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS—HALO_GHOST
009787349-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
009787349-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—MOD_NONUNIQ_DV—MOD_POS_DV—INCONSISTENT_TRANS
009787349-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_SKYE—LPP_DV—ALL_TRANS_CHASES—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS
009787349-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_SKYE—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS

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

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

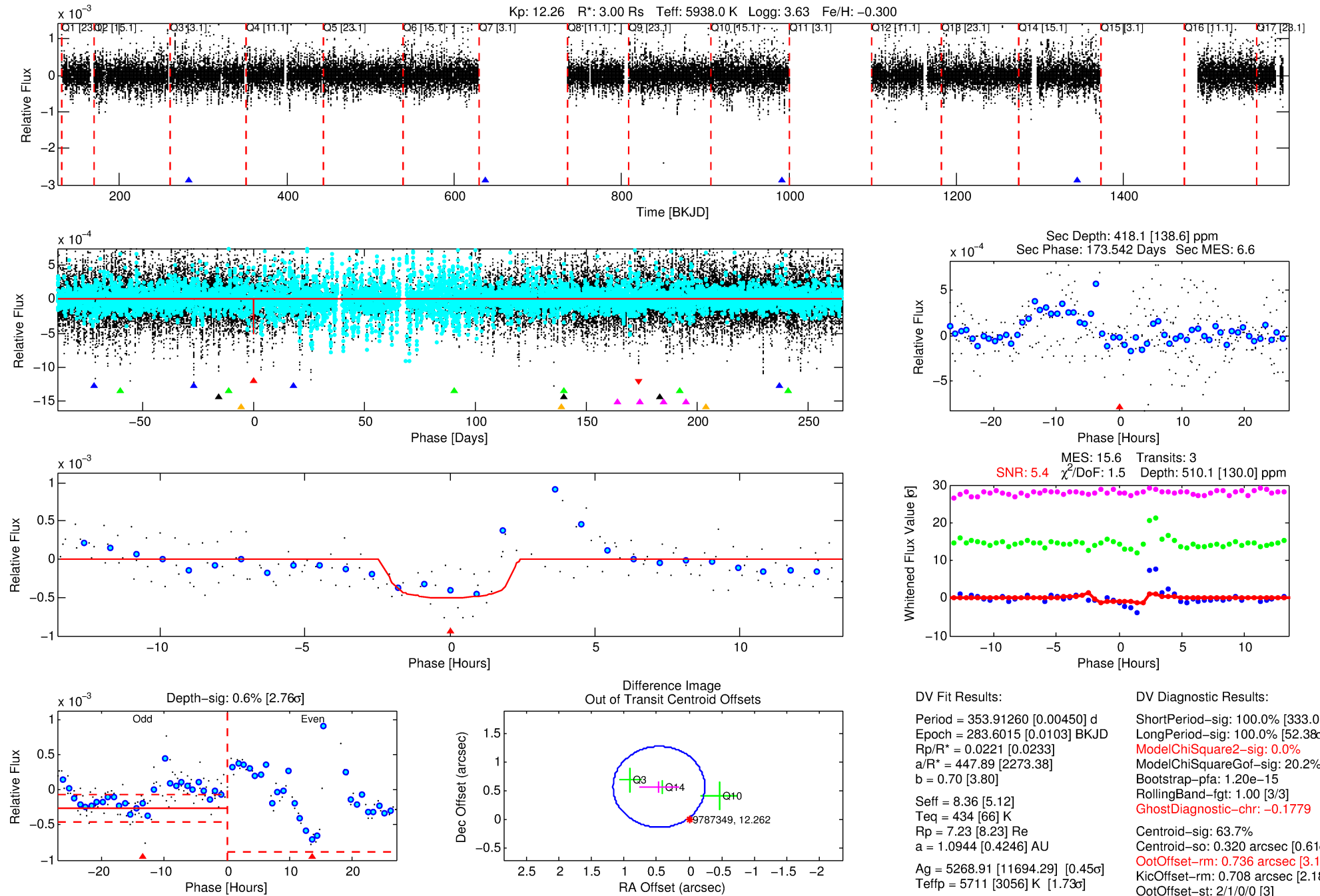
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 009787349-01

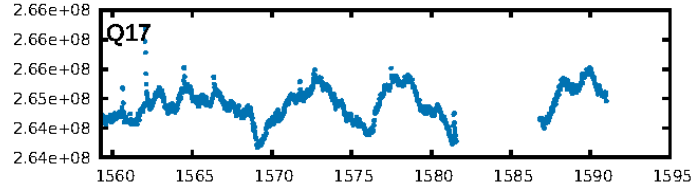
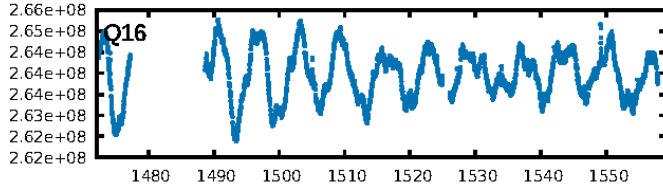
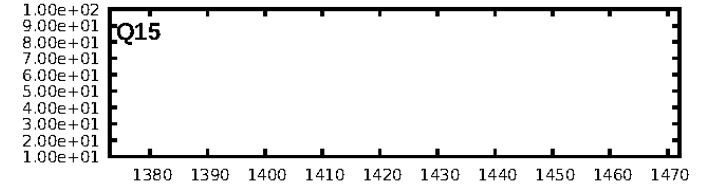
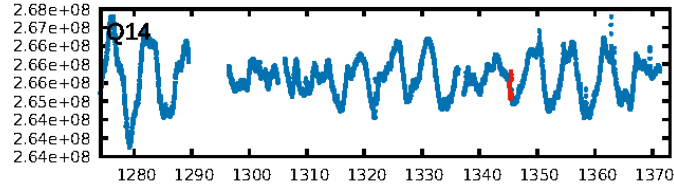
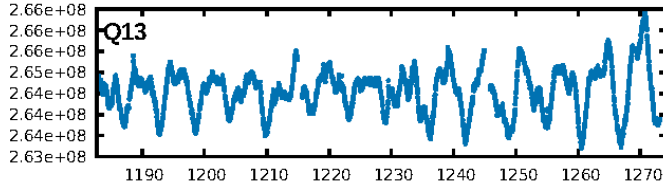
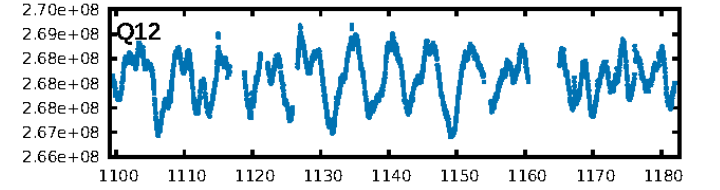
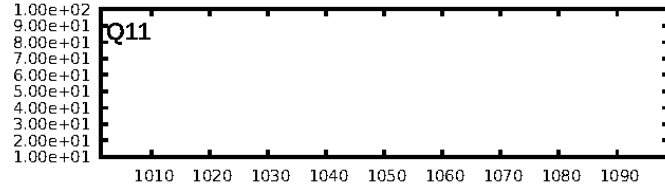
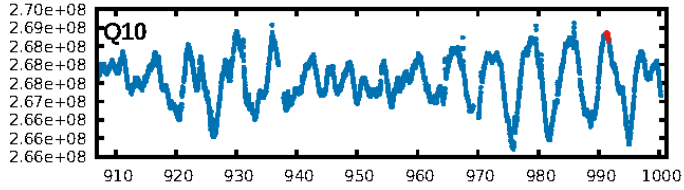
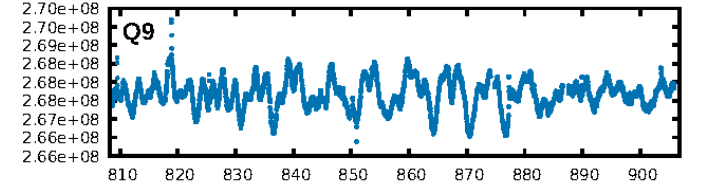
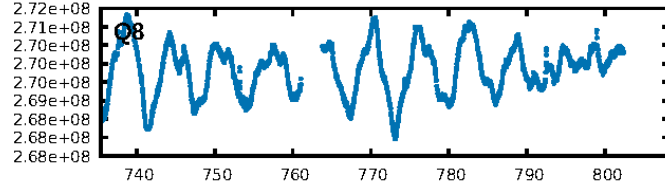
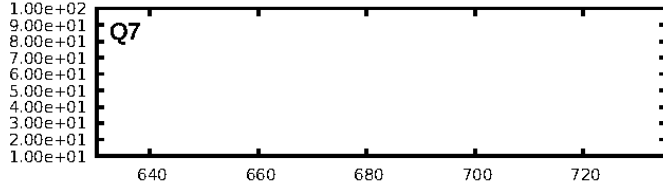
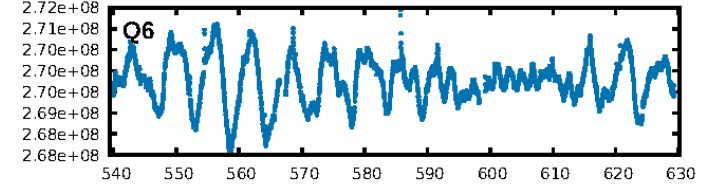
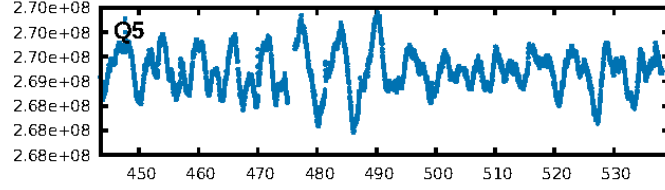
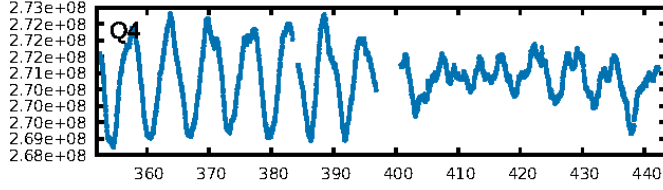
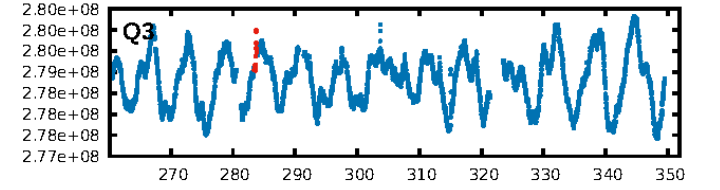
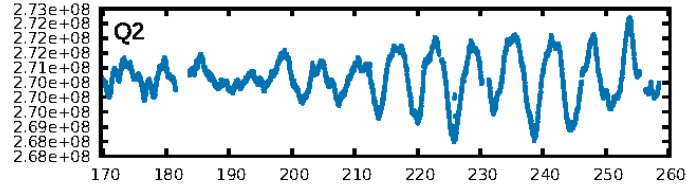
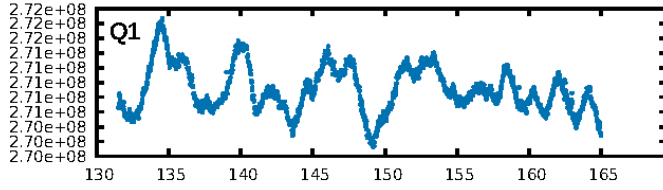
No Significant Match Found

DV One-Page Summary

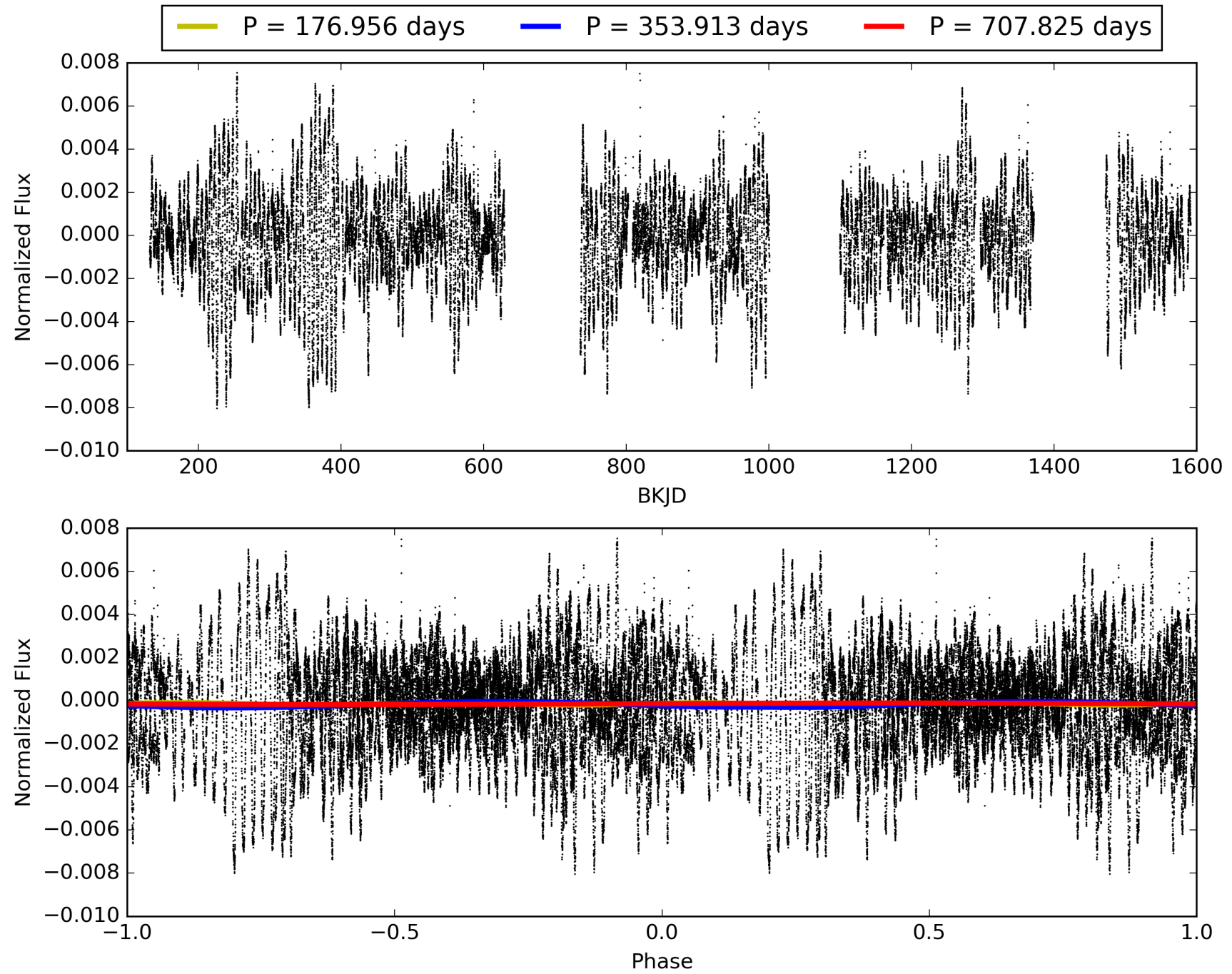
KIC: 9787349 Candidate: 1 of 6 Period: 353.913 d



TCE 009787349-01, PDC Light Curves

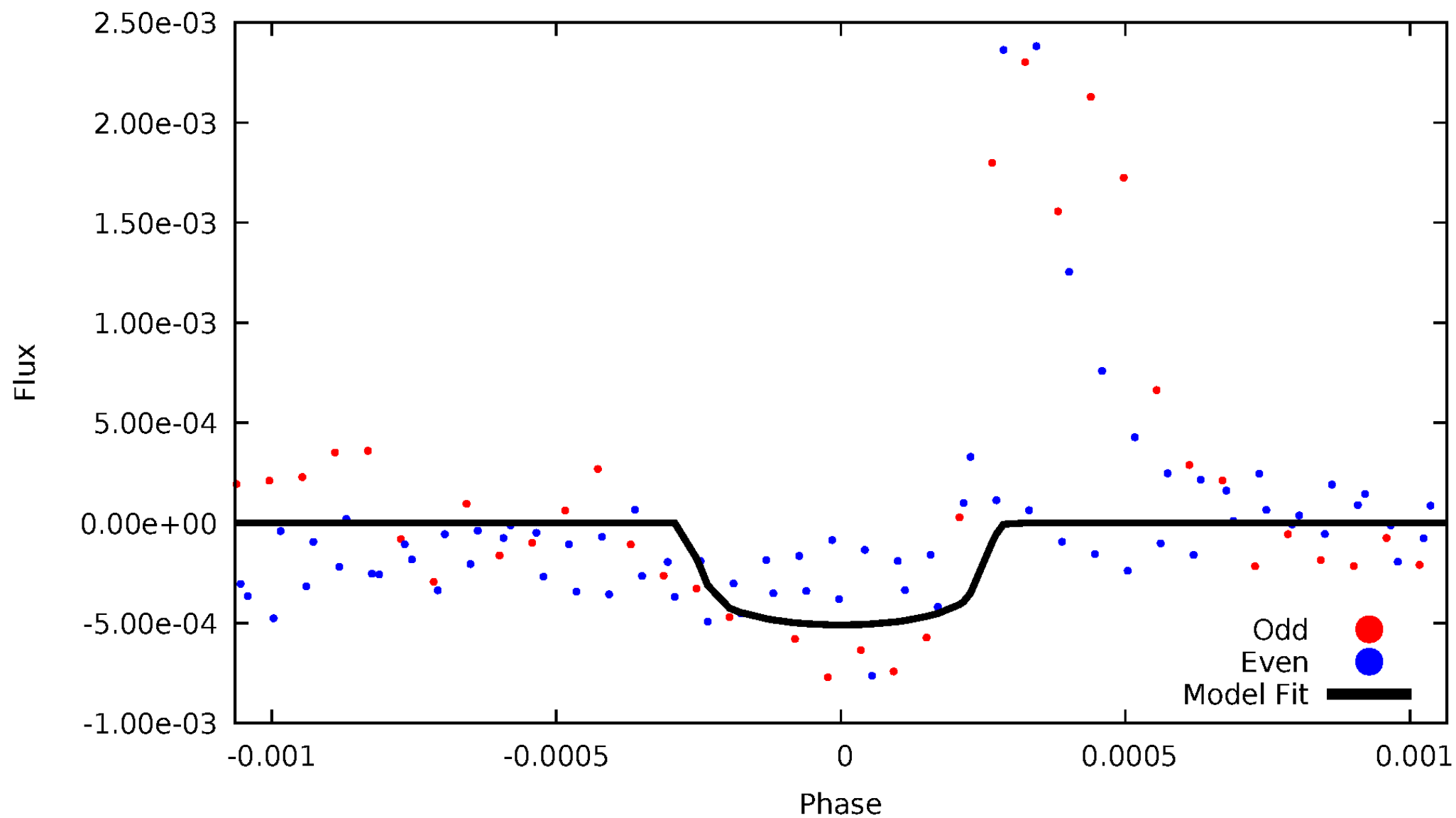


TCE 009787349-01



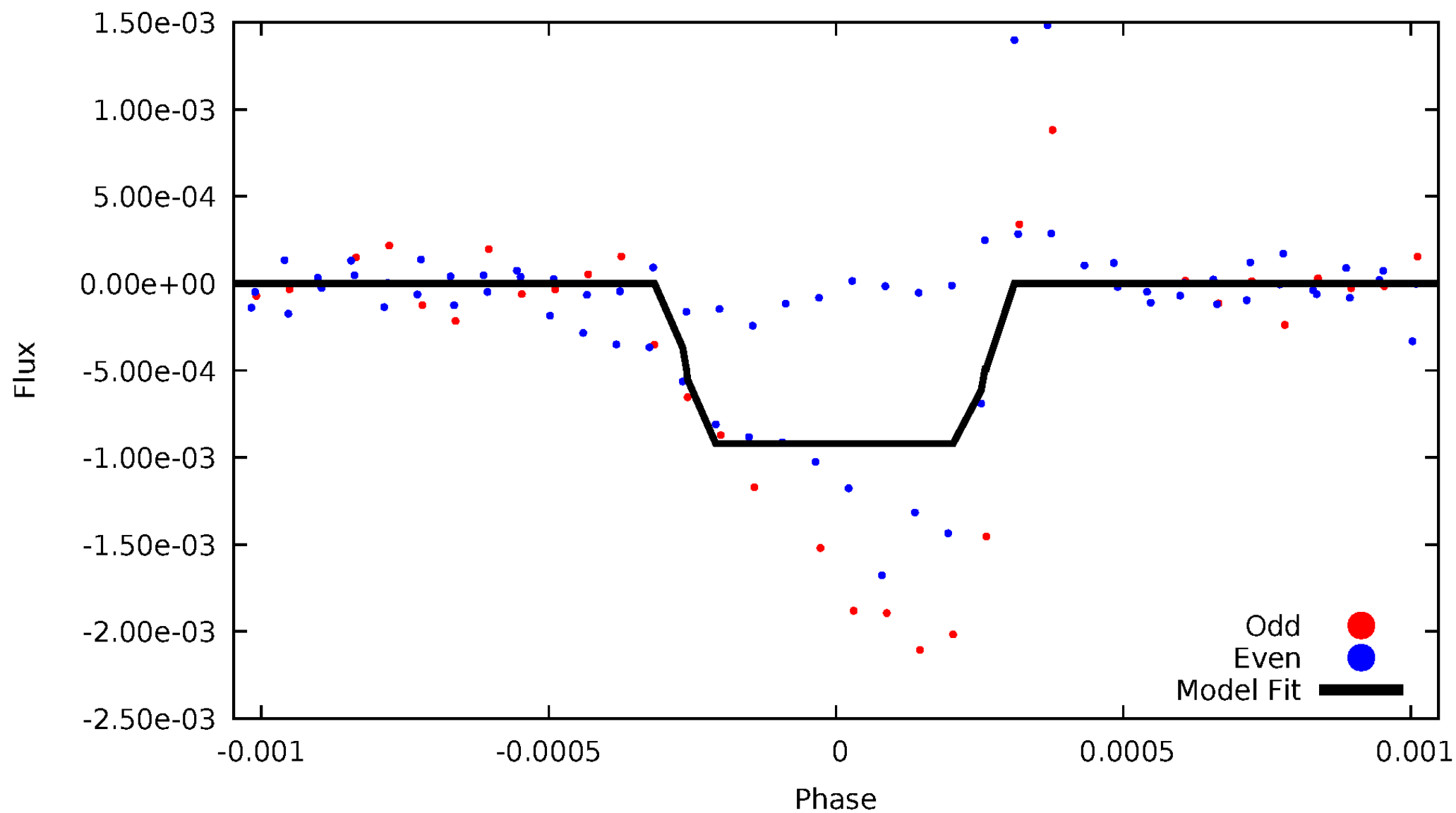
DV Odd/Even

TCE 009787349-01



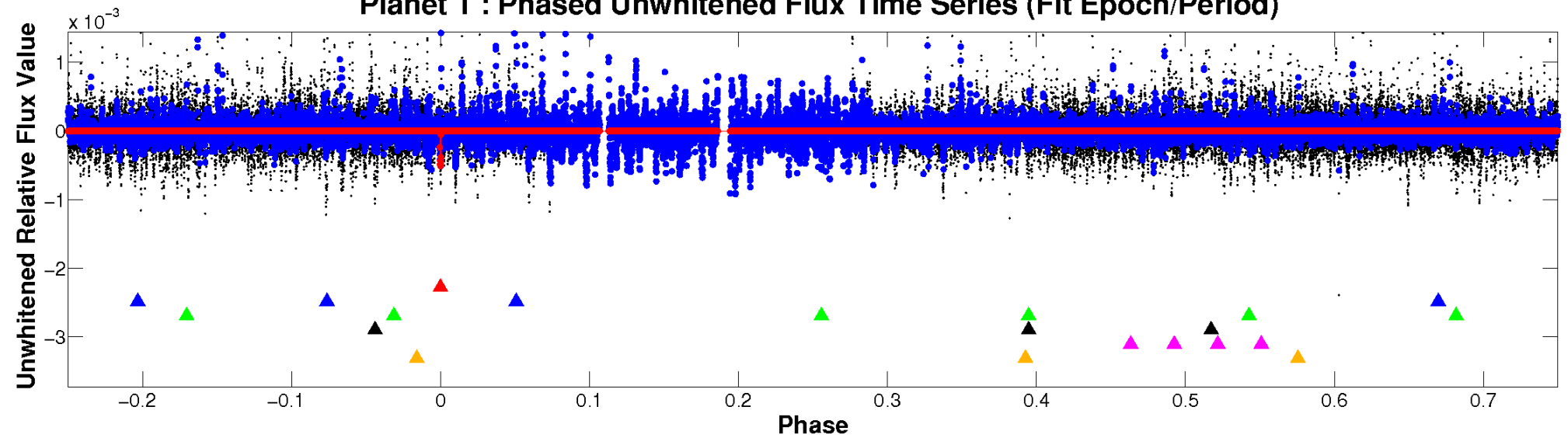
ALT Odd/Even

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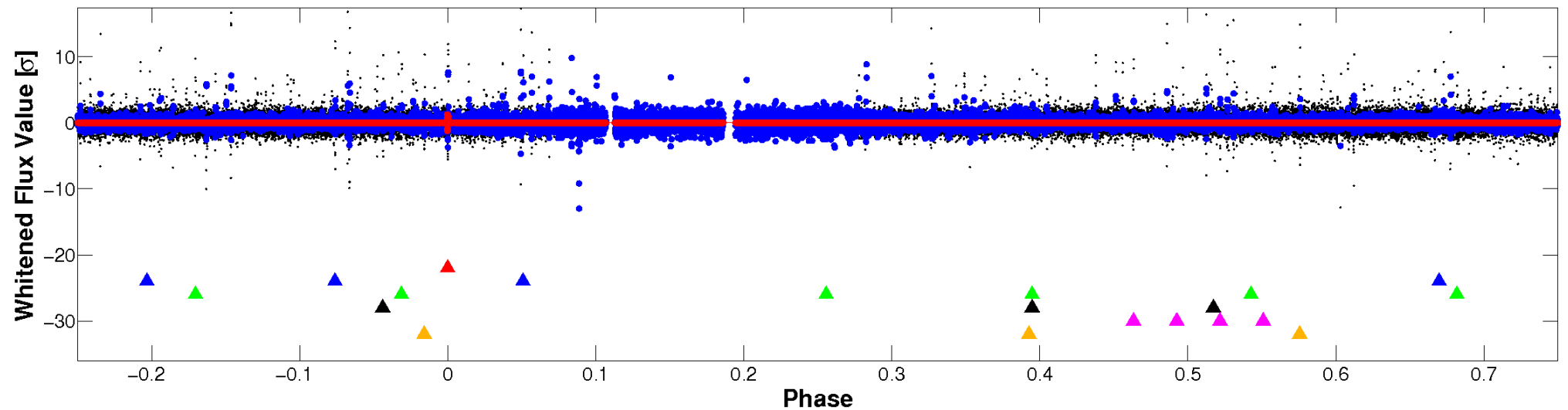


Non-Whitened Vs. Whitened Light Curve

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

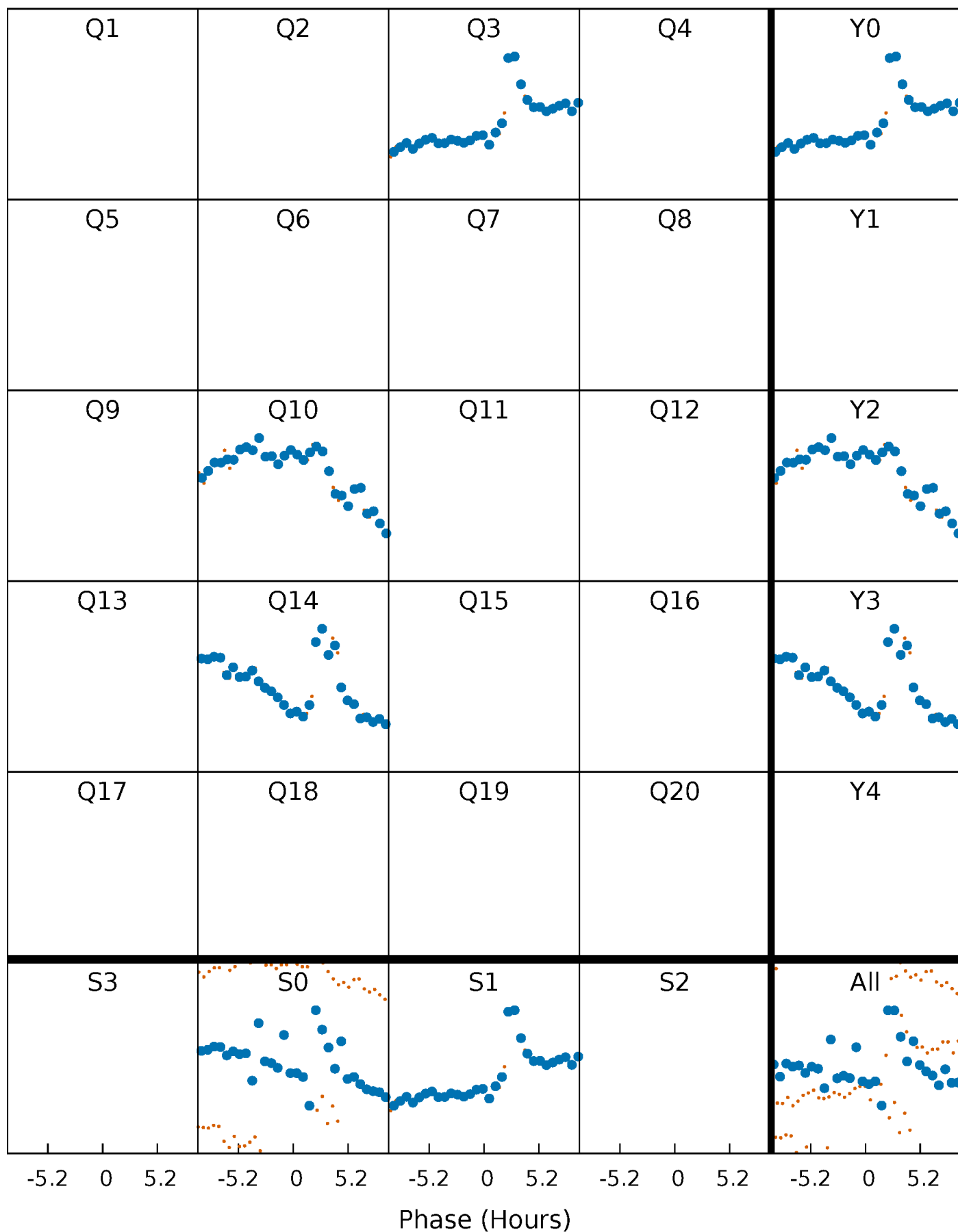


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



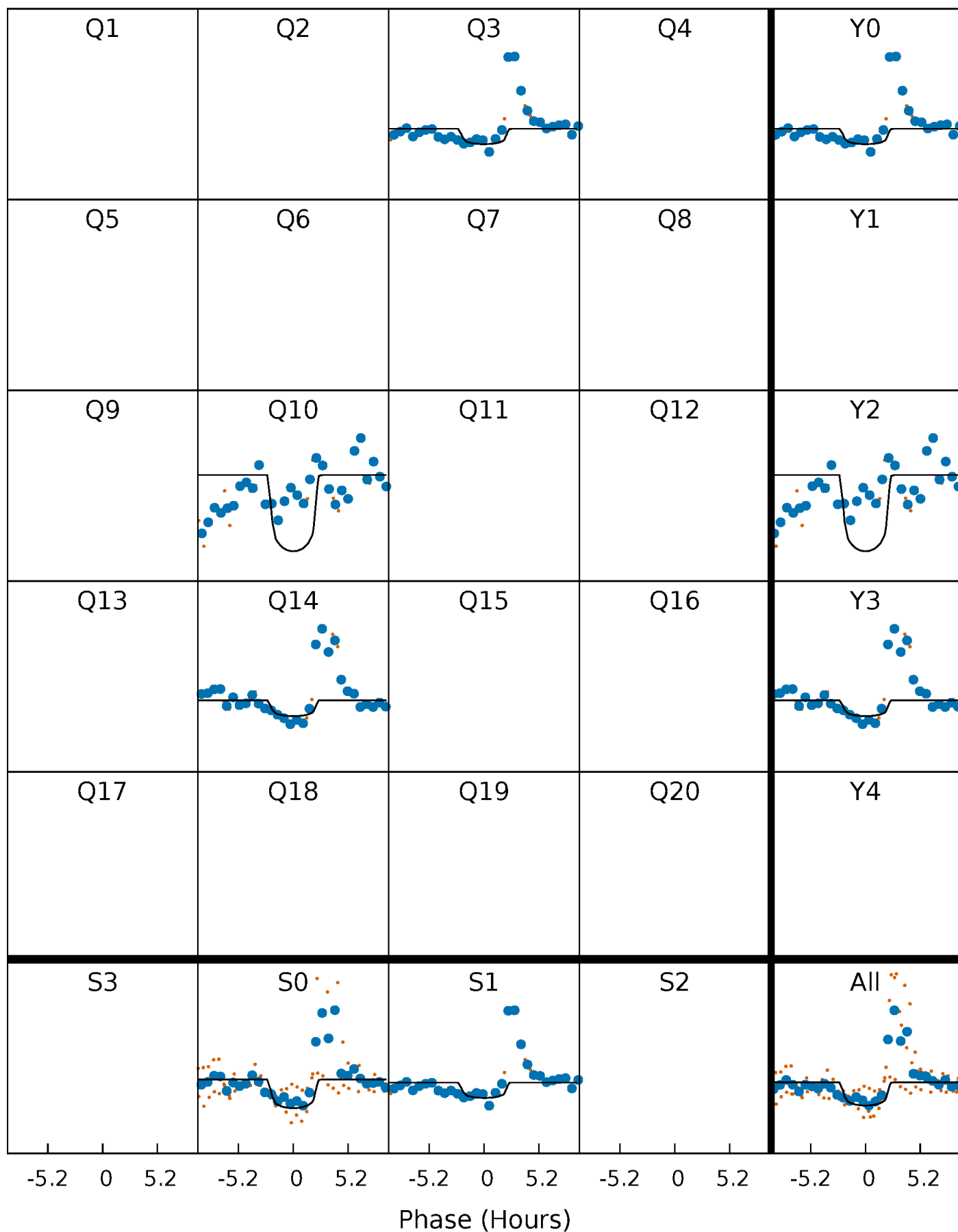
PDC Quarter-Phased Transit Curves

TCE 009787349-01 P=353.912602 Days $T_0=283.601514$ (BKJD)



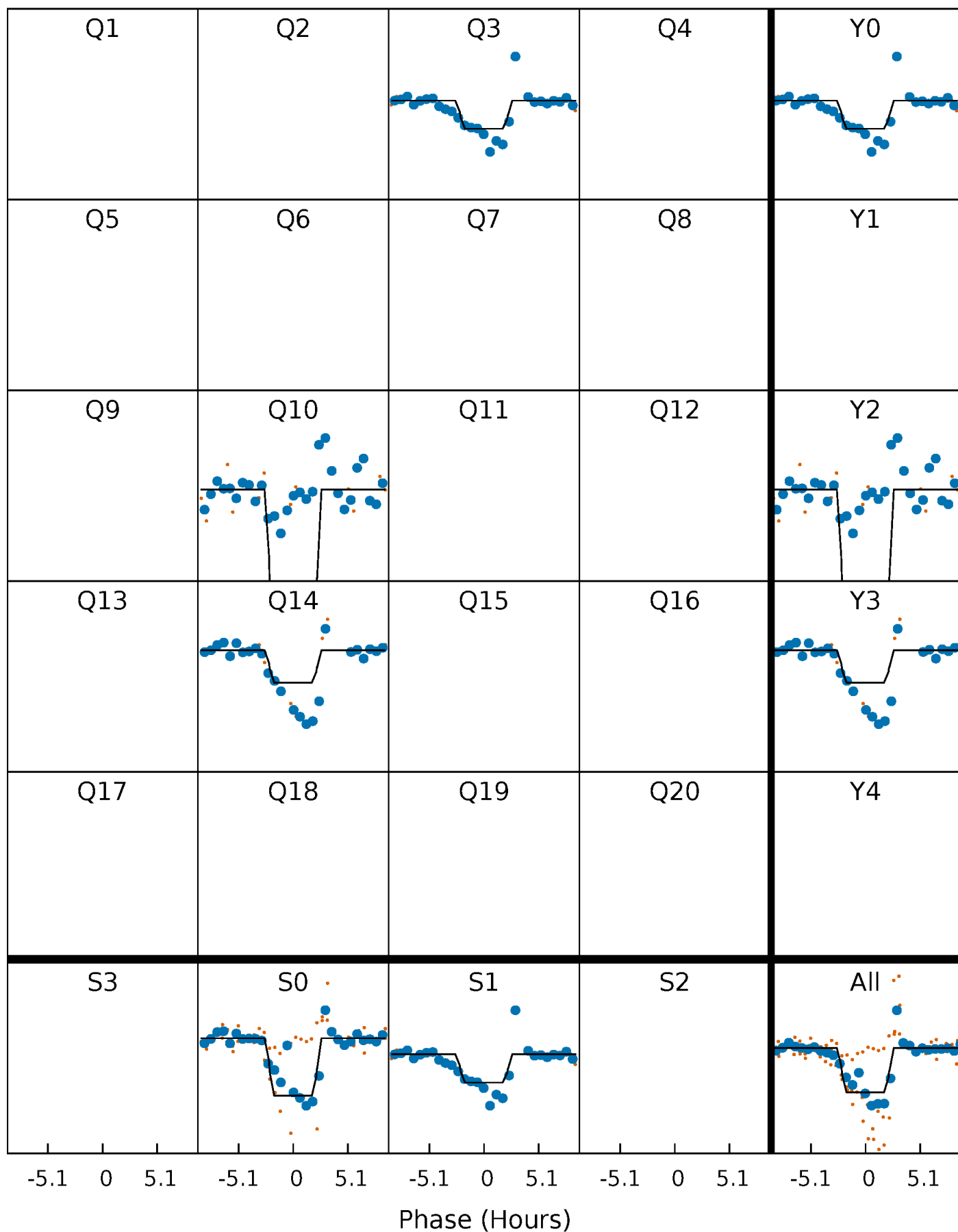
DV Quarter-Phased Transit Curves

TCE 009787349-01 P=353.912602 Days $T_0=283.601514$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

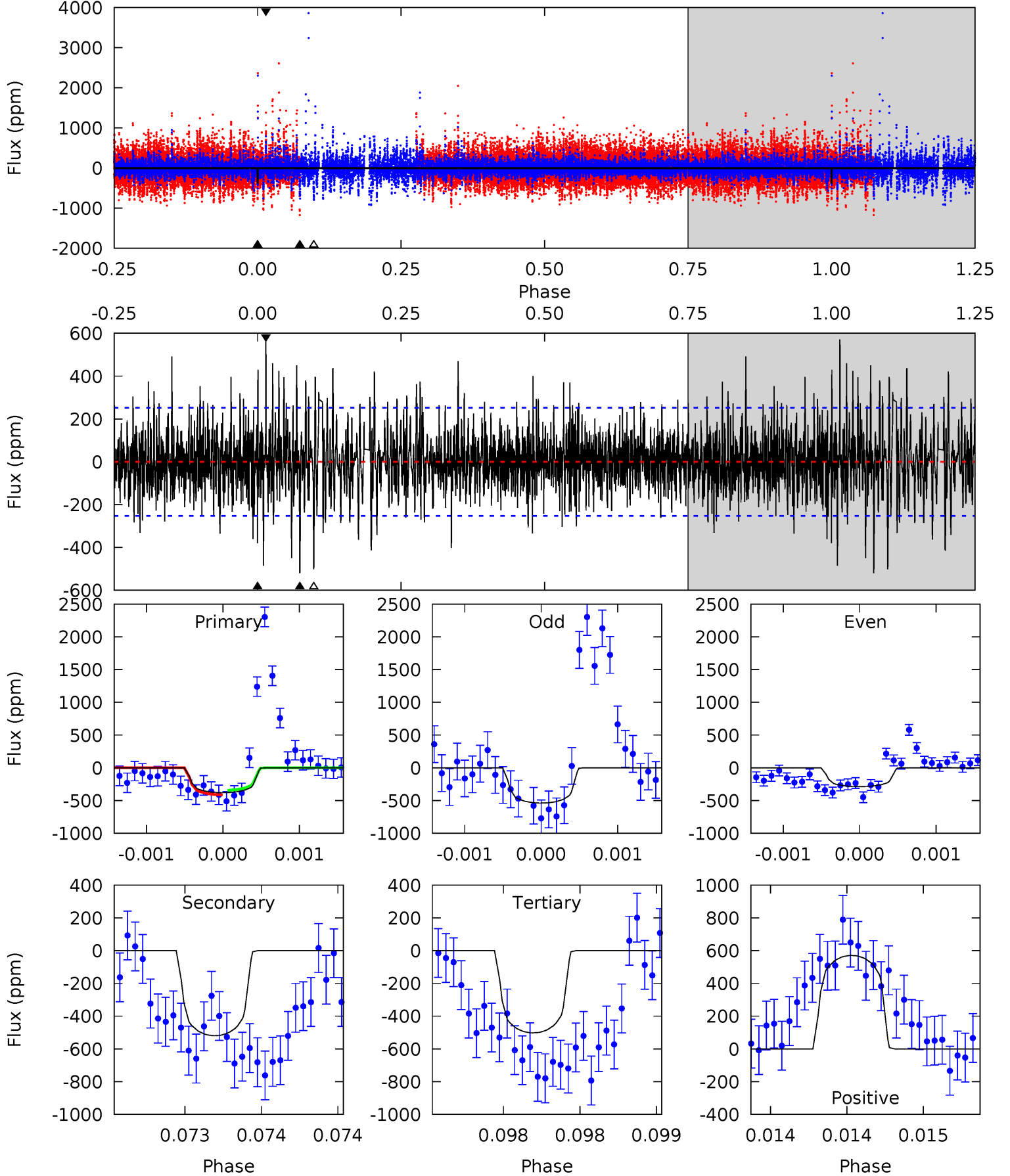
TCE 009787349-01 P=353.909259 Days $T_0=283.592692$ (BKJD)



DV Model-Shift Uniqueness Test

009787349-01, P = 353.912602 Days, E = 283.601514 Days

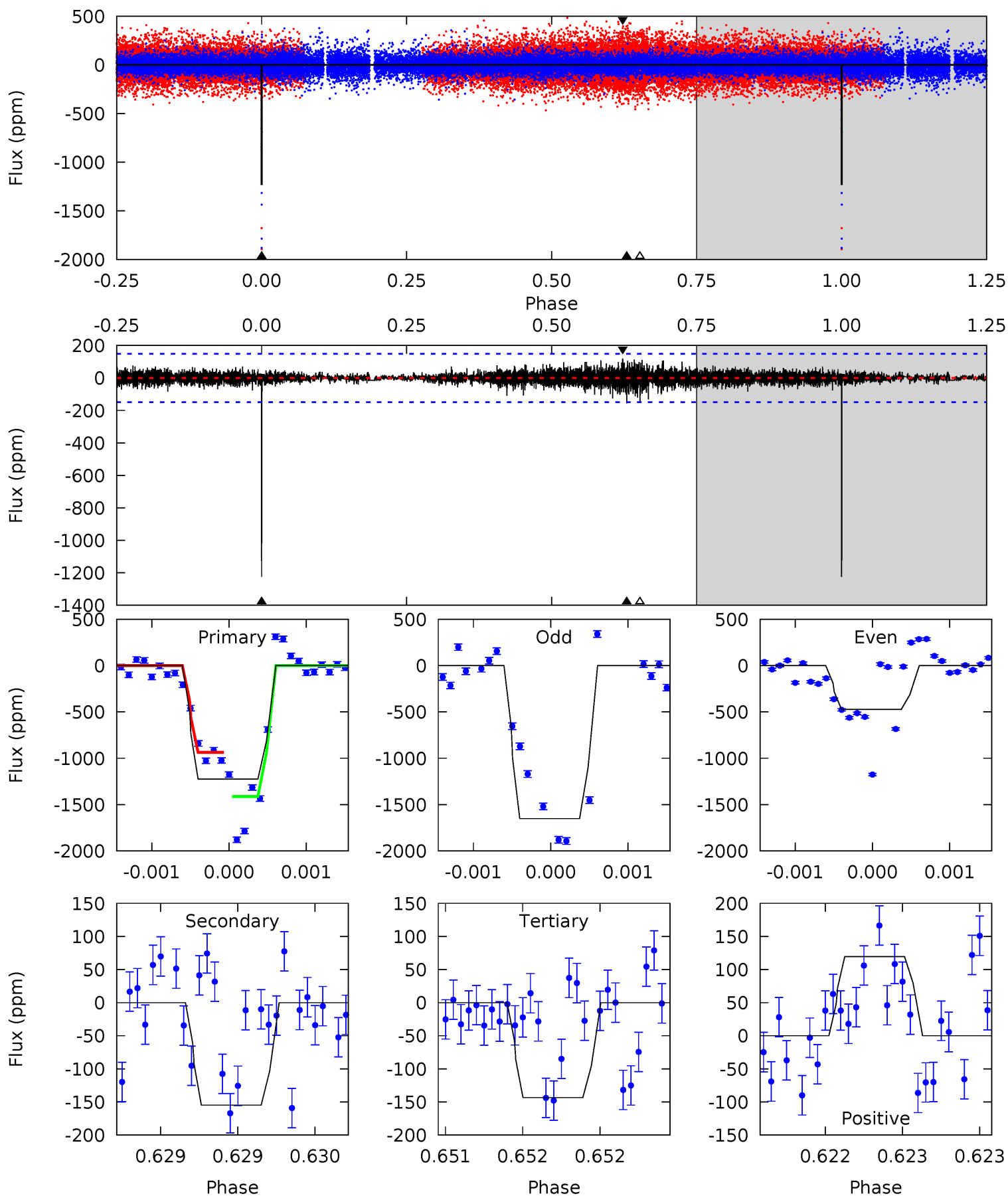
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
8.35	11.4	11.0	12.5	5.55	3.44	2.31	-2.69	-4.19	0.38	-1.12	2.34	0.90	0.52	0.76



Alt Model-Shift Uniqueness Test

009787349-01, P = 353.909259 Days, E = 283.592692 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
45.8	5.79	5.37	4.47	5.57	3.47	0.94	40.4	41.3	0.42	1.32	26.8	0.83	0.09	0



Stellar Parameters For KIC 009787349

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	5938^{+178}_{-160}	$3.629^{+0.345}_{-0.115}$	$-0.300^{+0.350}_{-0.300}$	$2.998^{+0.637}_{-1.275}$	$1.396^{+0.193}_{-0.387}$	$0.073^{+0.203}_{-0.026}$
	+3%/-3%	+10%/-3%	+117%/-100%	+21%/-43%	+14%/-28%	+278%/-36%
Source	PHO1	FLK73	KIC0	DSEP		

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

Secondary Eclipse Parameters for KIC 009787349-01 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-520 ± 46	$7.74^{+6.67}_{-4.71}$	592^{+43}_{-65}	5599^{+3962}_{-1215}	5820^{+33687}_{-4168}
Alt.	-155 ± 27	$10.22^{+7.47}_{-6.23}$	596^{+39}_{-61}	3943^{+1730}_{-633}	998^{+5155}_{-687}

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 $A_{obs} \gg 1.0$

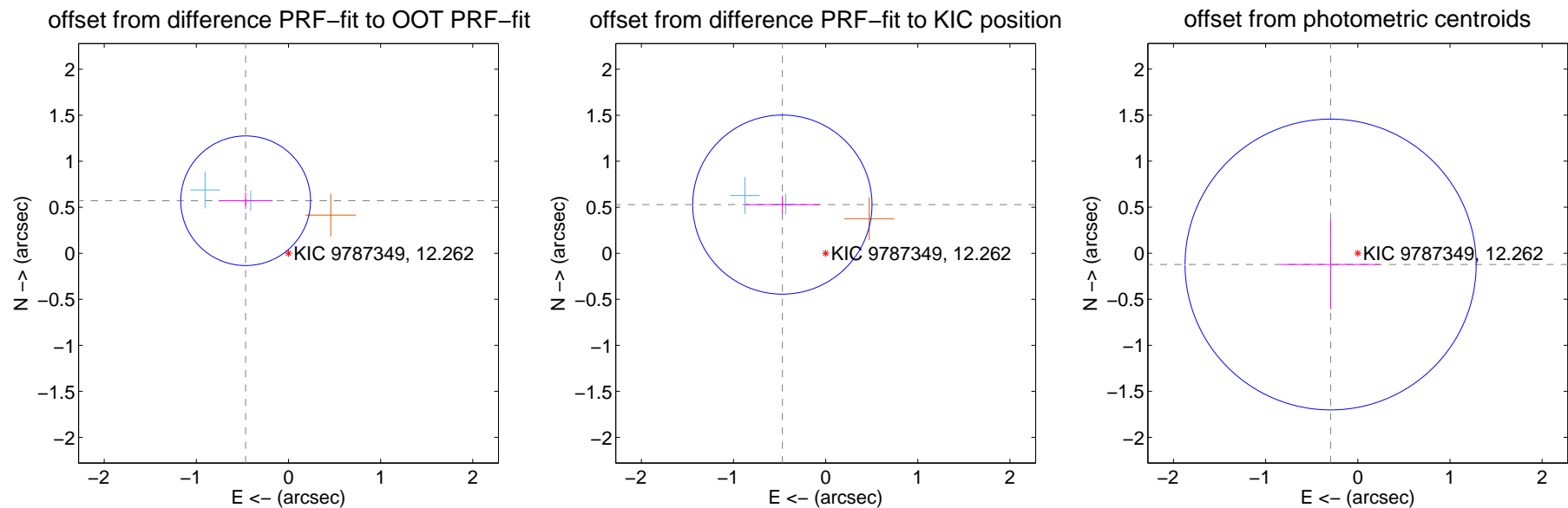
DV Centroid Data

Supplemental centroid analysis for 009787349-01. Kepler magnitude: 12.26. Transit SNR 5.44

There are 2 quarters with good PRF difference image offsets

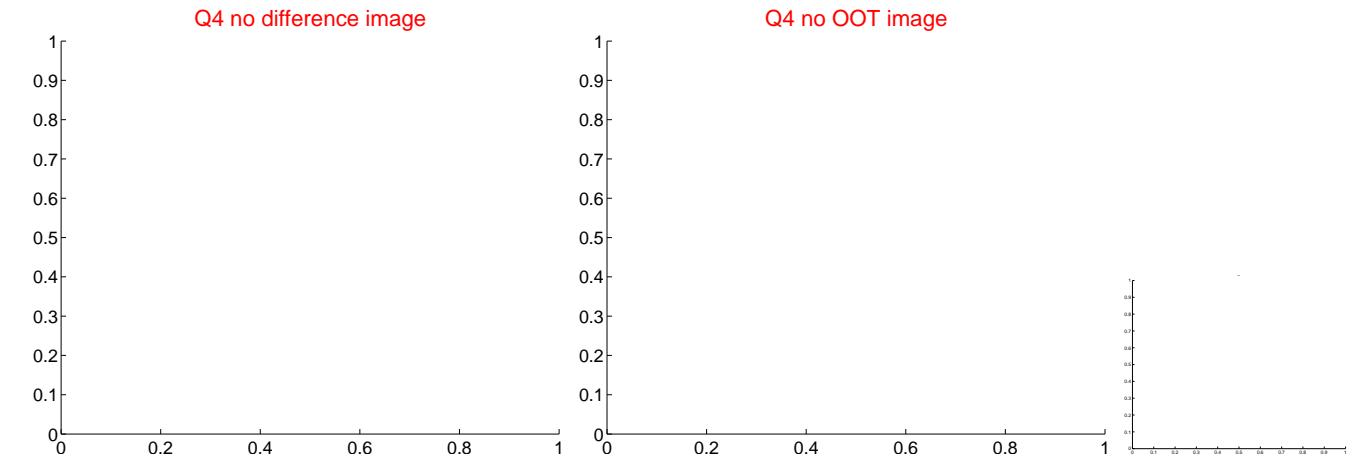
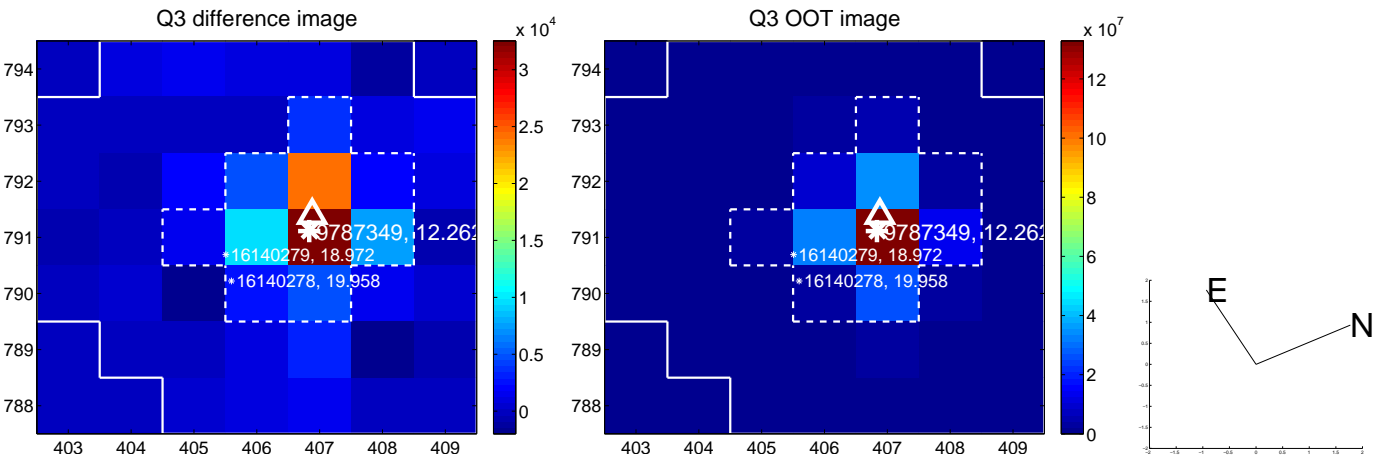
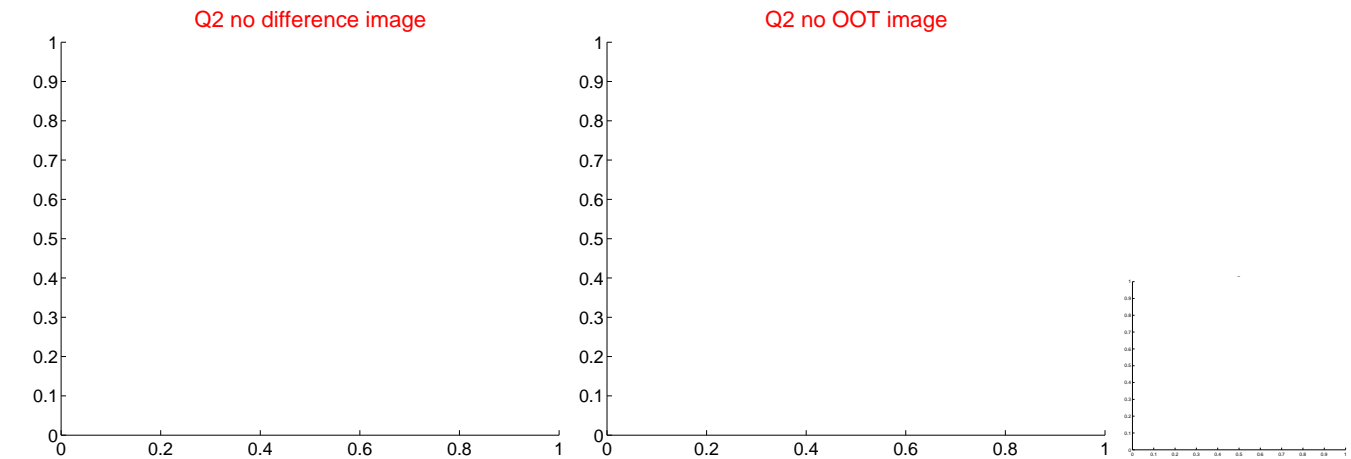
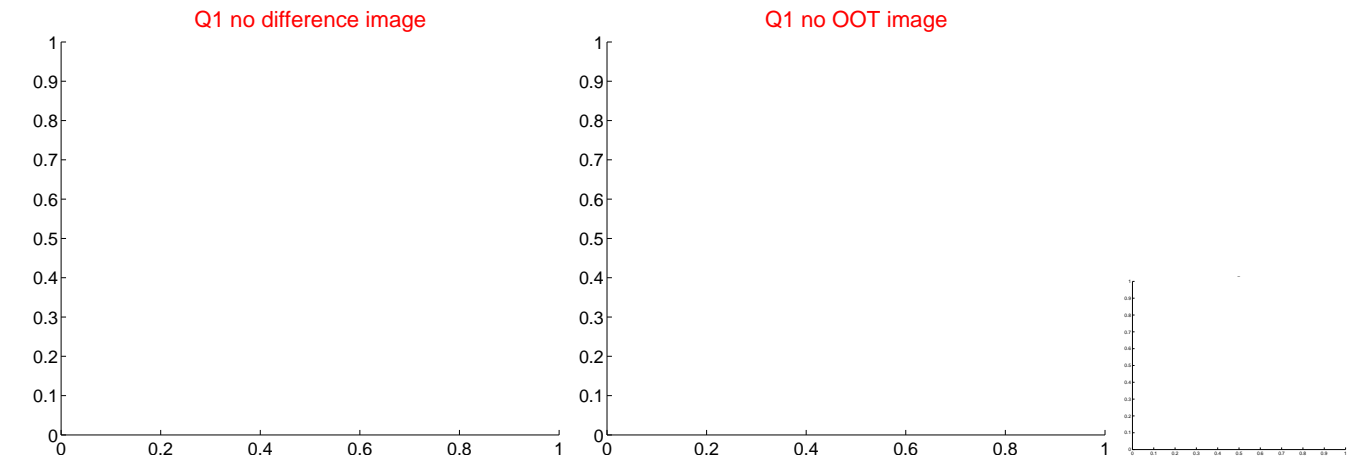
The direct PRF centroid is offset from the target star catalog position by about 0.04 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.736 \pm 0.235	3.14	0.465 \pm 0.293	0.571 \pm 0.088
PRF-fit source offset from KIC position	0.708 \pm 0.324	2.18	0.470 \pm 0.401	0.529 \pm 0.099
photometric centroid source offset	0.32 \pm 0.53	0.61	0.30 \pm 0.53	-0.12 \pm 0.48



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.

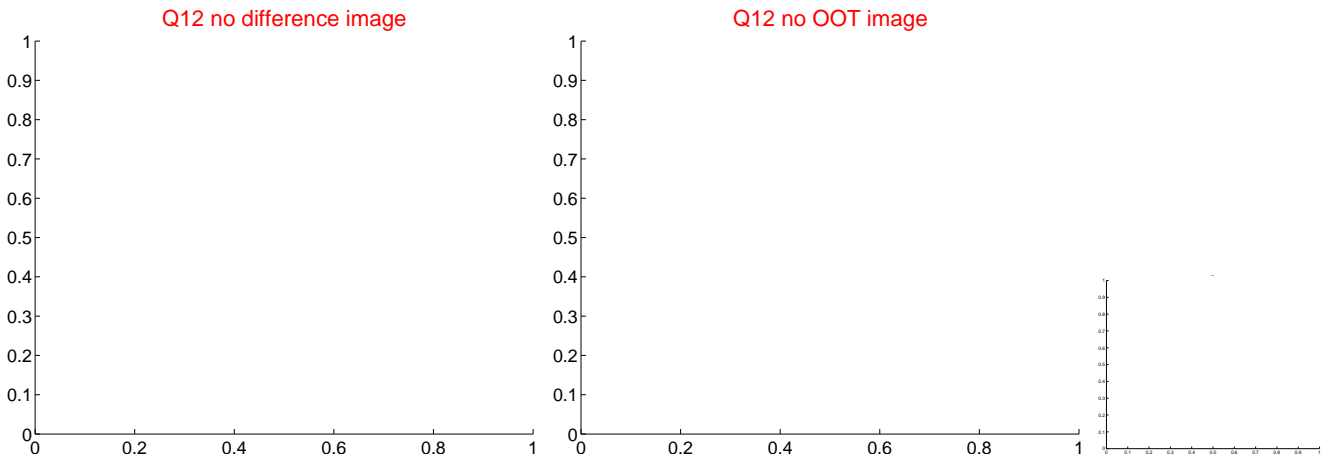
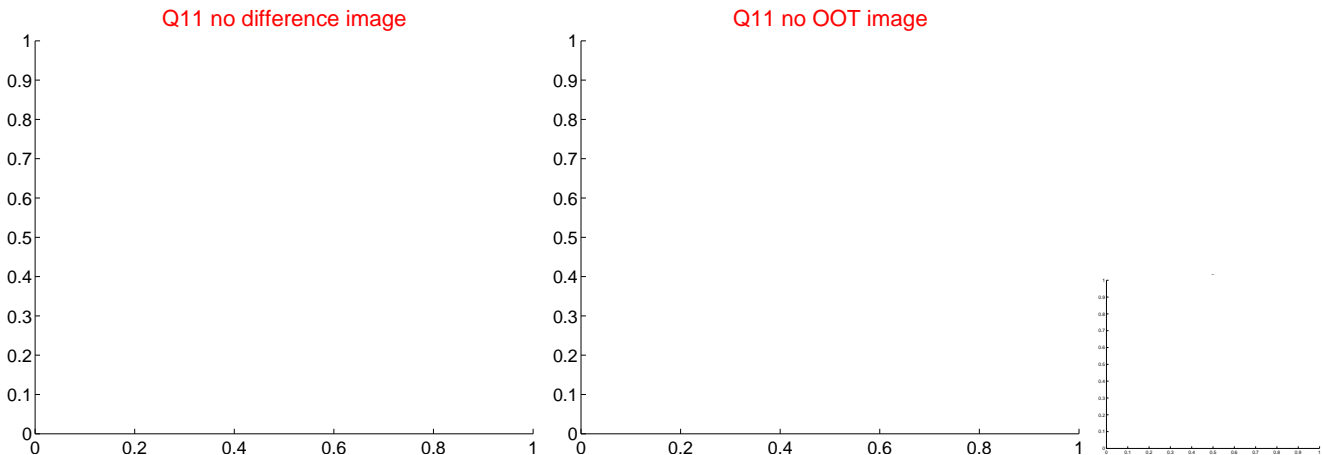
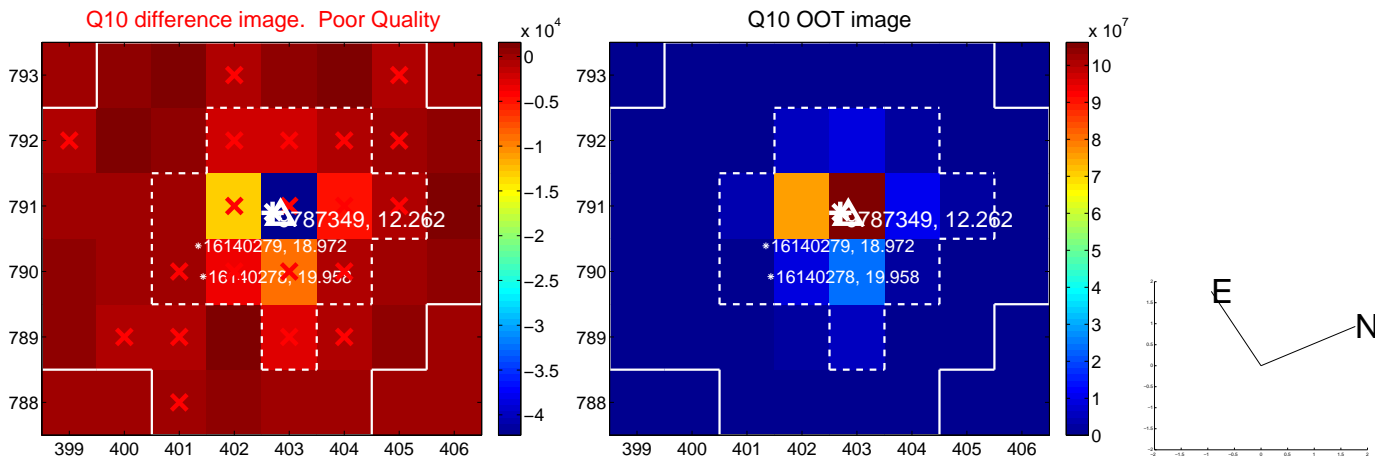
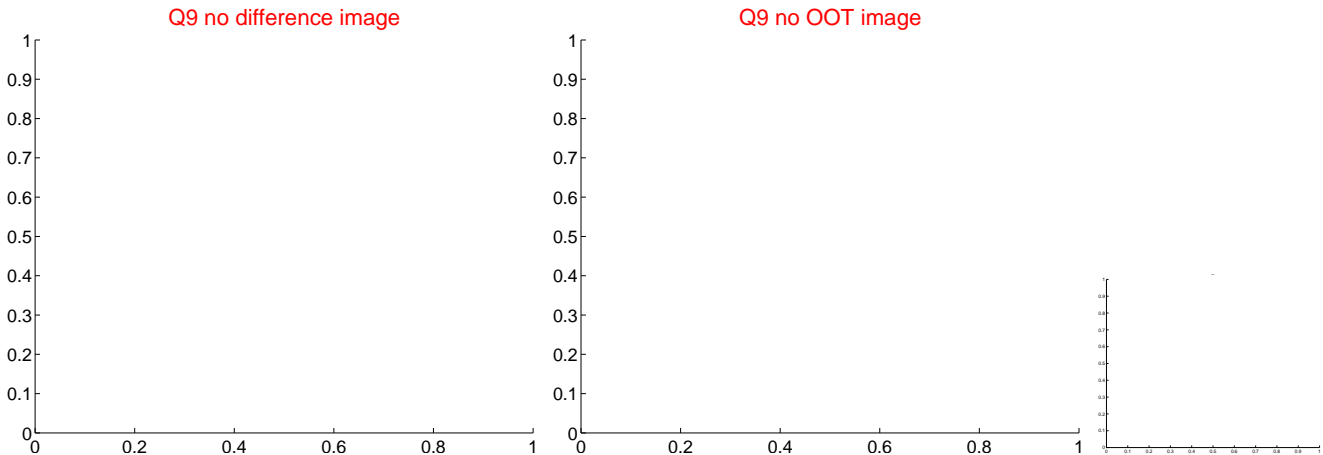
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ✕: large negative pixel value.



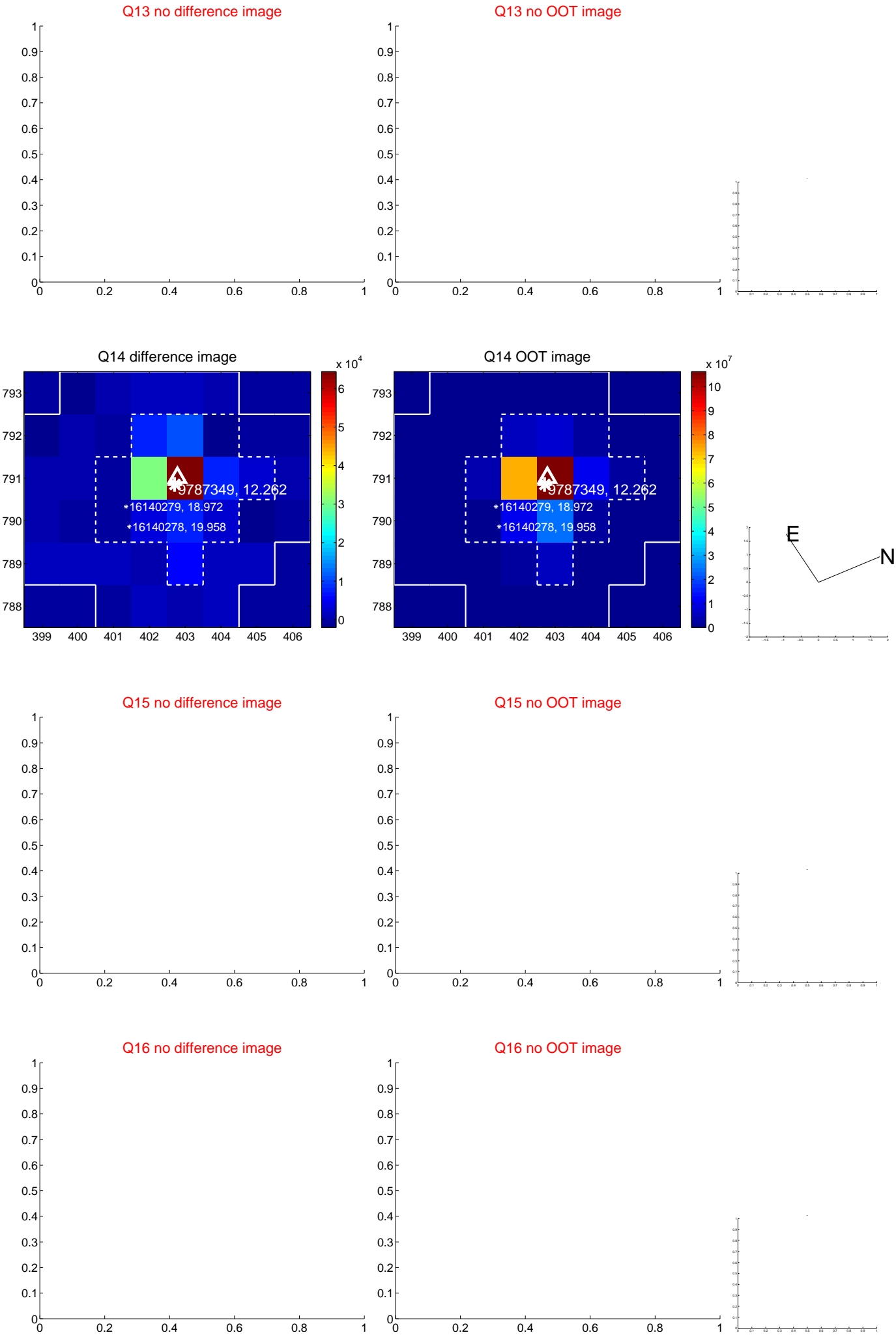
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



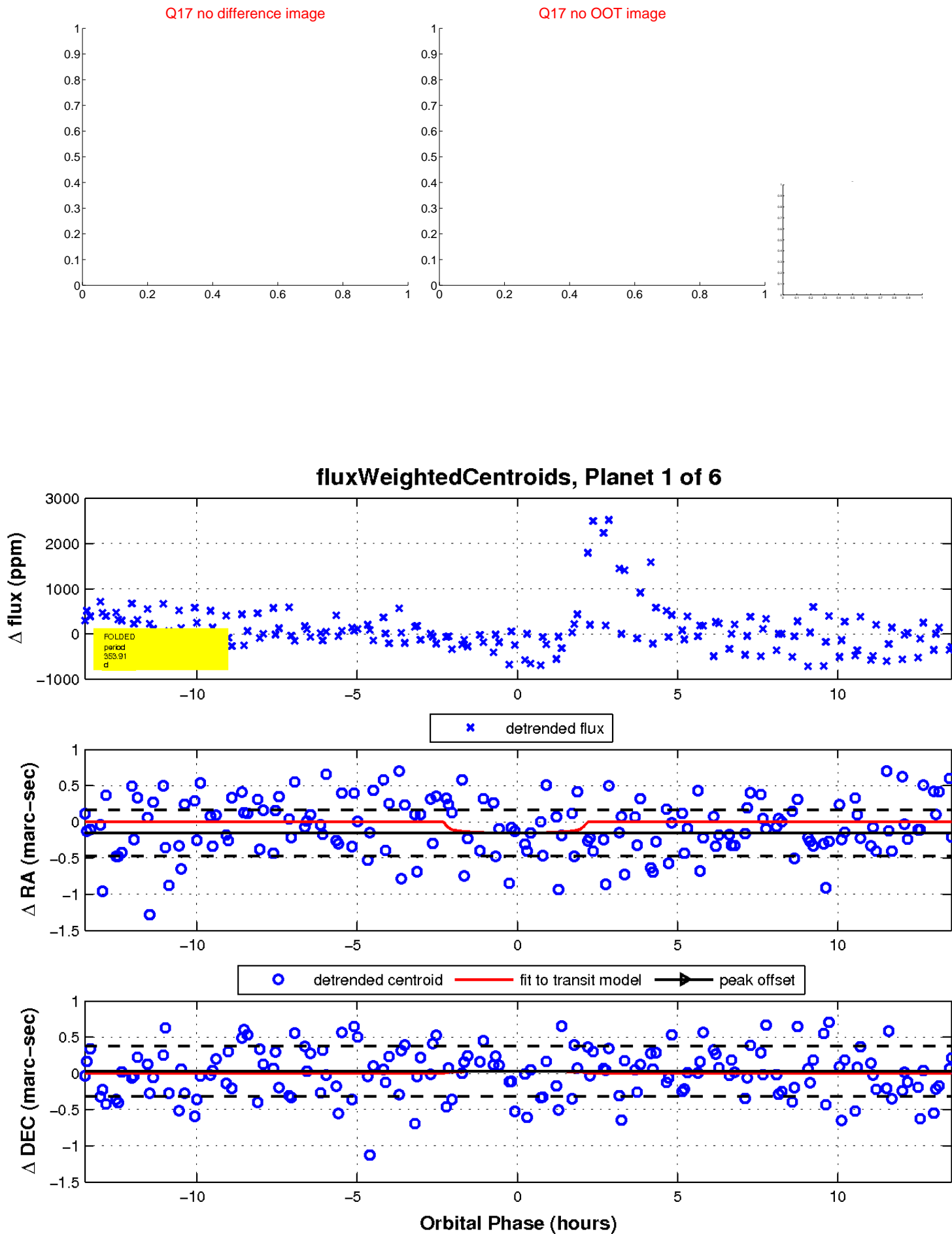
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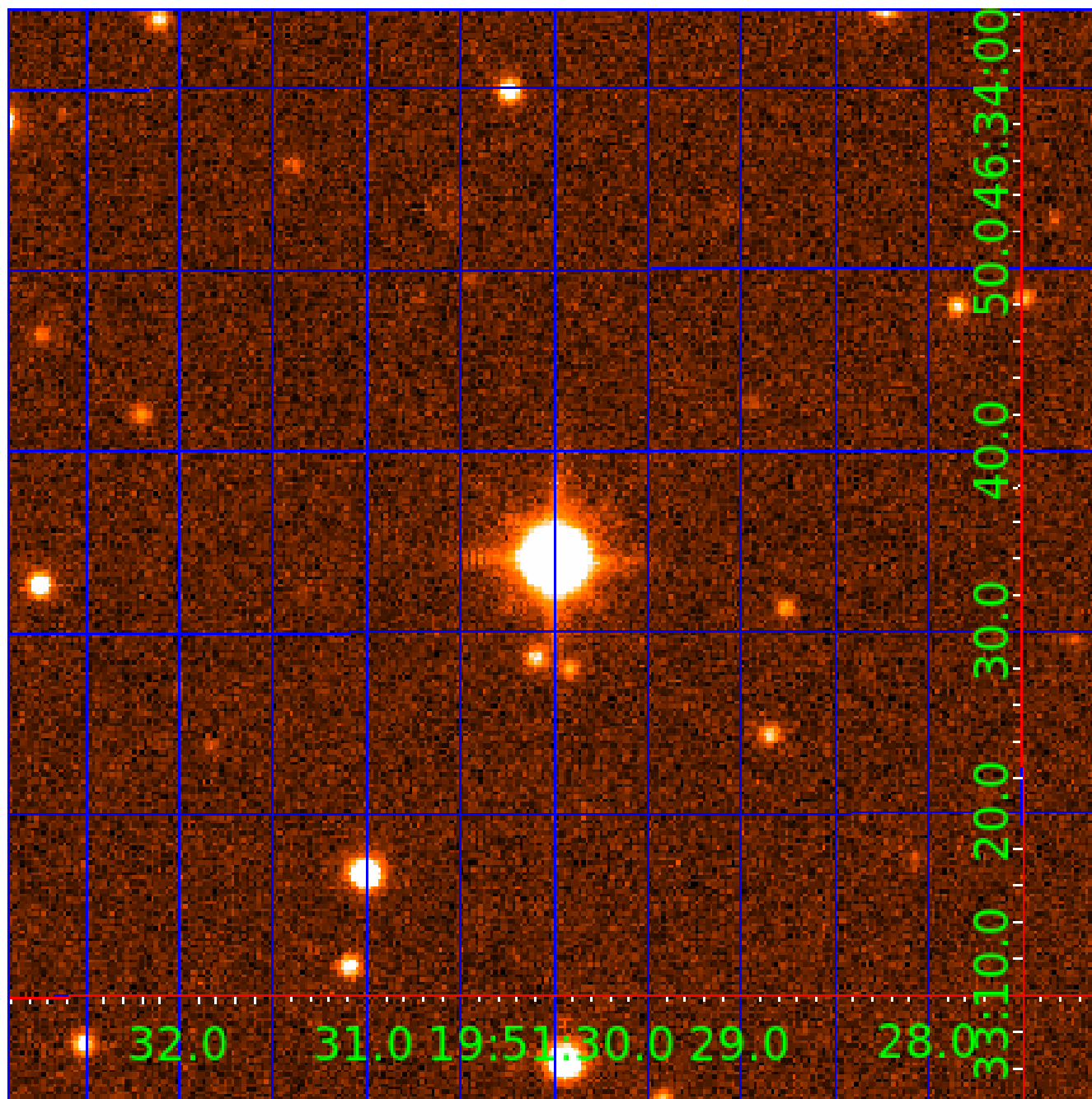


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UKIRT Image

Declination



KIC 009787349

Q1-17 DR25 TCE Parameters

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009787349-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—MOD_NONUNIQ_DV—MOD_POS_DV—INCONSISTENT_TRANS
009787349-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_SKYE—LPP_DV—ALL_TRANS_CHASES—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS
009787349-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_SKYE—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS

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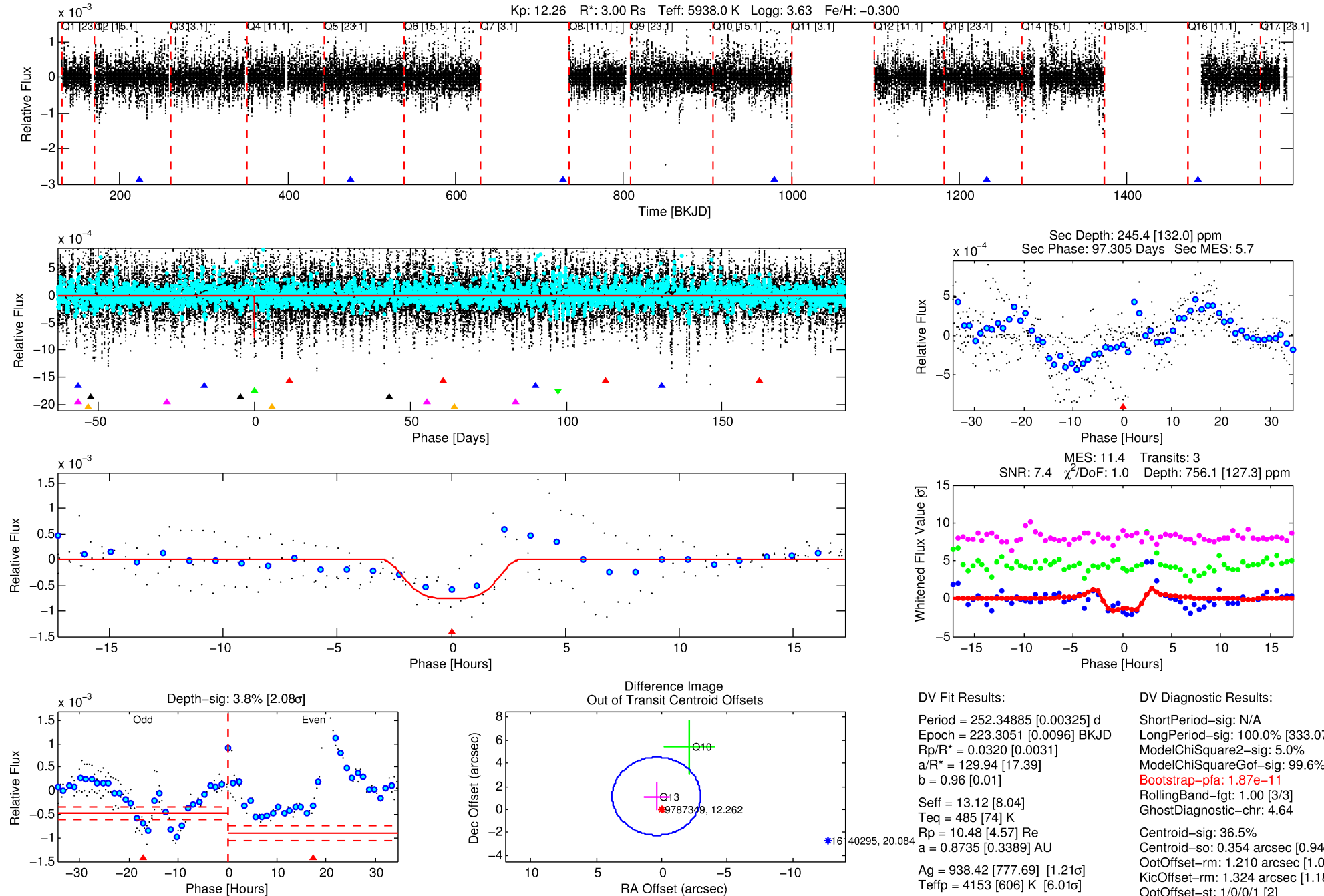
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 009787349-03

No Significant Match Found

DV One-Page Summary

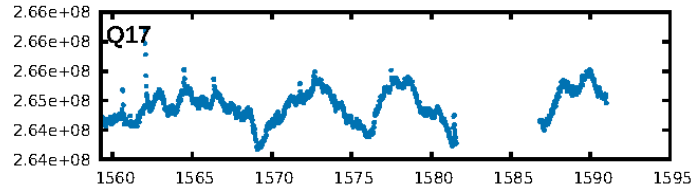
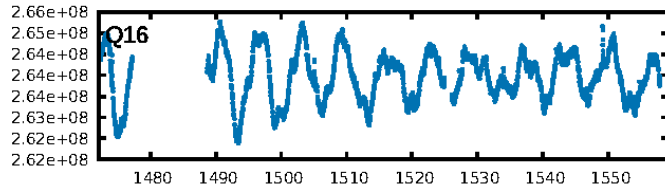
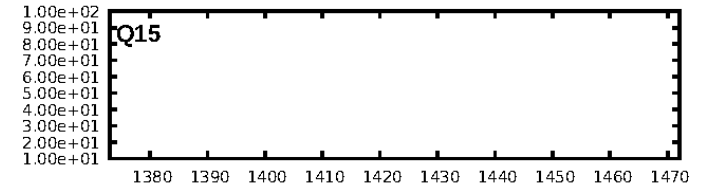
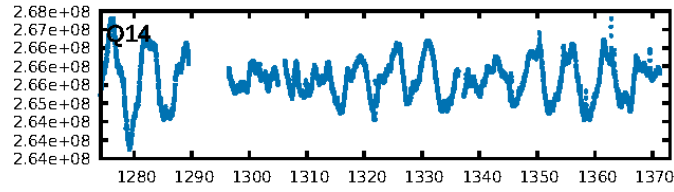
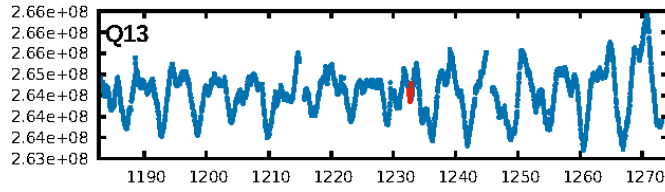
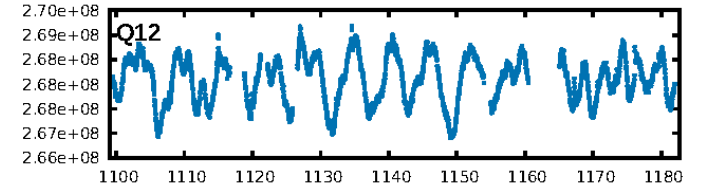
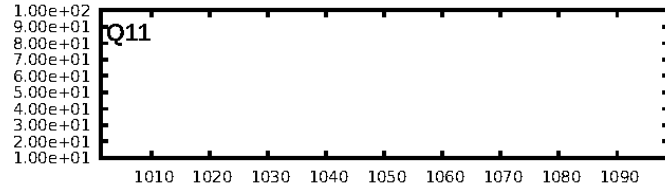
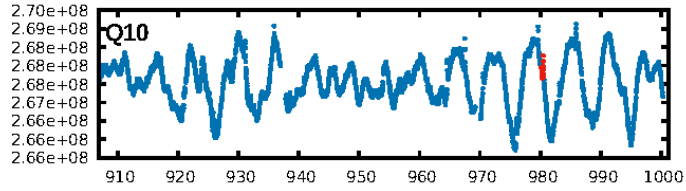
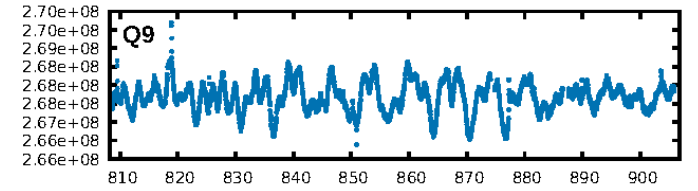
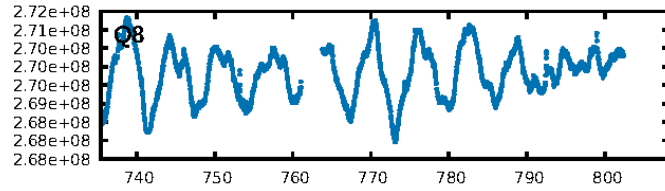
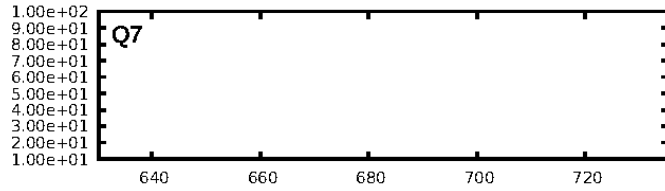
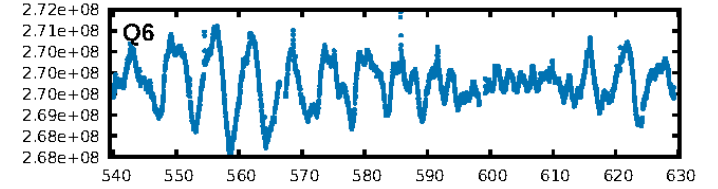
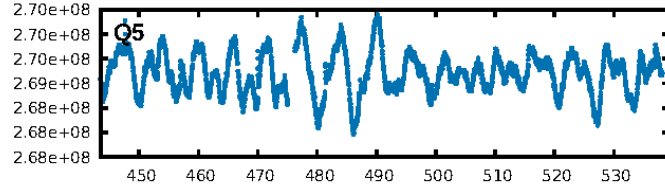
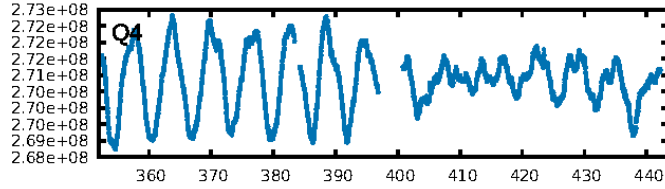
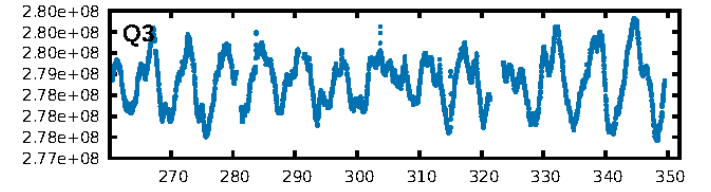
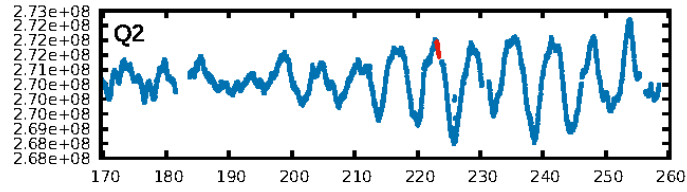
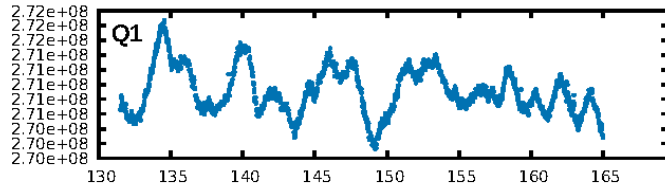
KIC: 9787349 Candidate: 3 of 6 Period: 252.349 d



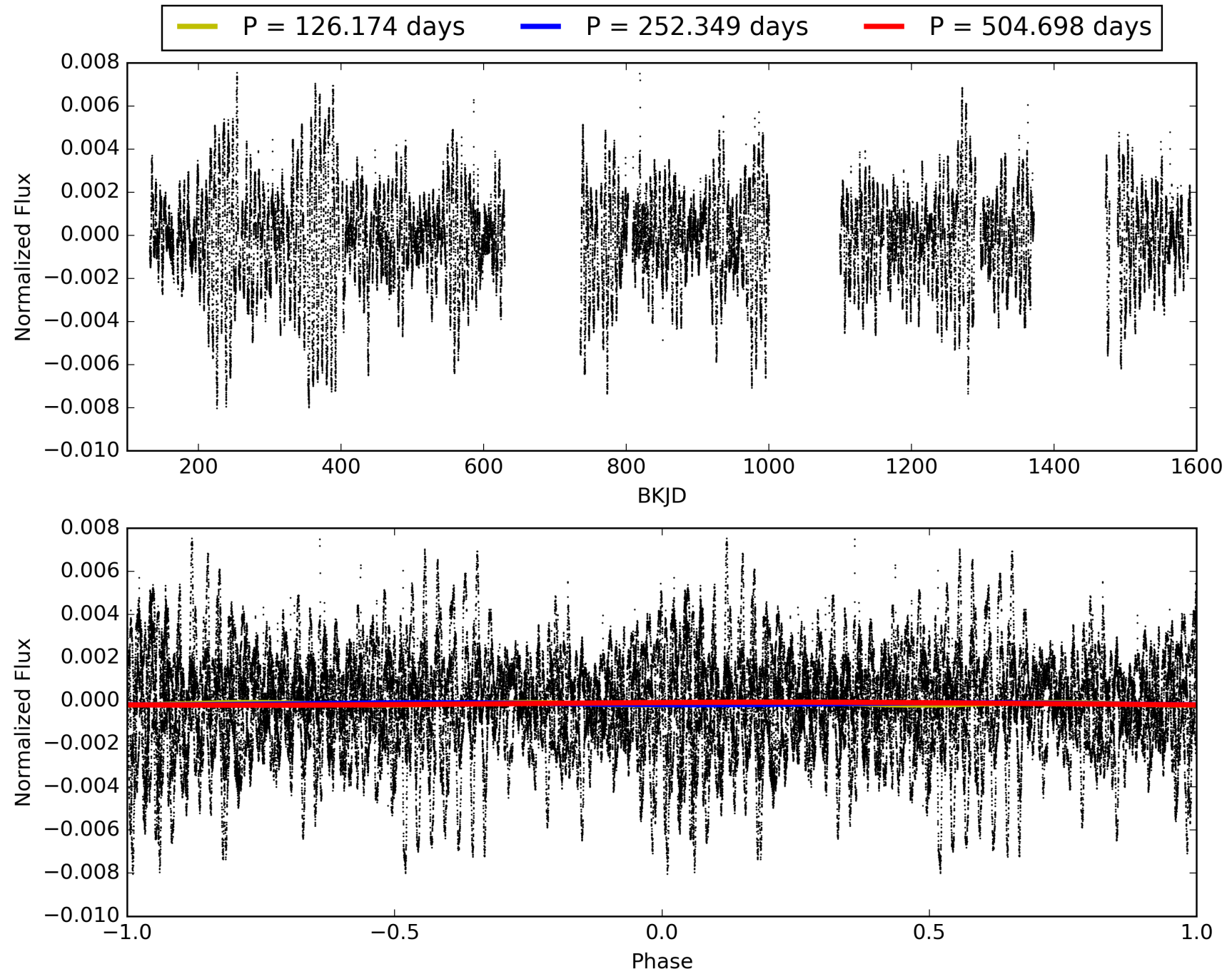
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 16:53:26 Z

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

TCE 009787349-03, PDC Light Curves

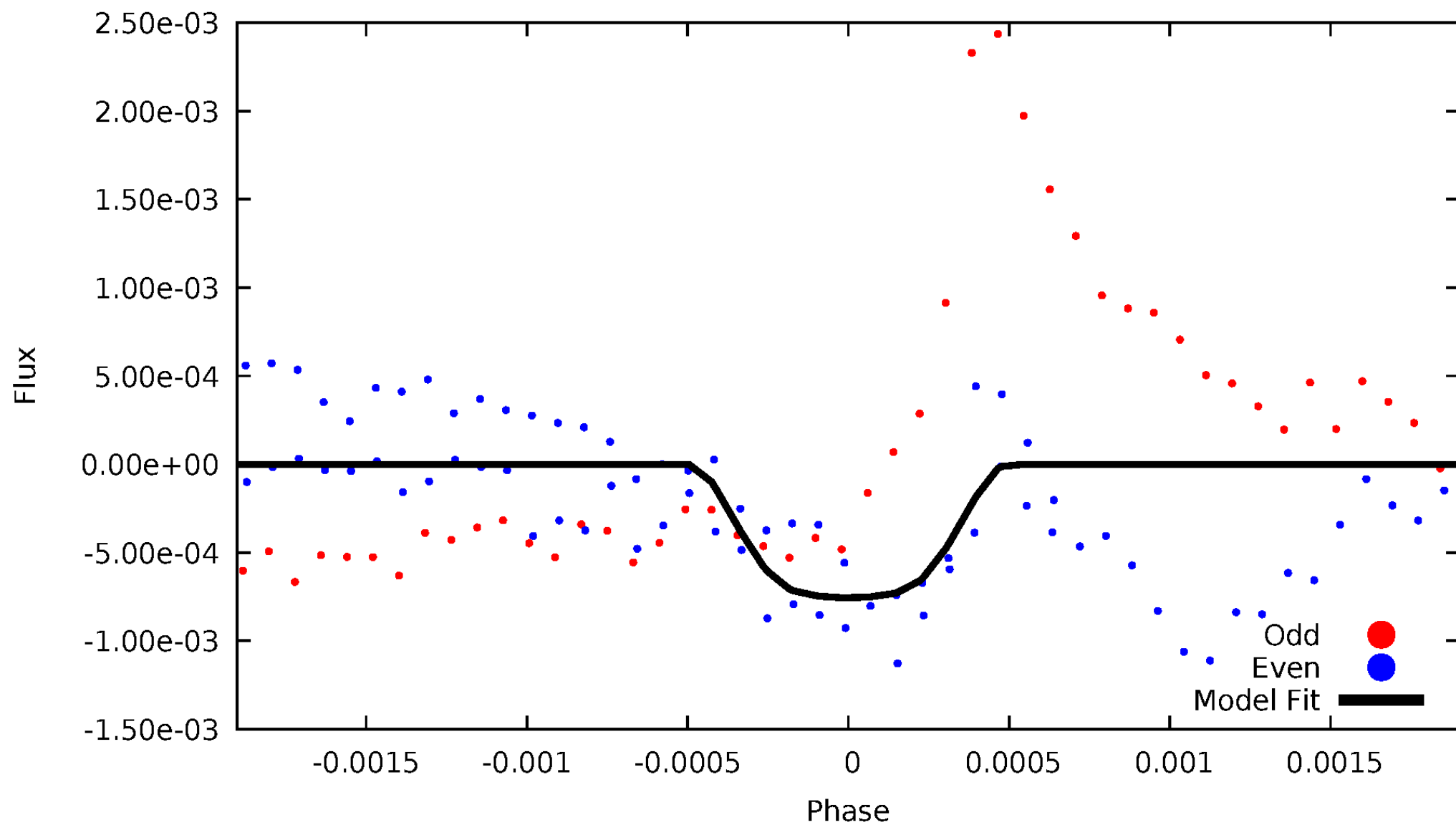


TCE 009787349-03



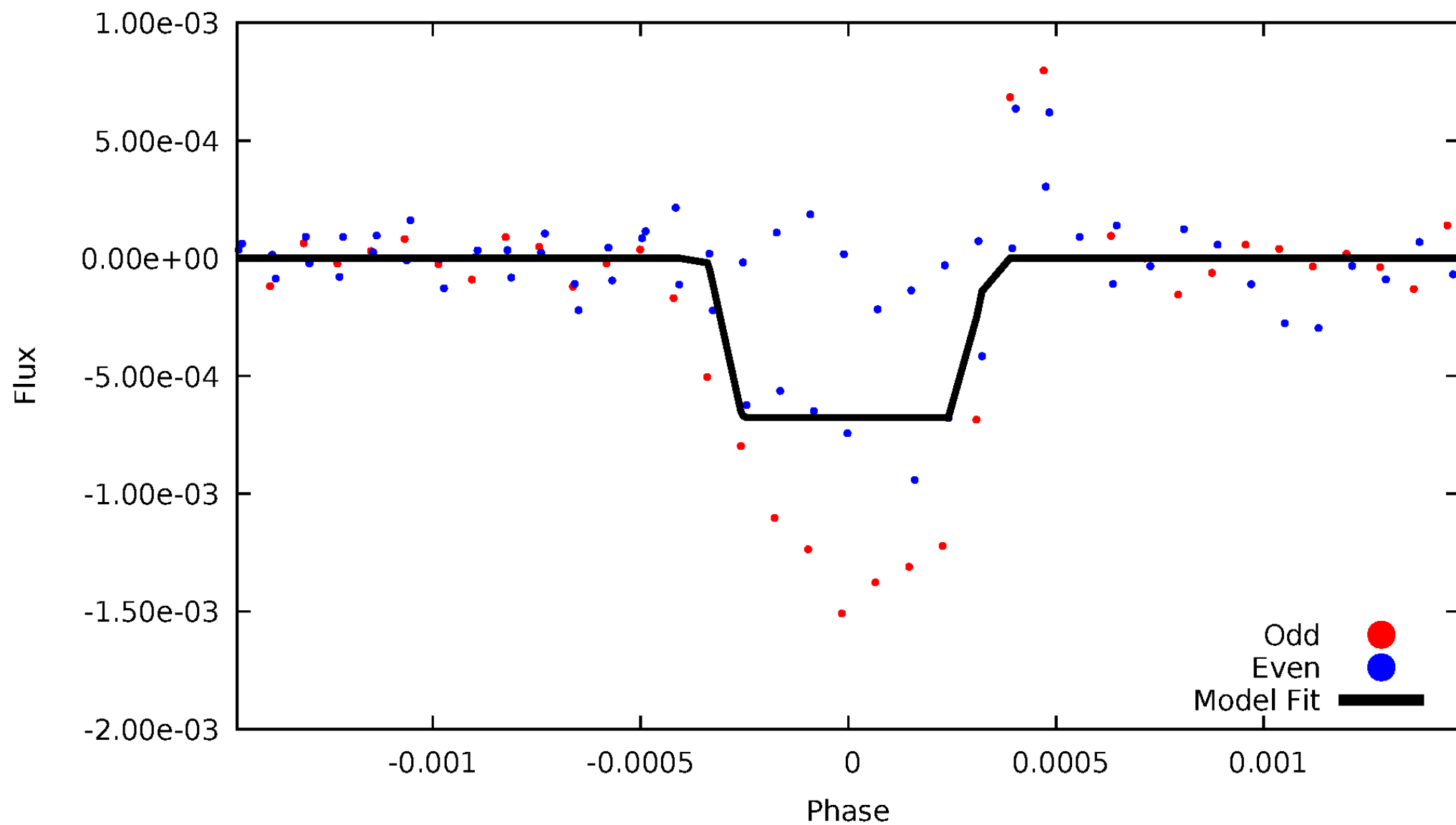
DV Odd/Even

TCE 009787349-03



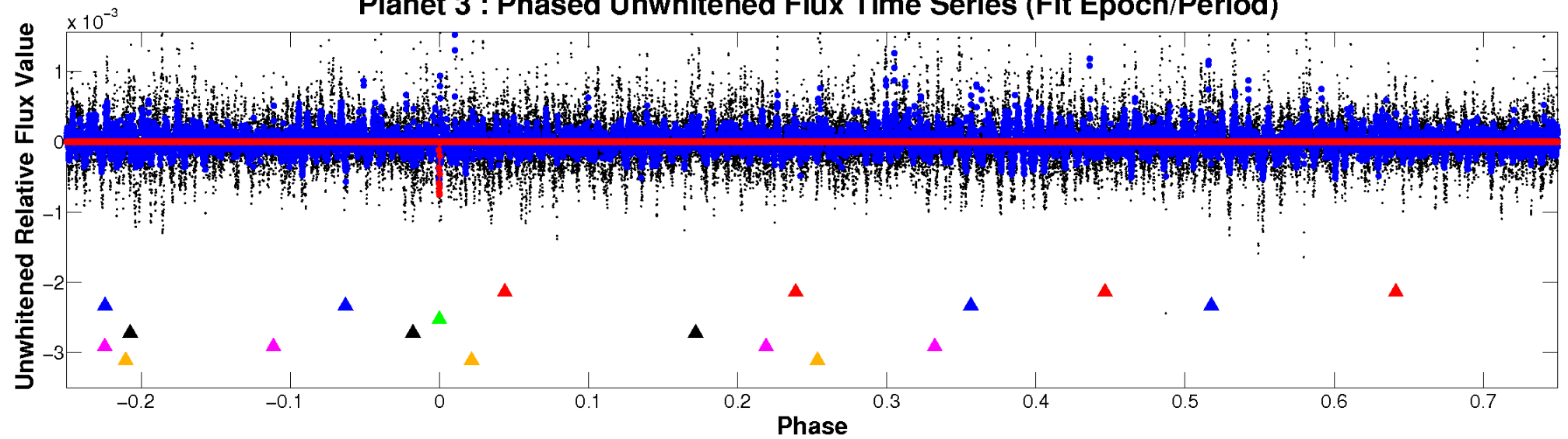
ALT Odd/Even

TCE 009787349-03

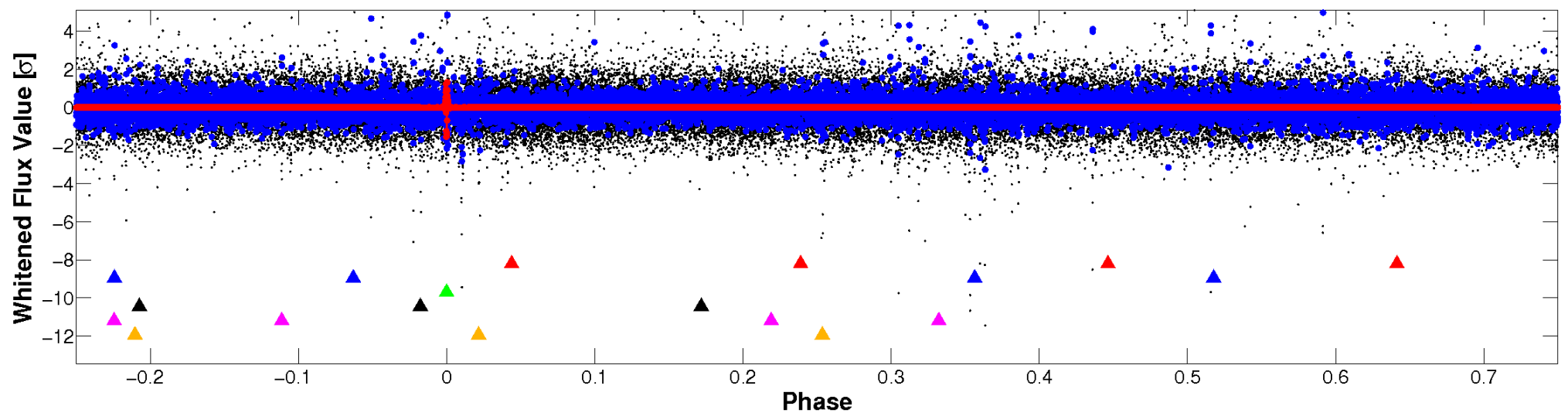


Non-Whitened Vs. Whitened Light Curve

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

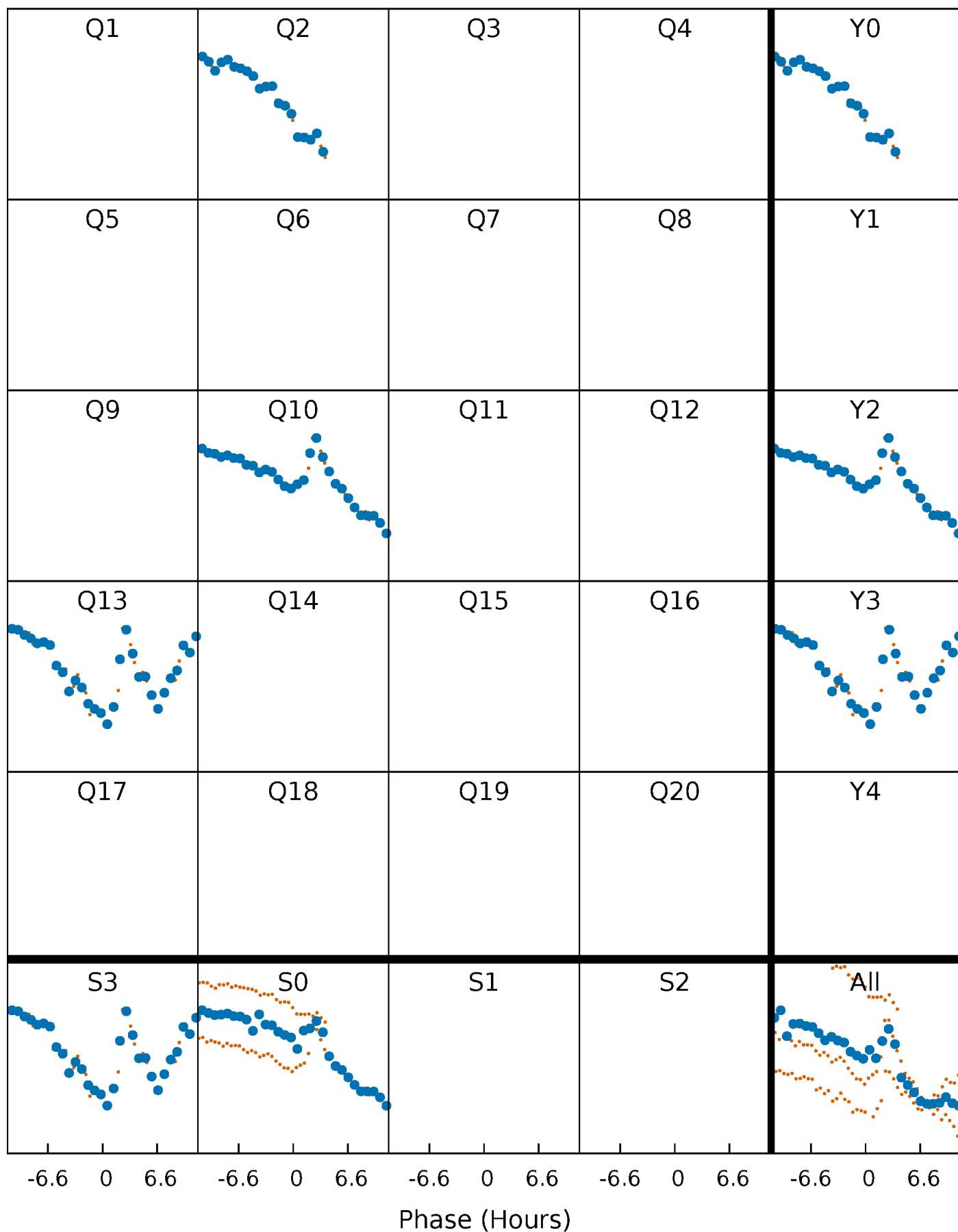


Planet 3 : Phased Whitened Flux Time Series (Fit Epoch/Period)



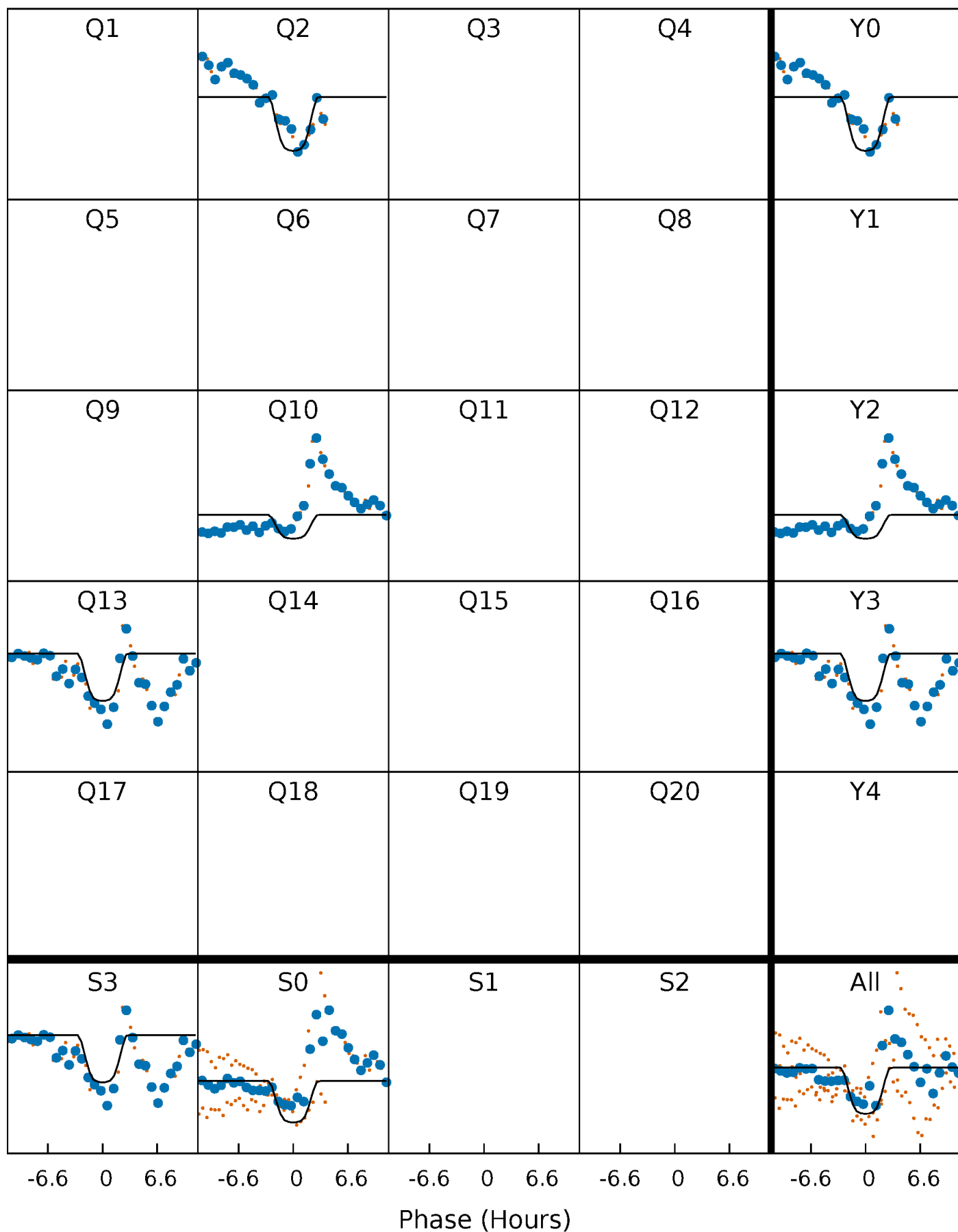
PDC Quarter-Phased Transit Curves

TCE 009787349-03 $P=252.348852$ Days $T_0=223.305078$ (BKJD)



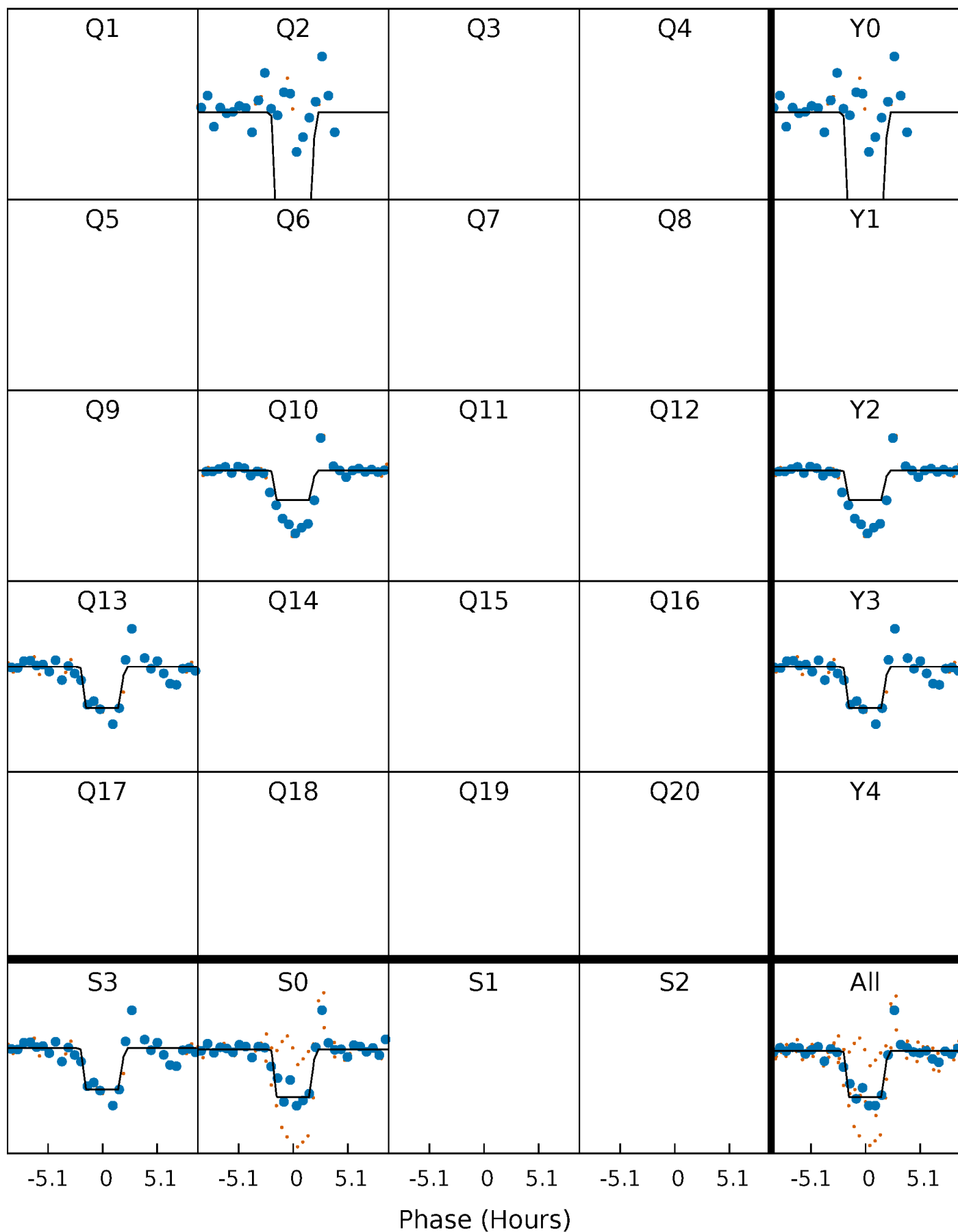
DV Quarter-Phased Transit Curves

TCE 009787349-03 P=252.348852 Days $T_0=223.305078$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

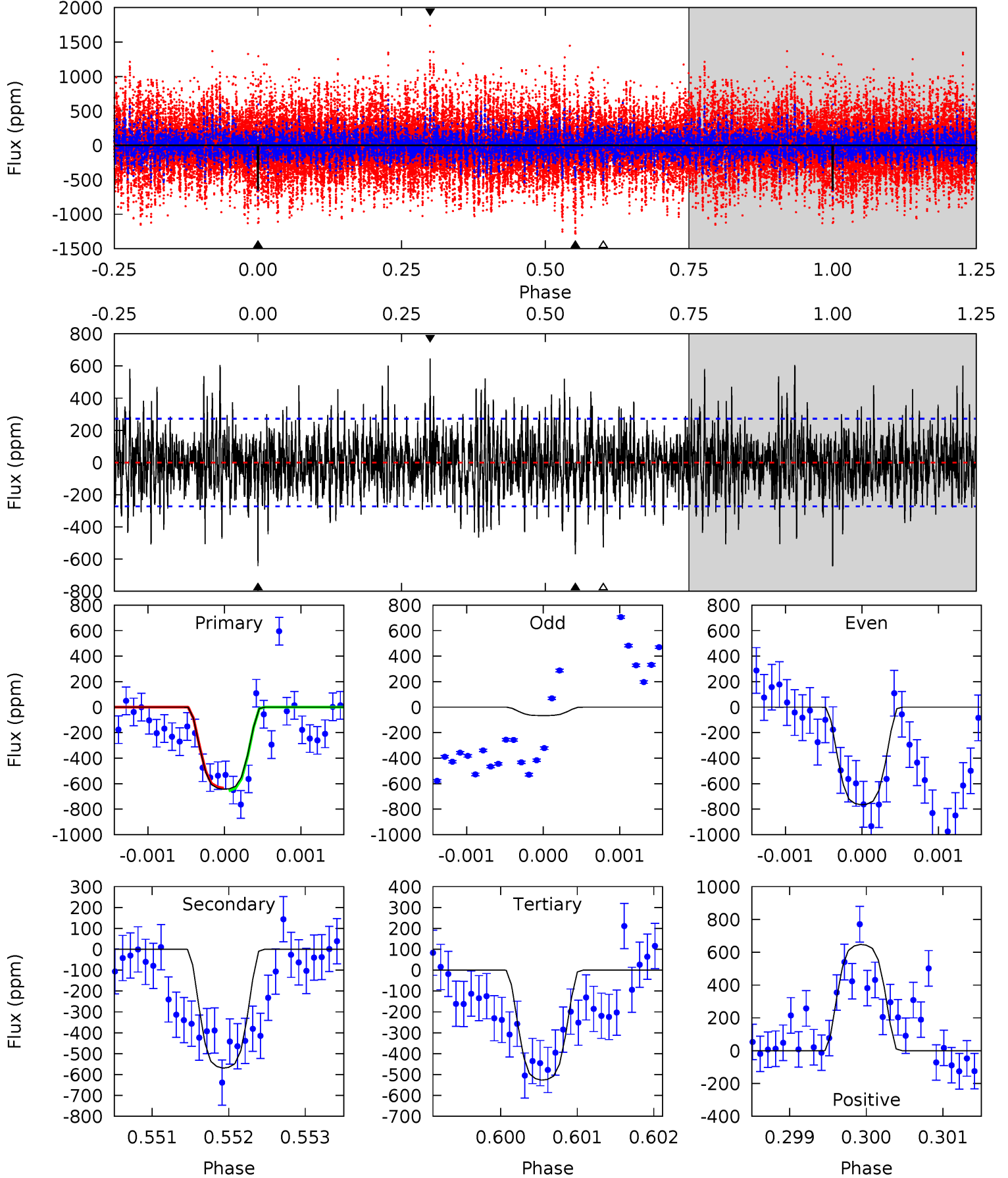
TCE 009787349-03 P=252.348546 Days $T_0=223.304602$ (BKJD)



DV Model-Shift Uniqueness Test

009787349-03, P = 252.348852 Days, E = 223.305078 Days

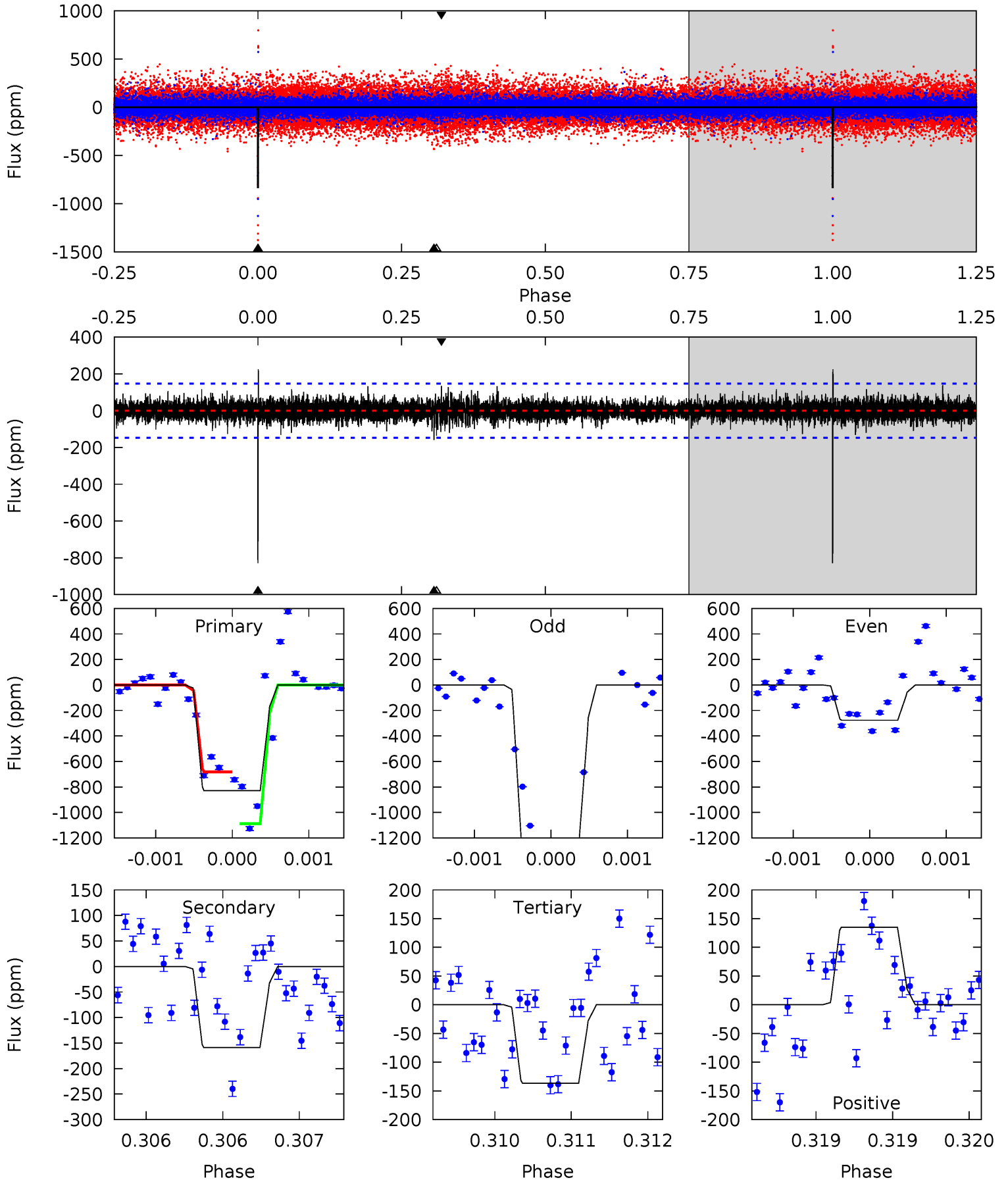
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
12.9	11.4	10.5	12.9	5.44	3.28	2.95	2.34	-0.06	0.85	-1.56	6.62	0.90	0.50	0.20



Alt Model-Shift Uniqueness Test

009787349-03, P = 252.348546 Days, E = 223.304602 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
31.0	5.94	5.11	5.04	5.52	3.41	1.09	25.9	26.0	0.83	0.90	21.7	0.92	0.21	7.33



Stellar Parameters For KIC 009787349

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	5938^{+178}_{-160}	$3.629^{+0.345}_{-0.115}$	$-0.300^{+0.350}_{-0.300}$	$2.998^{+0.637}_{-1.275}$	$1.396^{+0.193}_{-0.387}$	$0.073^{+0.203}_{-0.026}$
	+3%/-3%	+10%/-3%	+117%/-100%	+21%/-43%	+14%/-28%	+278%/-36%
Source	PHO1	FLK73	KIC0	DSEP		

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

Secondary Eclipse Parameters for KIC 009787349-03 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-569 ± 50	$9.93^{+2.02}_{-2.19}$	665^{+48}_{-66}	5170^{+307}_{-237}	2400^{+1381}_{-719}
Alt.	-159 ± 27	$8.21^{+1.63}_{-1.98}$	669^{+47}_{-68}	4351^{+278}_{-236}	976^{+626}_{-314}

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 $A_{obs} \gg 1.0$

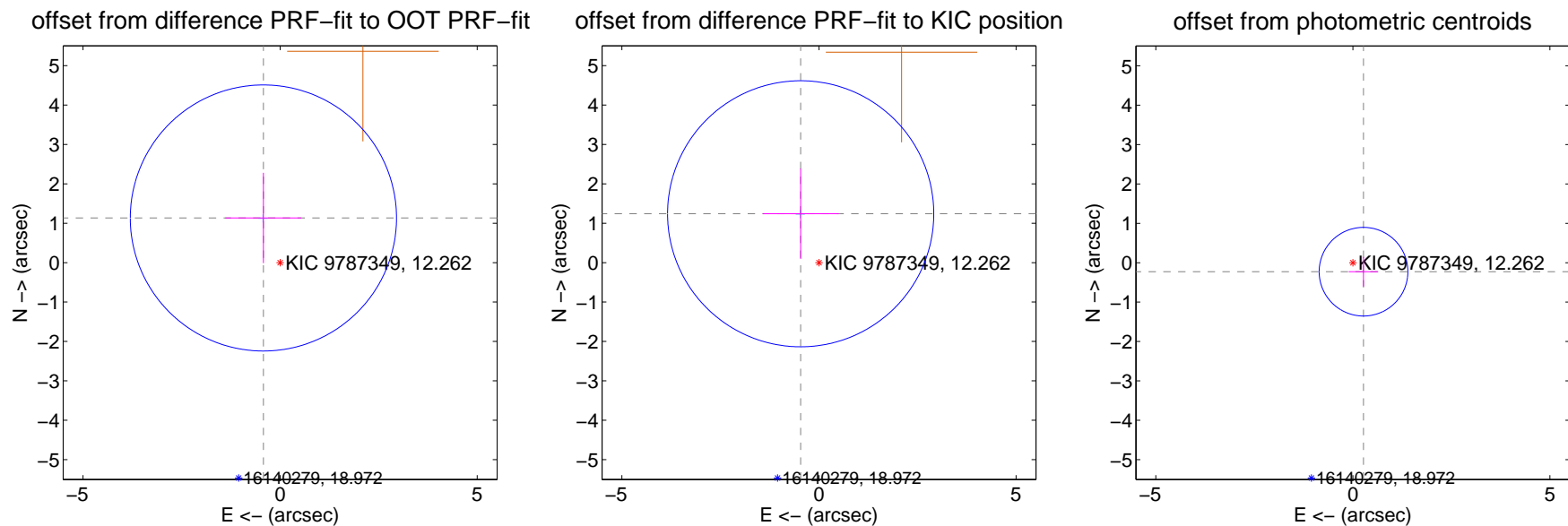
DV Centroid Data

Supplemental centroid analysis for 009787349-03. Kepler magnitude: 12.26. Transit SNR 7.39

There are 1 quarters with good PRF difference image offsets

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

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	1.210 ± 1.125	1.08	0.424 ± 0.965	1.133 ± 1.146
PRF-fit source offset from KIC position	1.324 ± 1.125	1.18	0.464 ± 0.965	1.240 ± 1.146
photometric centroid source offset	0.35 ± 0.37	0.94	-0.27 ± 0.37	-0.23 ± 0.38



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.

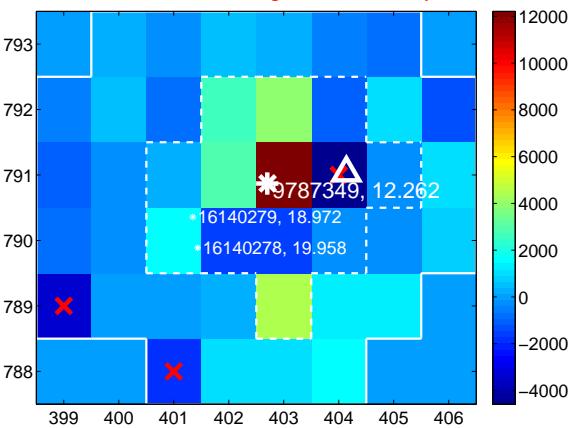
Q9 no difference image



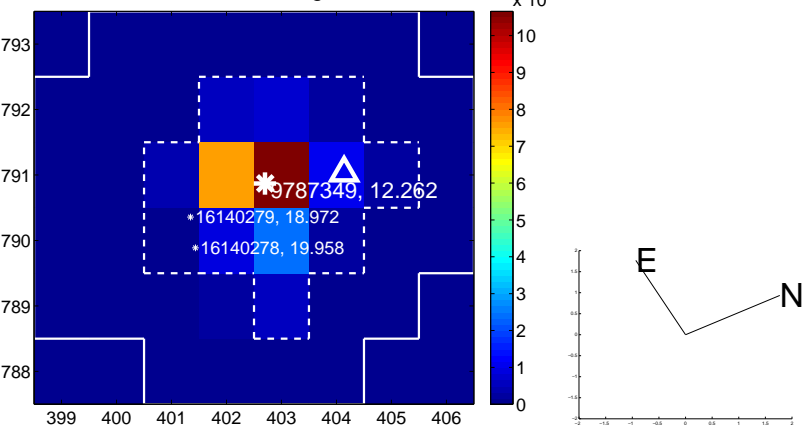
Q9 no OOT image



Q10 difference image. Poor Quality



Q10 OOT image



Q11 no difference image



Q11 no OOT image



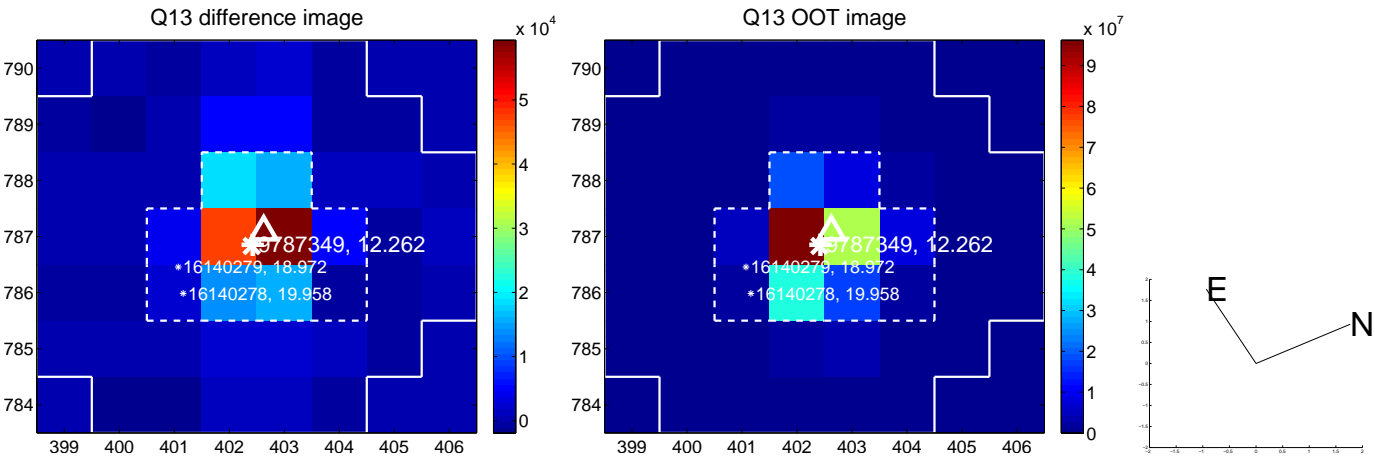
Q12 no difference image



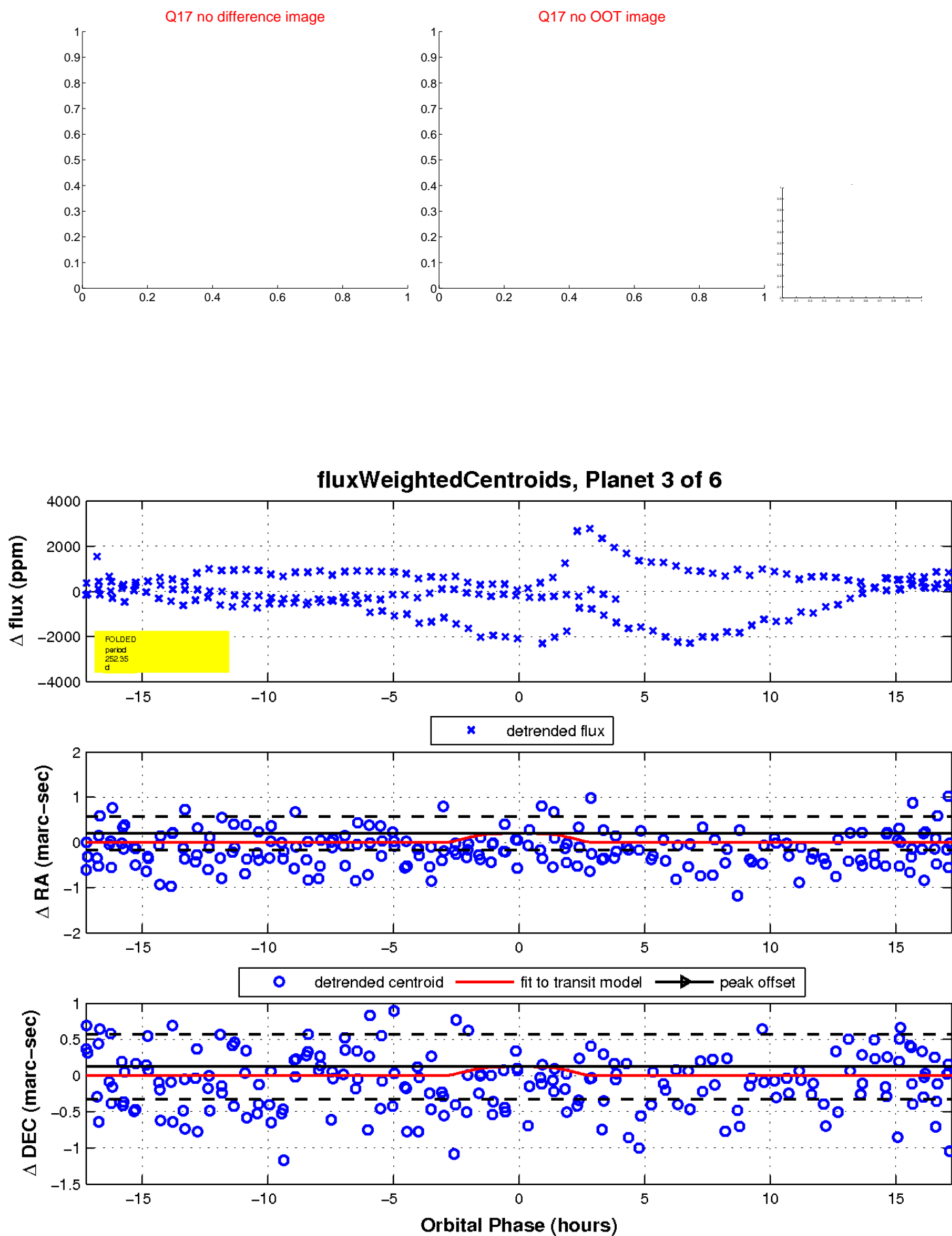
Q12 no OOT image



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

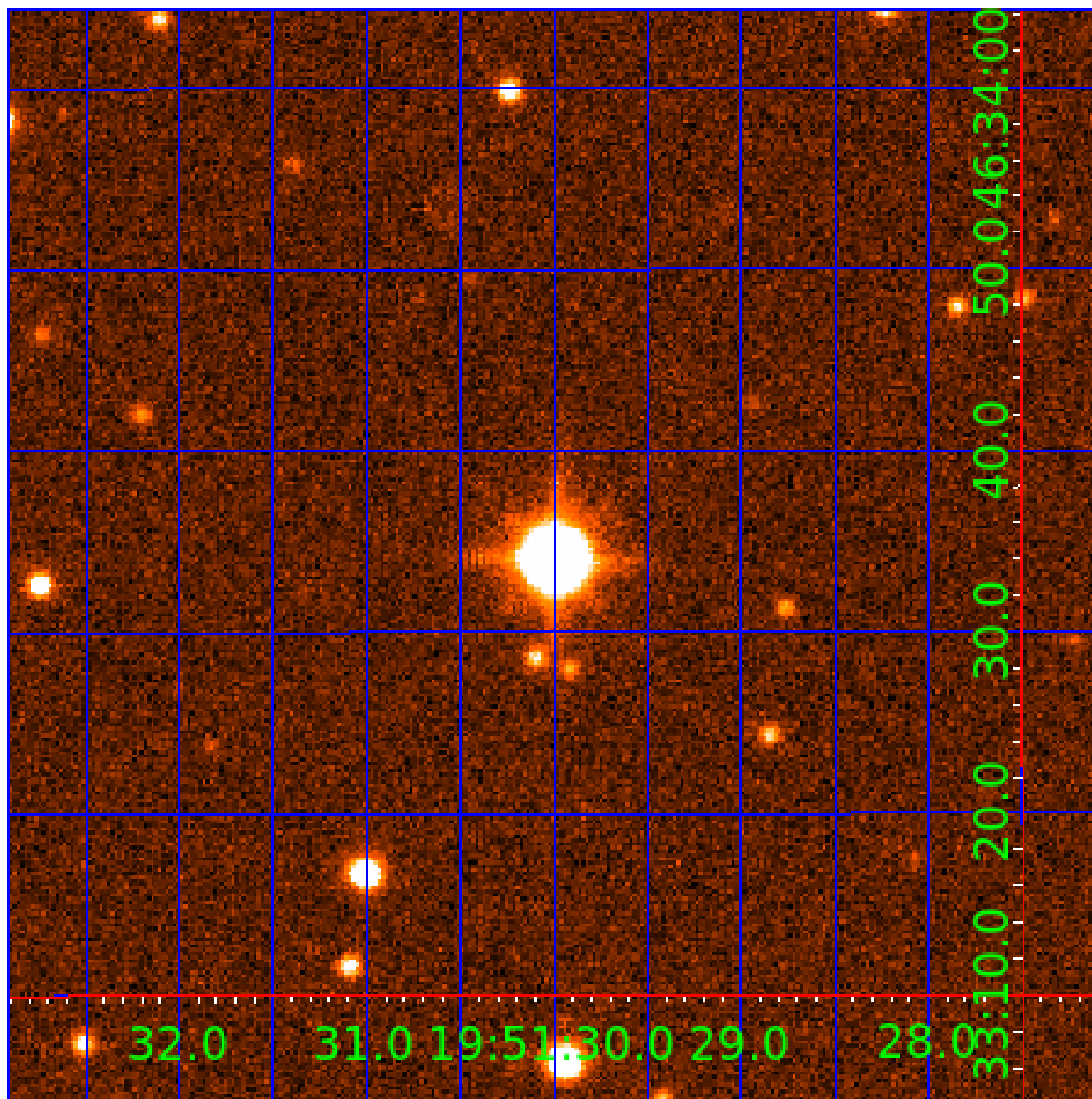


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 009787349

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})
009787349-01	OBS	No	353.912602	283.601514	510.1	4.520	15.6	5.4	3.00	5938	7.23	8.36
009787349-03	OBS	No	252.348852	223.305078	756.1	5.756	11.4	7.4	3.00	5938	10.48	13.12
009787349-04	OBS	No	552.540831	423.338703	642.2	4.704	12.0	6.9	3.00	5938	7.61	4.62
009787349-05	OBS	No	364.250475	447.576271	377.2	1.417	10.3	5.4	3.00	5938	6.24	8.04
009787349-06	OBS	No	563.231748	422.575976	490.9	3.557	14.9	5.8	3.00	5938	7.46	4.50

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009787349-01	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS—HALO_GHOST
009787349-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
009787349-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—MOD_NONUNIQ_DV—MOD_POS_DV—INCONSISTENT_TRANS
009787349-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_SKYE—LPP_DV—ALL_TRANS_CHASES—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS
009787349-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_SKYE—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS

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

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

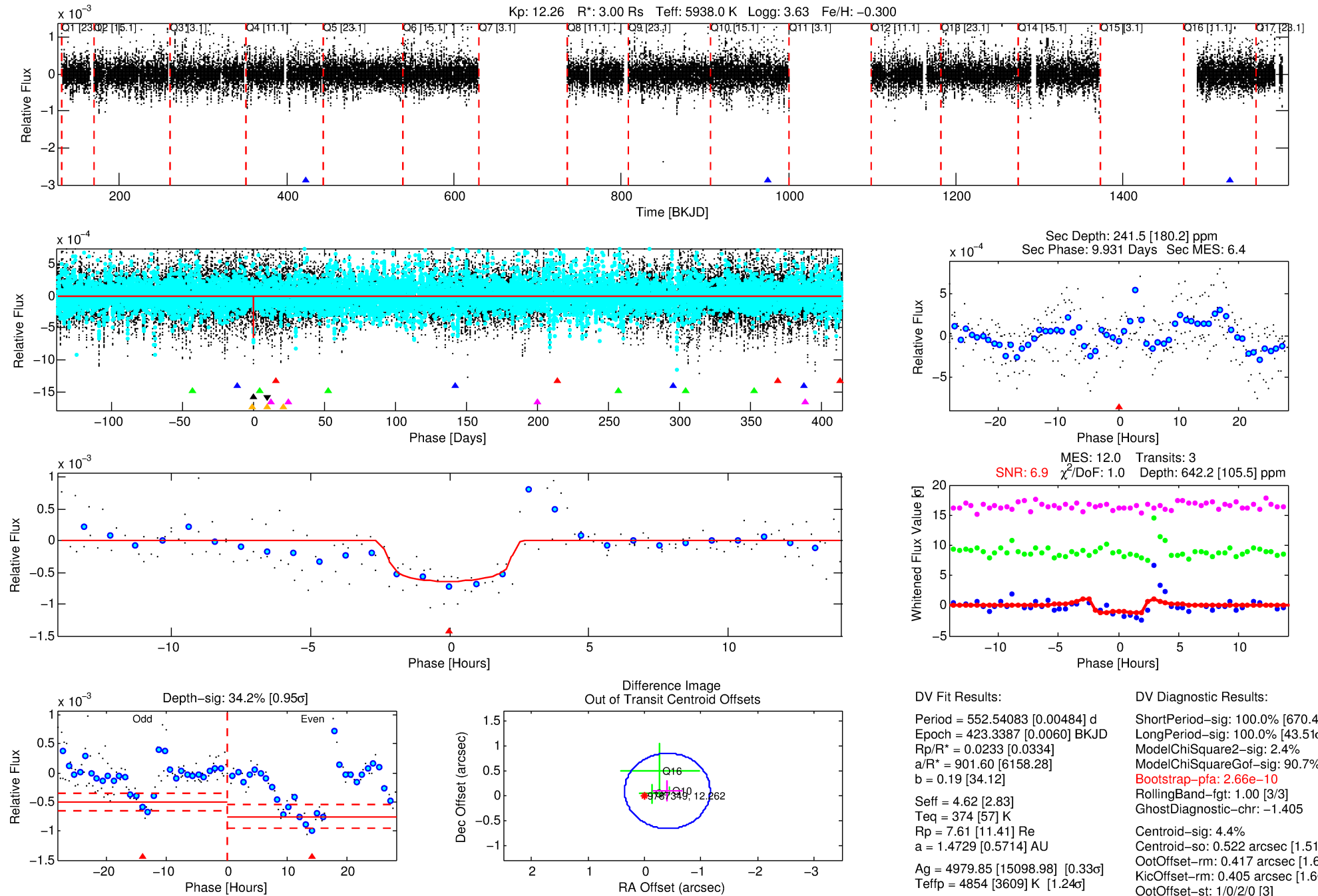
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 009787349-04

No Significant Match Found

DV One-Page Summary

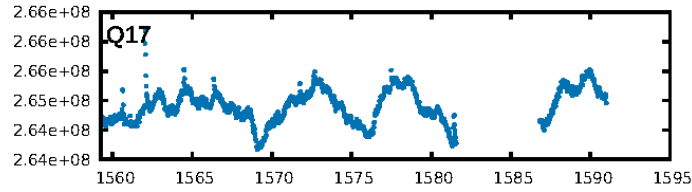
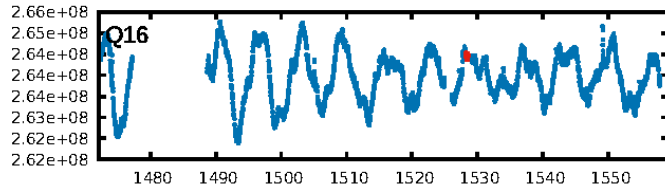
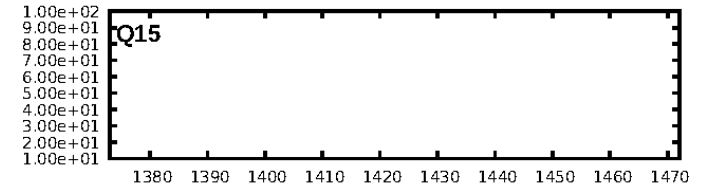
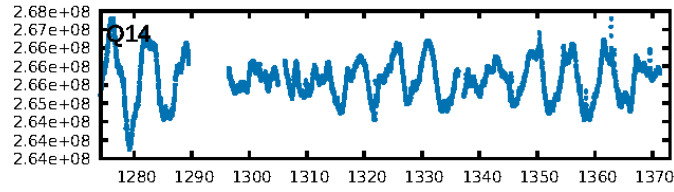
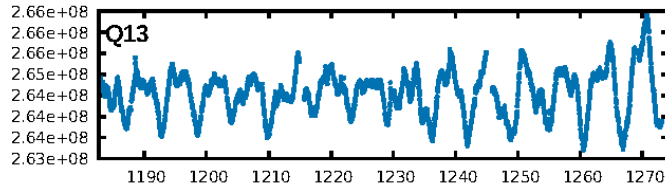
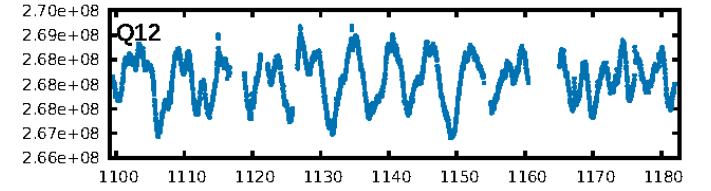
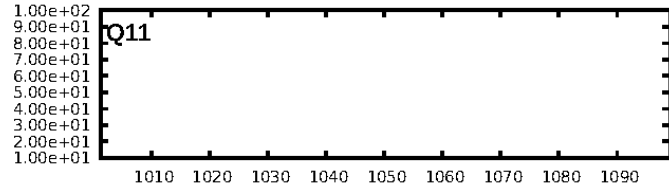
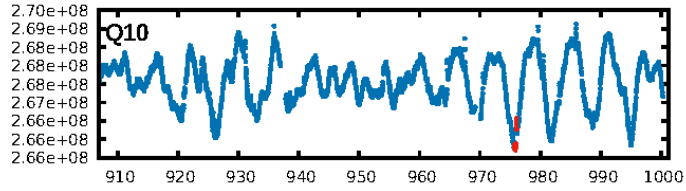
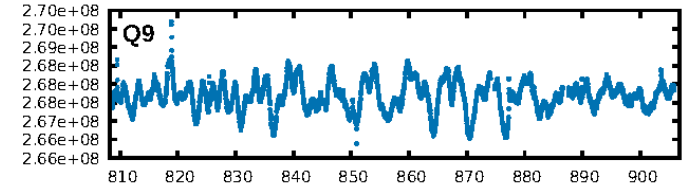
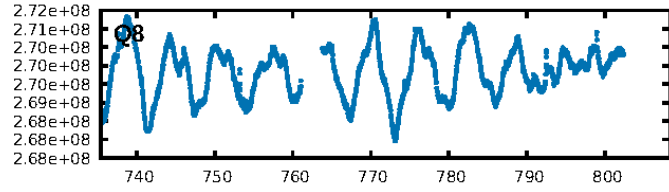
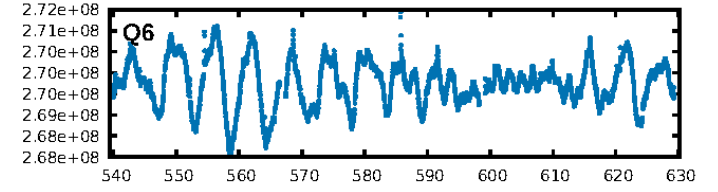
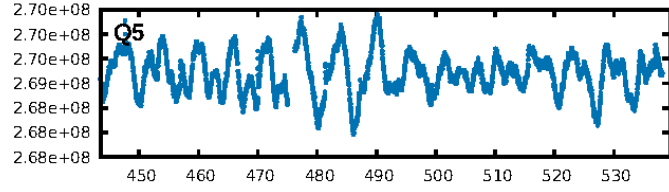
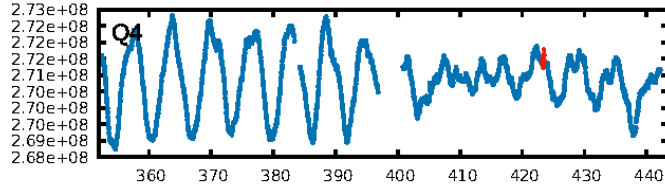
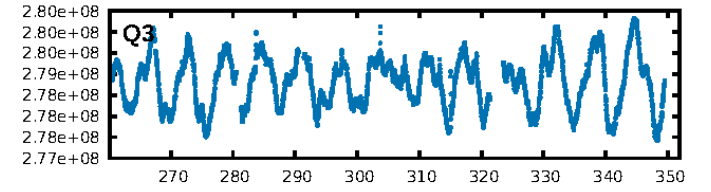
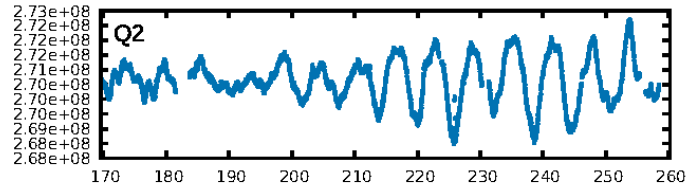
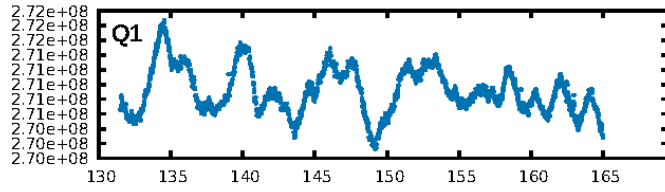
KIC: 9787349 Candidate: 4 of 6 Period: 552.541 d



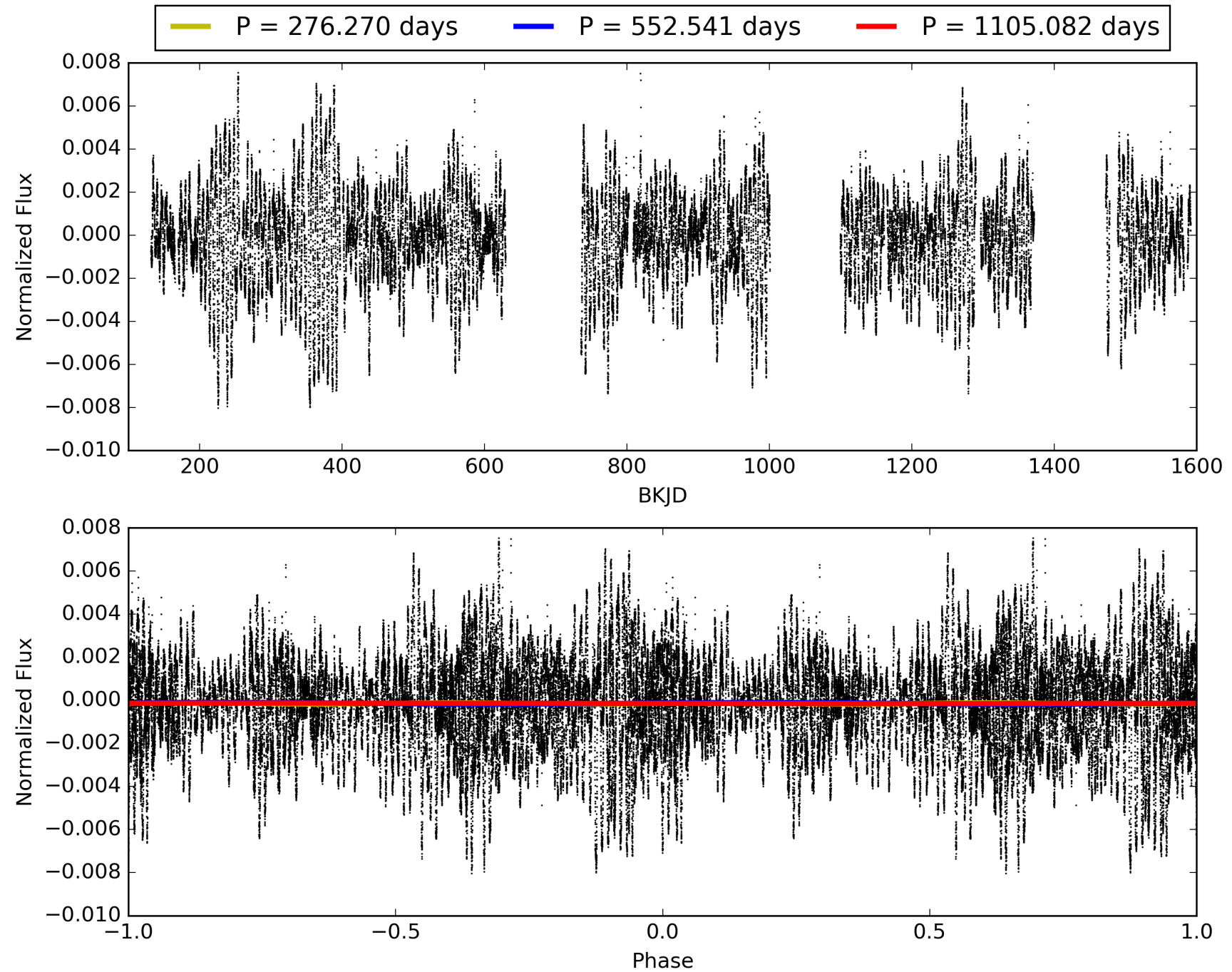
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 16:53:41 Z

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

TCE 009787349-04, PDC Light Curves

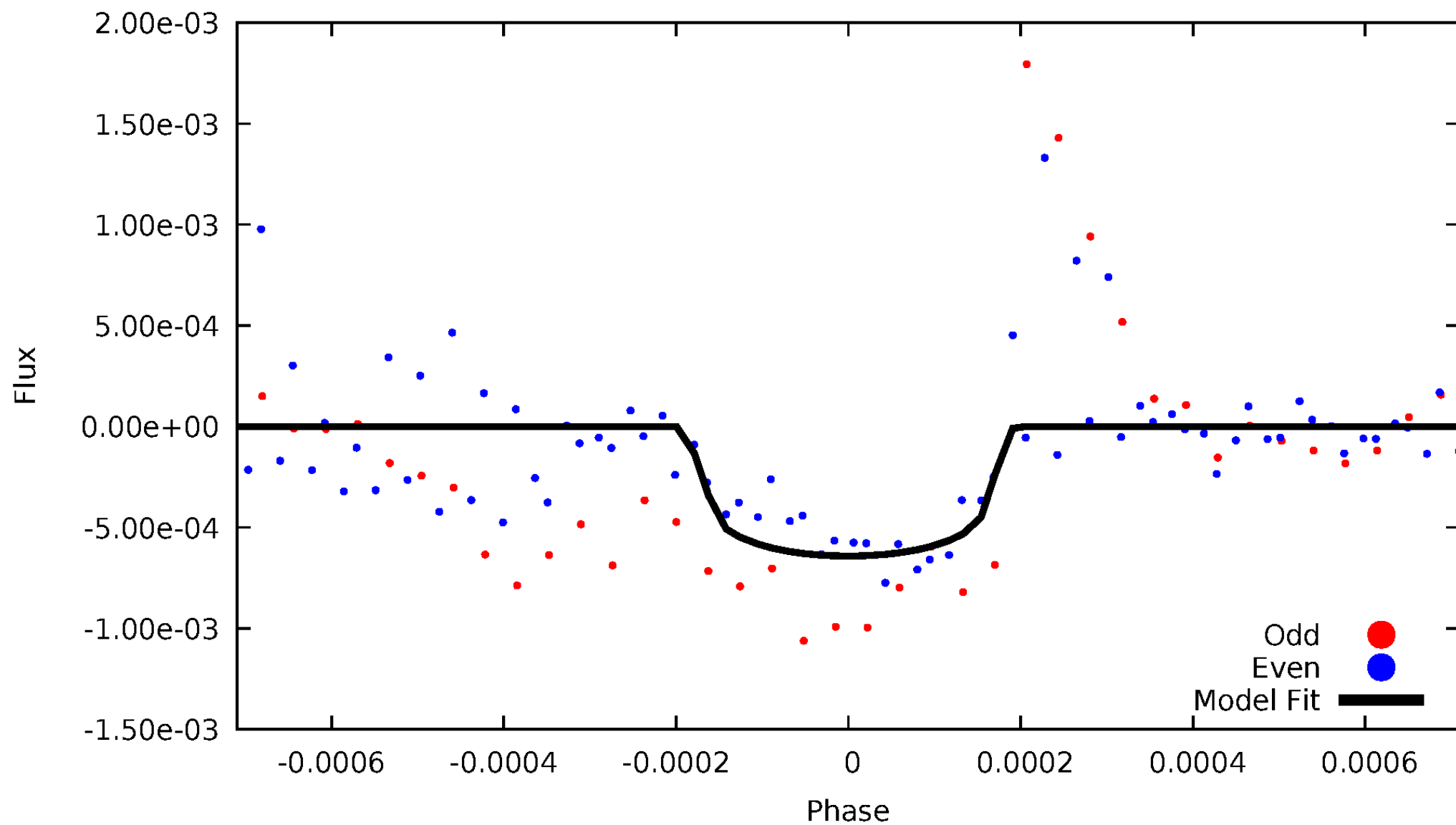


TCE 009787349-04



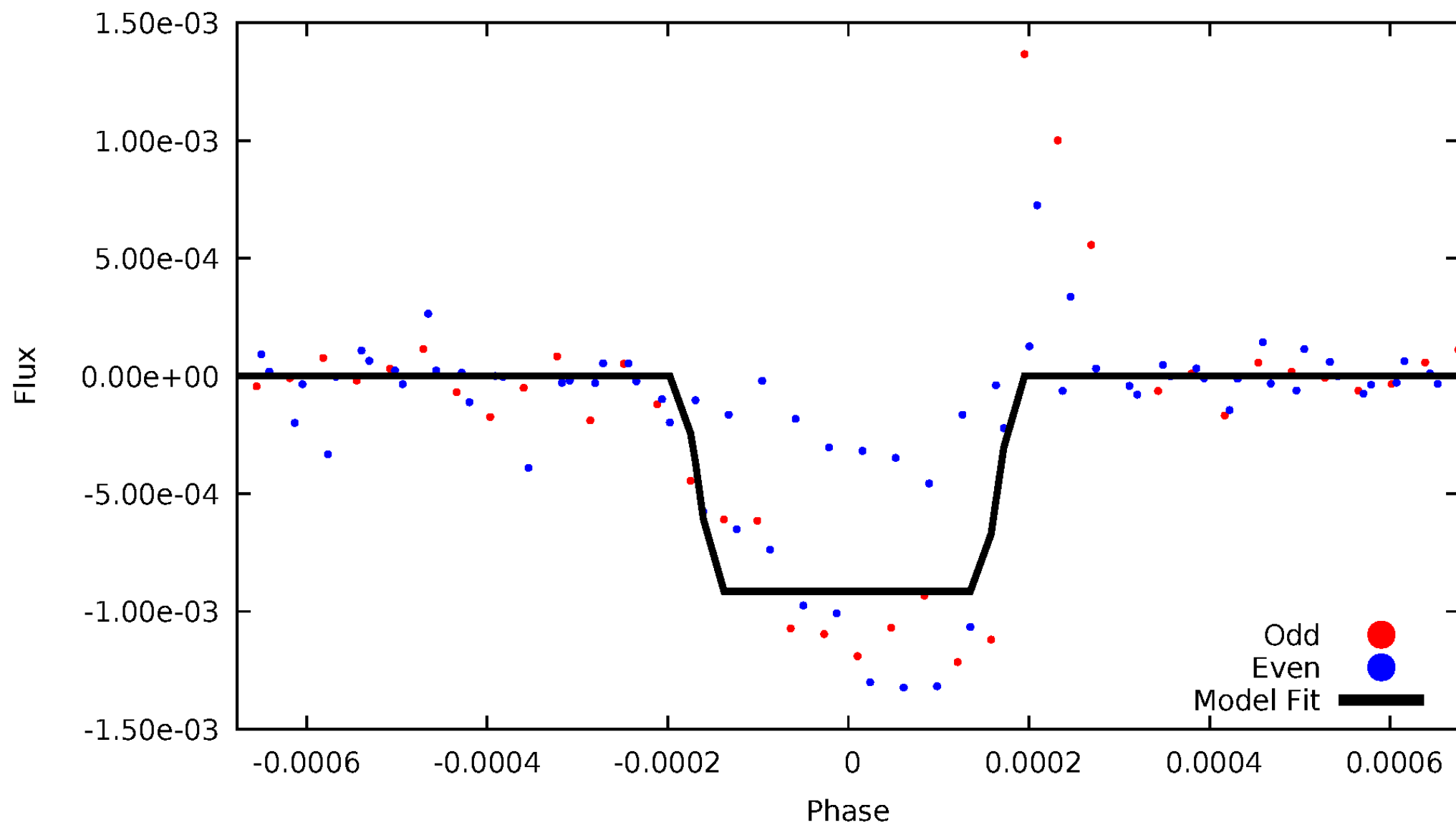
DV Odd/Even

TCE 009787349-04



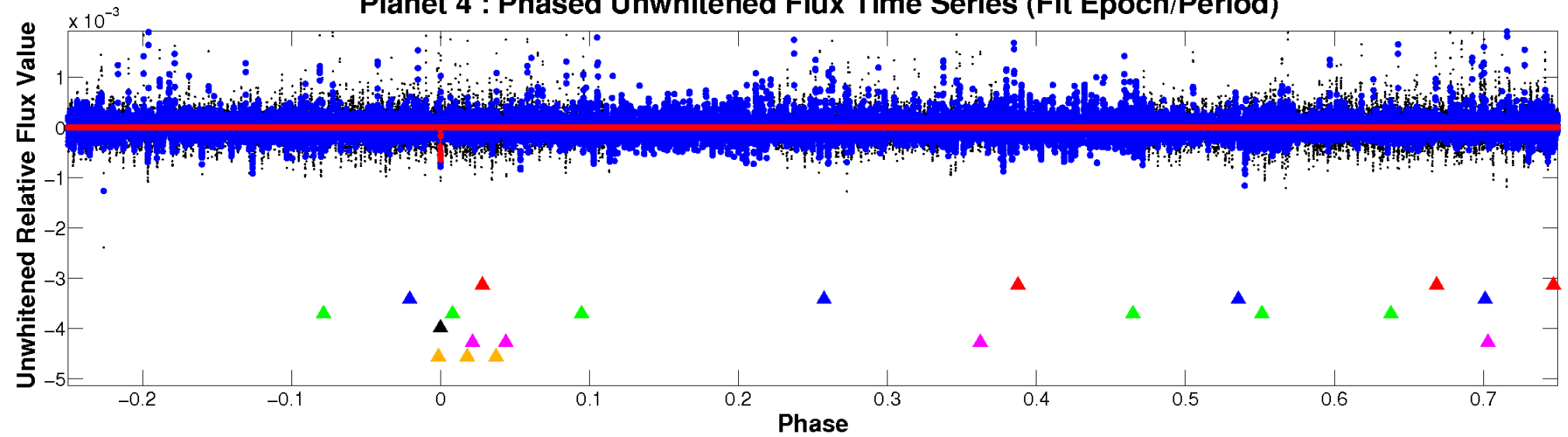
ALT Odd/Even

TCE 009787349-04

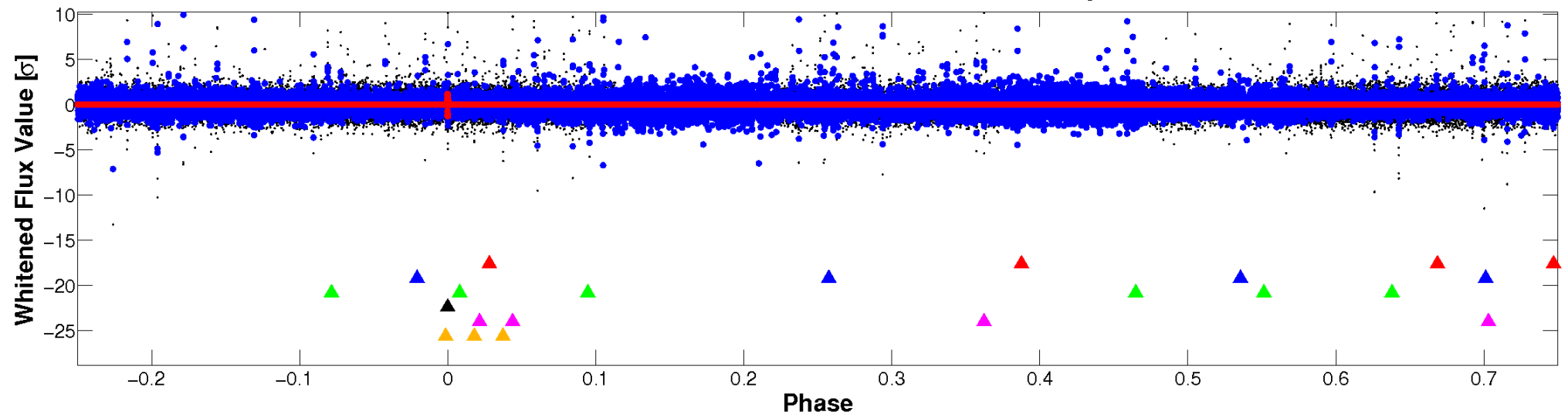


Non-Whitened Vs. Whitened Light Curve

Planet 4 : Phased Unwhitened Flux Time Series (Fit Epoch/Period)

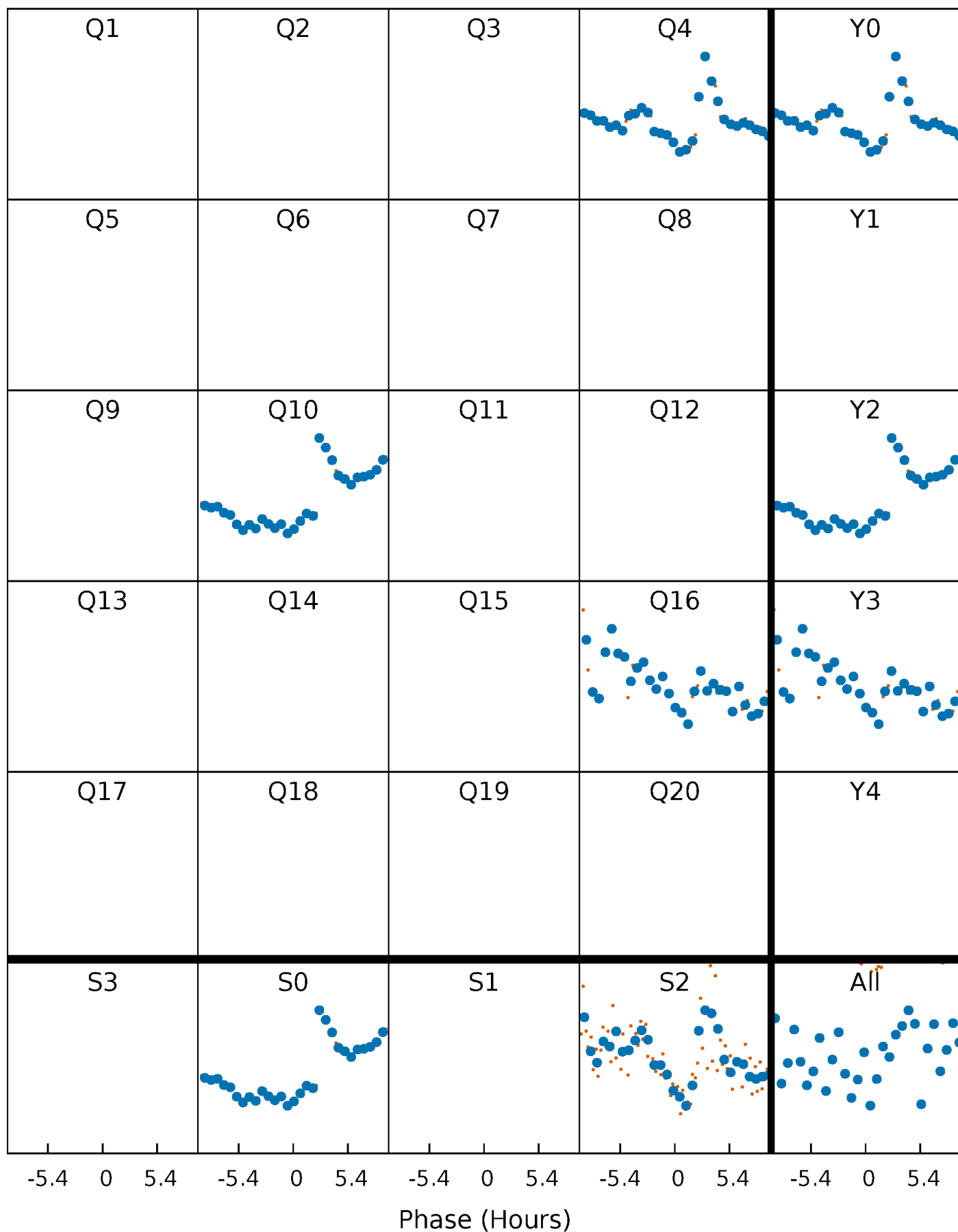


Planet 4 : Phased Whitened Flux Time Series (Fit Epoch/Period)



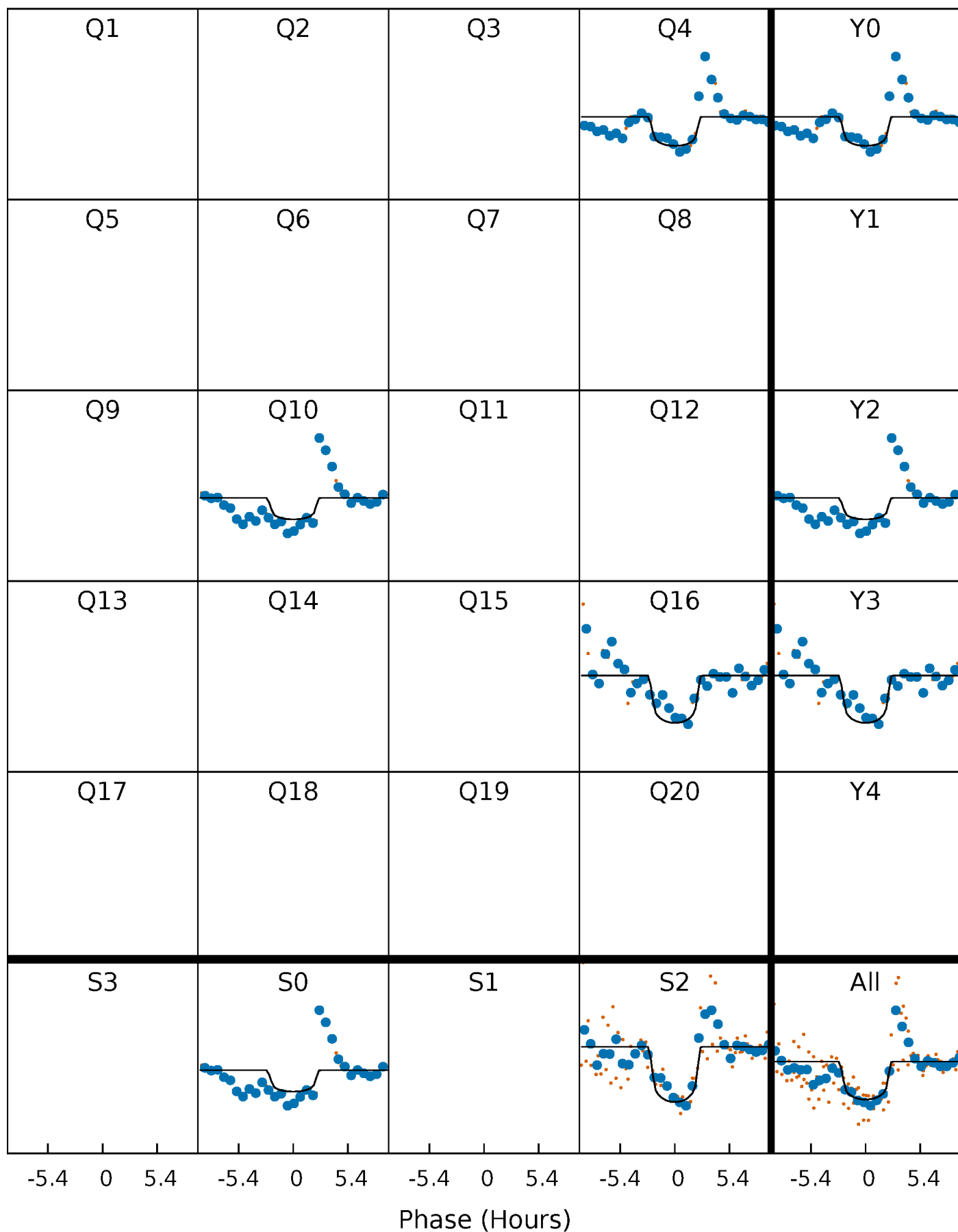
PDC Quarter-Phased Transit Curves

TCE 009787349-04 $P=552.540831$ Days $T_0=423.338704$ (BKJD)



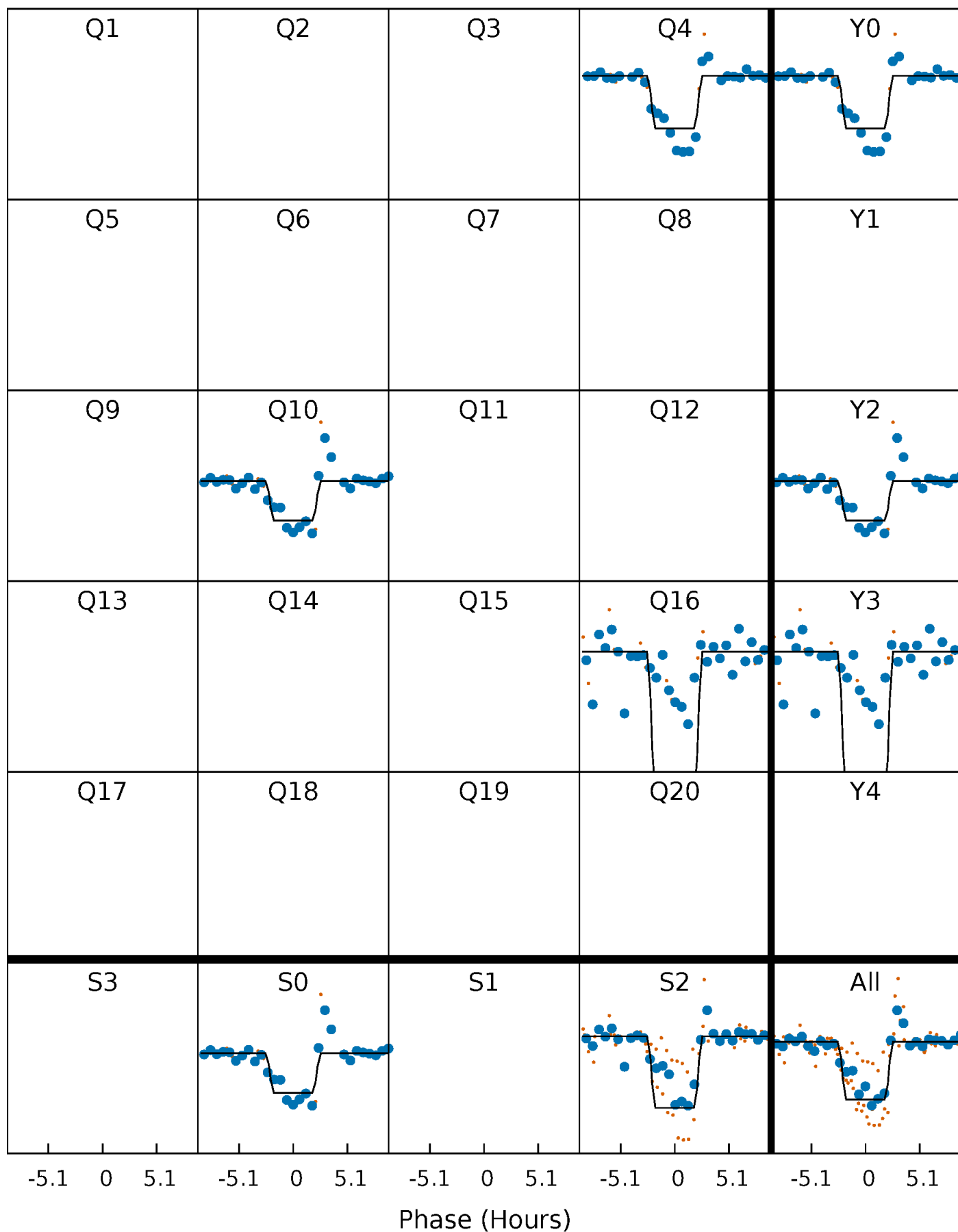
DV Quarter-Phased Transit Curves

TCE 009787349-04 P=552.540831 Days $T_0=423.338704$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

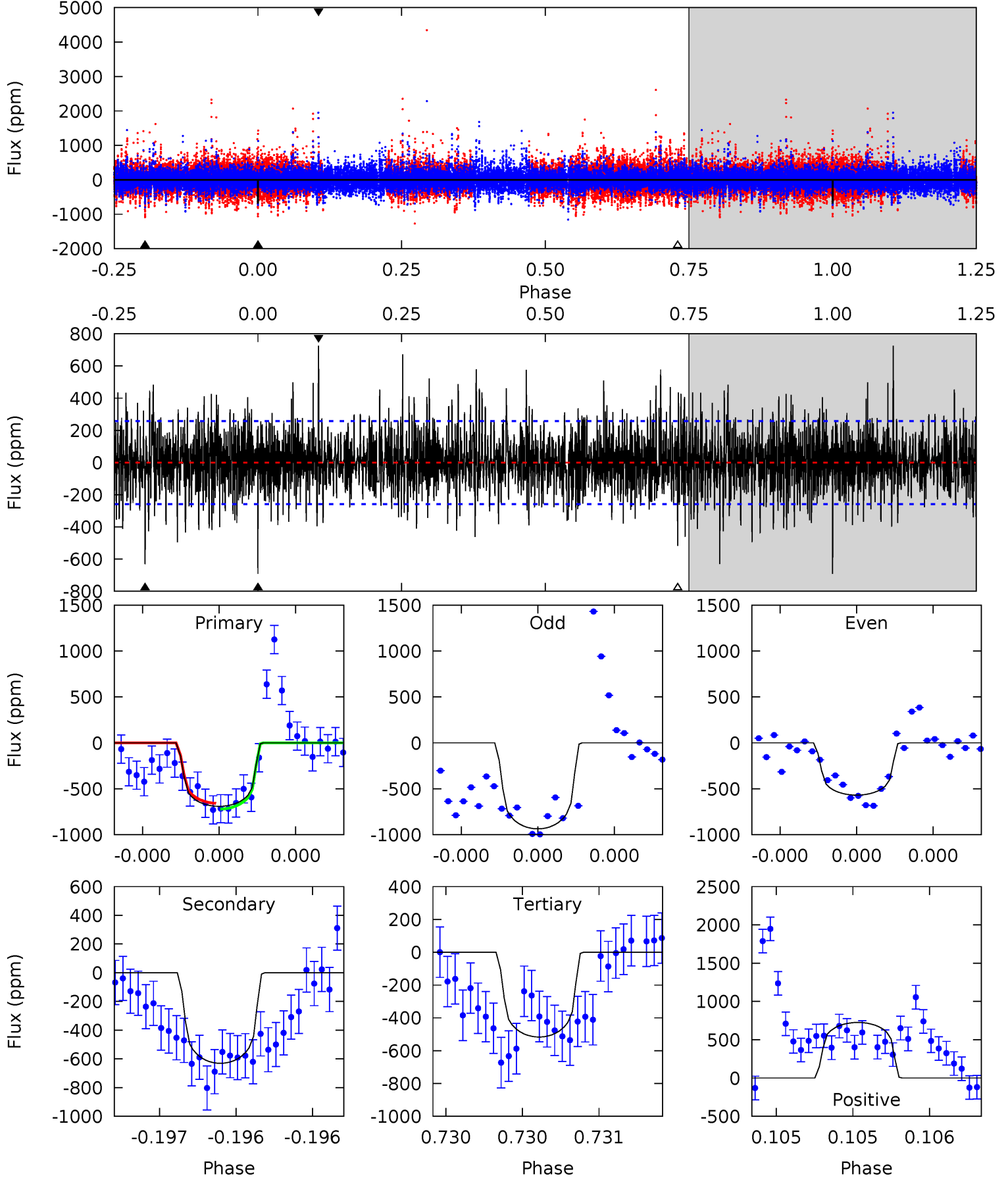
TCE 009787349-04 P=552.537085 Days $T_0=423.349108$ (BKJD)



DV Model-Shift Uniqueness Test

009787349-04, P = 552.540831 Days, E = 423.338704 Days

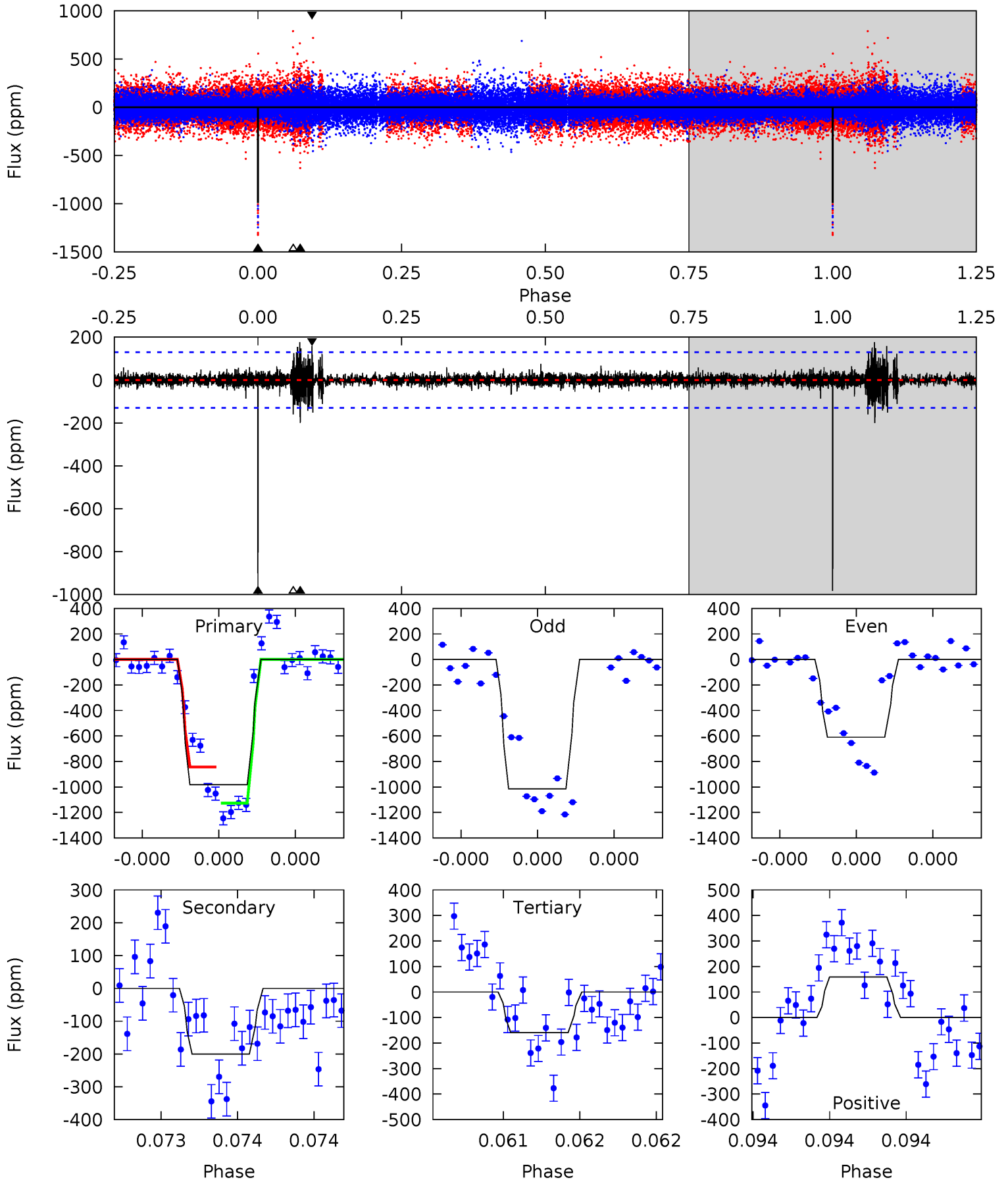
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
15.1	13.8	11.3	15.8	5.63	3.57	2.97	3.81	-0.75	2.49	-2.07	3.64	1.12	0.51	0.67



Alt Model-Shift Uniqueness Test

009787349-04, P = 552.537085 Days, E = 423.349108 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
42.7	8.69	6.93	6.89	5.63	3.56	0.80	35.7	35.8	1.76	1.80	9.85	0.75	0.15	6.11



Stellar Parameters For KIC 009787349

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	5938^{+178}_{-160}	$3.629^{+0.345}_{-0.115}$	$-0.300^{+0.350}_{-0.300}$	$2.998^{+0.637}_{-1.275}$	$1.396^{+0.193}_{-0.387}$	$0.073^{+0.203}_{-0.026}$
	+3%/-3%	+10%/-3%	+117%/-100%	+21%/-43%	+14%/-28%	+278%/-36%
Source	PHO1	FLK73	KIC0	DSEP		

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

Secondary Eclipse Parameters for KIC 009787349-04 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-631 ± 46	$10.30^{+9.89}_{-6.89}$	515^{+35}_{-51}	5172^{+4273}_{-1140}	7181^{+57909}_{-5286}
Alt.	-200 ± 23	$11.10^{+9.26}_{-6.98}$	514^{+36}_{-54}	3979^{+2112}_{-671}	1874^{+12973}_{-1291}

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

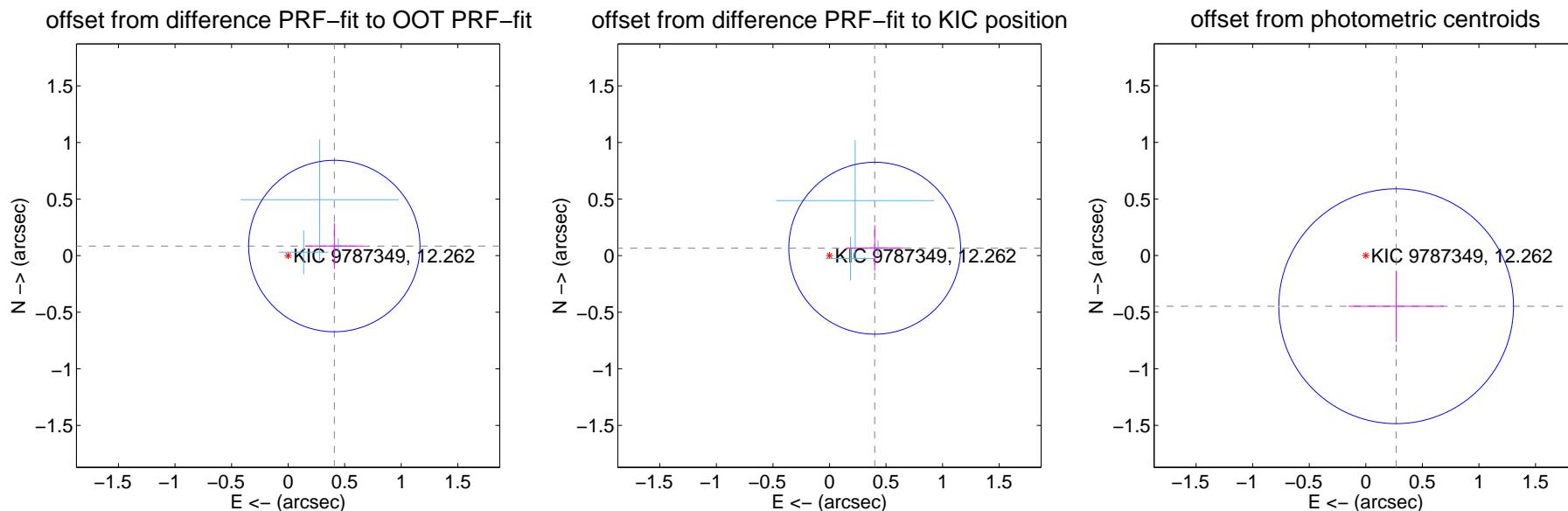
DV Centroid Data

Supplemental centroid analysis for 009787349-04. Kepler magnitude: 12.26. Transit SNR 6.86

There are 3 quarters with good PRF difference image offsets

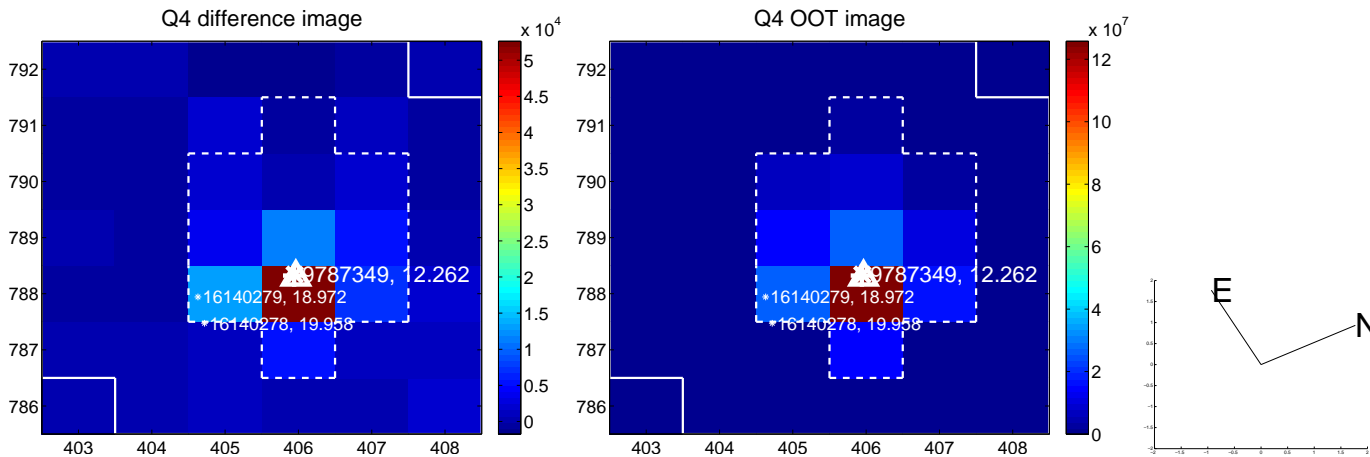
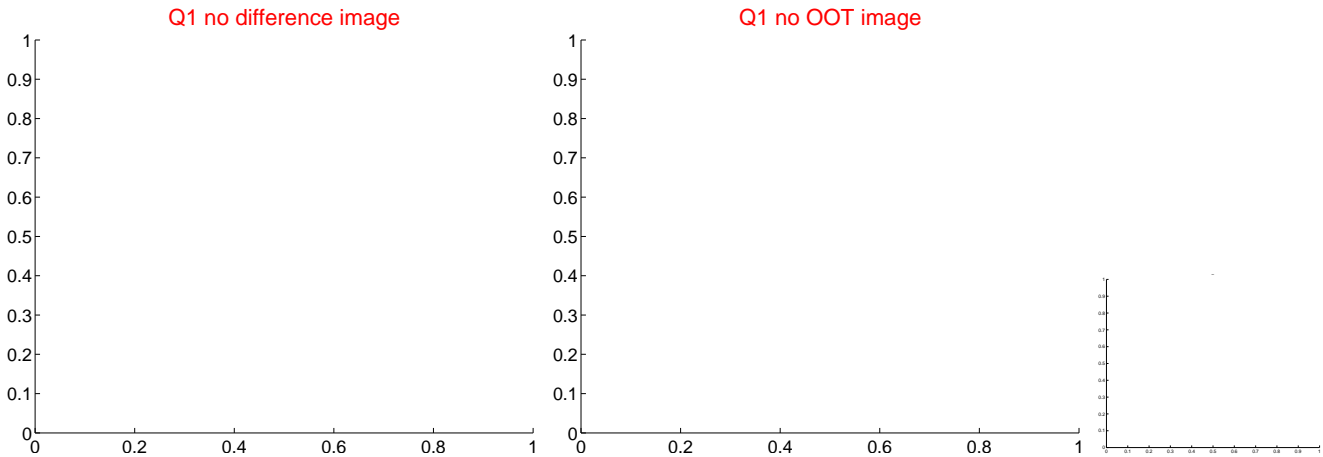
The direct PRF centroid is offset from the target star catalog position by about 0.05 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.417 ± 0.252	1.65	-0.408 ± 0.254	0.085 ± 0.202
PRF-fit source offset from KIC position	0.405 ± 0.253	1.60	-0.400 ± 0.254	0.066 ± 0.202
photometric centroid source offset	0.52 ± 0.35	1.51	-0.27 ± 0.42	-0.45 ± 0.31



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.

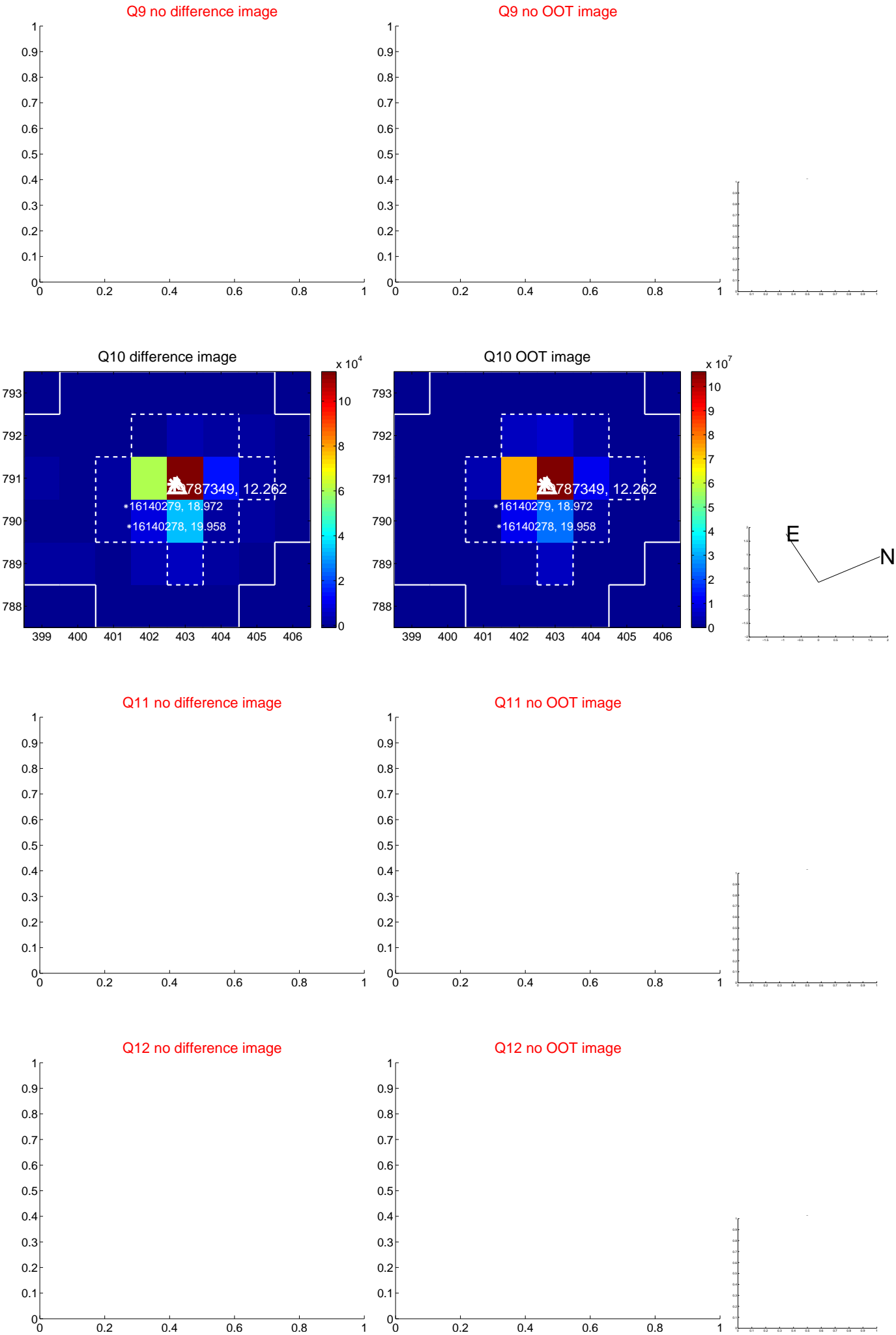
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



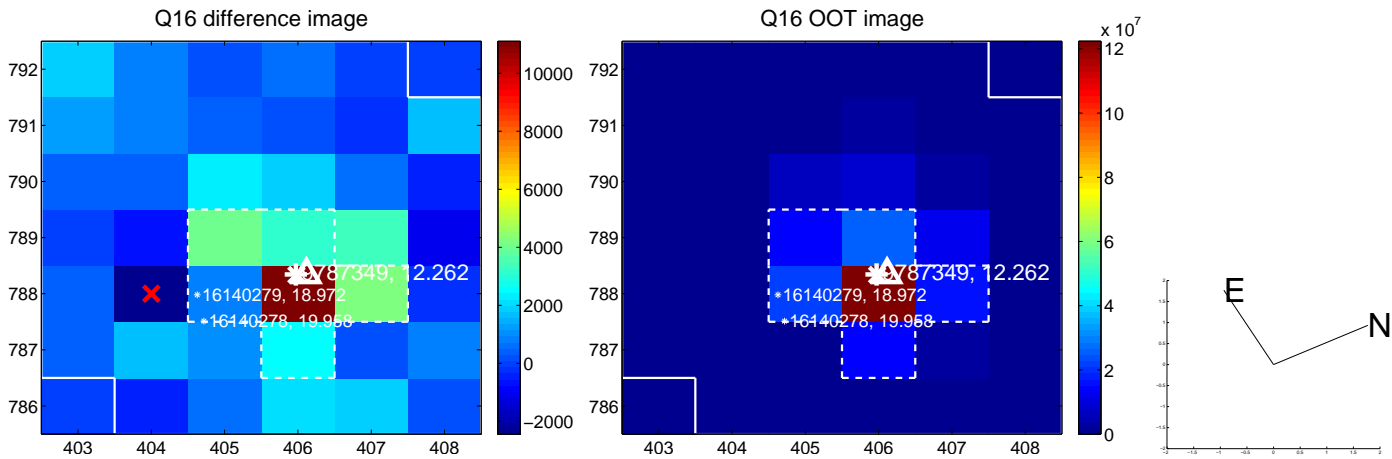
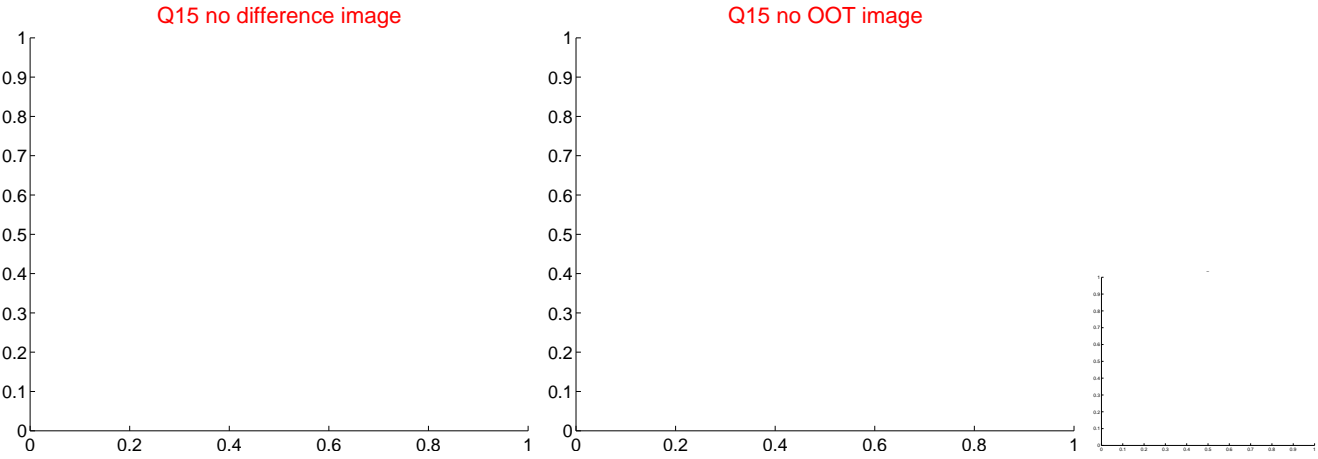
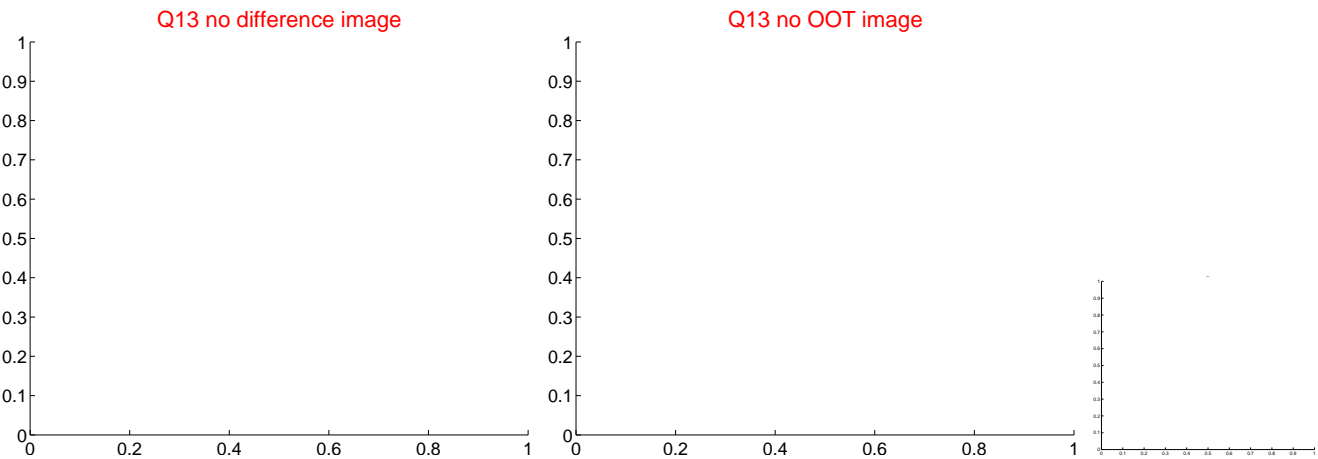
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



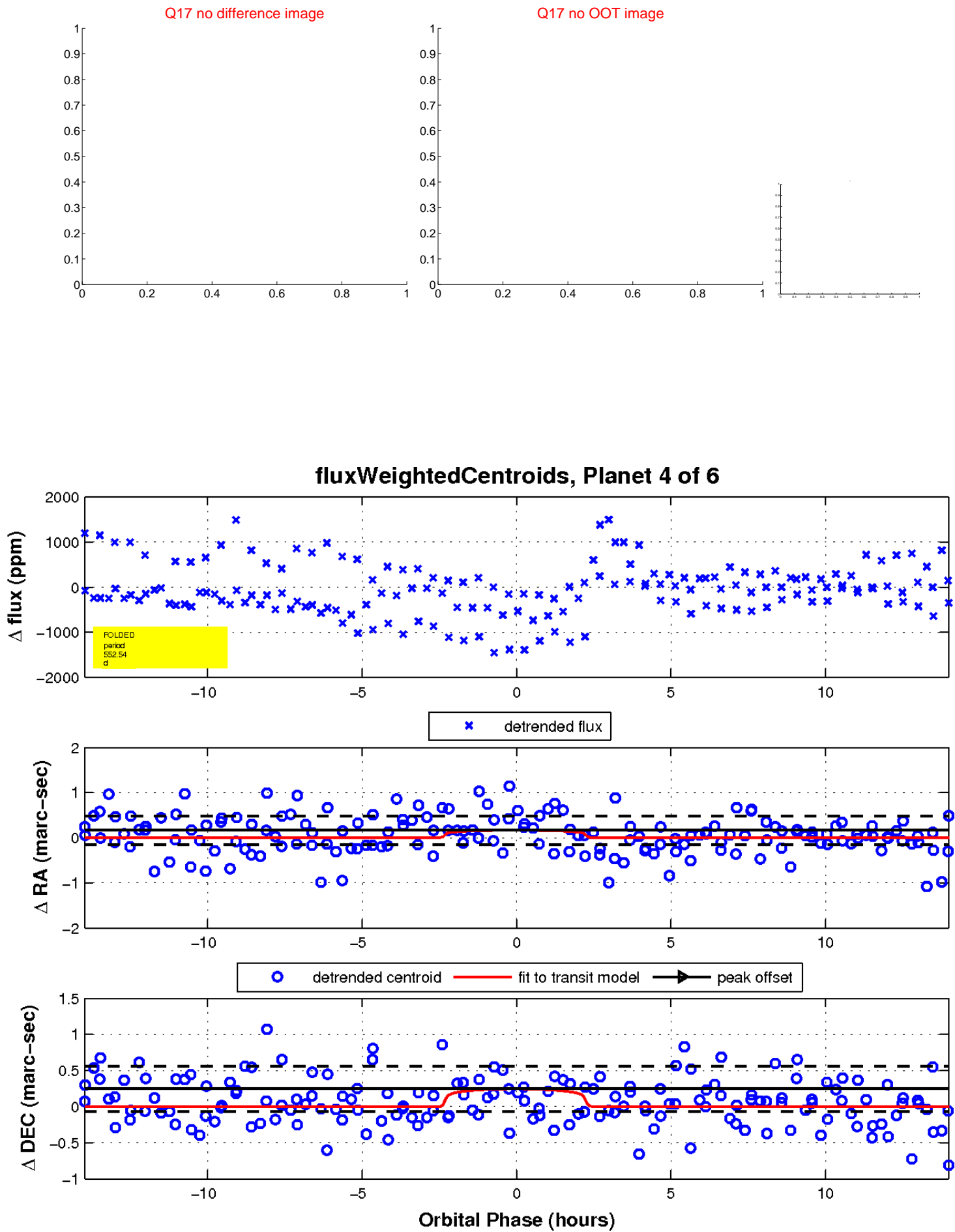
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

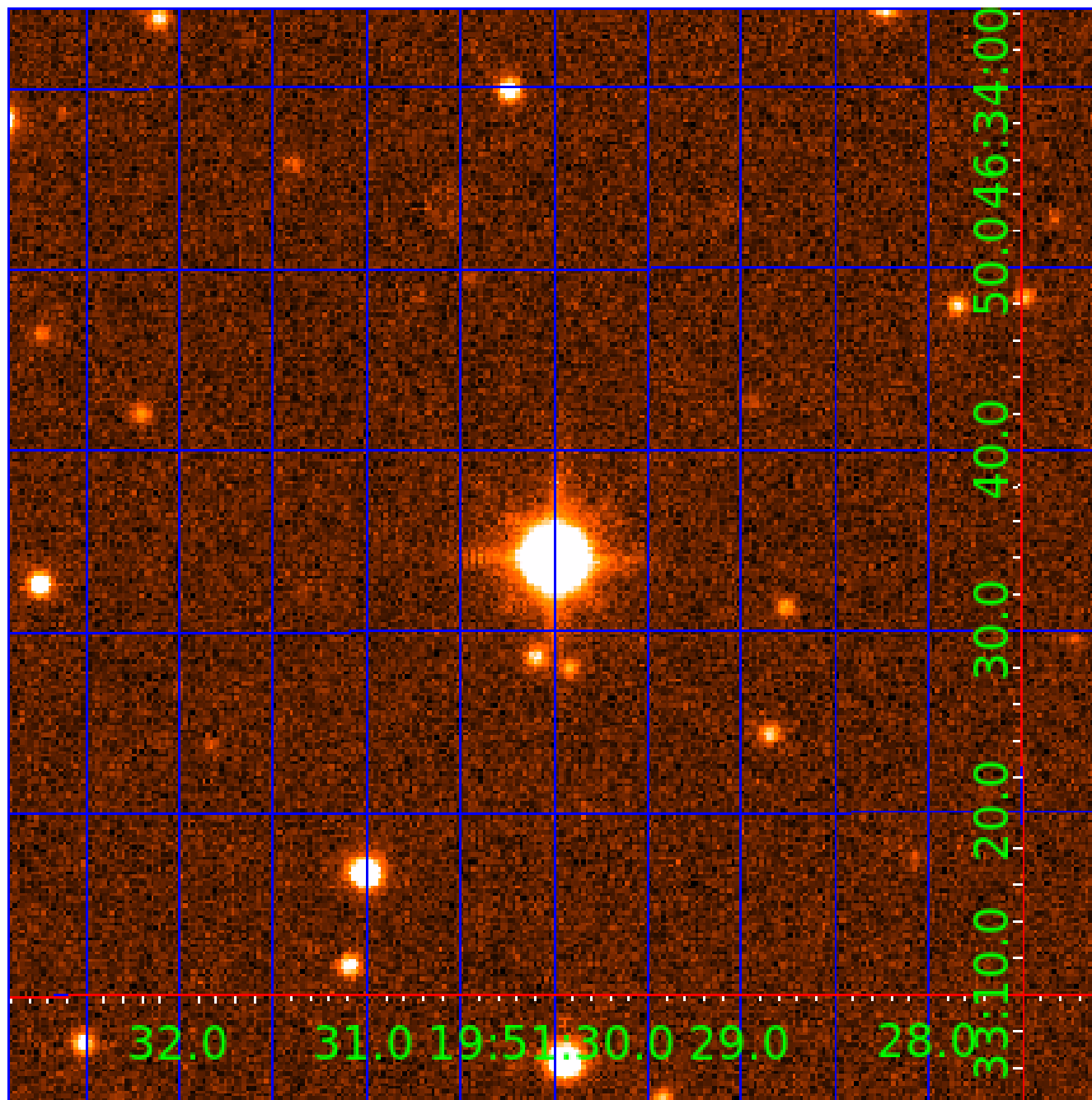


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 009787349

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})
009787349-01	OBS	No	353.912602	283.601514	510.1	4.520	15.6	5.4	3.00	5938	7.23	8.36
009787349-03	OBS	No	252.348852	223.305078	756.1	5.756	11.4	7.4	3.00	5938	10.48	13.12
009787349-04	OBS	No	552.540831	423.338703	642.2	4.704	12.0	6.9	3.00	5938	7.61	4.62
009787349-05	OBS	No	364.250475	447.576271	377.2	1.417	10.3	5.4	3.00	5938	6.24	8.04
009787349-06	OBS	No	563.231748	422.575976	490.9	3.557	14.9	5.8	3.00	5938	7.46	4.50

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009787349-01	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS—HALO_GHOST
009787349-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
009787349-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—MOD_NONUNIQ_DV—MOD_POS_DV—INCONSISTENT_TRANS
009787349-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_SKYE—LPP_DV—ALL_TRANS_CHASES—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS
009787349-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_SKYE—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS

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

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

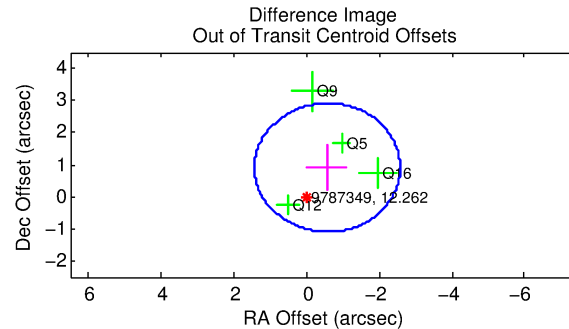
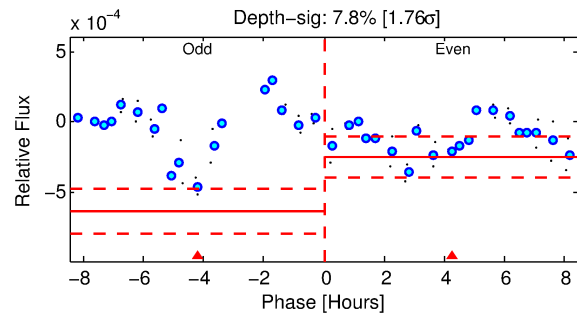
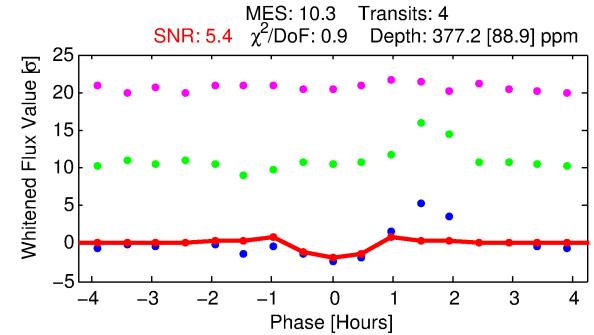
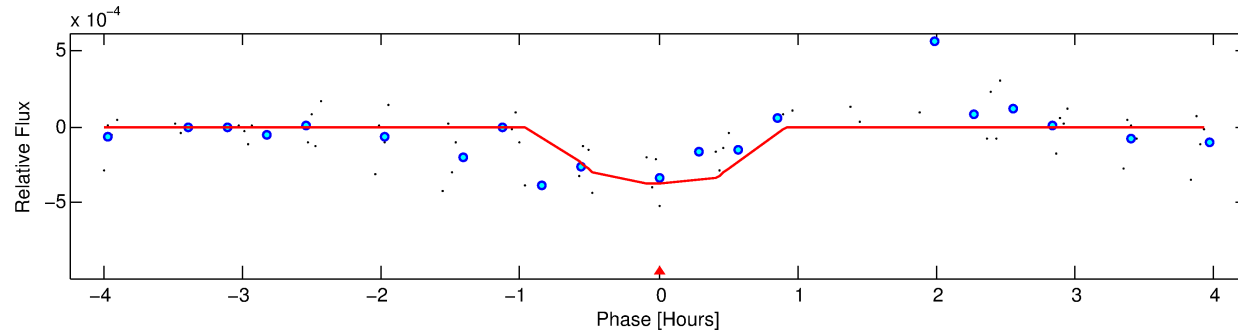
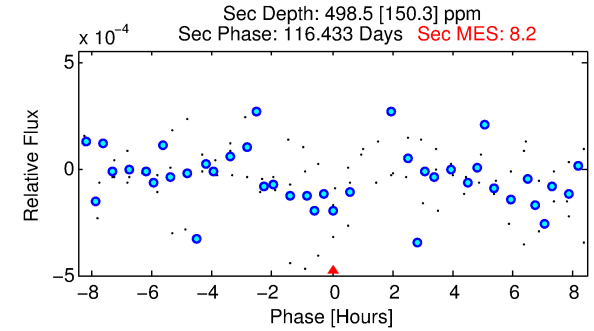
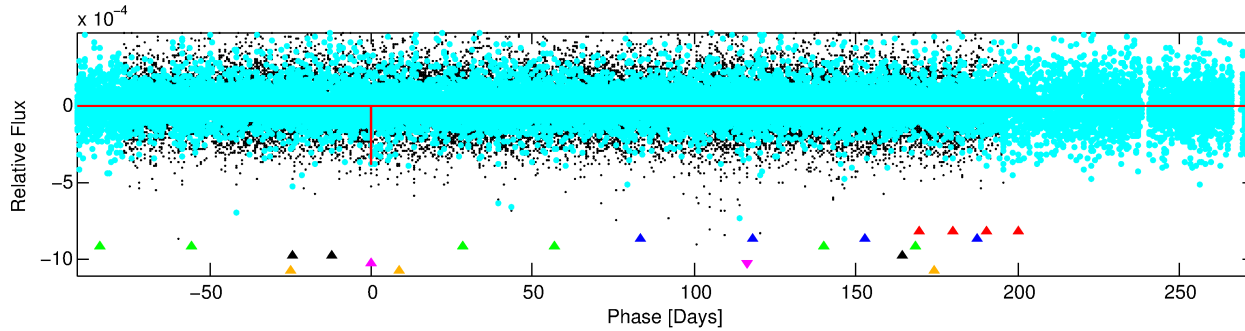
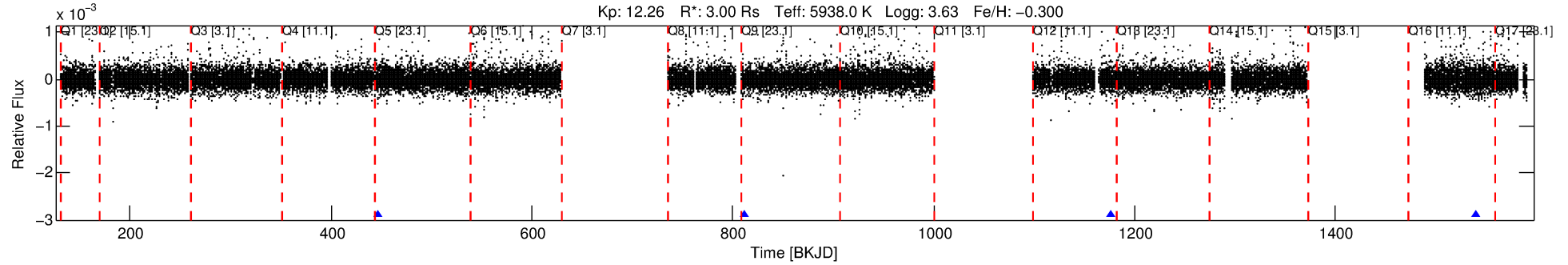
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 009787349-05

No Significant Match Found

DV One-Page Summary

KIC: 9787349 Candidate: 5 of 6 Period: 364.250 d



DV Fit Results:

Period = 364.25047 [0.00320] d
Epoch = 447.5763 [0.0061] BKJD
Rp/R* = 0.0191 [0.0185]
a/R* = 1470.17 [6866.70]
b = 0.69 [3.57]
Seff = 8.04 [4.93]
Teq = 429 [66] K
Rp = 6.24 [6.60] Re
a = 1.1156 [0.4328] AU
Ag = 8776.48 [18013.70] [0.49σ]
Teffp = 6426 [3159] K [1.90σ]

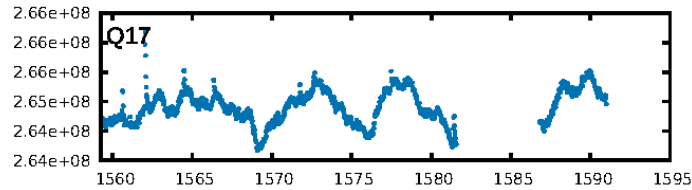
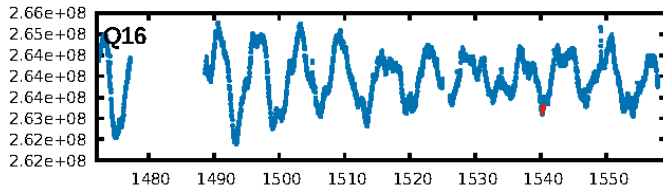
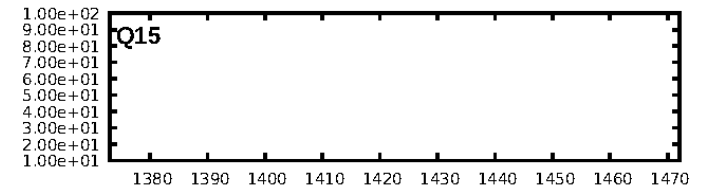
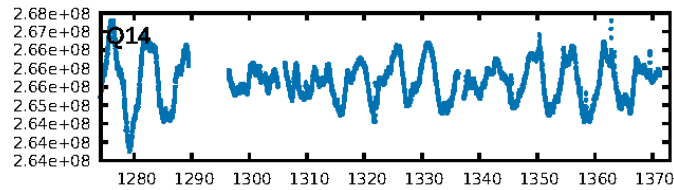
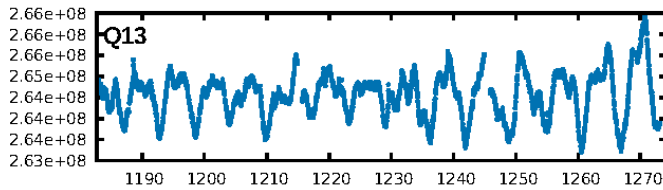
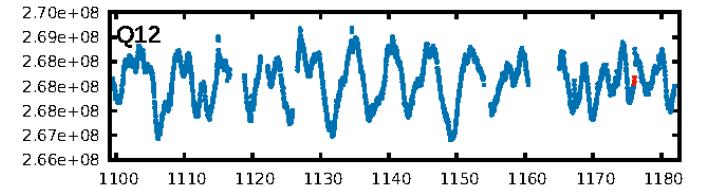
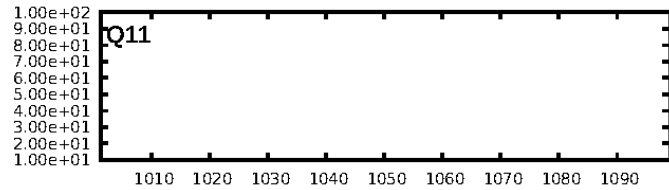
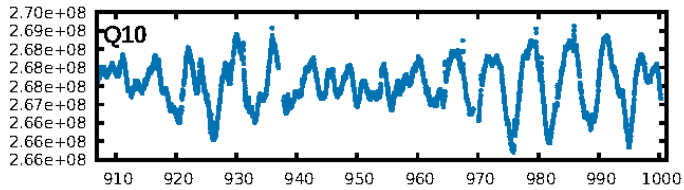
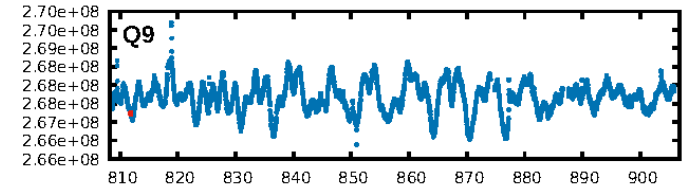
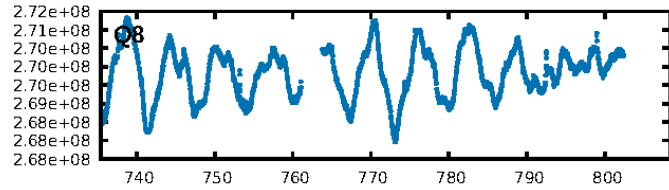
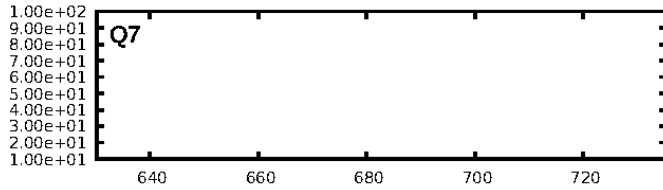
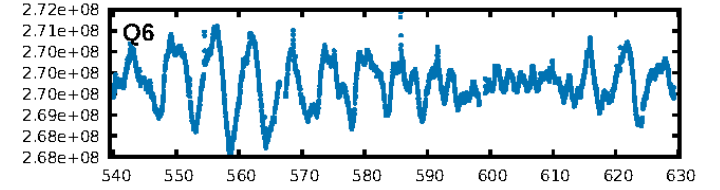
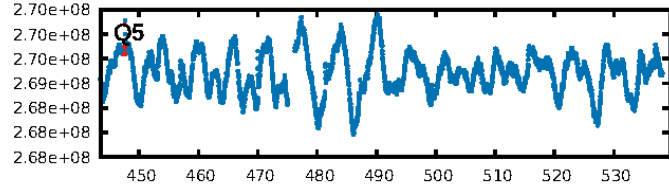
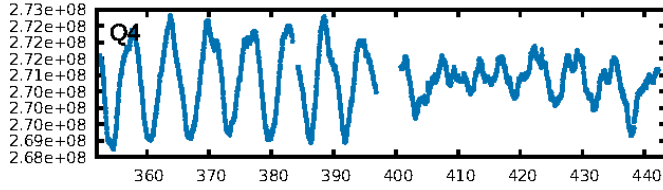
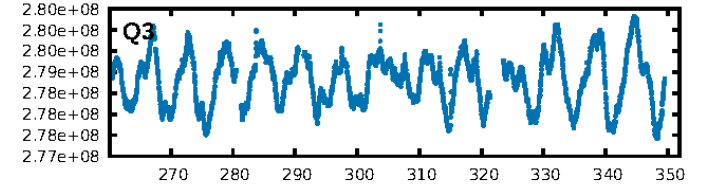
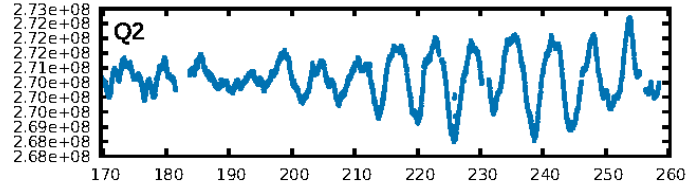
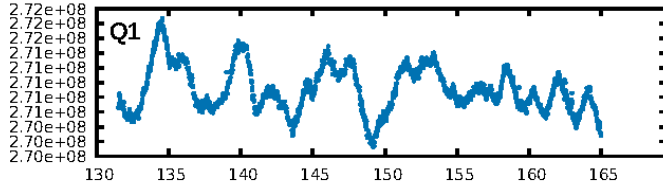
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [52.38σ]
LongPeriod-sig: 100.0% [260.87σ]
ModelChiSquare2-sig: 1.4%
ModelChiSquareGof-sig: 69.3%
Bootstrap-pfa: 1.30e-09
RollingBand-fgt: 1.00 [4/4]
GhostDiagnostic-chr: -0.3136
Centroid-sig: 38.5%
Centroid-so: 0.937 arcsec [1.00σ]
OotOffset-rm: 1.071 arcsec [1.60σ]
OotOffset-st: 0/0/2/2 [4]
KicOffset-rm: 1.059 arcsec [1.58σ]
KicOffset-st: 0/0/2/2 [4]
DiffImageQuality-fgm: 1.00 [4/4]
DiffImageOverlap-fno: 1.00 [4/4]

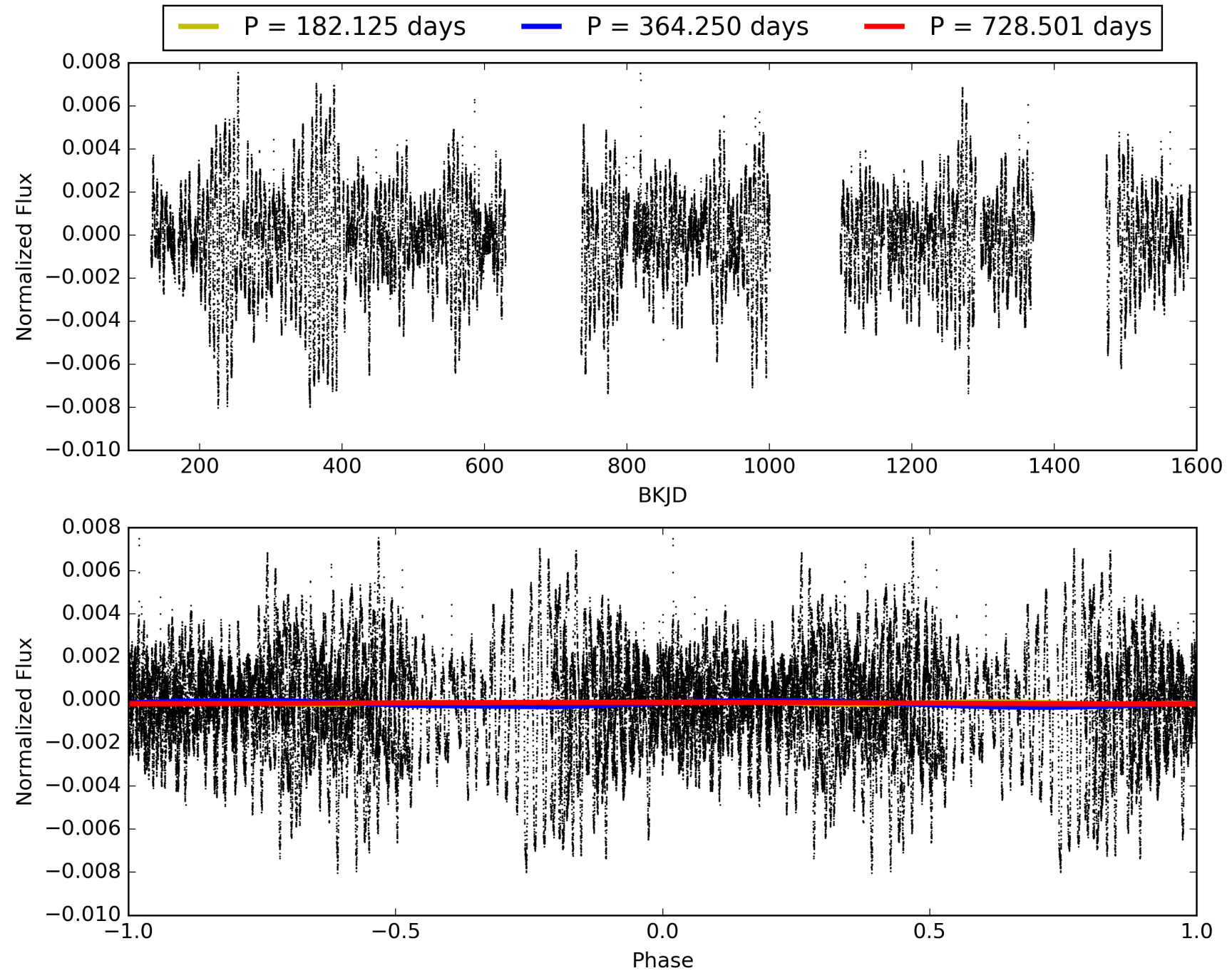
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 16:54:07 Z

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

TCE 009787349-05, PDC Light Curves

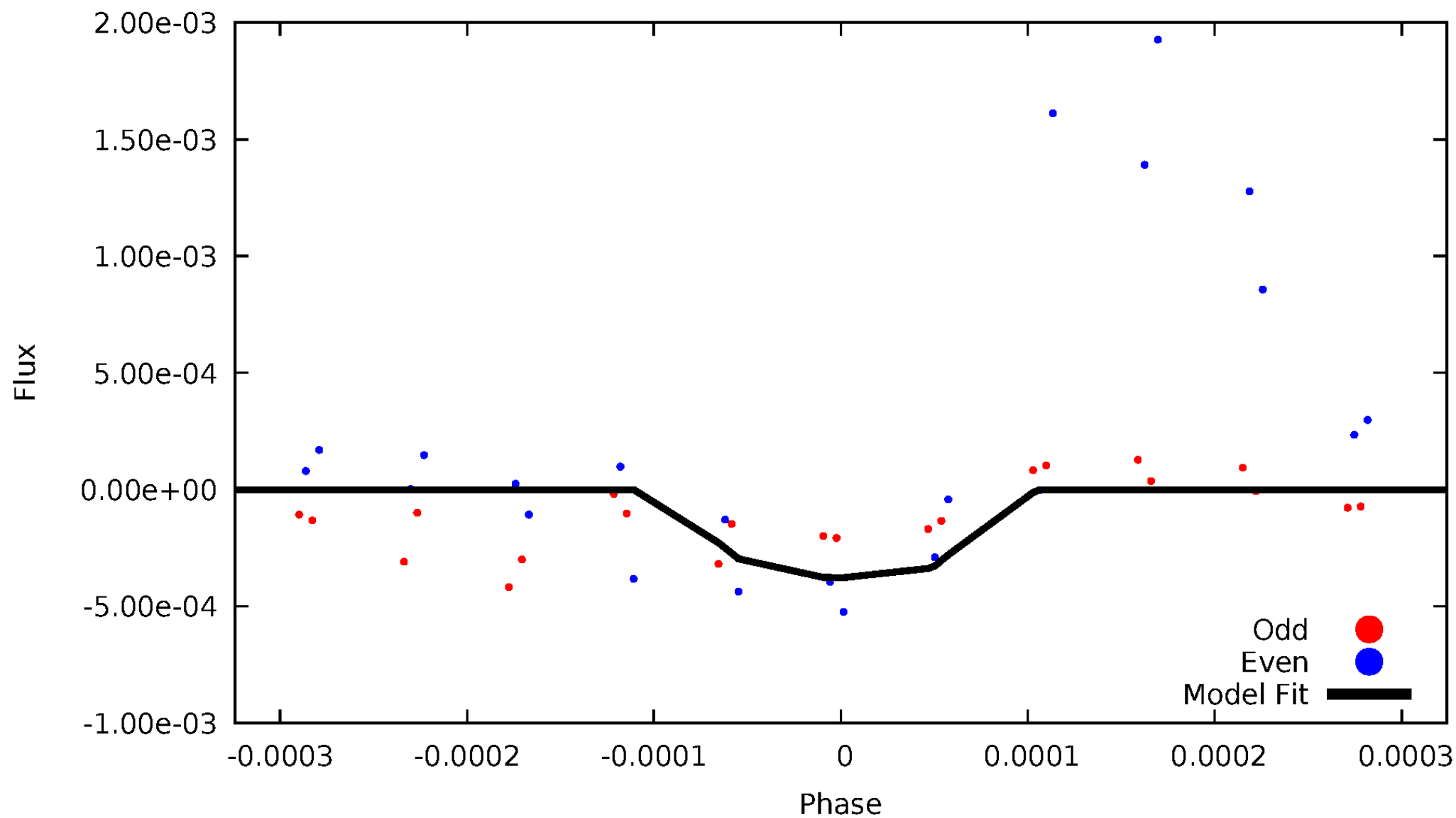


TCE 009787349-05



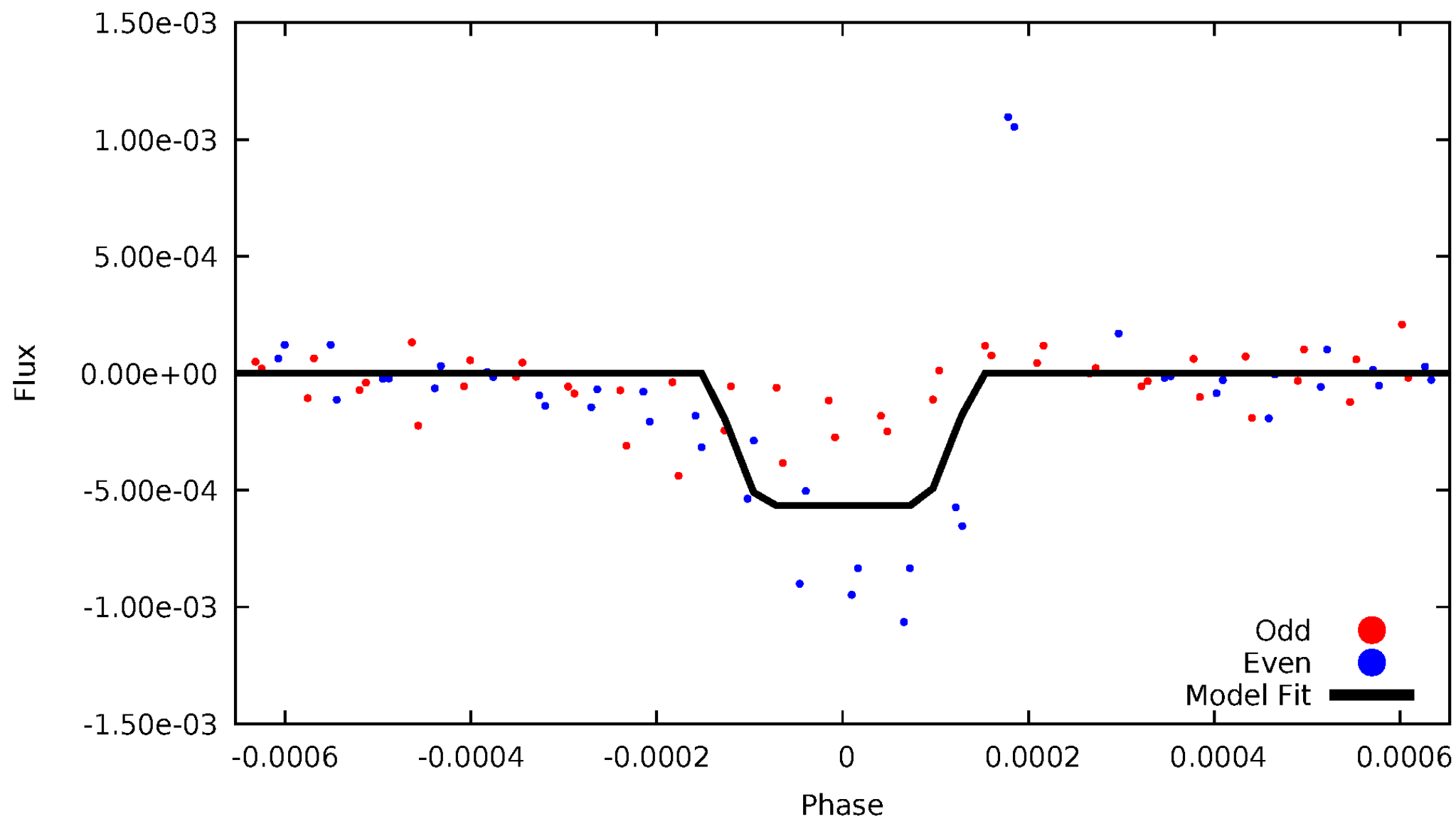
DV Odd/Even

TCE 009787349-05



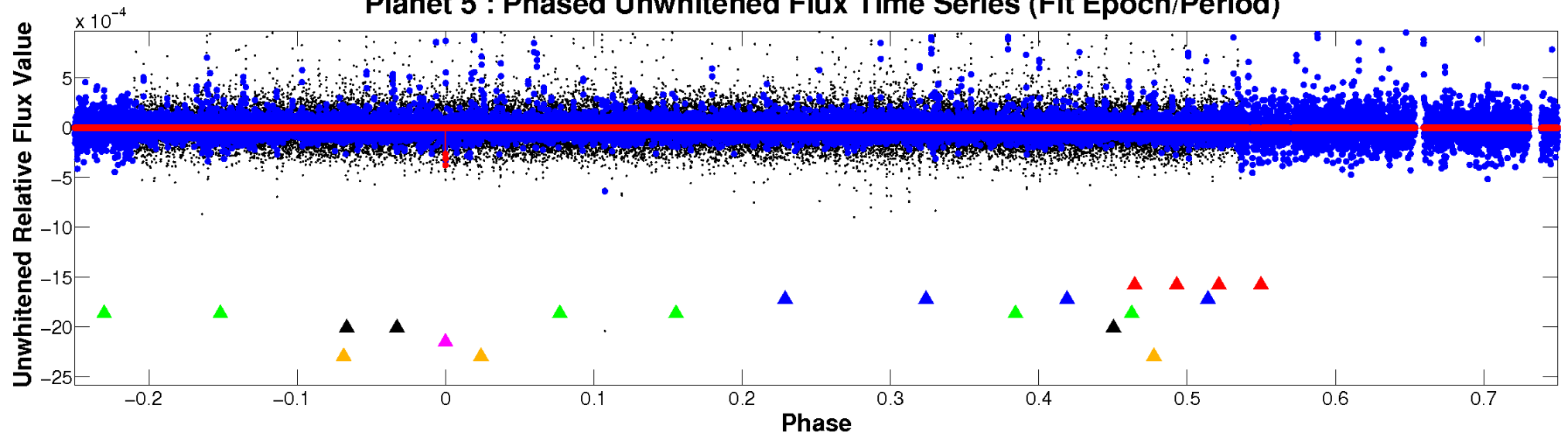
ALT Odd/Even

TCE 009787349-05

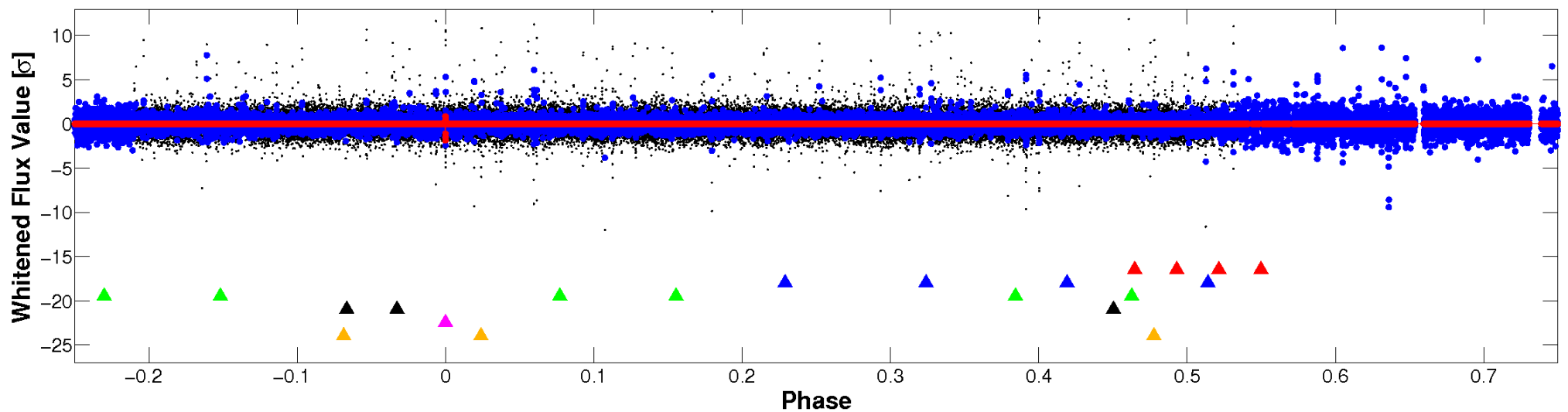


Non-Whitened Vs. Whitened Light Curve

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

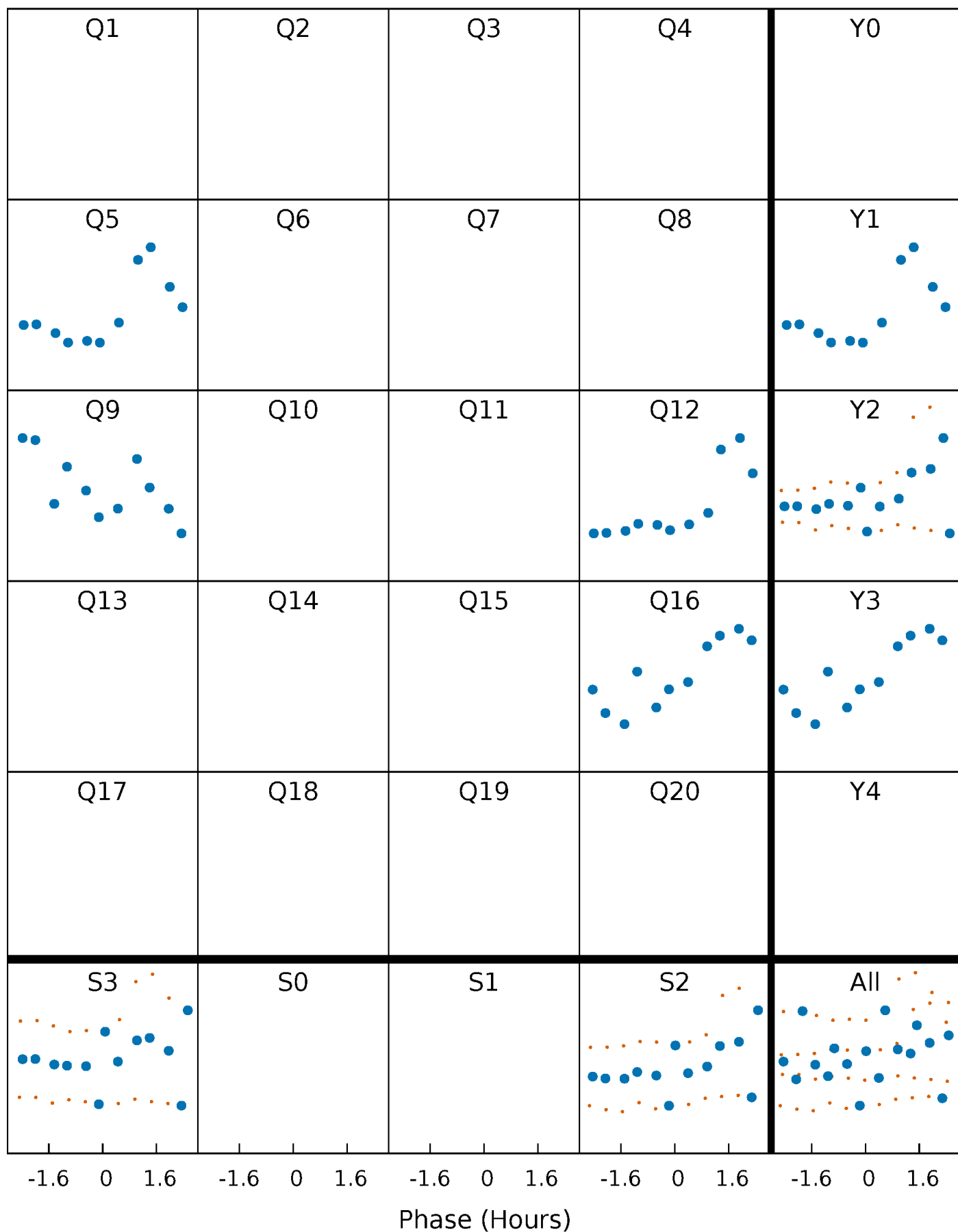


Planet 5 : Phased Whitened Flux Time Series (Fit Epoch/Period)



PDC Quarter-Phased Transit Curves

TCE 009787349-05 $P=364.250475$ Days $T_0=447.576271$ (BKJD)



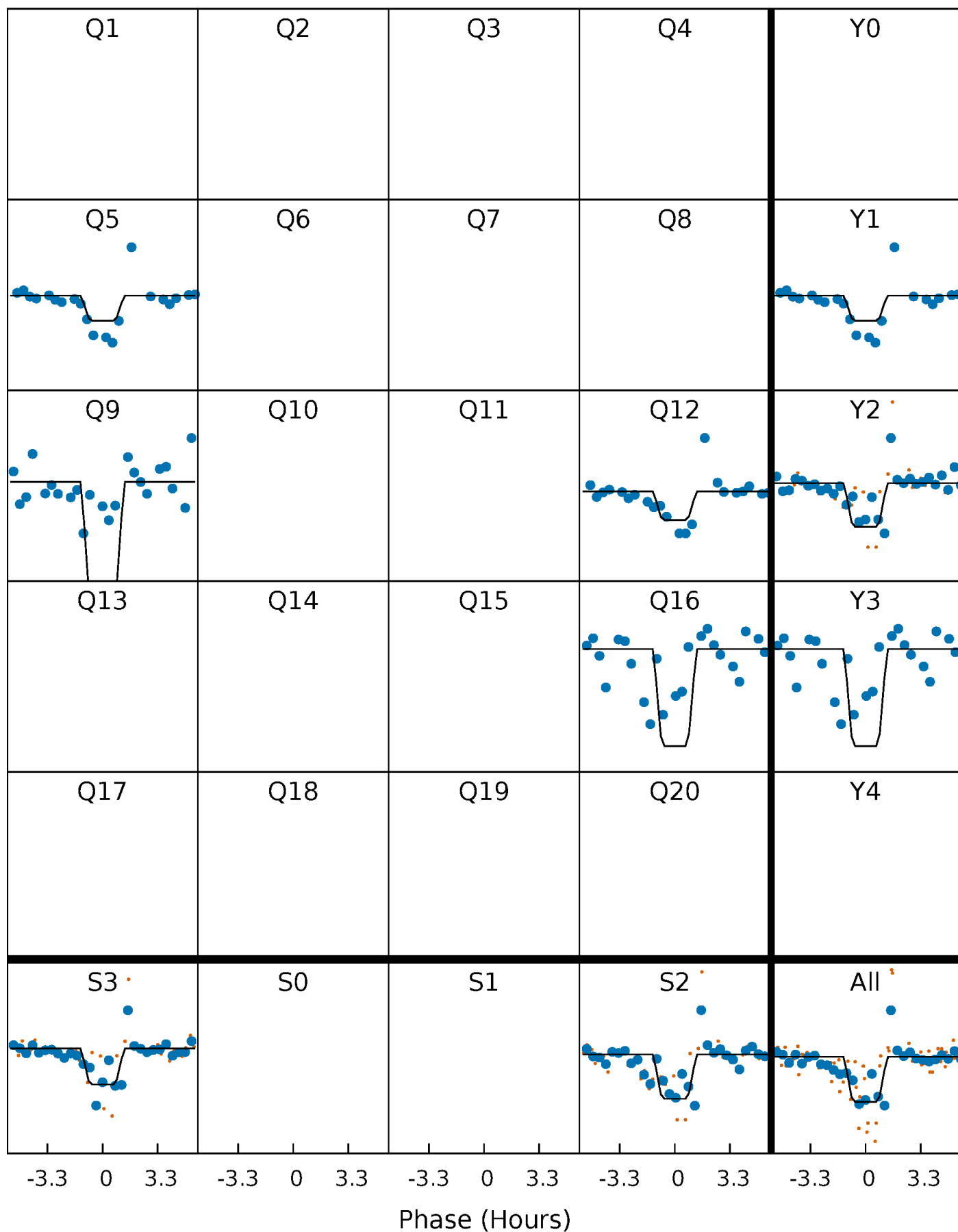
DV Quarter-Phased Transit Curves

TCE 009787349-05 $P=364.250475$ Days $T_0=447.576271$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

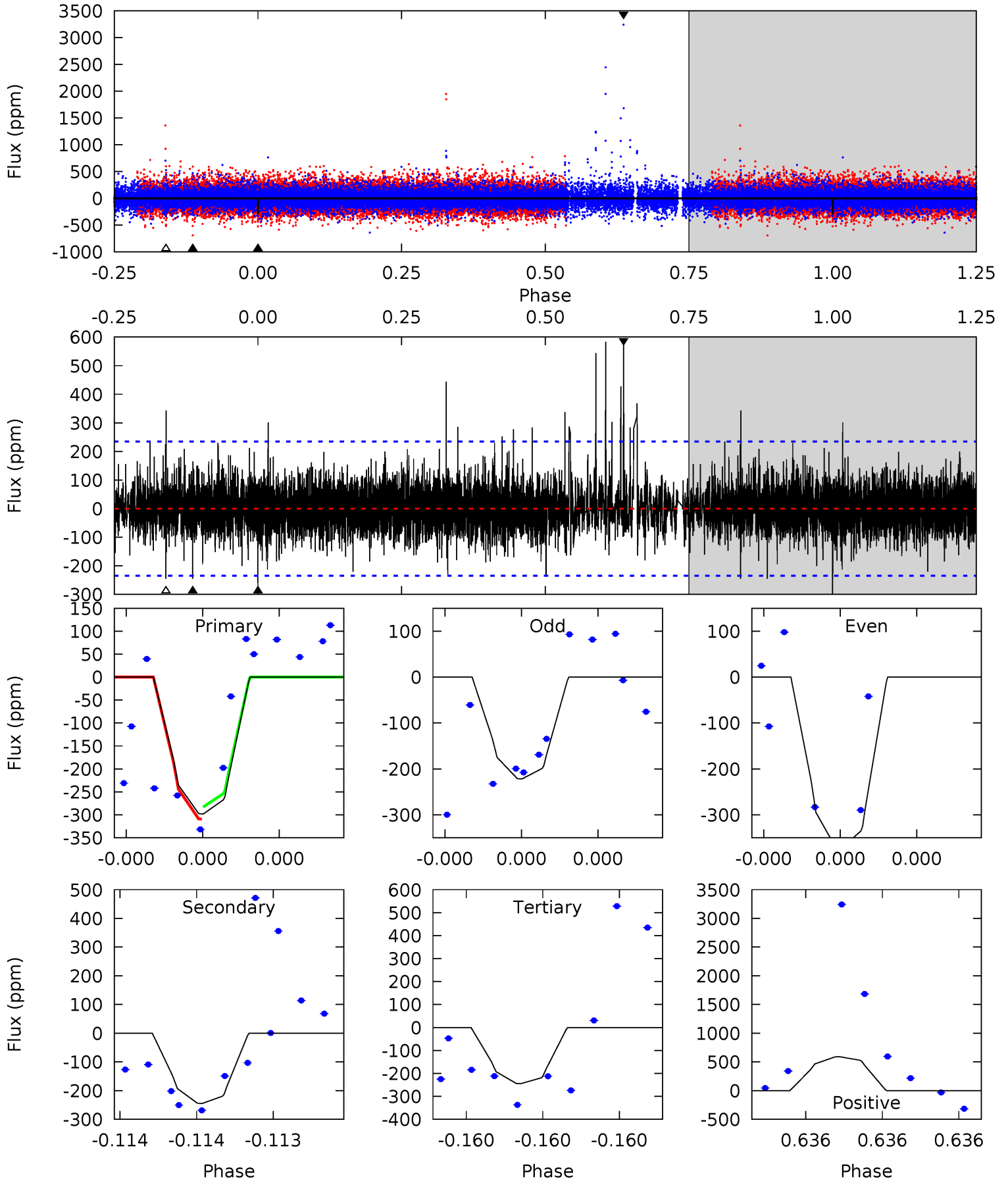
TCE 009787349-05 $P=364.258187$ Days $T_0=447.552680$ (BKJD)



DV Model-Shift Uniqueness Test

009787349-05, P = 364.250475 Days, E = 83.325796 Days

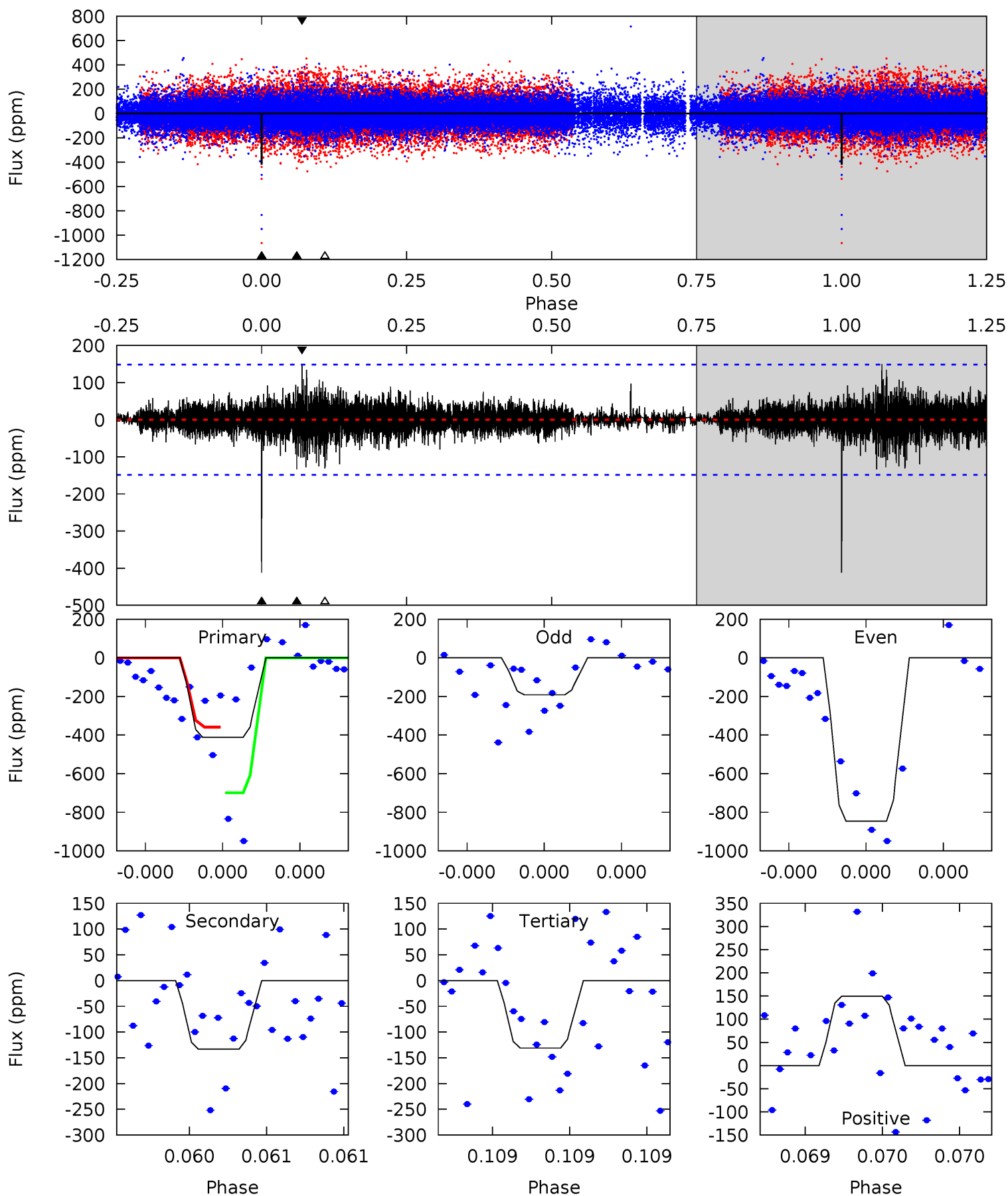
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
7.32	6.01	6.01	14.5	5.76	3.76	1.40	1.31	-7.15	0.01	-8.46	1.73	1.02	0.66	0.33



Alt Model-Shift Uniqueness Test

009787349-05, P = 364.258187 Days, E = 83.294493 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
15.8	5.10	5.01	5.72	5.68	3.64	0.89	10.7	10.0	0.09	-0.62	13.2	1.09	0.27	6.15



Stellar Parameters For KIC 009787349

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	5938^{+178}_{-160}	$3.629^{+0.345}_{-0.115}$	$-0.300^{+0.350}_{-0.300}$	$2.998^{+0.637}_{-1.275}$	$1.396^{+0.193}_{-0.387}$	$0.073^{+0.203}_{-0.026}$
	+3%/-3%	+10%/-3%	+117%/-100%	+21%/-43%	+14%/-28%	+278%/-36%
Source	PHO1	FLK73	KIC0	DSEP		

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

Secondary Eclipse Parameters for KIC 009787349-05 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-245 ± 41	$7.06^{+5.46}_{-4.63}$	591^{+37}_{-63}	4975^{+3372}_{-931}	3399^{+23881}_{-2349}
Alt.	-133 ± 26	$7.51^{+5.77}_{-4.29}$	592^{+39}_{-61}	4233^{+1945}_{-683}	1589^{+6897}_{-1075}

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 $A_{obs} \gg 1.0$

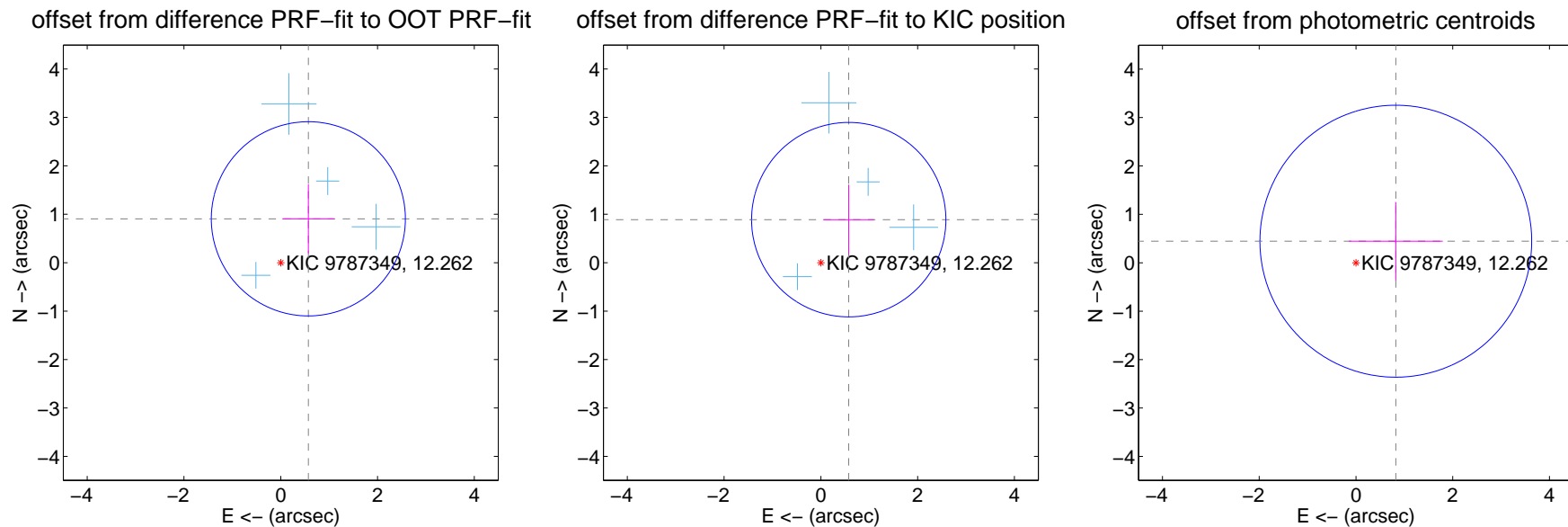
DV Centroid Data

Supplemental centroid analysis for 009787349-05. Kepler magnitude: 12.26. Transit SNR 5.38

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	1.071 ± 0.669	1.60	-0.570 ± 0.537	0.906 ± 0.714
PRF-fit source offset from KIC position	1.059 ± 0.669	1.58	-0.576 ± 0.525	0.889 ± 0.721
photometric centroid source offset	0.94 ± 0.94	1.00	-0.82 ± 0.97	0.45 ± 0.81

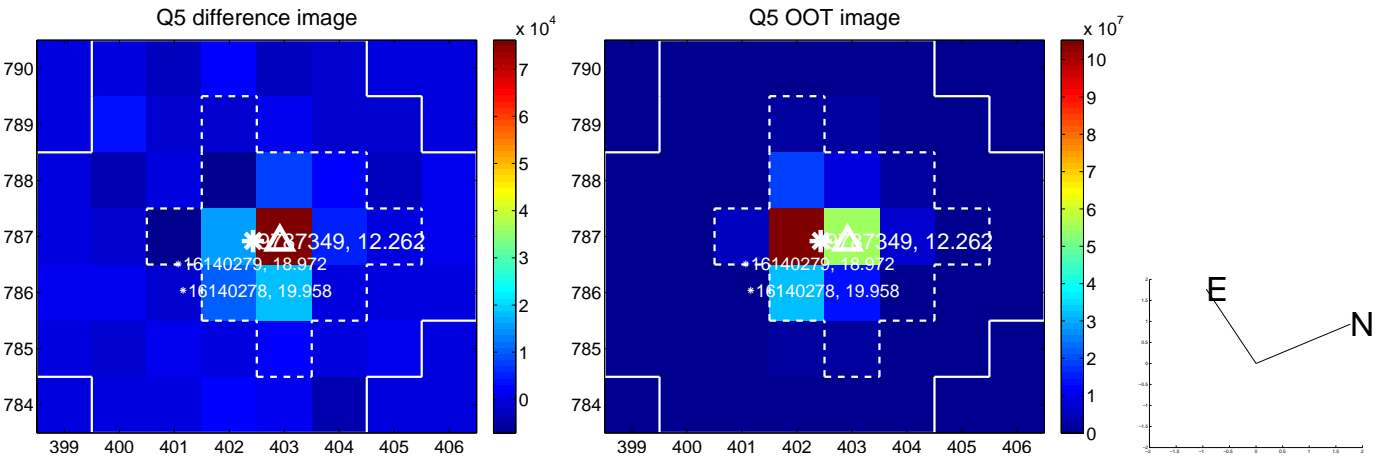


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

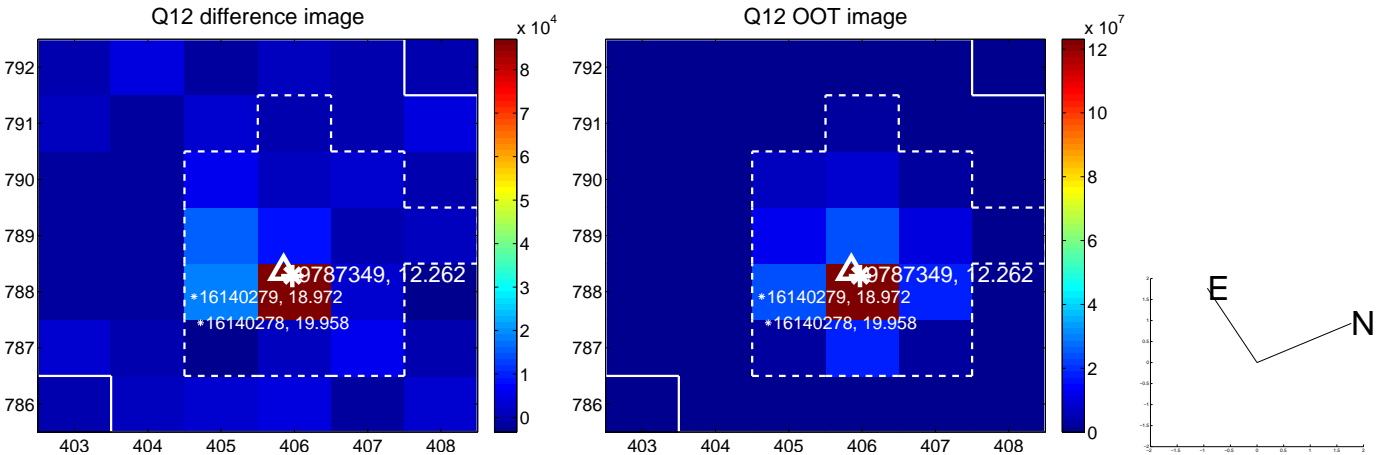
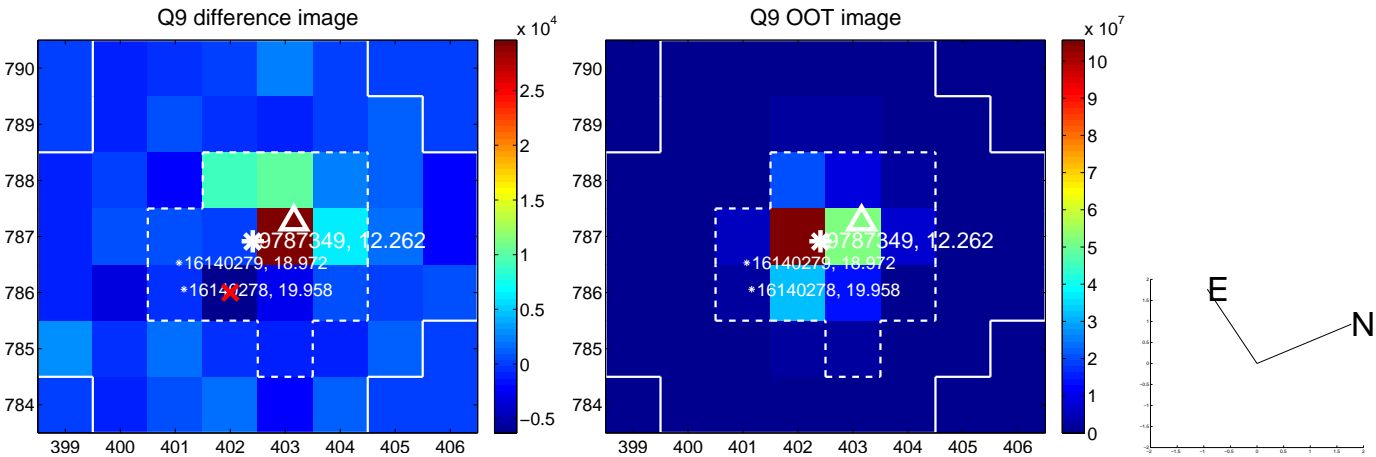
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



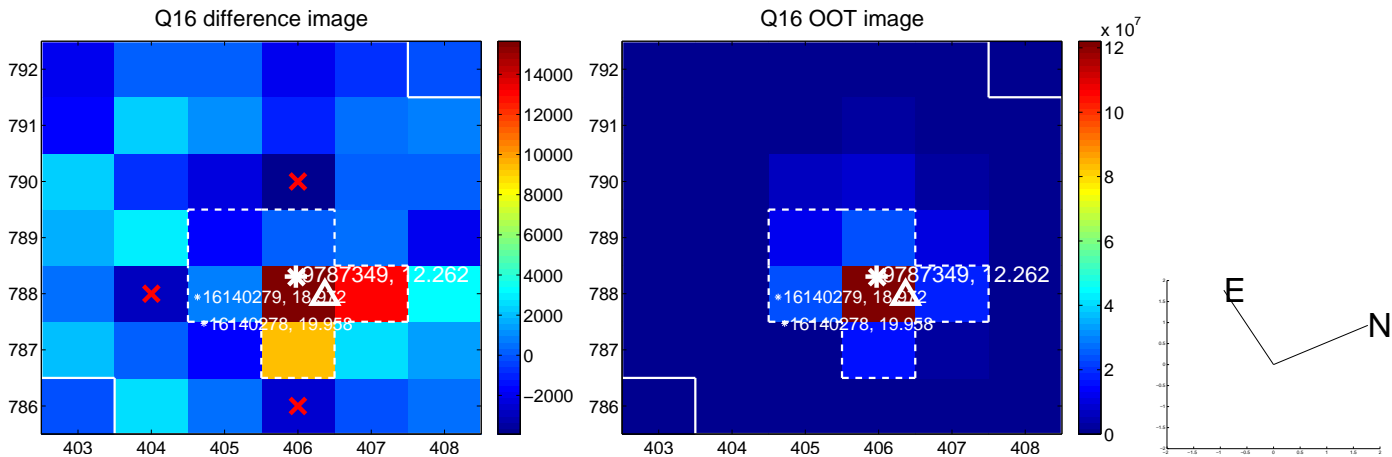
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



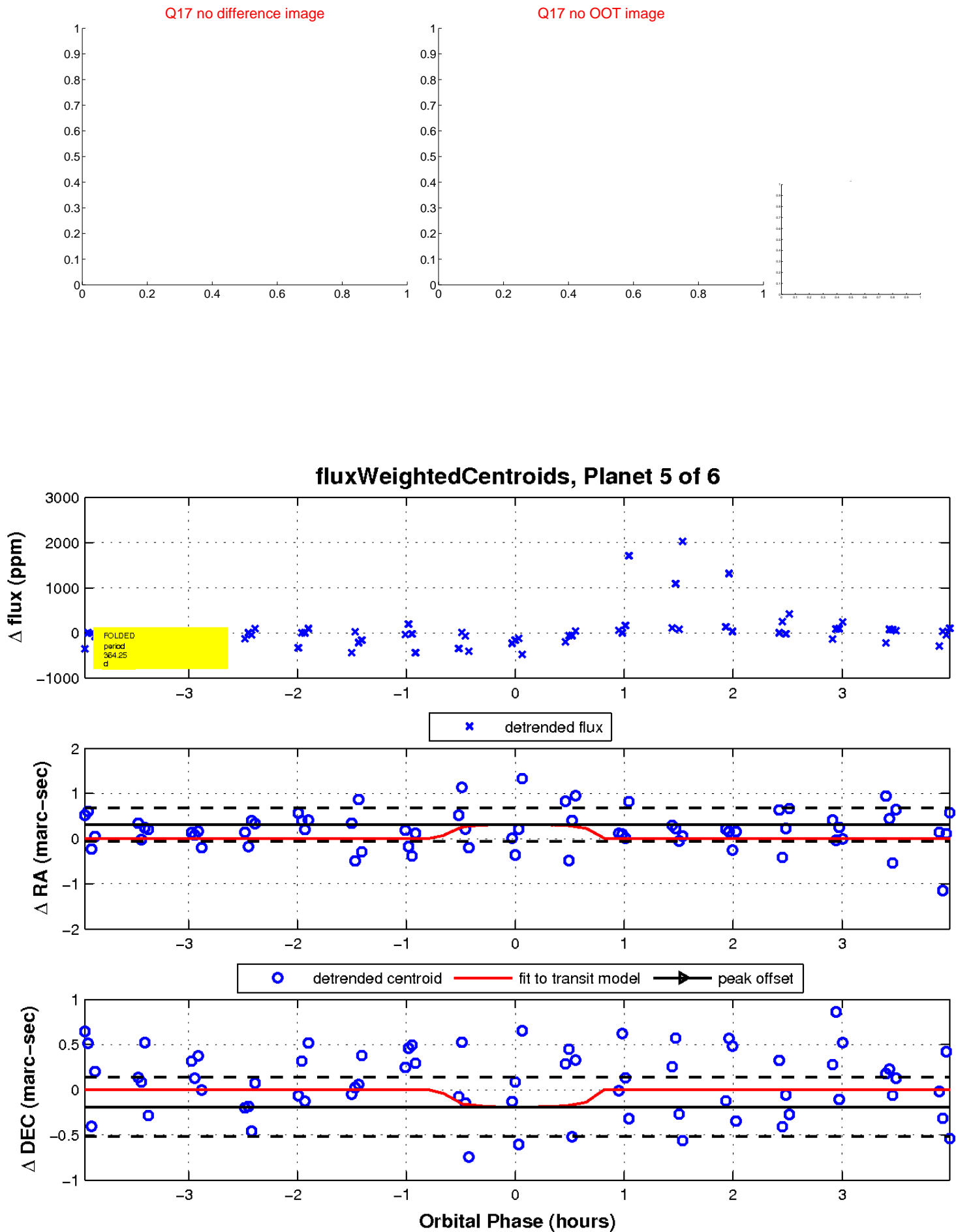
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

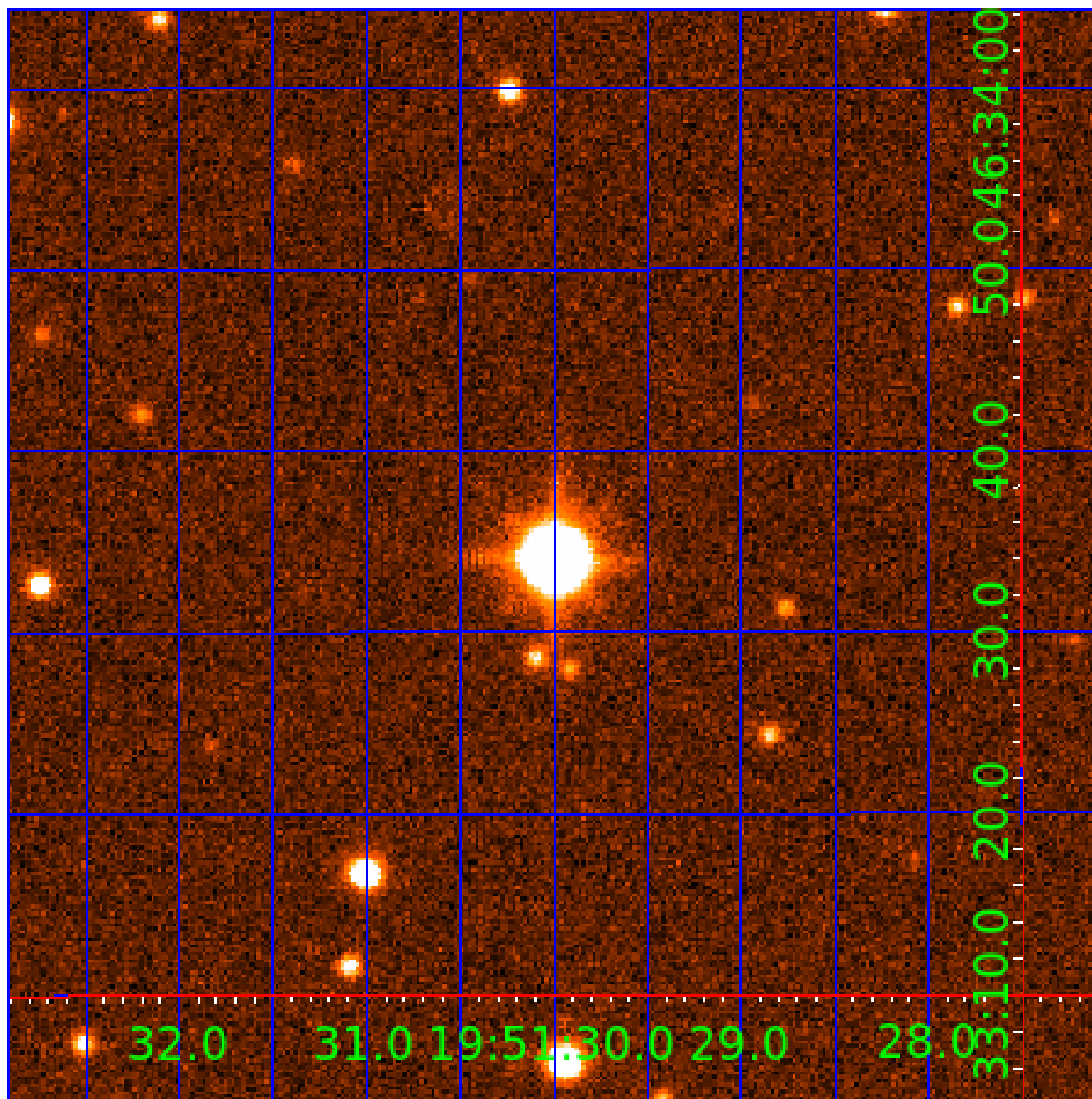


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 009787349

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})
009787349-01	OBS	No	353.912602	283.601514	510.1	4.520	15.6	5.4	3.00	5938	7.23	8.36
009787349-03	OBS	No	252.348852	223.305078	756.1	5.756	11.4	7.4	3.00	5938	10.48	13.12
009787349-04	OBS	No	552.540831	423.338703	642.2	4.704	12.0	6.9	3.00	5938	7.61	4.62
009787349-05	OBS	No	364.250475	447.576271	377.2	1.417	10.3	5.4	3.00	5938	6.24	8.04
009787349-06	OBS	No	563.231748	422.575976	490.9	3.557	14.9	5.8	3.00	5938	7.46	4.50

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009787349-01	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS—HALO_GHOST
009787349-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
009787349-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—MOD_NONUNIQ_DV—MOD_POS_DV—INCONSISTENT_TRANS
009787349-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_SKYE—LPP_DV—ALL_TRANS_CHASES—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS
009787349-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_SKYE—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS

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

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

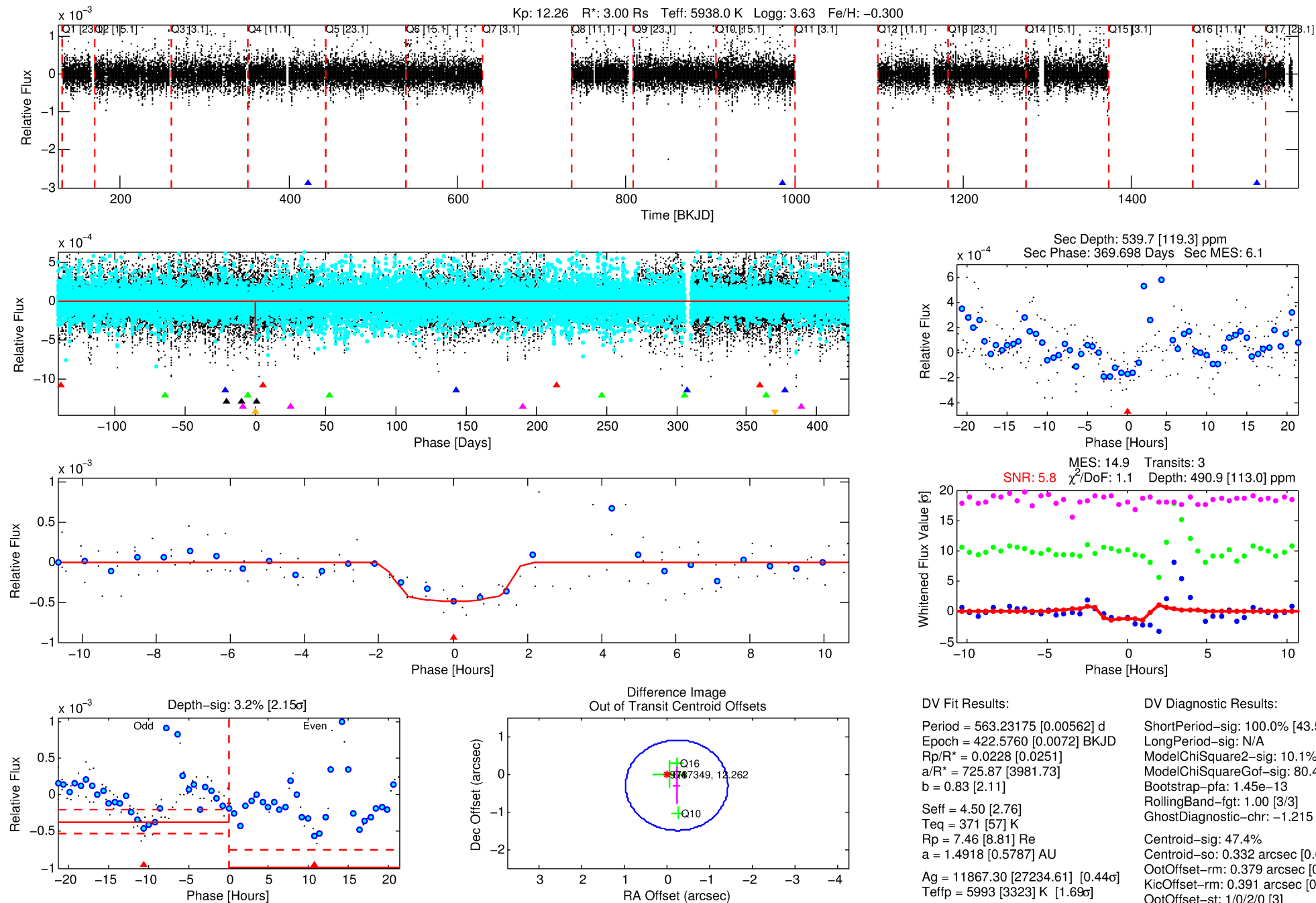
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 009787349-06

No Significant Match Found

DV One-Page Summary

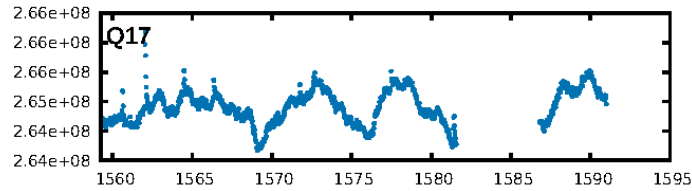
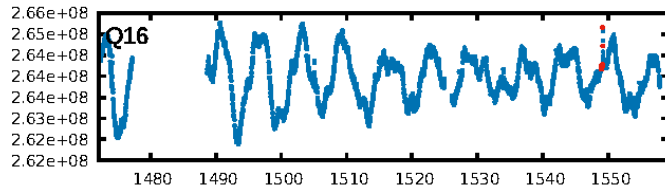
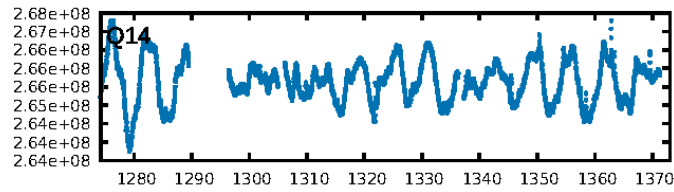
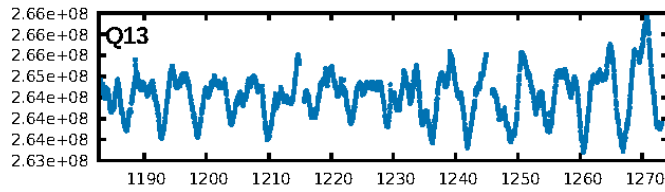
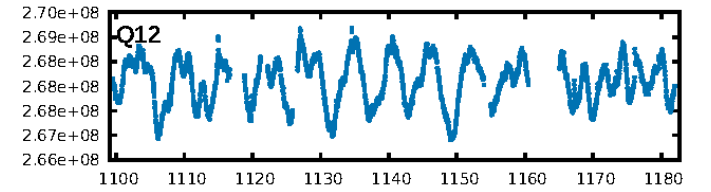
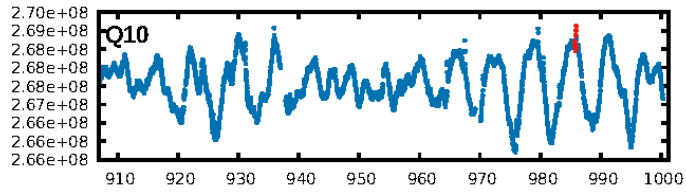
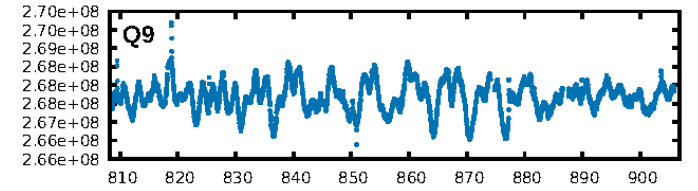
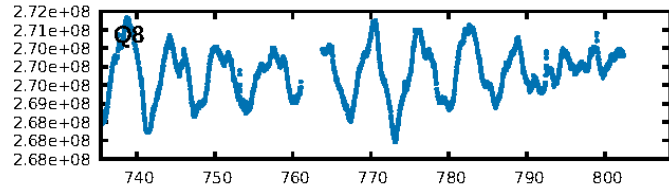
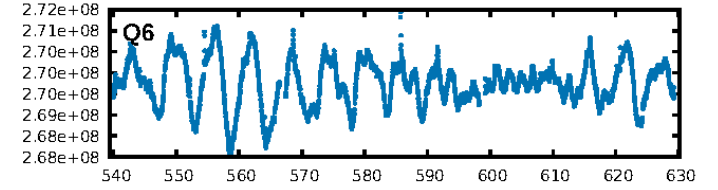
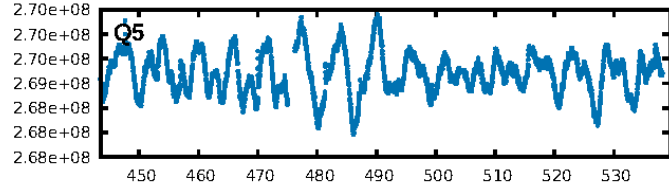
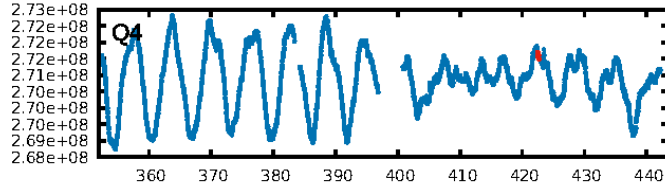
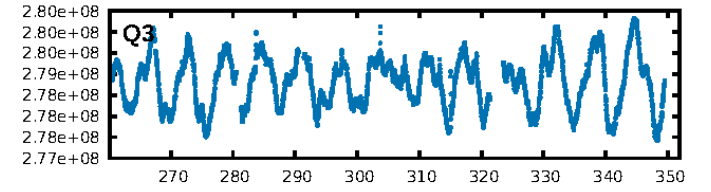
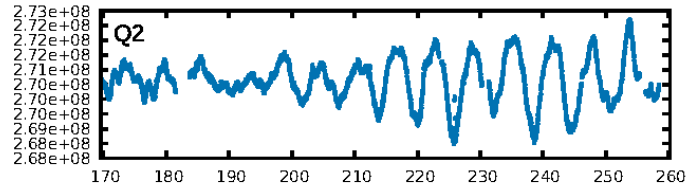
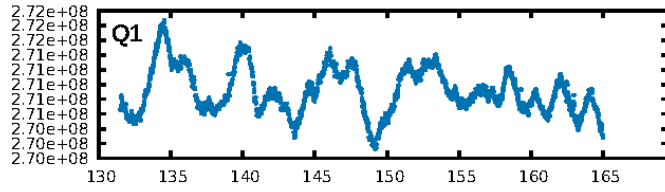
KIC: 9787349 Candidate: 6 of 6 Period: 563.232 d



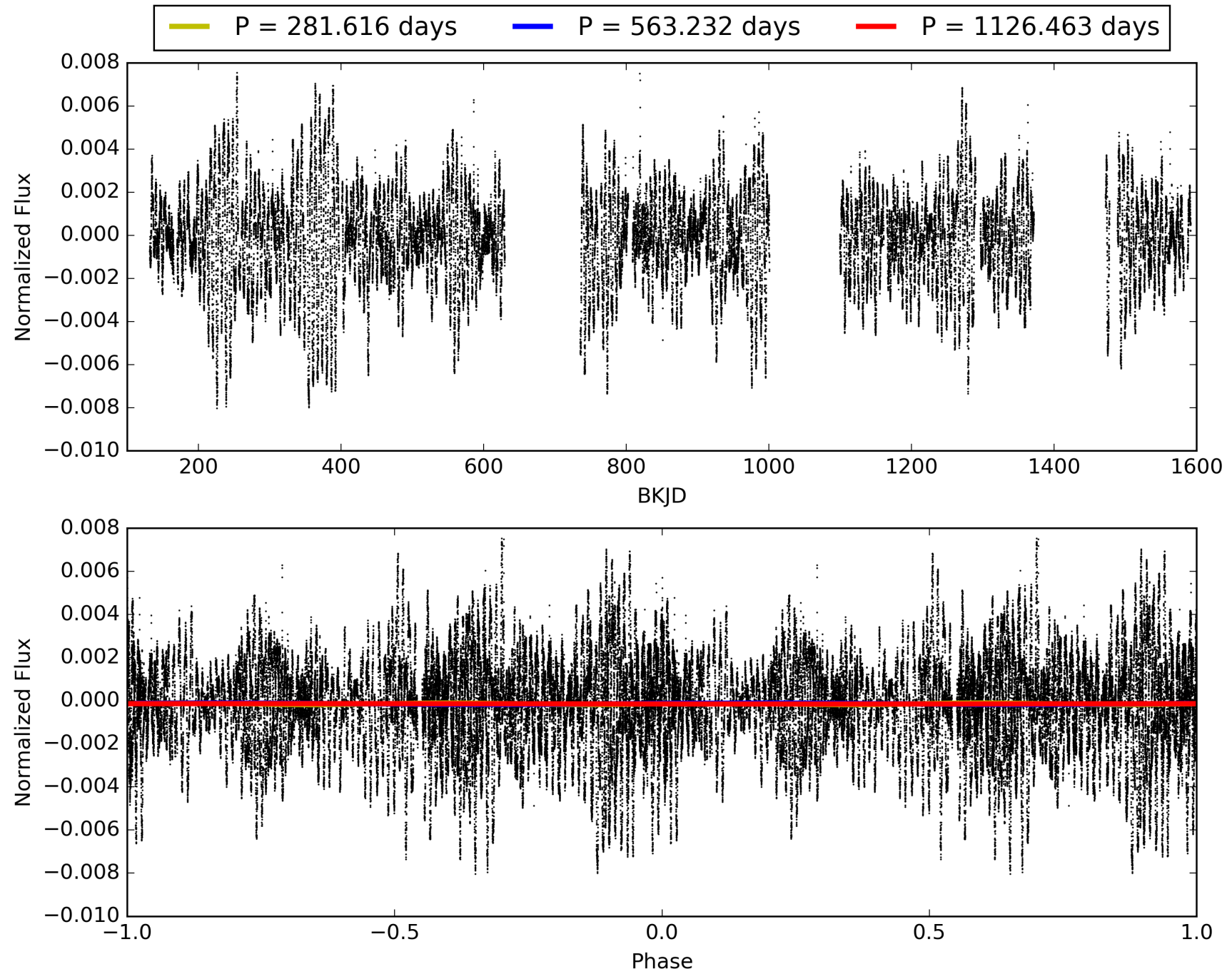
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 16:54:25 Z

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

TCE 009787349-06, PDC Light Curves

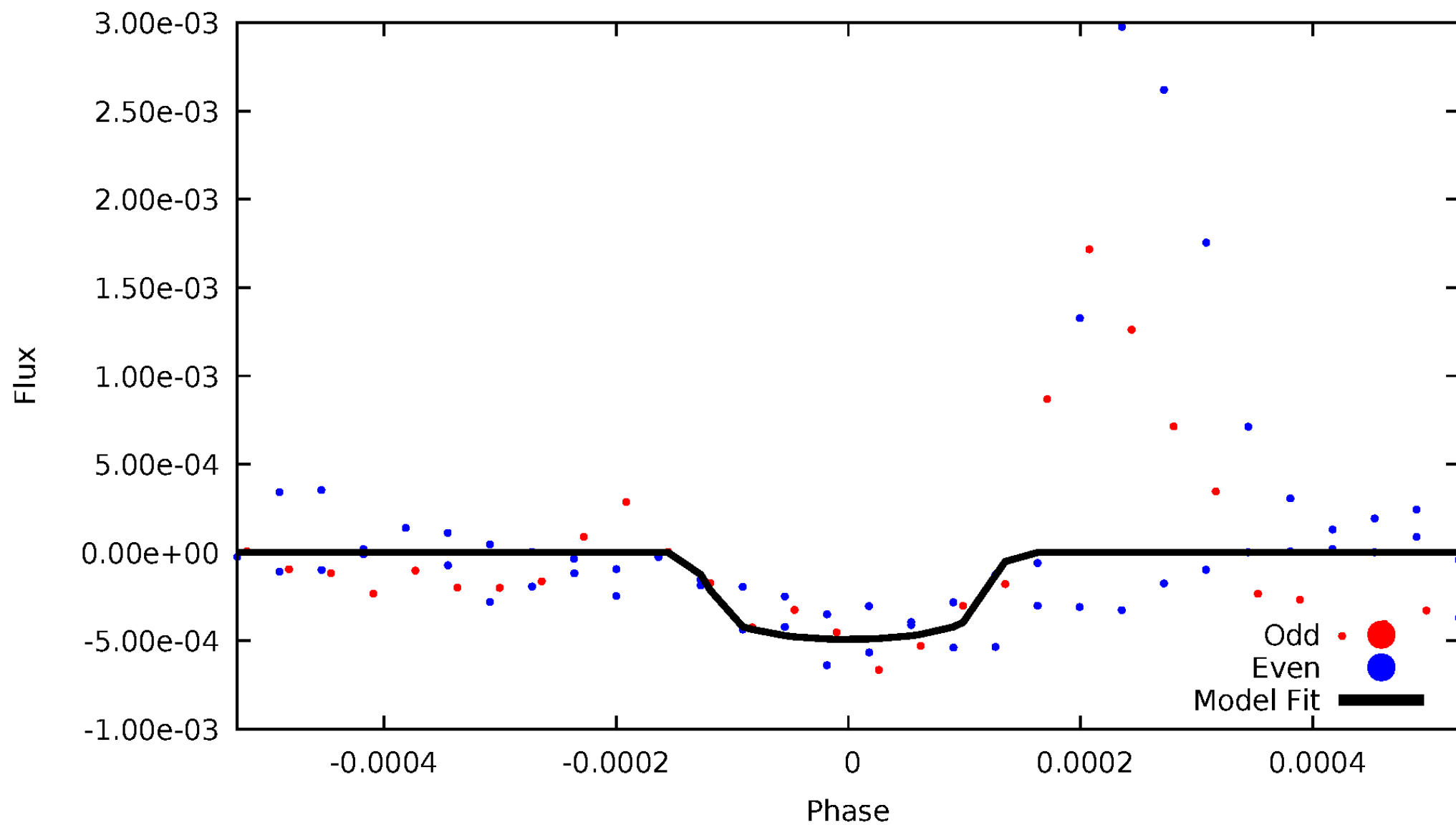


TCE 009787349-06



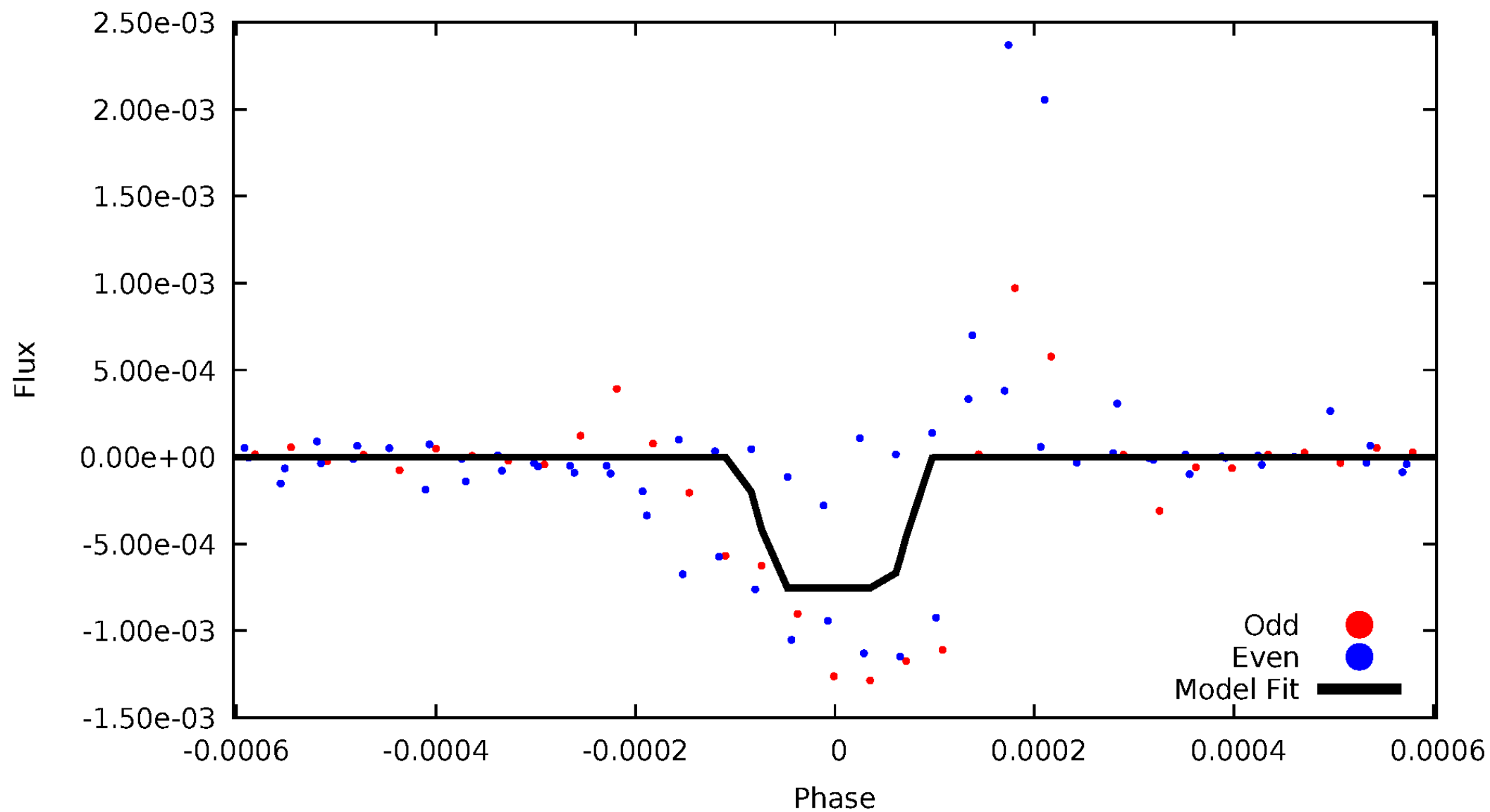
DV Odd/Even

TCE 009787349-06



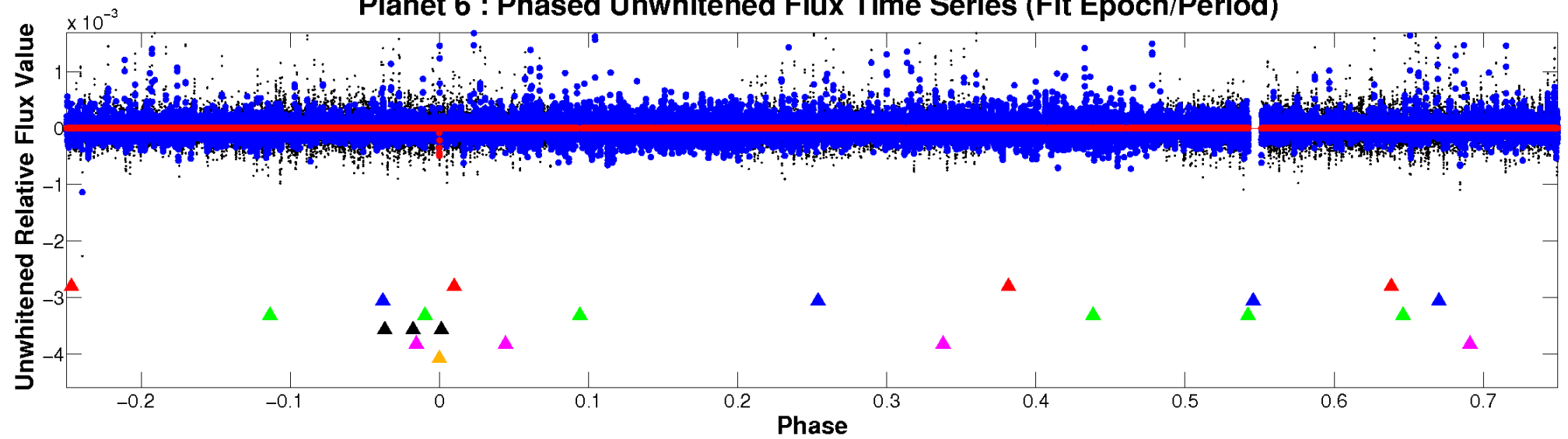
ALT Odd/Even

TCE 009787349-06

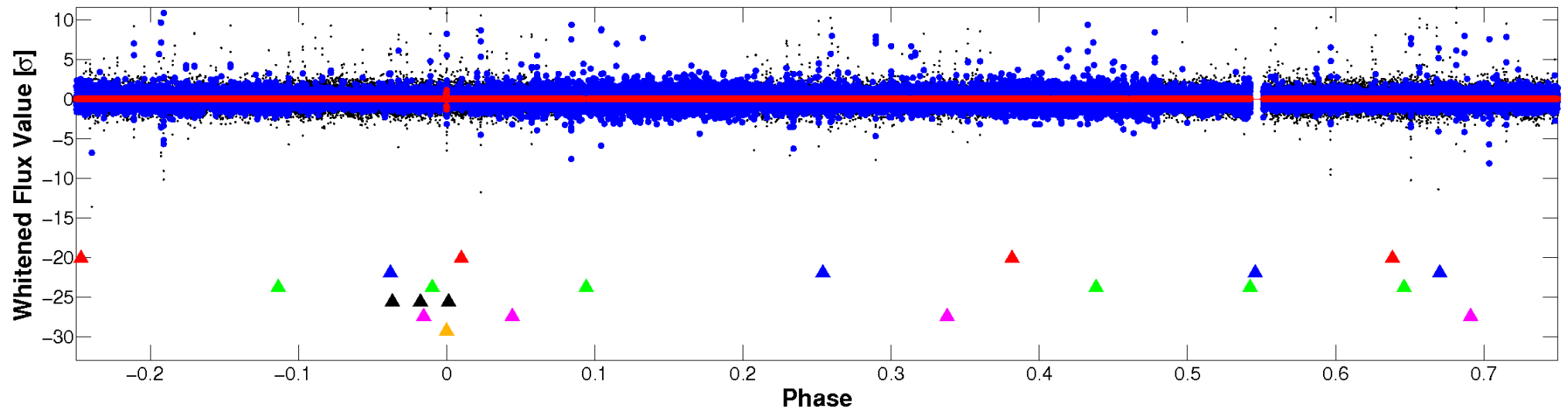


Non-Whitened Vs. Whitened Light Curve

Planet 6 : Phased Unwhitened Flux Time Series (Fit Epoch/Period)

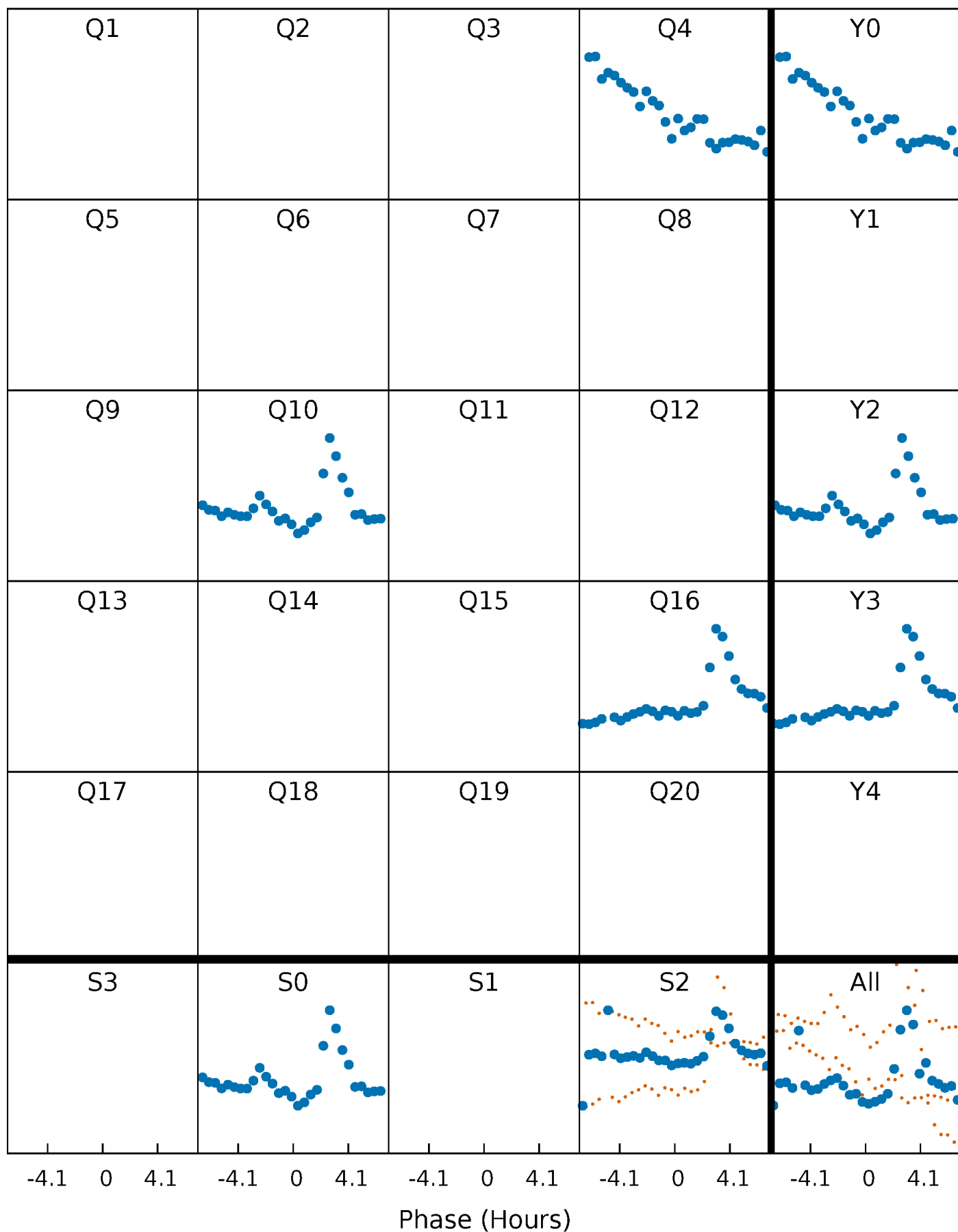


Planet 6 : Phased Whitened Flux Time Series (Fit Epoch/Period)



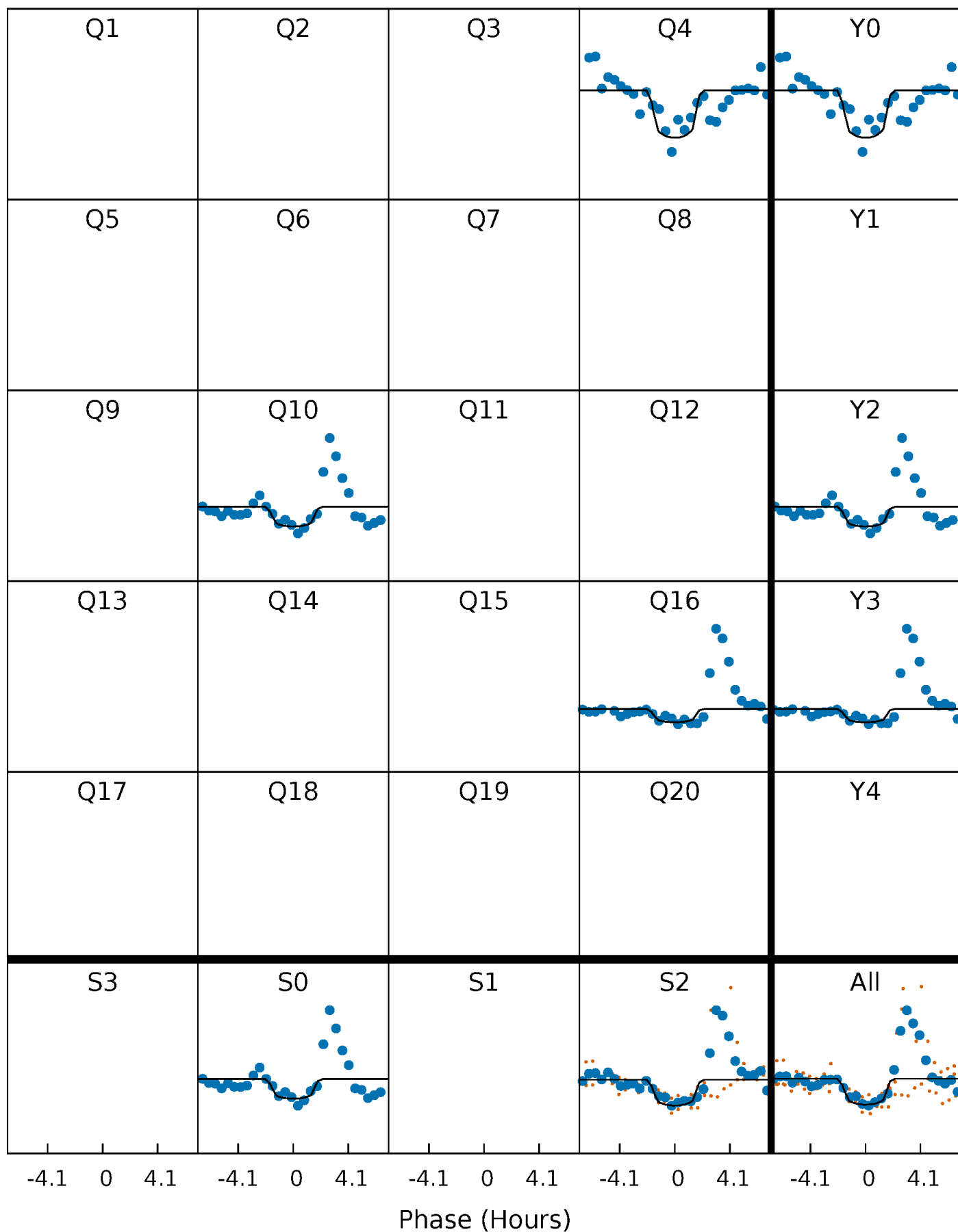
PDC Quarter-Phased Transit Curves

TCE 009787349-06 P=563.231748 Days $T_0=422.575976$ (BKJD)



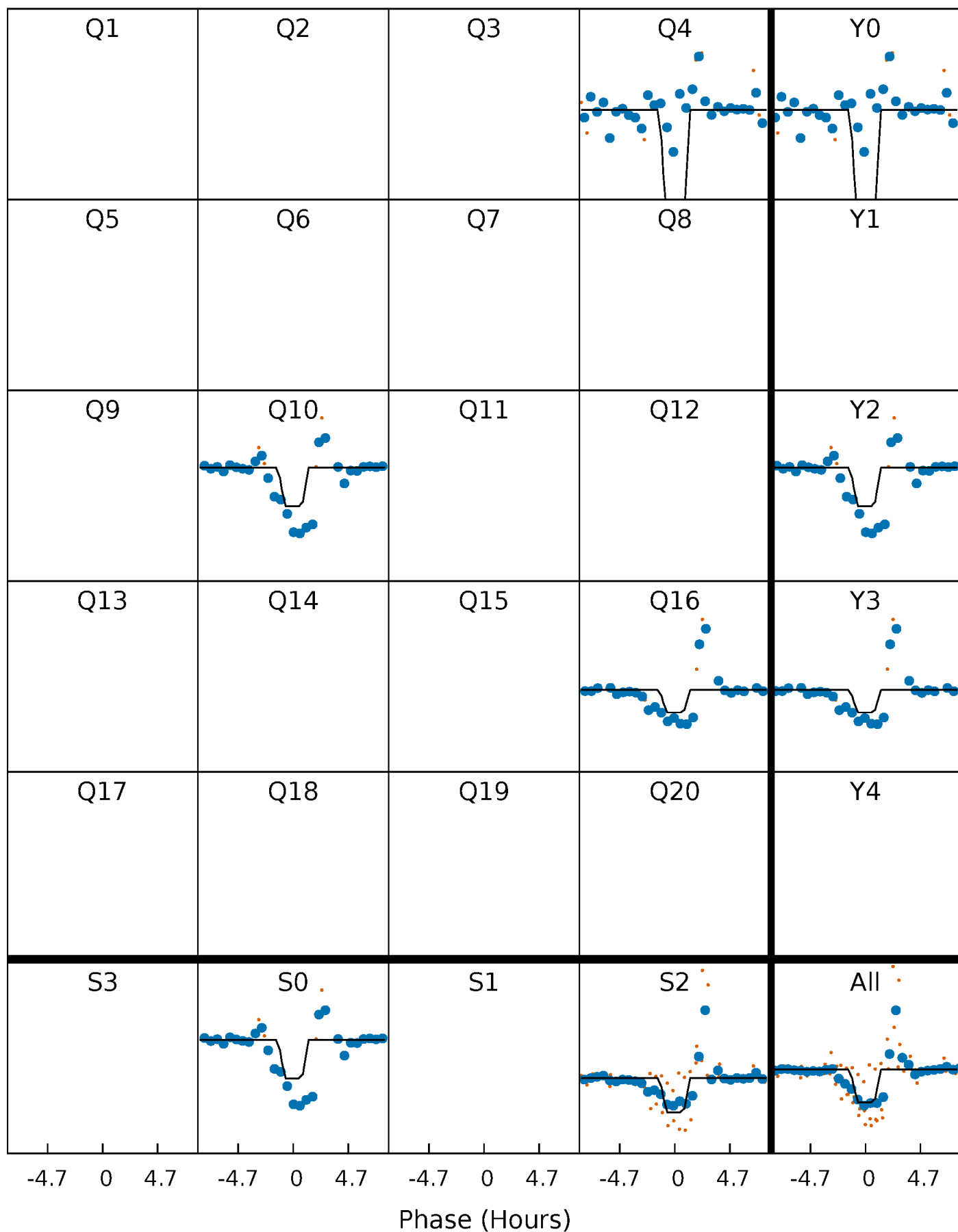
DV Quarter-Phased Transit Curves

TCE 009787349-06 P=563.231748 Days $T_0=422.575976$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

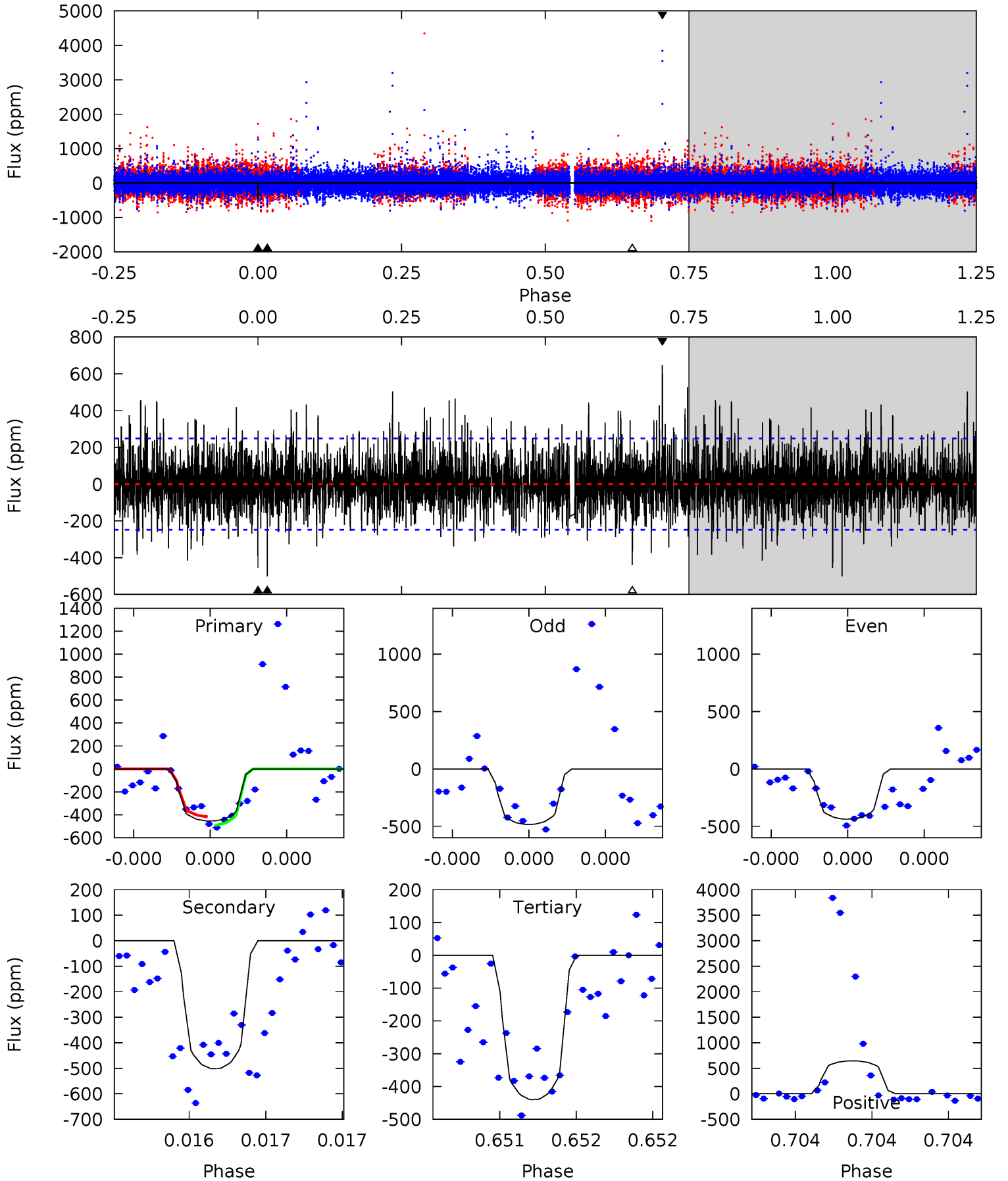
TCE 009787349-06 P=563.251081 Days $T_0=422.571940$ (BKJD)



DV Model-Shift Uniqueness Test

009787349-06, P = 563.231748 Days, E = 422.575976 Days

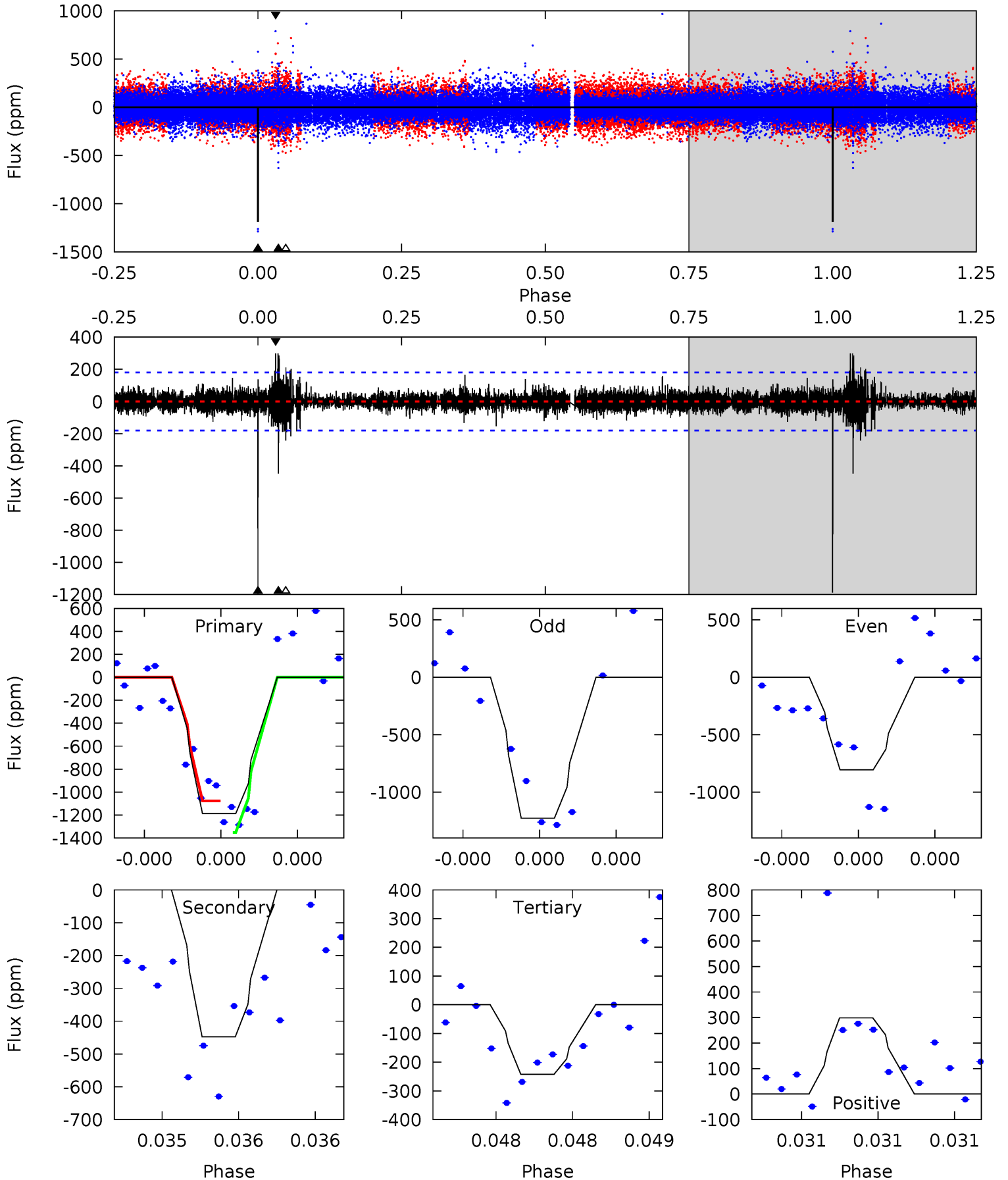
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
10.3	11.4	10.0	14.7	5.67	3.62	2.40	0.31	-4.38	1.41	-3.29	0.47	0.97	0.56	0.86



Alt Model-Shift Uniqueness Test

009787349-06, P = 563.251081 Days, E = 422.571940 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
37.8	14.3	7.71	9.51	5.75	3.74	1.03	30.1	28.3	6.55	4.75	7.23	0.71	0.20	4.20



Stellar Parameters For KIC 009787349

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	5938^{+178}_{-160}	$3.629^{+0.345}_{-0.115}$	$-0.300^{+0.350}_{-0.300}$	$2.998^{+0.637}_{-1.275}$	$1.396^{+0.193}_{-0.387}$	$0.073^{+0.203}_{-0.026}$
	+3%/-3%	+10%/-3%	+117%/-100%	+21%/-43%	+14%/-28%	+278%/-36%
Source	PHO1	FLK73	KIC0	DSEP		

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

Secondary Eclipse Parameters for KIC 009787349-06 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-502 ± 44	$8.46^{+7.10}_{-5.05}$	509^{+39}_{-55}	5354^{+3069}_{-1171}	8663^{+45128}_{-6103}
Alt.	-448 ± 31	$9.36^{+7.71}_{-5.95}$	508^{+36}_{-48}	4972^{+3282}_{-972}	6144^{+38293}_{-4260}

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 $A_{obs} \gg 1.0$

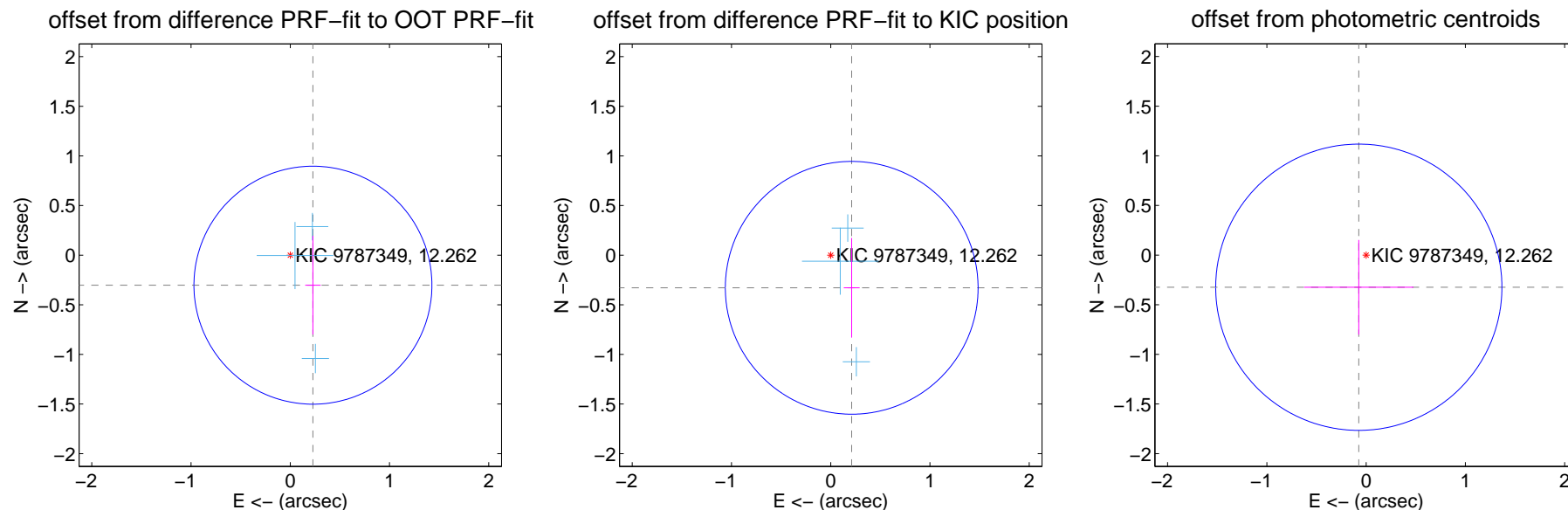
DV Centroid Data

Supplemental centroid analysis for 009787349-06. Kepler magnitude: 12.26. Transit SNR 5.81

There are 3 quarters with good PRF difference image offsets

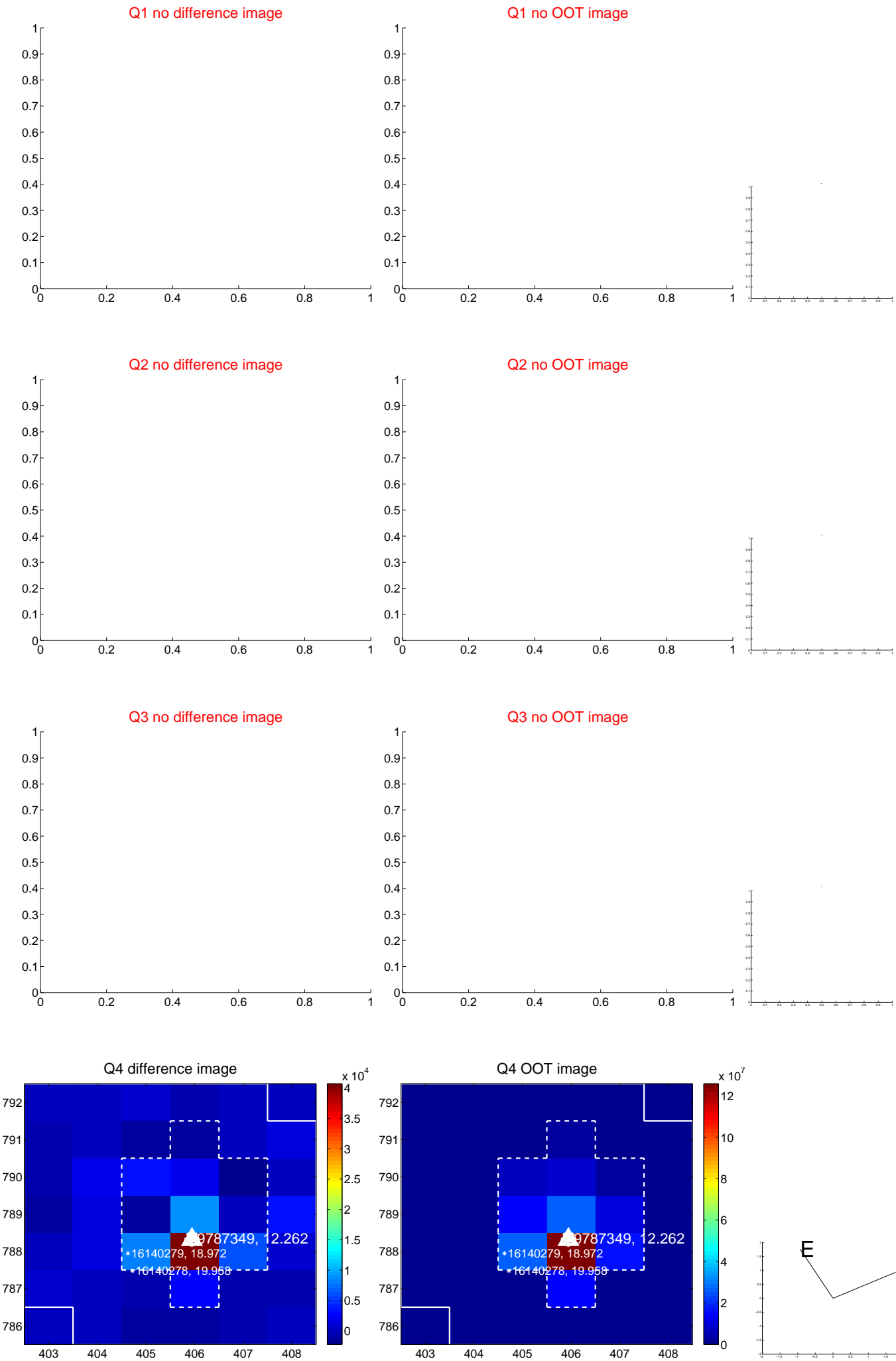
The direct PRF centroid is offset from the target star catalog position by about 0.05 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.379 ± 0.400	0.95	-0.228 ± 0.078	-0.303 ± 0.497
PRF-fit source offset from KIC position	0.391 ± 0.425	0.92	-0.212 ± 0.080	-0.329 ± 0.502
photometric centroid source offset	0.33 ± 0.48	0.69	0.07 ± 0.55	-0.32 ± 0.48



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.

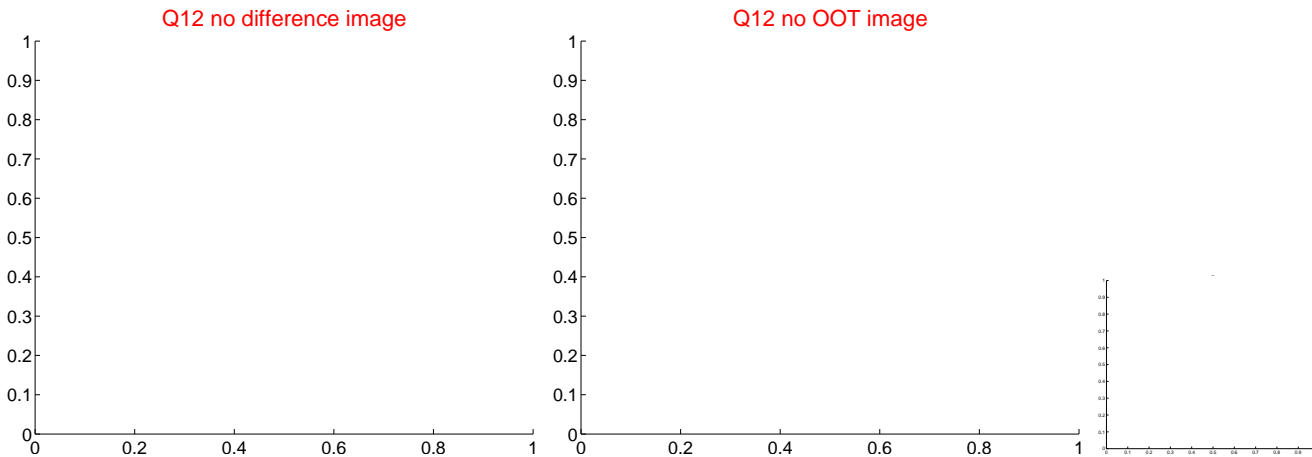
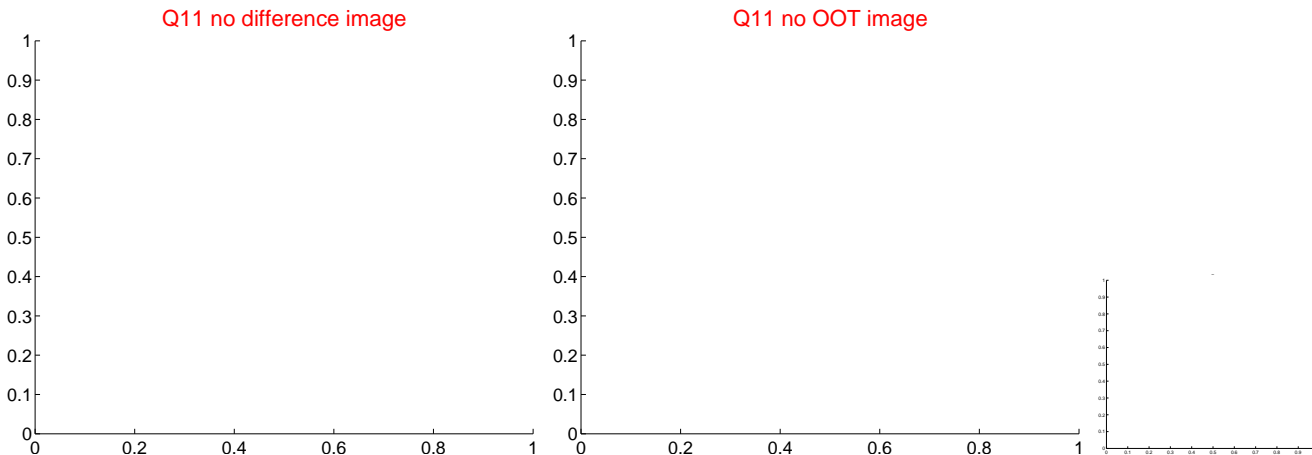
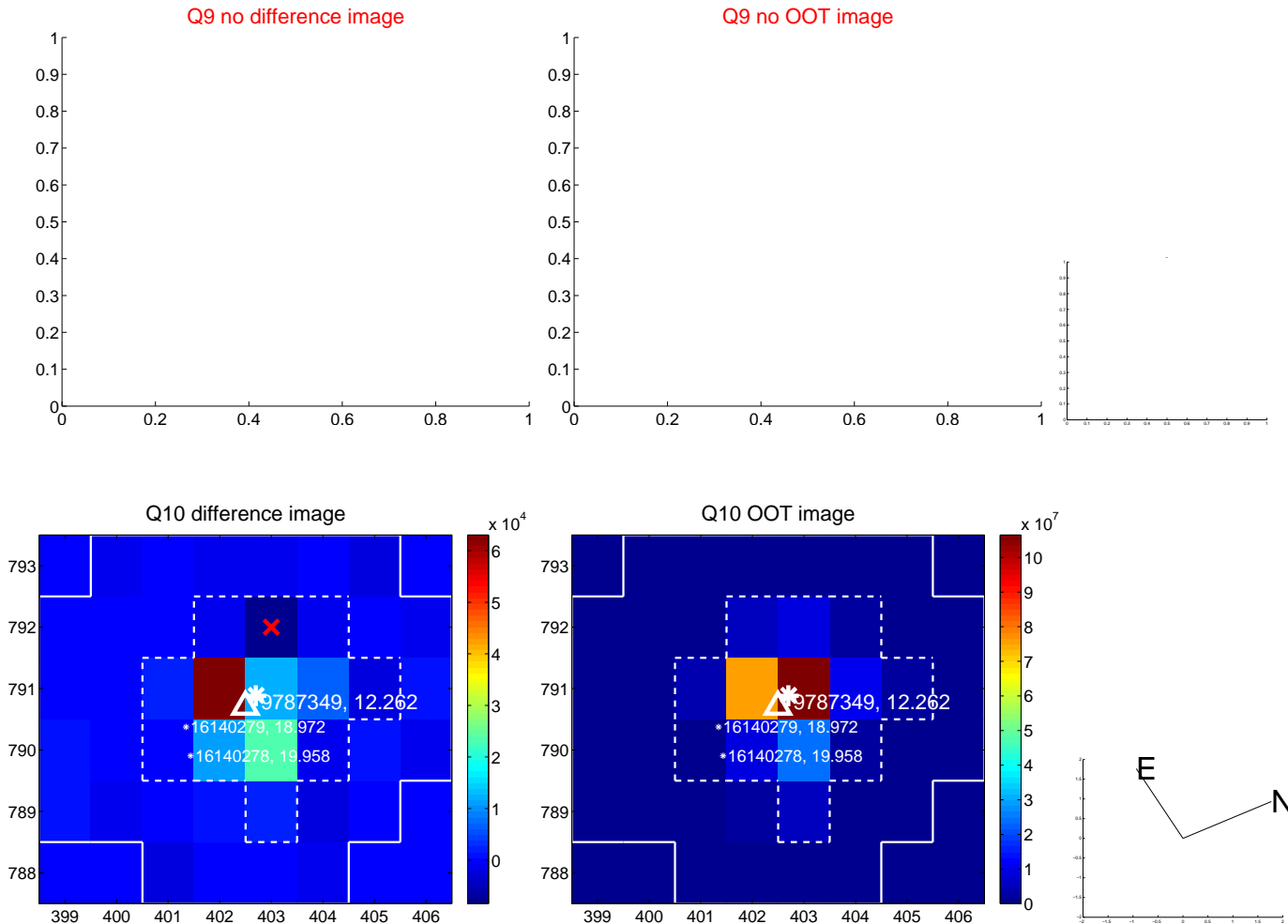
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



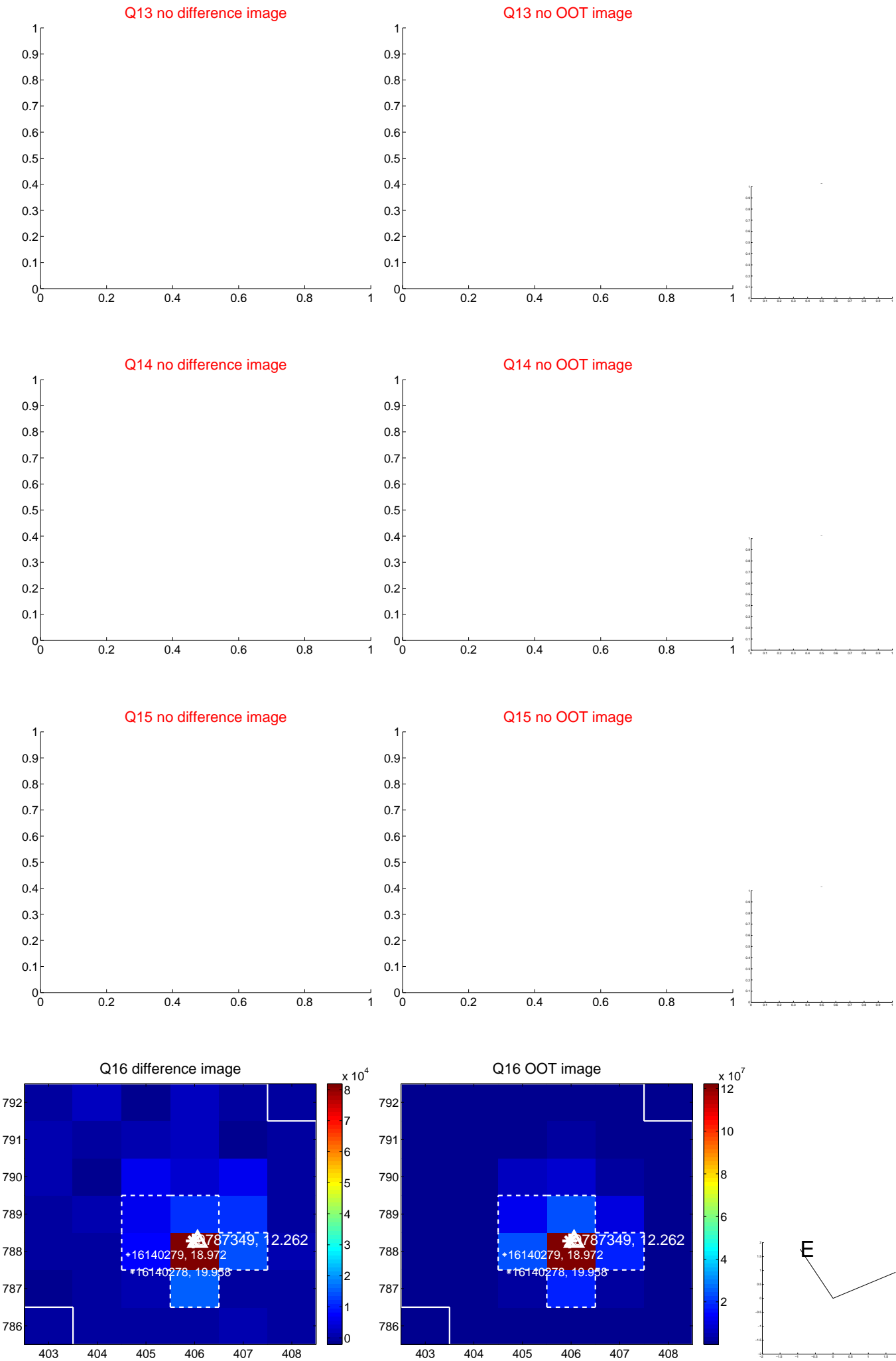
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



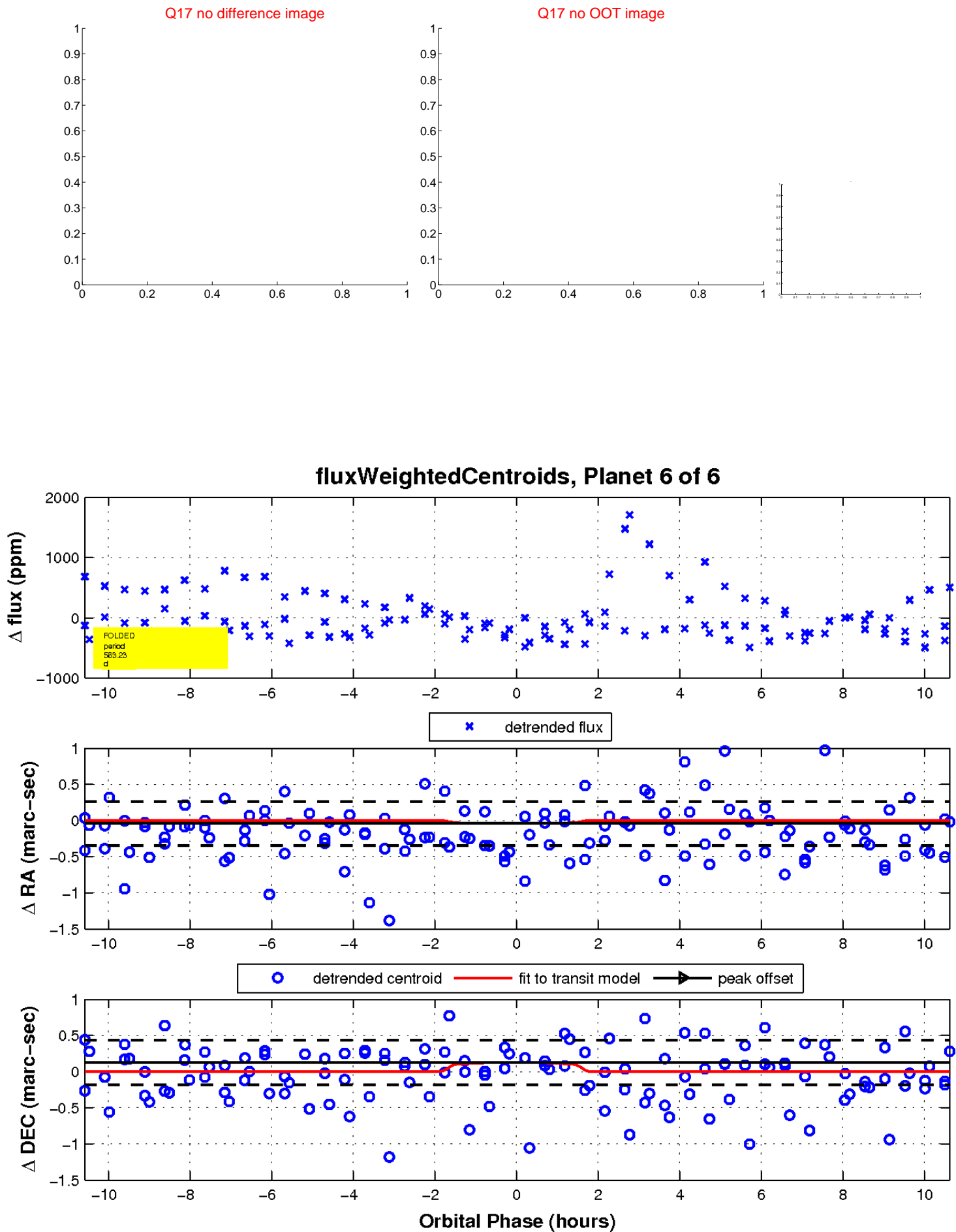
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value



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

