

KIC 005821165

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})
005821165-01	OBS	No	1.806671	132.825553	216.9	3.500	9.8	-1.0	1.27	6047	1.86	2312.98
005821165-02	OBS	No	0.903245	132.234848	19.8	4.831	8.5	8.0	1.27	6047	0.58	5829.12
005821165-03	OBS	No	69.421475	159.135774	177.6	5.787	8.1	7.1	1.27	6047	1.88	17.84
005821165-04	OBS	No	58.362186	162.332645	146.6	8.873	8.1	6.9	1.27	6047	1.72	22.48
005821165-05	OBS	No	38.451545	146.312128	219.1	2.366	7.7	8.1	1.27	6047	2.00	39.22

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005821165-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—CENT_NOFITS
005821165-02	OBS	FP	0.00	1	0	0	0	LPP_DV—MOD_NONUNIQ_ALT—SAME_NTL_PERIOD
005821165-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT
005821165-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
005821165-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—MOD_NONUNIQ_ALT

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

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

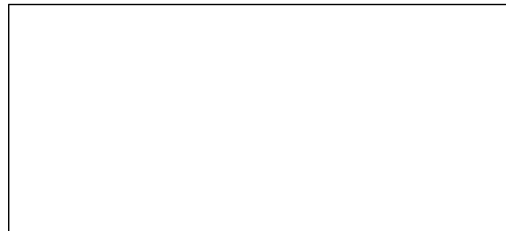
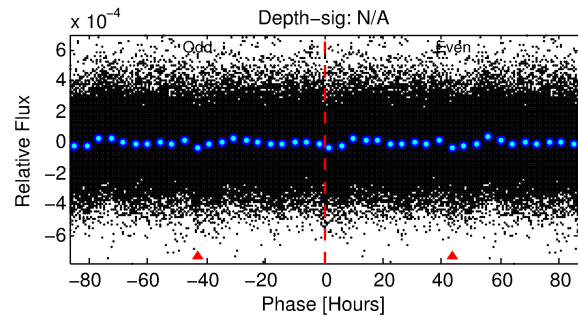
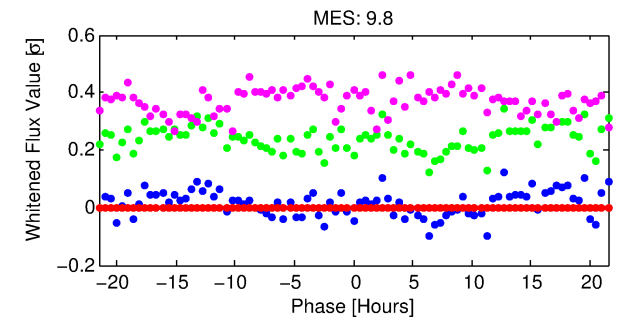
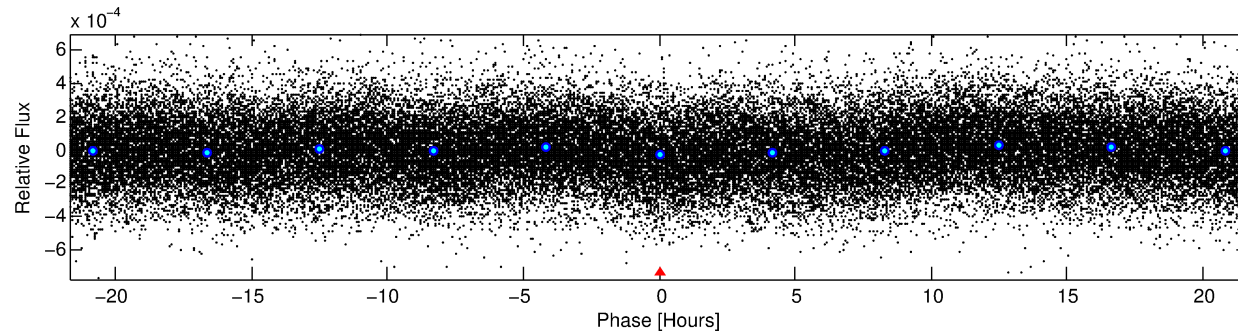
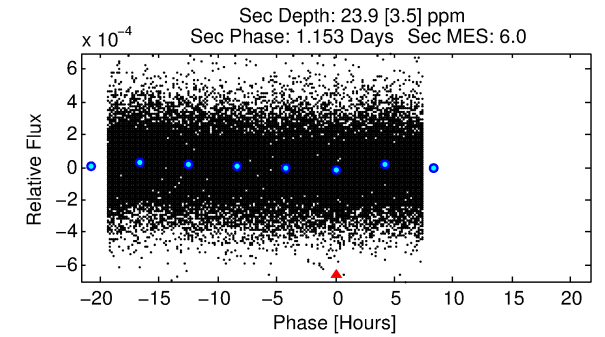
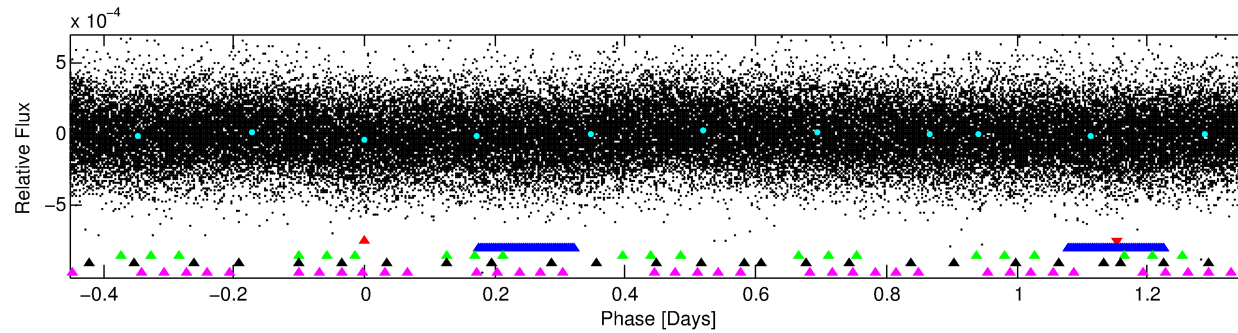
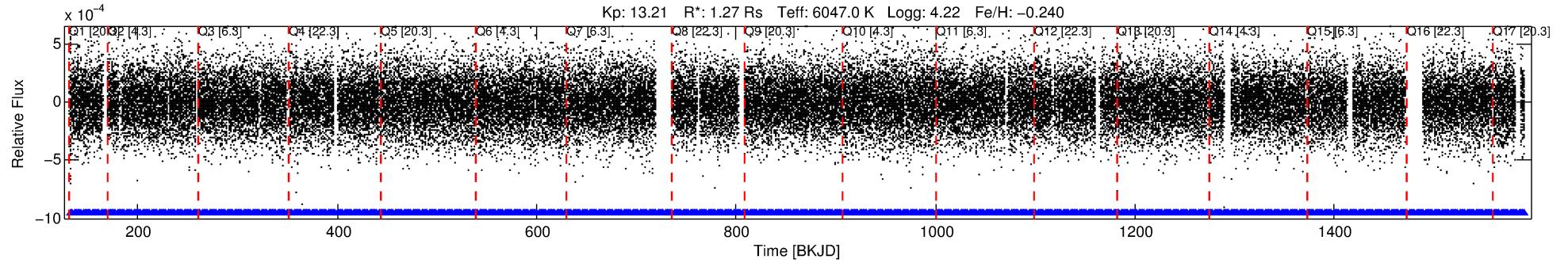
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 005821165-01

No Significant Match Found

DV One-Page Summary

KIC: 5821165 Candidate: 1 of 5 Period: 1.807 d



TPS TCE Results:

Period = 1.80667 d
Epoch = 132.8256 BKJD

DV fit results are unavailable

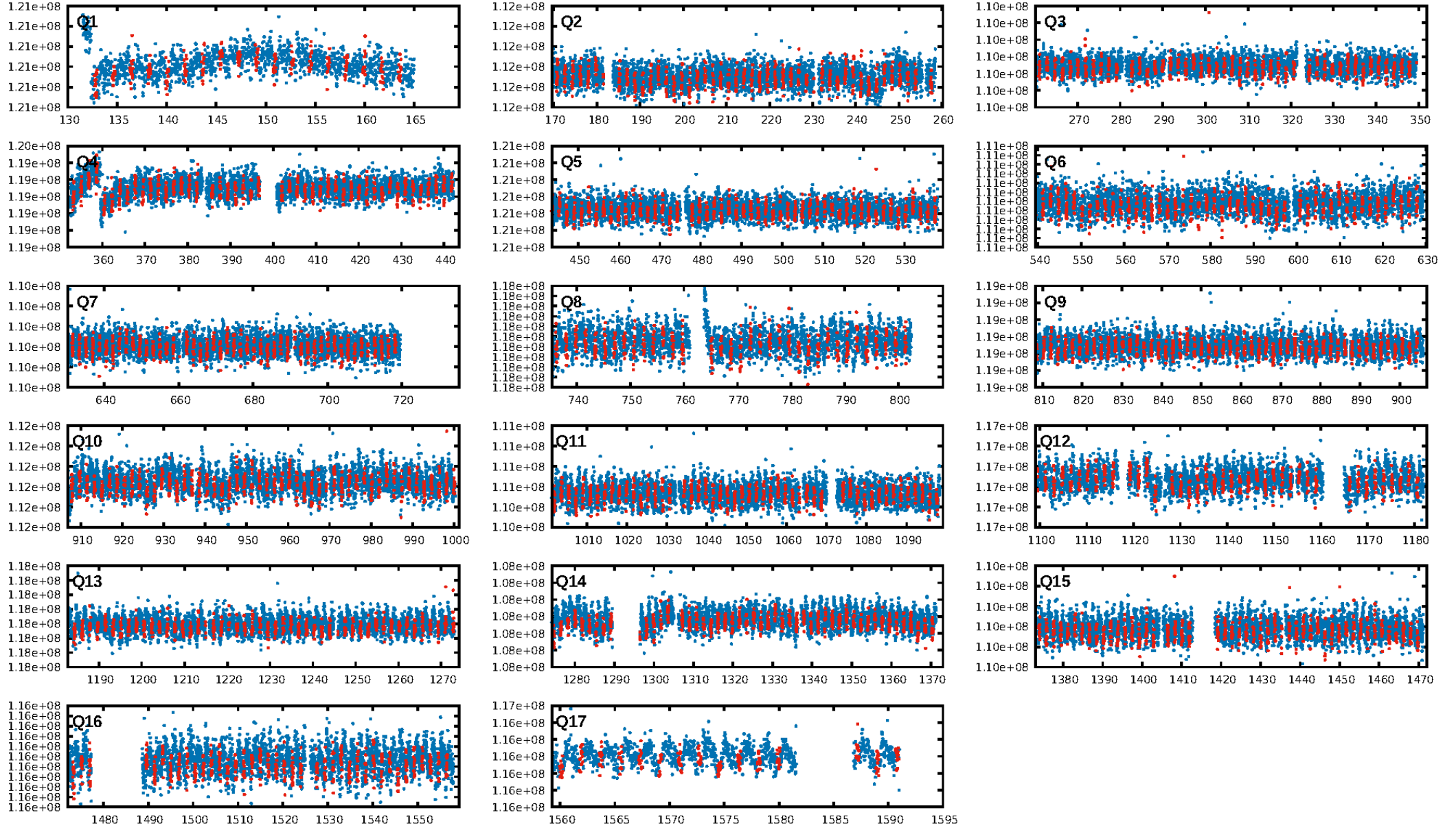
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [3.63σ]
LongPeriod-sig: 100.0% [208.17σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 1.34e-16
RollingBand-fgt: 1.00 [732/732]
GhostDiagnostic-chr: 1.501
Centroid-sig: 2.7%
Centroid-so: 0.672 arcsec [2.20σ]
OotOffset-rm: N/A
KicOffset-rm: N/A
OotOffset-st: 0/0/0 [0]
KicOffset-st: 0/0/0 [0]
DiffImageQuality-fgm: N/A
DiffImageOverlap-fno: 0.00 [0/17]

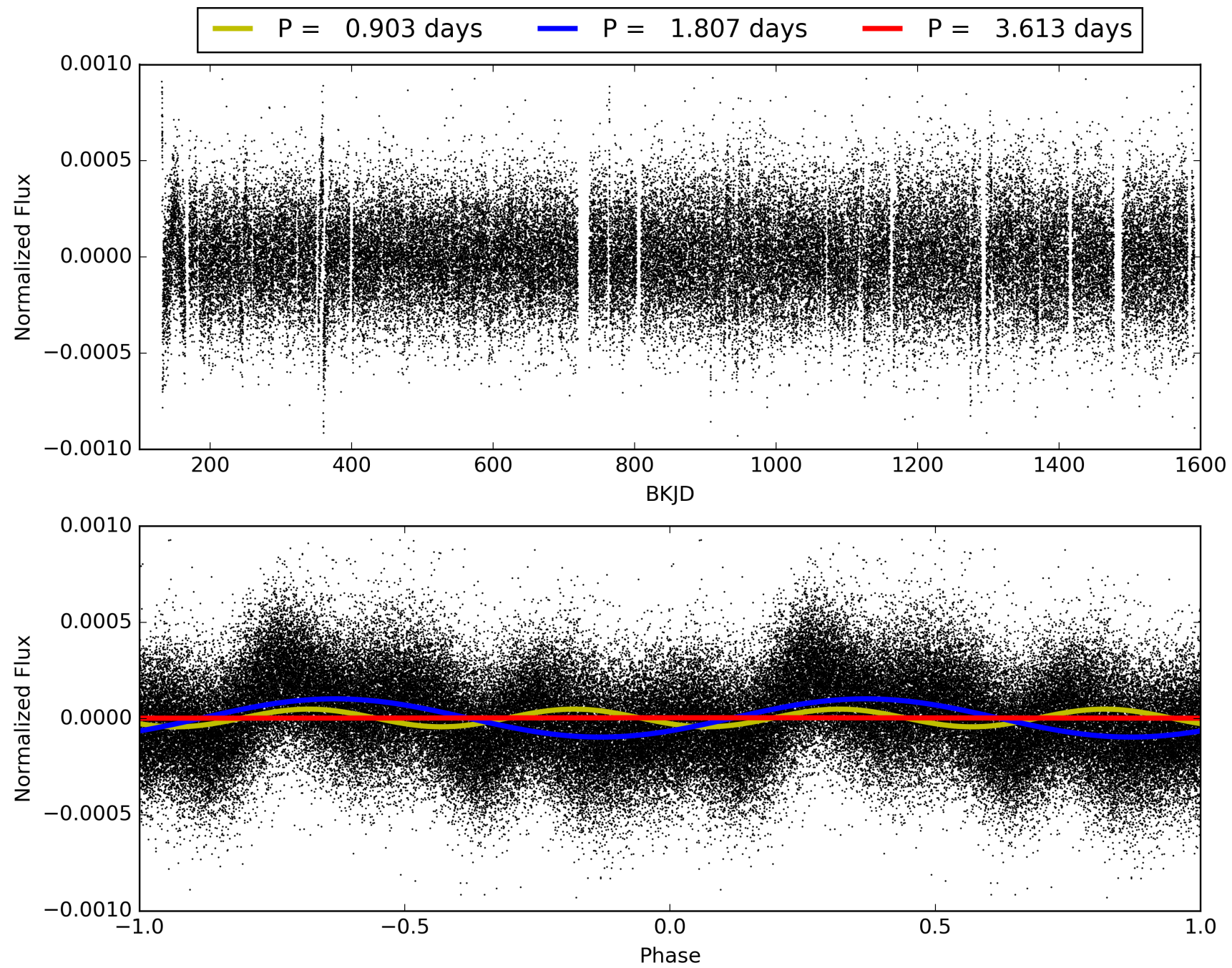
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This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

TCE 005821165-01, PDC Light Curves

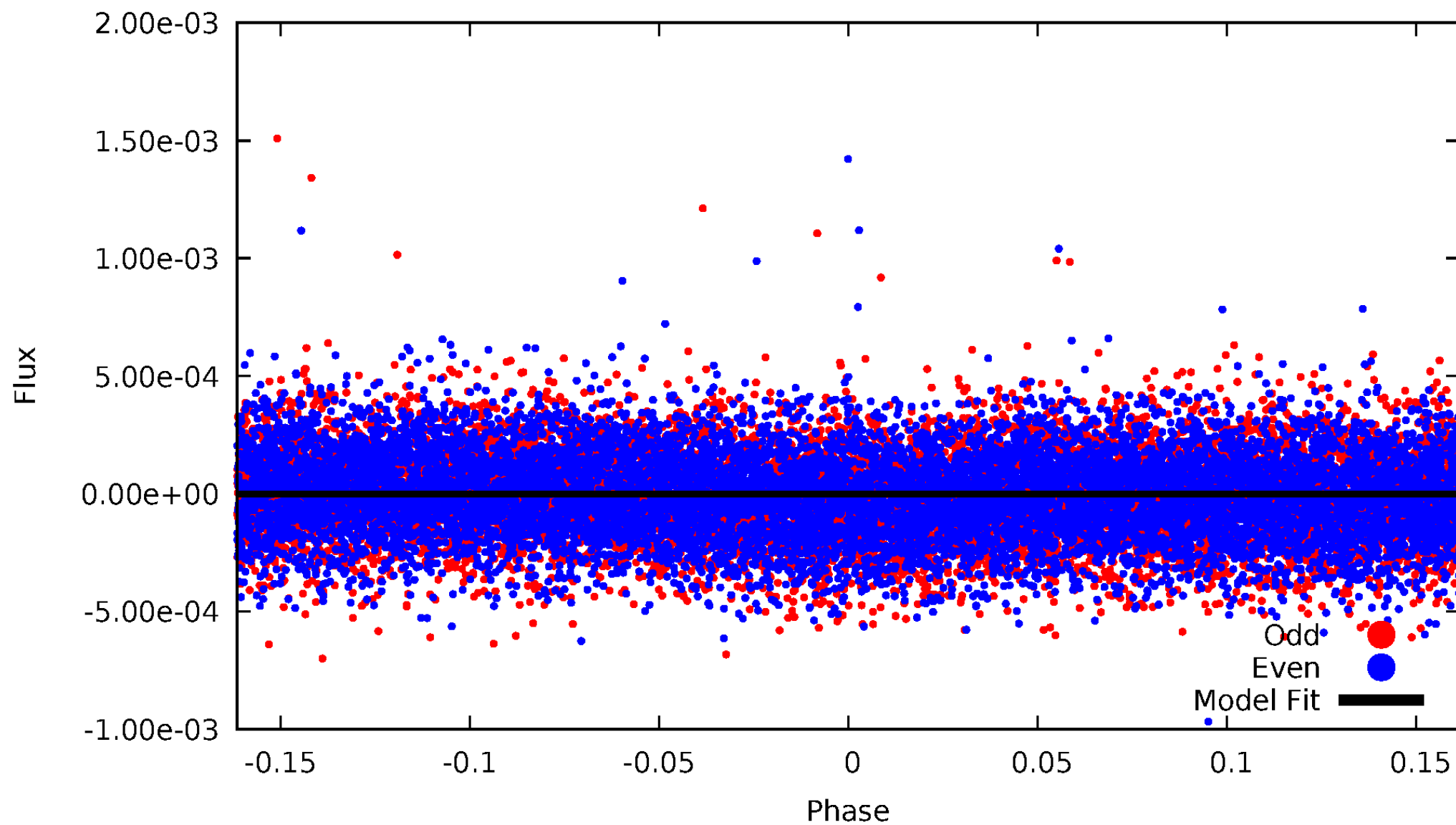


TCE 005821165-01



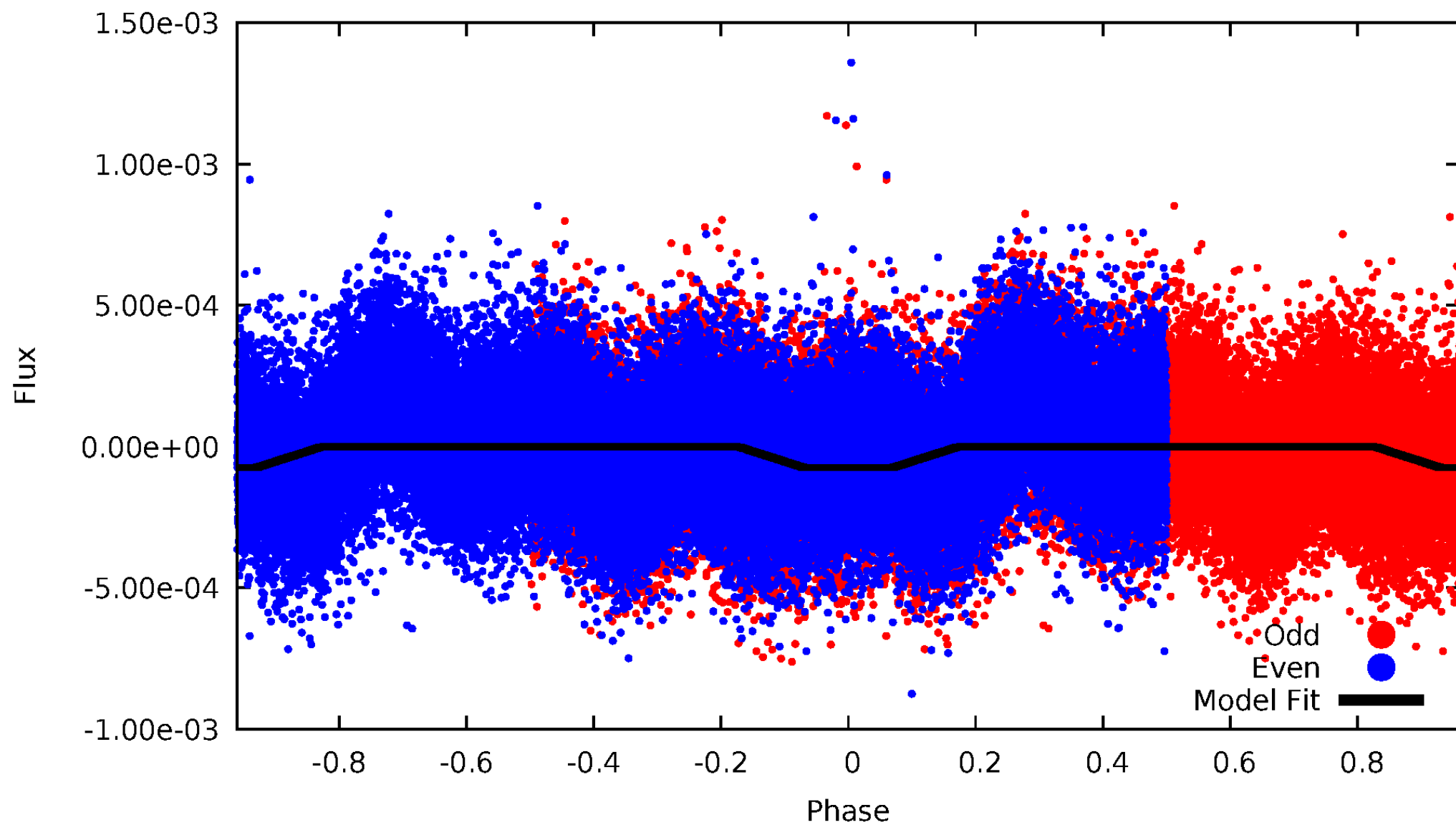
DV Odd/Even

TCE 005821165-01

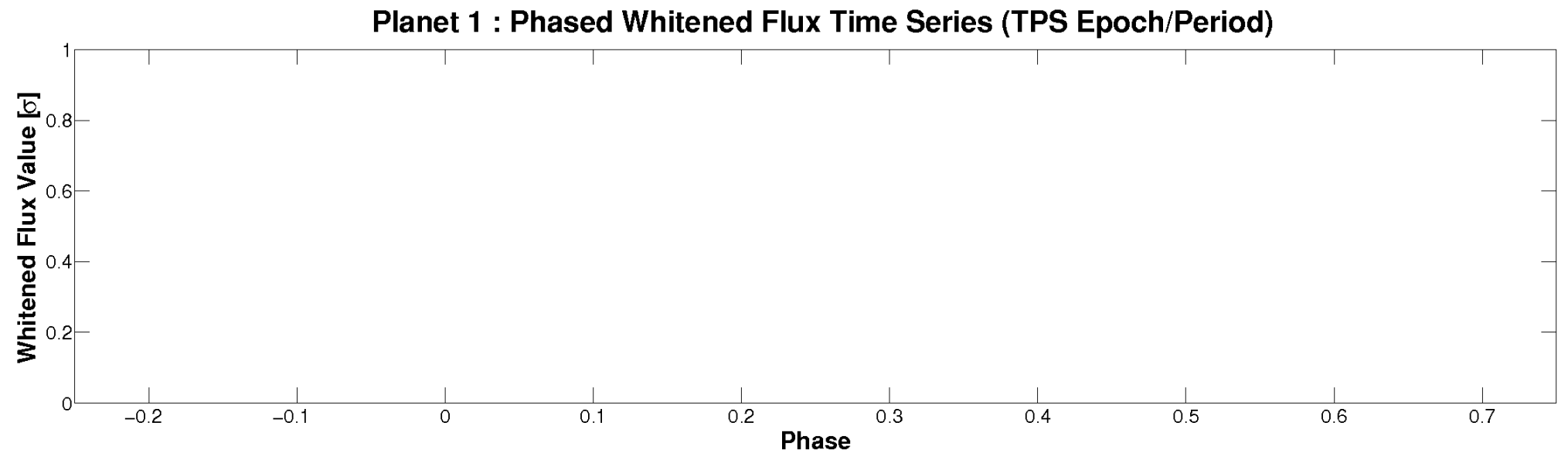
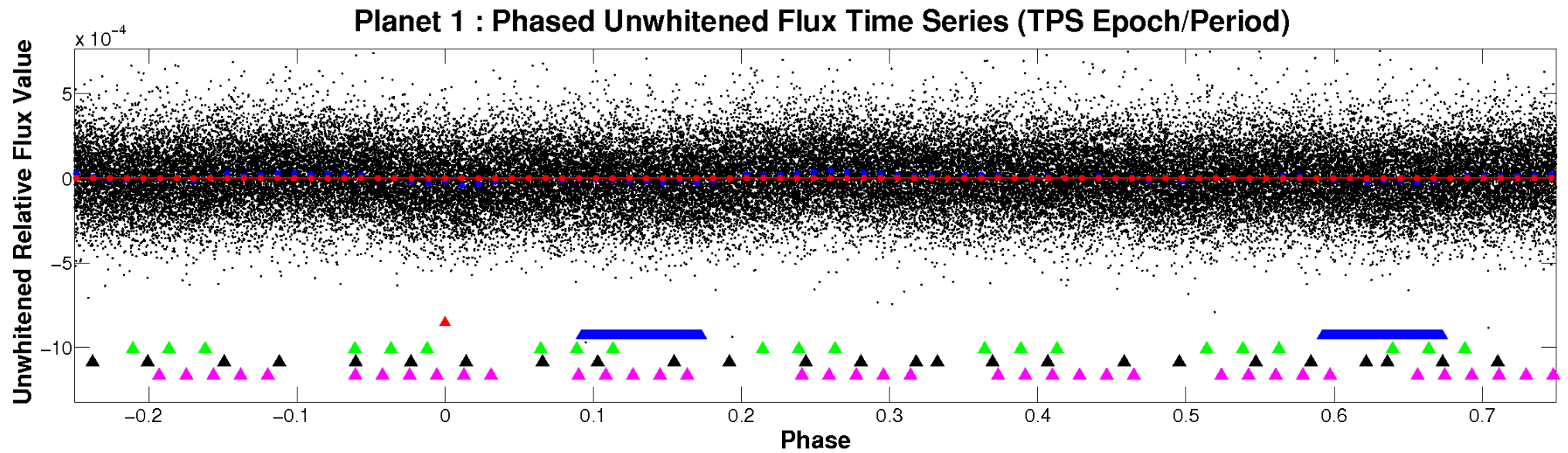


ALT Odd/Even

TCE 005821165-01

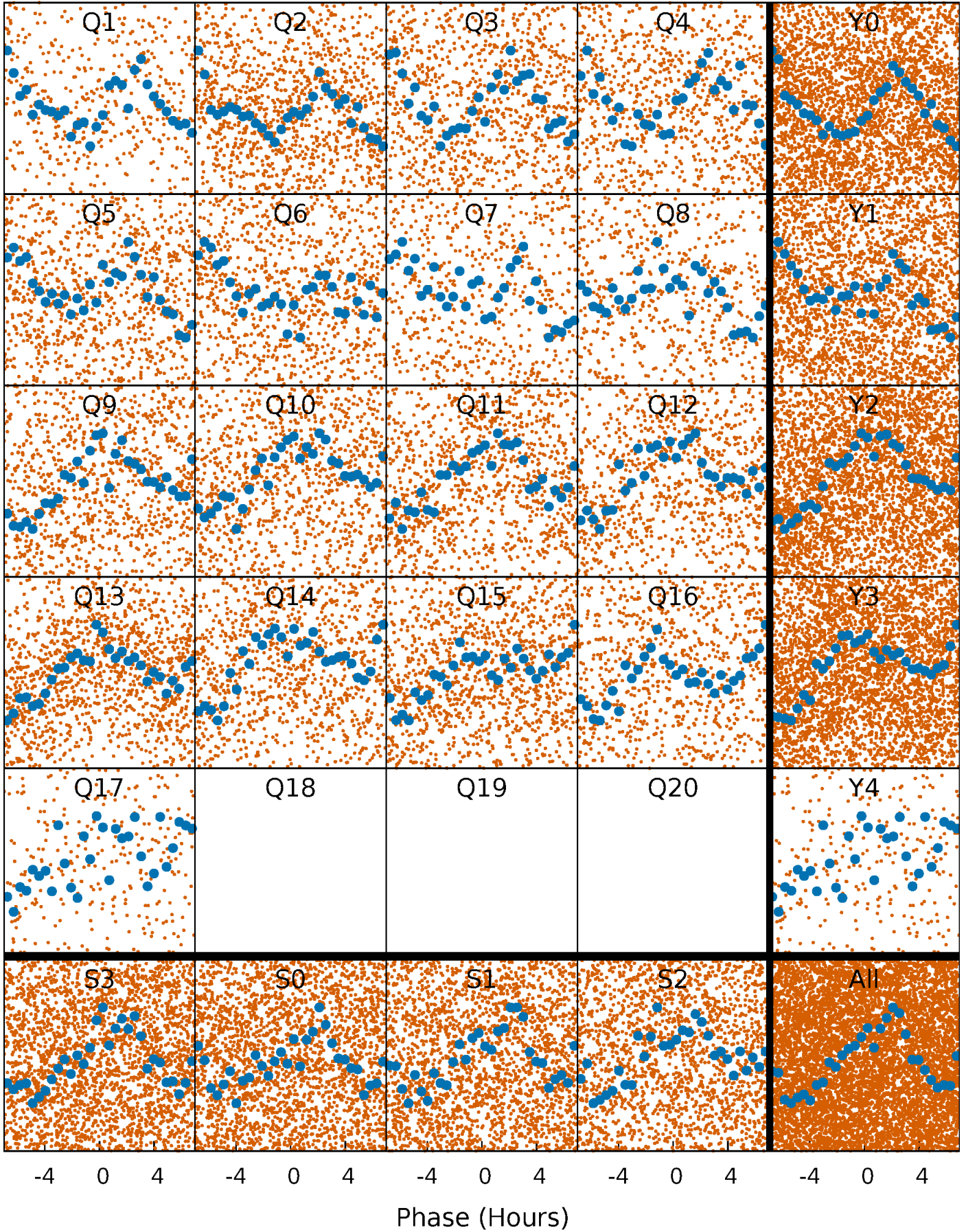


Non-Whitened Vs. Whitened Light Curve



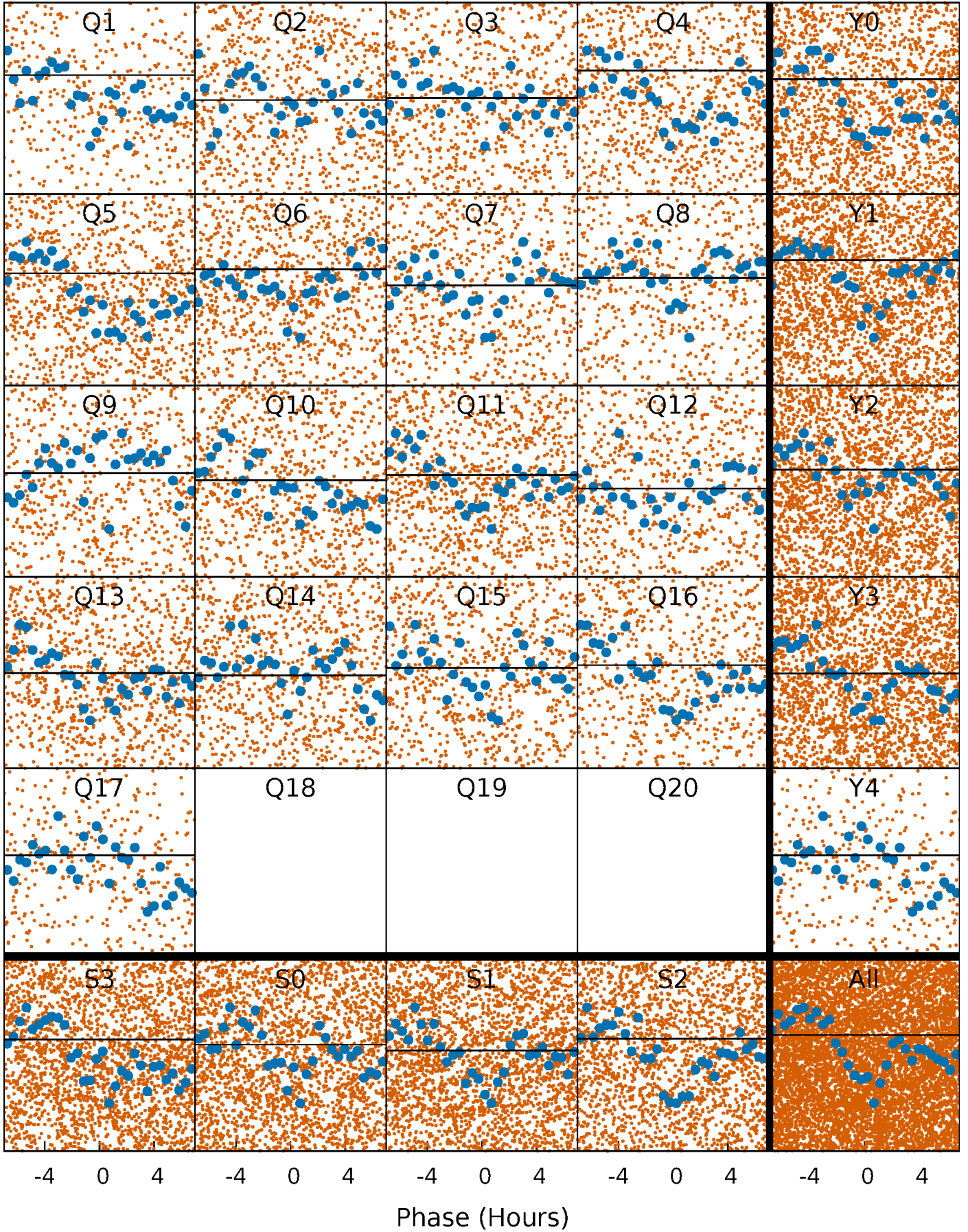
PDC Quarter-Phased Transit Curves

TCE 005821165-01 P= 1.806671 Days $T_0=132.825553$ (BKJD)



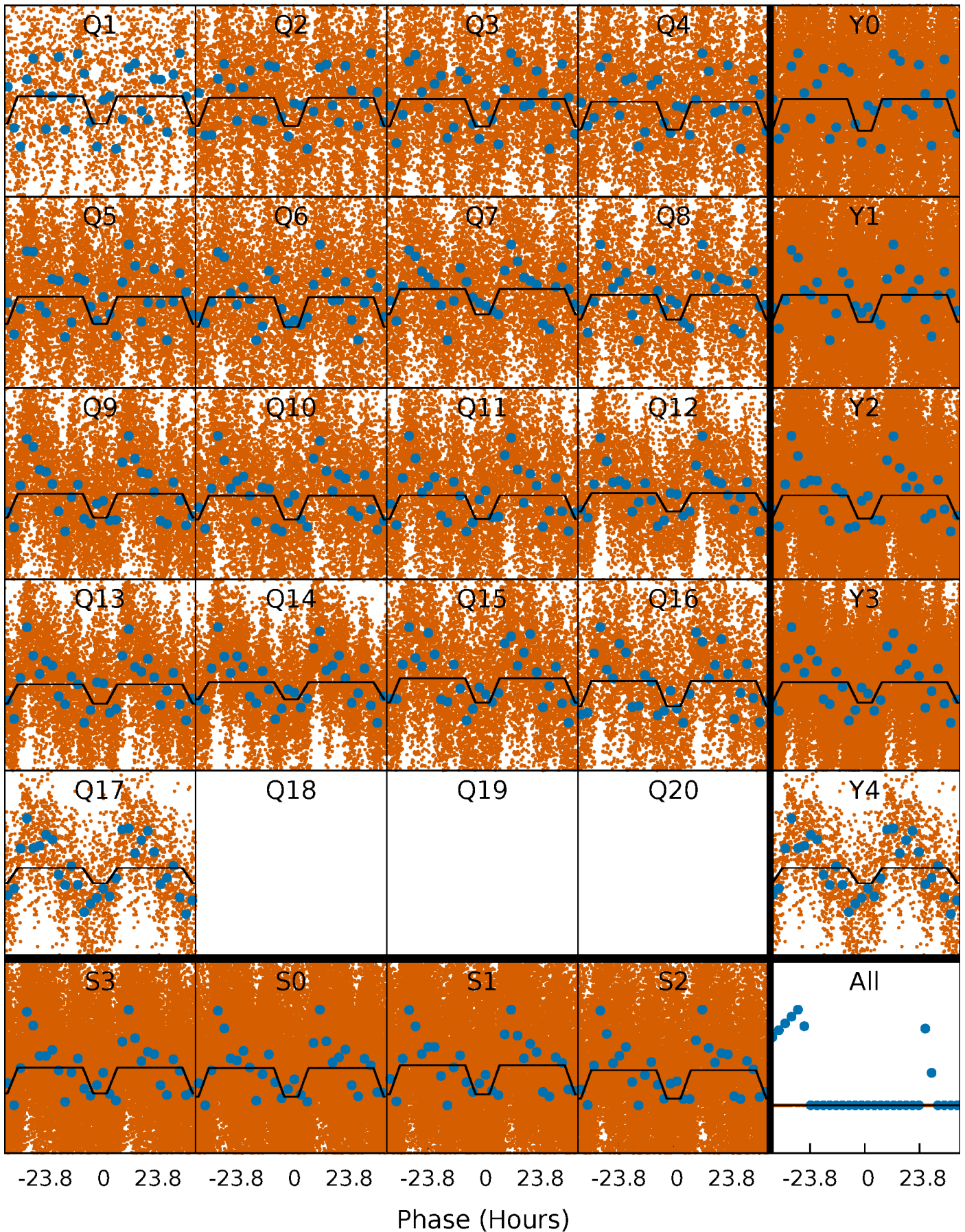
DV Quarter-Phased Transit Curves

TCE 005821165-01 P= 1.806671 Days $T_0=132.825553$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

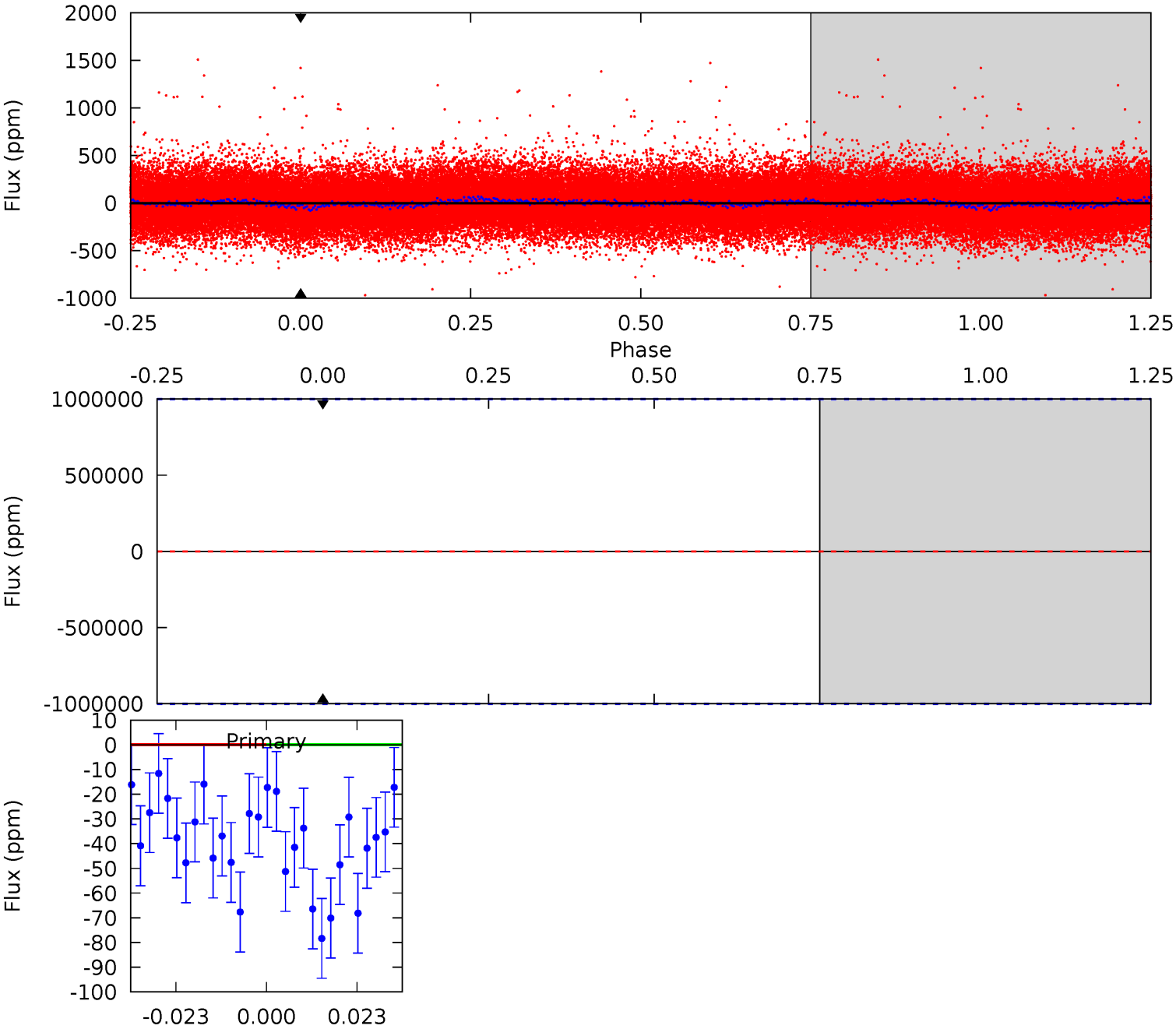
TCE 005821165-01 P= 1.806671 Days $T_0=132.816987$ (BKJD)



DV Model-Shift Uniqueness Test

005821165-01, P = 1.806671 Days, E = 131.018882 Days

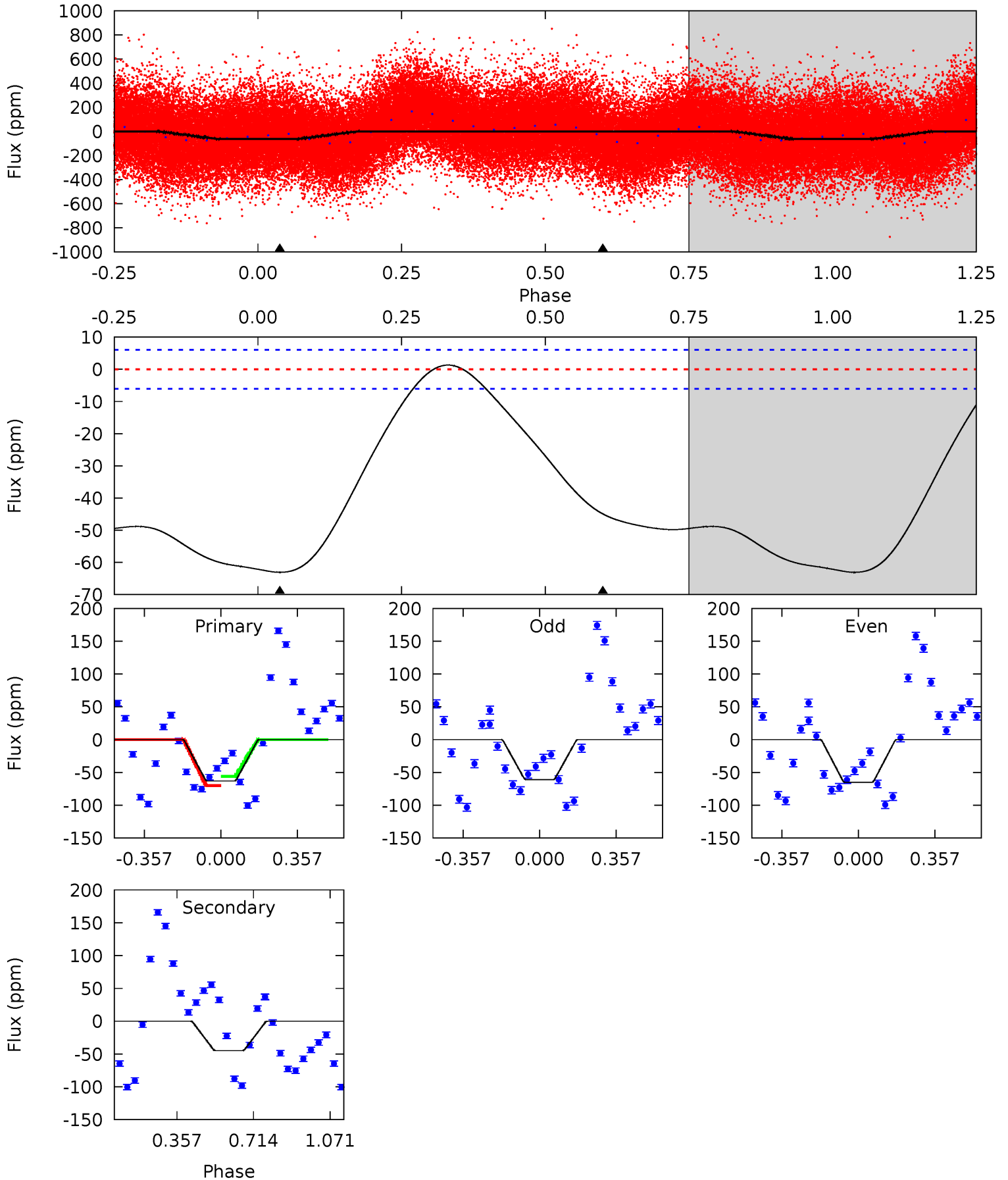
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
0	0	0	0	1.00	1.00	1.00	0	0	0	0	0	0	0	0



Alt Model-Shift Uniqueness Test

005821165-01, P = 1.806671 Days, E = 131.010316 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
44.5	31.7	0	0	4.29	0.92	1.46	44.5	44.5	31.7	31.7	1.39	1.10	0.02	4.98



Stellar Parameters For KIC 005821165

	$T_{\text{eff}}(K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M(M_{\odot})$	$\rho_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6047^{+163}_{-181}	$4.223^{+0.225}_{-0.184}$	$-0.240^{+0.300}_{-0.300}$	$1.266^{+0.351}_{-0.315}$	$0.977^{+0.156}_{-0.117}$	$0.678^{+0.824}_{-0.324}$
	+3%/-3%	+5%/-4%	+125%/-125%	+28%/-25%	+16%/-12%	+122%/-48%
Source	PHO1	KIC0	KIC0	DSEP		

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

Secondary Eclipse Parameters for KIC 005821165-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	0 ± 1000000	$9.52^{+10.96}_{-6.56}$	2463^{+191}_{-188}	5119^{+22162}_{-25954}	11^{+1046}_{-587}
Alt.	-45 ± 1	$9.56^{+10.35}_{-6.46}$	2464^{+190}_{-179}	-2310^{+5883}_{-413}	$0.228^{+1.877}_{-0.174}$

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

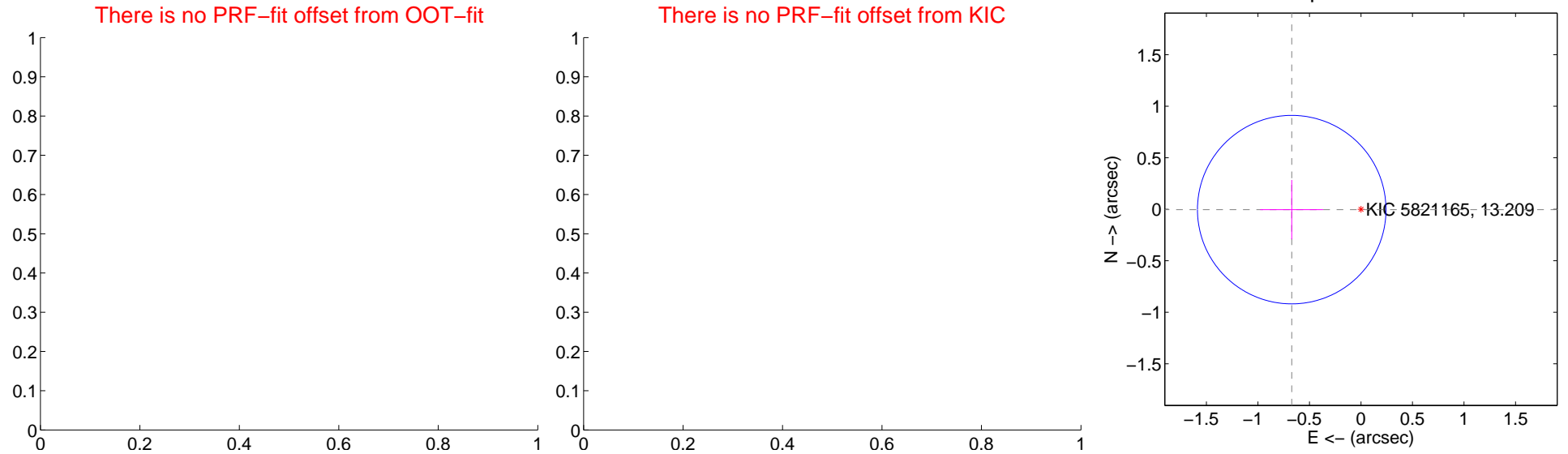
DV Centroid Data

Supplemental centroid analysis for 005821165-01. Kepler magnitude: 13.21. Transit SNR -1.00

There are 0 quarters with good PRF difference image offsets

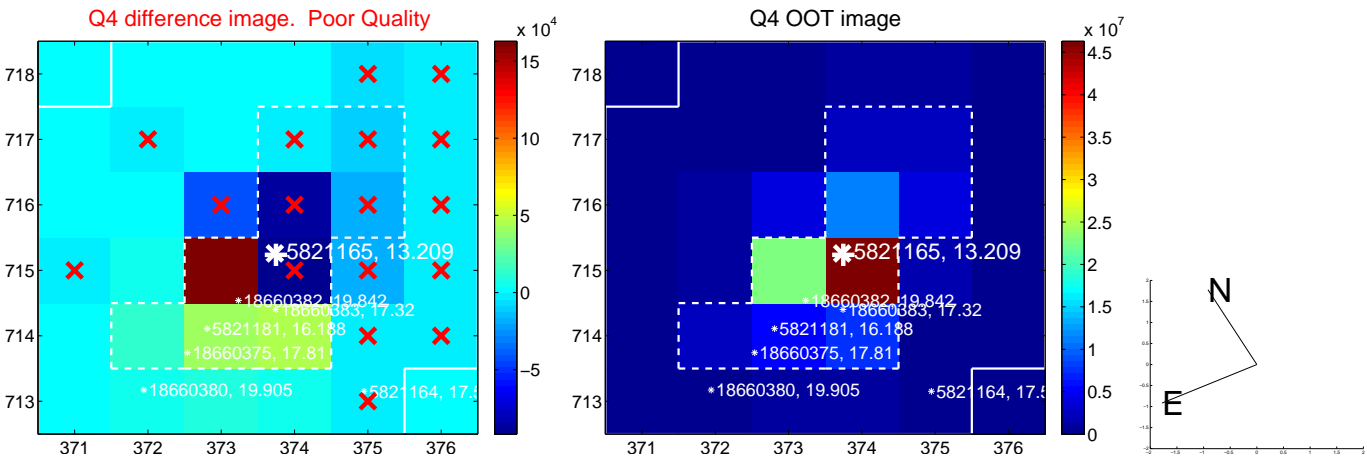
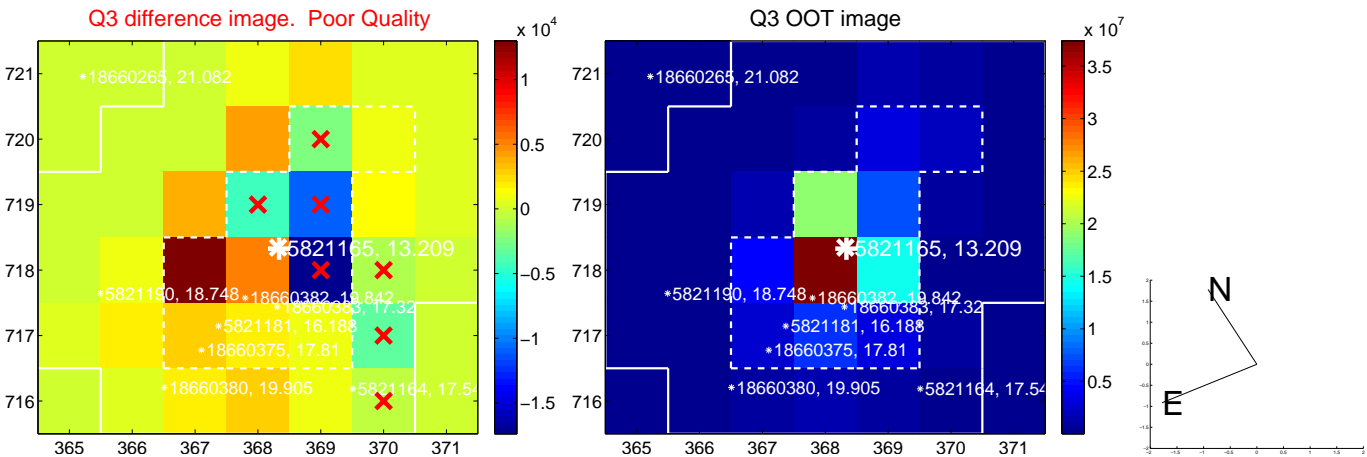
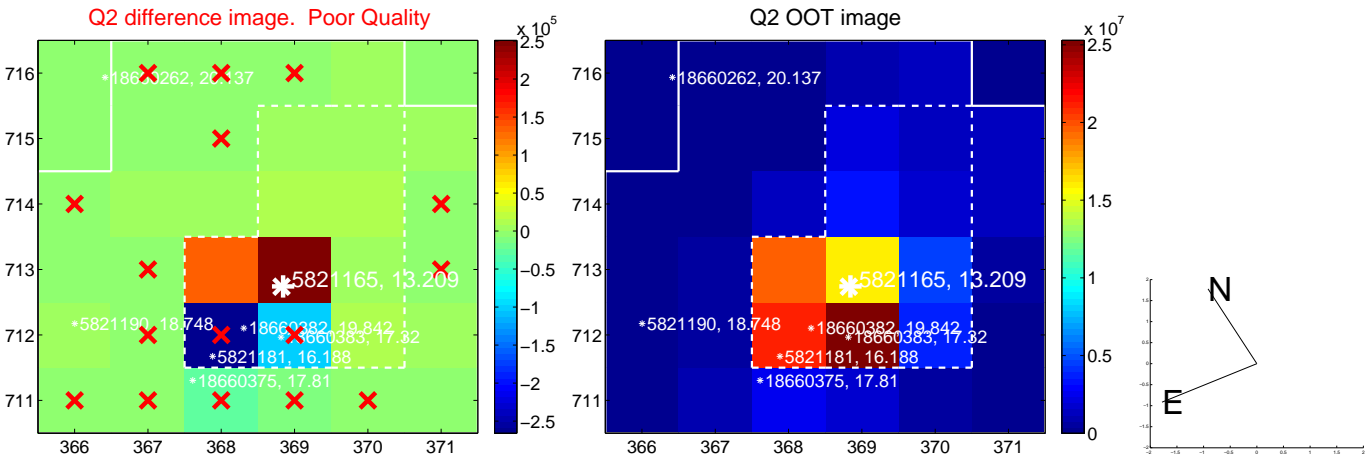
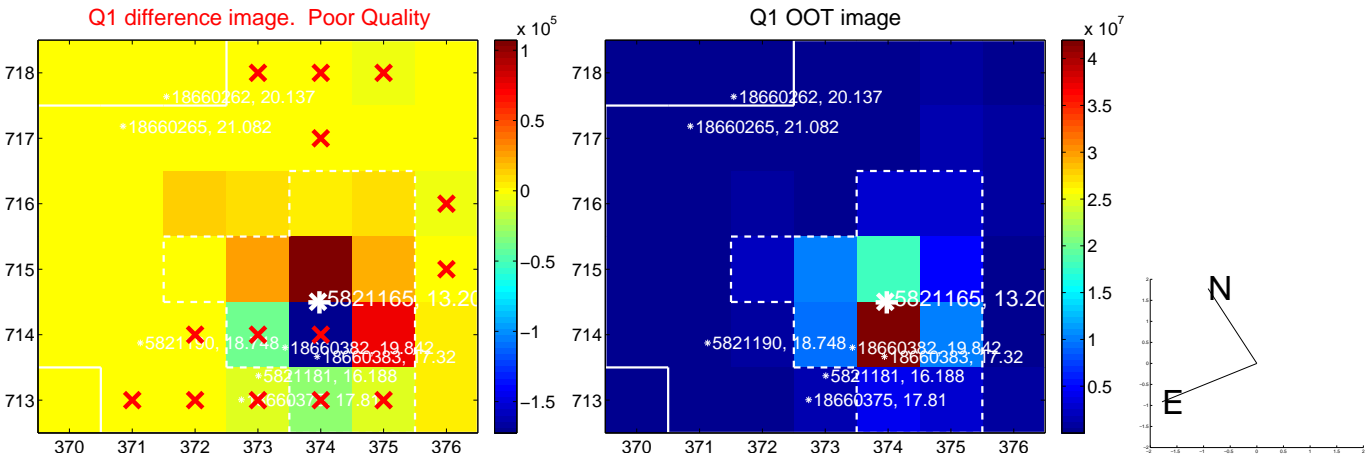
The direct PRF centroid is offset from the target star catalog position by about NaN arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	—	—	—	—
PRF-fit source offset from KIC position	—	—	—	—
photometric centroid source offset	0.67 ± 0.30	2.20	0.67 ± 0.30	-0.00 ± 0.29

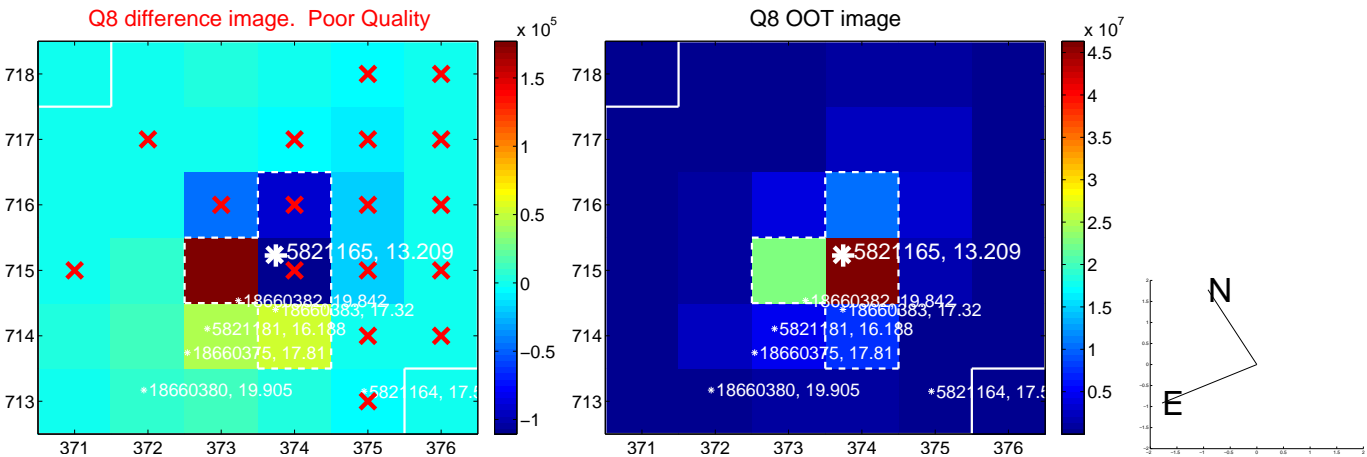
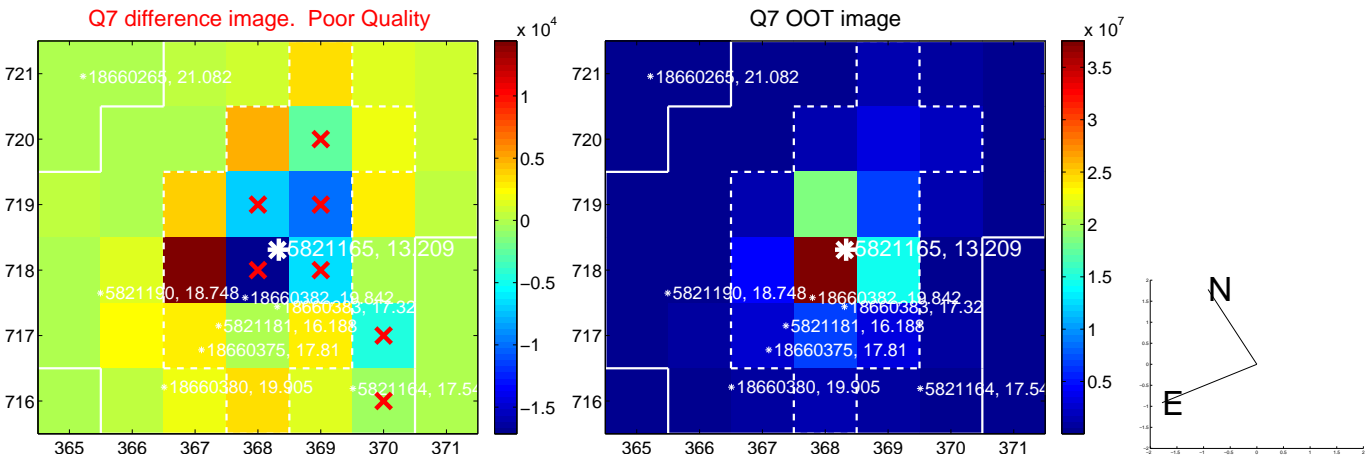
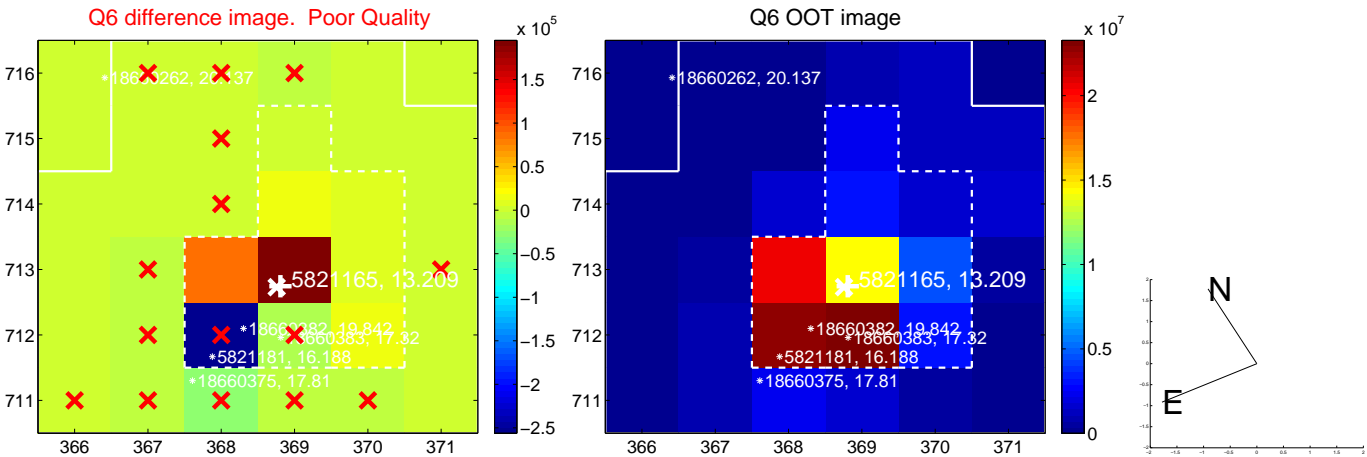
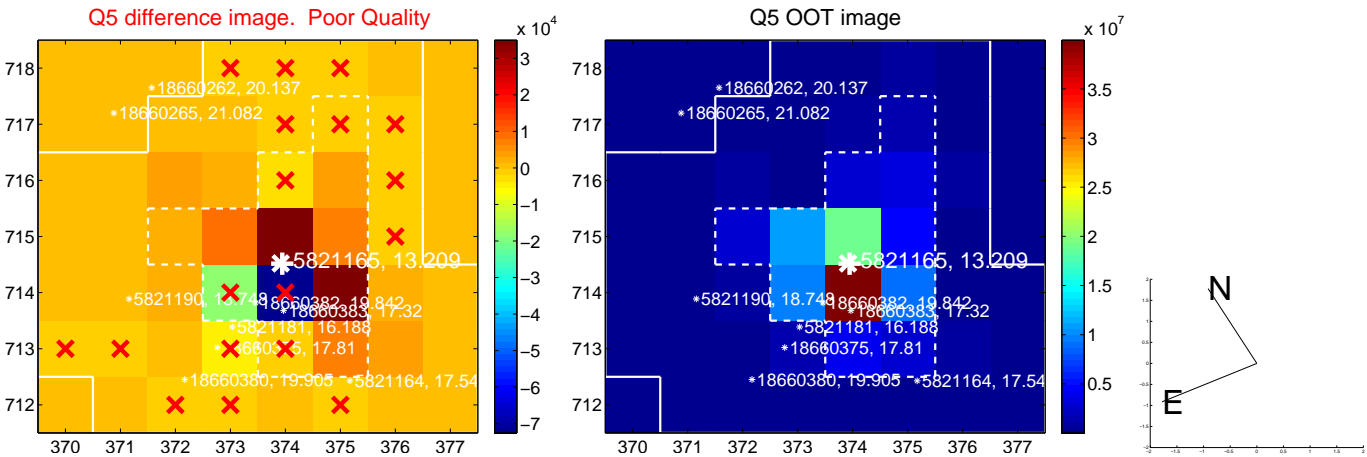


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

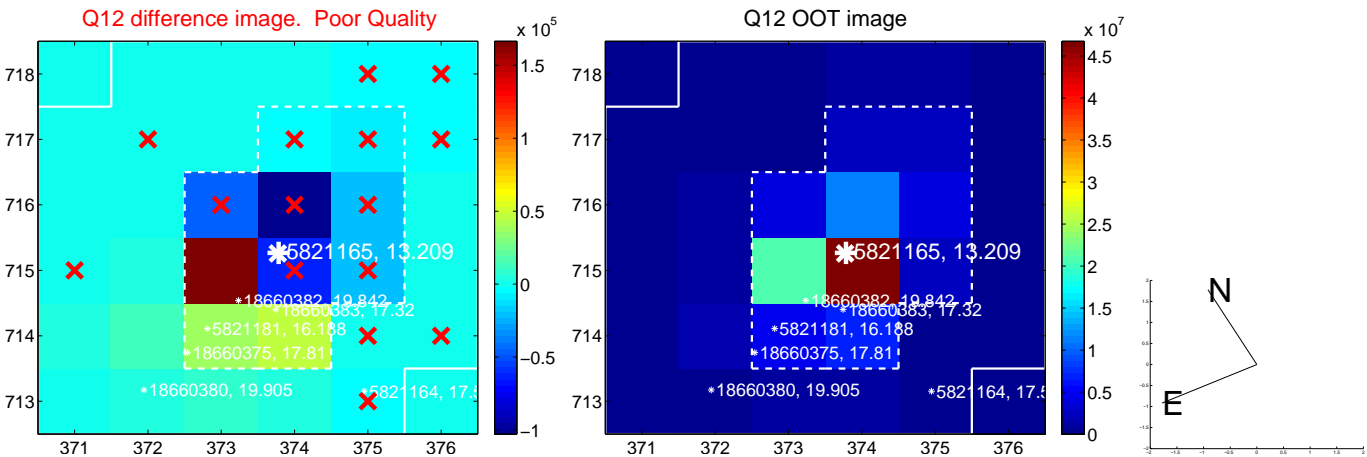
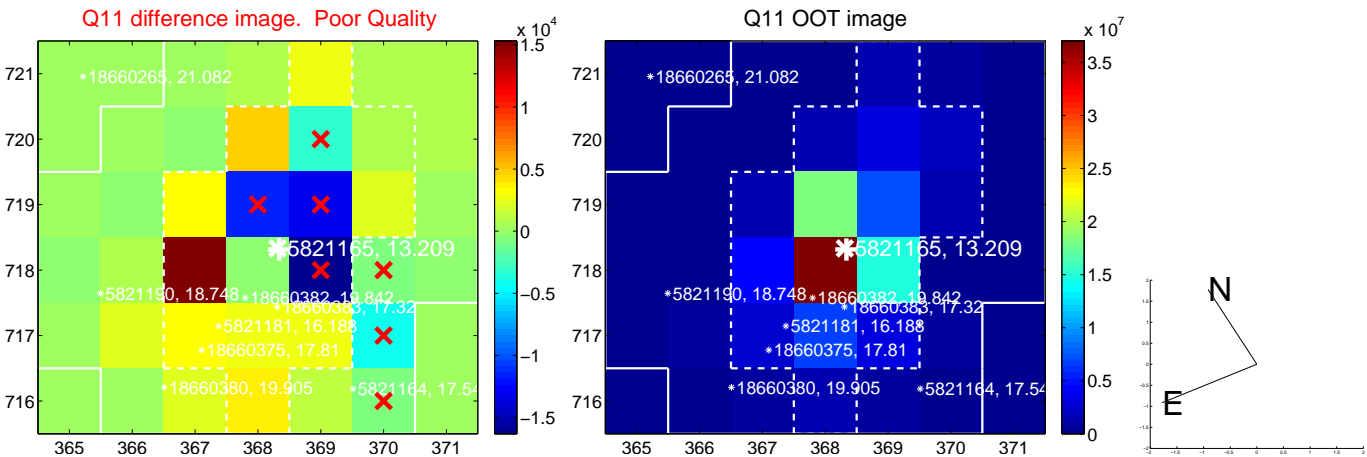
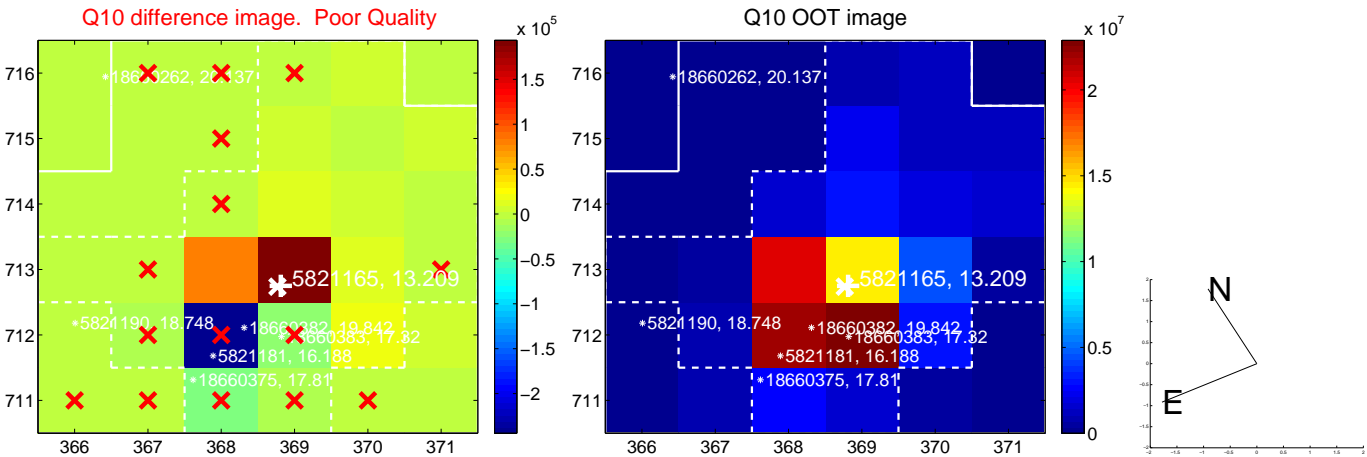
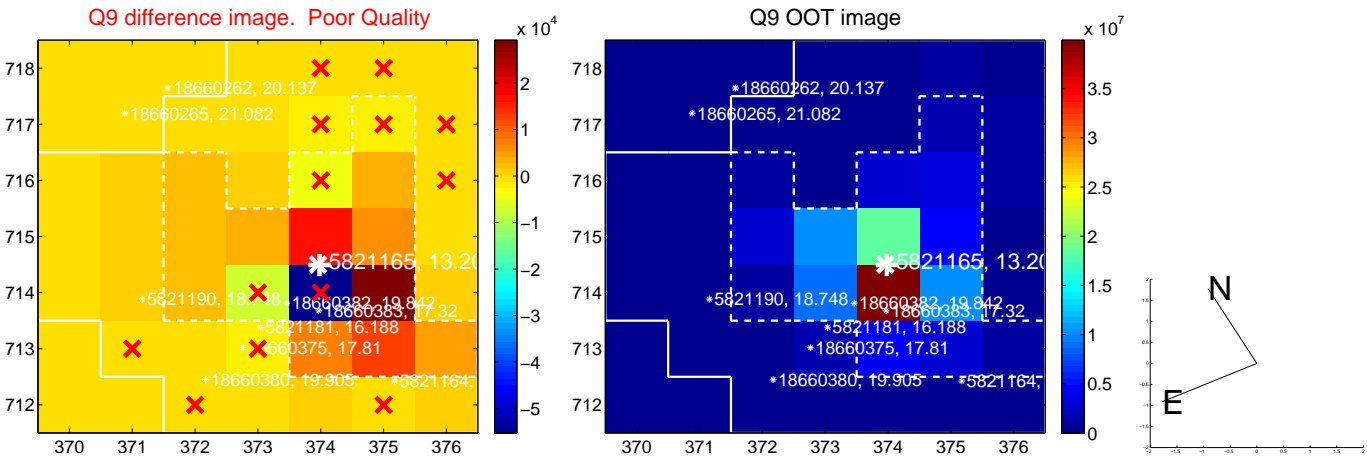
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



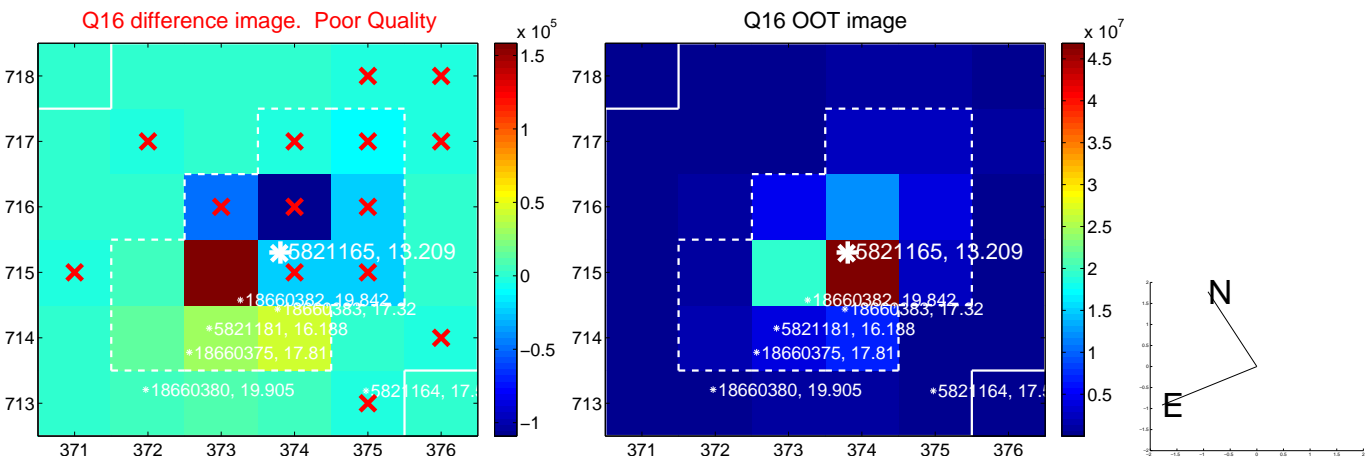
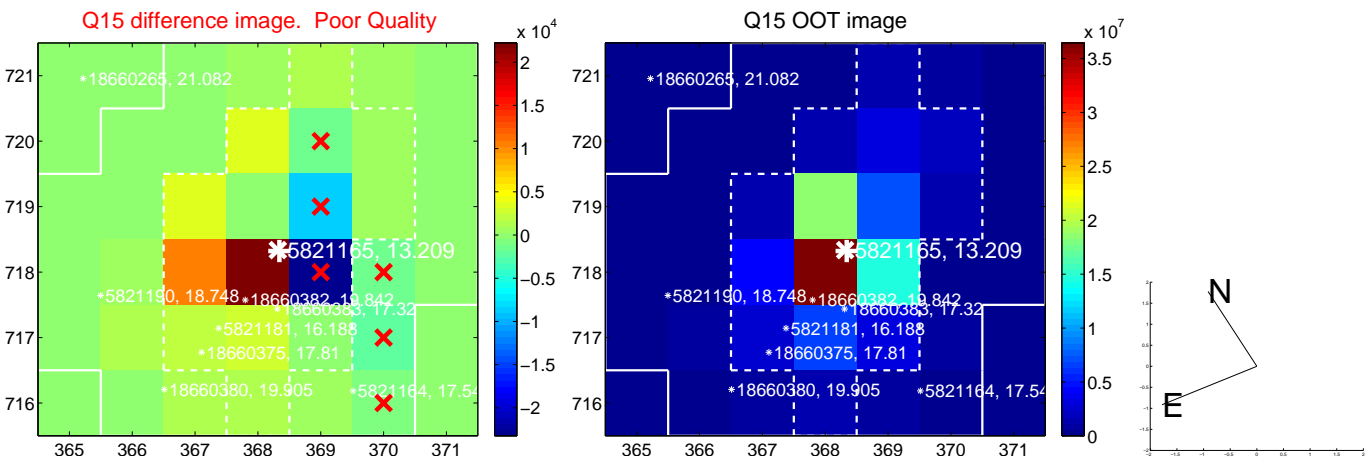
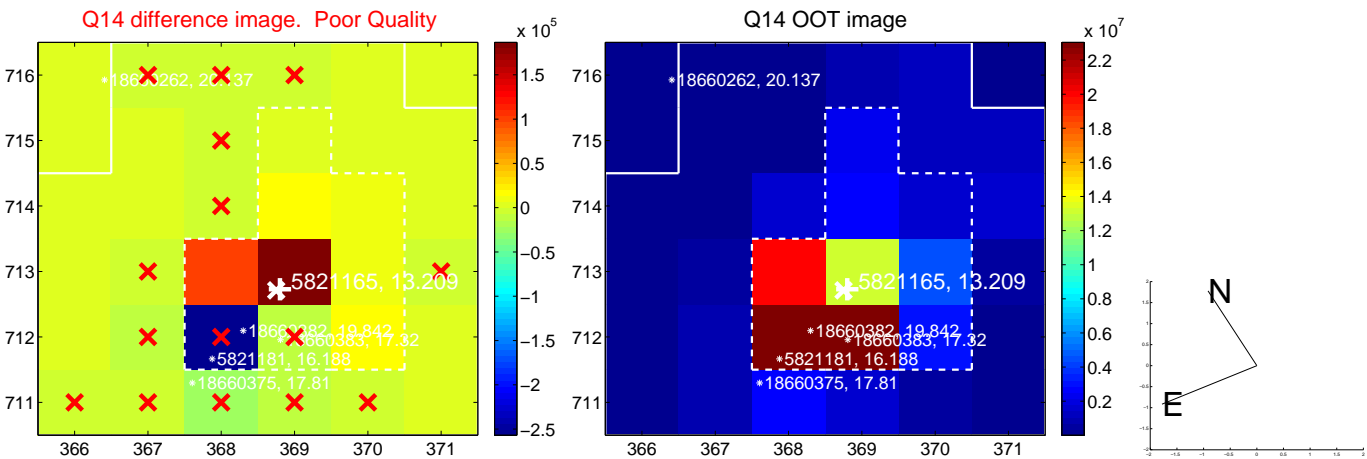
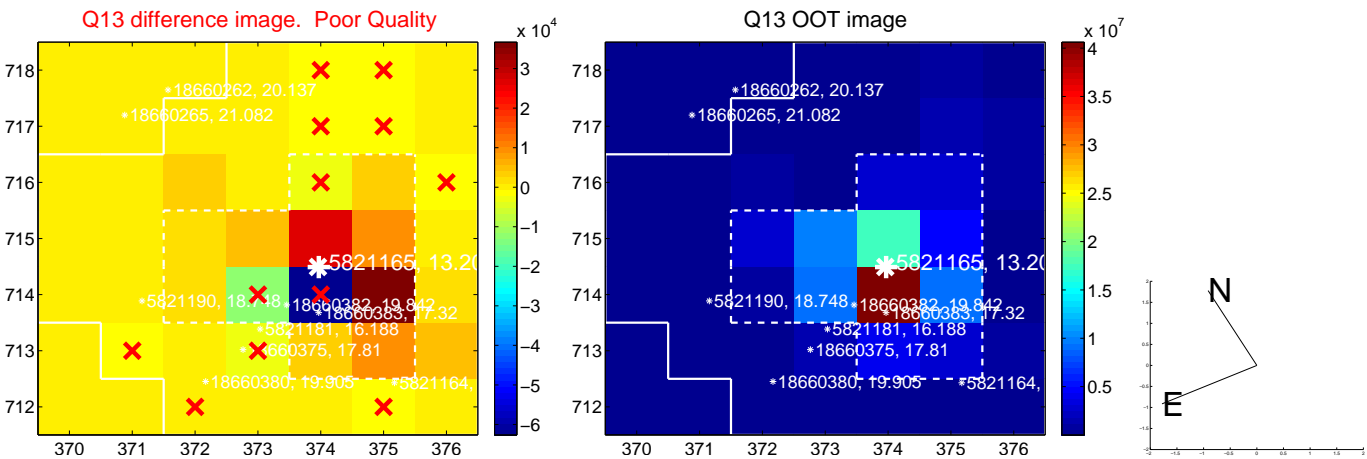
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



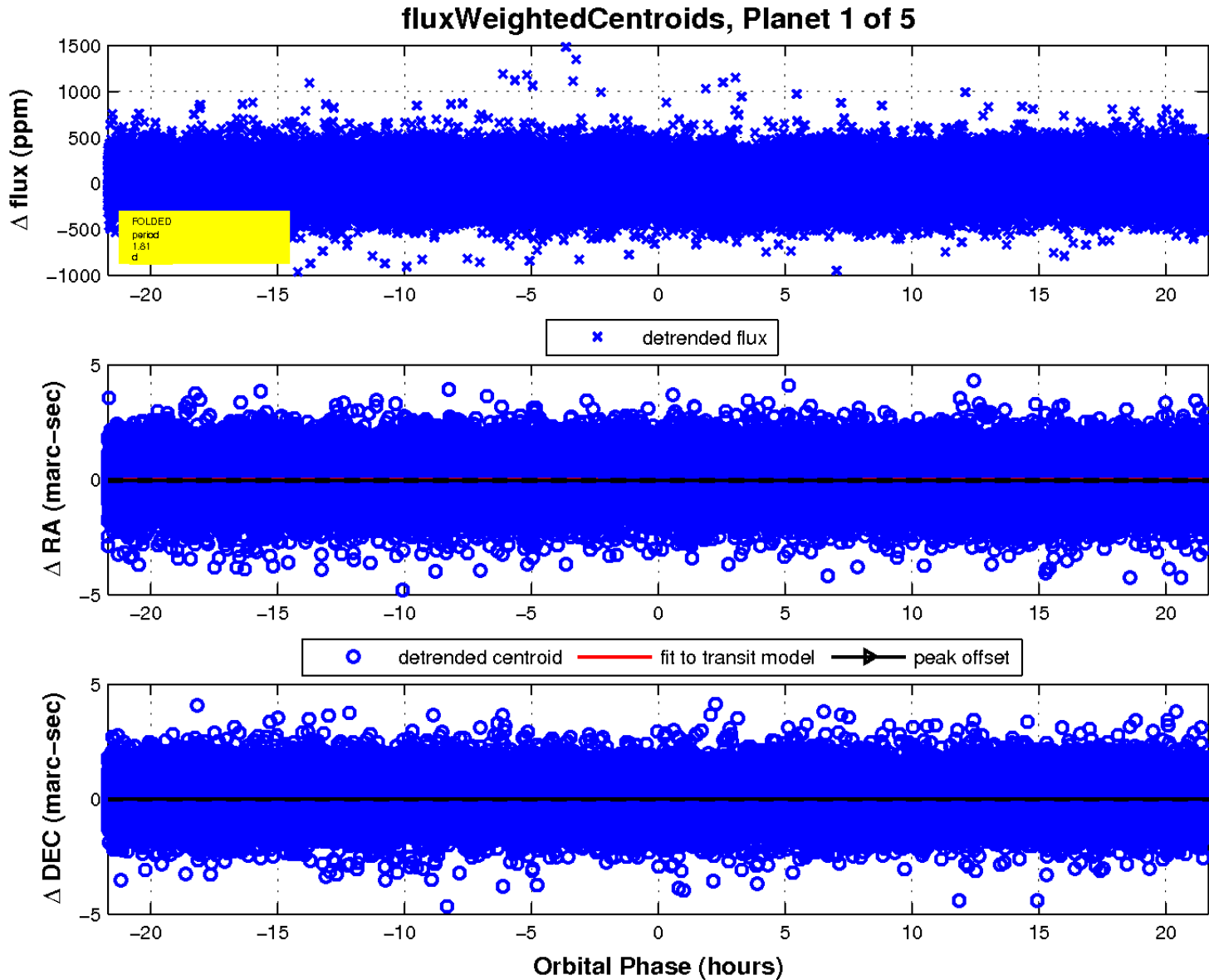
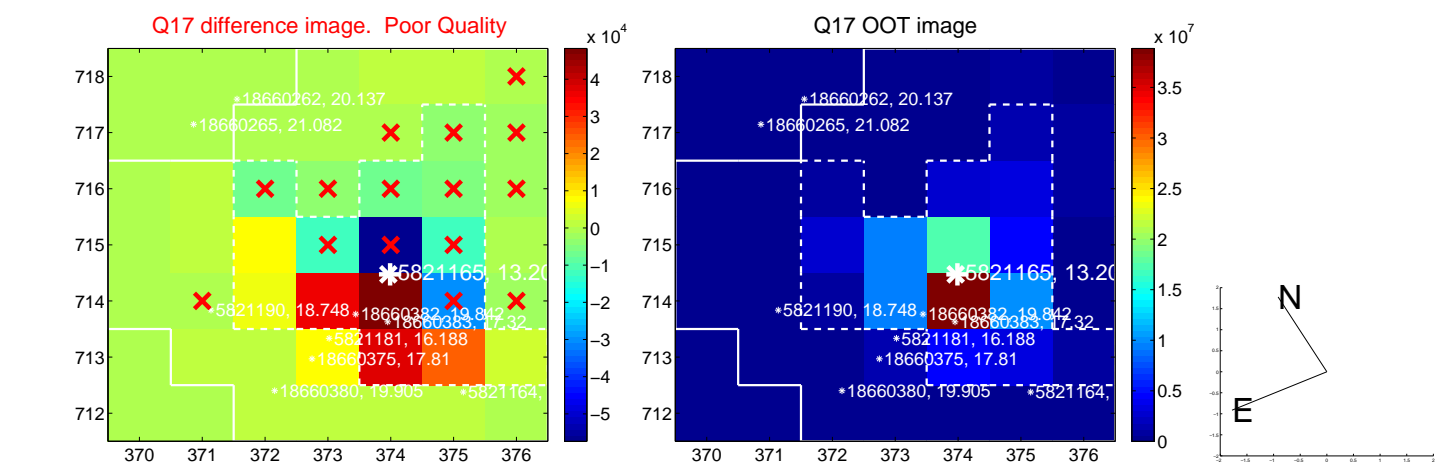
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white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.

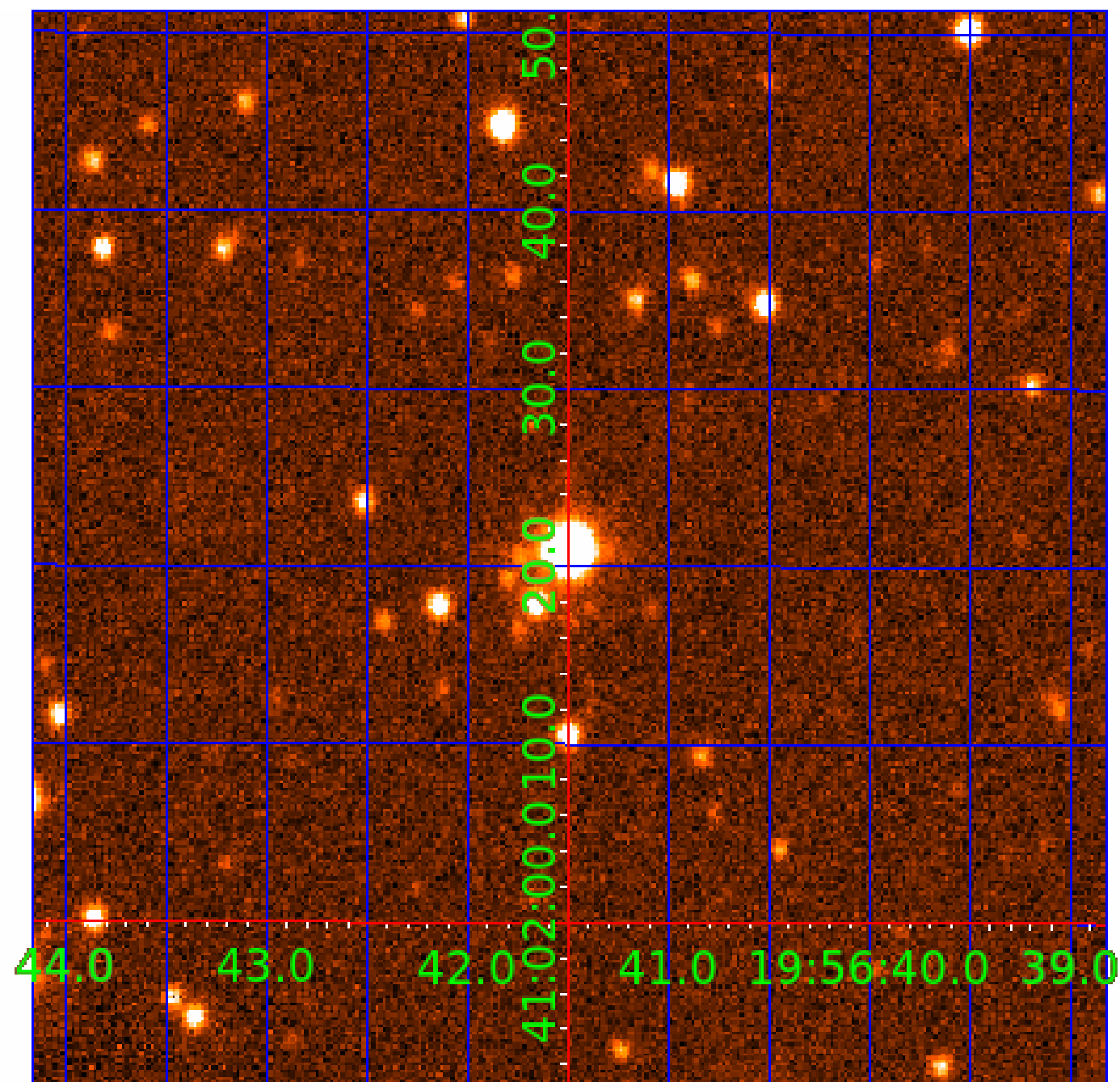


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 005821165

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})
005821165-01	OBS	No	1.806671	132.825553	216.9	3.500	9.8	-1.0	1.27	6047	1.86	2312.98
005821165-02	OBS	No	0.903245	132.234848	19.8	4.831	8.5	8.0	1.27	6047	0.58	5829.12
005821165-03	OBS	No	69.421475	159.135774	177.6	5.787	8.1	7.1	1.27	6047	1.88	17.84
005821165-04	OBS	No	58.362186	162.332645	146.6	8.873	8.1	6.9	1.27	6047	1.72	22.48
005821165-05	OBS	No	38.451545	146.312128	219.1	2.366	7.7	8.1	1.27	6047	2.00	39.22

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005821165-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—CENT_NOFITS
005821165-02	OBS	FP	0.00	1	0	0	0	LPP_DV—MOD_NONUNIQ_ALT—SAME_NTL_PERIOD
005821165-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT
005821165-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
005821165-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—MOD_NONUNIQ_ALT

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

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

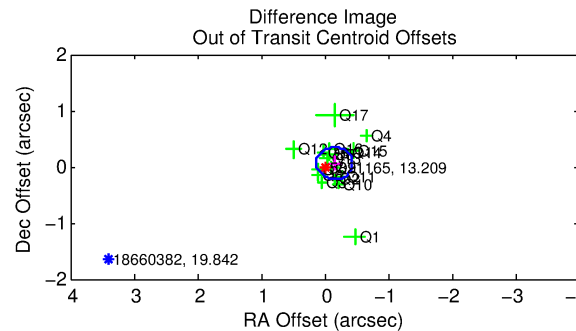
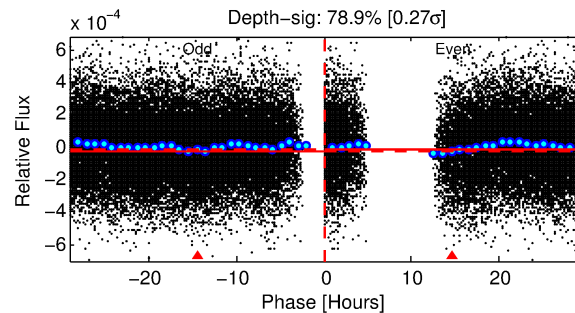
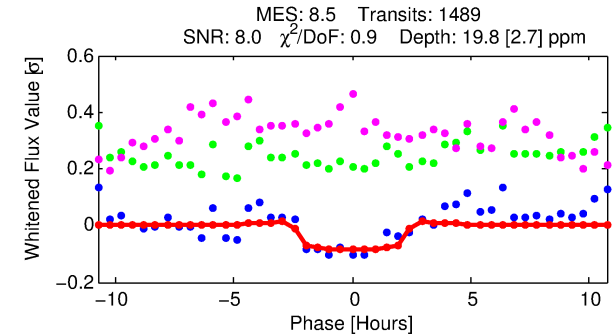
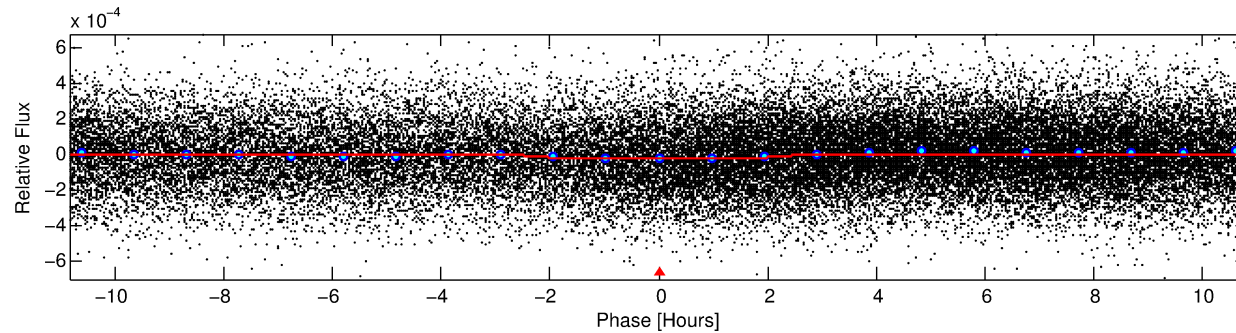
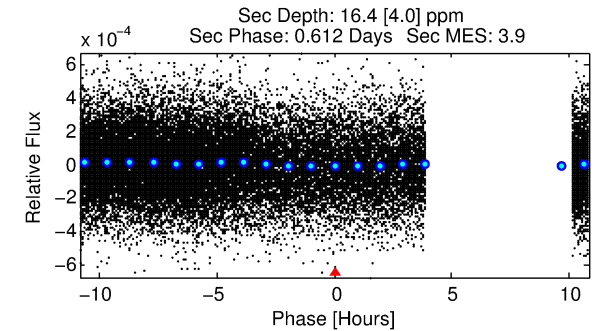
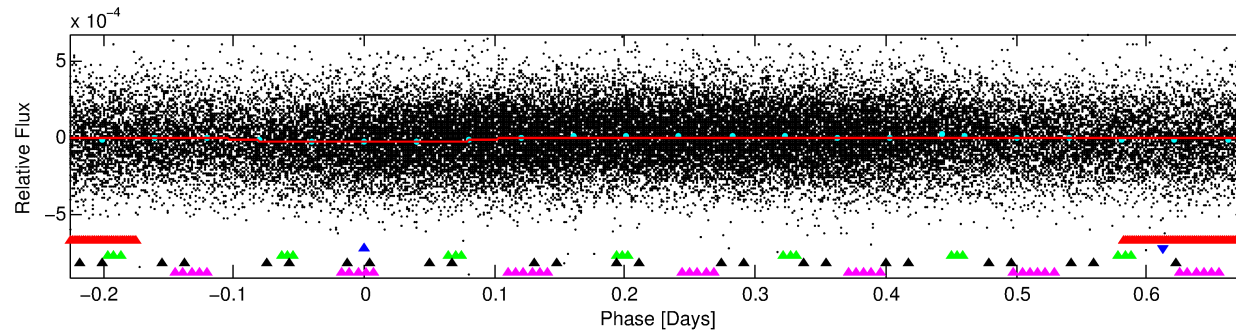
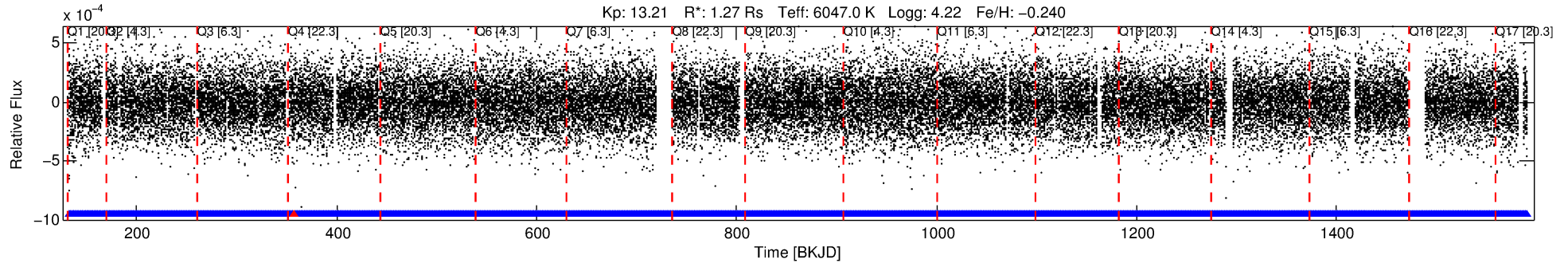
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 005821165-02

No Significant Match Found

DV One-Page Summary

KIC: 5821165 Candidate: 2 of 5 Period: 0.903 d



DV Fit Results:

Period = 0.90324 [0.00001] d
Epoch = 132.2348 [0.0059] BKJD
Rp/R* = 0.0042 [0.0022]
a/R* = 1.42 [1.83]
b = 0.55 [3.32]
Seff = 5829.12 [2387.74]
Teq = 2228 [228] K
Rp = 0.58 [0.35] Re
a = 0.0181 [0.0046] AU
Ag = 8.73 [10.00] [0.77σ]
Teffp = 5922 [1603] K [2.28σ]

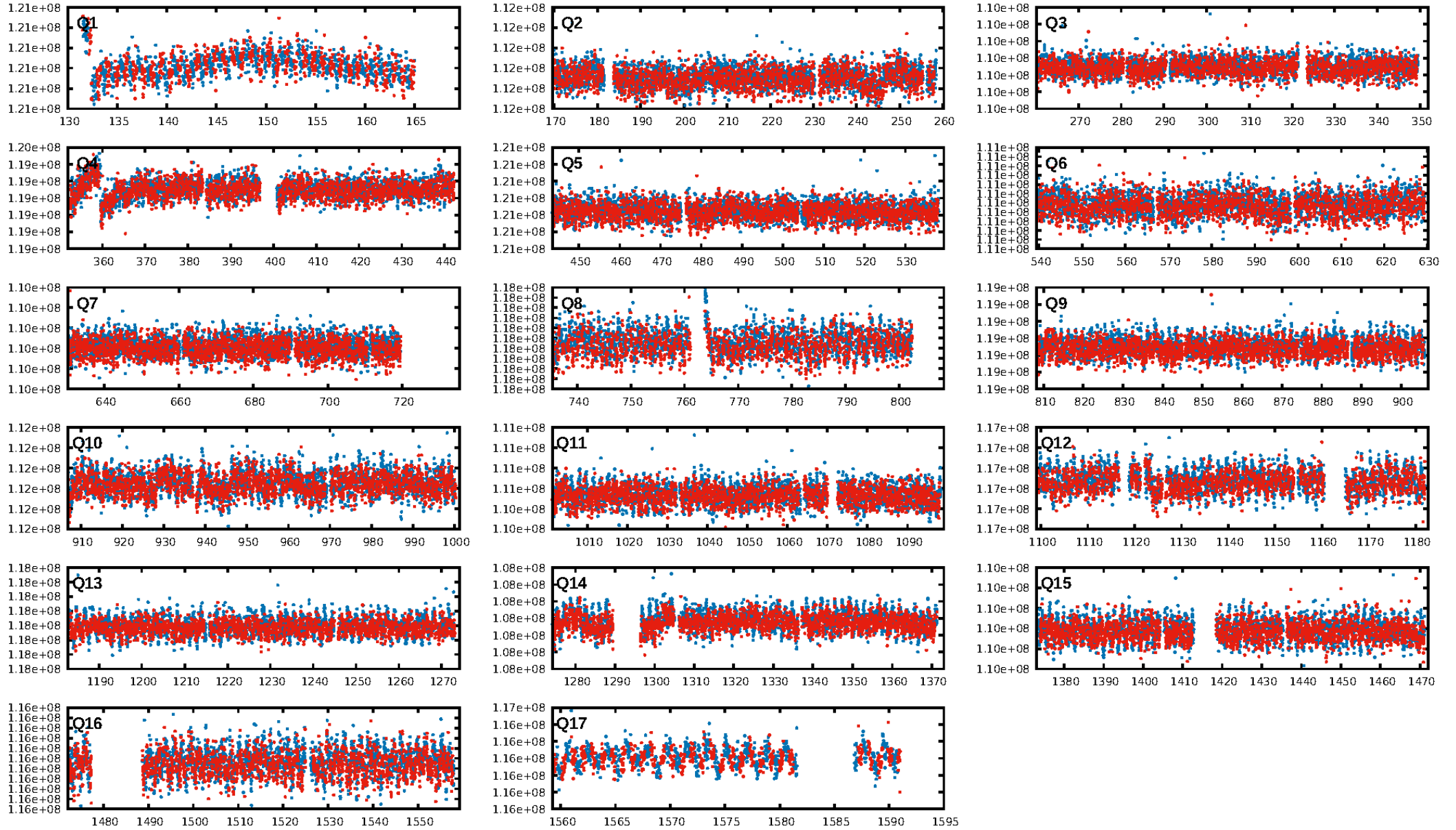
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [3.63σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 2.47e-13
RollingBand-fgt: 1.00 [1422/1423]
GhostDiagnostic-chr: 0.4383
Centroid-sig: 0.0%
Centroid-so: 1.982 arcsec [1.84σ]
OotOffset-rm: 0.164 arcsec [1.73σ]
KicOffset-rm: 0.244 arcsec [2.54σ]
OotOffset-st: 4/4/4/5 [17]
KicOffset-st: 4/4/4/5 [17]
DiffImageQuality-fgm: 1.00 [17/17]
DiffImageOverlap-fno: 0.00 [0/17]

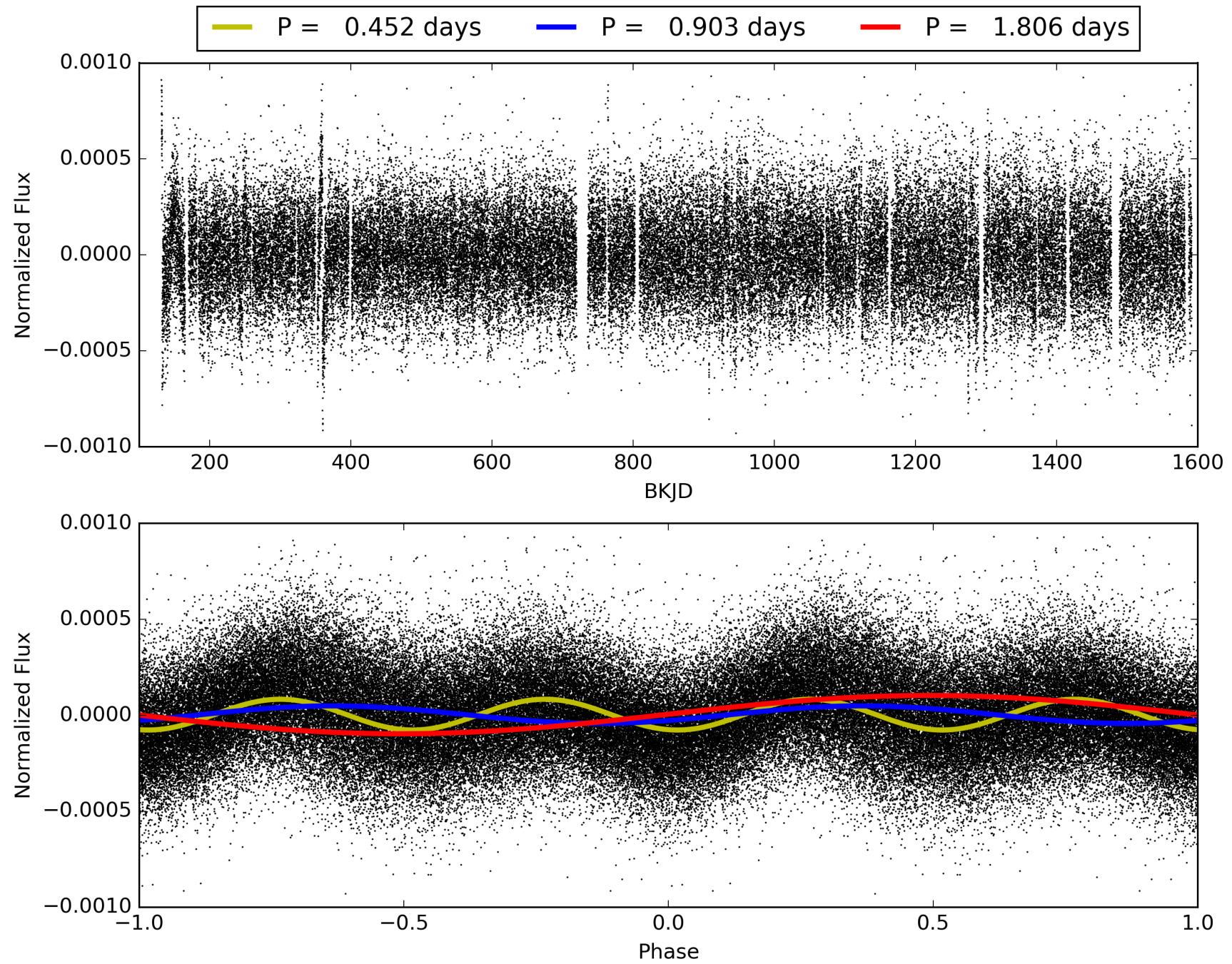
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 02:06:25 Z

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

TCE 005821165-02, PDC Light Curves

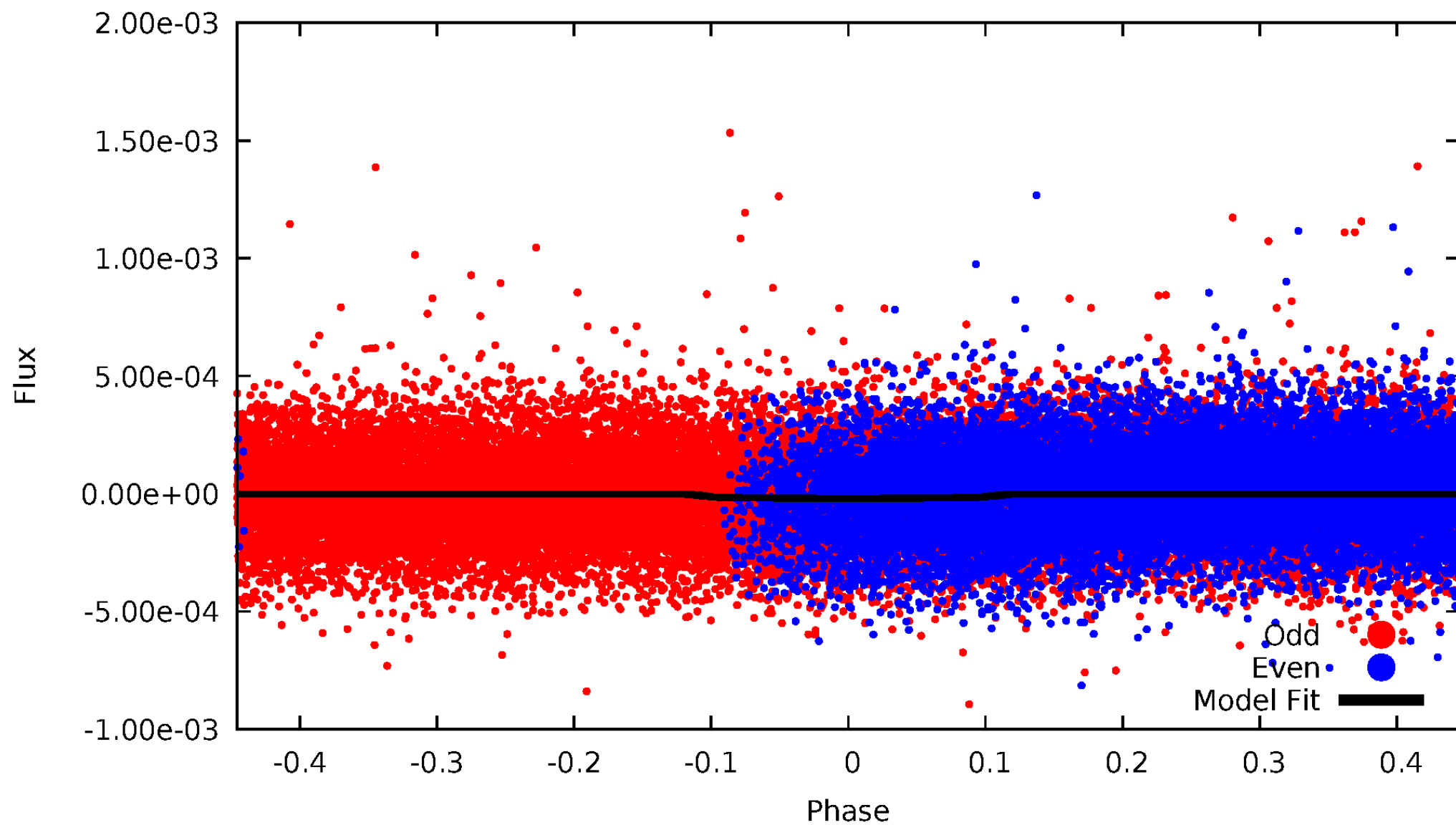


TCE 005821165-02



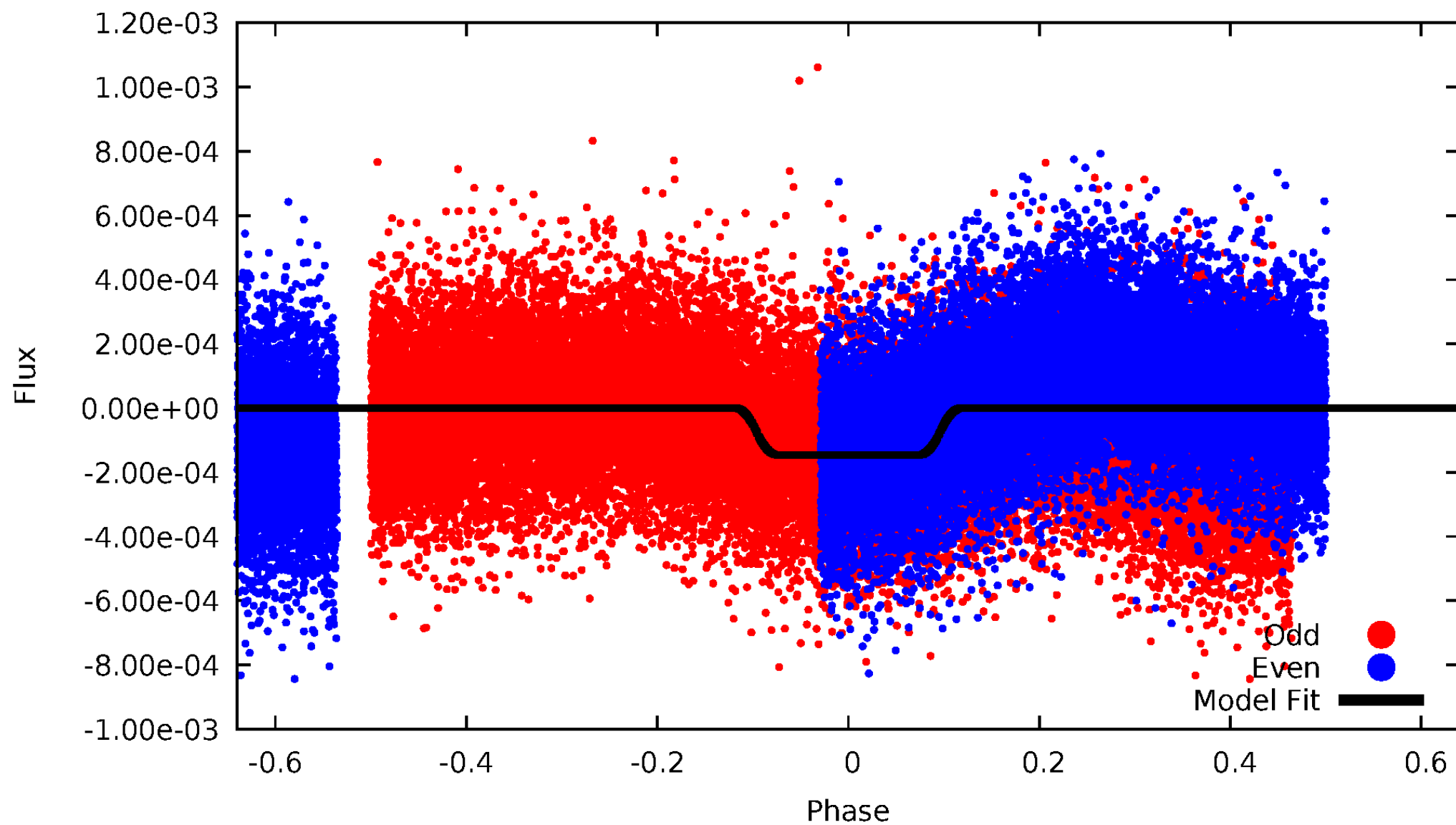
DV Odd/Even

TCE 005821165-02



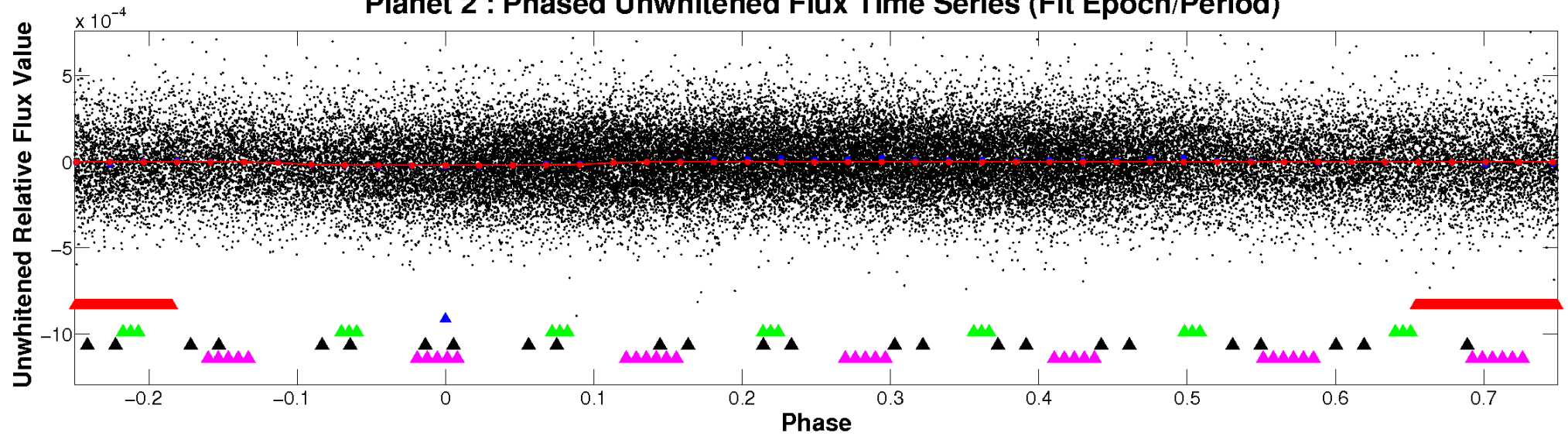
ALT Odd/Even

TCE 005821165-02

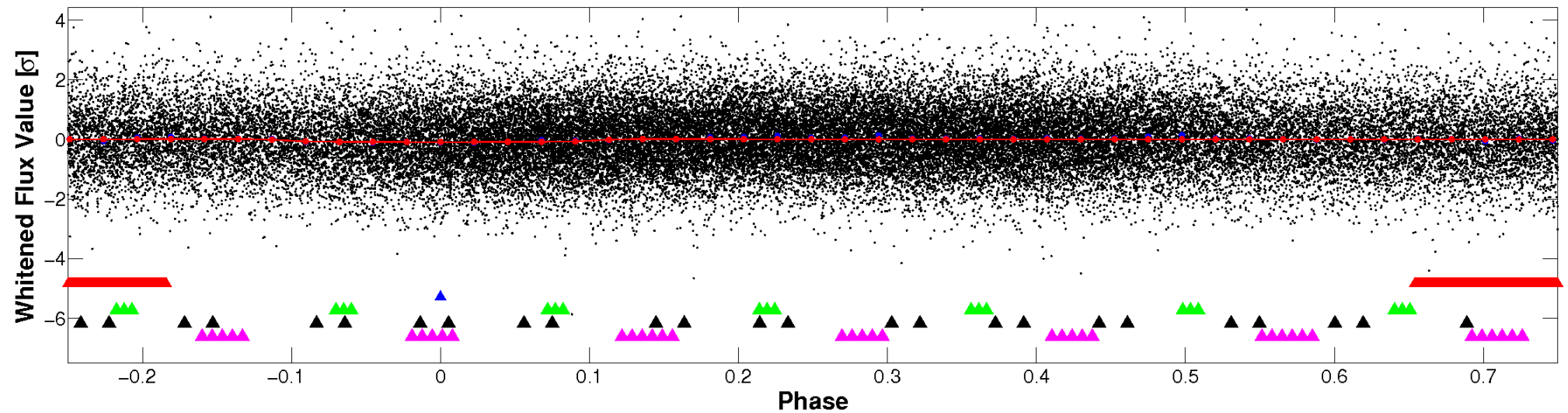


Non-Whitened Vs. Whitened Light Curve

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

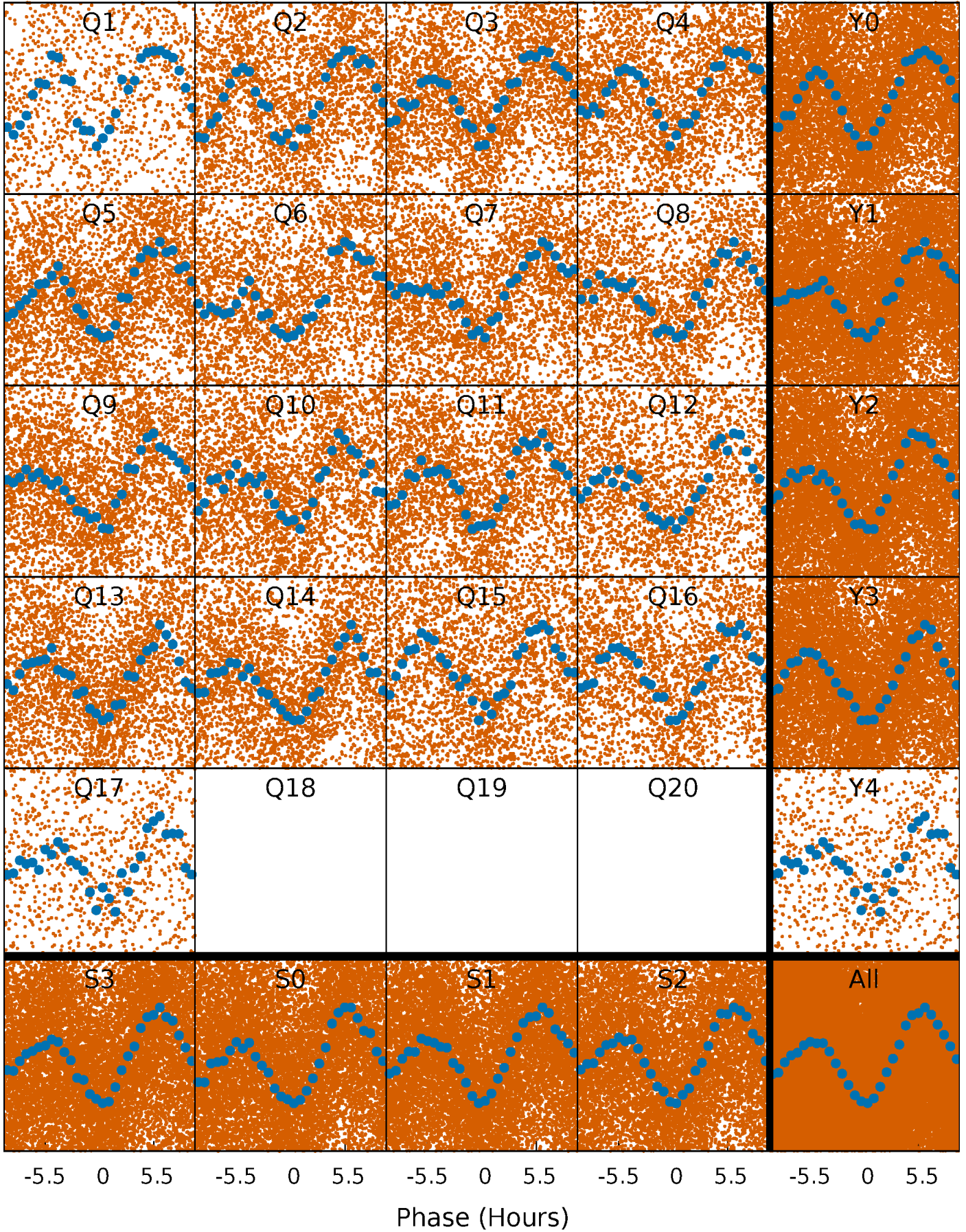


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



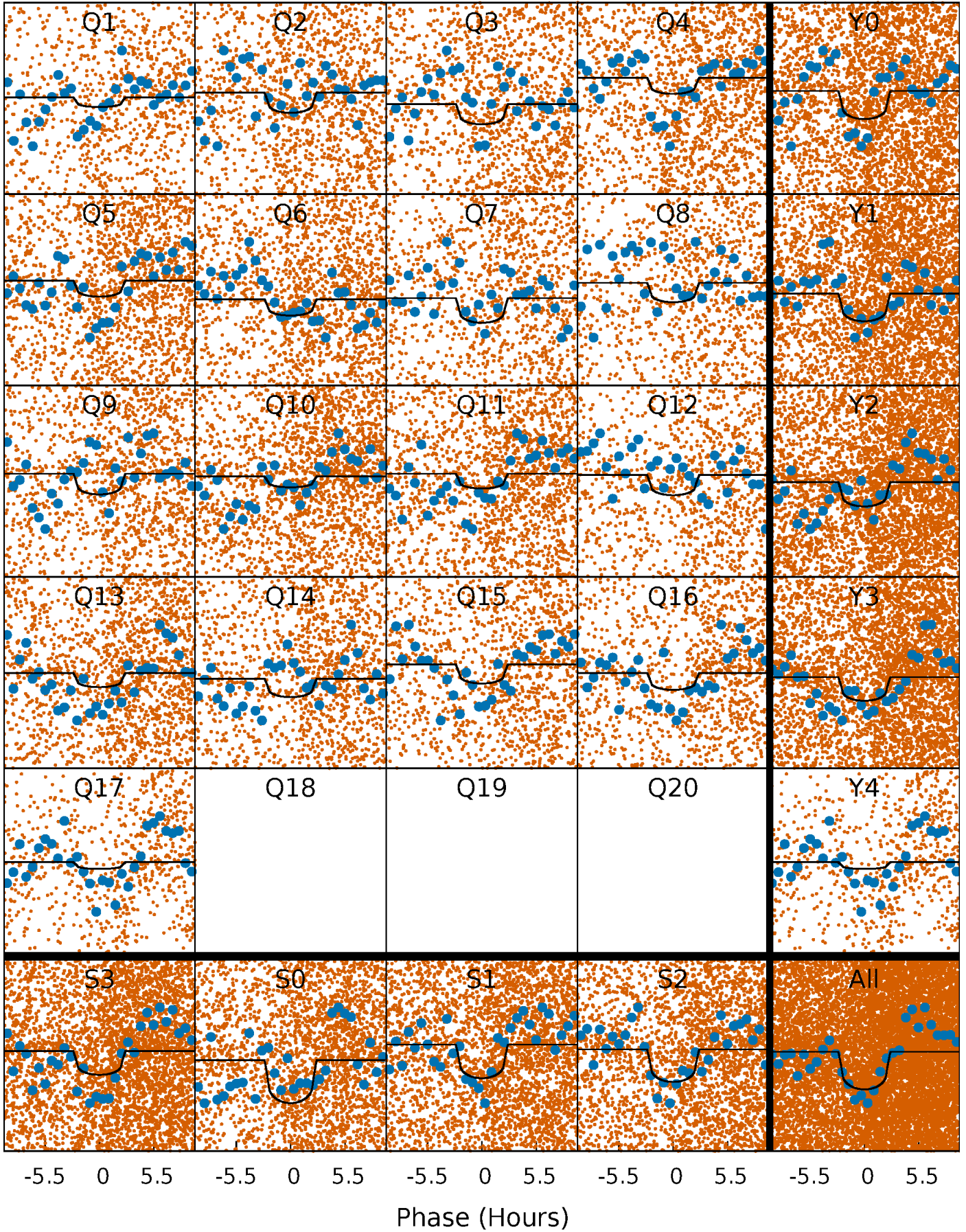
PDC Quarter-Phased Transit Curves

TCE 005821165-02 P= 0.903245 Days $T_0=132.234848$ (BKJD)



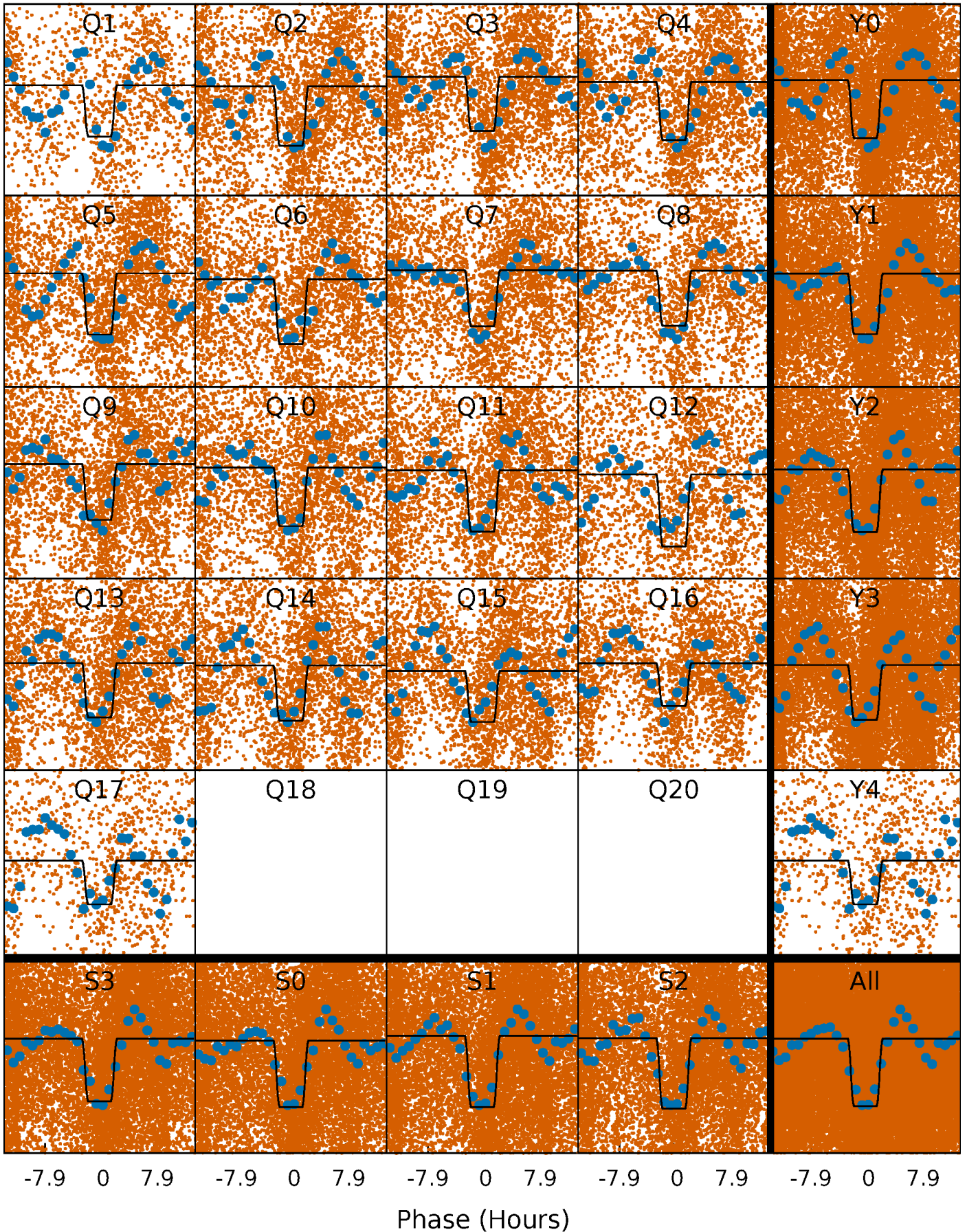
DV Quarter-Phased Transit Curves

TCE 005821165-02 P= 0.903245 Days $T_0=132.234848$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

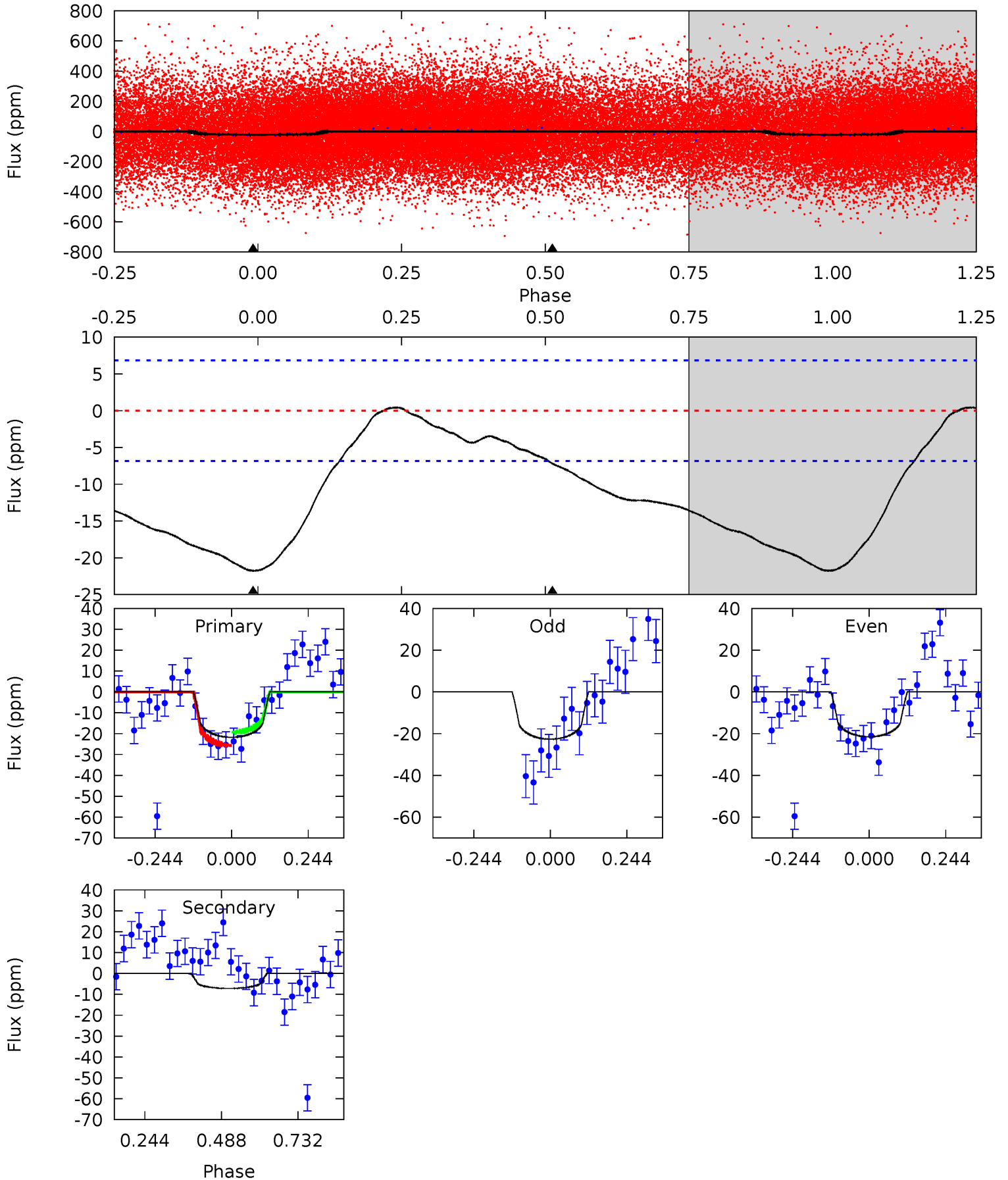
TCE 005821165-02 P= 0.903334 Days $T_0=132.178158$ (BKJD)



DV Model-Shift Uniqueness Test

005821165-02, P = 0.903245 Days, E = 131.331603 Days

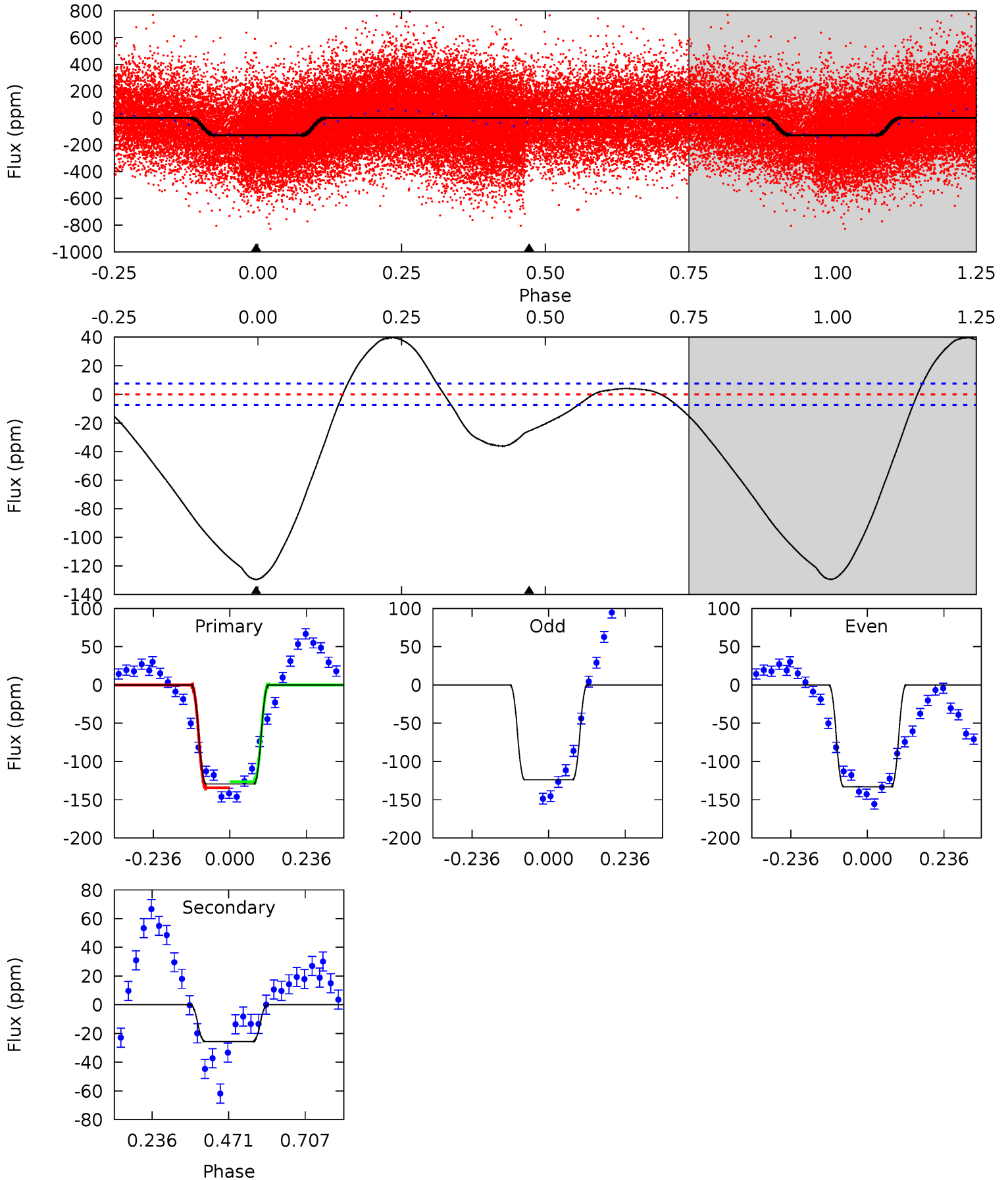
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
13.9	4.59	0	0	4.37	1.17	3.14	13.9	13.9	4.59	4.59	0.37	1.13	0.02	1.94



Alt Model-Shift Uniqueness Test

005821165-02, P = 0.903334 Days, E = 131.274824 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
75.5	15.0	0	0	4.38	1.19	14.9	75.5	75.5	15.0	15.0	2.27	1.00	0.23	2.25



Stellar Parameters For KIC 005821165

	$T_{\text{eff}}(K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6047^{+163}_{-181}	$4.223^{+0.225}_{-0.184}$	$-0.240^{+0.300}_{-0.300}$	$1.266^{+0.351}_{-0.315}$	$0.977^{+0.156}_{-0.117}$	$0.678^{+0.824}_{-0.324}$
	+3%/-3%	+5%/-4%	+125%/-125%	+28%/-25%	+16%/-12%	+122%/-48%
Source	PHO1	KIC0	KIC0	DSEP		

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

Secondary Eclipse Parameters for KIC 005821165-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-7 ± 2	$0.58^{+0.30}_{-0.28}$	3090^{+240}_{-225}	4785^{+1756}_{-791}	$3.784^{+10.922}_{-2.160}$
Alt.	-26 ± 2	$1.65^{+0.43}_{-0.37}$	3096^{+252}_{-235}	4031^{+341}_{-308}	$1.709^{+1.093}_{-0.655}$

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

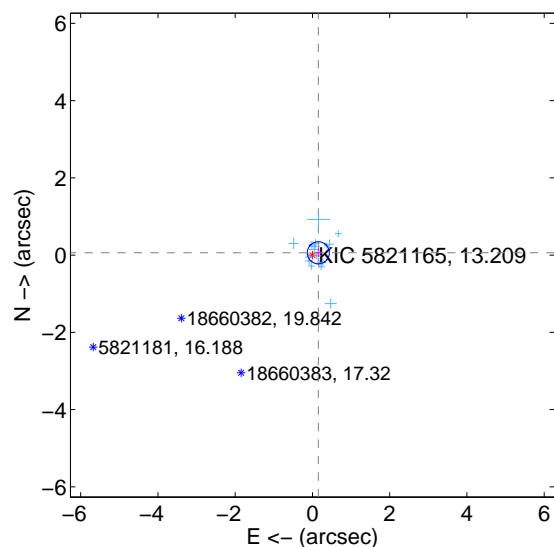
Supplemental centroid analysis for 005821165-02. Kepler magnitude: 13.21. Transit SNR 8.01

There are 17 quarters with good PRF difference image offsets

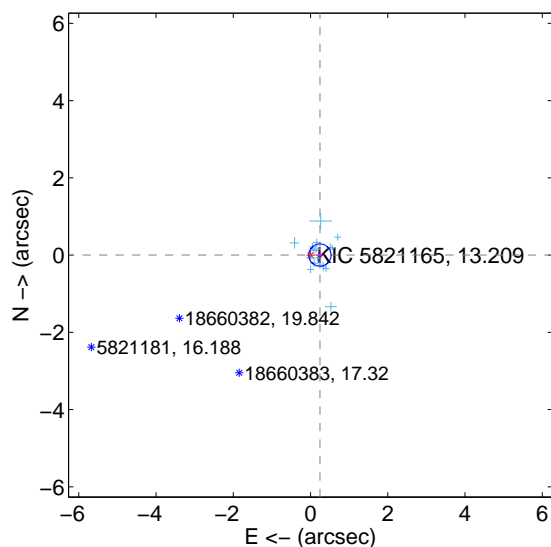
The direct PRF centroid is offset from the target star catalog position by about 0.11 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.164 ± 0.095	1.73	-0.153 ± 0.092	0.060 ± 0.111
PRF-fit source offset from KIC position	0.244 ± 0.096	2.54	-0.244 ± 0.096	0.001 ± 0.113
photometric centroid source offset	1.98 ± 1.08	1.84	-0.01 ± 1.16	1.98 ± 1.08

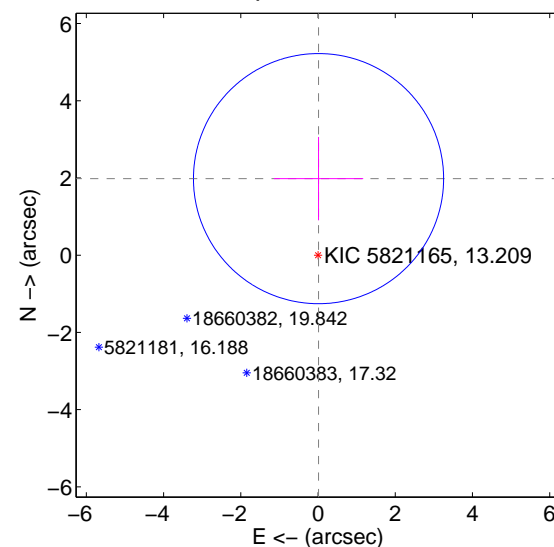
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

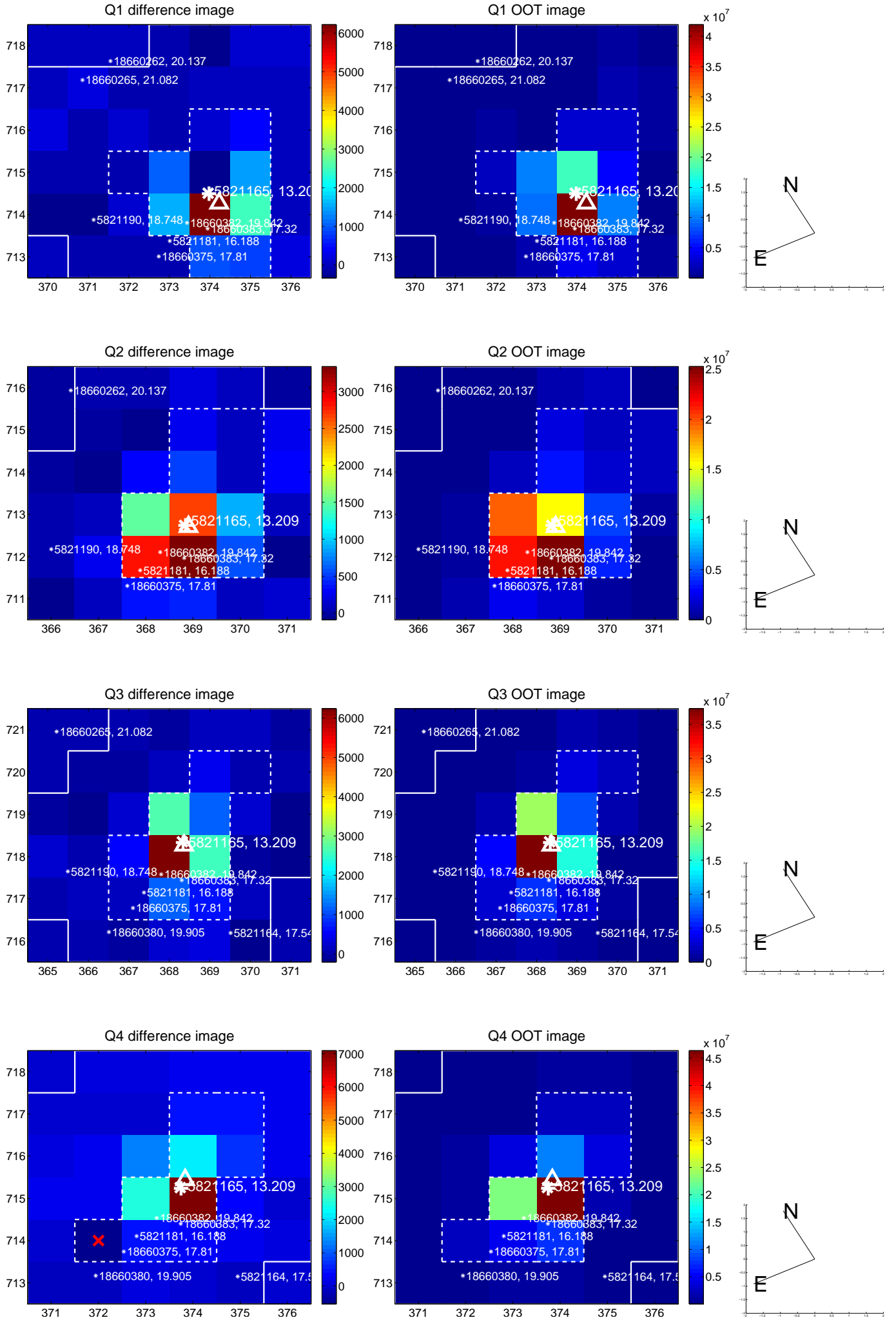


offset from photometric centroids

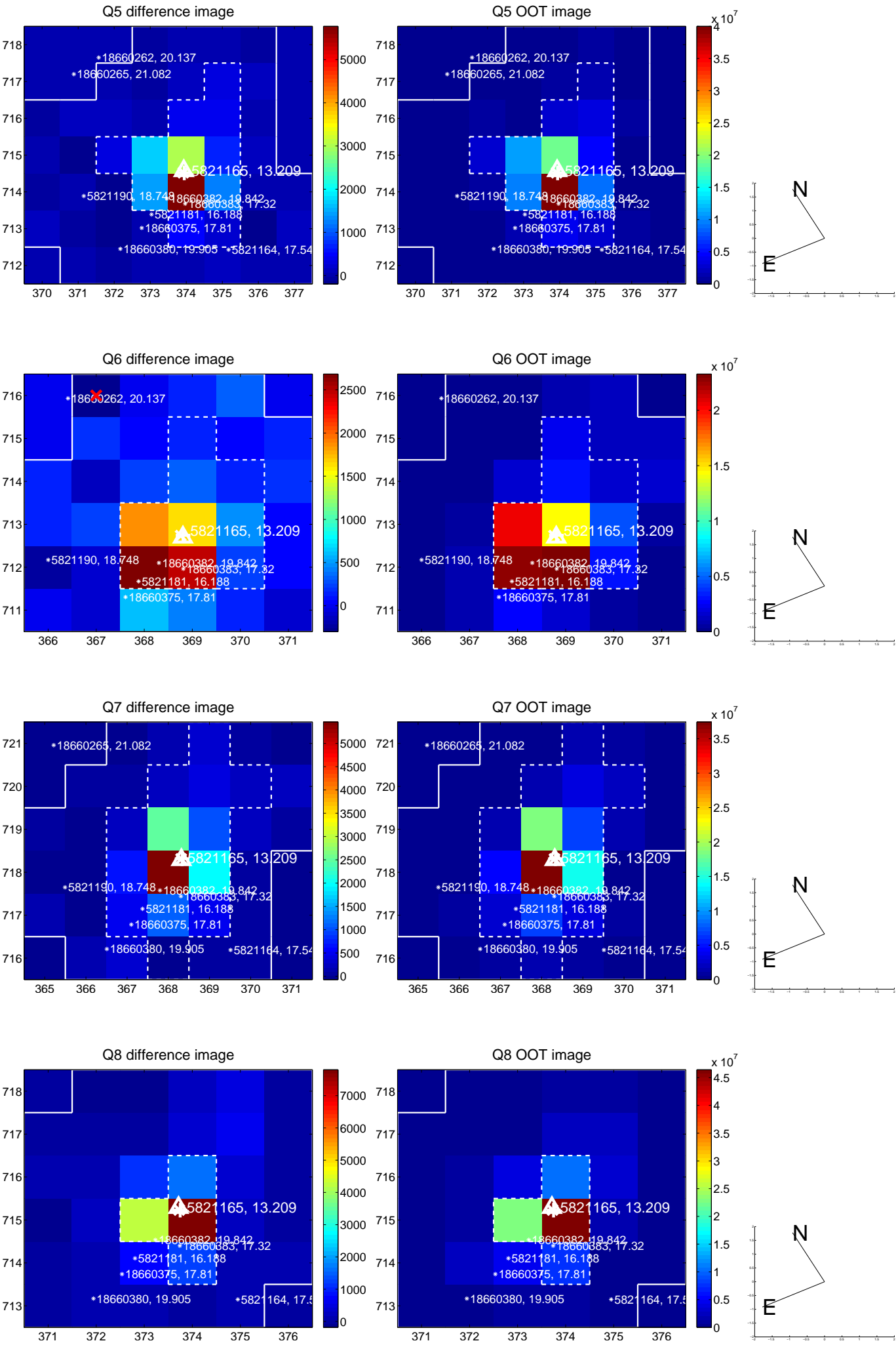


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

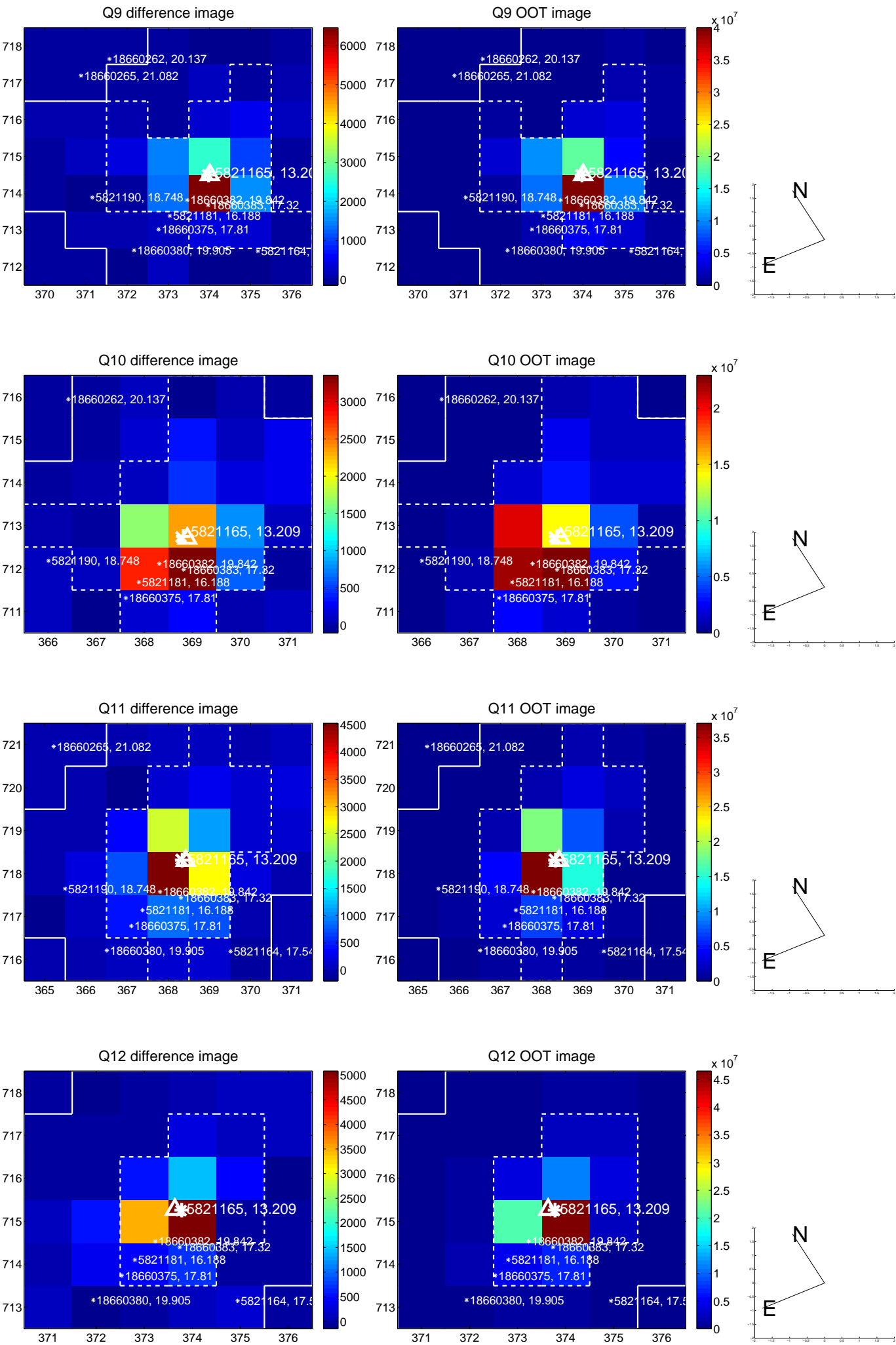
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



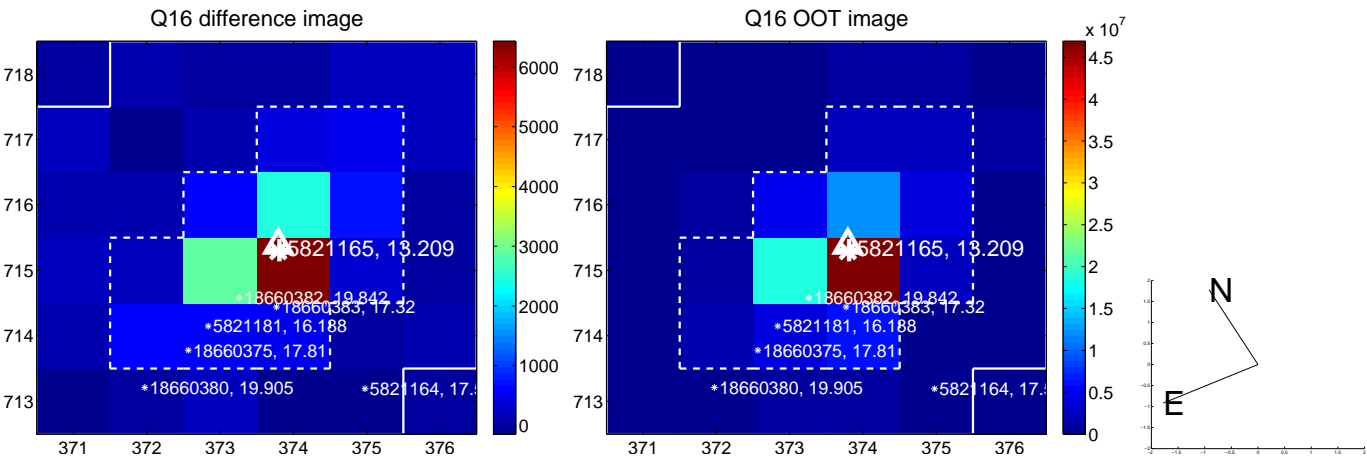
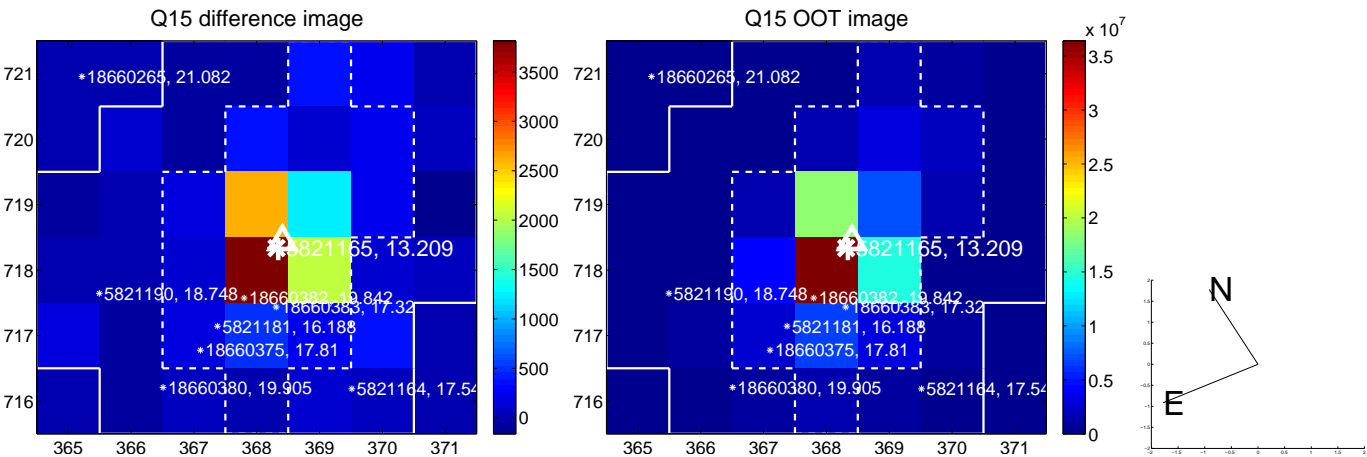
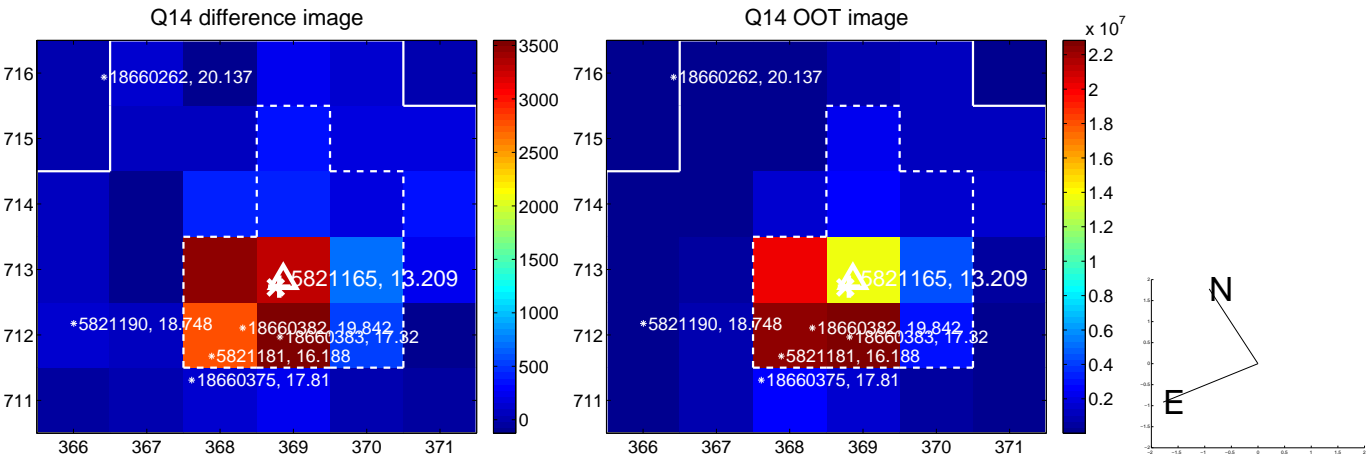
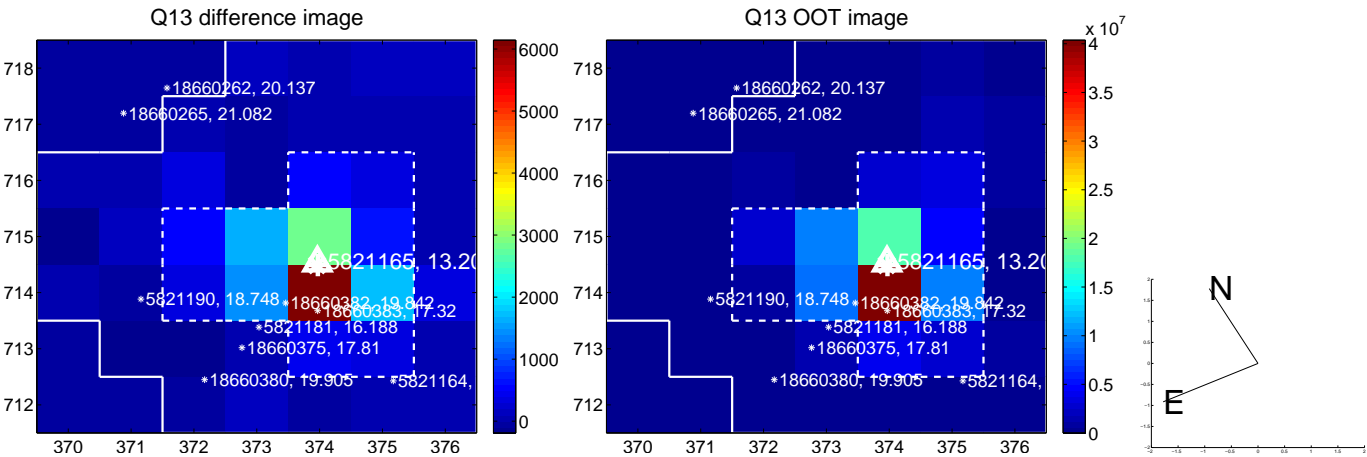
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



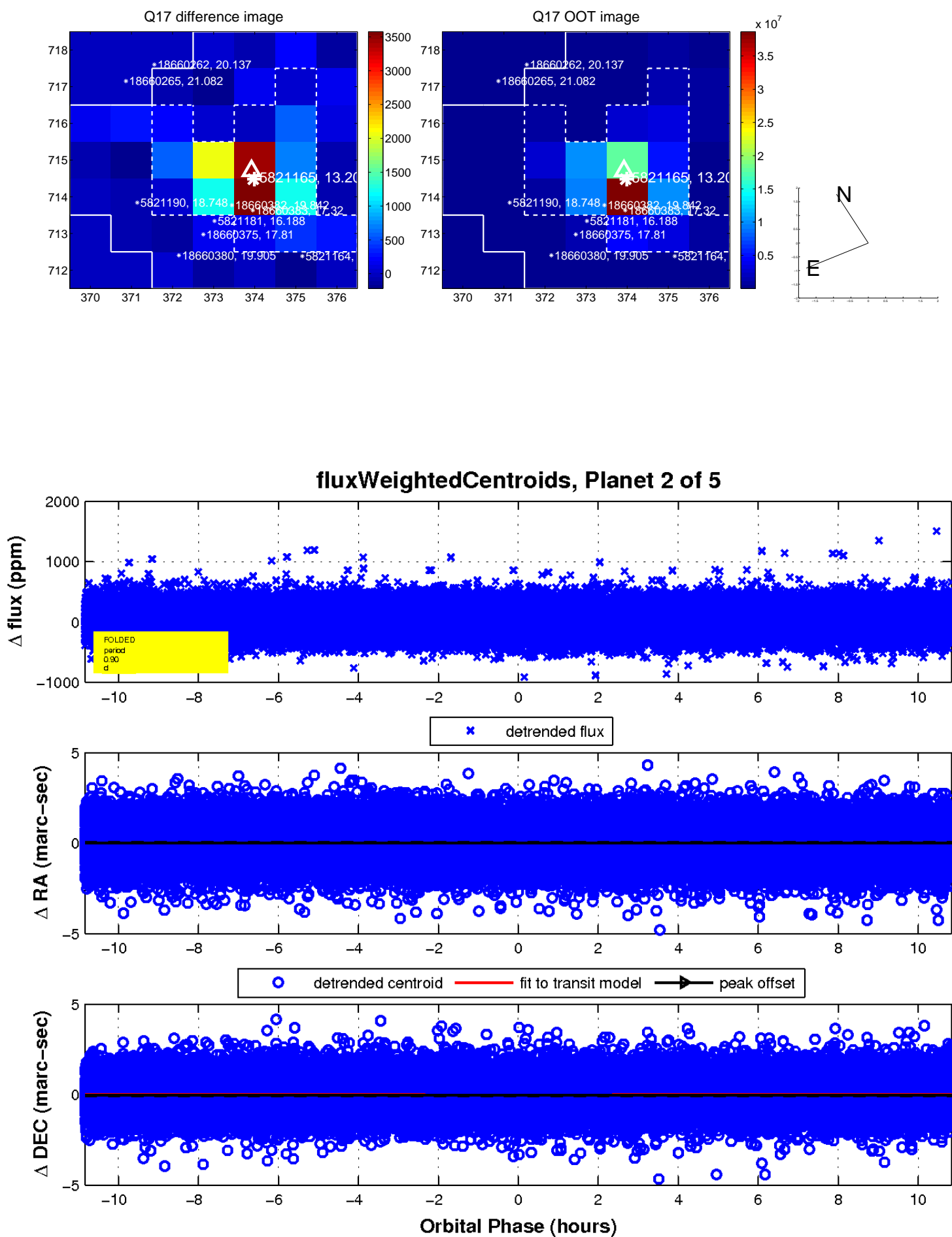
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

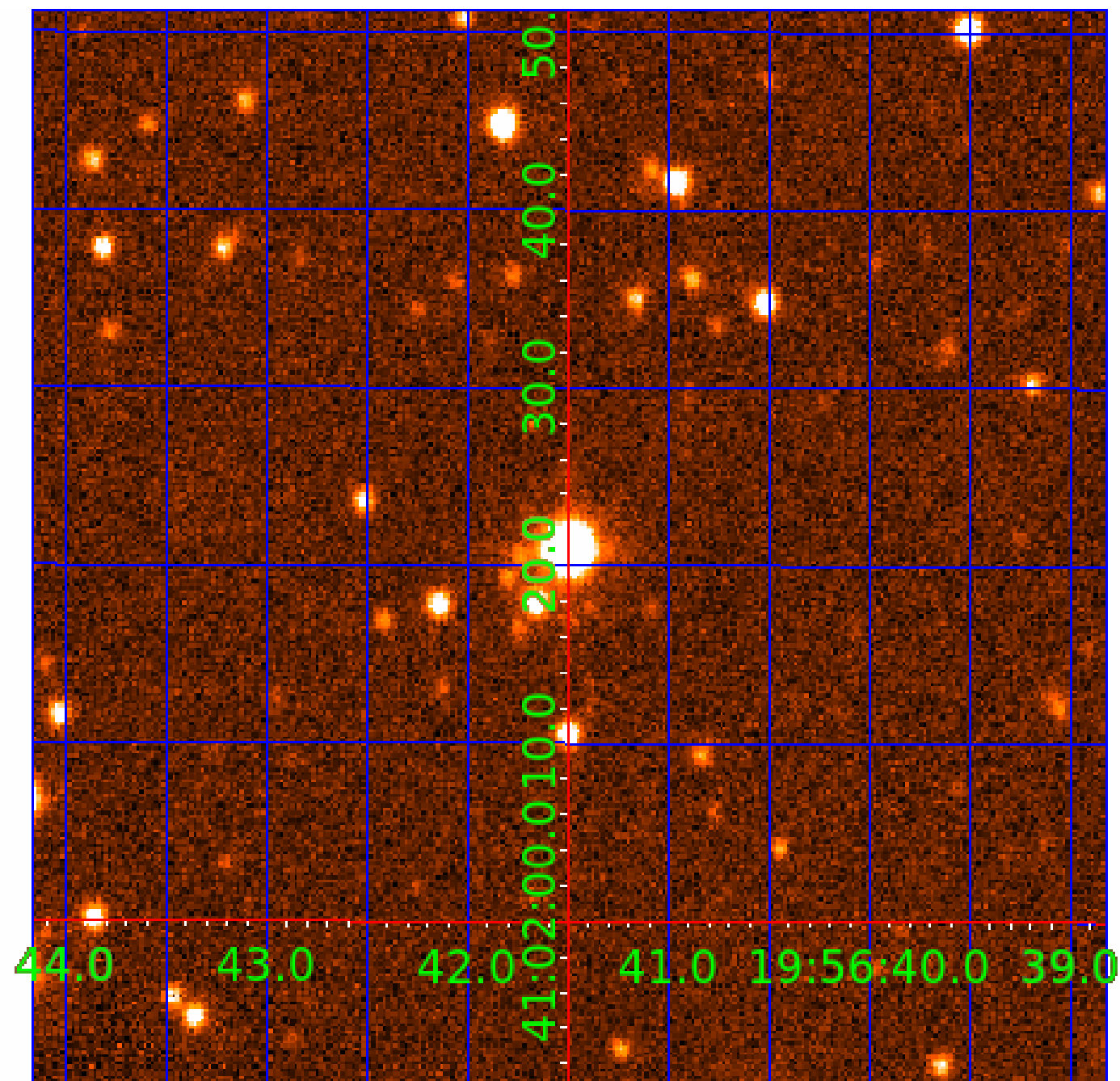


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 005821165

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})
005821165-01	OBS	No	1.806671	132.825553	216.9	3.500	9.8	-1.0	1.27	6047	1.86	2312.98
005821165-02	OBS	No	0.903245	132.234848	19.8	4.831	8.5	8.0	1.27	6047	0.58	5829.12
005821165-03	OBS	No	69.421475	159.135774	177.6	5.787	8.1	7.1	1.27	6047	1.88	17.84
005821165-04	OBS	No	58.362186	162.332645	146.6	8.873	8.1	6.9	1.27	6047	1.72	22.48
005821165-05	OBS	No	38.451545	146.312128	219.1	2.366	7.7	8.1	1.27	6047	2.00	39.22

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005821165-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—CENT_NOFITS
005821165-02	OBS	FP	0.00	1	0	0	0	LPP_DV—MOD_NONUNIQ_ALT—SAME_NTL_PERIOD
005821165-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT
005821165-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
005821165-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—MOD_NONUNIQ_ALT

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

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

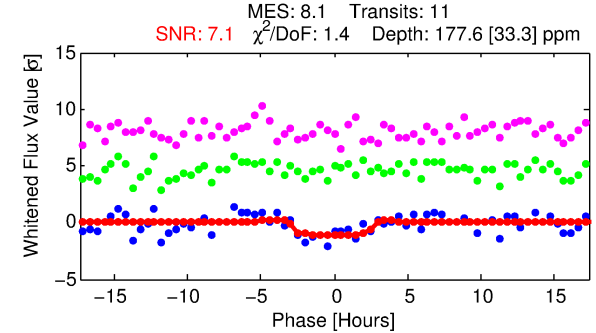
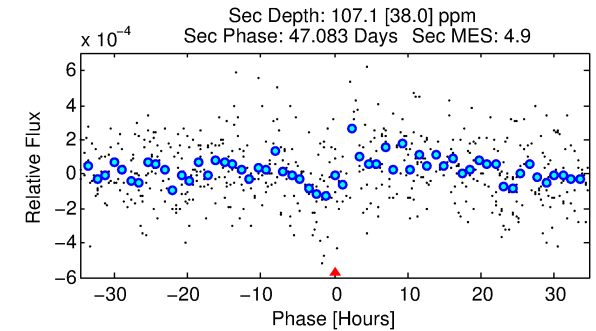
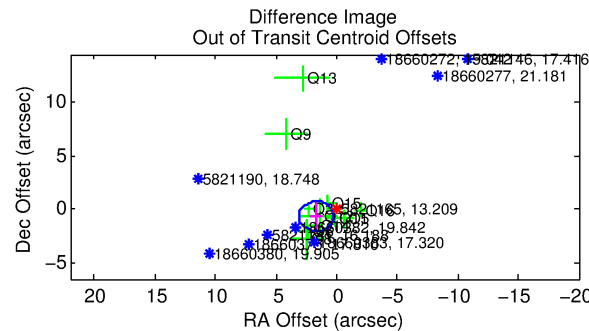
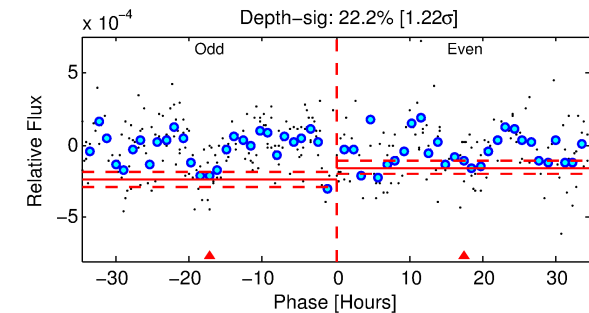
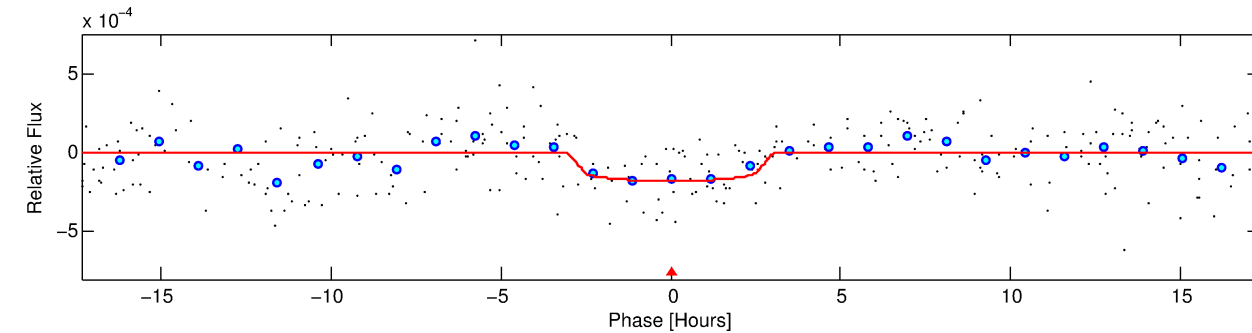
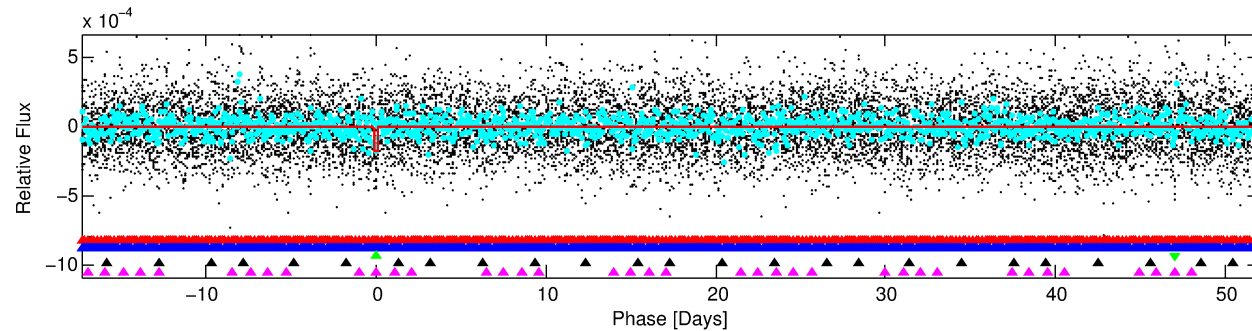
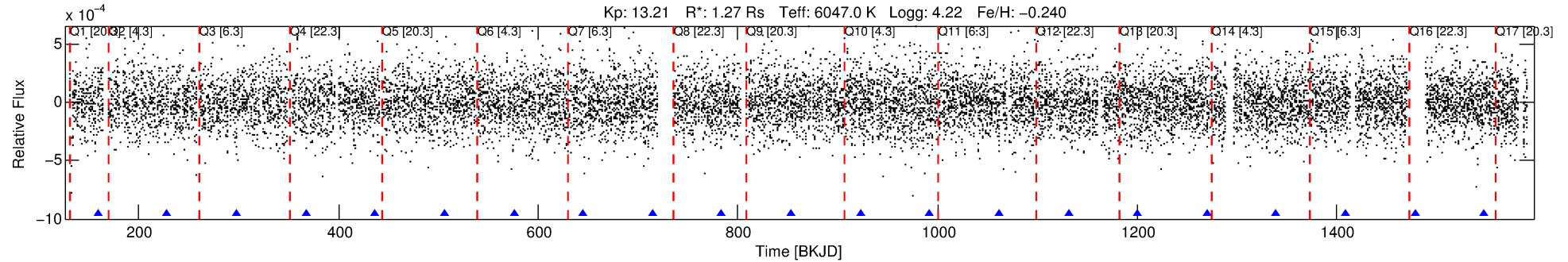
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 005821165-03

No Significant Match Found

DV One-Page Summary

KIC: 5821165 Candidate: 3 of 5 Period: 69.421 d



DV Fit Results:

Period = 69.42147 [0.00165] d
Epoch = 159.1358 [0.0189] BKJD
Rp/R* = 0.0136 [0.0136]
a/R* = 55.57 [279.88]
b = 0.81 [2.14]
Seff = 17.84 [7.31]
Teq = 524 [54] K
Rp = 1.88 [1.94] Re
a = 0.3281 [0.0830] AU
Ag = 1800.06 [3713.52] [0.48 σ]
Teffp = 5277 [2677] K [1.78 σ]

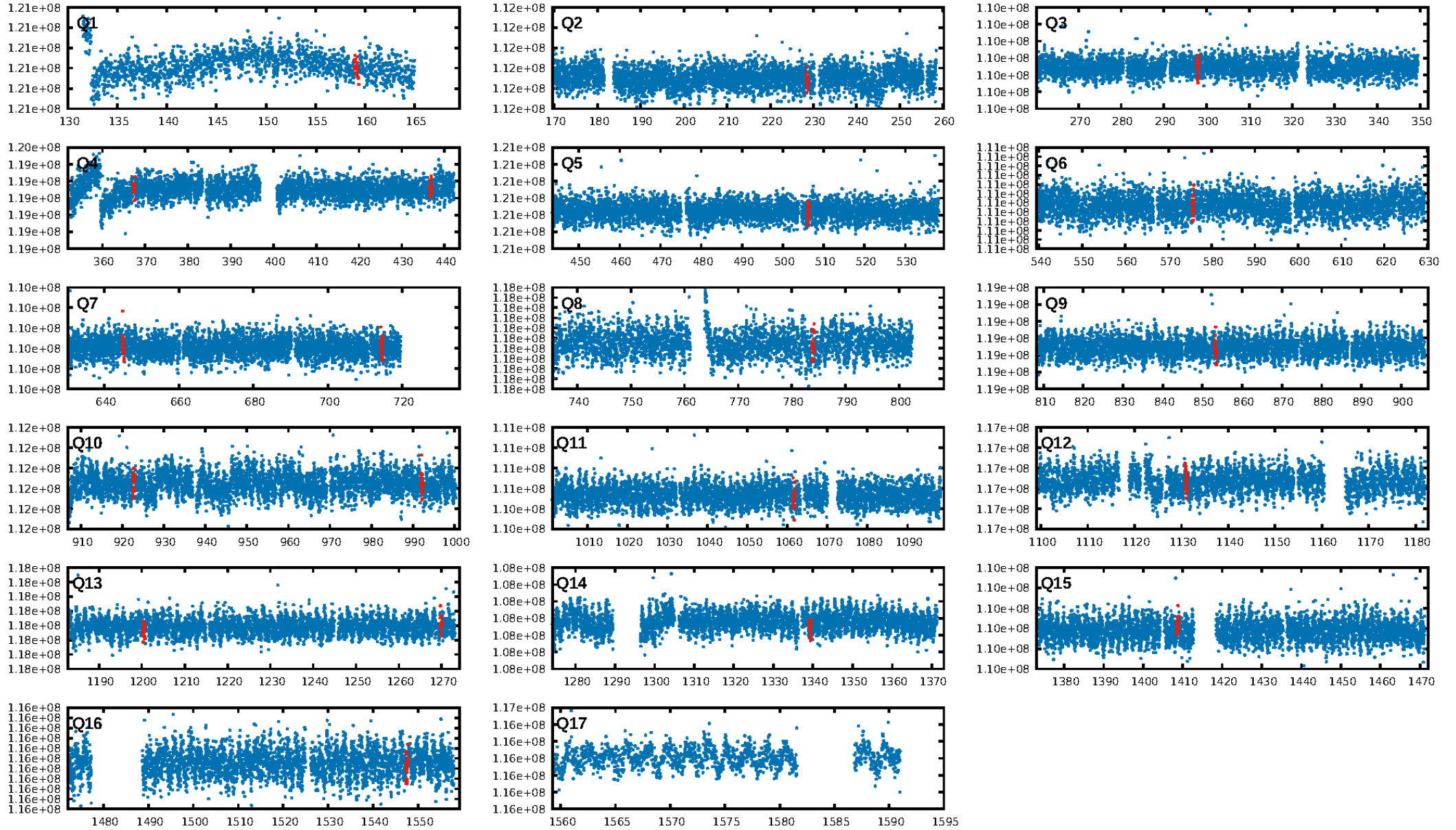
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [25.06 σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 17.2%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 2.75e-12
RollingBand-fgt: 1.00 [10/10]
GhostDiagnostic-chr: -1.295
Centroid-sig: 2.2%
Centroid-so: 1.707 arcsec [1.64 σ]
OotOffset-rm: 1.805 arcsec [3.83 σ]
KicOffset-rm: 1.742 arcsec [2.69 σ]
OotOffset-st: 2/3/3/3 [11]
KicOffset-st: 2/3/3/3 [11]
DiffImageQuality-fgm: 0.45 [5/11]
DiffImageOverlap-fno: 0.00 [0/16]

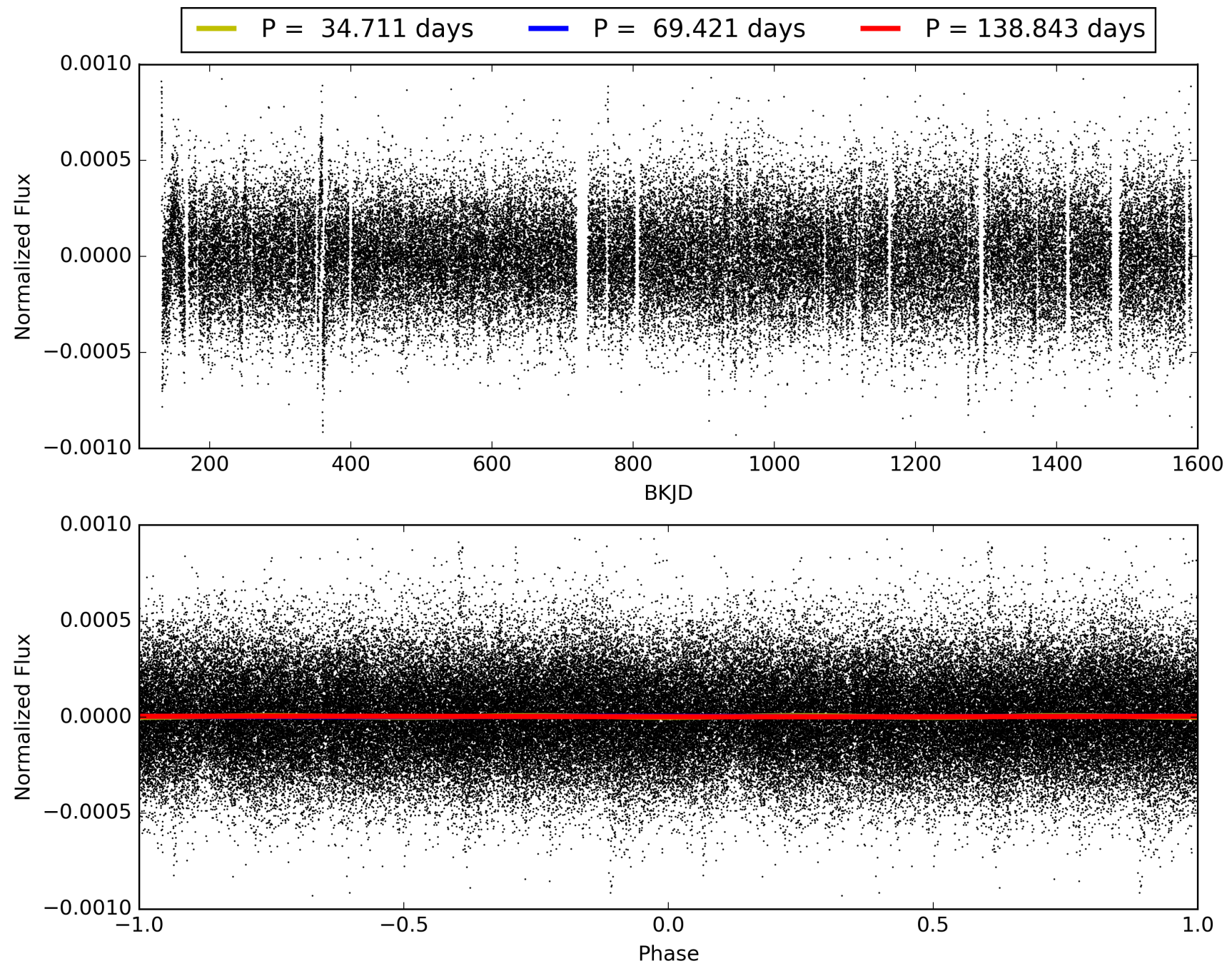
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 02:06:34 Z

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

TCE 005821165-03, PDC Light Curves

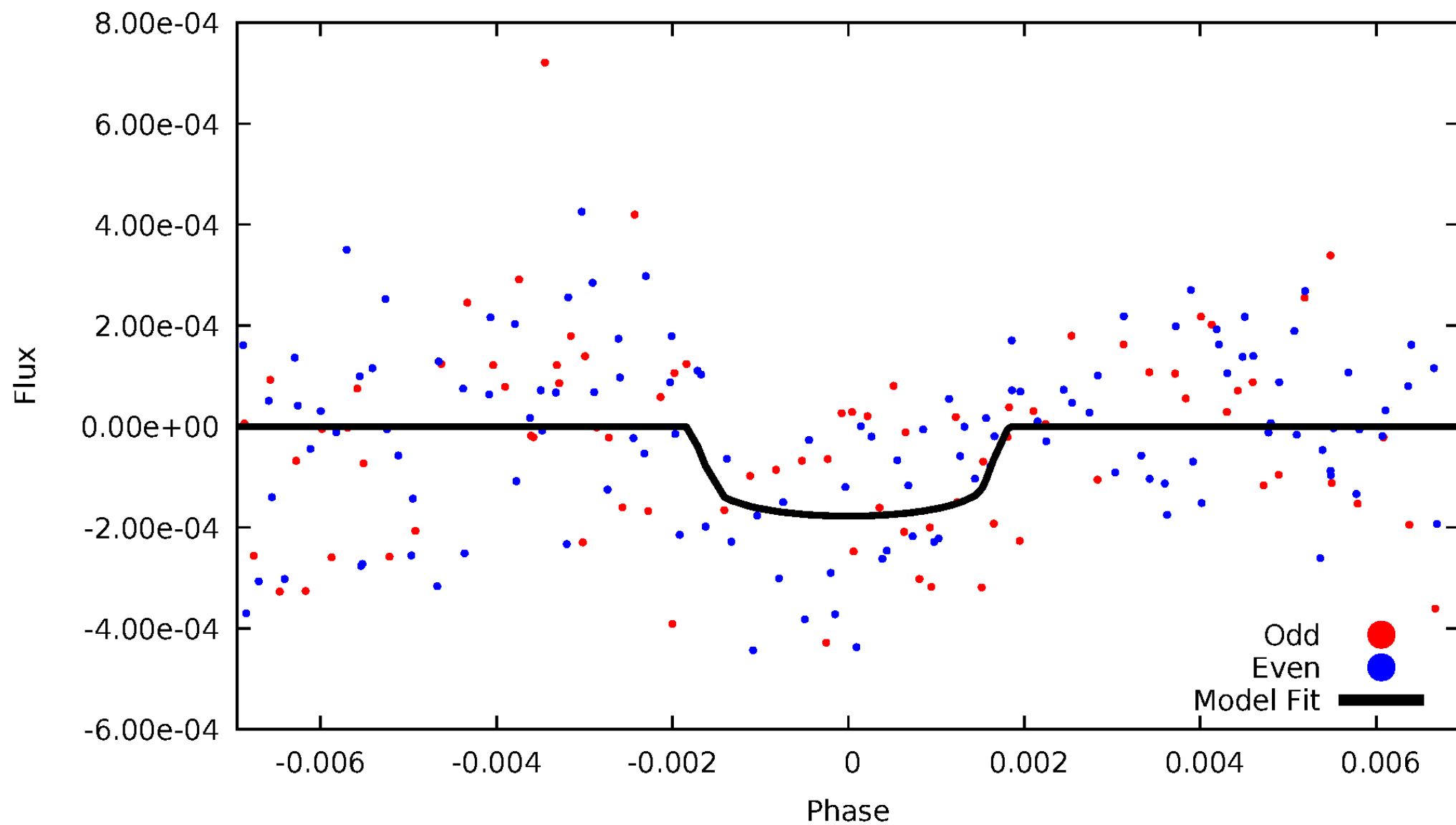


TCE 005821165-03



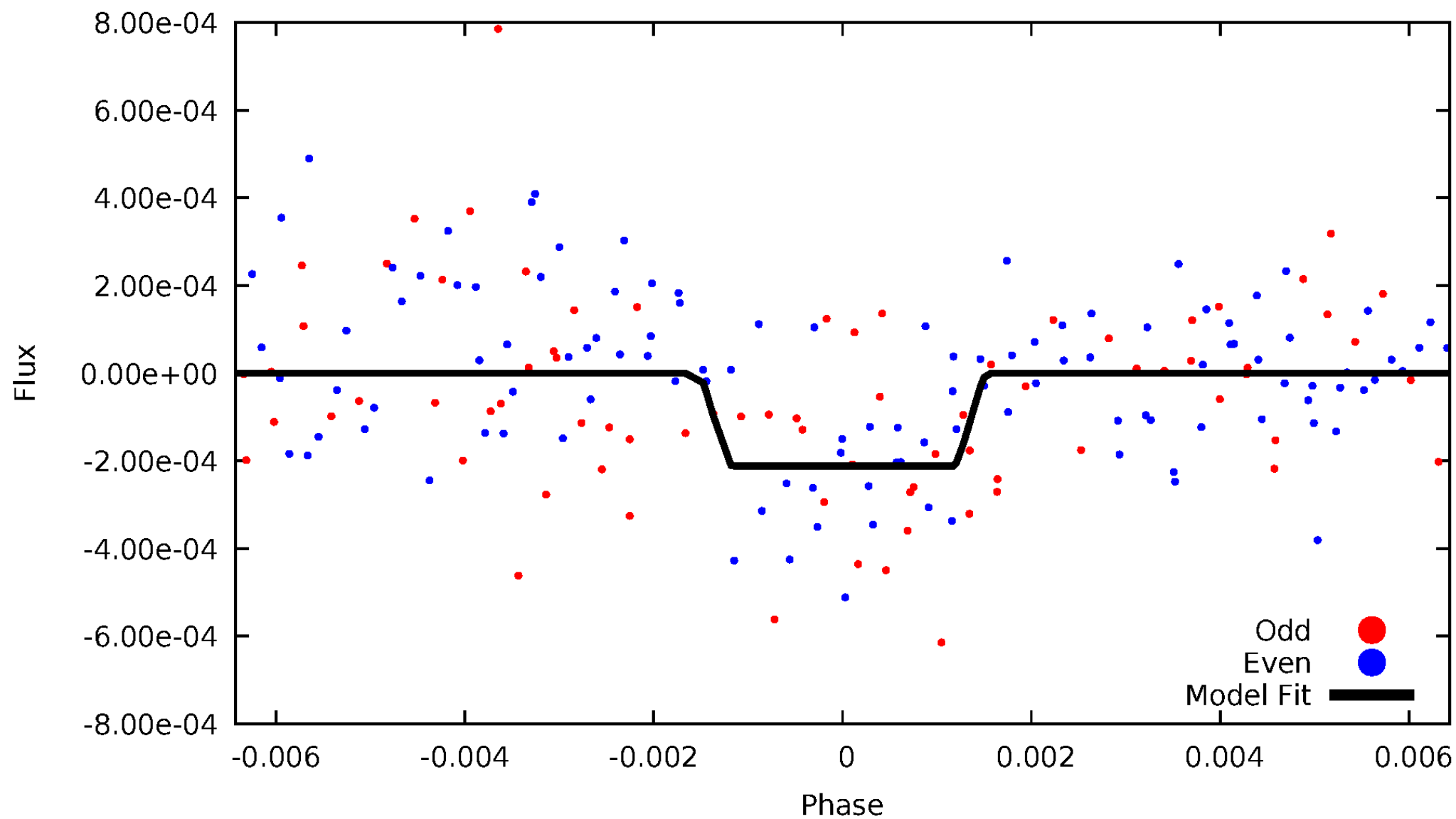
DV Odd/Even

TCE 005821165-03

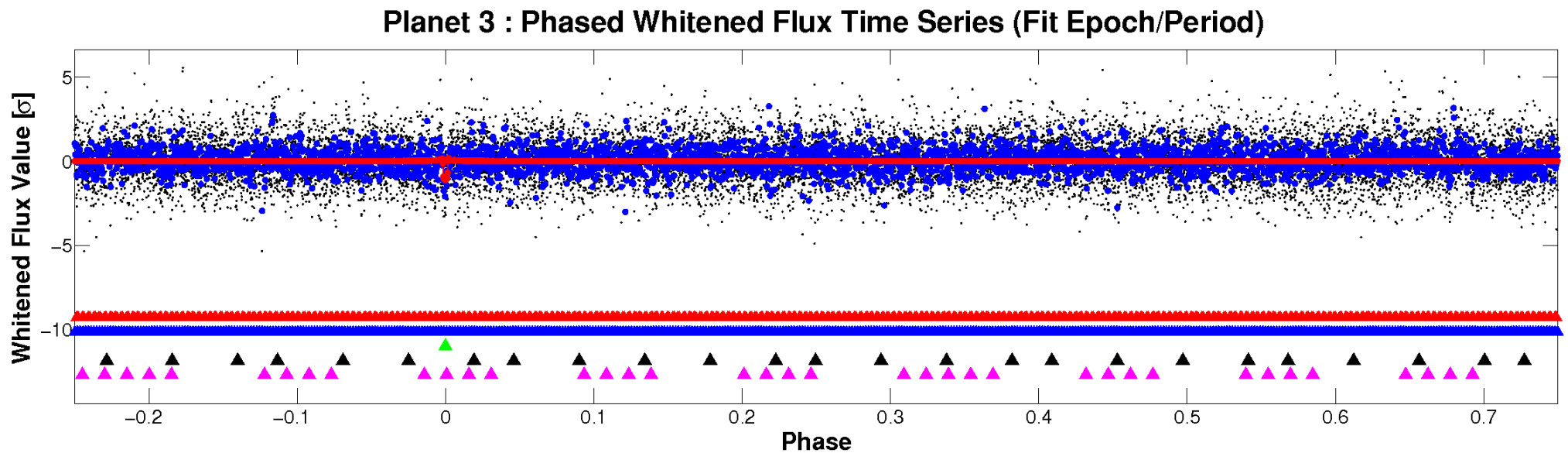
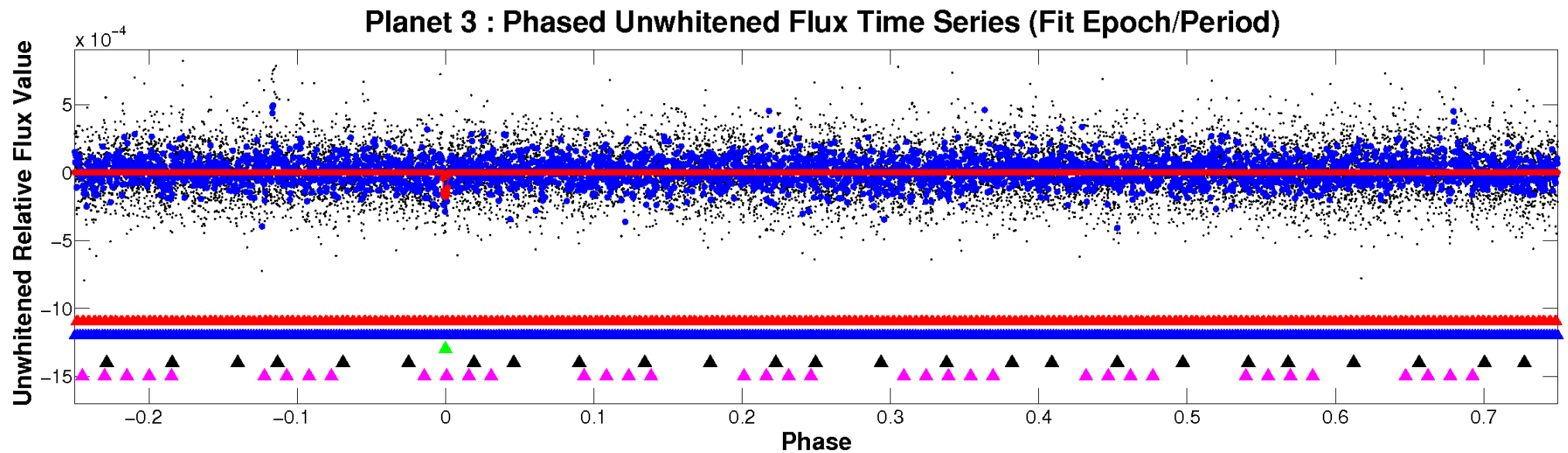


ALT Odd/Even

TCE 005821165-03

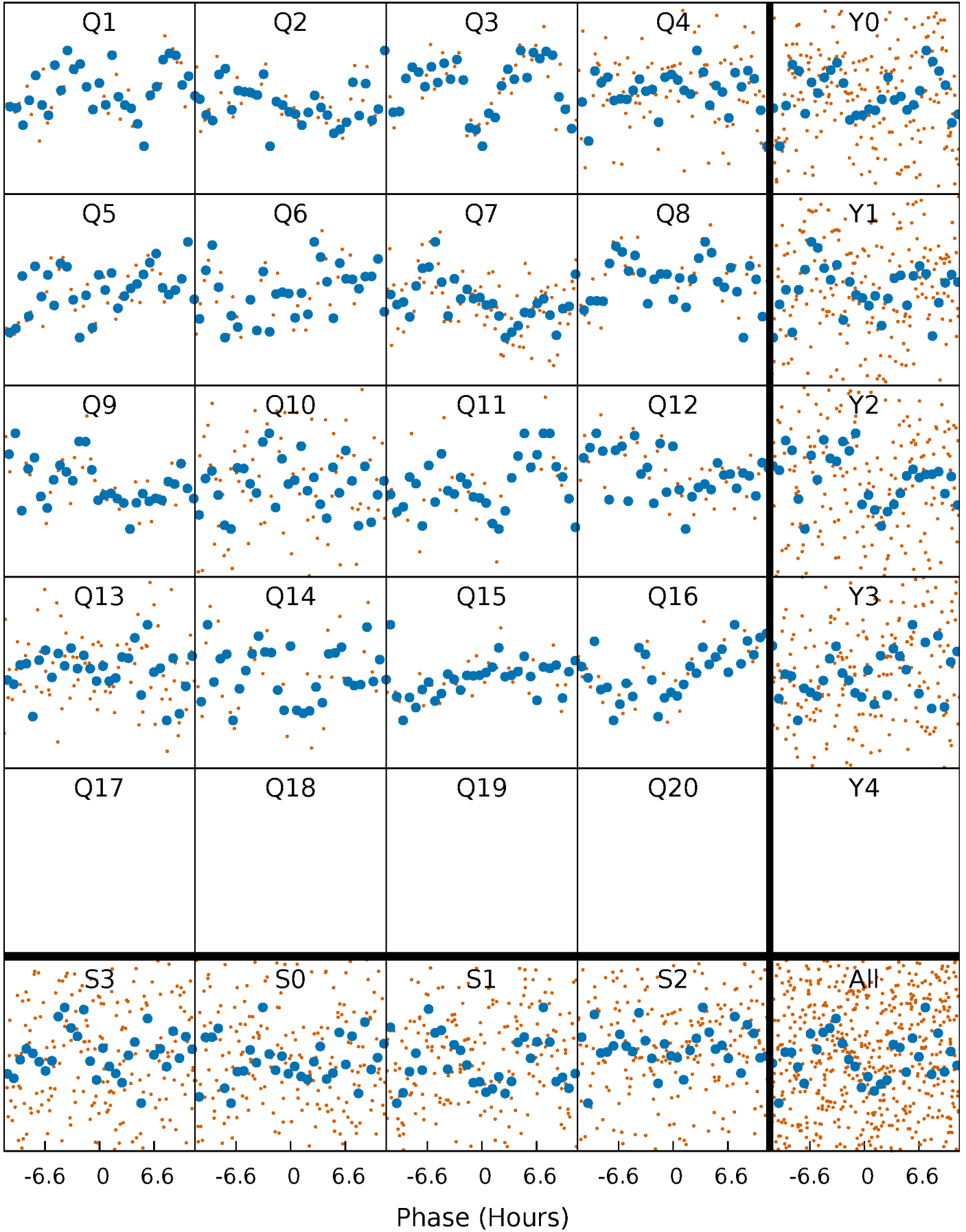


Non-Whitened Vs. Whitened Light Curve



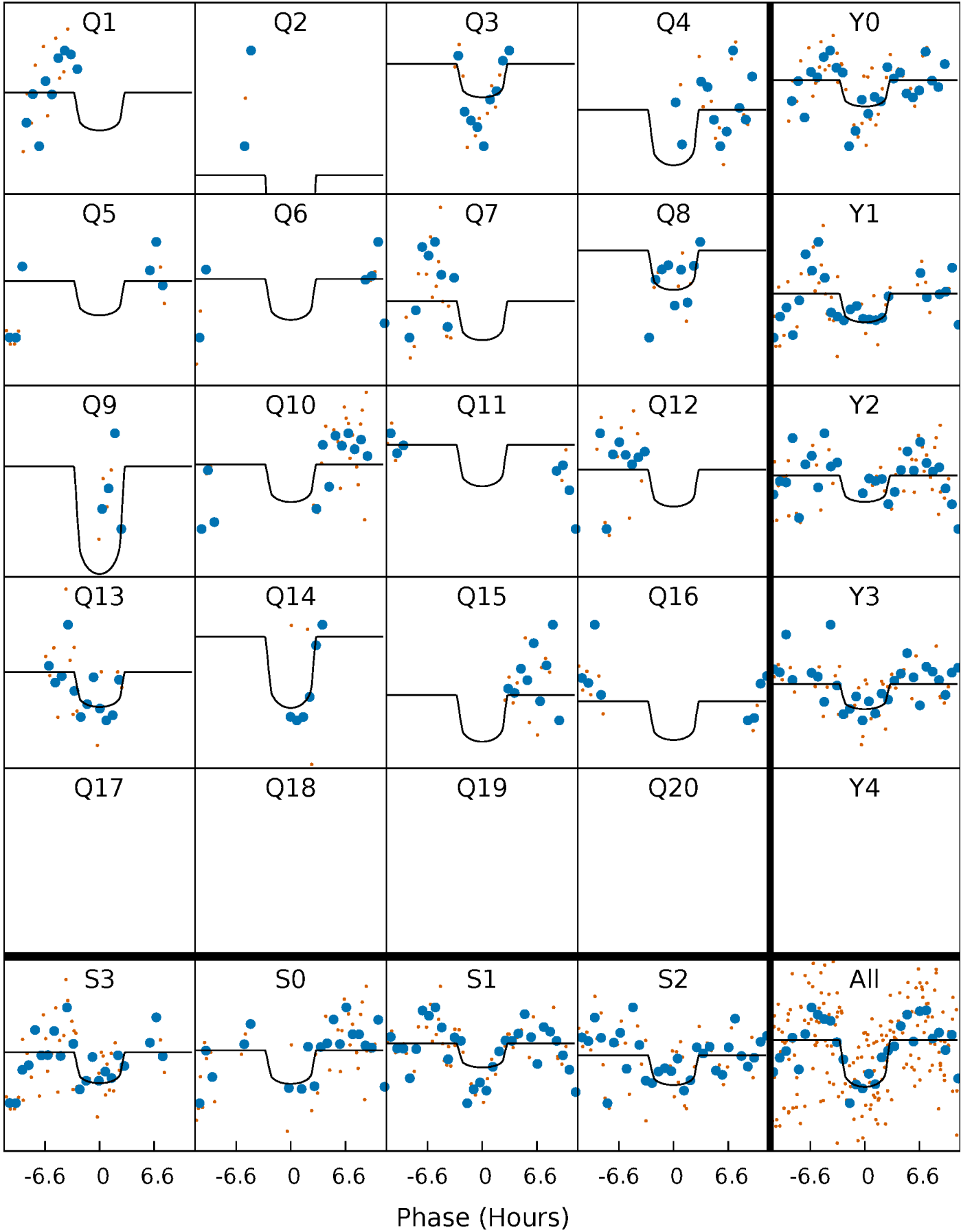
PDC Quarter-Phased Transit Curves

TCE 005821165-03 P= 69.421475 Days $T_0=159.135774$ (BKJD)



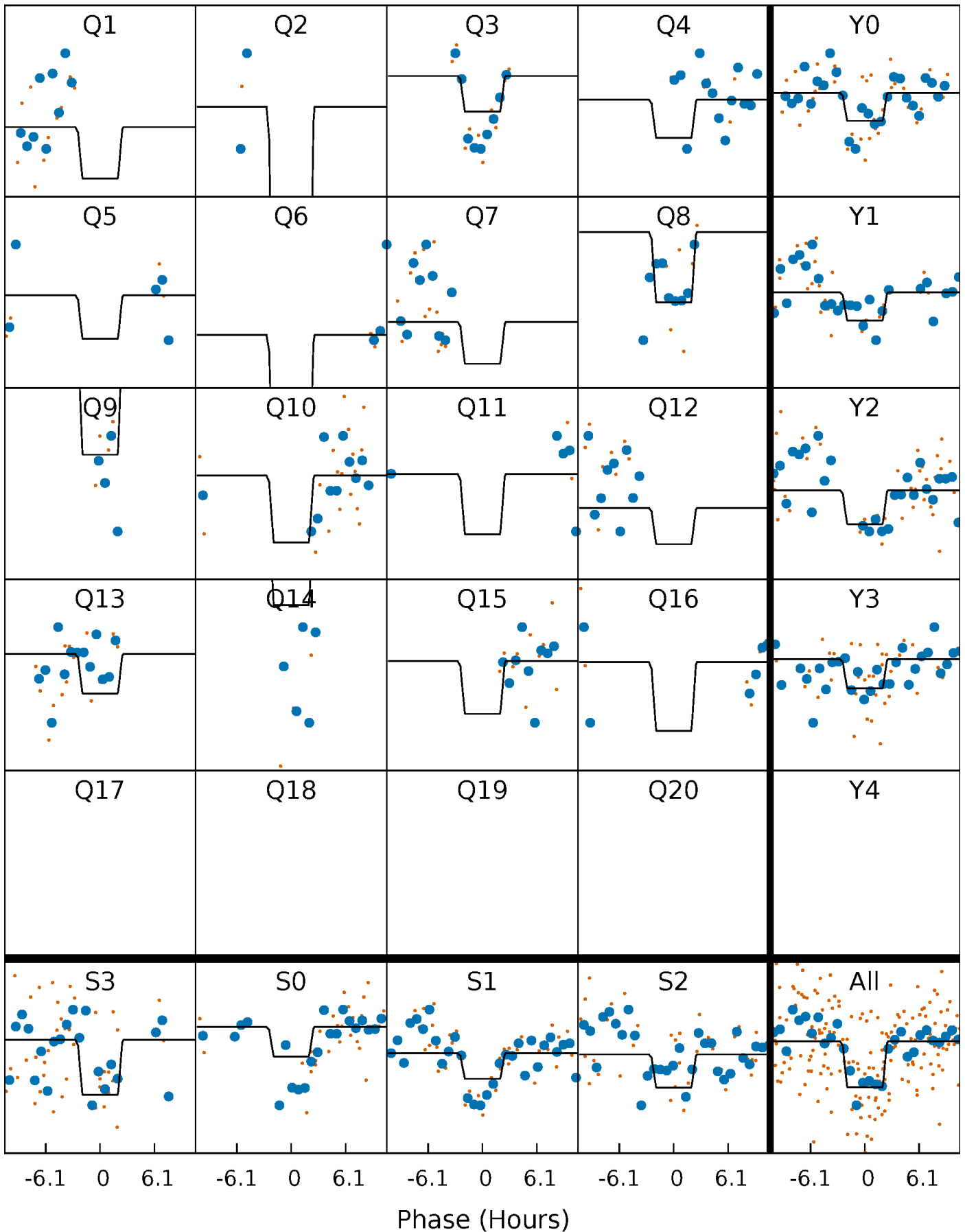
DV Quarter-Phased Transit Curves

TCE 005821165-03 $P = 69.421475$ Days $T_0 = 159.135774$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

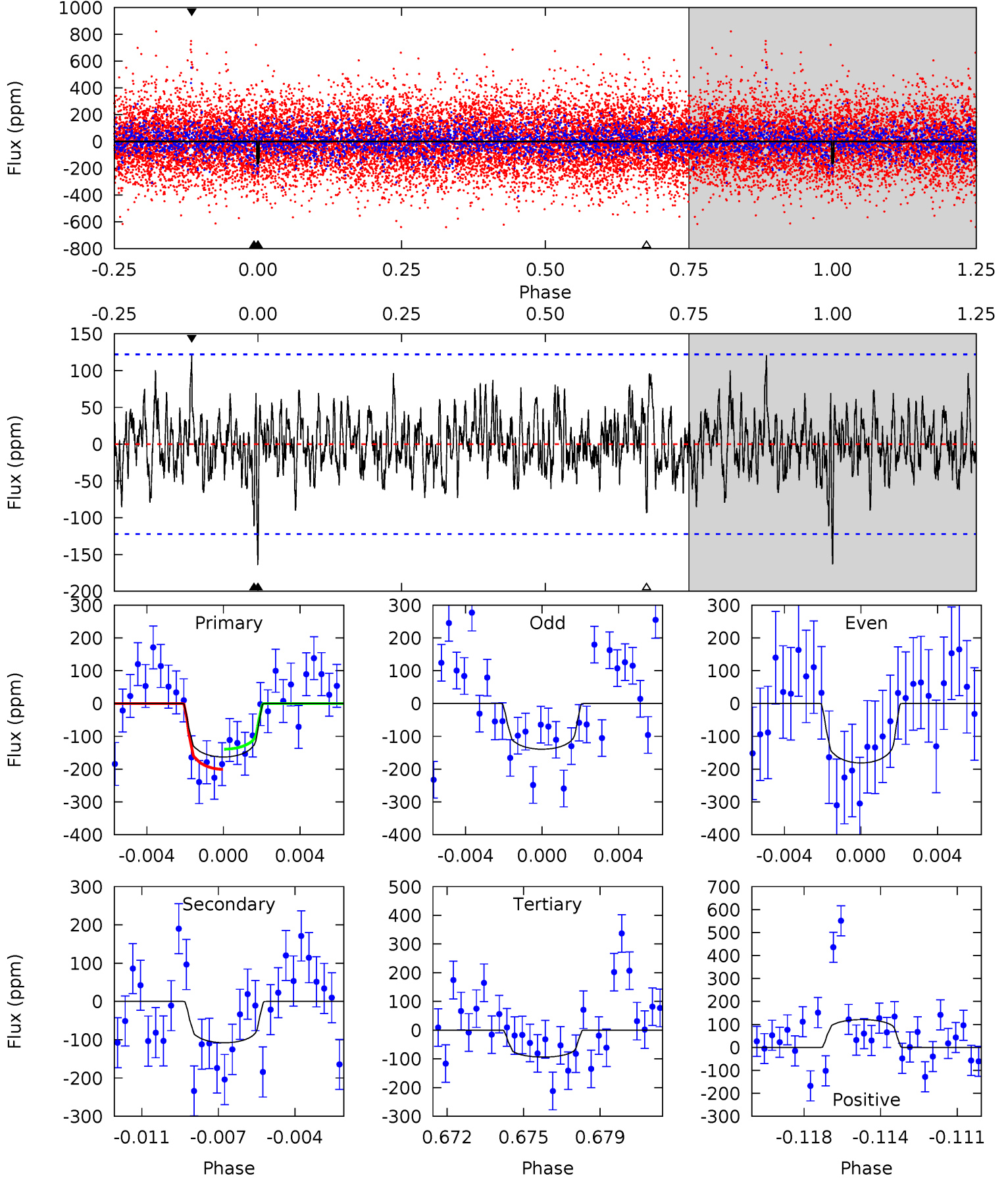
TCE 005821165-03 P= 69.423340 Days $T_0=159.136527$ (BKJD)



DV Model-Shift Uniqueness Test

005821165-03, P = 69.421475 Days, E = 89.714299 Days

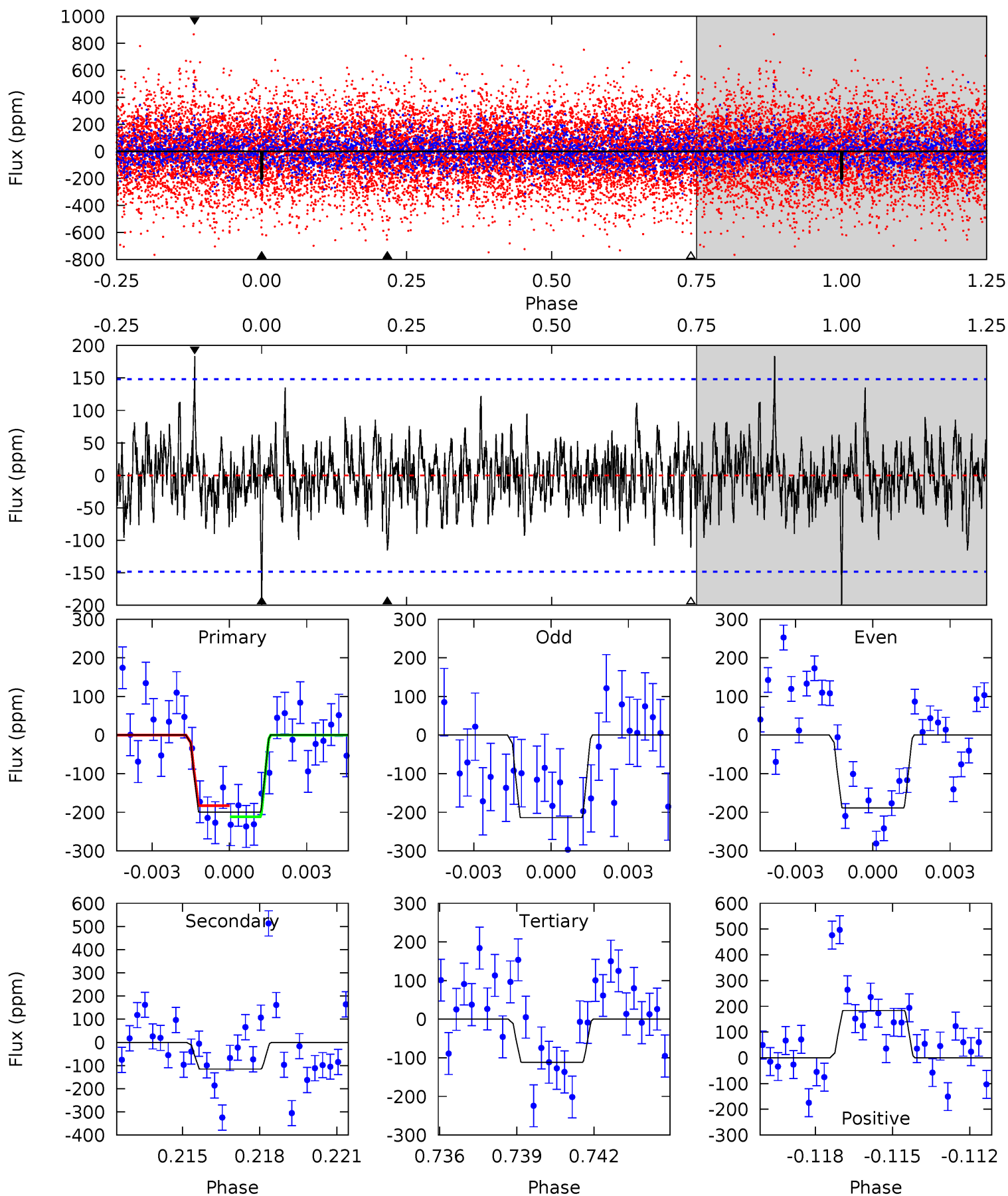
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
6.97	4.61	4.01	5.17	5.22	2.91	1.38	2.96	1.80	0.60	-0.56	0.88	0.90	0.43	1.26



Alt Model-Shift Uniqueness Test

005821165-03, P = 69.423340 Days, E = 89.713187 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
7.09	4.09	3.95	6.52	5.26	2.97	1.27	3.14	0.57	0.14	-2.43	0.44	1.00	0.48	0.50



Stellar Parameters For KIC 005821165

	$T_{\text{eff}}(K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6047^{+163}_{-181}	$4.223^{+0.225}_{-0.184}$	$-0.240^{+0.300}_{-0.300}$	$1.266^{+0.351}_{-0.315}$	$0.977^{+0.156}_{-0.117}$	$0.678^{+0.824}_{-0.324}$
	+3%/-3%	+5%/-4%	+125%/-125%	+28%/-25%	+16%/-12%	+122%/-48%
Source	PHO1	KIC0	KIC0	DSEP		

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

Secondary Eclipse Parameters for KIC 005821165-03 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-108 ± 23	$2.23^{+1.68}_{-1.34}$	730^{+57}_{-59}	4949^{+2532}_{-994}	1311^{+6254}_{-912}
Alt.	-115 ± 28	$2.32^{+1.68}_{-1.41}$	729^{+55}_{-54}	4803^{+2953}_{-840}	1152^{+7450}_{-740}

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

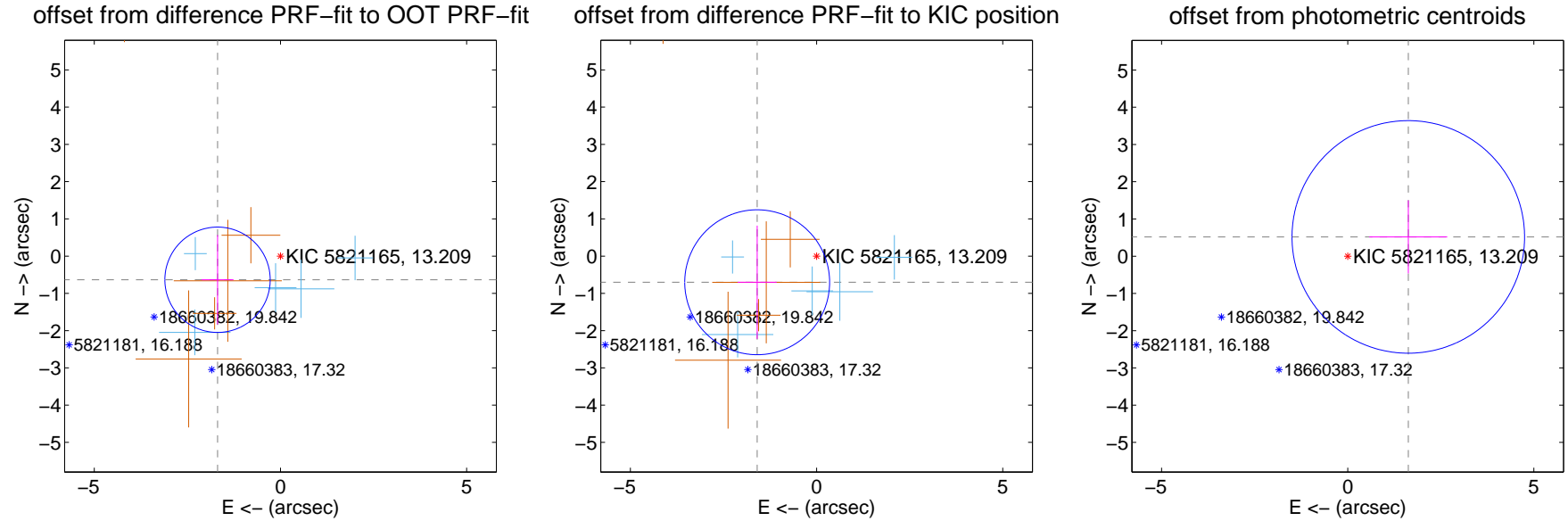
DV Centroid Data

Supplemental centroid analysis for 005821165-03. Kepler magnitude: 13.21. Transit SNR 7.09

There are 5 quarters with good PRF difference image offsets

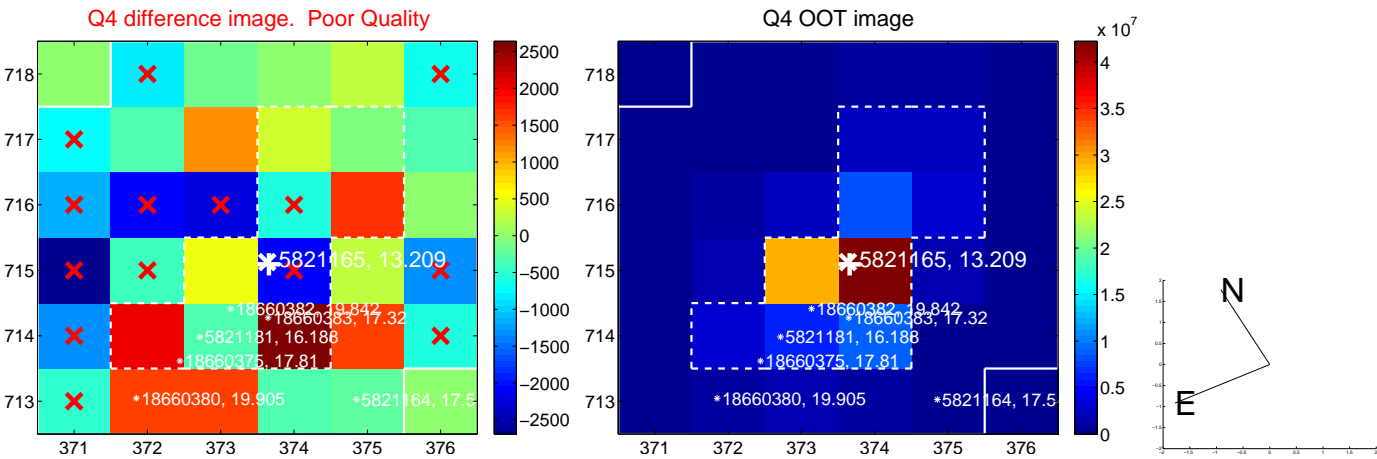
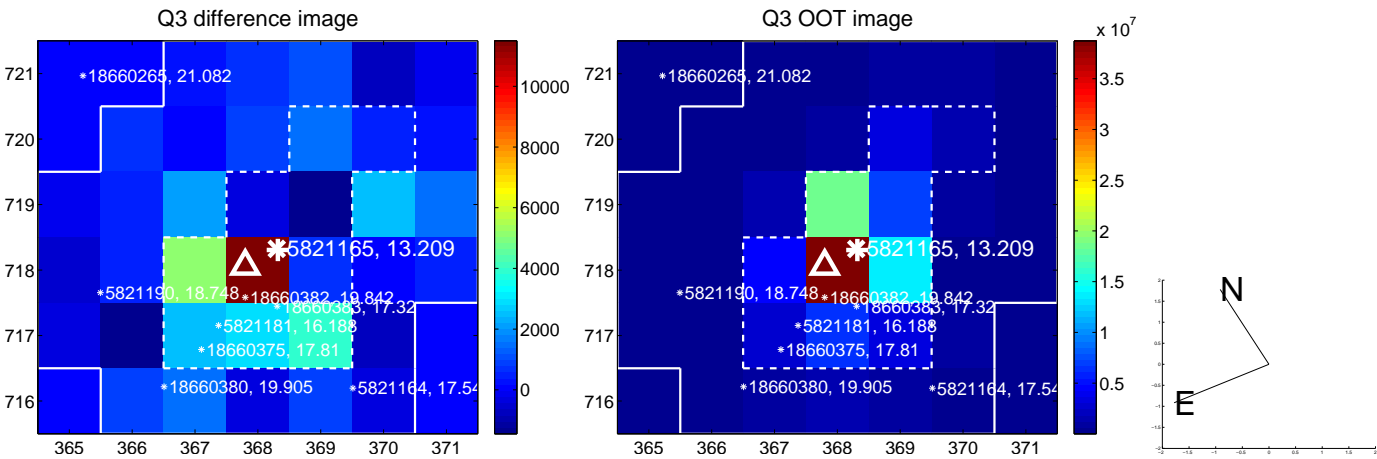
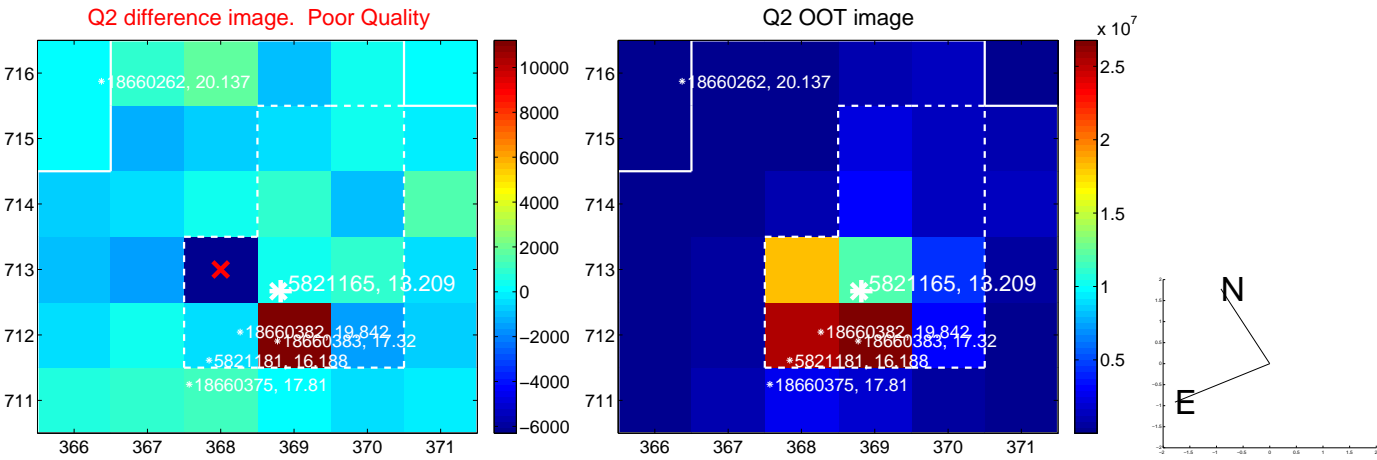
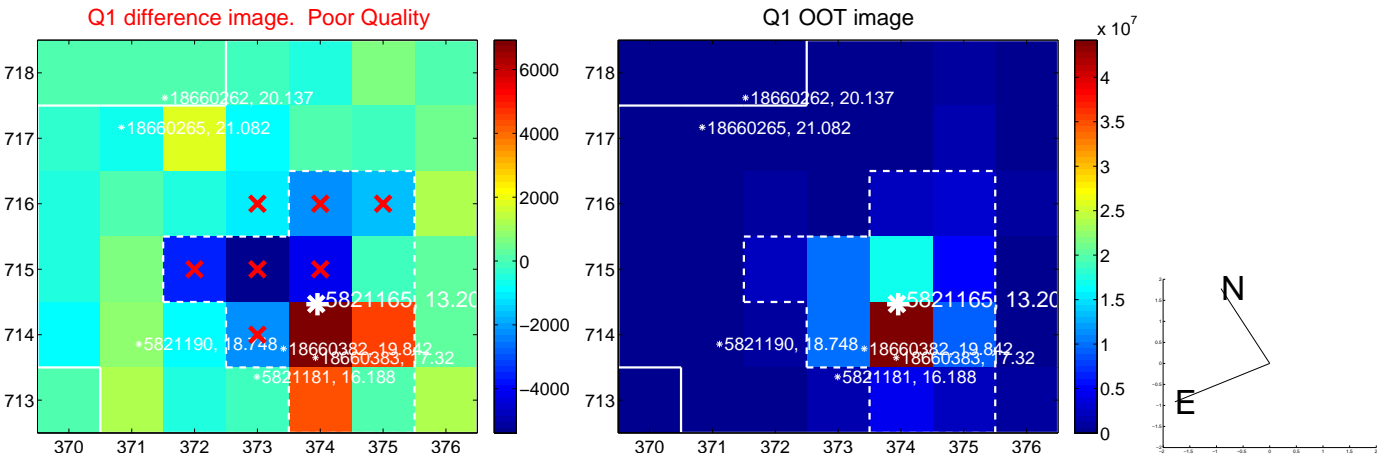
The direct PRF centroid is offset from the target star catalog position by about 0.09 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	1.805 ± 0.471	3.83	1.690 ± 0.428	-0.634 ± 1.199
PRF-fit source offset from KIC position	1.742 ± 0.648	2.69	1.595 ± 0.524	-0.701 ± 1.521
photometric centroid source offset	1.71 ± 1.04	1.64	-1.63 ± 1.05	0.52 ± 0.98

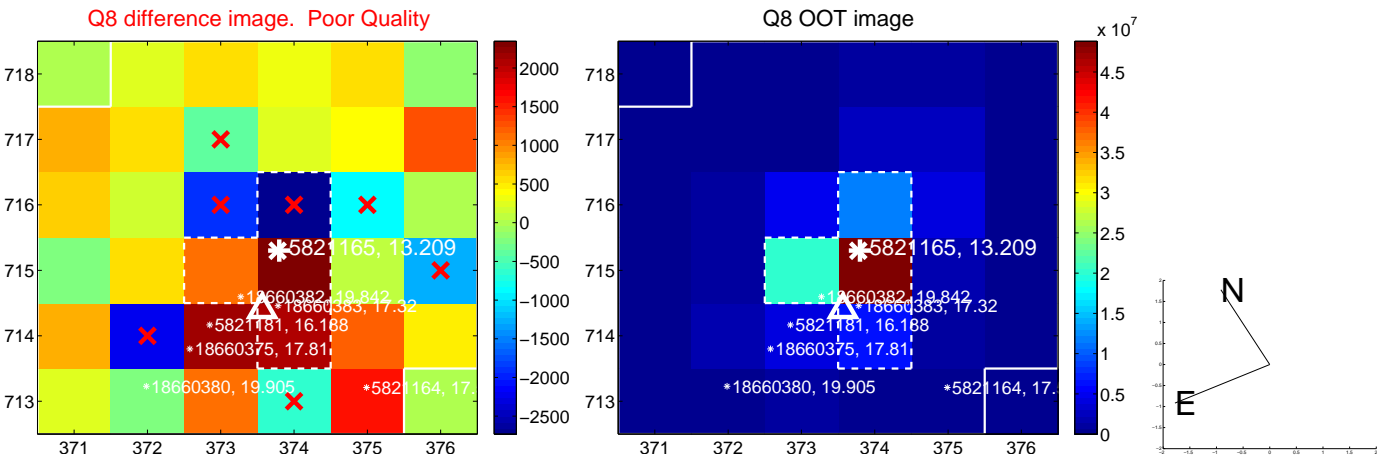
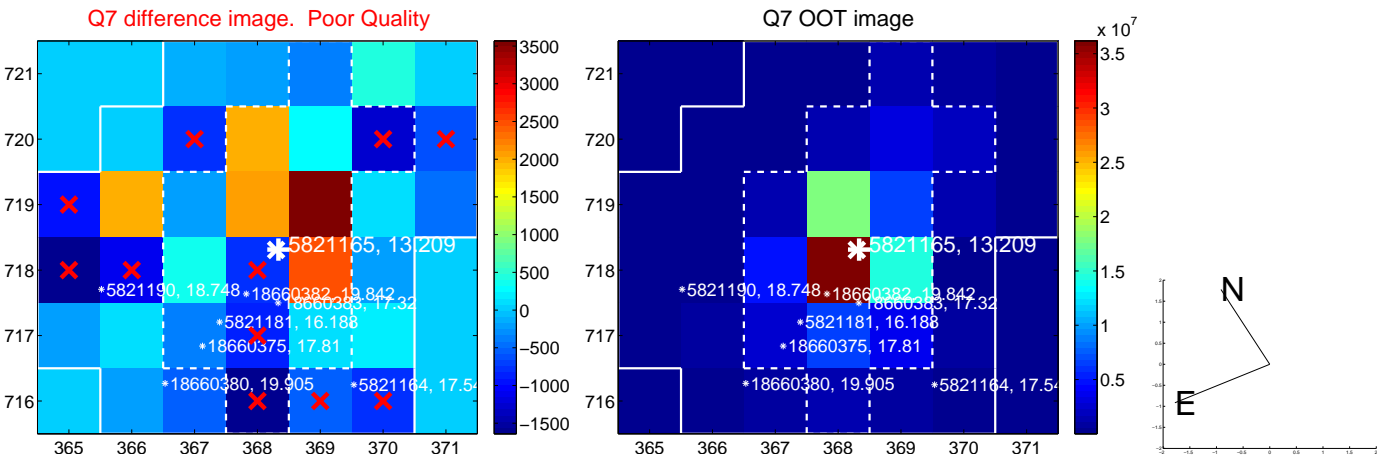
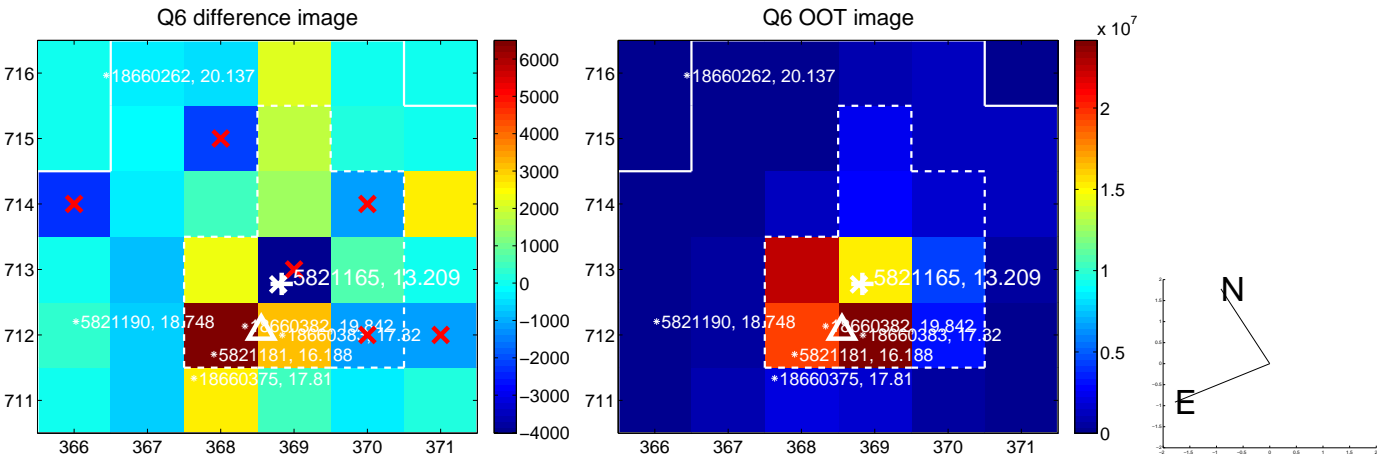
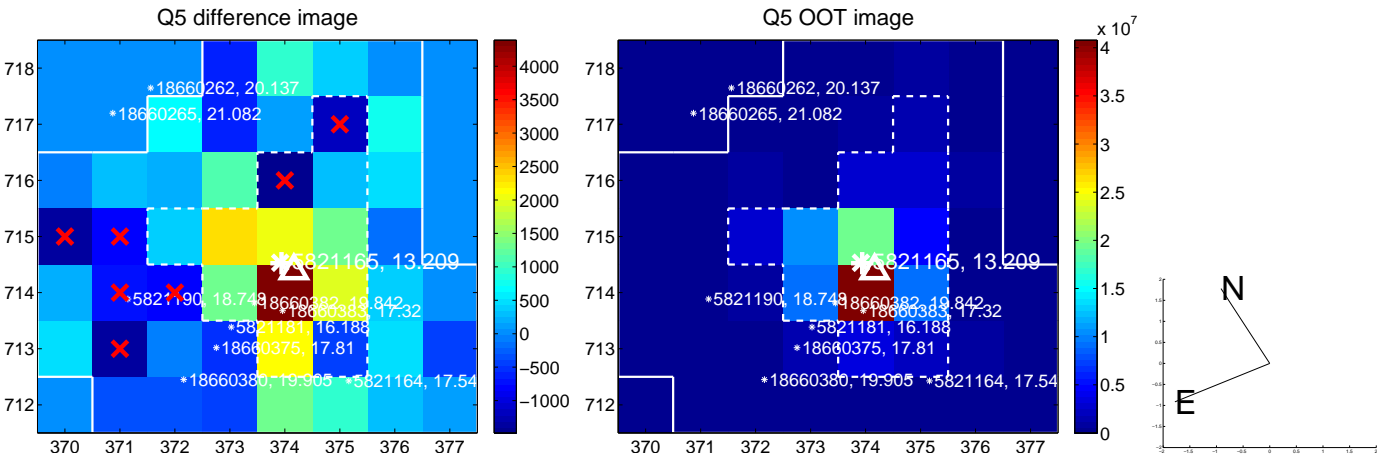


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

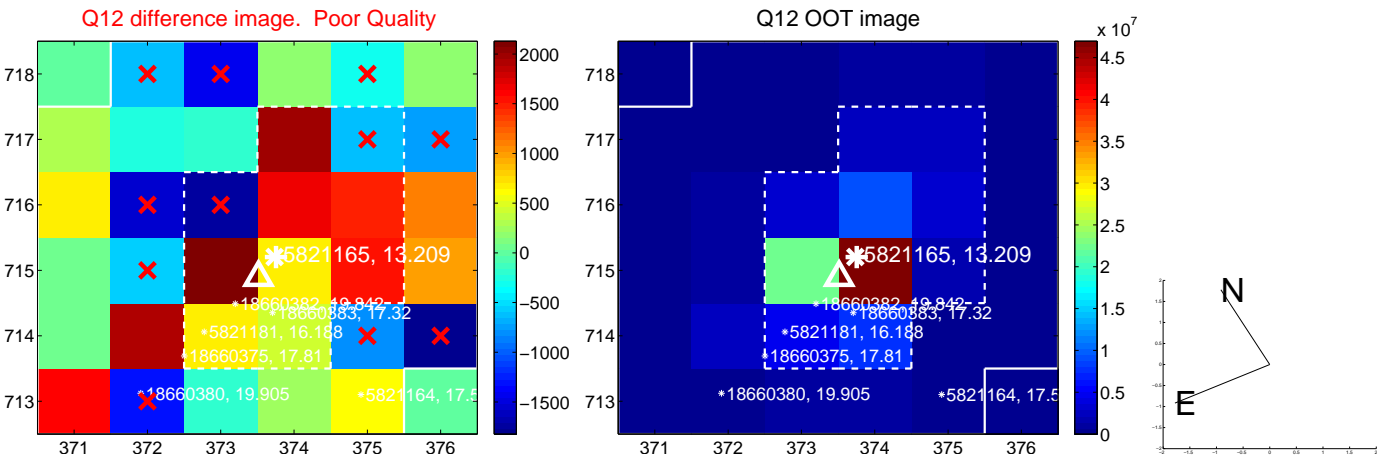
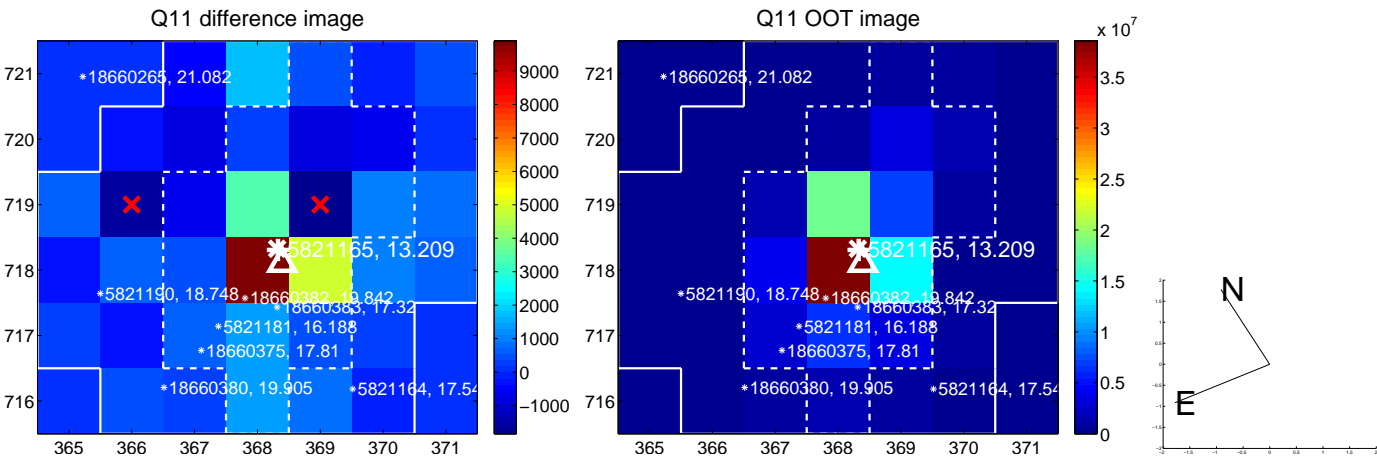
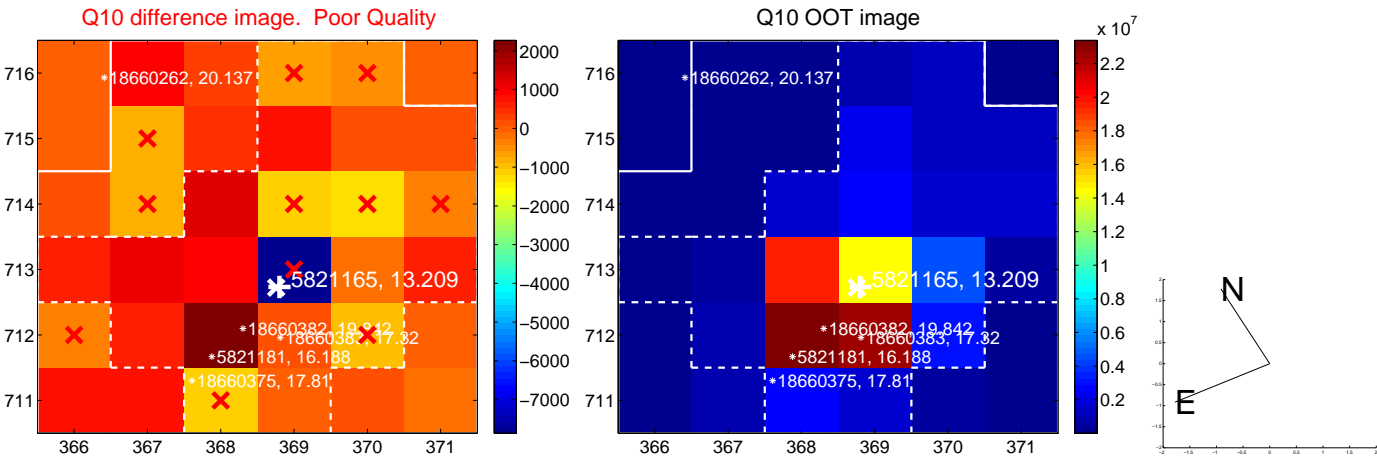
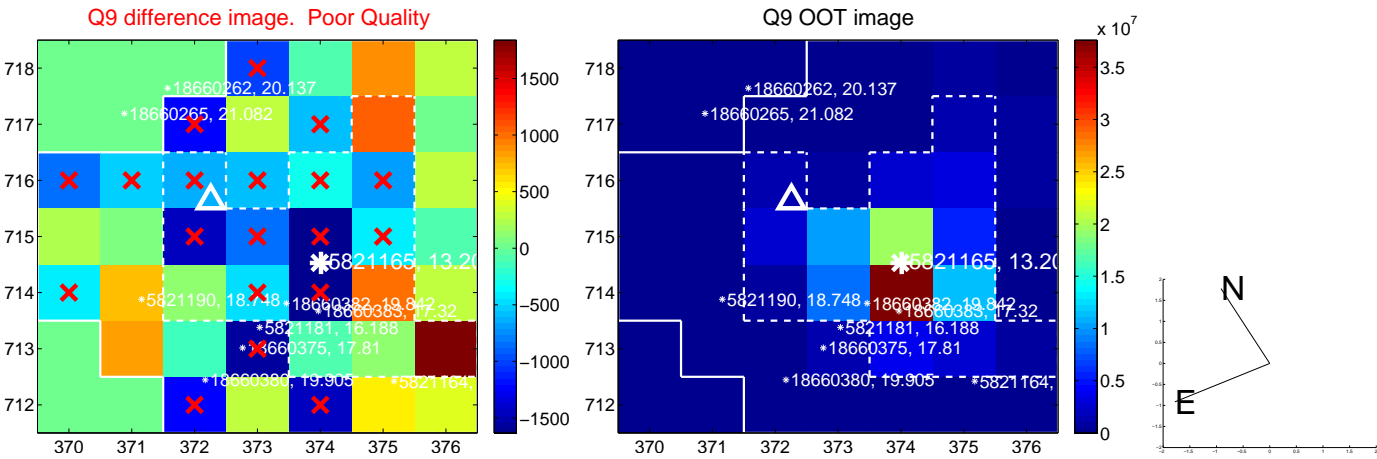
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



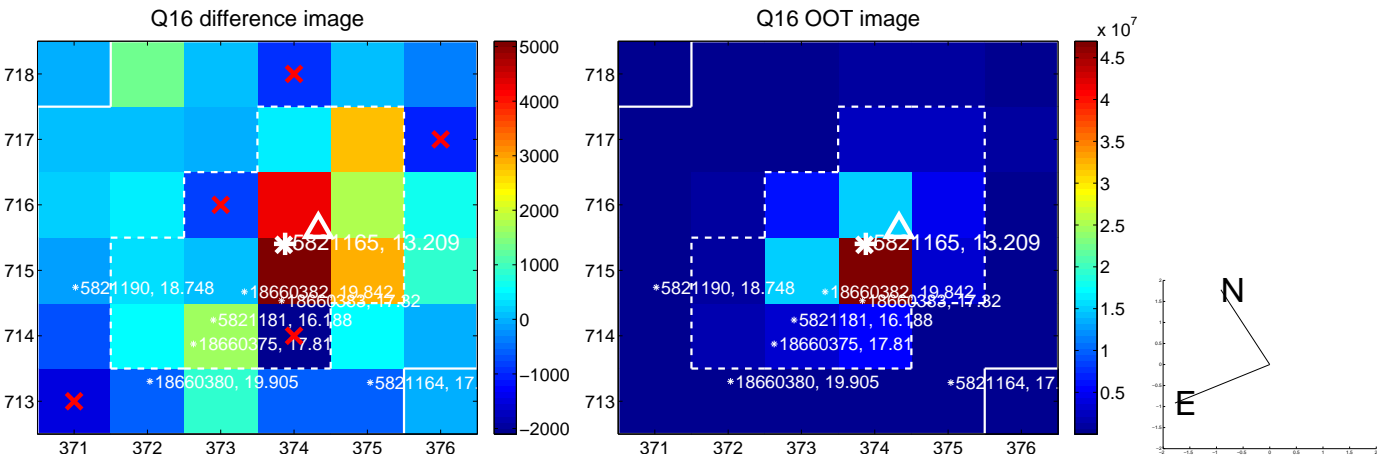
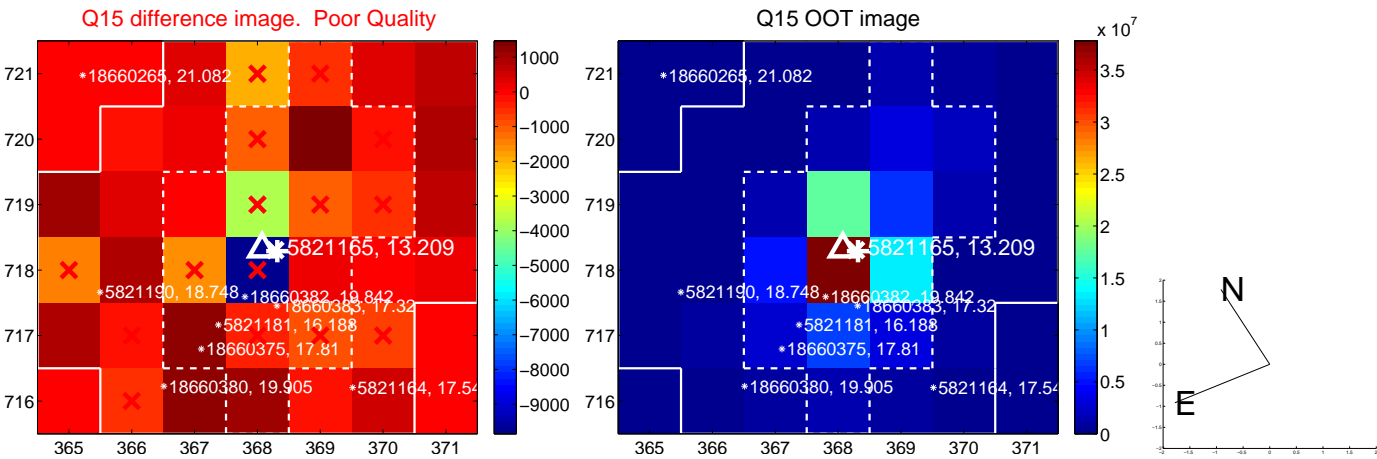
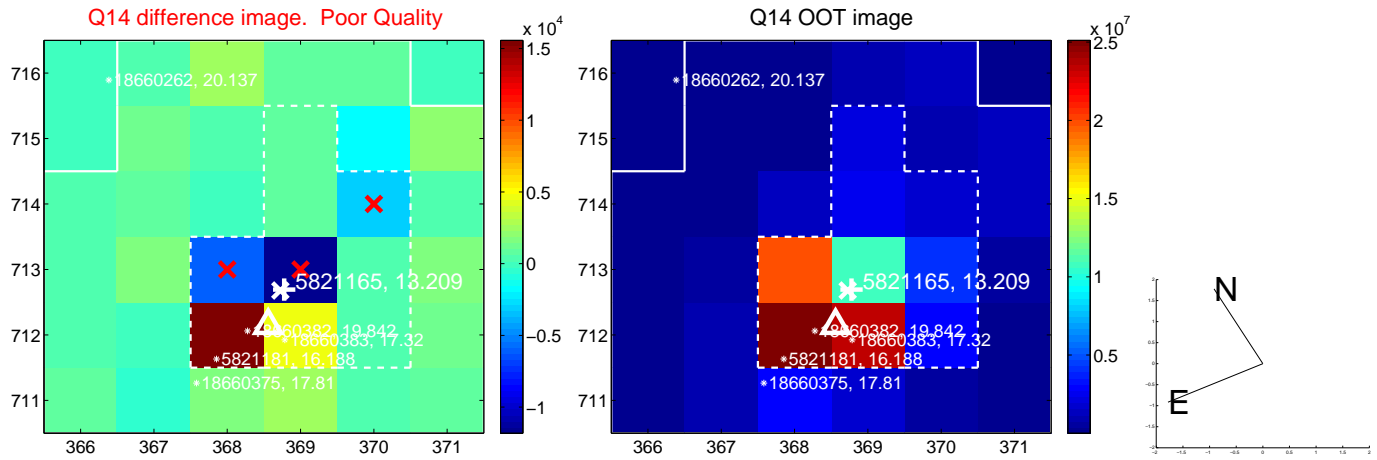
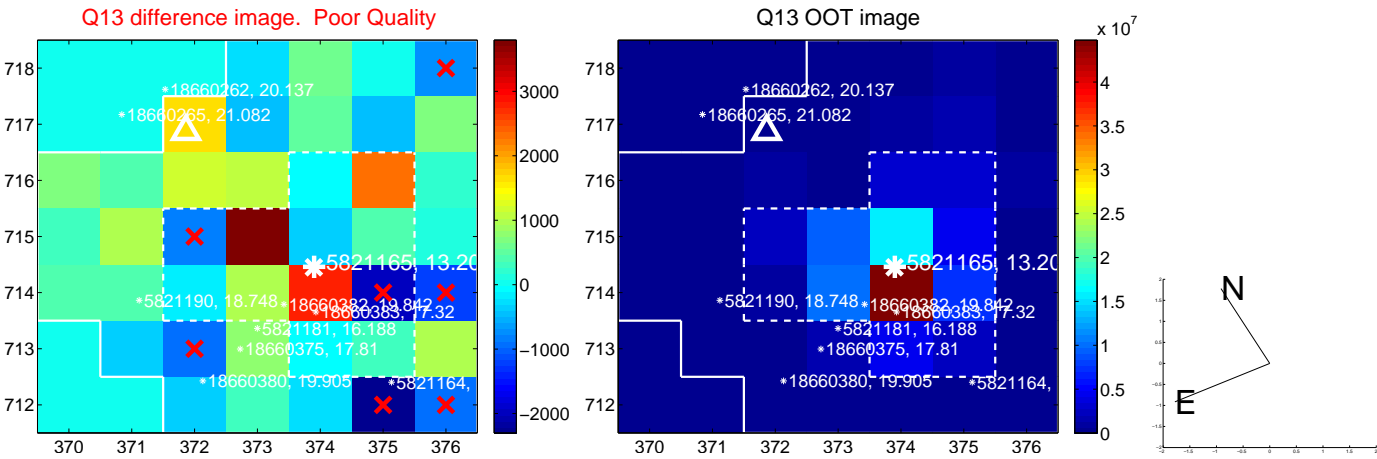
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



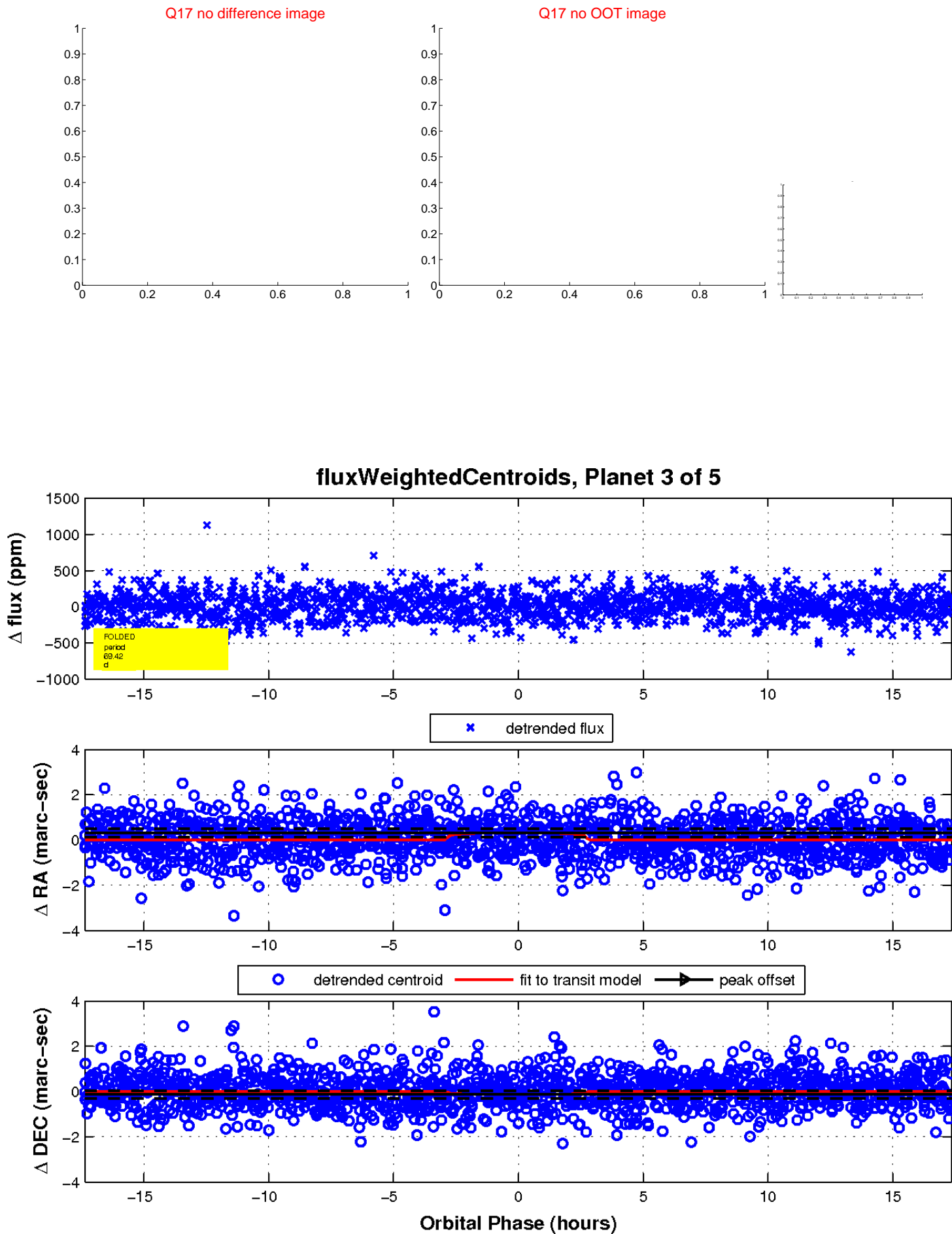
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

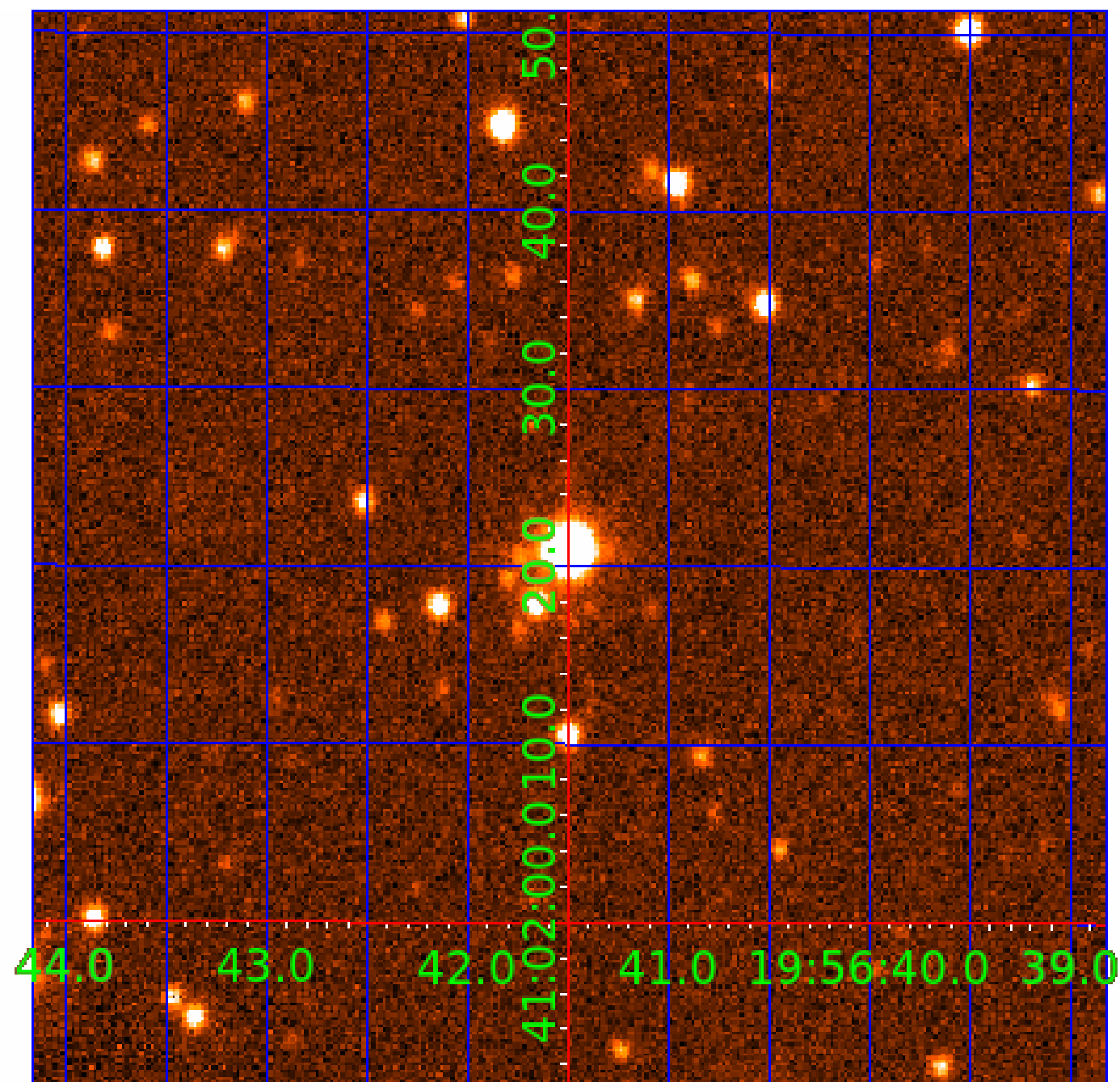


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 005821165

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})
005821165-01	OBS	No	1.806671	132.825553	216.9	3.500	9.8	-1.0	1.27	6047	1.86	2312.98
005821165-02	OBS	No	0.903245	132.234848	19.8	4.831	8.5	8.0	1.27	6047	0.58	5829.12
005821165-03	OBS	No	69.421475	159.135774	177.6	5.787	8.1	7.1	1.27	6047	1.88	17.84
005821165-04	OBS	No	58.362186	162.332645	146.6	8.873	8.1	6.9	1.27	6047	1.72	22.48
005821165-05	OBS	No	38.451545	146.312128	219.1	2.366	7.7	8.1	1.27	6047	2.00	39.22

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005821165-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—CENT_NOFITS
005821165-02	OBS	FP	0.00	1	0	0	0	LPP_DV—MOD_NONUNIQ_ALT—SAME_NTL_PERIOD
005821165-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT
005821165-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
005821165-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—MOD_NONUNIQ_ALT

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

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

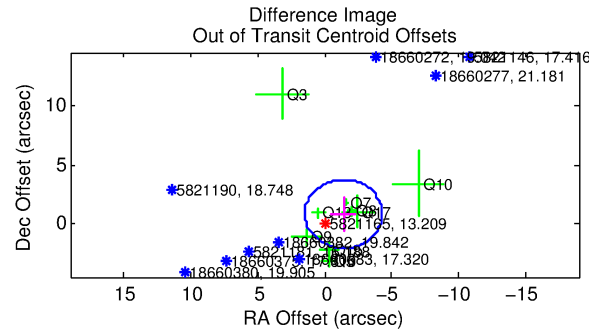
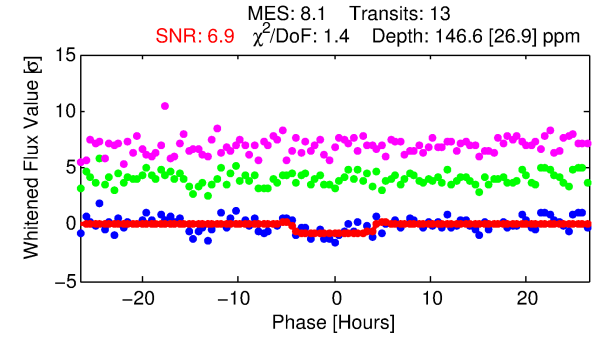
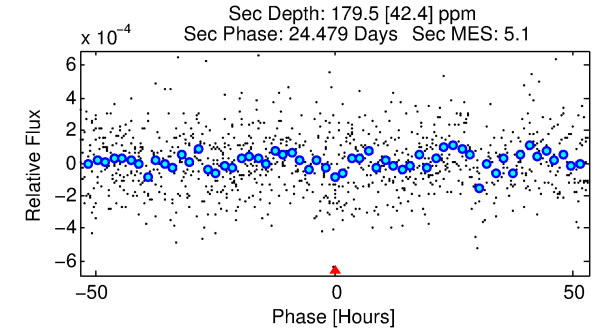
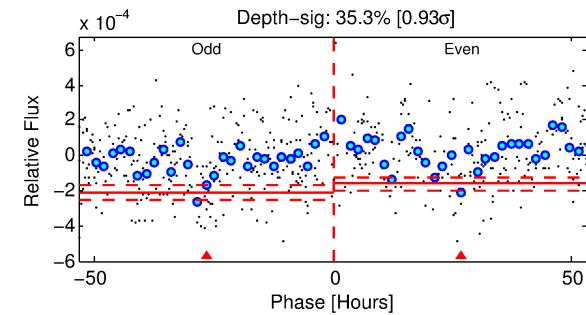
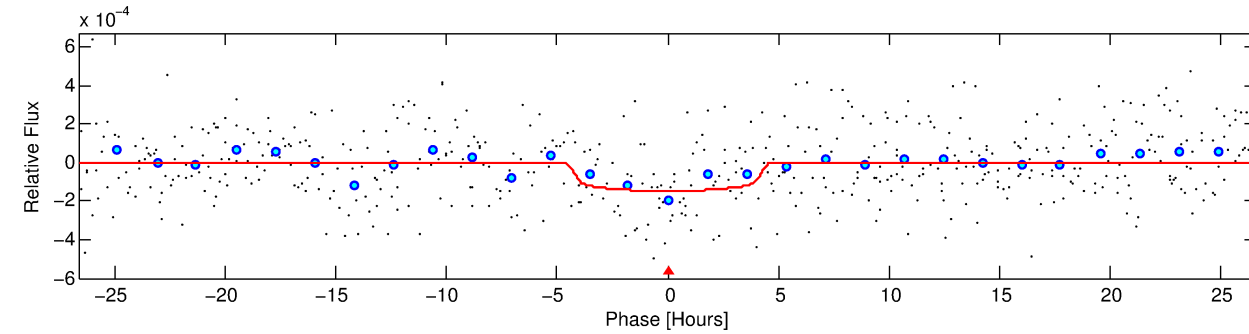
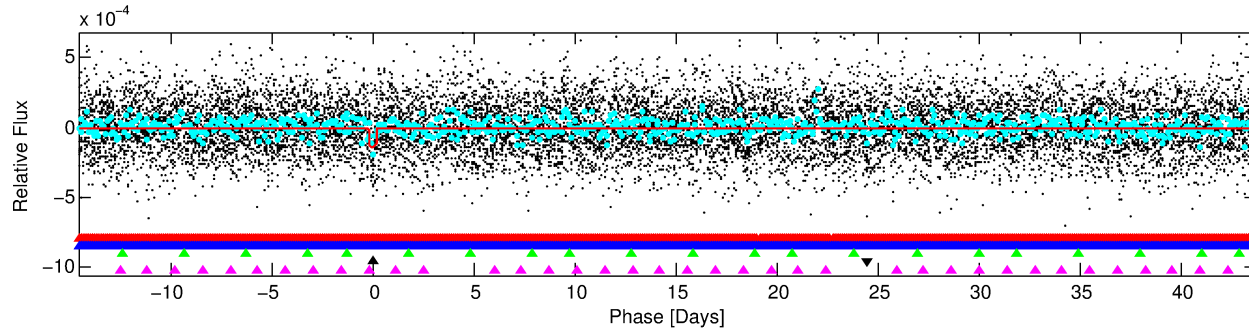
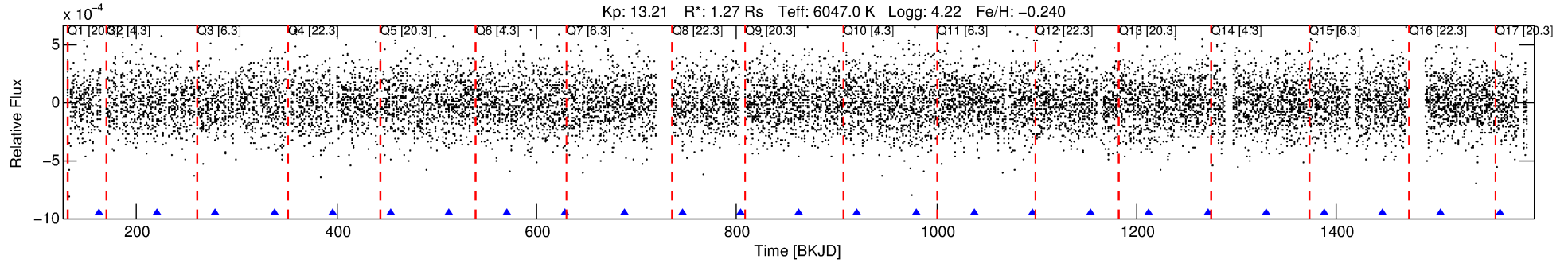
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 005821165-04

No Significant Match Found

DV One-Page Summary

KIC: 5821165 Candidate: 4 of 5 Period: 58.362 d



DV Fit Results:

Period = 58.36219 [0.00159] d
Epoch = 162.3326 [0.0213] BKJD
Rp/R* = 0.0124 [0.0072]
a/R* = 29.34 [85.52]
b = 0.83 [1.12]
Seff = 22.48 [9.21]
Teq = 555 [57] K
Rp = 1.72 [1.10] Re
a = 0.2922 [0.0739] AU
Ag = 2858.22 [3542.62] [0.81σ]
Teffp = 6277 [1855] K [3.08σ]

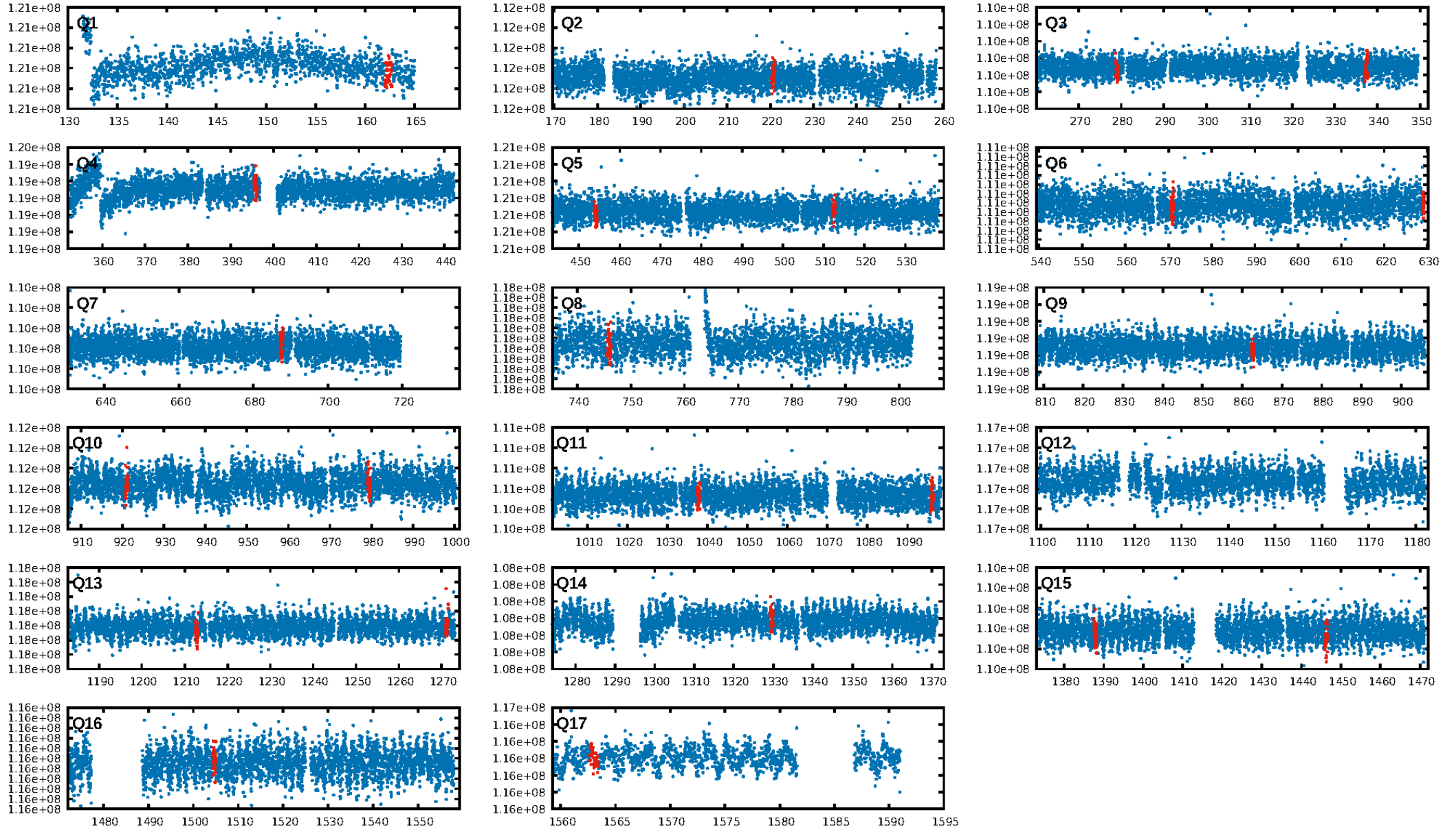
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [52.04σ]
LongPeriod-sig: 100.0% [25.06σ]
ModelChiSquare2-sig: 6.2%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 7.00e-11
RollingBand-fgt: 1.00 [12/12]
GhostDiagnostic-chr: -1.645
Centroid-sig: 5.7%
Centroid-so: 0.980 arcsec [1.02σ]
OotOffset-rm: 1.632 arcsec [1.69σ]
KicOffset-rm: 1.653 arcsec [1.72σ]
OotOffset-st: 1/3/1/4 [9]
KicOffset-st: 1/3/1/4 [9]
DiffImageQuality-fgm: 0.56 [5/9]
DiffImageOverlap-fno: 0.00 [0/15]

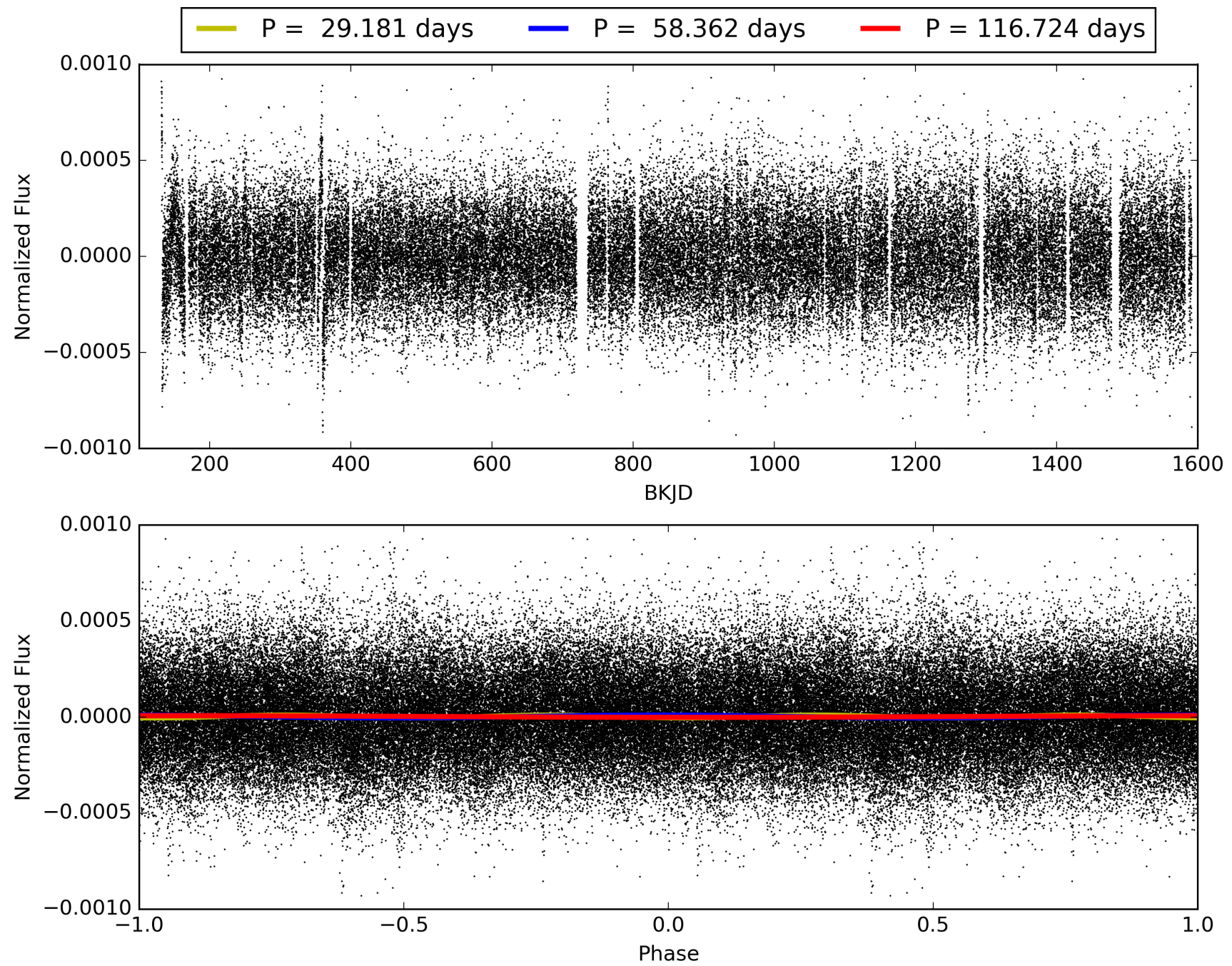
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 02:06:38 Z

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

TCE 005821165-04, PDC Light Curves

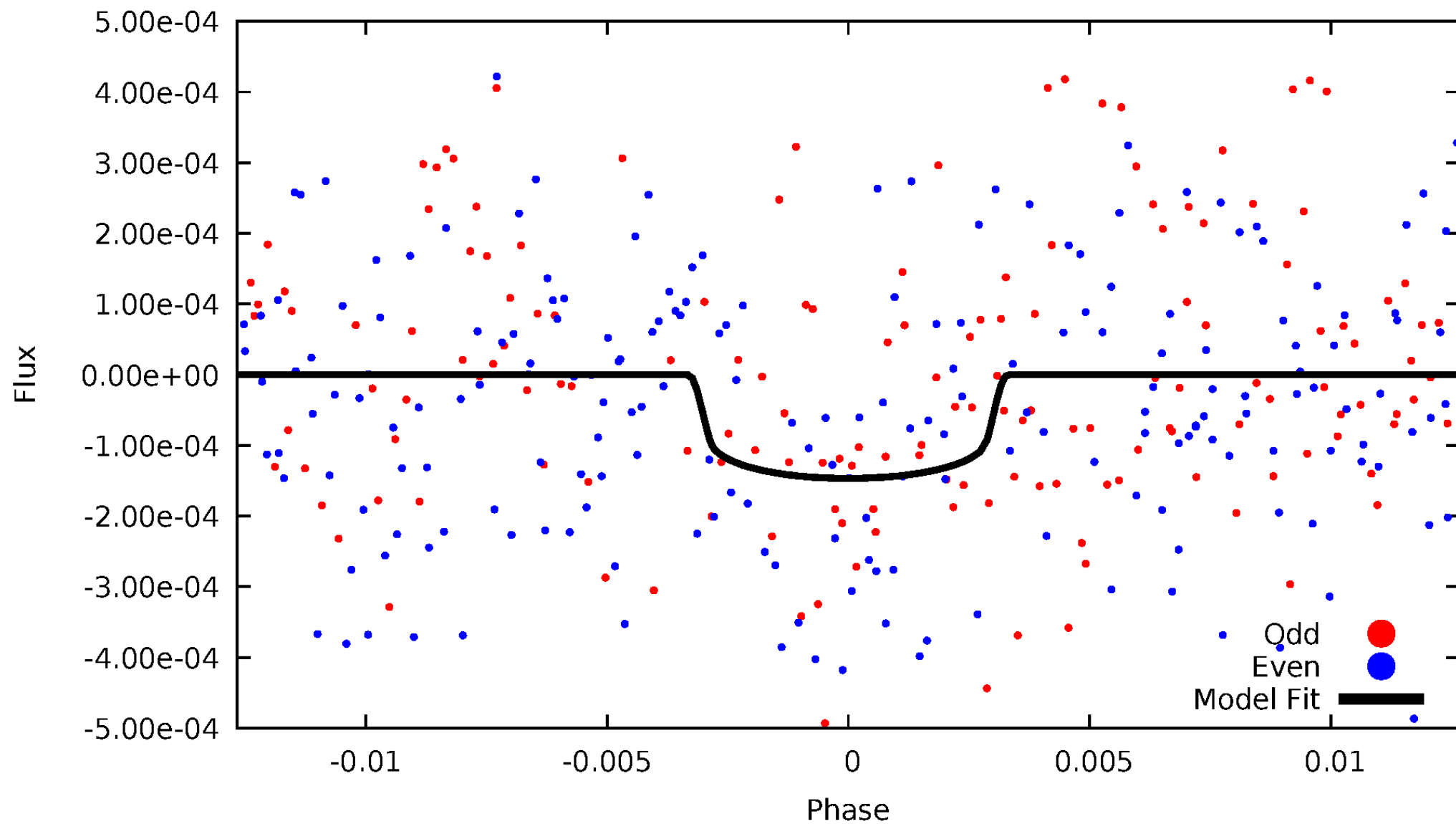


TCE 005821165-04



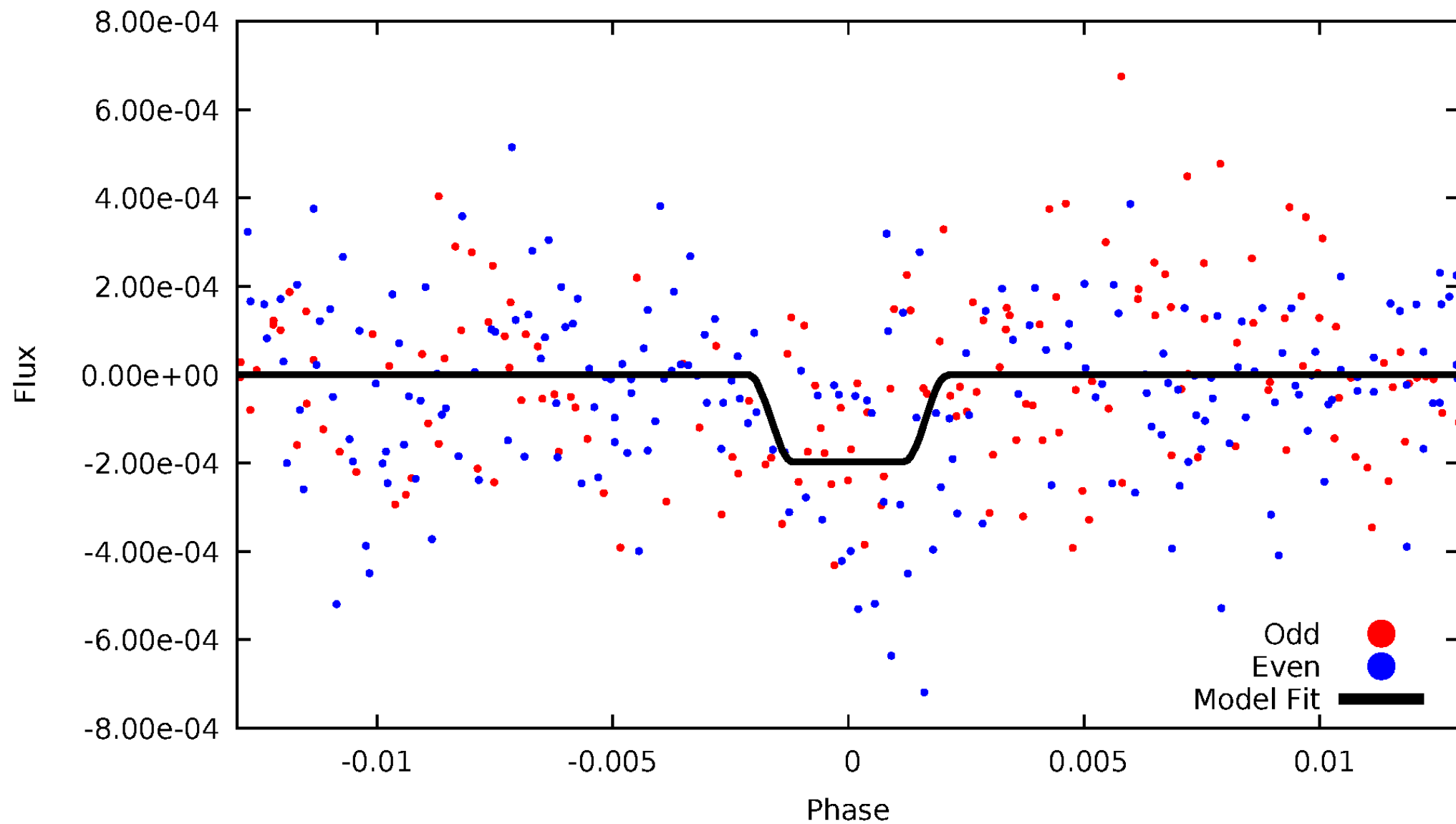
DV Odd/Even

TCE 005821165-04



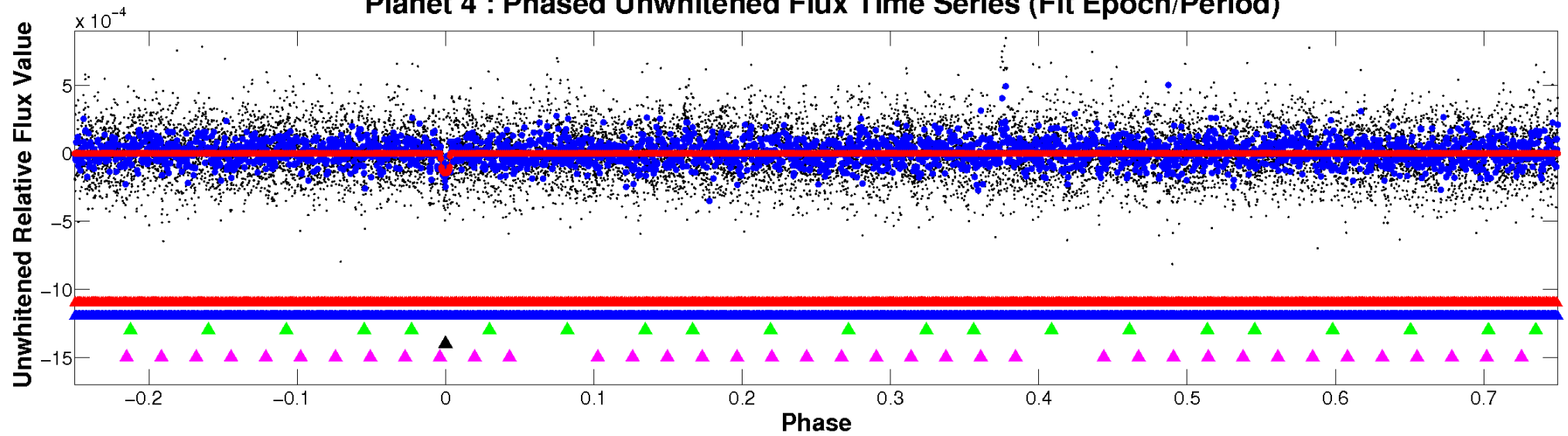
ALT Odd/Even

TCE 005821165-04

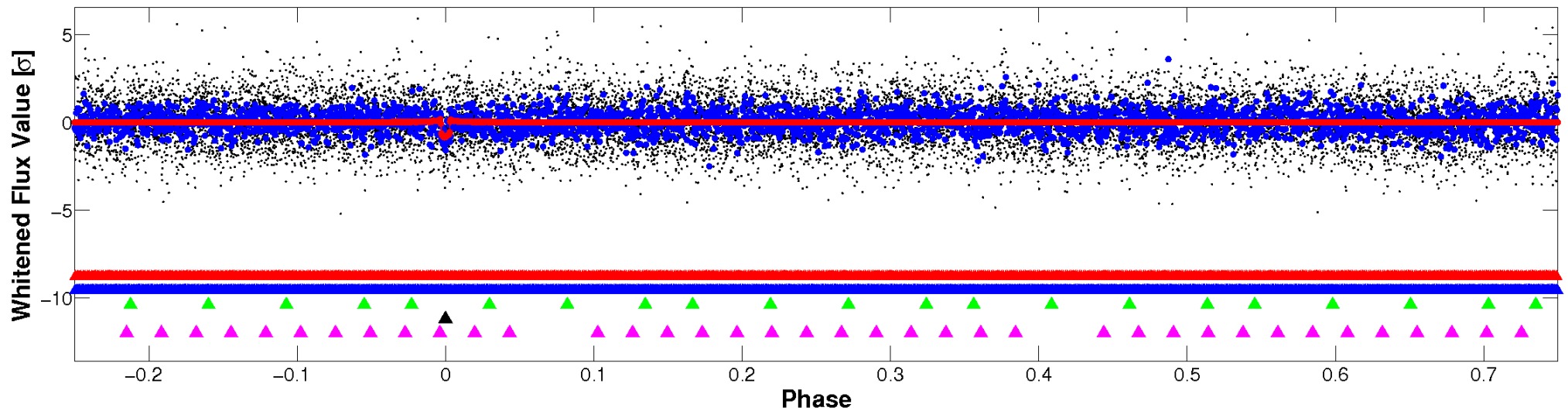


Non-Whitened Vs. Whitened Light Curve

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

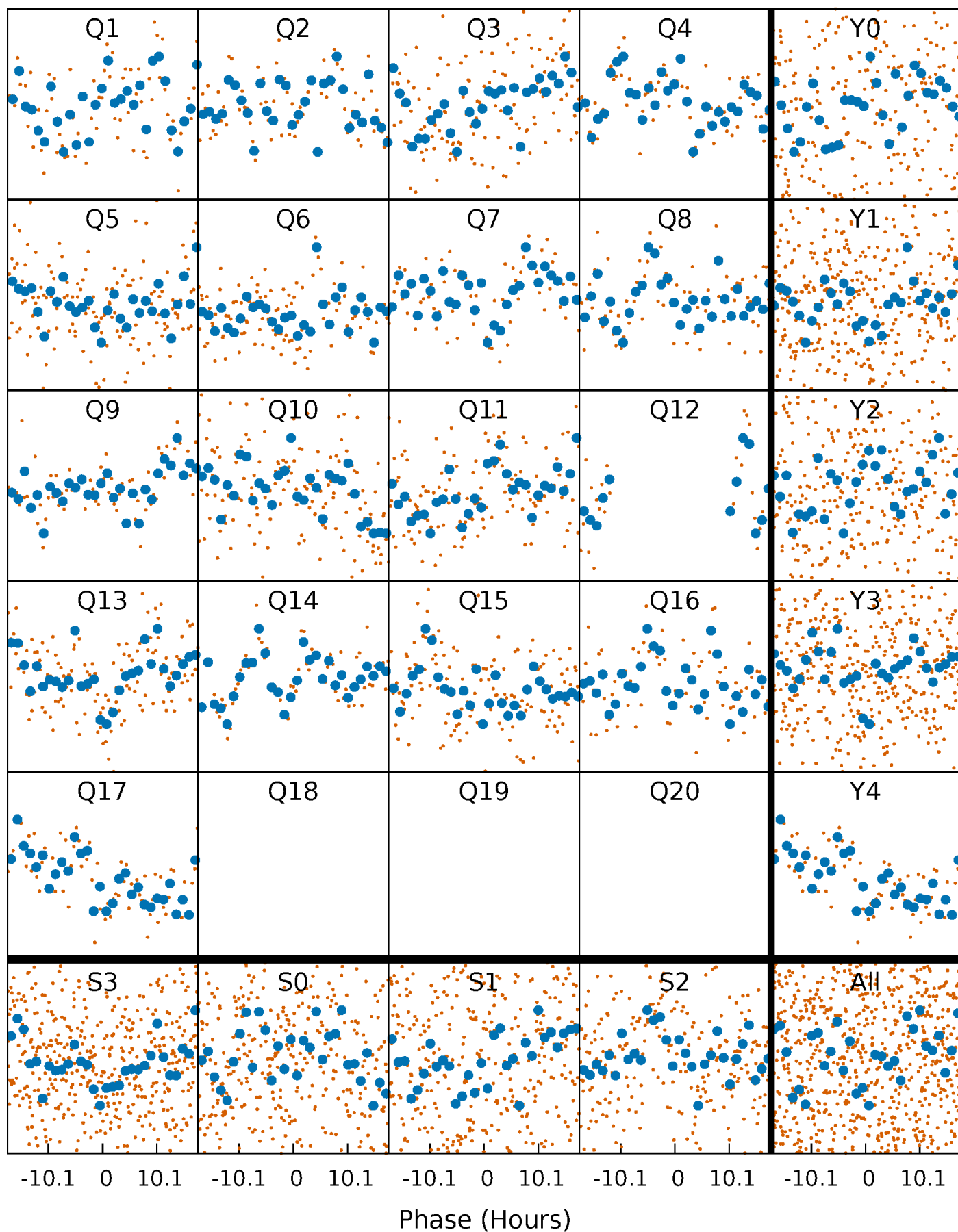


Planet 4 : Phased Whitened Flux Time Series (Fit Epoch/Period)



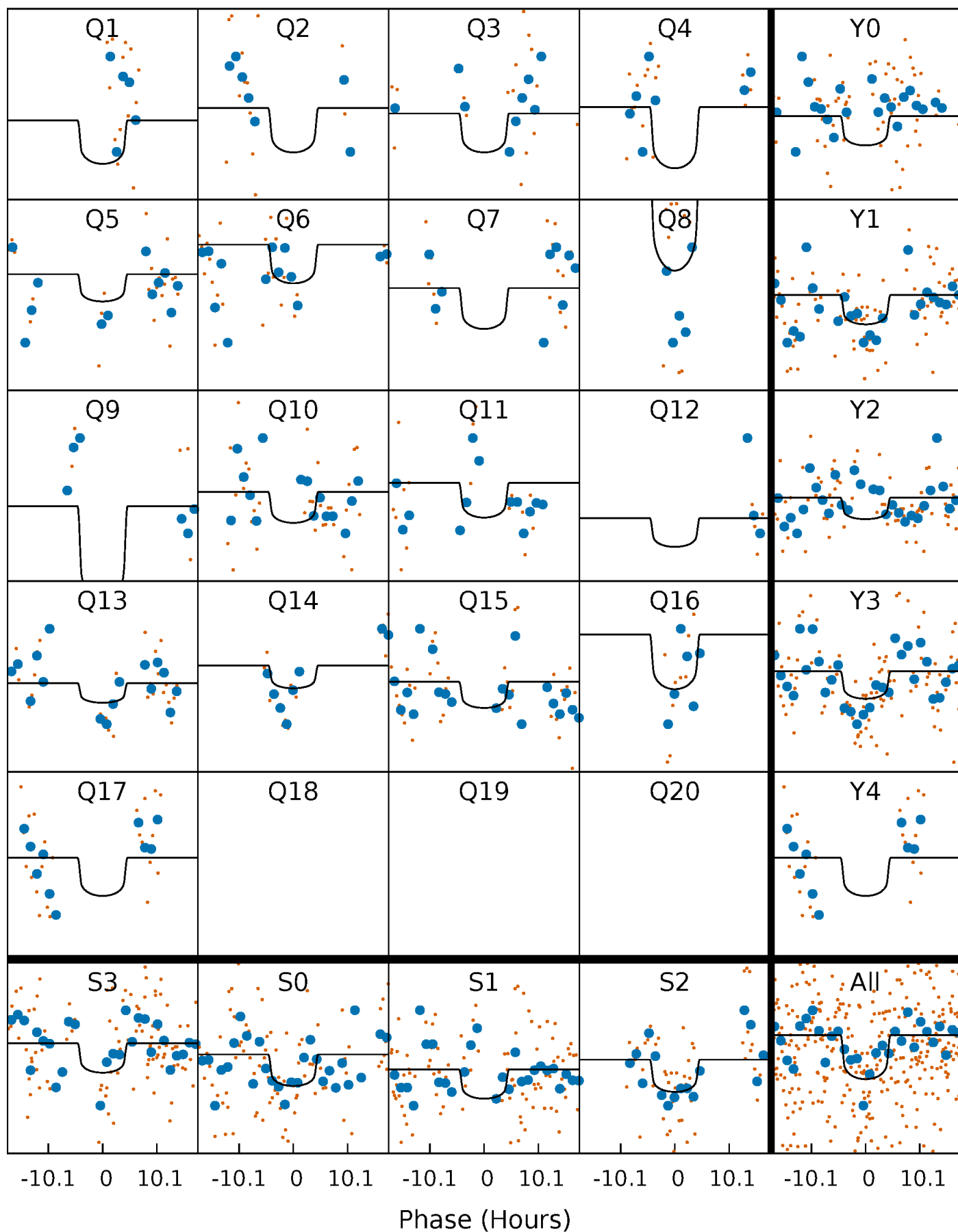
PDC Quarter-Phased Transit Curves

TCE 005821165-04 P= 58.362186 Days $T_0=162.332645$ (BKJD)



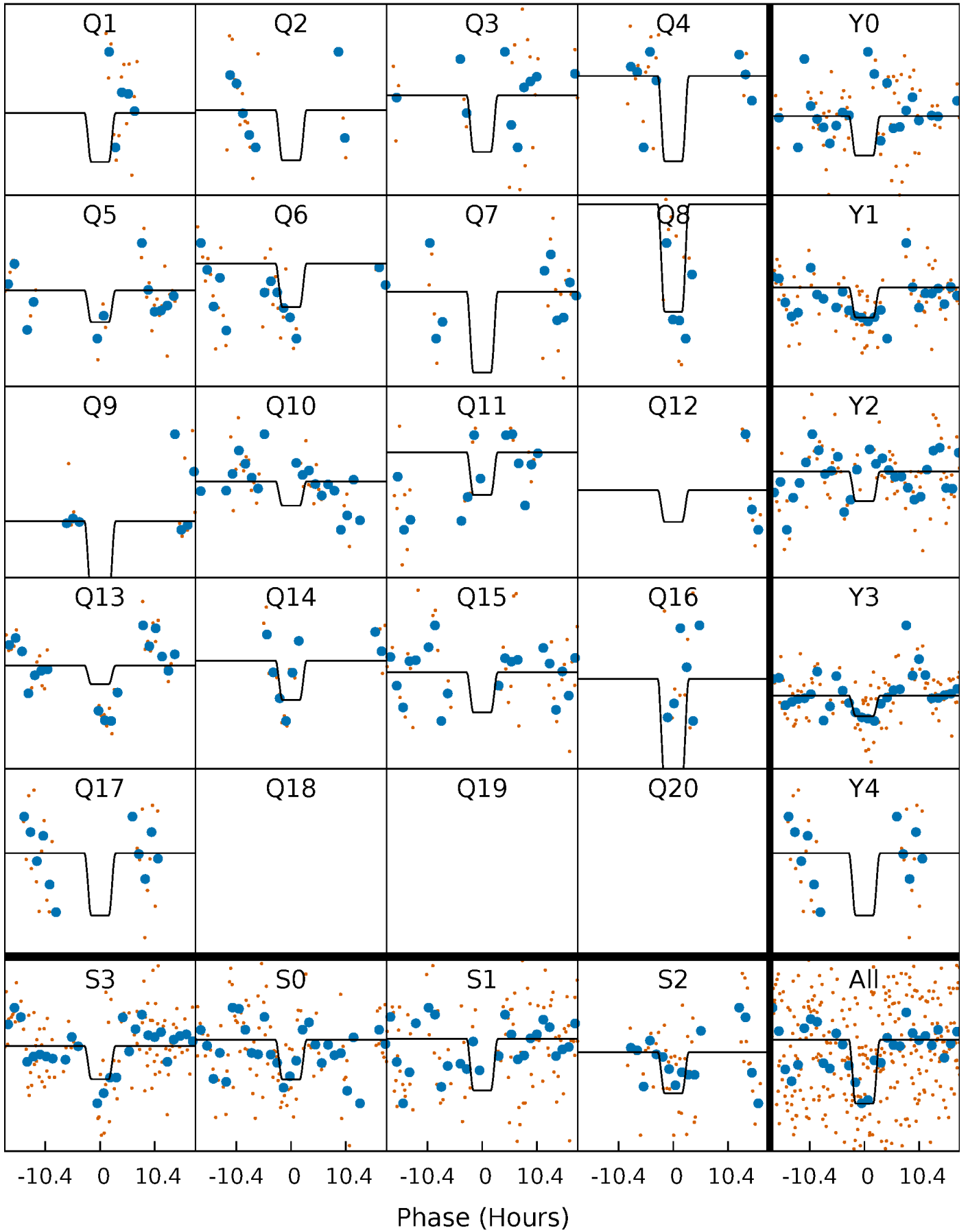
DV Quarter-Phased Transit Curves

TCE 005821165-04 P= 58.362186 Days $T_0=162.332645$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

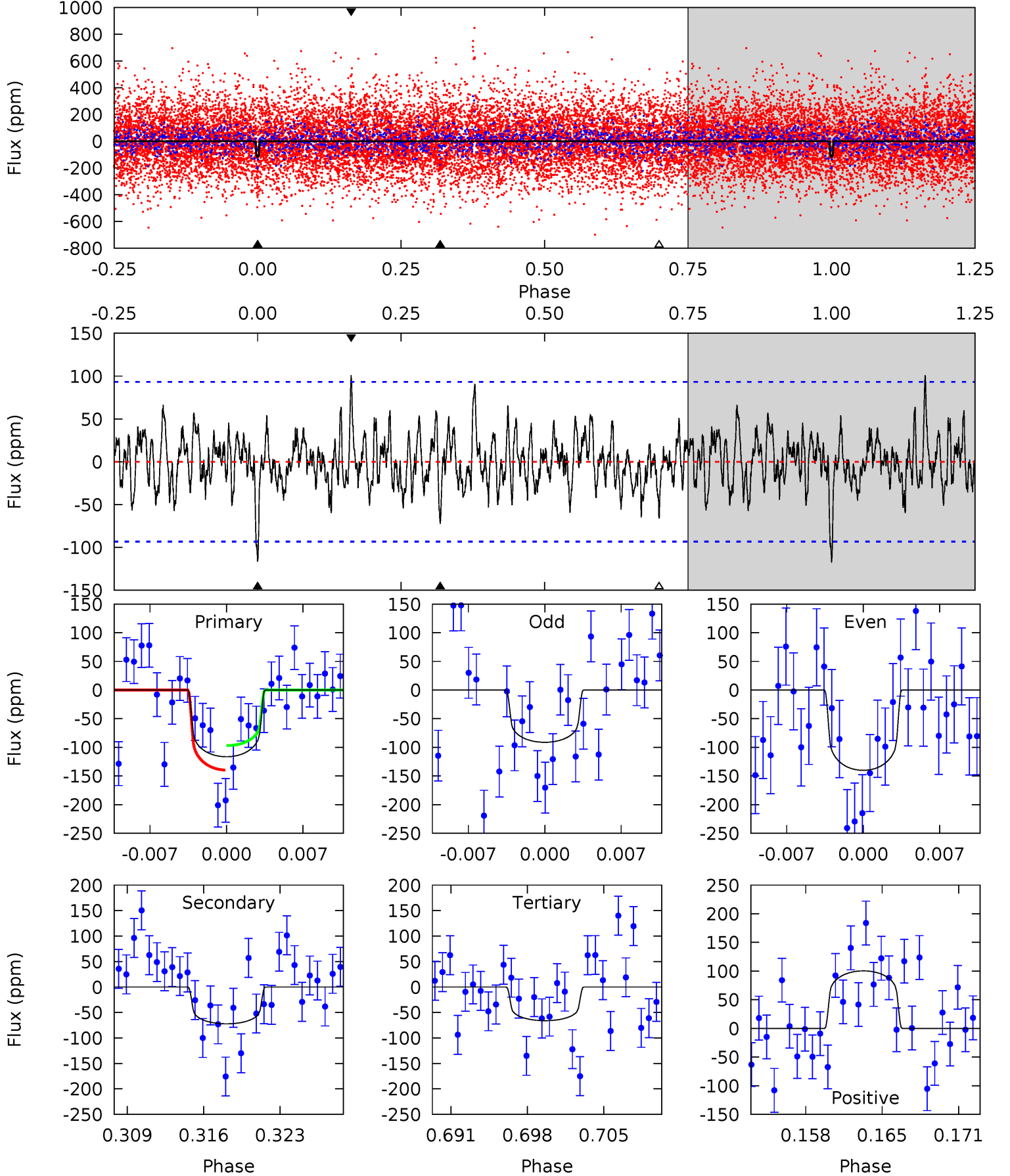
TCE 005821165-04 P= 58.362404 Days $T_0=162.320798$ (BKJD)



DV Model-Shift Uniqueness Test

005821165-04, P = 58.362186 Days, E = 103.970459 Days

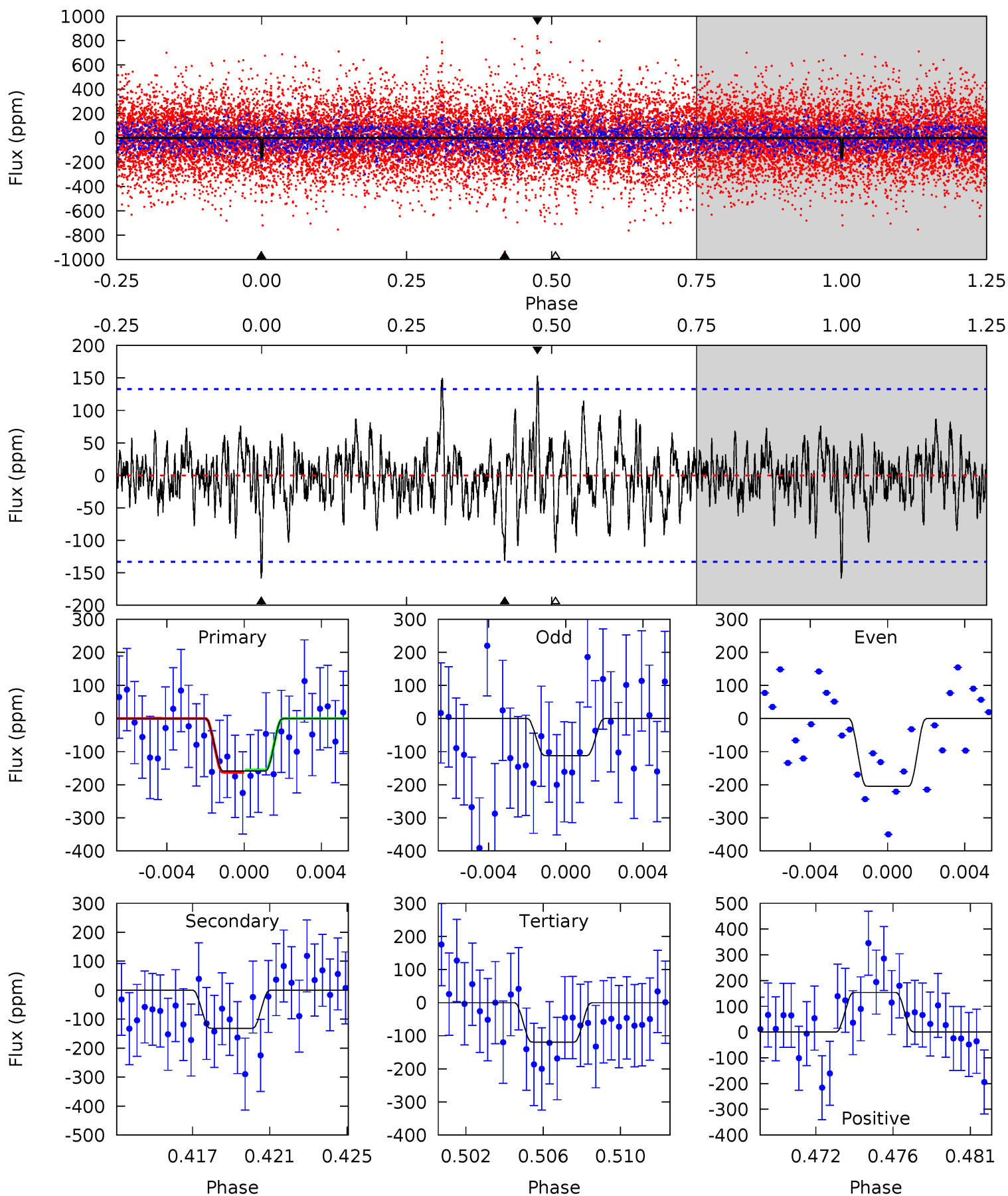
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
6.38	3.96	3.62	5.50	5.11	2.72	1.38	2.76	0.88	0.34	-1.54	1.35	0.72	0.46	1.17



Alt Model-Shift Uniqueness Test

005821165-04, P = 58.362404 Days, E = 103.958394 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
6.19	5.13	4.65	6.00	5.19	2.86	1.48	1.53	0.19	0.48	-0.87	1.81	0.76	0.49	0.13



Stellar Parameters For KIC 005821165

	$T_{\text{eff}}(K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6047^{+163}_{-181}	$4.223^{+0.225}_{-0.184}$	$-0.240^{+0.300}_{-0.300}$	$1.266^{+0.351}_{-0.315}$	$0.977^{+0.156}_{-0.117}$	$0.678^{+0.824}_{-0.324}$
	+3%/-3%	+5%/-4%	+125%/-125%	+28%/-25%	+16%/-12%	+122%/-48%
Source	PHO1	KIC0	KIC0	DSEP		

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

Secondary Eclipse Parameters for KIC 005821165-04 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-72 ± 18	$1.83^{+0.97}_{-0.87}$	774^{+61}_{-57}	4906^{+1808}_{-785}	983^{+2772}_{-596}
Alt.	-132 ± 26	$1.92^{+1.09}_{-0.94}$	772^{+64}_{-55}	5503^{+2224}_{-931}	1662^{+4274}_{-963}

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

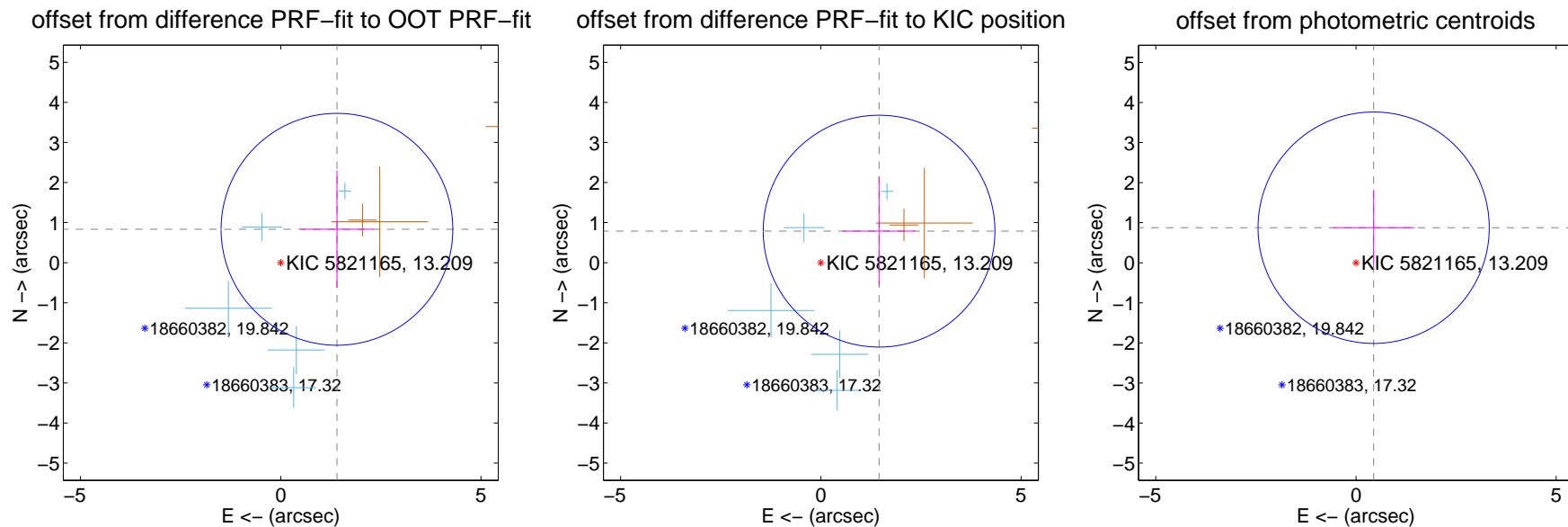
DV Centroid Data

Supplemental centroid analysis for 005821165-04. Kepler magnitude: 13.21. Transit SNR 6.94

There are 5 quarters with good PRF difference image offsets

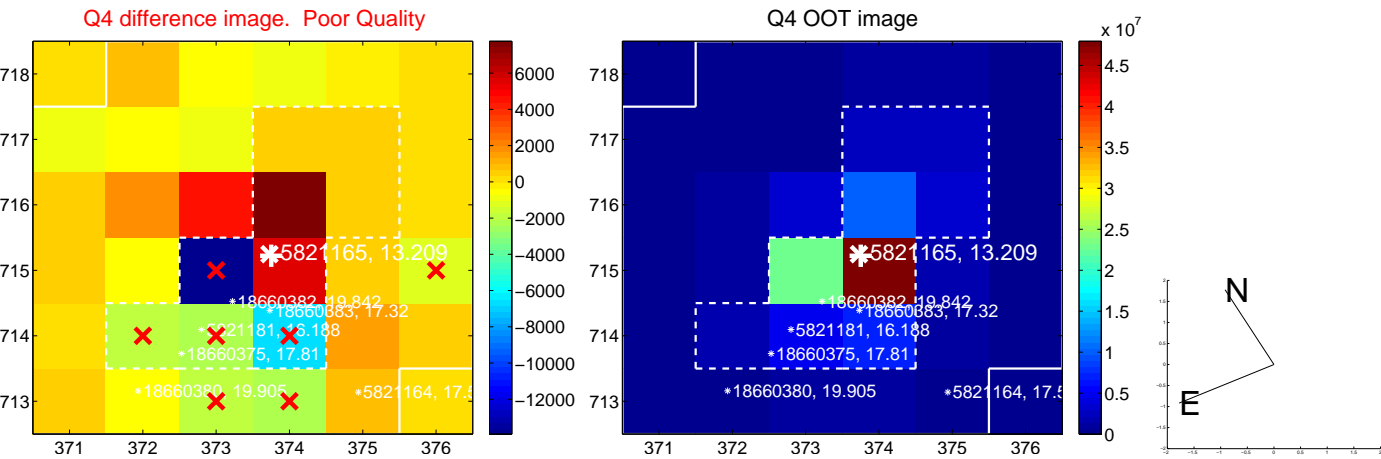
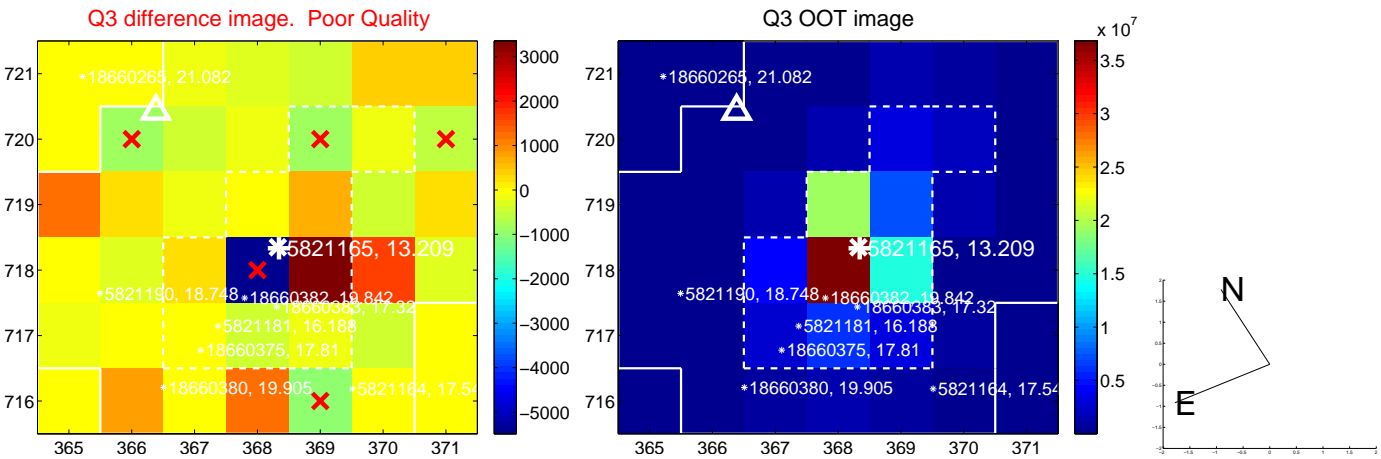
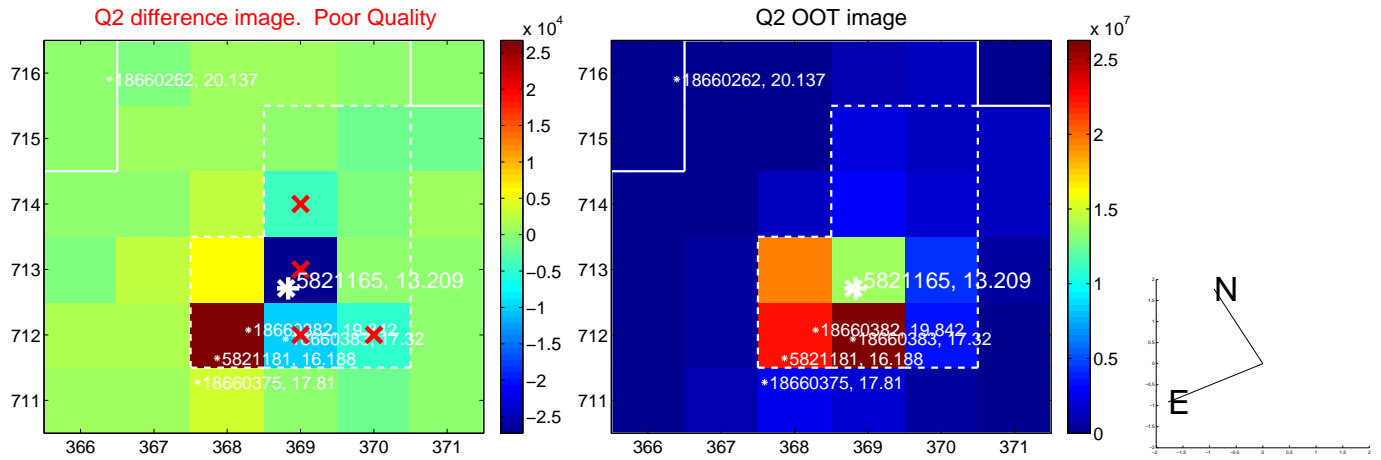
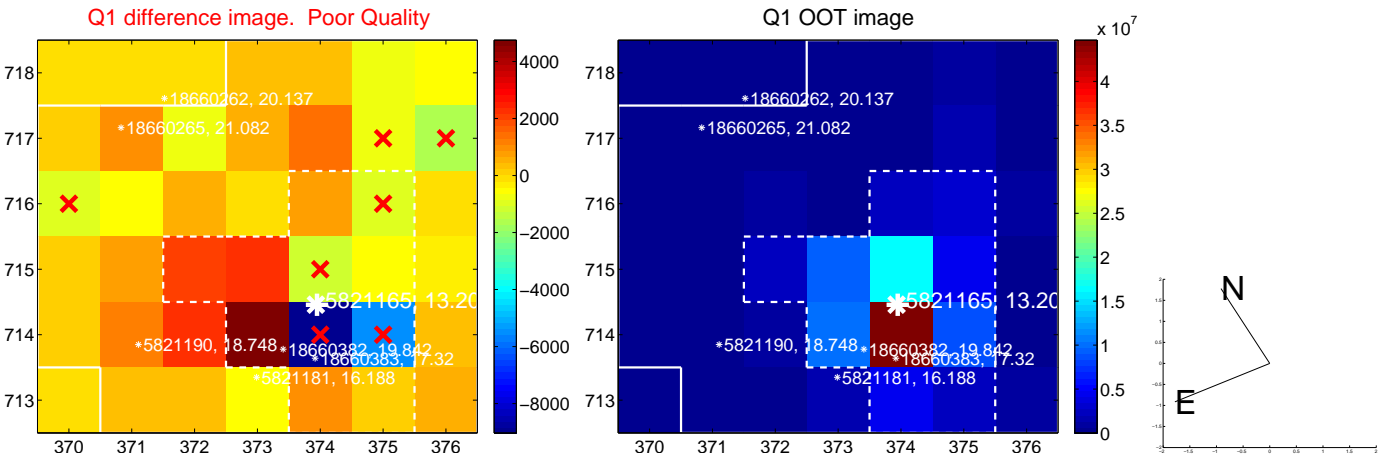
The direct PRF centroid is offset from the target star catalog position by about 0.12 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	1.632 ± 0.964	1.69	-1.403 ± 0.911	0.833 ± 1.466
PRF-fit source offset from KIC position	1.653 ± 0.964	1.72	-1.454 ± 0.906	0.787 ± 1.355
photometric centroid source offset	0.98 ± 0.96	1.02	-0.44 ± 1.02	0.87 ± 0.95

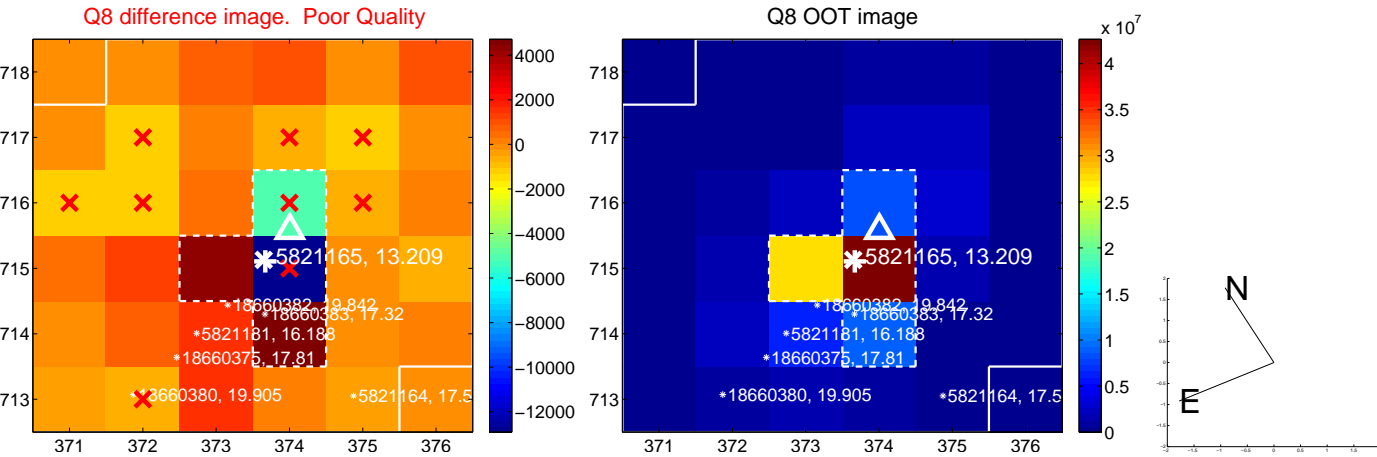
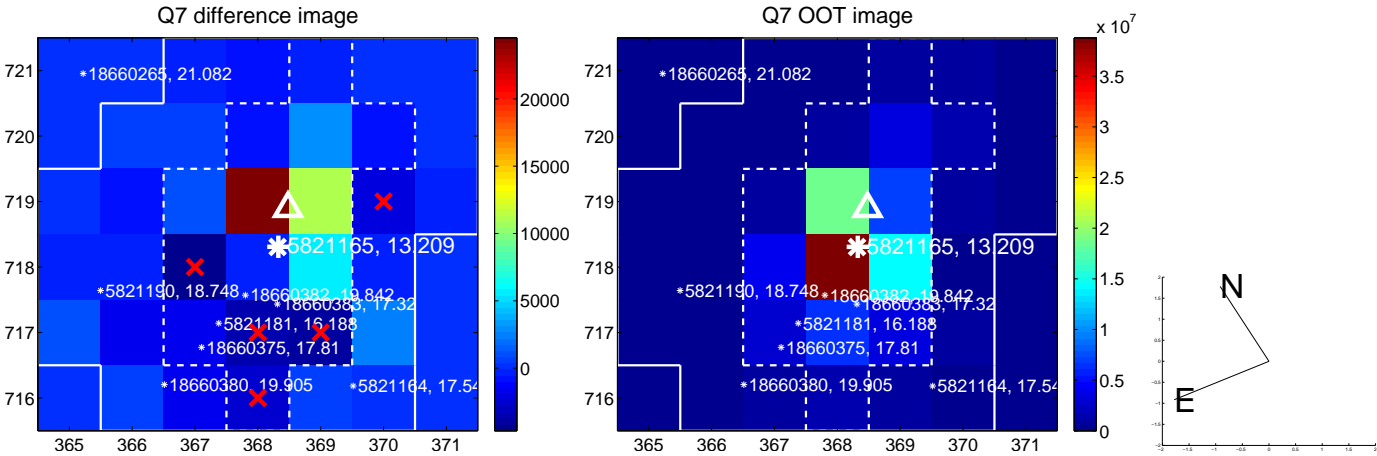
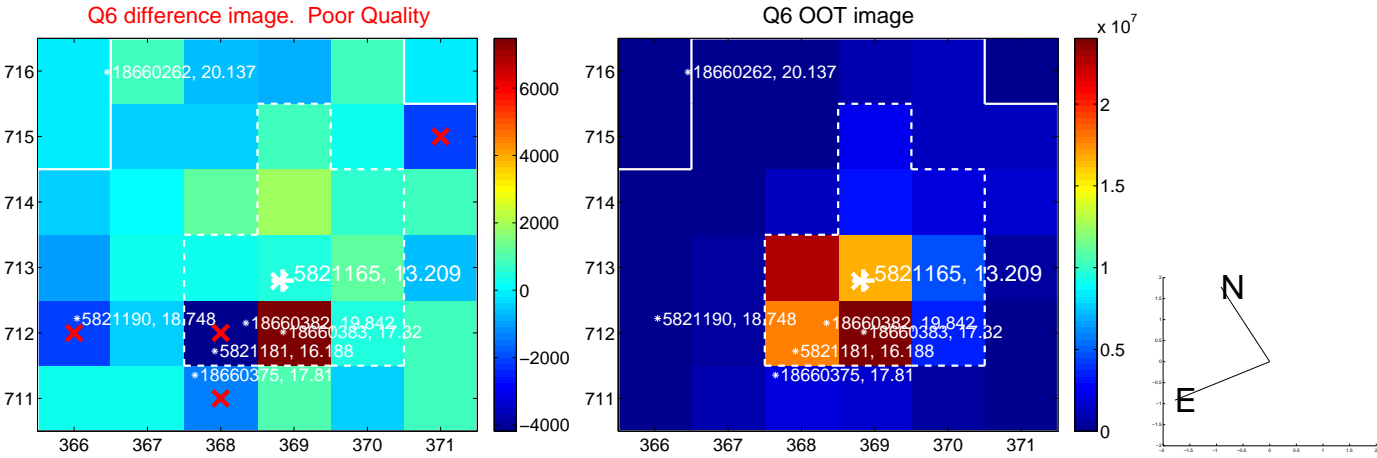
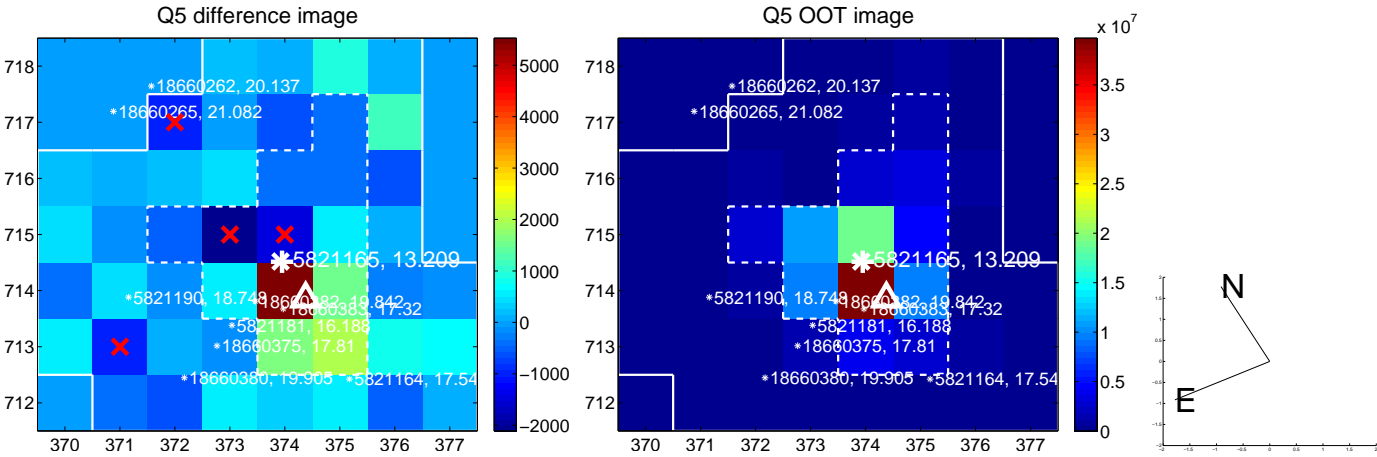


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

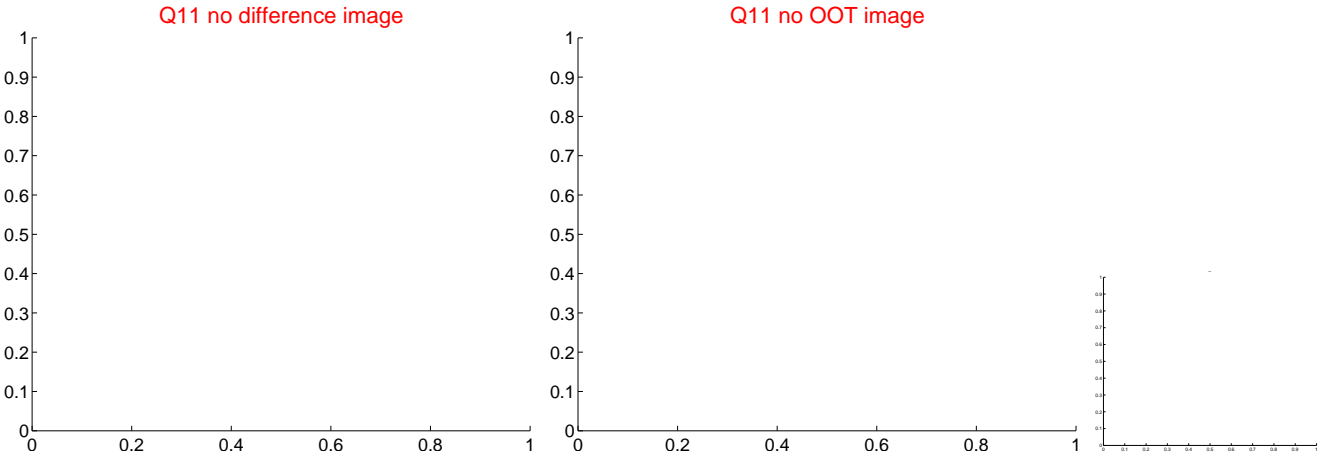
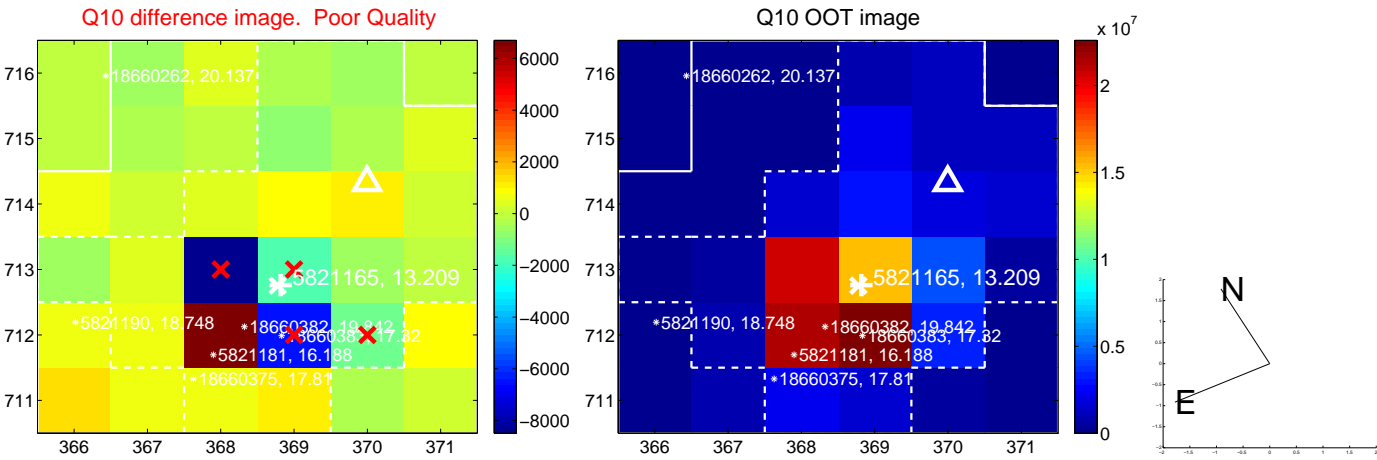
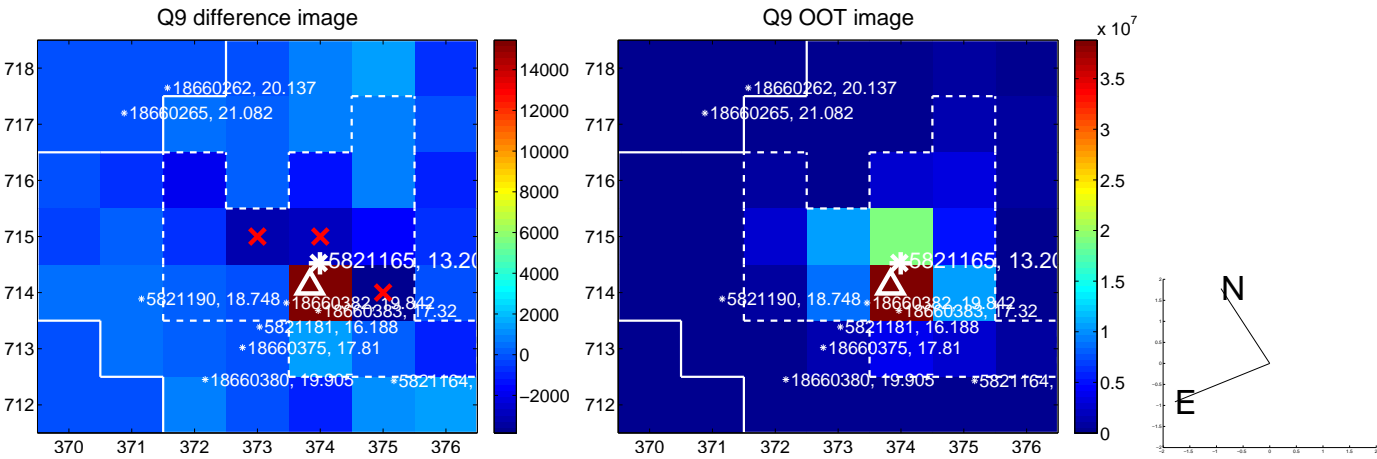
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



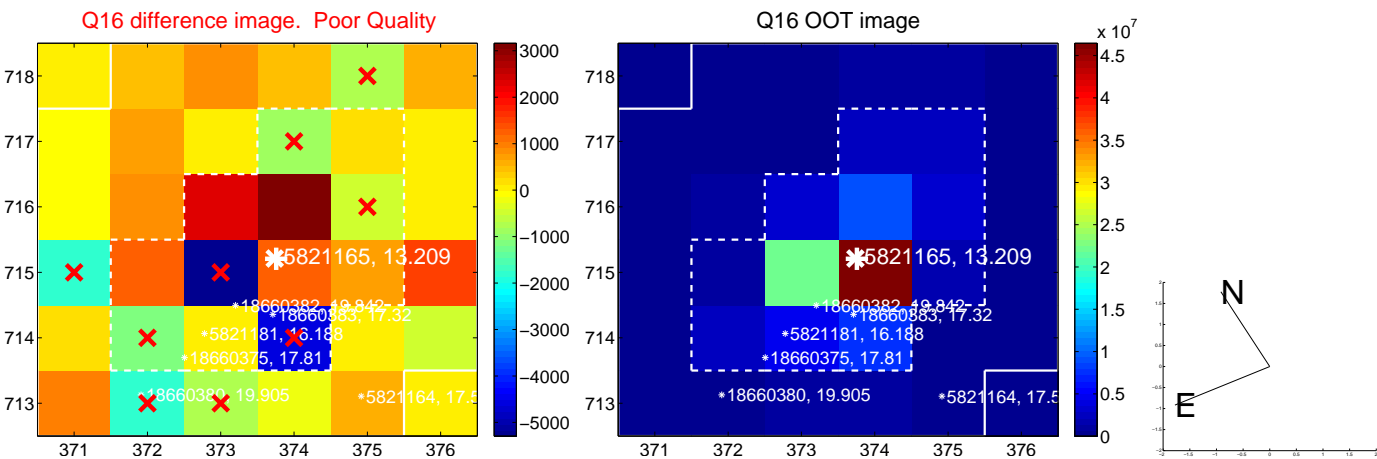
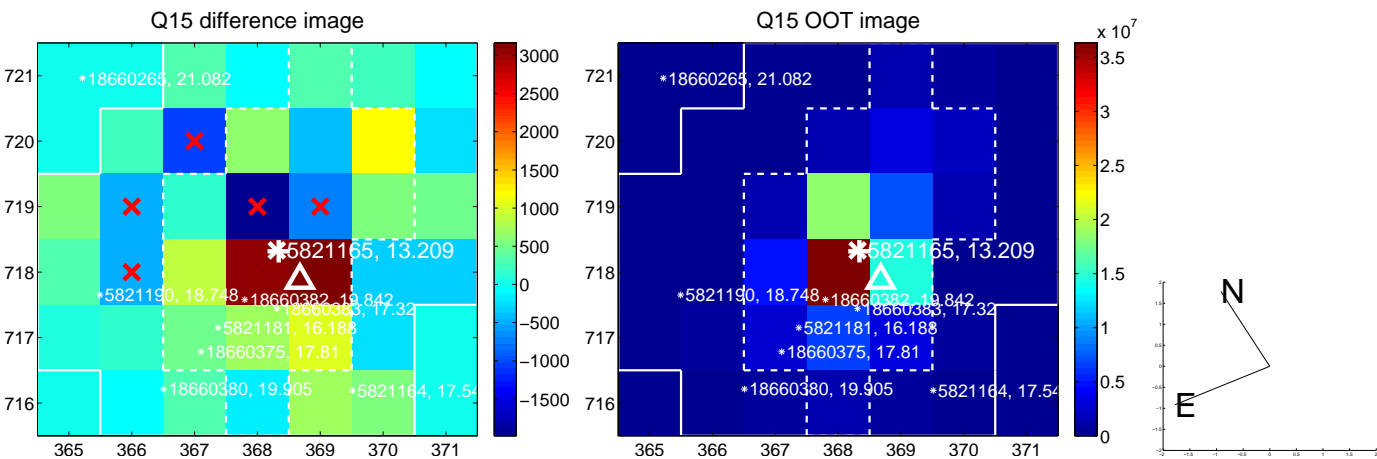
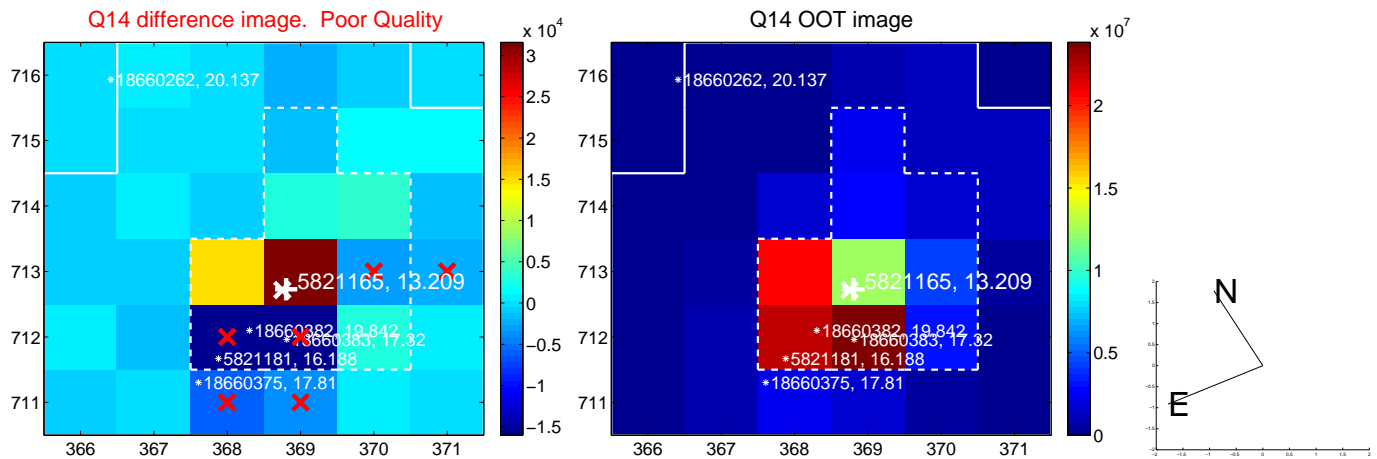
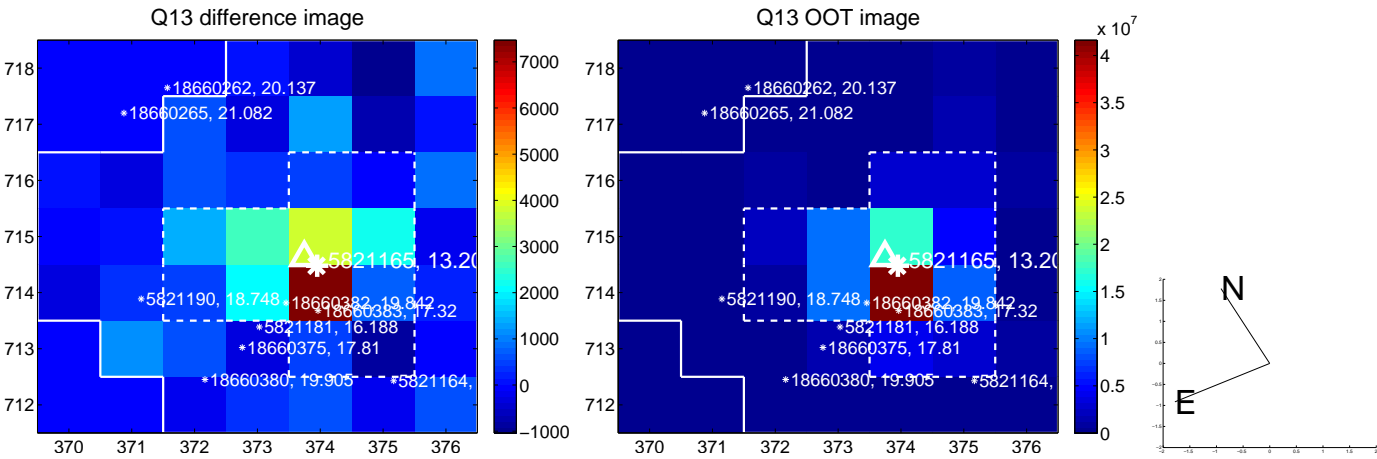
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



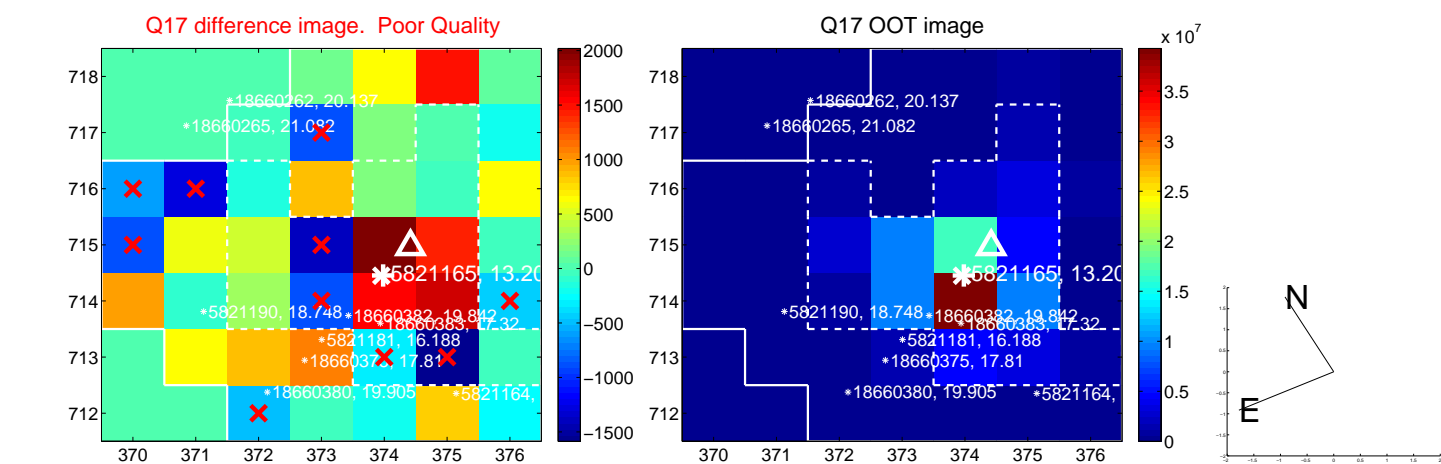
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.



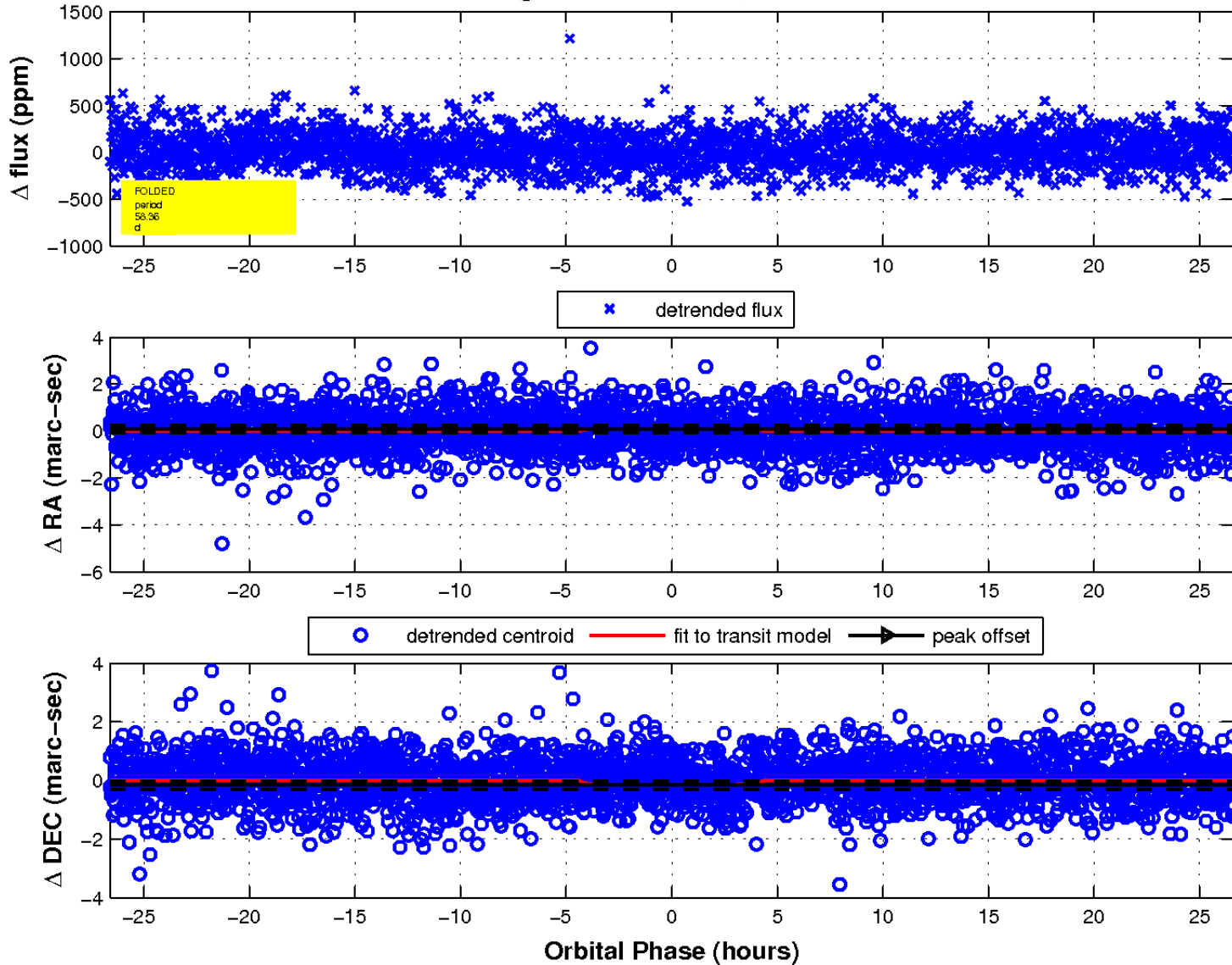
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

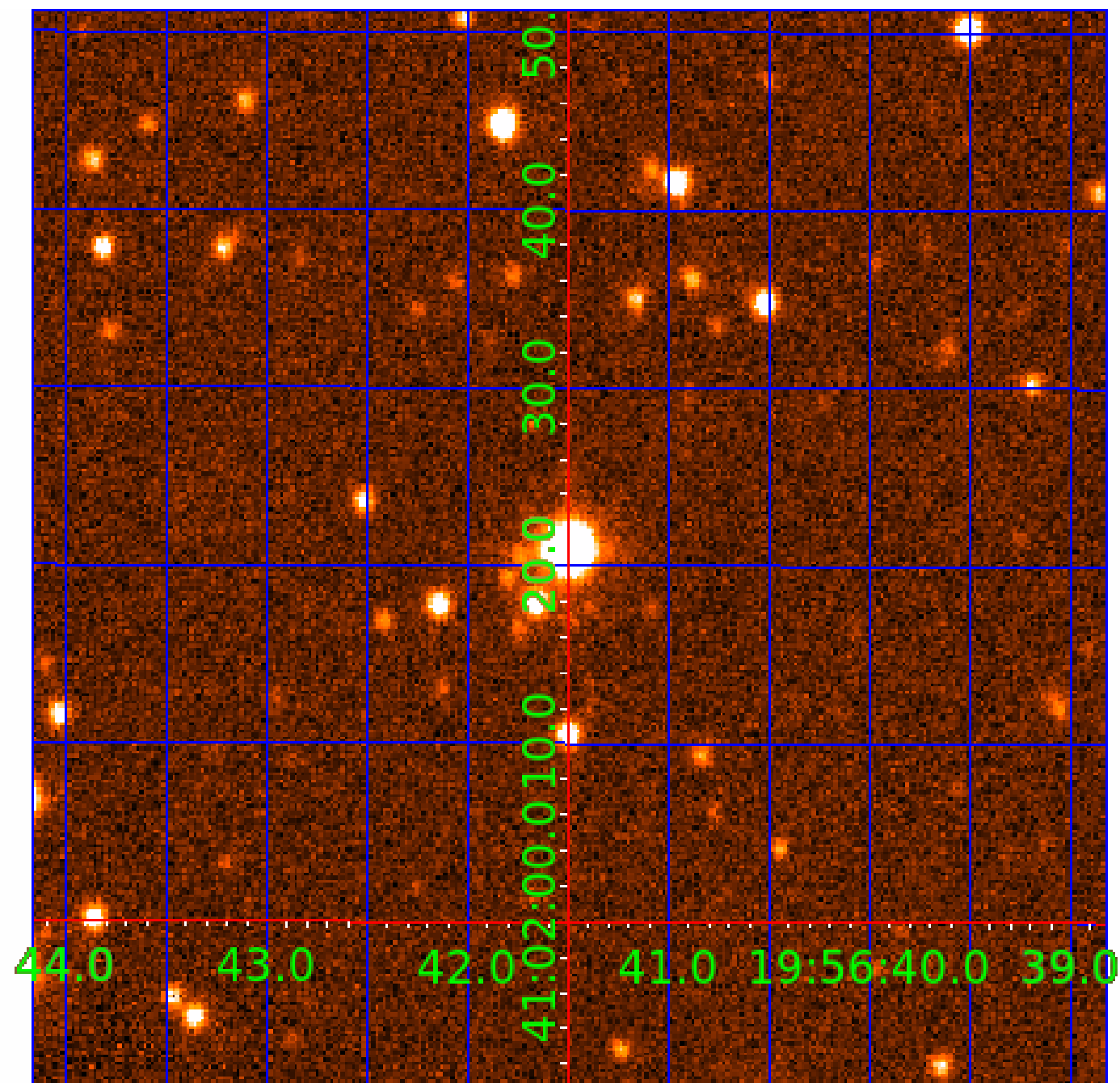


fluxWeightedCentroids, Planet 4 of 5



UKIRT Image

Declination



KIC 005821165

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})
005821165-01	OBS	No	1.806671	132.825553	216.9	3.500	9.8	-1.0	1.27	6047	1.86	2312.98
005821165-02	OBS	No	0.903245	132.234848	19.8	4.831	8.5	8.0	1.27	6047	0.58	5829.12
005821165-03	OBS	No	69.421475	159.135774	177.6	5.787	8.1	7.1	1.27	6047	1.88	17.84
005821165-04	OBS	No	58.362186	162.332645	146.6	8.873	8.1	6.9	1.27	6047	1.72	22.48
005821165-05	OBS	No	38.451545	146.312128	219.1	2.366	7.7	8.1	1.27	6047	2.00	39.22

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005821165-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—CENT_NOFITS
005821165-02	OBS	FP	0.00	1	0	0	0	LPP_DV—MOD_NONUNIQ_ALT—SAME_NTL_PERIOD
005821165-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT
005821165-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
005821165-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—MOD_NONUNIQ_ALT

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

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

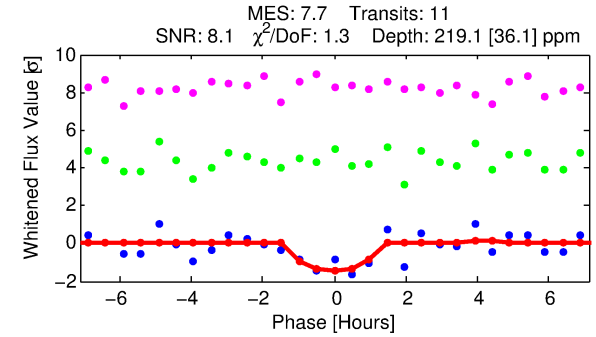
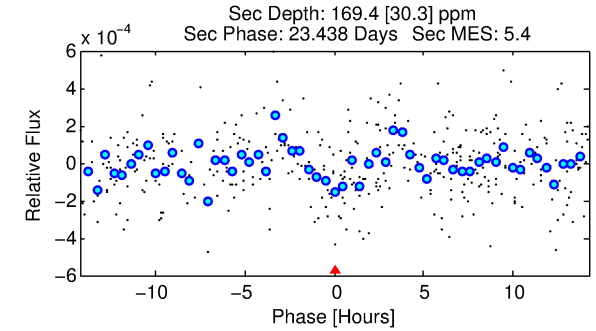
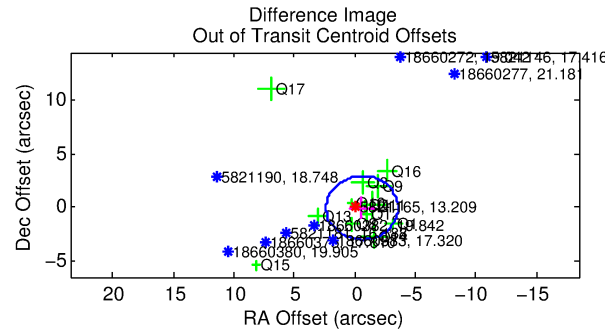
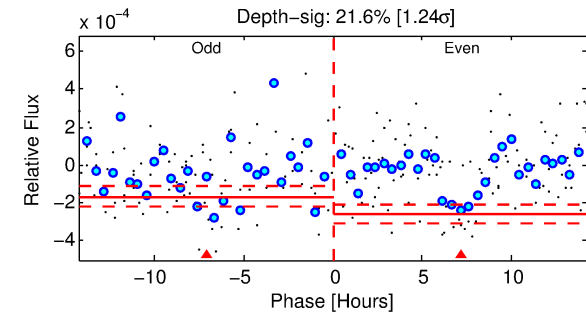
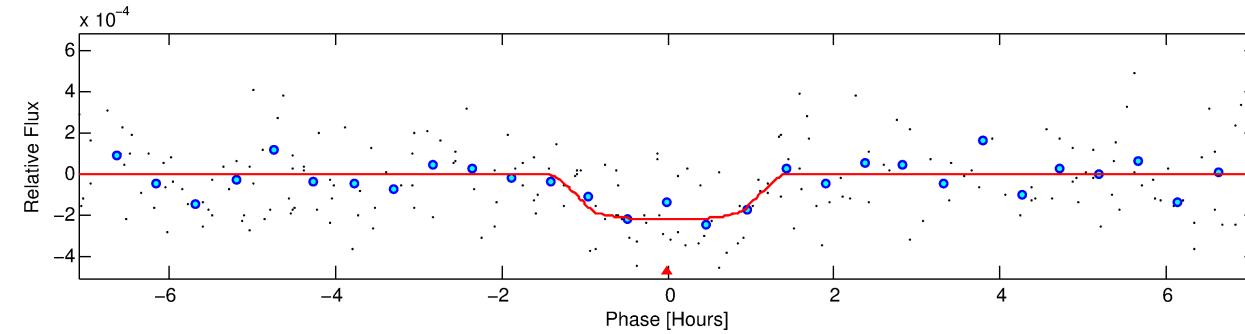
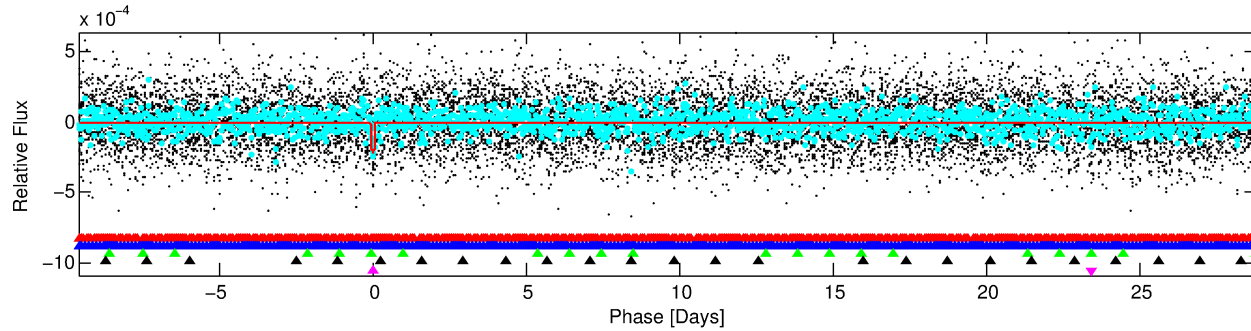
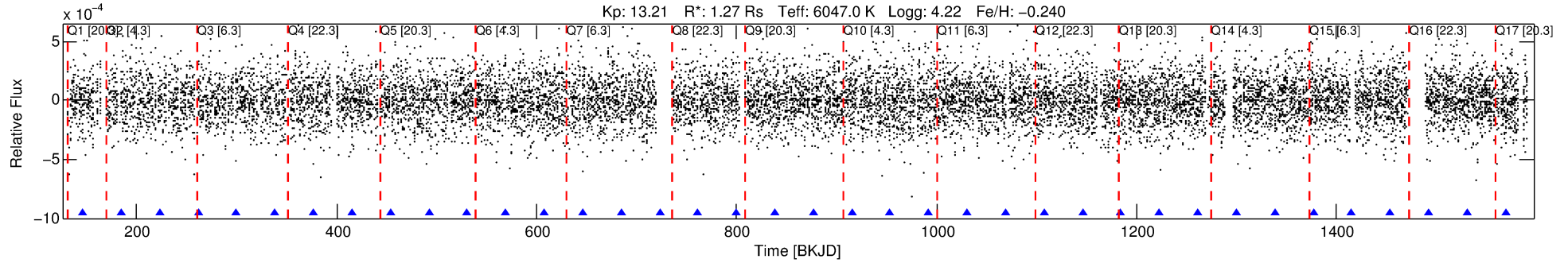
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 005821165-05

No Significant Match Found

DV One-Page Summary

KIC: 5821165 Candidate: 5 of 5 Period: 38.452 d



DV Fit Results:

Period = 38.45155 [0.00045] d
Epoch = 146.3121 [0.0080] BKJD
Rp/R* = 0.0145 [0.0283]
a/R* = 91.33 [889.27]
b = 0.70 [7.20]
Seff = 39.22 [16.06]
Teq = 638 [65] K
Rp = 2.00 [3.95] Re
a = 0.2213 [0.0560] AU
Ag = 1135.25 [4451.01] [0.25 σ]
Teffp = 5727 [5588] K [0.91 σ]

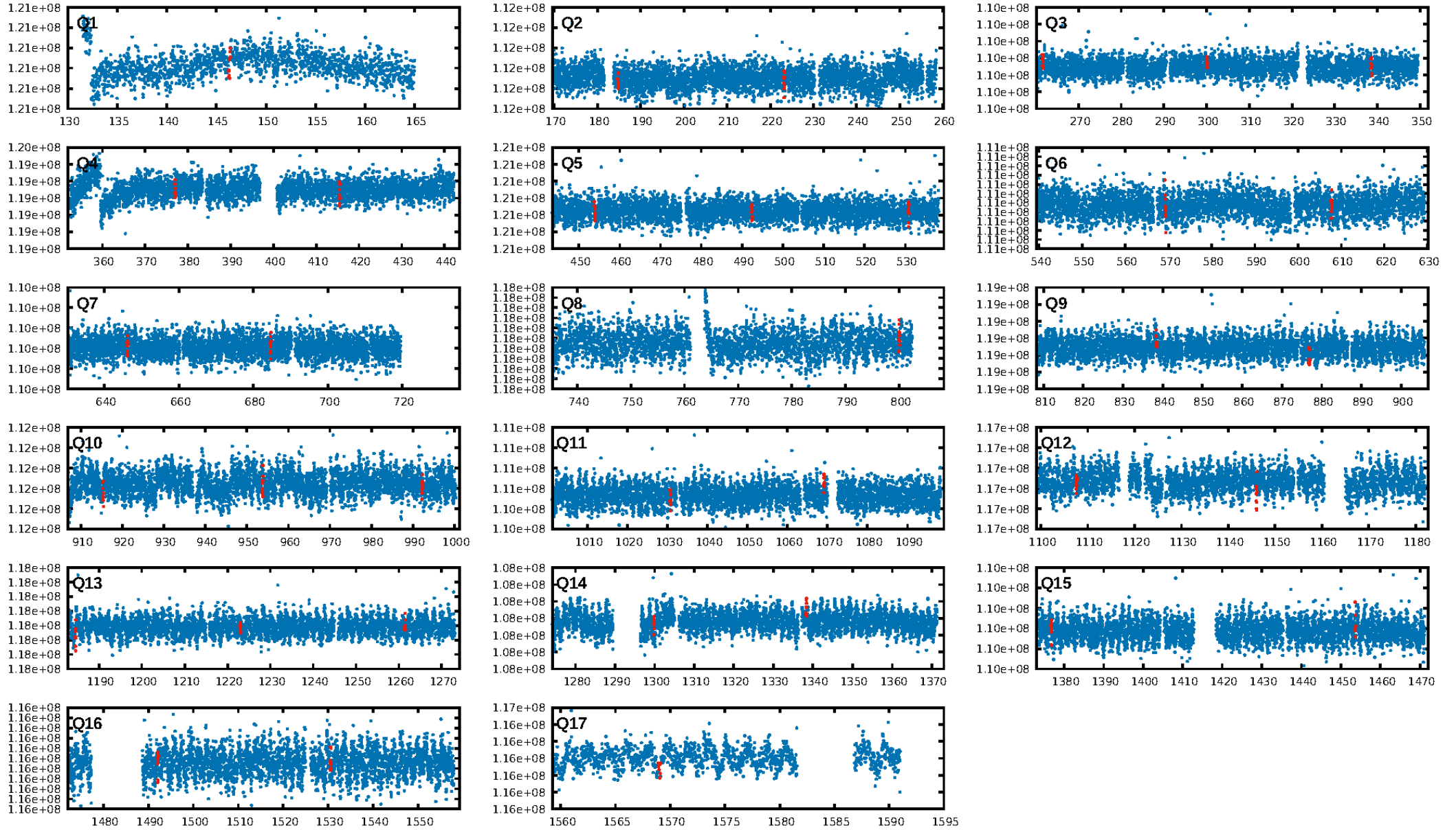
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [208.17 σ]
LongPeriod-sig: 100.0% [52.04 σ]
ModelChiSquare2-sig: 33.2%
ModelChiSquareGof-sig: 99.7%
Bootstrap-pfa: 2.34e-09
RollingBand-fgt: 1.00 [10/10]
GhostDiagnostic-chr: 0.622
Centroid-sig: 99.1%
Centroid-so: 0.244 arcsec [0.25 σ]
OotOffset-rm: 0.584 arcsec [0.59 σ]
OotOffset-st: 2/3/4/4 [13]
KicOffset-rm: 0.666 arcsec [0.66 σ]
KicOffset-st: 2/3/4/4 [13]
DiffImageQuality-fgm: 0.31 [4/13]
DiffImageOverlap-fno: 0.24 [4/17]

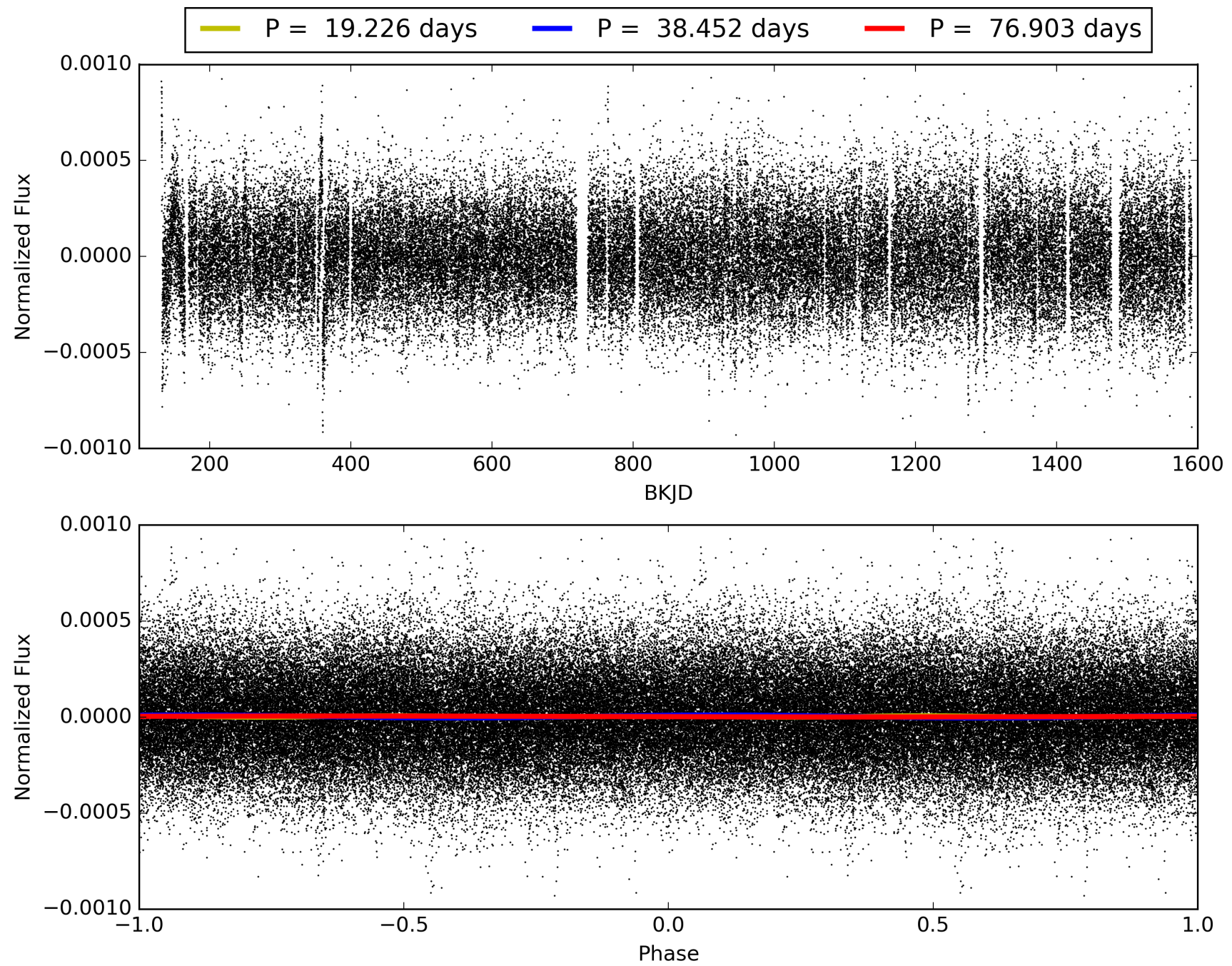
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 02:06:42 Z

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

TCE 005821165-05, PDC Light Curves

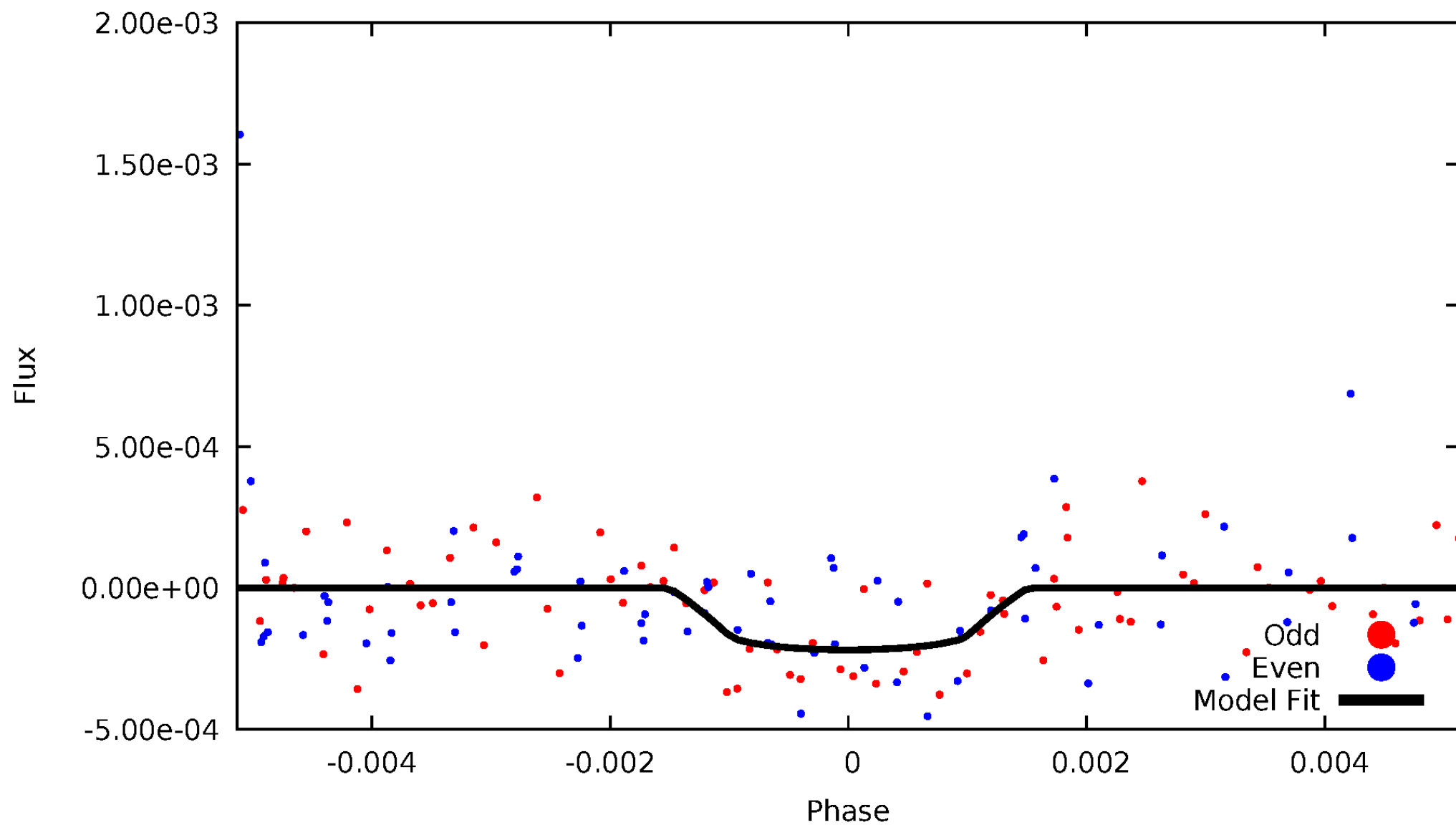


TCE 005821165-05



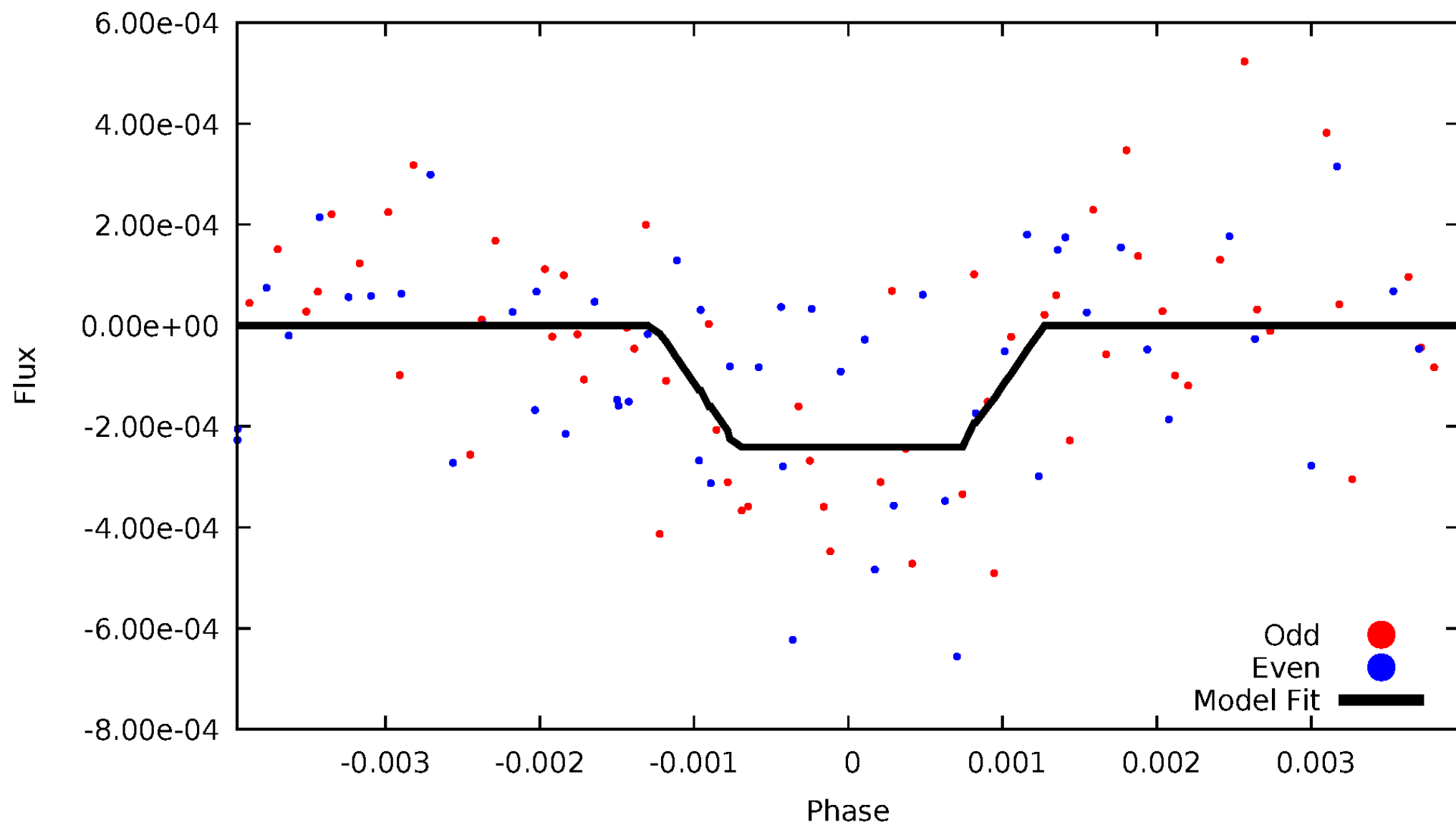
DV Odd/Even

TCE 005821165-05



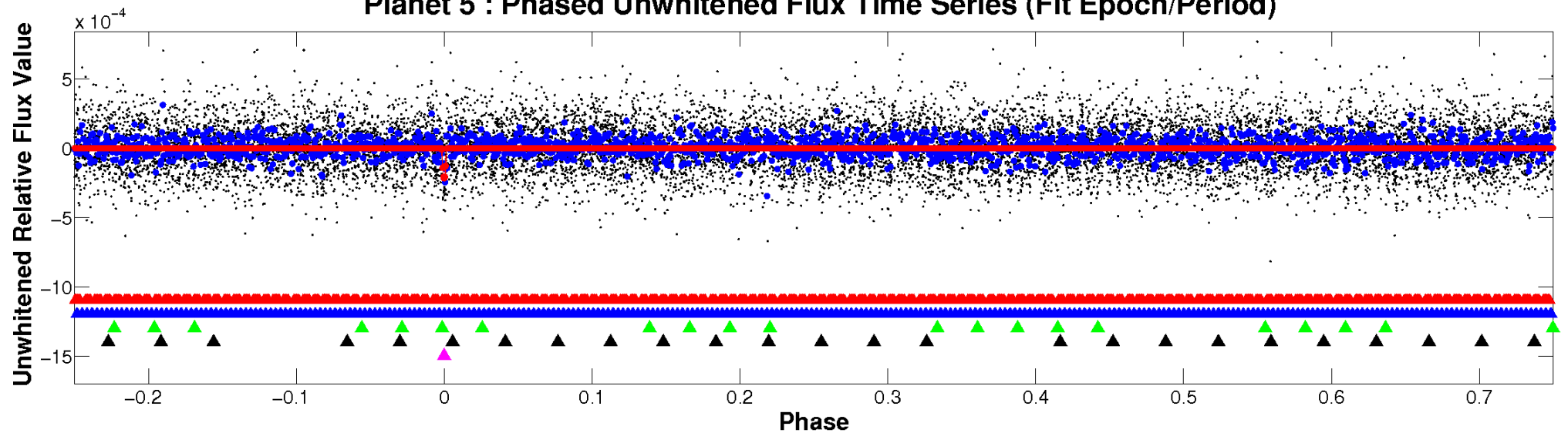
ALT Odd/Even

TCE 005821165-05

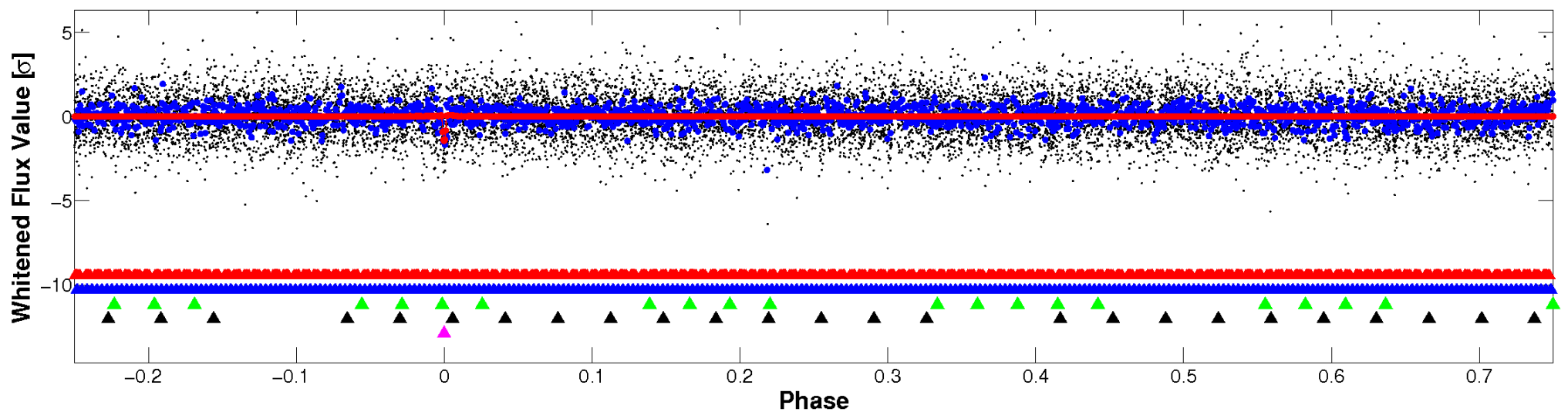


Non-Whitened Vs. Whitened Light Curve

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

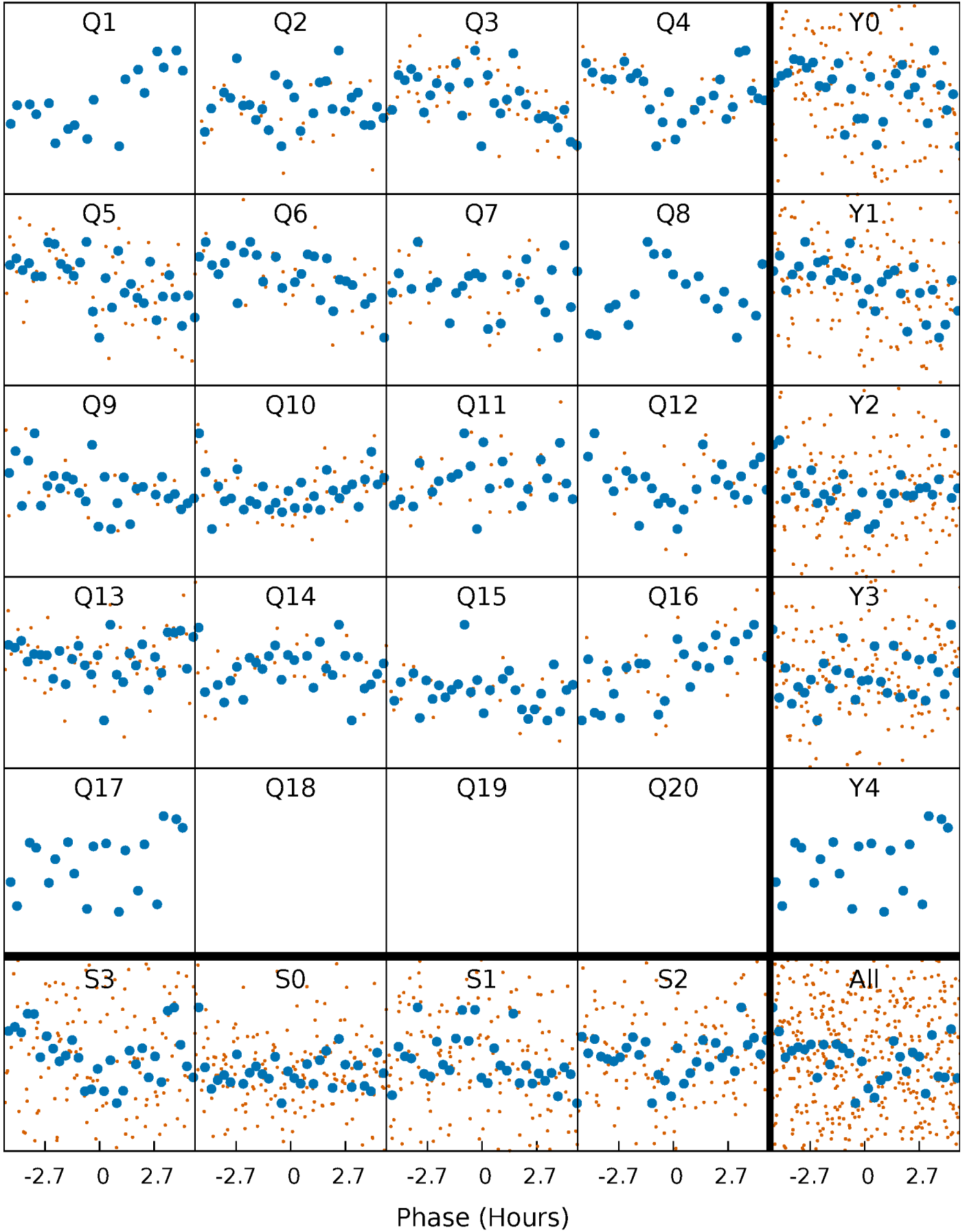


Planet 5 : Phased Whitened Flux Time Series (Fit Epoch/Period)



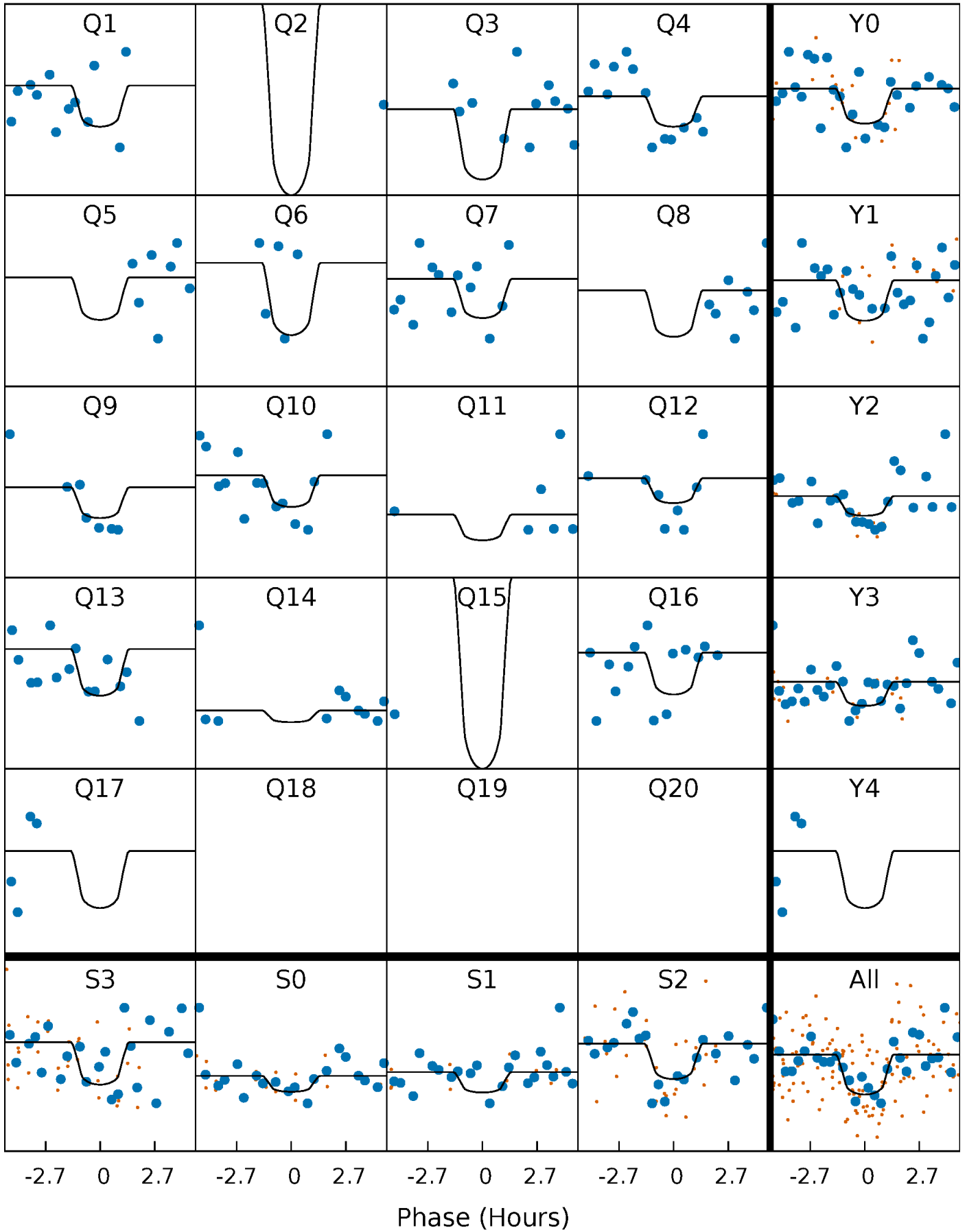
PDC Quarter-Phased Transit Curves

TCE 005821165-05 P= 38.451545 Days $T_0=146.312128$ (BKJD)



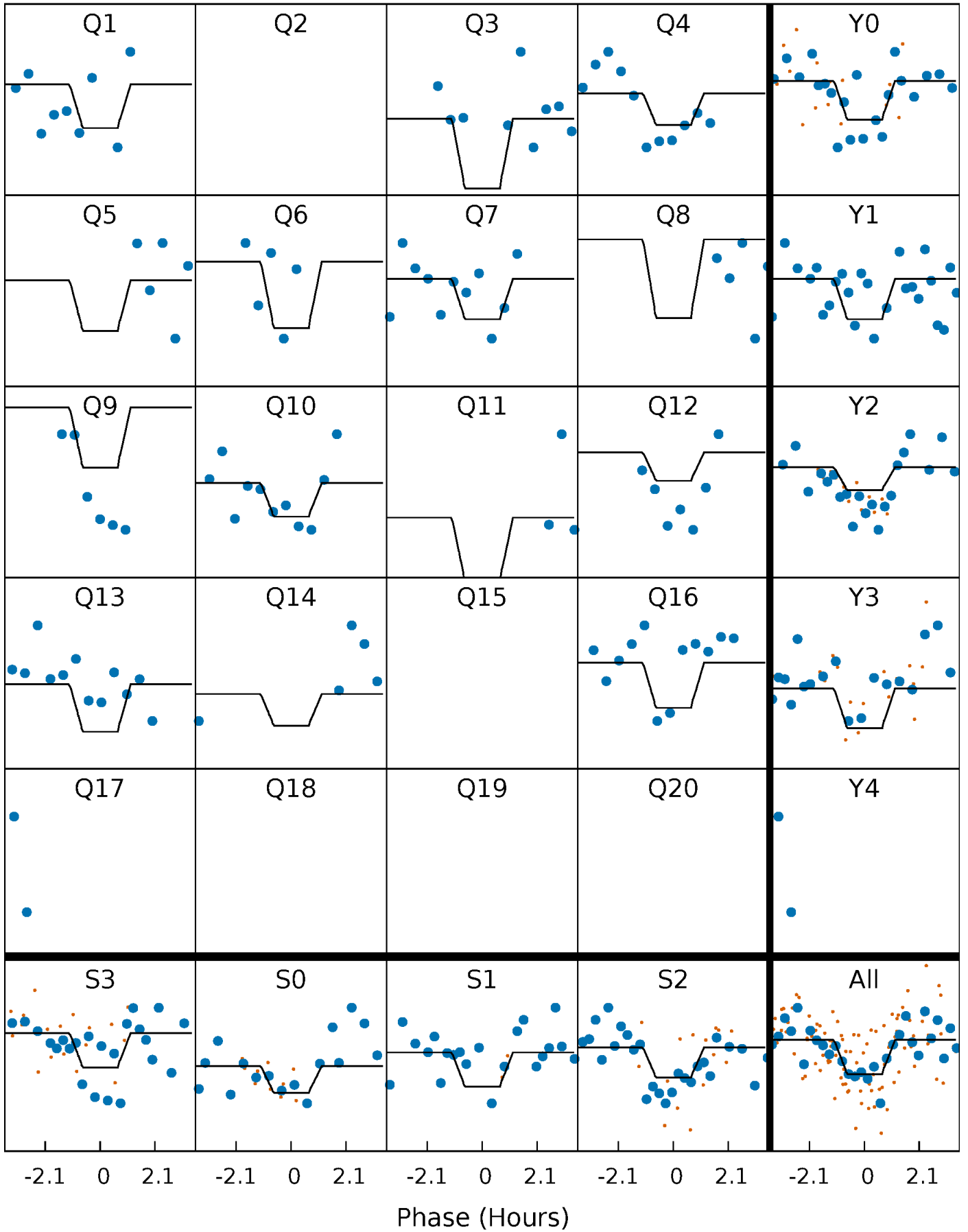
DV Quarter-Phased Transit Curves

TCE 005821165-05 P= 38.451545 Days $T_0=146.312128$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

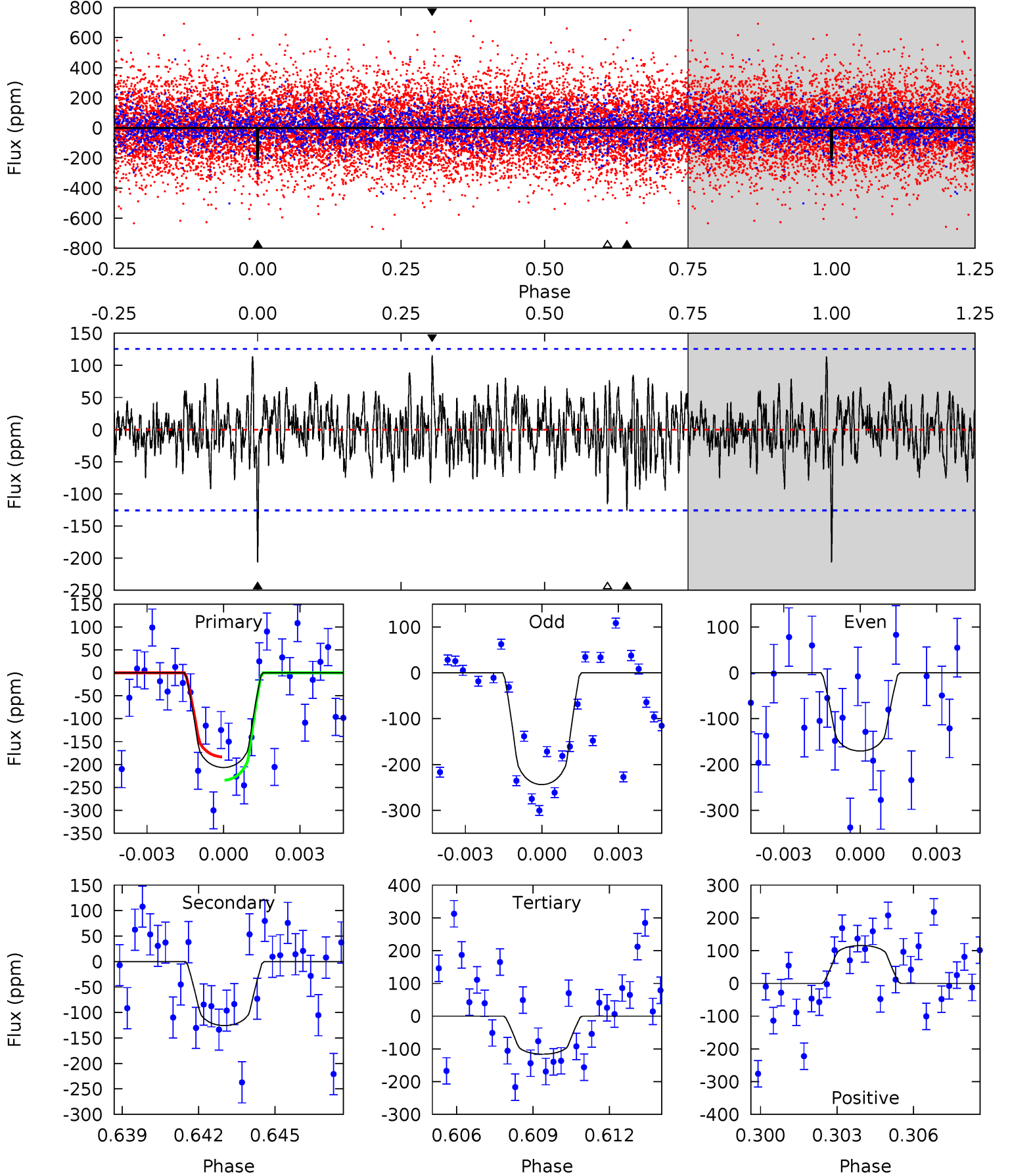
TCE 005821165-05 P= 38.451059 Days $T_0=146.323326$ (BKJD)



DV Model-Shift Uniqueness Test

005821165-05, P = 38.451545 Days, E = 107.860583 Days

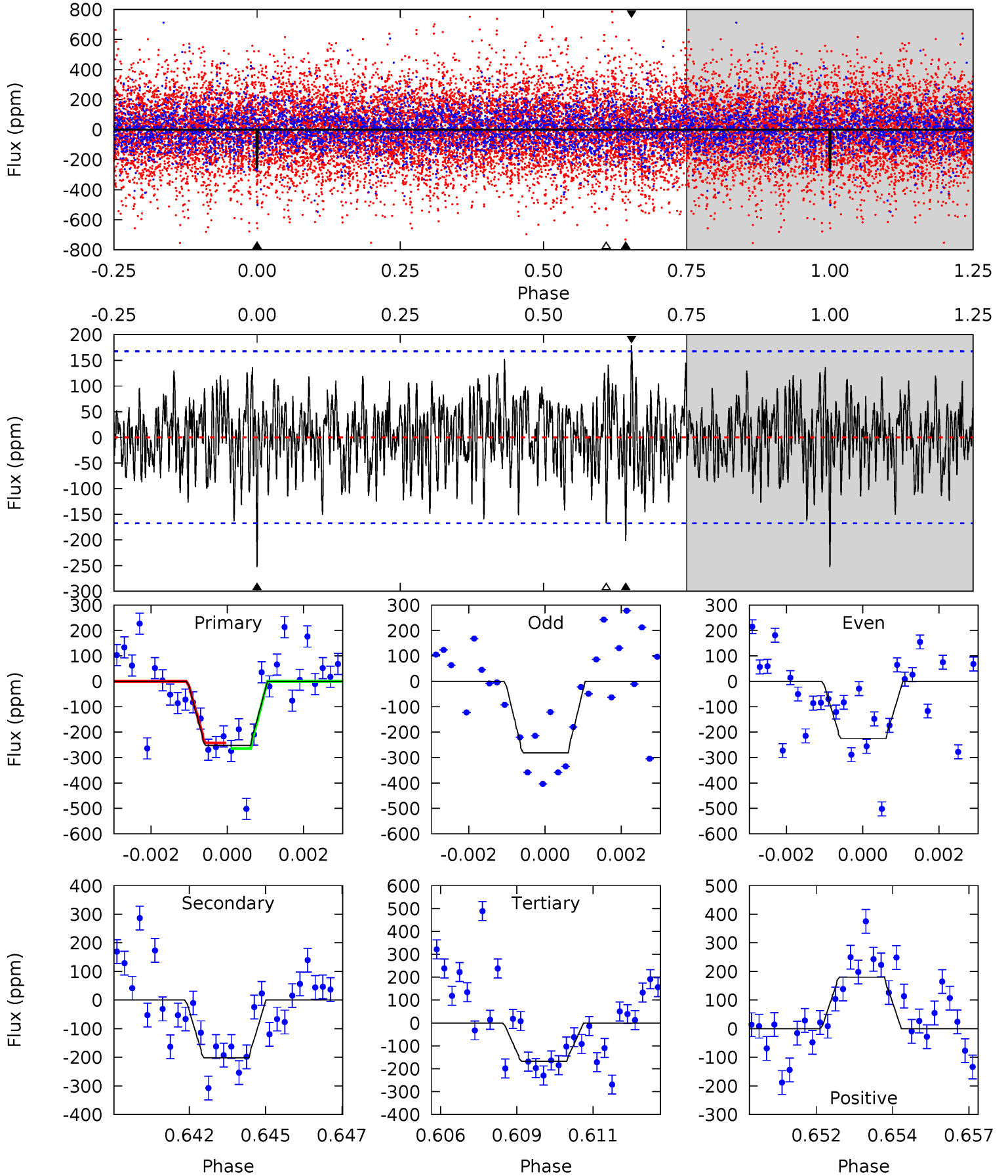
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
8.63	5.25	4.85	4.83	5.25	2.96	1.40	3.78	3.80	0.40	0.42	1.53	1.16	0.36	1.06



Alt Model-Shift Uniqueness Test

005821165-05, $P = 38.451059$ Days, $E = 107.872267$ Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
7.98	6.37	5.29	5.69	5.29	3.03	1.78	2.69	2.30	1.08	0.69	0.89	1.39	0.42	0.35



Stellar Parameters For KIC 005821165

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6047^{+163}_{-181}	$4.223^{+0.225}_{-0.184}$	$-0.240^{+0.300}_{-0.300}$	$1.266^{+0.351}_{-0.315}$	$0.977^{+0.156}_{-0.117}$	$0.678^{+0.824}_{-0.324}$
	+3%/-3%	+5%/-4%	+125%/-125%	+28%/-25%	+16%/-12%	+122%/-48%
Source	PHO1	KIC0	KIC0	DSEP		

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

Secondary Eclipse Parameters for KIC 005821165-05 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-126 ± 24	$3.66^{+3.30}_{-2.46}$	888^{+68}_{-62}	4178^{+2661}_{-812}	259^{+2117}_{-191}
Alt.	-202 ± 32	$3.60^{+3.51}_{-2.41}$	894^{+66}_{-71}	4642^{+3146}_{-1018}	438^{+2997}_{-335}

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 $A_{obs} \gg 1.0$

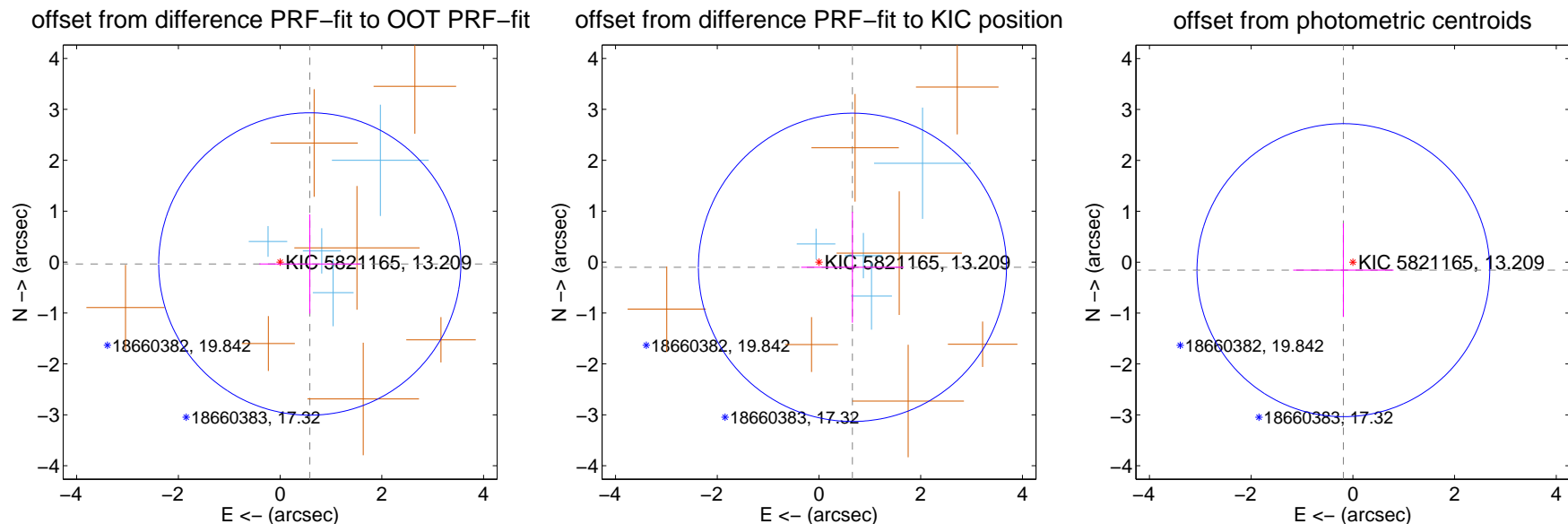
DV Centroid Data

Supplemental centroid analysis for 005821165-05. Kepler magnitude: 13.21. Transit SNR 8.10

There are 4 quarters with good PRF difference image offsets

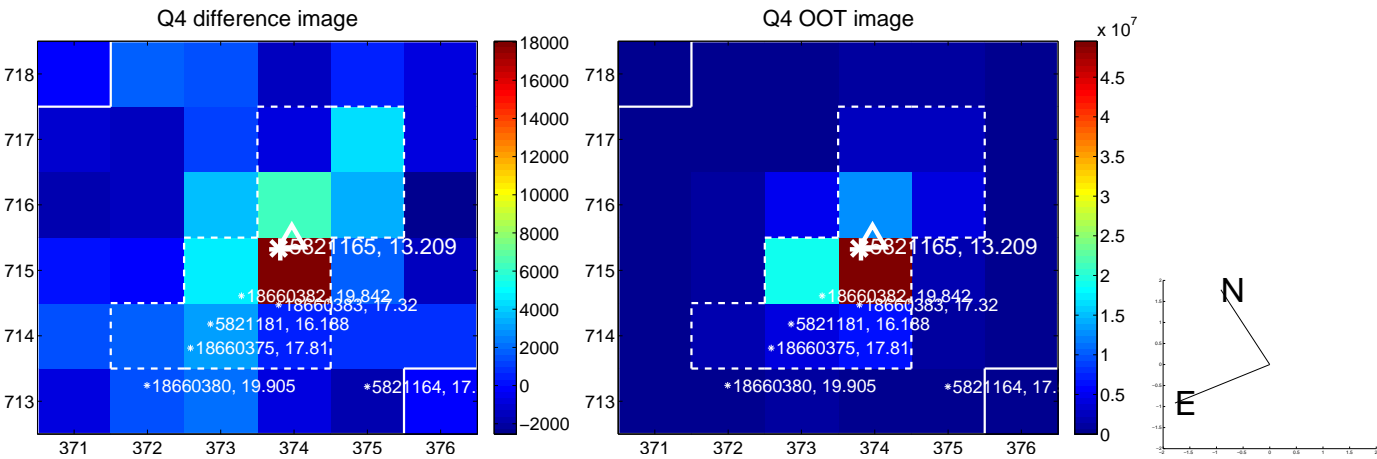
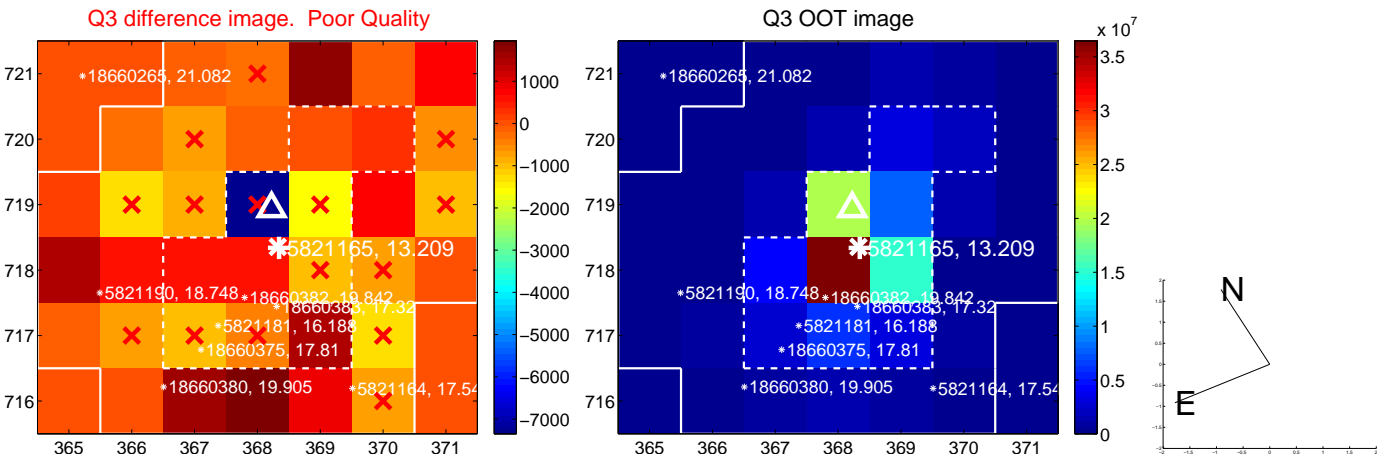
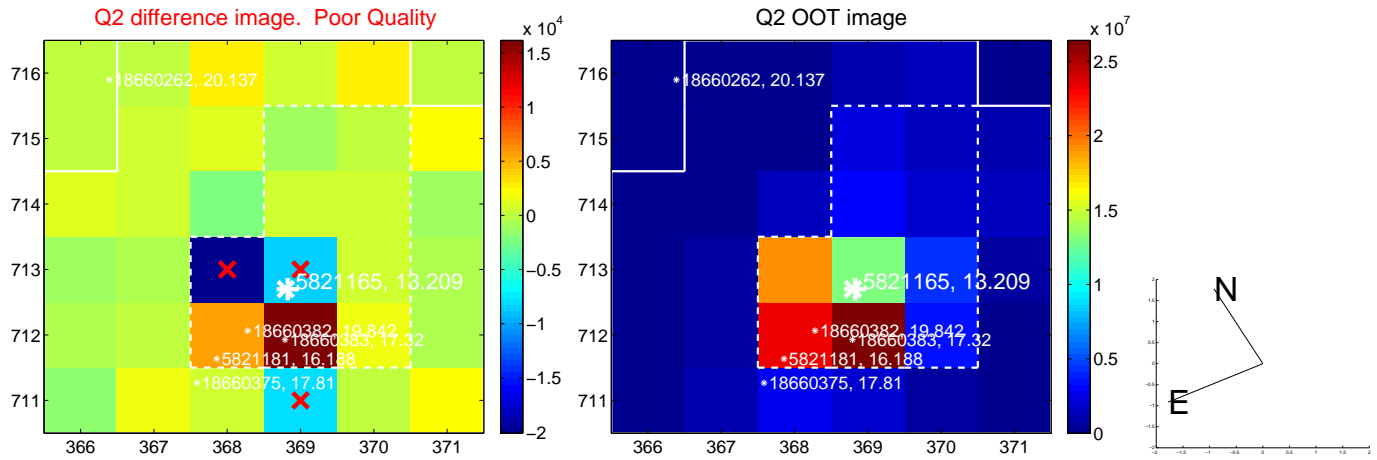
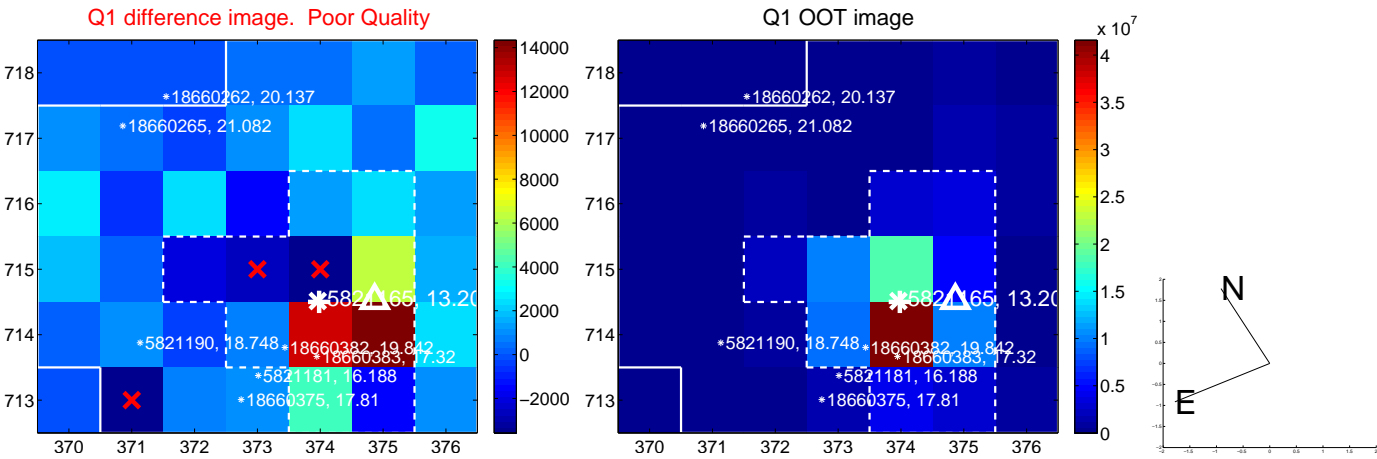
The direct PRF centroid is offset from the target star catalog position by about 0.12 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.584 ± 0.990	0.59	-0.583 ± 0.992	-0.037 ± 0.974
PRF-fit source offset from KIC position	0.666 ± 1.009	0.66	-0.658 ± 1.008	-0.103 ± 1.088
photometric centroid source offset	0.24 ± 0.96	0.25	0.19 ± 0.99	-0.16 ± 0.92

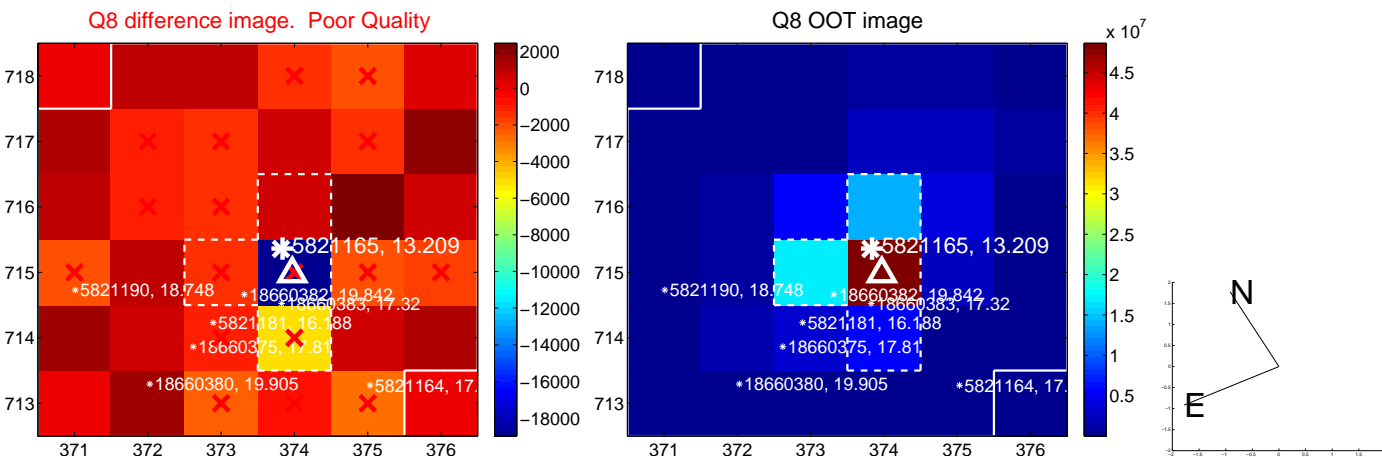
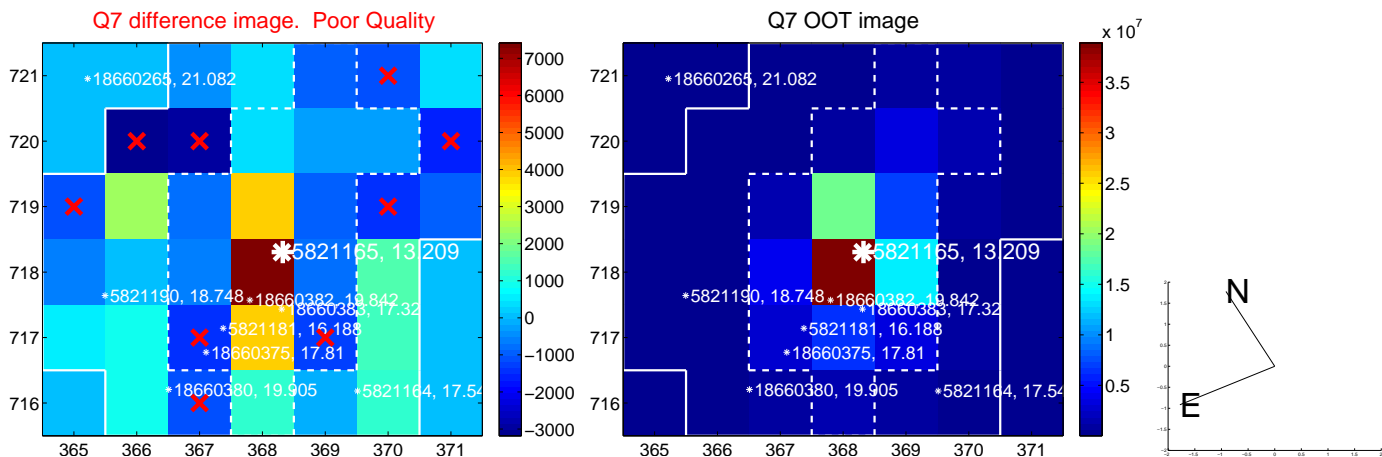
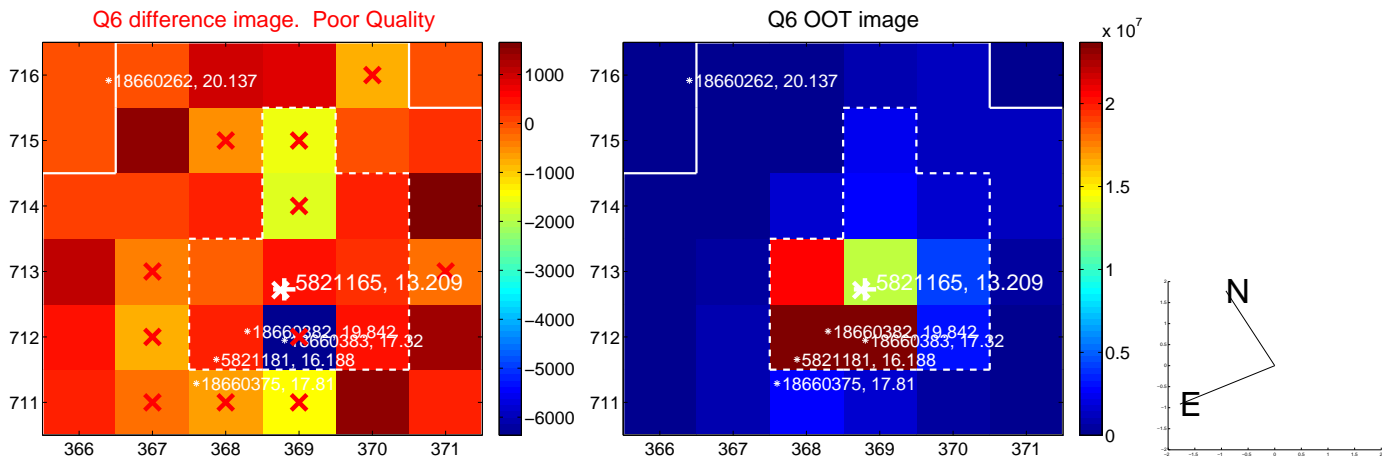
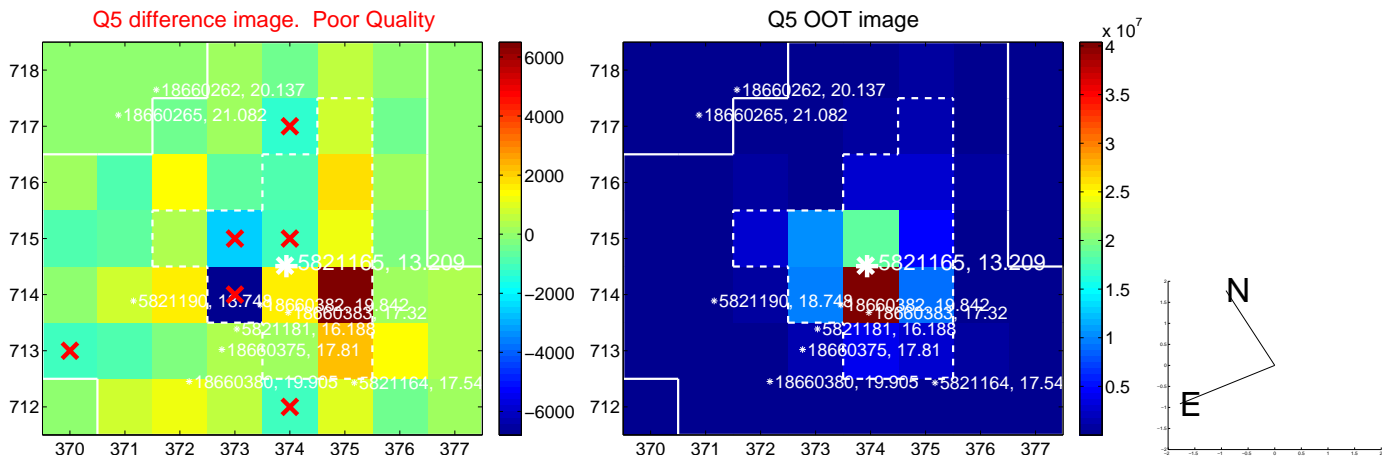


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

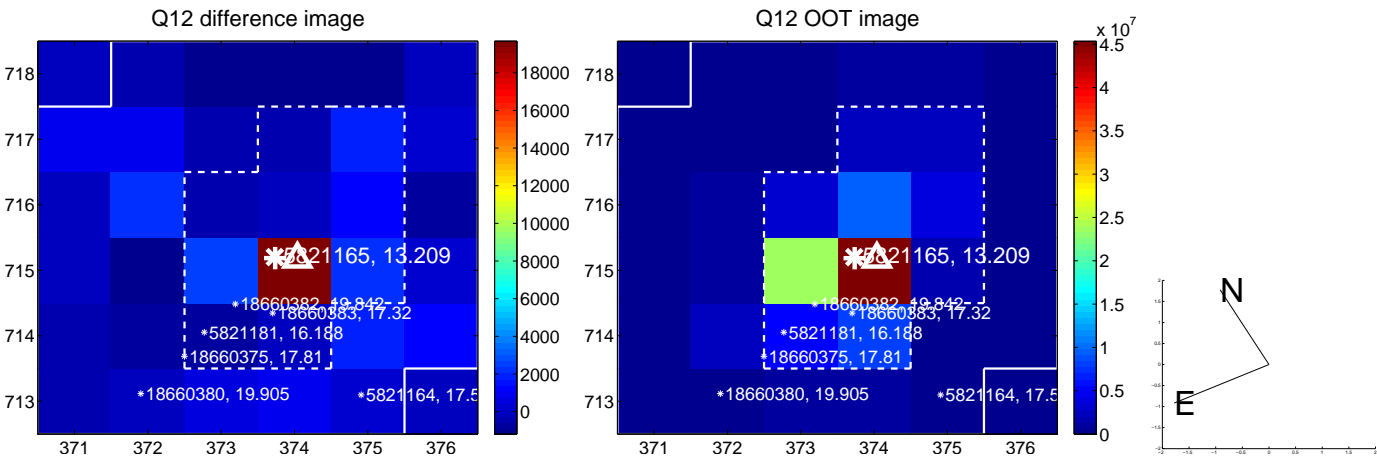
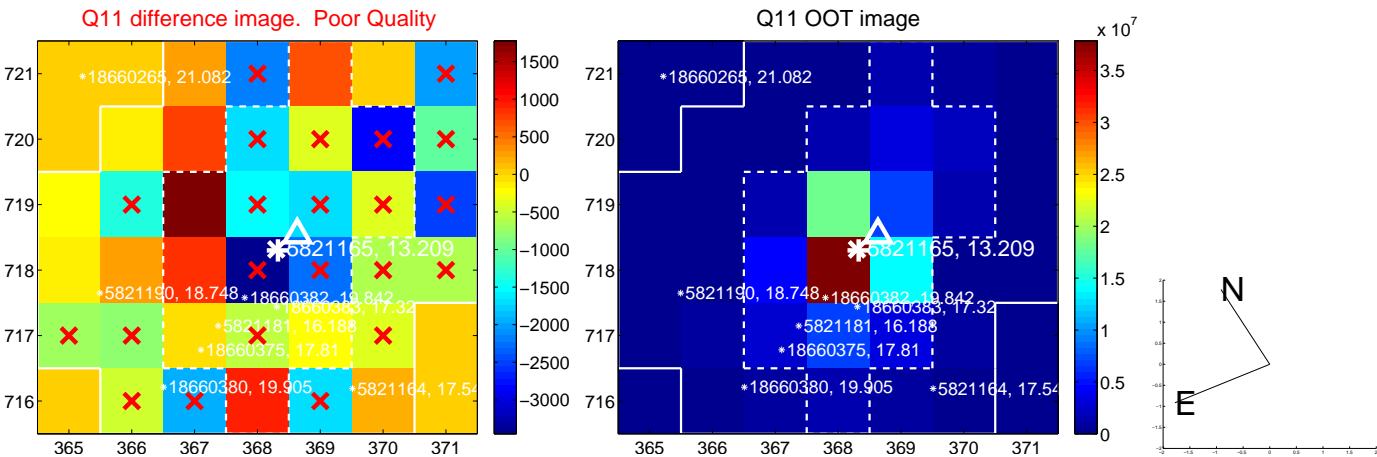
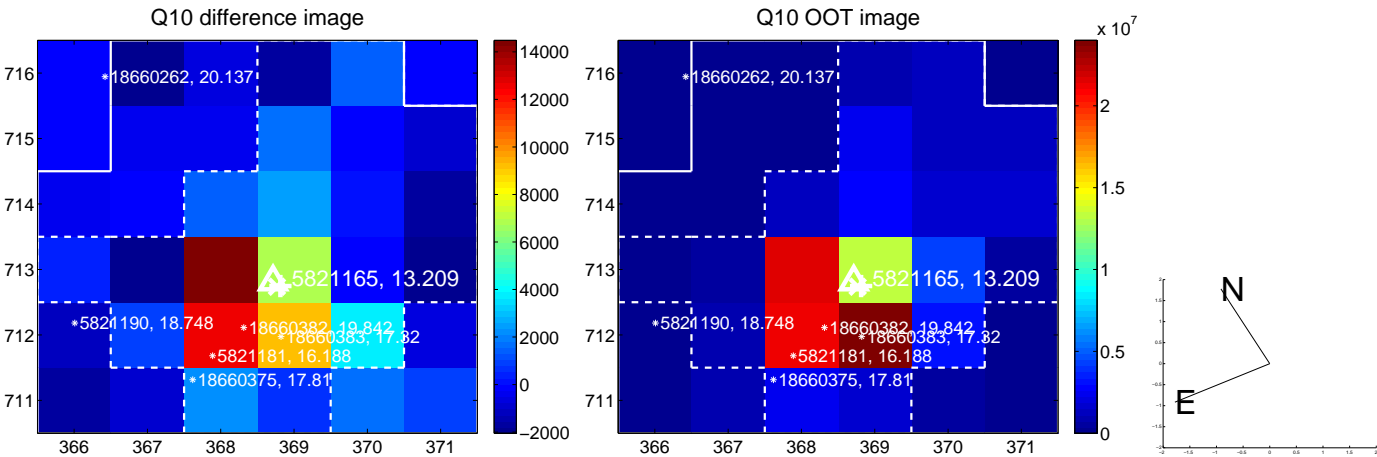
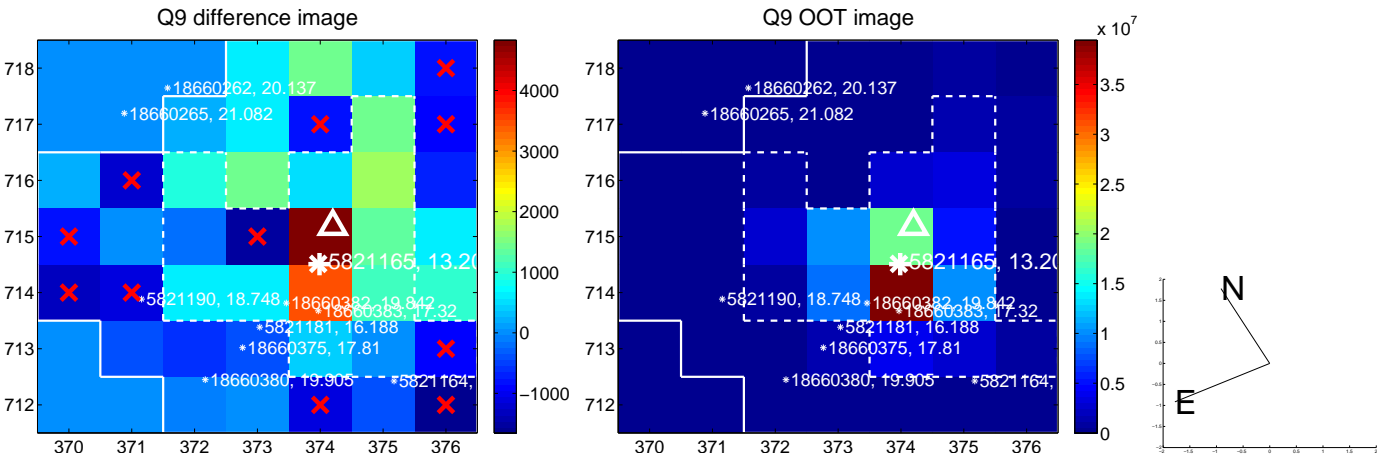
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



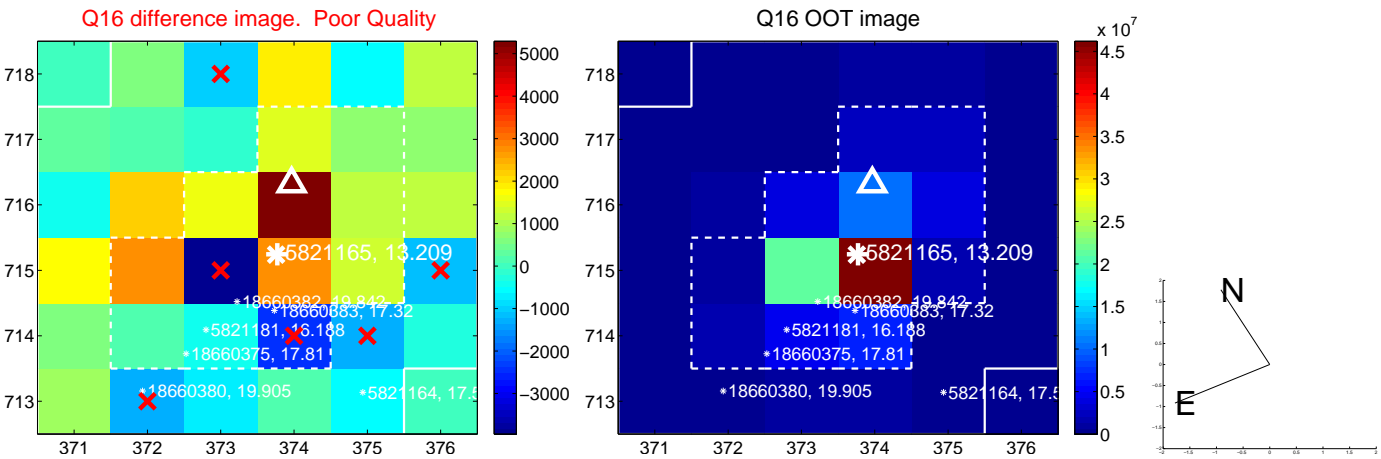
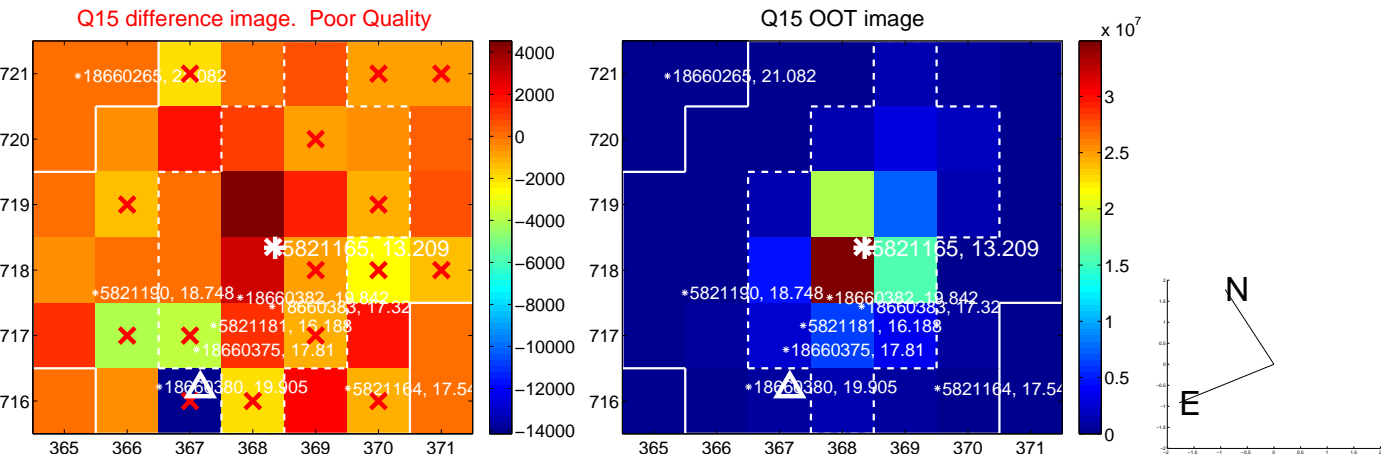
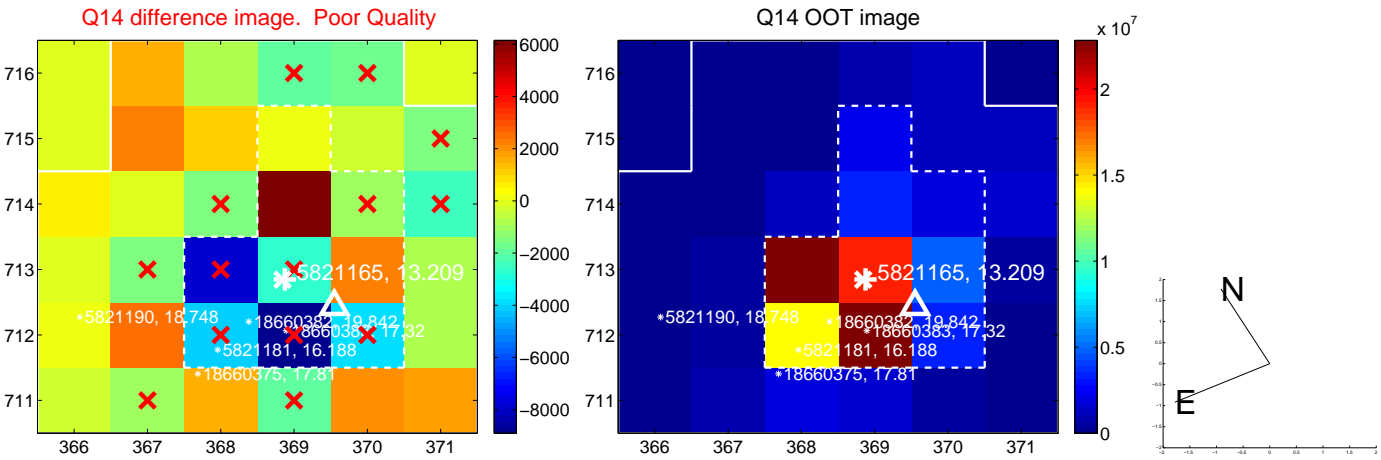
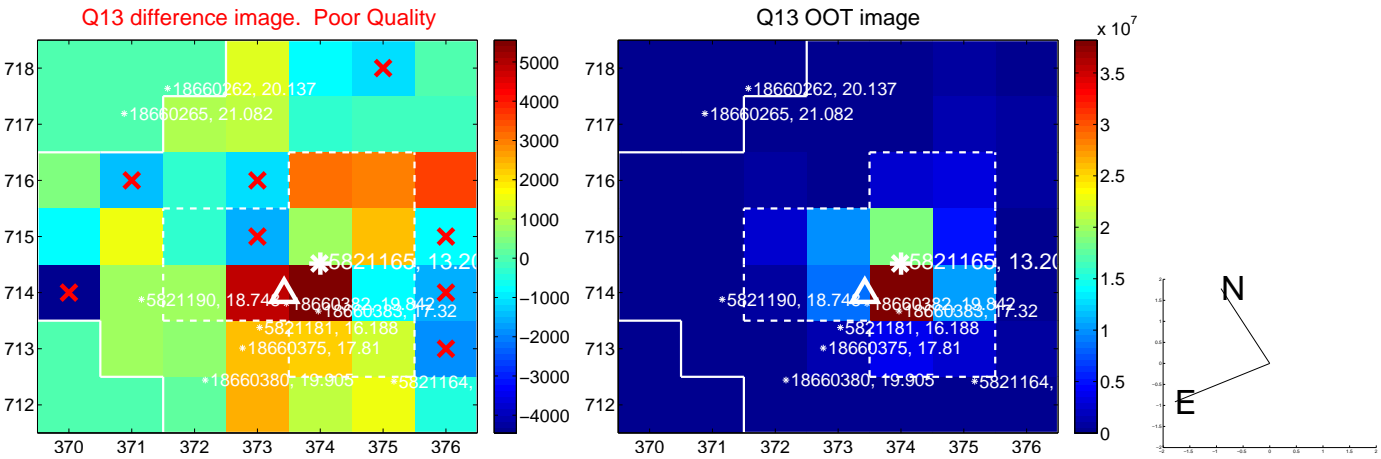
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



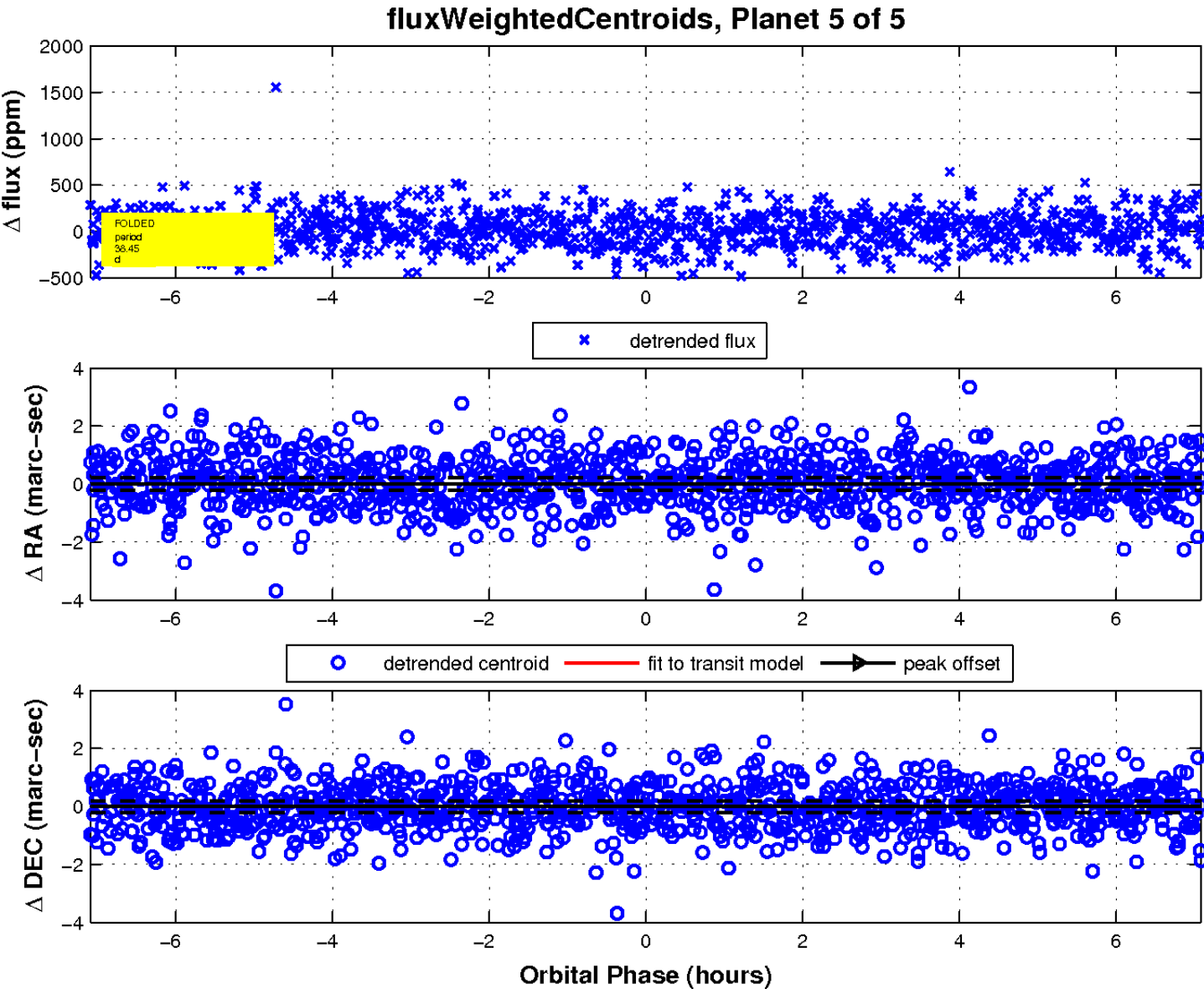
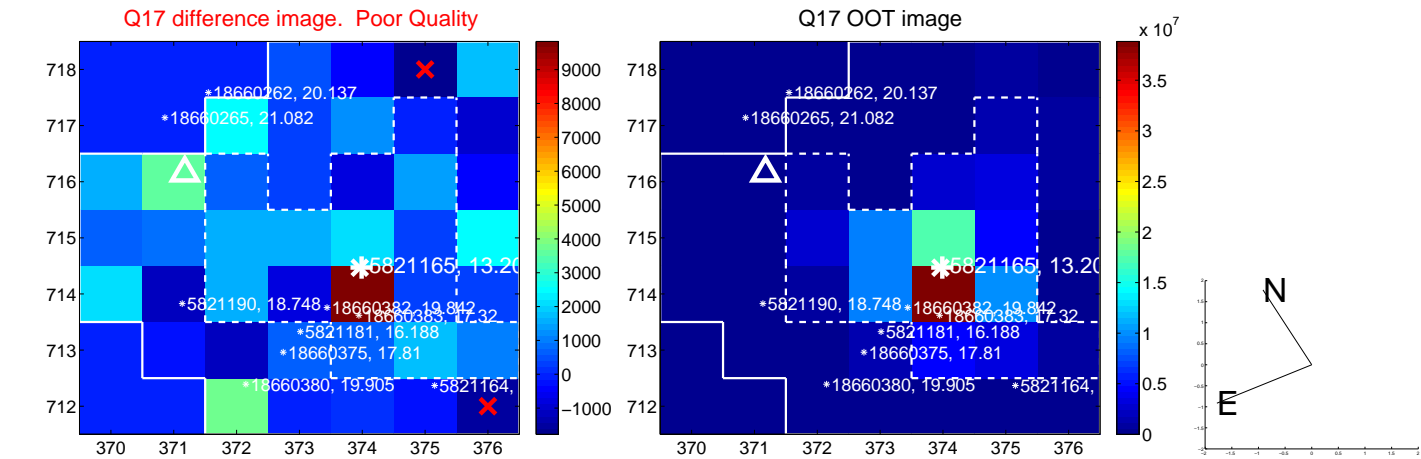
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

