

KIC 005019101

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})
005019101-01	OBS	No	1.944804	133.400192	81.8	10.018	8.9	7.6	9.21	7022	10.86	93865.07
005019101-02	OBS	No	154.064988	237.129171	1013.7	12.058	20.3	10.3	9.21	7022	33.18	275.89
005019101-03	OBS	No	1.944842	132.419527	515.6	3.000	18.7	-1.0	9.21	7022	21.09	93862.62
005019101-04	OBS	No	67.470131	156.235190	1634.3	10.638	11.5	11.0	9.21	7022	68.65	829.58
005019101-05	OBS	No	29.070887	137.614453	220.5	10.984	11.4	3.2	9.21	7022	14.19	2549.14
005019101-06	OBS	No	37.365135	156.266285	641.1	3.052	10.4	9.5	9.21	7022	24.77	1824.10
005019101-08	OBS	No	18.844596	145.884905	417.6	4.424	8.6	6.9	9.21	7022	21.45	4543.84

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005019101-01	OBS	FP	0.00	1	0	0	0	SWEET_NTL—LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT
005019101-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—INCONSISTENT_TRANS
005019101-03	OBS	FP	0.00	1	0	0	0	SWEET_NTL—LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—SAME_NTL_PERIOD—CENT_NOFITS
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005019101-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
005019101-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
005019101-08	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT

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

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

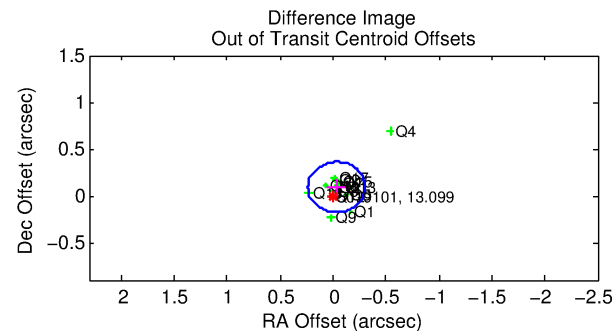
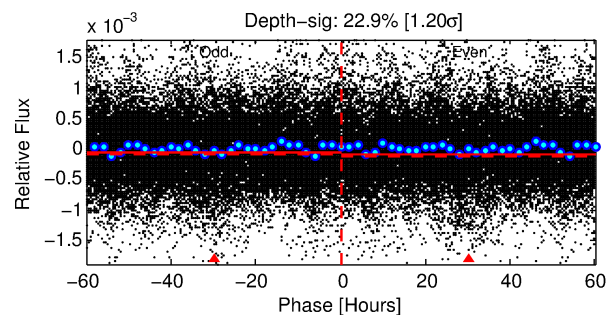
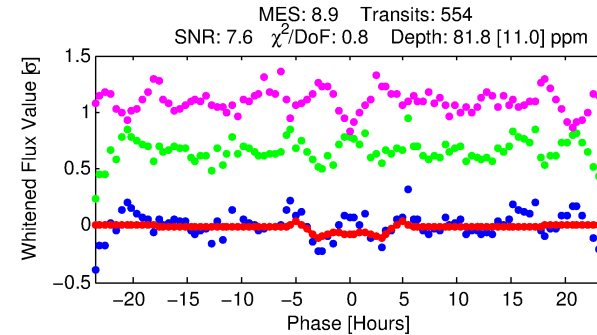
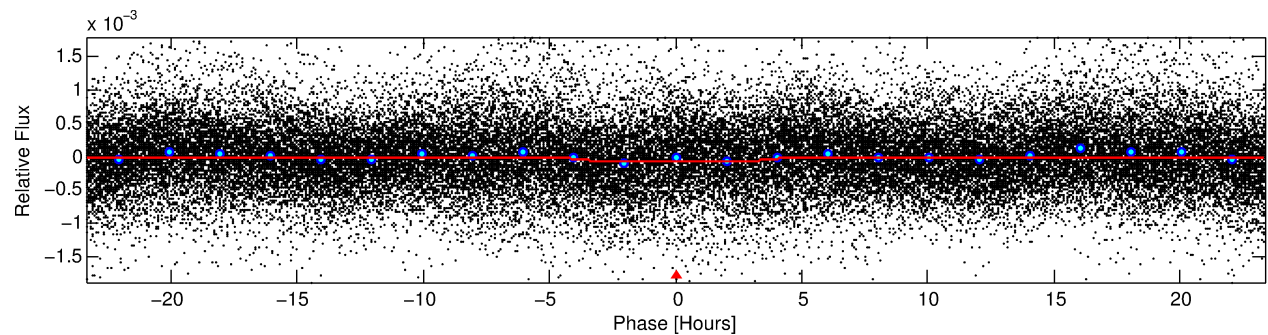
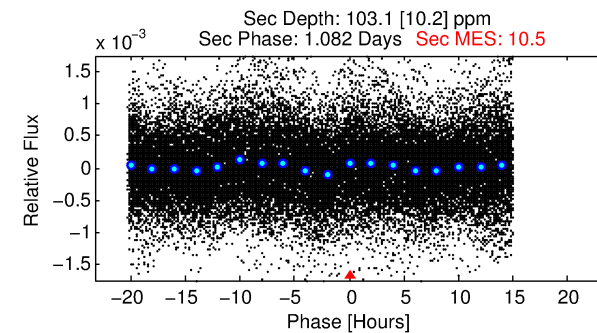
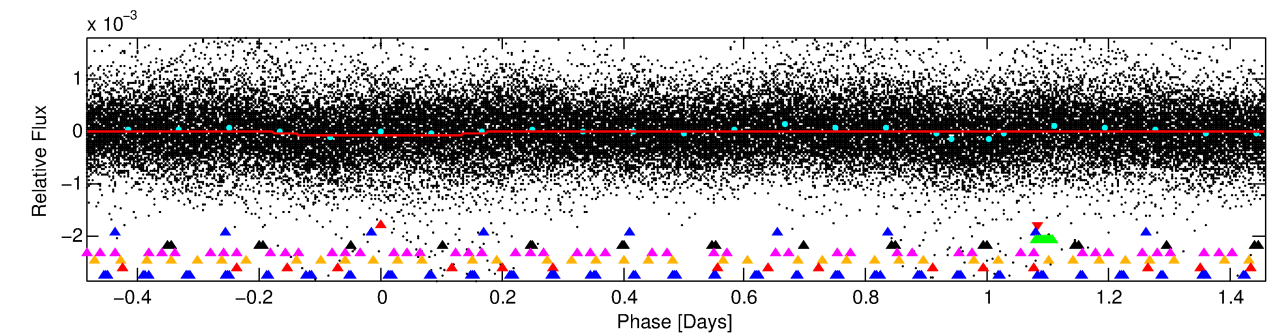
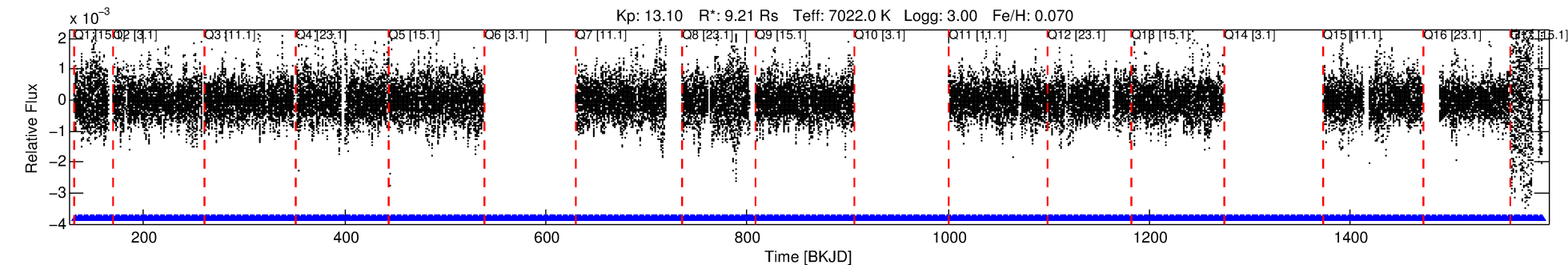
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 005019101-01

No Significant Match Found

DV One-Page Summary

KIC: 5019101 Candidate: 1 of 8 Period: 1.945 d



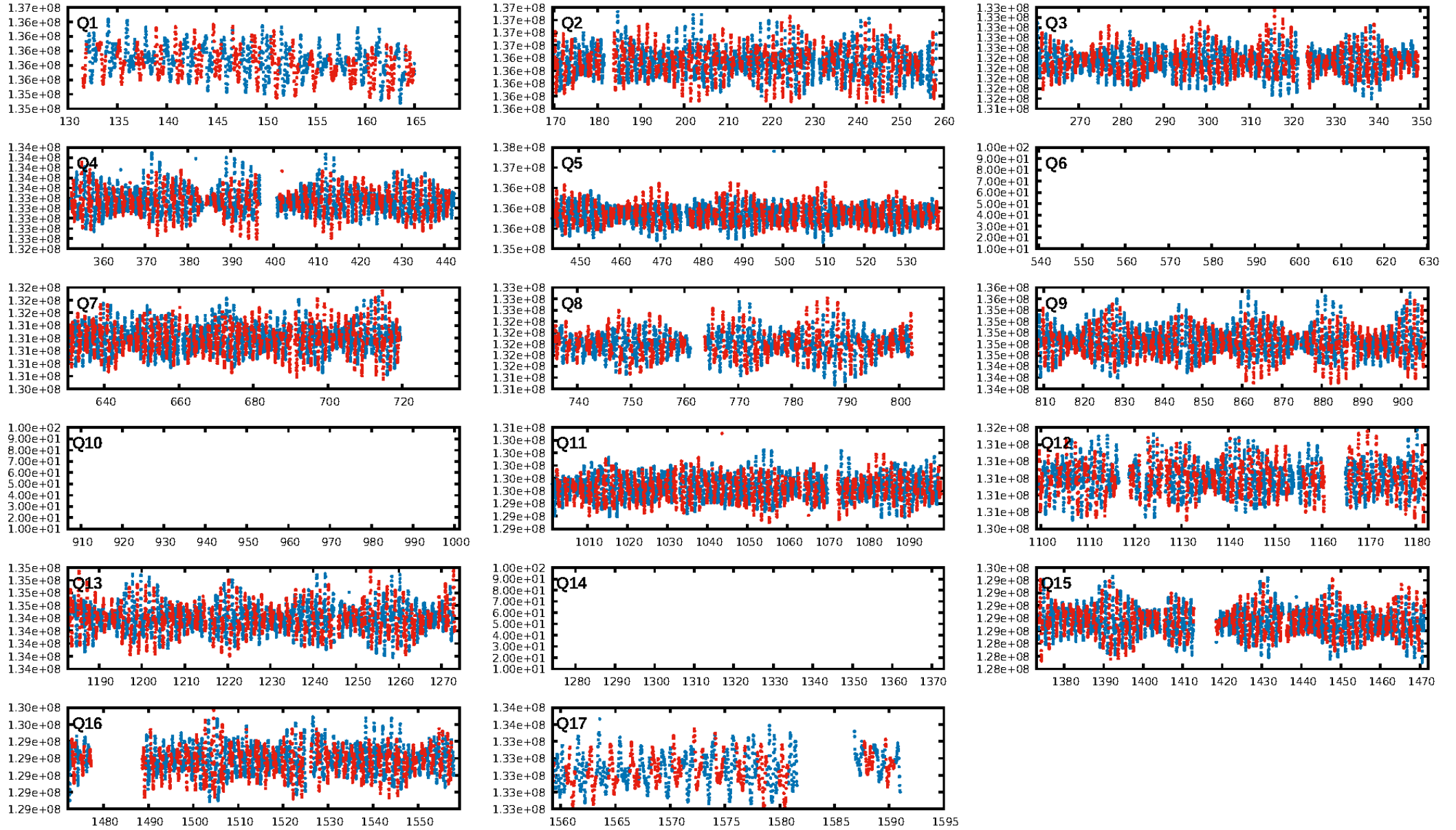
DV Fit Results:

Period = 1.94480 [0.00003] d
Epoch = 133.4002 [0.0083] BKJD
Rp/R* = 0.0108 [0.0007]
a/R* = 1.06 [0.01]
b = 0.98 [0.00]
Seff = 93865.07 [94429.36]
Teq = 4463 [1123] K
Rp = 10.86 [6.49] Re
a = 0.0444 [0.0268] AU
Ag = 0.95 [0.96] [-0.05 σ]
Teffp = 6808 [380] K [1.98 σ]

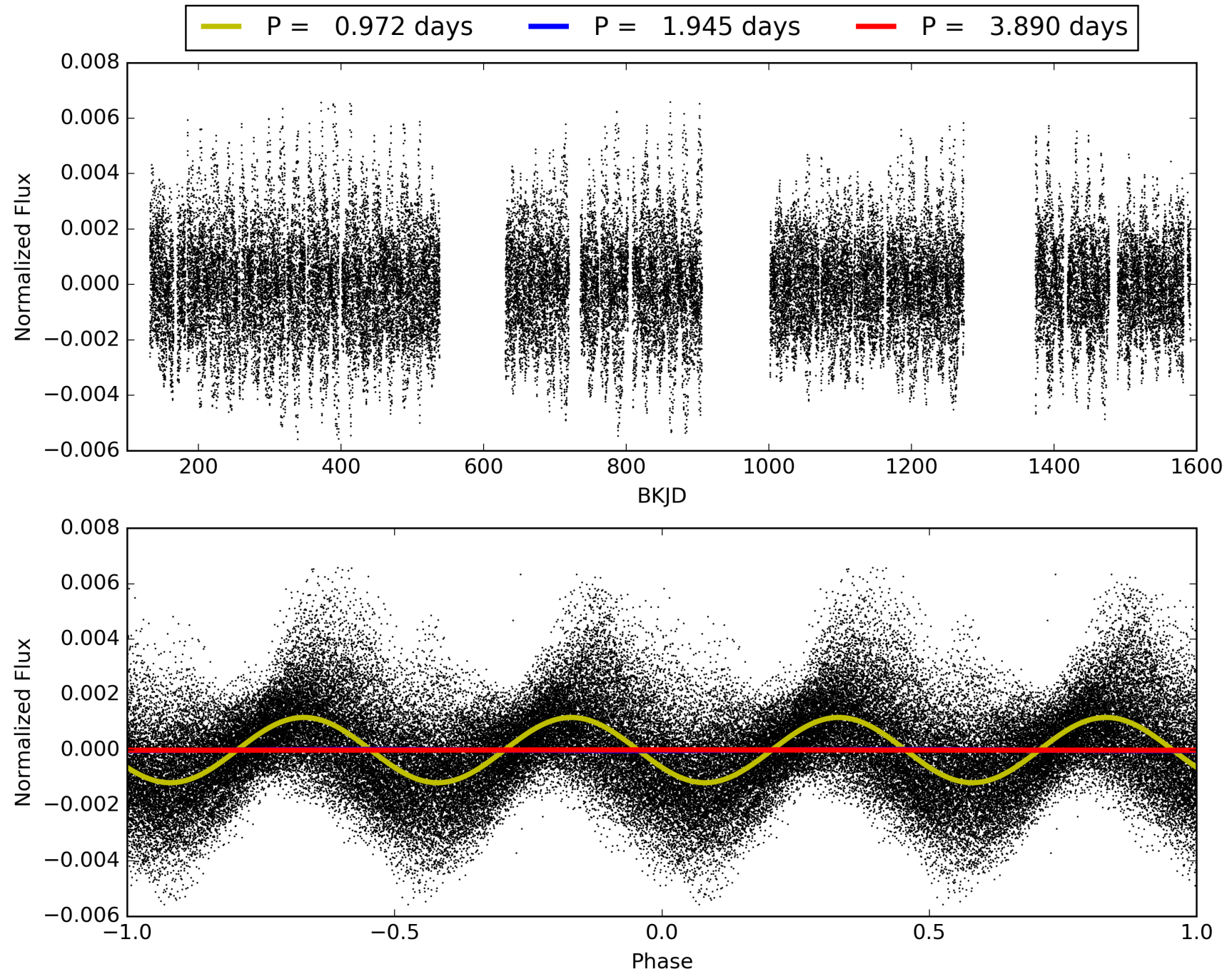
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 0.0% [0.00 σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 3.42e-13
RollingBand-fgt: 1.00 [523/523]
GhostDiagnostic-chr: 0.8122
Centroid-sig: 0.2%
Centroid-so: 0.459 arcsec [1.64 σ]
OotOffset-rm: 0.098 arcsec [1.10 σ]
KicOffset-rm: 0.104 arcsec [1.10 σ]
OotOffset-st: 1/4/4/5 [14]
KicOffset-st: 1/4/4/5 [14]
DiffImageQuality-fgm: 1.00 [14/14]
DiffImageOverlap-fno: 0.00 [0/14]

TCE 005019101-01, PDC Light Curves

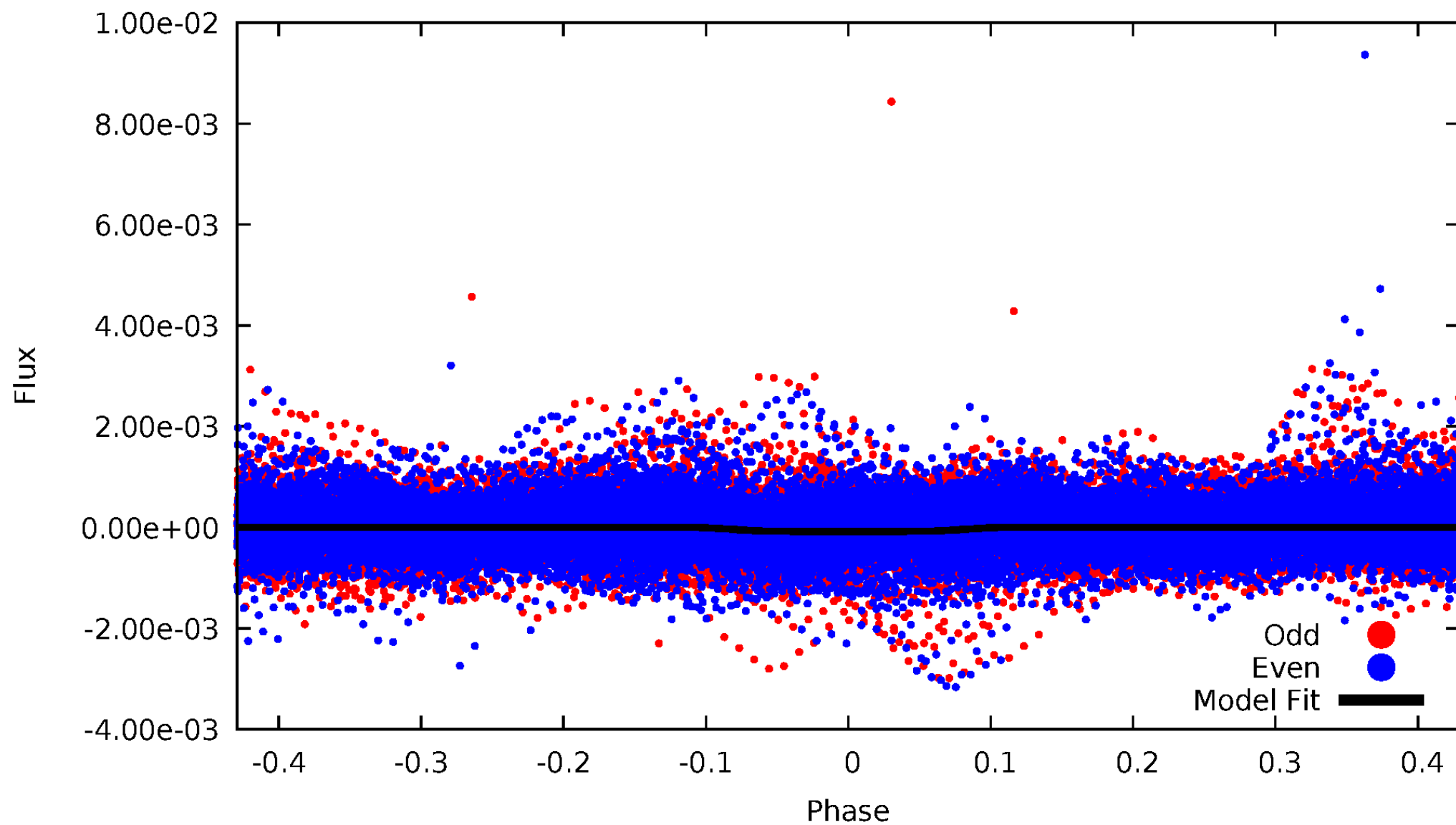


TCE 005019101-01



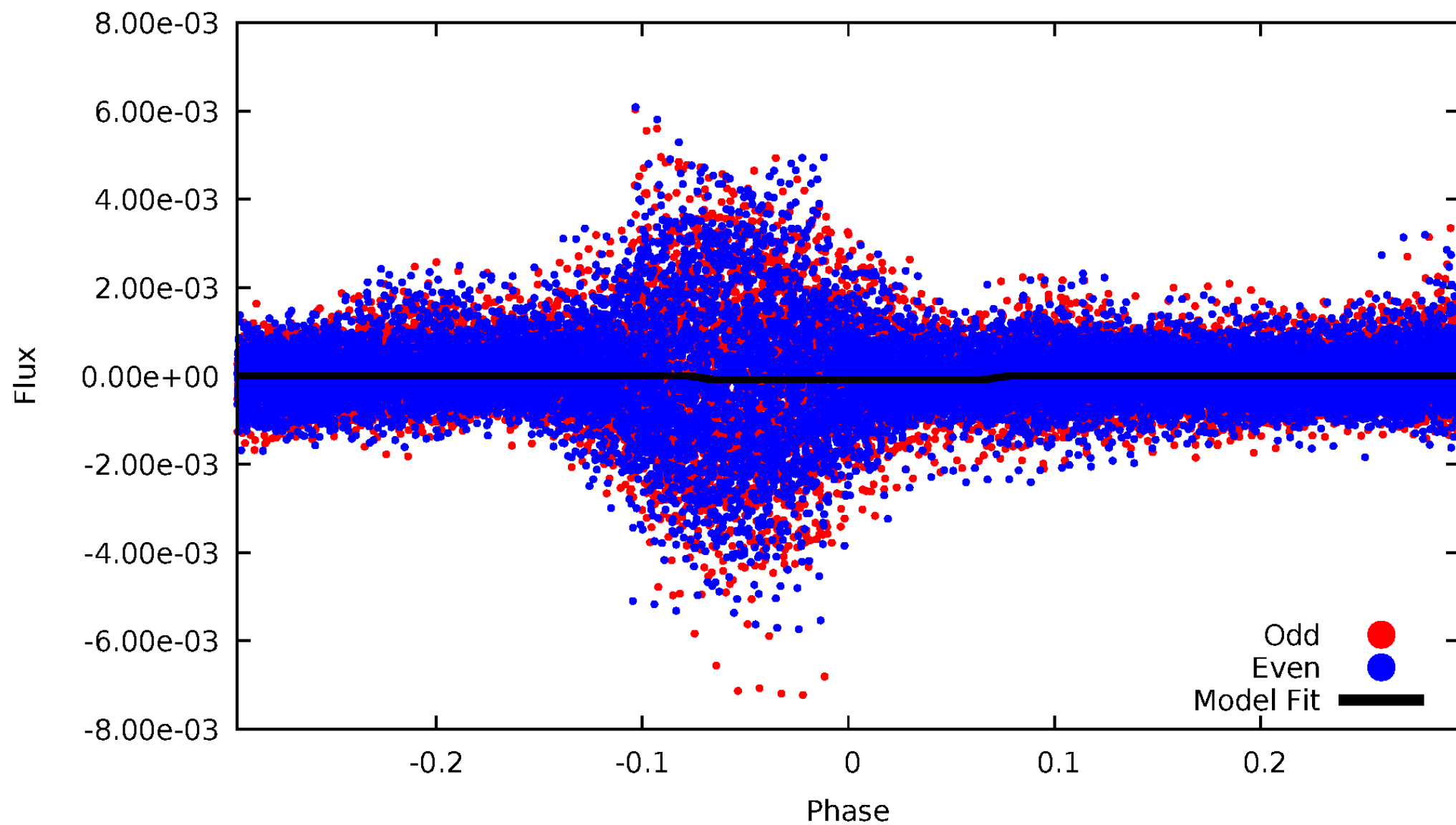
DV Odd/Even

TCE 005019101-01



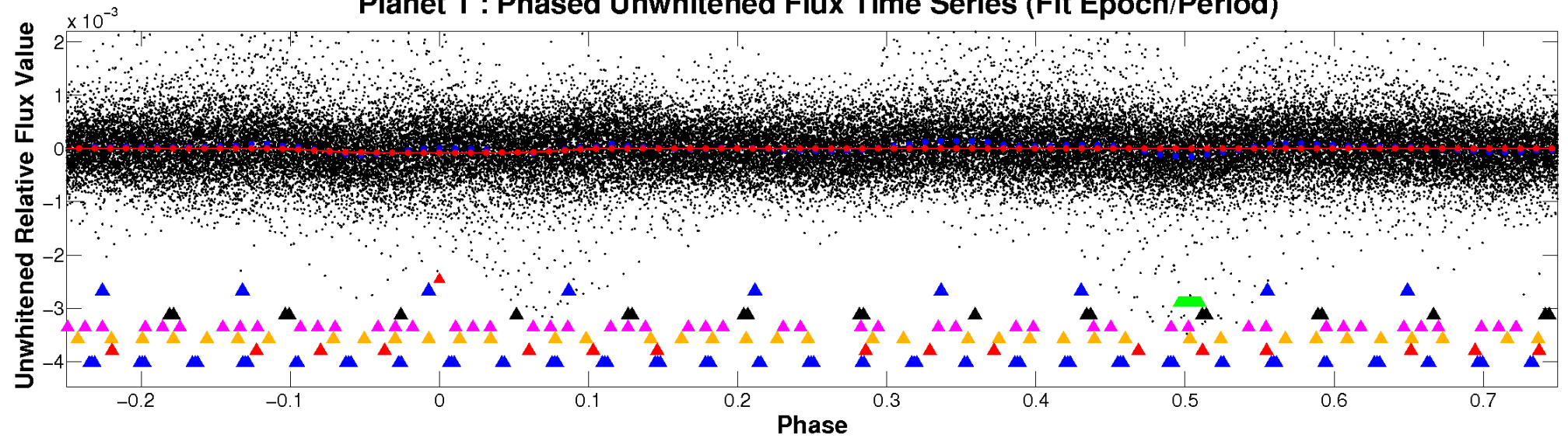
ALT Odd/Even

TCE 005019101-01

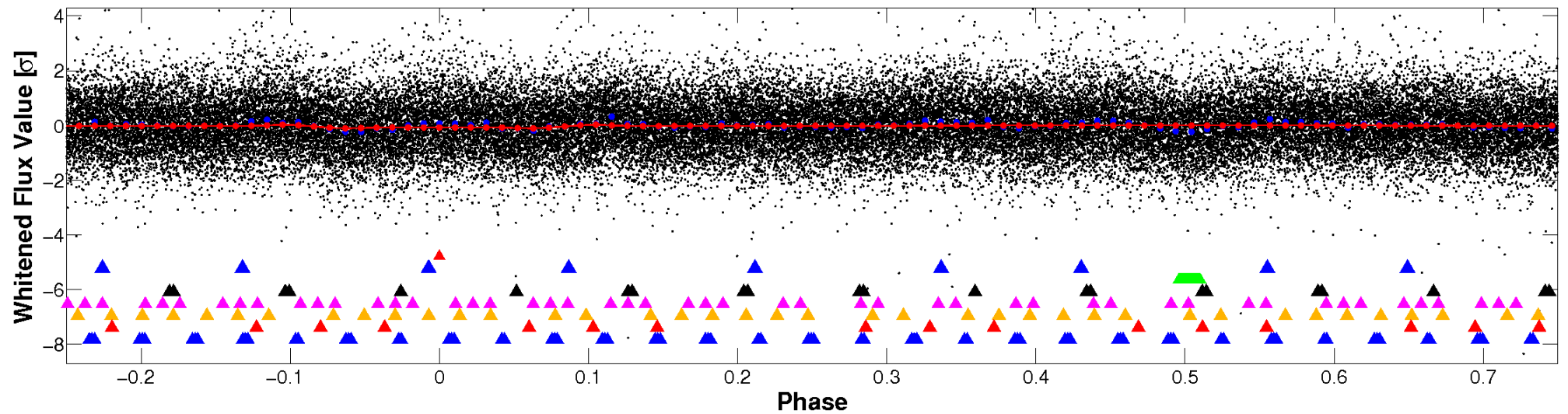


Non-Whitened Vs. Whitened Light Curve

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

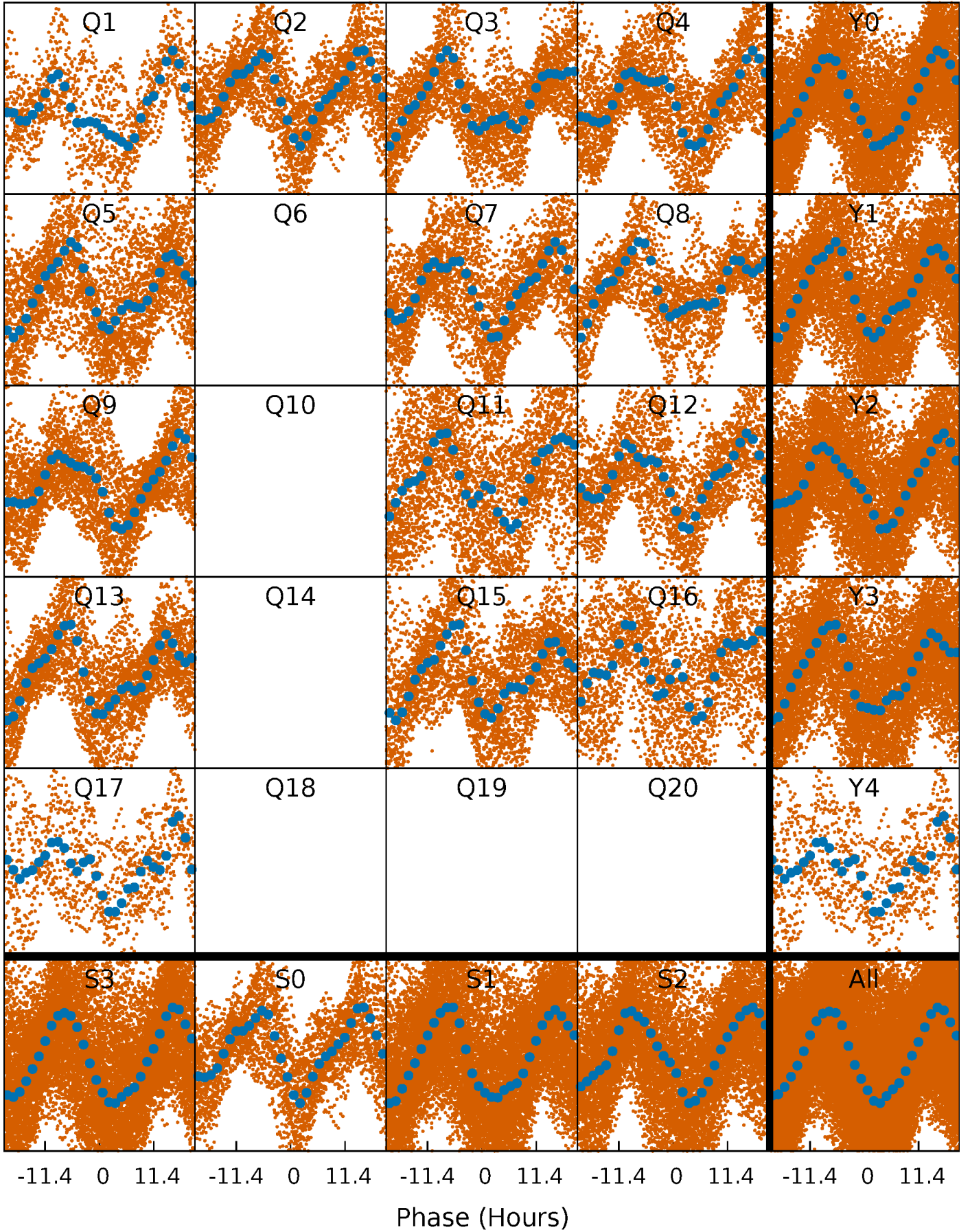


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



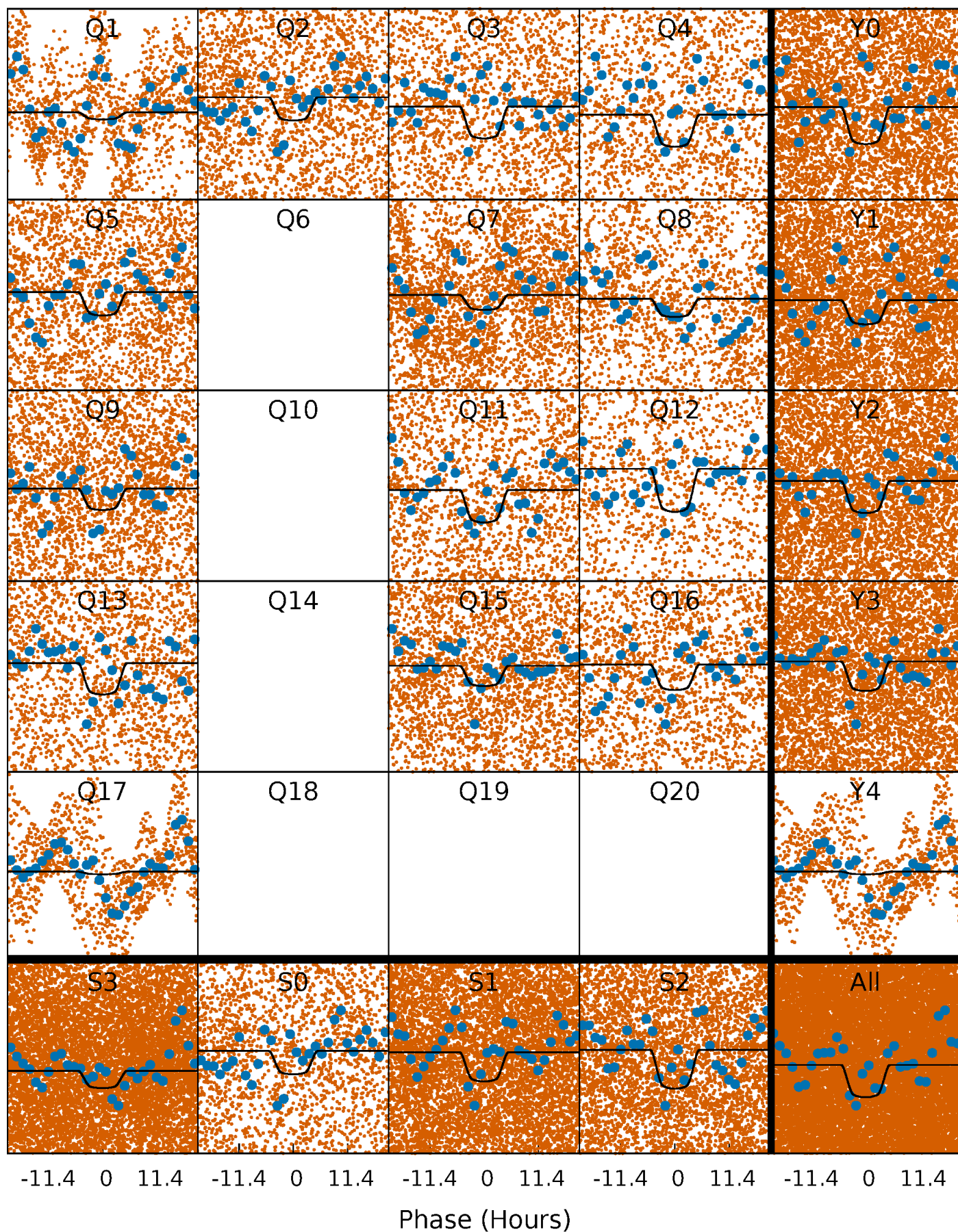
PDC Quarter-Phased Transit Curves

TCE 005019101-01 P= 1.944804 Days $T_0=133.400192$ (BKJD)



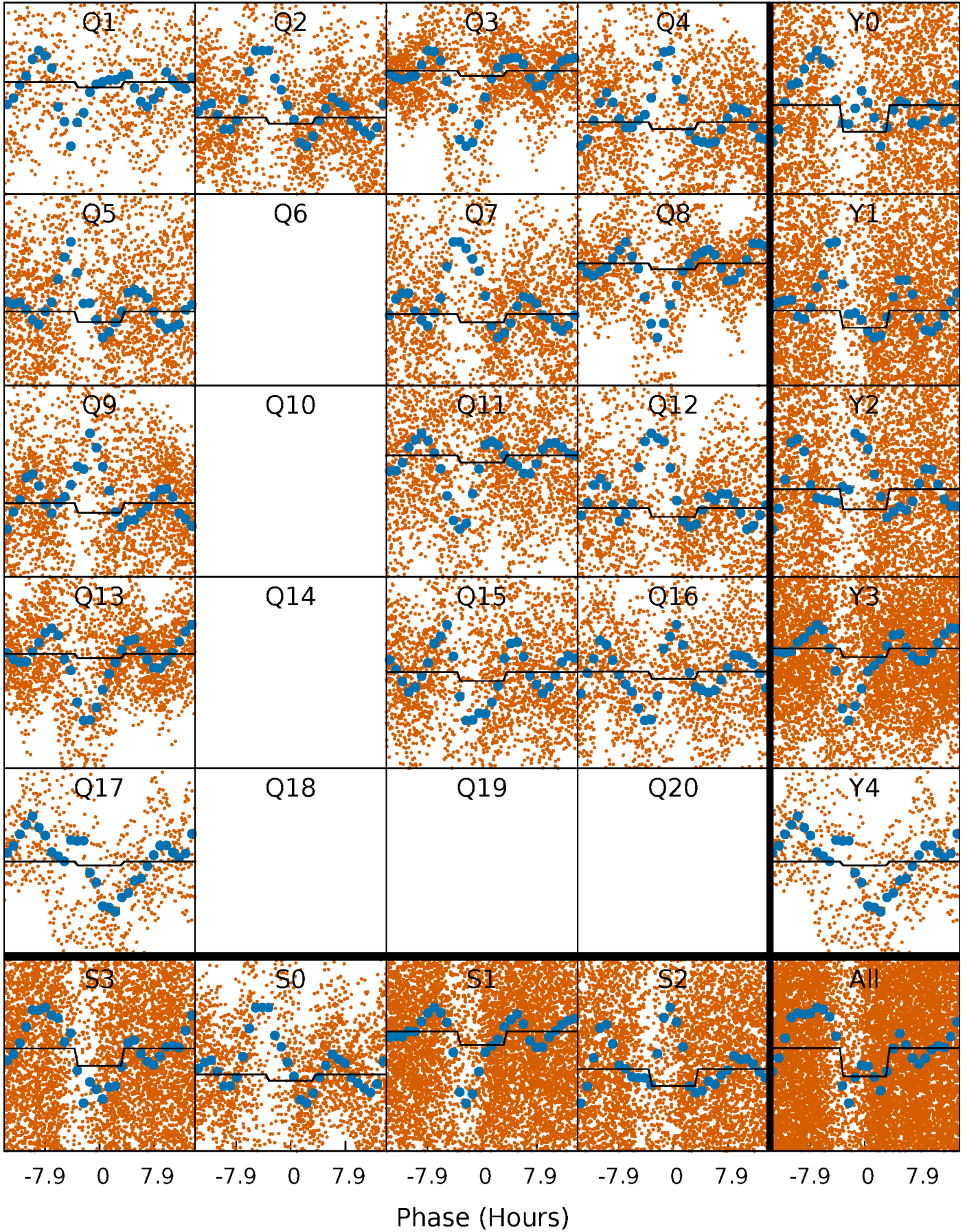
DV Quarter-Phased Transit Curves

TCE 005019101-01 P= 1.944804 Days $T_0=133.400192$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

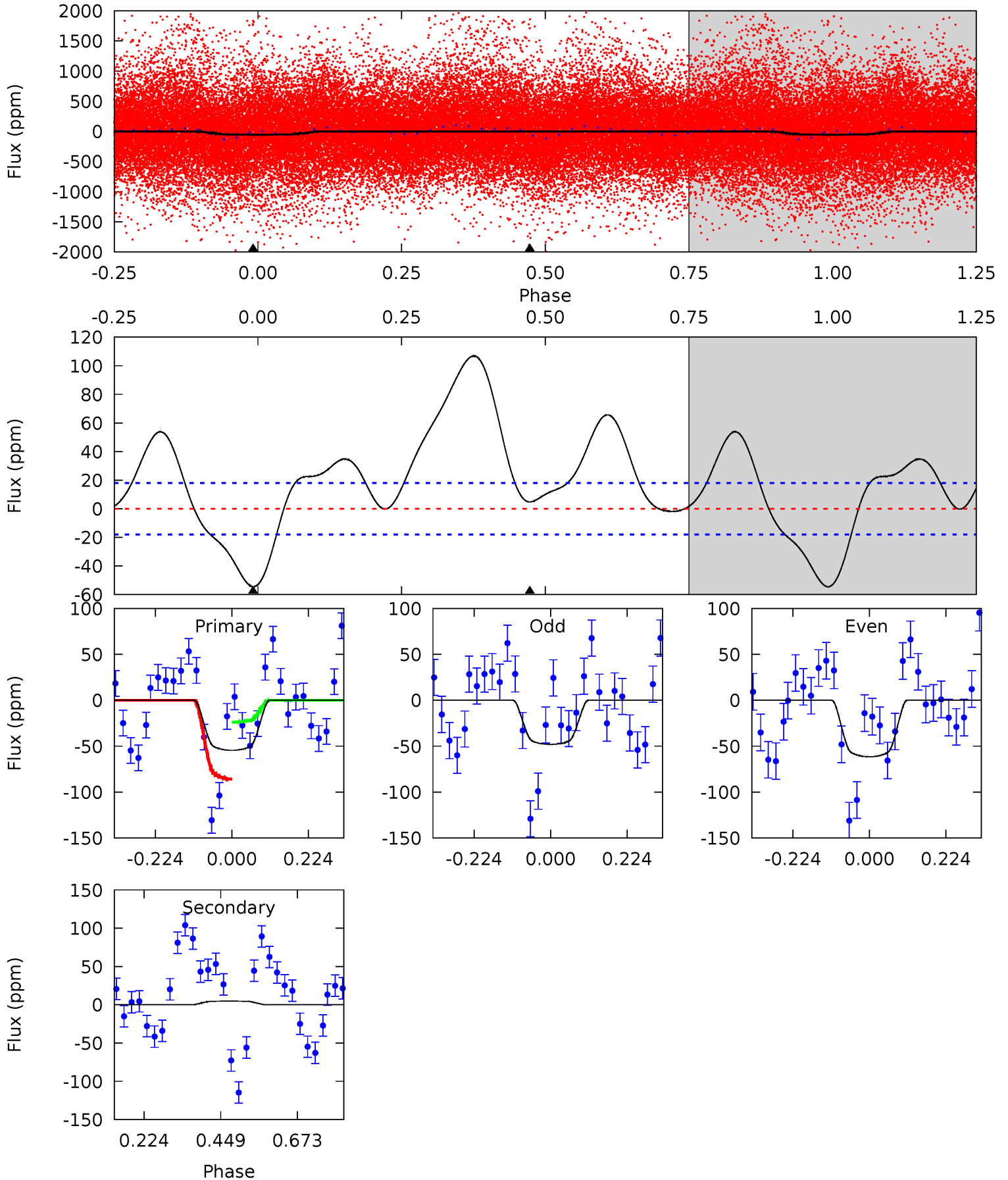
TCE 005019101-01 P= 1.944877 Days $T_0=133.381445$ (BKJD)



DV Model-Shift Uniqueness Test

005019101-01, P = 1.944804 Days, E = 131.455388 Days

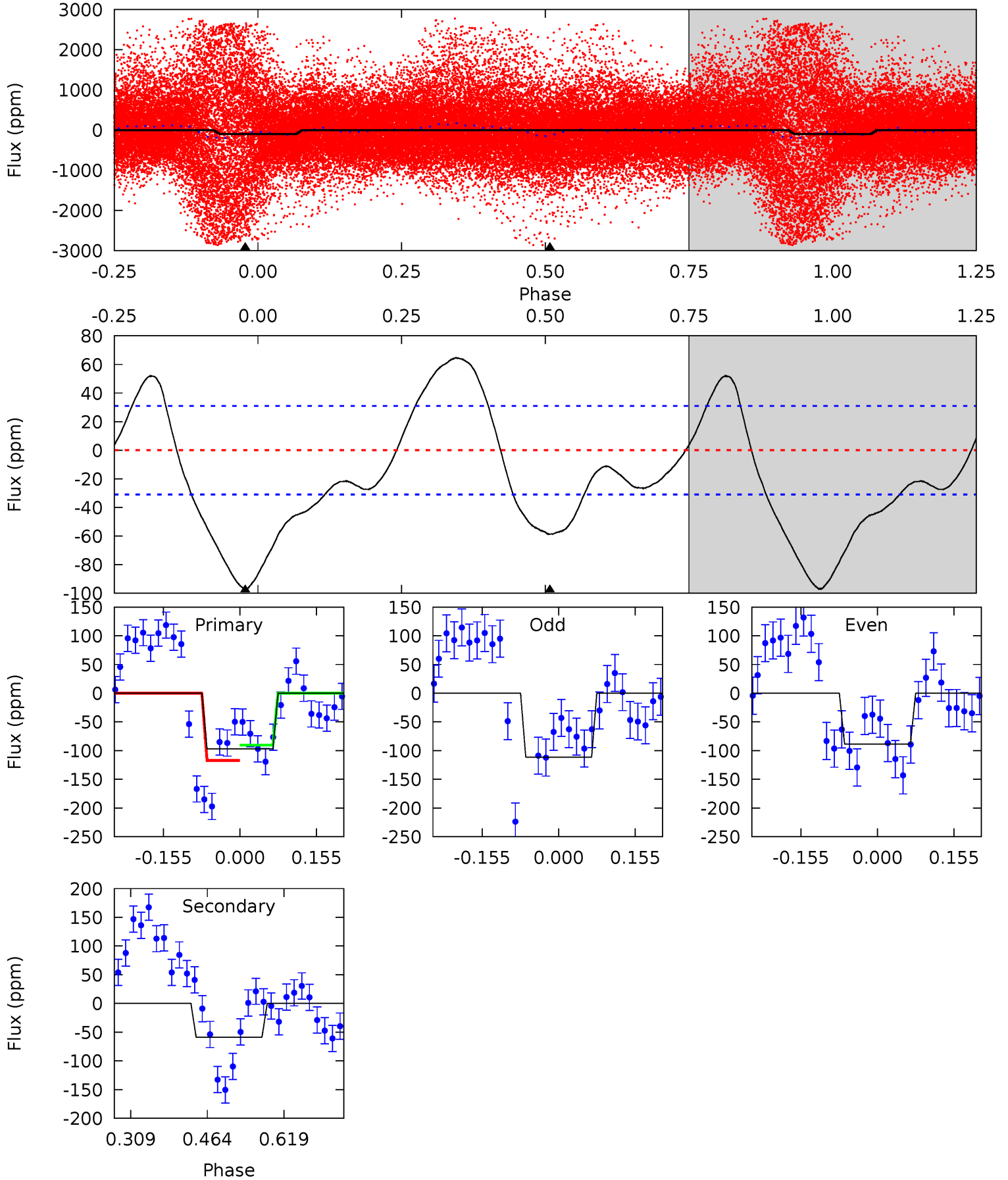
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
13.3	-1.16	0	0	4.39	1.22	0.89	13.3	13.3	-1.16	-1.16	1.65	1.58	0.66	7.23



Alt Model-Shift Uniqueness Test

005019101-01, P = 1.944877 Days, E = 131.436568 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
14.0	8.46	0	0	4.47	1.42	4.63	14.0	14.0	8.46	8.46	1.65	1.51	0.40	1.96



Stellar Parameters For KIC 005019101

	$T_{\text{eff}}(K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	R (R_{\odot})	M (M_{\odot})	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	7022^{+169}_{-254}	$2.998^{+0.595}_{-0.105}$	$0.070^{+0.200}_{-0.450}$	$9.213^{+1.026}_{-5.474}$	$3.080^{+0.203}_{-1.148}$	$0.006^{+0.049}_{-0.002}$
	+2%/-4%	+20%/-4%	+286%/-643%	+11%/-59%	+7%/-37%	+879%/-34%
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 005019101-01 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	5 ± 4	$10.34^{+1.69}_{-3.44}$	6094^{+389}_{-958}	-5200^{+576}_{-294}	$-0.049^{+0.042}_{-0.070}$
Alt.	-59 ± 7	$8.41^{+1.36}_{-2.39}$	6110^{+381}_{-910}	5866^{+520}_{-499}	$0.897^{+0.729}_{-0.239}$

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

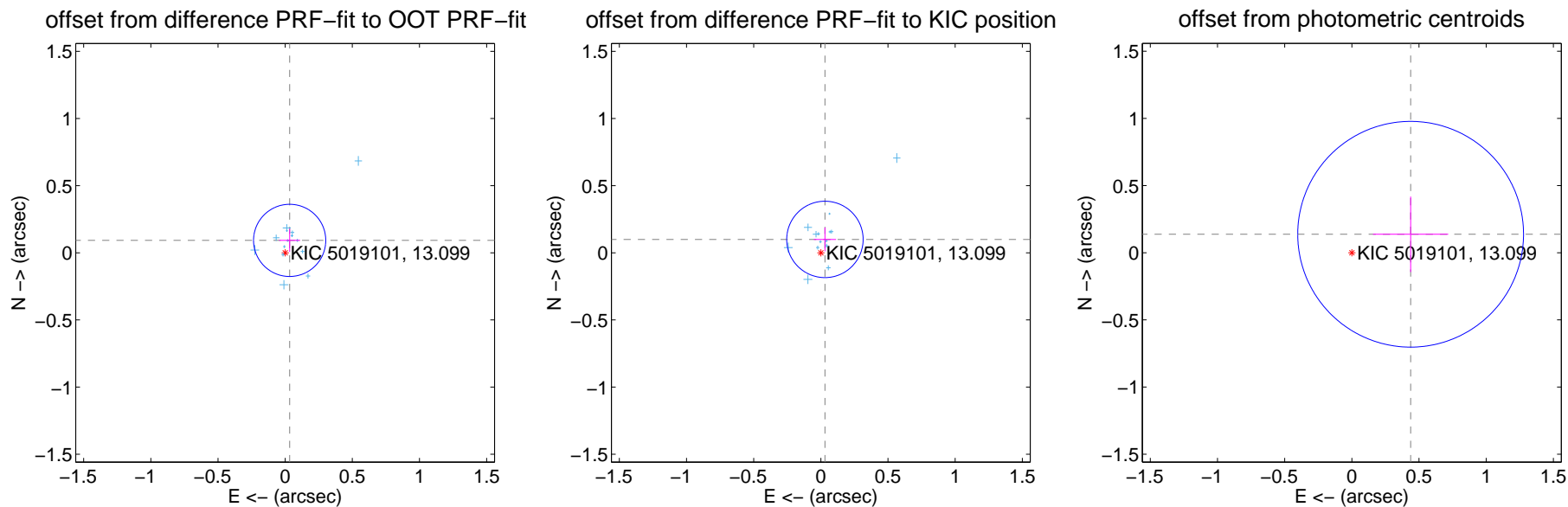
DV Centroid Data

Supplemental centroid analysis for 005019101-01. Kepler magnitude: 13.10. Transit SNR 7.63

There are 14 quarters with good PRF difference image offsets

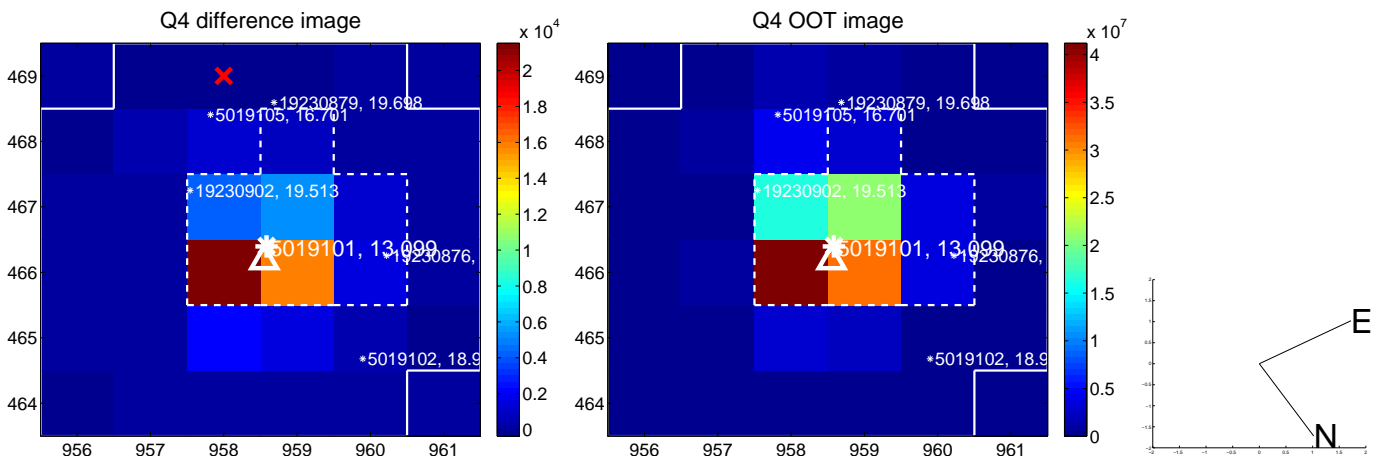
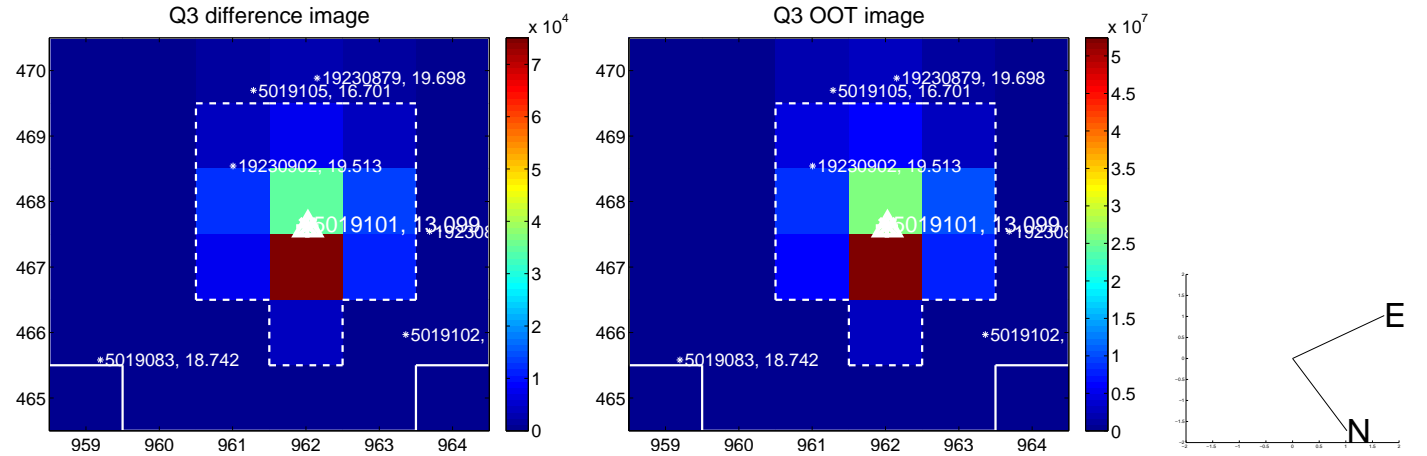
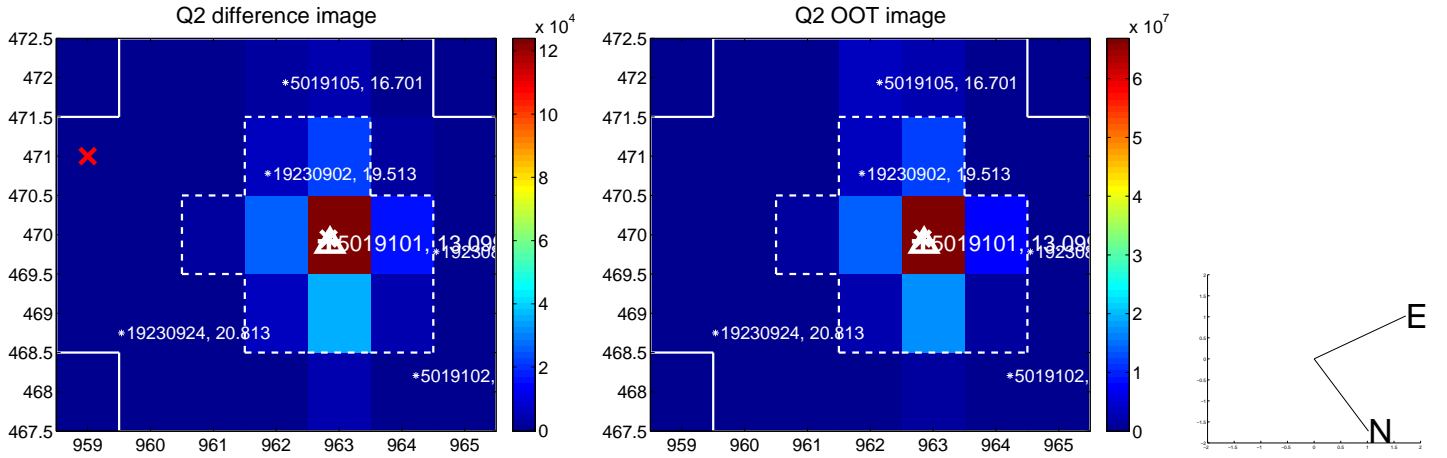
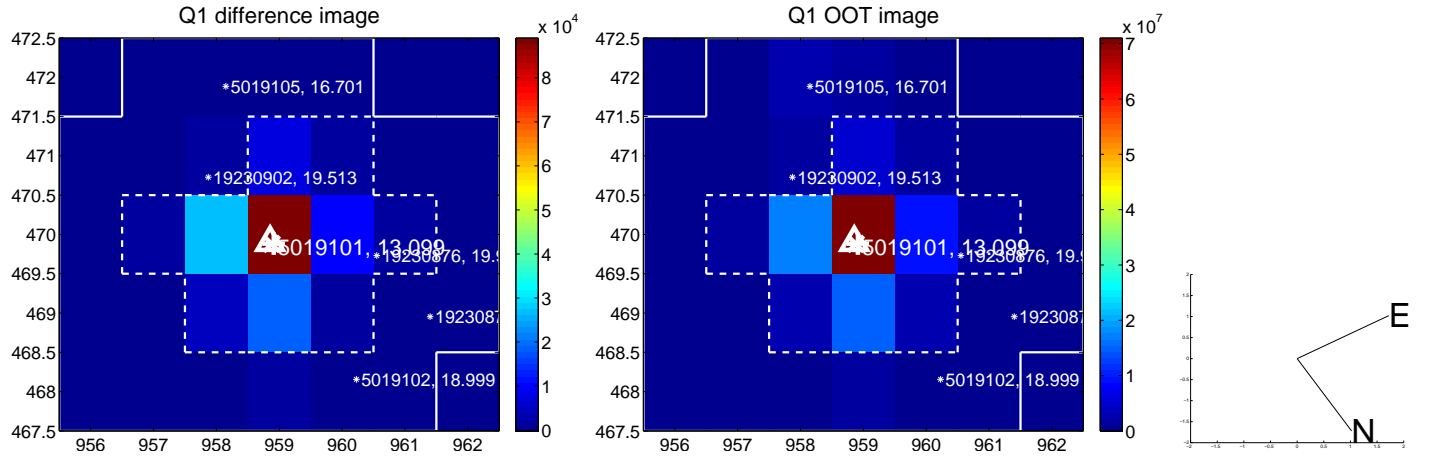
The direct PRF centroid is offset from the target star catalog position by about 0.11 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.098 ± 0.090	1.10	-0.033 ± 0.078	0.092 ± 0.085
PRF-fit source offset from KIC position	0.104 ± 0.095	1.10	-0.030 ± 0.083	0.100 ± 0.088
photometric centroid source offset	0.46 ± 0.28	1.64	-0.44 ± 0.28	0.14 ± 0.28

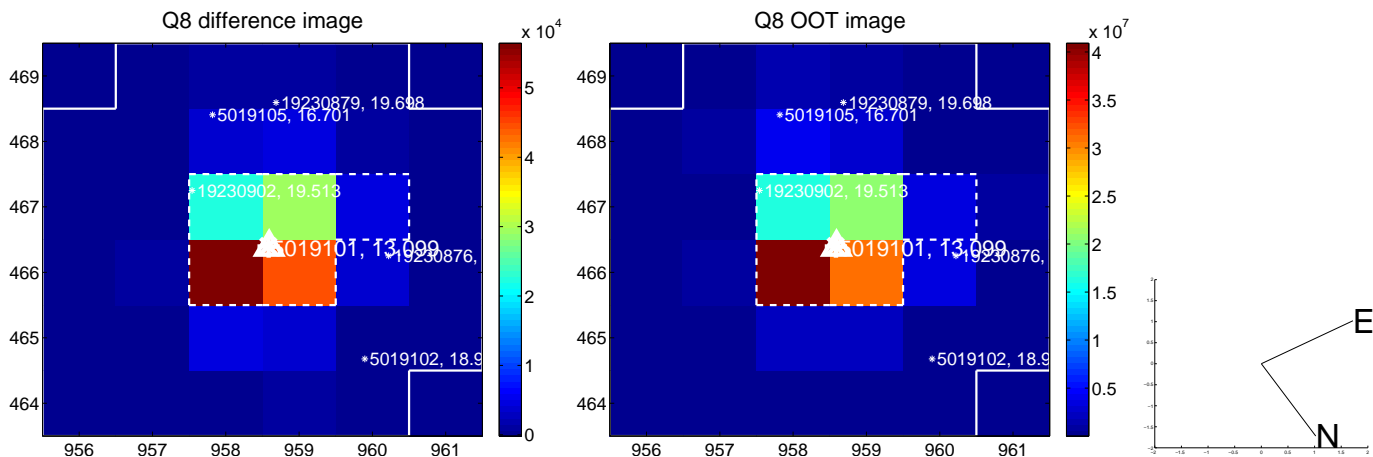
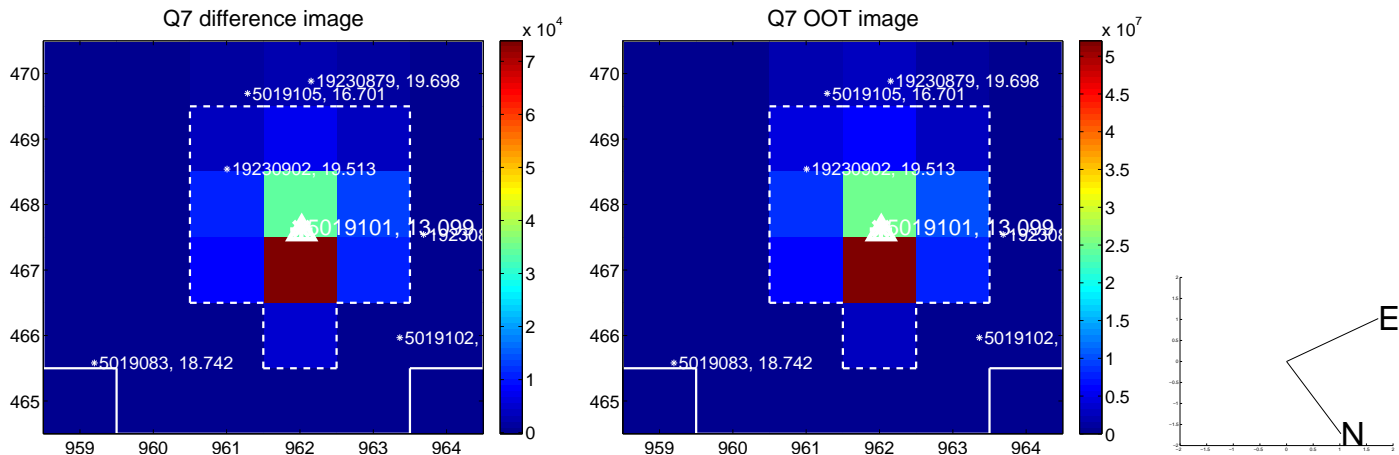
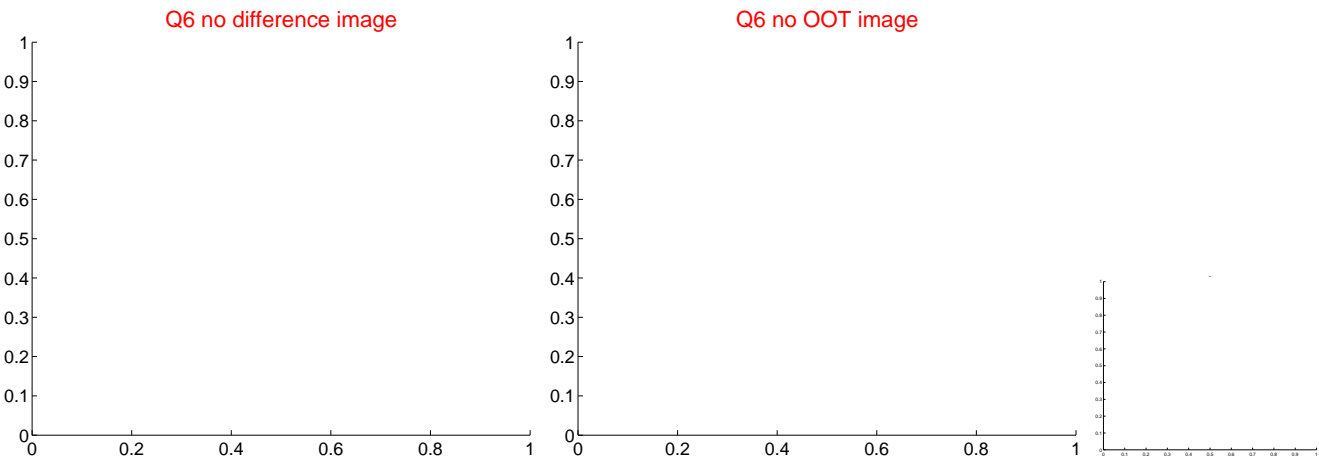
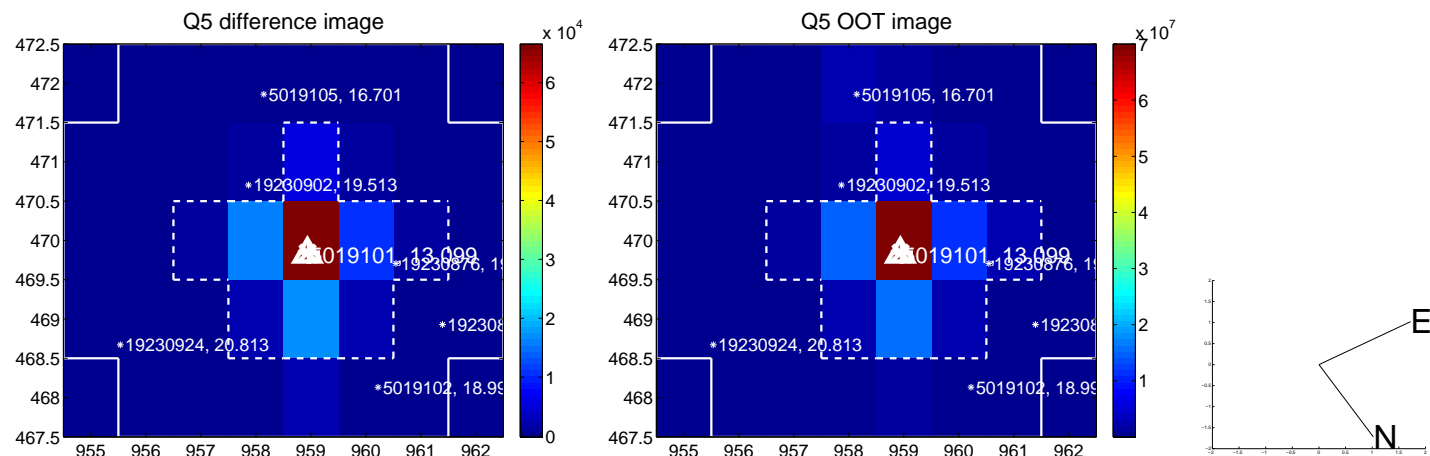


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets**; **Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

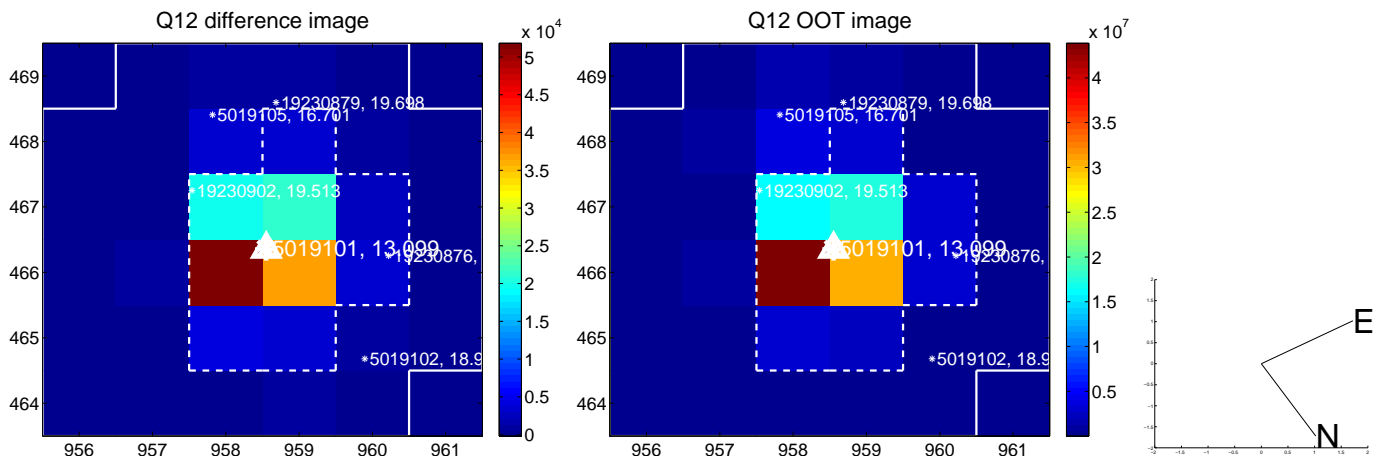
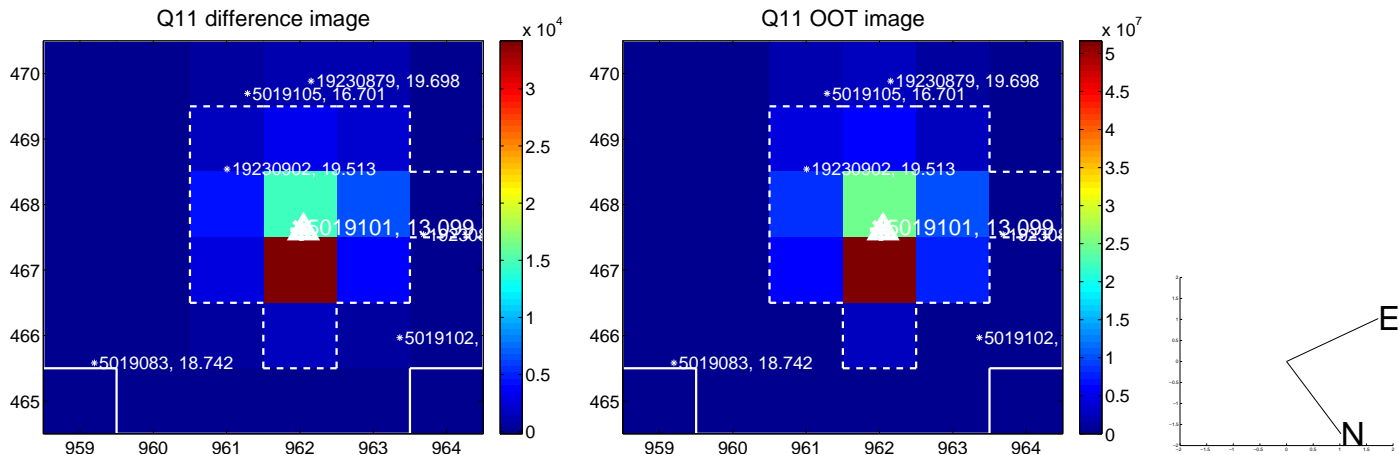
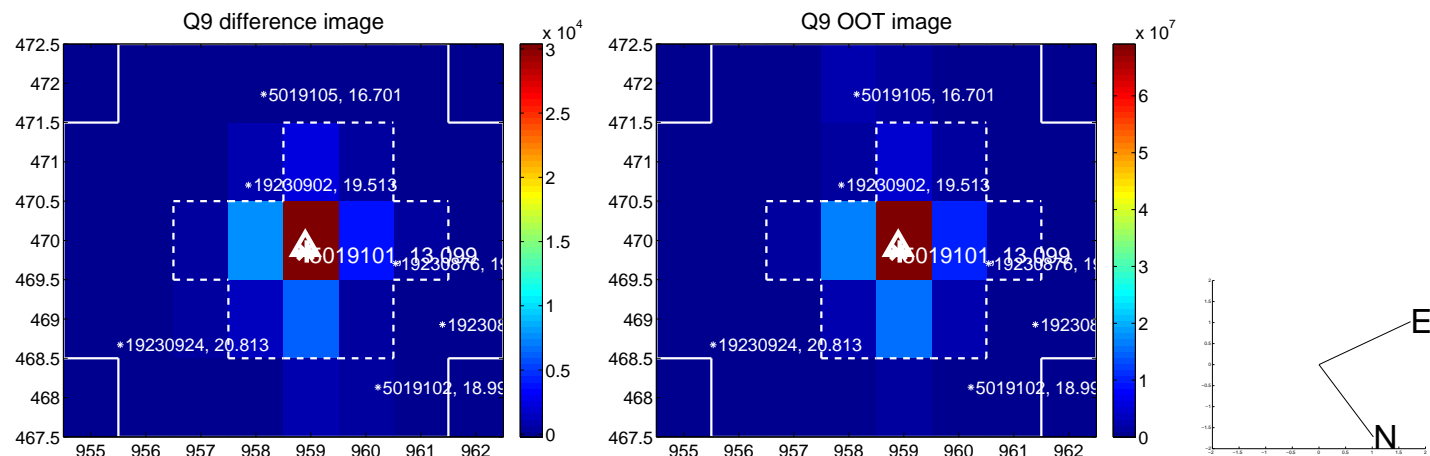
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



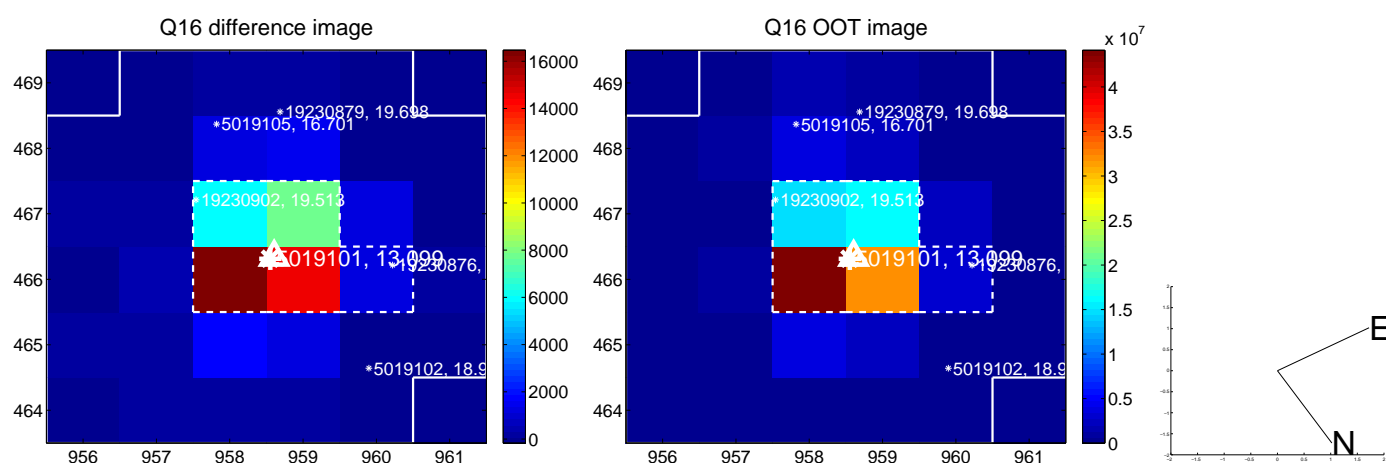
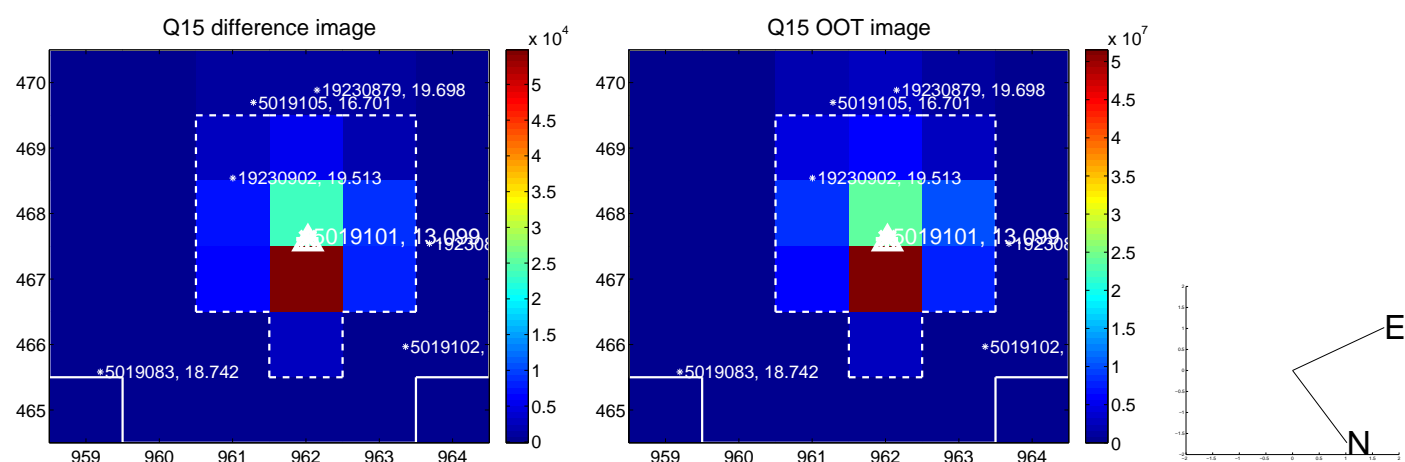
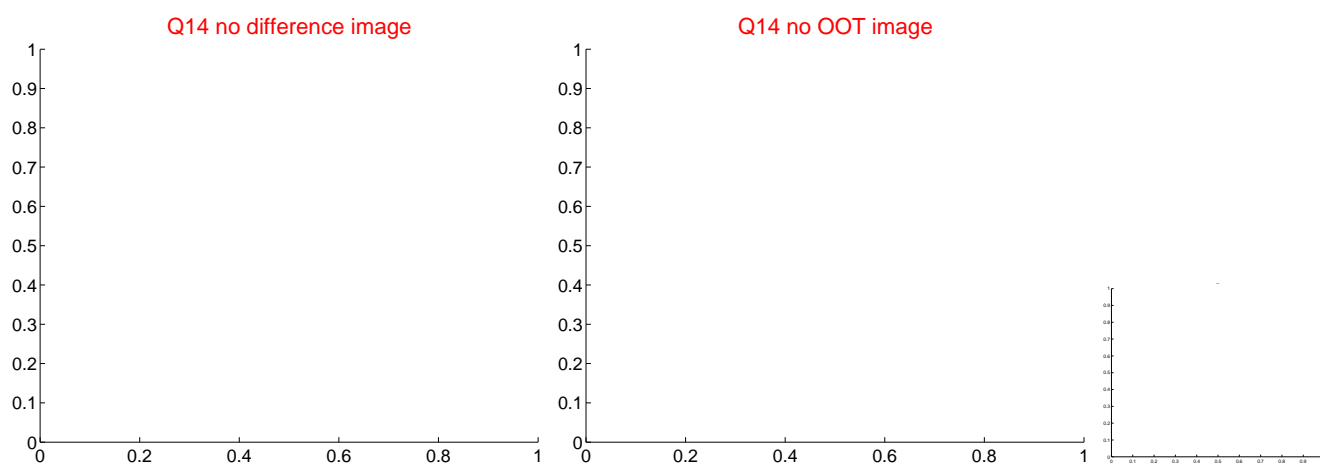
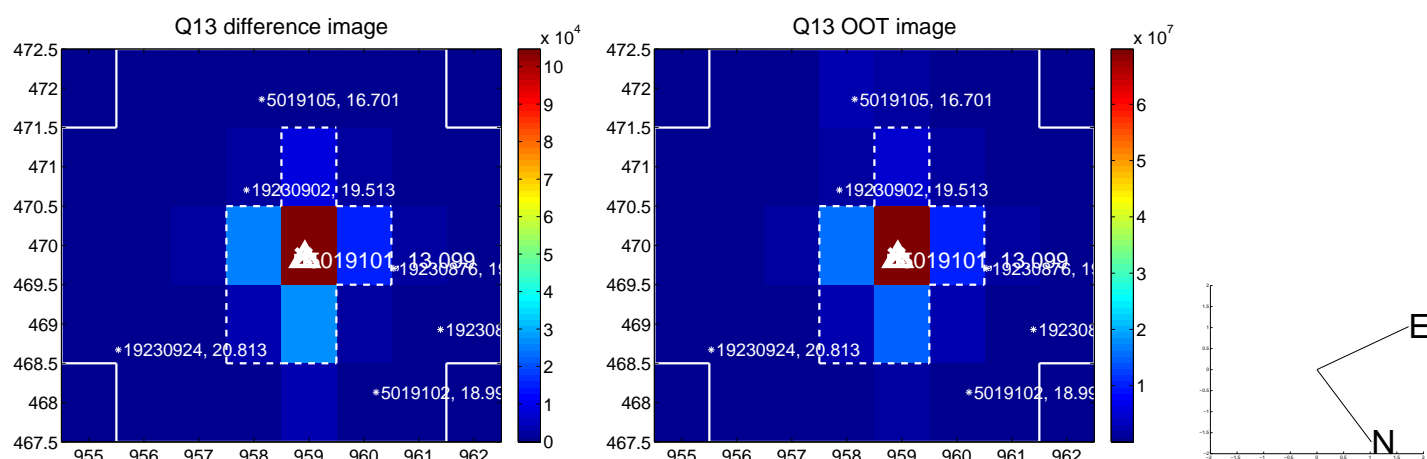
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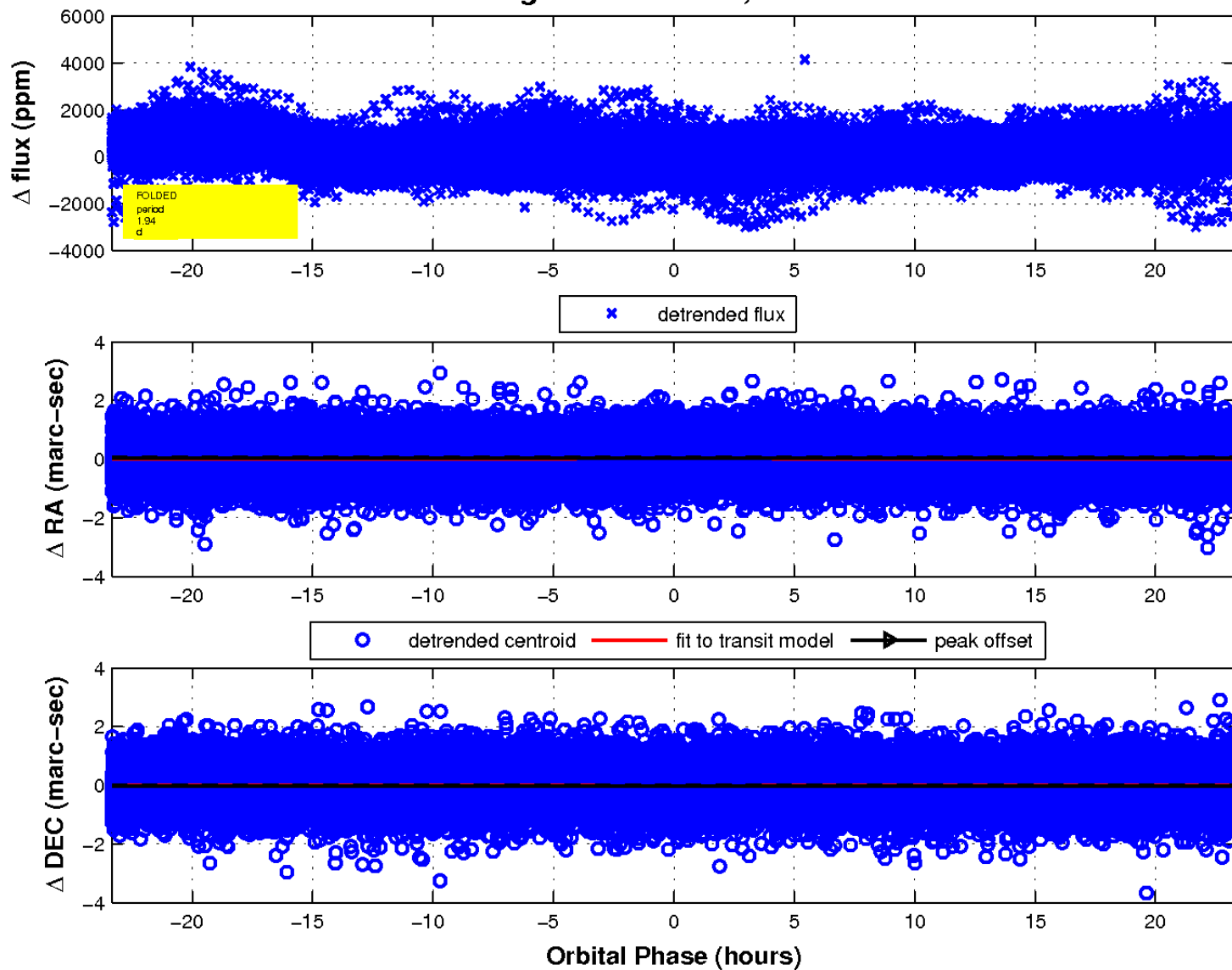
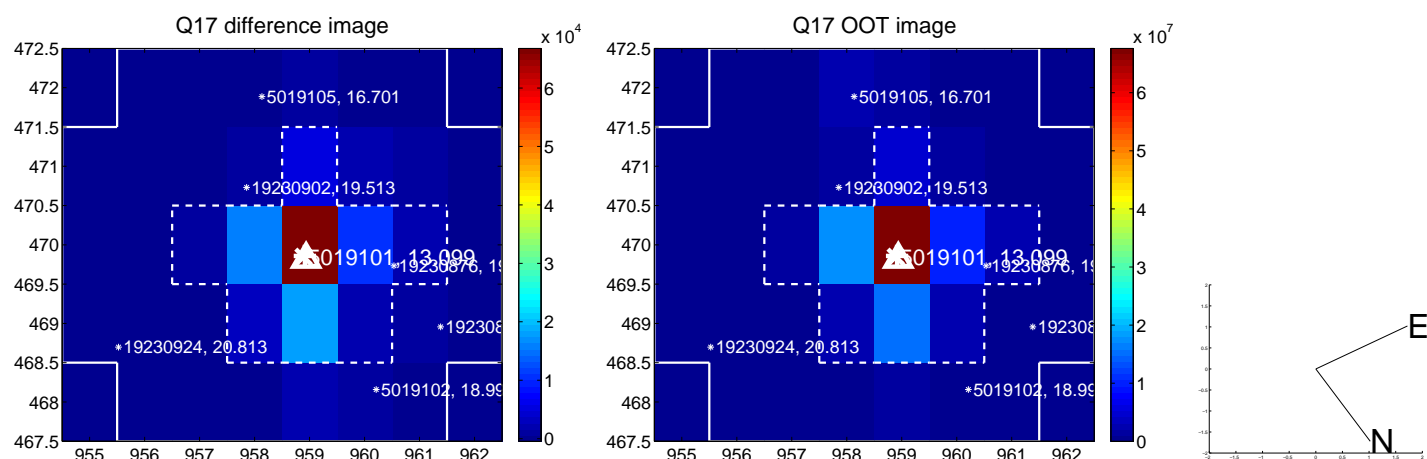
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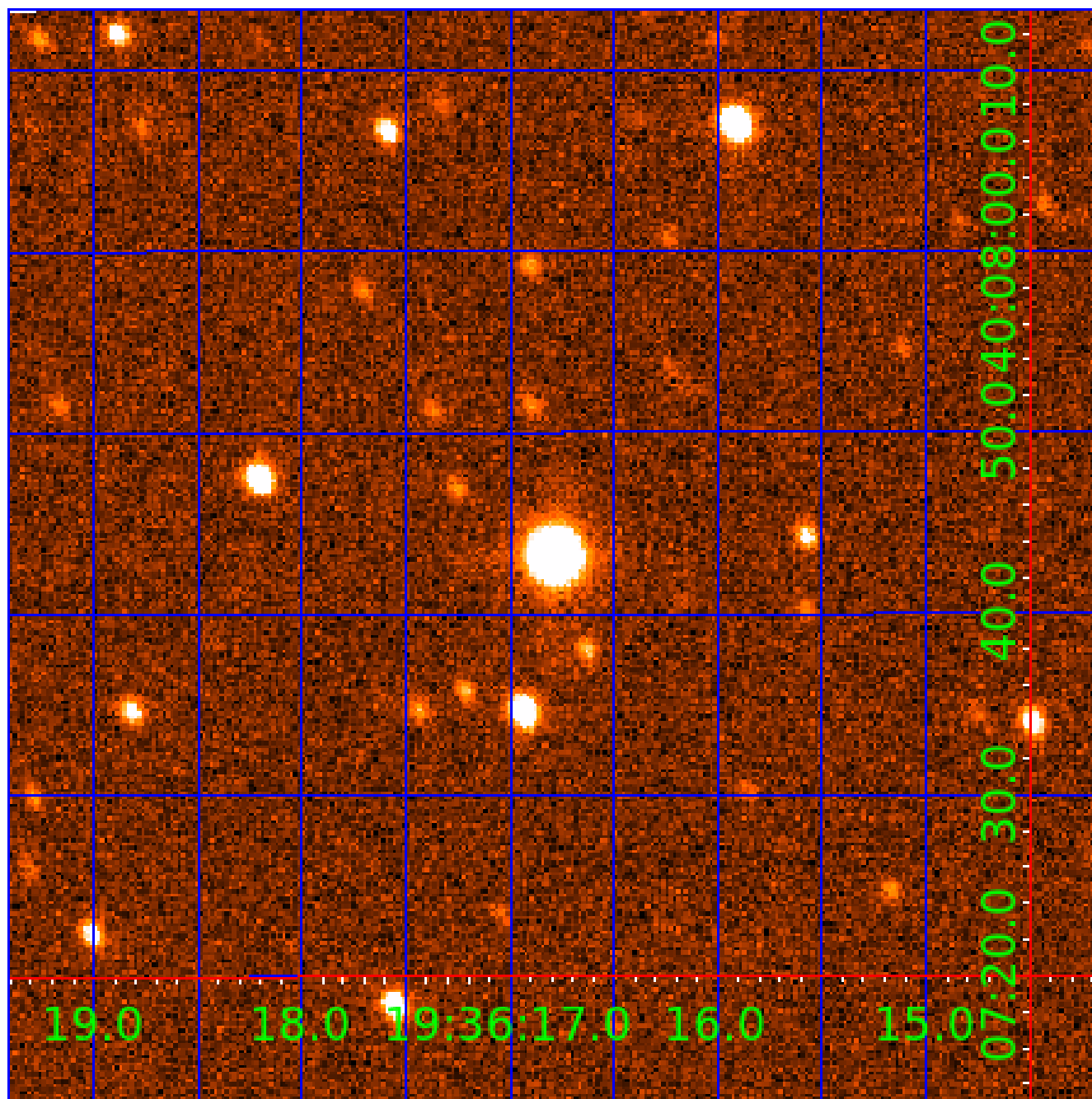


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 005019101

Q1-17 DR25 TCE Parameters

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005019101-04	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT— CENT_FEW_DIFFS—HALO_GHOST
005019101-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT— MOD_POS_ALT
005019101-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_POS_DV—MOD_NONUNIQ_ALT— MOD_TER_ALT—MOD_POS_ALT
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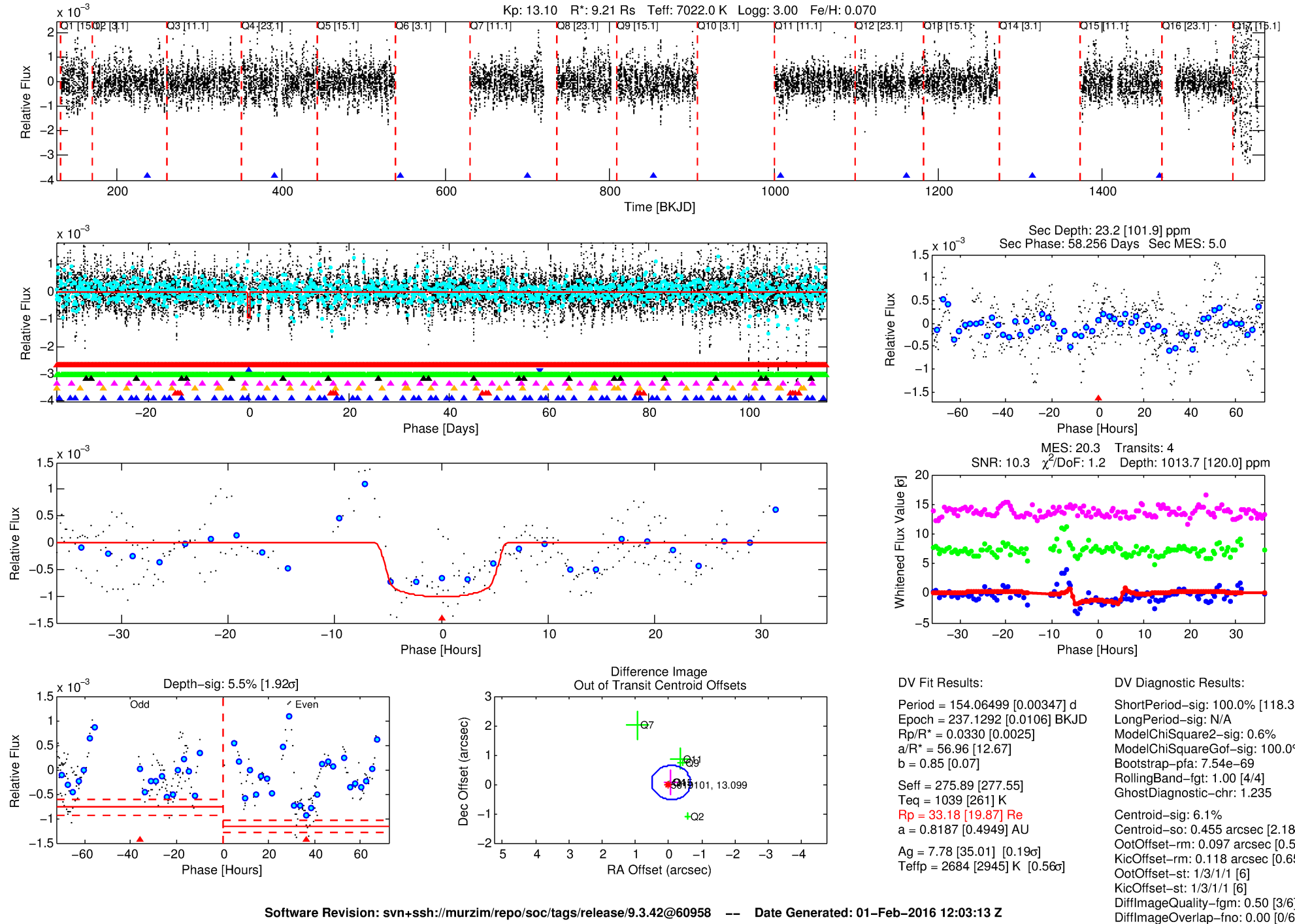
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 005019101-02

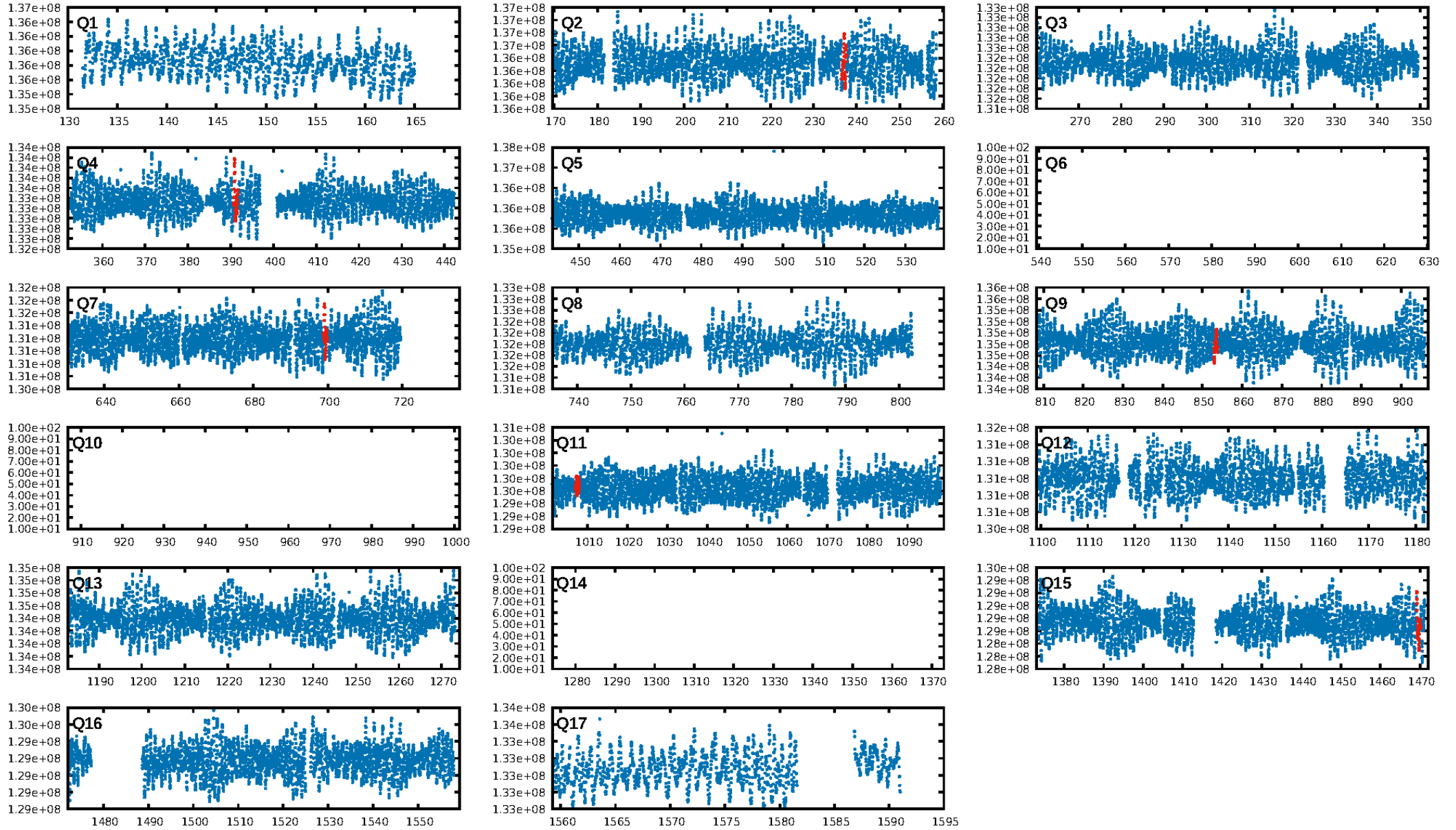
No Significant Match Found

DV One-Page Summary

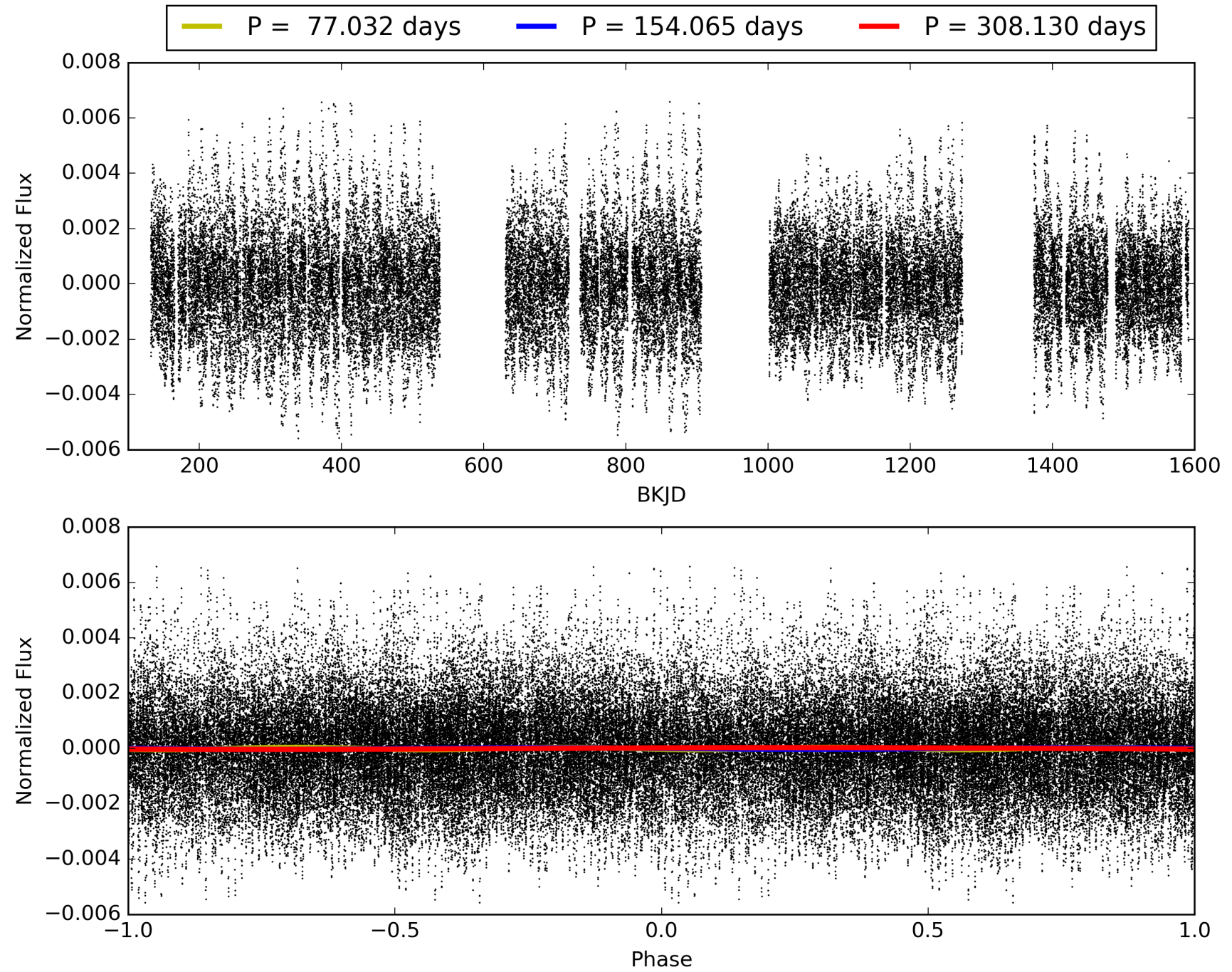
KIC: 5019101 Candidate: 2 of 8 Period: 154.065 d



TCE 005019101-02, PDC Light Curves

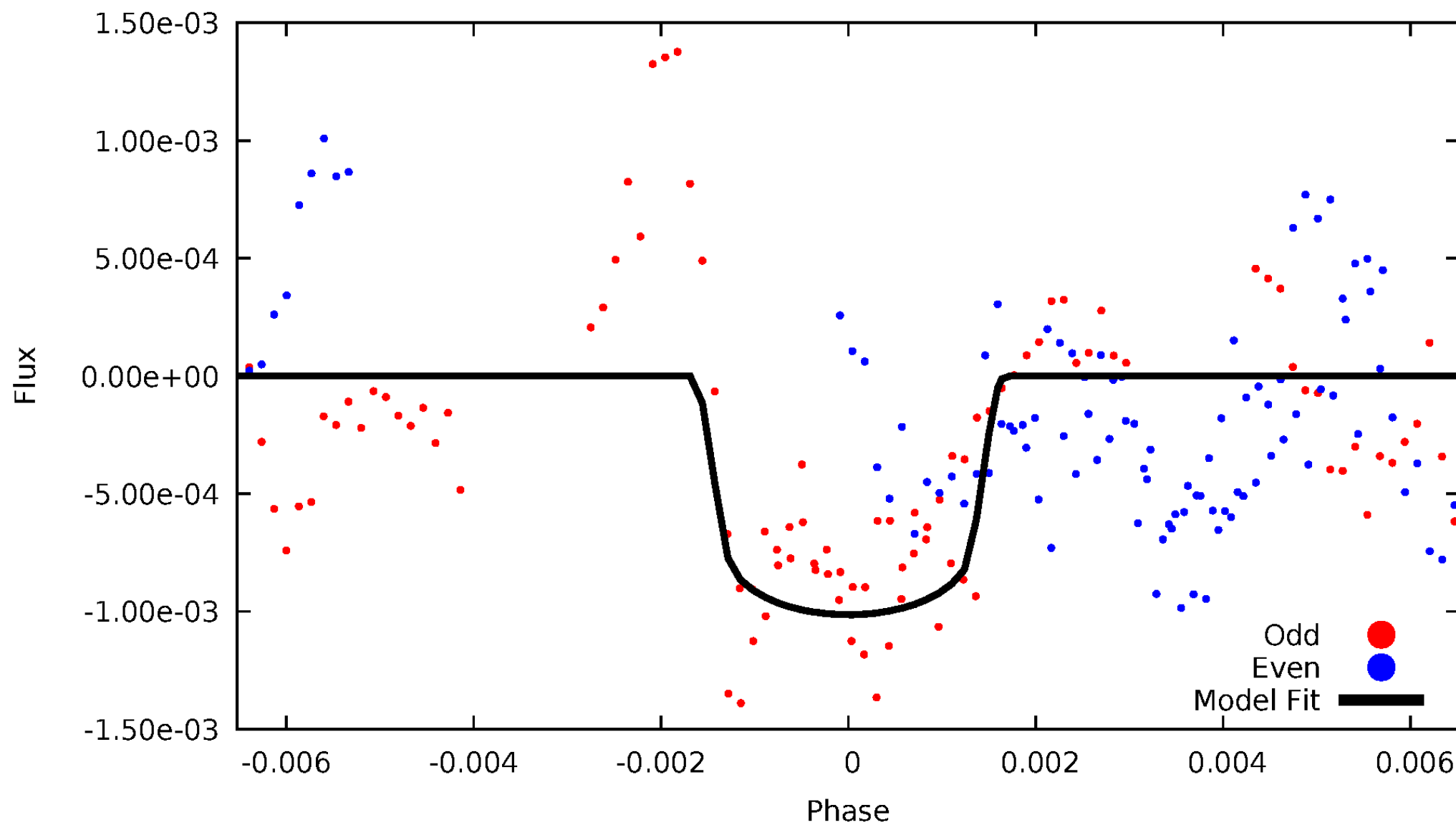


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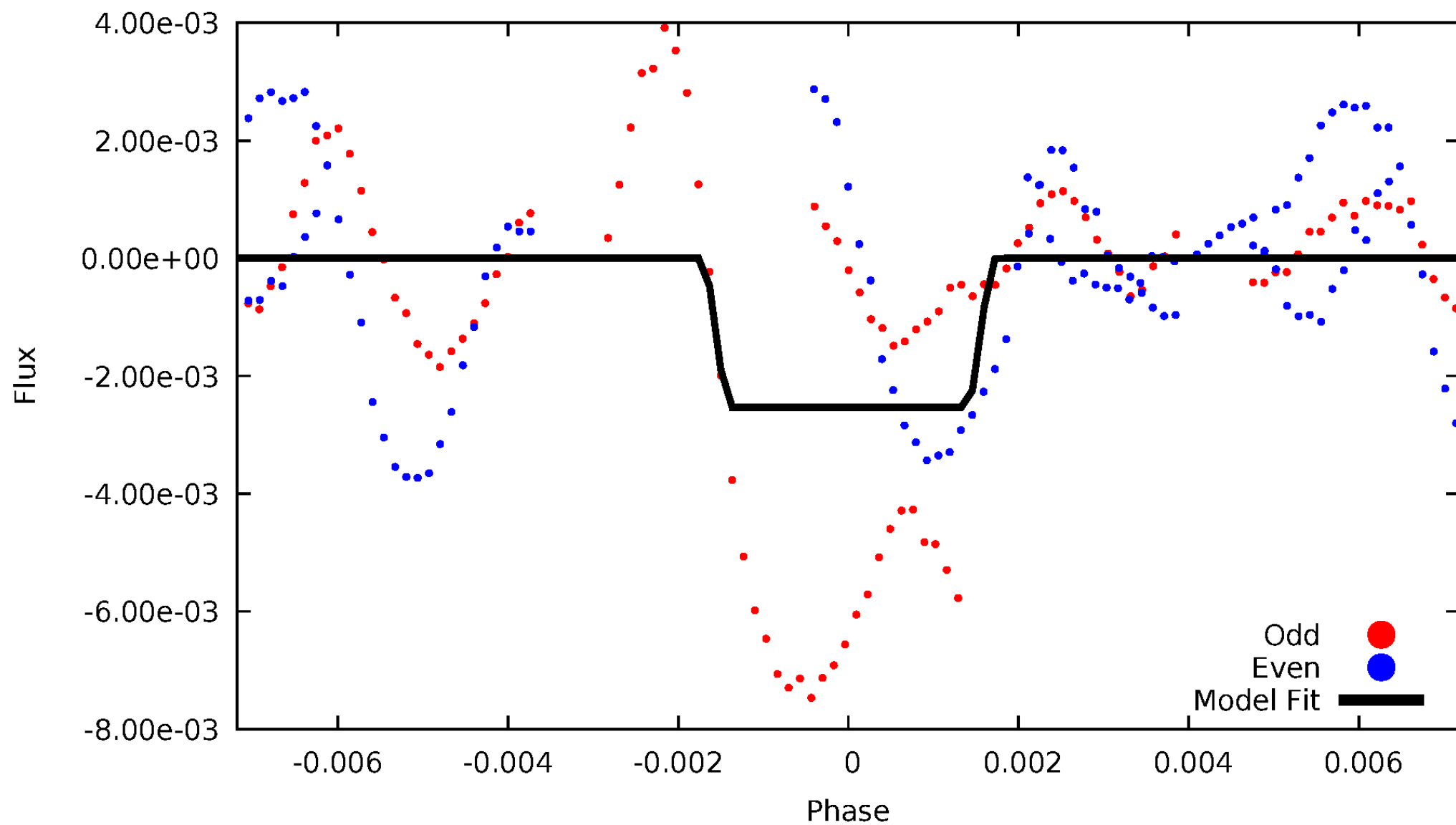
DV Odd/Even

TCE 005019101-02



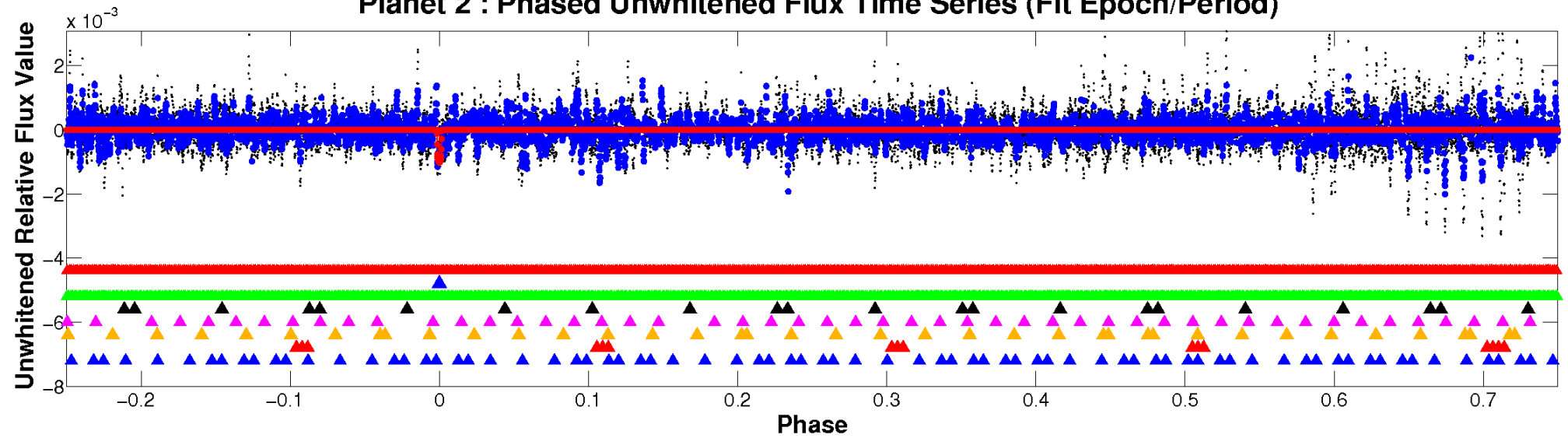
ALT Odd/Even

TCE 005019101-02

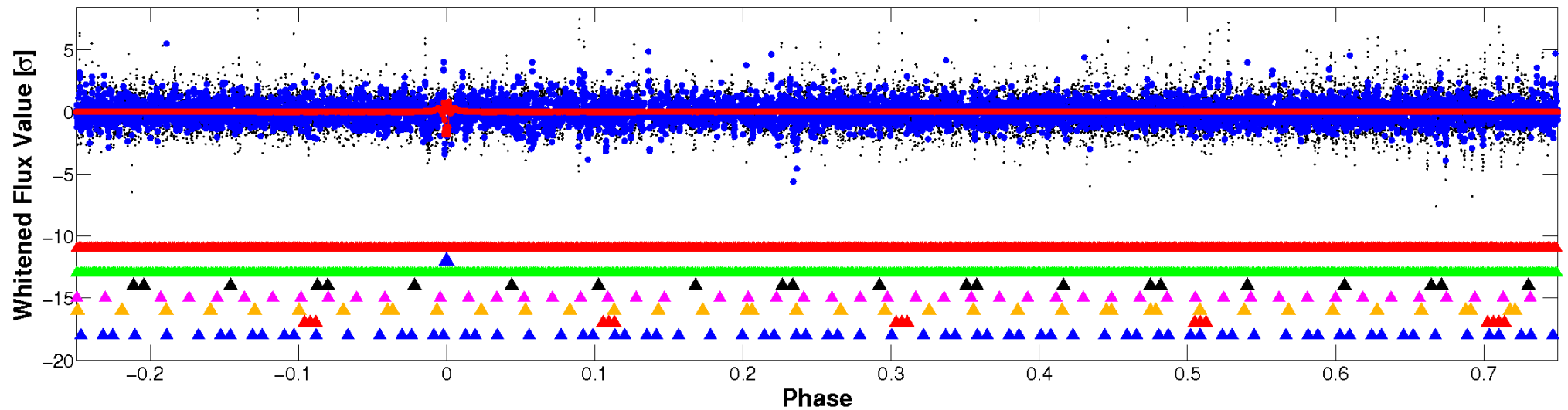


Non-Whitened Vs. Whitened Light Curve

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

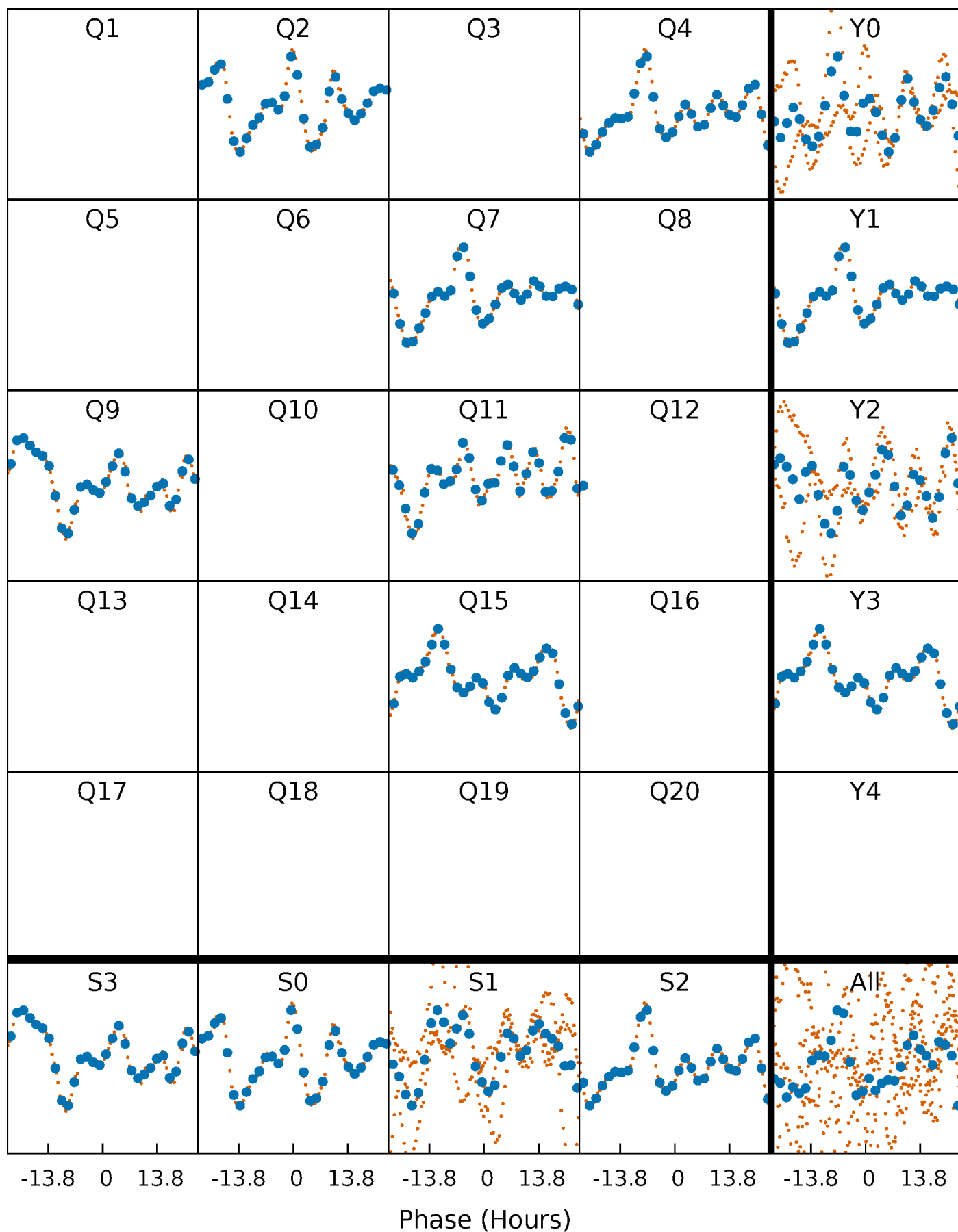


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



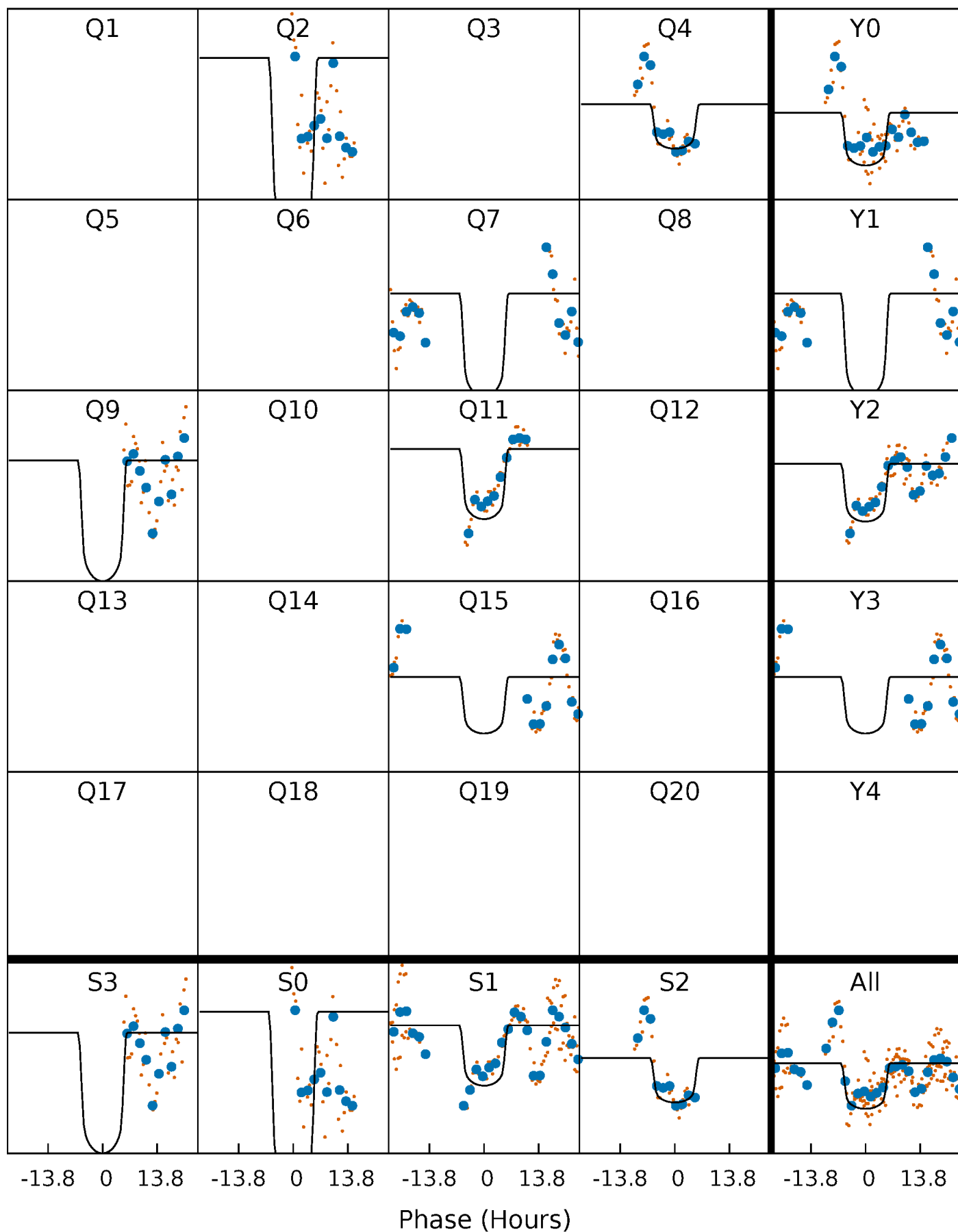
PDC Quarter-Phased Transit Curves

TCE 005019101-02 $P=154.064988$ Days $T_0=237.129171$ (BKJD)



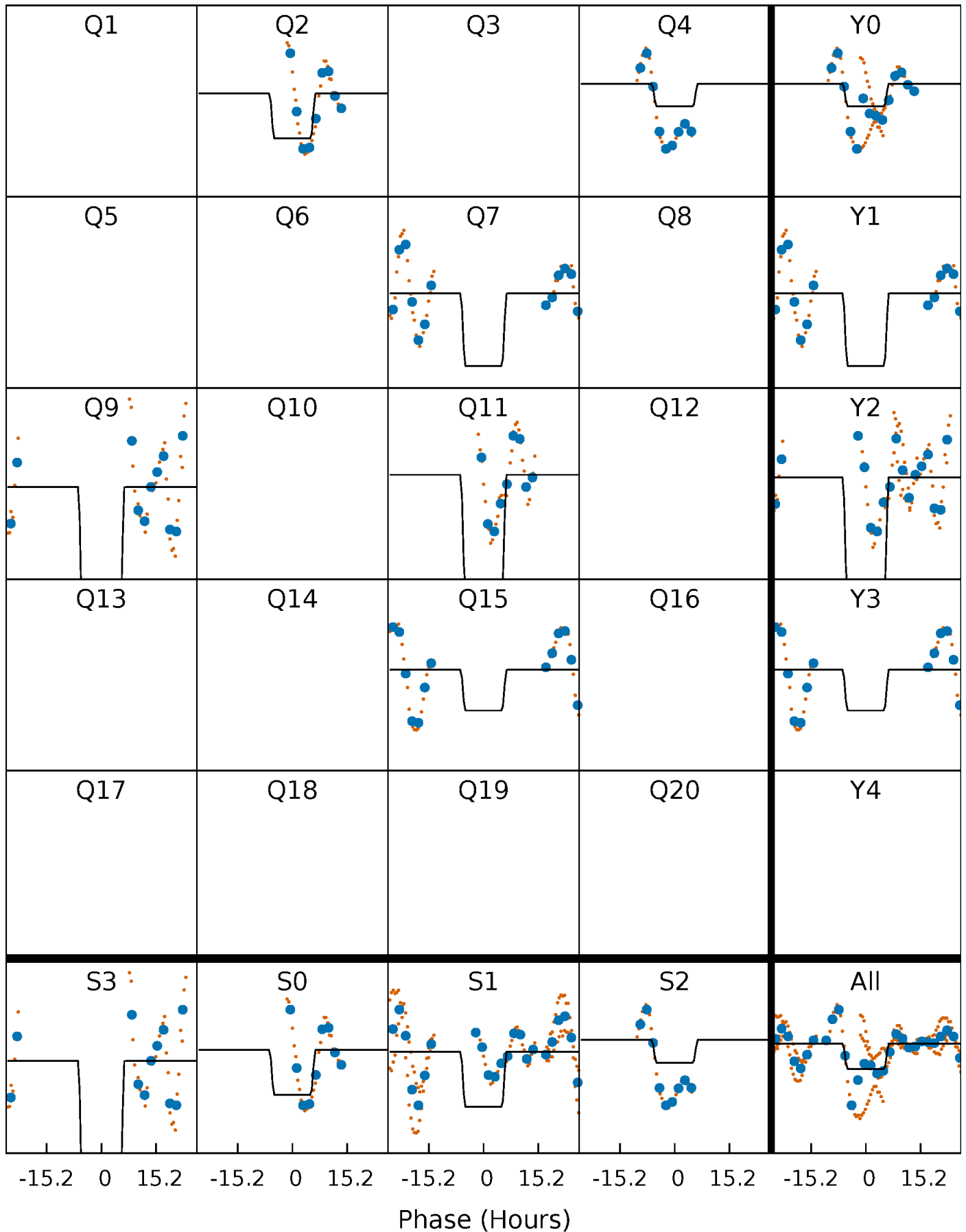
DV Quarter-Phased Transit Curves

TCE 005019101-02 P=154.064988 Days $T_0=237.129171$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

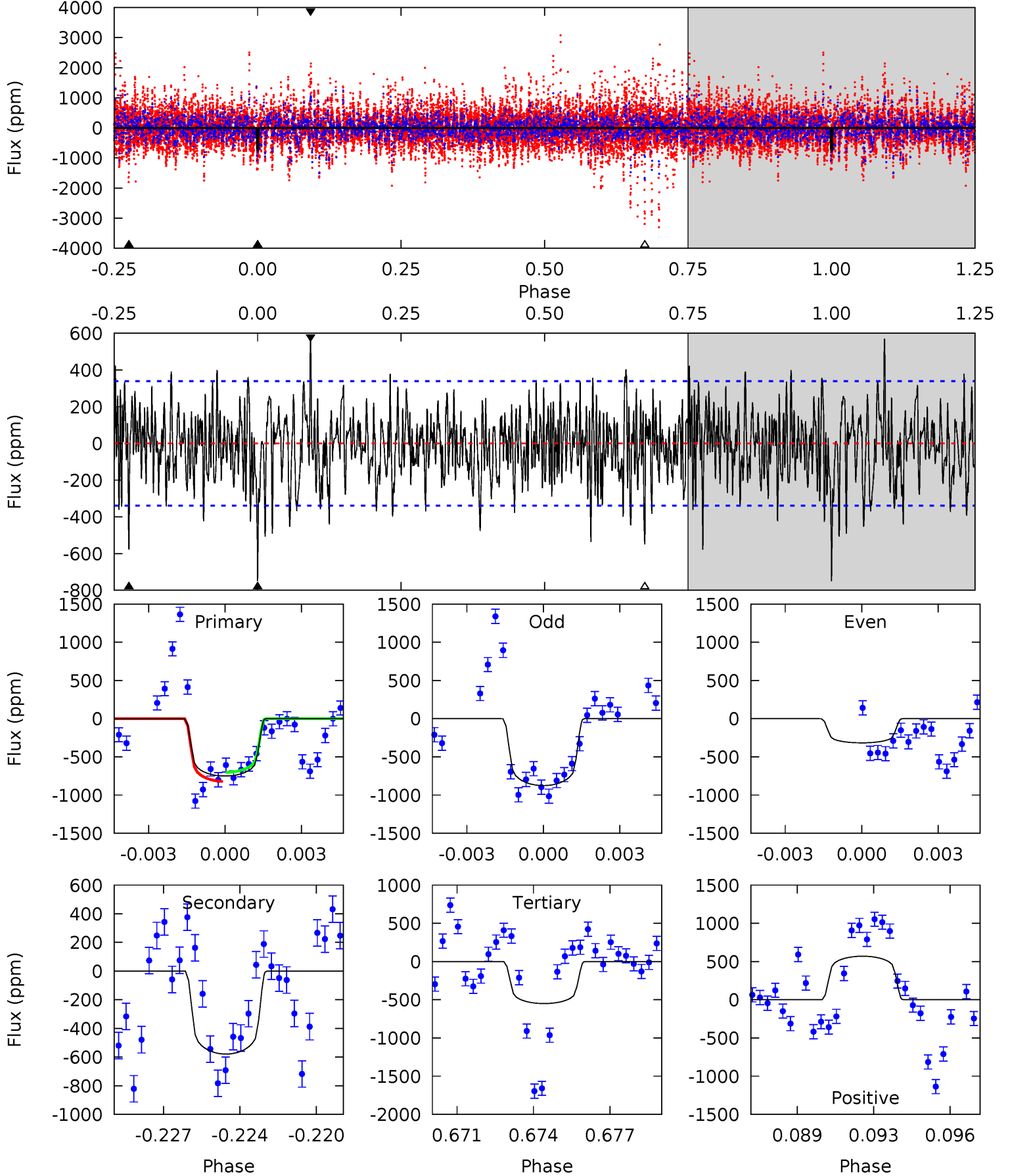
TCE 005019101-02 P=154.028175 Days $T_0=237.177175$ (BKJD)



DV Model-Shift Uniqueness Test

005019101-02, P = 154.064988 Days, E = 83.064183 Days

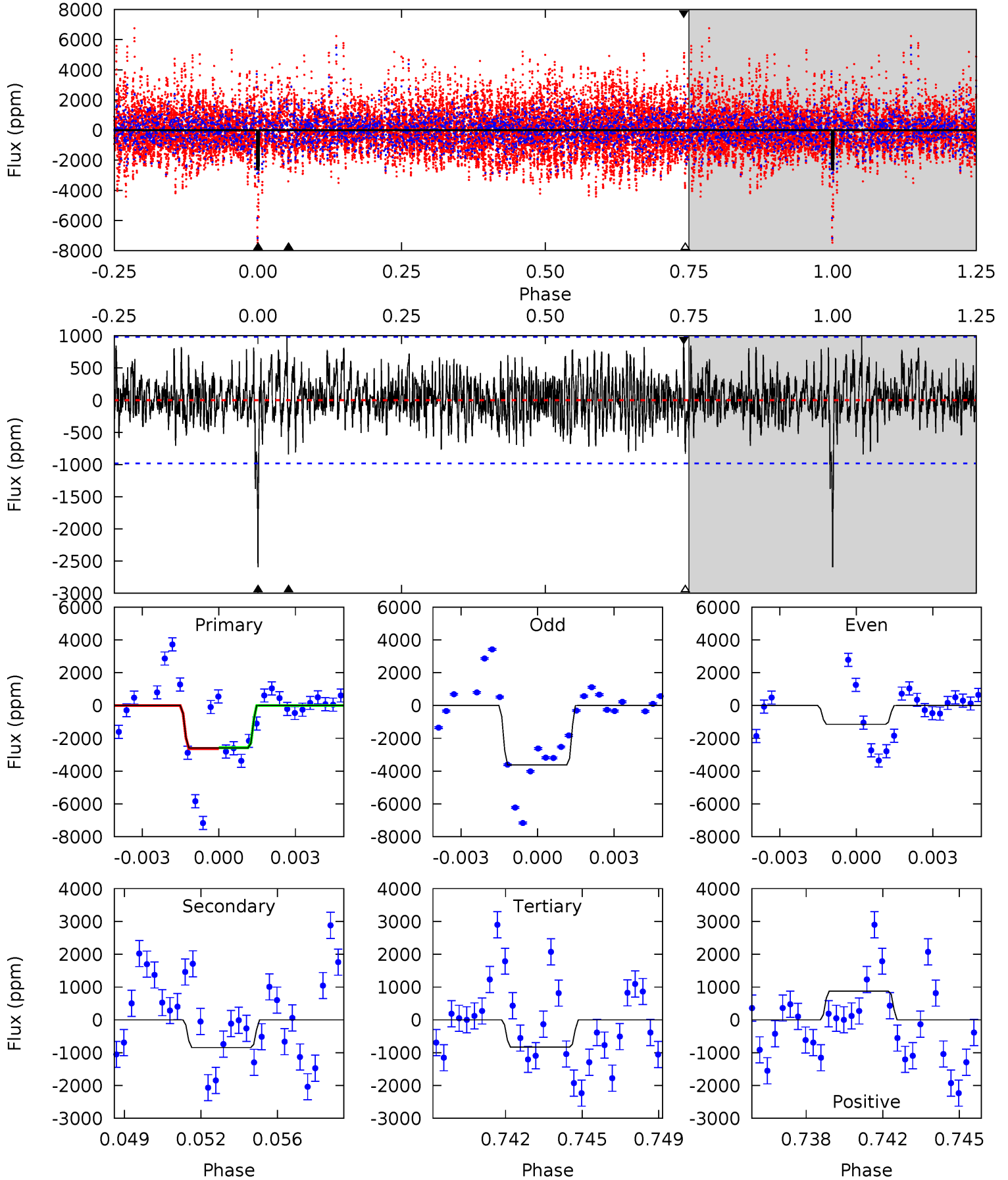
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
11.6	8.96	8.50	8.82	5.24	2.95	2.42	3.11	2.80	0.45	0.14	3.82	0.74	0.43	0.88



Alt Model-Shift Uniqueness Test

005019101-02, P = 154.028175 Days, E = 83.149000 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
13.8	4.48	4.42	4.66	5.22	2.92	1.49	9.34	9.09	0.06	-0.18	6.32	2.16	0.28	0.14



Stellar Parameters For KIC 005019101

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	7022^{+169}_{-254}	$2.998^{+0.595}_{-0.105}$	$0.070^{+0.200}_{-0.450}$	$9.213^{+1.026}_{-5.474}$	$3.080^{+0.203}_{-1.148}$	$0.006^{+0.049}_{-0.002}$
	+2%/-4%	+20%/-4%	+286%/-643%	+11%/-59%	+7%/-37%	+879%/-34%
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 005019101-02 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-579 ± 65	$31.73^{+5.10}_{-10.08}$	1423^{+91}_{-220}	5921^{+365}_{-302}	211^{+206}_{-55}
Alt.	-843 ± 188	$49.09^{+6.10}_{-14.62}$	1420^{+90}_{-207}	5314^{+338}_{-328}	136^{+101}_{-45}

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 $A_{obs} \gg 1.0$

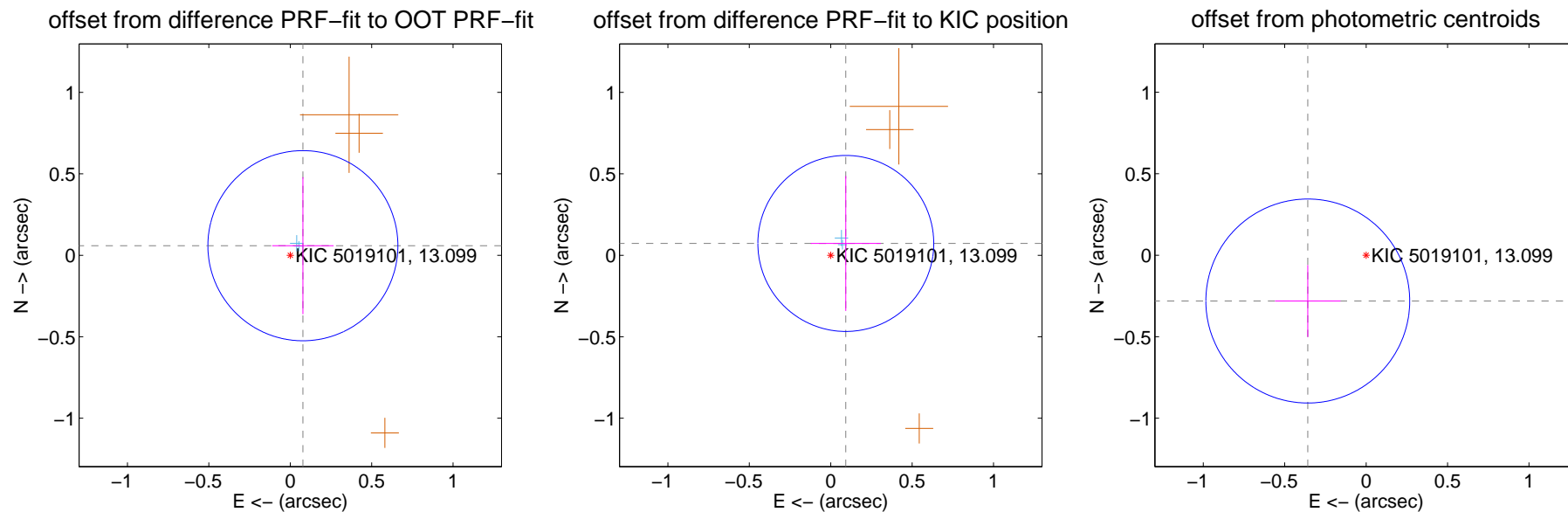
DV Centroid Data

Supplemental centroid analysis for 005019101-02. Kepler magnitude: 13.10. Transit SNR 10.29

There are 3 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.02 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.097 ± 0.195	0.50	-0.078 ± 0.189	0.059 ± 0.420
PRF-fit source offset from KIC position	0.118 ± 0.180	0.65	-0.093 ± 0.215	0.073 ± 0.414
photometric centroid source offset	0.46 ± 0.21	2.18	0.36 ± 0.20	-0.28 ± 0.22



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.

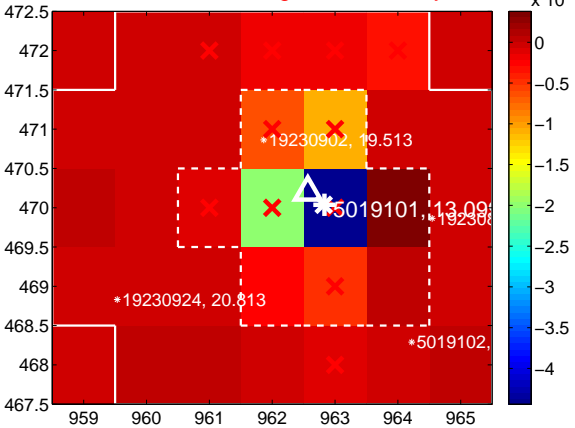
Q1 no difference image



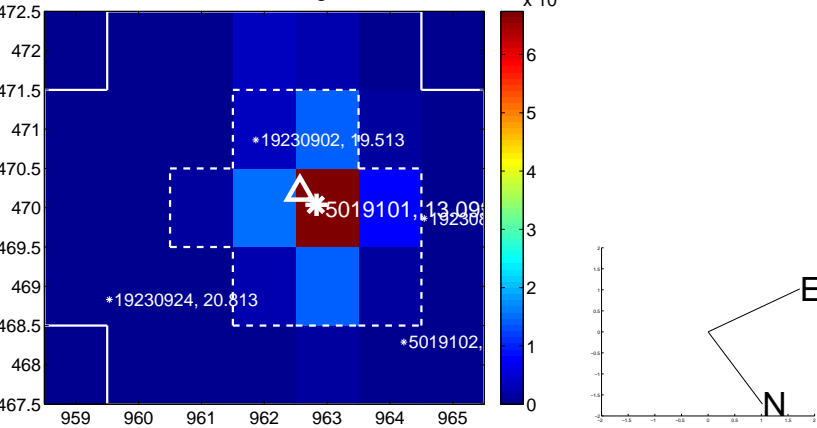
Q1 no OOT image



Q2 difference image. Poor Quality



Q2 OOT image



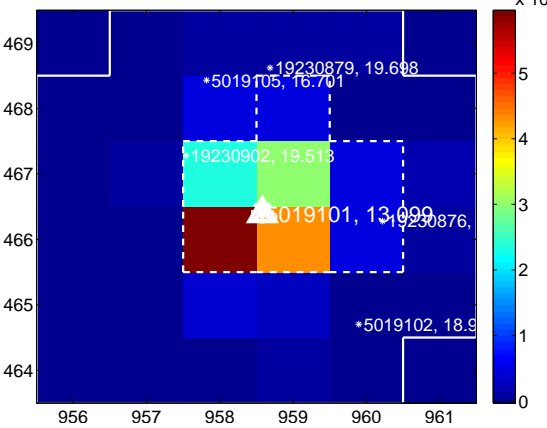
Q3 no difference image



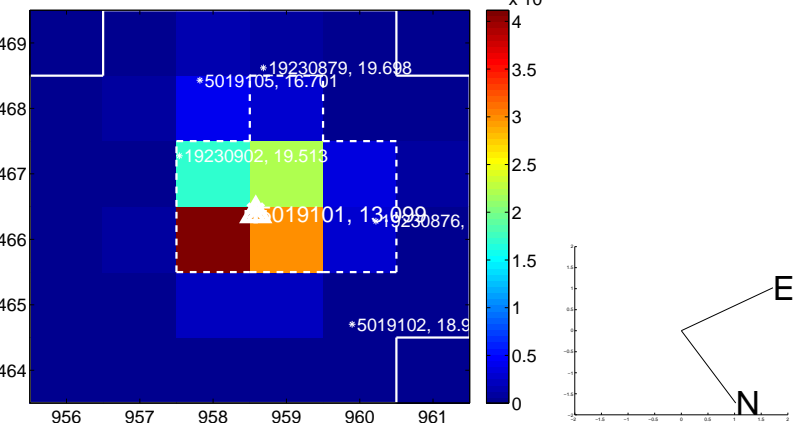
Q3 no OOT image



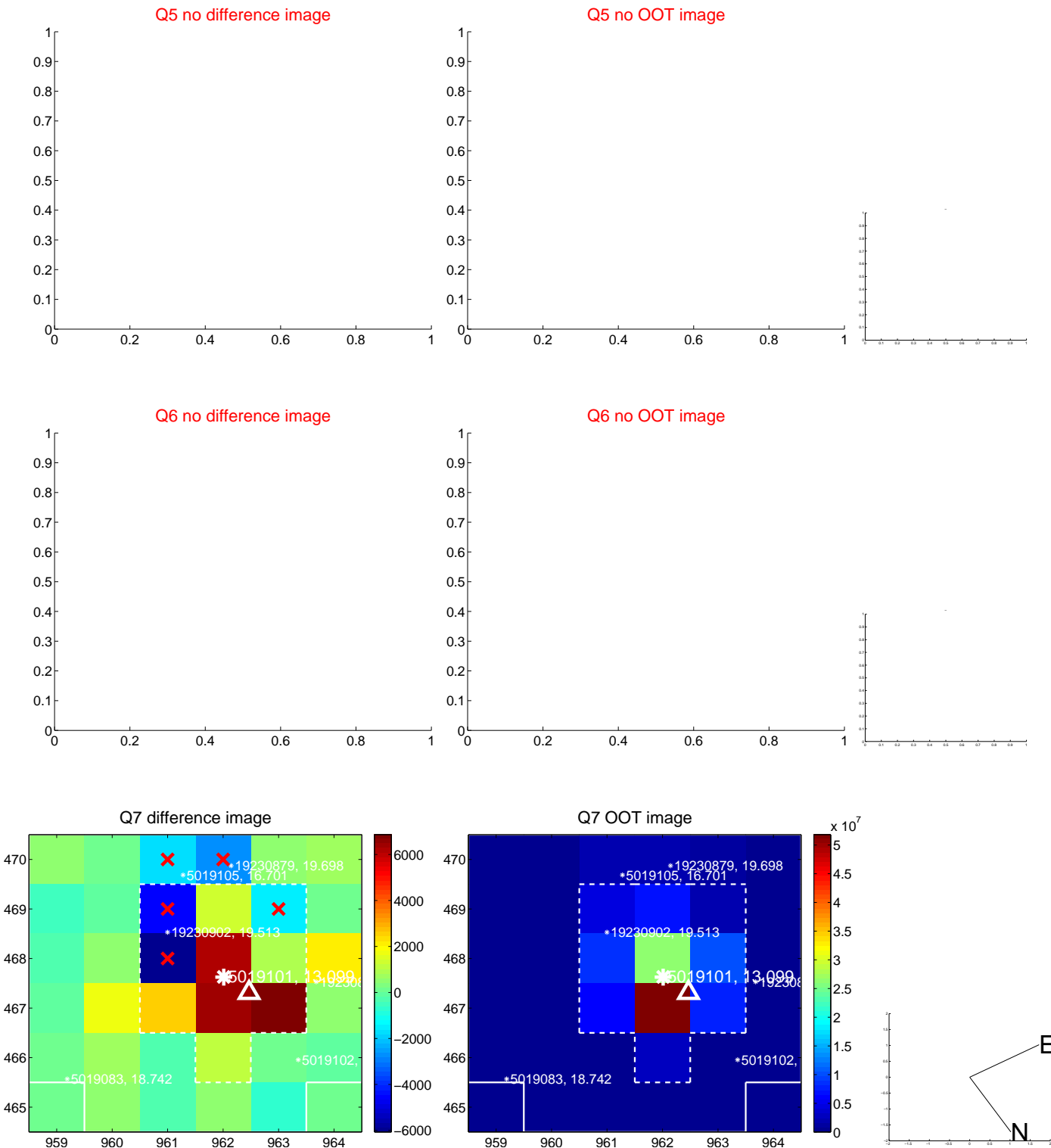
Q4 difference image



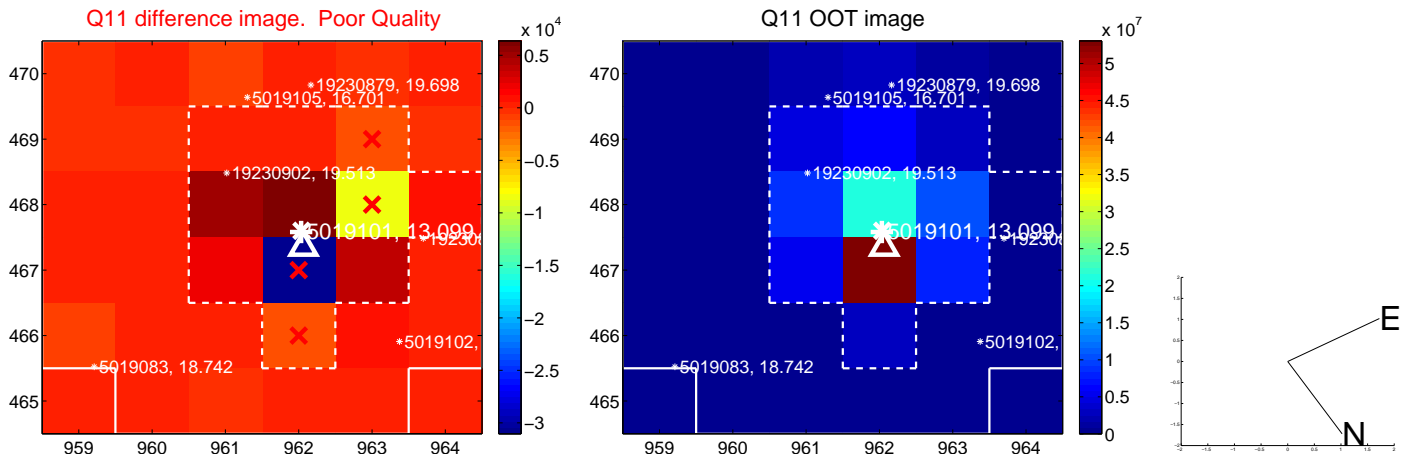
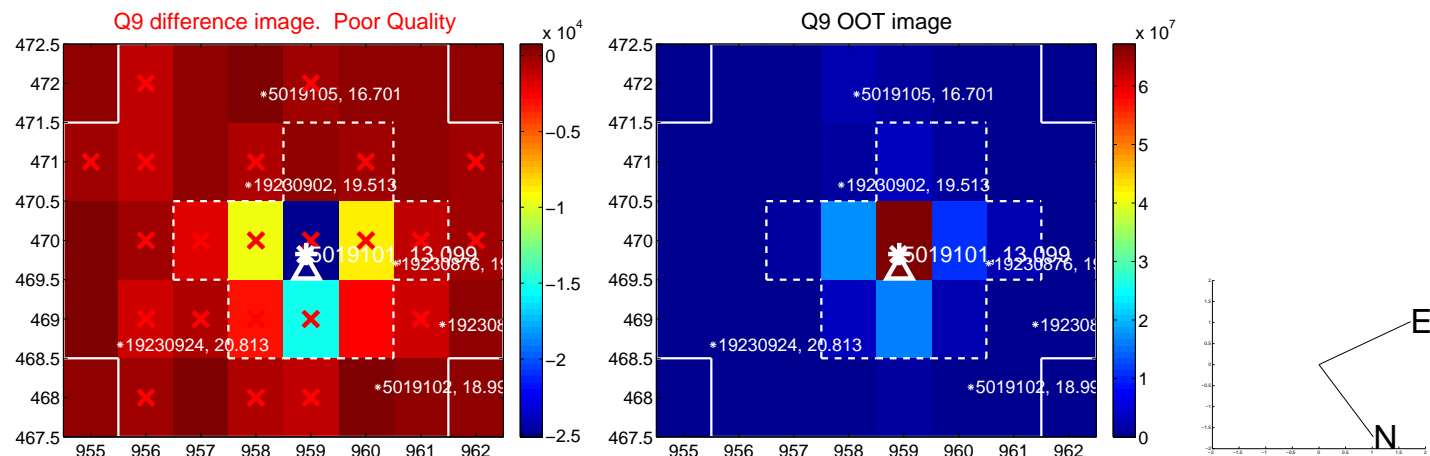
Q4 OOT image



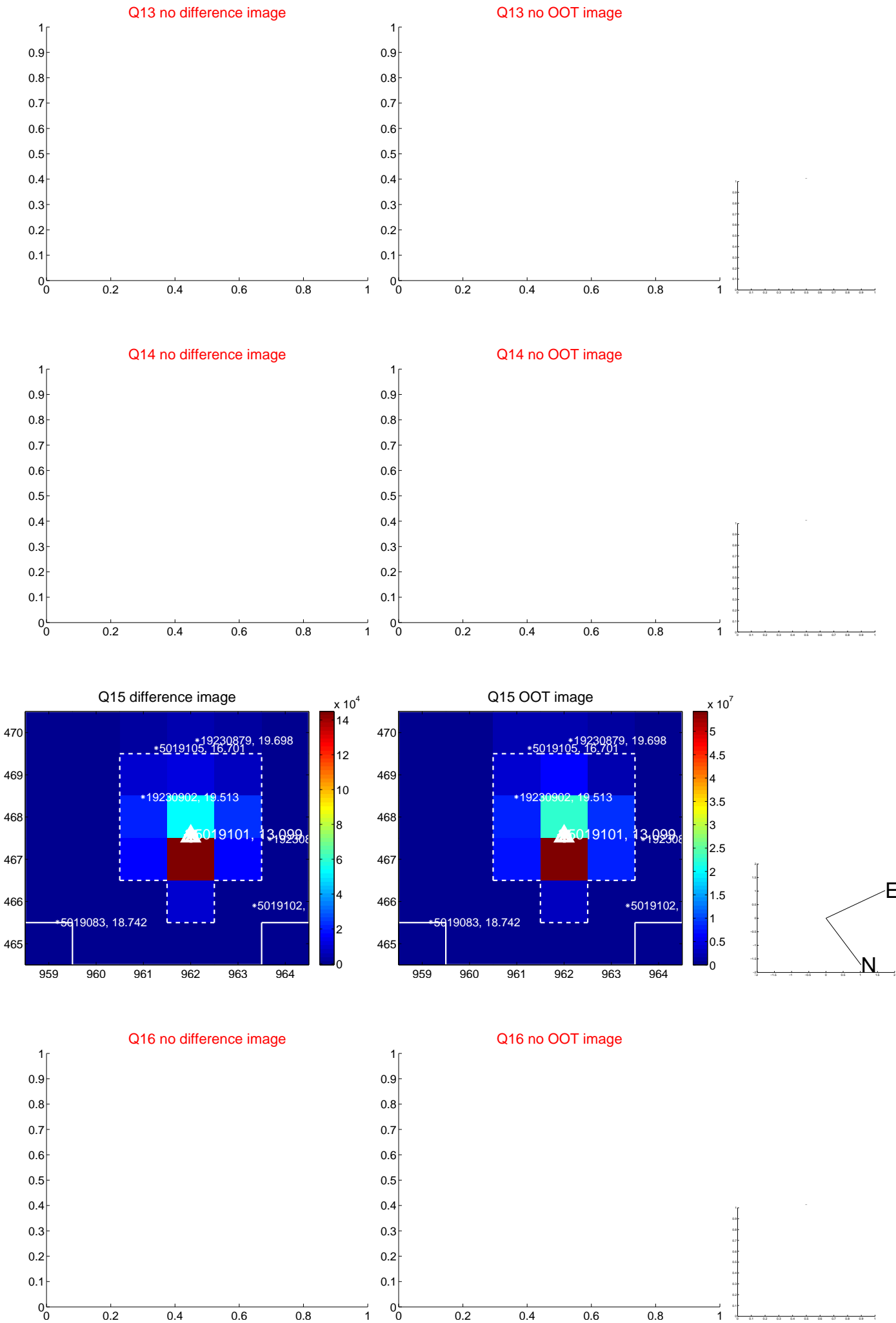
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ✕: large negative pixel value.



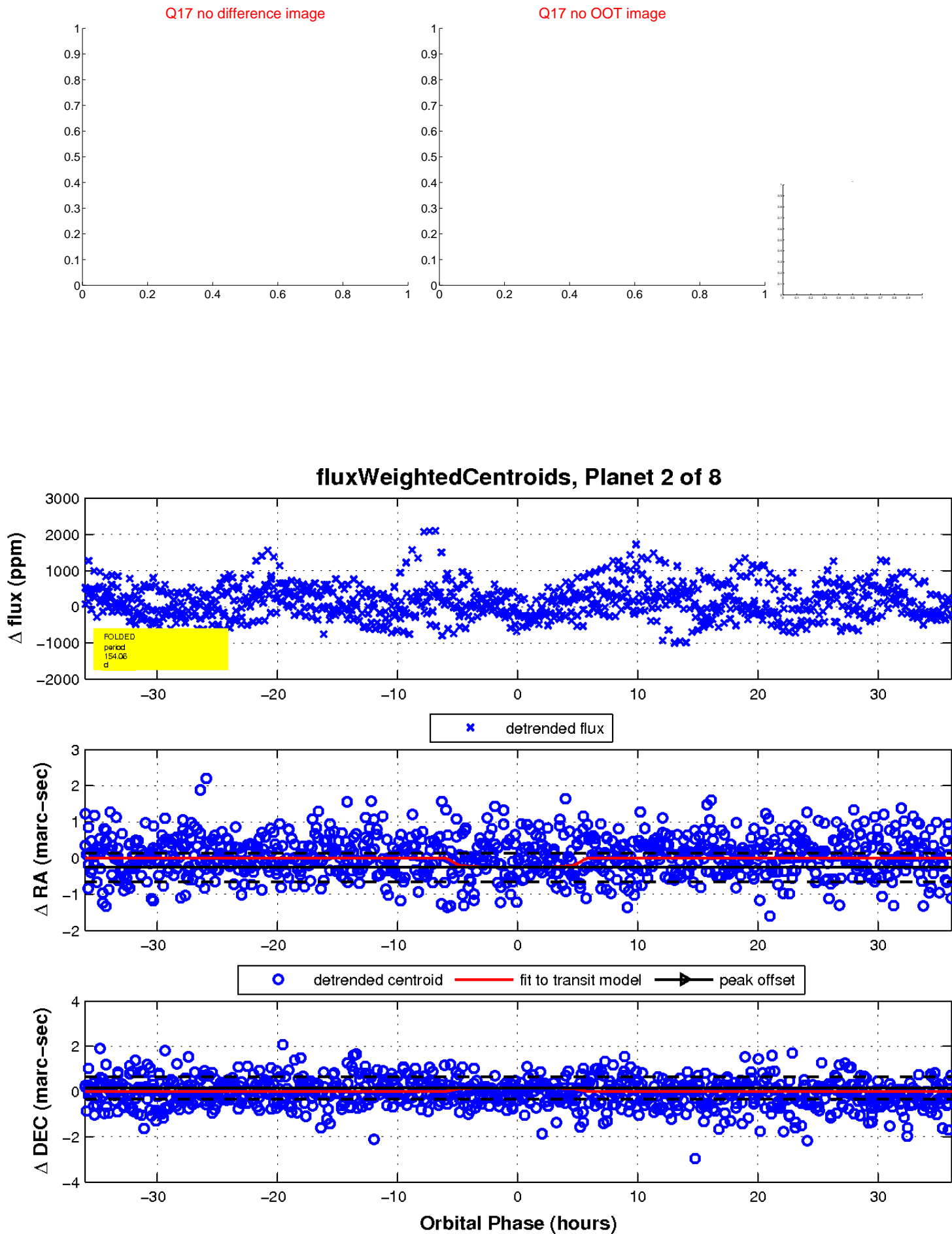
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

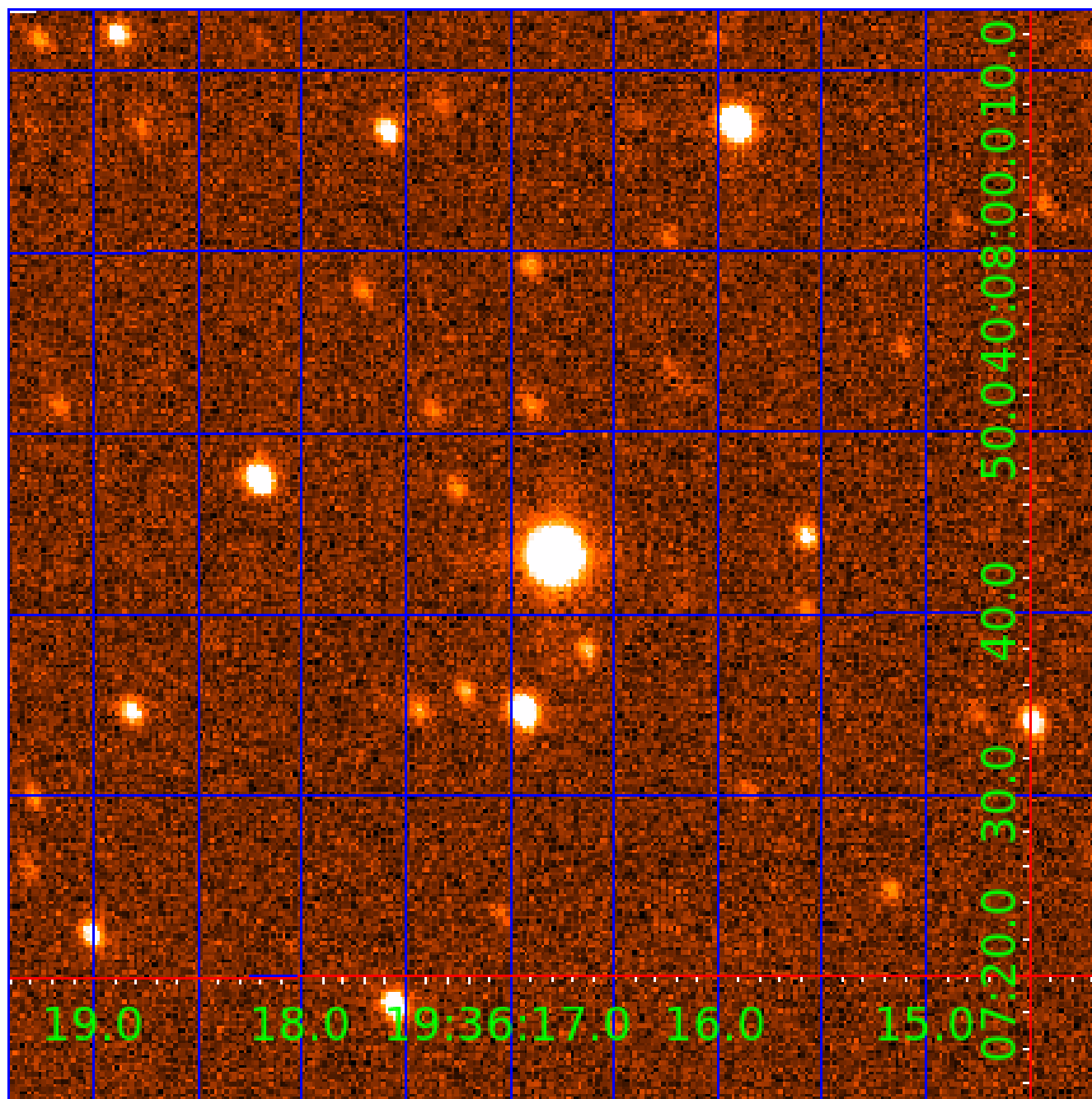


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 005019101

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})
005019101-01	OBS	No	1.944804	133.400192	81.8	10.018	8.9	7.6	9.21	7022	10.86	93865.07
005019101-02	OBS	No	154.064988	237.129171	1013.7	12.058	20.3	10.3	9.21	7022	33.18	275.89
005019101-03	OBS	No	1.944842	132.419527	515.6	3.000	18.7	-1.0	9.21	7022	21.09	93862.62
005019101-04	OBS	No	67.470131	156.235190	1634.3	10.638	11.5	11.0	9.21	7022	68.65	829.58
005019101-05	OBS	No	29.070887	137.614453	220.5	10.984	11.4	3.2	9.21	7022	14.19	2549.14
005019101-06	OBS	No	37.365135	156.266285	641.1	3.052	10.4	9.5	9.21	7022	24.77	1824.10
005019101-08	OBS	No	18.844596	145.884905	417.6	4.424	8.6	6.9	9.21	7022	21.45	4543.84

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005019101-01	OBS	FP	0.00	1	0	0	0	SWEET_NTL—LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT
005019101-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—INCONSISTENT_TRANS
005019101-03	OBS	FP	0.00	1	0	0	0	SWEET_NTL—LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—SAME_NTL_PERIOD—CENT_NOFITS
005019101-04	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_DIFFS—HALO_GHOST
005019101-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
005019101-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
005019101-08	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT

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

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

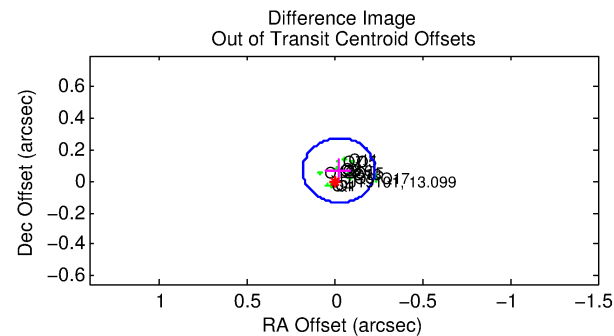
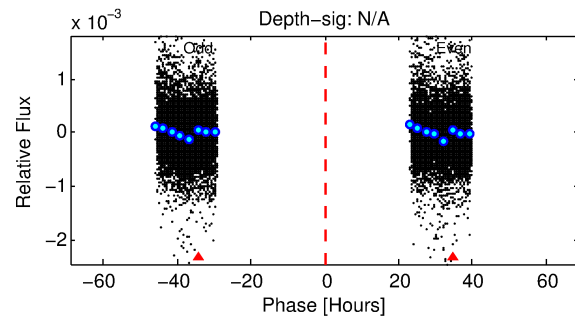
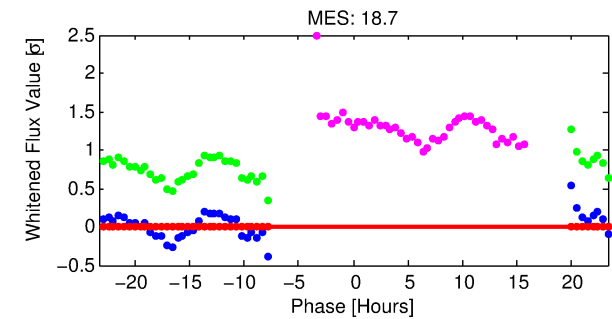
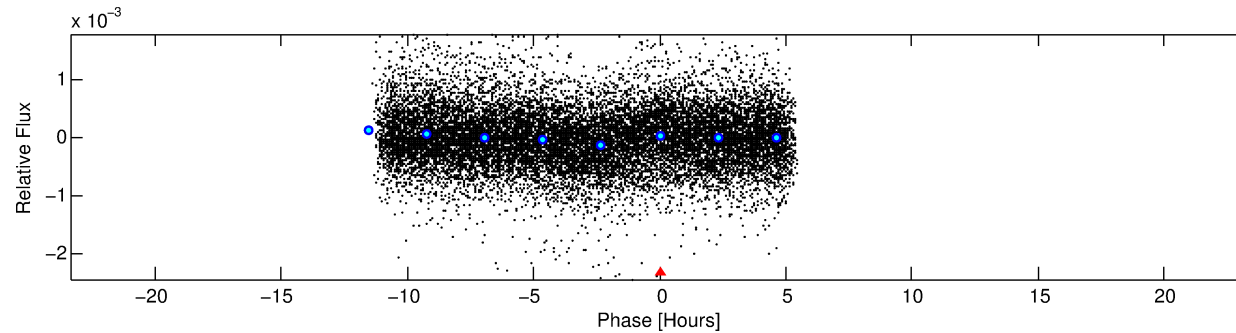
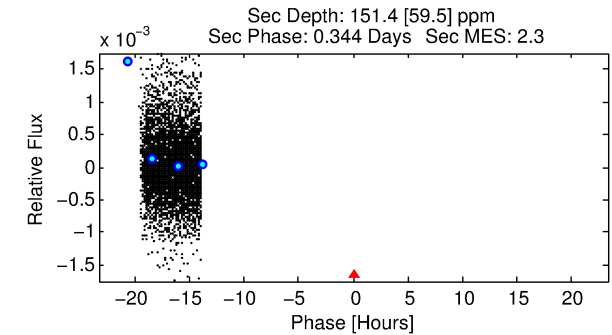
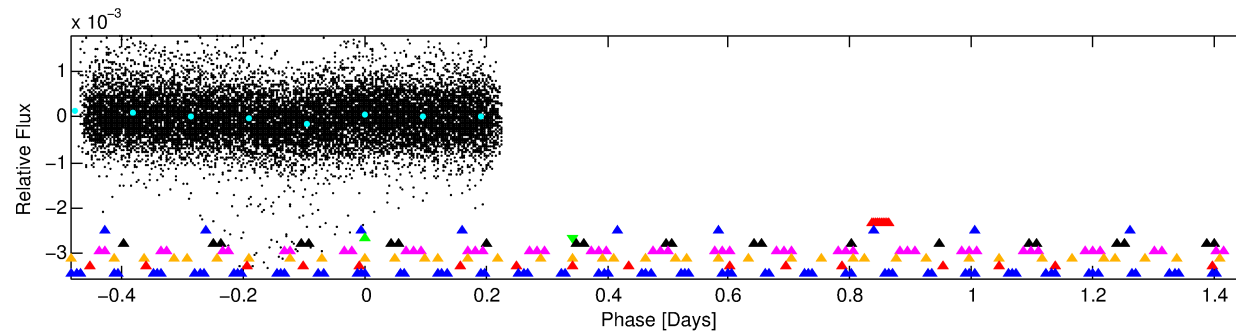
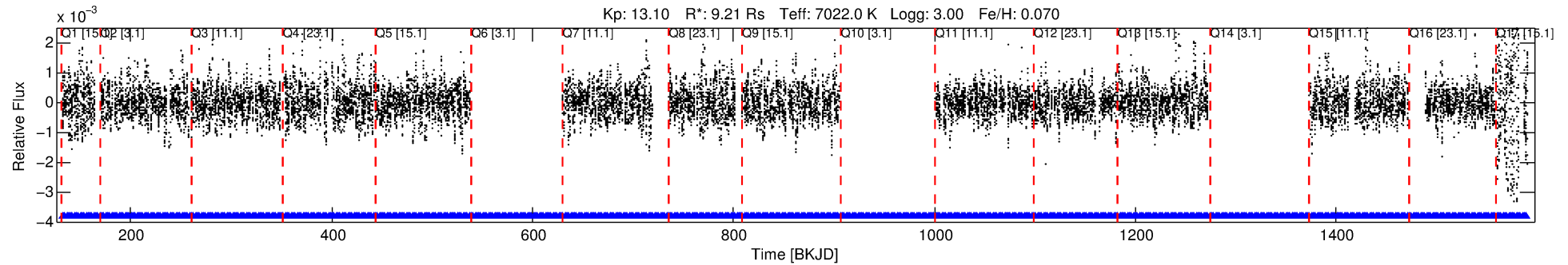
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 005019101-03

No Significant Match Found

DV One-Page Summary

KIC: 5019101 Candidate: 3 of 8 Period: 1.945 d



TPS TCE Results:

Period = 1.94484 d
Epoch = 132.4195 BKJD

DV fit results are unavailable

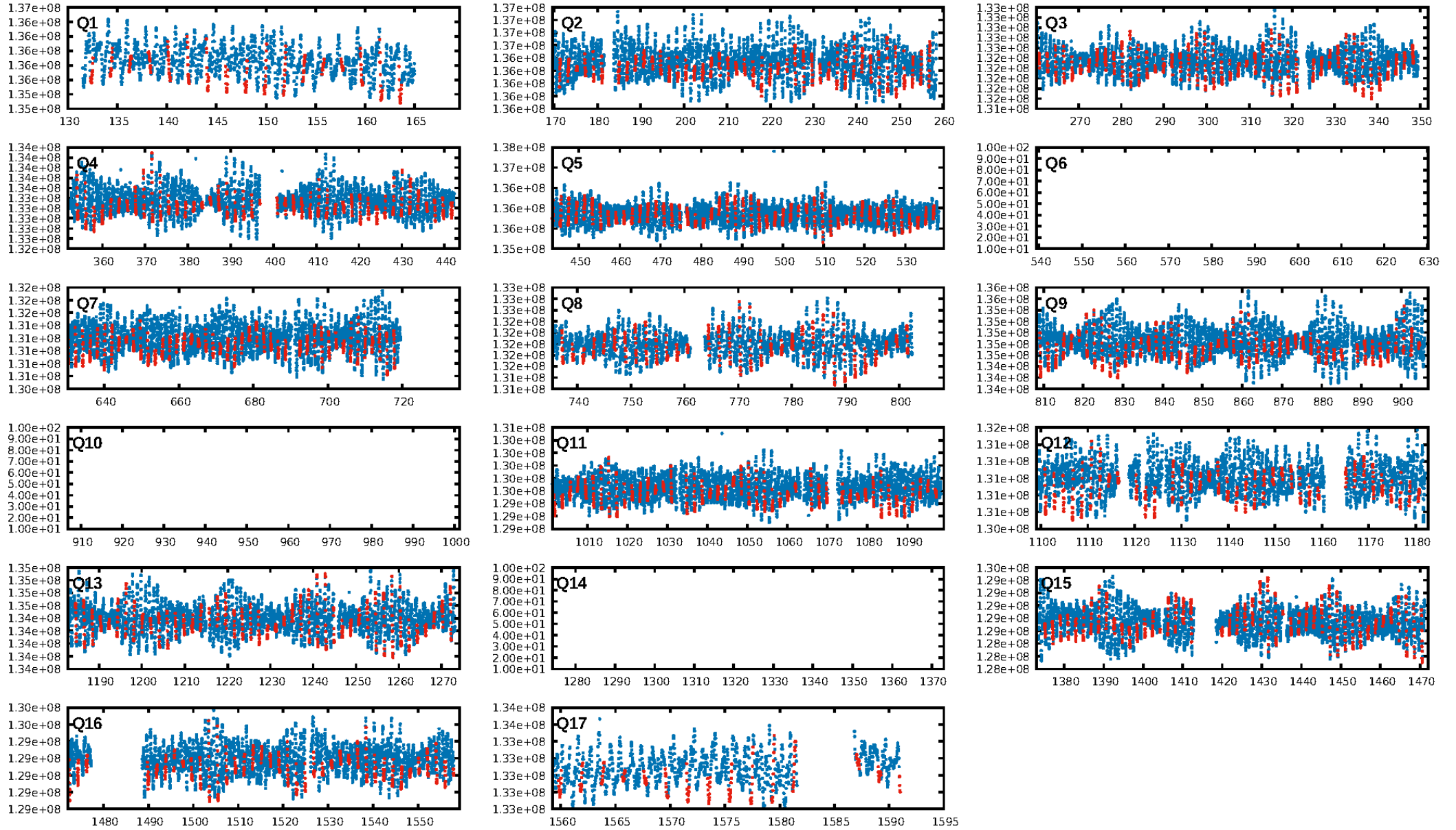
DV Diagnostic Results:

ShortPeriod-sig: 0.0% [0.00σ]
LongPeriod-sig: 100.0% [75.88σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 5.39e-38
RollingBand-fgt: 1.00 [527/527]
GhostDiagnostic-chr: 7.252
Centroid-sig: 0.0%
Centroid-so: 0.146 arcsec [4.81σ]
OotOffset-rm: 0.076 arcsec [1.11σ]
KicOffset-rm: 0.103 arcsec [1.50σ]
OotOffset-st: 1/4/4/5 [14]
KicOffset-st: 1/4/4/5 [14]
DiffImageQuality-fgm: 1.00 [14/14]
DiffImageOverlap-fno: 0.00 [0/14]

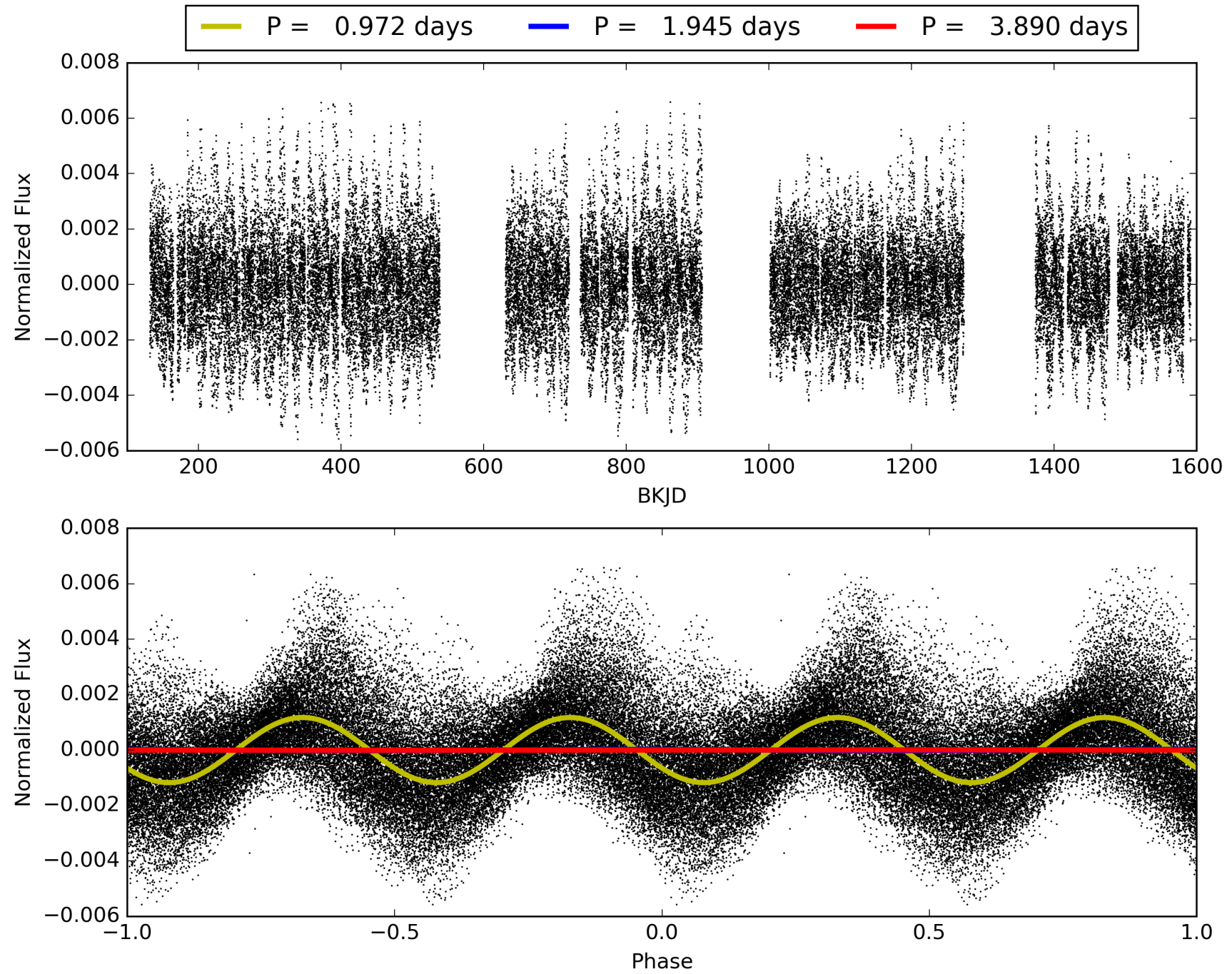
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 12:03:20 Z

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

TCE 005019101-03, PDC Light Curves

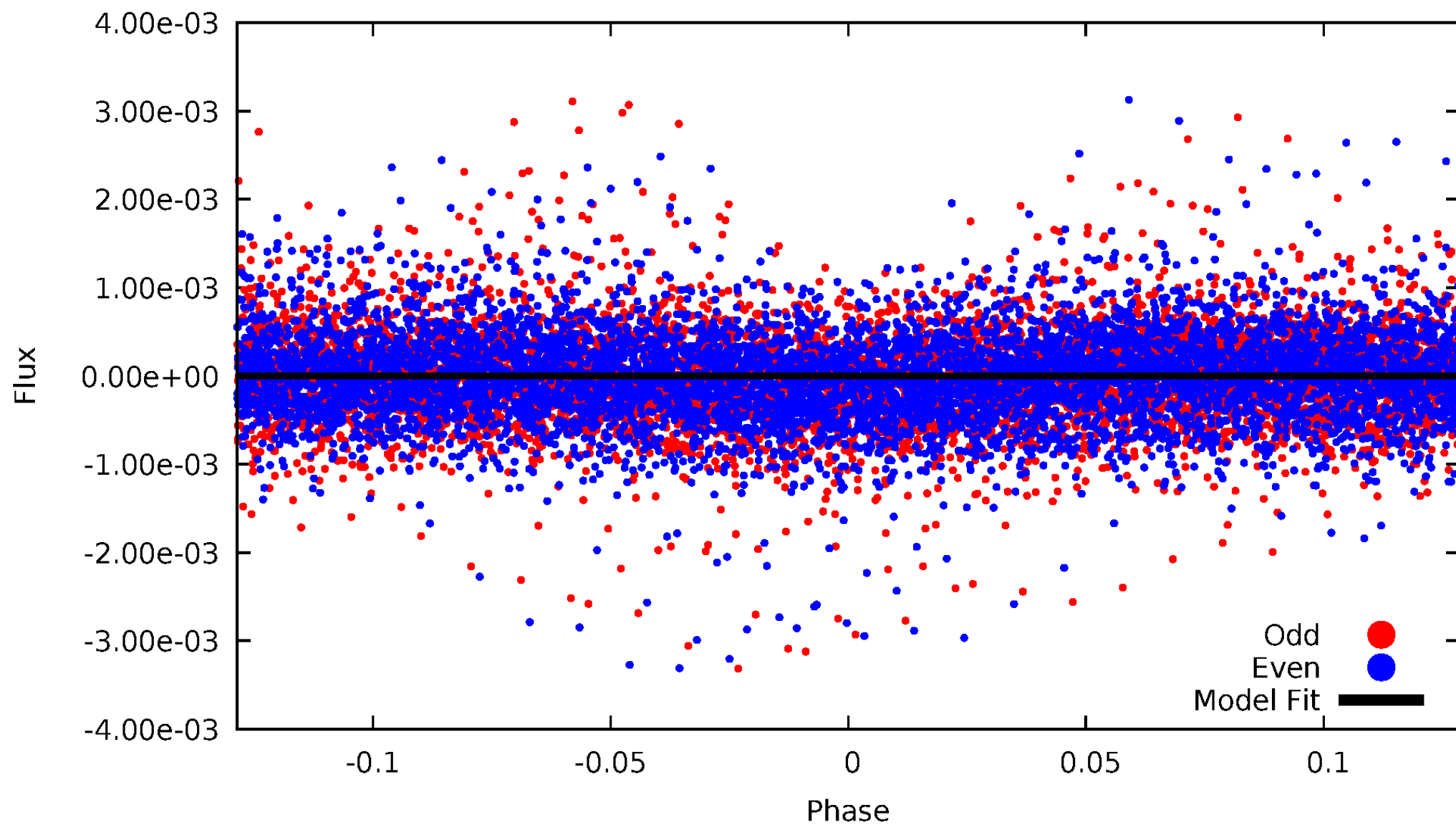


TCE 005019101-03



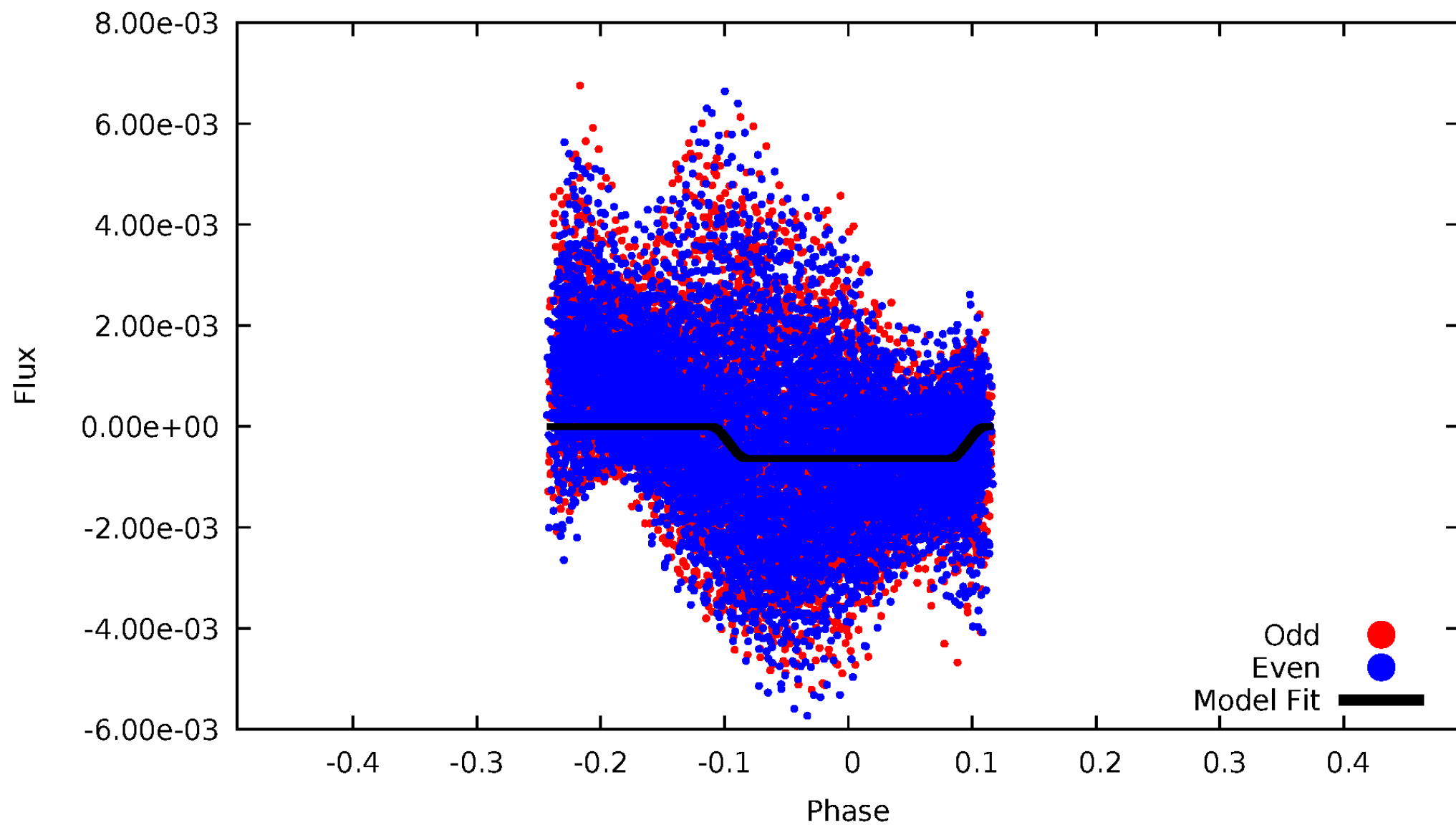
DV Odd/Even

TCE 005019101-03



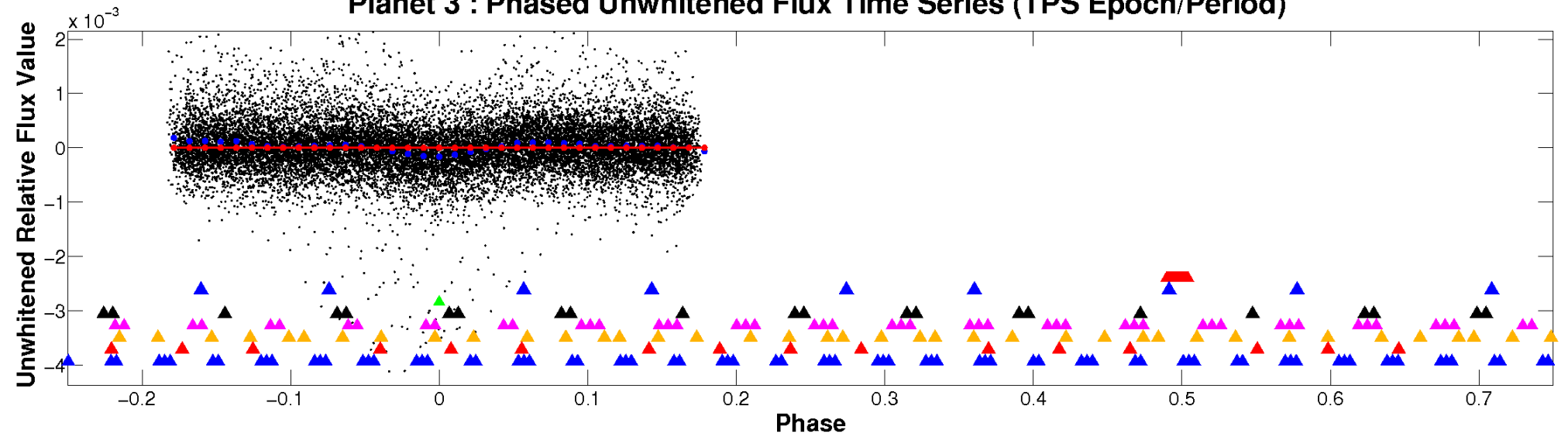
ALT Odd/Even

TCE 005019101-03

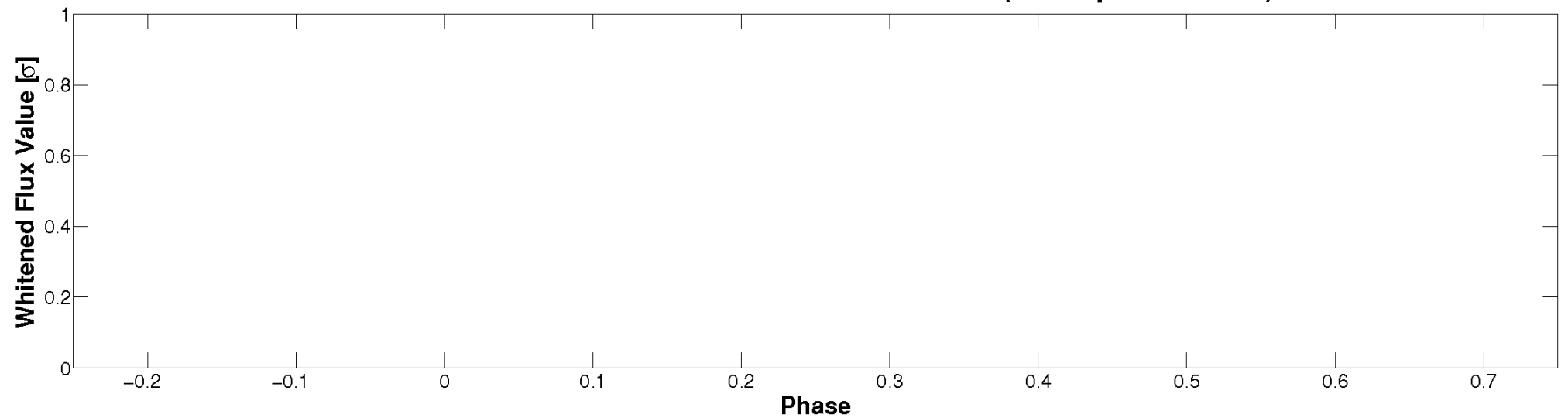


Non-Whitened Vs. Whitened Light Curve

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

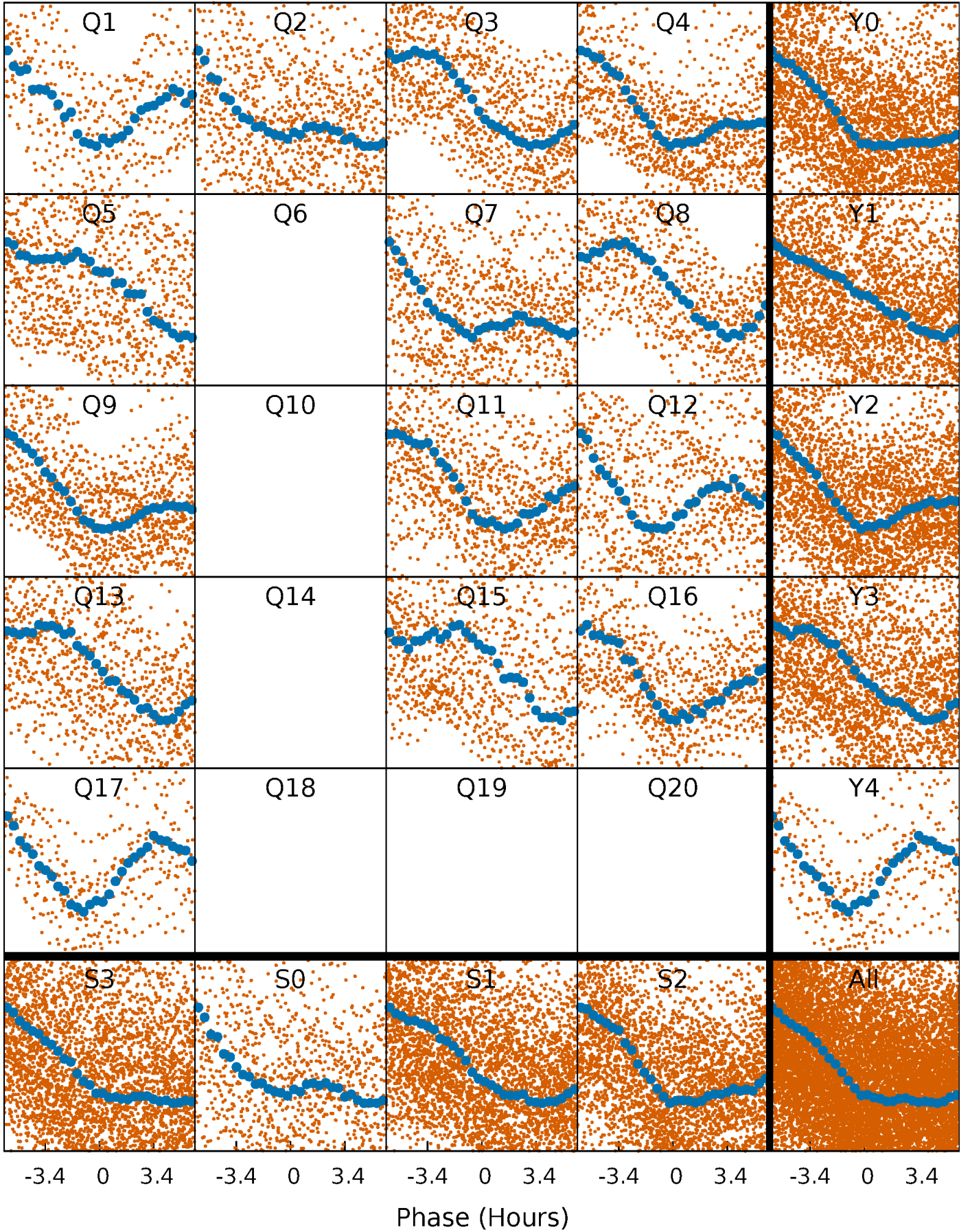


Planet 3 : Phased Whitened Flux Time Series (TPS Epoch/Period)



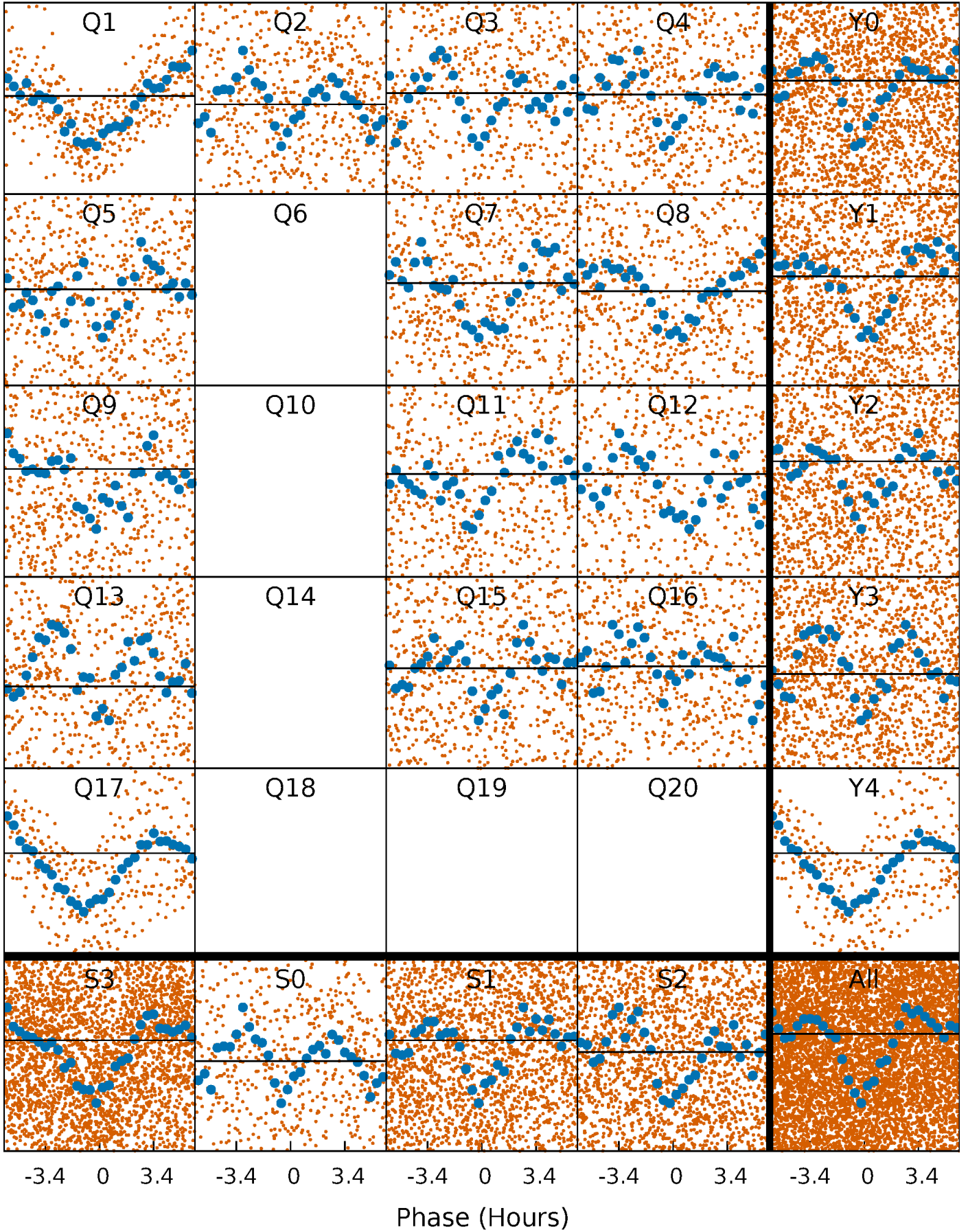
PDC Quarter-Phased Transit Curves

TCE 005019101-03 $P = 1.944842$ Days $T_0 = 132.419527$ (BKJD)



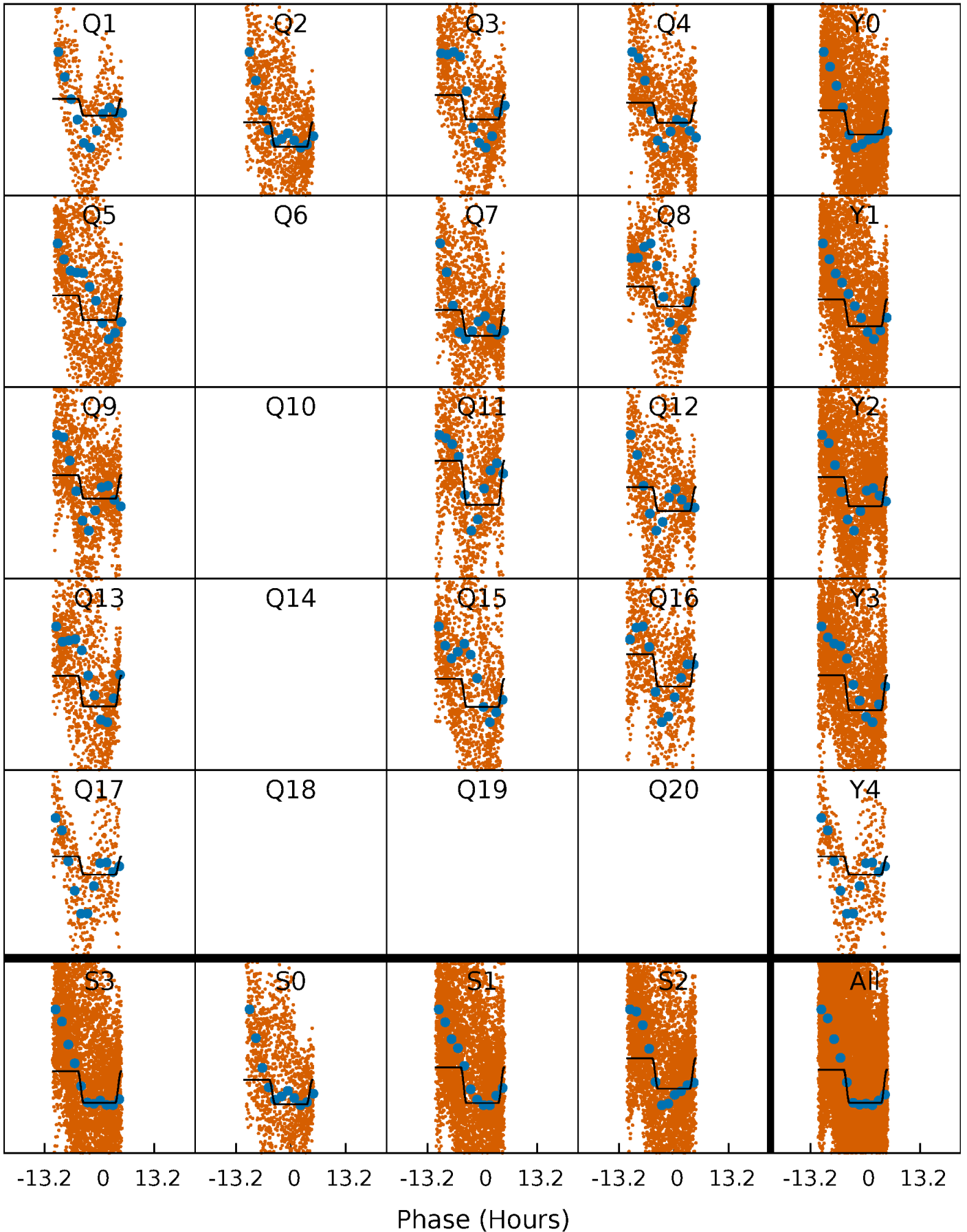
DV Quarter-Phased Transit Curves

TCE 005019101-03 $P = 1.944842$ Days $T_0 = 132.419527$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

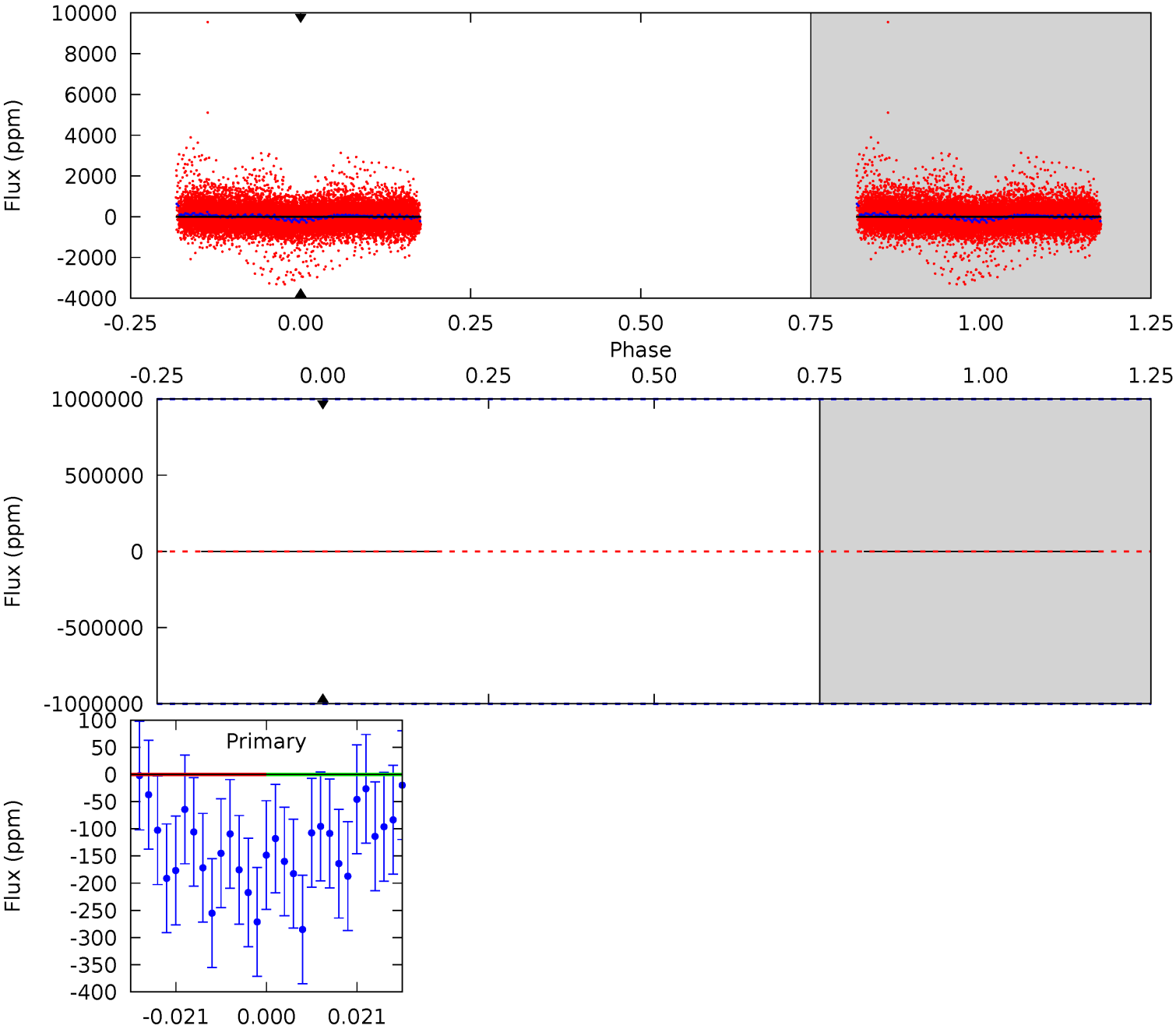
TCE 005019101-03 $P = 1.944842$ Days $T_0 = 132.536404$ (BKJD)



DV Model-Shift Uniqueness Test

005019101-03, P = 1.944842 Days, E = 130.474685 Days

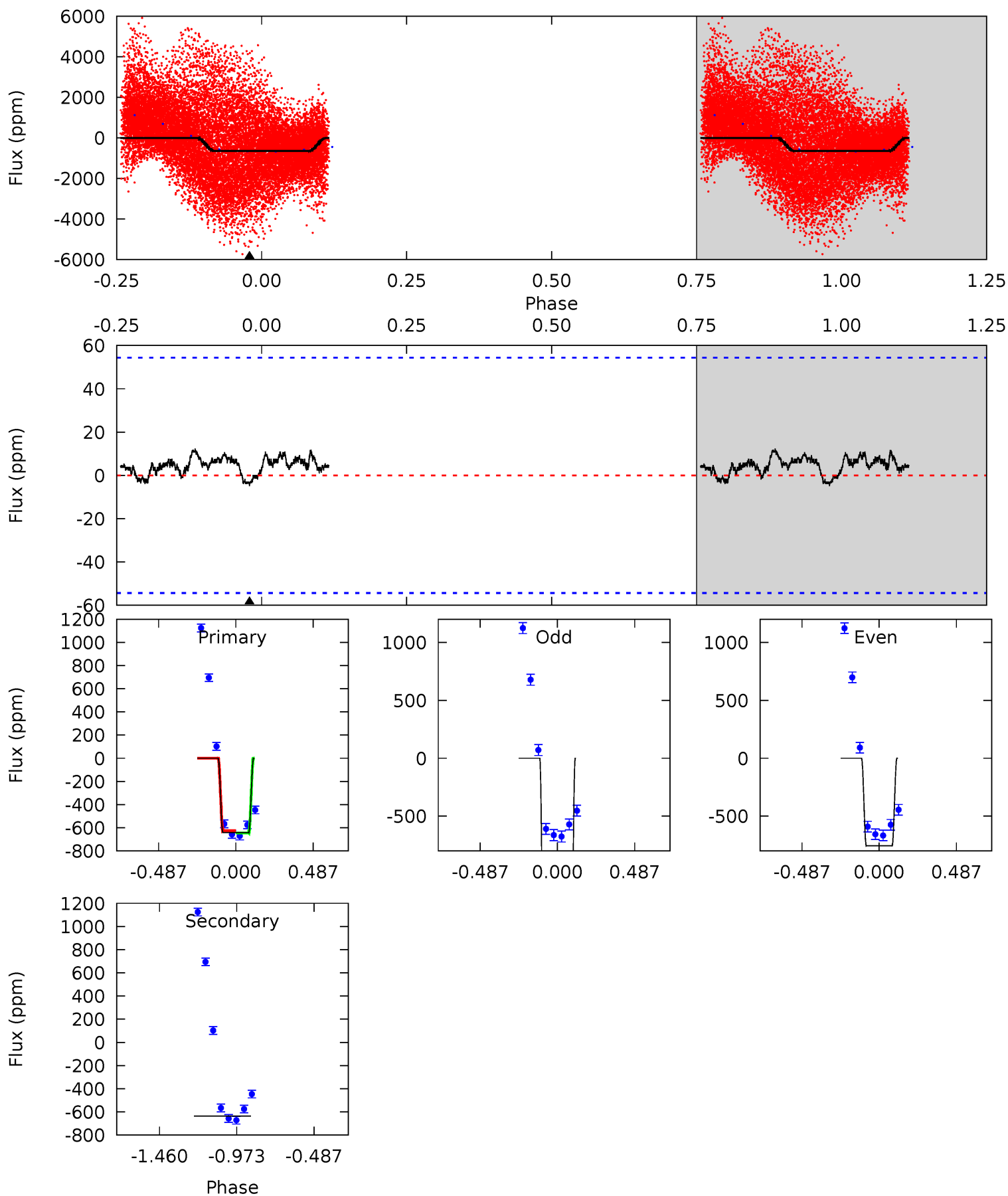
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
0	0	0	0	1.00	1.00	1.00	0	0	0	0	0	0	0	0



Alt Model-Shift Uniqueness Test

005019101-03, P = 1.944842 Days, E = 130.591562 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
0.39	0	0	0	4.22	0.70	0.19	0.39	0.39	0	0	0.62	0	0.71	0.10



Stellar Parameters For KIC 005019101

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	7022^{+169}_{-254}	$2.998^{+0.595}_{-0.105}$	$0.070^{+0.200}_{-0.450}$	$9.213^{+1.026}_{-5.474}$	$3.080^{+0.203}_{-1.148}$	$0.006^{+0.049}_{-0.002}$
	+2%/-4%	+20%/-4%	+286%/-643%	+11%/-59%	+7%/-37%	+879%/-34%
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 005019101-03 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	0 ± 1000000	$64.40^{+75.72}_{-44.65}$	6082^{+400}_{-961}	4777^{+33995}_{-33412}	$0.525^{+64.853}_{-34.941}$
Alt.	0 ± 13	$68.66^{+76.12}_{-47.99}$	6122^{+382}_{-885}	-5053^{+685}_{-300}	$-0.000^{+0.005}_{-0.006}$

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 $A_{obs} \gg 1.0$

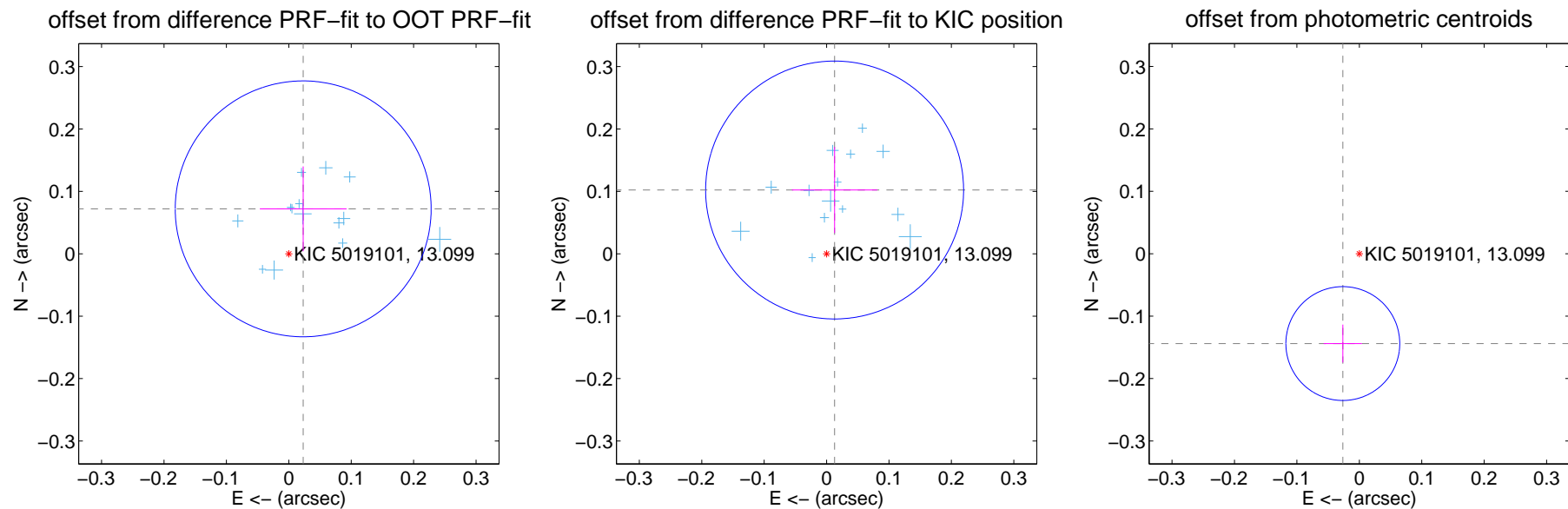
DV Centroid Data

Supplemental centroid analysis for 005019101-03. Kepler magnitude: 13.10. Transit SNR -1.00

There are 14 quarters with good PRF difference image offsets

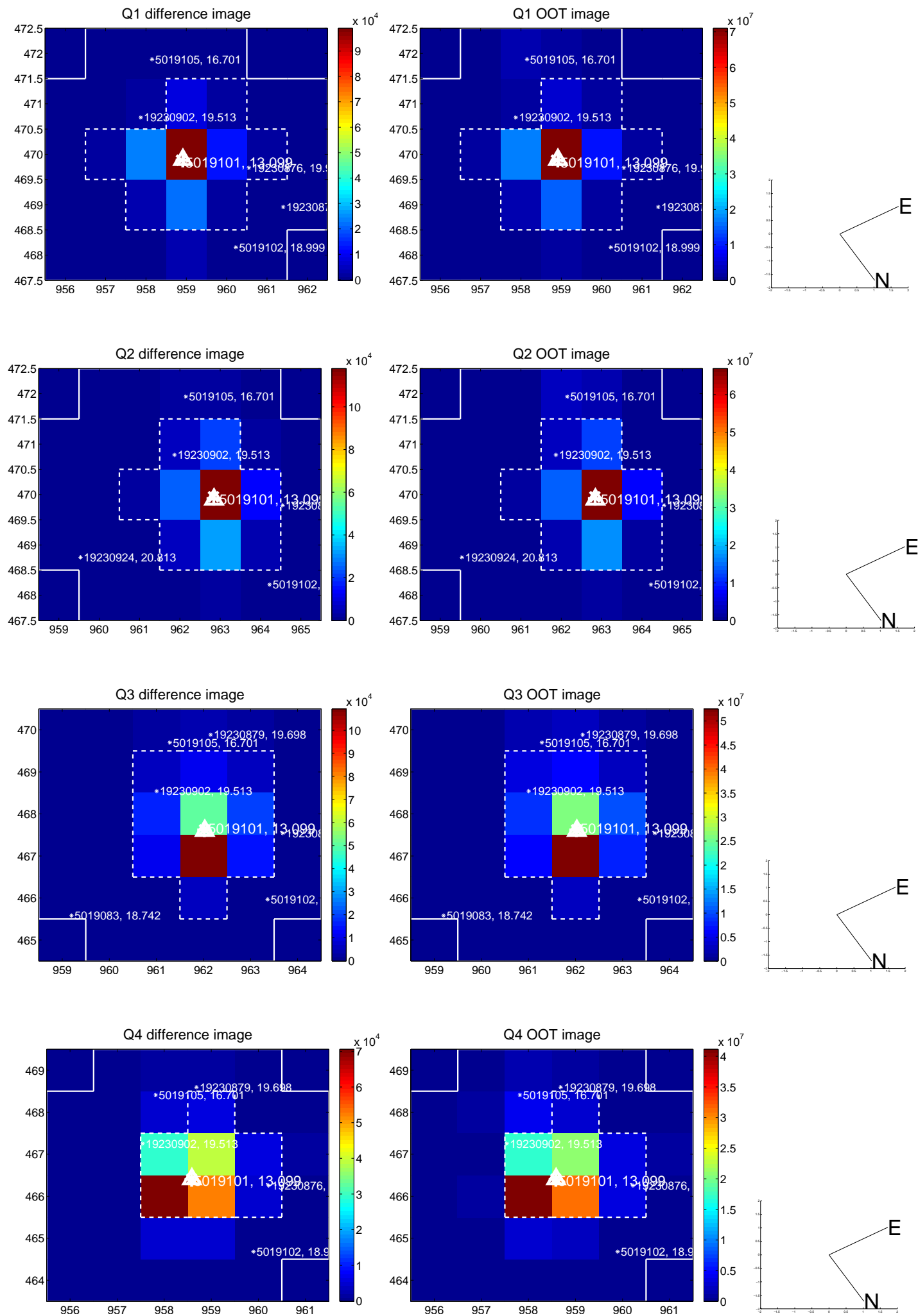
The direct PRF centroid is offset from the target star catalog position by about 0.11 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.076 ± 0.068	1.11	-0.023 ± 0.070	0.072 ± 0.068
PRF-fit source offset from KIC position	0.103 ± 0.069	1.50	-0.013 ± 0.068	0.102 ± 0.069
photometric centroid source offset	0.15 ± 0.03	4.81	0.03 ± 0.03	-0.14 ± 0.03

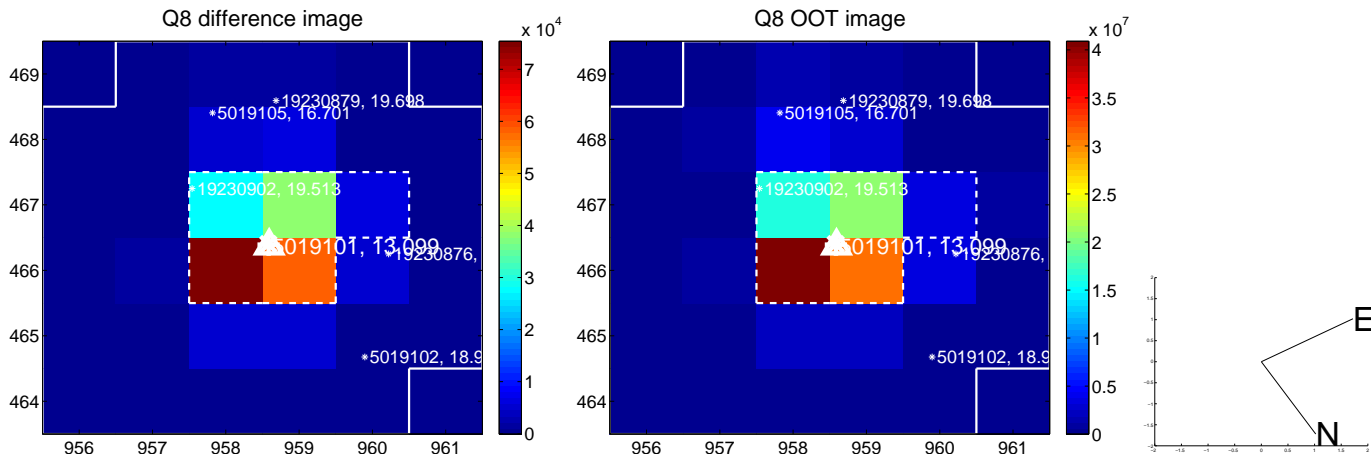
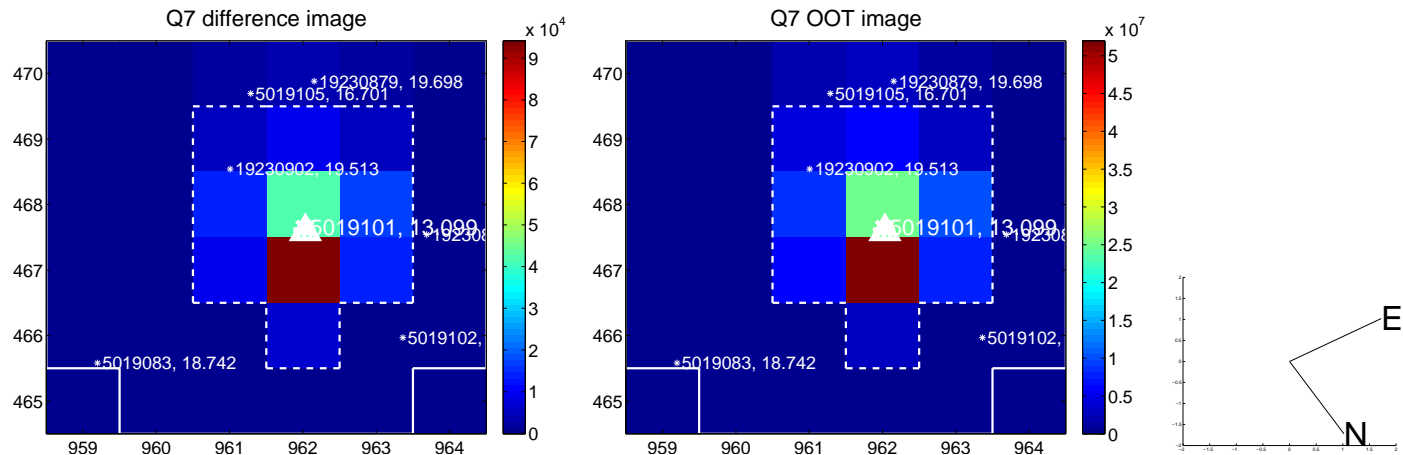
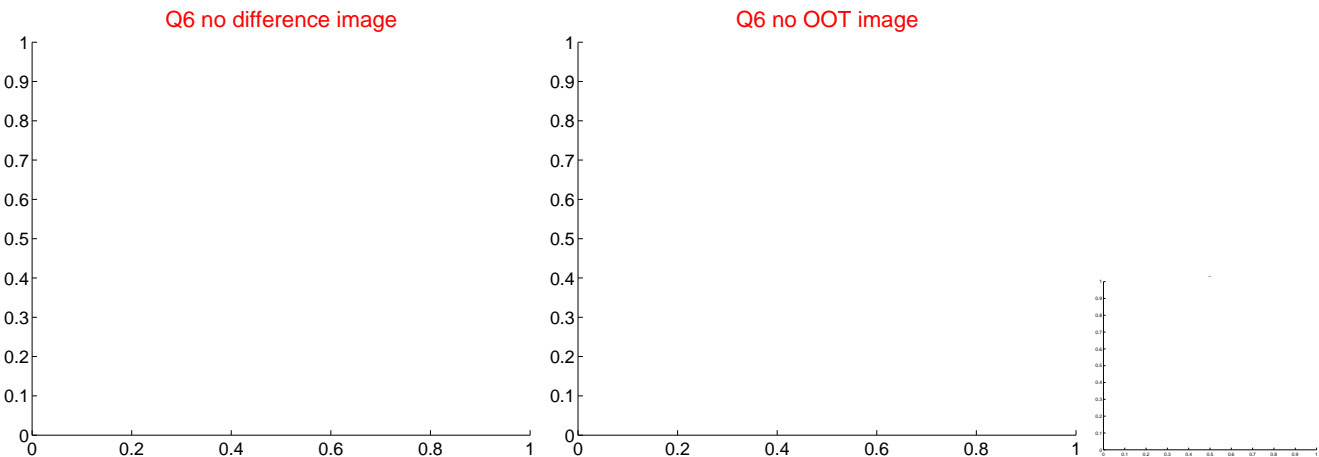
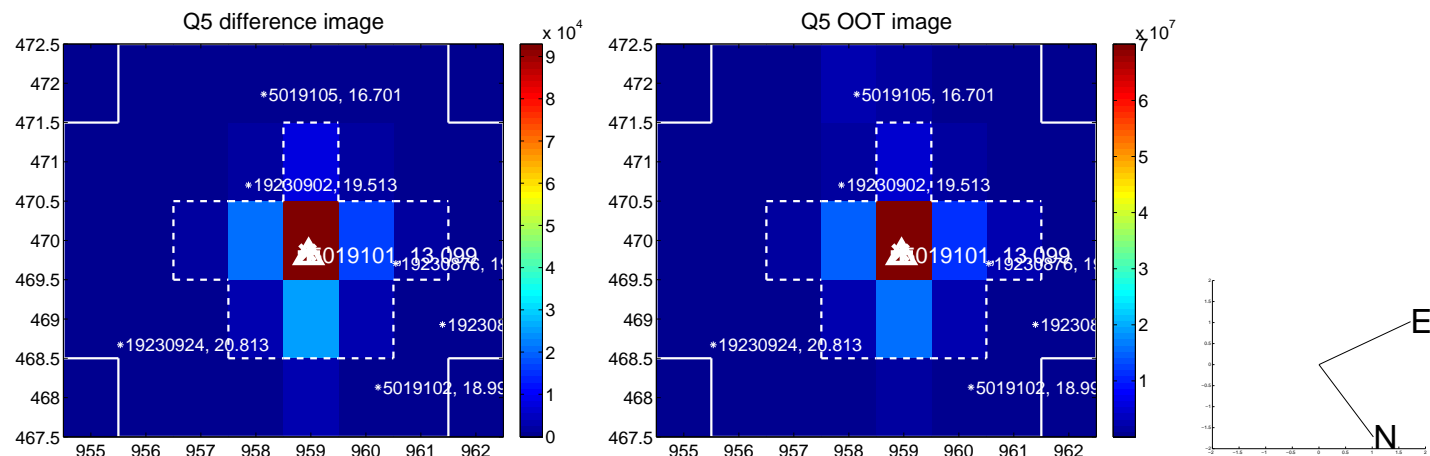


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

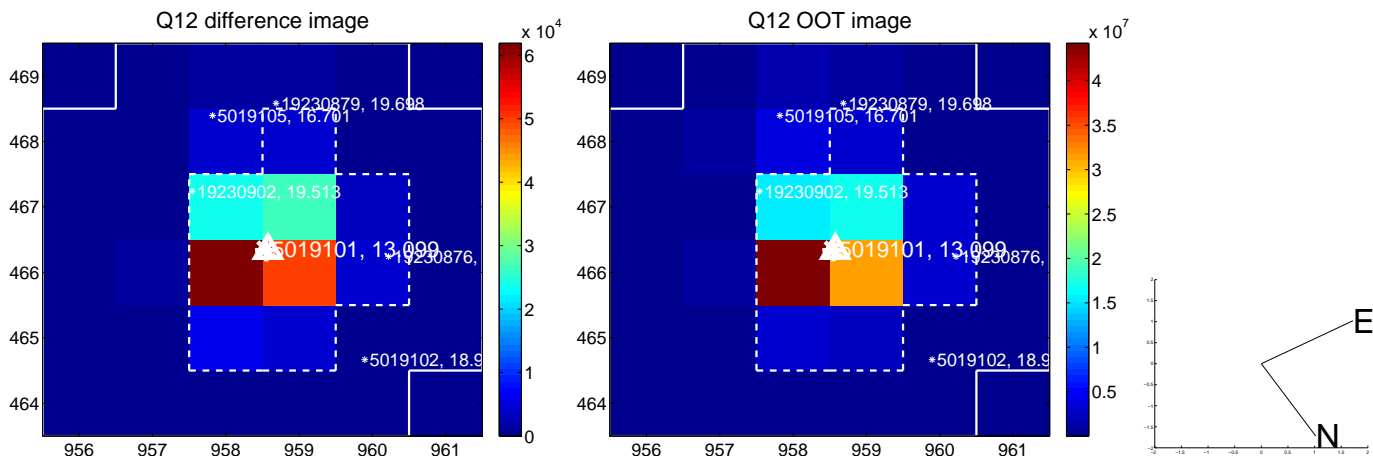
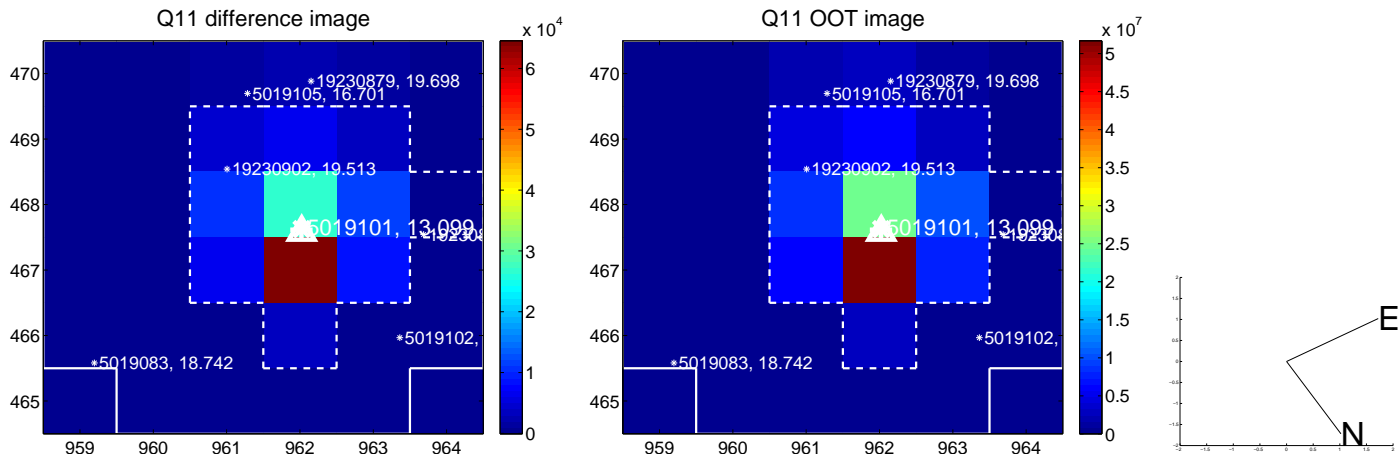
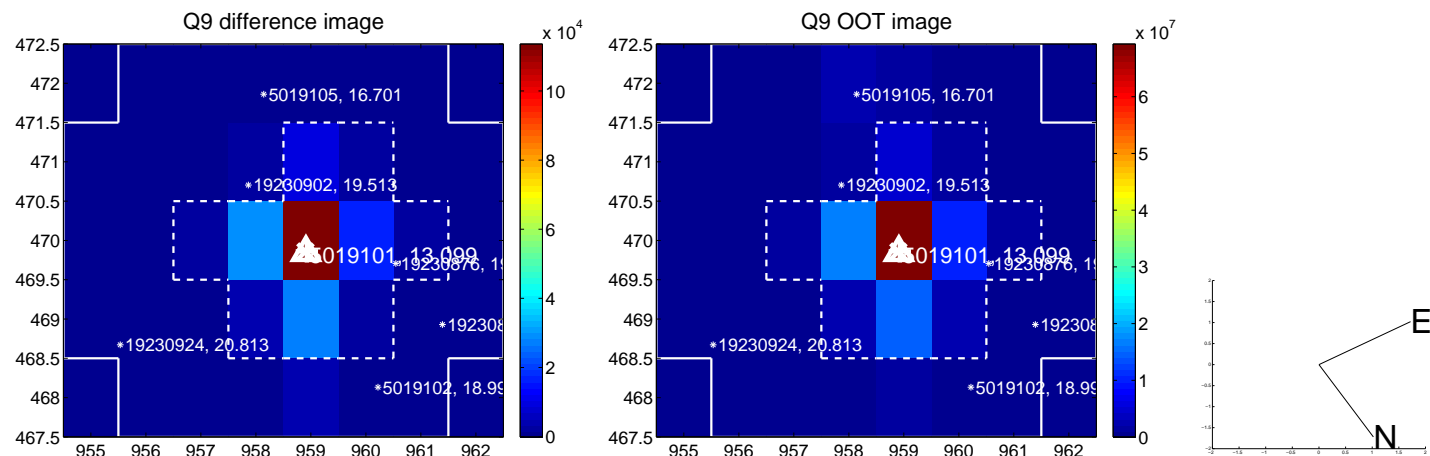
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



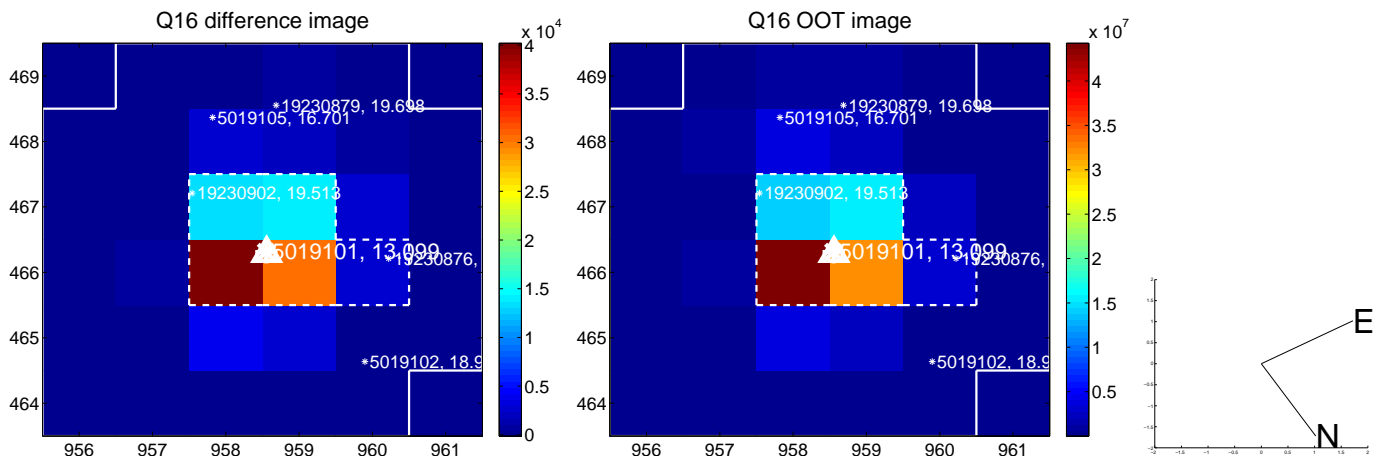
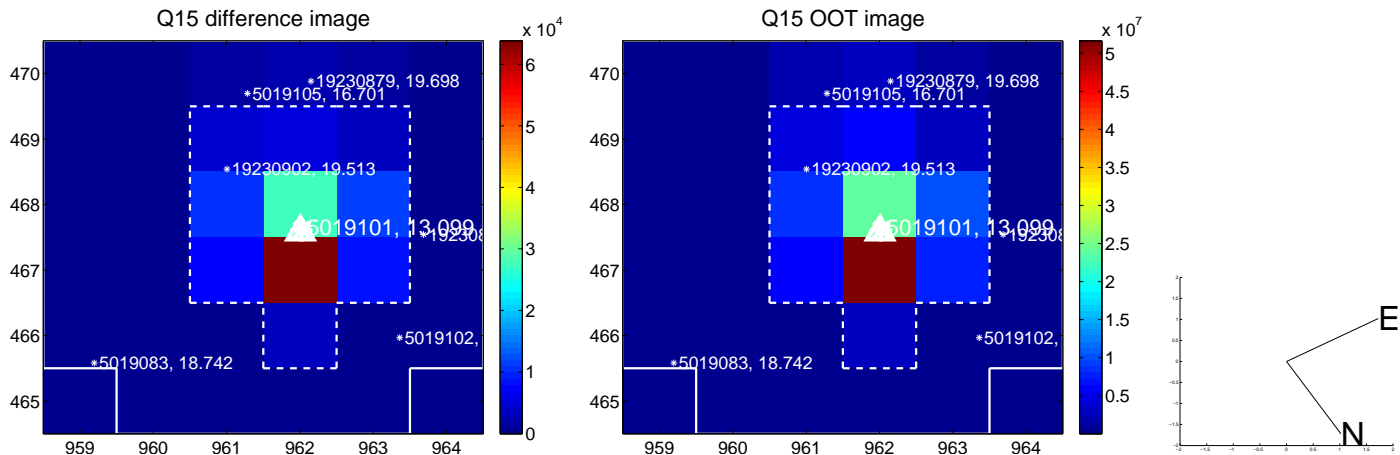
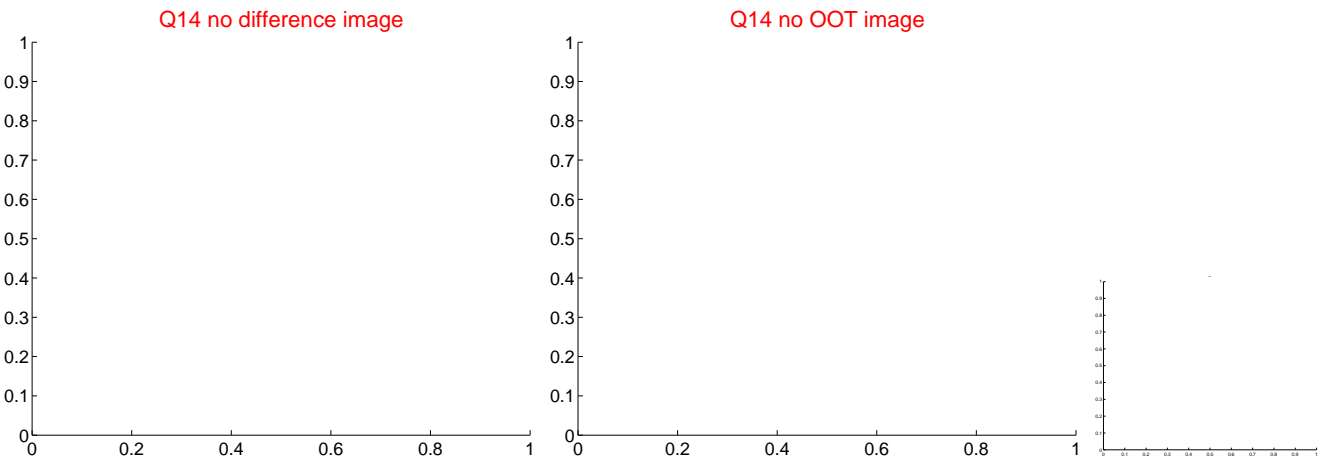
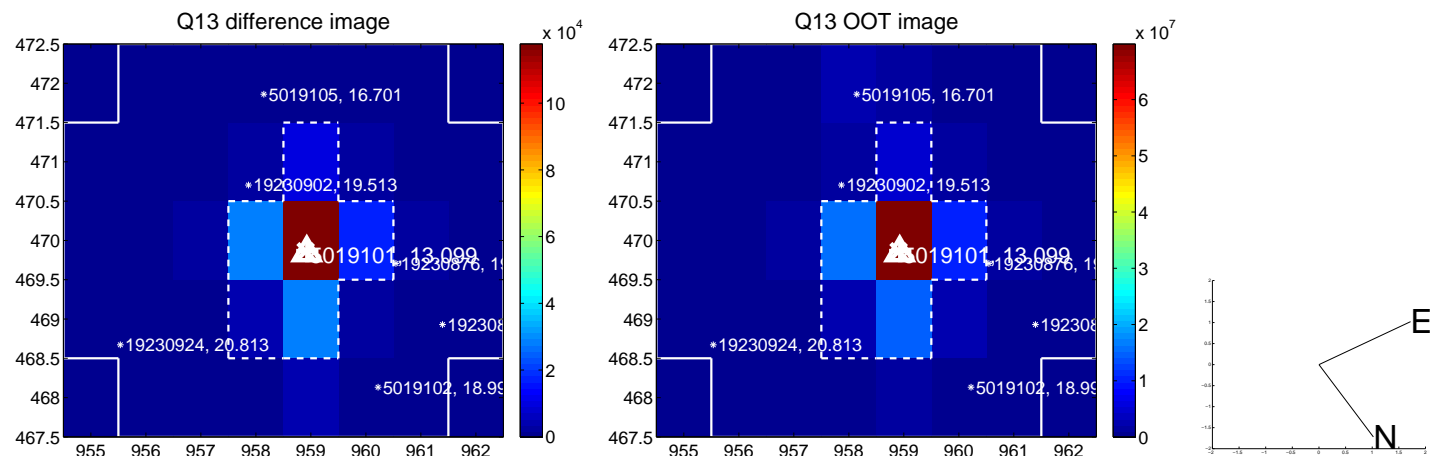
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



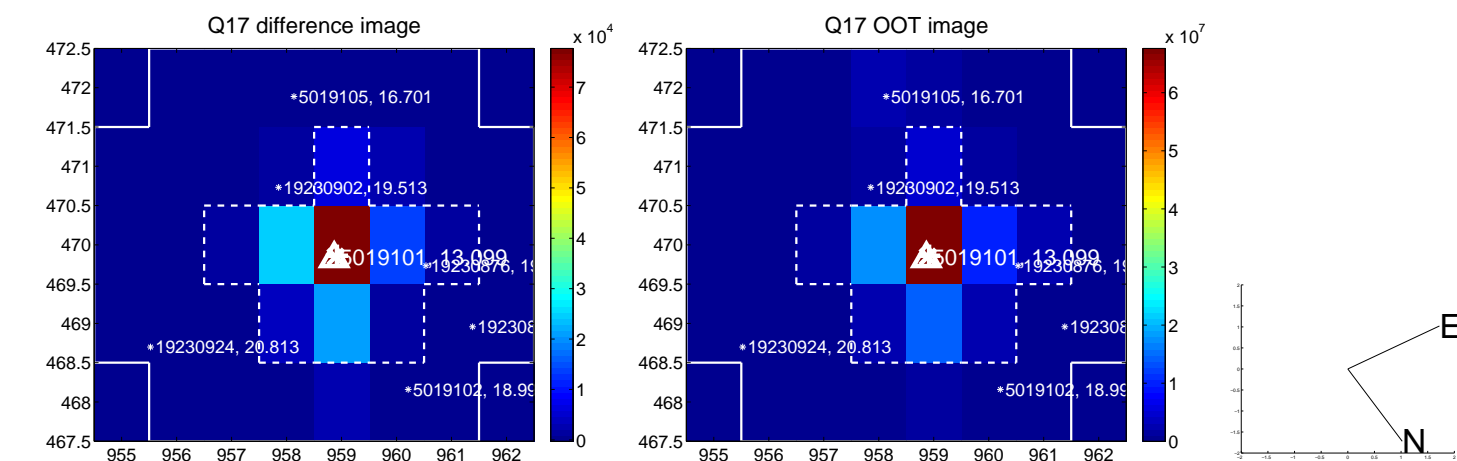
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



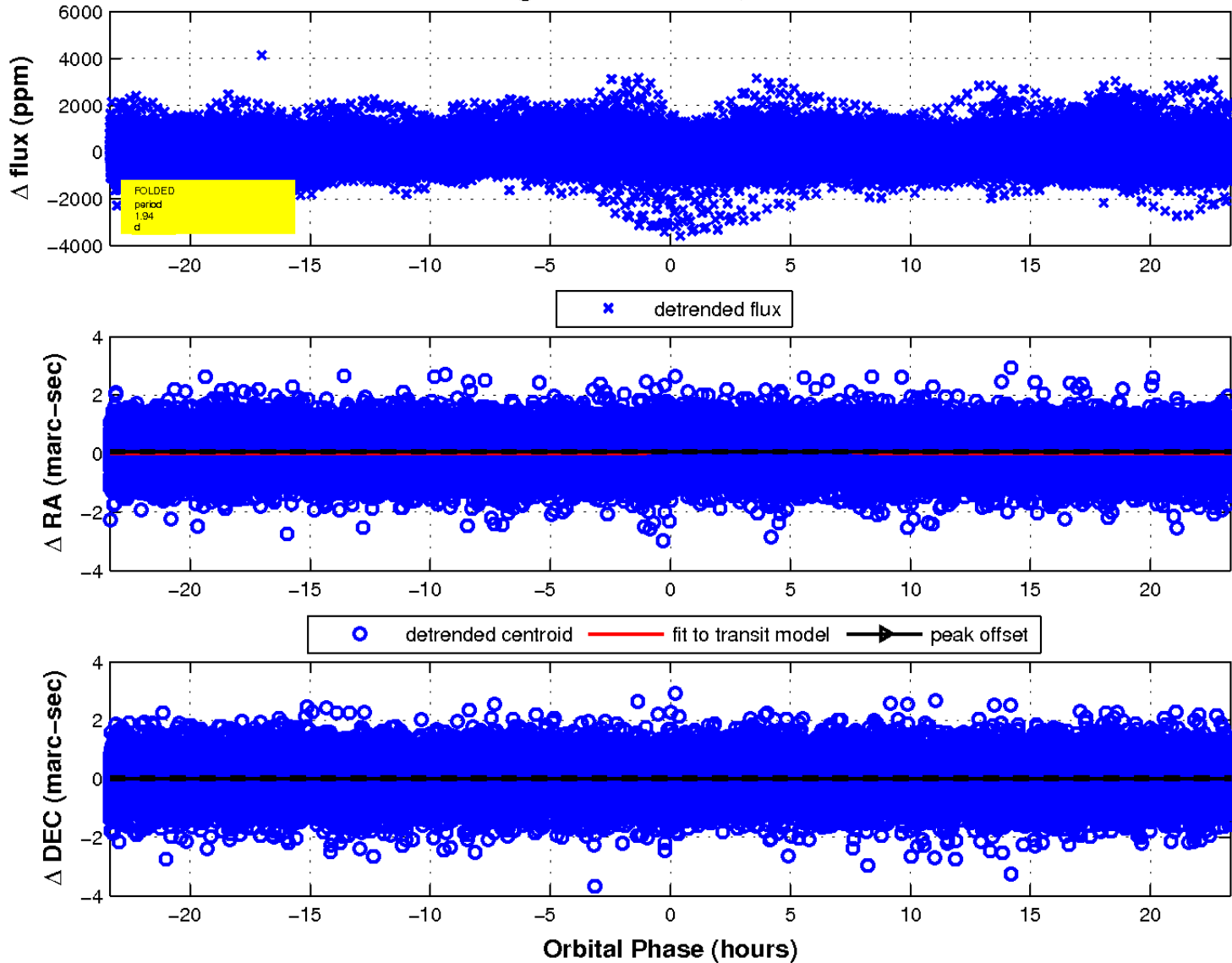
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

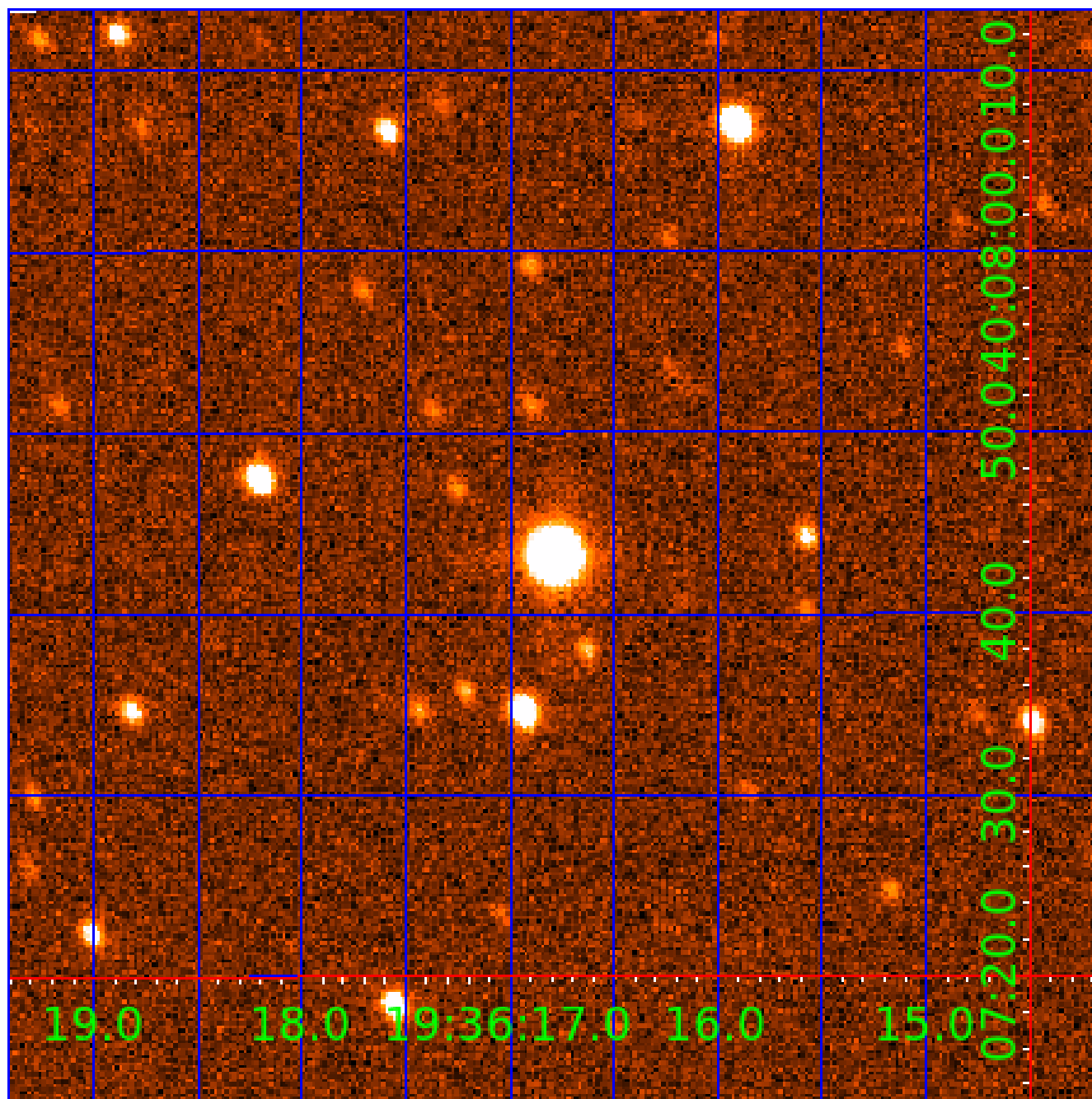


fluxWeightedCentroids, Planet 3 of 8



UKIRT Image

Declination



KIC 005019101

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})
005019101-01	OBS	No	1.944804	133.400192	81.8	10.018	8.9	7.6	9.21	7022	10.86	93865.07
005019101-02	OBS	No	154.064988	237.129171	1013.7	12.058	20.3	10.3	9.21	7022	33.18	275.89
005019101-03	OBS	No	1.944842	132.419527	515.6	3.000	18.7	-1.0	9.21	7022	21.09	93862.62
005019101-04	OBS	No	67.470131	156.235190	1634.3	10.638	11.5	11.0	9.21	7022	68.65	829.58
005019101-05	OBS	No	29.070887	137.614453	220.5	10.984	11.4	3.2	9.21	7022	14.19	2549.14
005019101-06	OBS	No	37.365135	156.266285	641.1	3.052	10.4	9.5	9.21	7022	24.77	1824.10
005019101-08	OBS	No	18.844596	145.884905	417.6	4.424	8.6	6.9	9.21	7022	21.45	4543.84

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005019101-01	OBS	FP	0.00	1	0	0	0	SWEET_NTL—LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT
005019101-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—INCONSISTENT_TRANS
005019101-03	OBS	FP	0.00	1	0	0	0	SWEET_NTL—LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—SAME_NTL_PERIOD—CENT_NOFITS
005019101-04	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_DIFFS—HALO_GHOST
005019101-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
005019101-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
005019101-08	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT

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

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

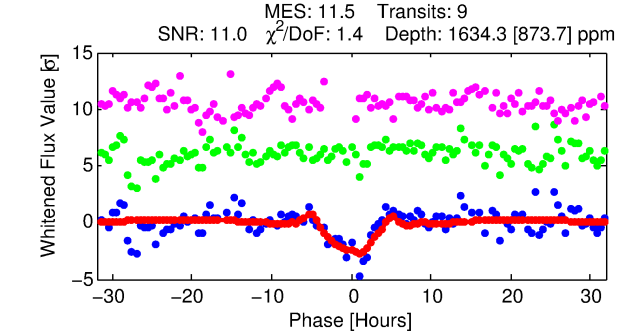
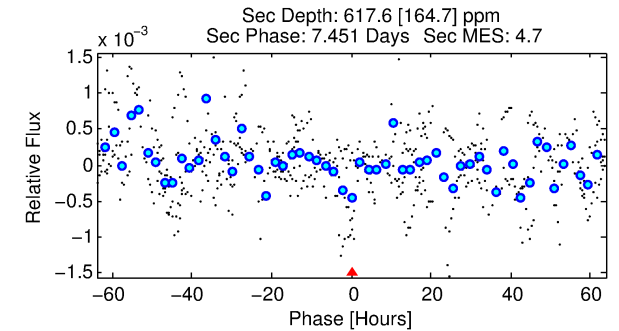
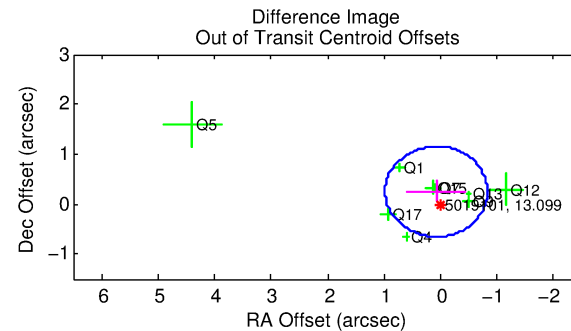
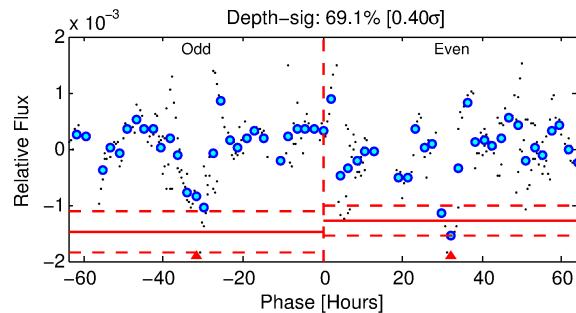
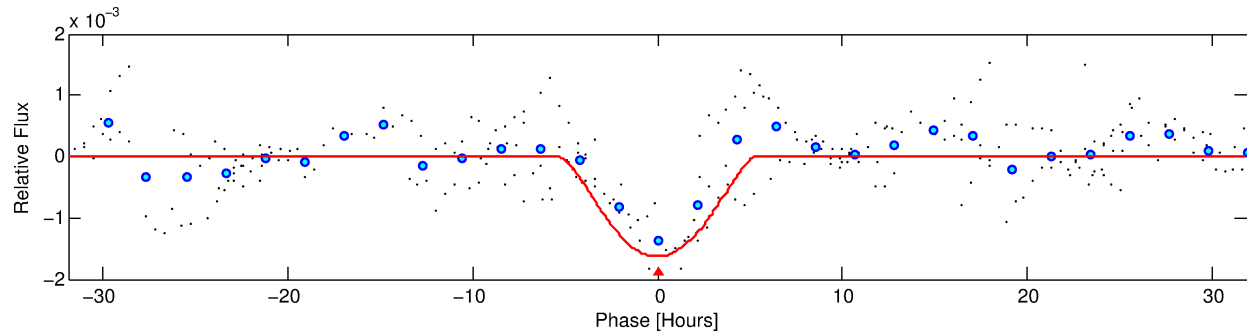
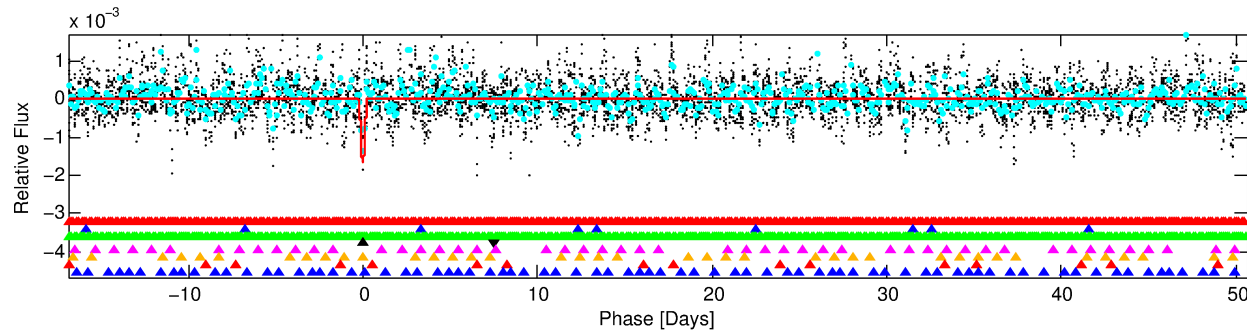
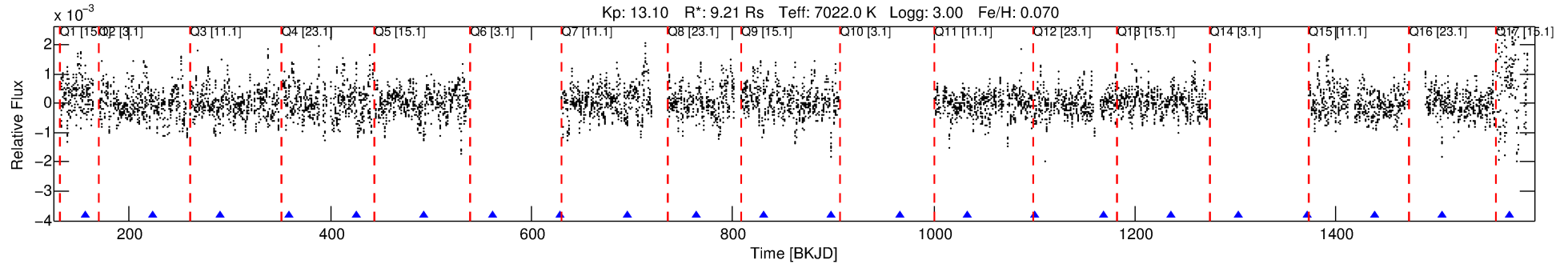
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 005019101-04

No Significant Match Found

DV One-Page Summary

KIC: 5019101 Candidate: 4 of 8 Period: 67.470 d



DV Fit Results:

Period = 67.47013 [0.00160] d
Epoch = 156.2352 [0.0216] BKJD
Rp/R* = 0.0683 [0.1195]
a/R* = 18.24 [7.10]
b = 1.00 [0.15]
Seff = 829.58 [834.56]
Teq = 1368 [344] K
Rp = 68.65 [126.89] Re
a = 0.4721 [0.2854] AU
Ag = 16.07 [58.64] [0.26 σ]
Teffp = 4236 [3721] K [0.77 σ]

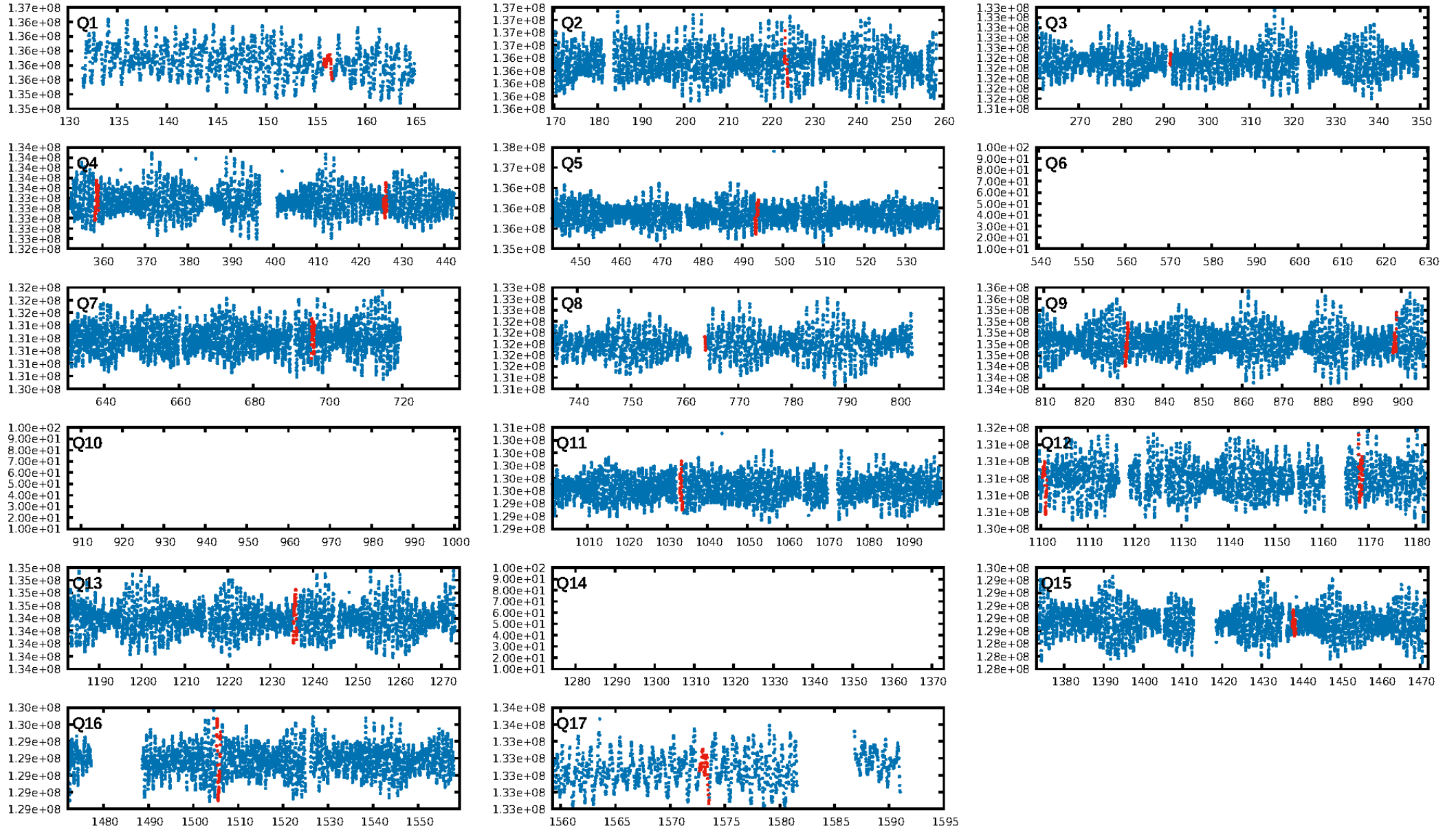
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [65.29 σ]
LongPeriod-sig: 100.0% [54.23 σ]
ModelChiSquare2-sig: 0.0%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 6.74e-14
RollingBand-fgt: 1.00 [7/7]
GhostDiagnostic-chr: 0.1229
Centroid-sig: 11.3%
Centroid-so: 0.287 arcsec [2.68 σ]
OotOffset-rm: 0.263 arcsec [0.87 σ]
OotOffset-st: 0/2/2/5 [9]
KicOffset-rm: 0.288 arcsec [0.76 σ]
KicOffset-st: 0/2/2/5 [9]
DiffImageQuality-fgm: 0.33 [3/9]
DiffImageOverlap-fno: 0.00 [0/9]

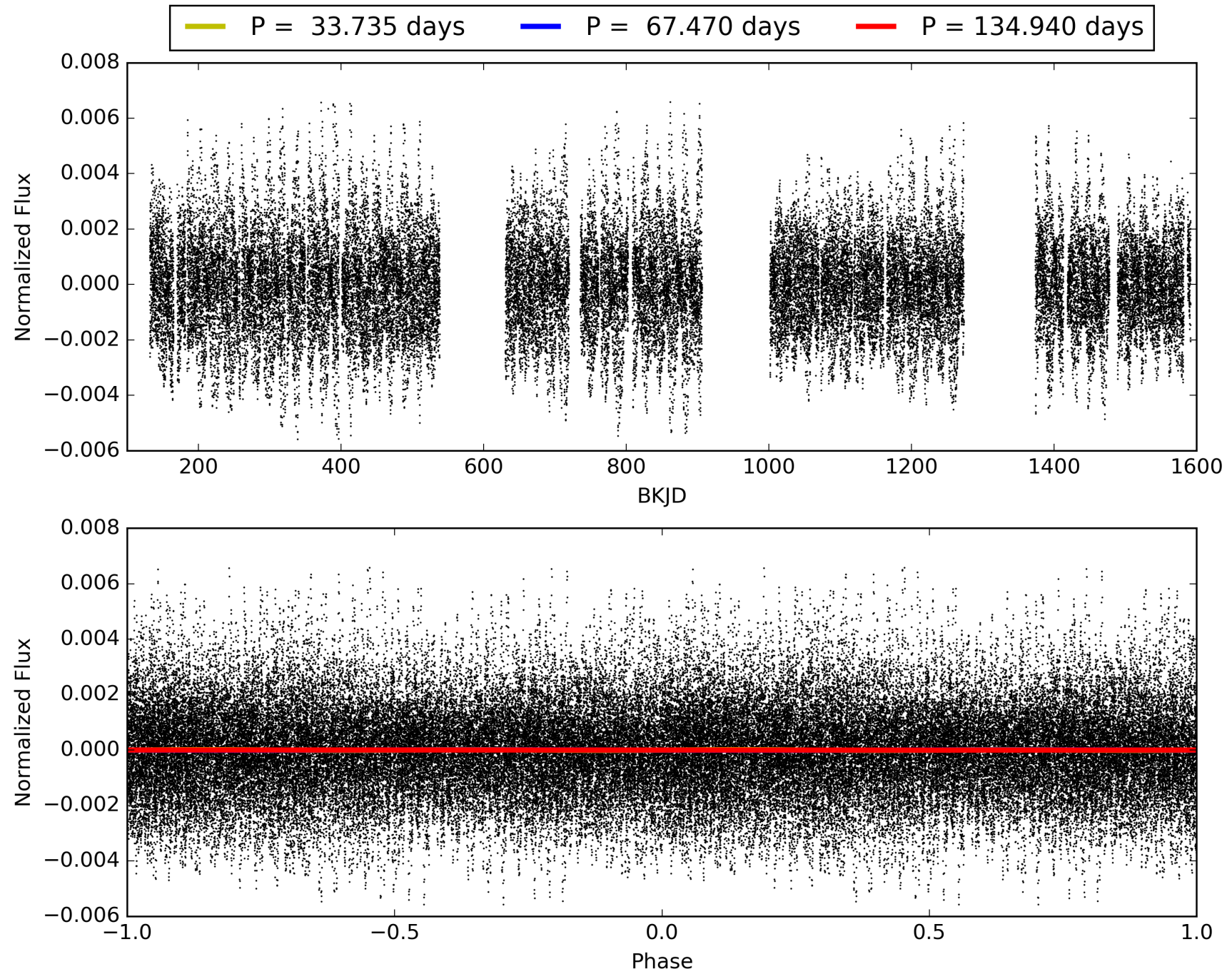
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 12:03:25 Z

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

TCE 005019101-04, PDC Light Curves

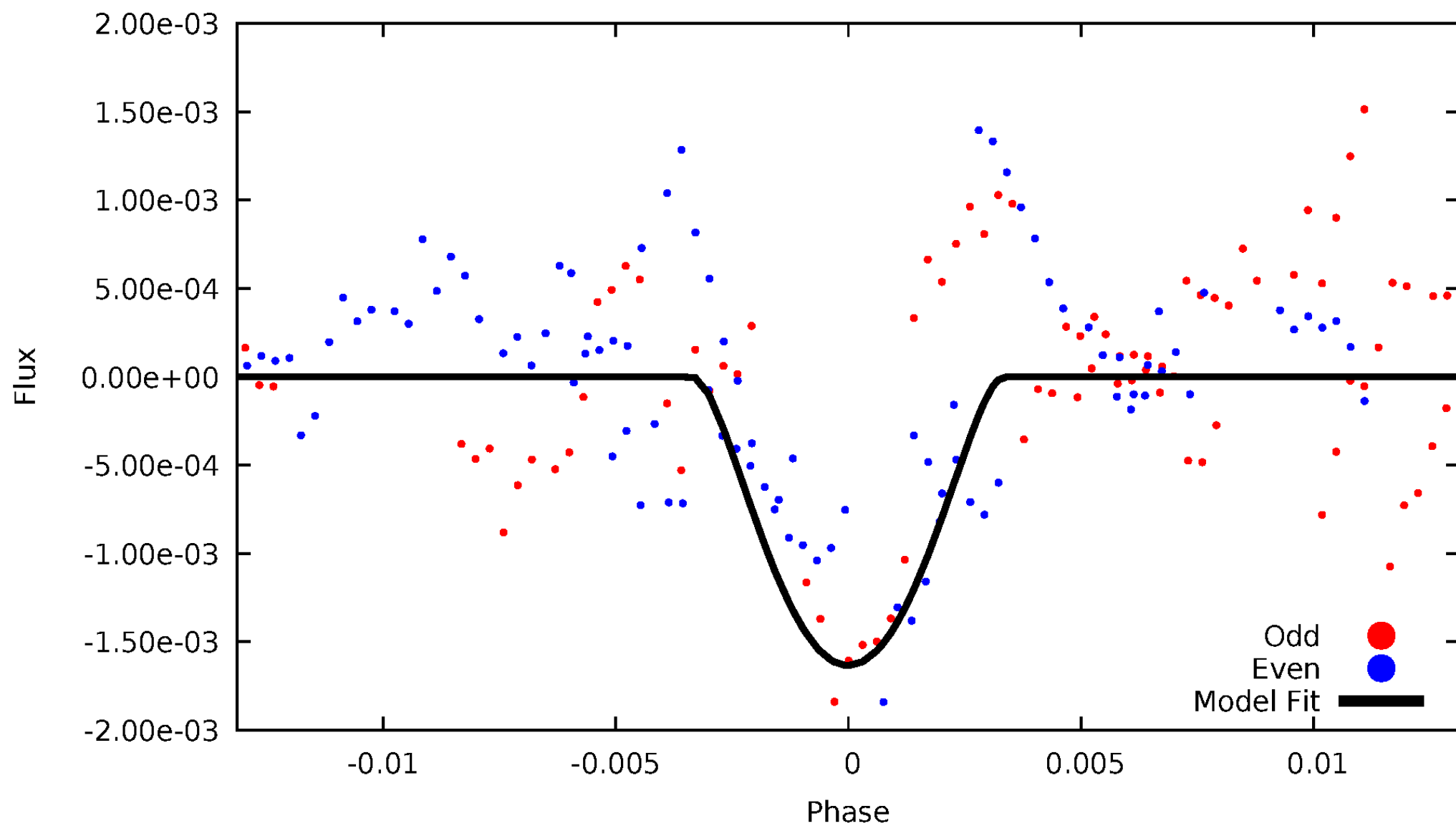


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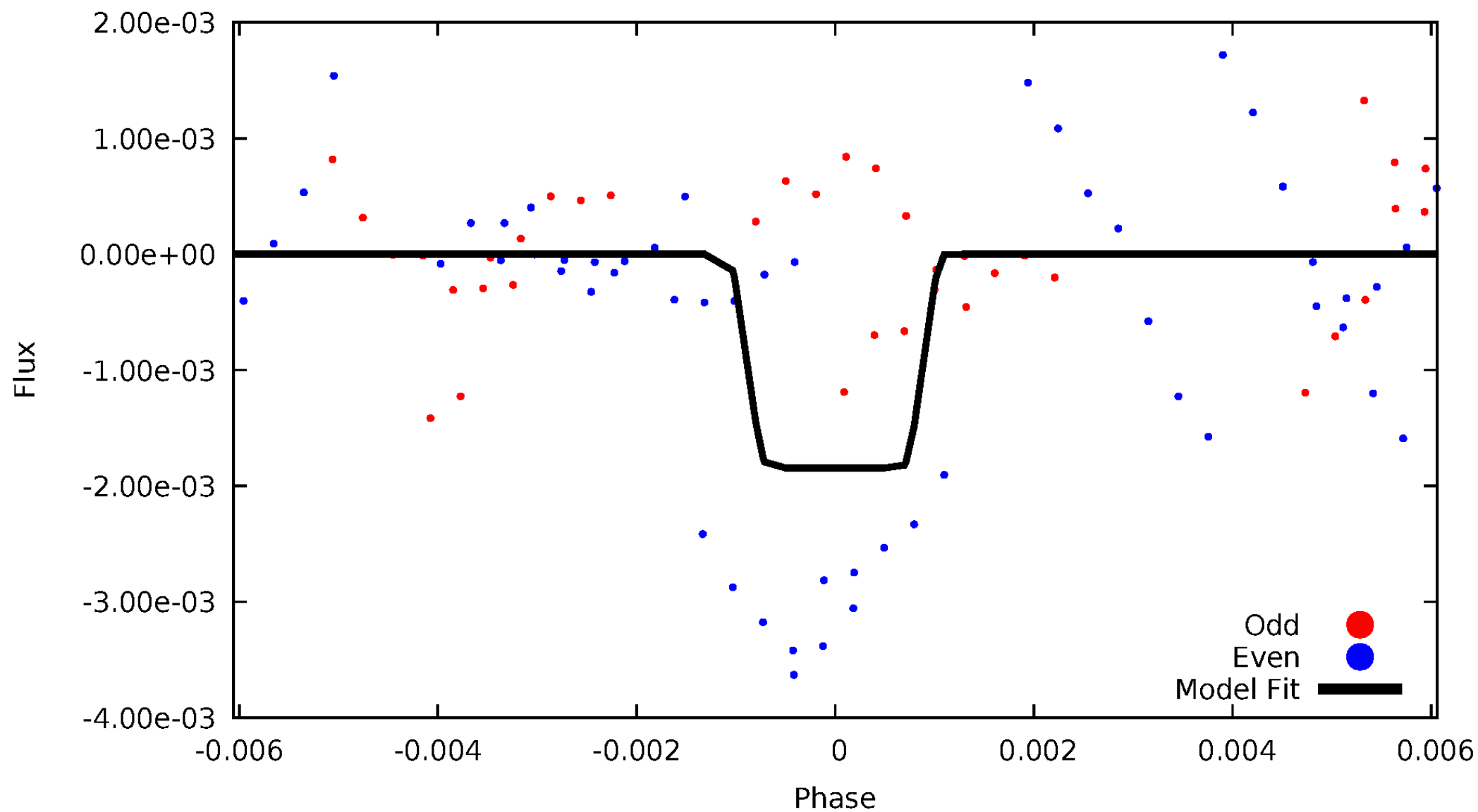
DV Odd/Even

TCE 005019101-04



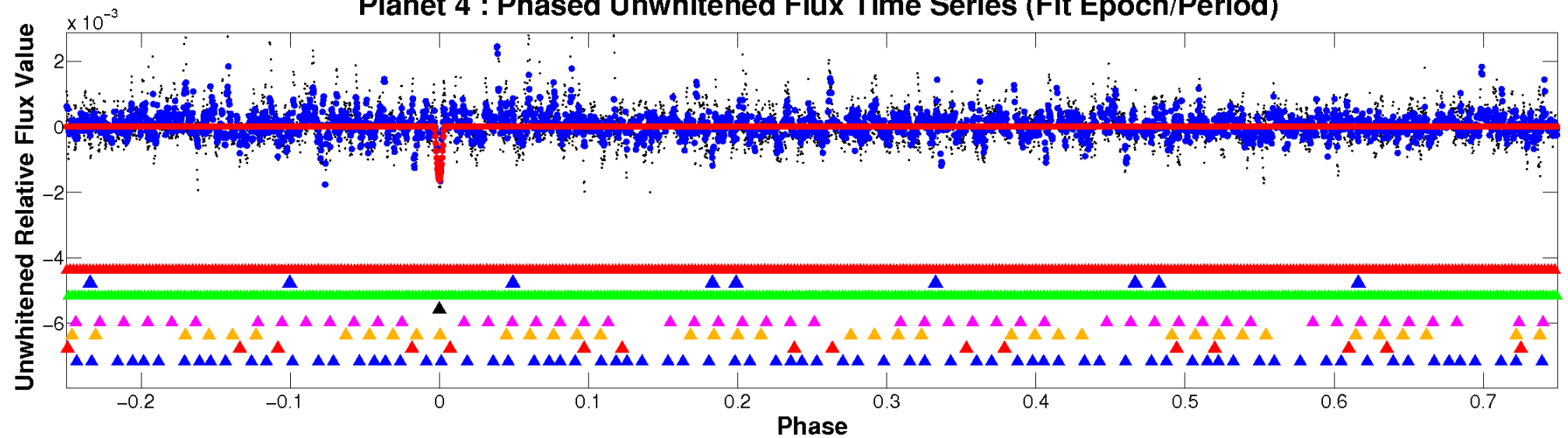
ALT Odd/Even

TCE 005019101-04

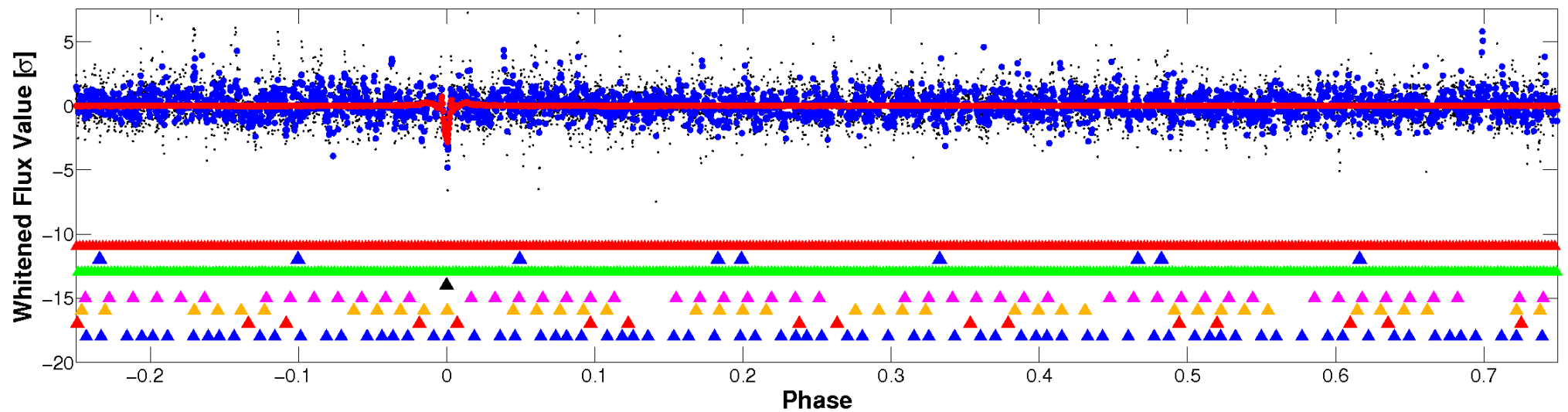


Non-Whitened Vs. Whitened Light Curve

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

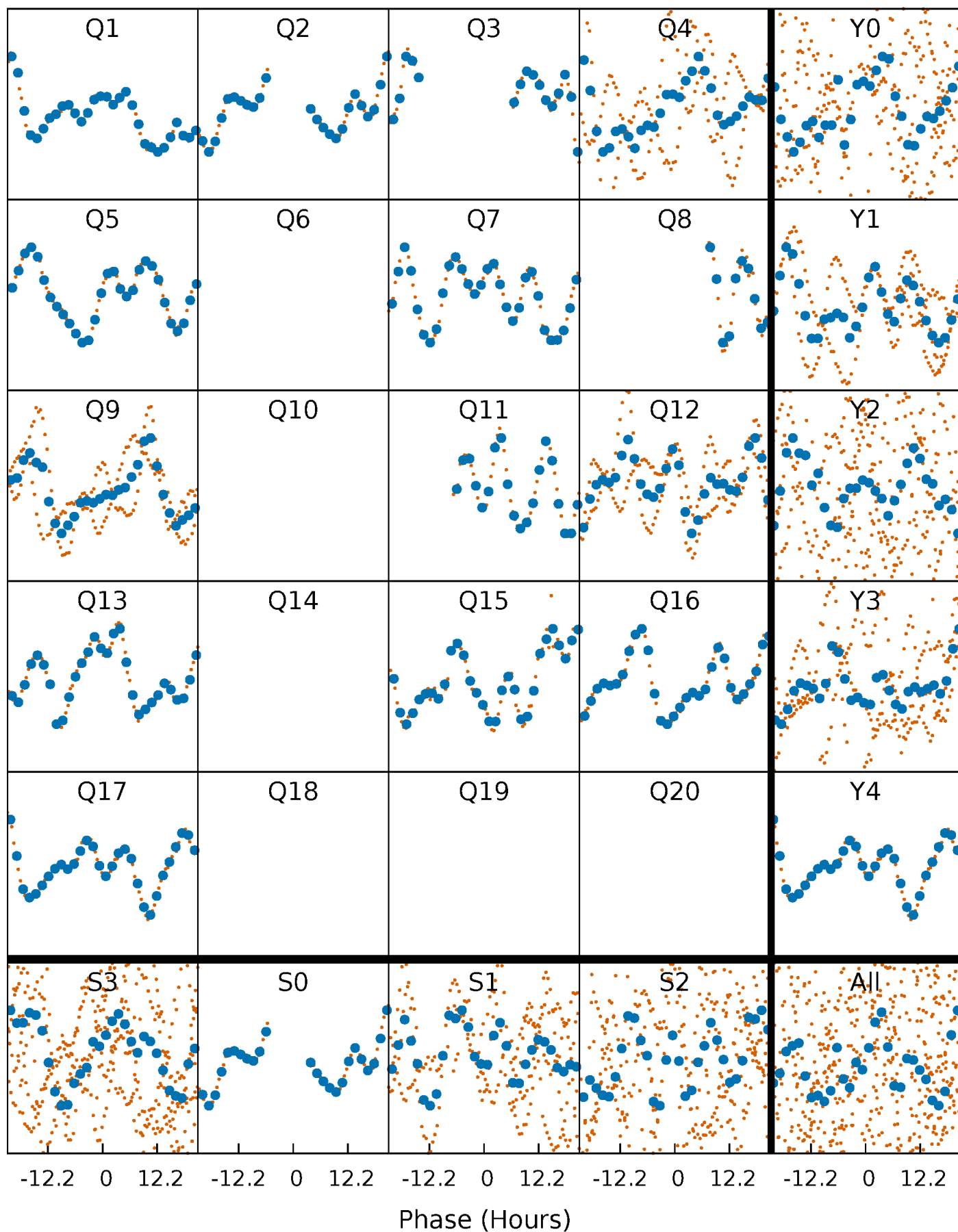


Planet 4 : Phased Whitened Flux Time Series (Fit Epoch/Period)



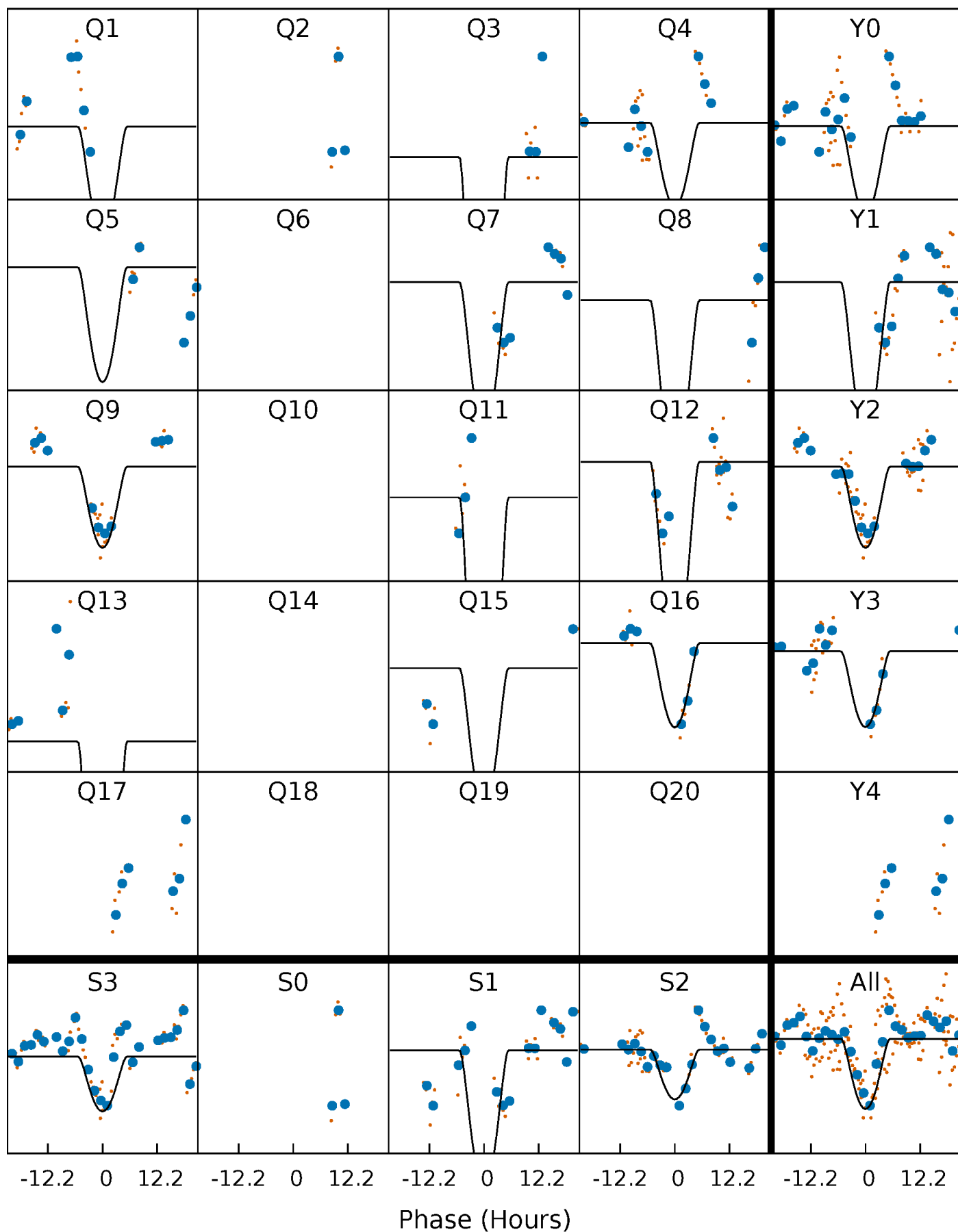
PDC Quarter-Phased Transit Curves

TCE 005019101-04 P= 67.470131 Days $T_0=156.235190$ (BKJD)



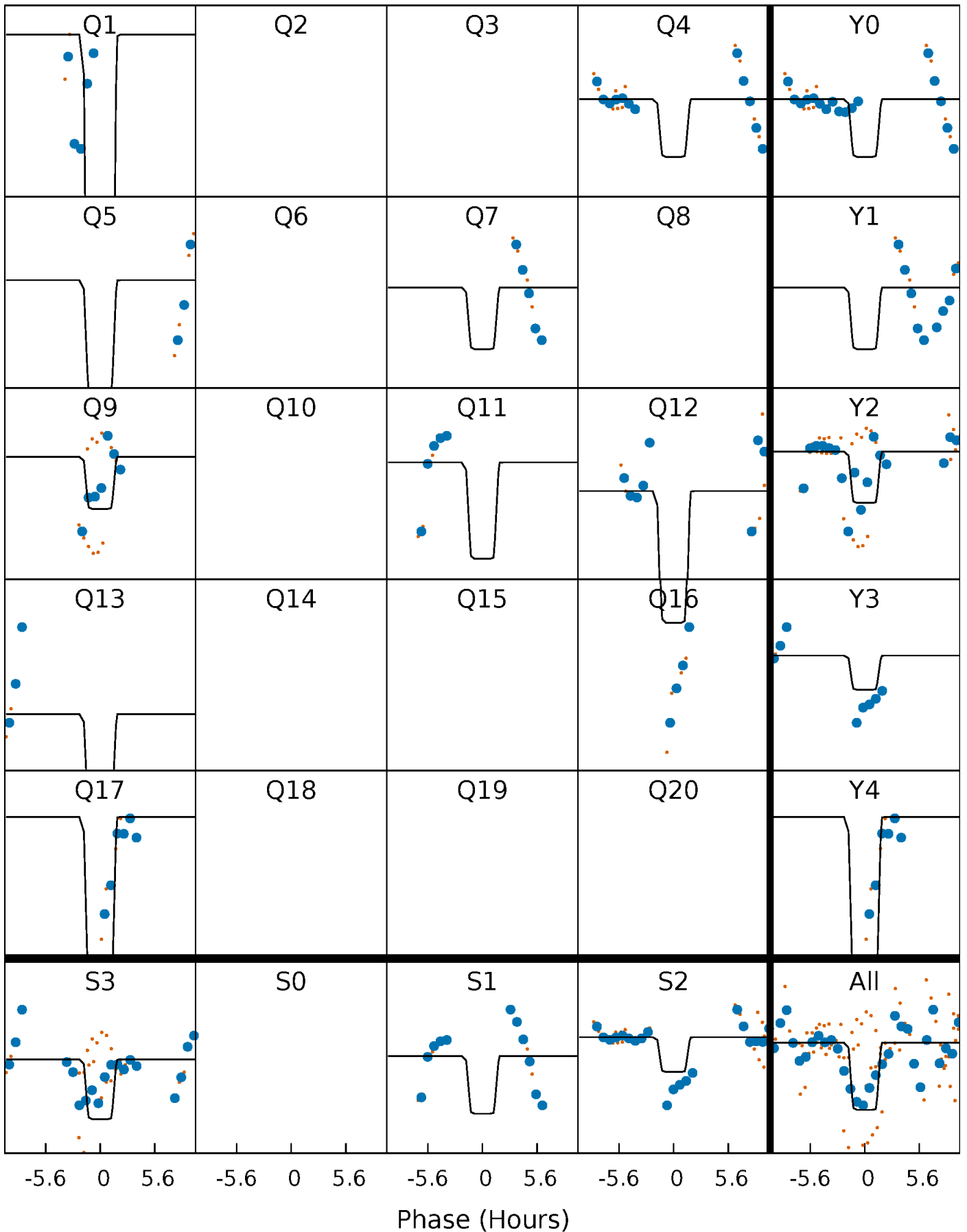
DV Quarter-Phased Transit Curves

TCE 005019101-04 P= 67.470131 Days $T_0=156.235190$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

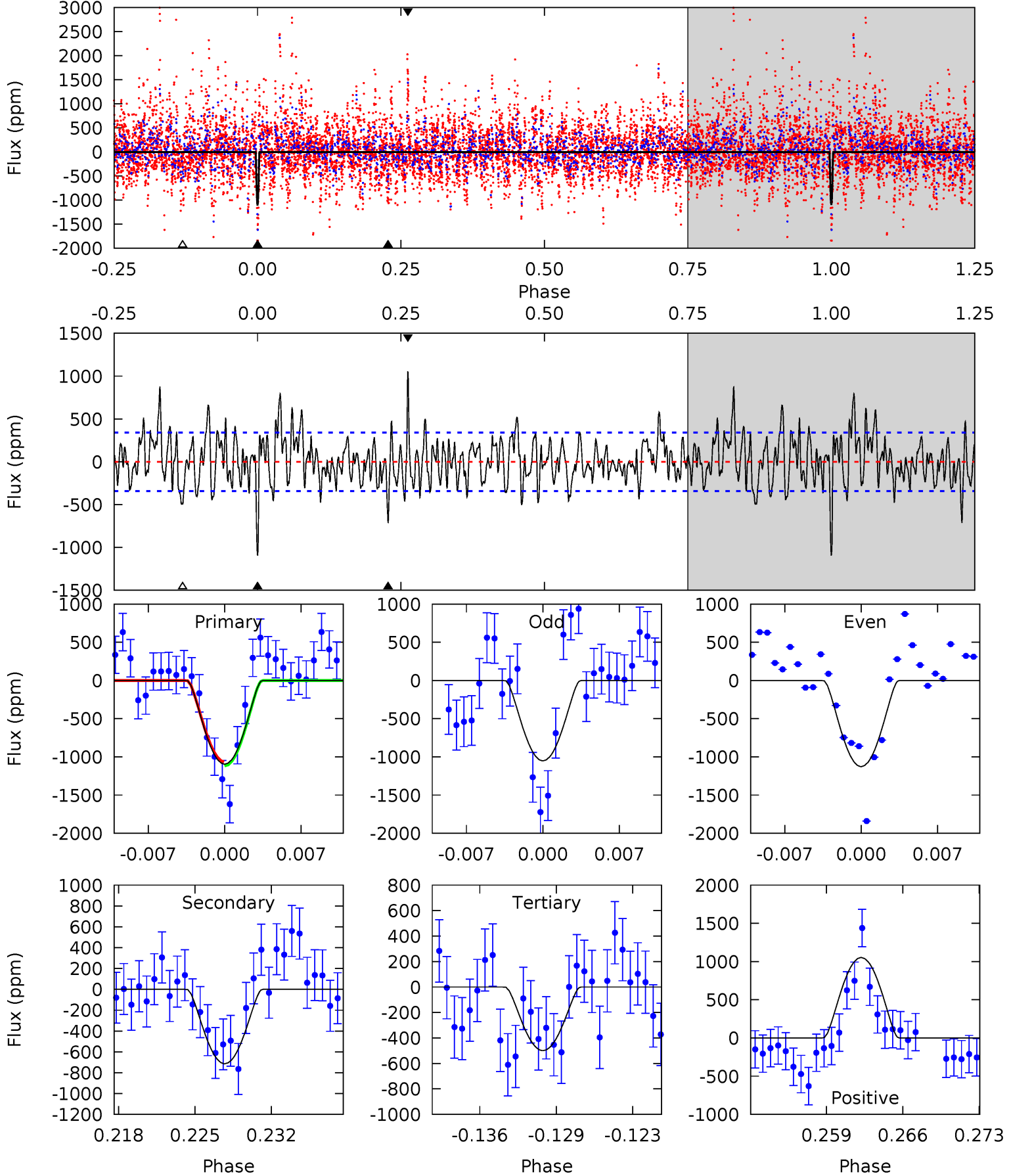
TCE 005019101-04 P= 67.479716 Days $T_0=156.122655$ (BKJD)



DV Model-Shift Uniqueness Test

005019101-04, P = 67.470131 Days, E = 88.765059 Days

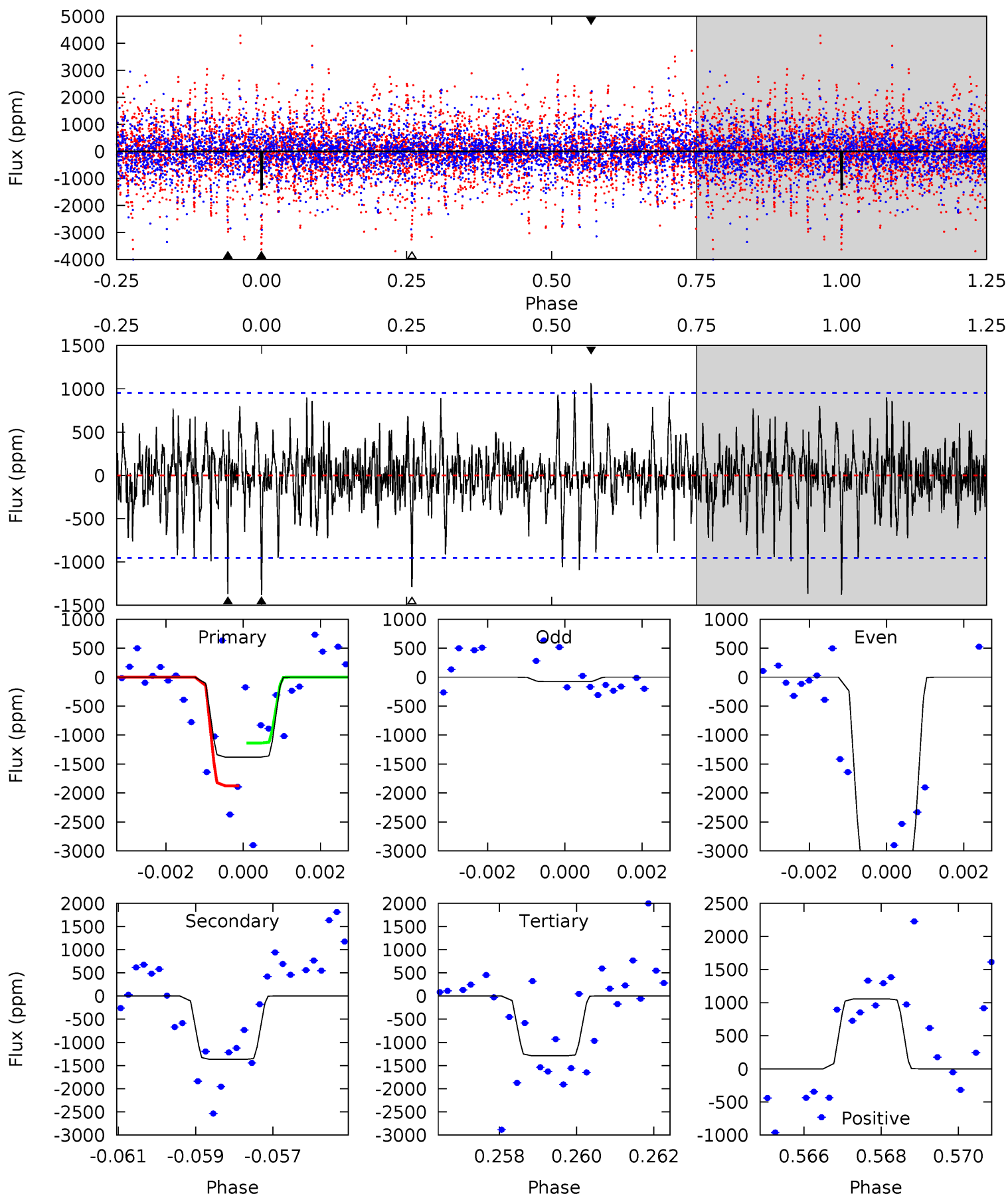
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
16.3	10.6	7.45	15.7	5.10	2.71	3.41	8.88	0.63	3.20	-5.05	0.51	-0.90	0.49	0.40



Alt Model-Shift Uniqueness Test

005019101-04, P = 67.479716 Days, E = 88.642939 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
7.69	7.62	7.18	5.88	5.32	3.07	1.64	0.51	1.81	0.44	1.74	7.57	1.55	0.43	2.01



Stellar Parameters For KIC 005019101

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	7022^{+169}_{-254}	$2.998^{+0.595}_{-0.105}$	$0.070^{+0.200}_{-0.450}$	$9.213^{+1.026}_{-5.474}$	$3.080^{+0.203}_{-1.148}$	$0.006^{+0.049}_{-0.002}$
	+2%/-4%	+20%/-4%	+286%/-643%	+11%/-59%	+7%/-37%	+879%/-34%
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 005019101-04 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-714 ± 67	$92.76^{+108.47}_{-64.22}$	1861^{+123}_{-265}	3796^{+2279}_{-779}	$9.551^{+91.827}_{-7.455}$
Alt.	-1367 ± 179	$88.76^{+95.30}_{-62.48}$	1853^{+128}_{-250}	4349^{+2964}_{-931}	20^{+204}_{-15}

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 $A_{obs} \gg 1.0$

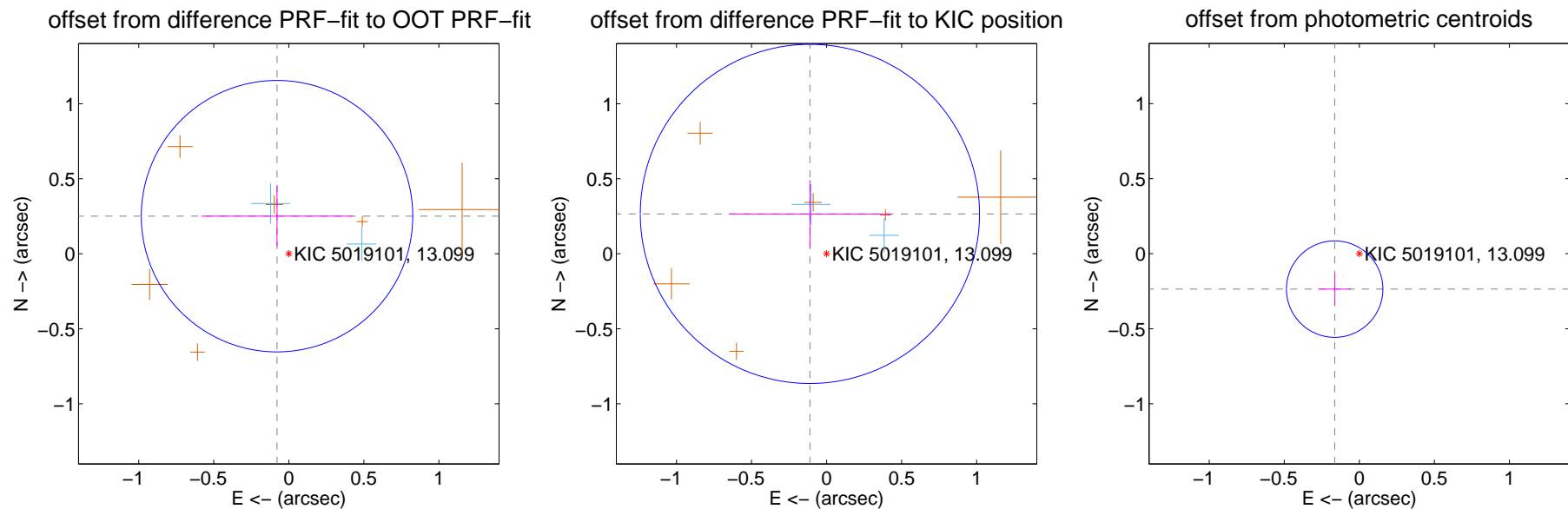
DV Centroid Data

Supplemental centroid analysis for 005019101-04. Kepler magnitude: 13.10. Transit SNR 11.01

There are 3 quarters with good PRF difference image offsets

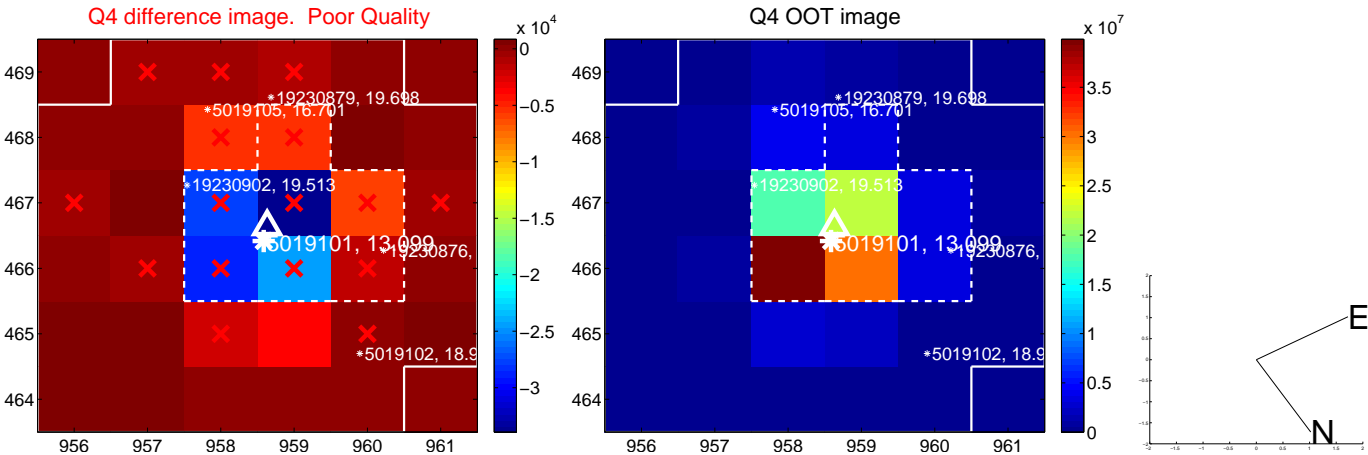
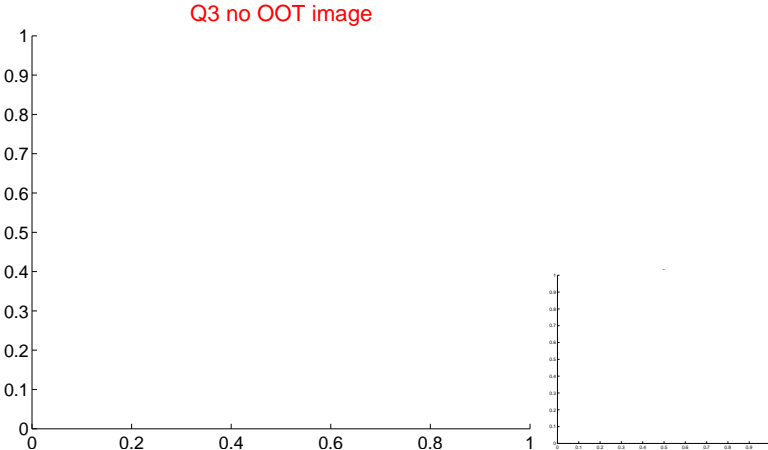
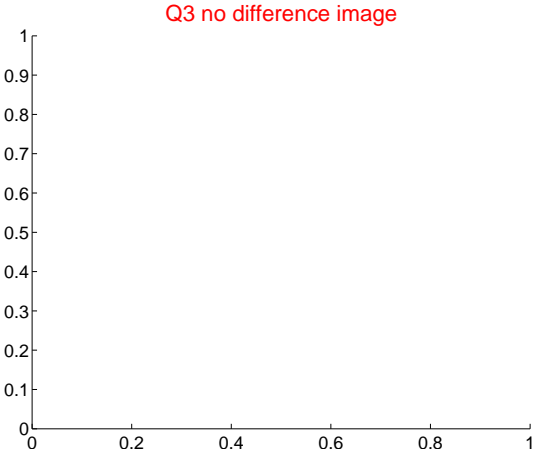
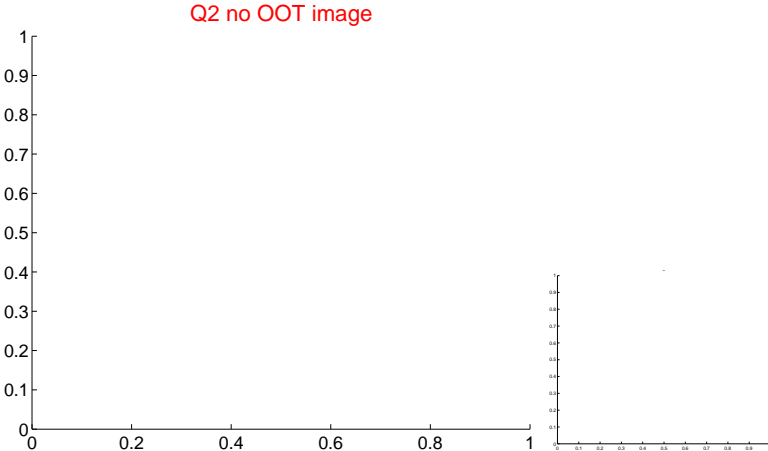
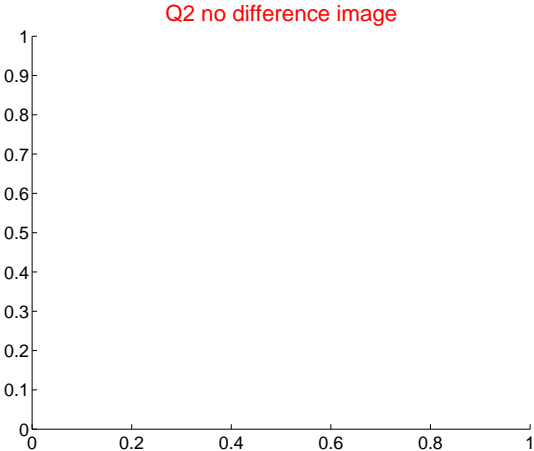
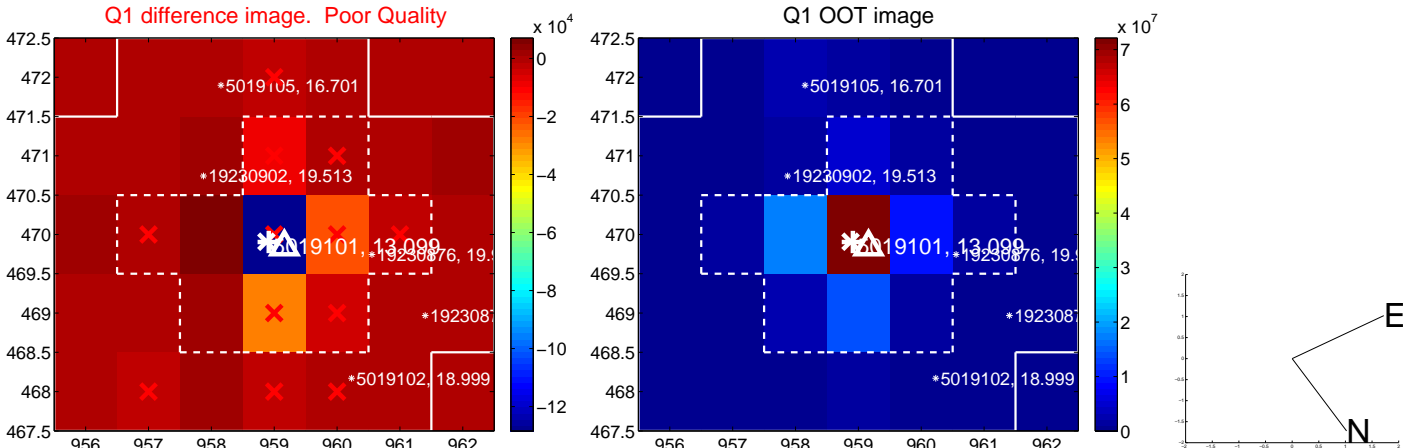
The direct PRF centroid is offset from the target star catalog position by about 0.11 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.263 ± 0.302	0.87	0.079 ± 0.504	0.251 ± 0.202
PRF-fit source offset from KIC position	0.288 ± 0.377	0.76	0.111 ± 0.539	0.266 ± 0.226
photometric centroid source offset	0.29 ± 0.11	2.68	0.16 ± 0.11	-0.24 ± 0.11

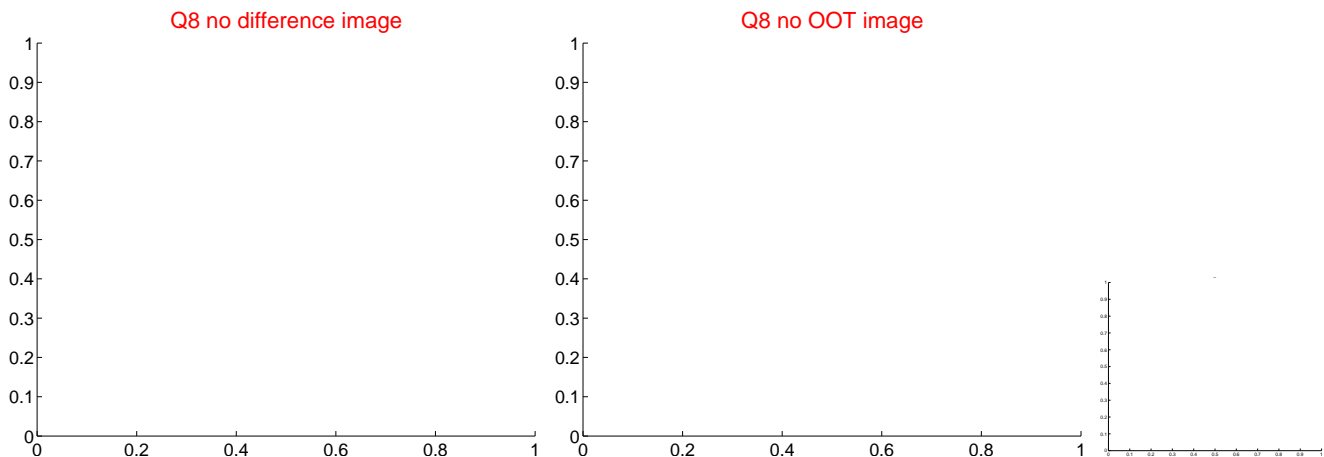
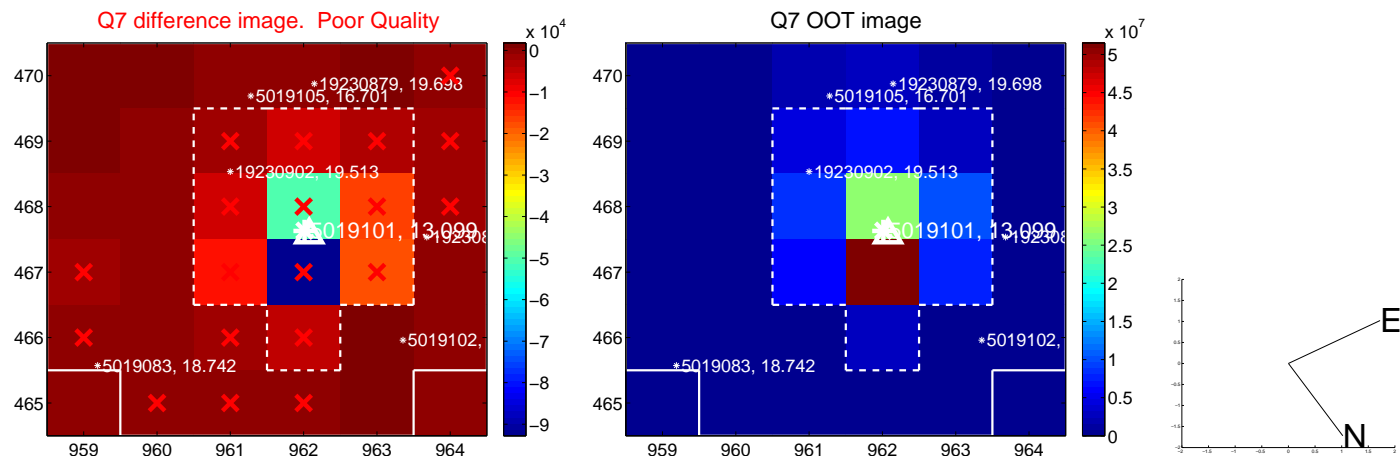
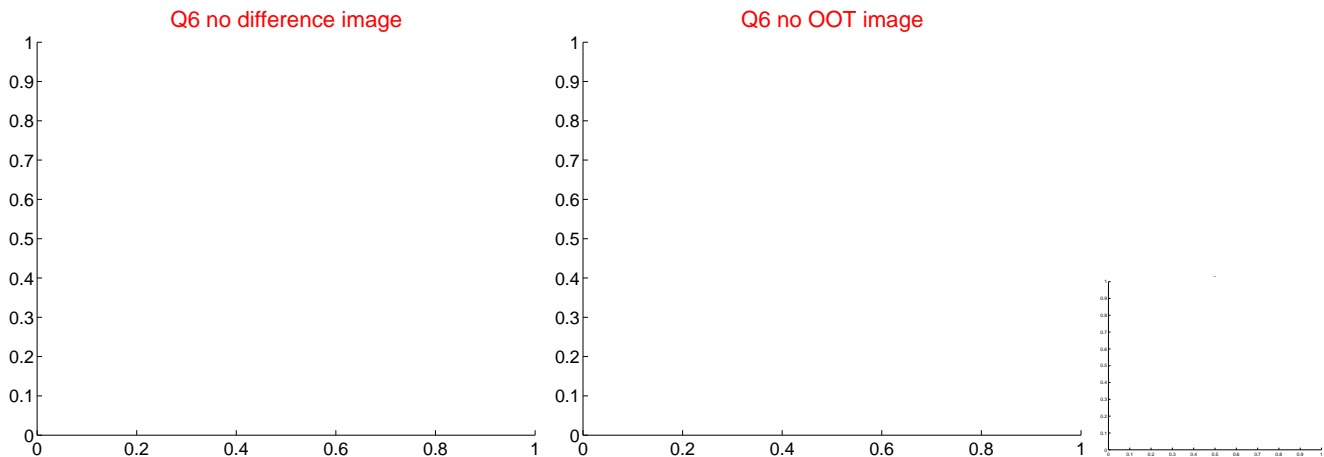
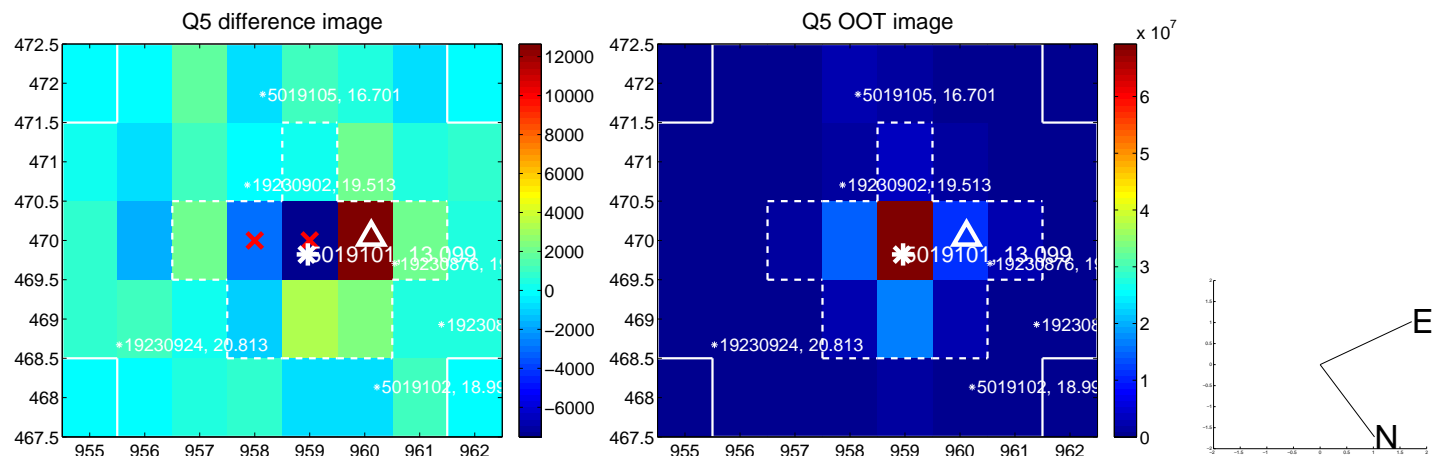


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

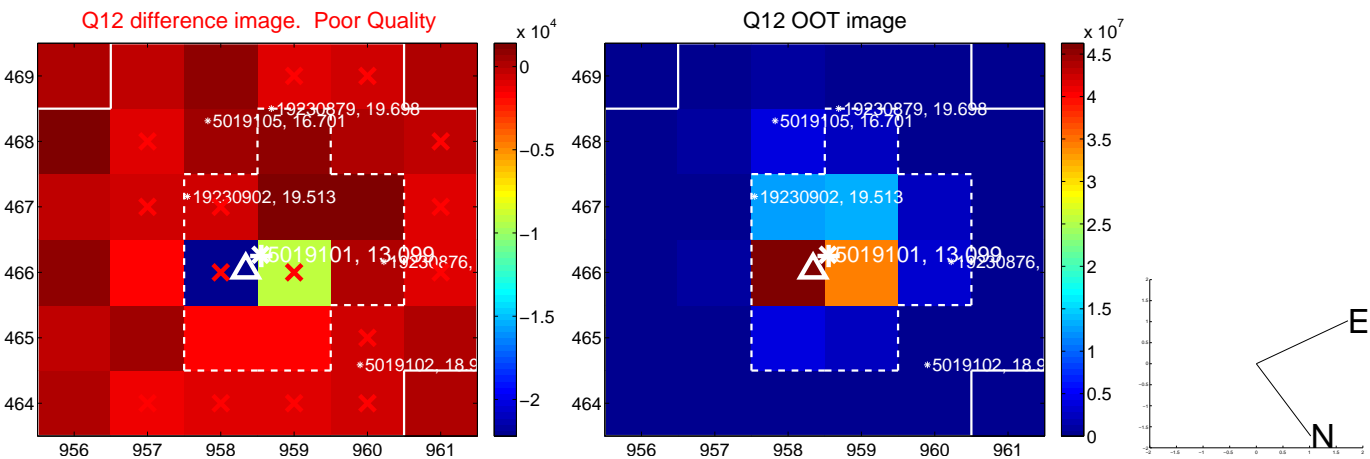
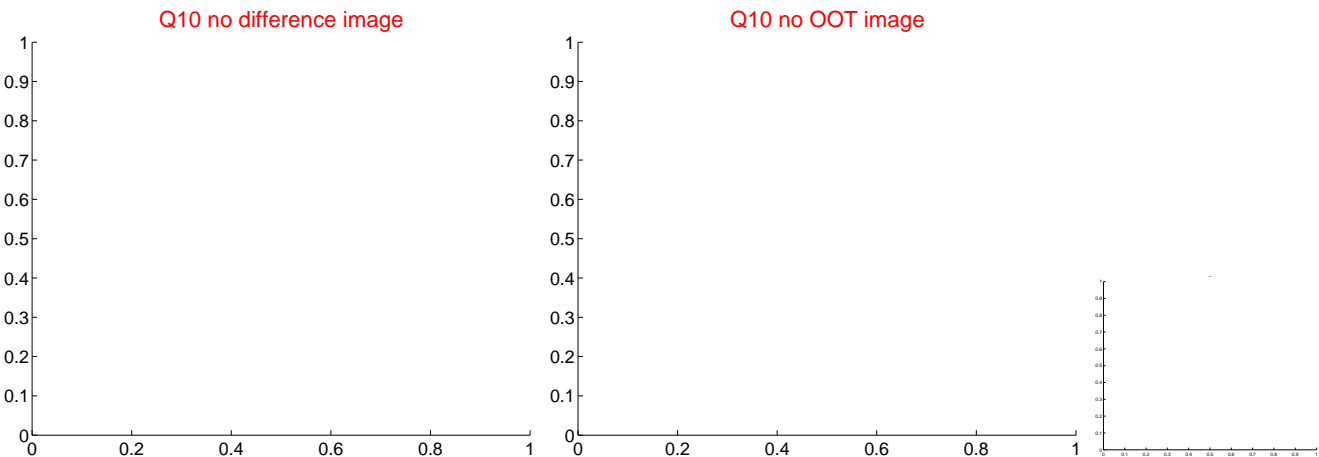
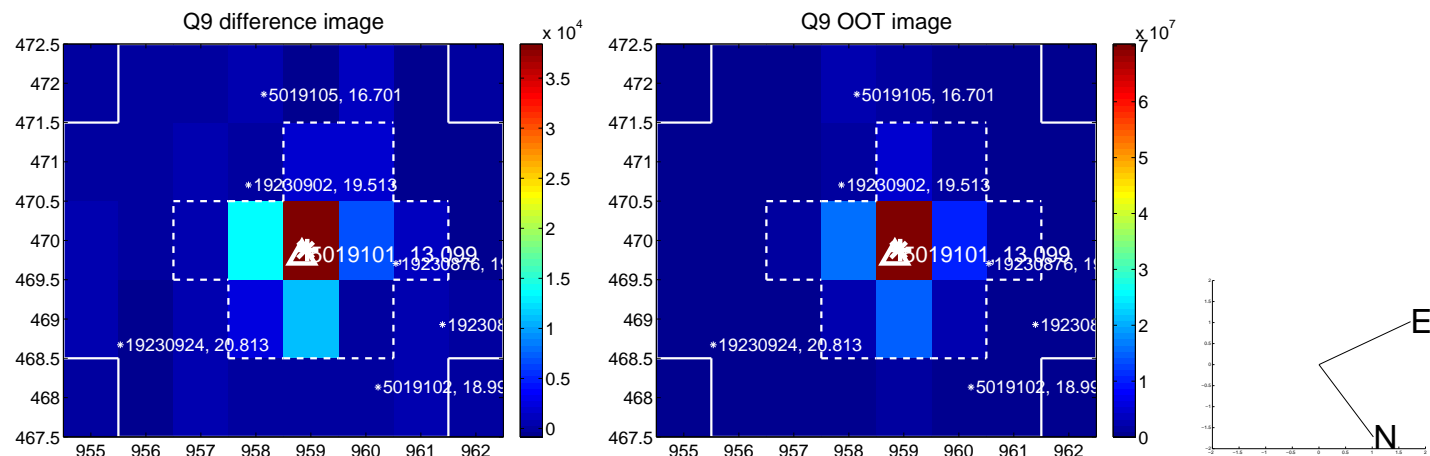
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



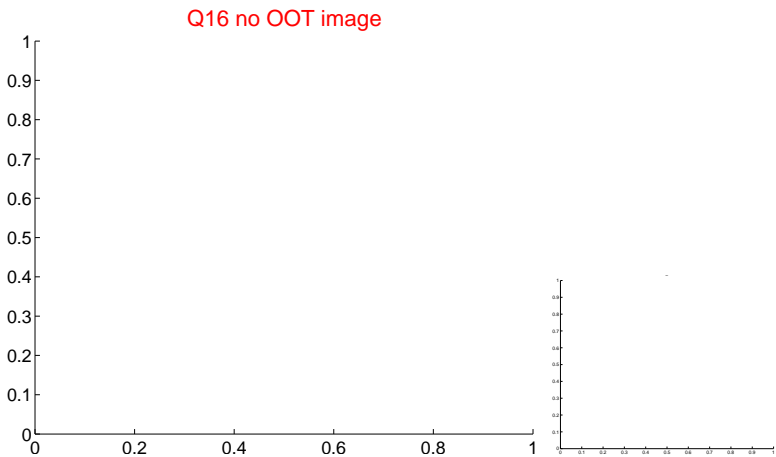
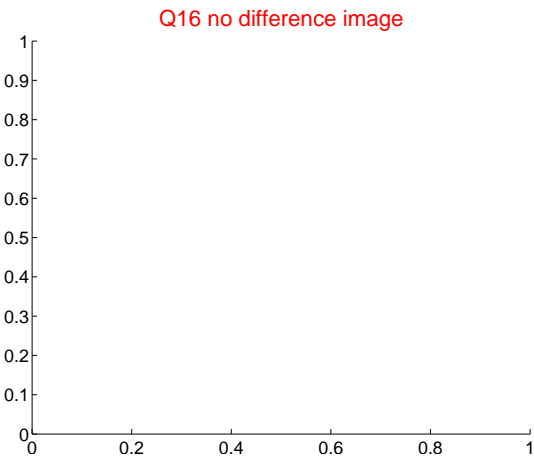
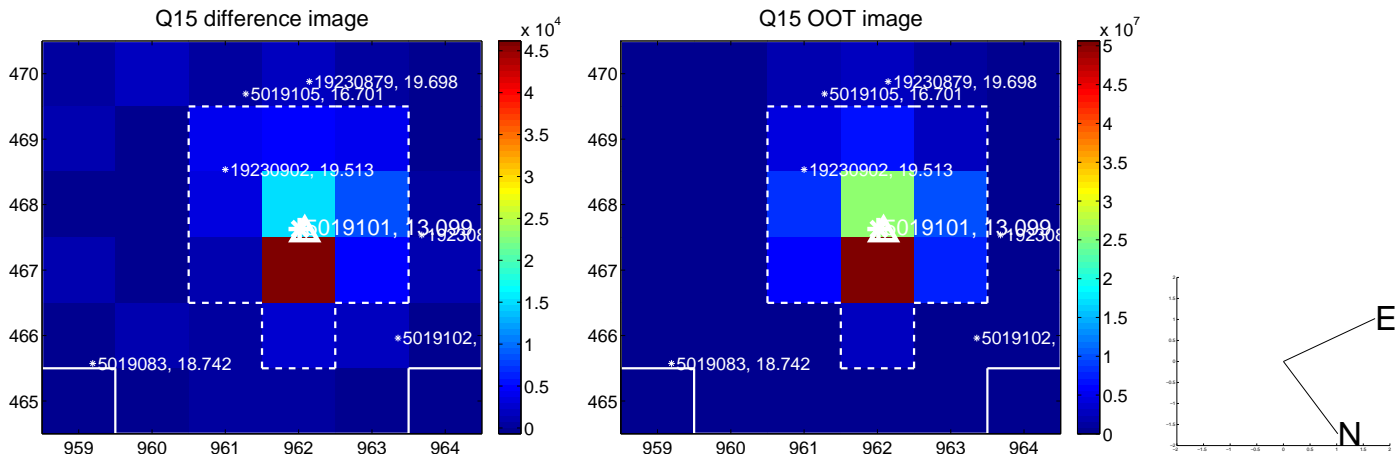
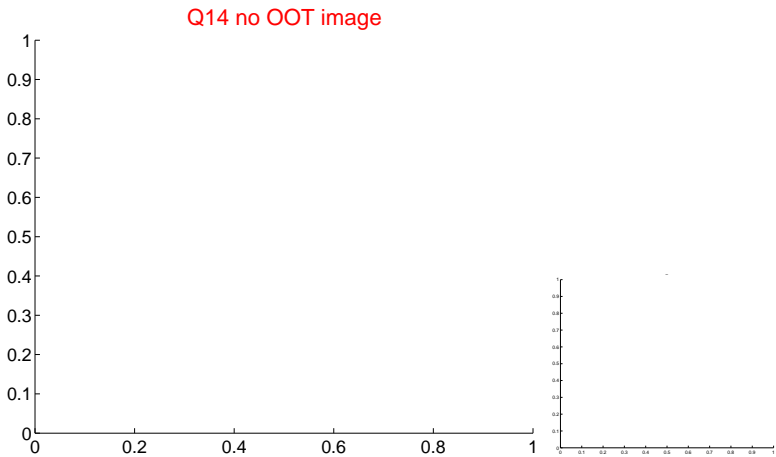
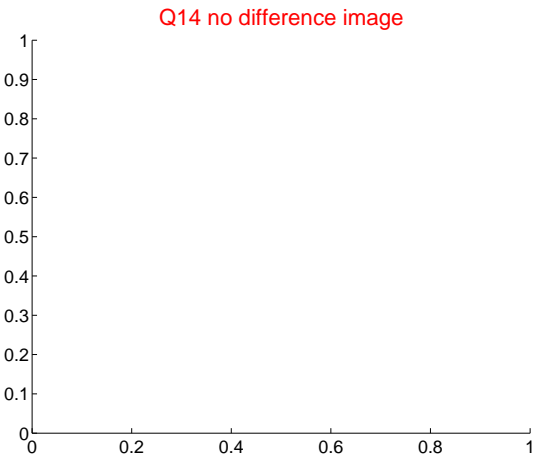
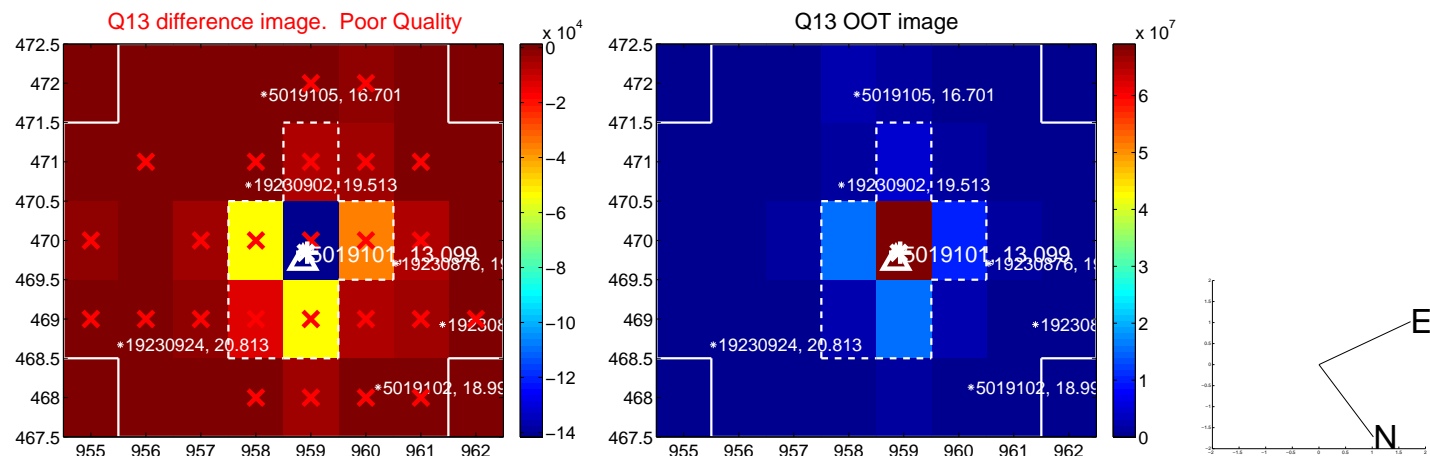
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



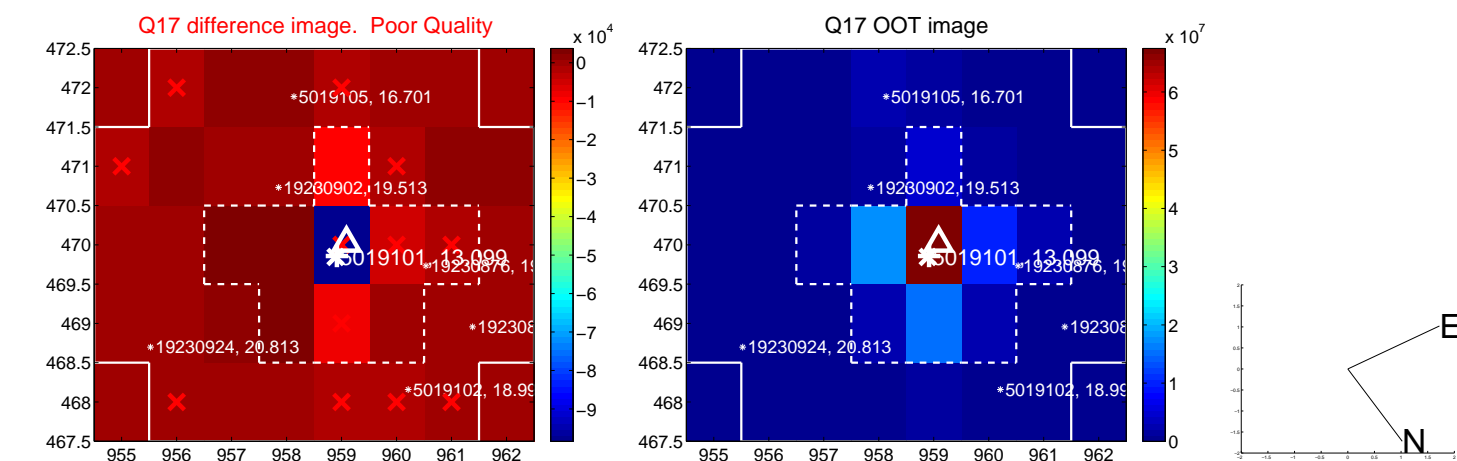
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



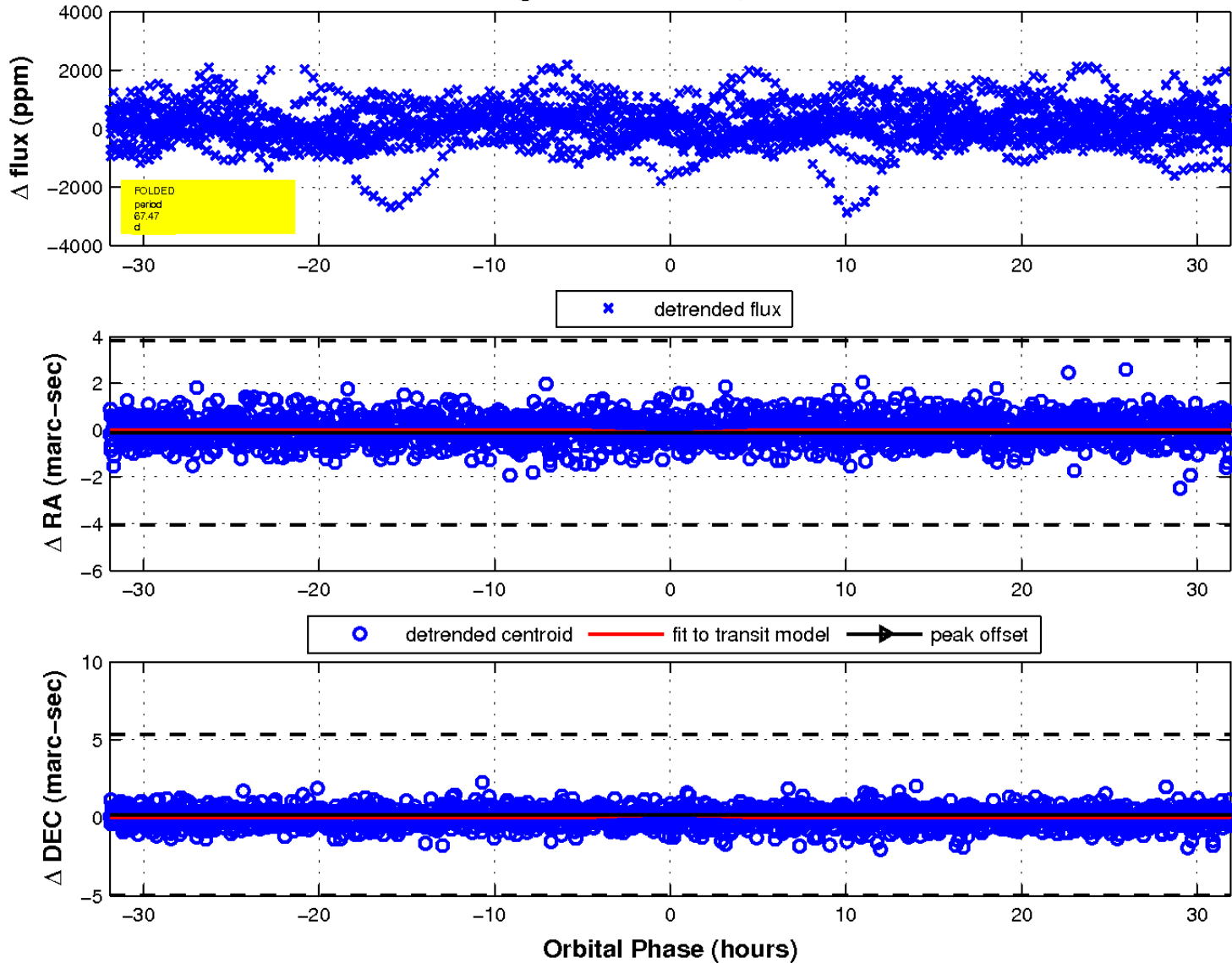
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

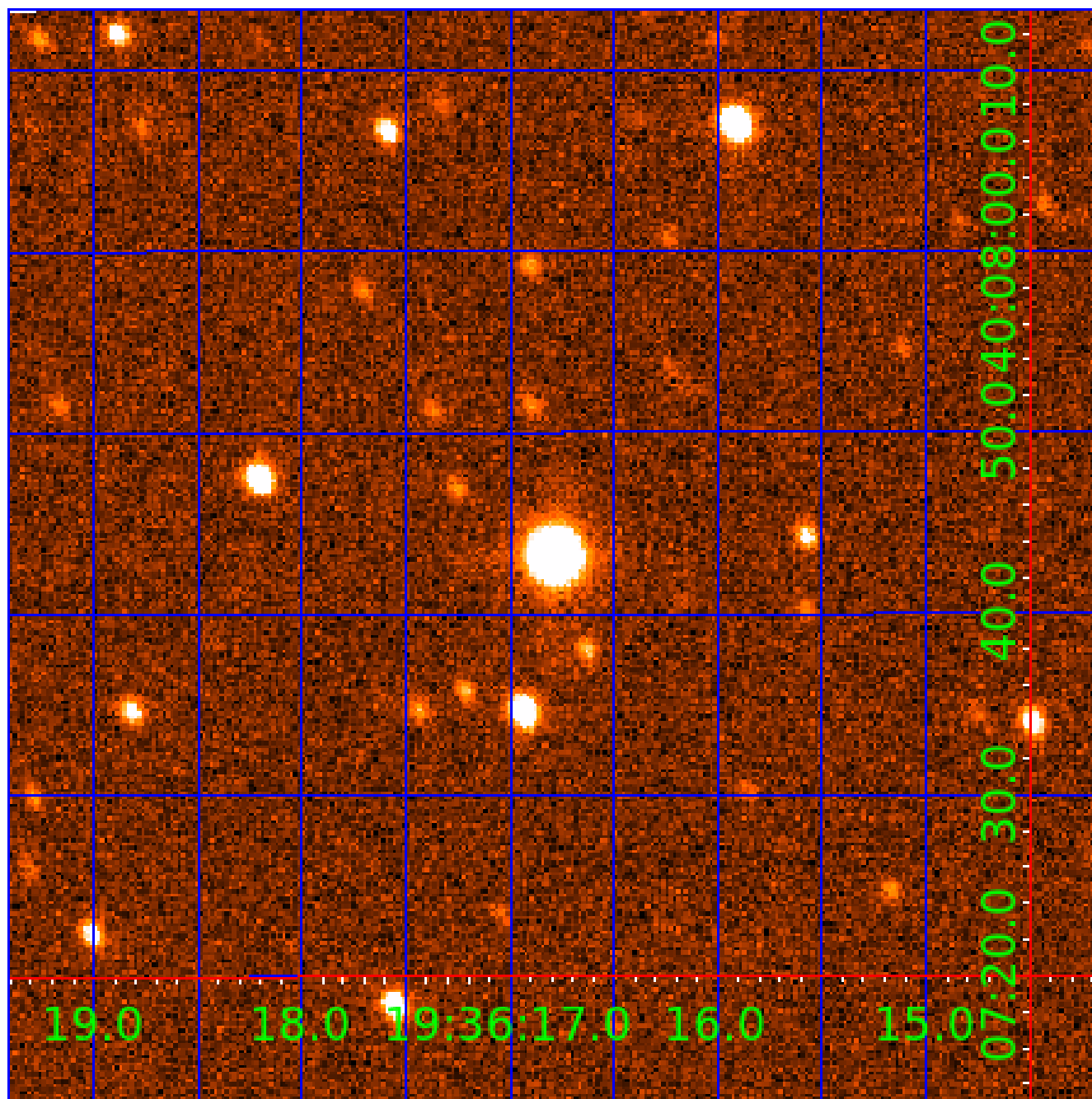


fluxWeightedCentroids, Planet 4 of 8



UKIRT Image

Declination



KIC 005019101

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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005019101-02	OBS	No	154.064988	237.129171	1013.7	12.058	20.3	10.3	9.21	7022	33.18	275.89
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005019101-05	OBS	No	29.070887	137.614453	220.5	10.984	11.4	3.2	9.21	7022	14.19	2549.14
005019101-06	OBS	No	37.365135	156.266285	641.1	3.052	10.4	9.5	9.21	7022	24.77	1824.10
005019101-08	OBS	No	18.844596	145.884905	417.6	4.424	8.6	6.9	9.21	7022	21.45	4543.84

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005019101-01	OBS	FP	0.00	1	0	0	0	SWEET_NTL—LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT
005019101-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT— INCONSISTENT_TRANS
005019101-03	OBS	FP	0.00	1	0	0	0	SWEET_NTL—LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—SAME_NTL_PERIOD—CENT_NOFITS
005019101-04	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT— CENT_FEW_DIFFS—HALO_GHOST
005019101-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT— MOD_POS_ALT
005019101-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_POS_DV—MOD_NONUNIQ_ALT— MOD_TER_ALT—MOD_POS_ALT
005019101-08	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT

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

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

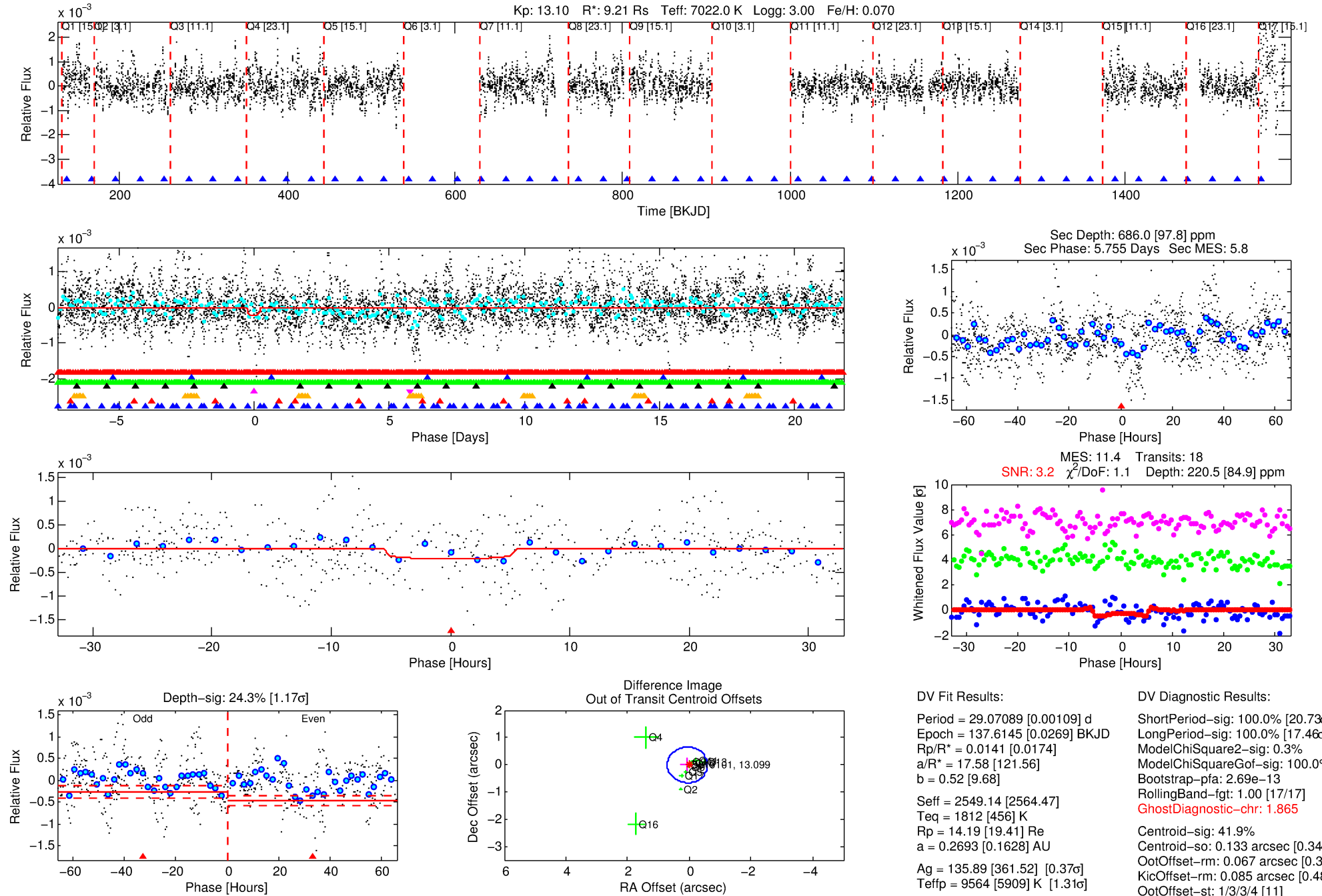
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 005019101-05

No Significant Match Found

DV One-Page Summary

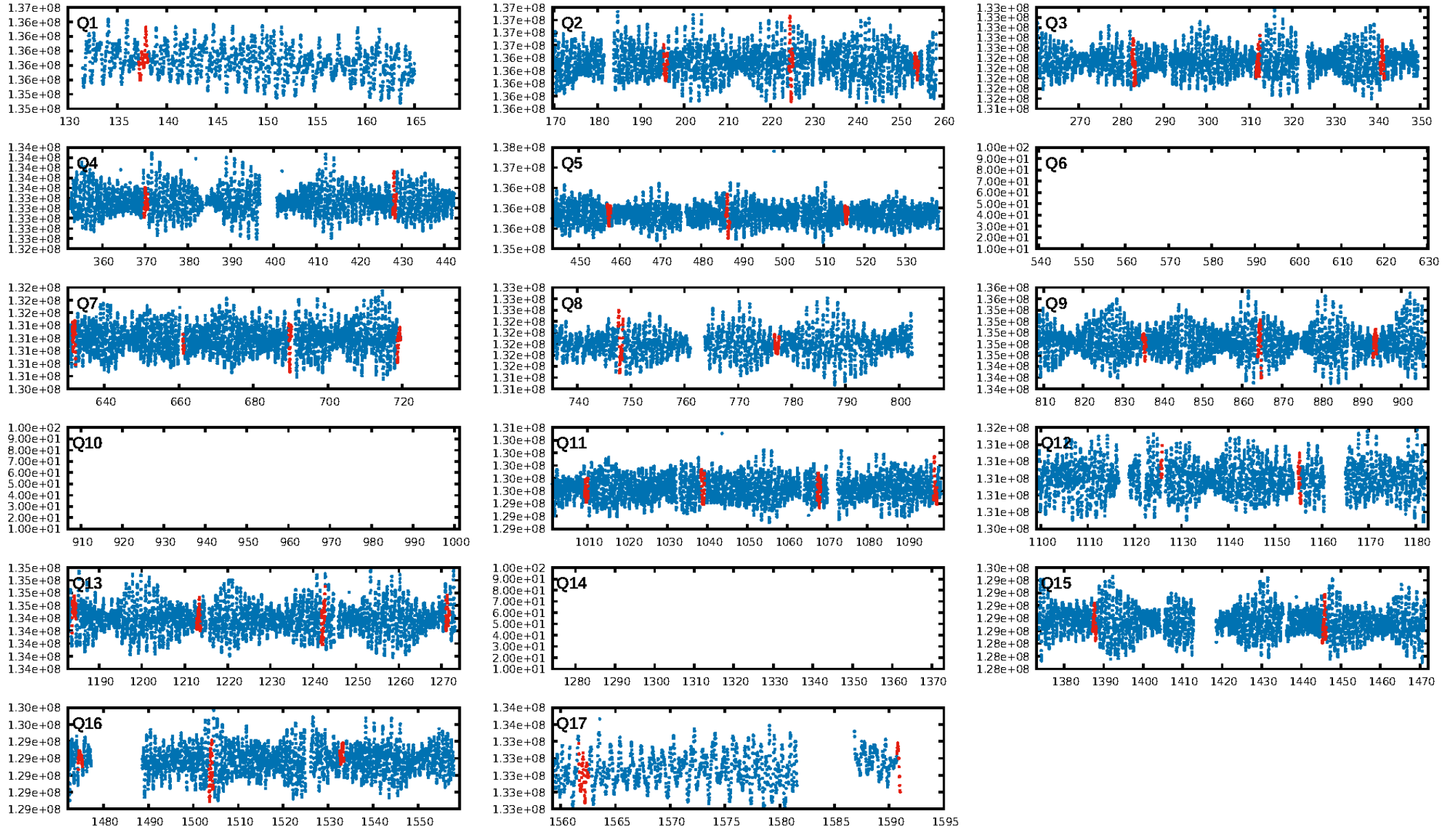
KIC: 5019101 Candidate: 5 of 8 Period: 29.071 d



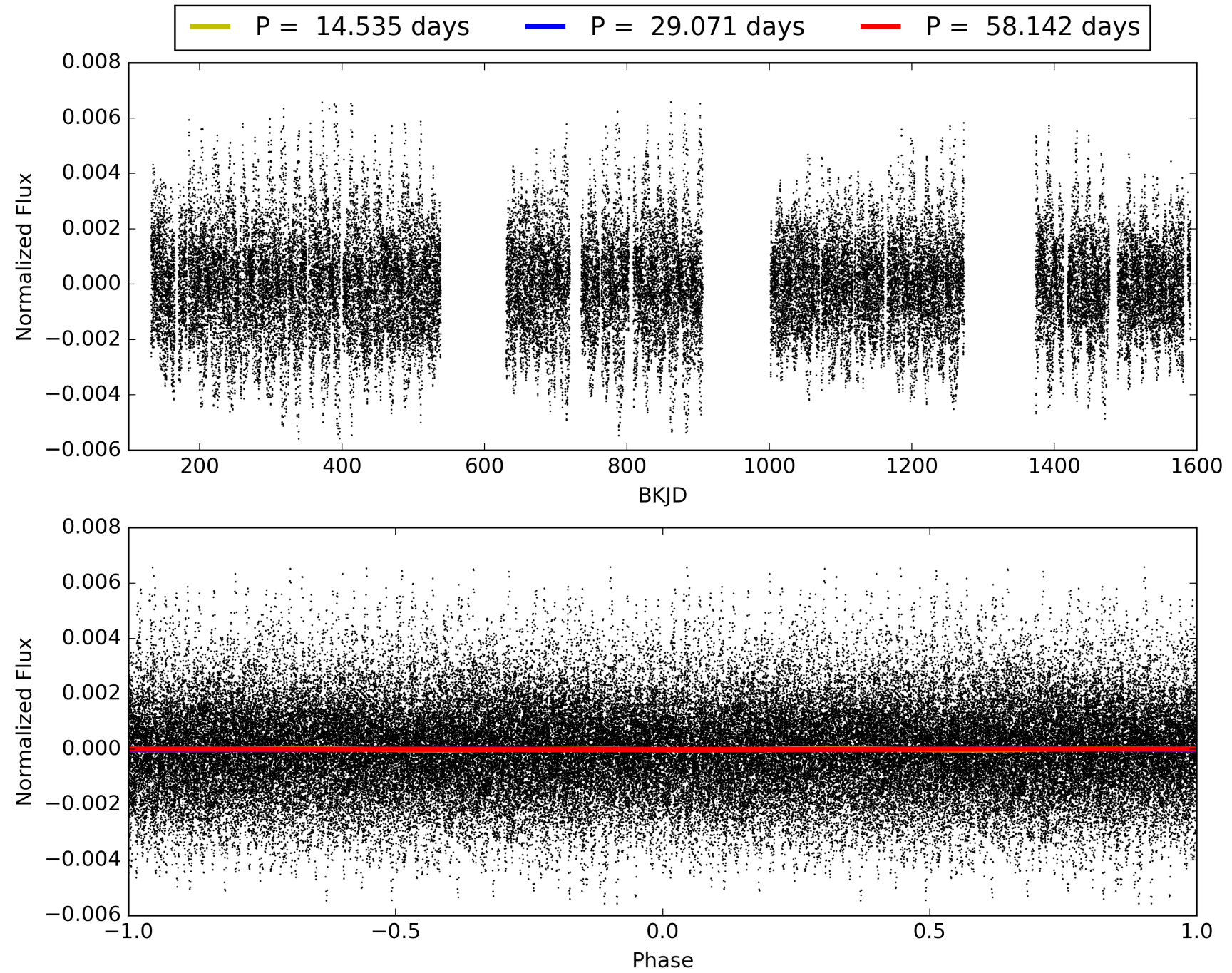
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 12:03:29 Z

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

TCE 005019101-05, PDC Light Curves

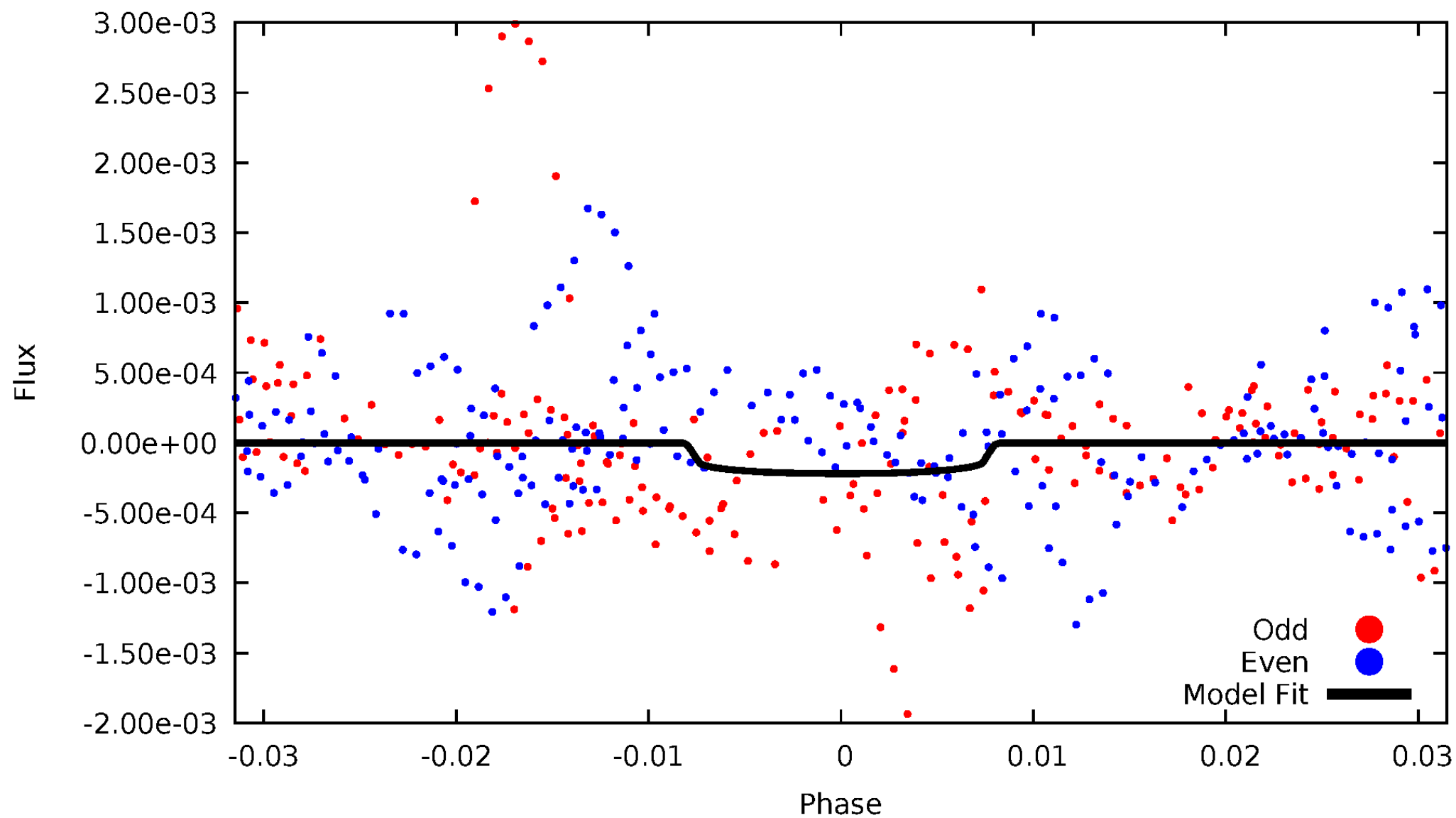


TCE 005019101-05



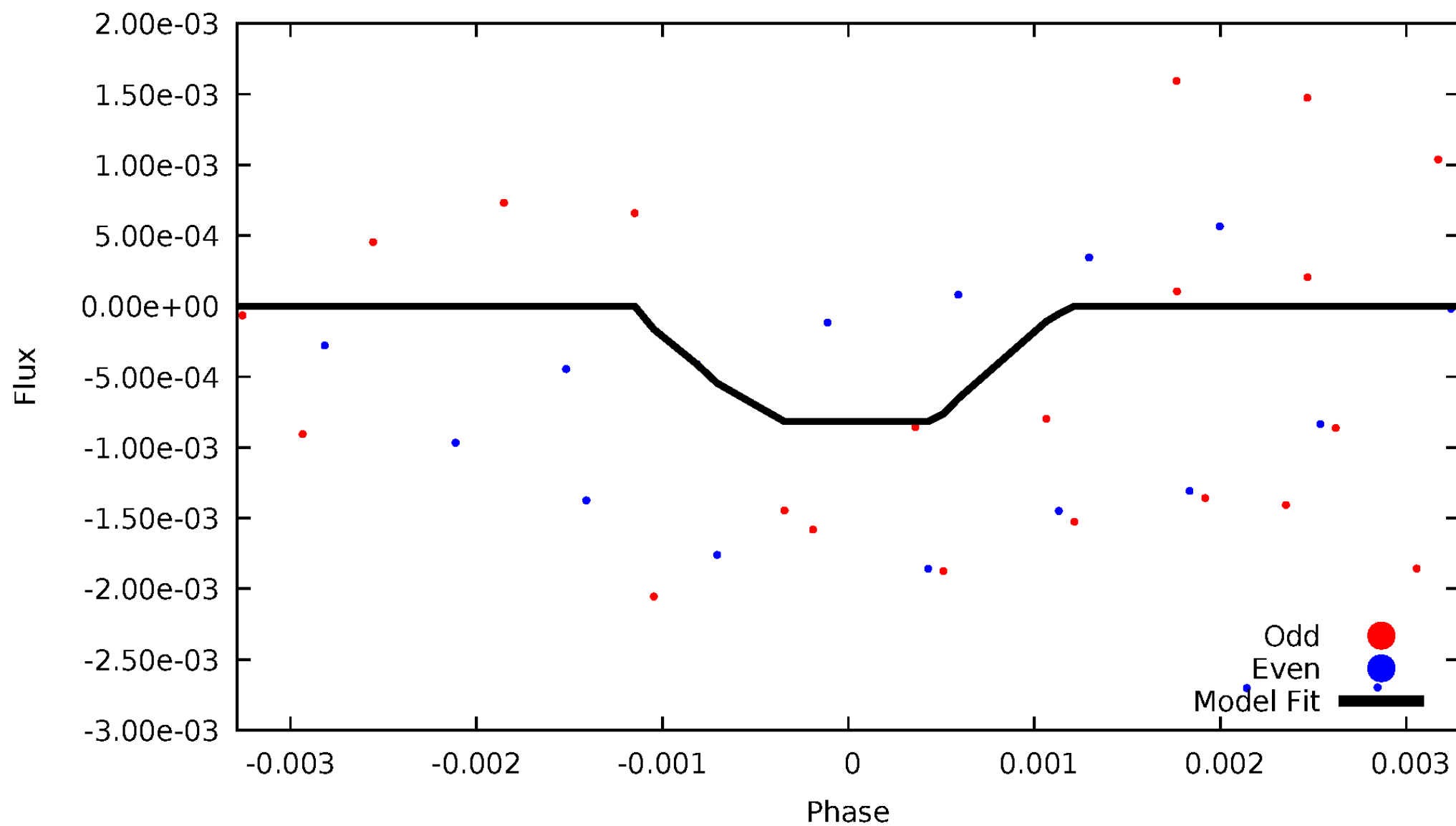
DV Odd/Even

TCE 005019101-05



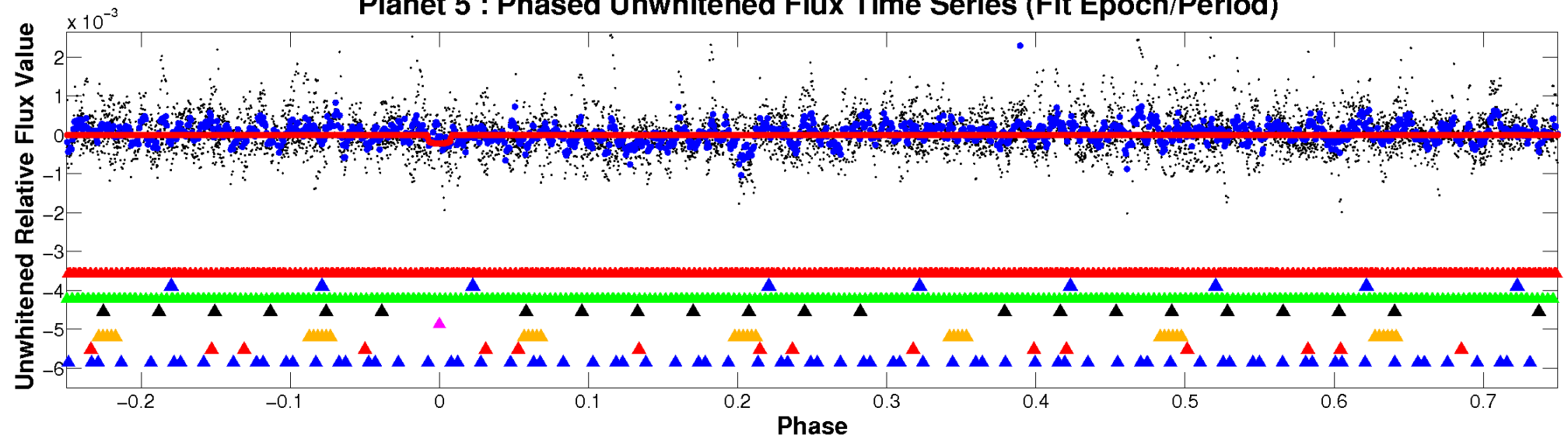
ALT Odd/Even

TCE 005019101-05

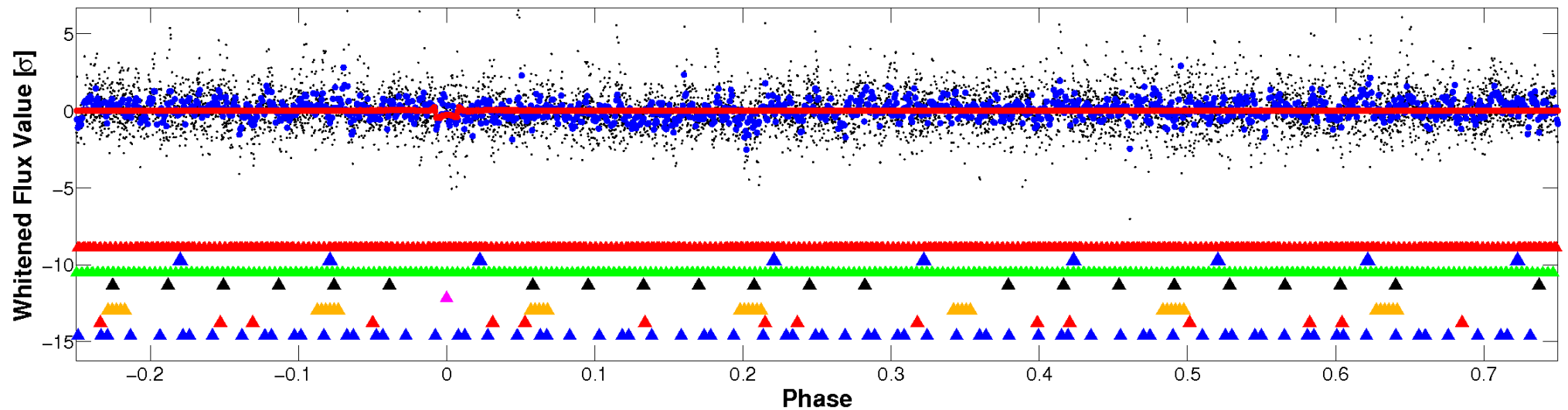


Non-Whitened Vs. Whitened Light Curve

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

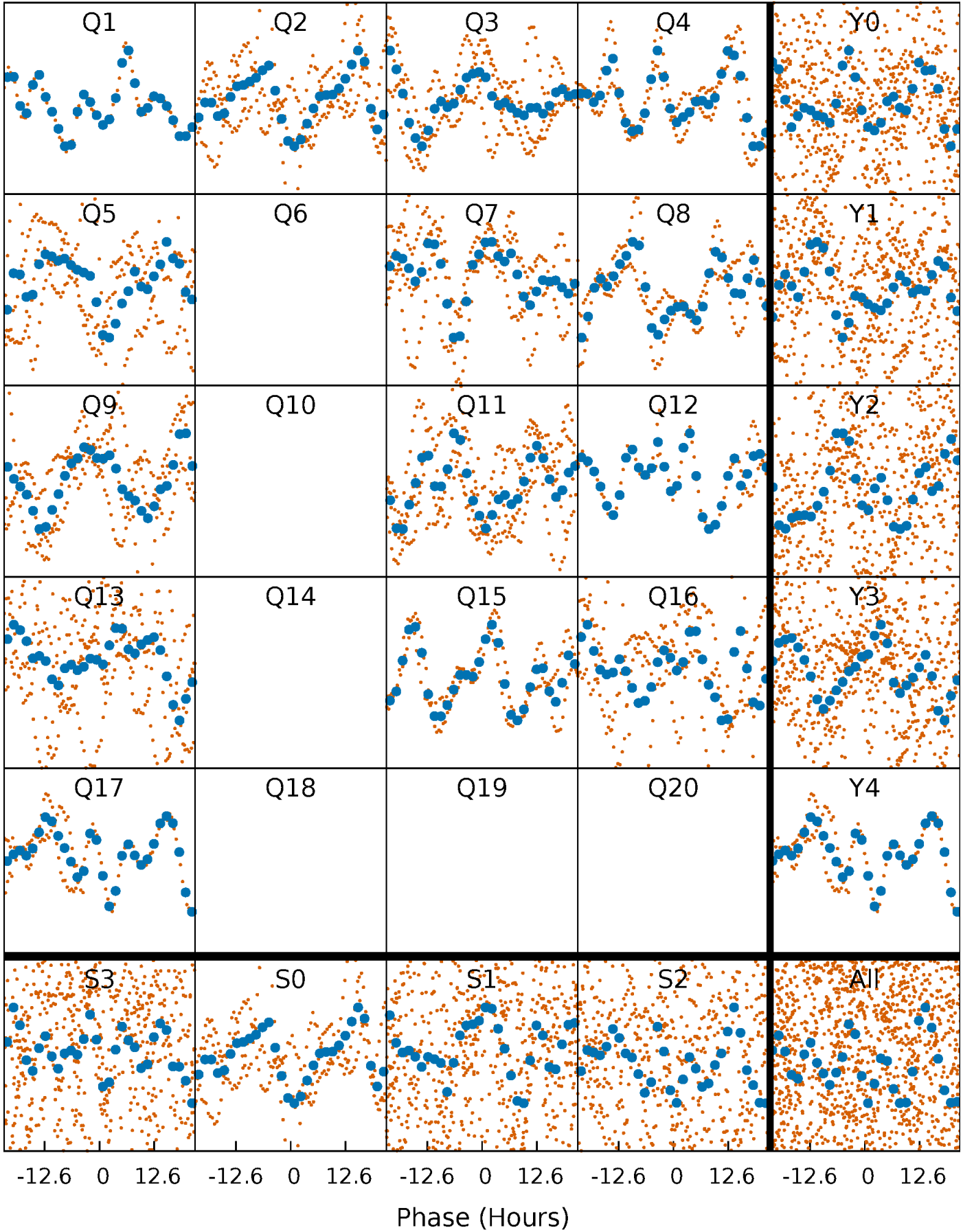


Planet 5 : Phased Whitened Flux Time Series (Fit Epoch/Period)



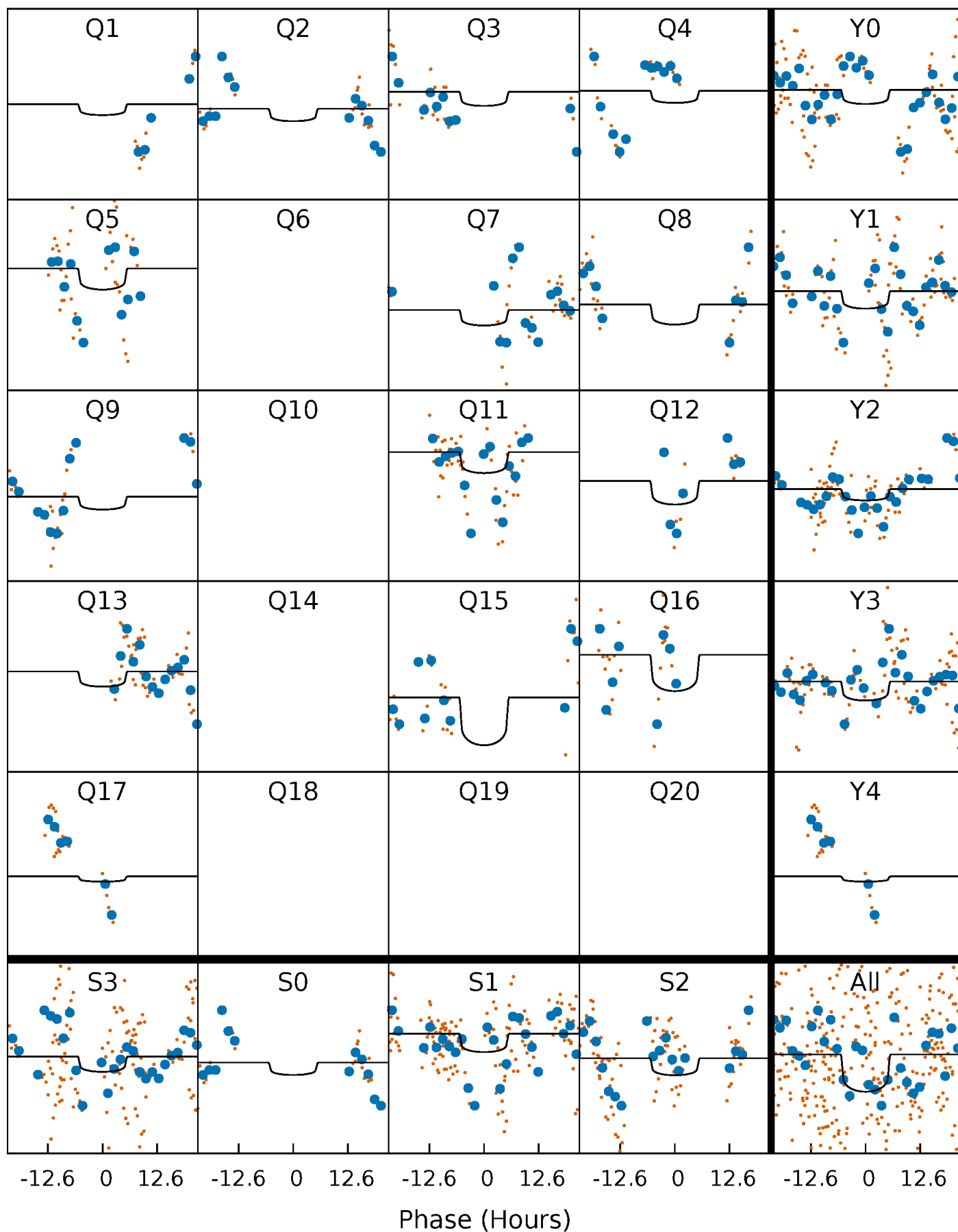
PDC Quarter-Phased Transit Curves

TCE 005019101-05 $P = 29.070887$ Days $T_0 = 137.614453$ (BKJD)



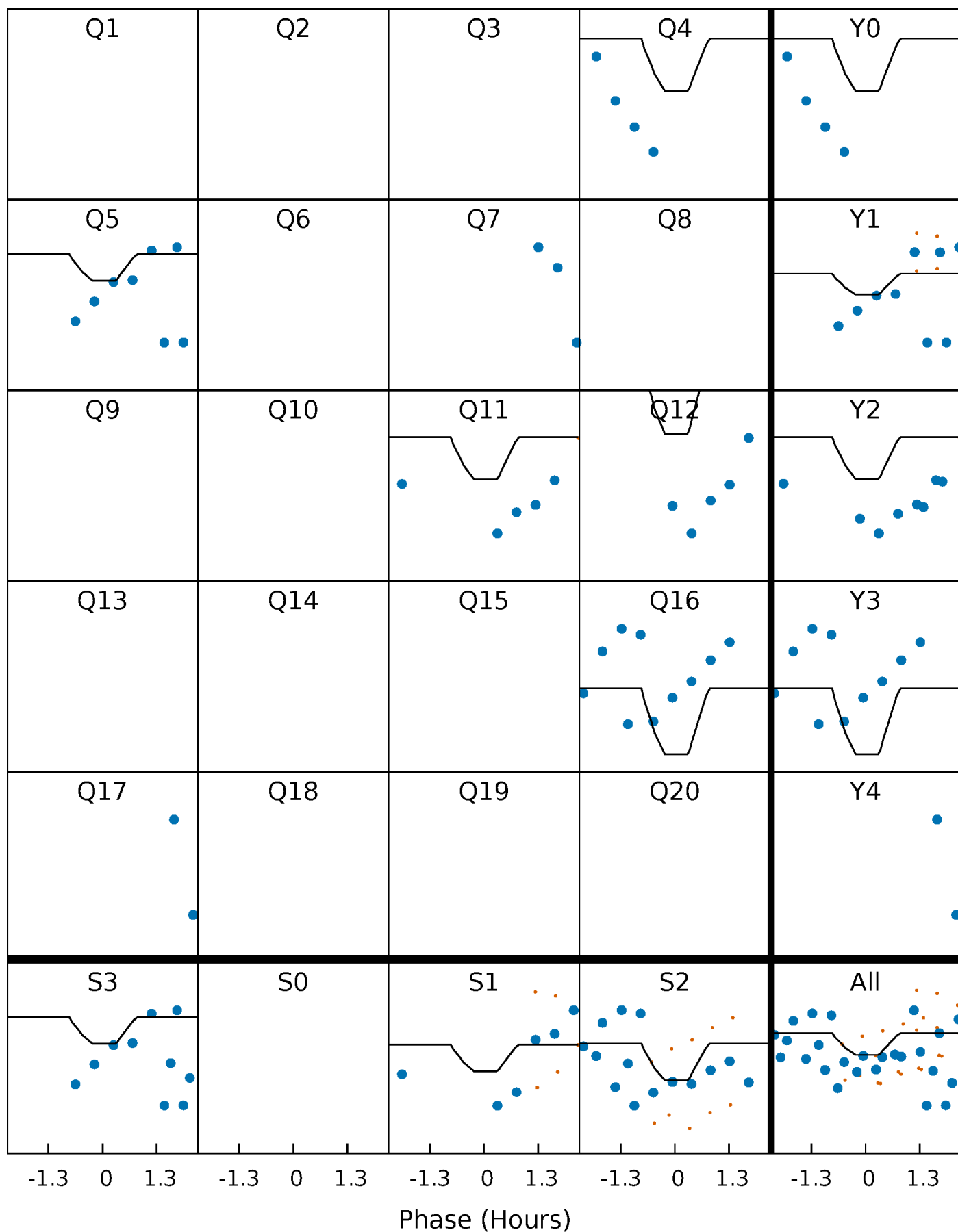
DV Quarter-Phased Transit Curves

TCE 005019101-05 P= 29.070887 Days $T_0=137.614453$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

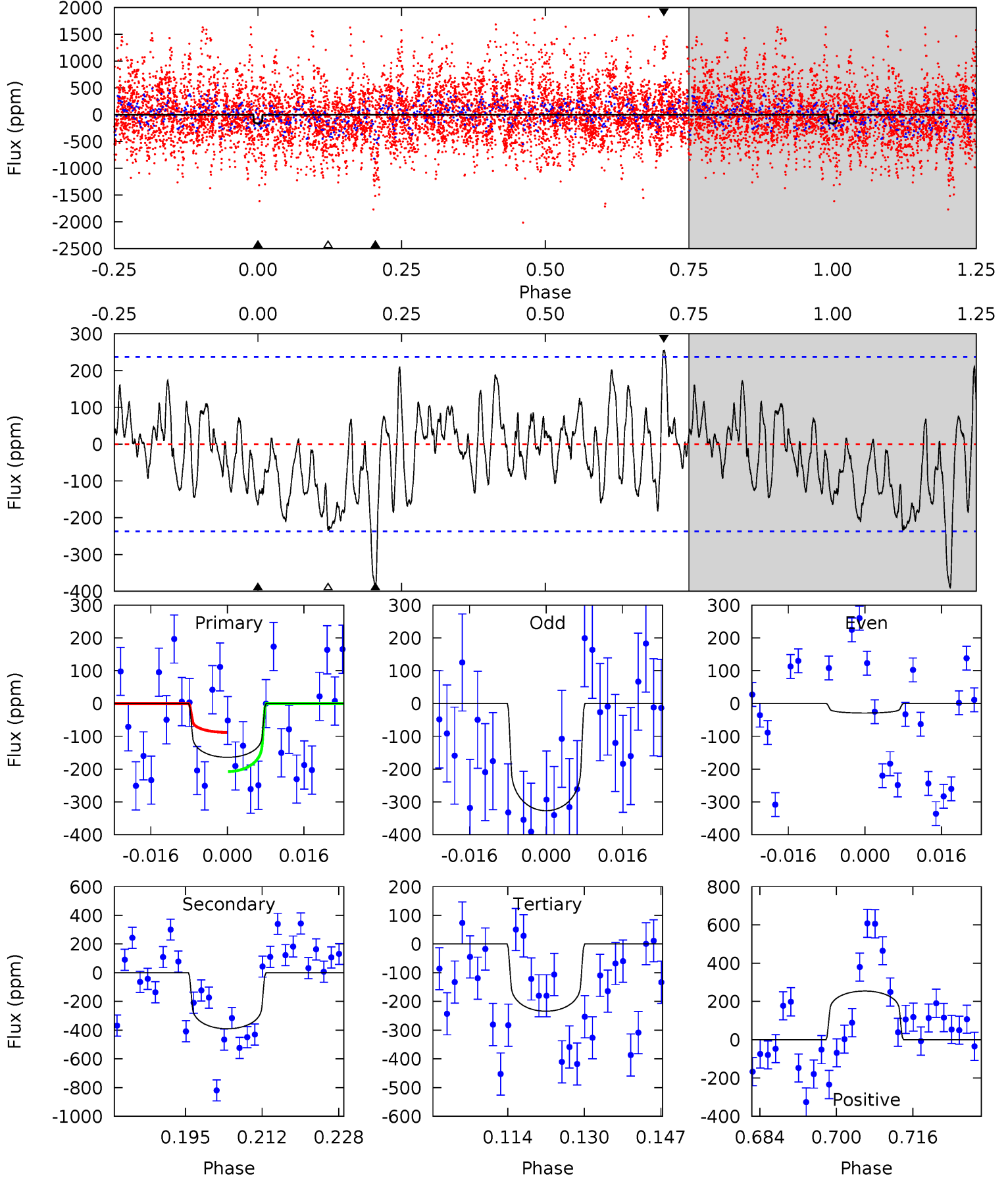
TCE 005019101-05 $P = 29.067409$ Days $T_0 = 137.715047$ (BKJD)



DV Model-Shift Uniqueness Test

005019101-05, $P = 29.070887$ Days, $E = 108.543566$ Days

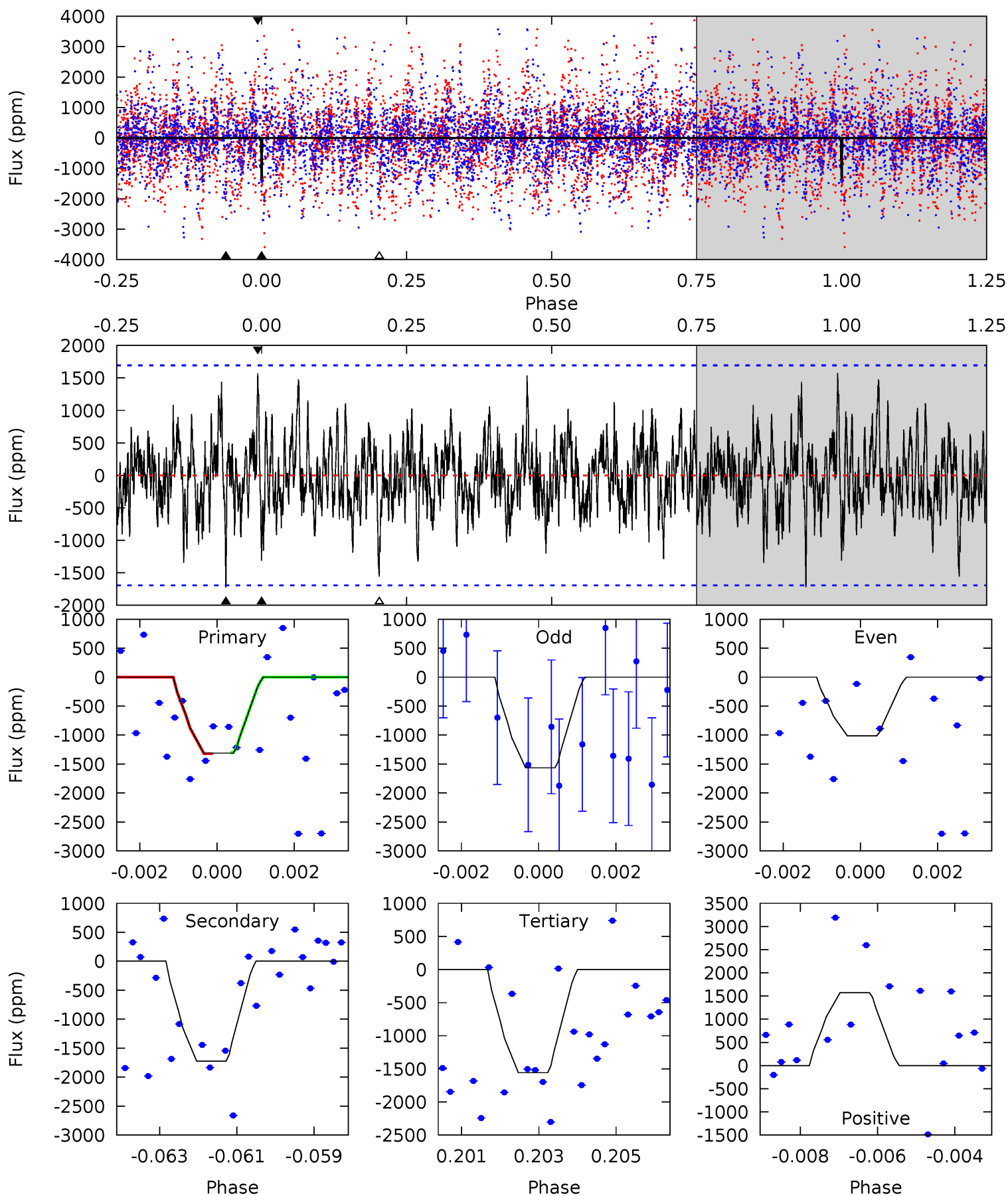
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
3.41	8.11	4.86	5.29	4.93	2.40	1.91	-1.45	-1.88	3.25	2.82	3.05	0.85	0.39	1.20



Alt Model-Shift Uniqueness Test

005019101-05, P = 29.067409 Days, E = 108.647638 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
4.13	5.43	4.90	4.94	5.32	3.09	1.37	-0.77	-0.82	0.53	0.48	0.85	0.83	0.48	0.03



Stellar Parameters For KIC 005019101

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	7022^{+169}_{-254}	$2.998^{+0.595}_{-0.105}$	$0.070^{+0.200}_{-0.450}$	$9.213^{+1.026}_{-5.474}$	$3.080^{+0.203}_{-1.148}$	$0.006^{+0.049}_{-0.002}$
	+2%/-4%	+20%/-4%	+286%/-643%	+11%/-59%	+7%/-37%	+879%/-34%
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 005019101-05 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-390 ± 48	$16.33^{+14.58}_{-11.21}$	2464^{+164}_{-339}	7181^{+9461}_{-1836}	58^{+530}_{-41}
Alt.	-1726 ± 318	$25.37^{+18.30}_{-13.85}$	2474^{+169}_{-355}	8603^{+6365}_{-2049}	102^{+384}_{-66}

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 $A_{obs} \gg 1.0$

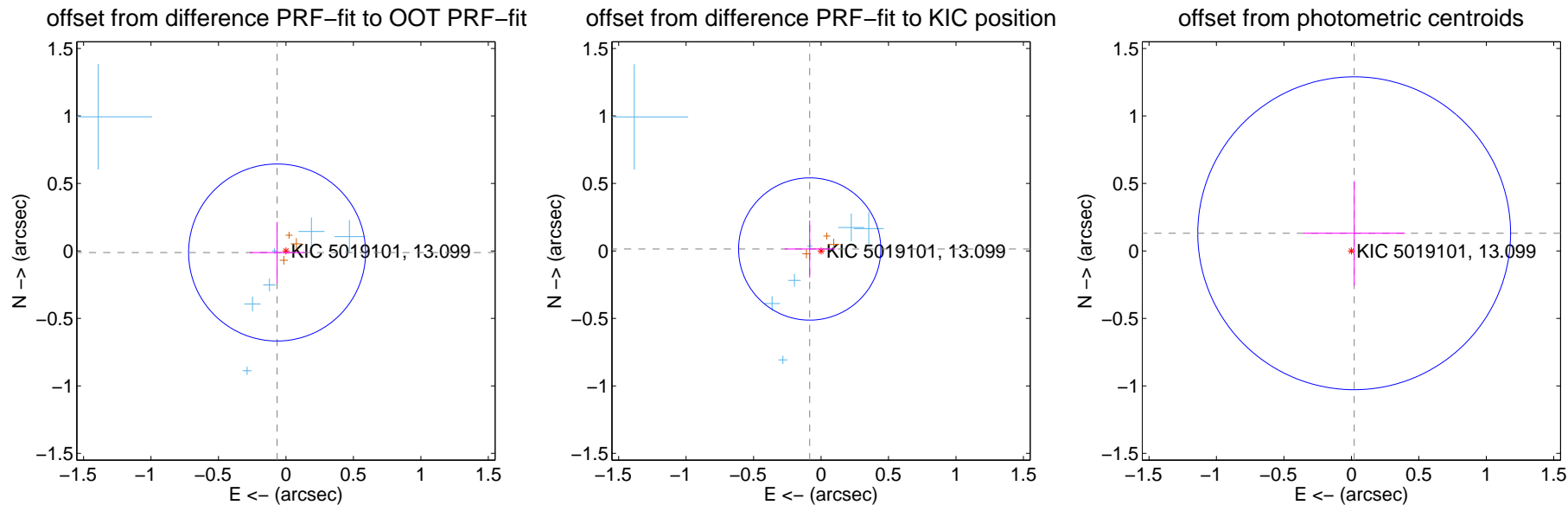
DV Centroid Data

Supplemental centroid analysis for 005019101-05. Kepler magnitude: 13.10. Transit SNR 3.16

There are 8 quarters with good PRF difference image offsets

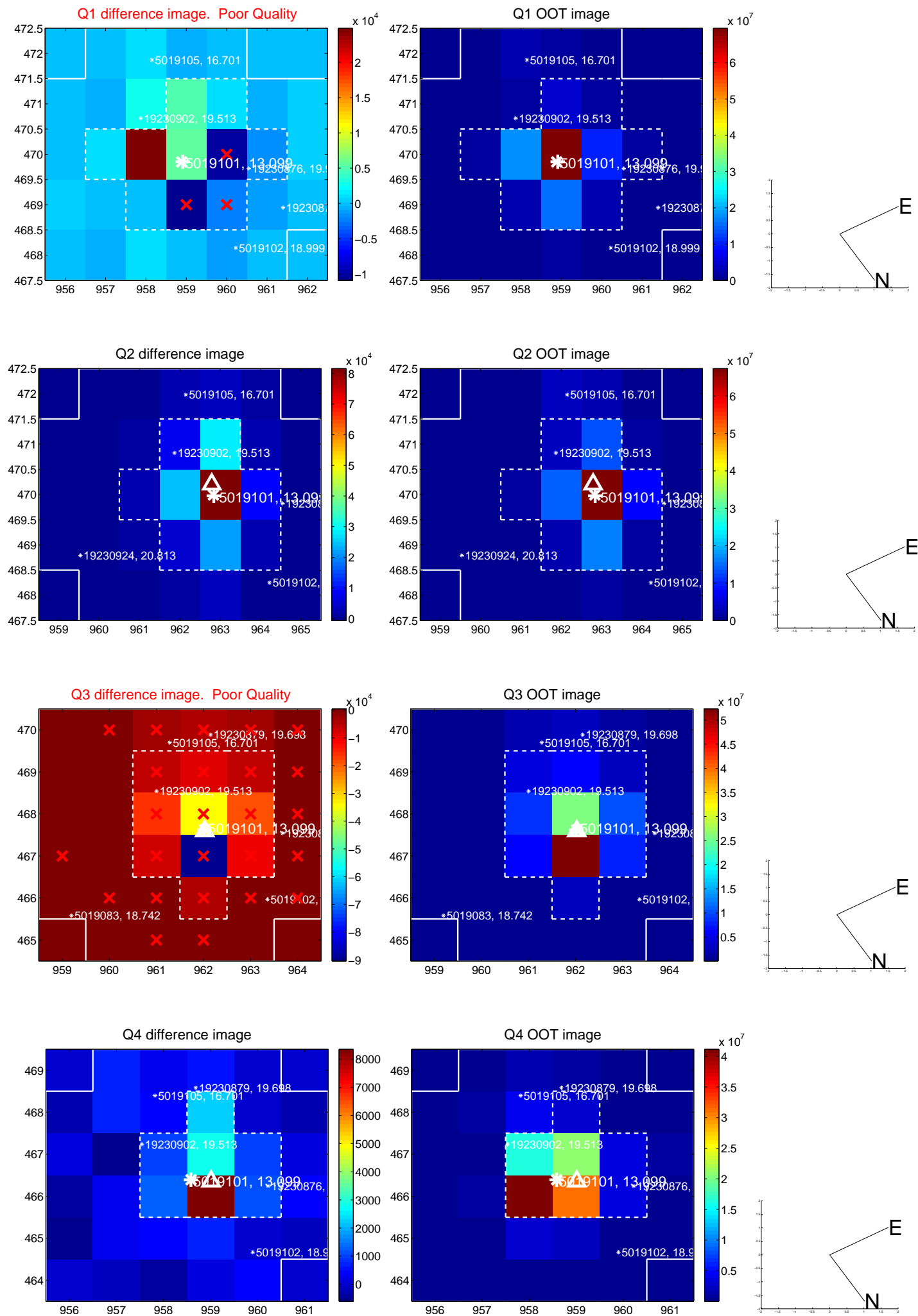
The direct PRF centroid is offset from the target star catalog position by about 0.12 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.067 ± 0.219	0.31	0.066 ± 0.205	-0.012 ± 0.227
PRF-fit source offset from KIC position	0.085 ± 0.176	0.48	0.084 ± 0.187	0.014 ± 0.211
photometric centroid source offset	0.13 ± 0.39	0.34	-0.02 ± 0.38	0.13 ± 0.39

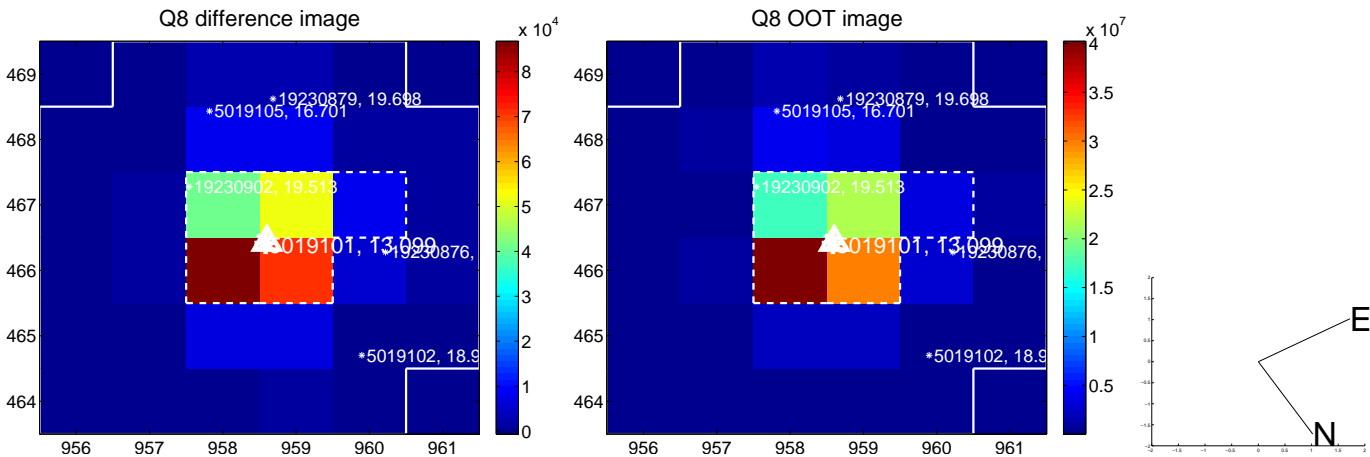
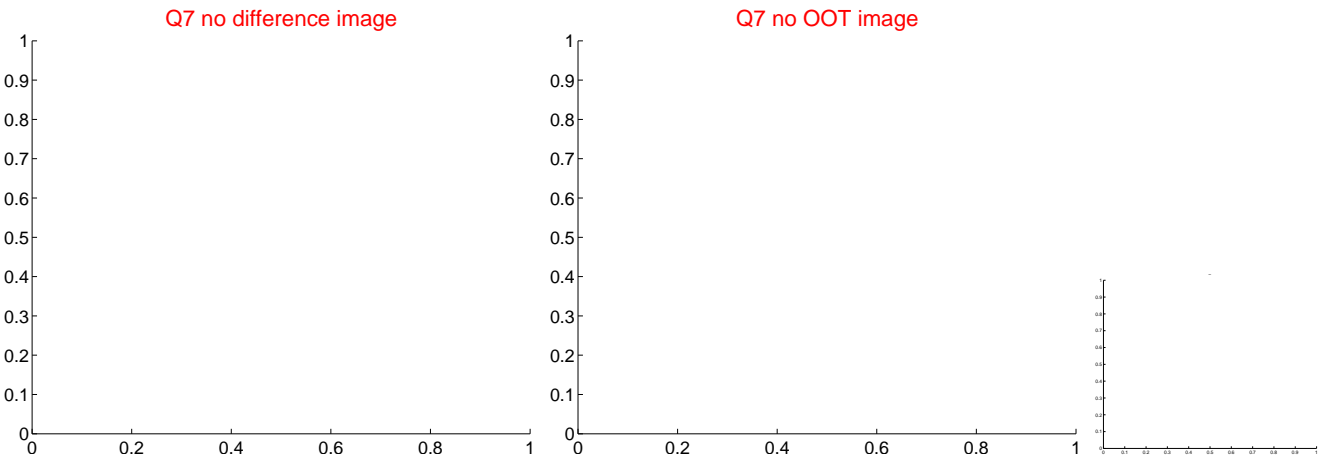
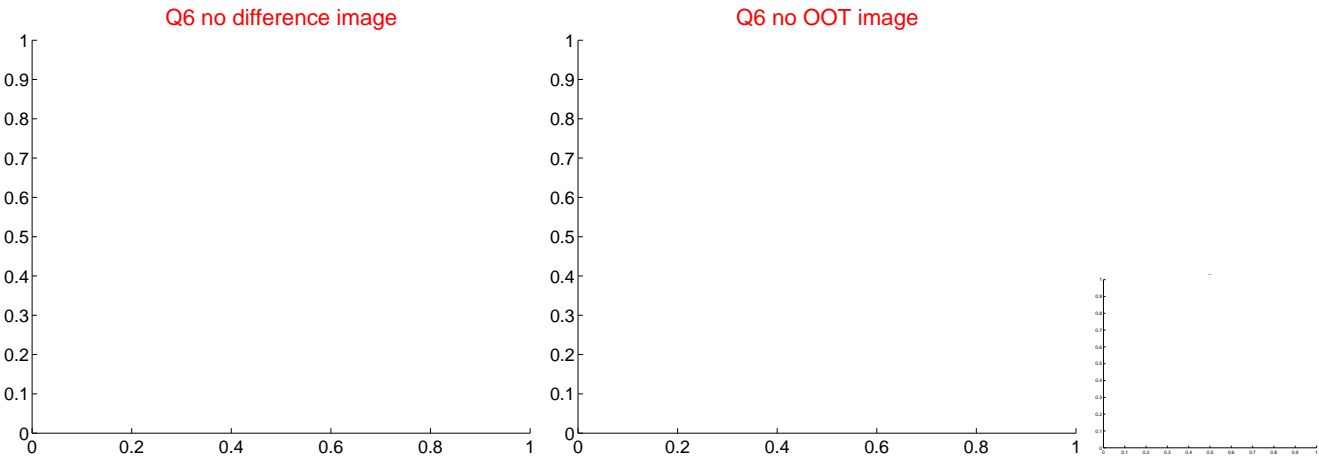
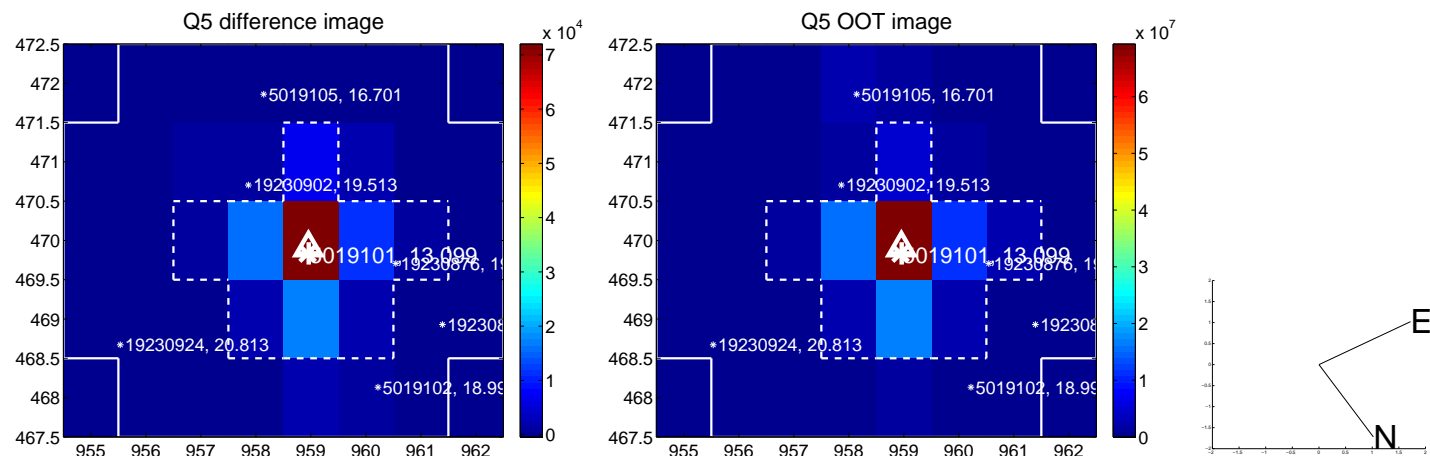


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

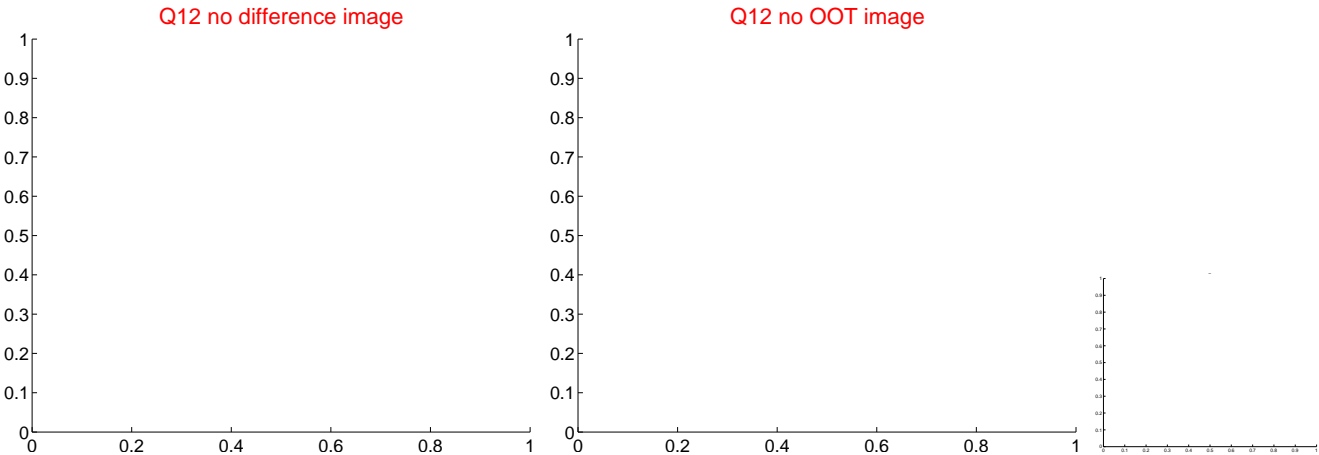
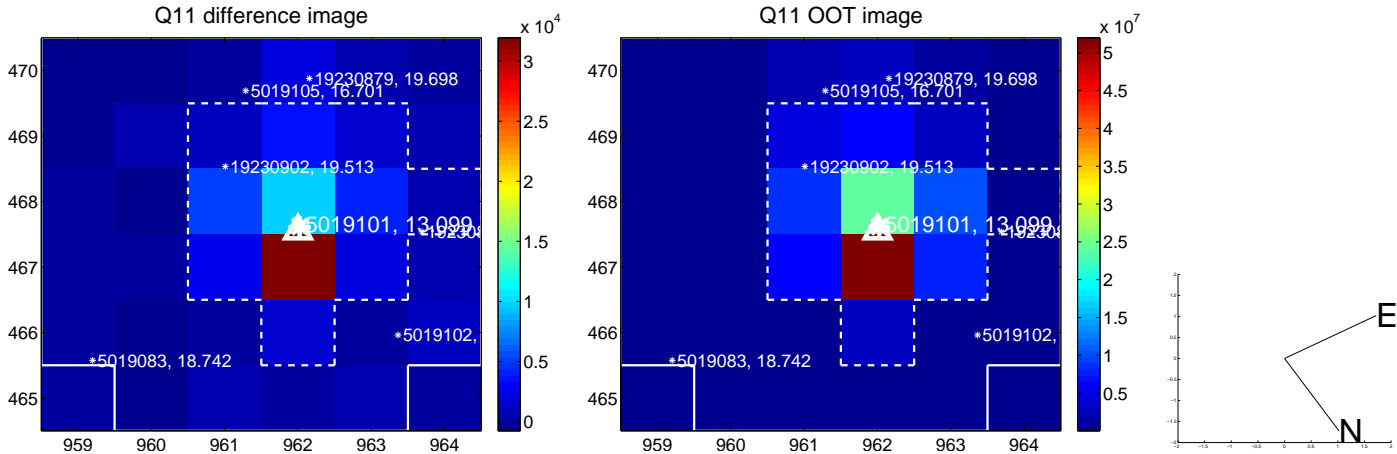
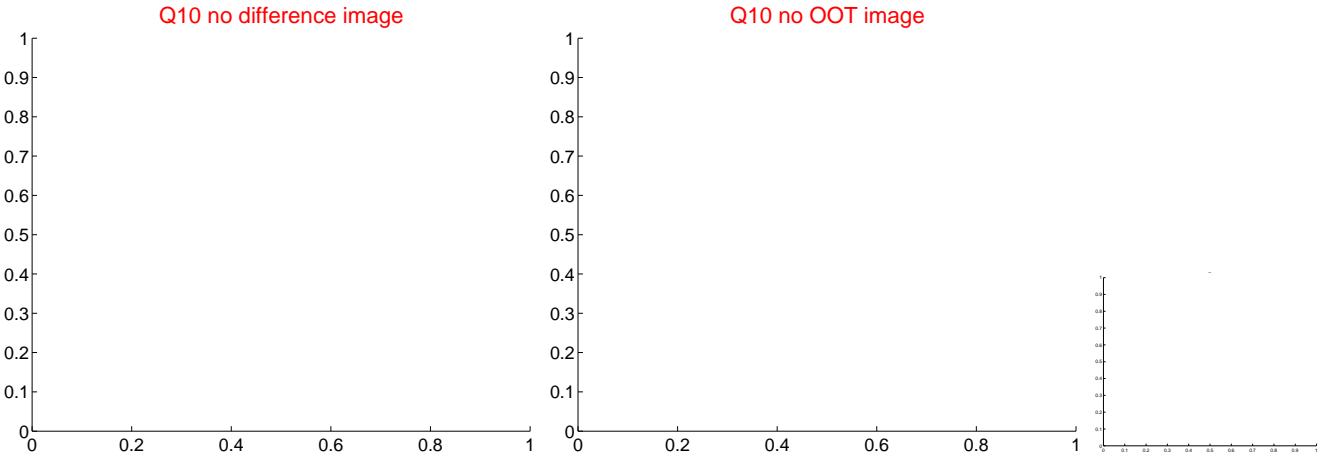
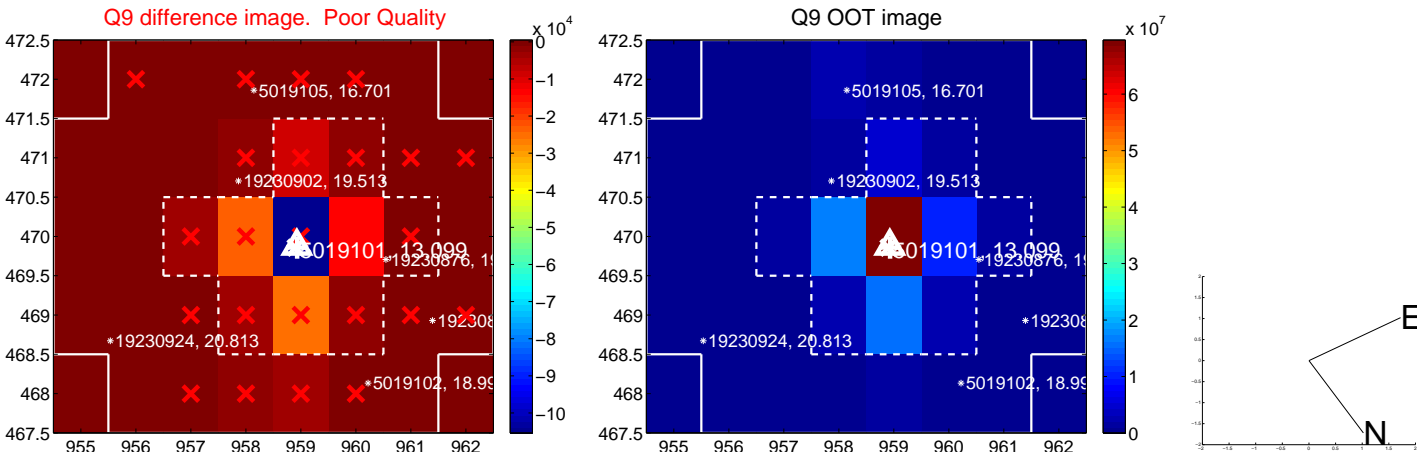
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



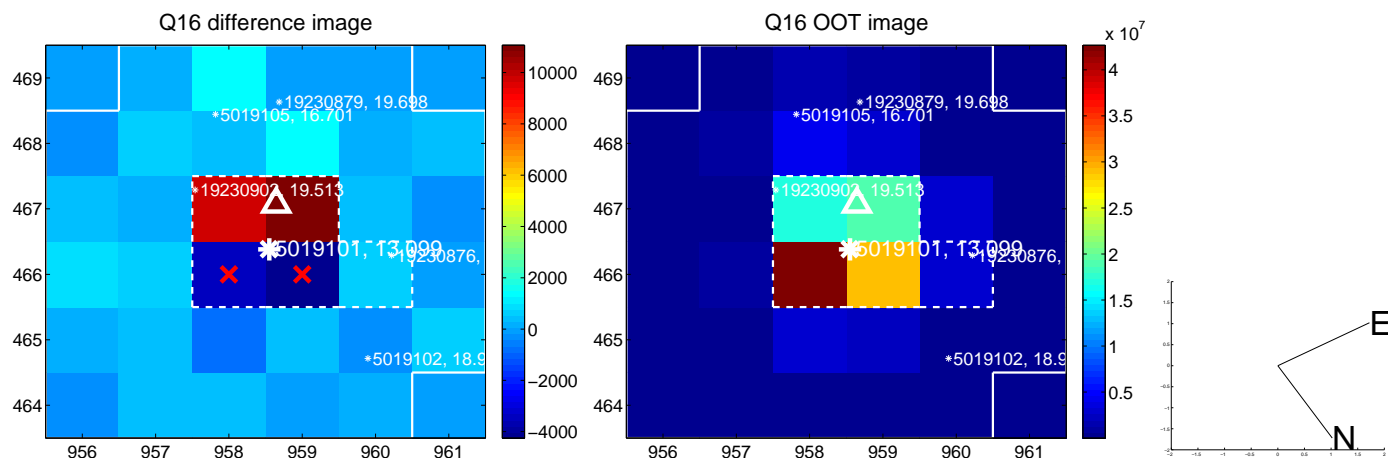
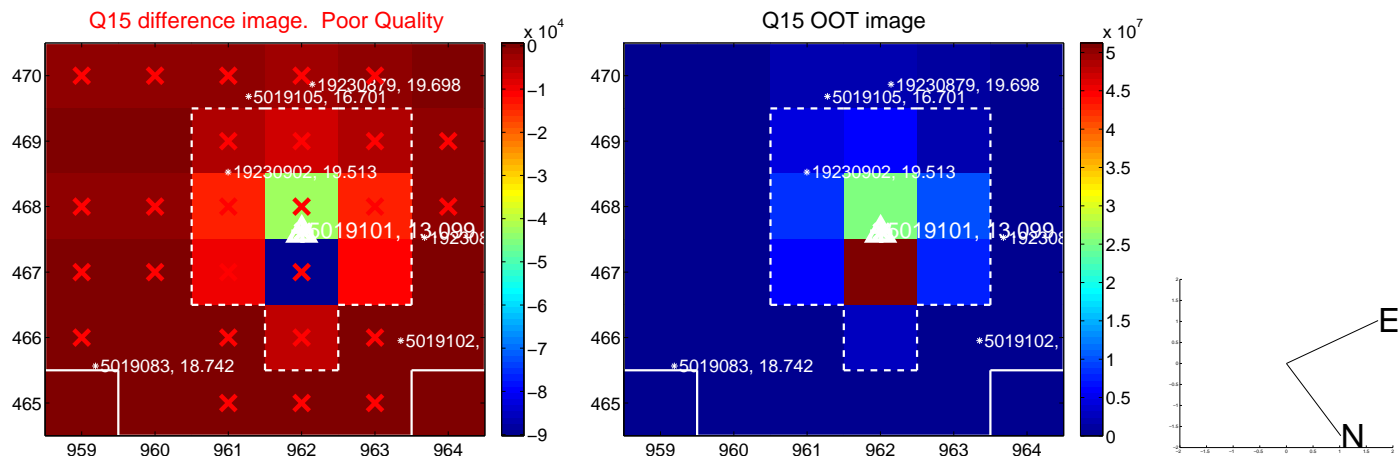
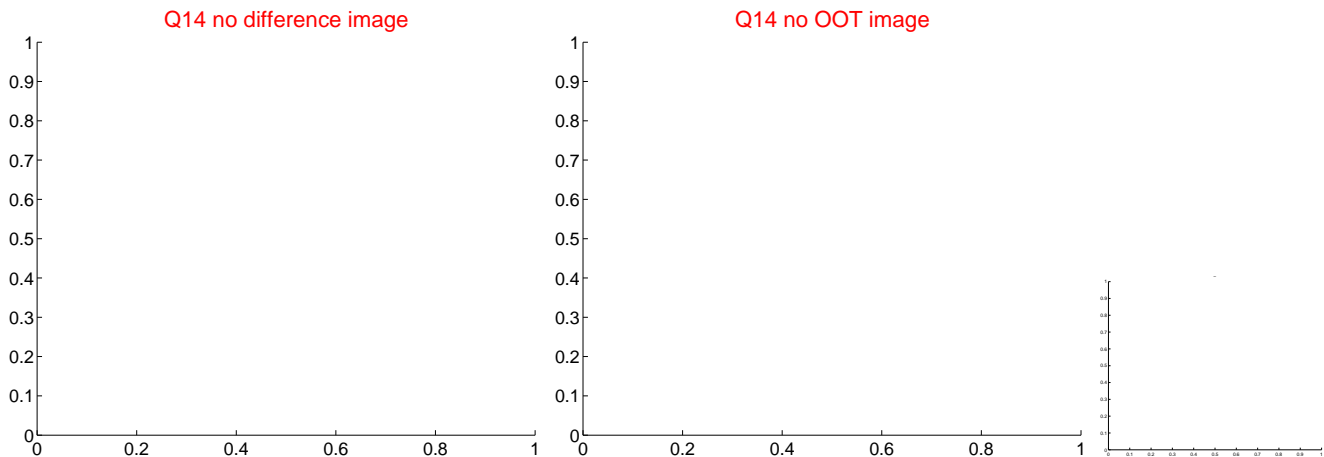
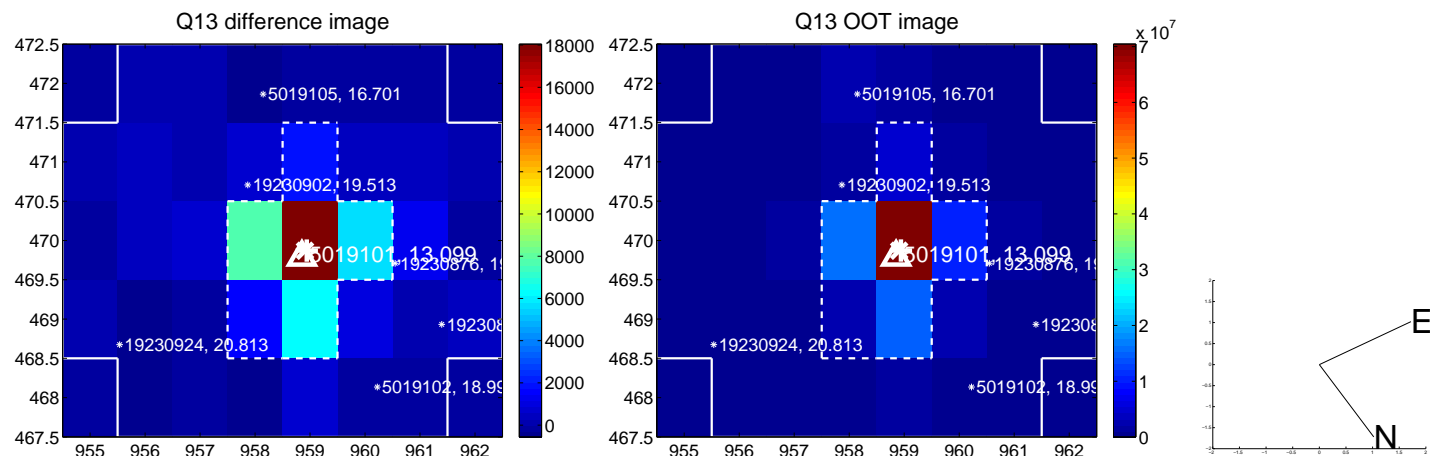
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



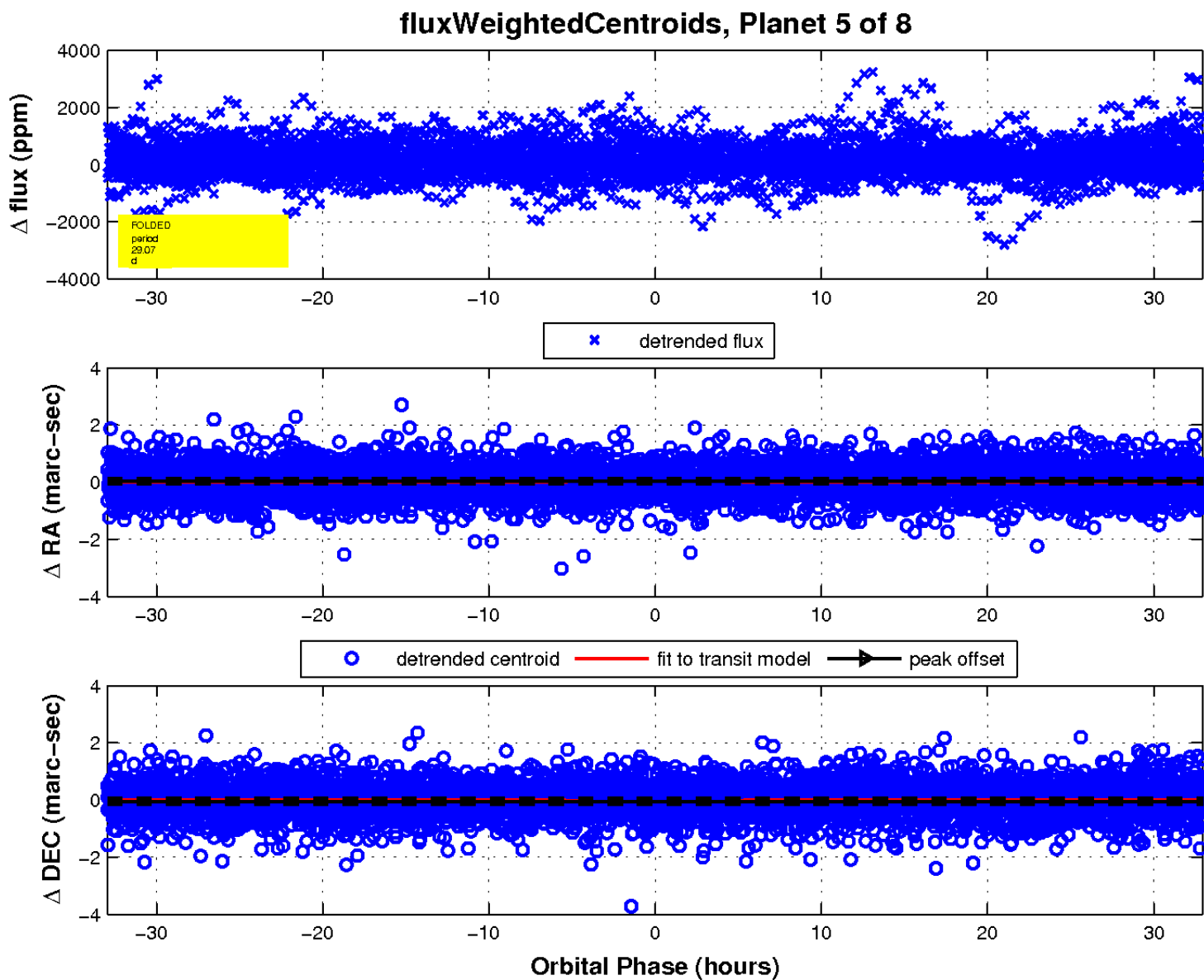
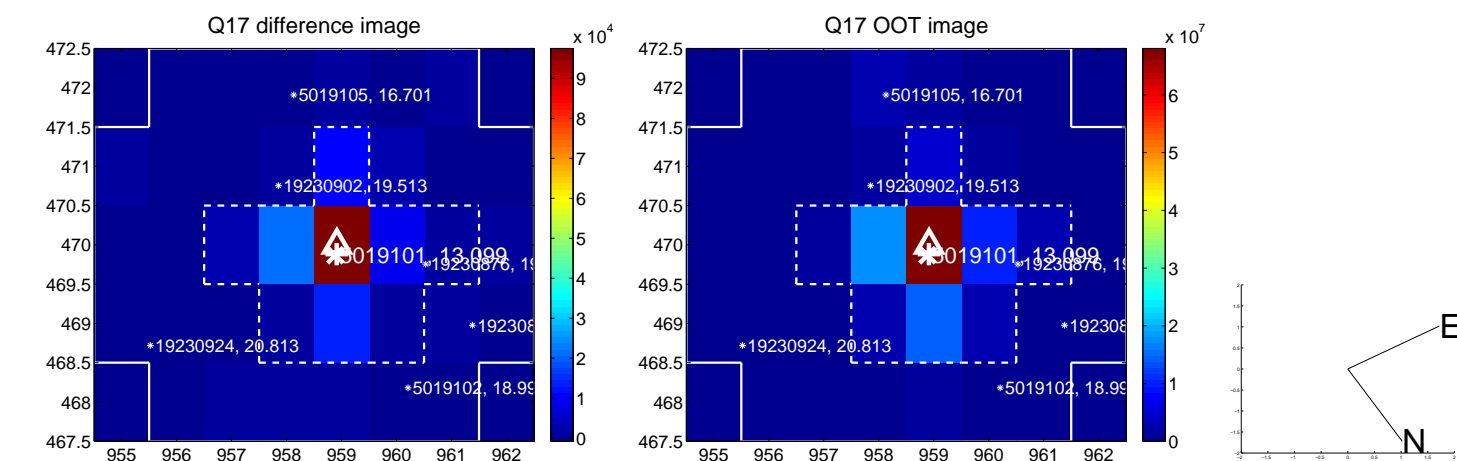
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

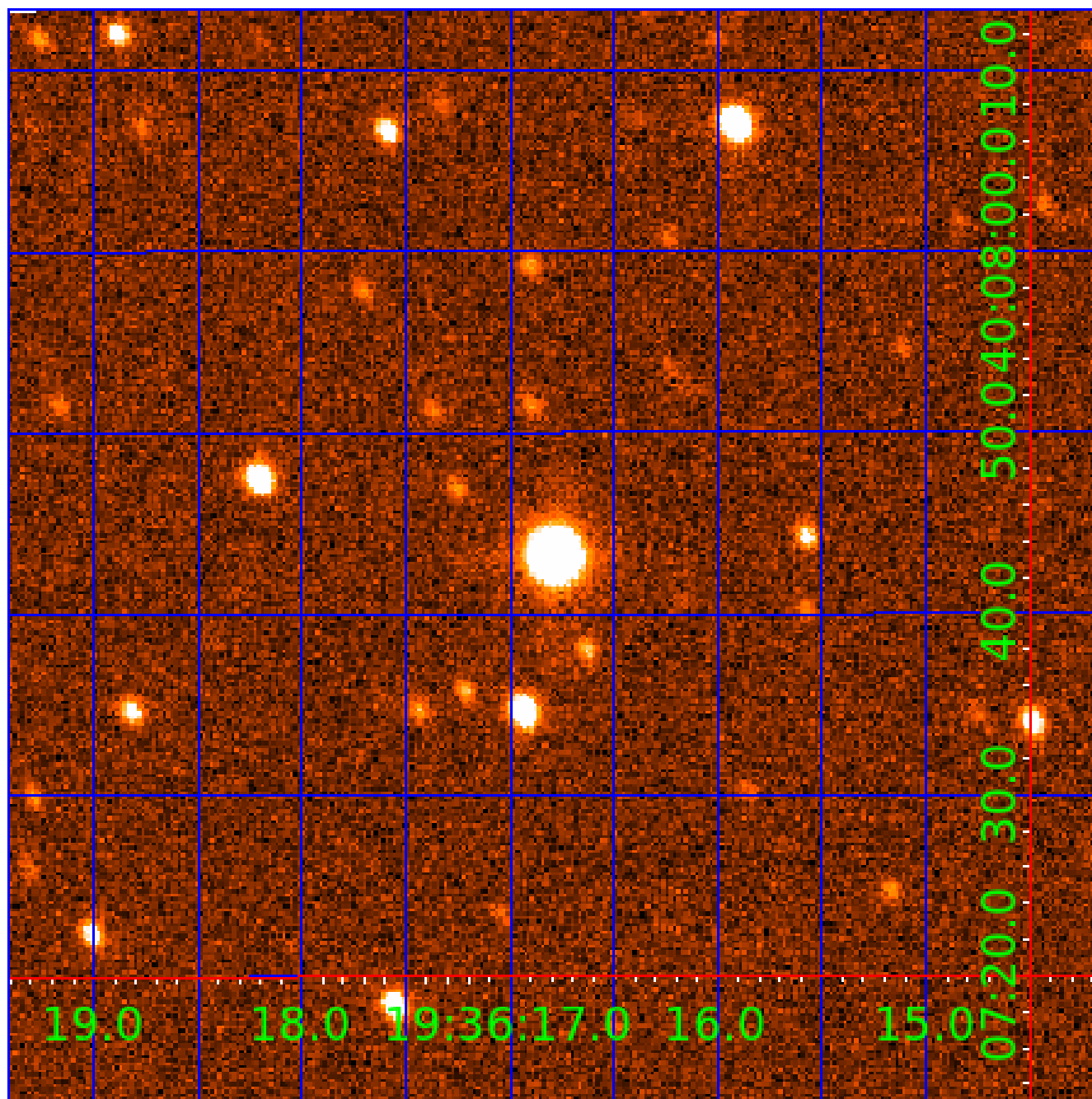


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 005019101

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})
005019101-01	OBS	No	1.944804	133.400192	81.8	10.018	8.9	7.6	9.21	7022	10.86	93865.07
005019101-02	OBS	No	154.064988	237.129171	1013.7	12.058	20.3	10.3	9.21	7022	33.18	275.89
005019101-03	OBS	No	1.944842	132.419527	515.6	3.000	18.7	-1.0	9.21	7022	21.09	93862.62
005019101-04	OBS	No	67.470131	156.235190	1634.3	10.638	11.5	11.0	9.21	7022	68.65	829.58
005019101-05	OBS	No	29.070887	137.614453	220.5	10.984	11.4	3.2	9.21	7022	14.19	2549.14
005019101-06	OBS	No	37.365135	156.266285	641.1	3.052	10.4	9.5	9.21	7022	24.77	1824.10
005019101-08	OBS	No	18.844596	145.884905	417.6	4.424	8.6	6.9	9.21	7022	21.45	4543.84

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005019101-01	OBS	FP	0.00	1	0	0	0	SWEET_NTL—LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT
005019101-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—INCONSISTENT_TRANS
005019101-03	OBS	FP	0.00	1	0	0	0	SWEET_NTL—LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—SAME_NTL_PERIOD—CENT_NOFITS
005019101-04	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_DIFFS—HALO_GHOST
005019101-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
005019101-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
005019101-08	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT

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

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

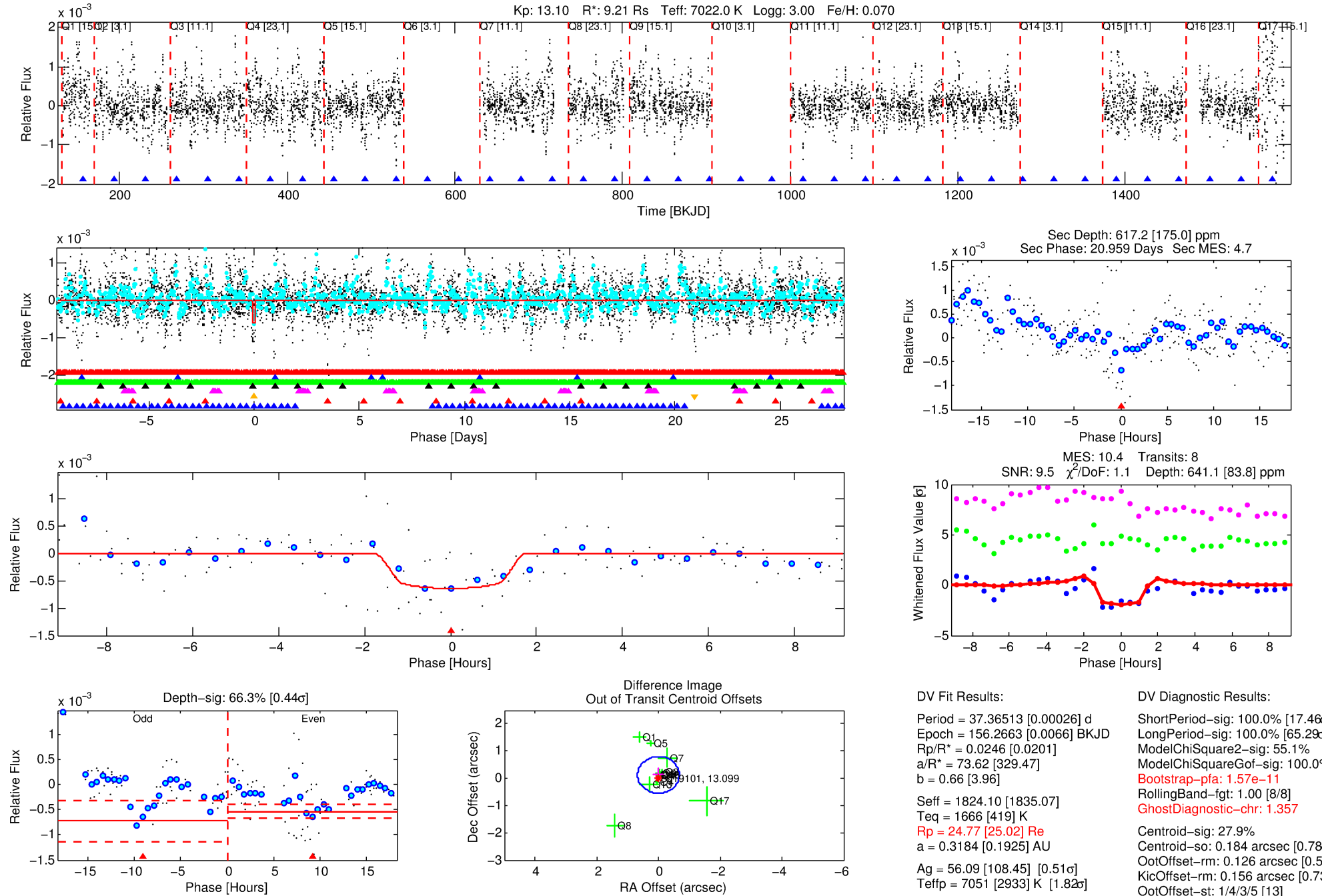
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 005019101-06

No Significant Match Found

DV One-Page Summary

KIC: 5019101 Candidate: 6 of 8 Period: 37.365 d



DV Fit Results:

Period = 37.36513 [0.00026] d
Epoch = 156.2663 [0.0066] BKJD
Rp/R* = 0.0246 [0.0201]
a/R* = 73.62 [329.47]
b = 0.66 [3.96]
Seff = 1824.10 [1835.07]
Teff = 1666 [419] K
Rp = 24.77 [25.02] Re
a = 0.3184 [0.1925] AU
Ag = 56.09 [108.45] [0.51 σ]
Teffp = 7051 [2933] K [1.82 σ]

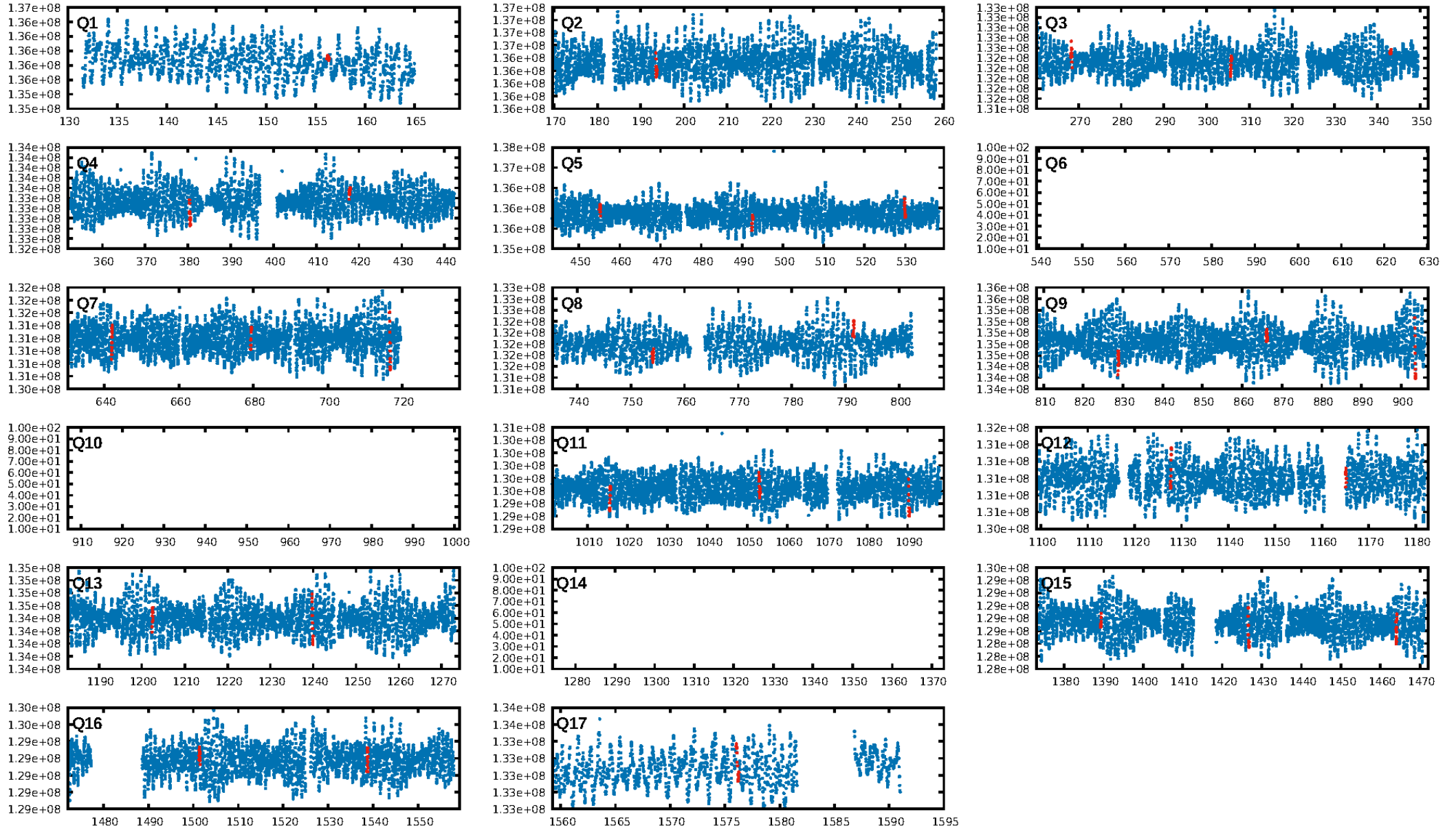
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [17.46 σ]
LongPeriod-sig: 100.0% [65.29 σ]
ModelChiSquare2-sig: 55.1%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 1.57e-11
RollingBand-fgt: 1.00 [8/8]
GhostDiagnostic-chr: 1.357
Centroid-sig: 27.9%
Centroid-so: 0.184 arcsec [0.78 σ]
OotOffset-rm: 0.126 arcsec [0.56 σ]
KicOffset-rm: 0.156 arcsec [0.73 σ]
OotOffset-st: 1/4/3/5 [13]
KicOffset-st: 1/4/3/5 [13]
DiffImageQuality-fgm: 0.69 [9/13]
DiffImageOverlap-fno: 0.00 [0/13]

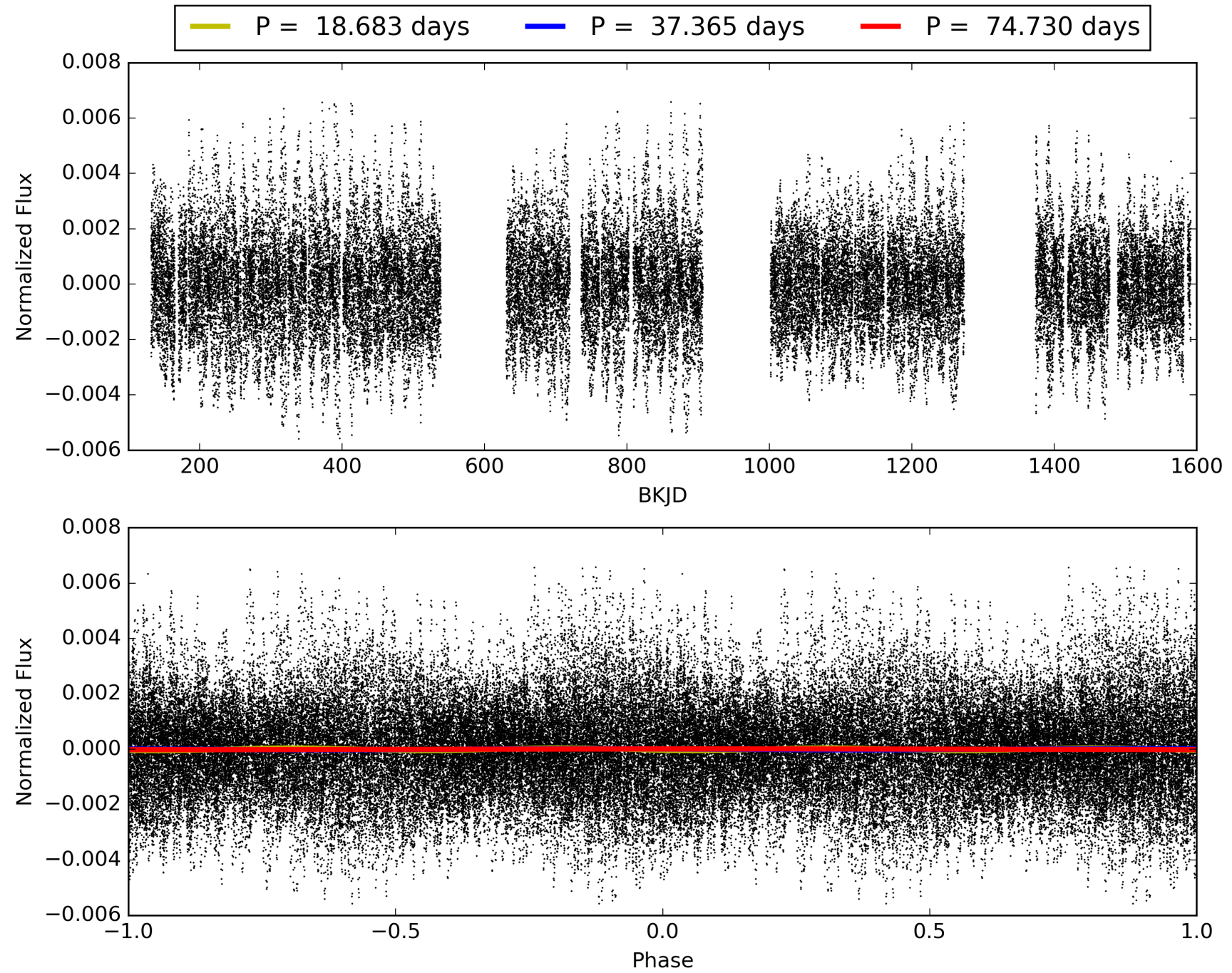
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 12:03:32 Z

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

TCE 005019101-06, PDC Light Curves

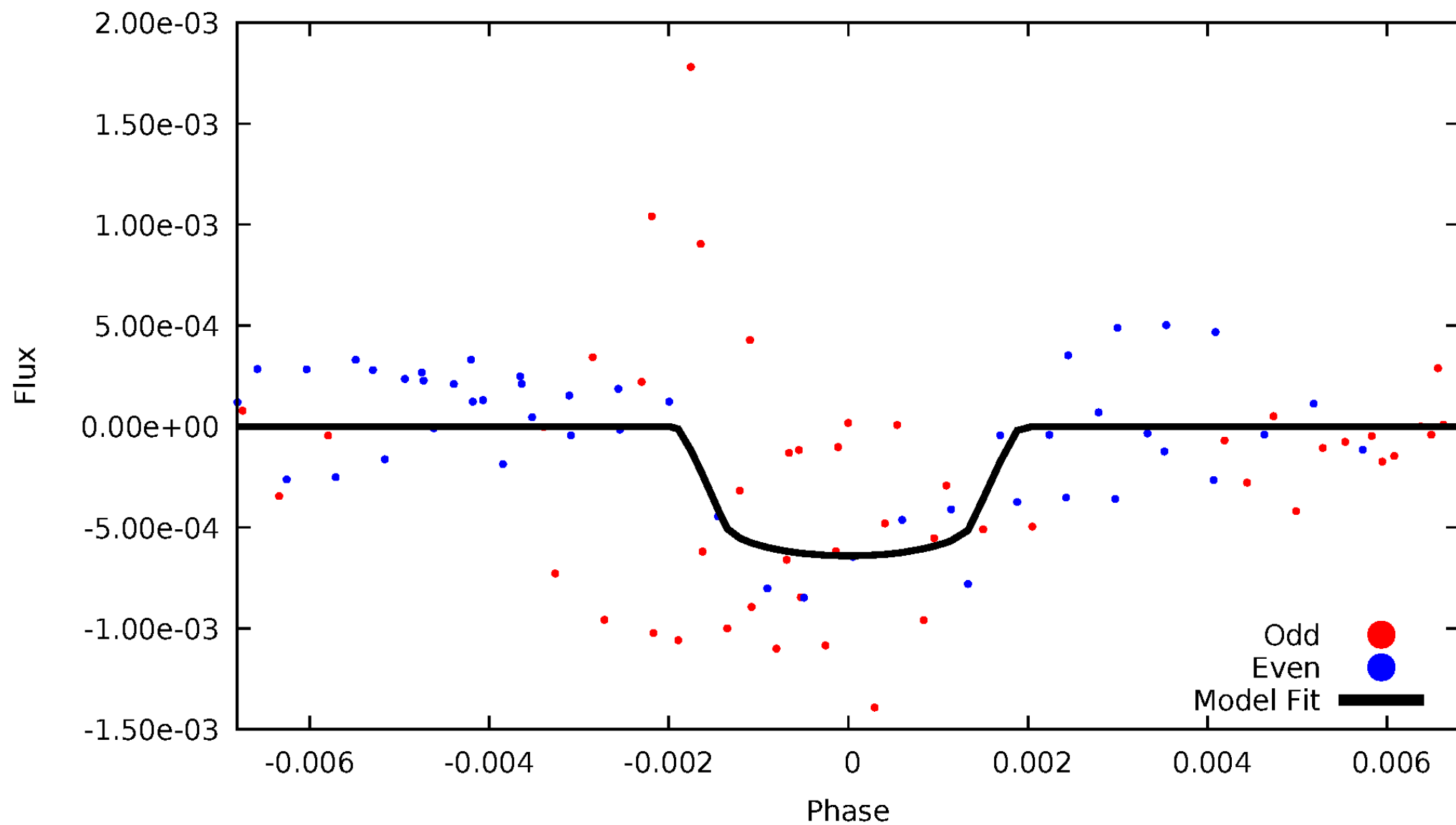


TCE 005019101-06



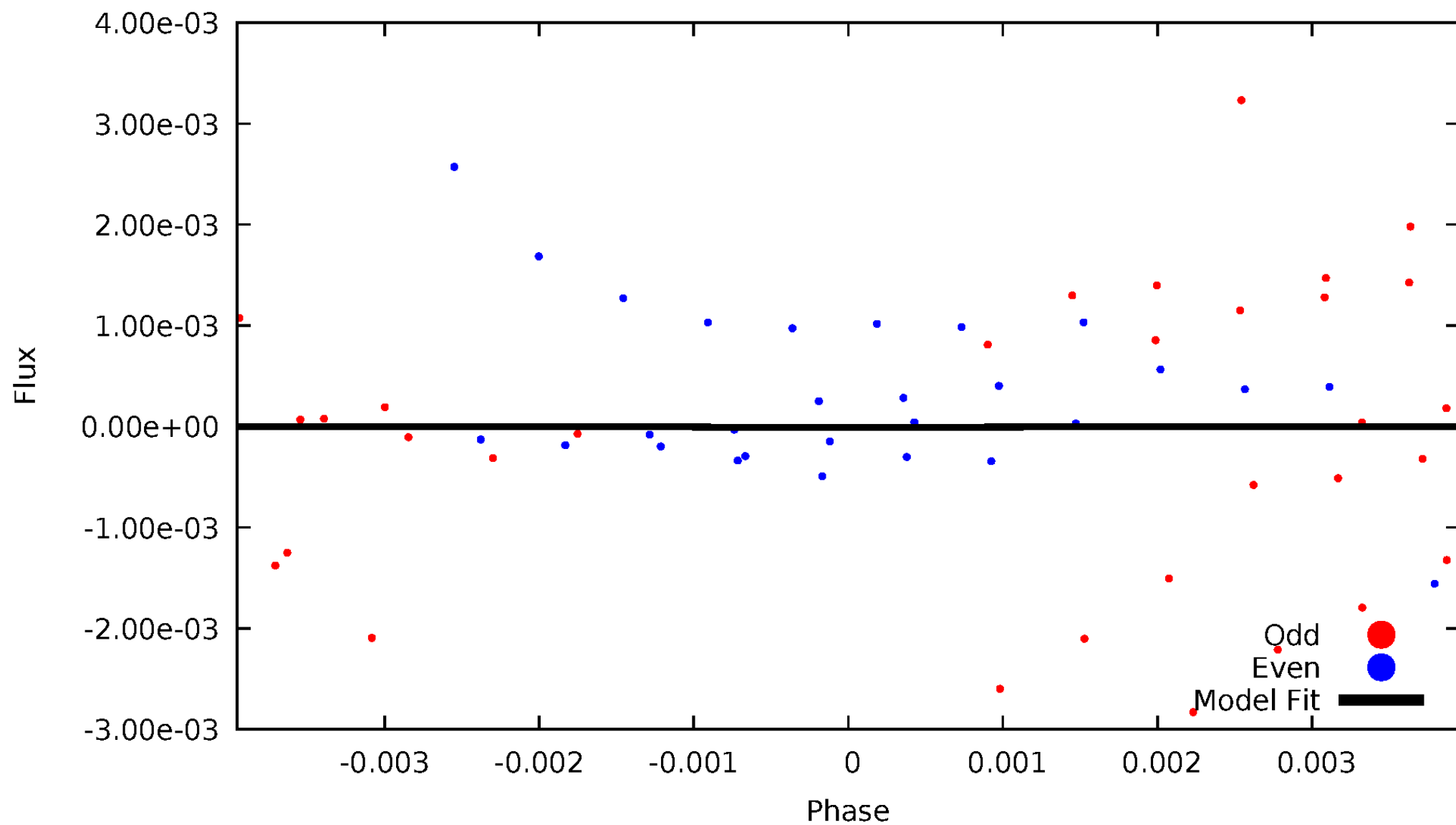
DV Odd/Even

TCE 005019101-06



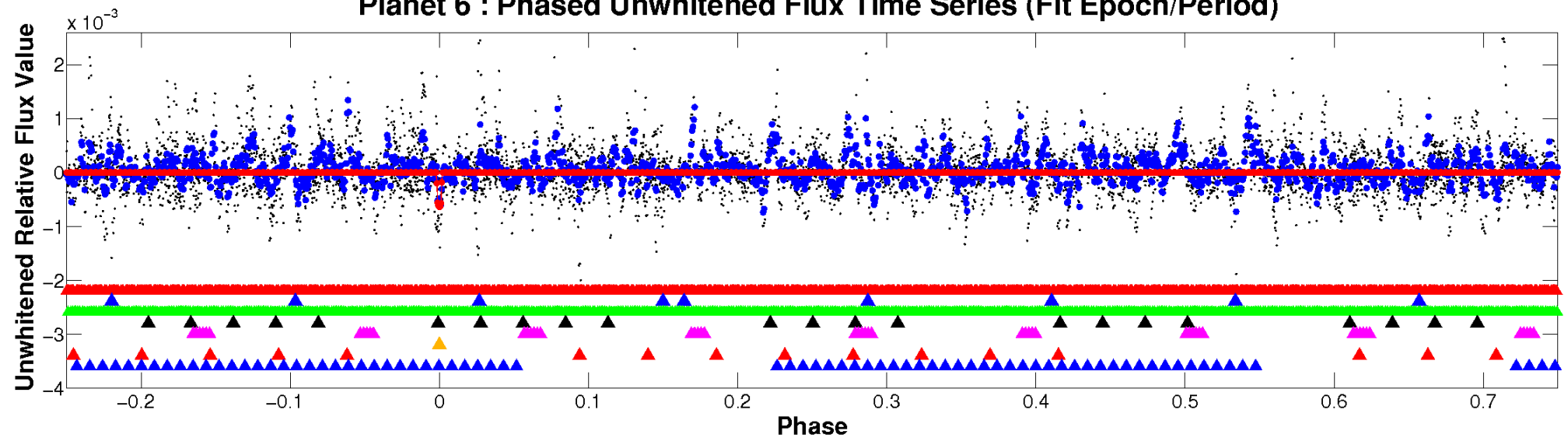
ALT Odd/Even

TCE 005019101-06

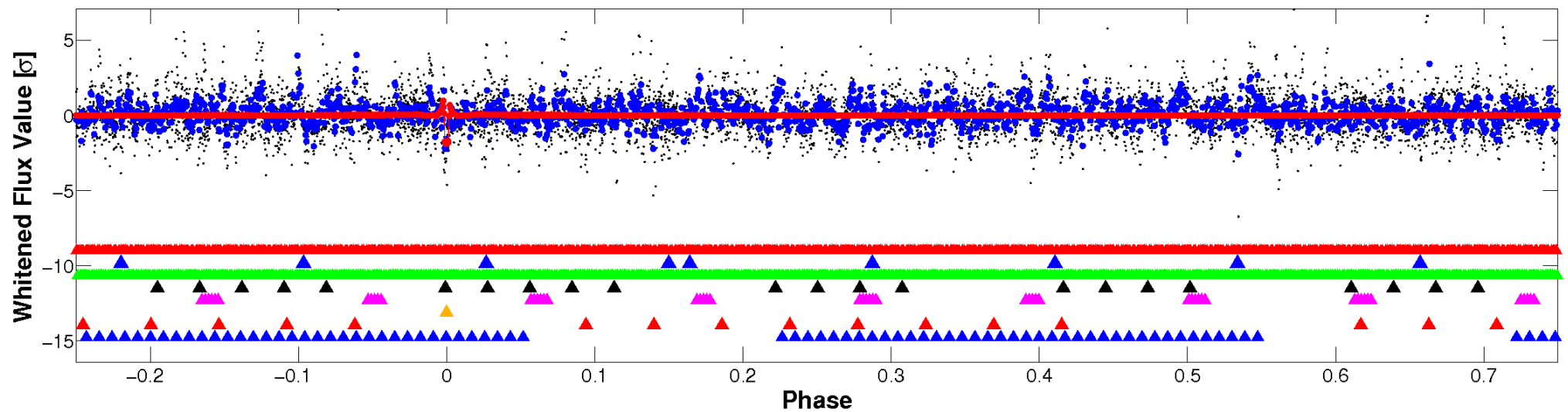


Non-Whitened Vs. Whitened Light Curve

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

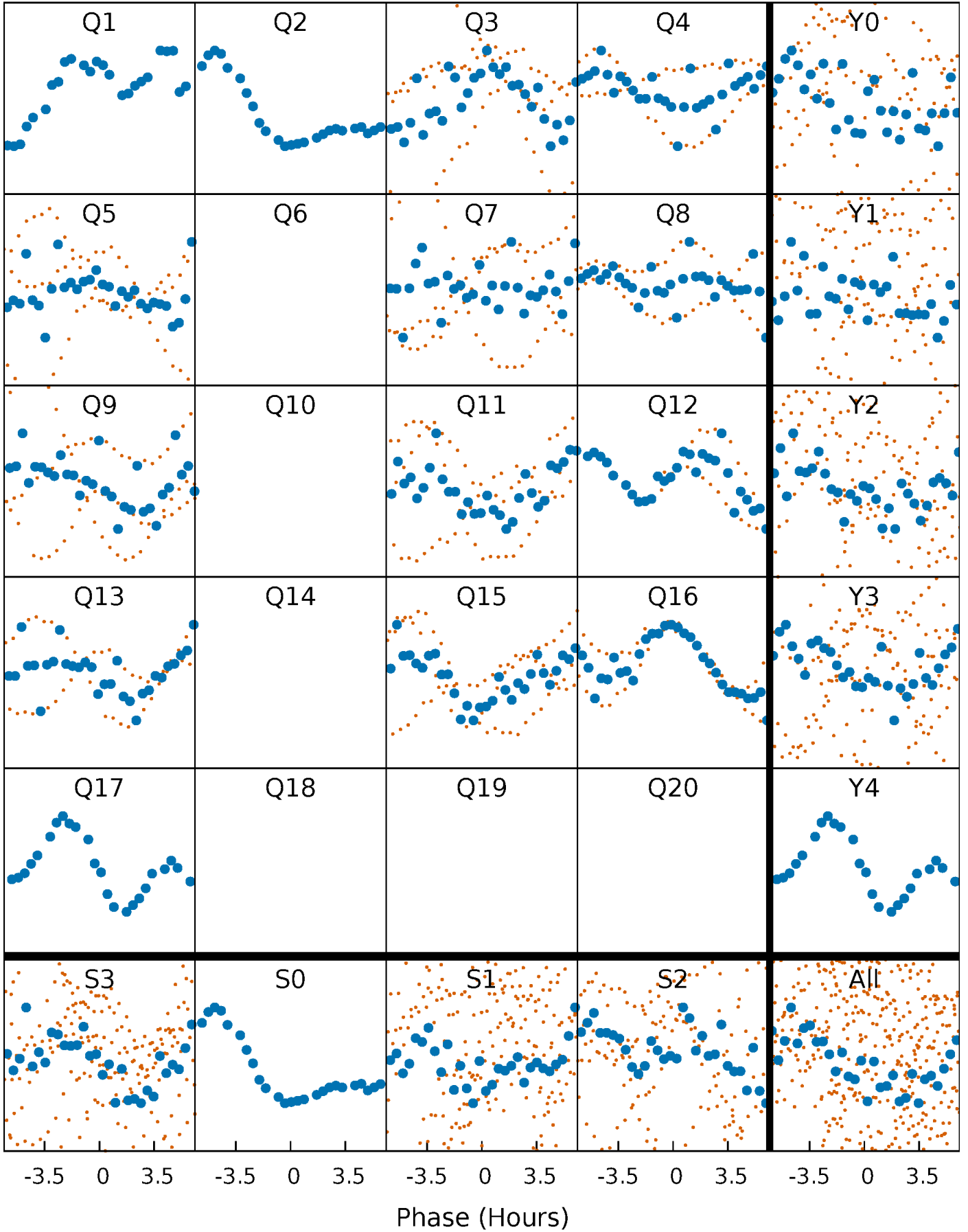


Planet 6 : Phased Whitened Flux Time Series (Fit Epoch/Period)



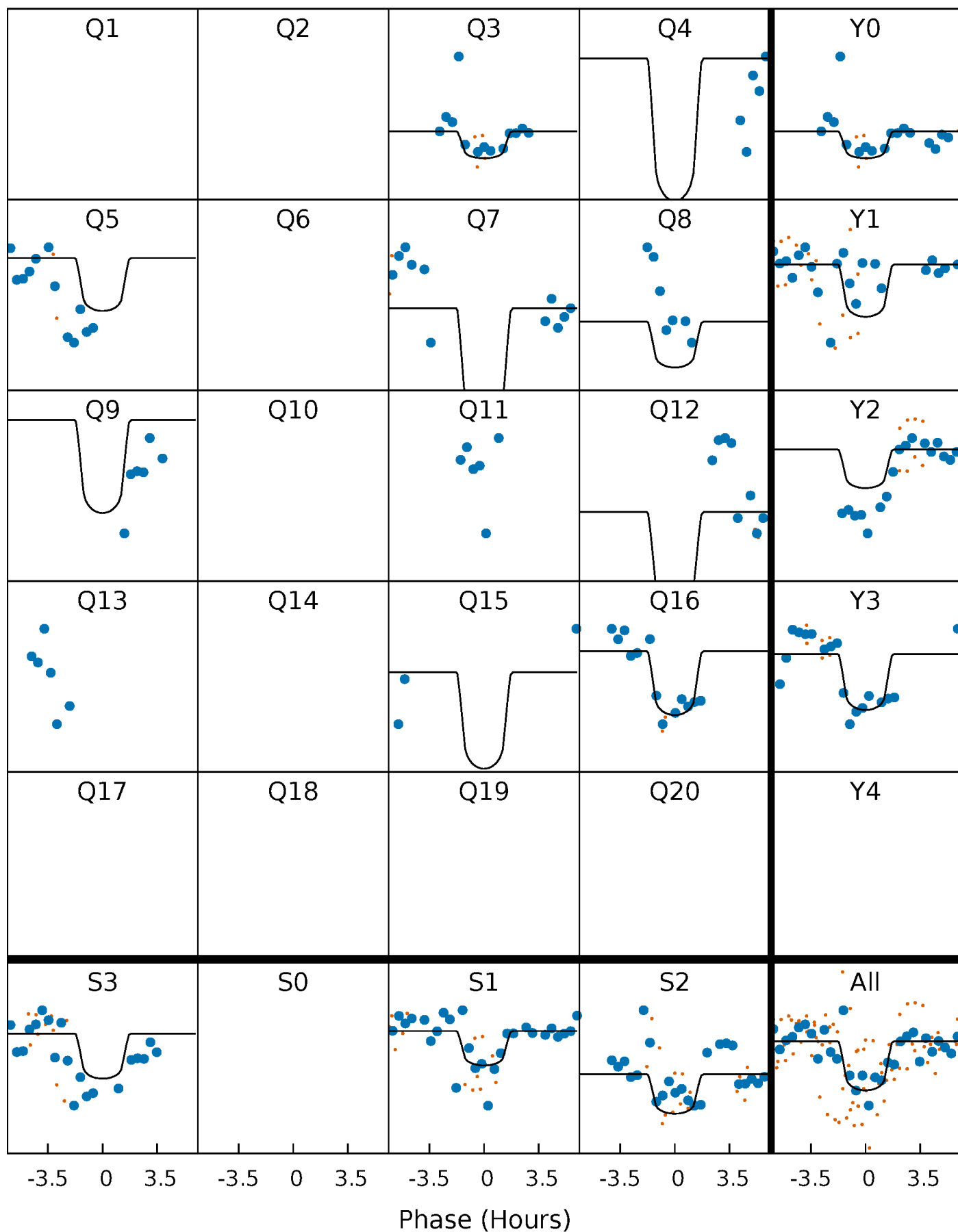
PDC Quarter-Phased Transit Curves

TCE 005019101-06 P= 37.365135 Days $T_0=156.266285$ (BKJD)



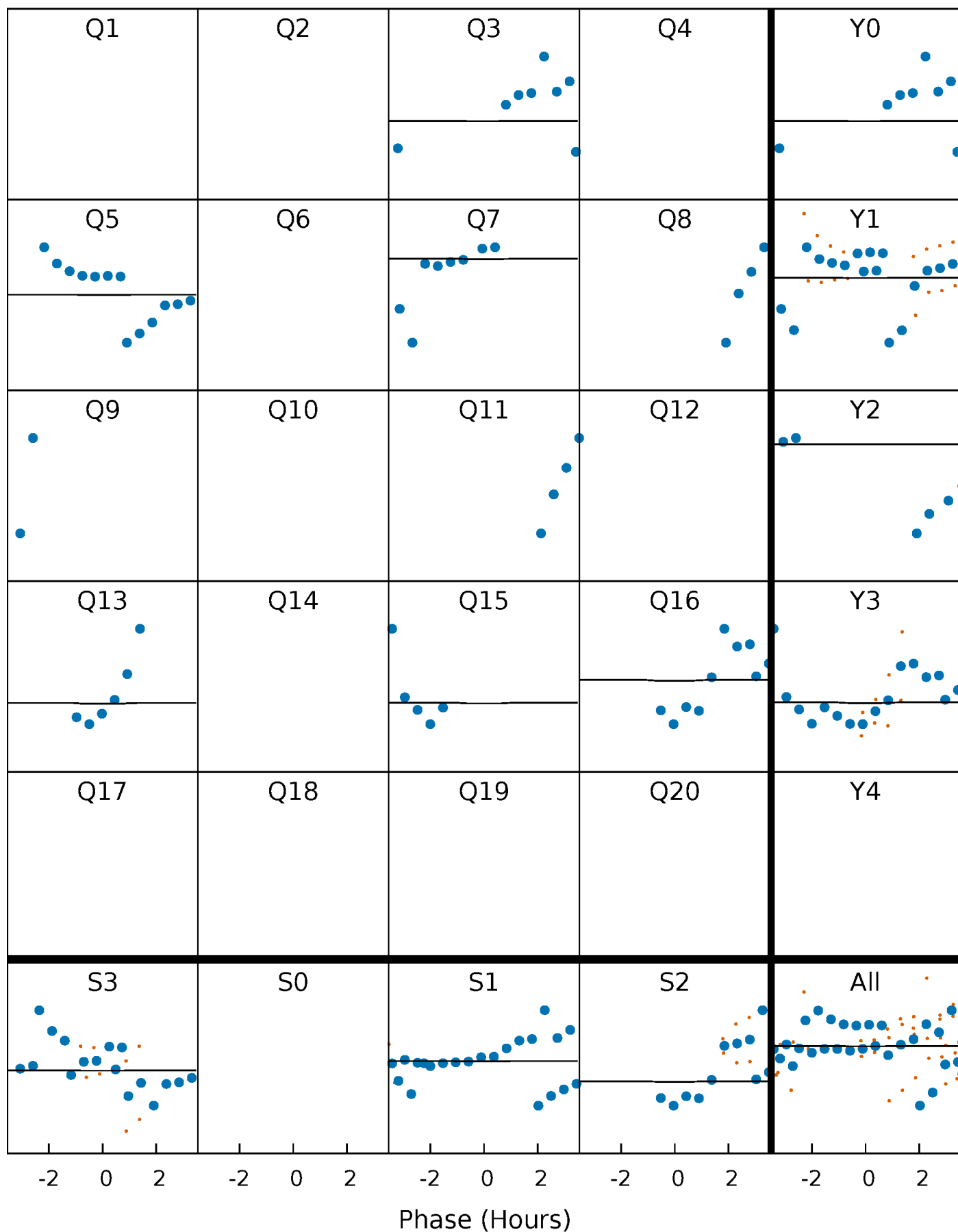
DV Quarter-Phased Transit Curves

TCE 005019101-06 P= 37.365135 Days $T_0=156.266285$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

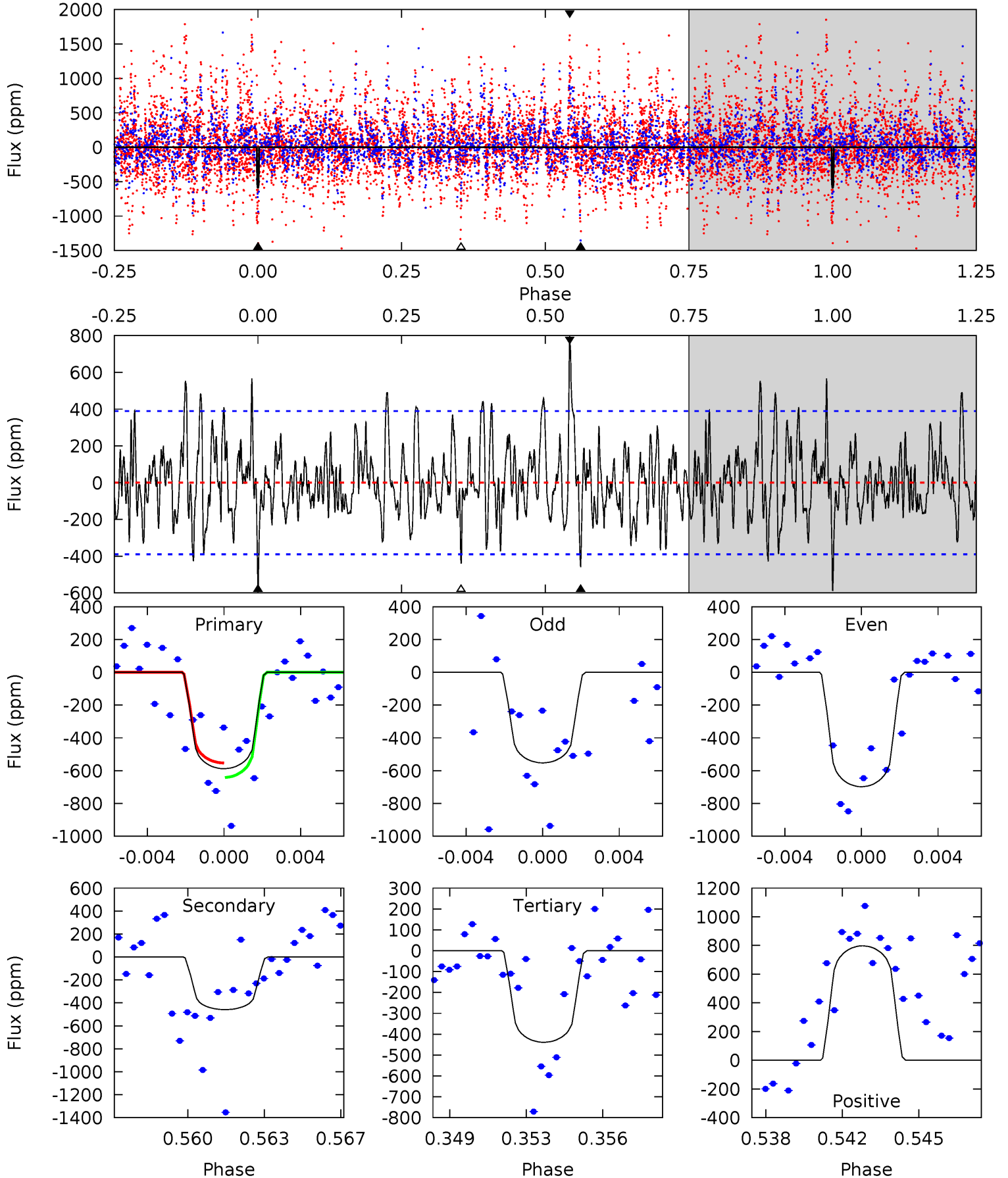
TCE 005019101-06 P= 37.365453 Days $T_0=156.104792$ (BKJD)



DV Model-Shift Uniqueness Test

005019101-06, P = 37.365135 Days, E = 118.901150 Days

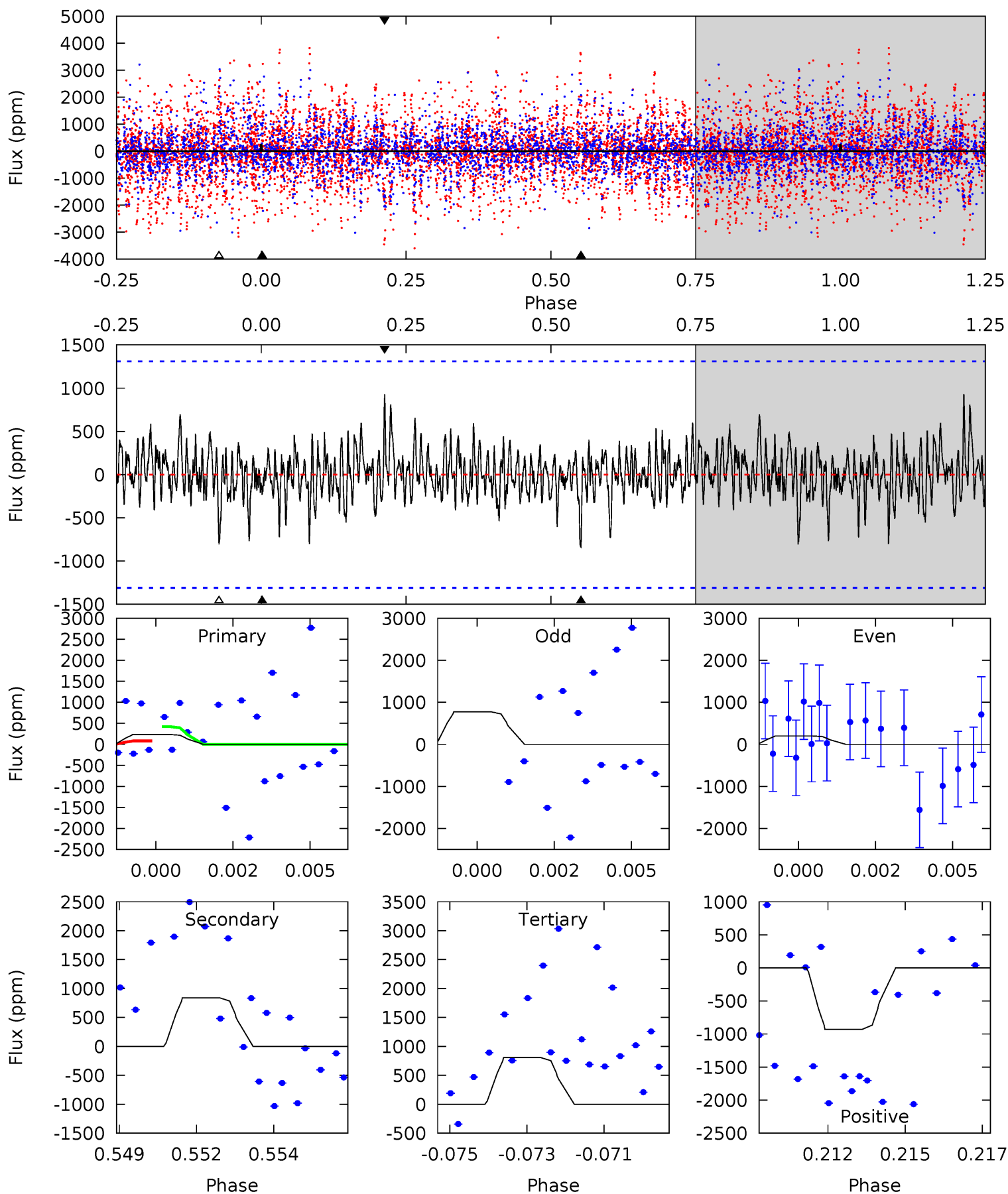
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
7.88	6.15	5.88	10.7	5.22	2.91	2.30	2.00	-2.81	0.27	-4.53	0.84	0.91	0.58	0.60



Alt Model-Shift Uniqueness Test

005019101-06, P = 37.365453 Days, E = 118.739339 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
0.94	3.40	3.26	3.75	5.30	3.04	0.94	-2.31	-2.81	0.14	-0.36	0.79	3.50	0.52	0.69



Stellar Parameters For KIC 005019101

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	7022^{+169}_{-254}	$2.998^{+0.595}_{-0.105}$	$0.070^{+0.200}_{-0.450}$	$9.213^{+1.026}_{-5.474}$	$3.080^{+0.203}_{-1.148}$	$0.006^{+0.049}_{-0.002}$
	+2%/-4%	+20%/-4%	+286%/-643%	+11%/-59%	+7%/-37%	+879%/-34%
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 005019101-06 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-459 ± 75	$24.40^{+18.01}_{-15.15}$	2287^{+134}_{-358}	6101^{+4275}_{-1271}	41^{+245}_{-27}
Alt.	-840 ± 247	$13.34^{+15.49}_{-9.80}$	2271^{+142}_{-332}	10679^{+31578}_{-3991}	269^{+3290}_{-215}

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 $A_{obs} \gg 1.0$

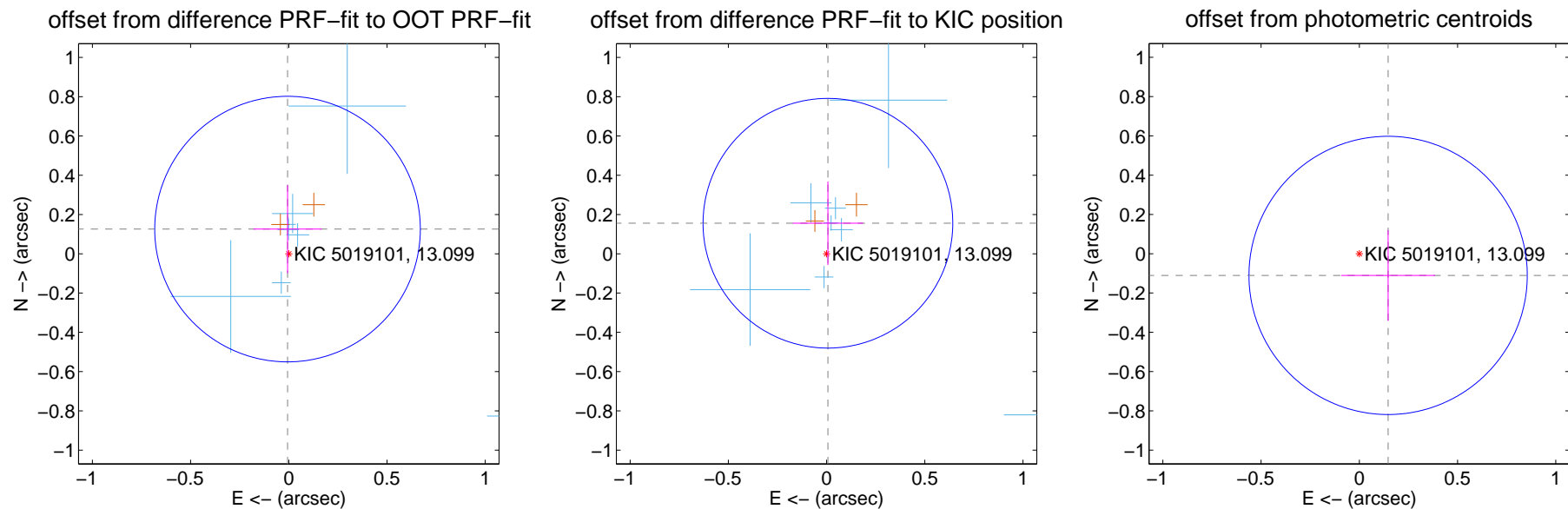
DV Centroid Data

Supplemental centroid analysis for 005019101-06. Kepler magnitude: 13.10. Transit SNR 9.49

There are 9 quarters with good PRF difference image offsets

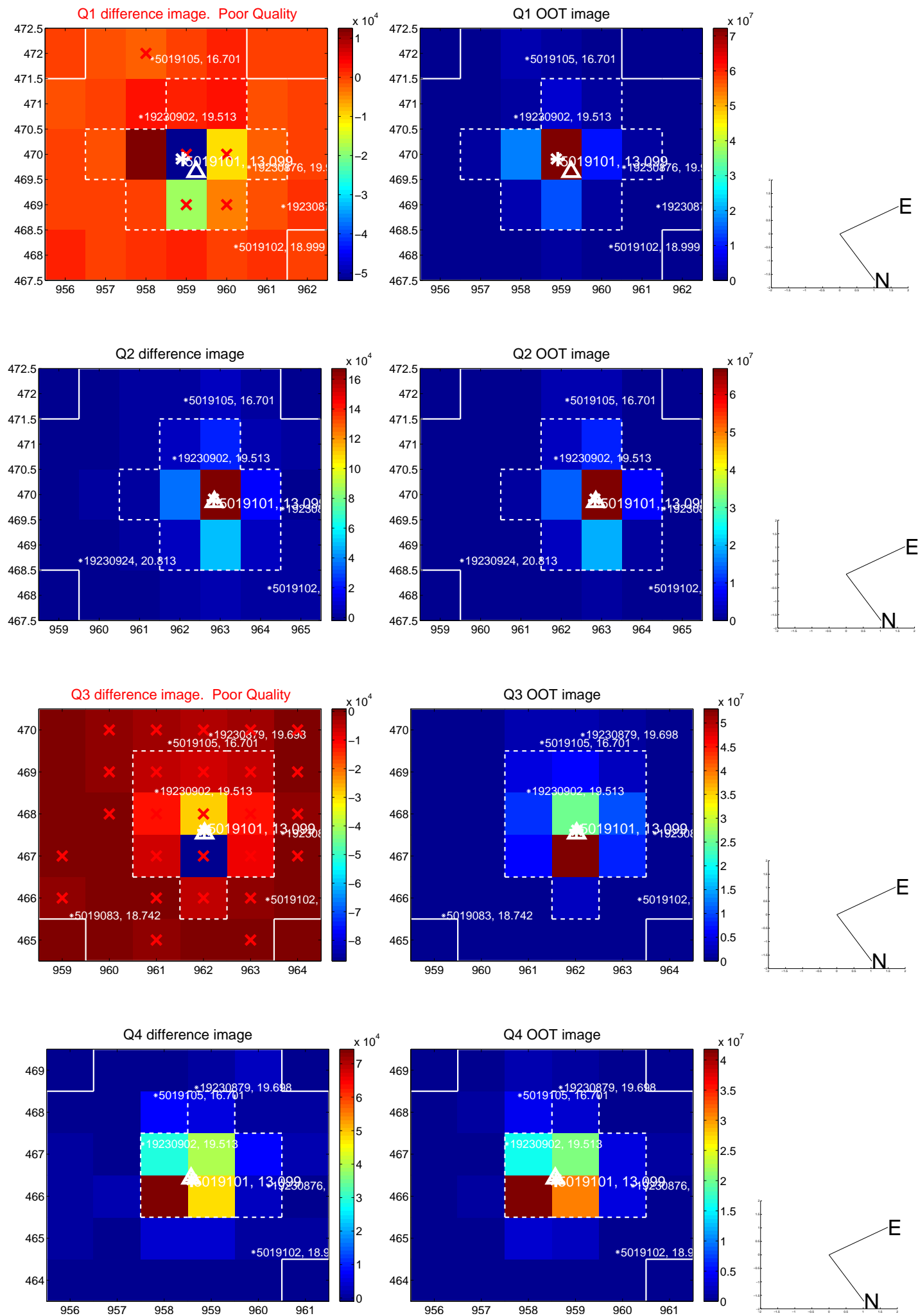
The direct PRF centroid is offset from the target star catalog position by about 0.11 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.126 ± 0.225	0.56	0.007 ± 0.173	0.126 ± 0.224
PRF-fit source offset from KIC position	0.156 ± 0.212	0.73	-0.007 ± 0.179	0.155 ± 0.212
photometric centroid source offset	0.18 ± 0.24	0.78	-0.15 ± 0.24	-0.11 ± 0.23

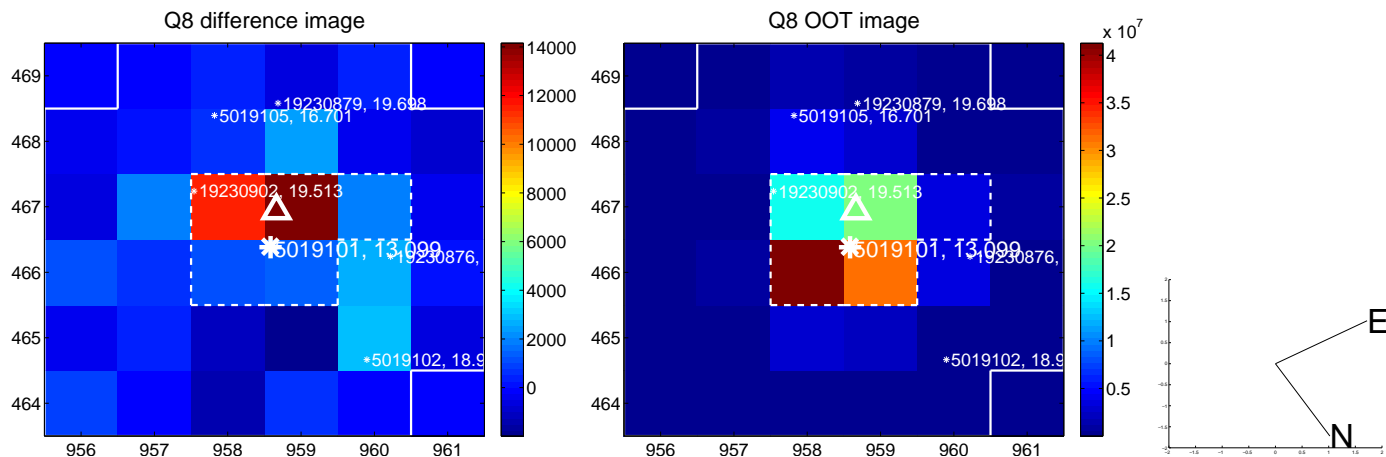
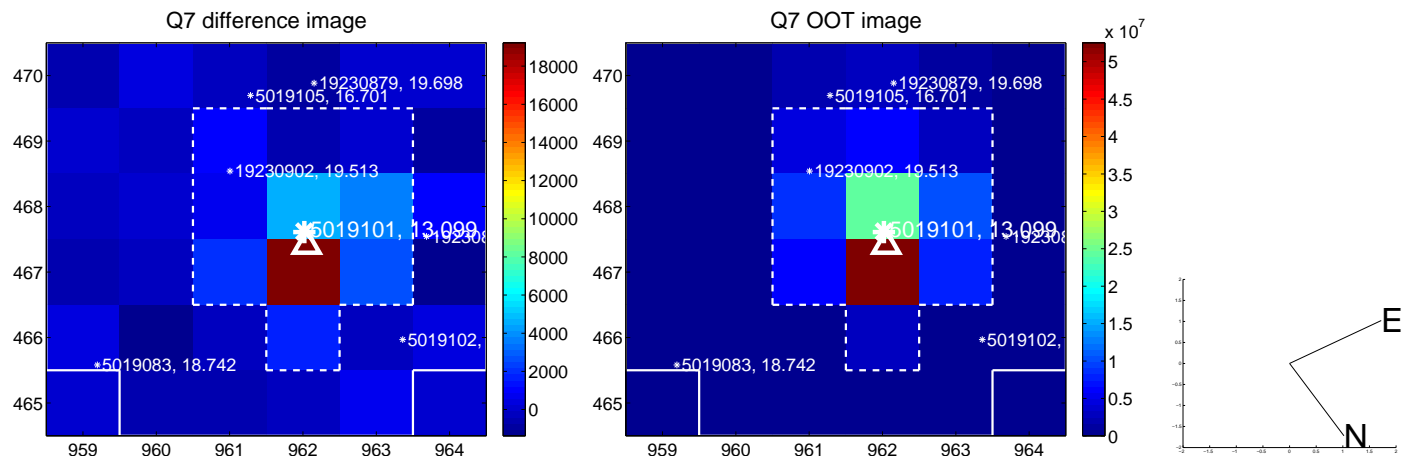
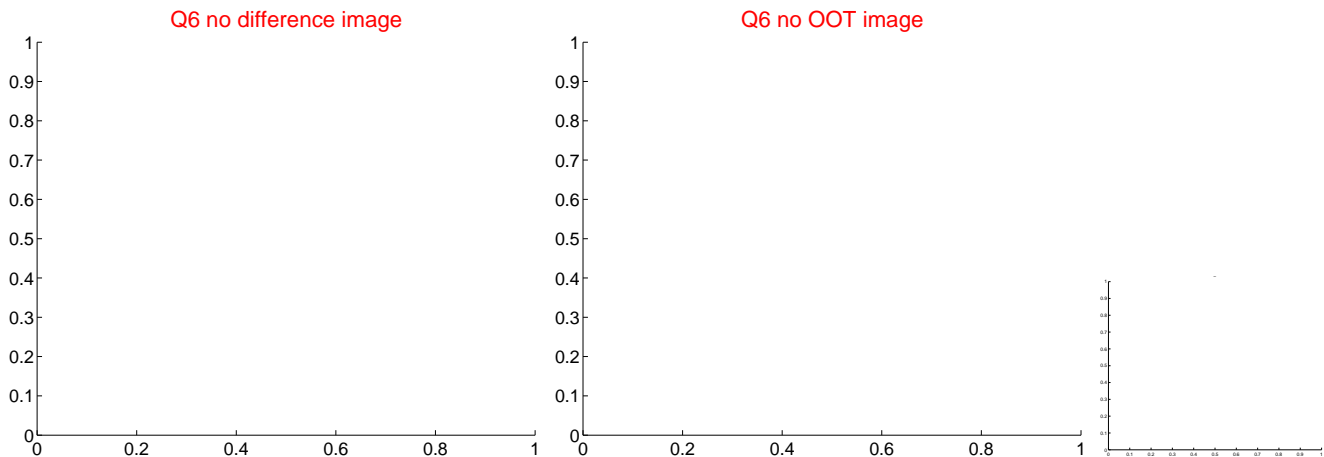
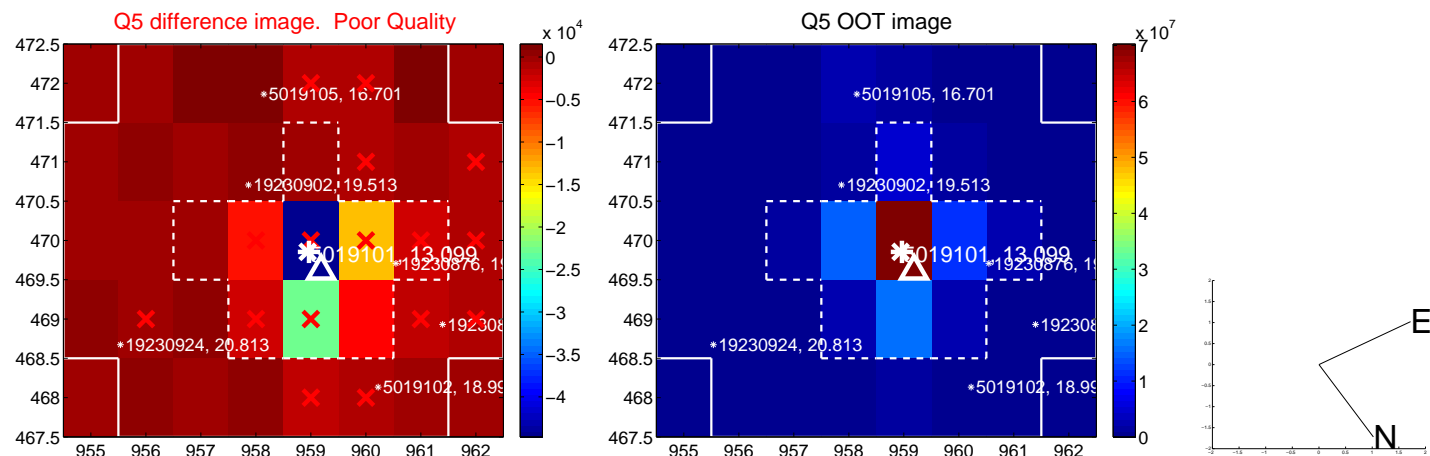


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

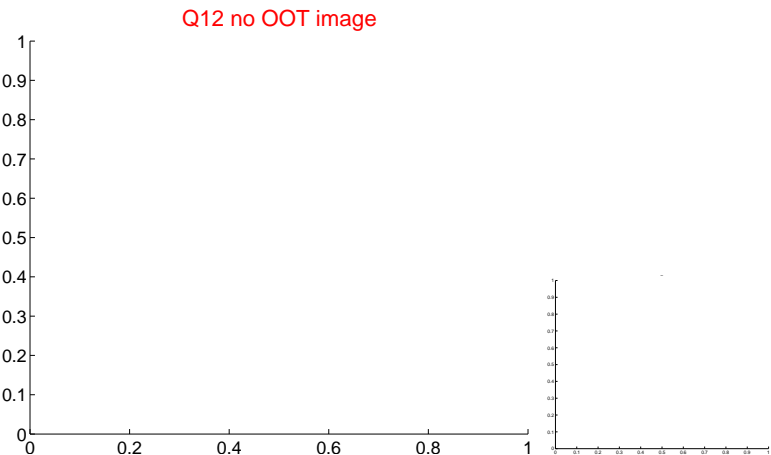
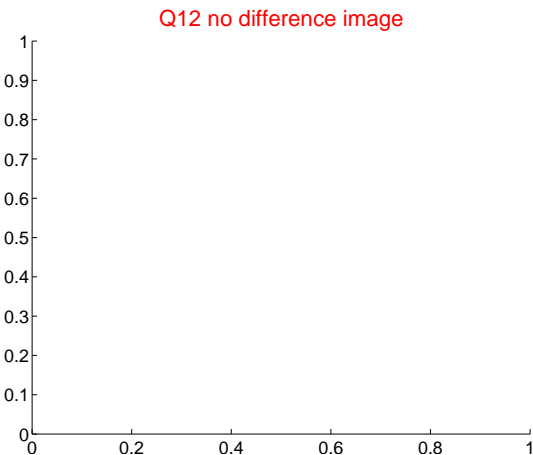
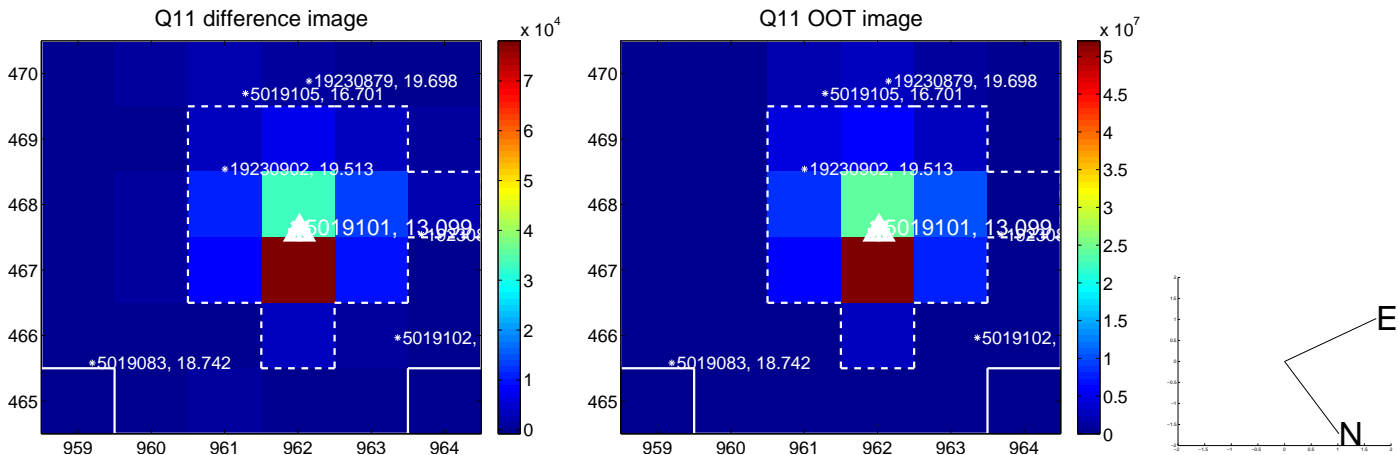
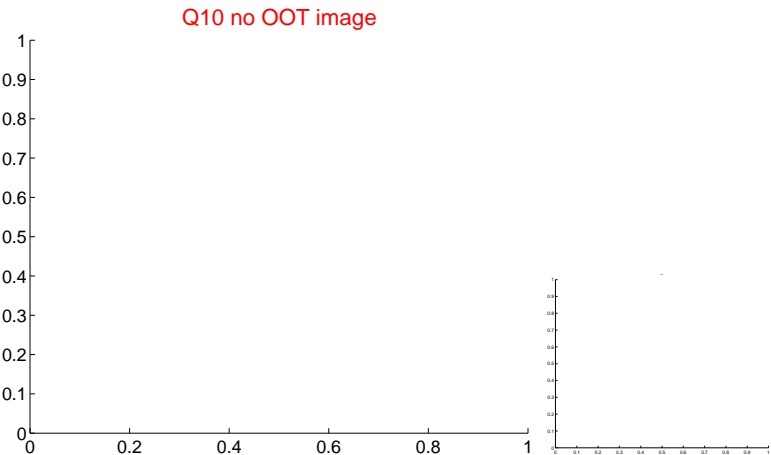
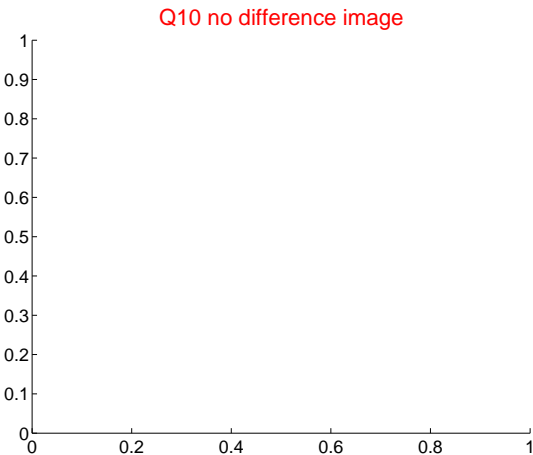
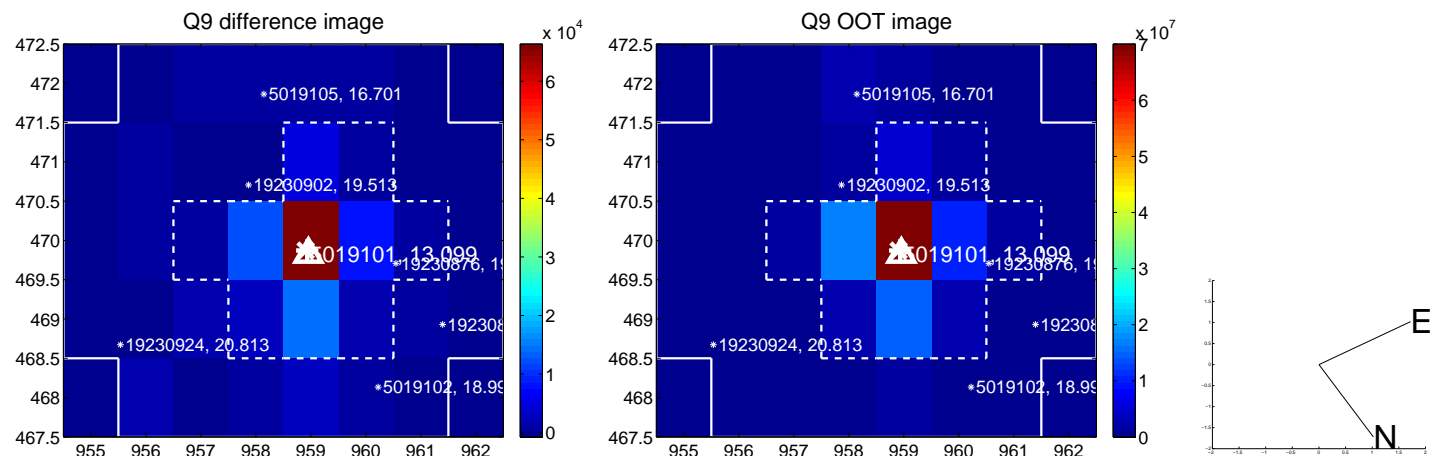
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



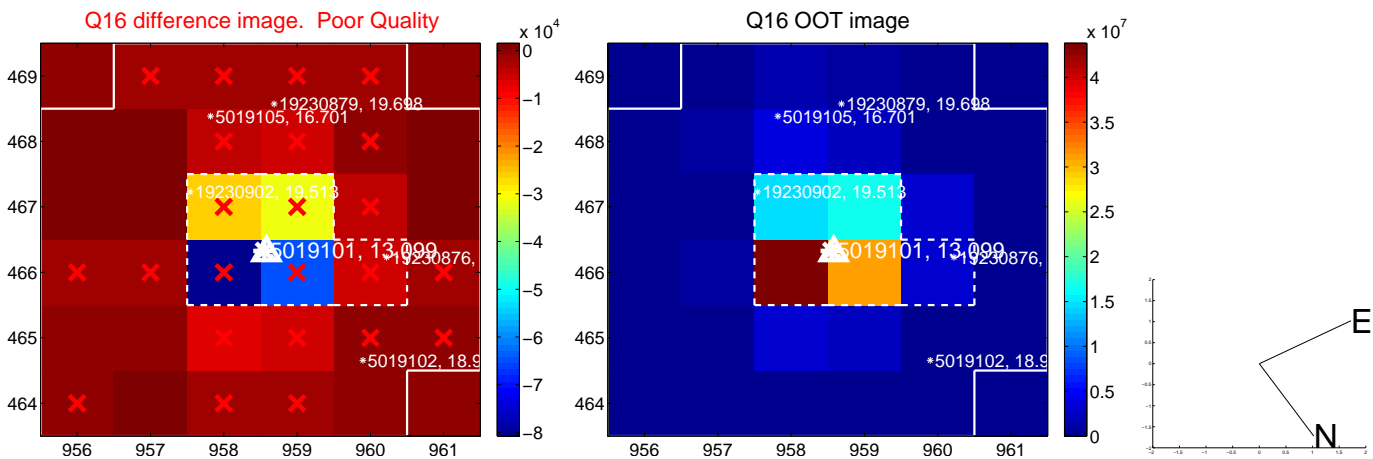
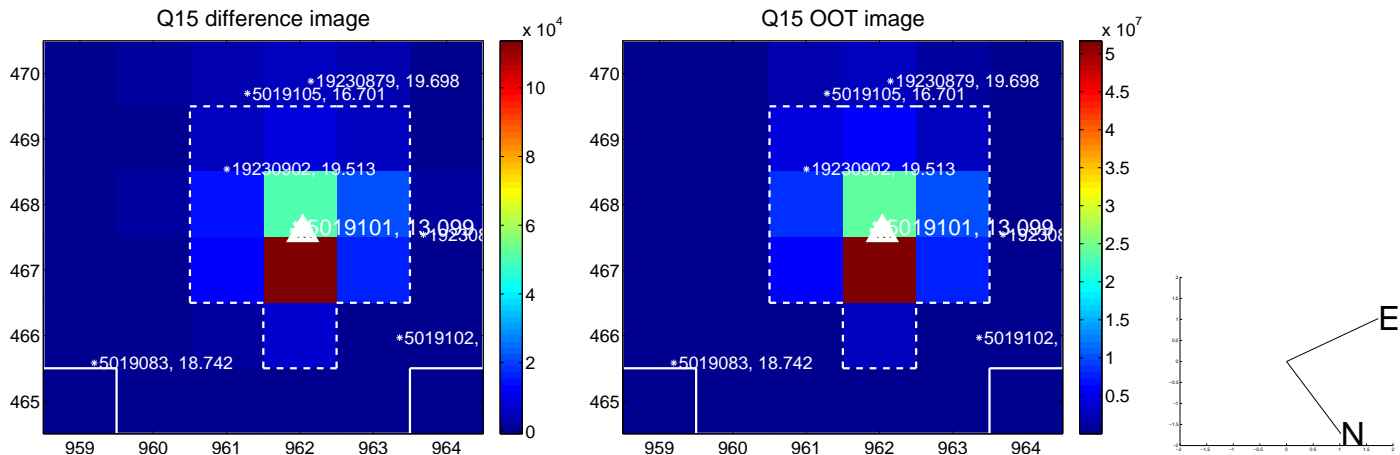
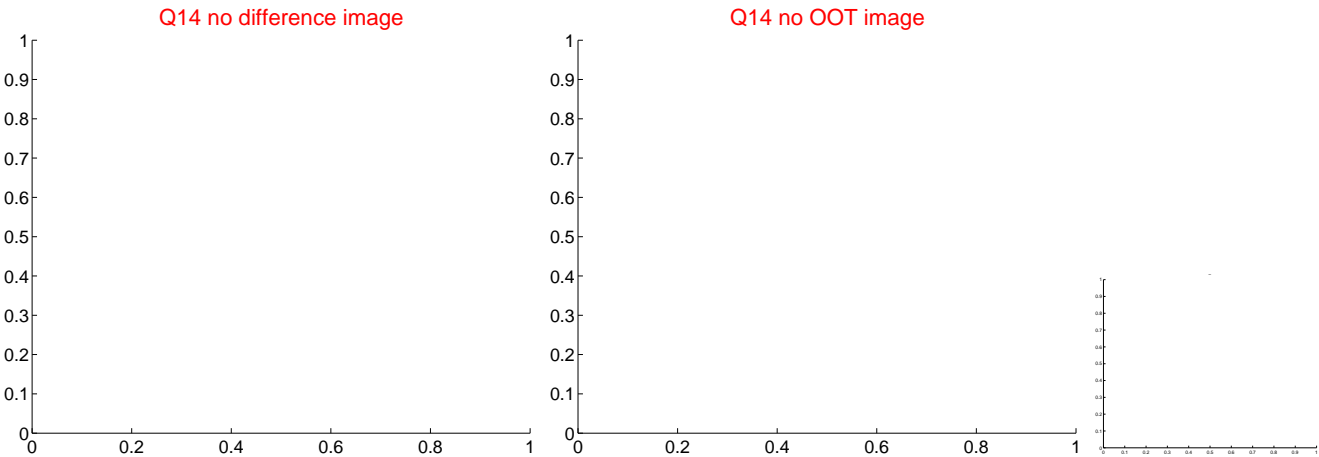
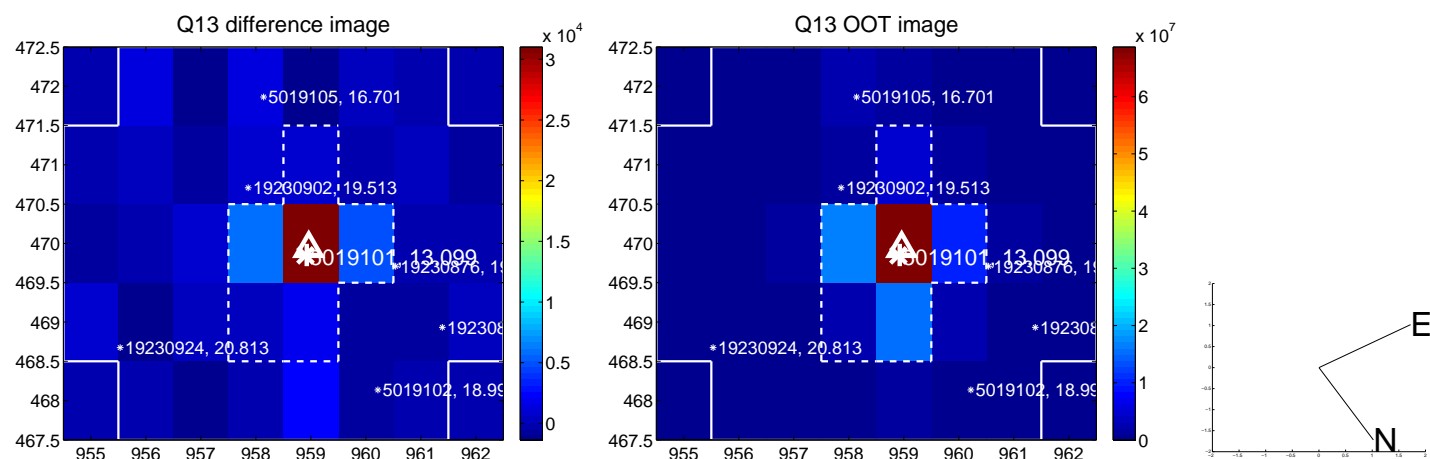
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



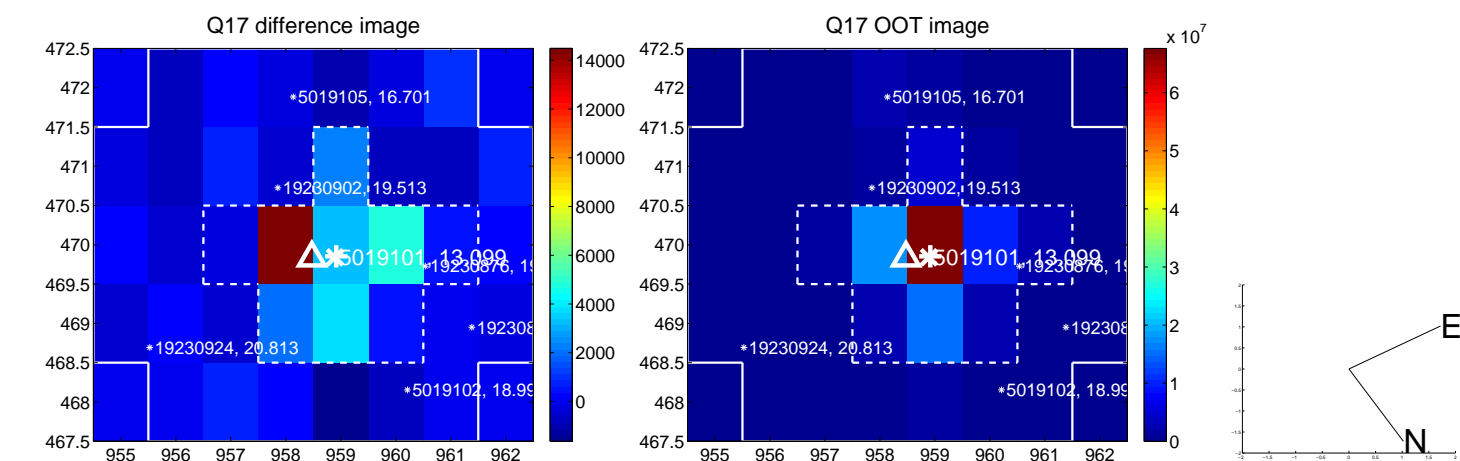
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



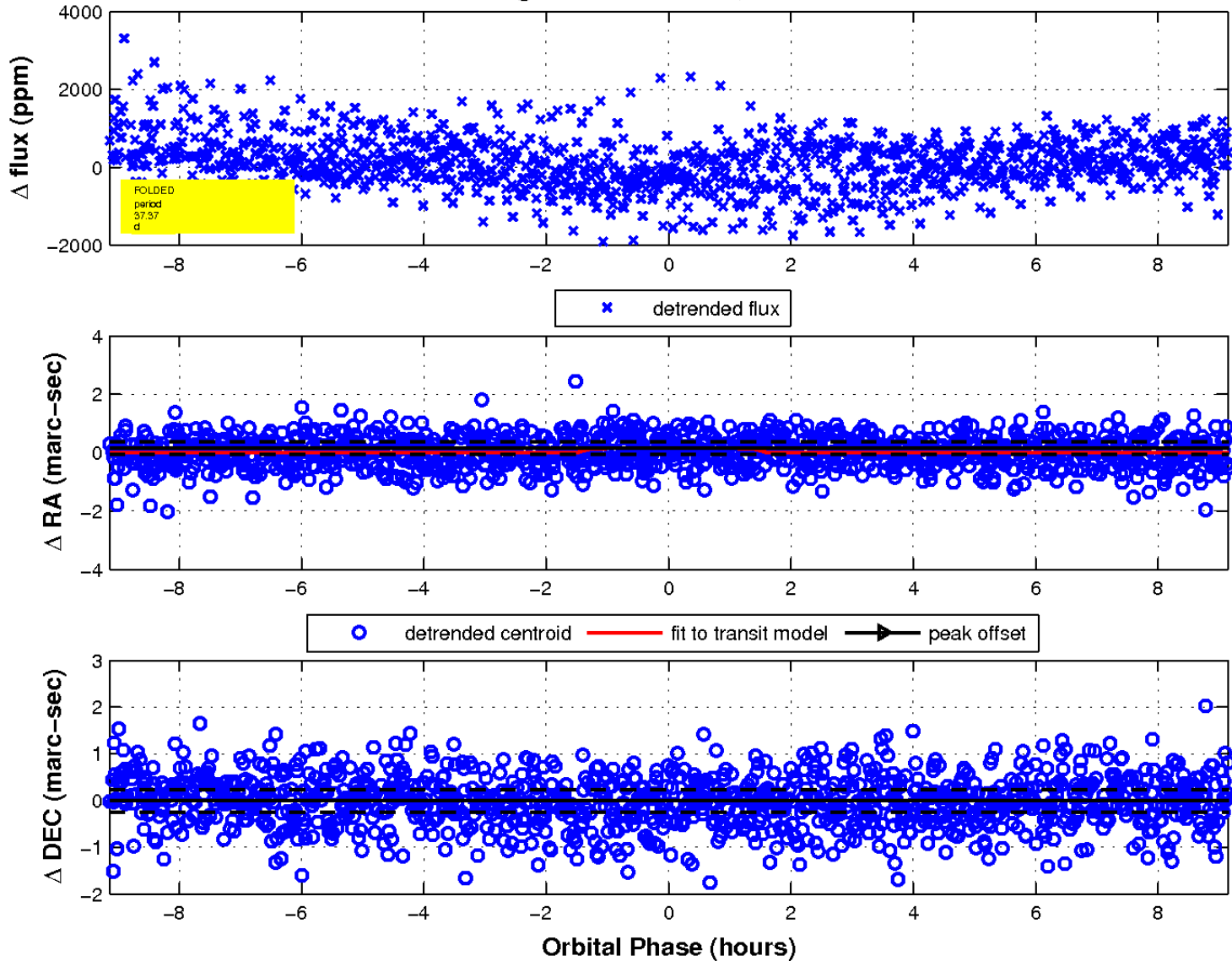
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

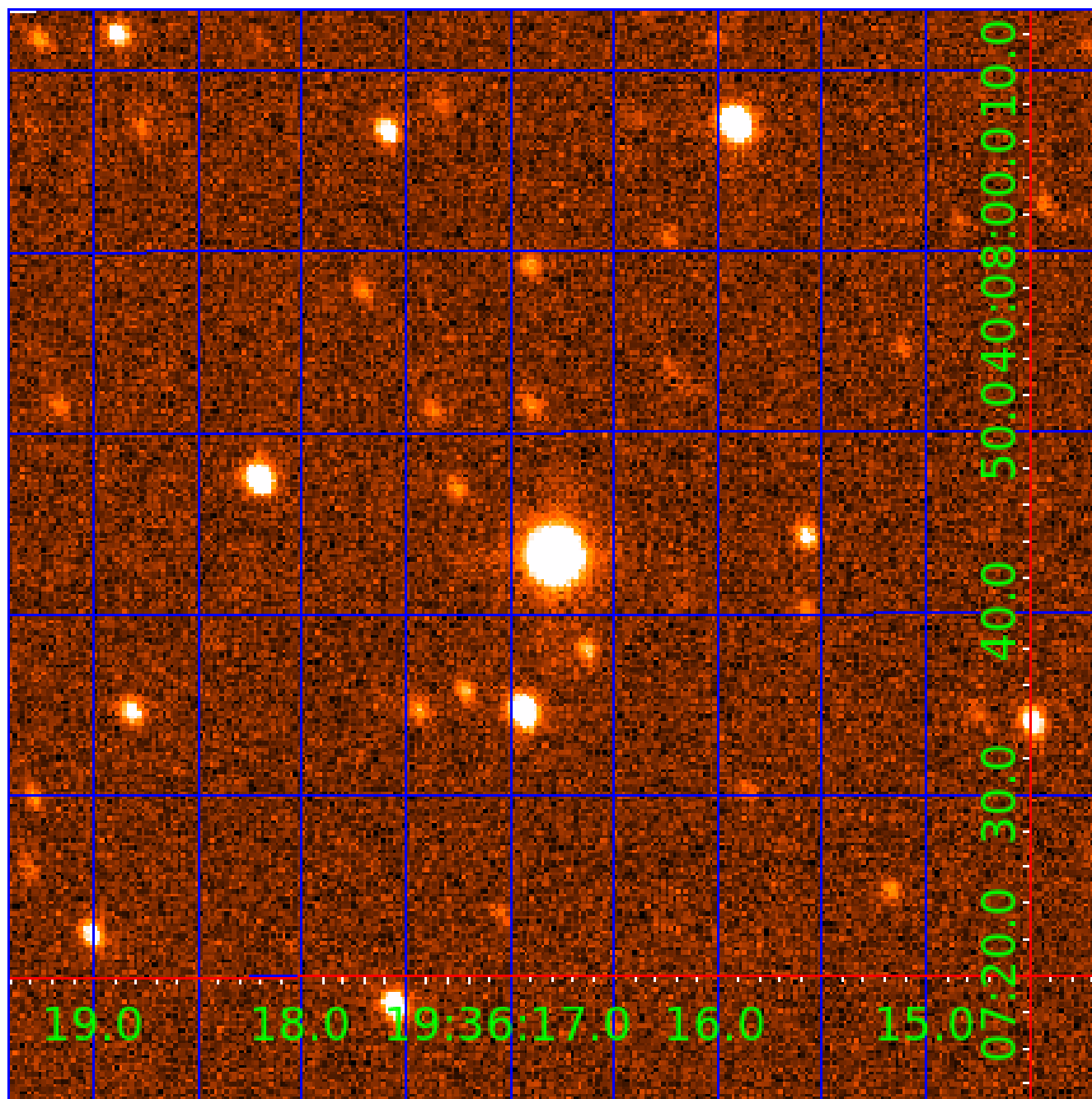


fluxWeightedCentroids, Planet 6 of 8



UKIRT Image

Declination



KIC 005019101

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})
005019101-01	OBS	No	1.944804	133.400192	81.8	10.018	8.9	7.6	9.21	7022	10.86	93865.07
005019101-02	OBS	No	154.064988	237.129171	1013.7	12.058	20.3	10.3	9.21	7022	33.18	275.89
005019101-03	OBS	No	1.944842	132.419527	515.6	3.000	18.7	-1.0	9.21	7022	21.09	93862.62
005019101-04	OBS	No	67.470131	156.235190	1634.3	10.638	11.5	11.0	9.21	7022	68.65	829.58
005019101-05	OBS	No	29.070887	137.614453	220.5	10.984	11.4	3.2	9.21	7022	14.19	2549.14
005019101-06	OBS	No	37.365135	156.266285	641.1	3.052	10.4	9.5	9.21	7022	24.77	1824.10
005019101-08	OBS	No	18.844596	145.884905	417.6	4.424	8.6	6.9	9.21	7022	21.45	4543.84

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005019101-01	OBS	FP	0.00	1	0	0	0	SWEET_NTL—LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT
005019101-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—INCONSISTENT_TRANS
005019101-03	OBS	FP	0.00	1	0	0	0	SWEET_NTL—LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—SAME_NTL_PERIOD—CENT_NOFITS
005019101-04	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_DIFFS—HALO_GHOST
005019101-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
005019101-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
005019101-08	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT

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

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

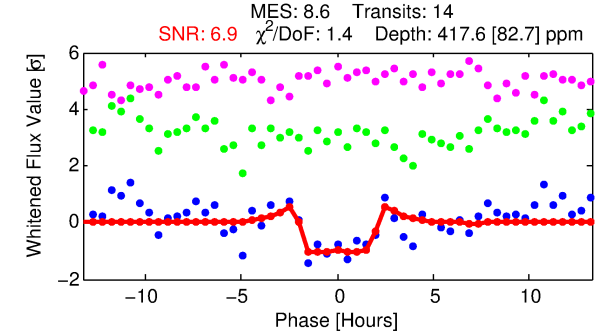
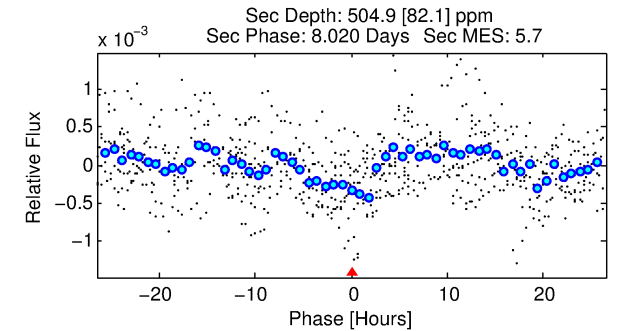
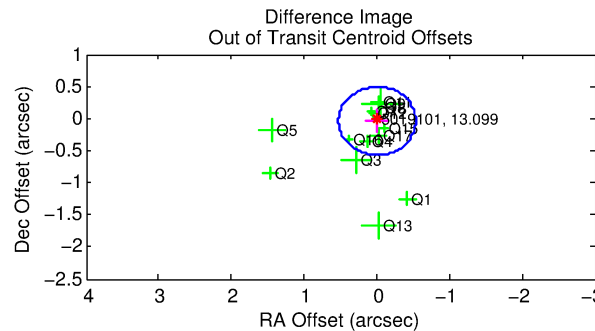
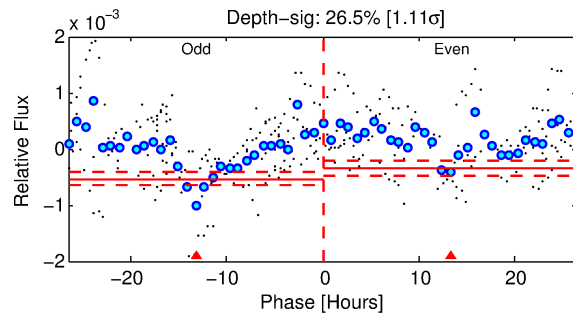
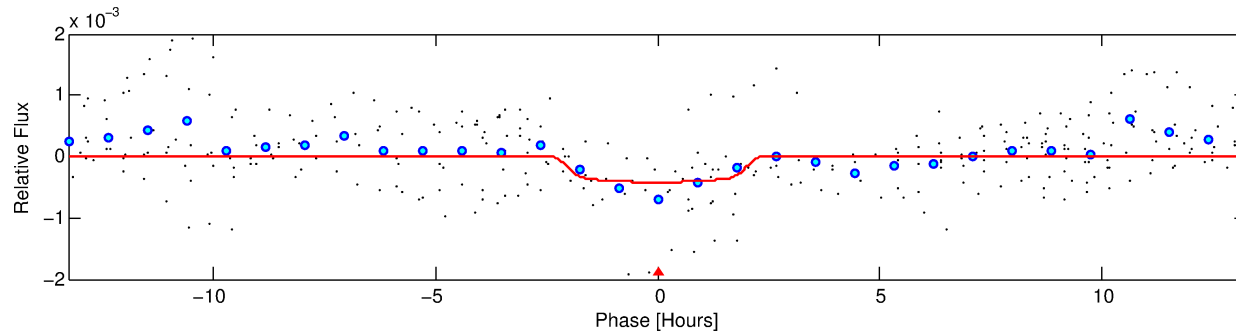
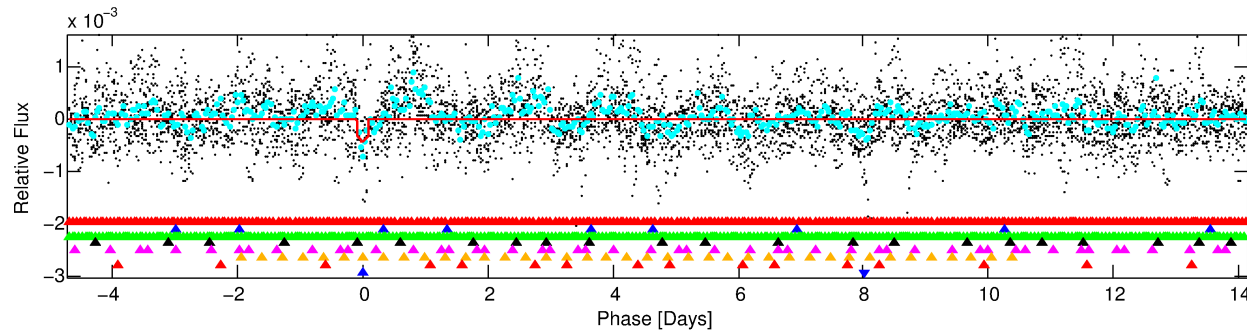
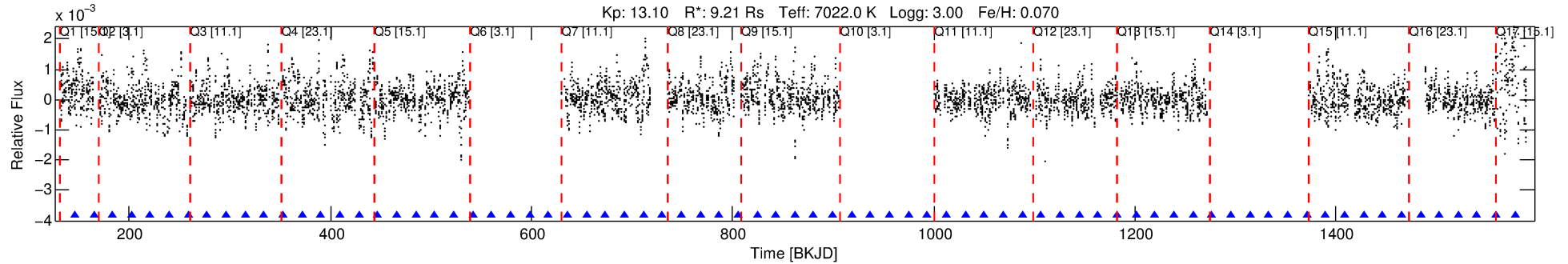
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 005019101-08

No Significant Match Found

DV One-Page Summary

KIC: 5019101 Candidate: 8 of 8 Period: 18.845 d



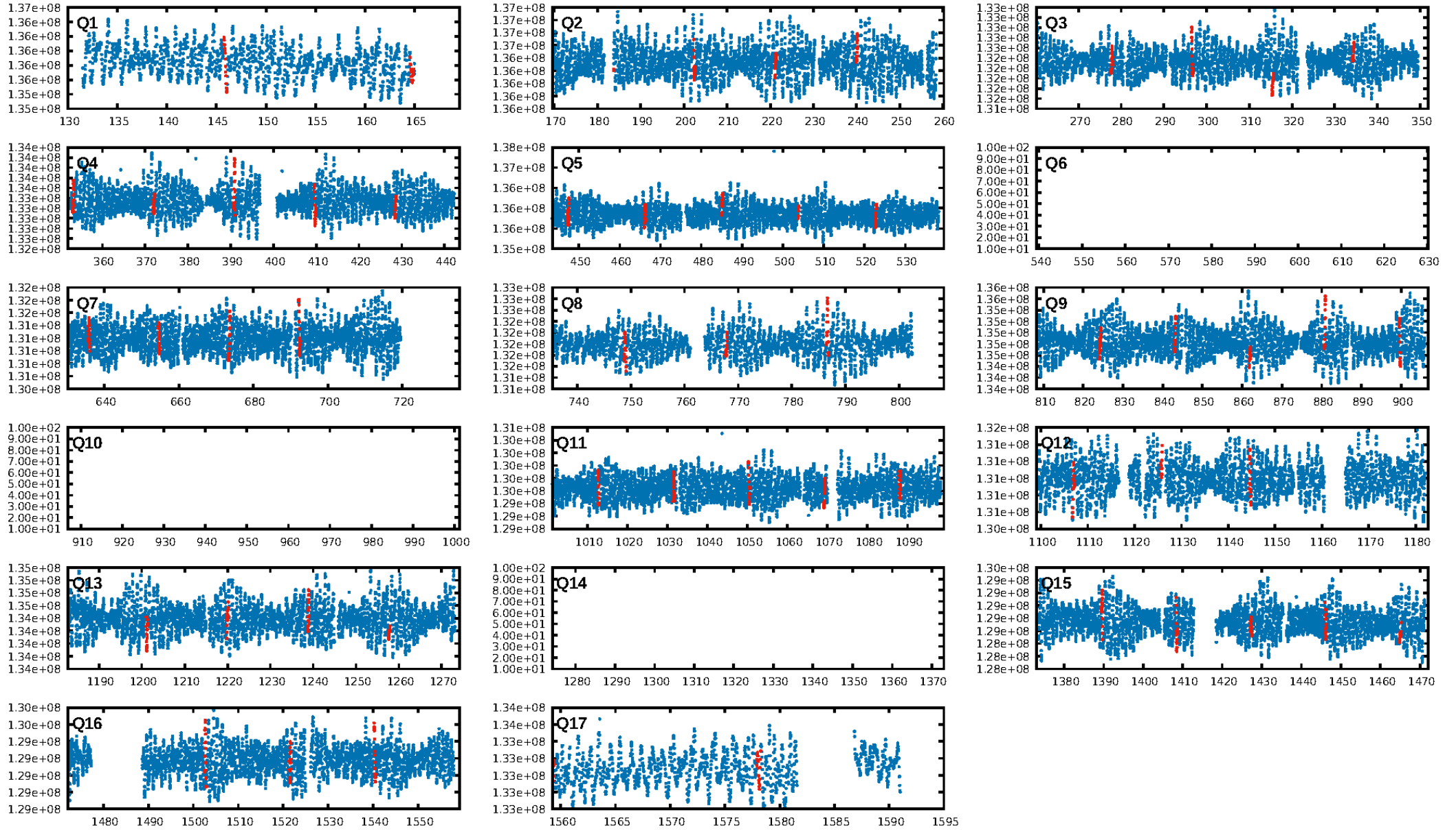
DV Fit Results:

Period = 18.84460 [0.00026] d
Epoch = 145.8849 [0.0117] BKJD
Rp/R* = 0.0213 [0.0081]
a/R* = 17.66 [36.78]
b = 0.87 [0.61]
Seff = 4543.84 [4571.15]
Teq = 2094 [527] K
Rp = 21.45 [15.14] Re
a = 0.2017 [0.1219] AU
Ag = 24.55 [31.05] [0.76 σ]
Teffp = 7205 [1428] K [3.36 σ]

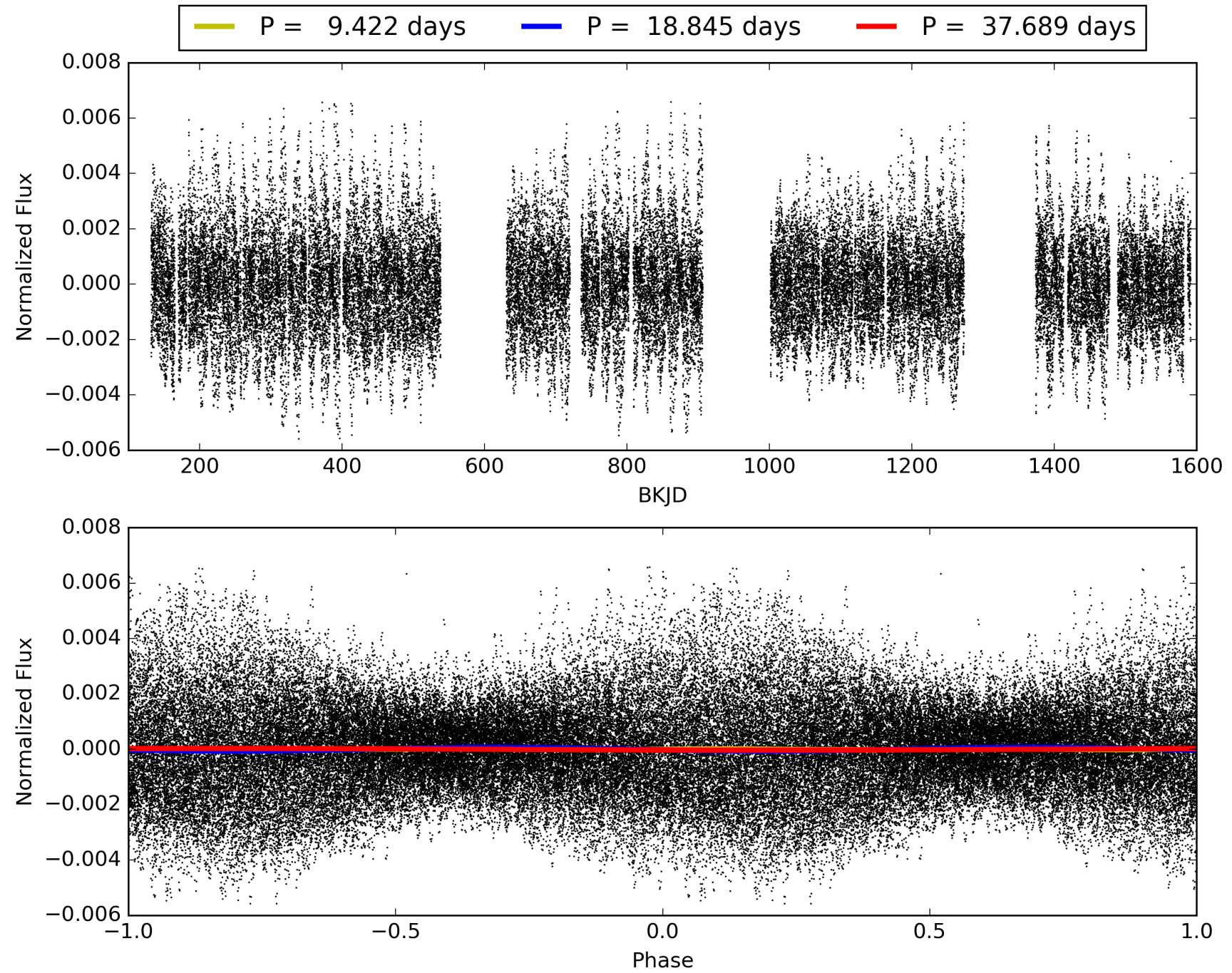
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [75.88 σ]
LongPeriod-sig: 100.0% [20.73 σ]
ModelChiSquare2-sig: 0.1%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 9.56e-11
RollingBand-fgt: 1.00 [13/13]
GhostDiagnostic-chr: 0.314
Centroid-sig: 41.1%
Centroid-so: 0.271 arcsec [1.11 σ]
OotOffset-rm: 0.038 arcsec [0.22 σ]
OotOffset-st: 1/4/4/5 [14]
KicOffset-rm: 0.007 arcsec [0.04 σ]
KicOffset-st: 1/4/4/5 [14]
DiffImageQuality-fgm: 0.43 [6/14]
DiffImageOverlap-fno: 0.00 [0/14]

TCE 005019101-08, PDC Light Curves

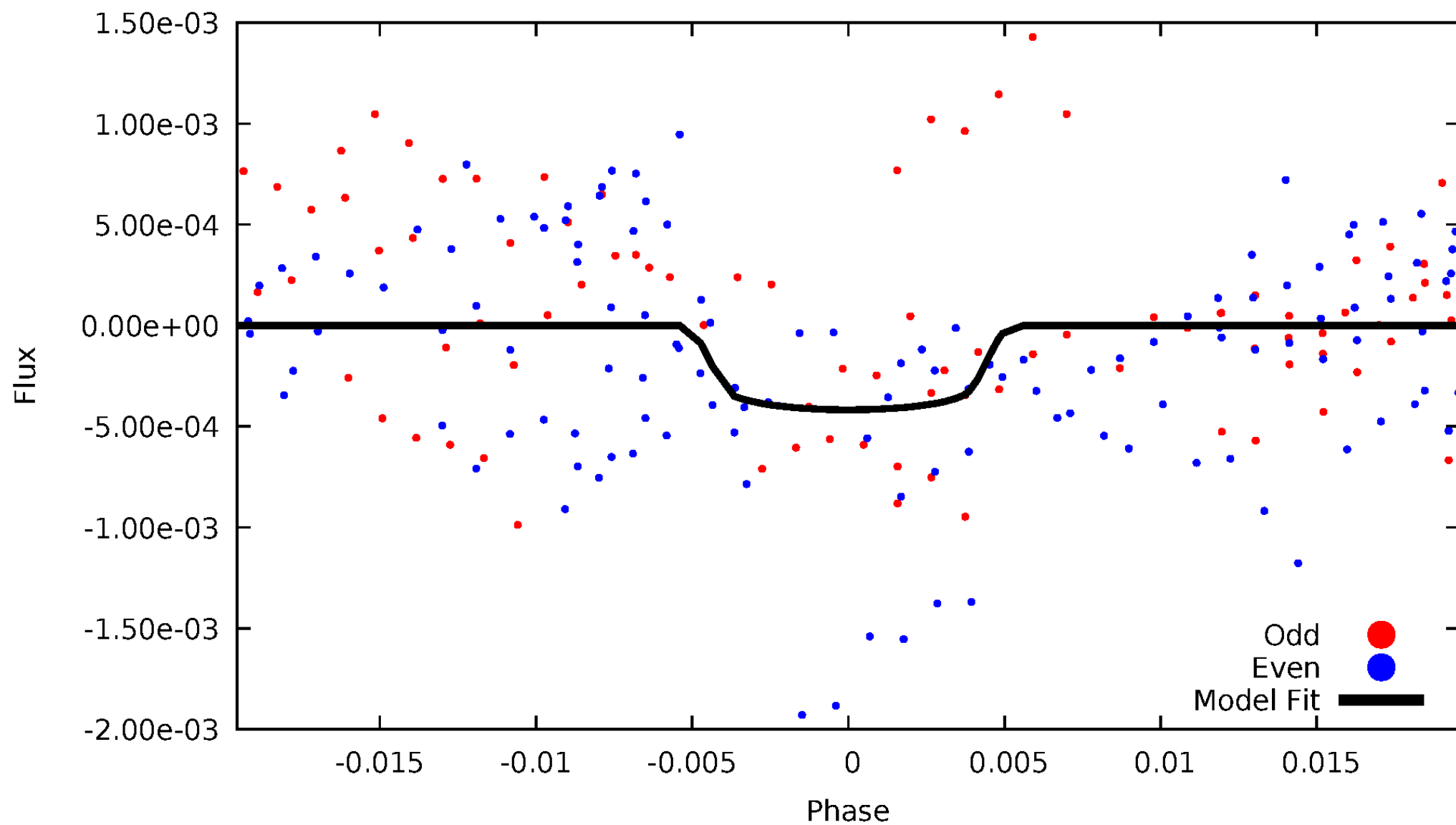


TCE 005019101-08



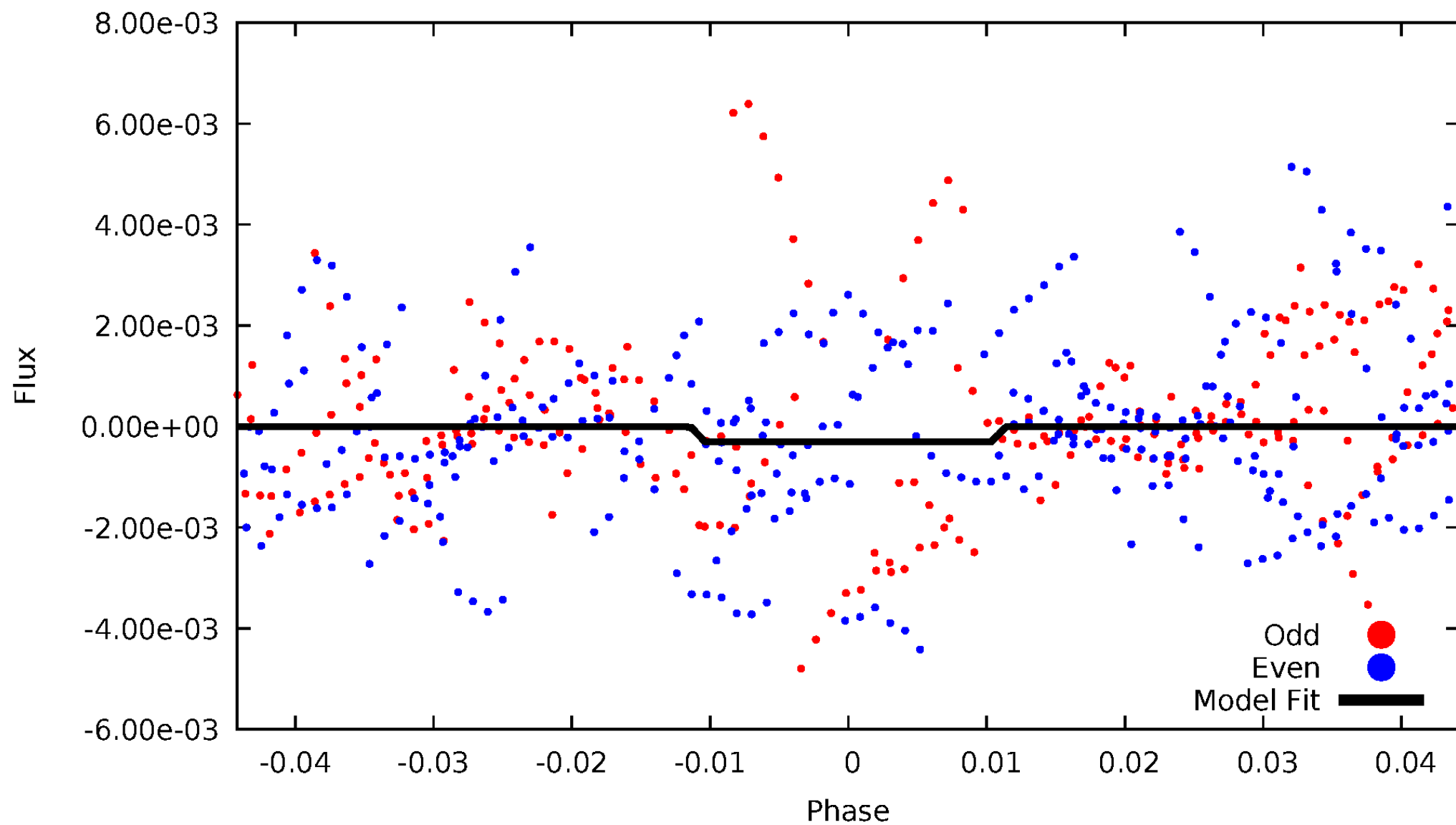
DV Odd/Even

TCE 005019101-08



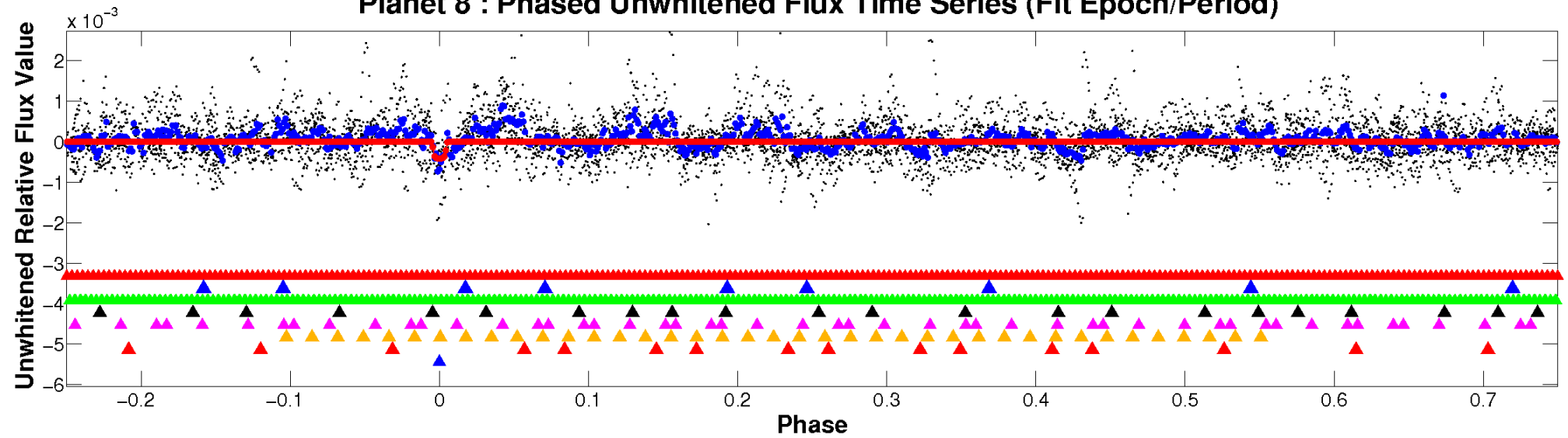
ALT Odd/Even

TCE 005019101-08

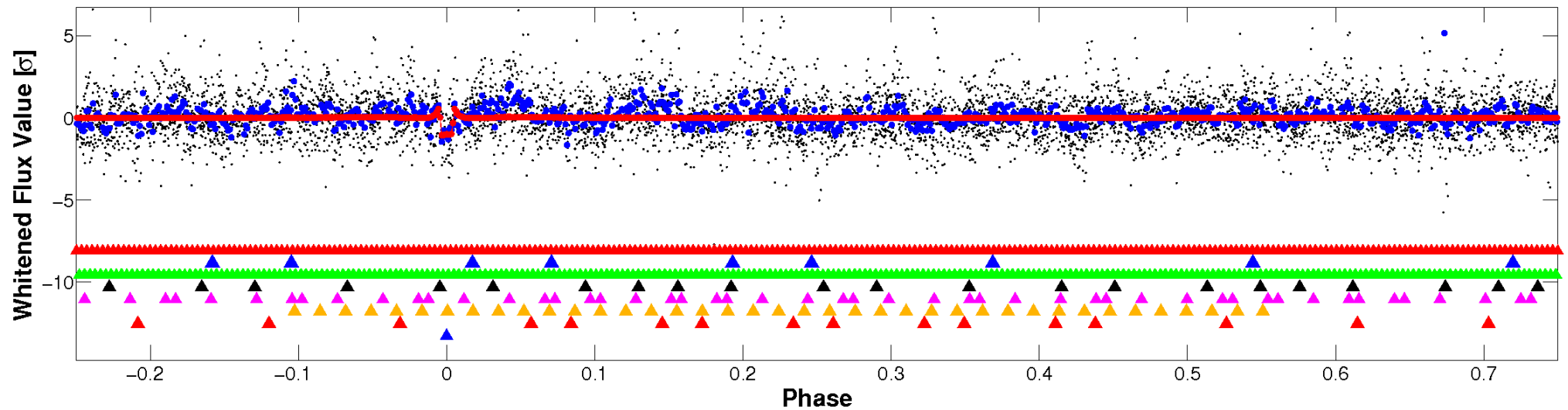


Non-Whitened Vs. Whitened Light Curve

Planet 8 : Phased Unwhitened Flux Time Series (Fit Epoch/Period)

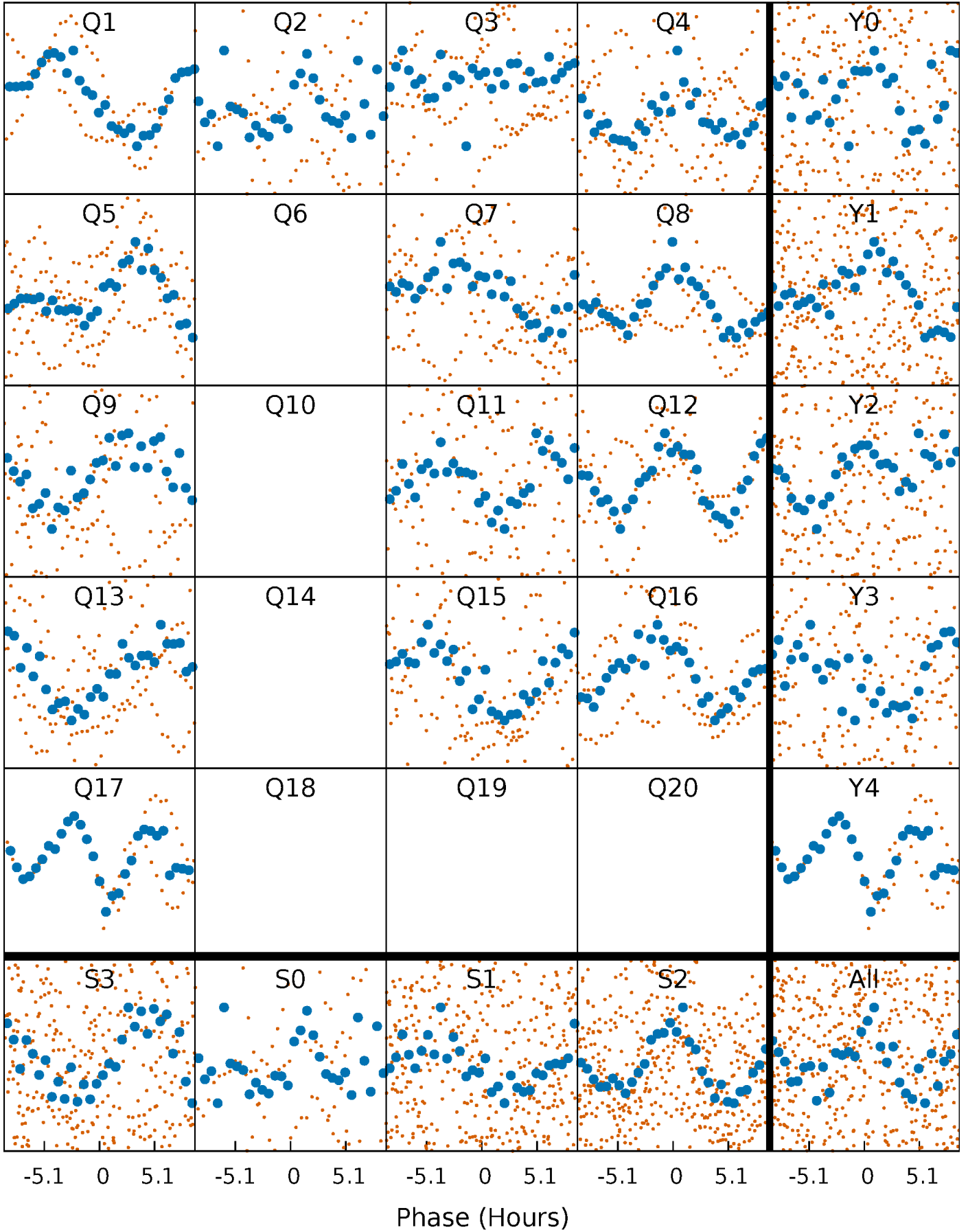


Planet 8 : Phased Whitened Flux Time Series (Fit Epoch/Period)



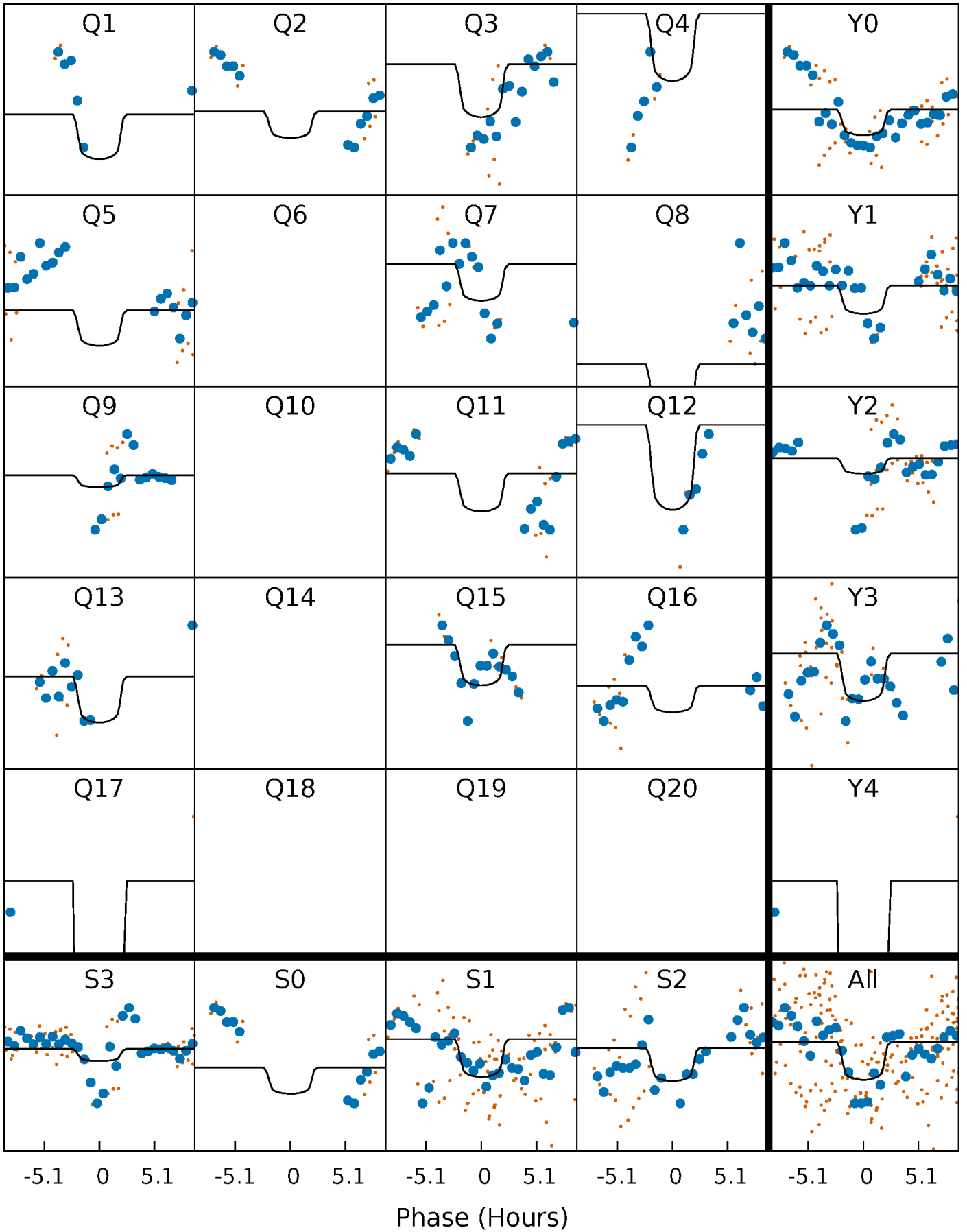
PDC Quarter-Phased Transit Curves

TCE 005019101-08 P= 18.844596 Days $T_0=145.884905$ (BKJD)



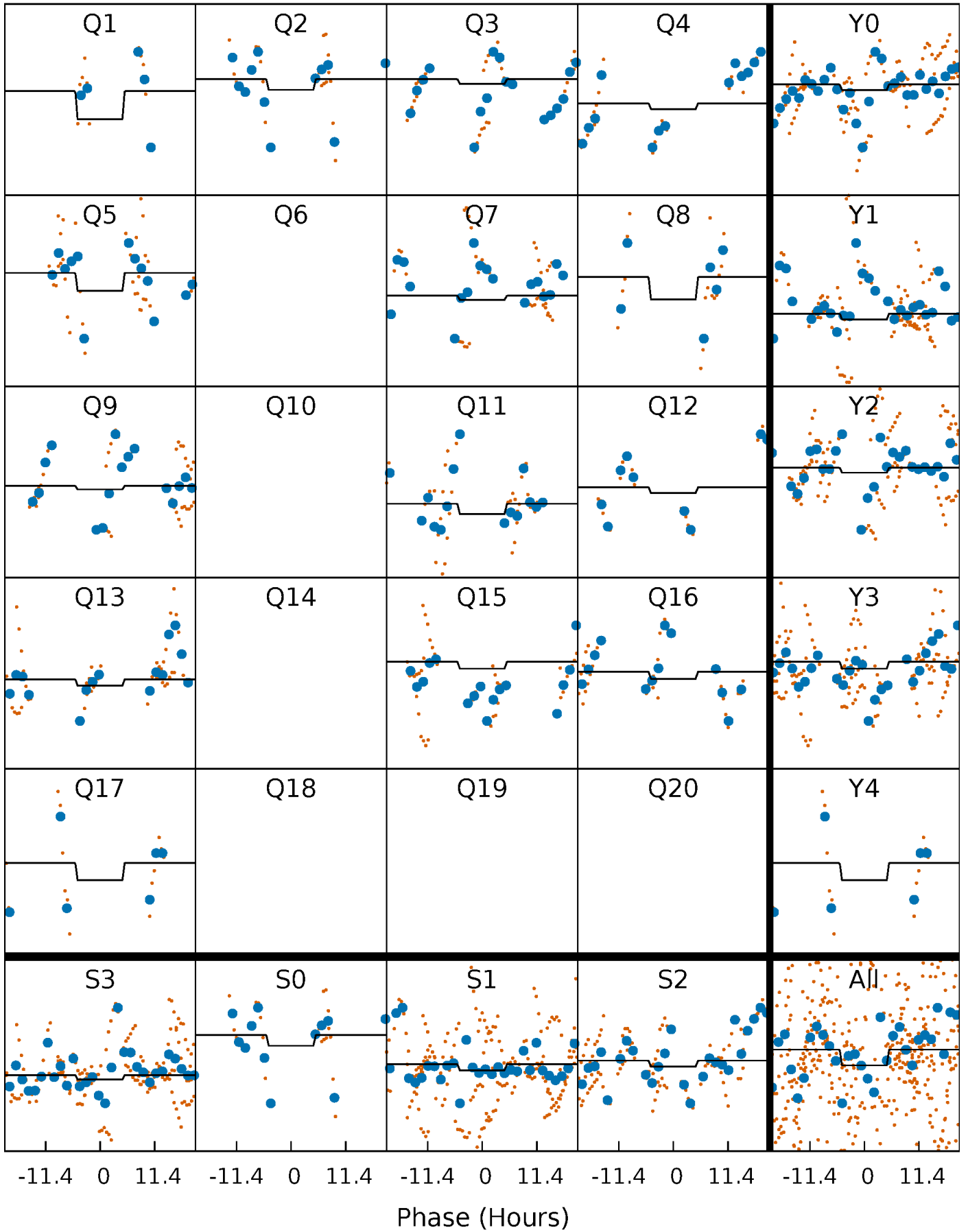
DV Quarter-Phased Transit Curves

TCE 005019101-08 P= 18.844596 Days $T_0=145.884905$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

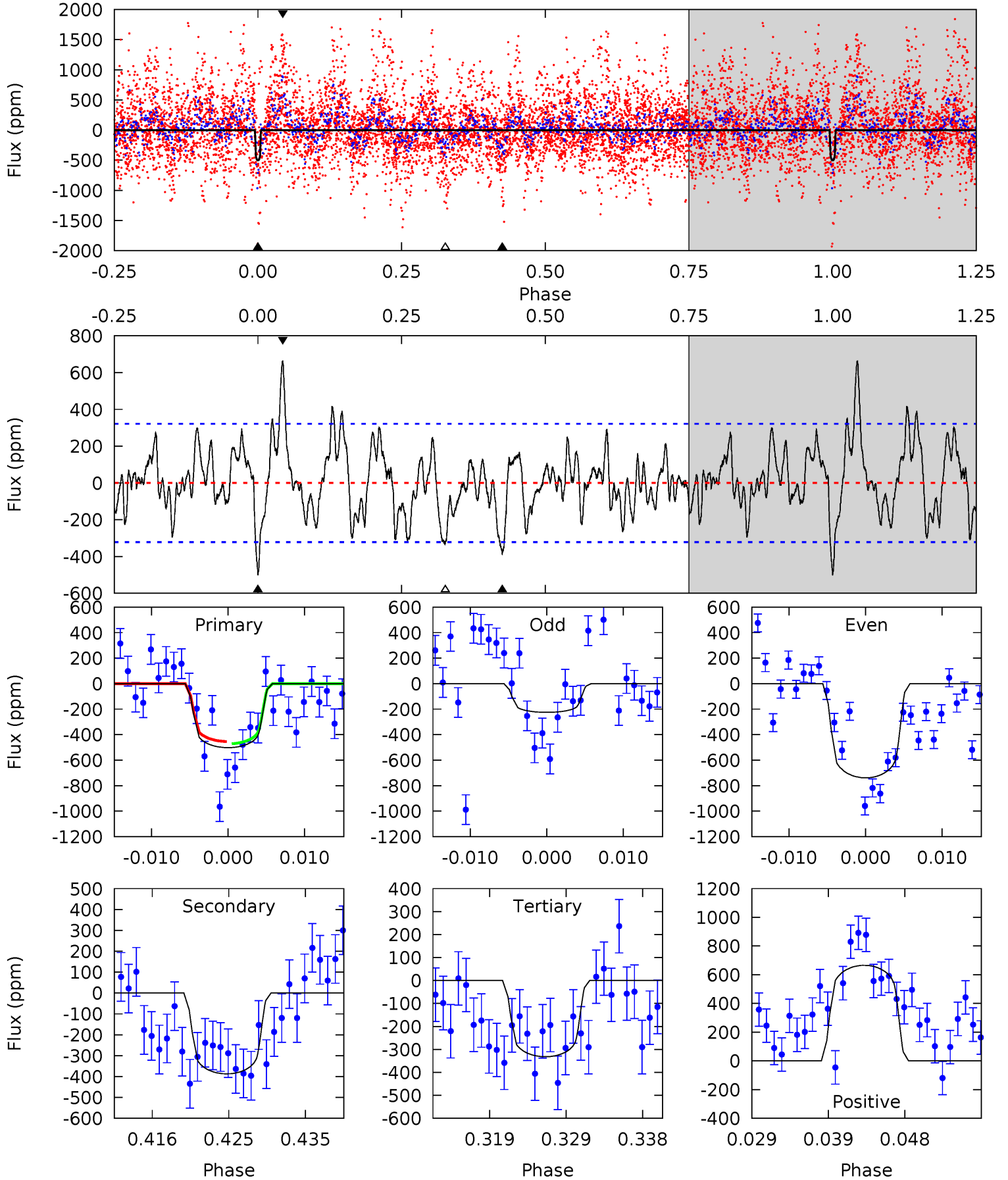
TCE 005019101-08 P= 18.843356 Days $T_0=145.908475$ (BKJD)



DV Model-Shift Uniqueness Test

005019101-08, P = 18.844596 Days, E = 127.040309 Days

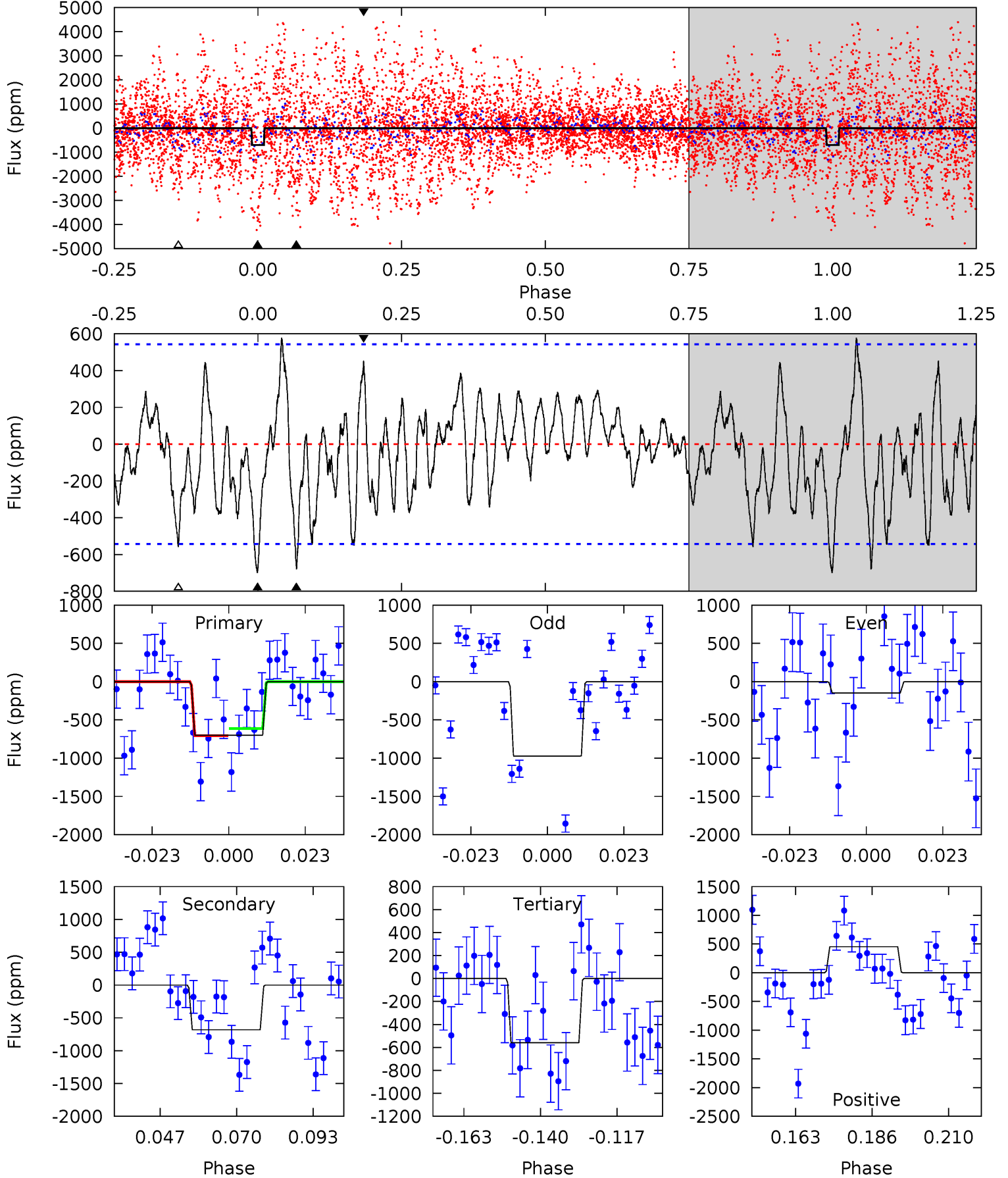
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
7.85	6.05	5.19	10.4	5.03	2.59	2.34	2.66	-2.56	0.86	-4.35	4.08	0.98	0.57	0.13



Alt Model-Shift Uniqueness Test

005019101-08, P = 18.843356 Days, E = 127.065119 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
6.27	6.09	5.00	4.06	4.86	2.27	1.74	1.26	2.21	1.09	2.03	3.49	0.54	0.45	0



Stellar Parameters For KIC 005019101

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	7022^{+169}_{-254}	$2.998^{+0.595}_{-0.105}$	$0.070^{+0.200}_{-0.450}$	$9.213^{+1.026}_{-5.474}$	$3.080^{+0.203}_{-1.148}$	$0.006^{+0.049}_{-0.002}$
	+2%/-4%	+20%/-4%	+286%/-643%	+11%/-59%	+7%/-37%	+879%/-34%
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 005019101-08 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-387 ± 64	$18.43^{+9.69}_{-8.41}$	2847^{+198}_{-422}	6781^{+2345}_{-1198}	25^{+53}_{-14}
Alt.	-681 ± 112	$15.16^{+8.45}_{-7.36}$	2843^{+180}_{-425}	8930^{+4667}_{-1961}	65^{+162}_{-39}

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 $A_{obs} \gg 1.0$

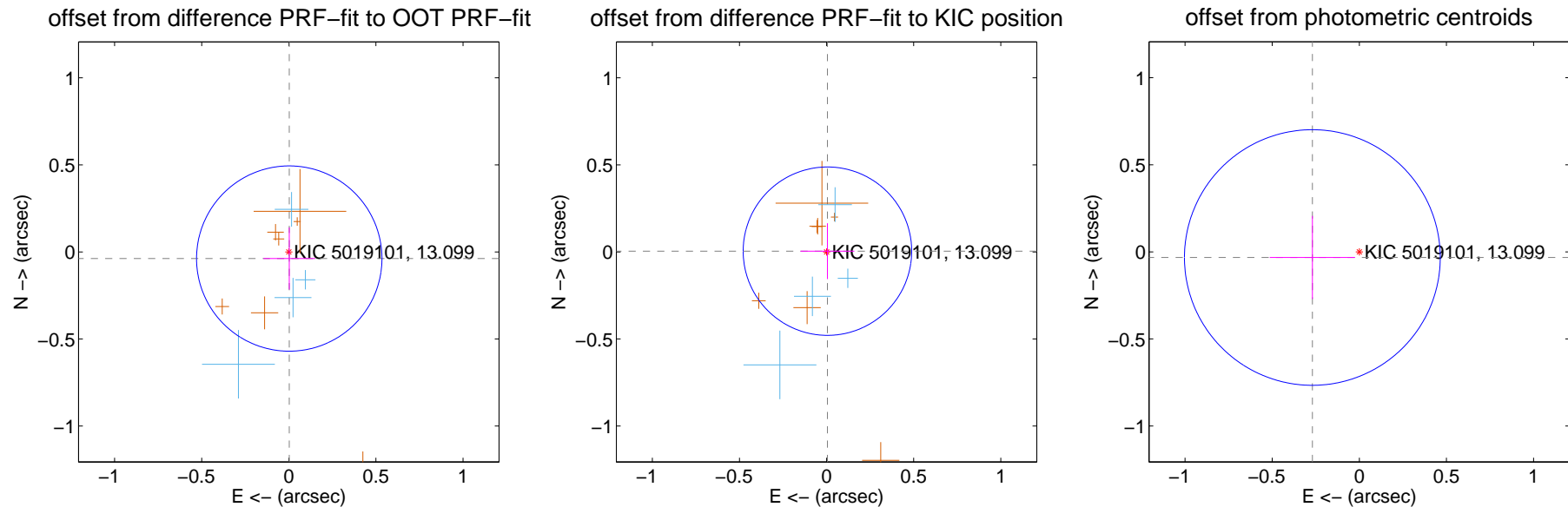
DV Centroid Data

Supplemental centroid analysis for 005019101-08. Kepler magnitude: 13.10. Transit SNR 6.89

There are 6 quarters with good PRF difference image offsets

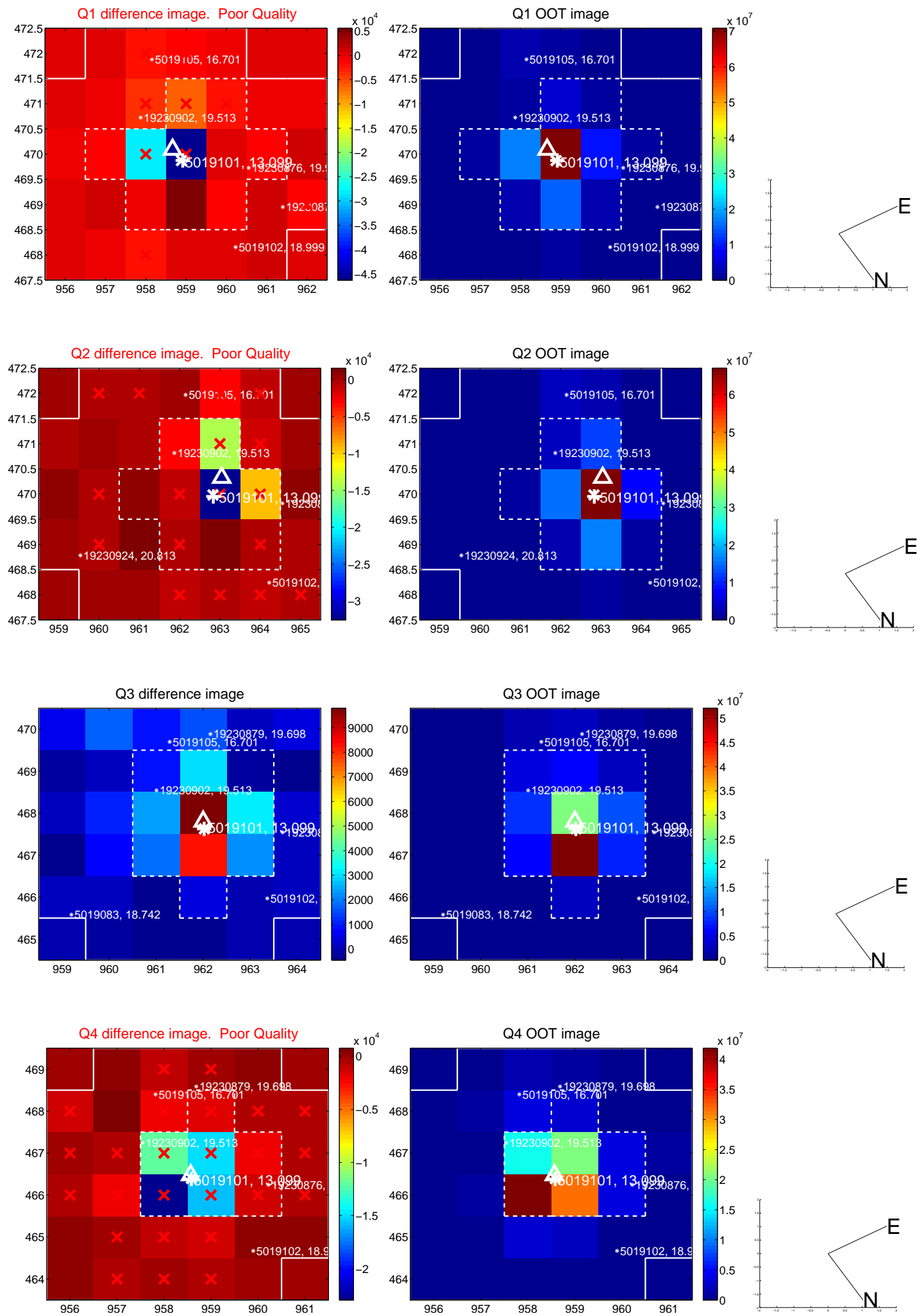
The direct PRF centroid is offset from the target star catalog position by about 0.11 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.038 ± 0.177	0.22	-0.002 ± 0.148	-0.038 ± 0.178
PRF-fit source offset from KIC position	0.007 ± 0.161	0.04	-0.005 ± 0.155	0.004 ± 0.161
photometric centroid source offset	0.27 ± 0.24	1.11	0.27 ± 0.24	-0.03 ± 0.24

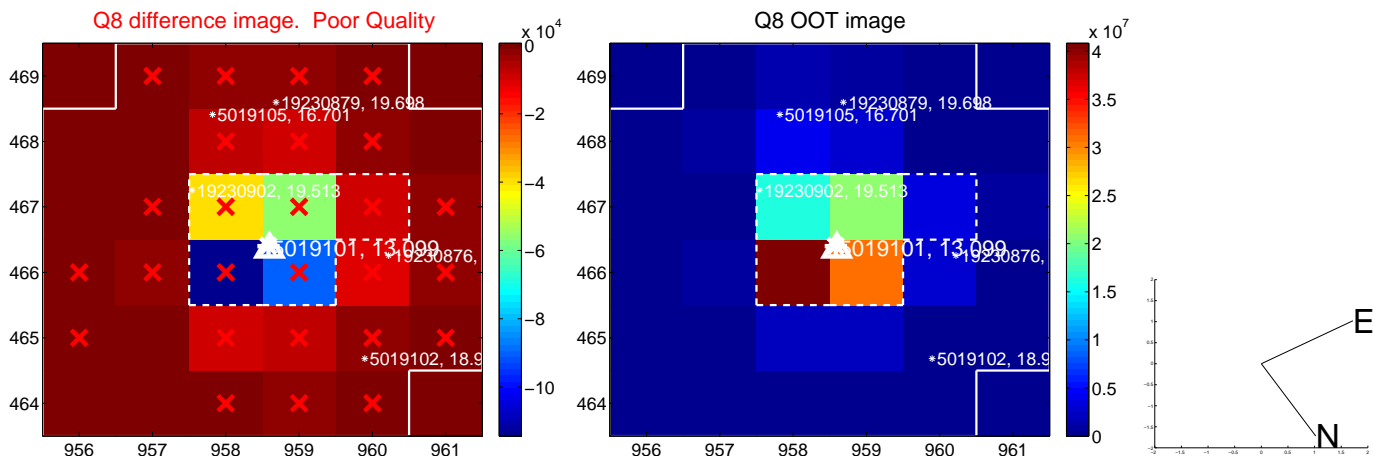
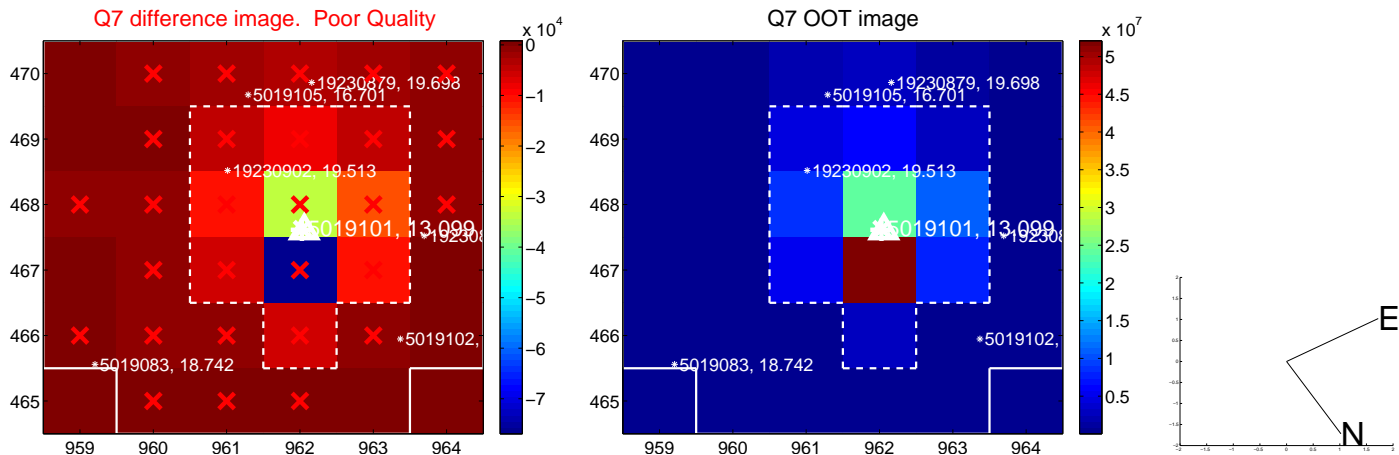
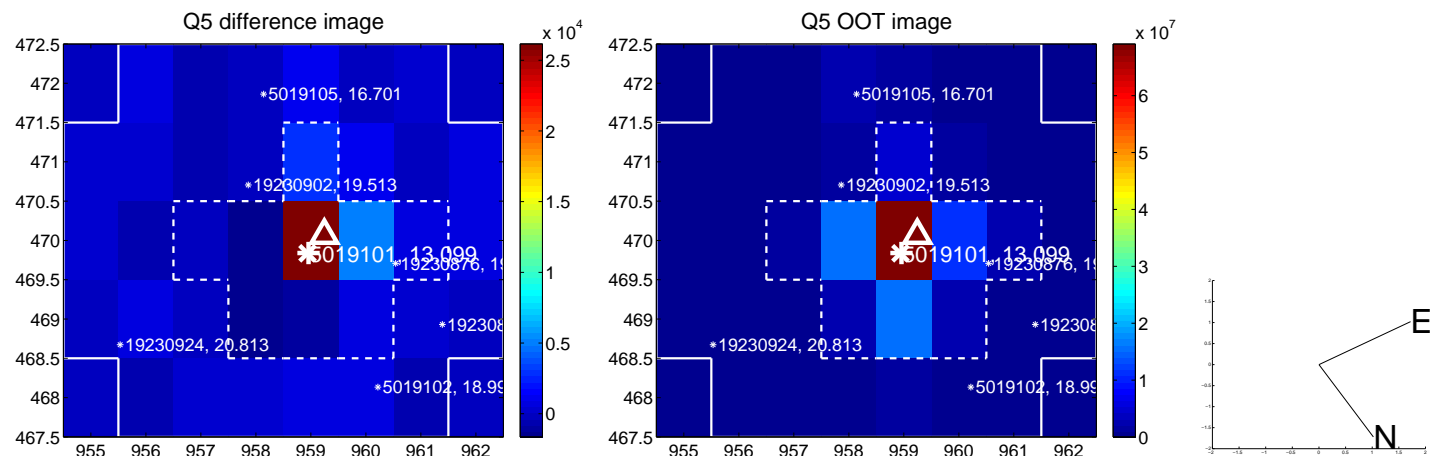


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

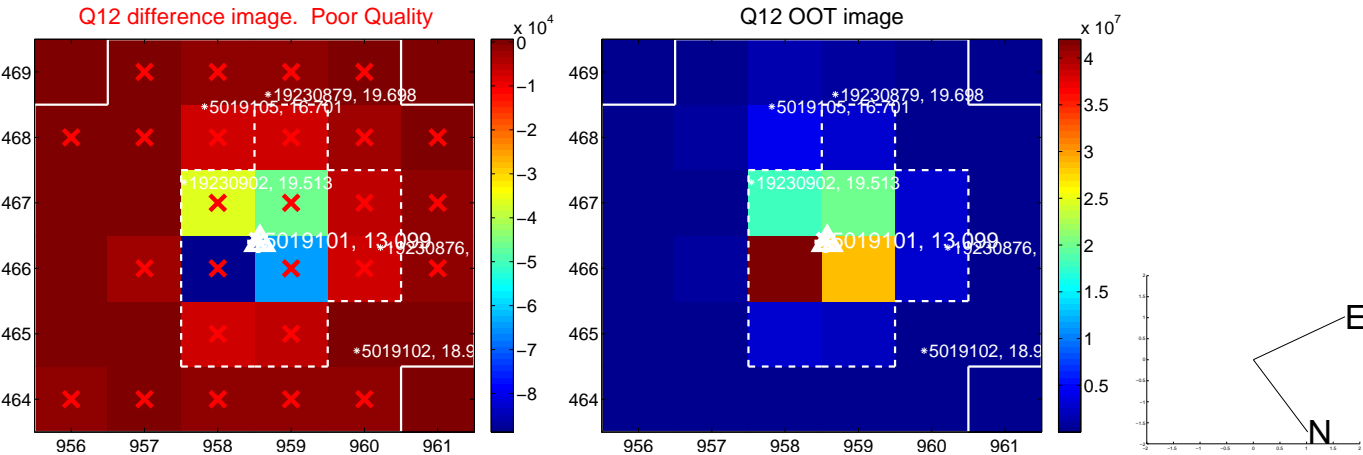
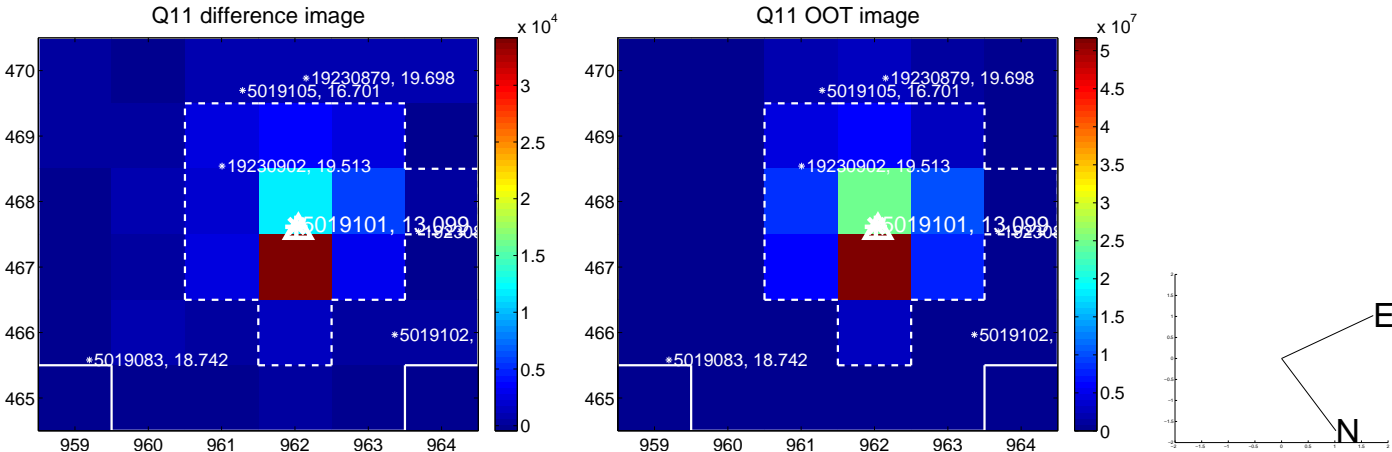
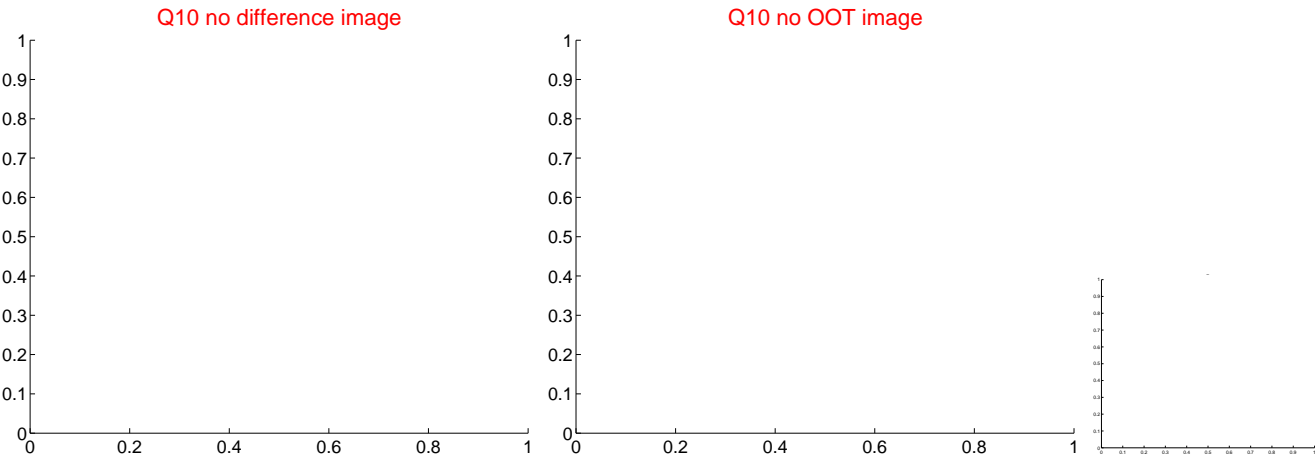
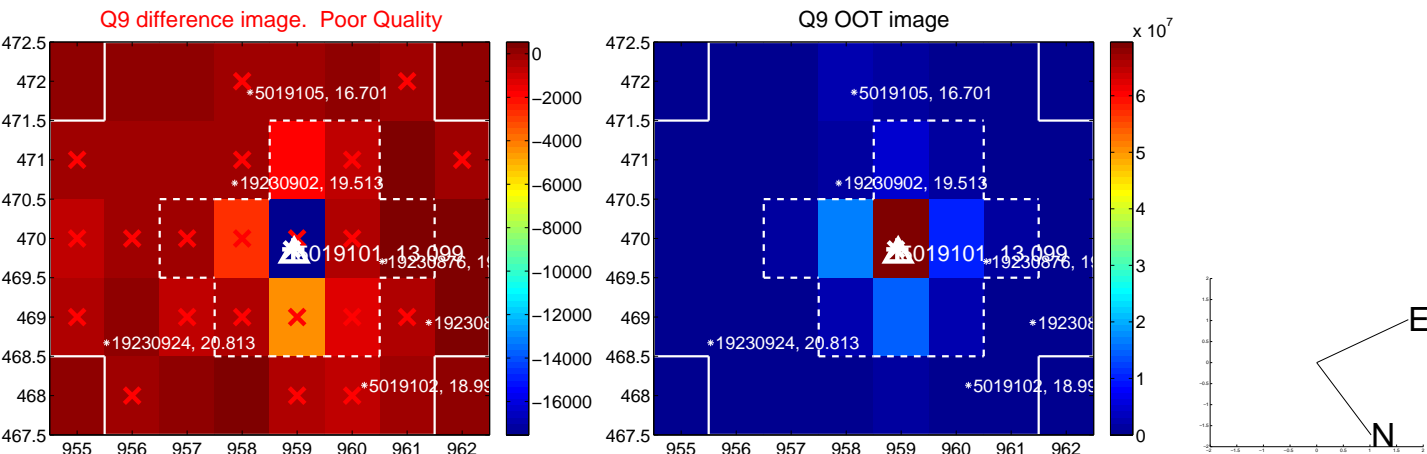
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



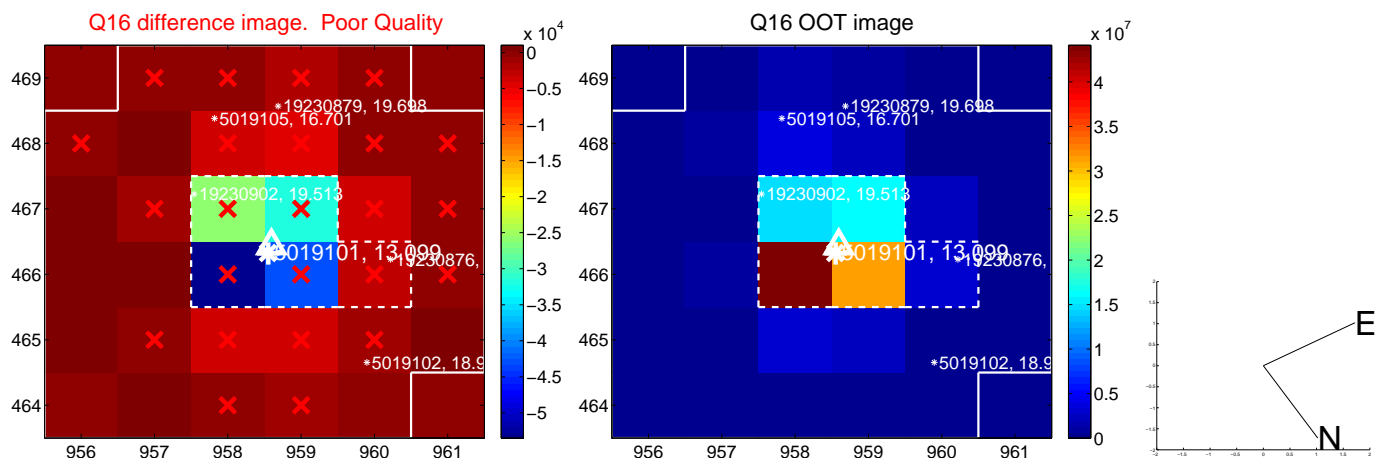
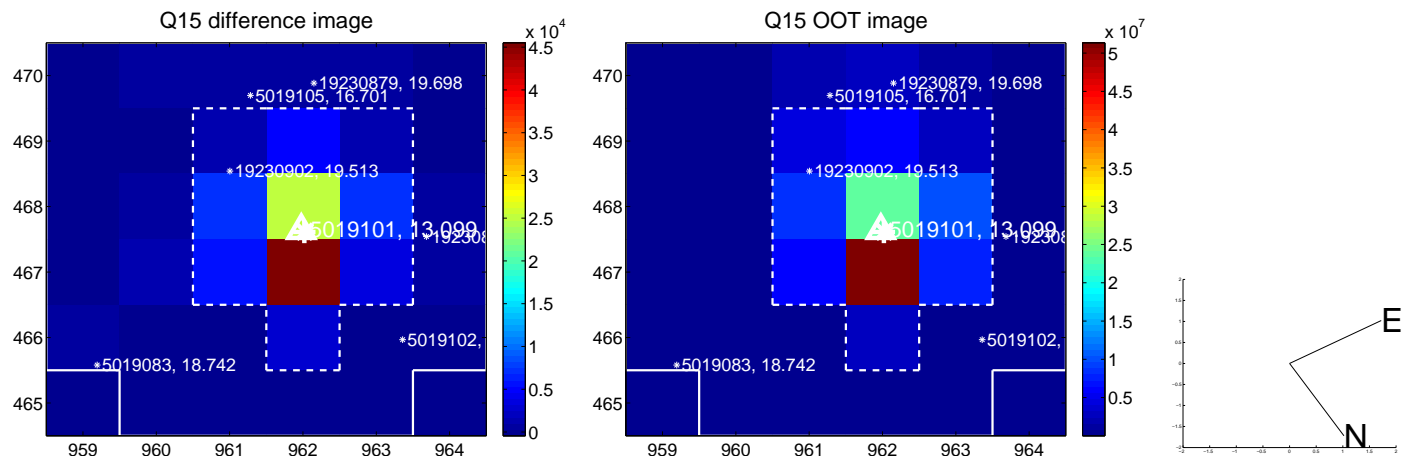
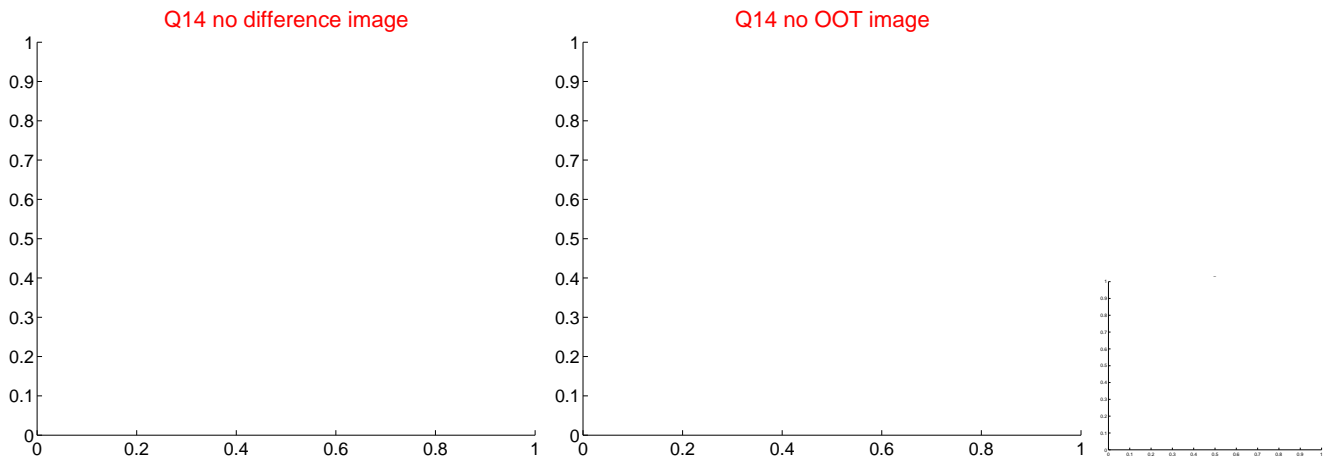
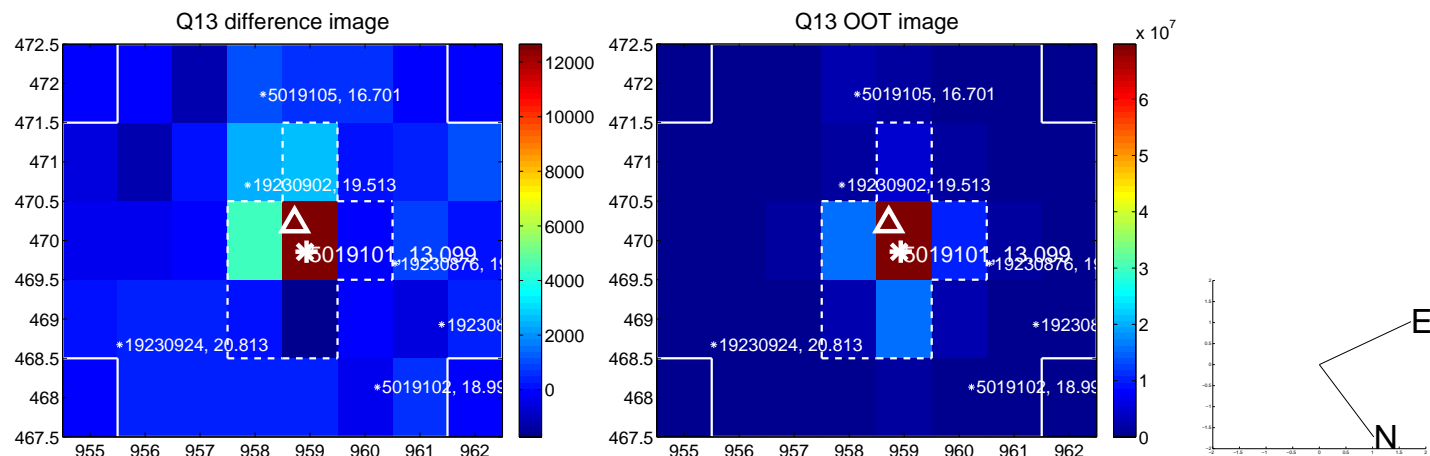
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



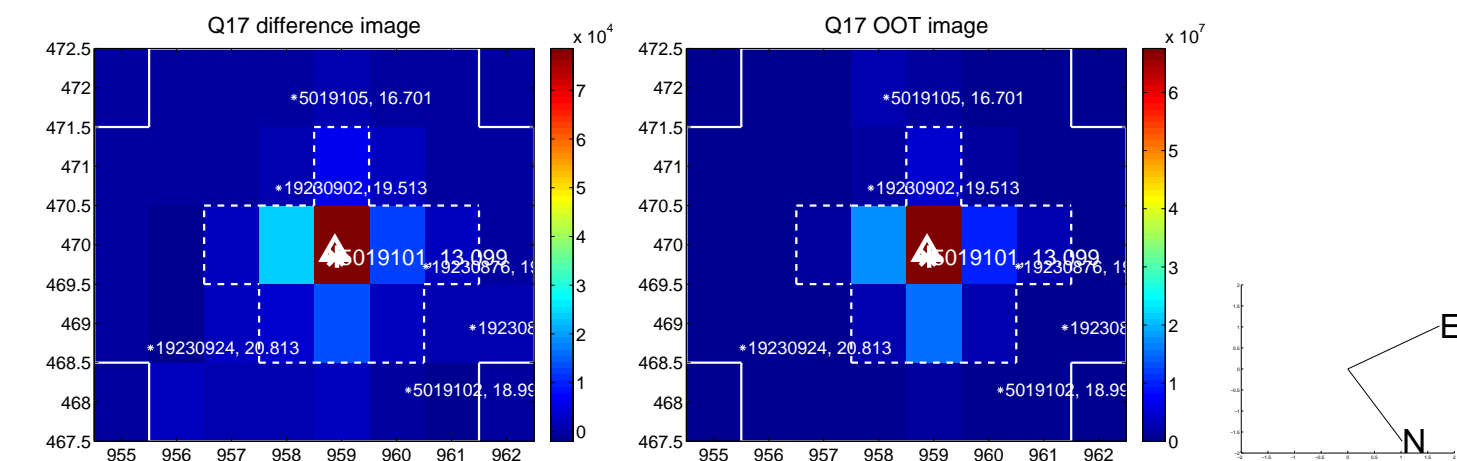
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



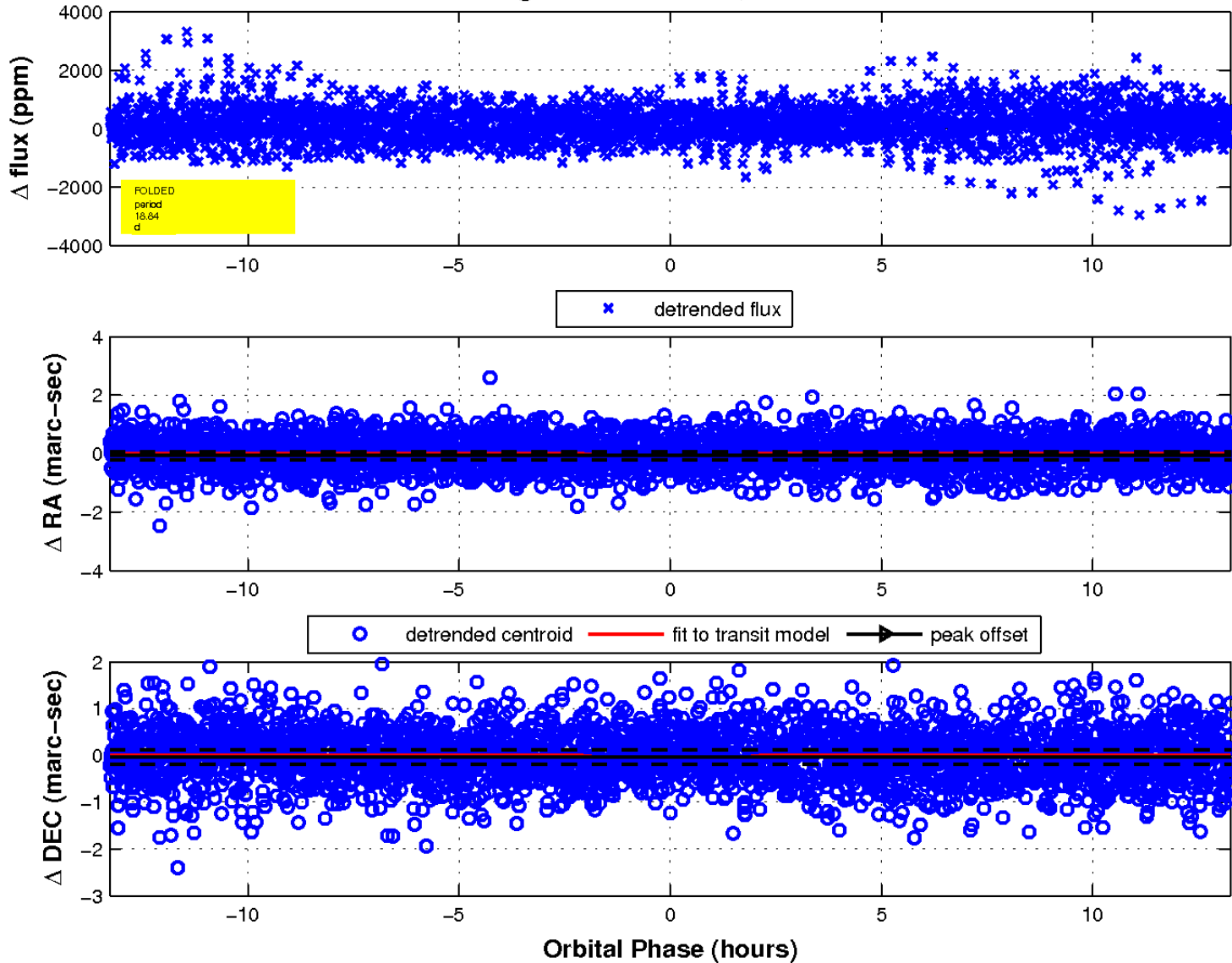
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



fluxWeightedCentroids, Planet 8 of 8



UKIRT Image

Declination

