

KIC 010736489

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})
010736489-01	OBS	7368.01	6.843087	137.038440	657.7	3.154	28.9	32.4	0.84	5227	2.67	102.90
010736489-02	OBS	No	644.151624	150.397424	735.6	7.027	12.3	2.9	0.84	5227	2.65	0.24
010736489-03	OBS	No	325.593377	453.574626	3361.6	20.988	18.4	4.8	0.84	5227	5.99	0.60
010736489-04	OBS	No	221.198496	287.626356	324.9	2.204	14.5	2.0	0.84	5227	1.52	1.00
010736489-05	OBS	No	589.889757	152.303738	4297.0	9.213	13.6	10.5	0.84	5227	5.34	0.27
010736489-06	OBS	No	388.516899	133.959615	311.6	6.000	16.0	-1.0	0.84	5227	1.44	0.47

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
010736489-01	OBS	PC	1.00	0	0	0	0	NO_COMMENT
010736489-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES_TRACKER—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
010736489-03	OBS	FP	0.00	1	0	0	0	LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
010736489-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
010736489-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV
010736489-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES—LPP_DV—ALL_TRANS_CHASES—CENT_NOFITS

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 010736489-01

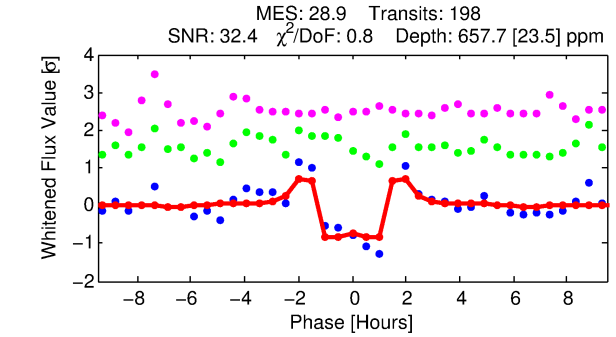
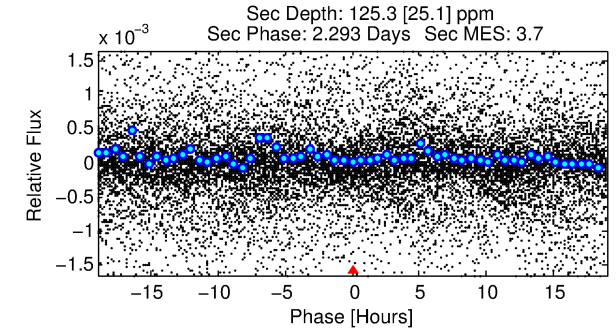
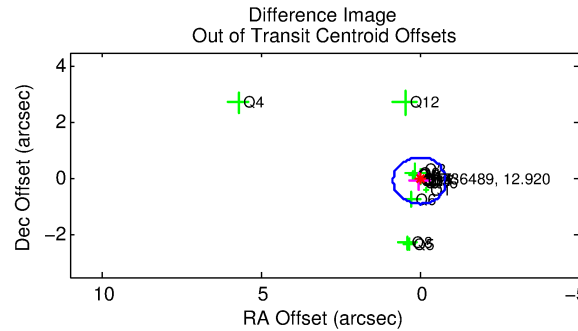
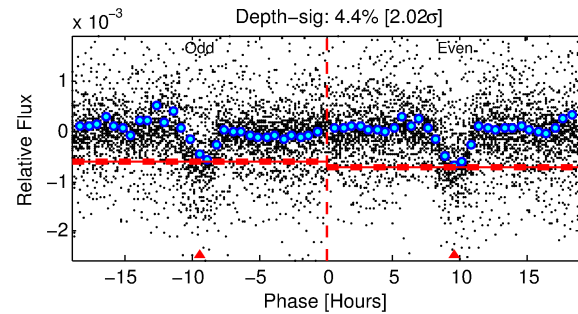
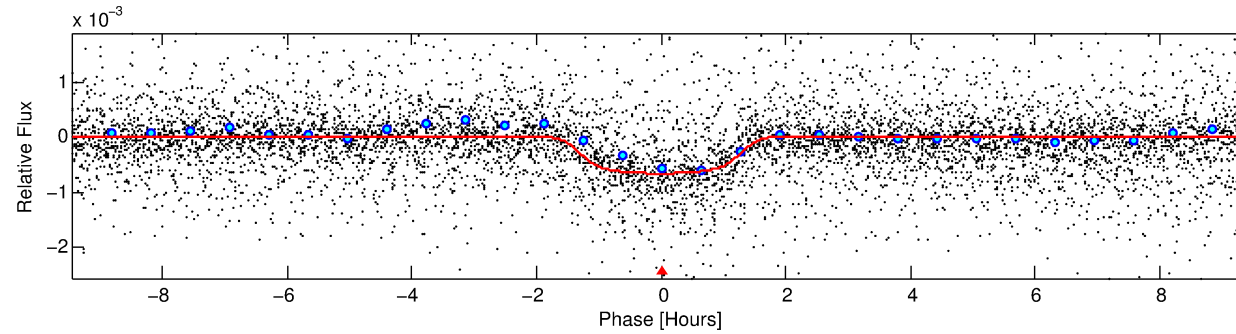
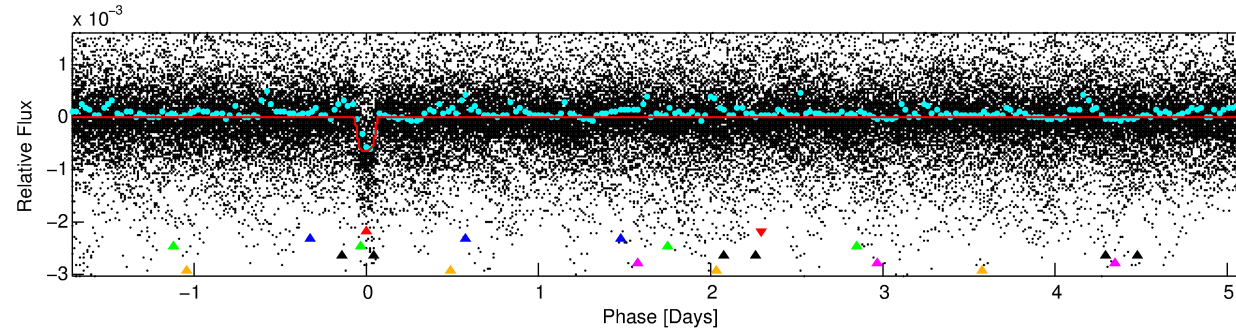
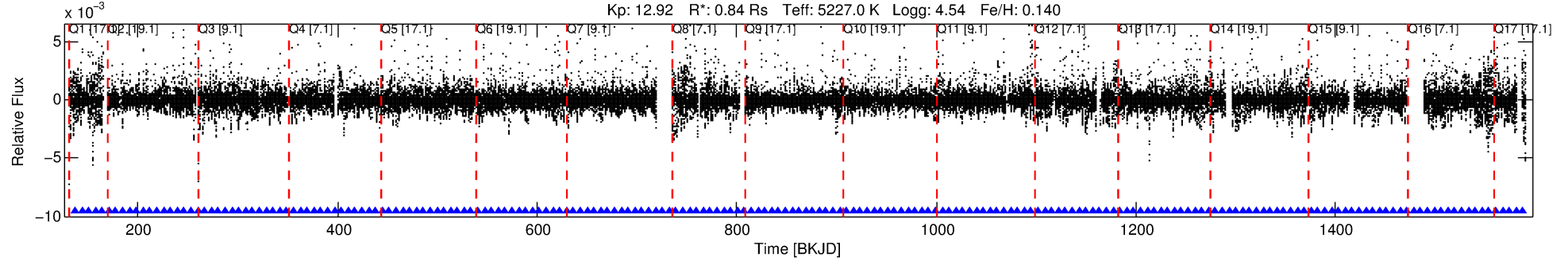
No Significant Match Found

DV One-Page Summary

KIC: 10736489 Candidate: 1 of 6 Period: 6.843 d

KOI: K07368 Corr: No Ephemeris Match

Kp: 12.92 R*: 0.84 Rs Teff: 5227.0 K Logg: 4.54 Fe/H: 0.140



DV Fit Results:

Period = 6.84309 [0.00001] d
Epoch = 137.0384 [0.0009] BKJD
Rp/R* = 0.0292 [0.0009]
a/R* = 7.73 [0.71]
b = 0.92 [0.02]
Seff = 102.90 [24.24]
Teff = 812 [48] K
Rp = 2.67 [0.41] Re
a = 0.0676 [0.0086] AU
Ag = 44.12 [12.49] [3.45σ]
Teffp = 3236 [205] K [11.54σ]

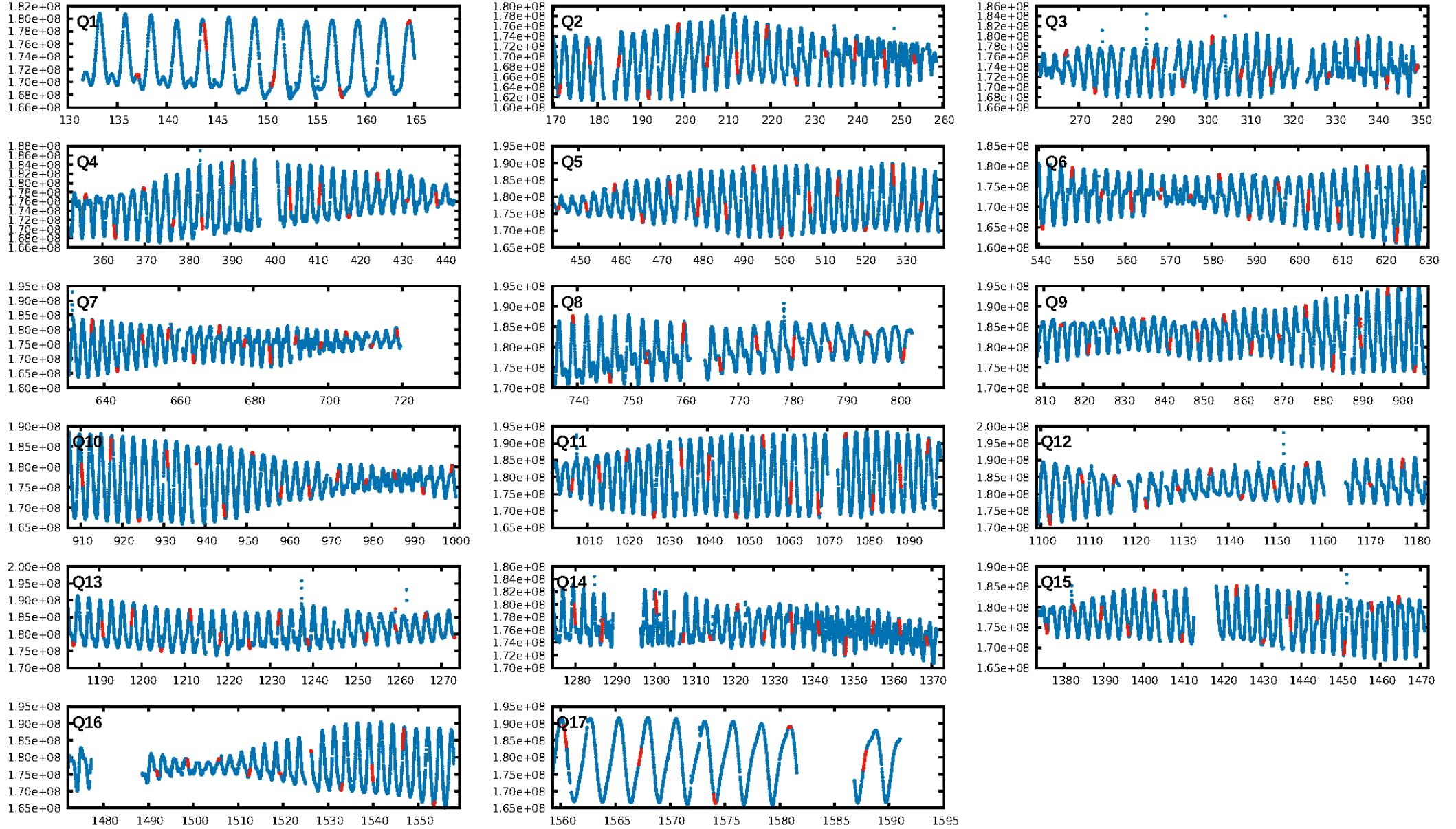
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [1337.05σ]
ModelChiSquare2-sig: 97.6%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [188/188]
GhostDiagnostic-chr: 1.059
Centroid-sig: 1.1%
Centroid-so: 0.222 arcsec [3.03σ]
OotOffset-rm: 0.072 arcsec [0.26σ]
KicOffset-rm: 0.124 arcsec [0.30σ]
OotOffset-st: 4/4/4/5 [17]
KicOffset-st: 4/4/4/5 [17]
DiffImageQuality-fgm: 0.59 [10/17]
DiffImageOverlap-fno: 1.00 [17/17]

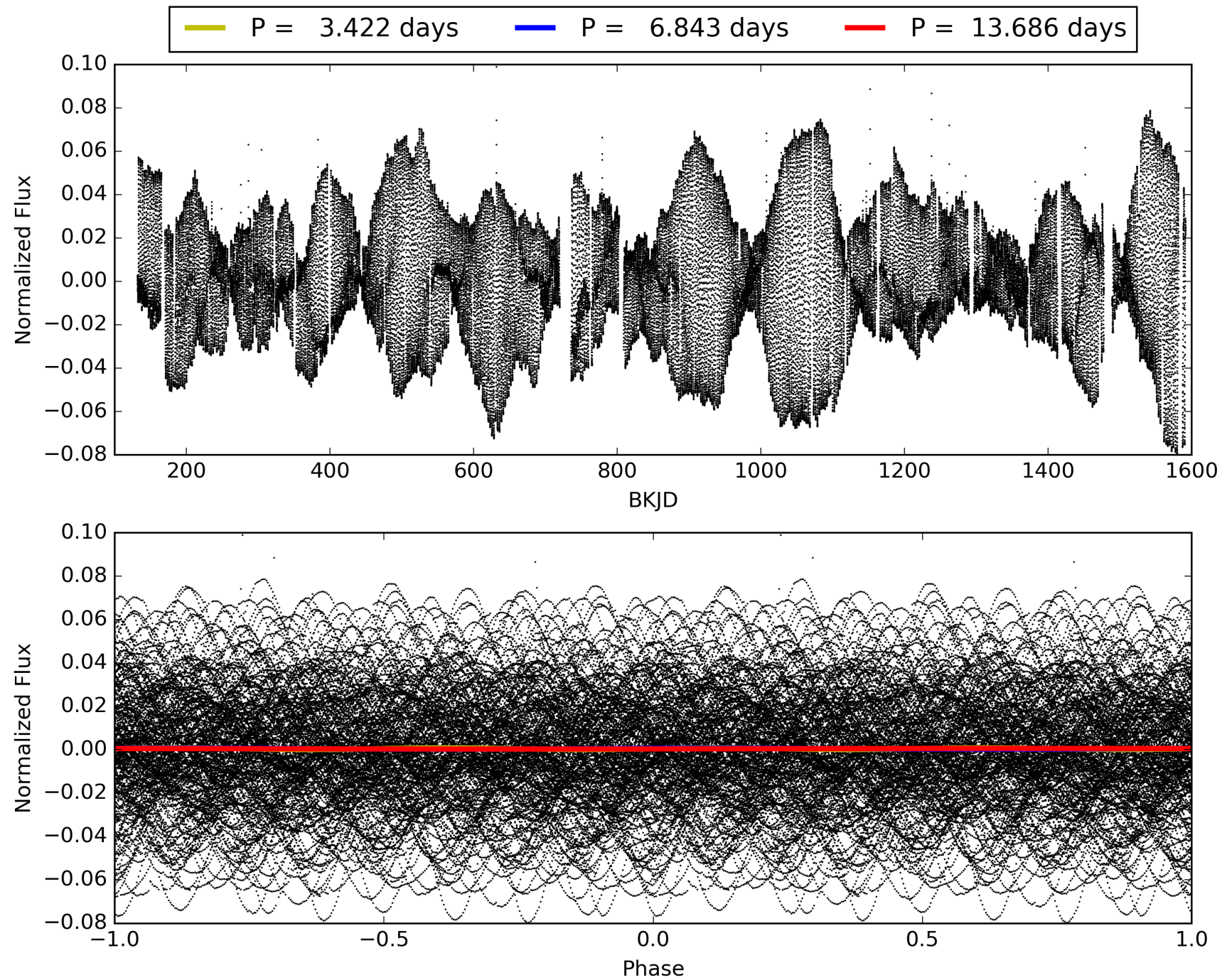
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 05:44:32 Z

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

TCE 010736489-01, PDC Light Curves

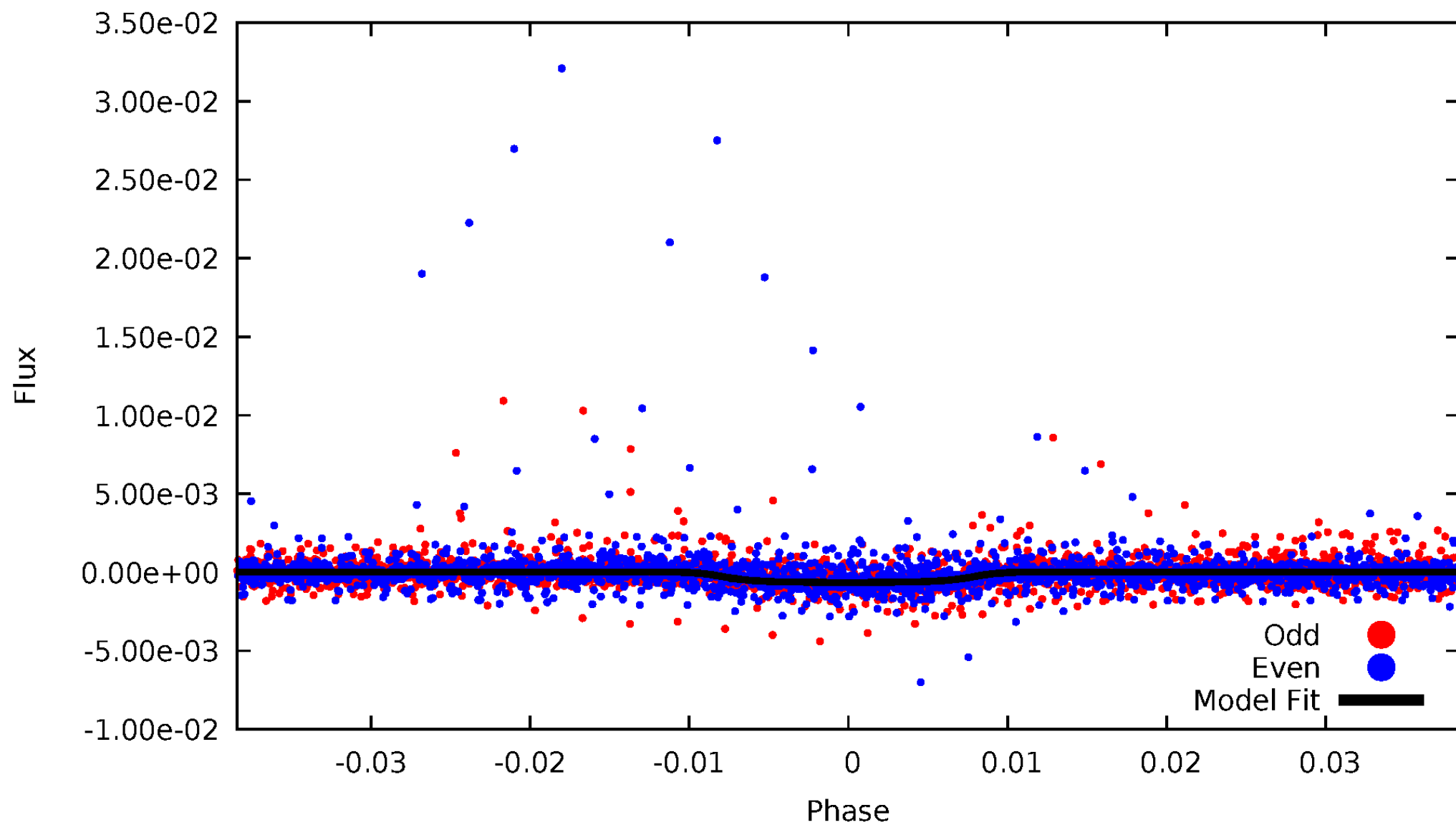


TCE 010736489-01



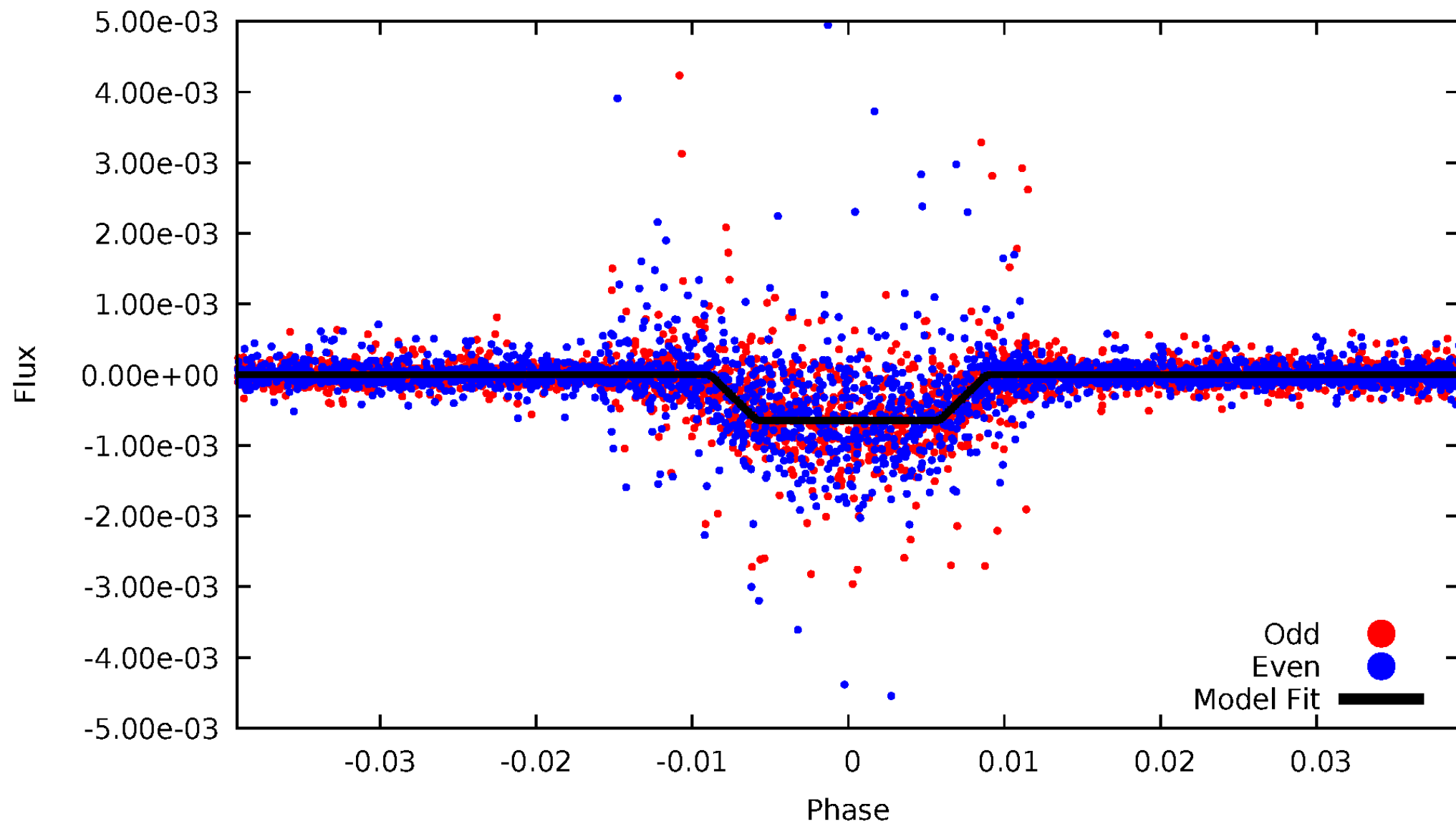
DV Odd/Even

TCE 010736489-01



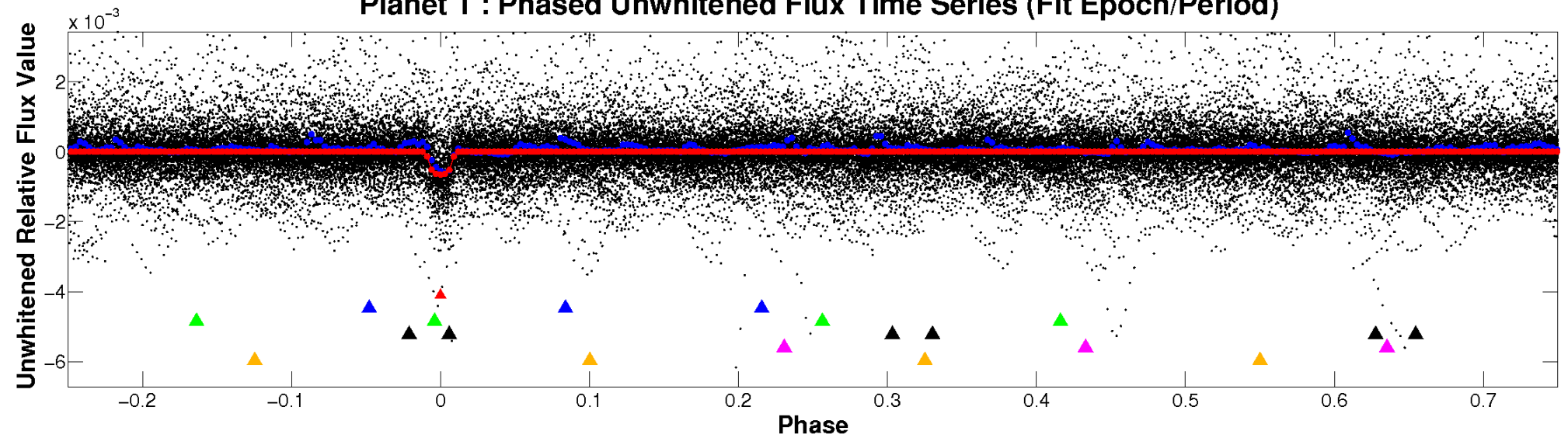
ALT Odd/Even

TCE 010736489-01

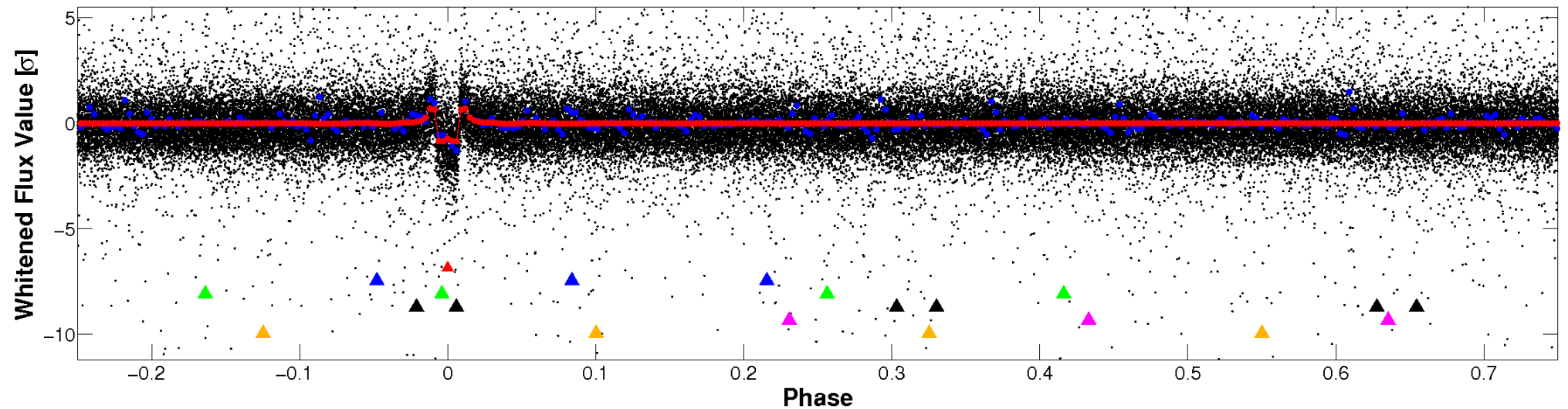


Non-Whitened Vs. Whitened Light Curve

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

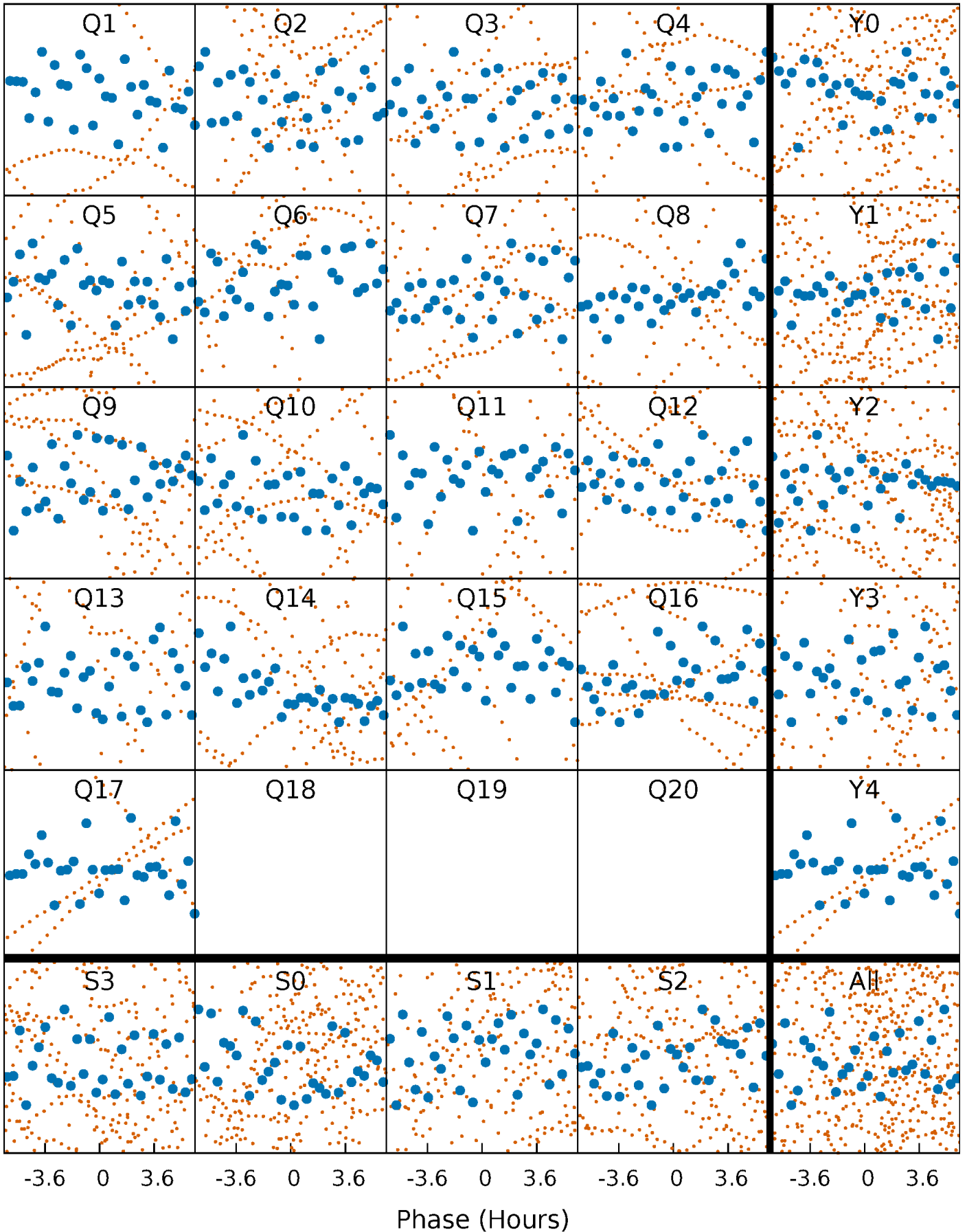


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



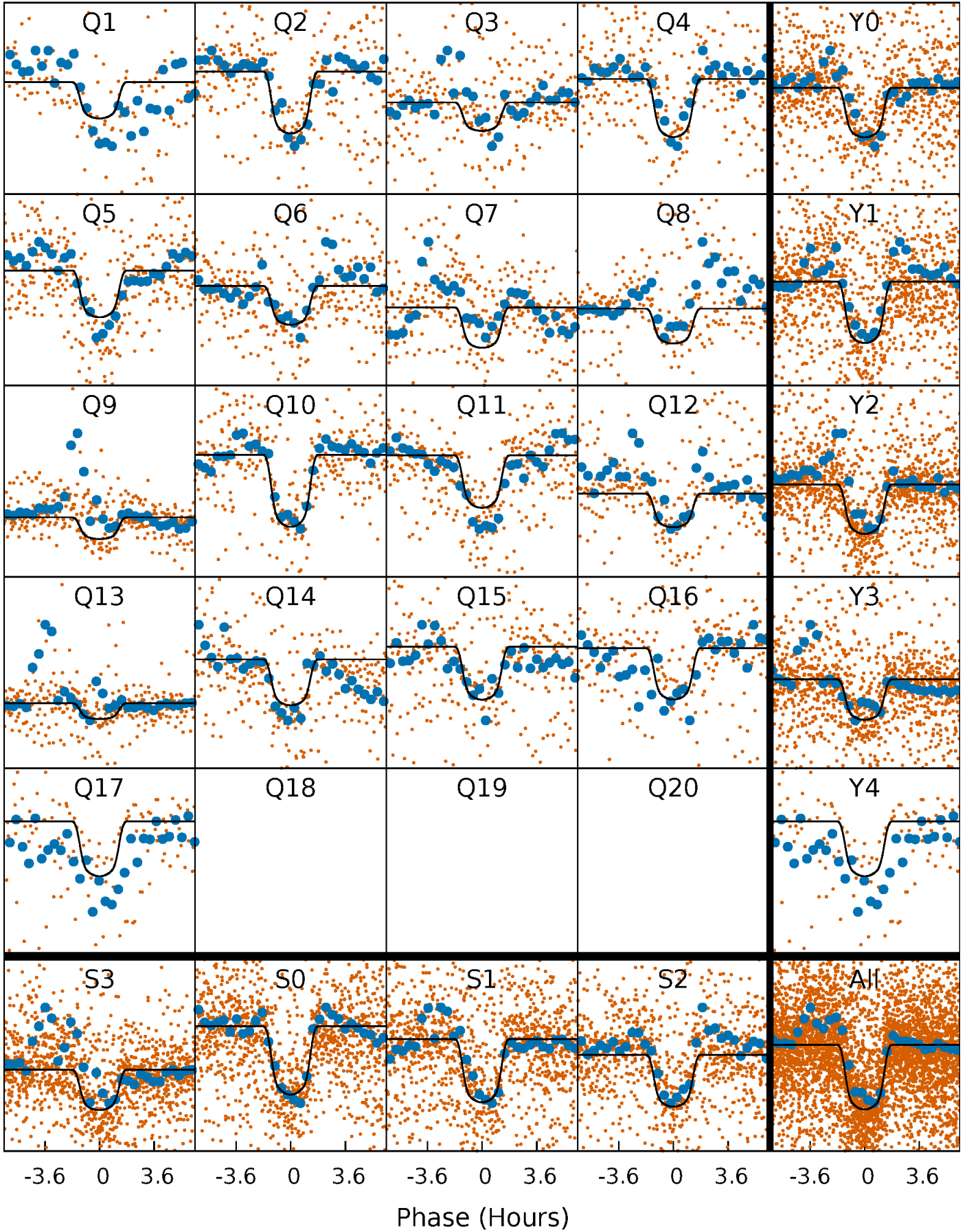
PDC Quarter-Phased Transit Curves

TCE 010736489-01 P= 6.843087 Days $T_0=137.038440$ (BKJD)



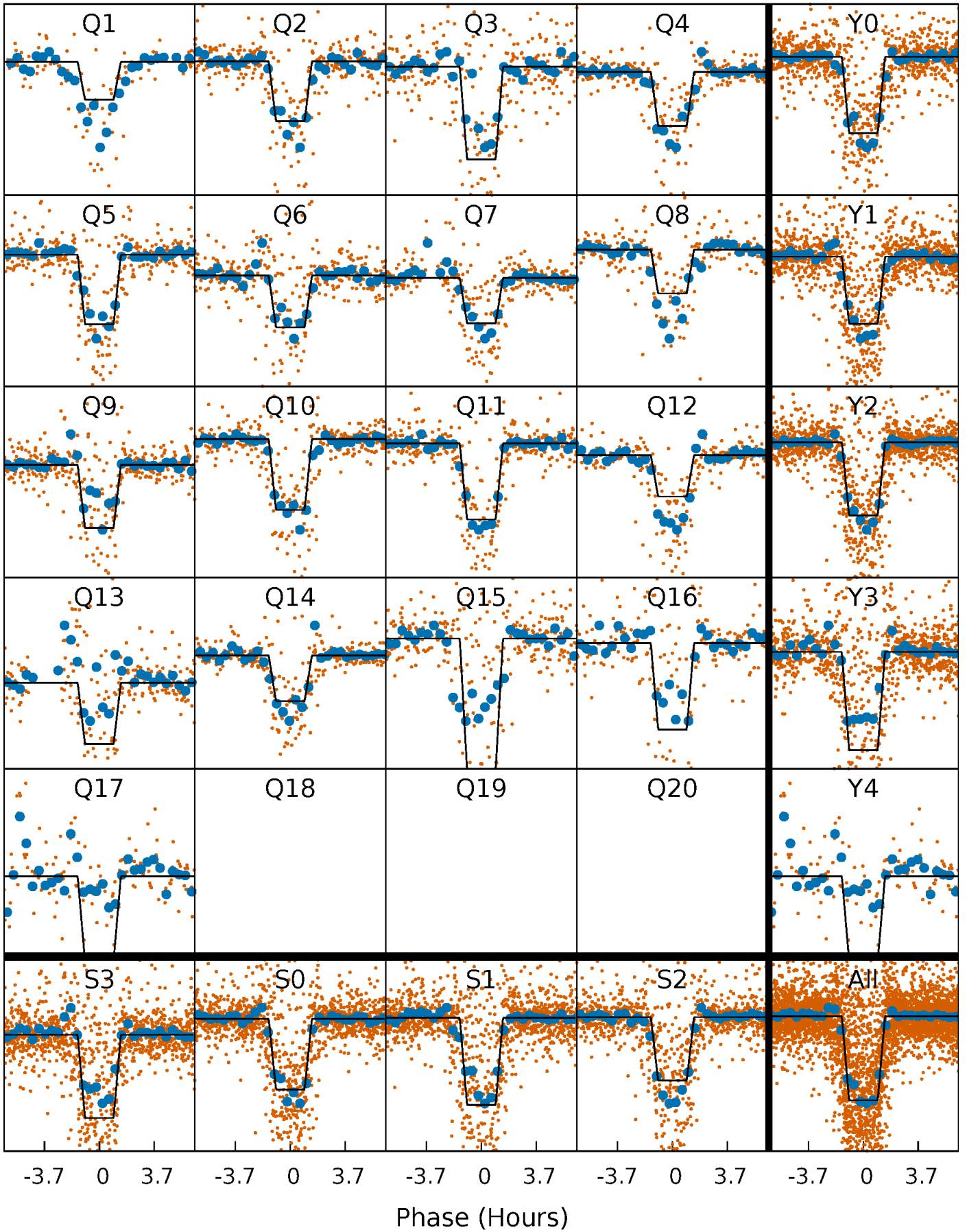
DV Quarter-Phased Transit Curves

TCE 010736489-01 P= 6.843087 Days $T_0=137.038440$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

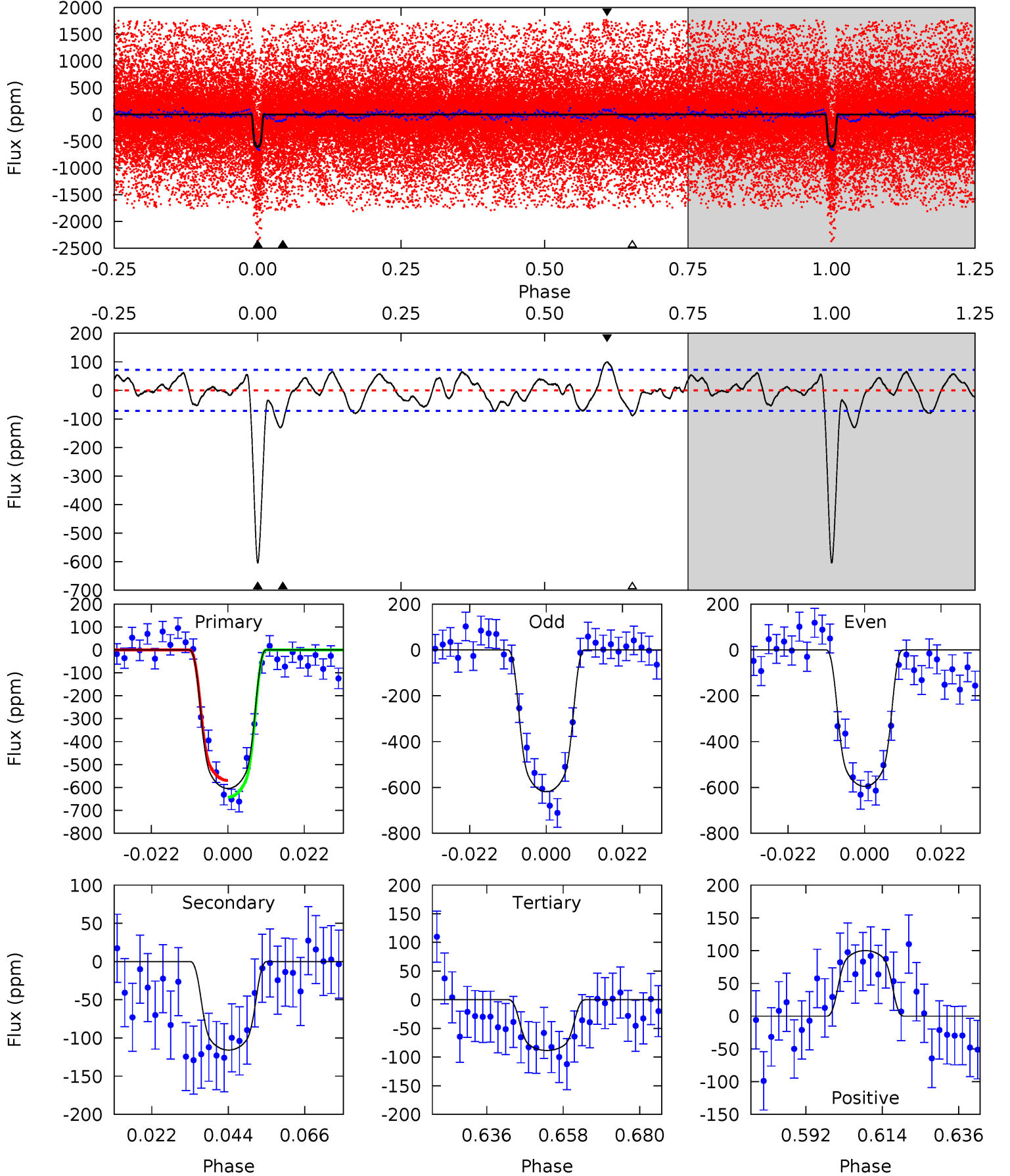
TCE 010736489-01 P= 6.843048 Days $T_0=137.043214$ (BKJD)



DV Model-Shift Uniqueness Test

010736489-01, P = 6.843087 Days, E = 130.195353 Days

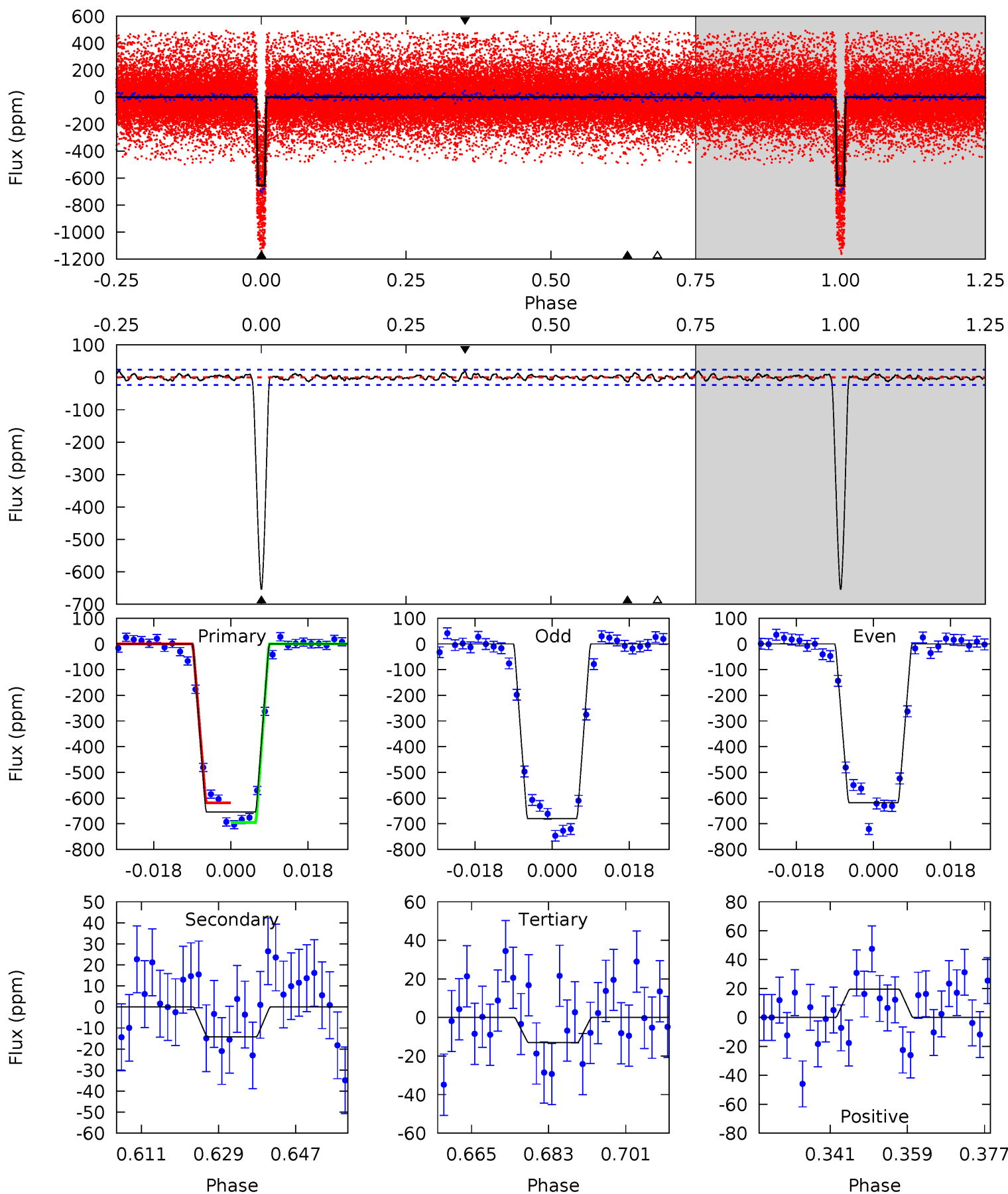
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
41.0	7.87	6.01	6.80	4.87	2.29	2.50	35.0	34.2	1.86	1.07	0.82	0.88	0.14	2.51



Alt Model-Shift Uniqueness Test

010736489-01, P = 6.843048 Days, E = 130.200166 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
136.7	2.96	2.73	4.08	4.91	2.37	1.19	133.9	132.6	0.24	-1.12	6.51	1.03	0.03	7.93



Stellar Parameters For KIC 010736489

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5227^{+183}_{-183}	$4.535^{+0.052}_{-0.105}$	$0.140^{+0.250}_{-0.300}$	$0.838^{+0.125}_{-0.073}$	$0.876^{+0.070}_{-0.077}$	$2.100^{+0.471}_{-0.659}$
	+4%/-4%	+1%/-2%	+179%/-214%	+15%/-9%	+8%/-9%	+22%/-31%
Source	PHO54	PHO54	PHO54	DSEP		

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

Secondary Eclipse Parameters for KIC 010736489-01 / KOI 7368.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-116 ± 15	$2.69^{+0.23}_{-0.17}$	1146^{+54}_{-48}	3589^{+123}_{-129}	39^{+8}_{-7}
Alt.	-14 ± 5	$2.36^{+0.19}_{-0.18}$	1146^{+56}_{-50}	2733^{+131}_{-163}	$6.158^{+2.629}_{-2.130}$

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

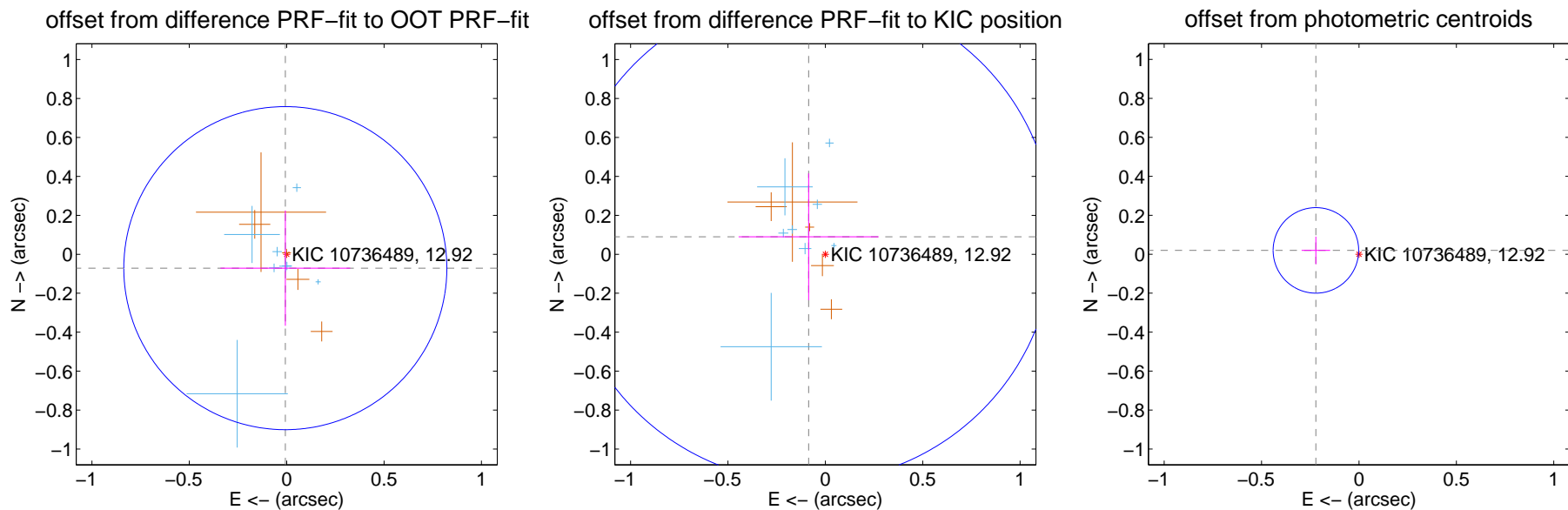
DV Centroid Data

Supplemental centroid analysis for 010736489-01. Kepler magnitude: 12.92. Transit SNR 32.43

There are 10 quarters with good PRF difference image offsets

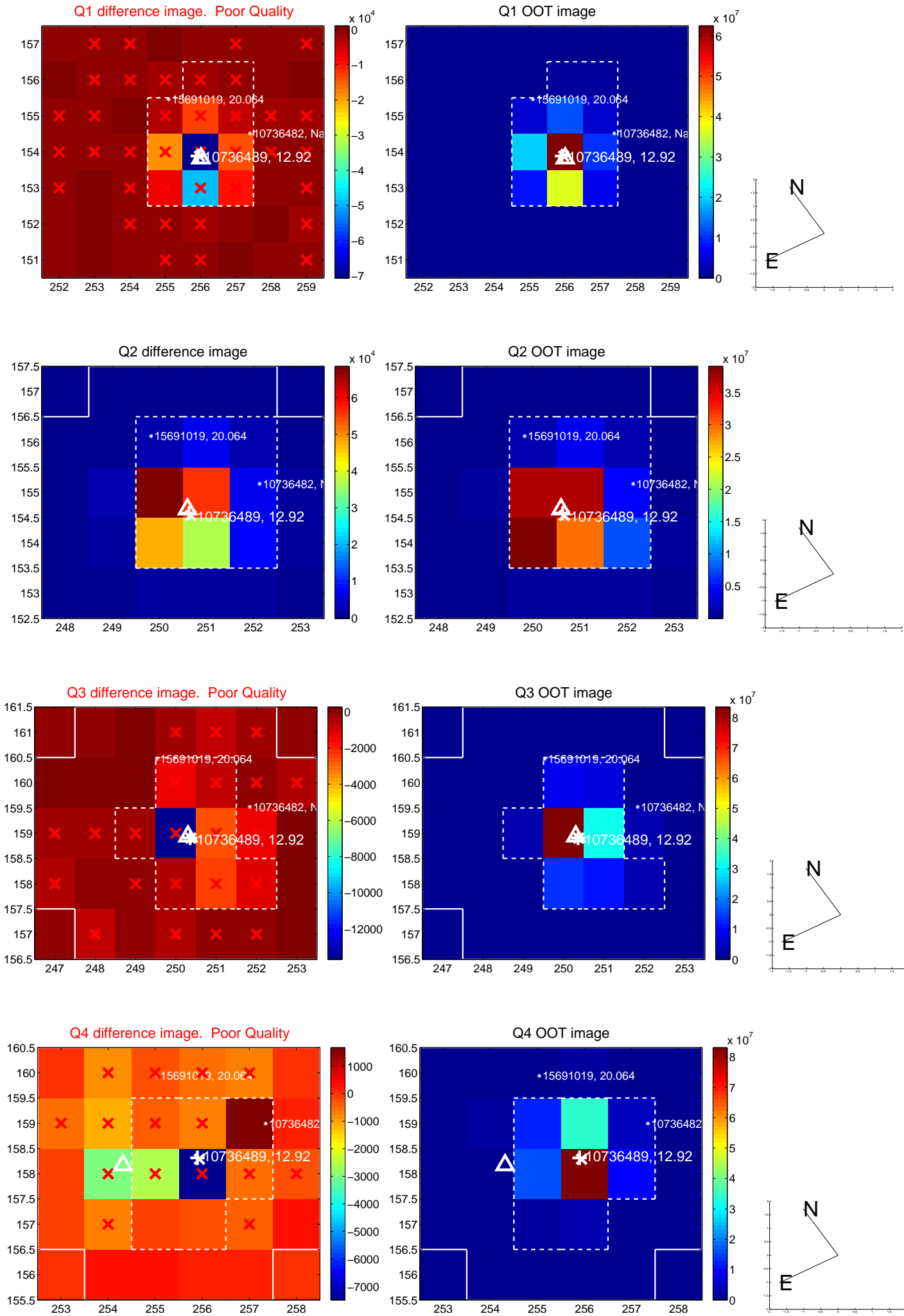
The direct PRF centroid is offset from the target star catalog position by about 0.25 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.072 ± 0.276	0.26	0.007 ± 0.333	-0.071 ± 0.296
PRF-fit source offset from KIC position	0.124 ± 0.420	0.30	0.086 ± 0.359	0.090 ± 0.325
photometric centroid source offset	0.22 ± 0.07	3.03	0.22 ± 0.07	0.02 ± 0.07

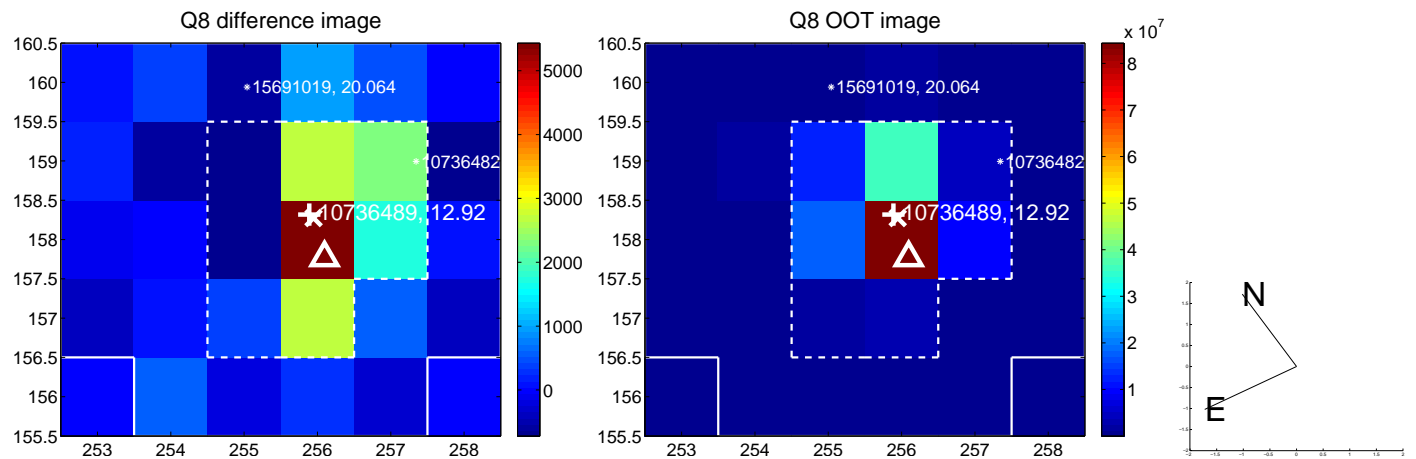
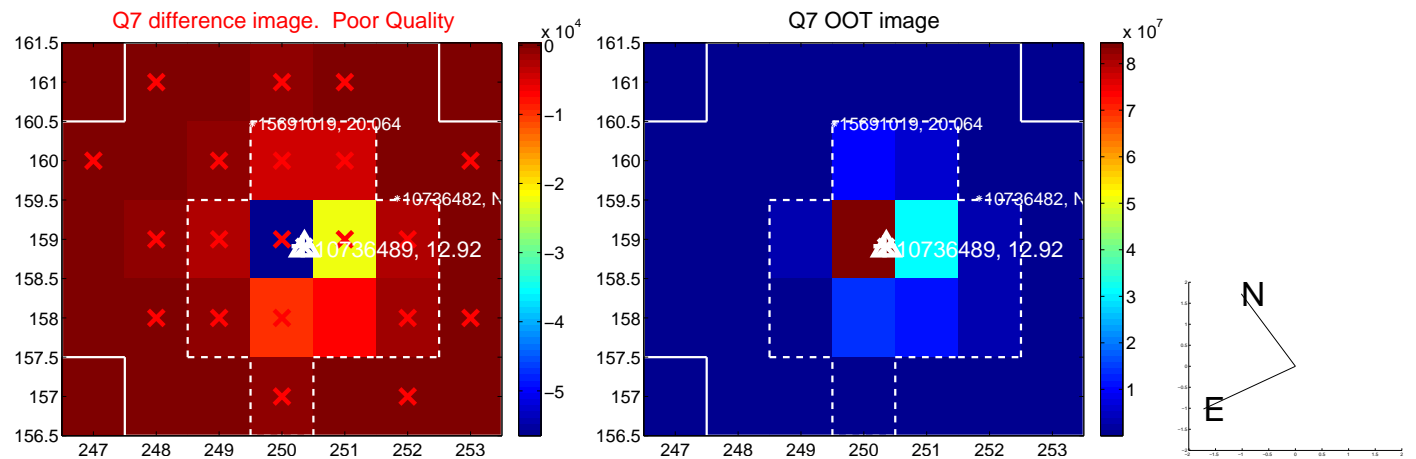
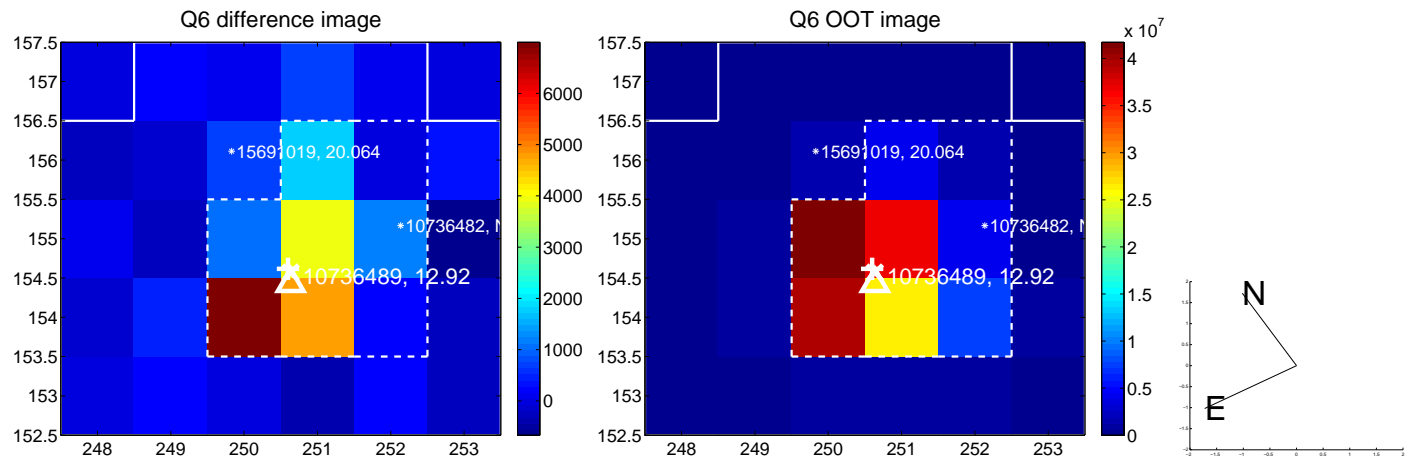
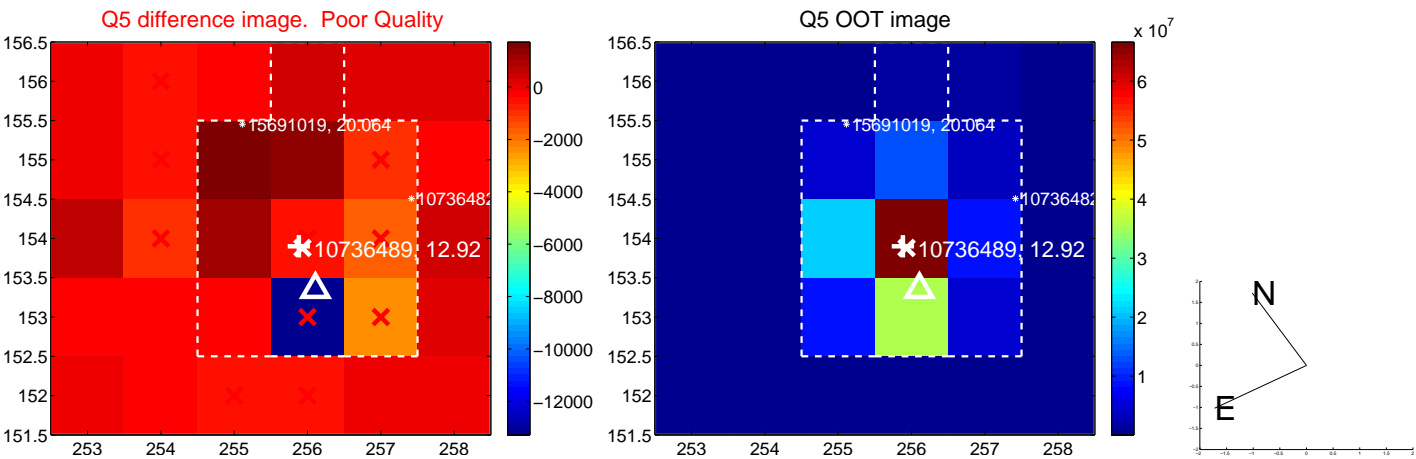


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

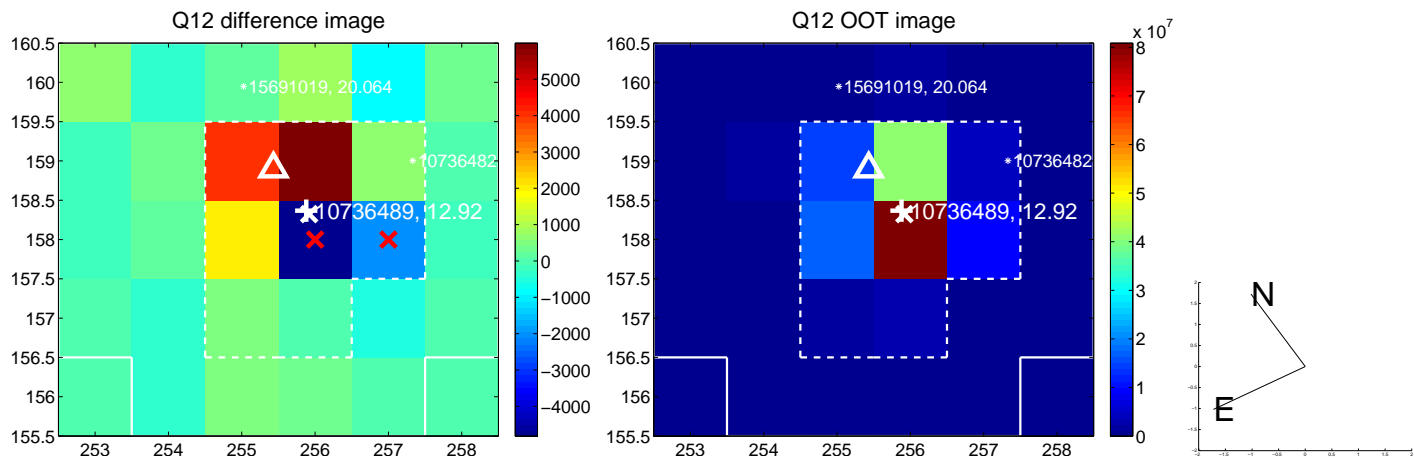
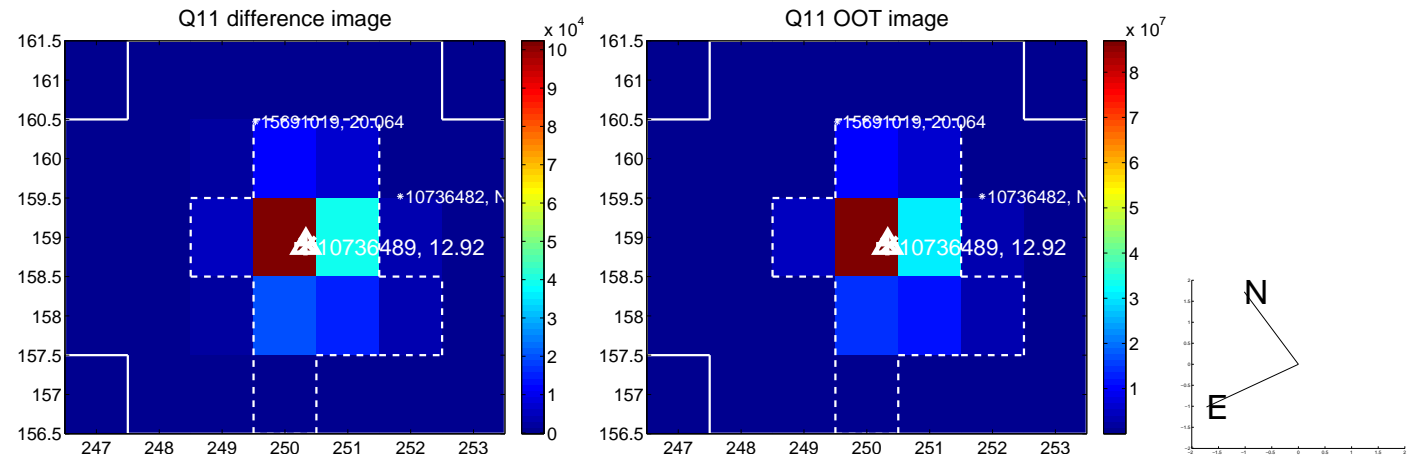
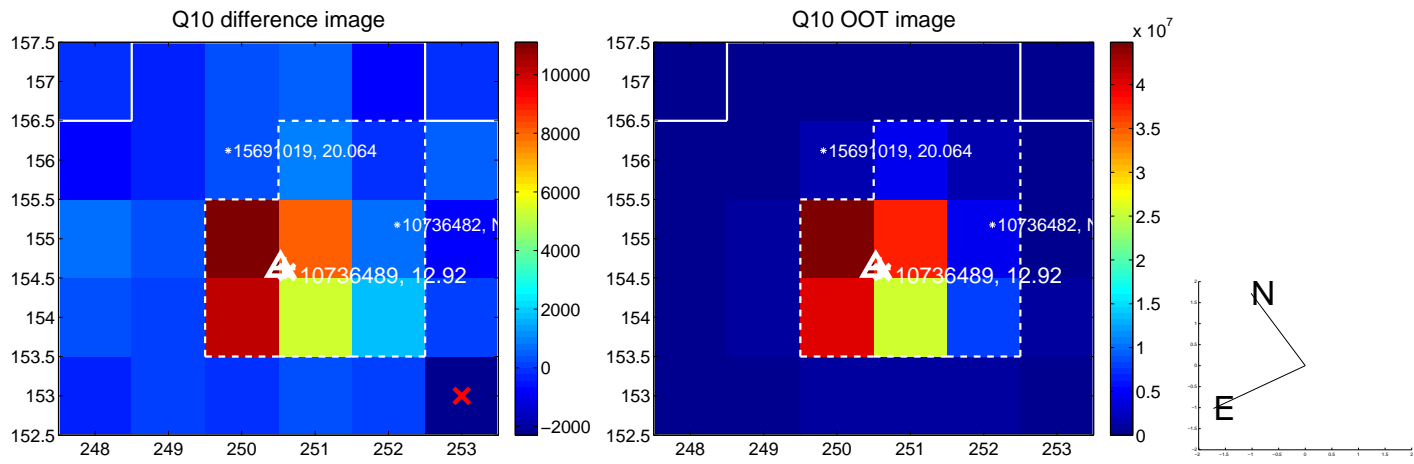
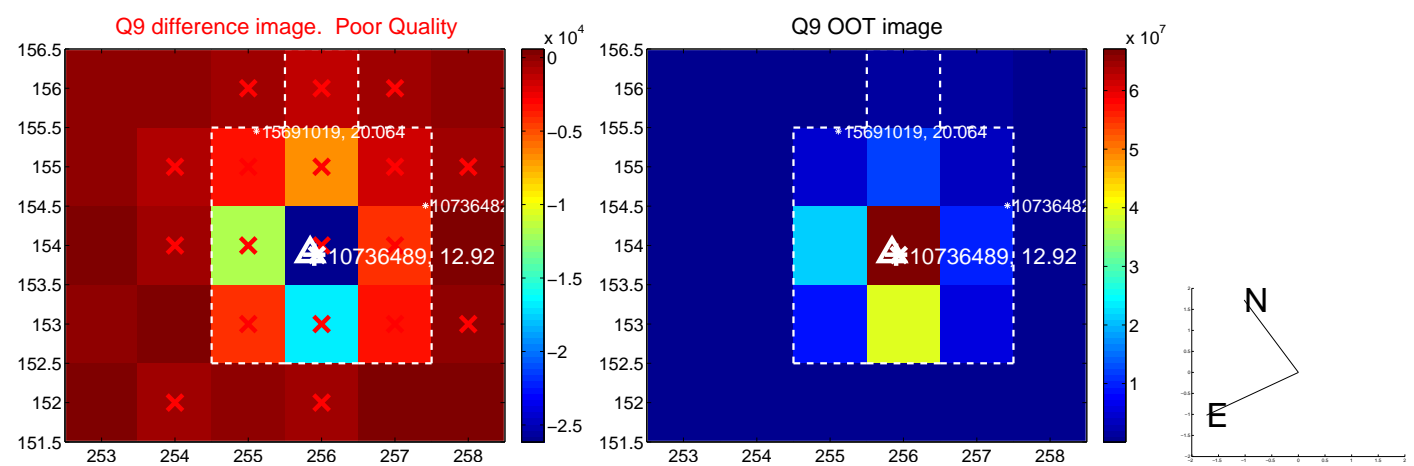
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



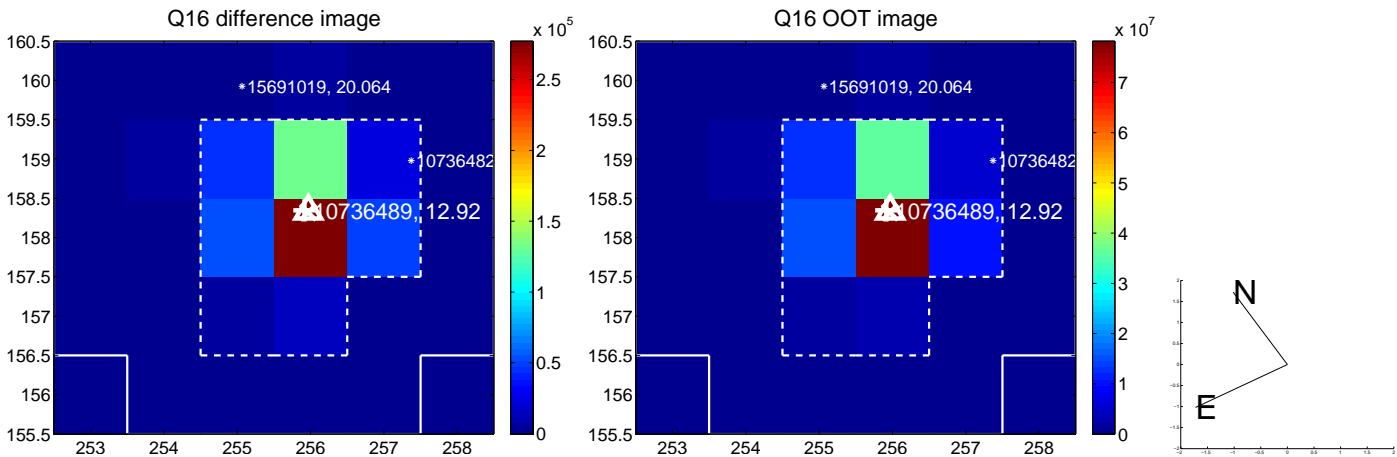
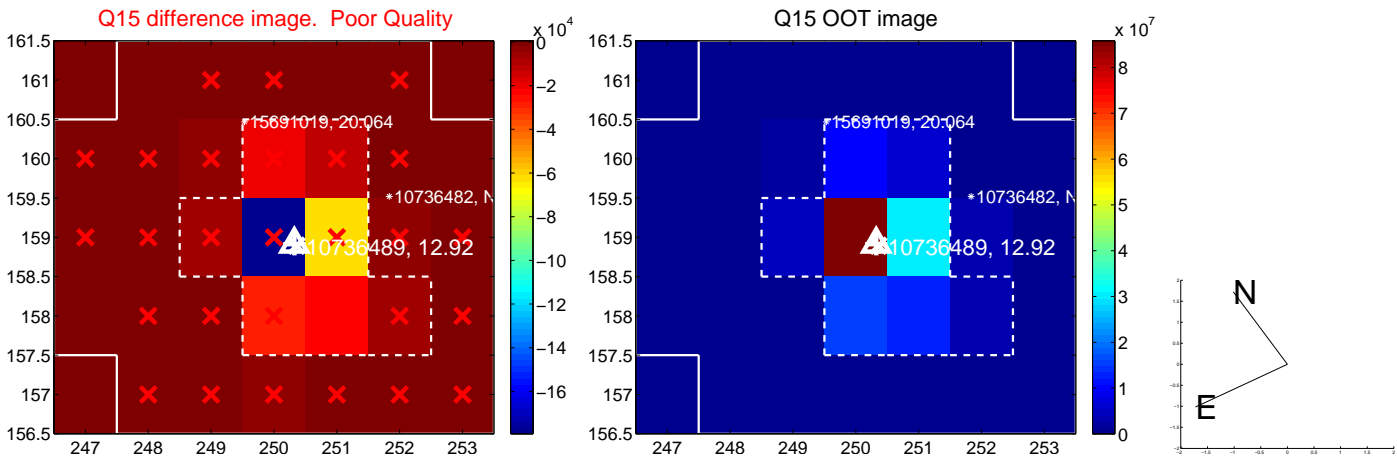
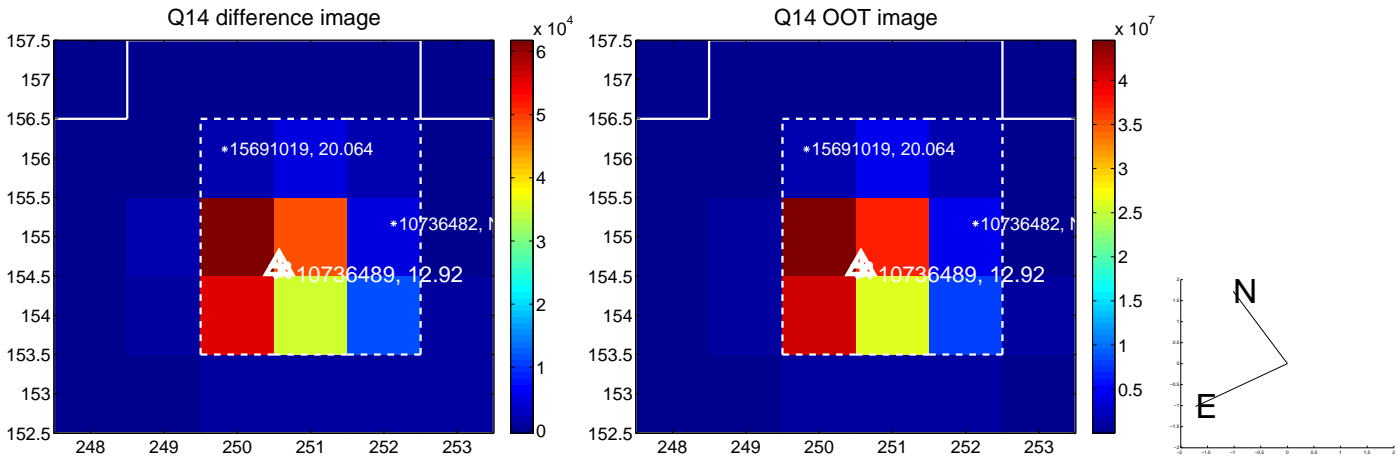
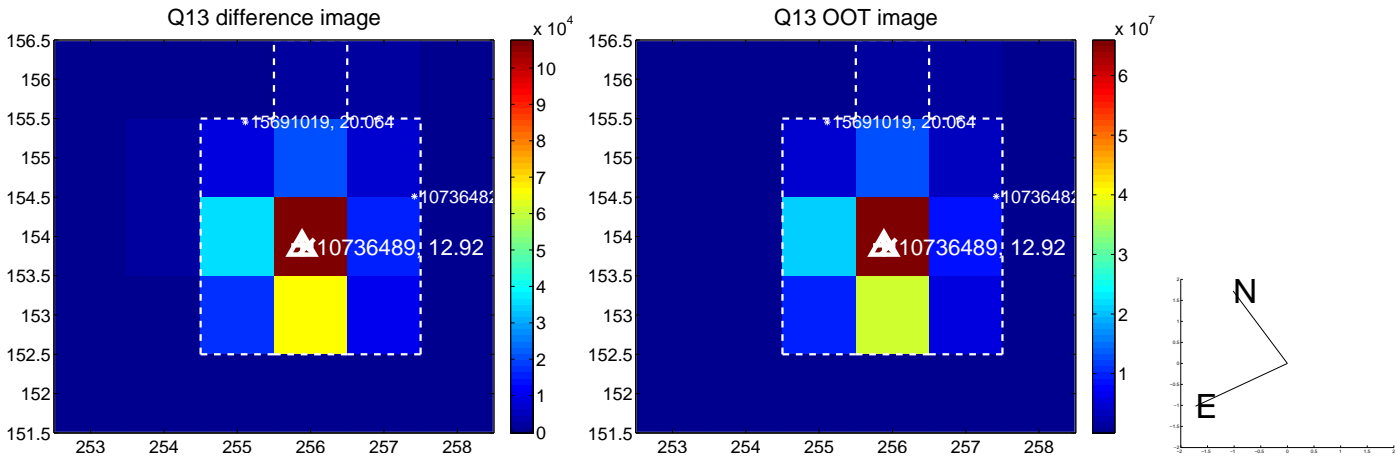
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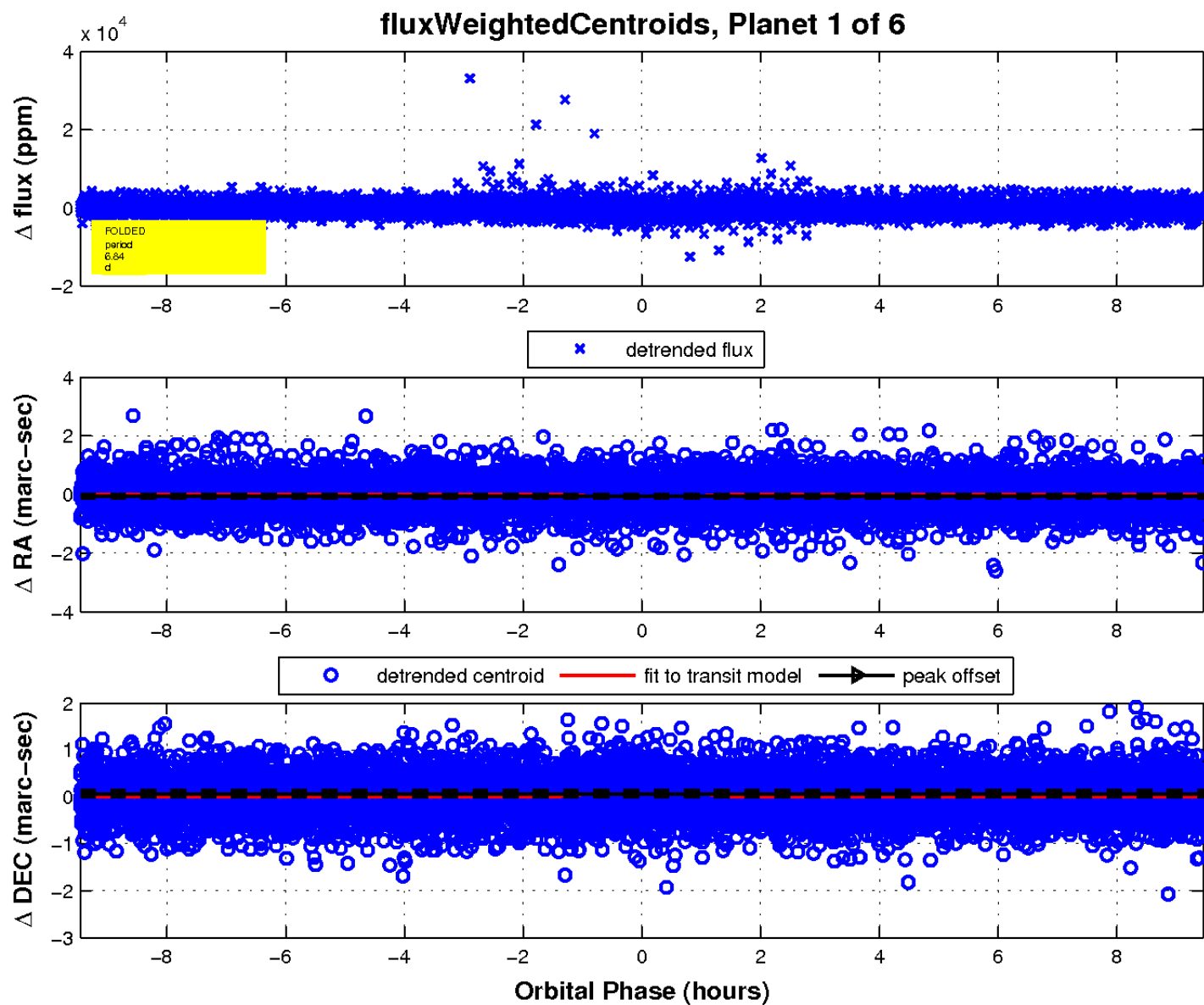
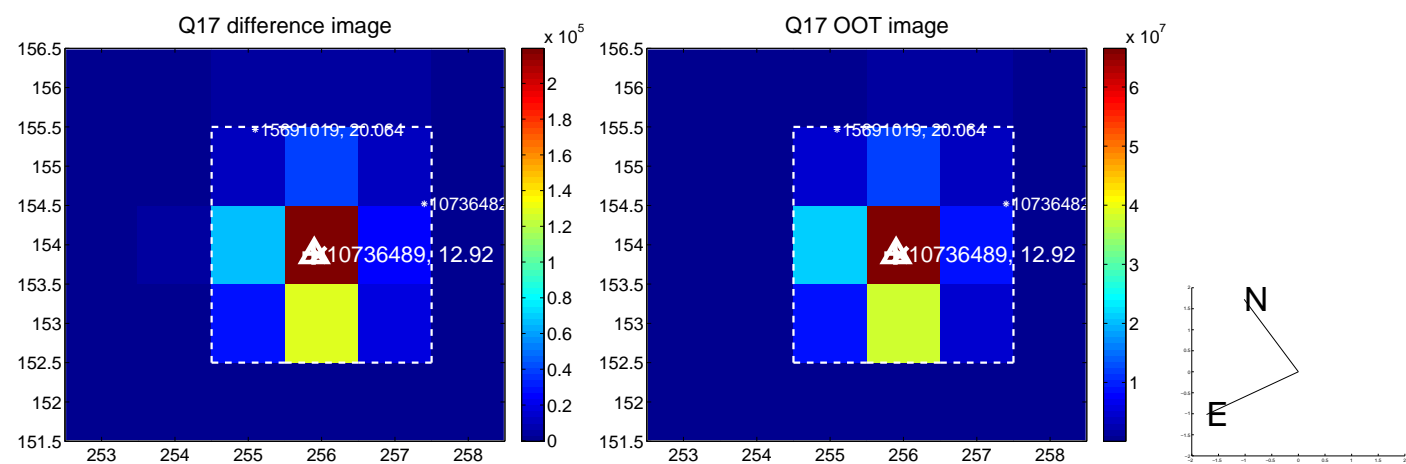
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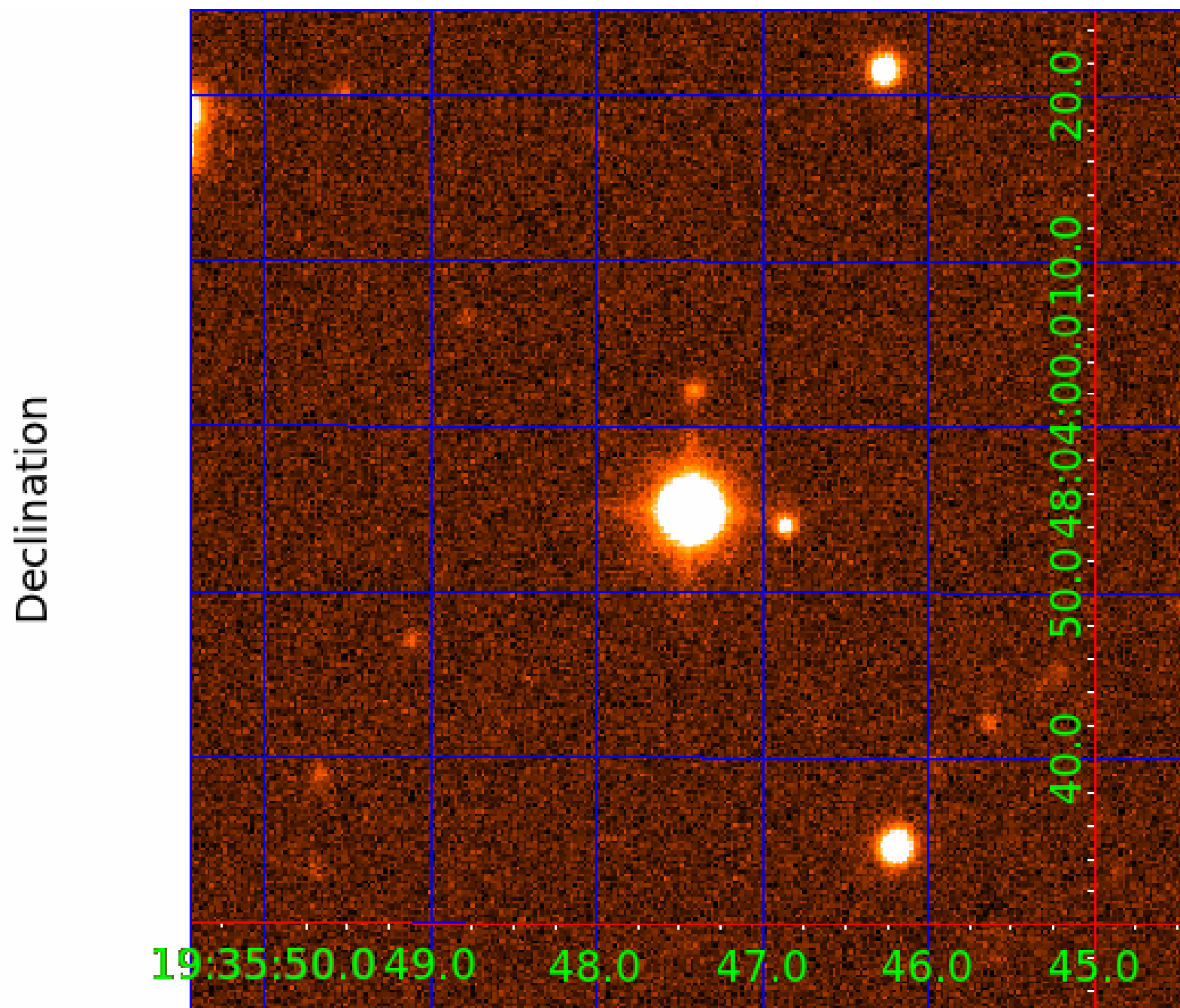
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white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image



KIC 010736489

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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010736489-03	OBS	FP	0.00	1	0	0	0	LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
010736489-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
010736489-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV
010736489-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES—LPP_DV—ALL_TRANS_CHASES—CENT_NOFITS

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.

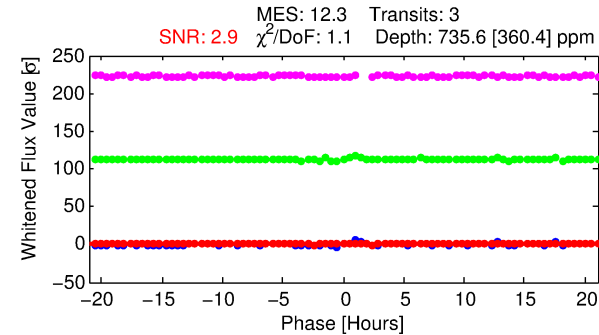
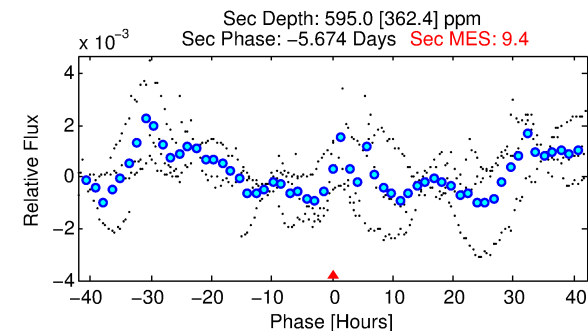
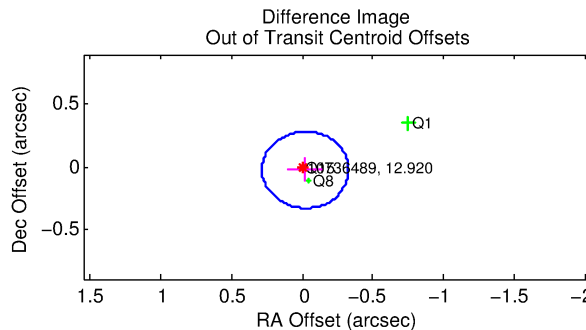
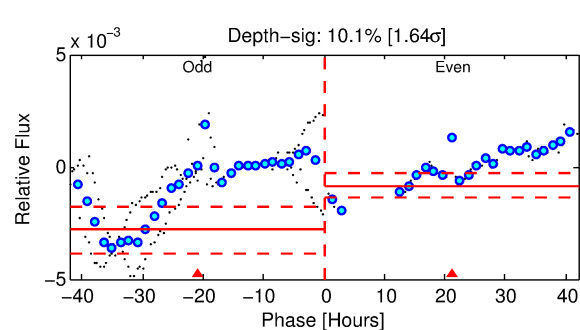
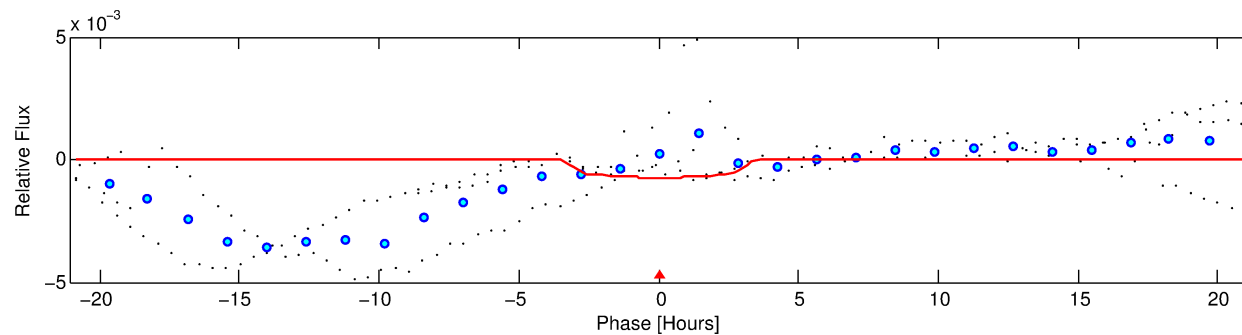
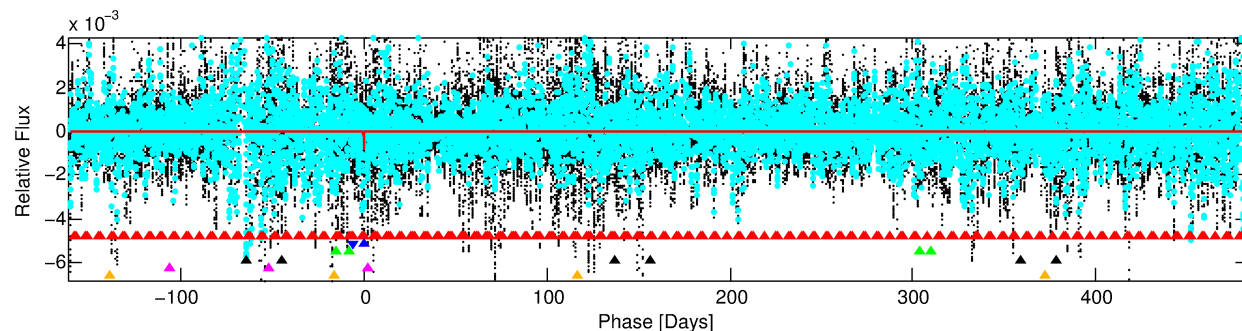
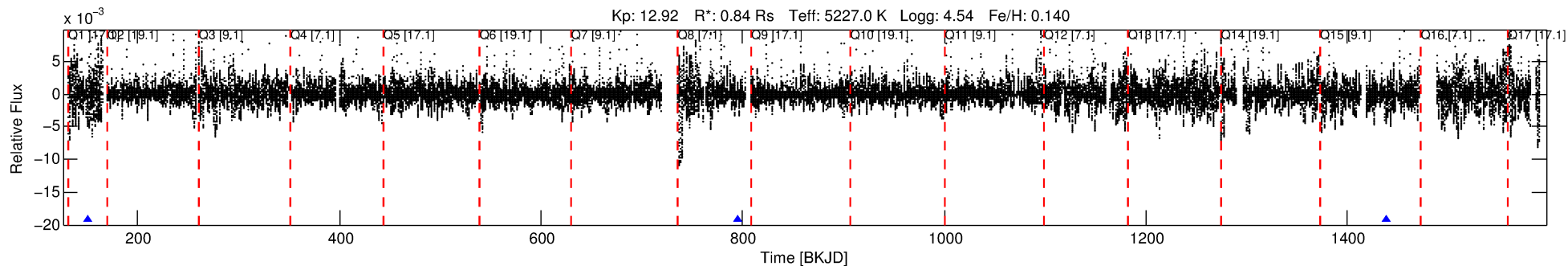
Ephemeris Match Information For 010736489-02

No Significant Match Found

DV One-Page Summary

KIC: 10736489 Candidate: 2 of 6 Period: 644.152 d
KOI: K07368 Corr: No Ephemeris Match

Kp: 12.92 R*: 0.84 Rs Teff: 5227.0 K Logg: 4.54 Fe/H: 0.140



DV Fit Results:

Period = 644.15162 [0.00979] d
Epoch = 150.3974 [0.0149] BKJD
Rp/R* = 0.0289 [0.0114]
a/R* = 397.20 [357.06]
b = 0.86 [0.28]
Seff = 0.24 [0.06]
Teq = 179 [11] K
Rp = 2.65 [1.12] Re
a = 1.3980 [0.1789] AU
Ag = 91431.28 [92872.36] [0.98σ]
Teffp = 4800 [1209] K [3.82σ]

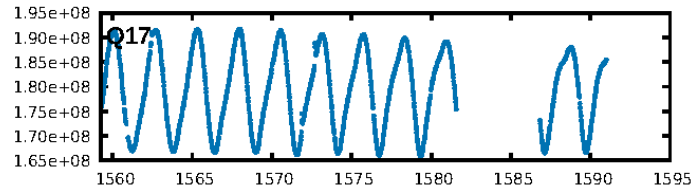
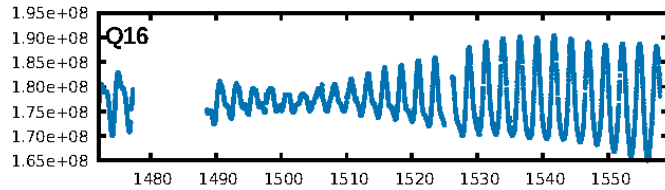
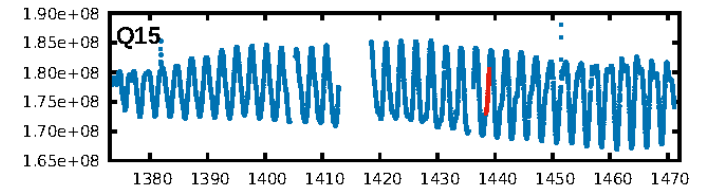
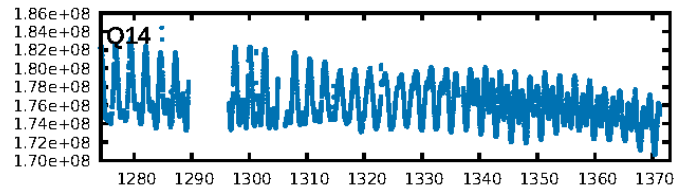
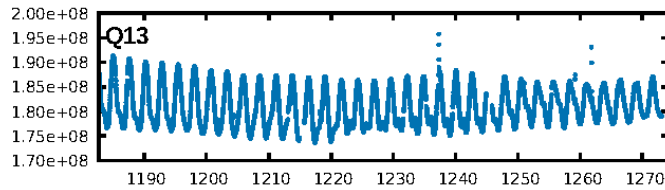
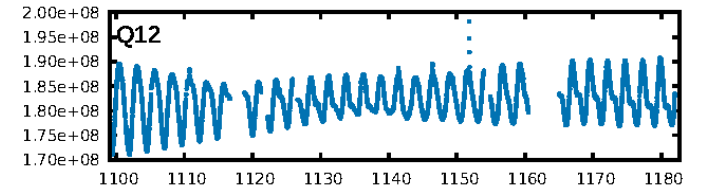
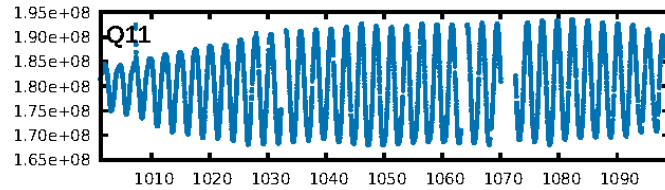
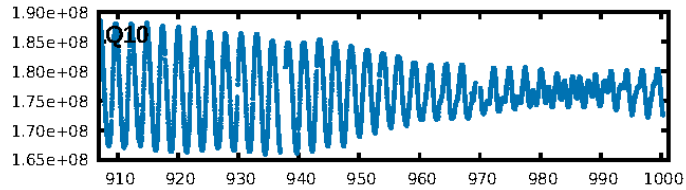
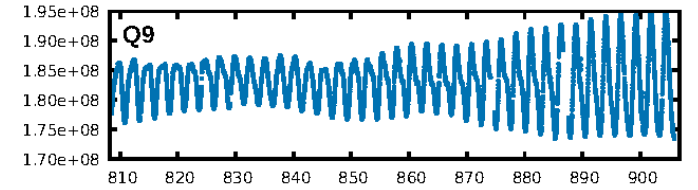
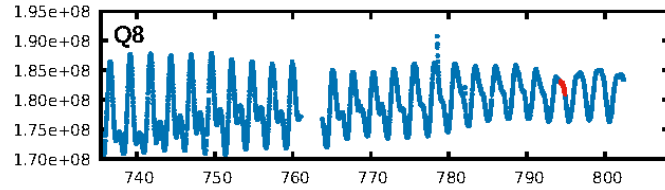
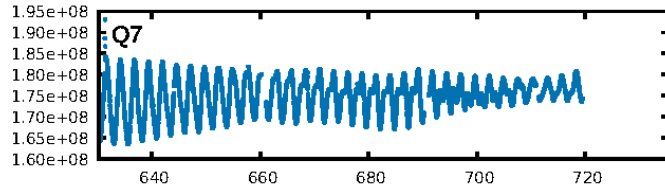
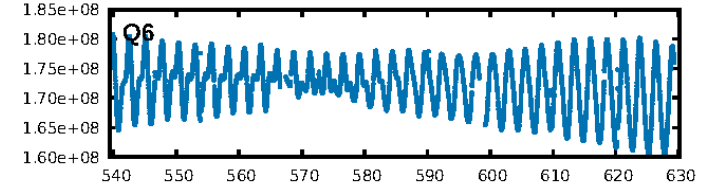
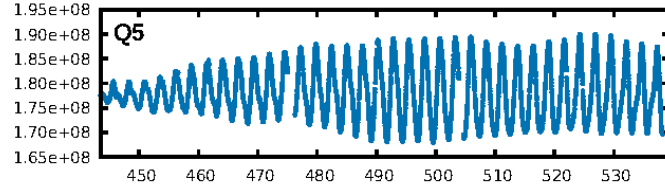
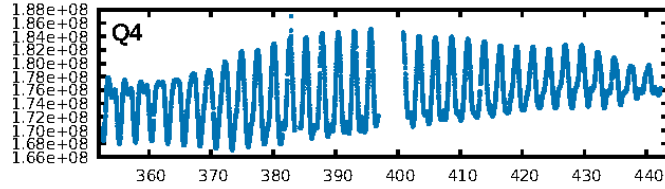
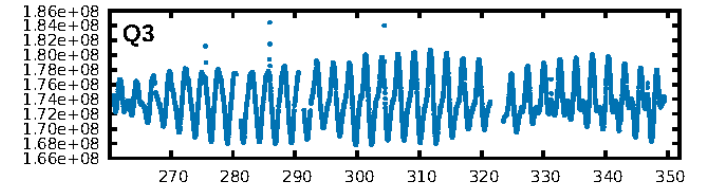
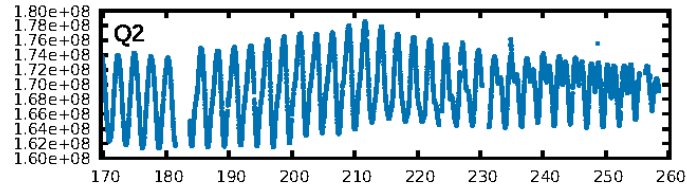
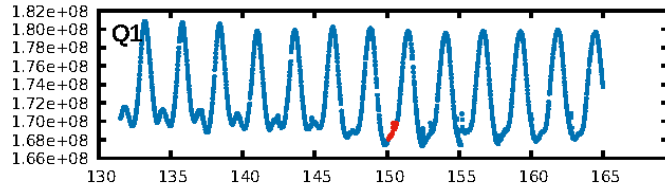
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [112.39σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 62.2%
ModelChiSquareGof-sig: 93.0%
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [2/2]
GhostDiagnostic-chr: 1.434
Centroid-sig: 41.6%
Centroid-so: 0.350 arcsec [0.83σ]
OotOffset-rm: 0.033 arcsec [0.33σ]
OotOffset-st: 0/1/1/1 [3]
KicOffset-rm: 0.168 arcsec [2.15σ]
KicOffset-st: 0/1/1/1 [3]
DiffImageQuality-fgm: 0.67 [2/3]
DiffImageOverlap-fno: 0.33 [1/3]

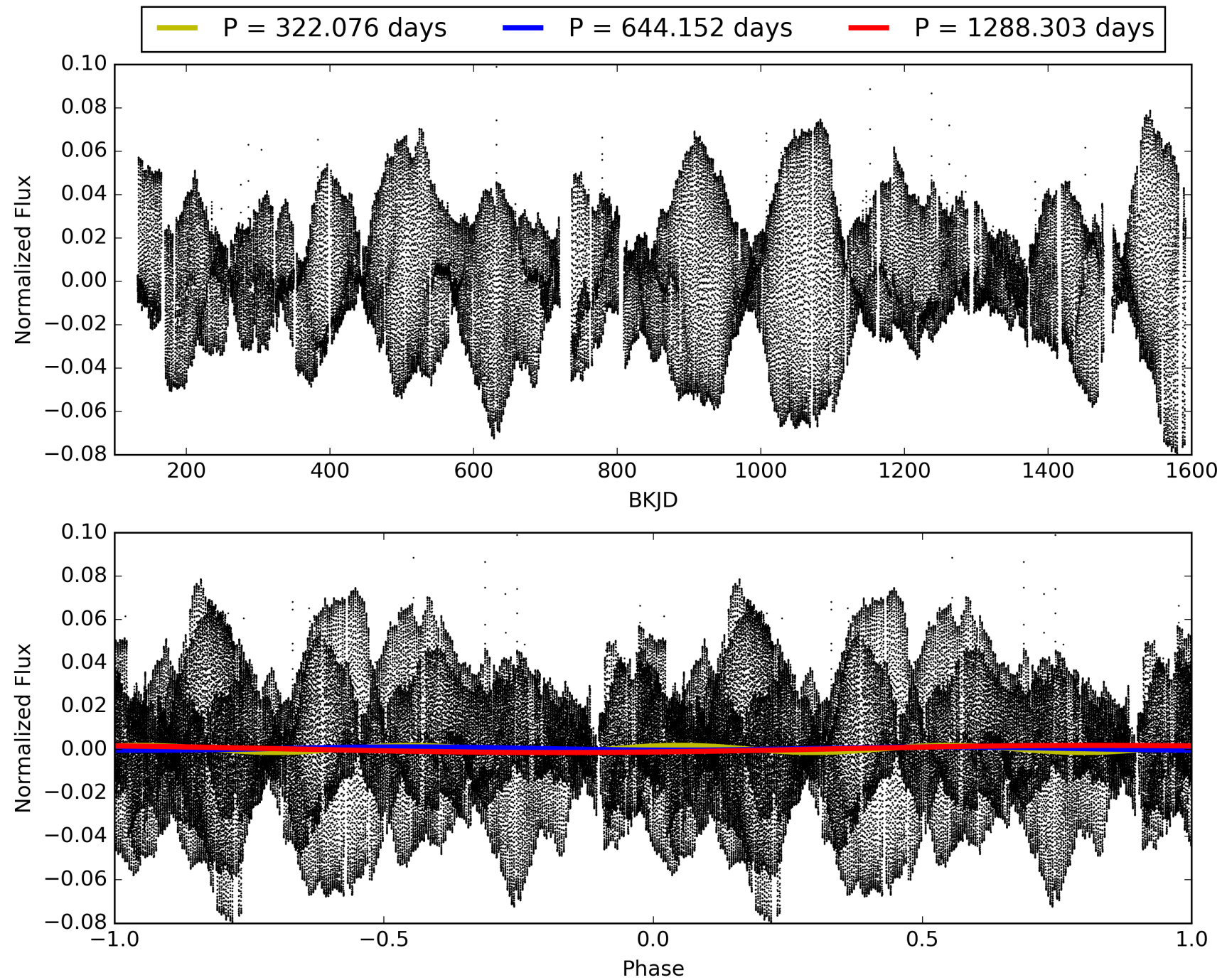
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 05:44:46 Z

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

TCE 010736489-02, PDC Light Curves

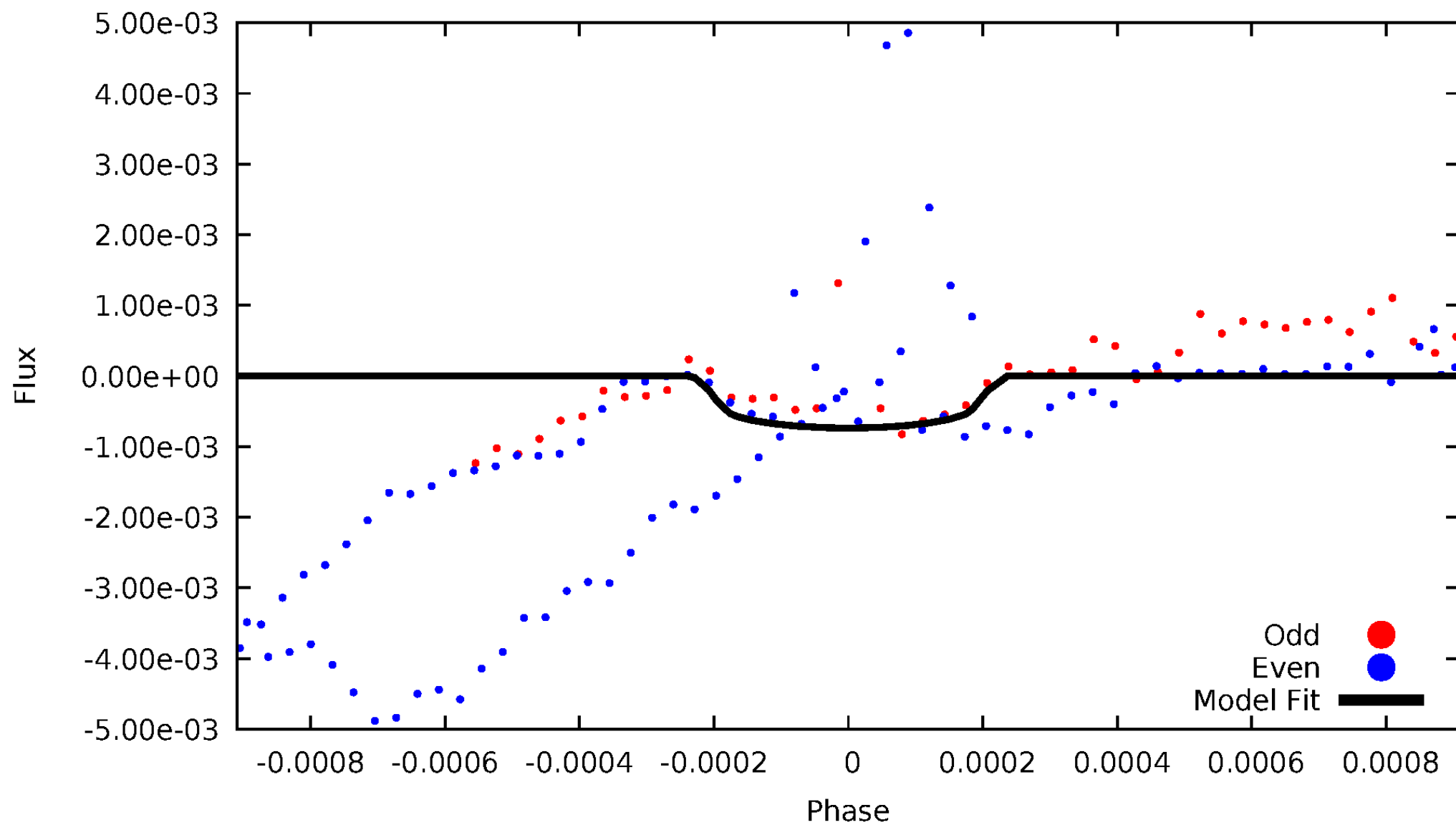


TCE 010736489-02



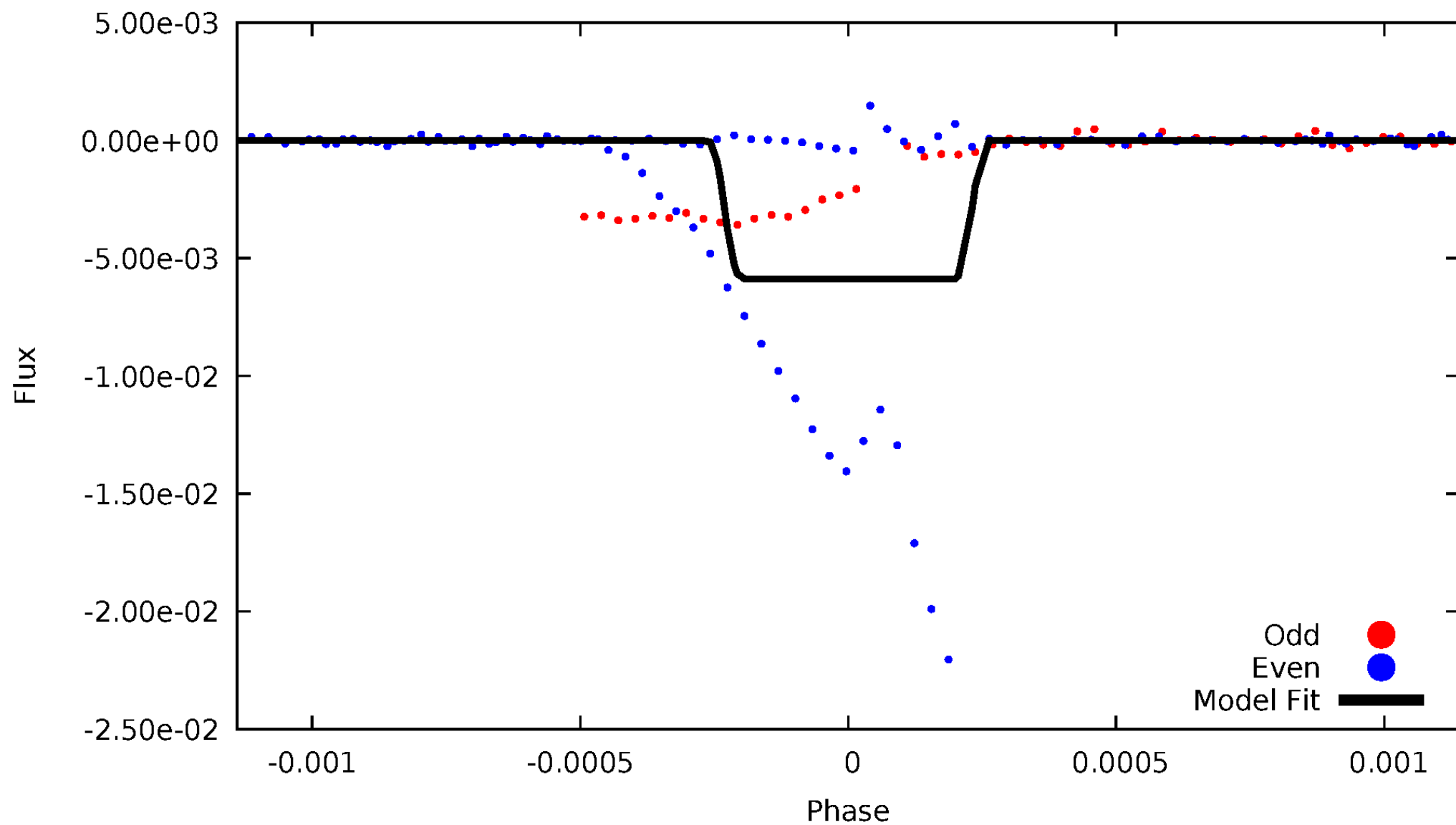
DV Odd/Even

TCE 010736489-02



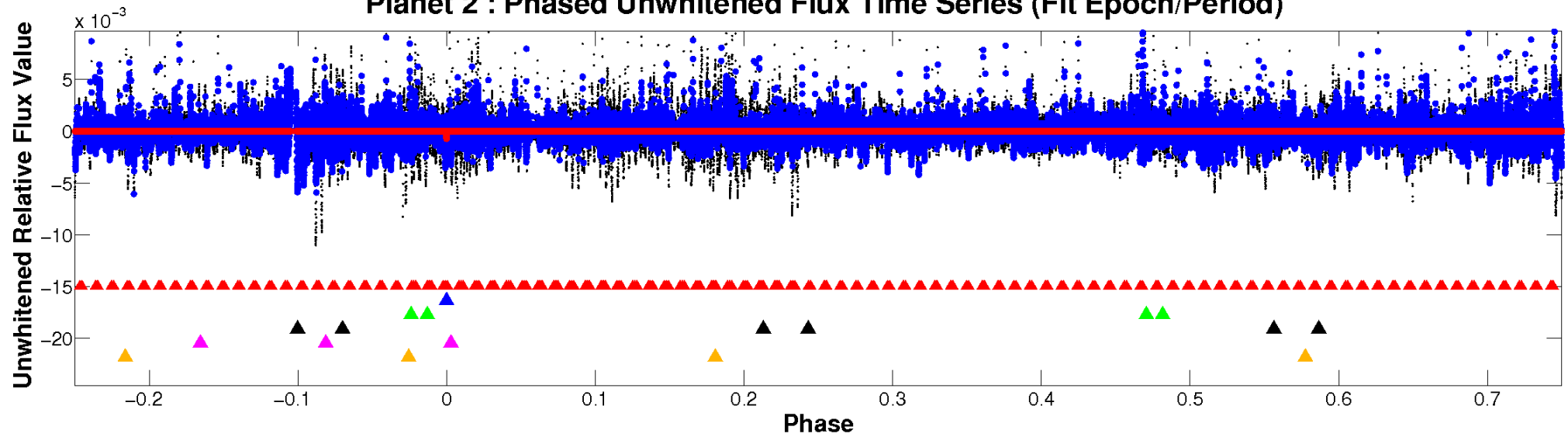
ALT Odd/Even

TCE 010736489-02

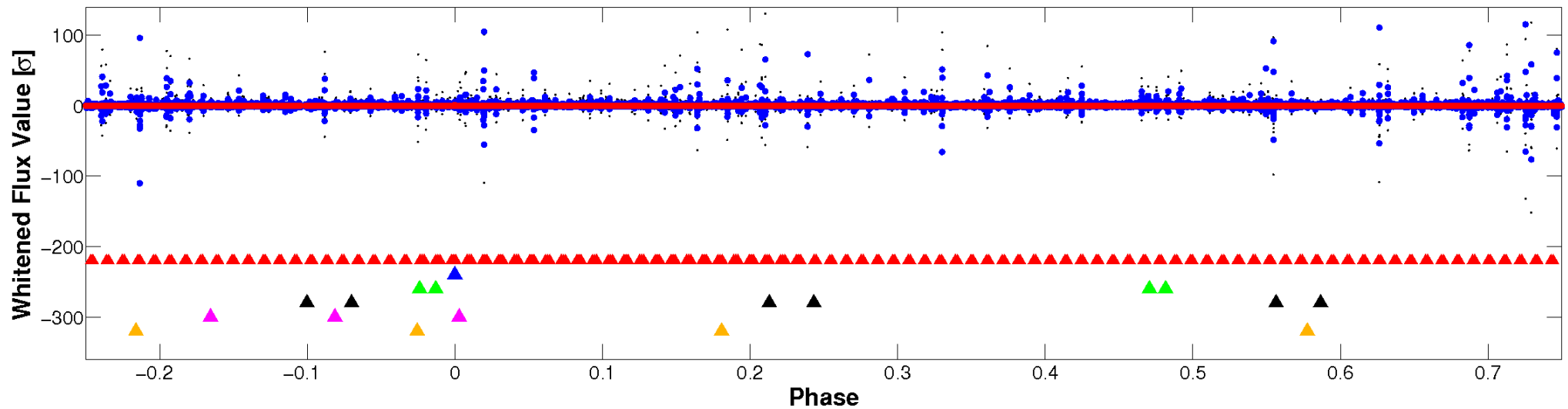


Non-Whitened Vs. Whitened Light Curve

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

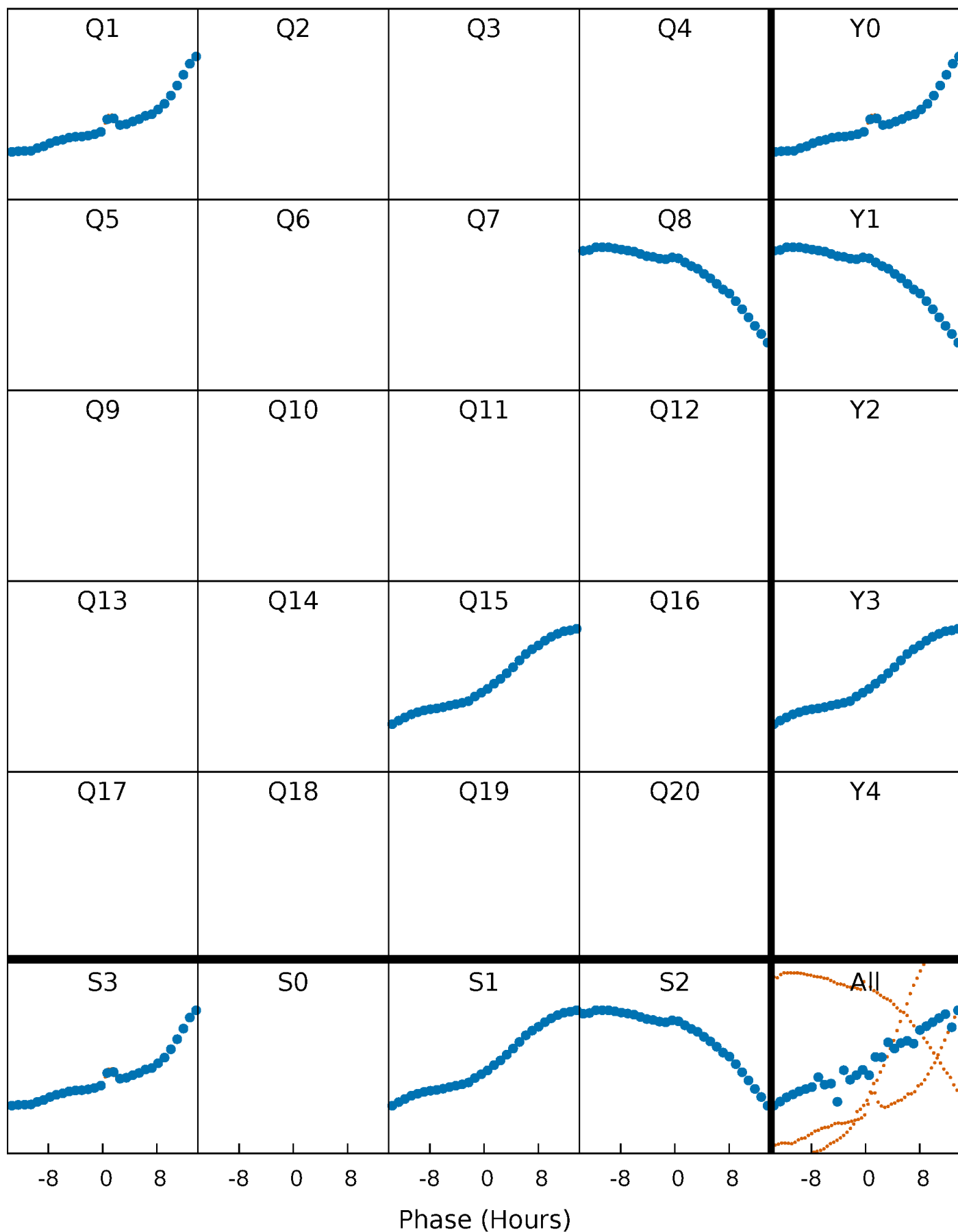


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



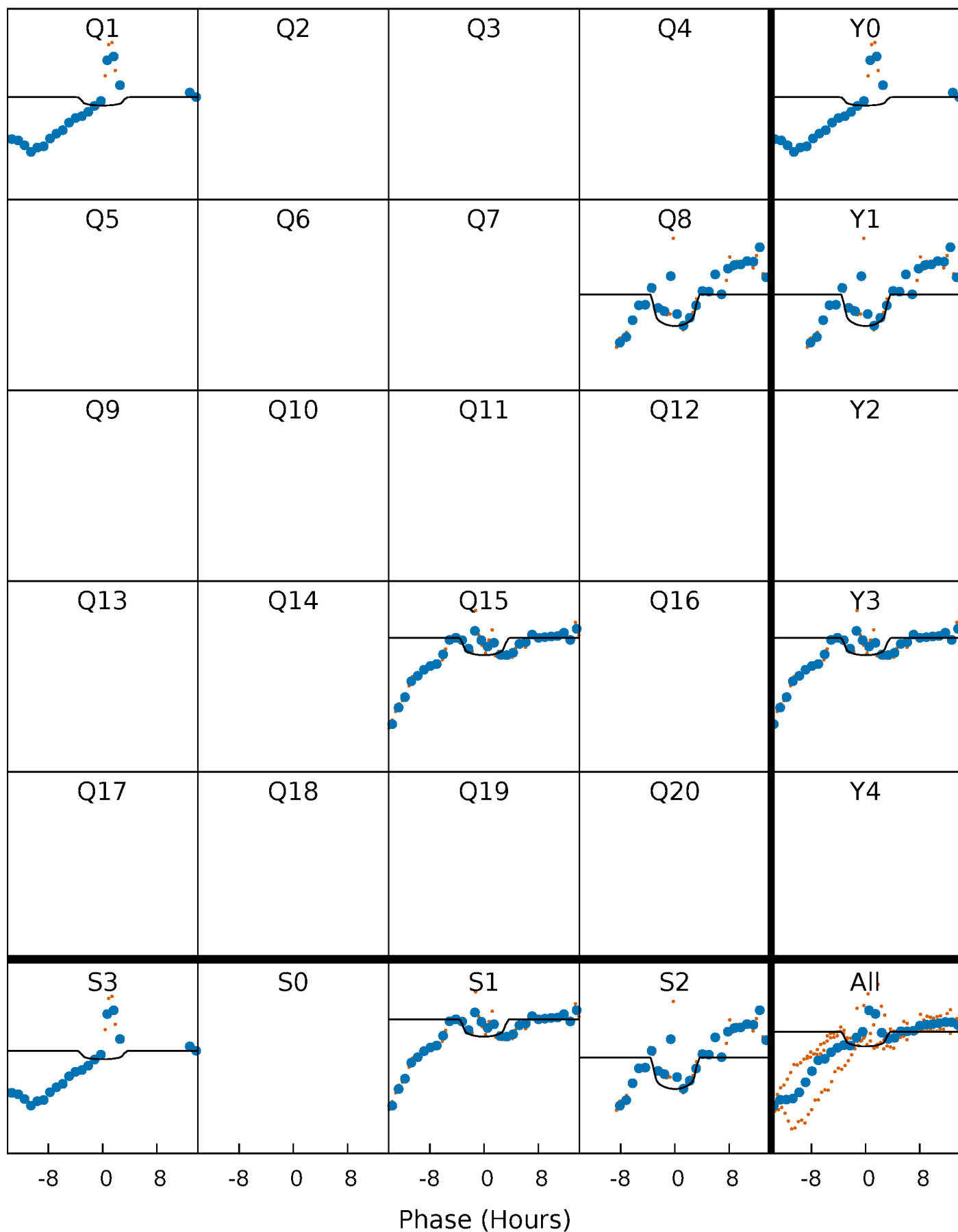
PDC Quarter-Phased Transit Curves

TCE 010736489-02 P=644.151625 Days $T_0=150.397424$ (BKJD)



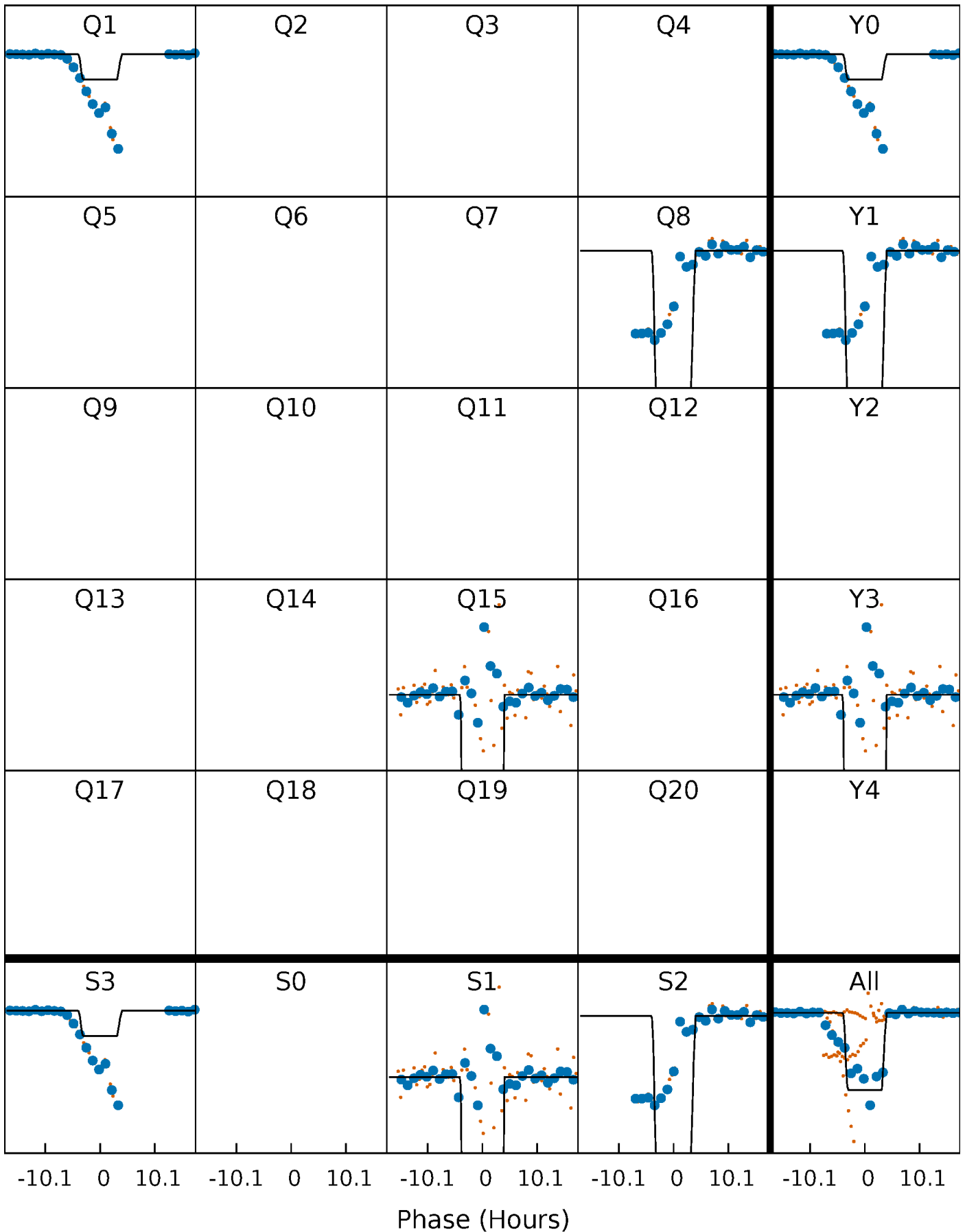
DV Quarter-Phased Transit Curves

TCE 010736489-02 P=644.151625 Days $T_0=150.397424$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

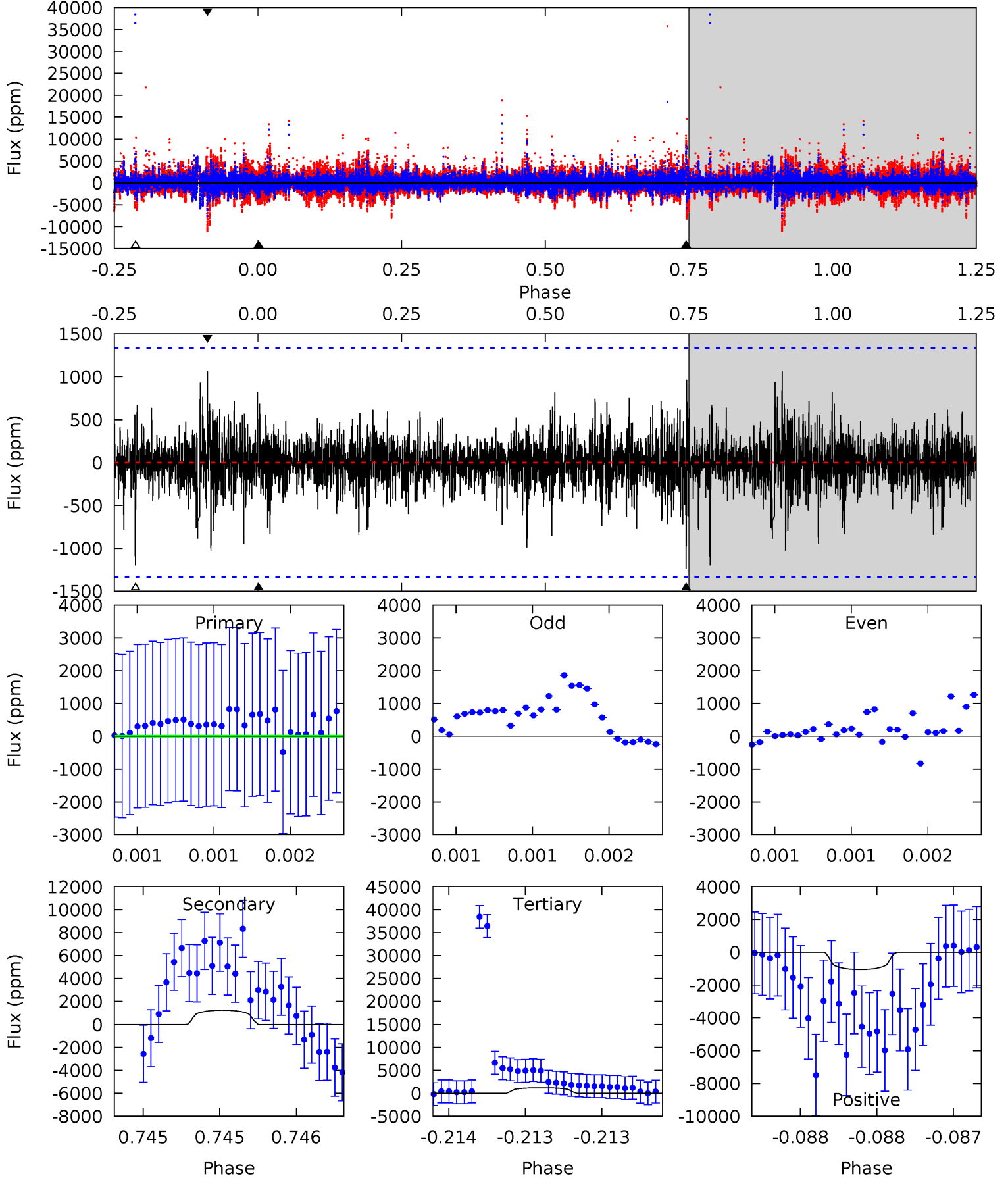
TCE 010736489-02 P=644.113490 Days $T_0=150.395607$ (BKJD)



DV Model-Shift Uniqueness Test

010736489-02, P = 644.151625 Days, E = 150.397424 Days

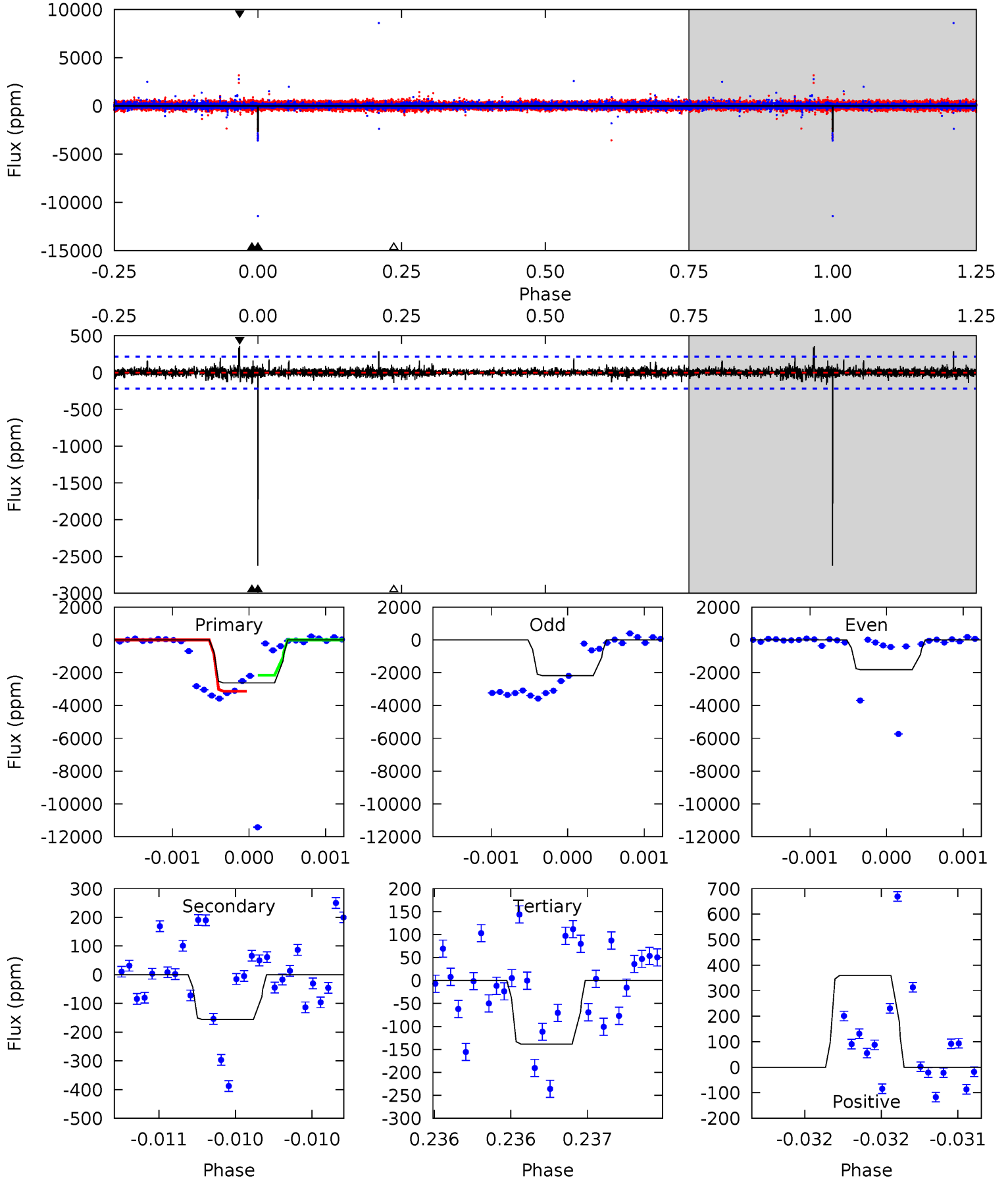
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
0.56	5.18	5.00	4.43	5.57	3.48	0.95	-4.44	-3.87	0.17	0.75	0.03	-0.44	0.46	0.67



Alt Model-Shift Uniqueness Test

010736489-02, P = 644.113490 Days, E = 150.395607 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
67.6	4.02	3.56	9.26	5.57	3.47	0.67	64.0	58.3	0.46	-5.24	4.08	2.34	0.12	0



Stellar Parameters For KIC 010736489

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (g \cdot \text{cm}^{-3})$
	5227^{+183}_{-183}	$4.535^{+0.052}_{-0.105}$	$0.140^{+0.250}_{-0.300}$	$0.838^{+0.125}_{-0.073}$	$0.876^{+0.070}_{-0.077}$	$2.100^{+0.471}_{-0.659}$
	+4%/-4%	+1%/-2%	+179%/-214%	+15%/-9%	+8%/-9%	+22%/-31%
Source	PHO54	PHO54	PHO54	DSEP		

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

Secondary Eclipse Parameters for KIC 010736489-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-1241 ± 240	$2.73^{+1.02}_{-1.11}$	252^{+12}_{-11}	5683^{+1641}_{-830}	$175408^{+309949}_{-87663}$
Alt.	-156 ± 39	$7.06^{+1.22}_{-1.08}$	252^{+12}_{-11}	2821^{+175}_{-158}	3262^{+1699}_{-1131}

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

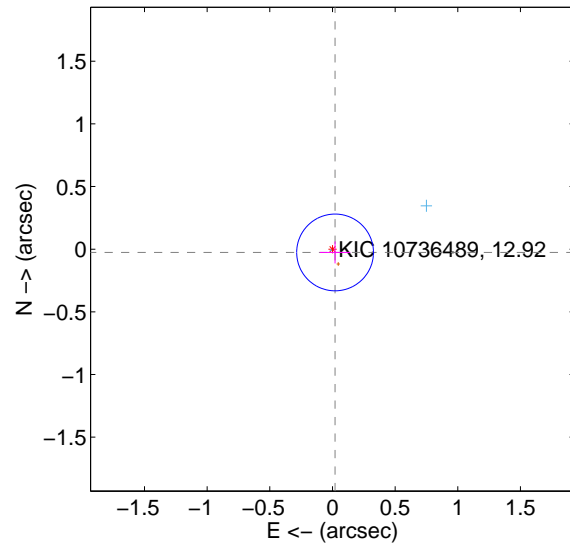
Supplemental centroid analysis for 010736489-02. Kepler magnitude: 12.92. Transit SNR 2.94

There are 2 quarters with good PRF difference image offsets

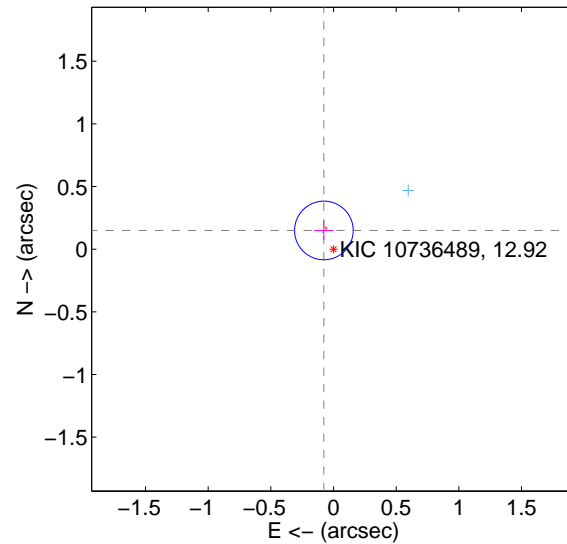
The direct PRF centroid is offset from the target star catalog position by about 0.16 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.033 ± 0.102	0.33	-0.021 ± 0.122	-0.026 ± 0.088
PRF-fit source offset from KIC position	0.168 ± 0.078	2.15	0.077 ± 0.078	0.149 ± 0.078
photometric centroid source offset	0.35 ± 0.42	0.83	-0.27 ± 0.41	0.22 ± 0.43

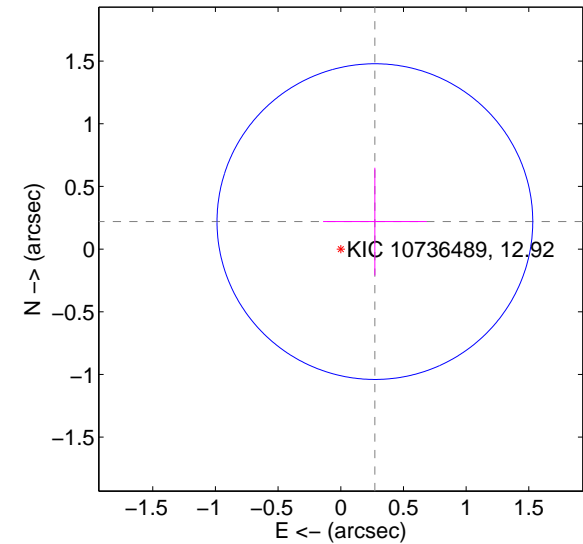
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

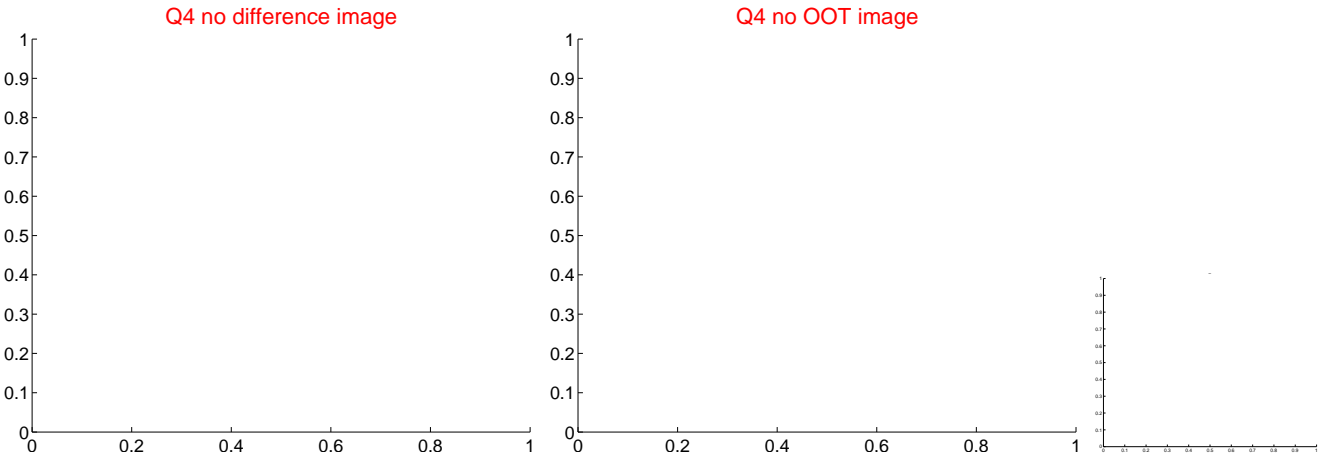
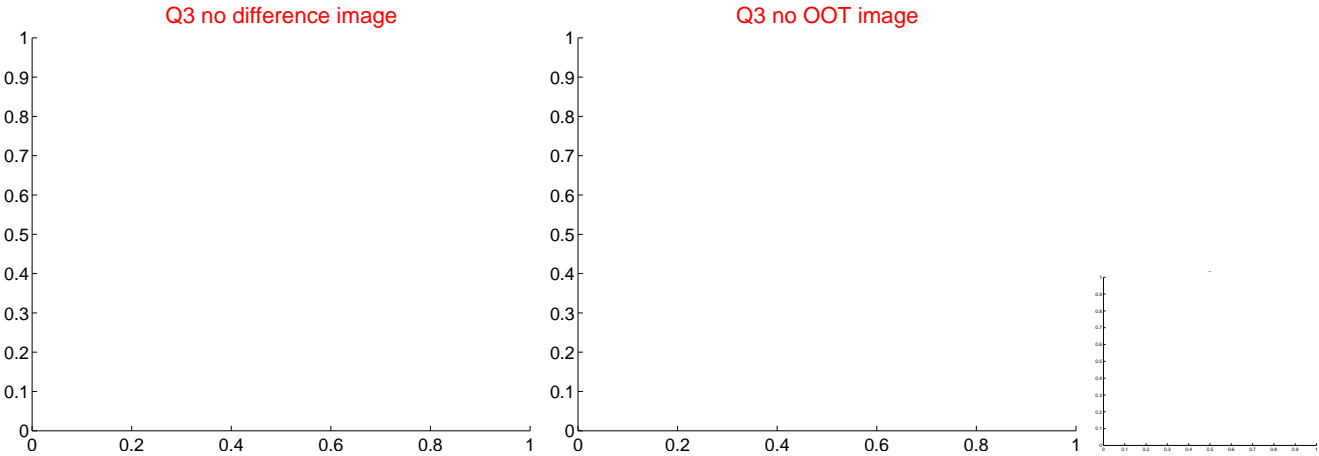
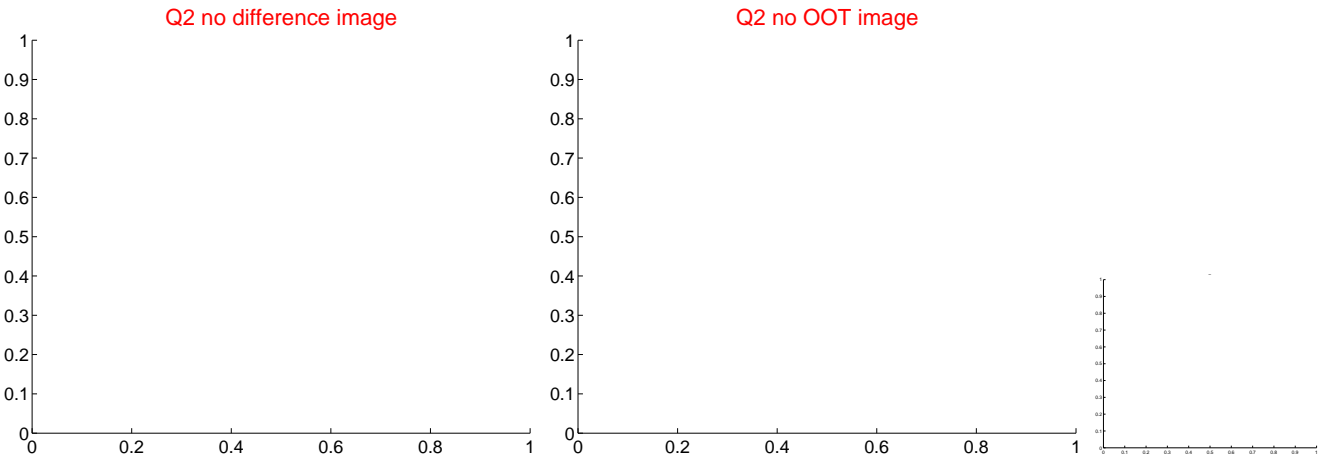
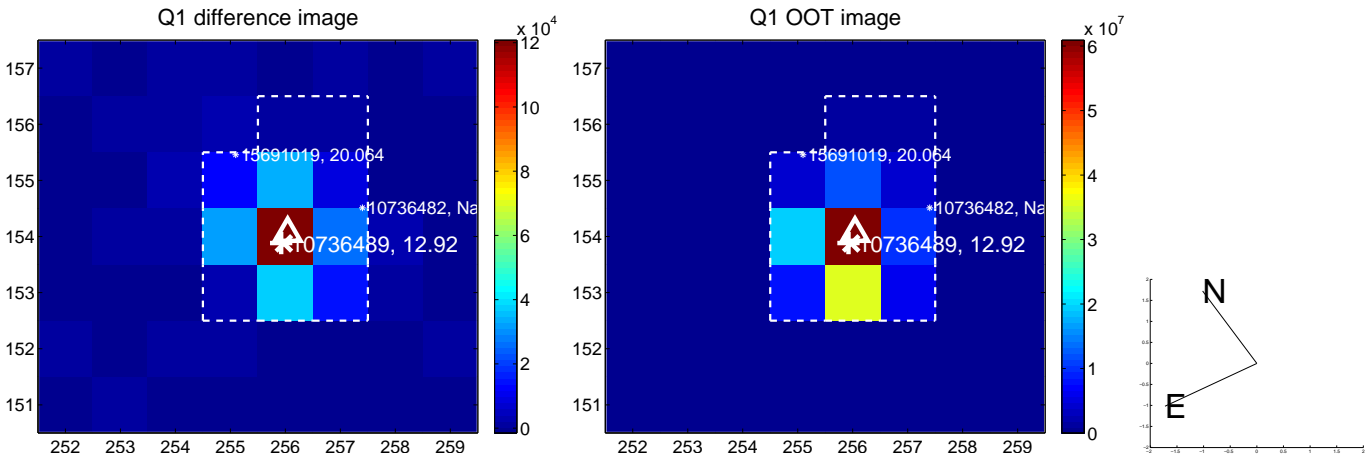


offset from photometric centroids

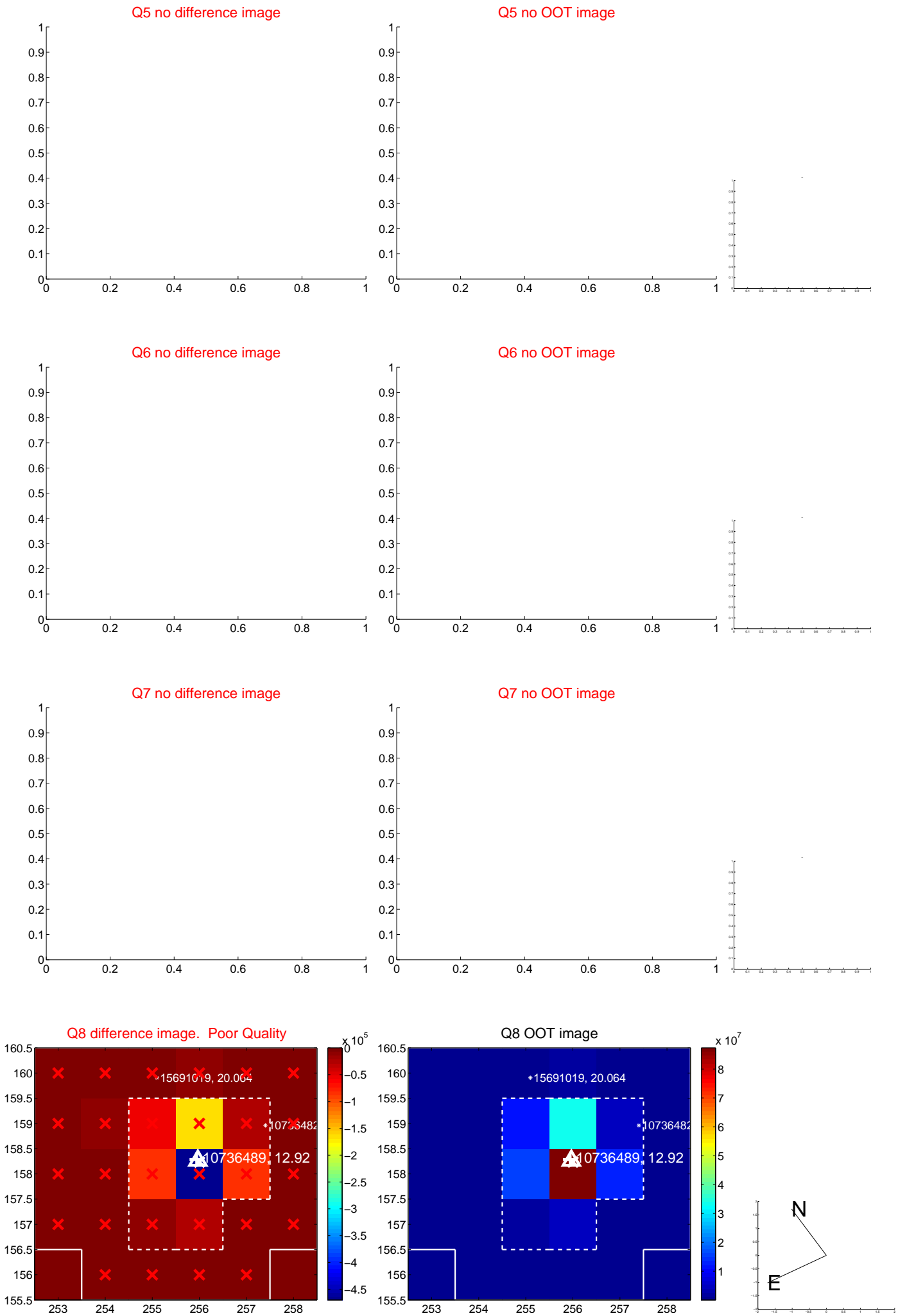


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

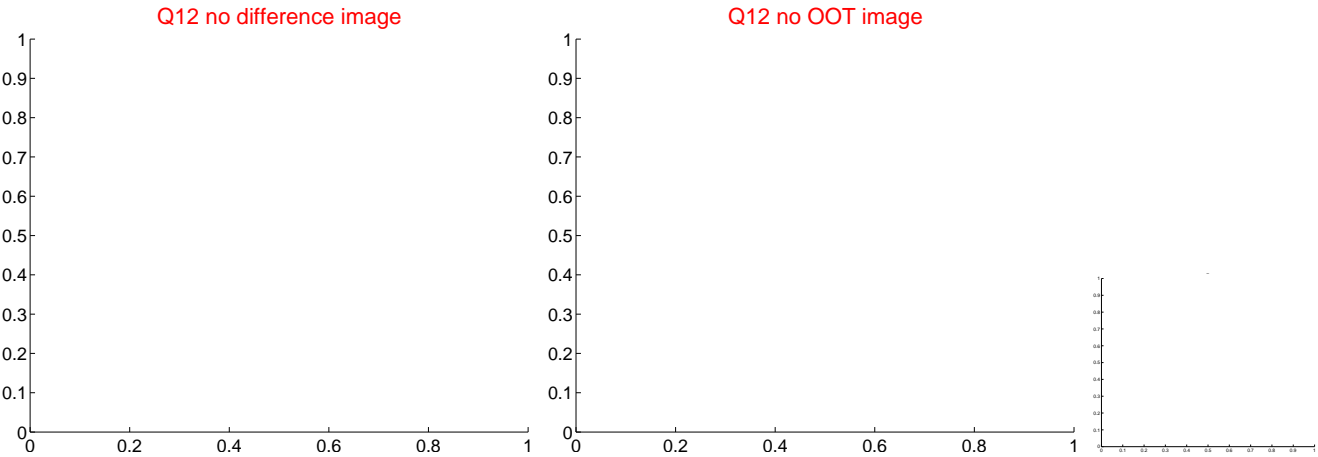
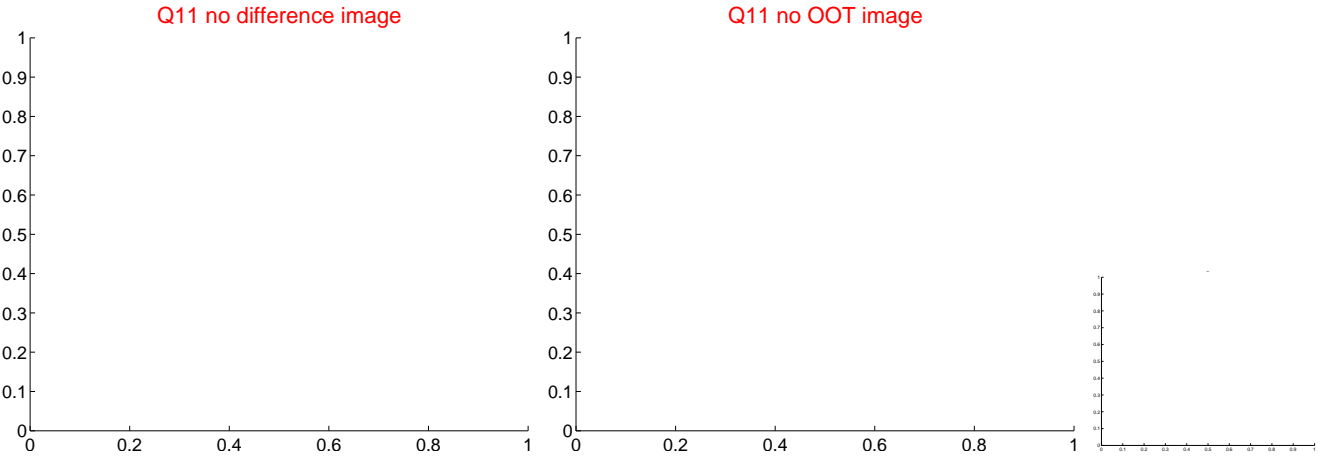
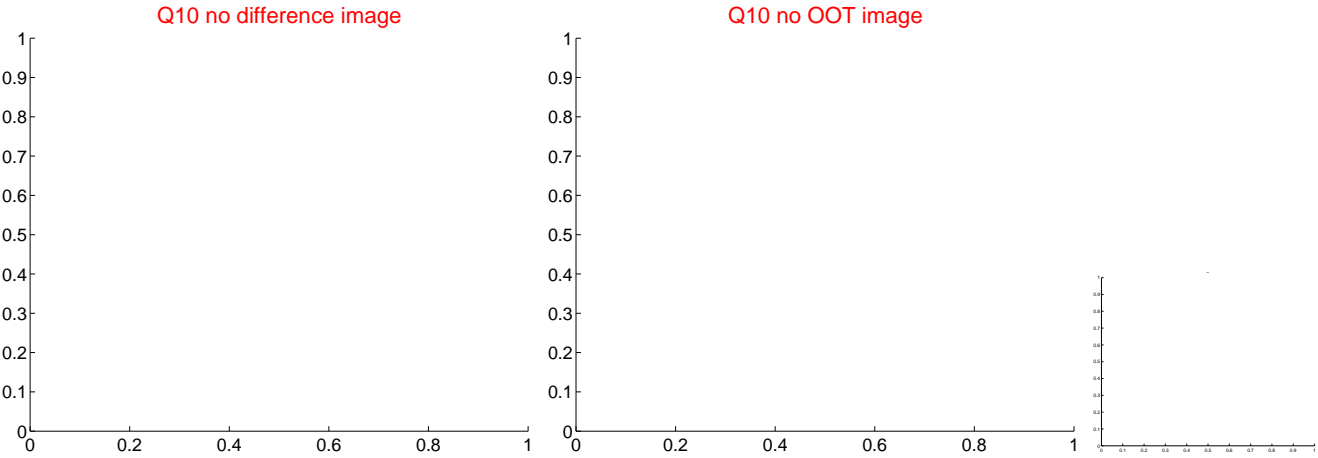
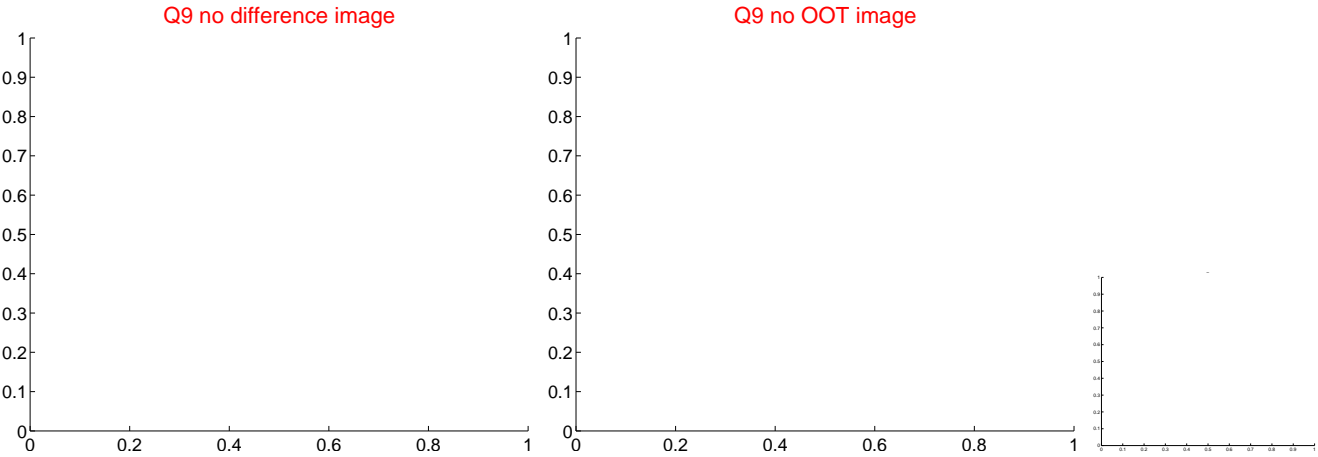
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

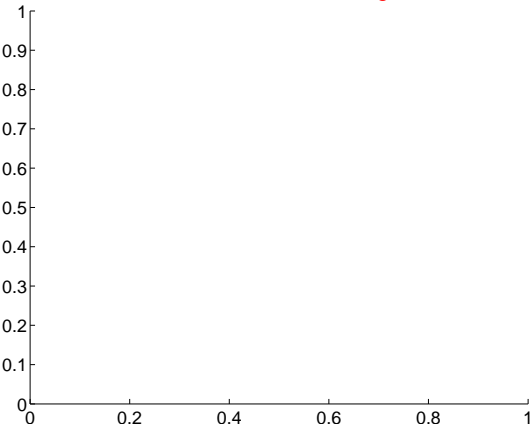


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.

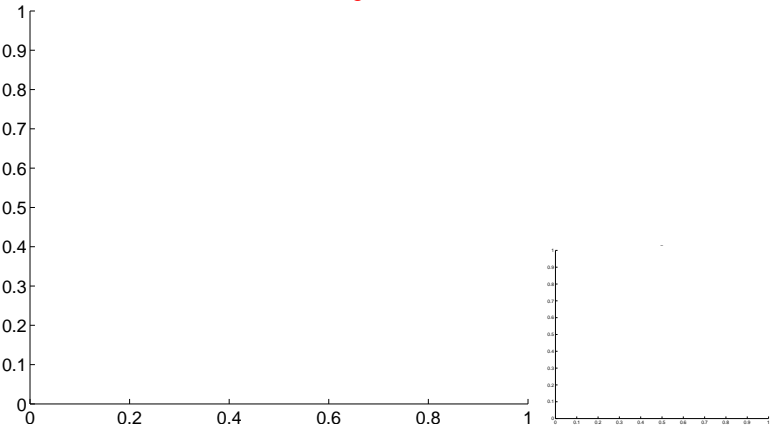


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.

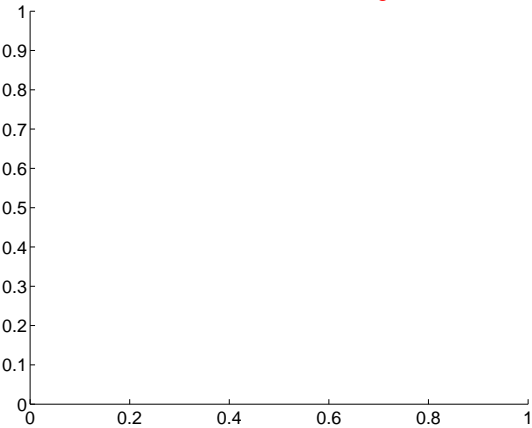
Q13 no difference image



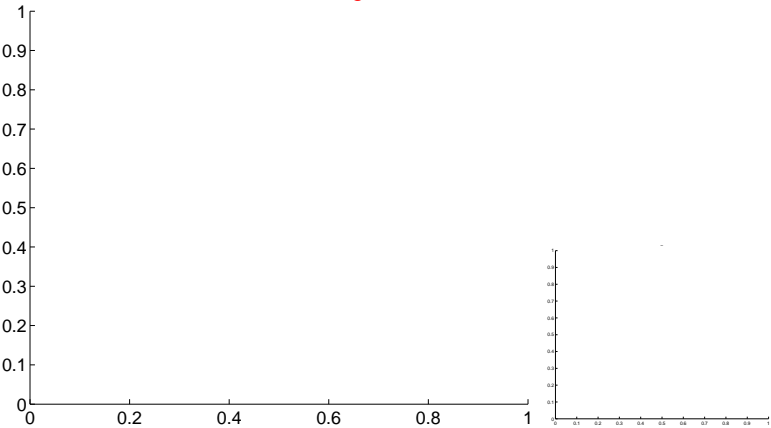
Q13 no OOT image



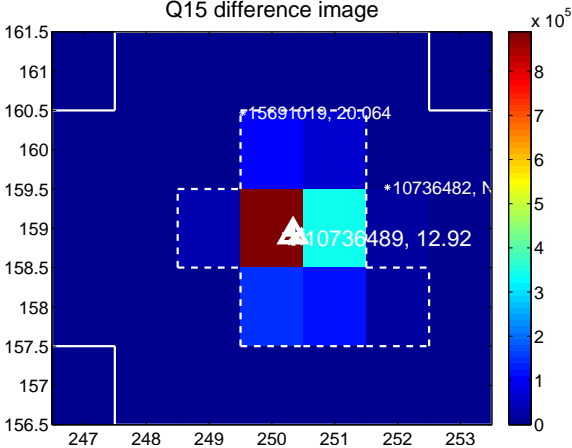
Q14 no difference image



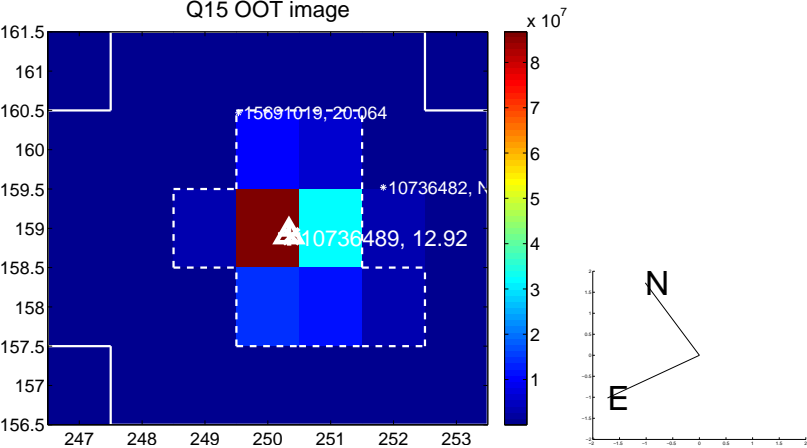
Q14 no OOT image



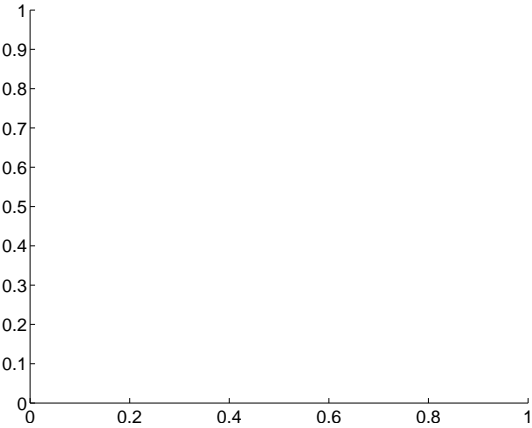
Q15 difference image



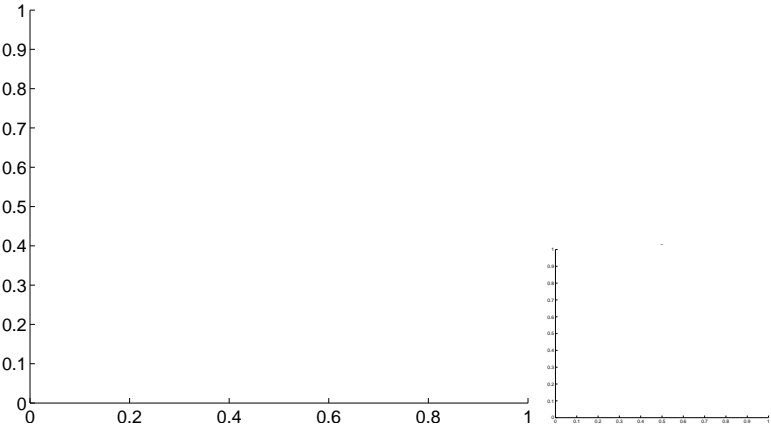
Q15 OOT image



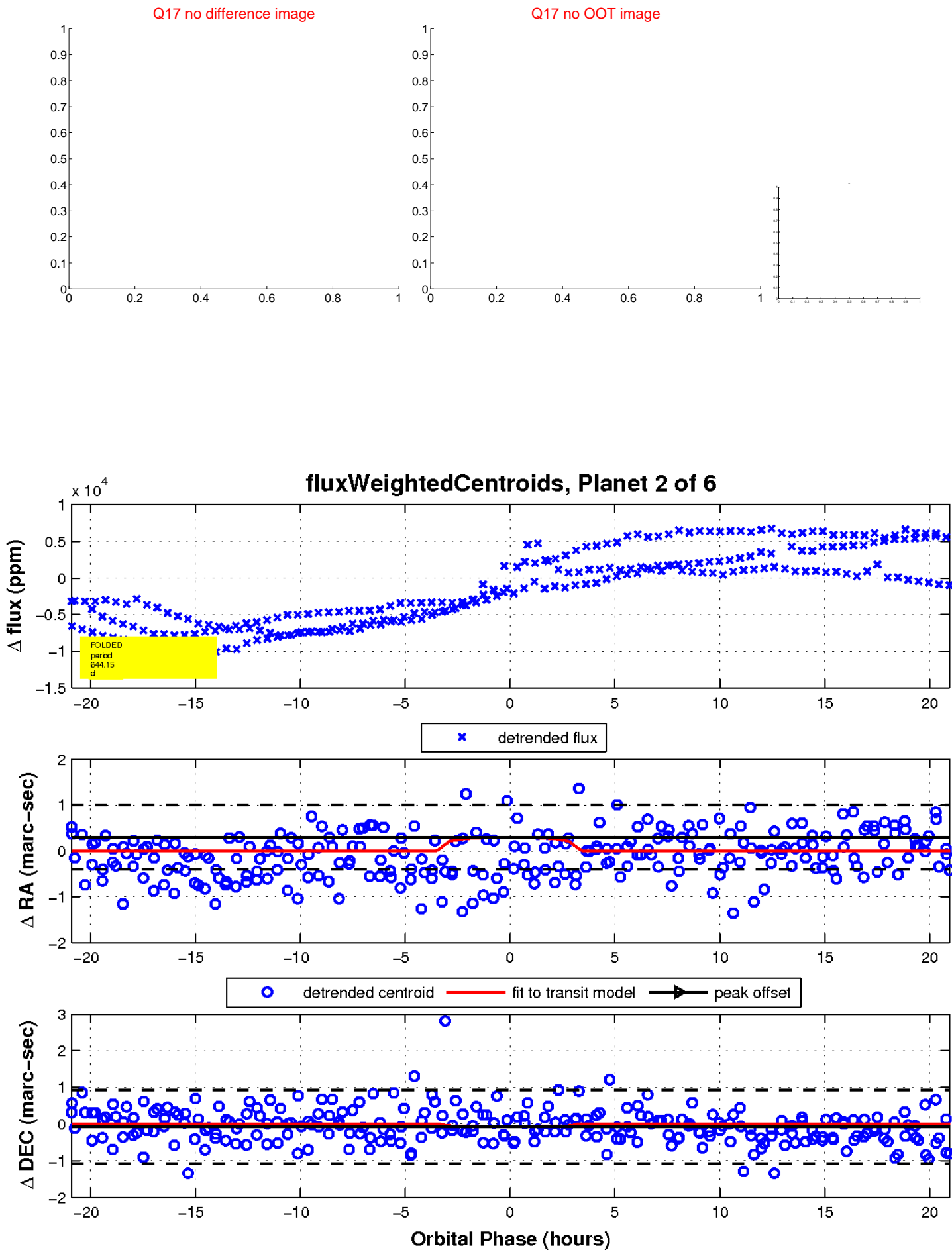
Q16 no difference image



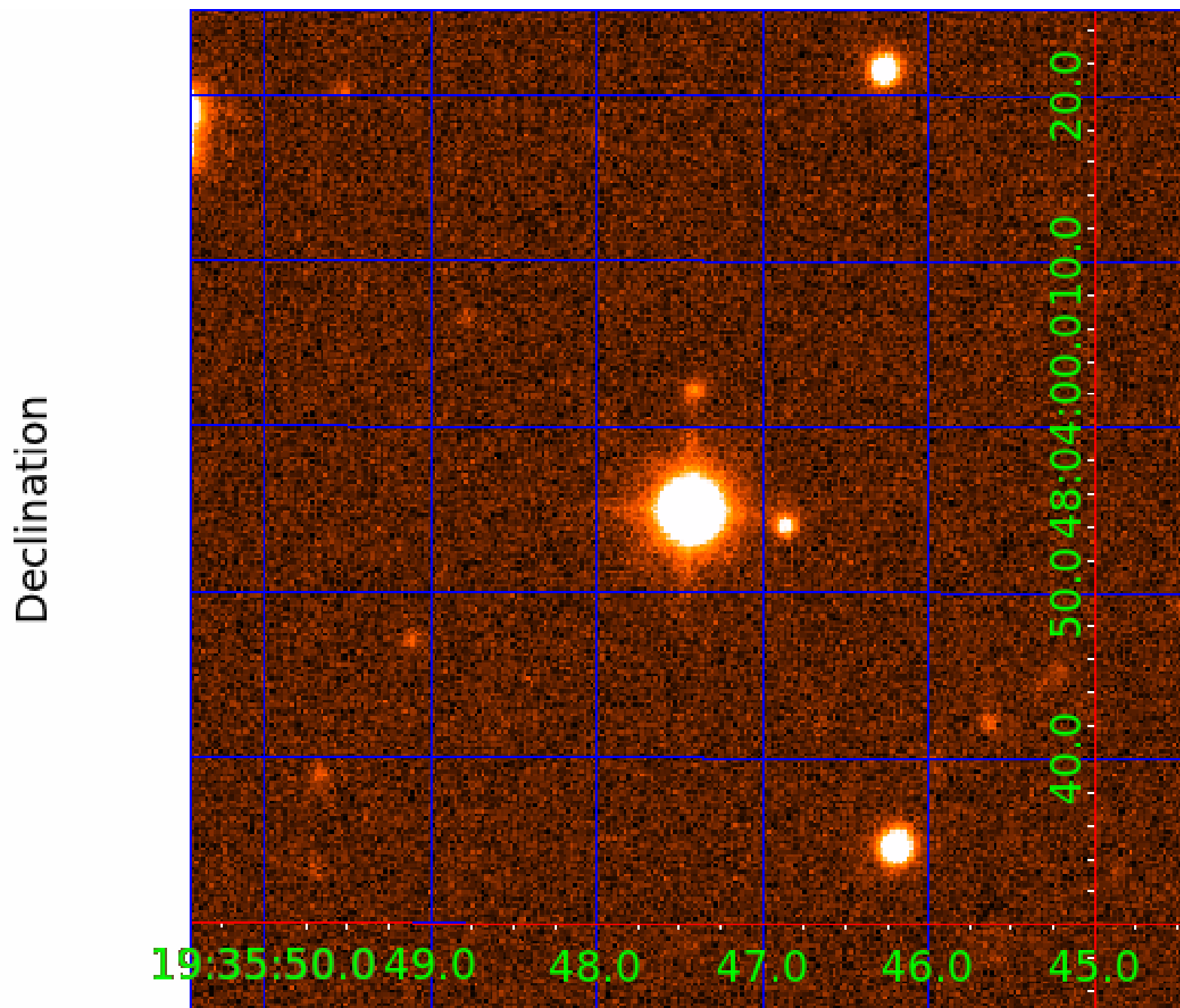
Q16 no OOT image



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



UKIRT Image



KIC 010736489

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})
010736489-01	OBS	7368.01	6.843087	137.038440	657.7	3.154	28.9	32.4	0.84	5227	2.67	102.90
010736489-02	OBS	No	644.151624	150.397424	735.6	7.027	12.3	2.9	0.84	5227	2.65	0.24
010736489-03	OBS	No	325.593377	453.574626	3361.6	20.988	18.4	4.8	0.84	5227	5.99	0.60
010736489-04	OBS	No	221.198496	287.626356	324.9	2.204	14.5	2.0	0.84	5227	1.52	1.00
010736489-05	OBS	No	589.889757	152.303738	4297.0	9.213	13.6	10.5	0.84	5227	5.34	0.27
010736489-06	OBS	No	388.516899	133.959615	311.6	6.000	16.0	-1.0	0.84	5227	1.44	0.47

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
010736489-01	OBS	PC	1.00	0	0	0	0	NO_COMMENT
010736489-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES_TRACKER—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
010736489-03	OBS	FP	0.00	1	0	0	0	LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
010736489-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
010736489-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV
010736489-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES—LPP_DV—ALL_TRANS_CHASES—CENT_NOFITS

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 010736489-03

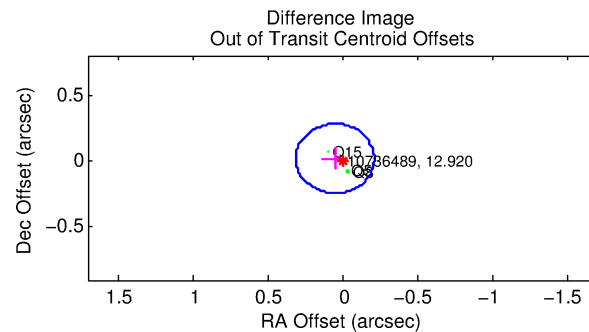
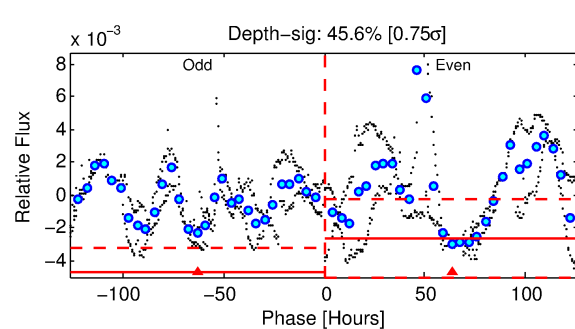
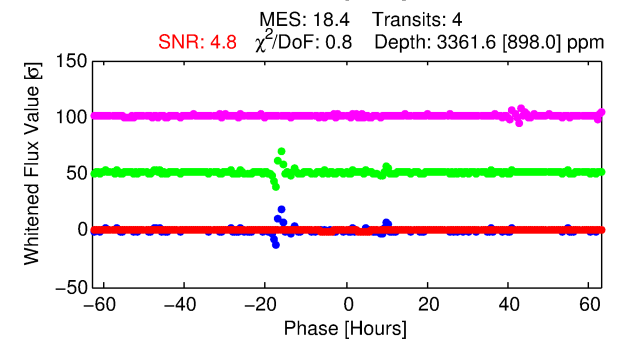
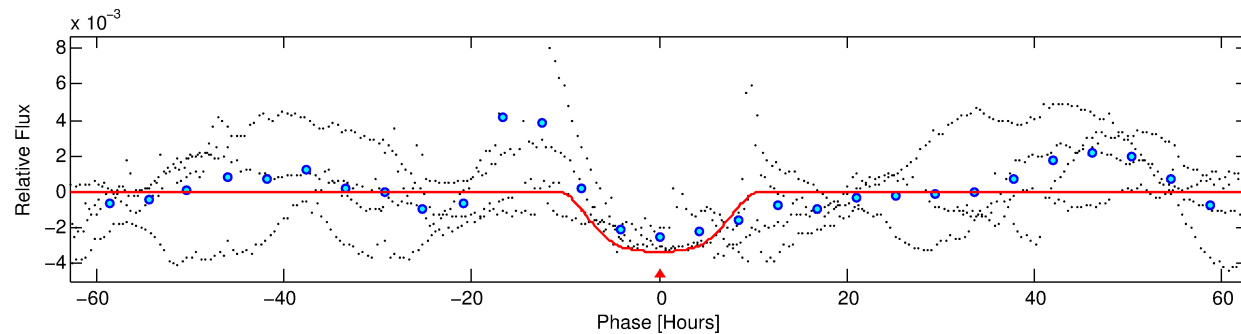
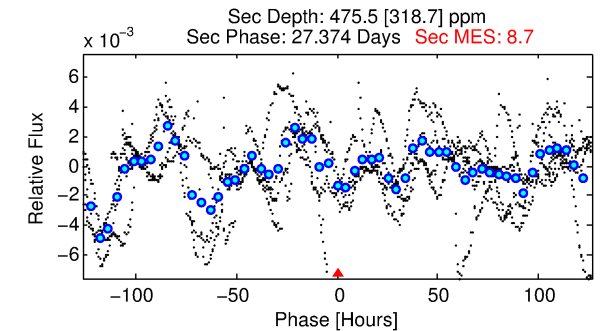
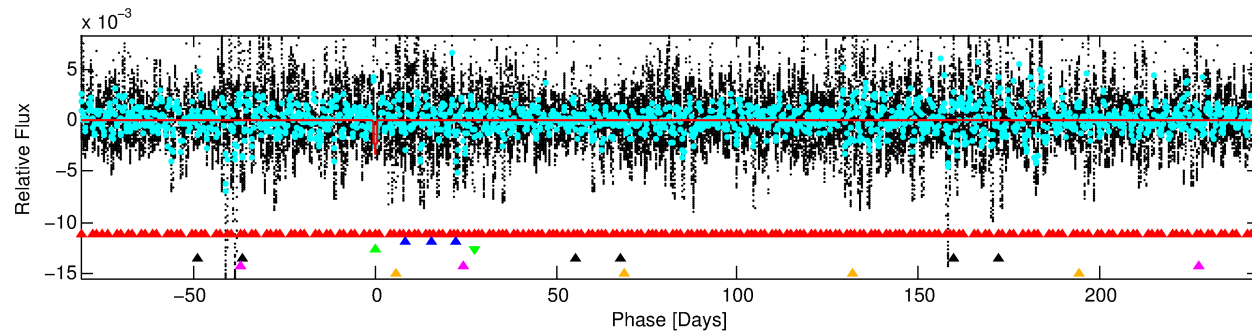
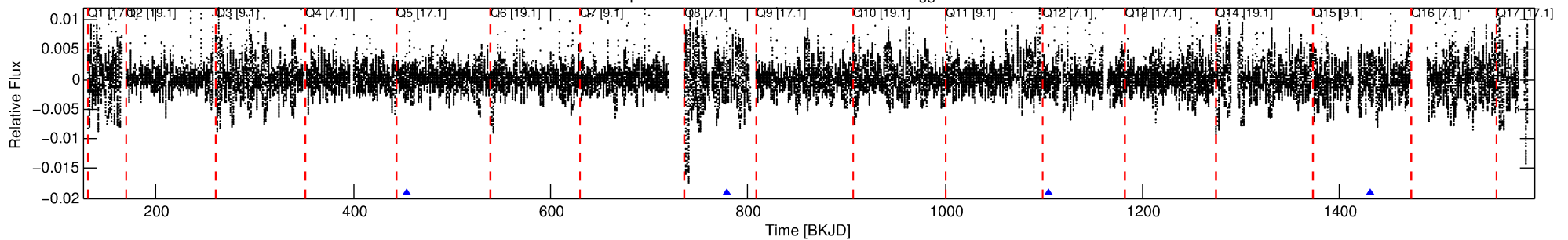
No Significant Match Found

DV One-Page Summary

KIC: 10736489 Candidate: 3 of 6 Period: 325.593 d

KOI: K07368 Corr: No Ephemeris Match

Kp: 12.92 R*: 0.84 Rs Teff: 5227.0 K Logg: 4.54 Fe/H: 0.140



DV Fit Results:

Period = 325.59338 [0.01337] d
Epoch = 453.5746 [0.0255] BKJD
Rp/R* = 0.0655 [0.0089]
a/R* = 65.58 [4.63]
b = 0.91 [0.02]
Seff = 0.60 [0.14]
Teq = 224 [13] K
Rp = 5.99 [1.21] Re
a = 0.8871 [0.1135] AU
Ag = 5737.20 [4287.08] [1.34σ]
Teffp = 3016 [555] K [5.03σ]

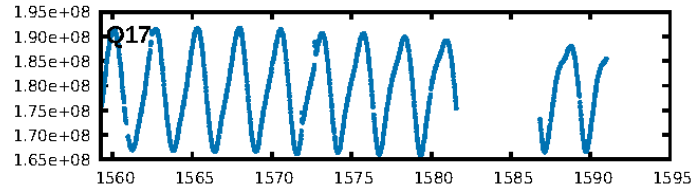
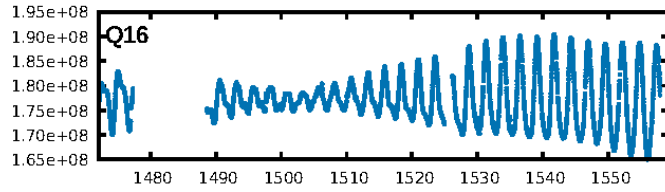
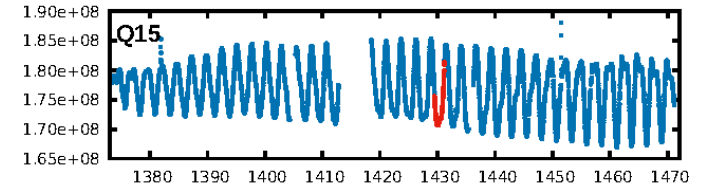
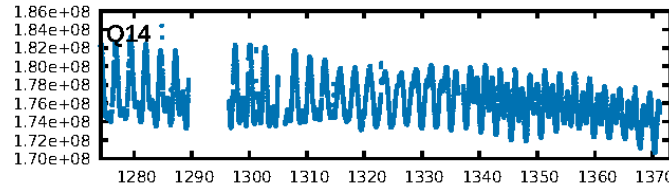
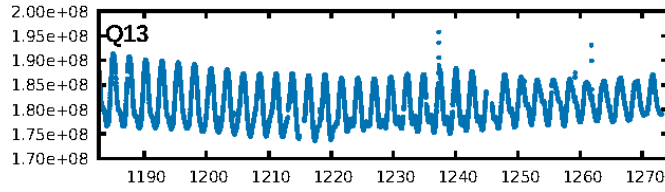
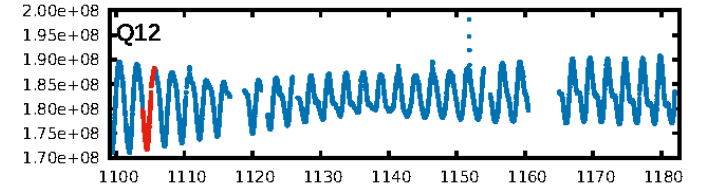
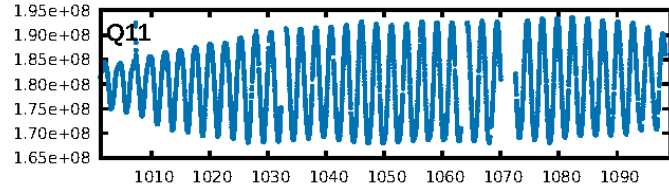
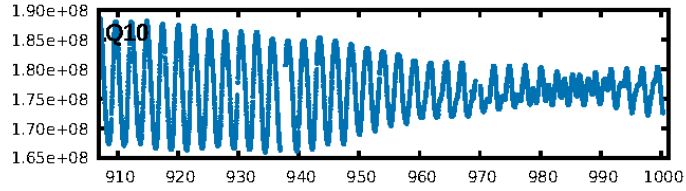
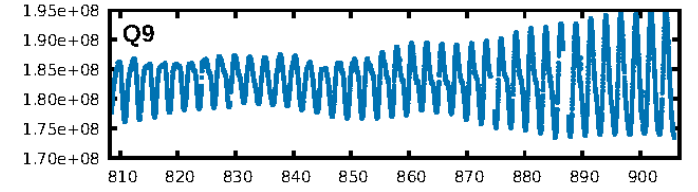
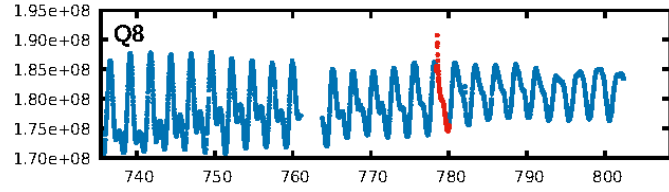
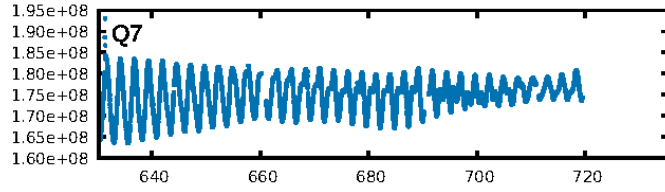
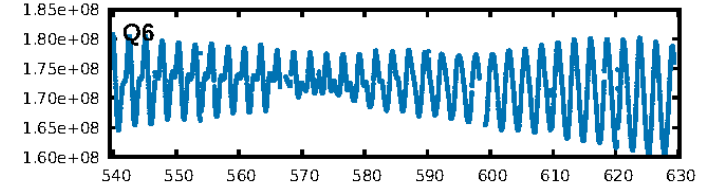
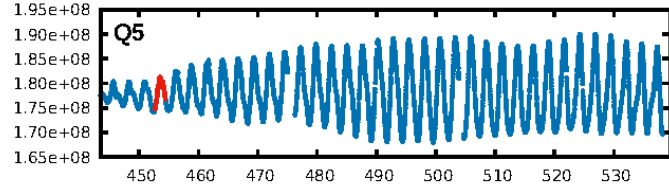
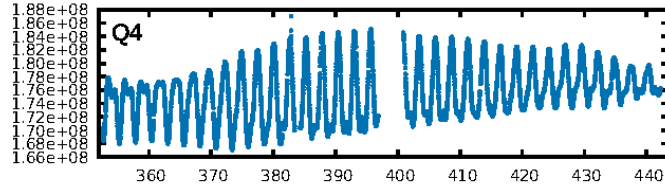
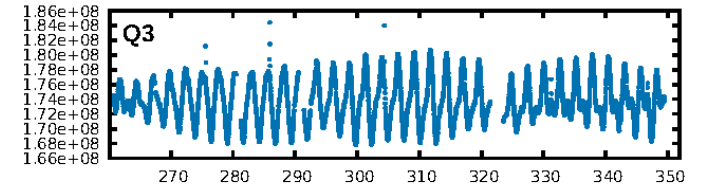
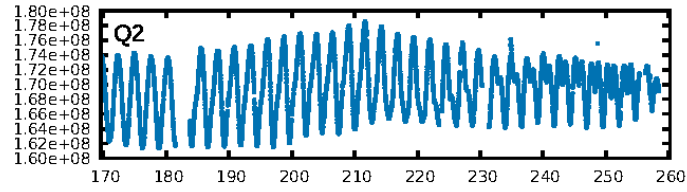
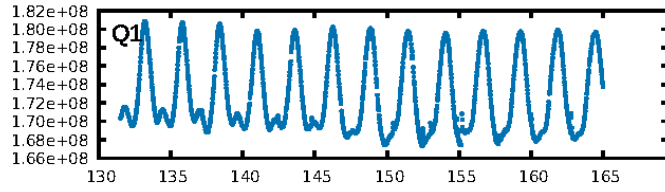
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [118.73σ]
LongPeriod-sig: 100.0% [69.18σ]
ModelChiSquare2-sig: 23.0%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [4/4]
GhostDiagnostic-chr: -0.9558
Centroid-sig: 42.9%
Centroid-so: 0.235 arcsec [3.25σ]
OotOffset-rm: 0.052 arcsec [0.60σ]
KicOffset-rm: 0.221 arcsec [2.80σ]
OotOffset-st: 0/1/1/1 [3]
KicOffset-st: 0/1/1/1 [3]
DiffImageQuality-fgm: 0.67 [2/3]
DiffImageOverlap-fno: 0.33 [1/3]

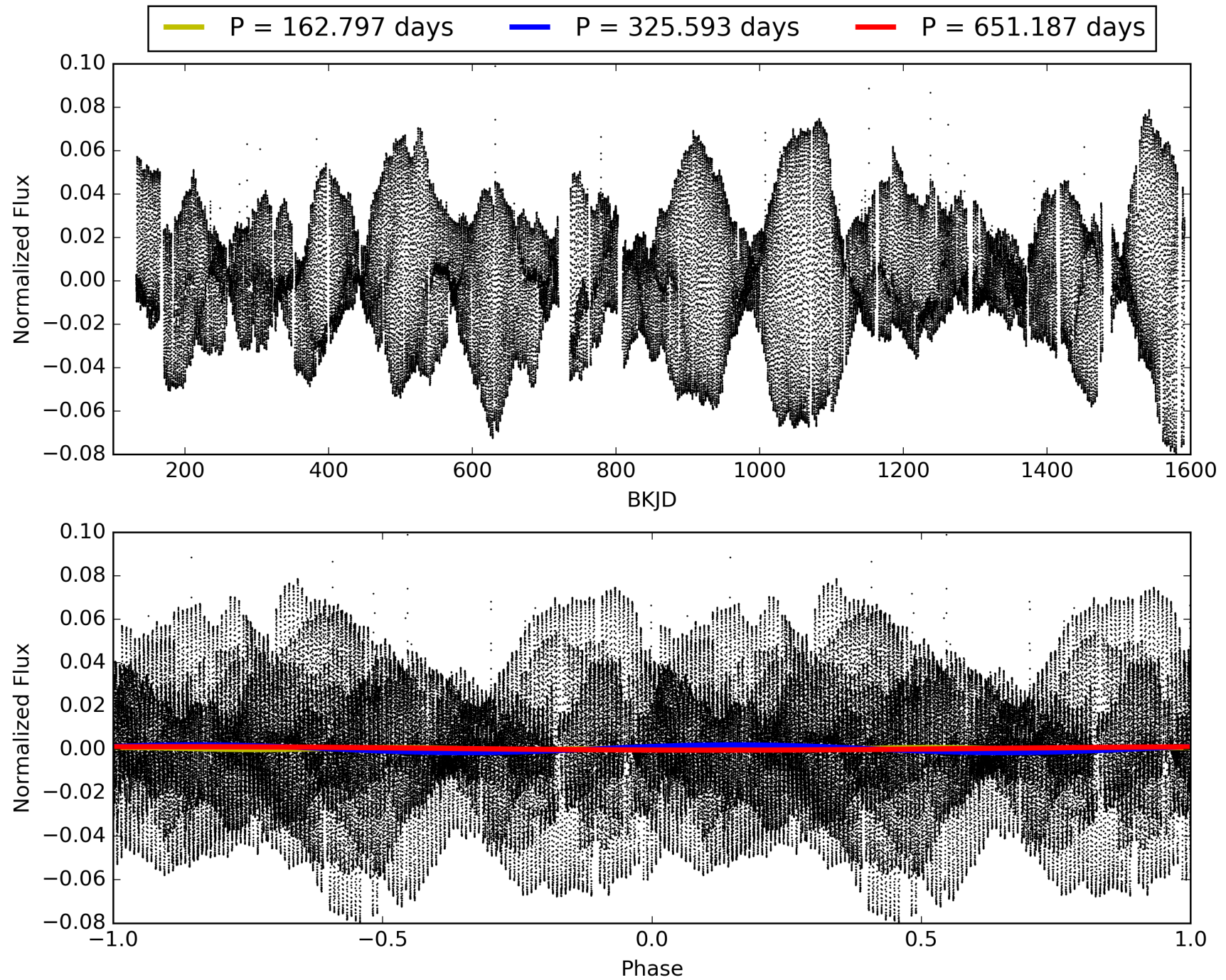
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 05:44:54 Z

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

TCE 010736489-03, PDC Light Curves

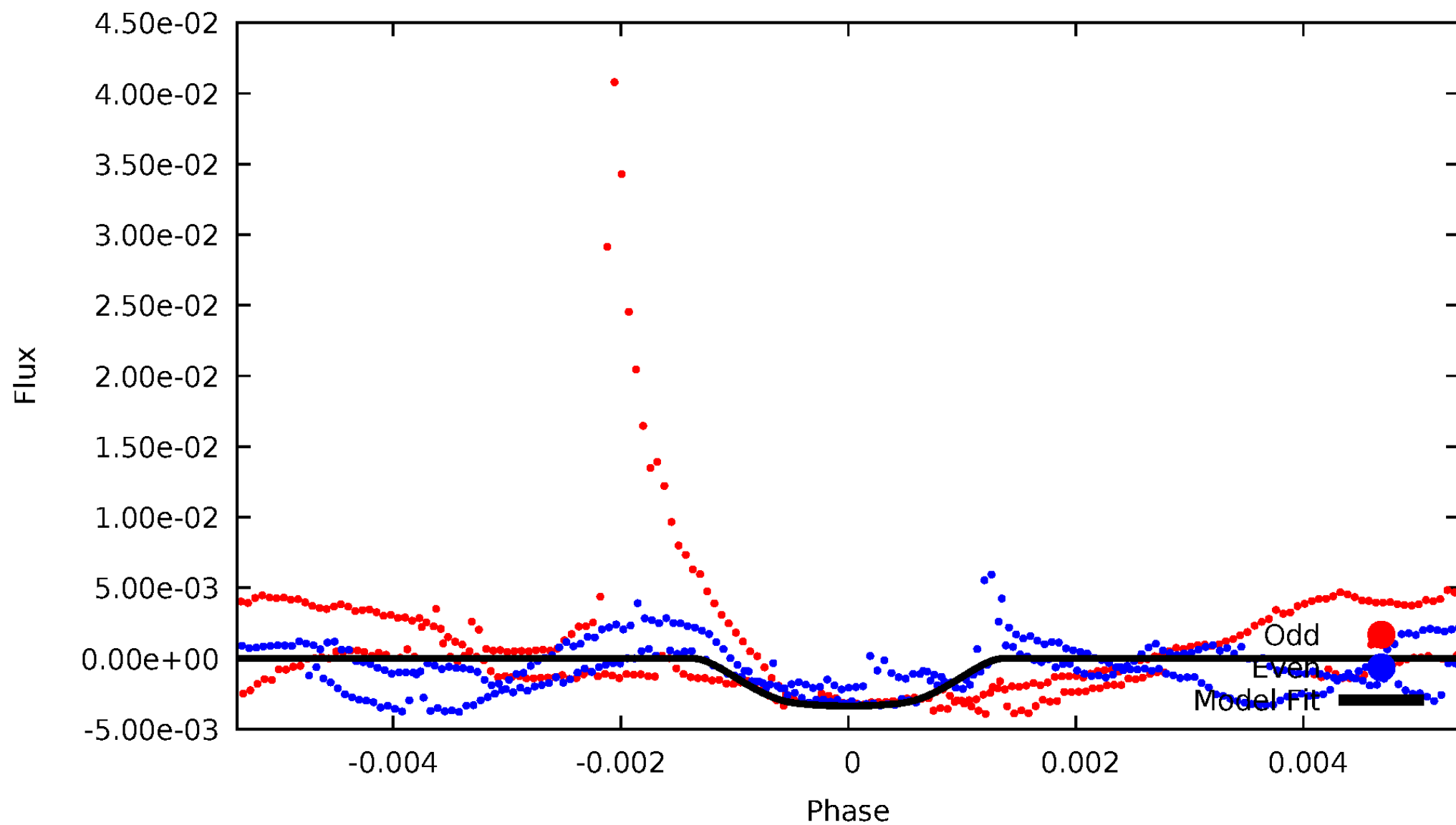


TCE 010736489-03



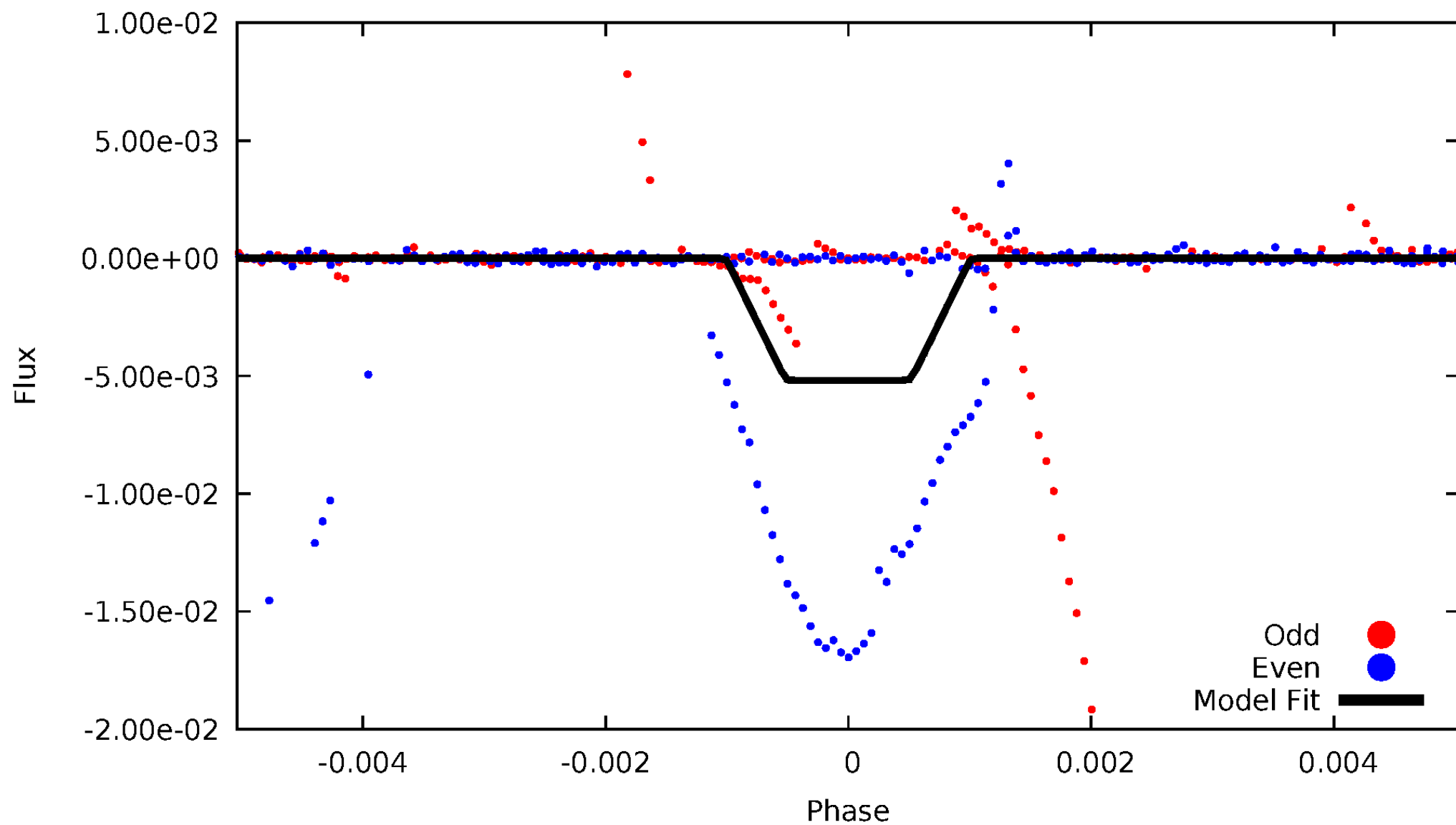
DV Odd/Even

TCE 010736489-03



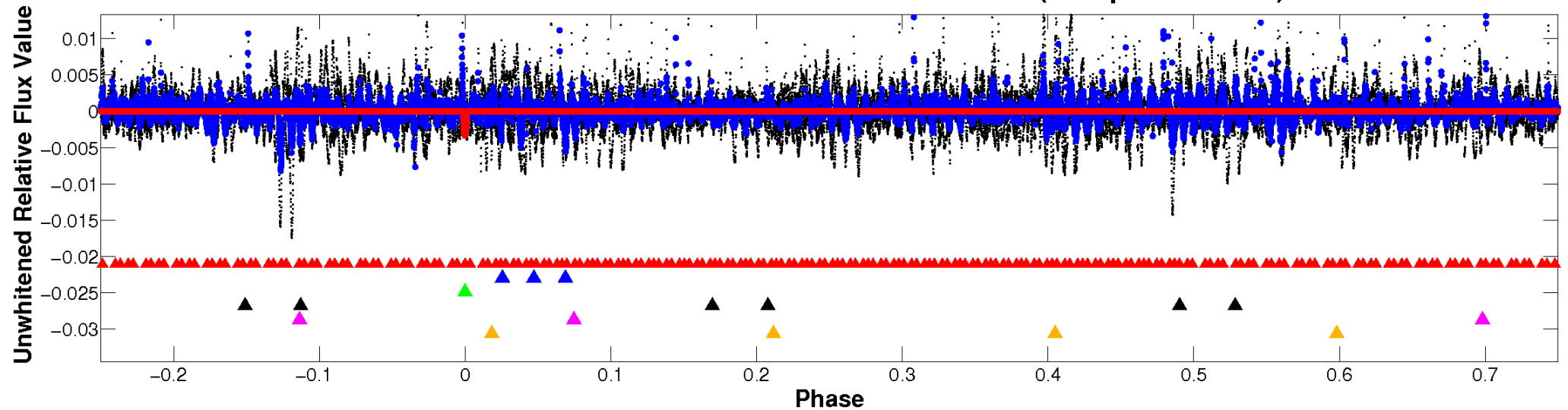
ALT Odd/Even

TCE 010736489-03

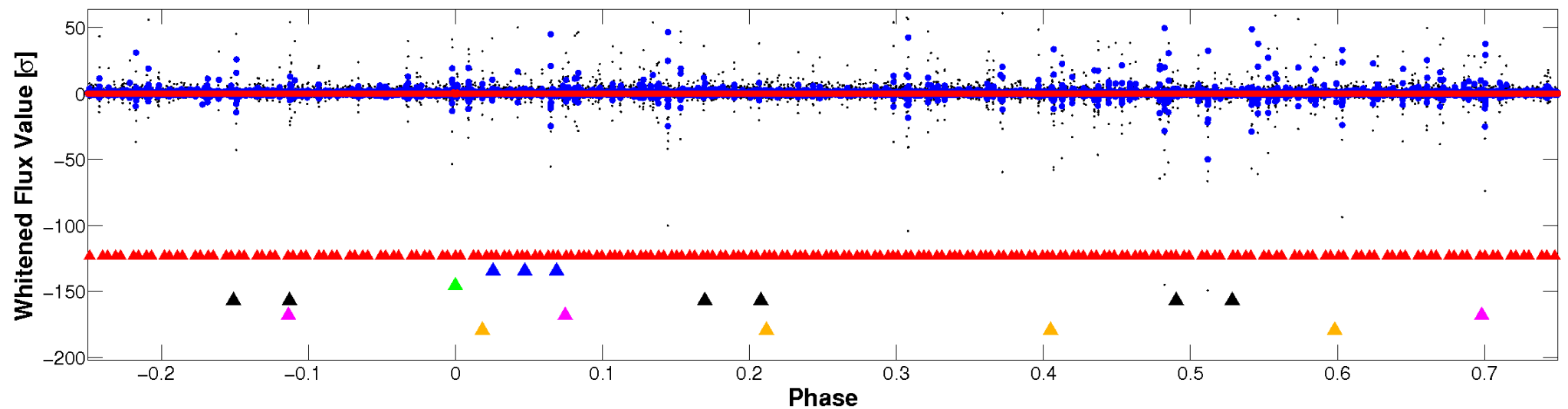


Non-Whitened Vs. Whitened Light Curve

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

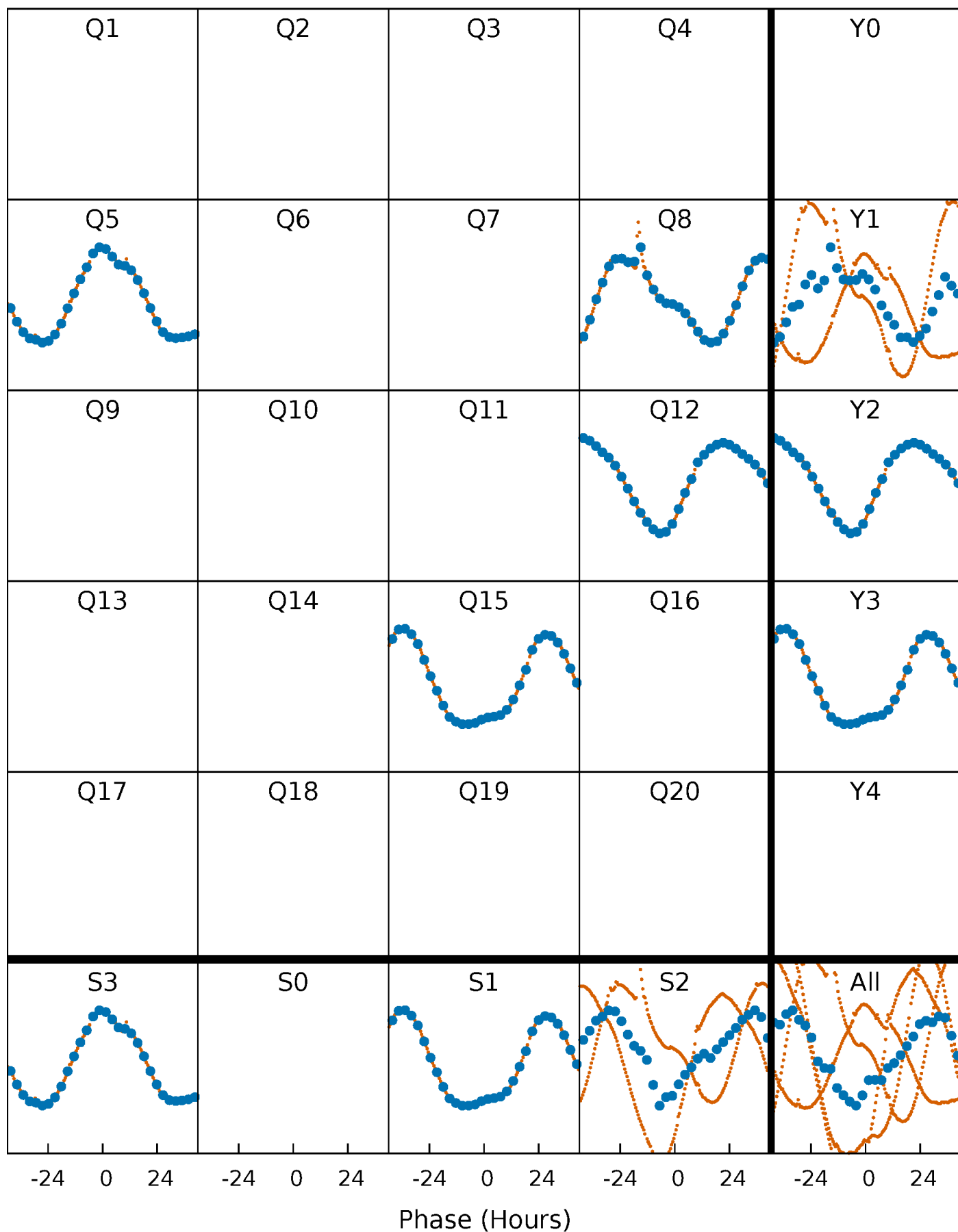


Planet 3 : Phased Whitened Flux Time Series (Fit Epoch/Period)



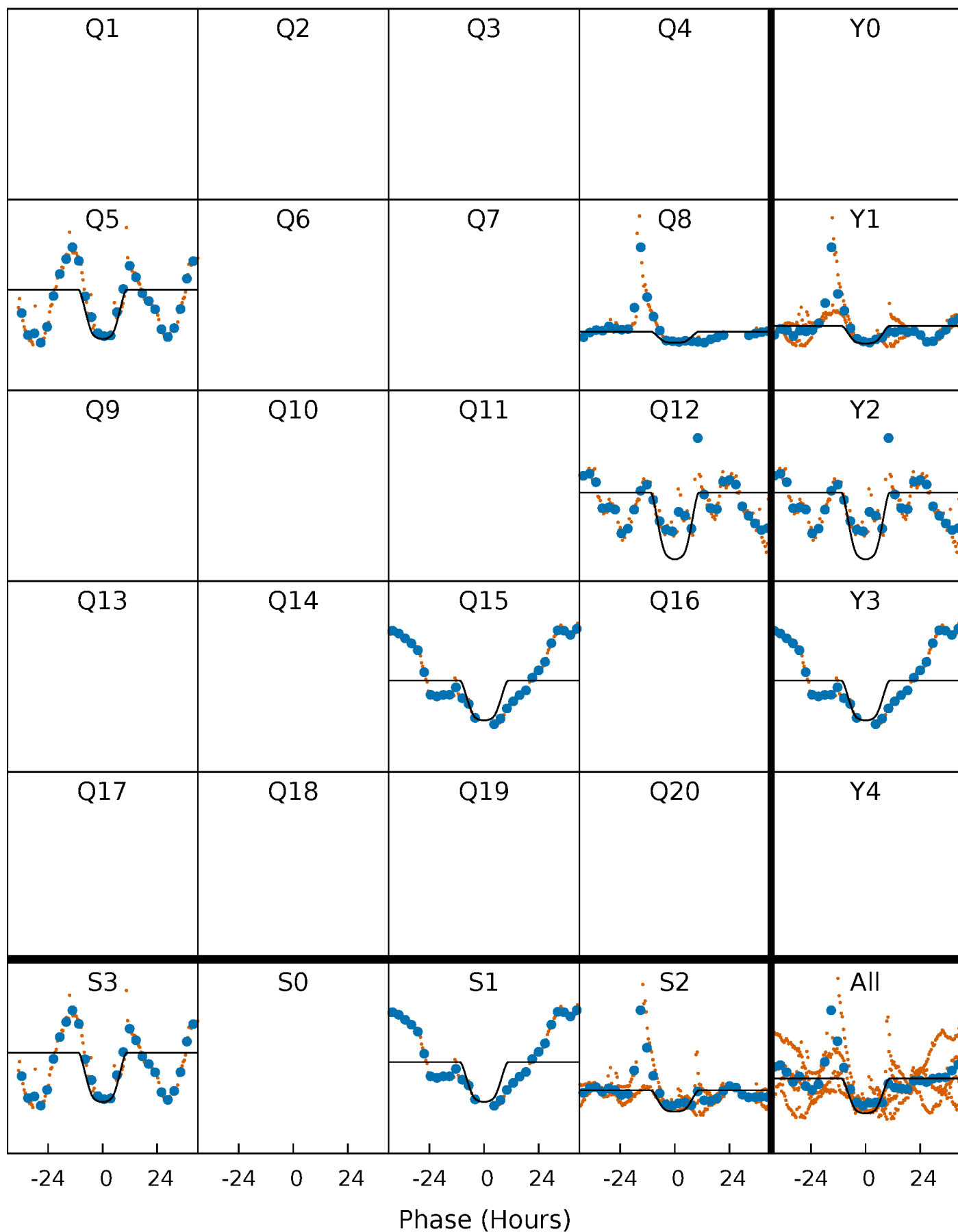
PDC Quarter-Phased Transit Curves

TCE 010736489-03 P=325.593377 Days $T_0=453.574626$ (BKJD)



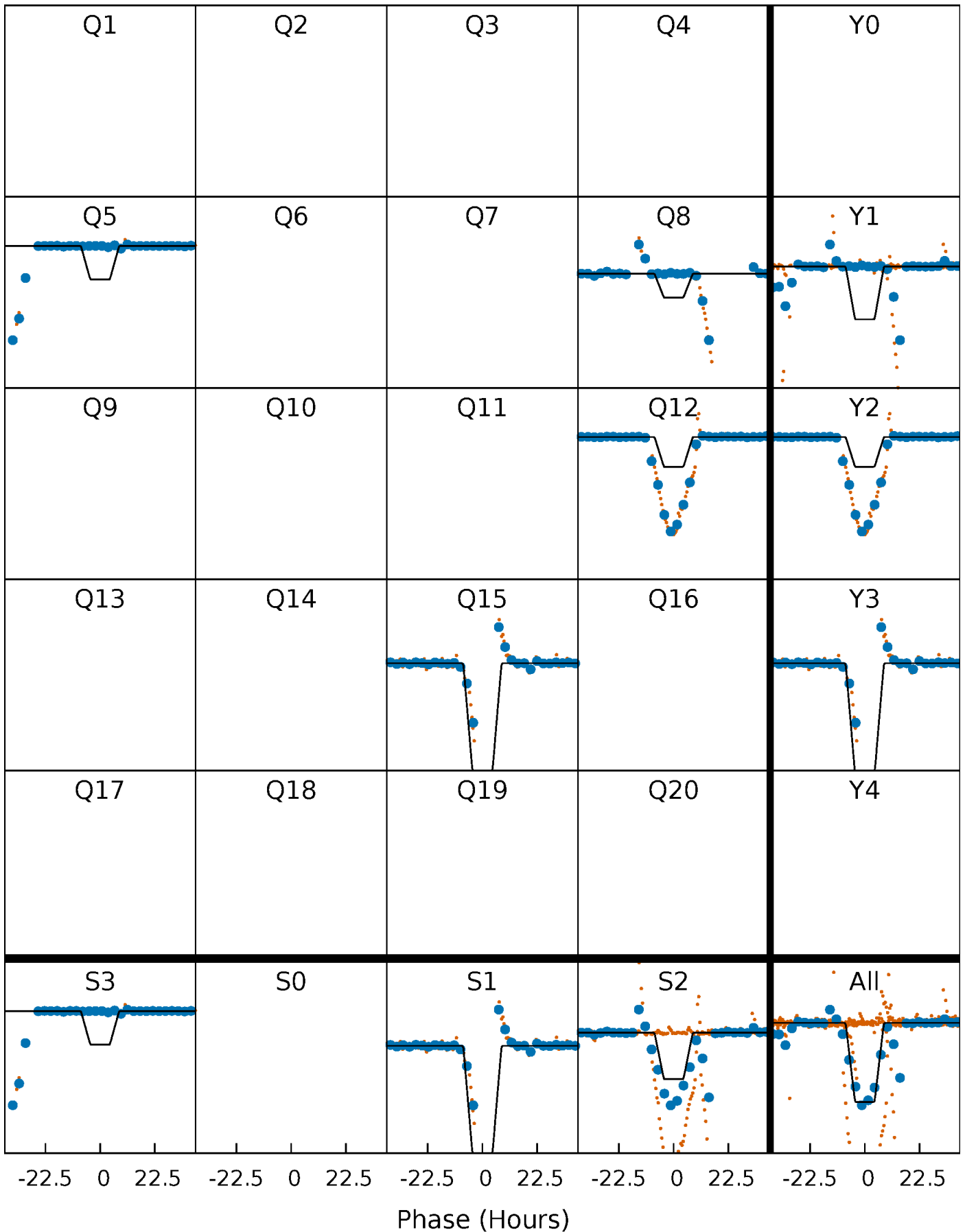
DV Quarter-Phased Transit Curves

TCE 010736489-03 $P=325.593377$ Days $T_0=453.574626$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

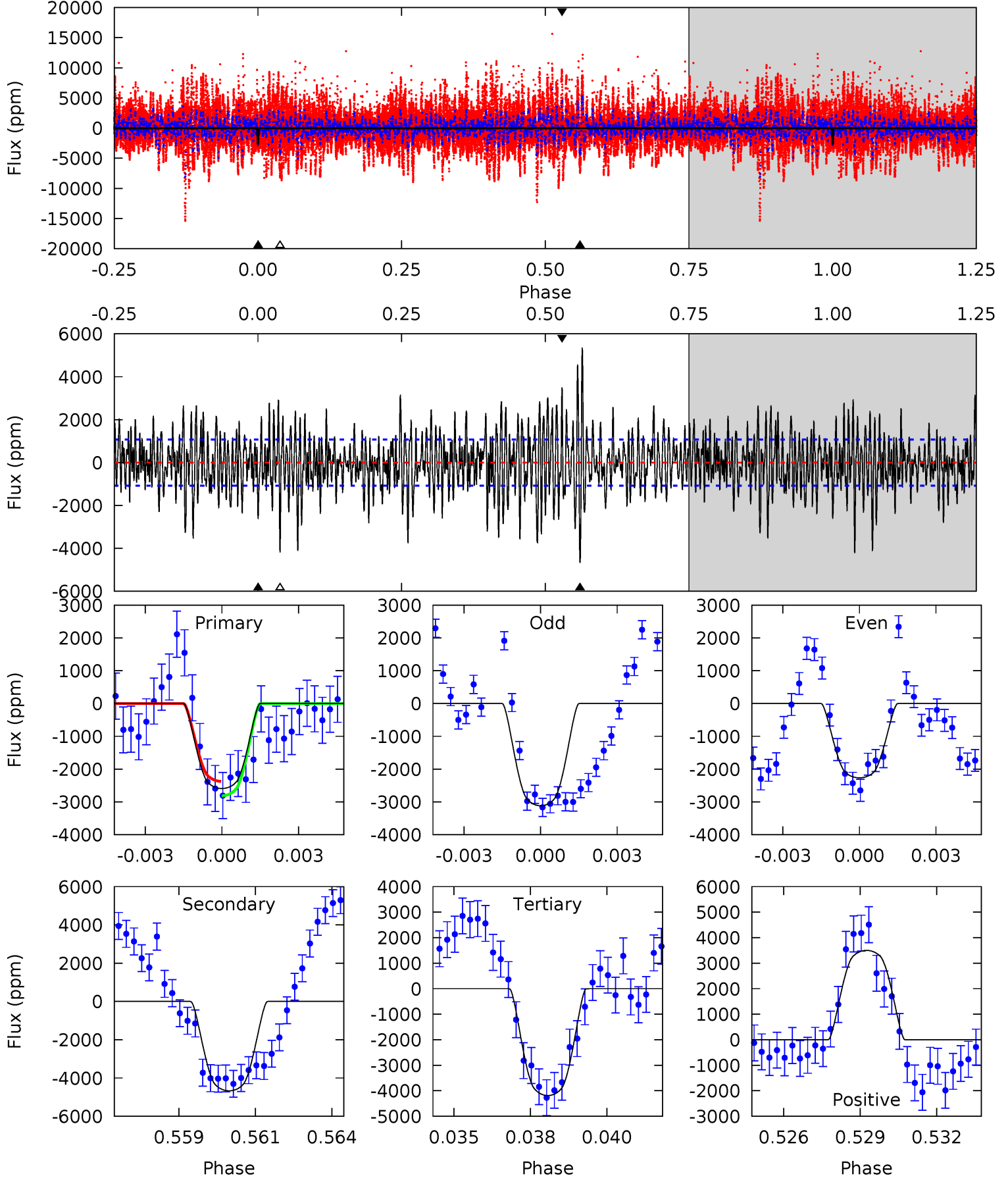
TCE 010736489-03 $P=325.567911$ Days $T_0=453.605518$ (BKJD)



DV Model-Shift Uniqueness Test

010736489-03, P = 325.593377 Days, E = 127.981249 Days

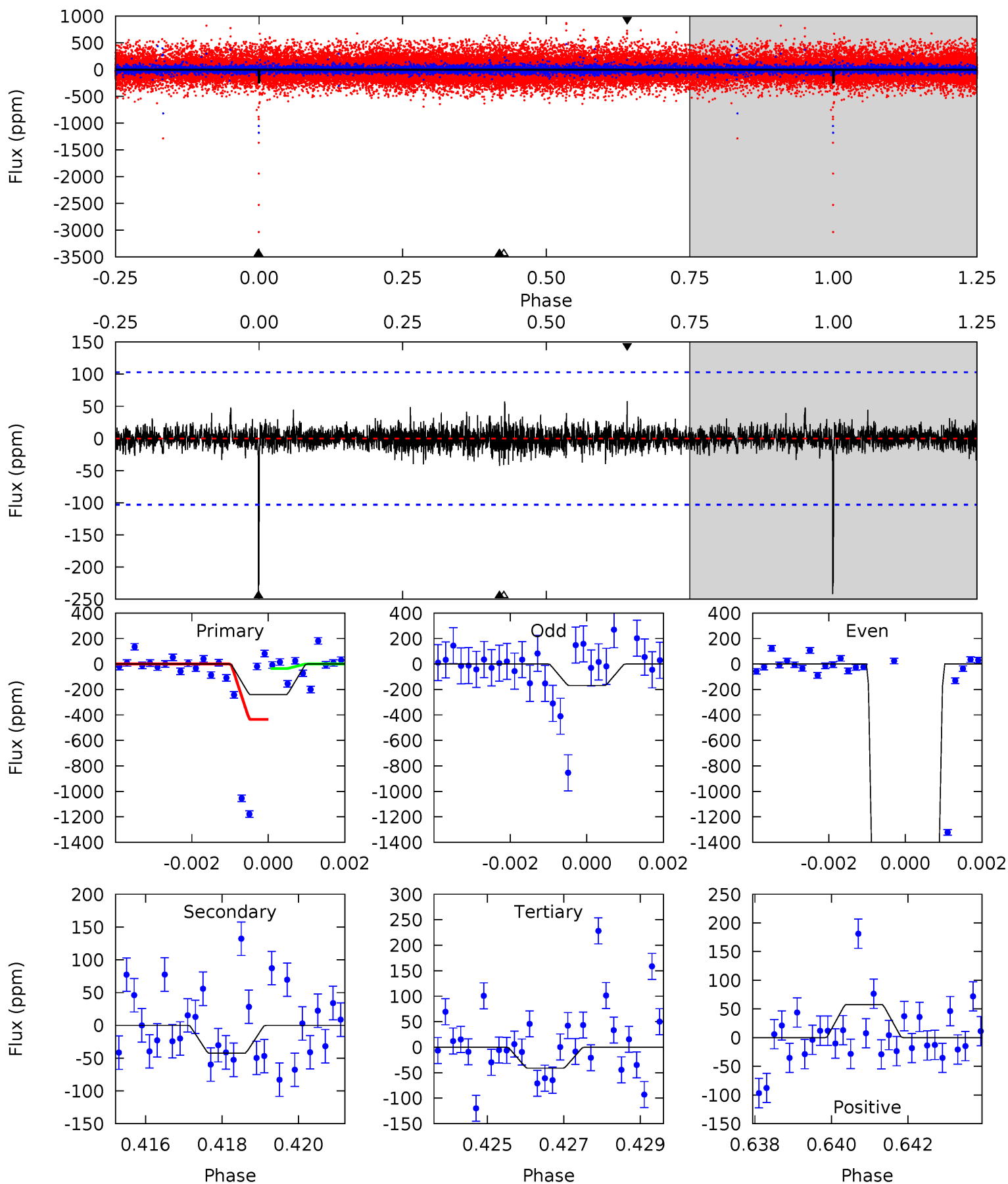
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
12.7	22.9	20.6	17.2	5.27	3.00	5.93	-7.84	-4.46	2.36	5.74	1.99	1.05	0.53	1.08



Alt Model-Shift Uniqueness Test

010736489-03, P = 325.567911 Days, E = 128.037607 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
12.4	2.19	2.13	2.98	5.32	3.08	0.54	10.3	9.45	0.07	-0.79	211.4	3.35	0.19	10.5



Stellar Parameters For KIC 010736489

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (g \cdot \text{cm}^{-3})$
	5227^{+183}_{-183}	$4.535^{+0.052}_{-0.105}$	$0.140^{+0.250}_{-0.300}$	$0.838^{+0.125}_{-0.073}$	$0.876^{+0.070}_{-0.077}$	$2.100^{+0.471}_{-0.659}$
	+4%/-4%	+1%/-2%	+179%/-214%	+15%/-9%	+8%/-9%	+22%/-31%
Source	PHO54	PHO54	PHO54	DSEP		

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

Secondary Eclipse Parameters for KIC 010736489-03 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-4670 ± 204	$6.08^{+0.93}_{-0.90}$	316^{+15}_{-14}	5336^{+421}_{-368}	54770^{+20144}_{-13407}
Alt.	-42 ± 19	$6.72^{+1.02}_{-0.96}$	316^{+15}_{-14}	2420^{+154}_{-171}	393^{+251}_{-184}

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 $A_{obs} \gg 1.0$

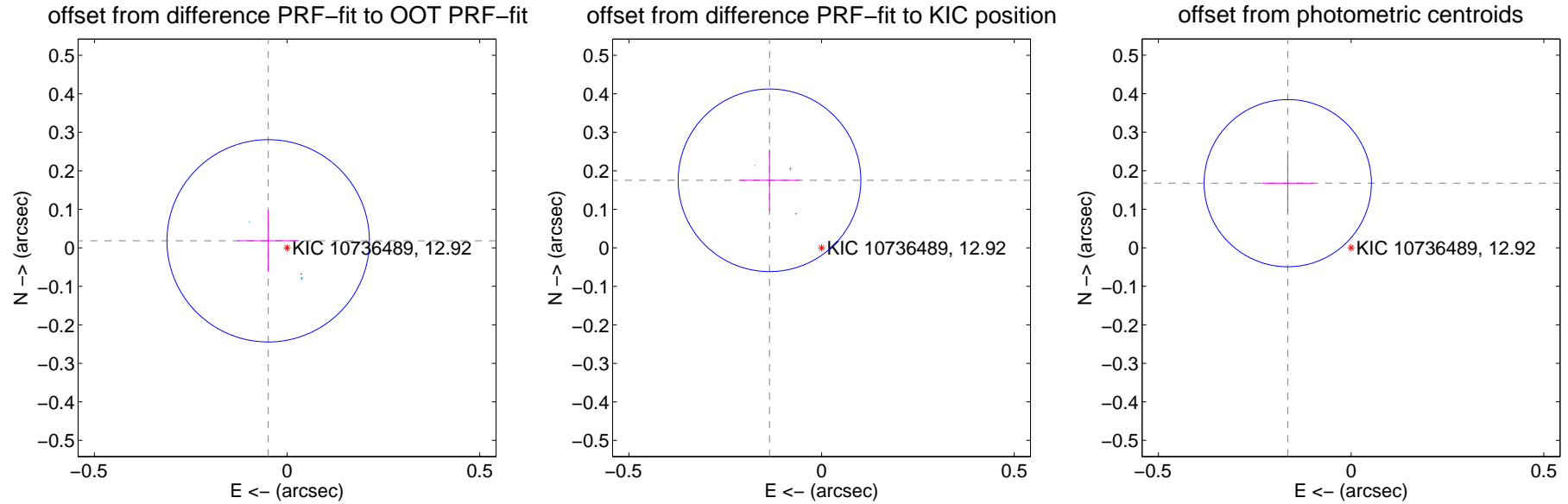
DV Centroid Data

Supplemental centroid analysis for 010736489-03. Kepler magnitude: 12.92. Transit SNR 4.84

There are 2 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.16 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.052 ± 0.088	0.60	0.049 ± 0.080	0.018 ± 0.080
PRF-fit source offset from KIC position	0.221 ± 0.079	2.80	0.135 ± 0.077	0.175 ± 0.080
photometric centroid source offset	0.23 ± 0.07	3.25	0.16 ± 0.07	0.17 ± 0.08

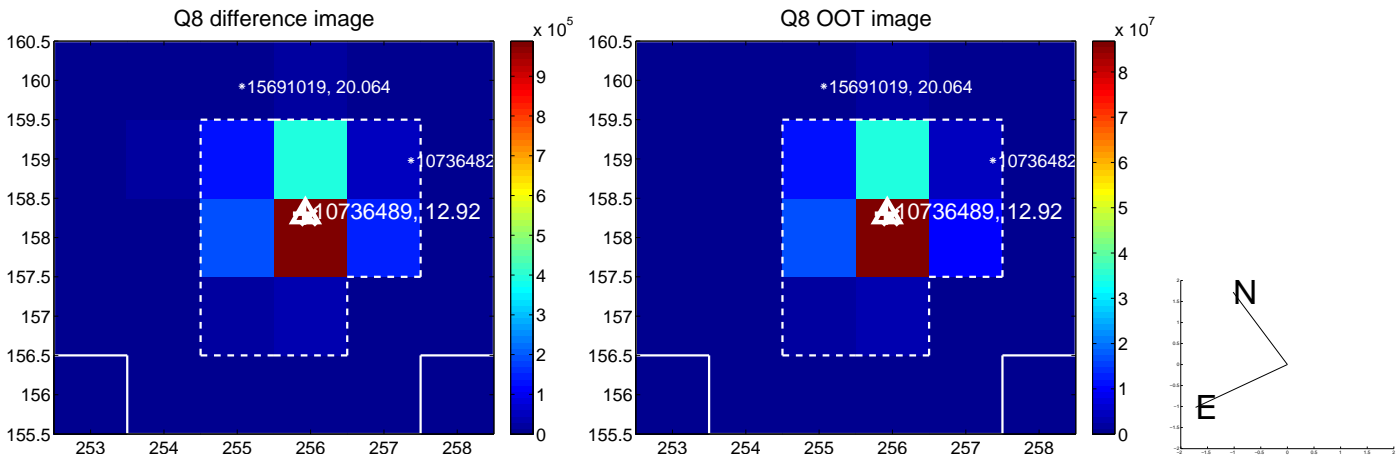
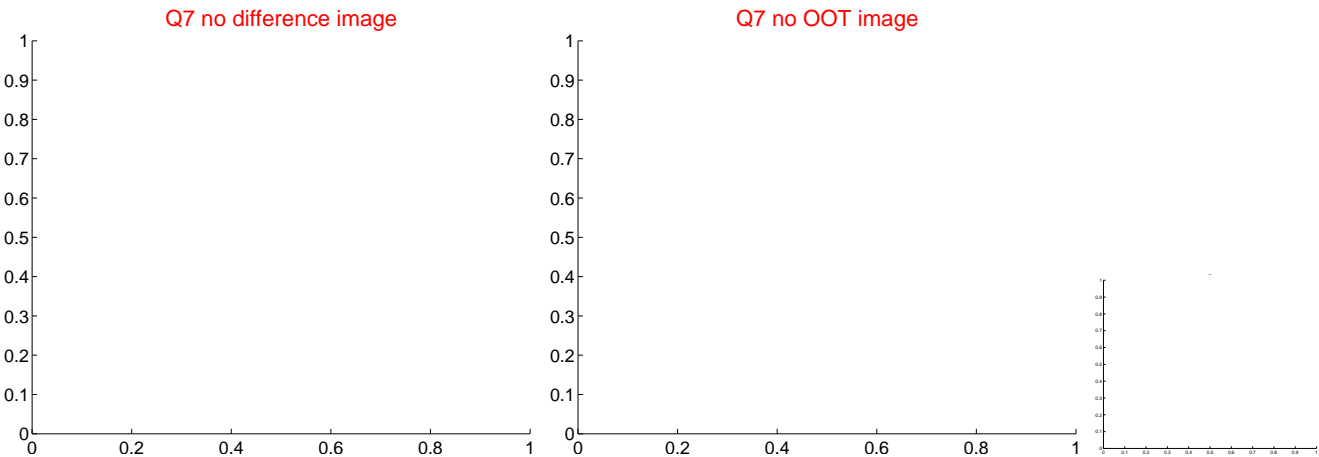
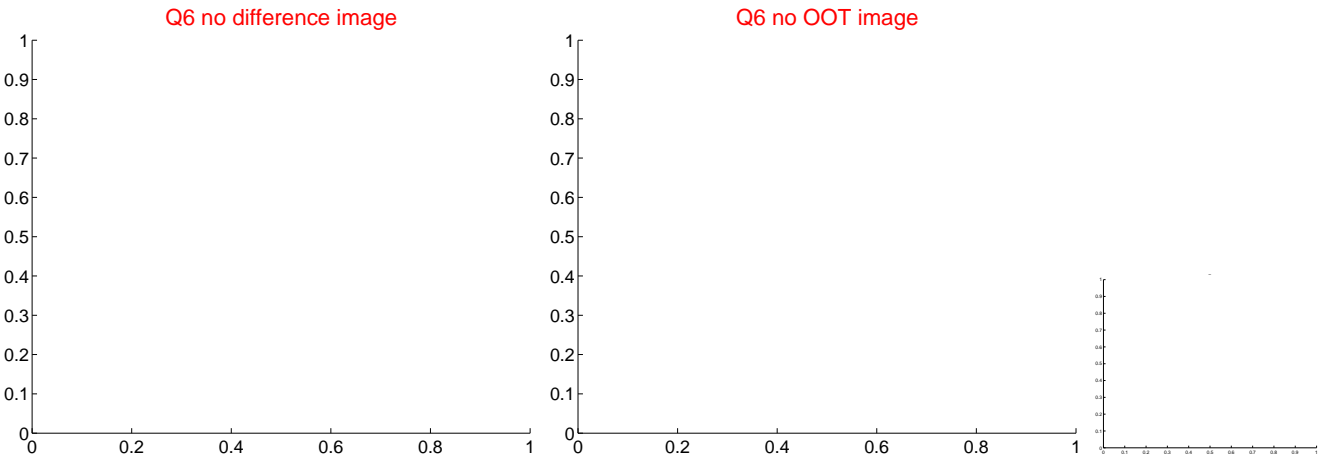
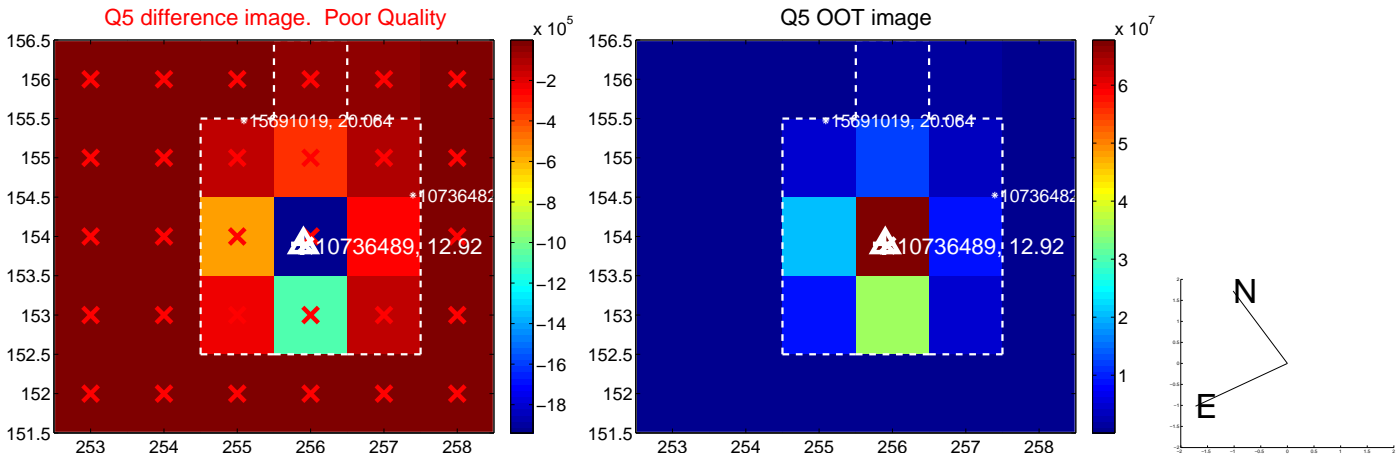


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

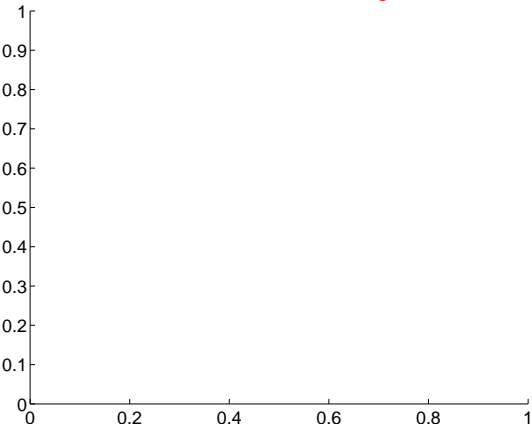


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.

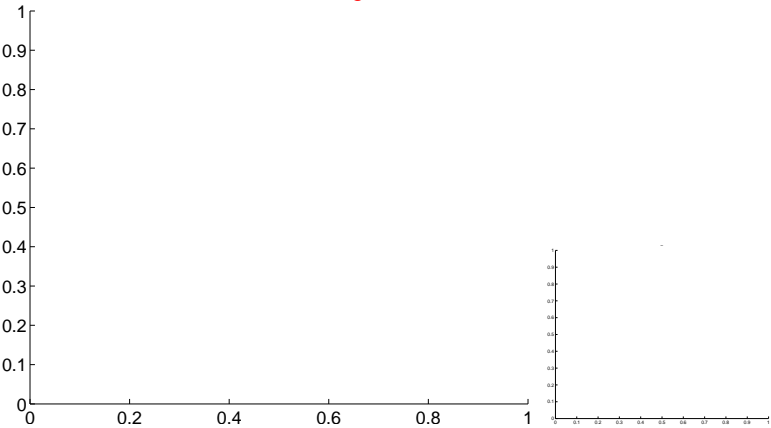


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.

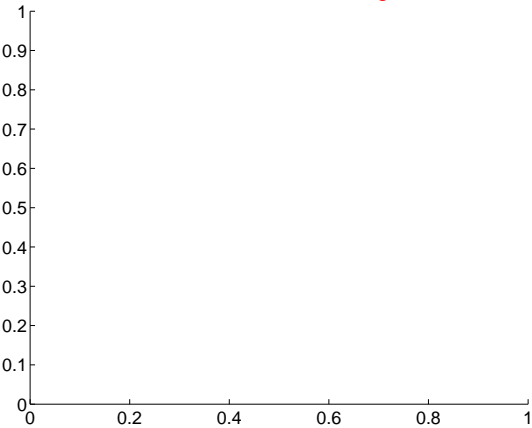
Q13 no difference image



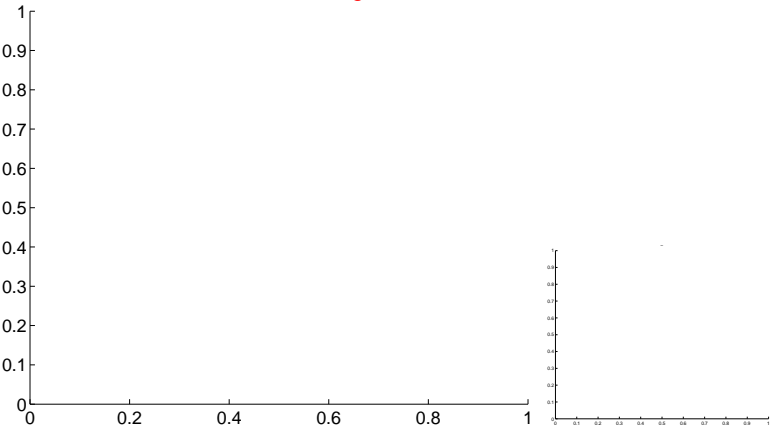
Q13 no OOT image



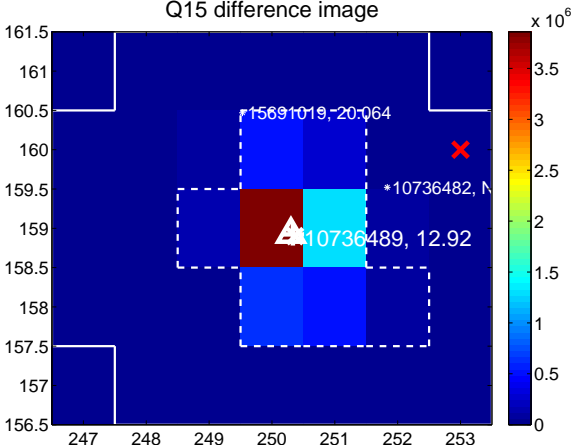
Q14 no difference image



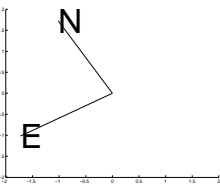
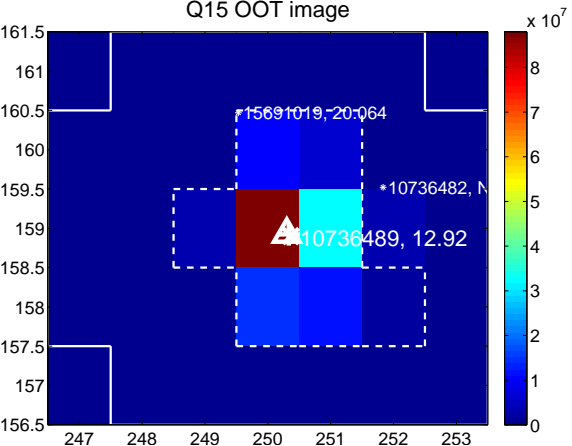
Q14 no OOT image



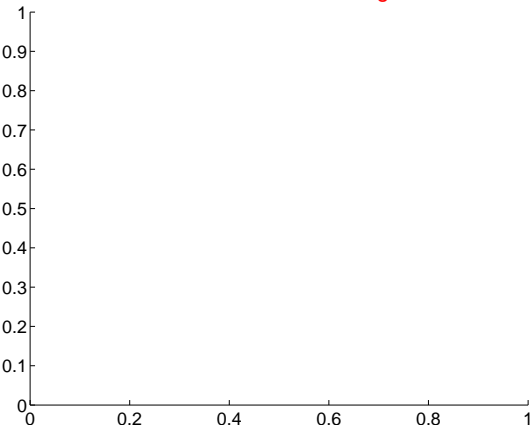
Q15 difference image



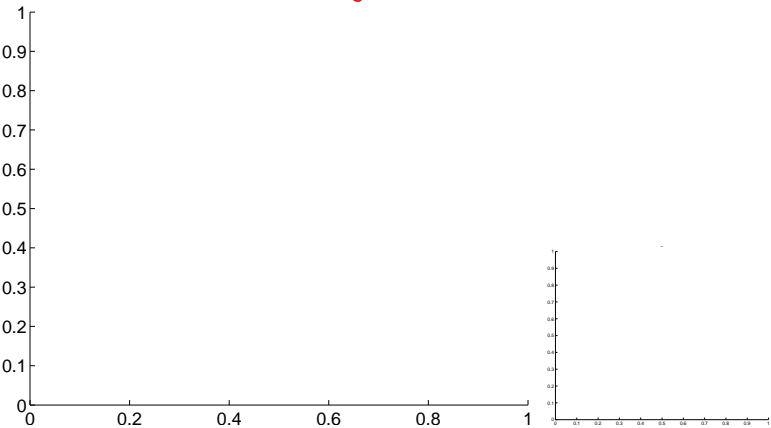
Q15 OOT image



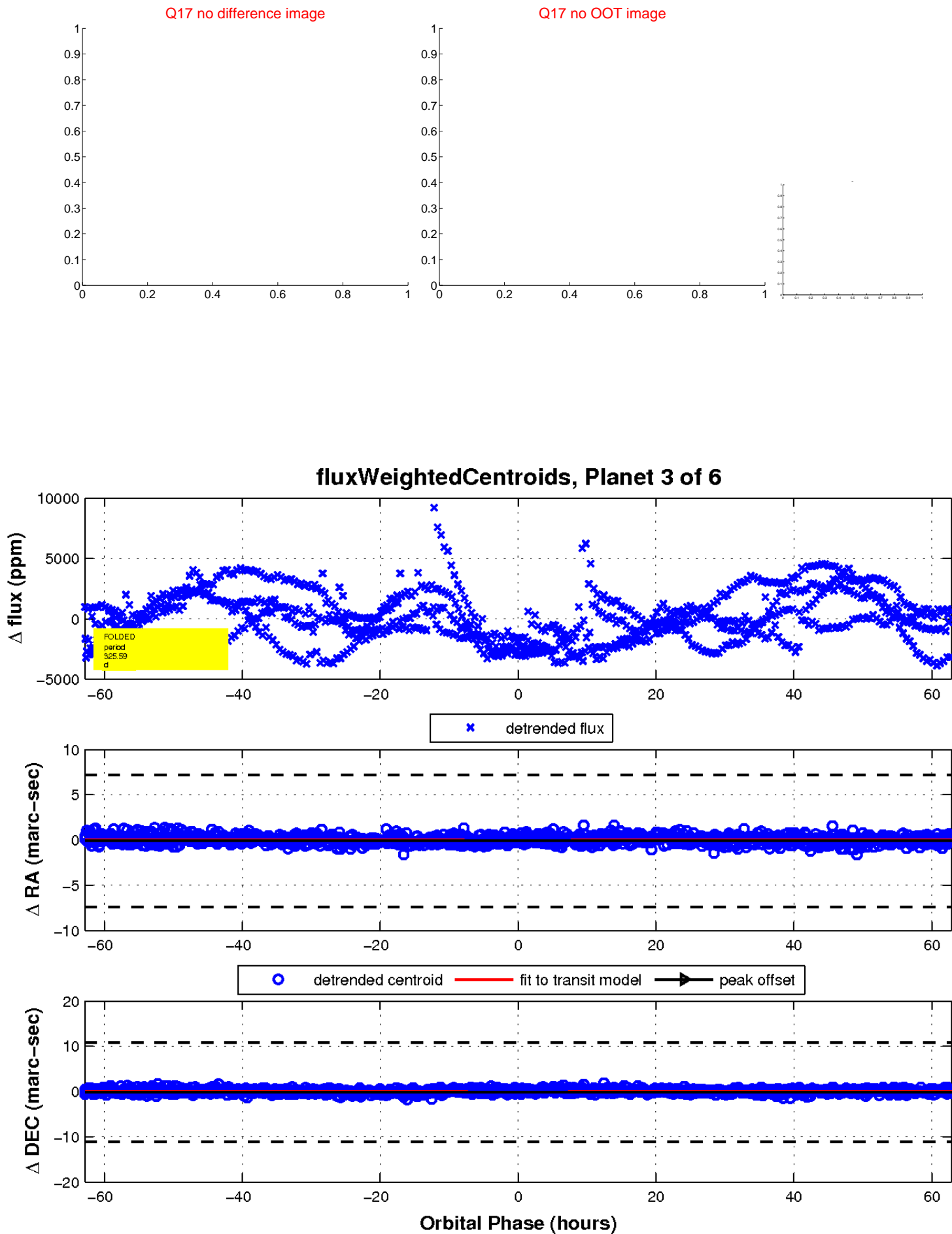
Q16 no difference image



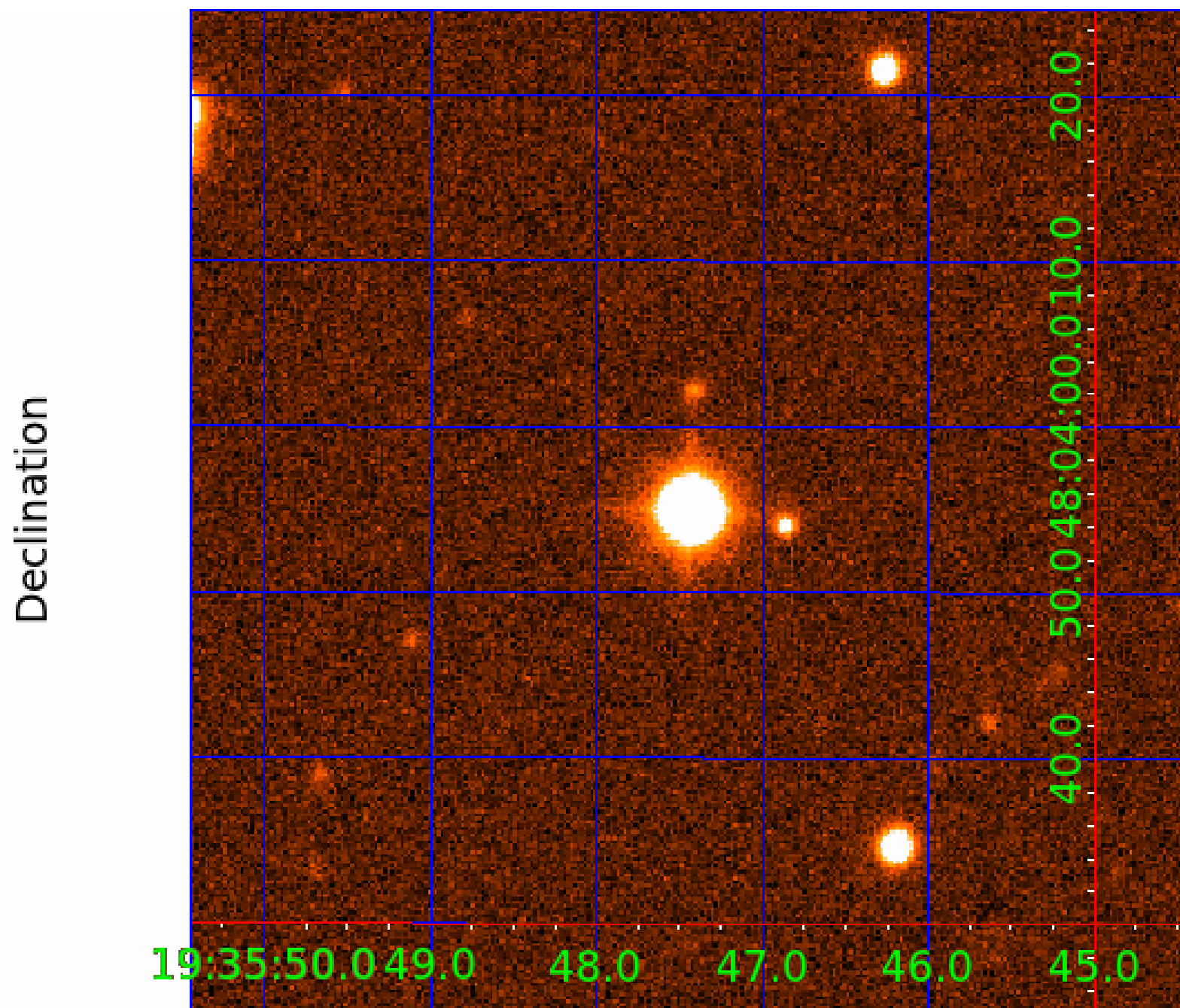
Q16 no OOT image



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



UKIRT Image



KIC 010736489

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})
010736489-01	OBS	7368.01	6.843087	137.038440	657.7	3.154	28.9	32.4	0.84	5227	2.67	102.90
010736489-02	OBS	No	644.151624	150.397424	735.6	7.027	12.3	2.9	0.84	5227	2.65	0.24
010736489-03	OBS	No	325.593377	453.574626	3361.6	20.988	18.4	4.8	0.84	5227	5.99	0.60
010736489-04	OBS	No	221.198496	287.626356	324.9	2.204	14.5	2.0	0.84	5227	1.52	1.00
010736489-05	OBS	No	589.889757	152.303738	4297.0	9.213	13.6	10.5	0.84	5227	5.34	0.27
010736489-06	OBS	No	388.516899	133.959615	311.6	6.000	16.0	-1.0	0.84	5227	1.44	0.47

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
010736489-01	OBS	PC	1.00	0	0	0	0	NO_COMMENT
010736489-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES_TRACKER—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
010736489-03	OBS	FP	0.00	1	0	0	0	LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
010736489-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
010736489-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV
010736489-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES—LPP_DV—ALL_TRANS_CHASES—CENT_NOFITS

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.

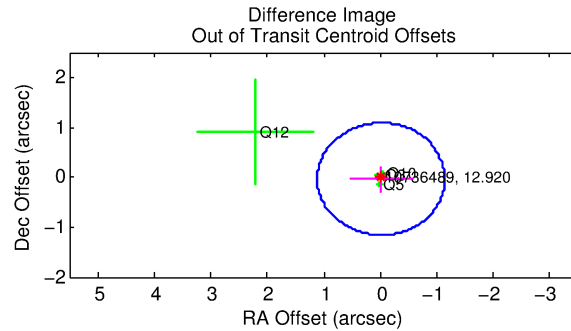
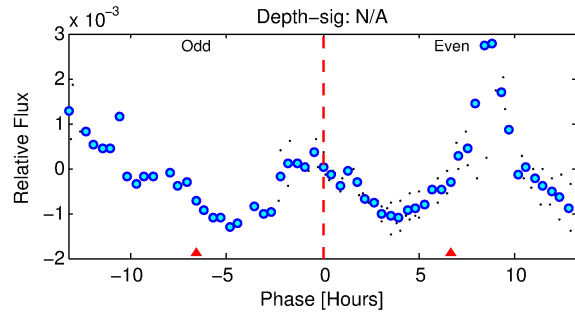
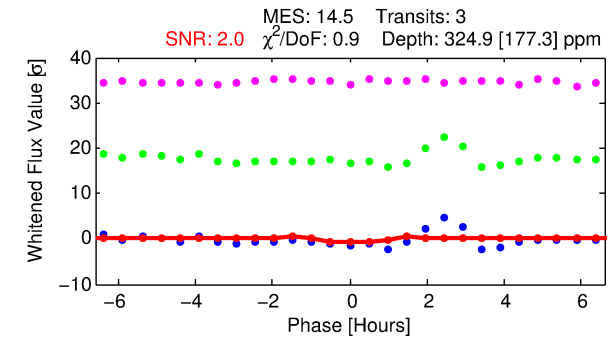
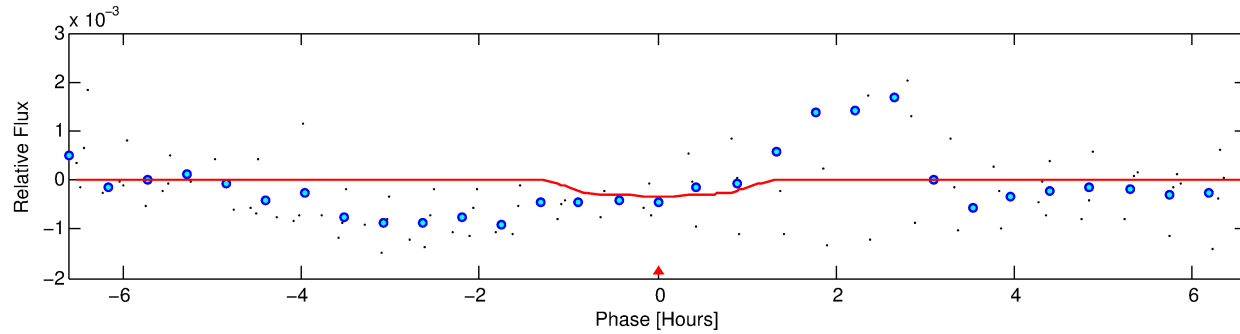
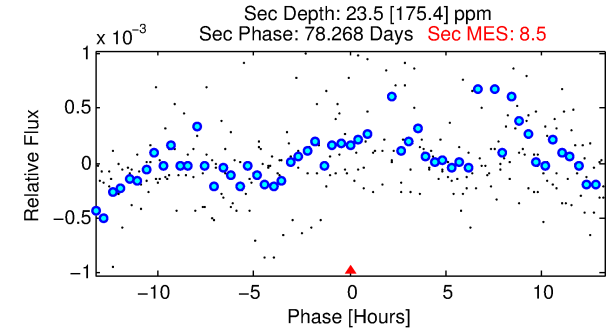
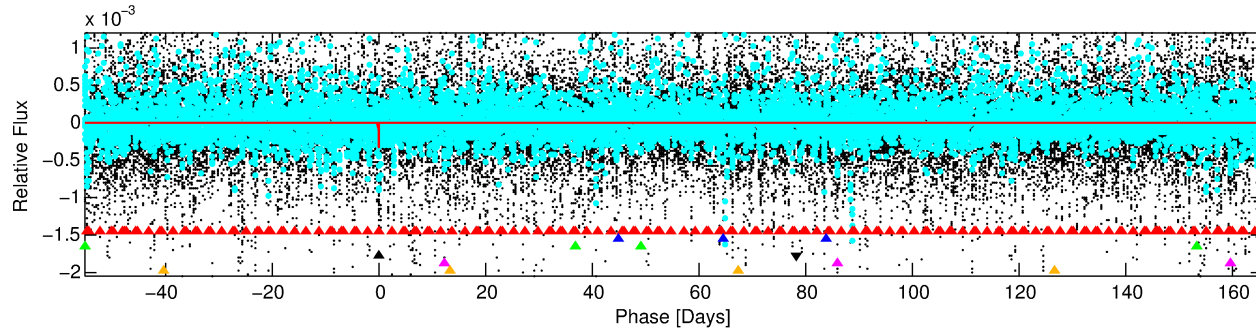
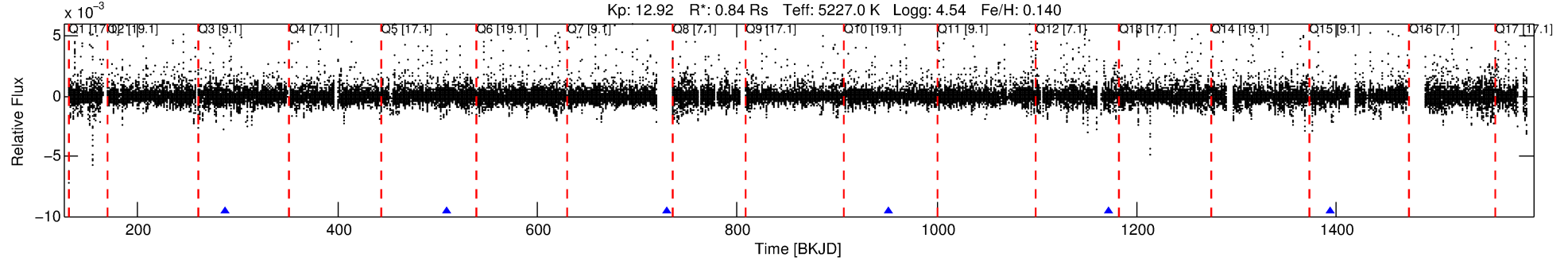
Ephemeris Match Information For 010736489-04

No Significant Match Found

DV One-Page Summary

KIC: 10736489 Candidate: 4 of 6 Period: 221.198 d
KOI: K07368 Corr: No Ephemeris Match

Kp: 12.92 R*: 0.84 Rs Teff: 5227.0 K Logg: 4.54 Fe/H: 0.140



DV Fit Results:

Period = 221.19850 [0.00499] d
Epoch = 287.6264 [0.0219] BKJD
Rp/R* = 0.0166 [0.0826]
a/R* = 693.71 [12102.68]
b = 0.46 [30.14]
Seff = 1.00 [0.24]
Teq = 255 [15] K
Rp = 1.52 [7.55] Re
a = 0.6856 [0.0878] AU
Ag = 2631.83 [32666.38] [0.08σ]
Teffp = 2823 [8760] K [0.29σ]

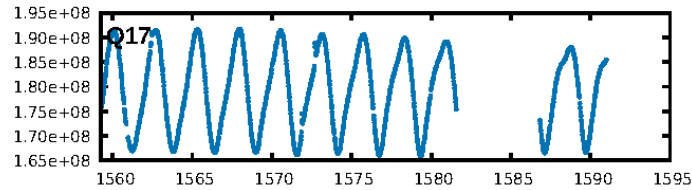
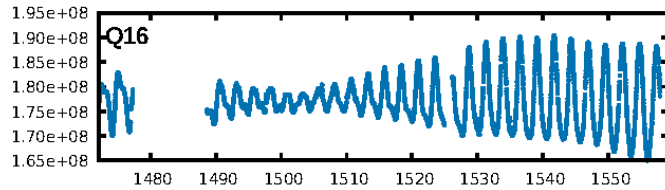
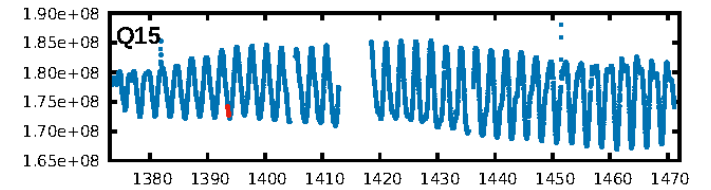
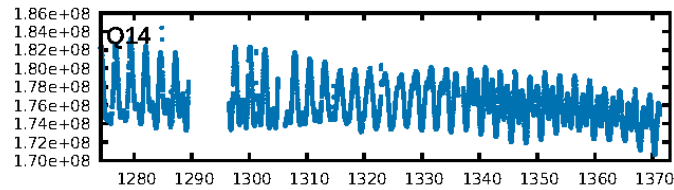
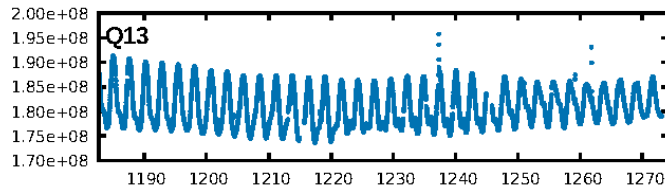
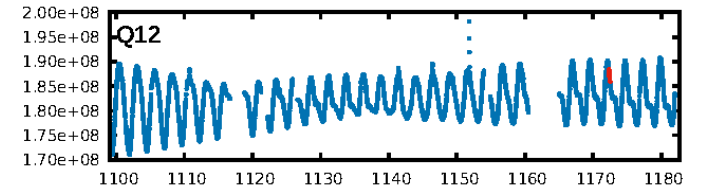
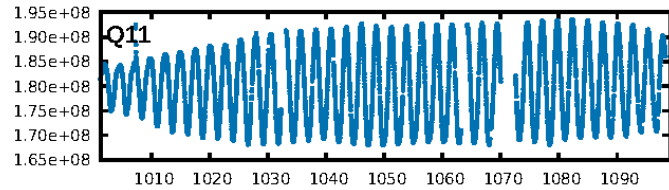
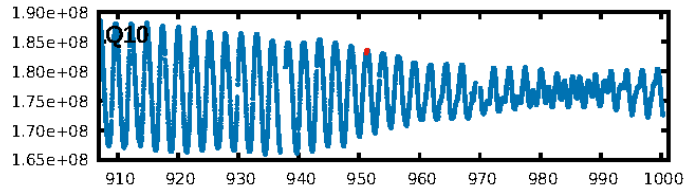
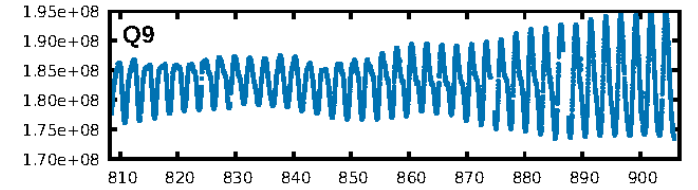
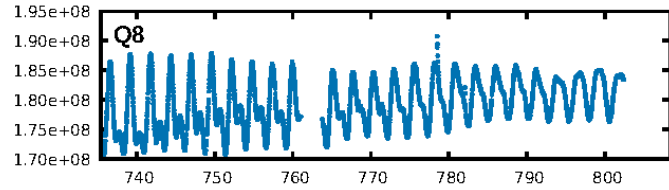
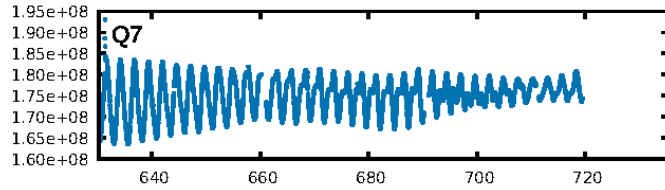
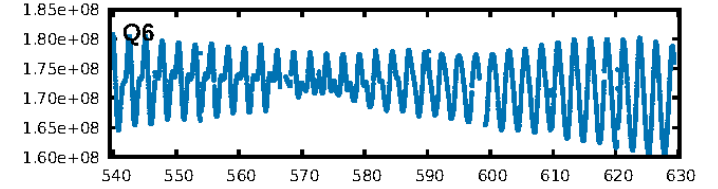
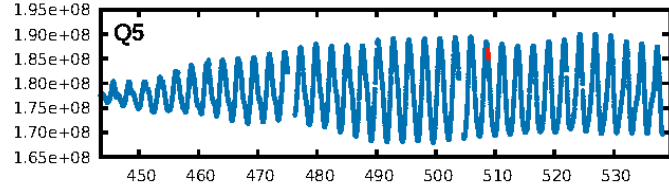
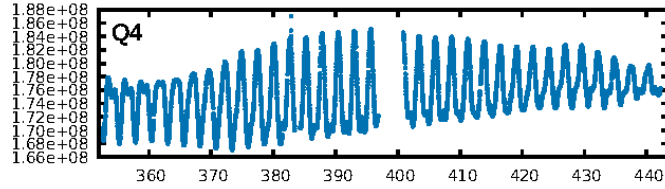
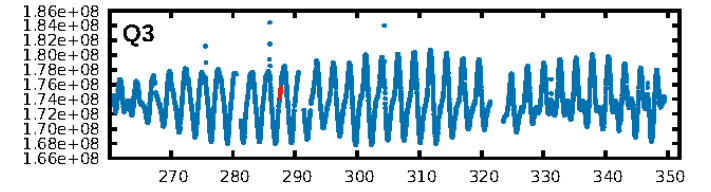
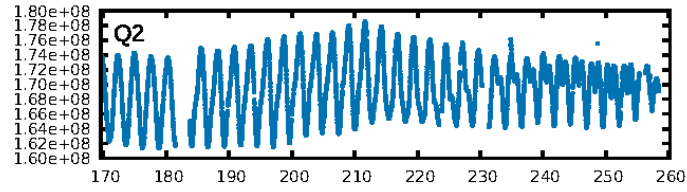
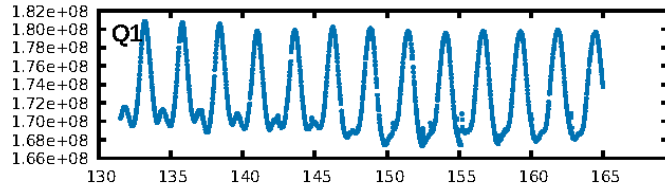
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [1337.05σ]
LongPeriod-sig: 100.0% [118.73σ]
ModelChiSquare2-sig: 4.3%
ModelChiSquareGof-sig: 93.0%
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [3/3]
GhostDiagnostic-chr: 0.5583
Centroid-sig: 4.0%
Centroid-so: 1.850 arcsec [1.83σ]
OotOffset-rm: 0.039 arcsec [0.10σ]
KicOffset-rm: 0.180 arcsec [0.47σ]
OotOffset-st: 1/1/1/1 [4]
KicOffset-st: 1/1/1/1 [4]
DiffImageQuality-fgm: 0.50 [2/4]
DiffImageOverlap-fno: 0.50 [2/4]

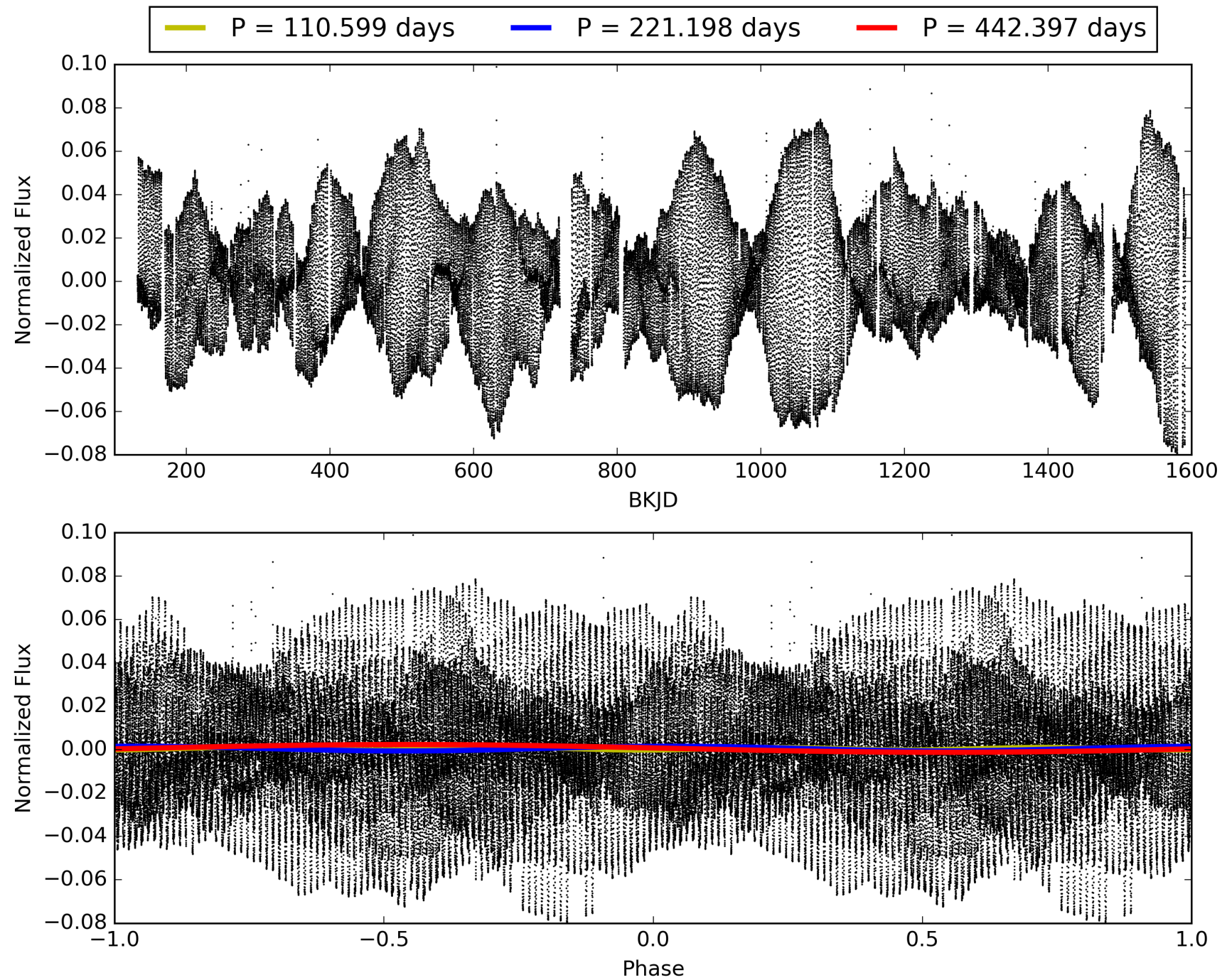
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 05:45:08 Z

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

TCE 010736489-04, PDC Light Curves

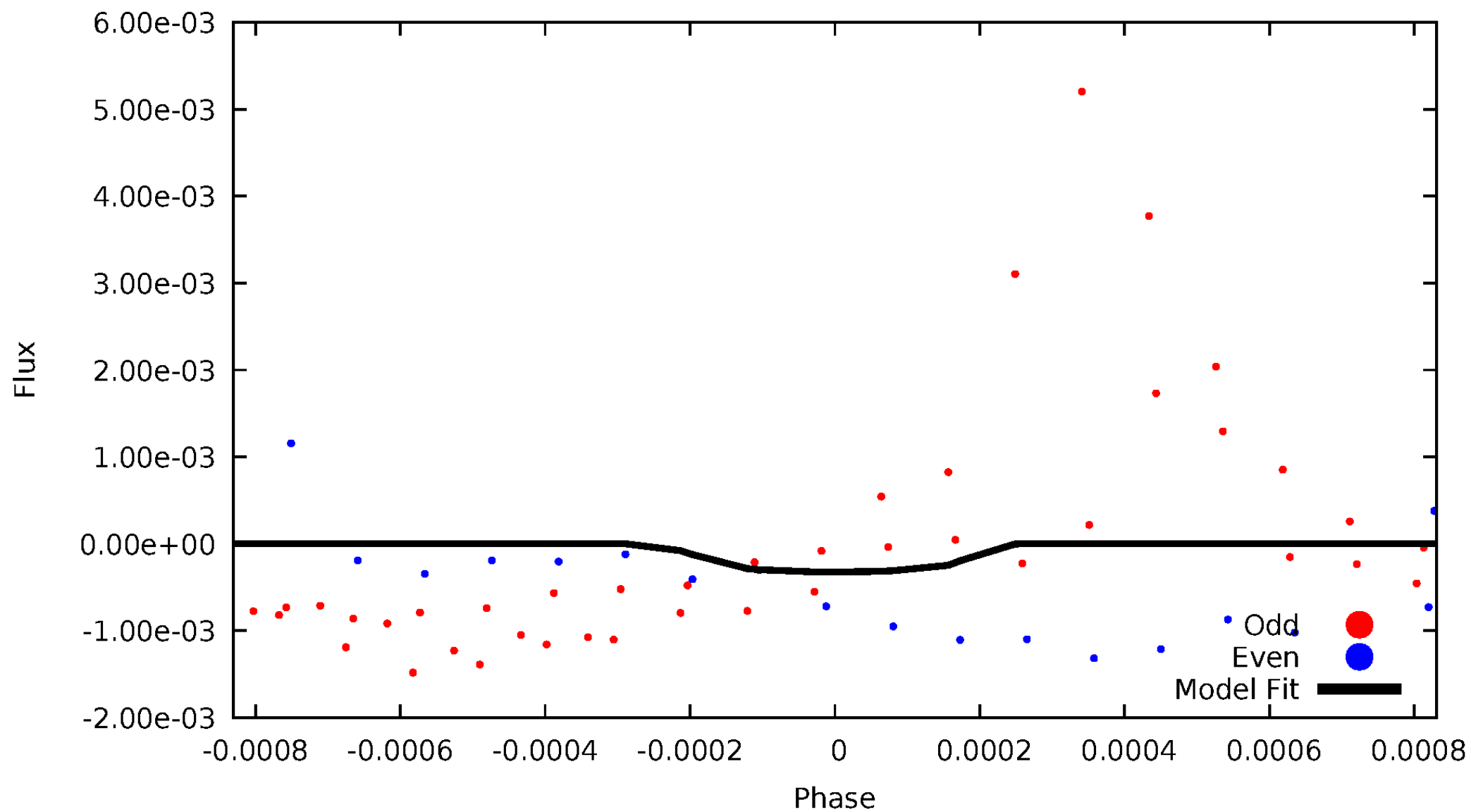


TCE 010736489-04



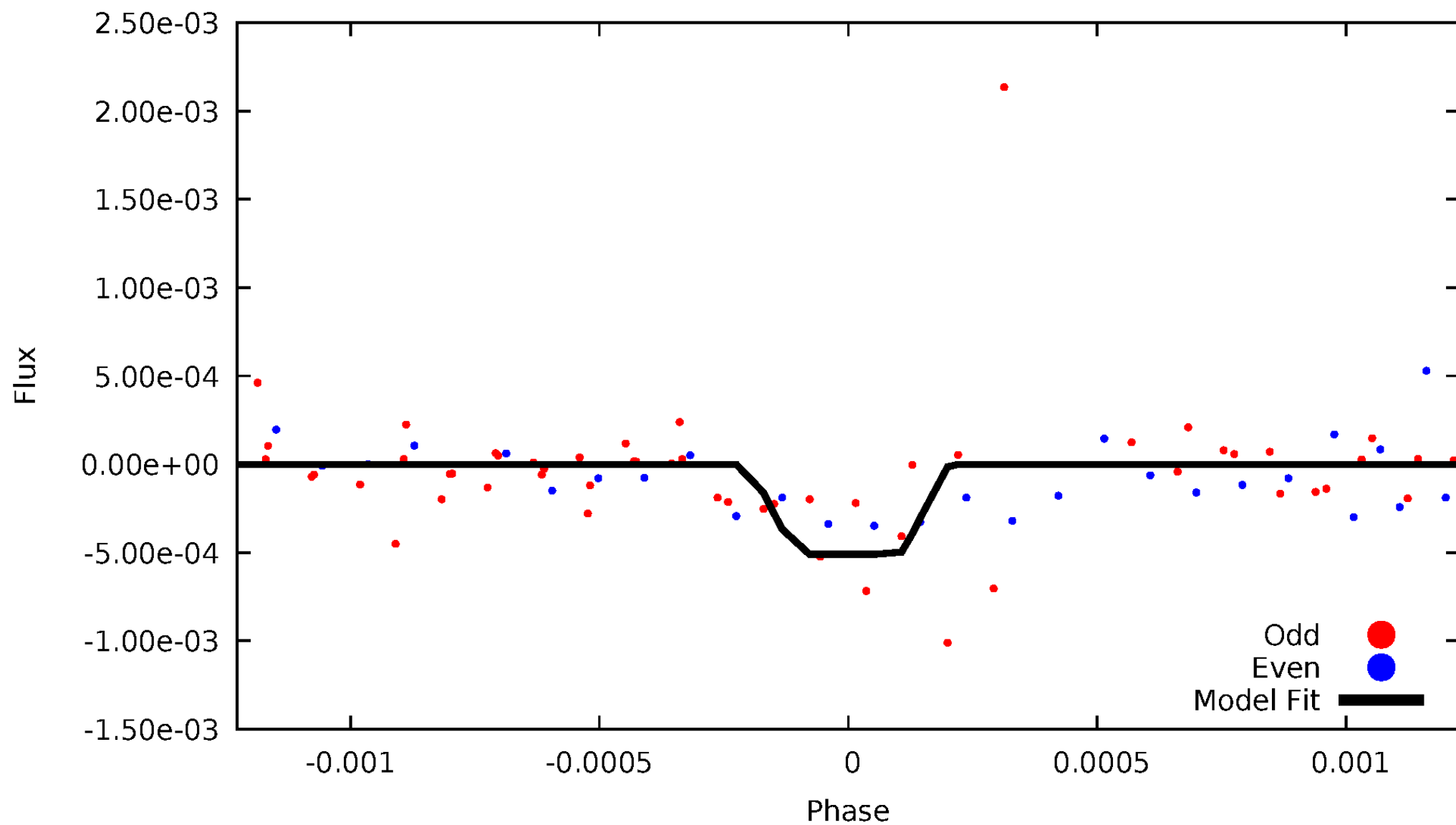
DV Odd/Even

TCE 010736489-04



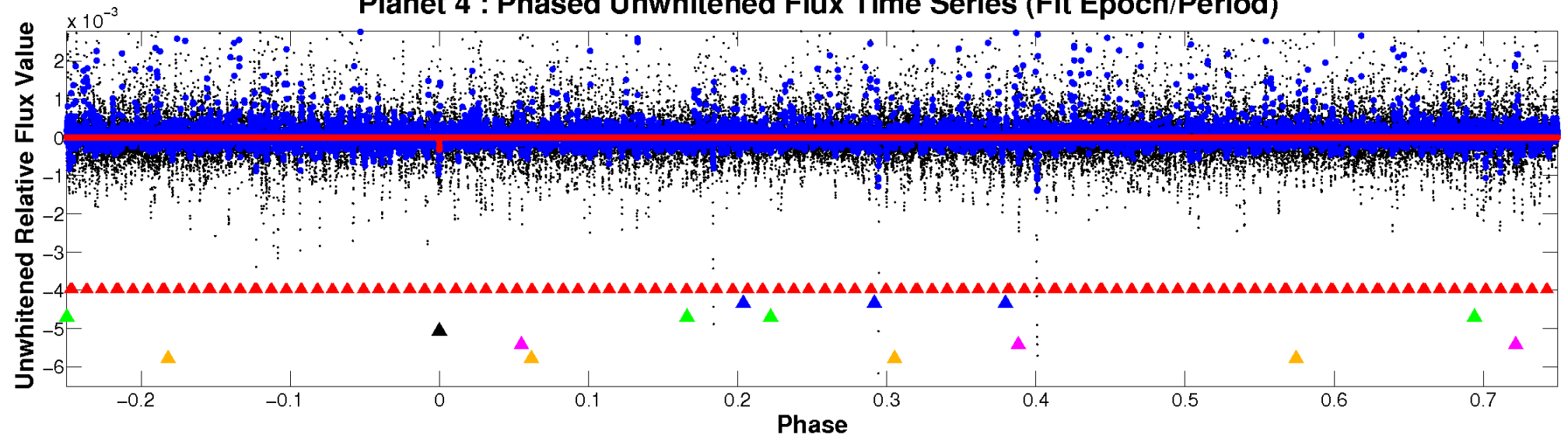
ALT Odd/Even

TCE 010736489-04

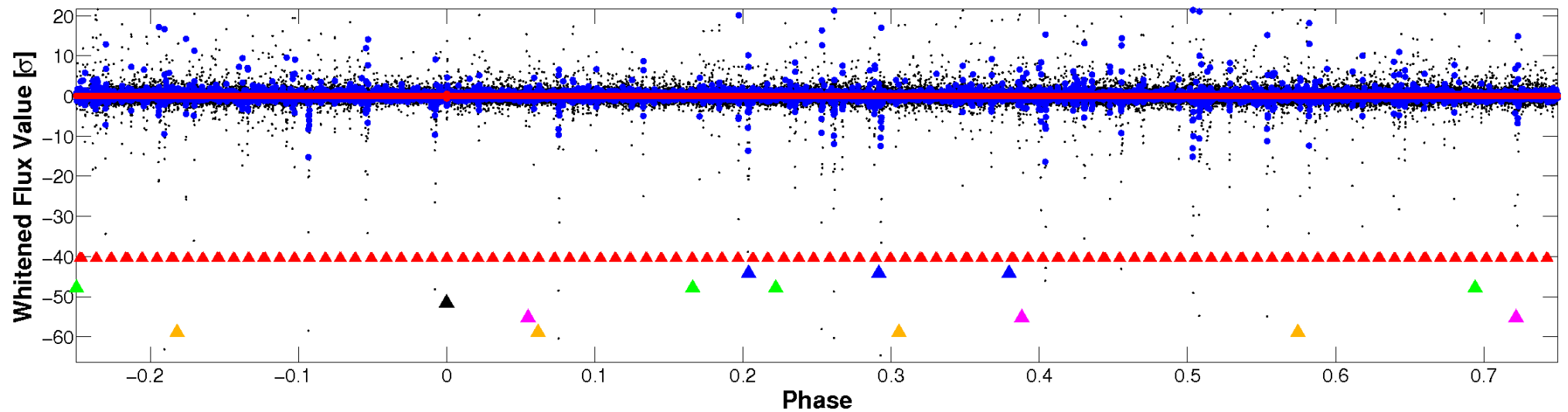


Non-Whitened Vs. Whitened Light Curve

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

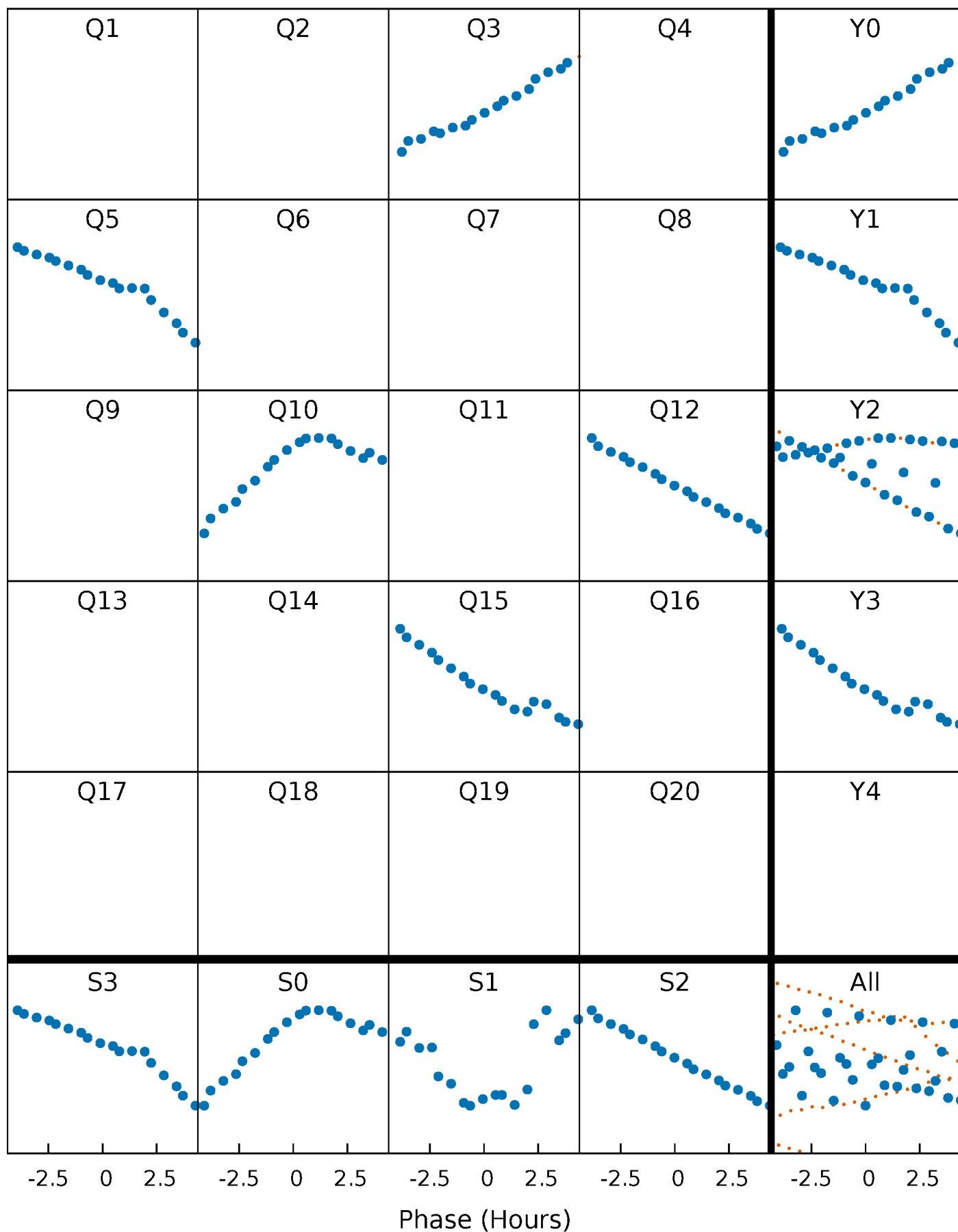


Planet 4 : Phased Whitened Flux Time Series (Fit Epoch/Period)



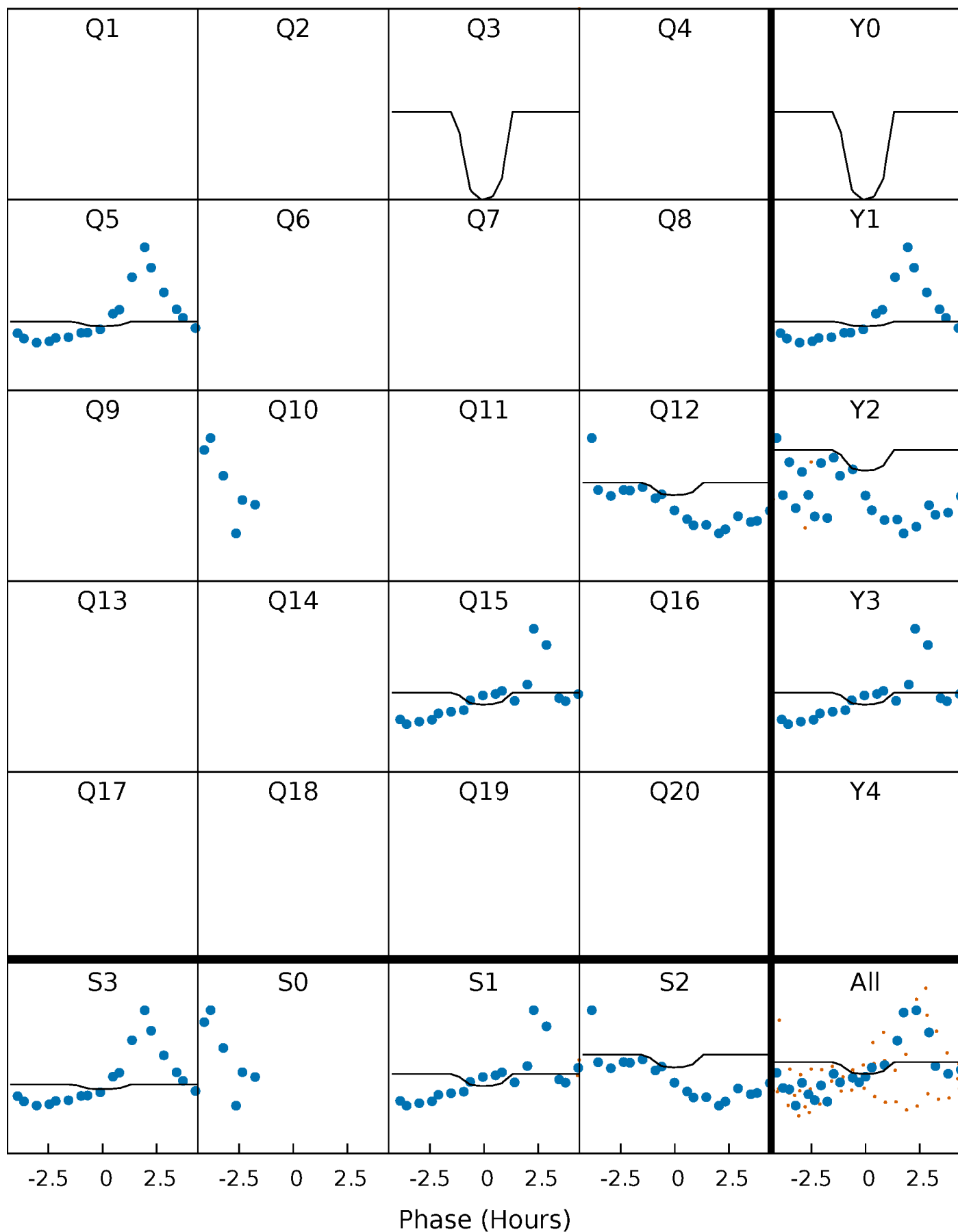
PDC Quarter-Phased Transit Curves

TCE 010736489-04 $P=221.198496$ Days $T_0=287.626356$ (BKJD)



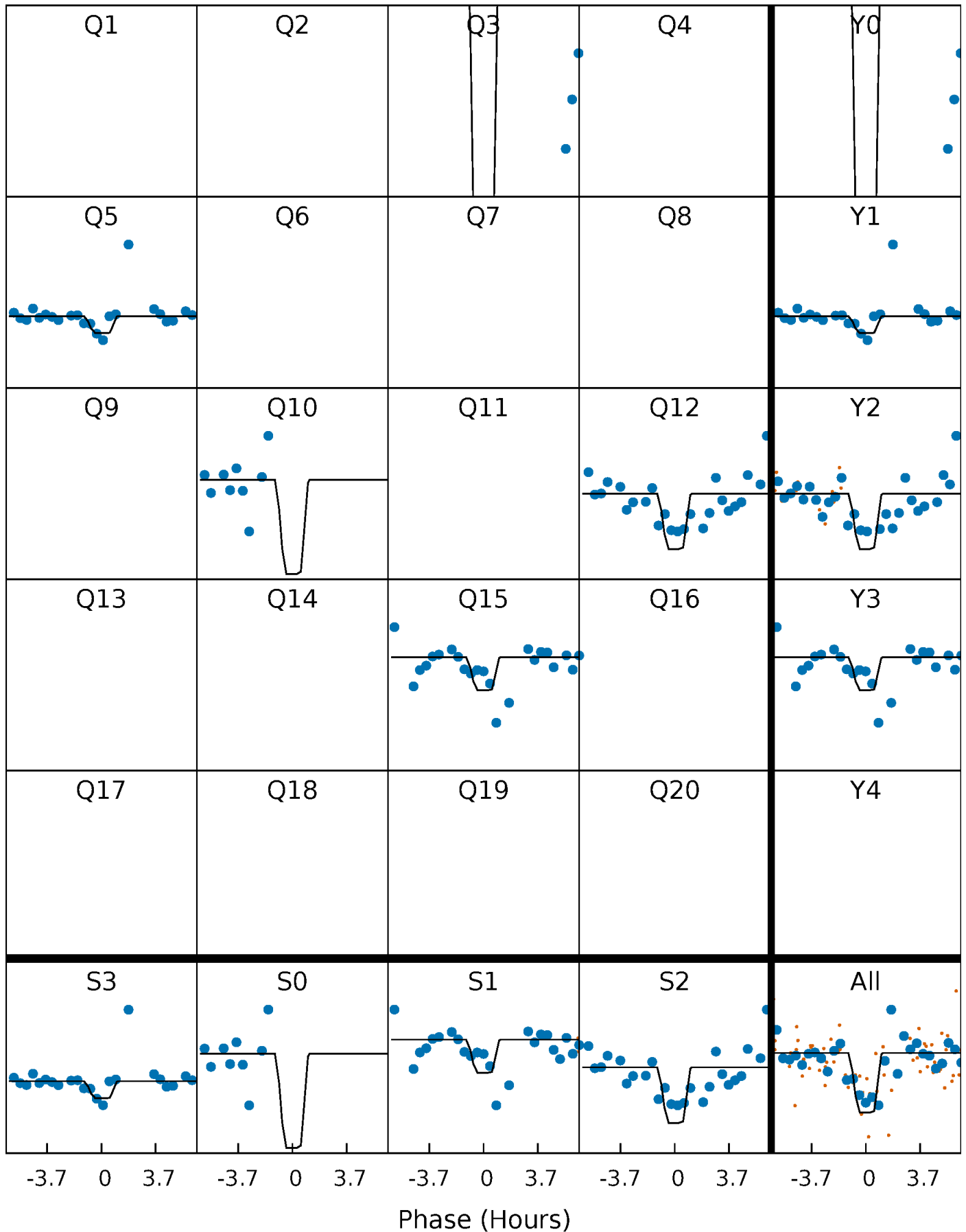
DV Quarter-Phased Transit Curves

TCE 010736489-04 $P=221.198496$ Days $T_0=287.626356$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

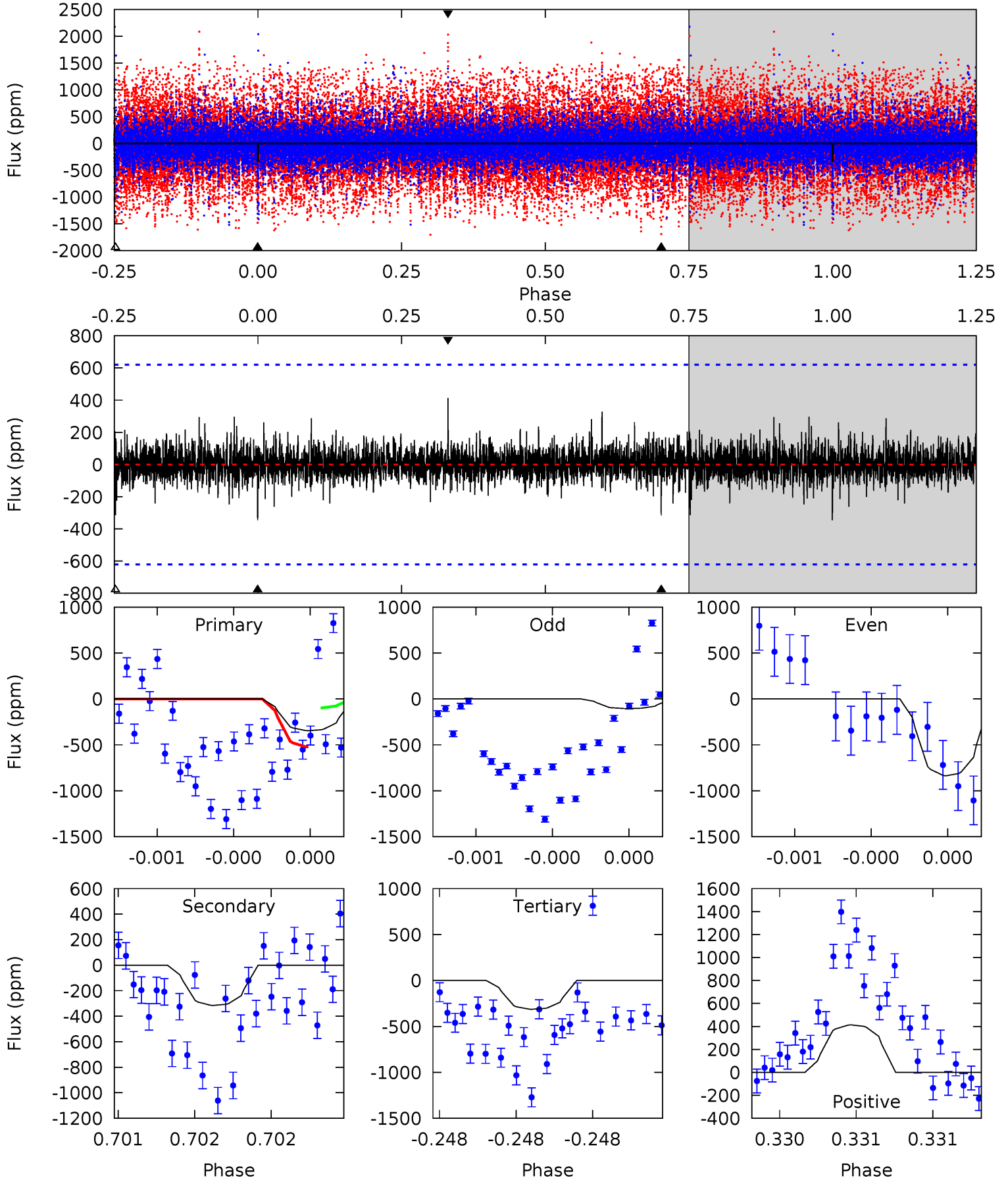
TCE 010736489-04 P=221.205315 Days $T_0=287.605357$ (BKJD)



DV Model-Shift Uniqueness Test

010736489-04, P = 221.198496 Days, E = 66.427860 Days

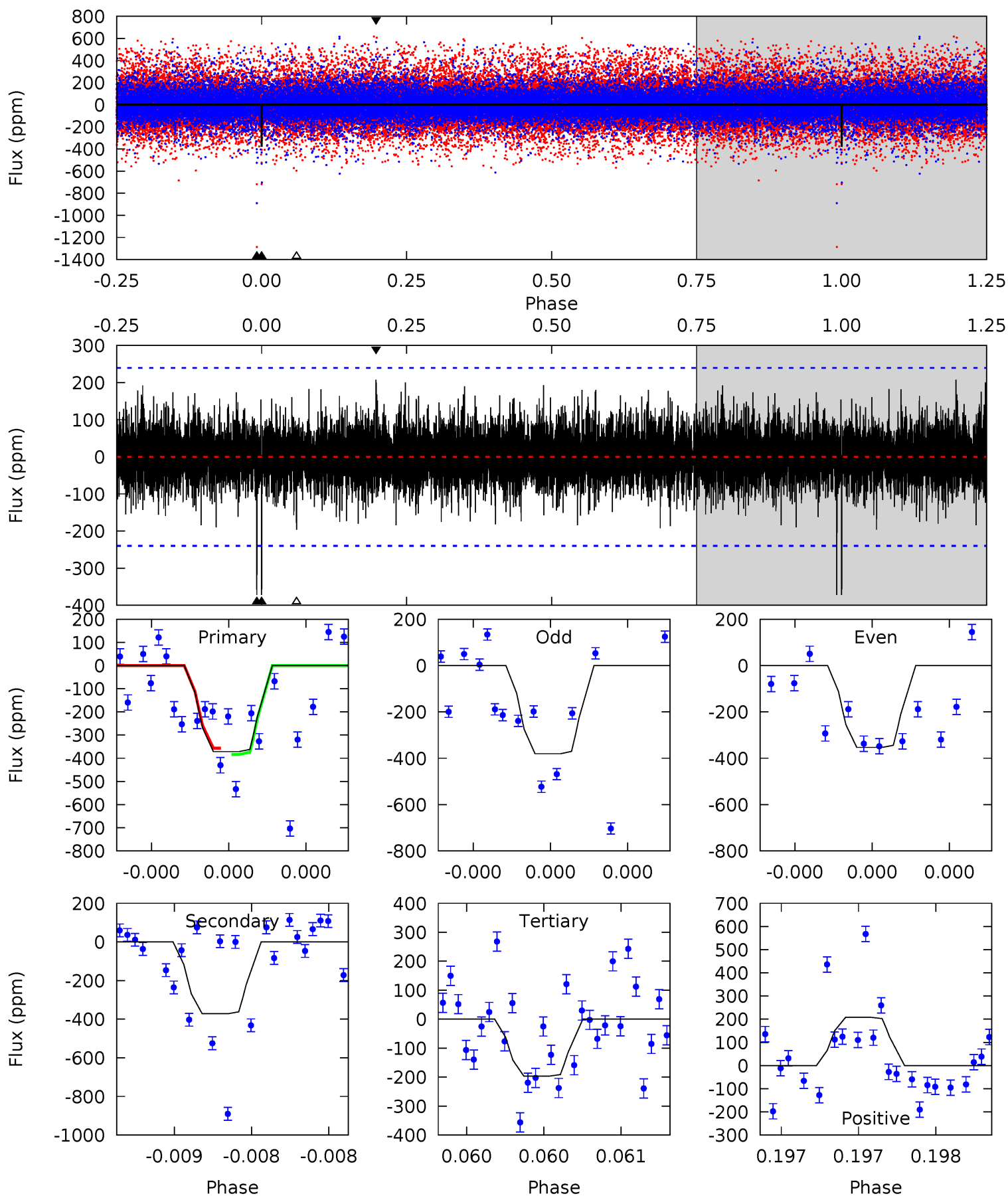
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
3.11	2.84	2.82	3.72	5.59	3.50	0.58	0.29	-0.61	0.02	-0.88	3.01	2.68	0.54	1.94



Alt Model-Shift Uniqueness Test

010736489-04, P = 221.205315 Days, E = 66.400042 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
8.71	8.71	4.60	4.87	5.62	3.55	1.15	4.11	3.84	4.11	3.85	0.29	1.06	0.36	0.32



Stellar Parameters For KIC 010736489

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (g \cdot \text{cm}^{-3})$
	5227^{+183}_{-183}	$4.535^{+0.052}_{-0.105}$	$0.140^{+0.250}_{-0.300}$	$0.838^{+0.125}_{-0.073}$	$0.876^{+0.070}_{-0.077}$	$2.100^{+0.471}_{-0.659}$
	+4%/-4%	+1%/-2%	+179%/-214%	+15%/-9%	+8%/-9%	+22%/-31%
Source	PHO54	PHO54	PHO54	DSEP		

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

Secondary Eclipse Parameters for KIC 010736489-04 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-316 ± 111	$6.13^{+5.35}_{-4.37}$	360^{+17}_{-17}	3266^{+1705}_{-577}	2179^{+21958}_{-1633}
Alt.	-372 ± 43	$5.87^{+6.26}_{-4.35}$	360^{+17}_{-17}	3380^{+2144}_{-619}	2757^{+36454}_{-2137}

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

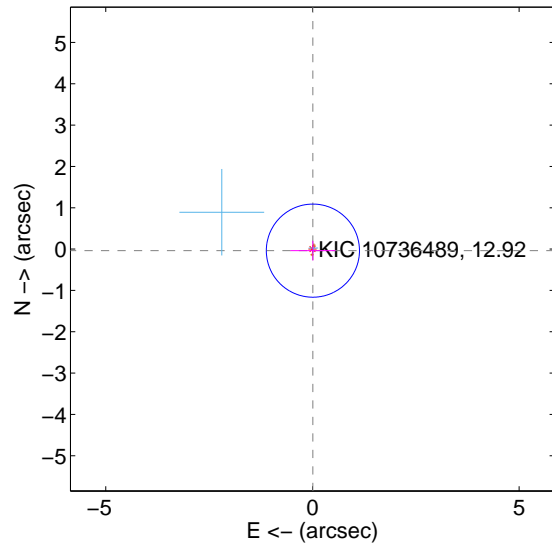
Supplemental centroid analysis for 010736489-04. Kepler magnitude: 12.92. Transit SNR 2.00

There are 2 quarters with good PRF difference image offsets

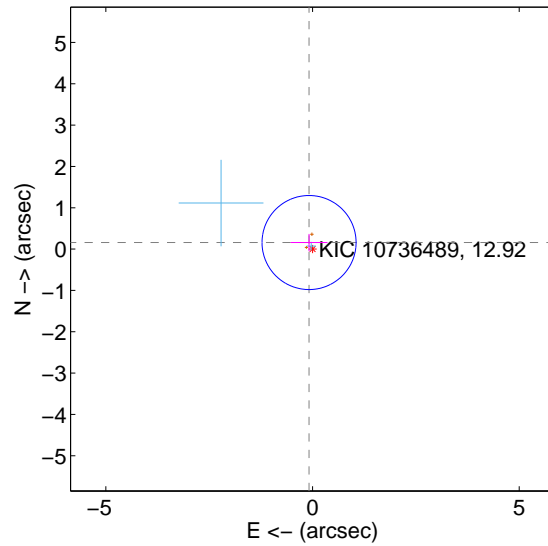
The direct PRF centroid is offset from the target star catalog position by about 0.22 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.039 ± 0.376	0.10	-0.011 ± 0.545	-0.038 ± 0.238
PRF-fit source offset from KIC position	0.180 ± 0.379	0.47	0.084 ± 0.445	0.159 ± 0.209
photometric centroid source offset	1.85 ± 1.01	1.83	1.39 ± 1.01	1.22 ± 1.01

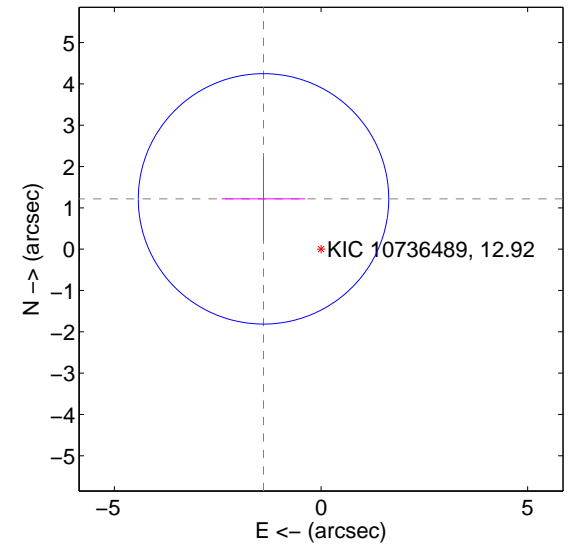
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position



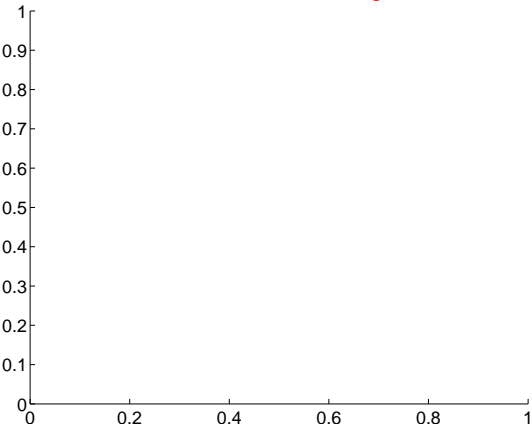
offset from photometric centroids



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.

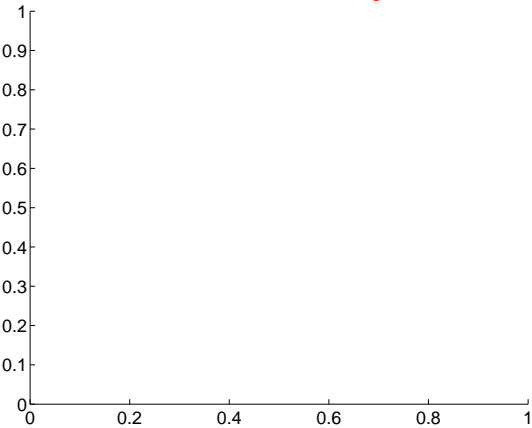
Q1 no difference image



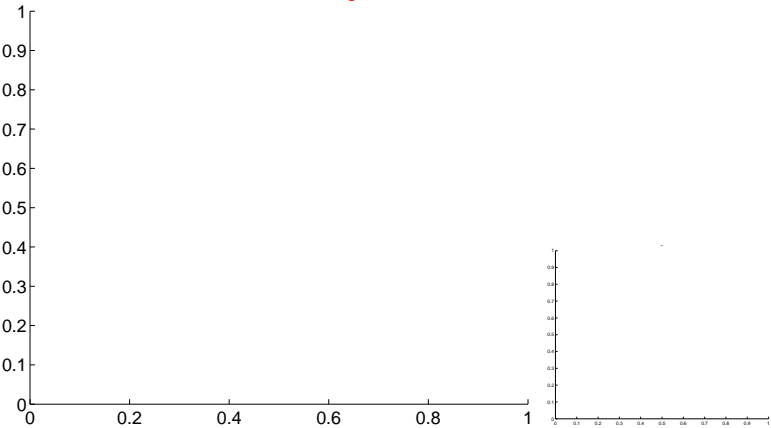
Q1 no OOT image



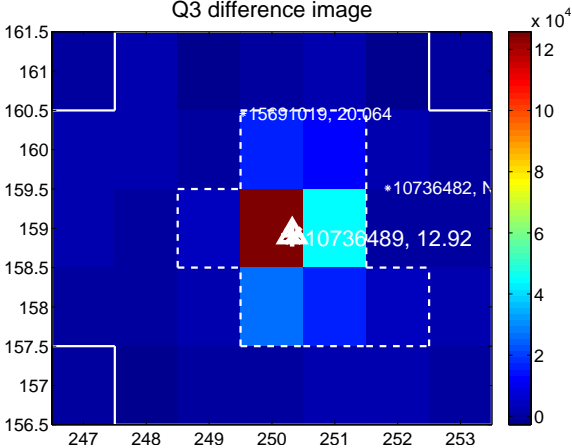
Q2 no difference image



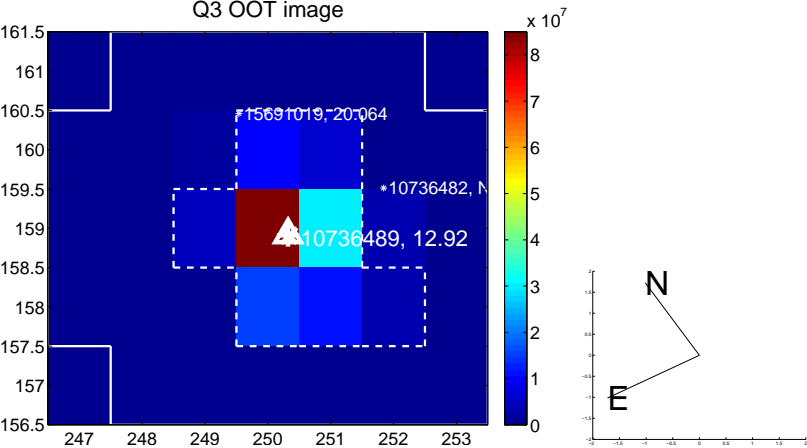
Q2 no OOT image



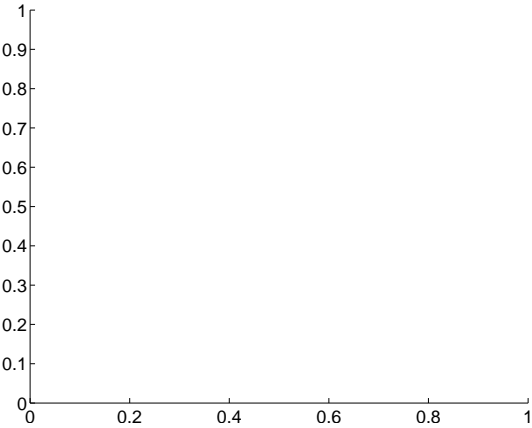
Q3 difference image



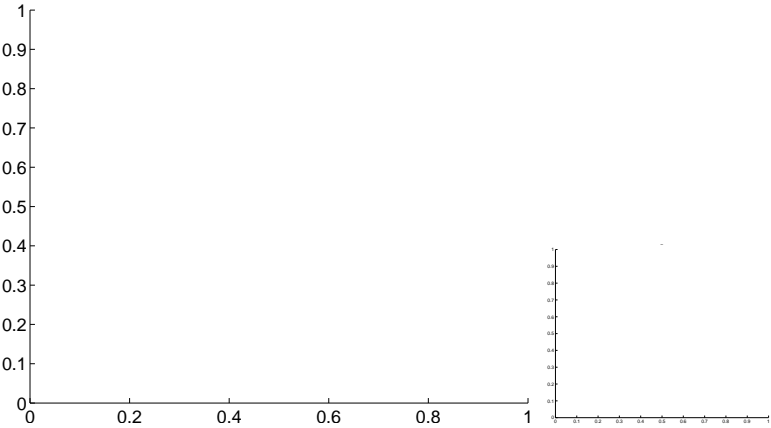
Q3 OOT image



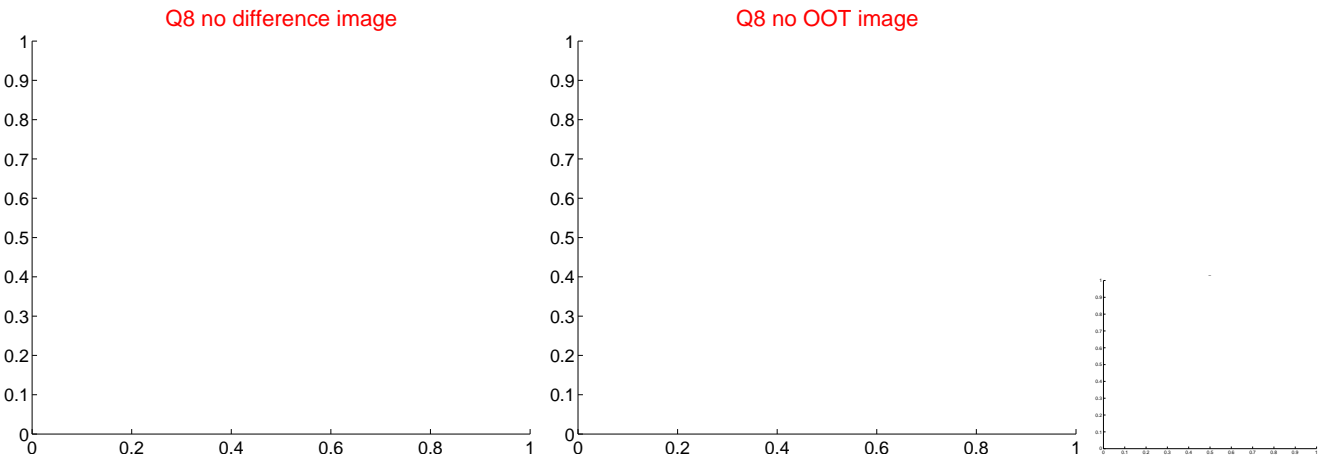
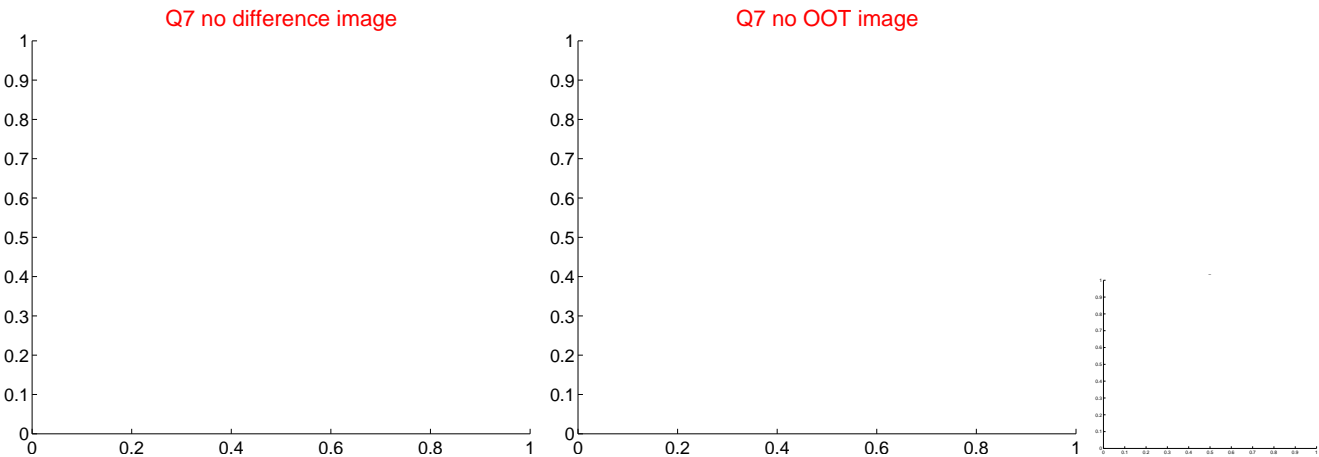
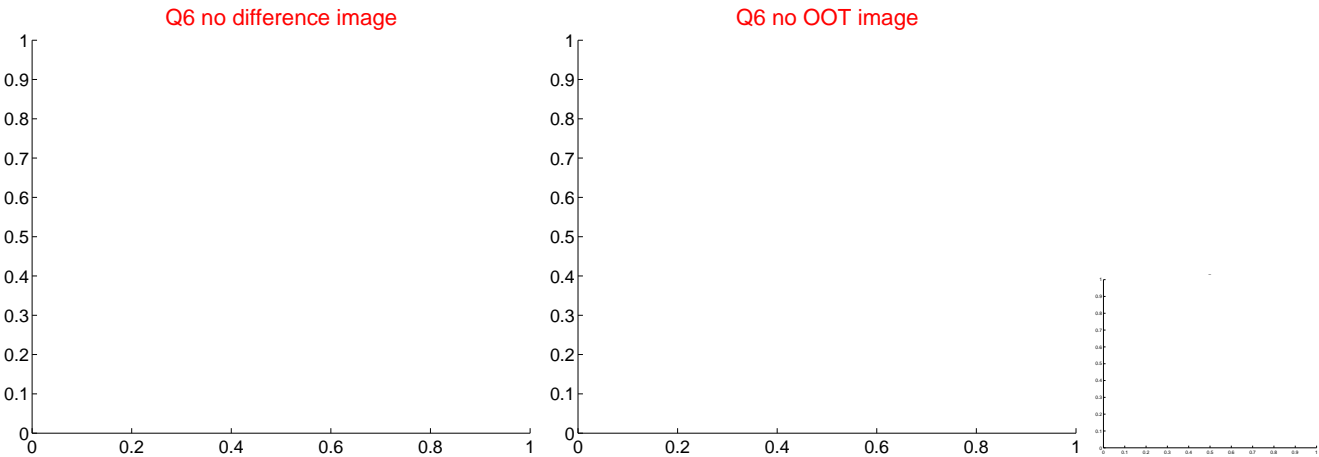
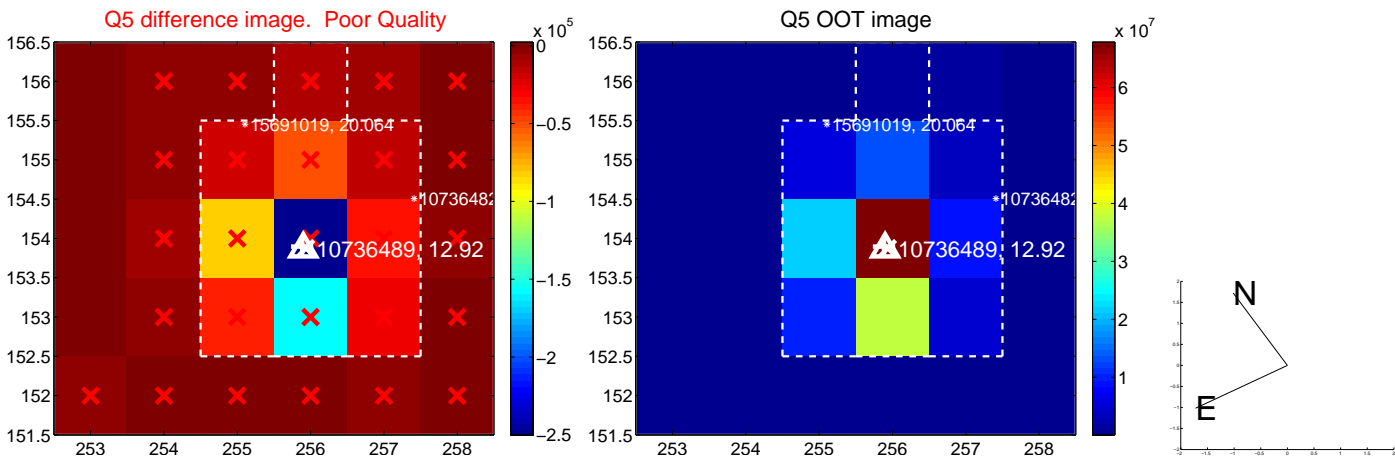
Q4 no difference image



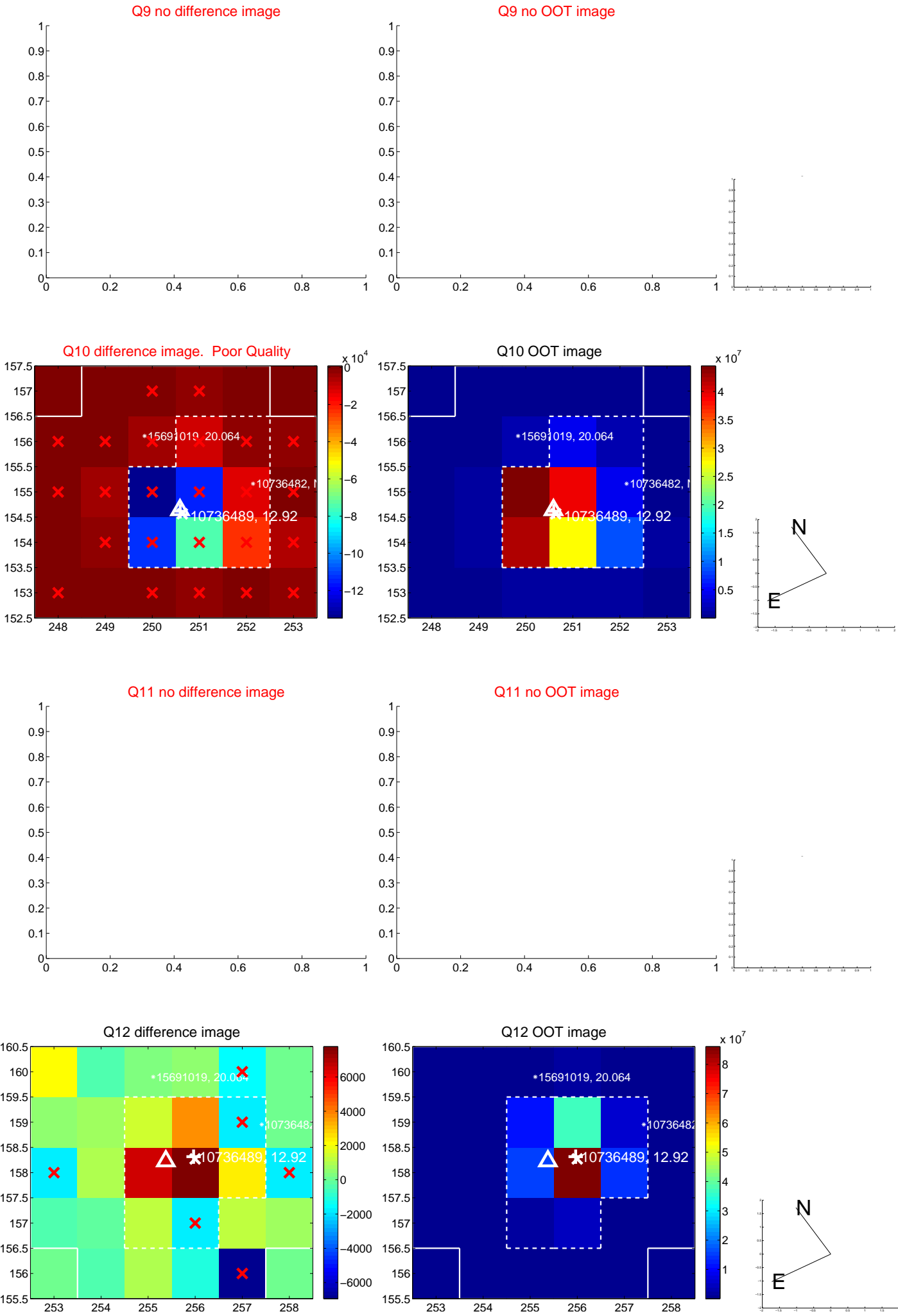
Q4 no OOT image



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



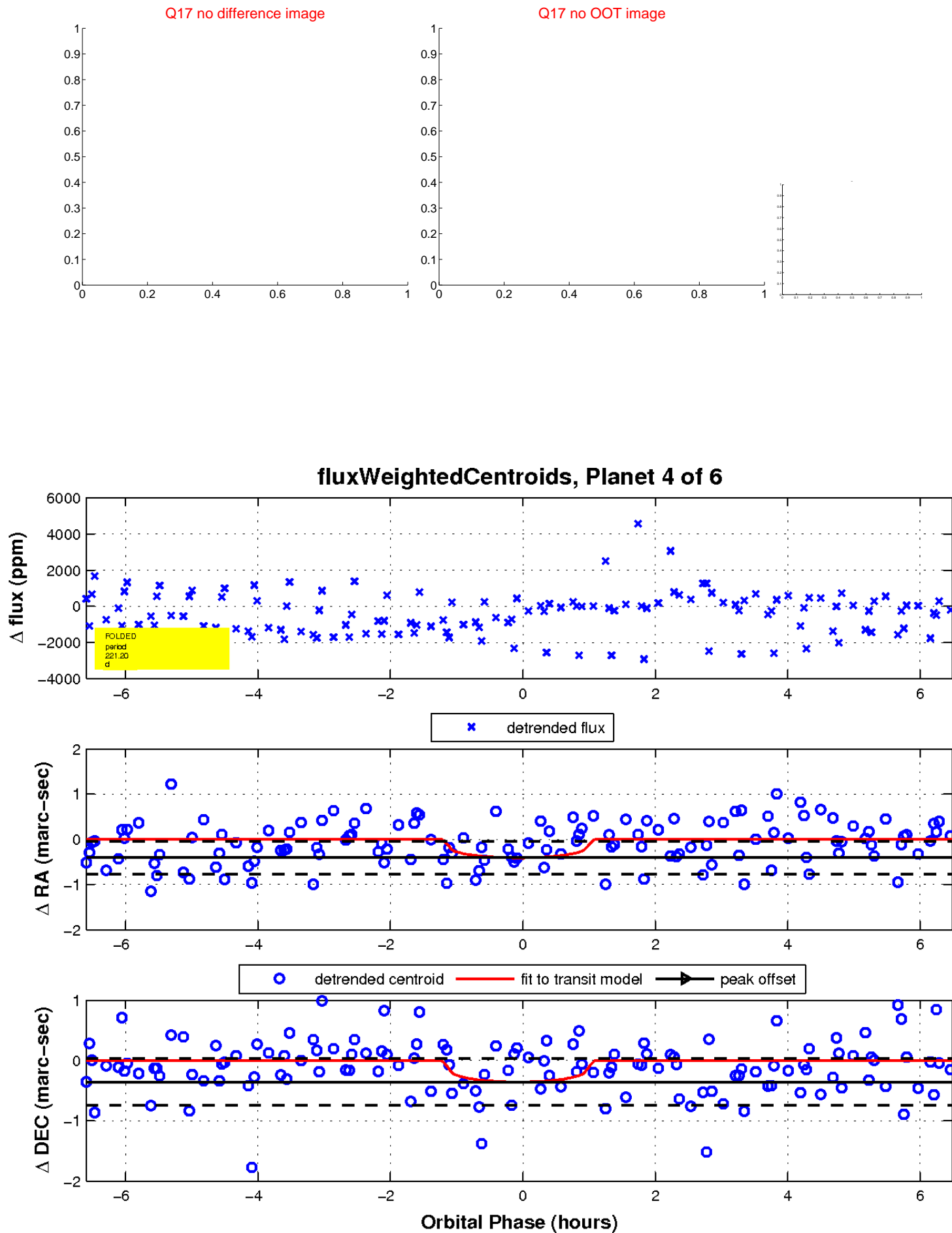
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



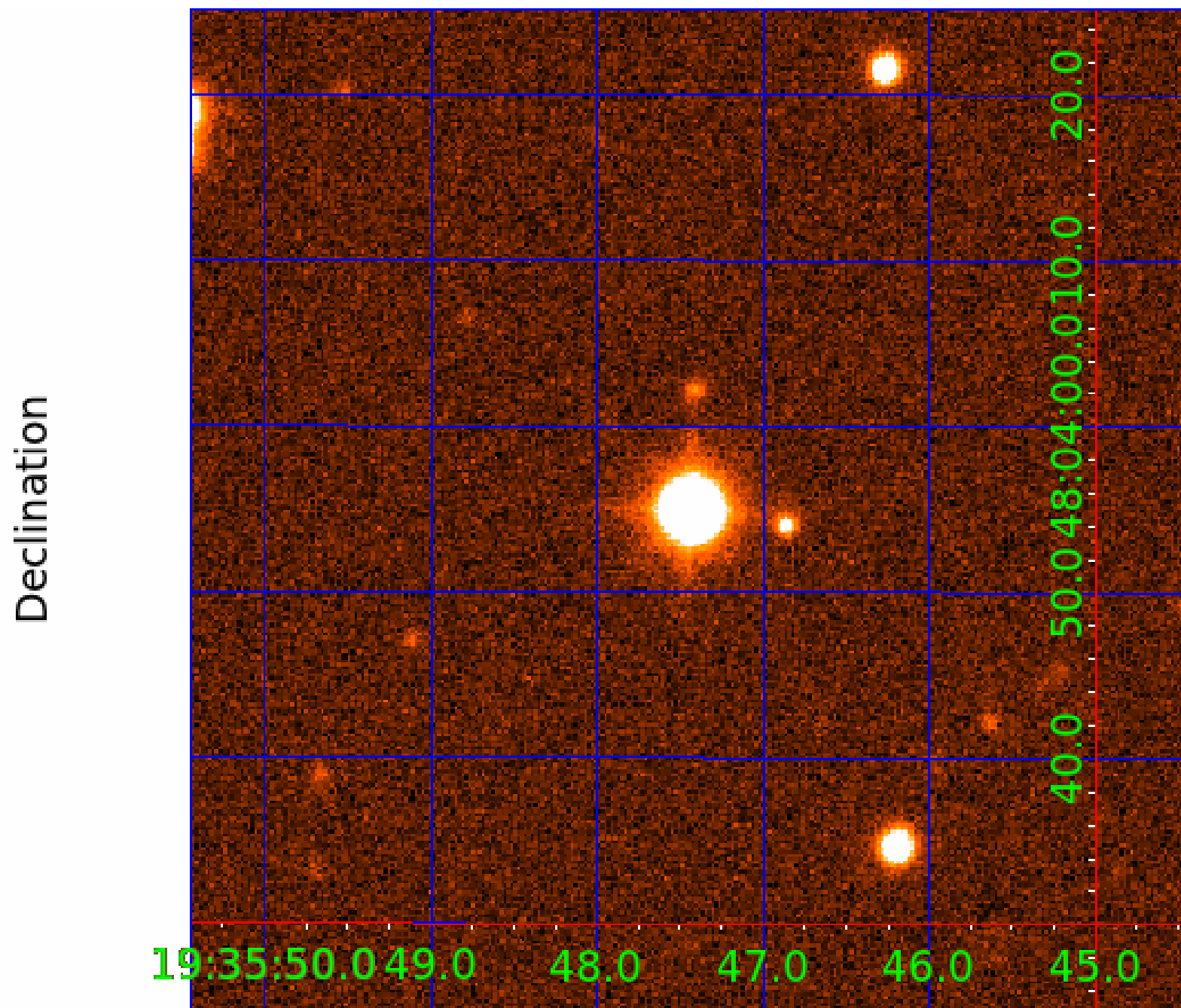
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



UKIRT Image



KIC 010736489

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})
010736489-01	OBS	7368.01	6.843087	137.038440	657.7	3.154	28.9	32.4	0.84	5227	2.67	102.90
010736489-02	OBS	No	644.151624	150.397424	735.6	7.027	12.3	2.9	0.84	5227	2.65	0.24
010736489-03	OBS	No	325.593377	453.574626	3361.6	20.988	18.4	4.8	0.84	5227	5.99	0.60
010736489-04	OBS	No	221.198496	287.626356	324.9	2.204	14.5	2.0	0.84	5227	1.52	1.00
010736489-05	OBS	No	589.889757	152.303738	4297.0	9.213	13.6	10.5	0.84	5227	5.34	0.27
010736489-06	OBS	No	388.516899	133.959615	311.6	6.000	16.0	-1.0	0.84	5227	1.44	0.47

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
010736489-01	OBS	PC	1.00	0	0	0	0	NO_COMMENT
010736489-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES_TRACKER—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
010736489-03	OBS	FP	0.00	1	0	0	0	LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
010736489-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
010736489-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV
010736489-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES—LPP_DV—ALL_TRANS_CHASES—CENT_NOFITS

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 010736489-05

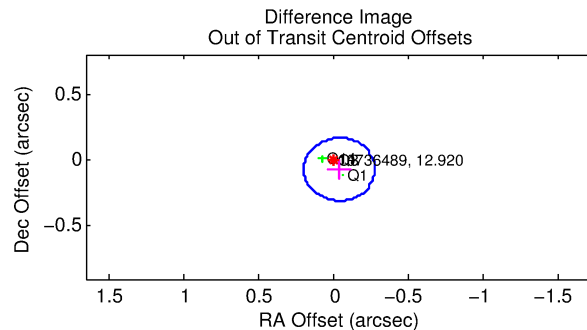
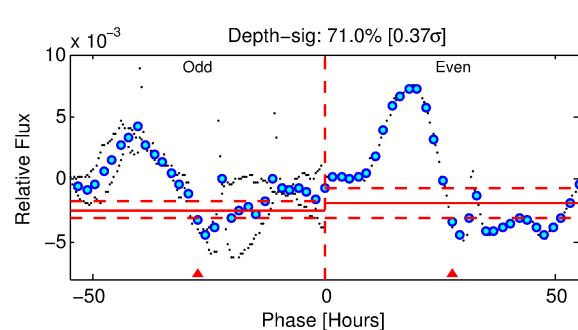
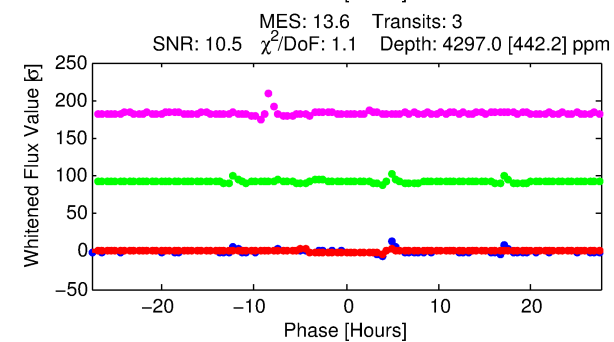
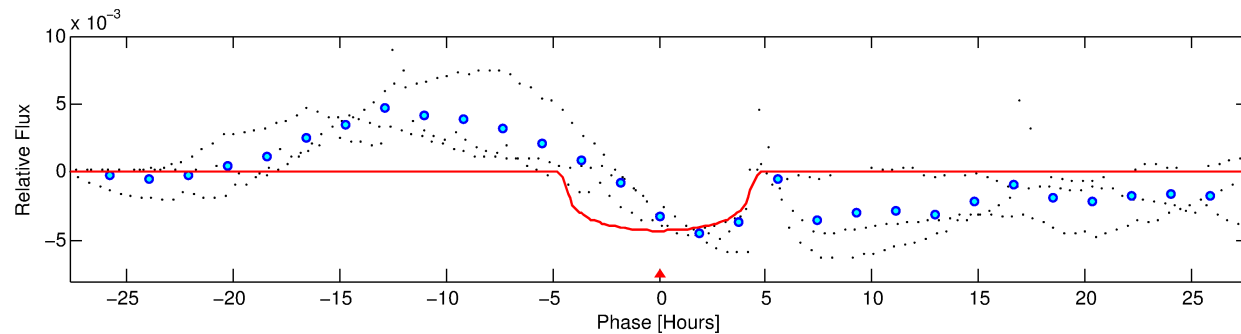
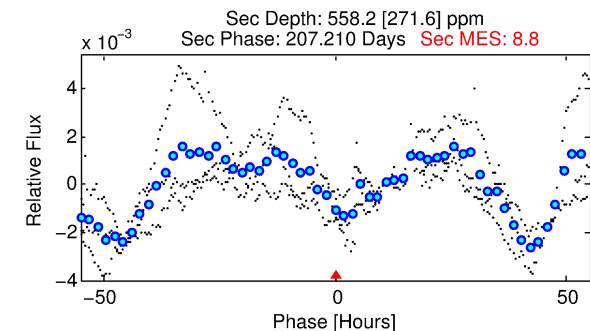
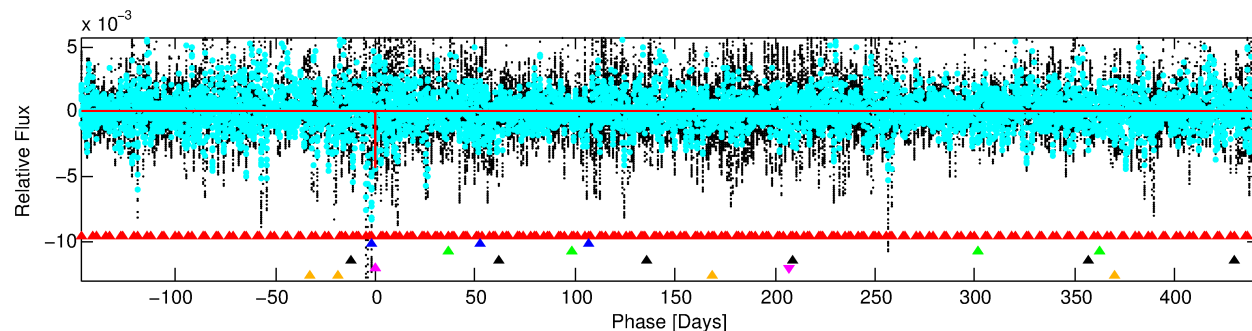
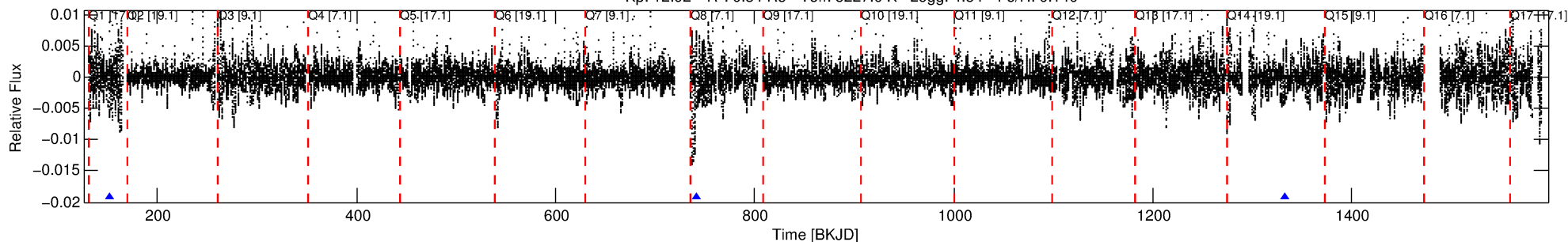
No Significant Match Found

DV One-Page Summary

KIC: 10736489 Candidate: 5 of 6 Period: 589.890 d

KOI: K07368 Corr: No Ephemeris Match

Kp: 12.92 R*: 0.84 Rs Teff: 5227.0 K Logg: 4.54 Fe/H: 0.140



DV Fit Results:

Period = 589.88976 [0.00193] d
Epoch = 152.3037 [0.0028] BKJD
Rp/R* = 0.0584 [0.0060]
a/R* = 517.64 [134.77]
b = 0.01 [21.32]
Seff = 0.27 [0.06]
Teq = 184 [11] K
Rp = 5.34 [0.97] Re
a = 1.3184 [0.1688] AU
Ag = 18724.46 [10512.59] [1.78σ]
Teff = 3325 [455] K [6.91σ]

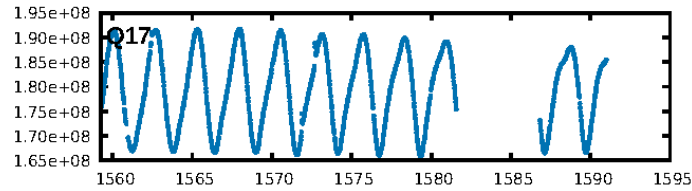
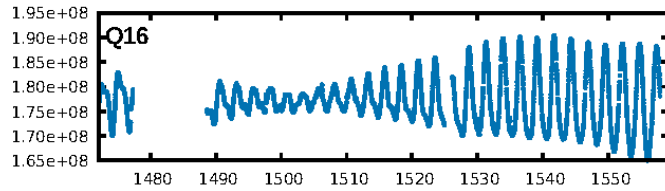
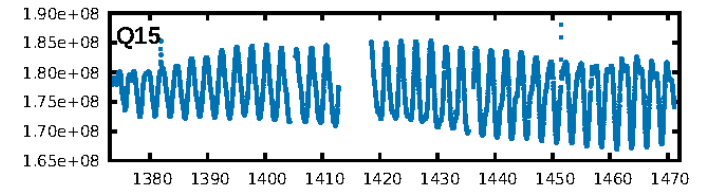
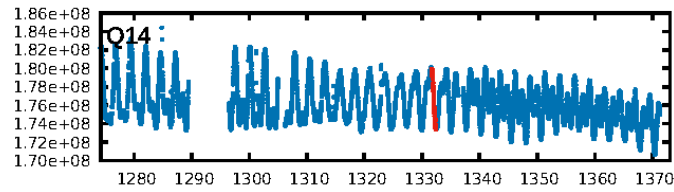
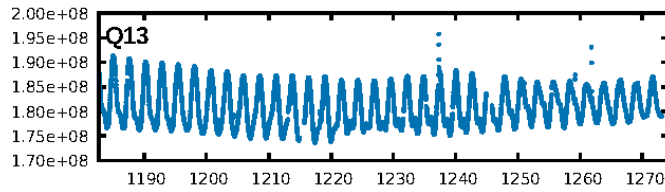
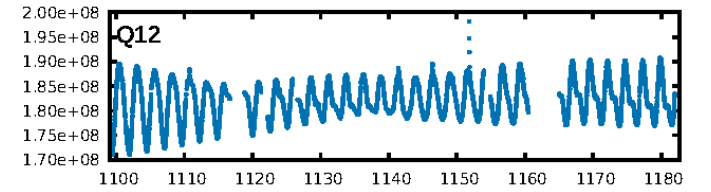
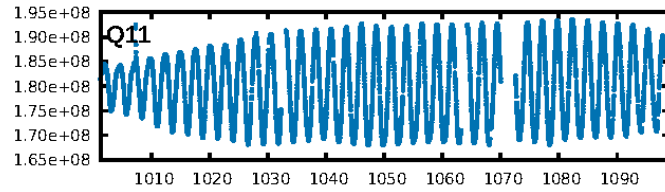
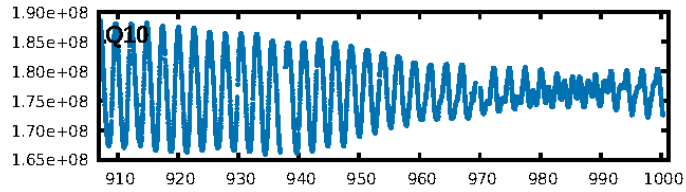
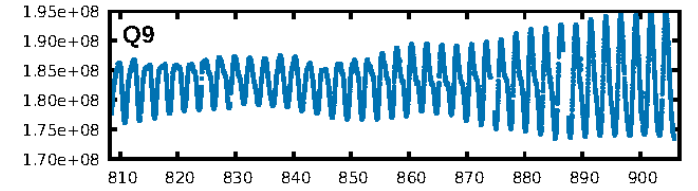
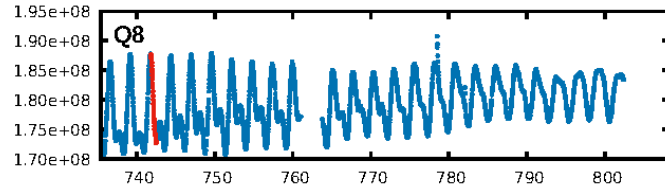
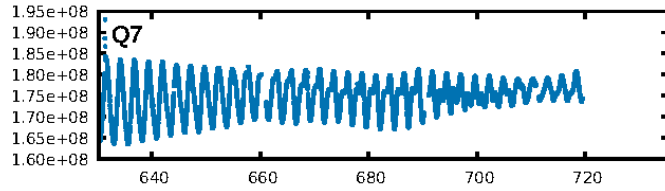
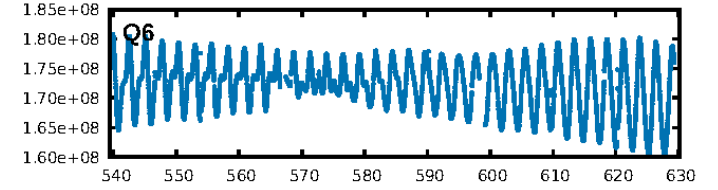
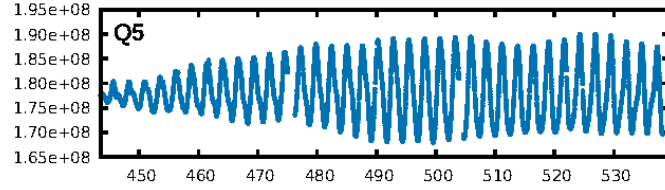
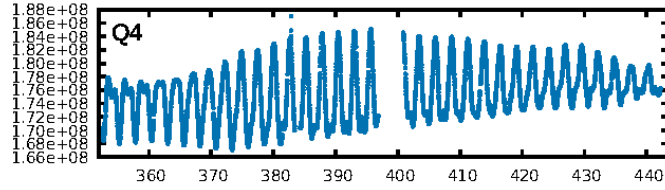
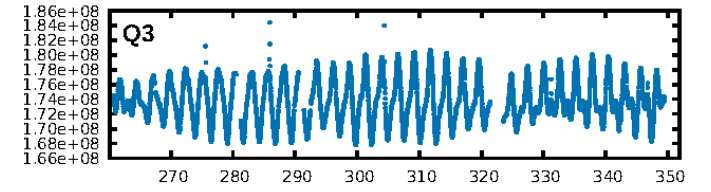
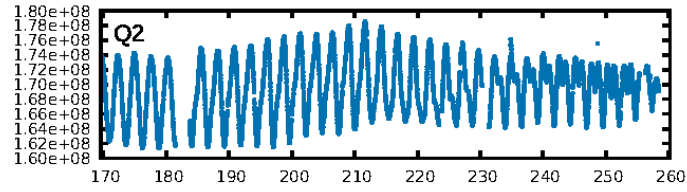
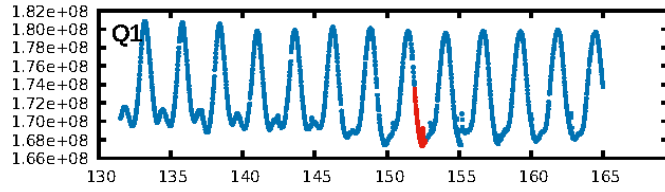
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [439.56σ]
LongPeriod-sig: 100.0% [112.39σ]
ModelChiSquare2-sig: 32.5%
ModelChiSquareGof-sig: 99.2%
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [2/2]
GhostDiagnostic-chr: 1.443
Centroid-sig: 43.9%
Centroid-so: 0.136 arcsec [2.03σ]
OotOffset-rm: 0.083 arcsec [1.05σ]
KicOffset-rm: 0.150 arcsec [1.48σ]
OotOffset-st: 1/0/1/1 [3]
KicOffset-st: 1/0/1/1 [3]
DiffImageQuality-fgm: 1.00 [3/3]
DiffImageOverlap-fno: 1.00 [3/3]

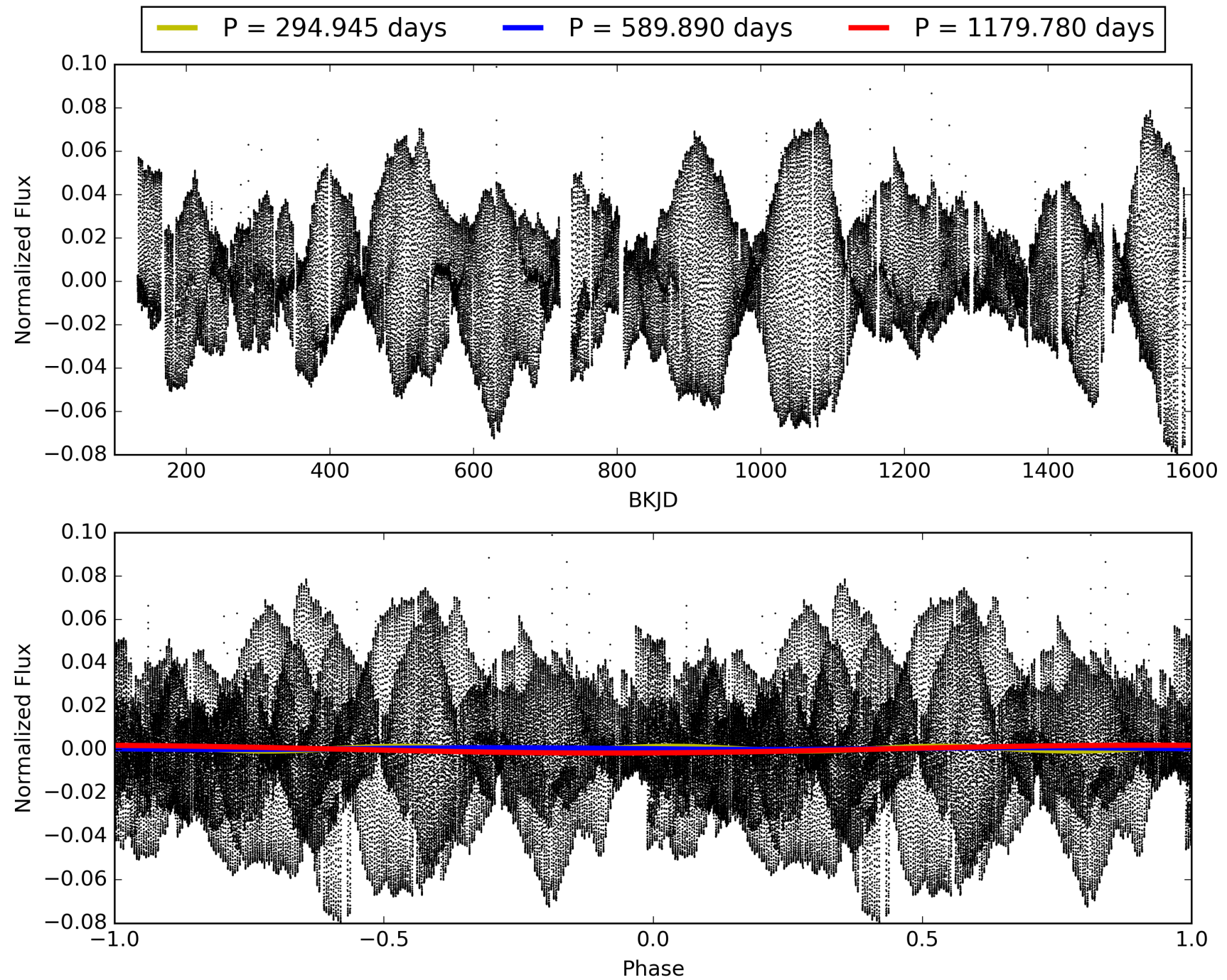
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 05:45:20 Z

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

TCE 010736489-05, PDC Light Curves

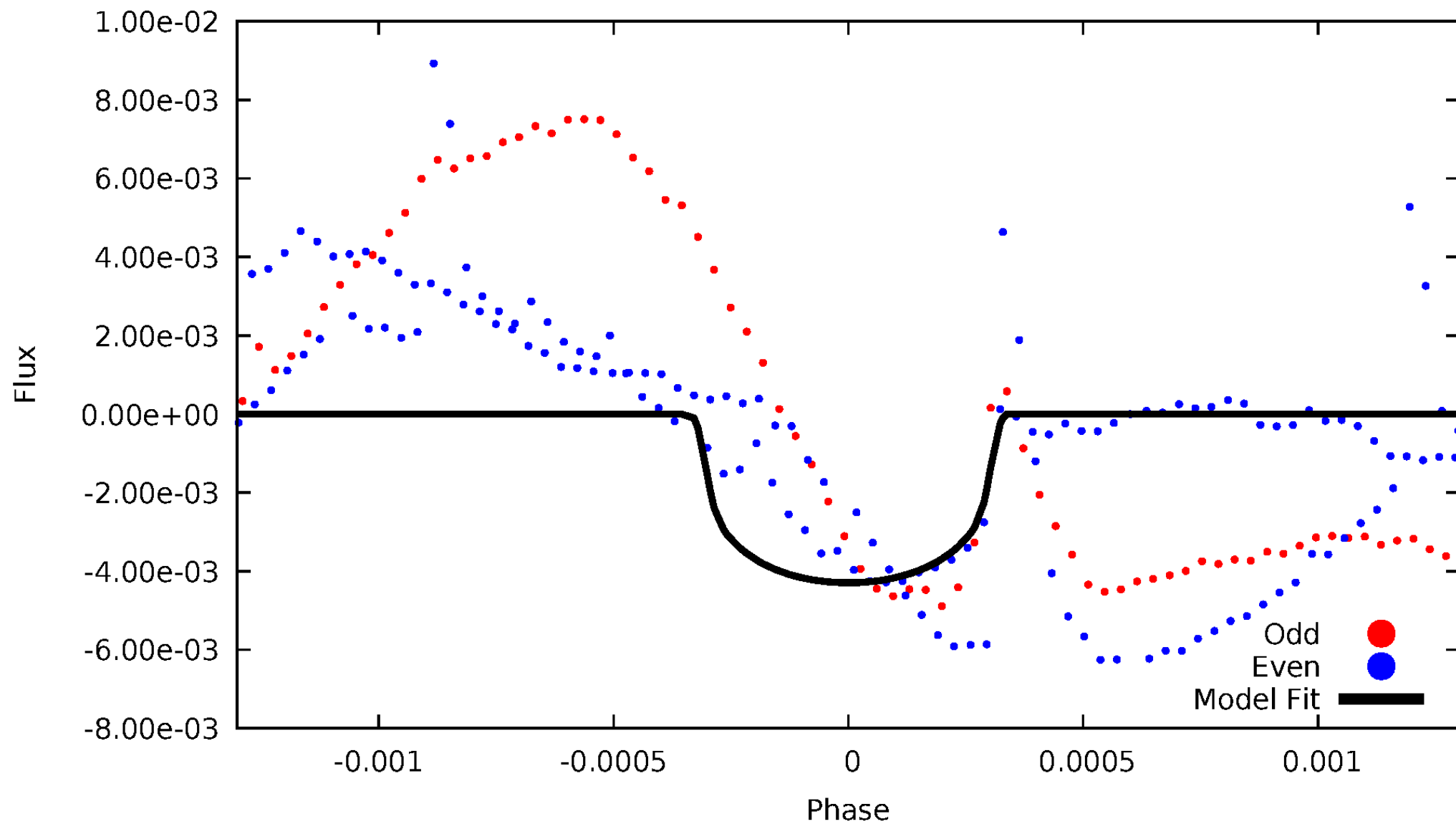


TCE 010736489-05



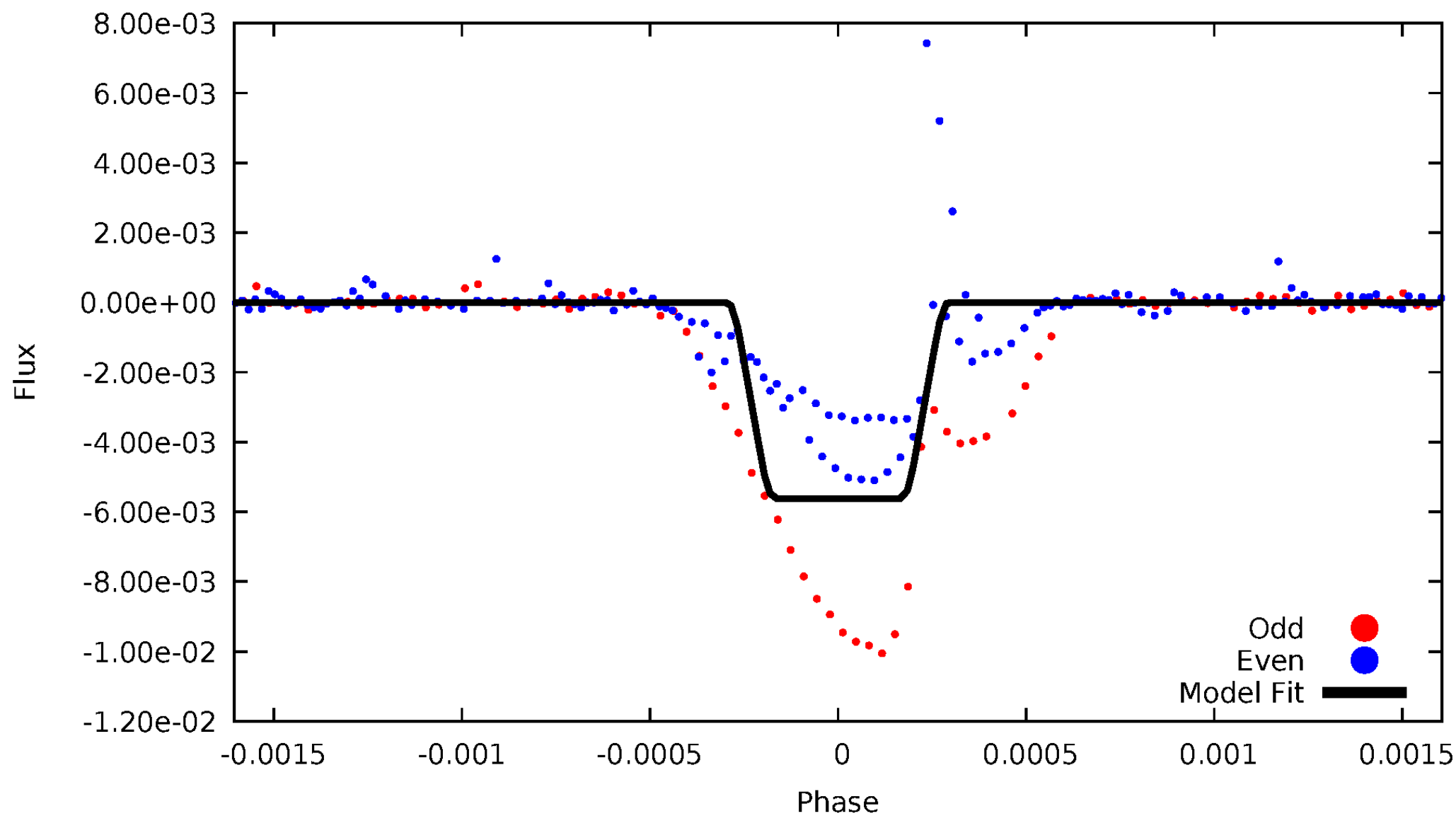
DV Odd/Even

TCE 010736489-05



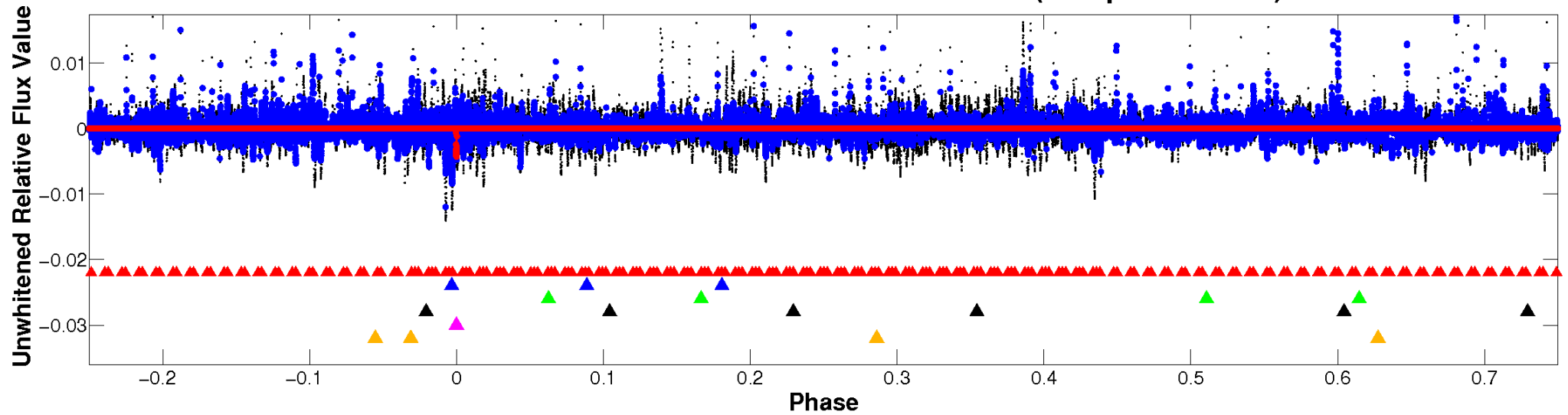
ALT Odd/Even

TCE 010736489-05

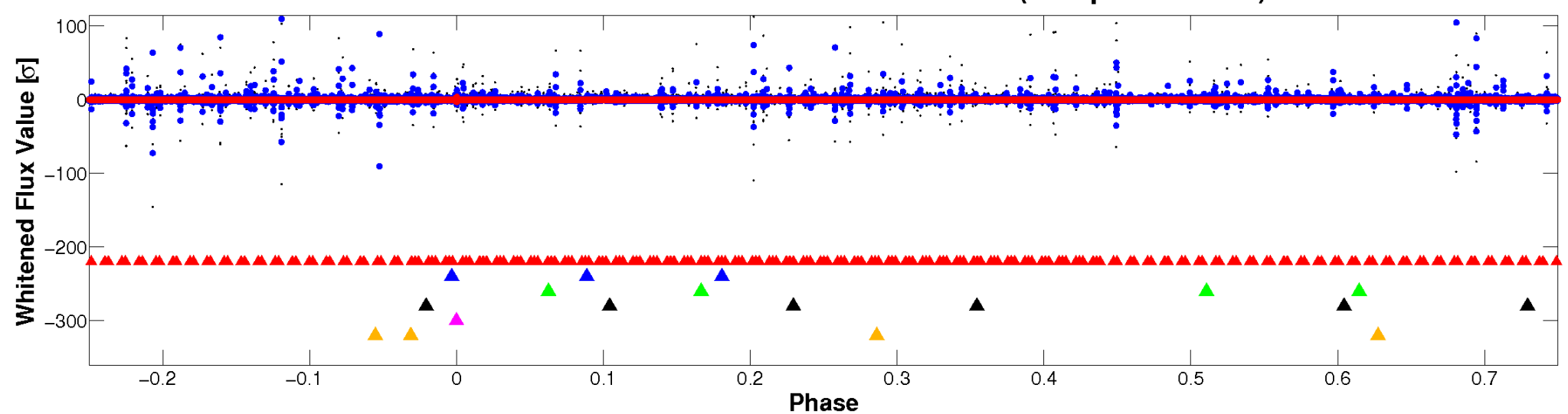


Non-Whitened Vs. Whitened Light Curve

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

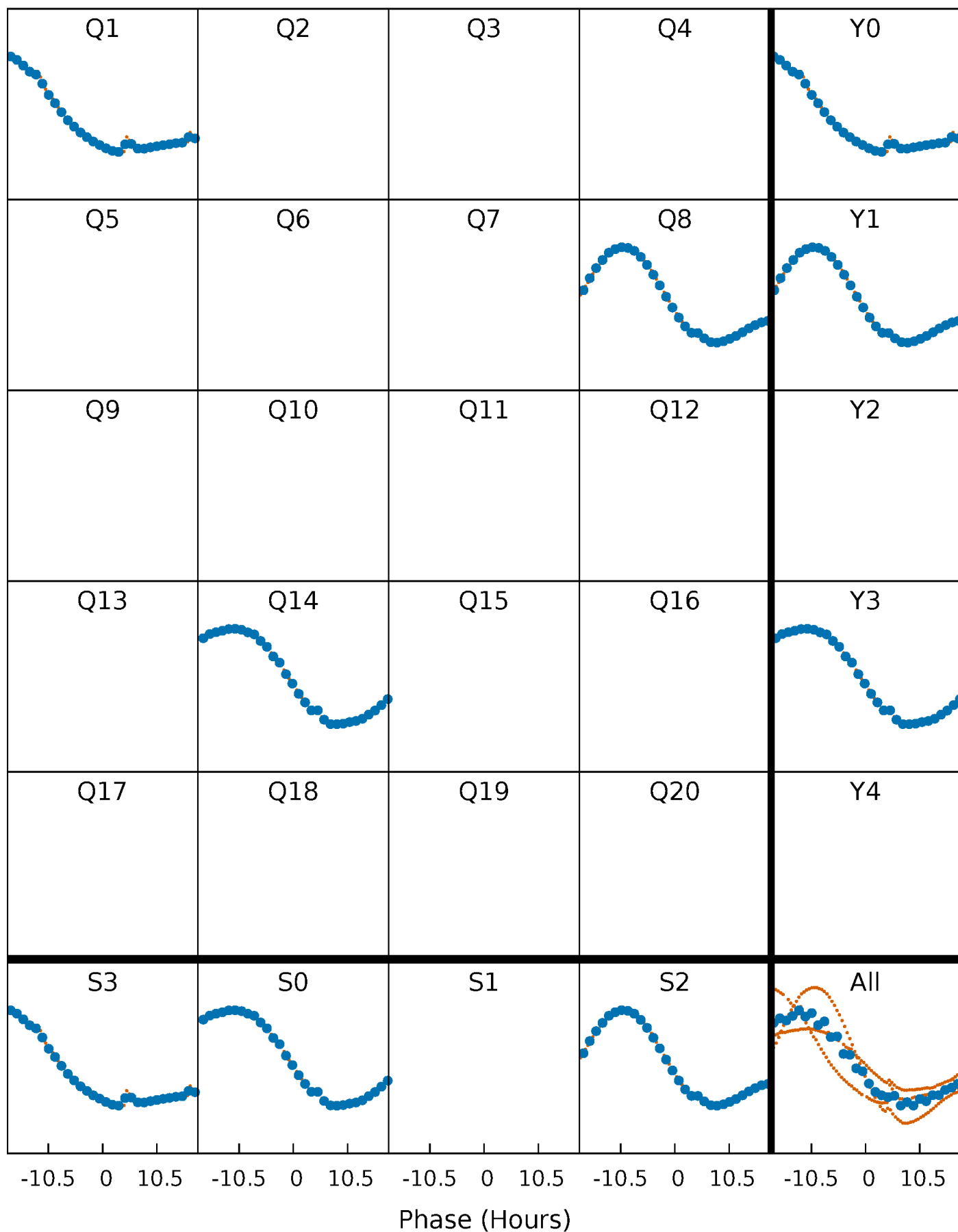


Planet 5 : Phased Whitened Flux Time Series (Fit Epoch/Period)



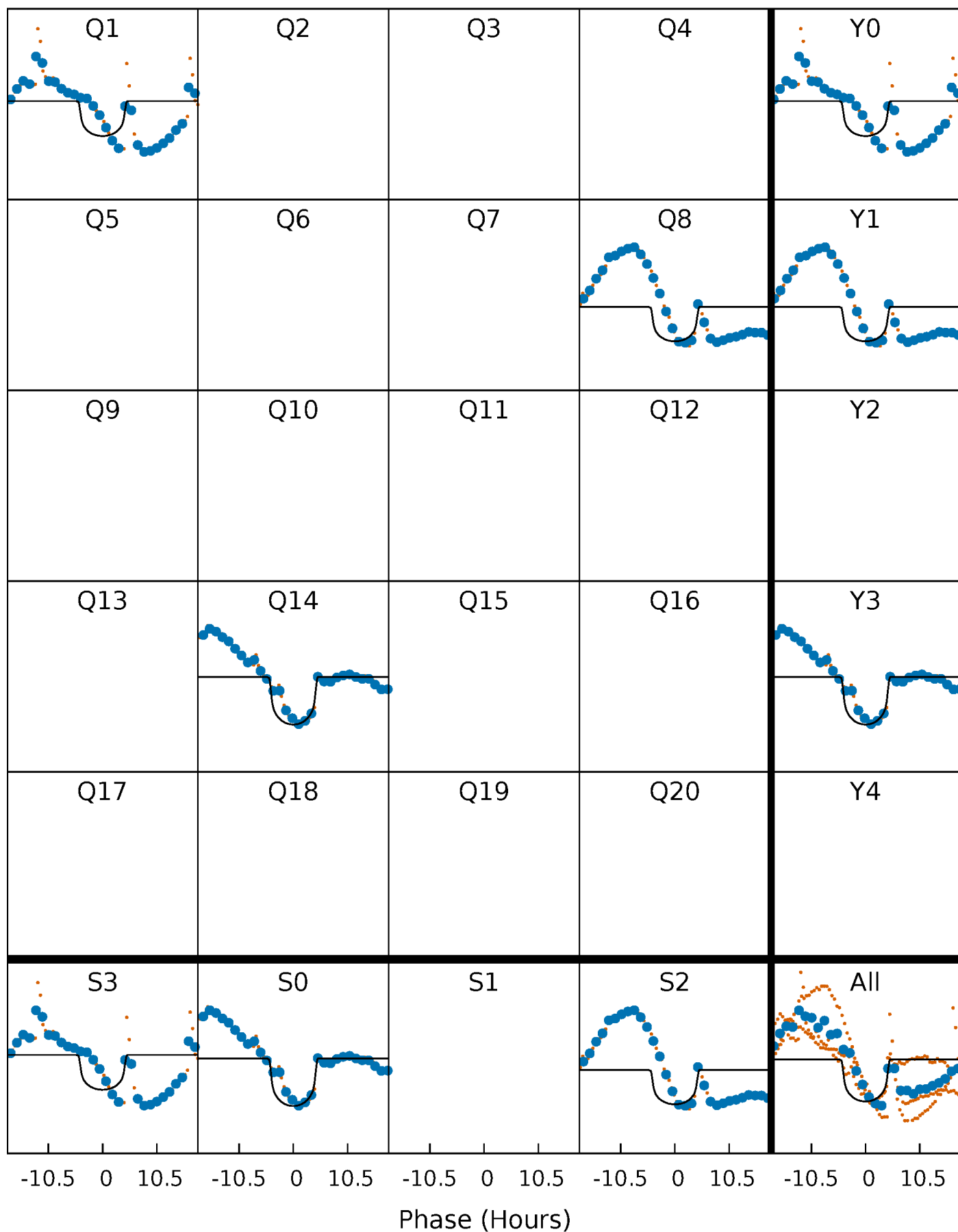
PDC Quarter-Phased Transit Curves

TCE 010736489-05 $P=589.889757$ Days $T_0=152.303738$ (BKJD)



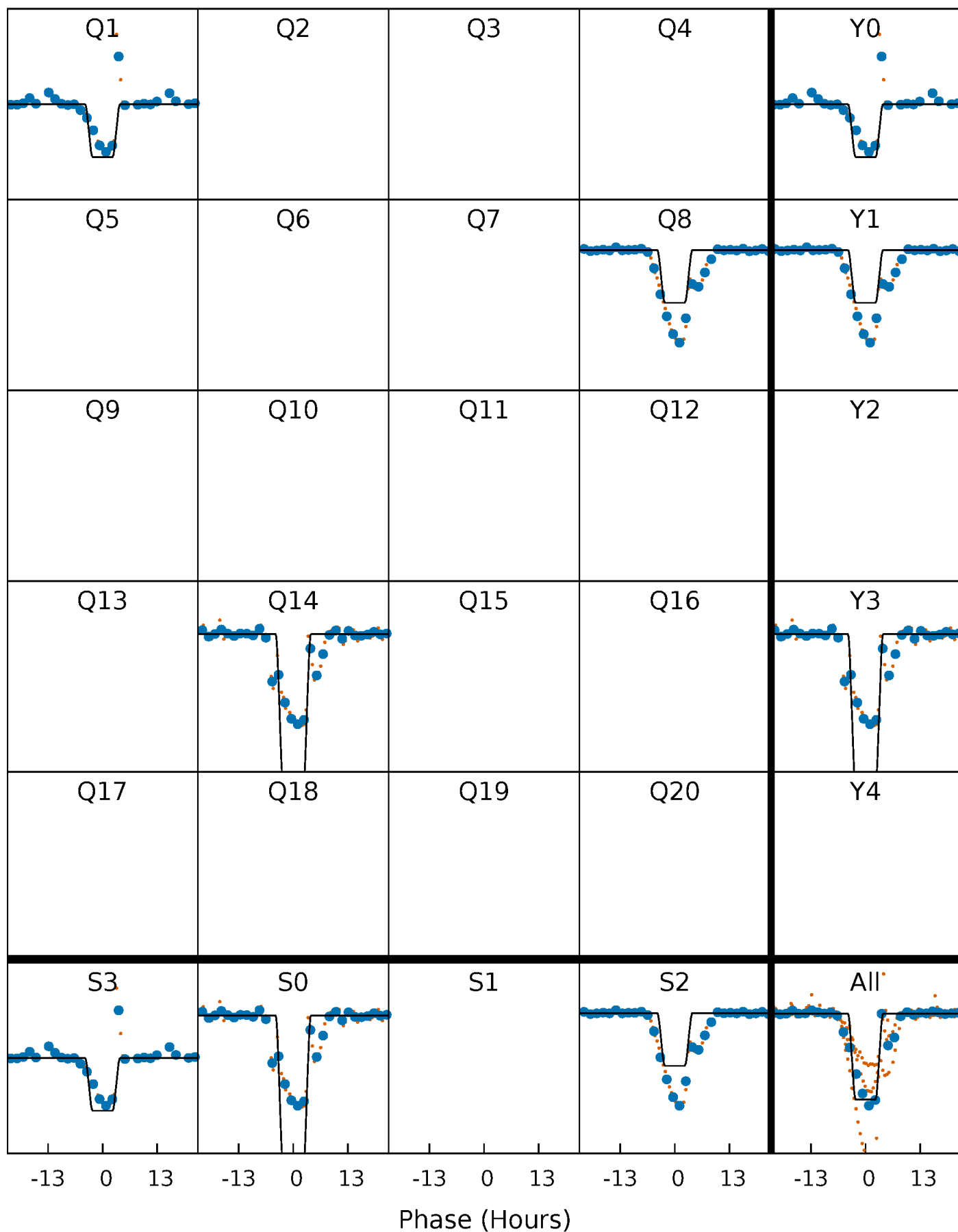
DV Quarter-Phased Transit Curves

TCE 010736489-05 $P=589.889757$ Days $T_0=152.303738$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

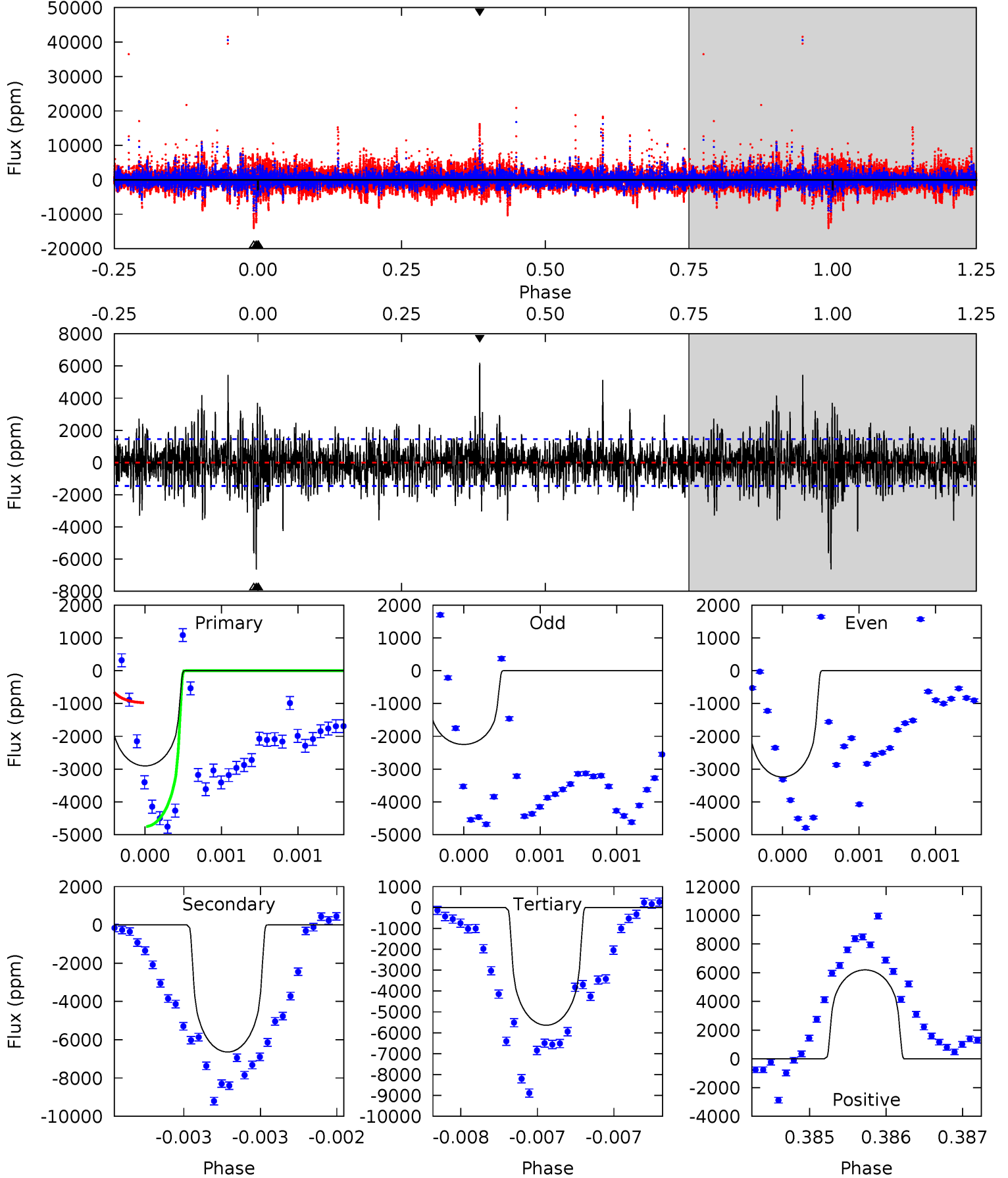
TCE 010736489-05 $P=589.882821$ Days $T_0=152.359321$ (BKJD)



DV Model-Shift Uniqueness Test

010736489-05, P = 589.889757 Days, E = 152.303738 Days

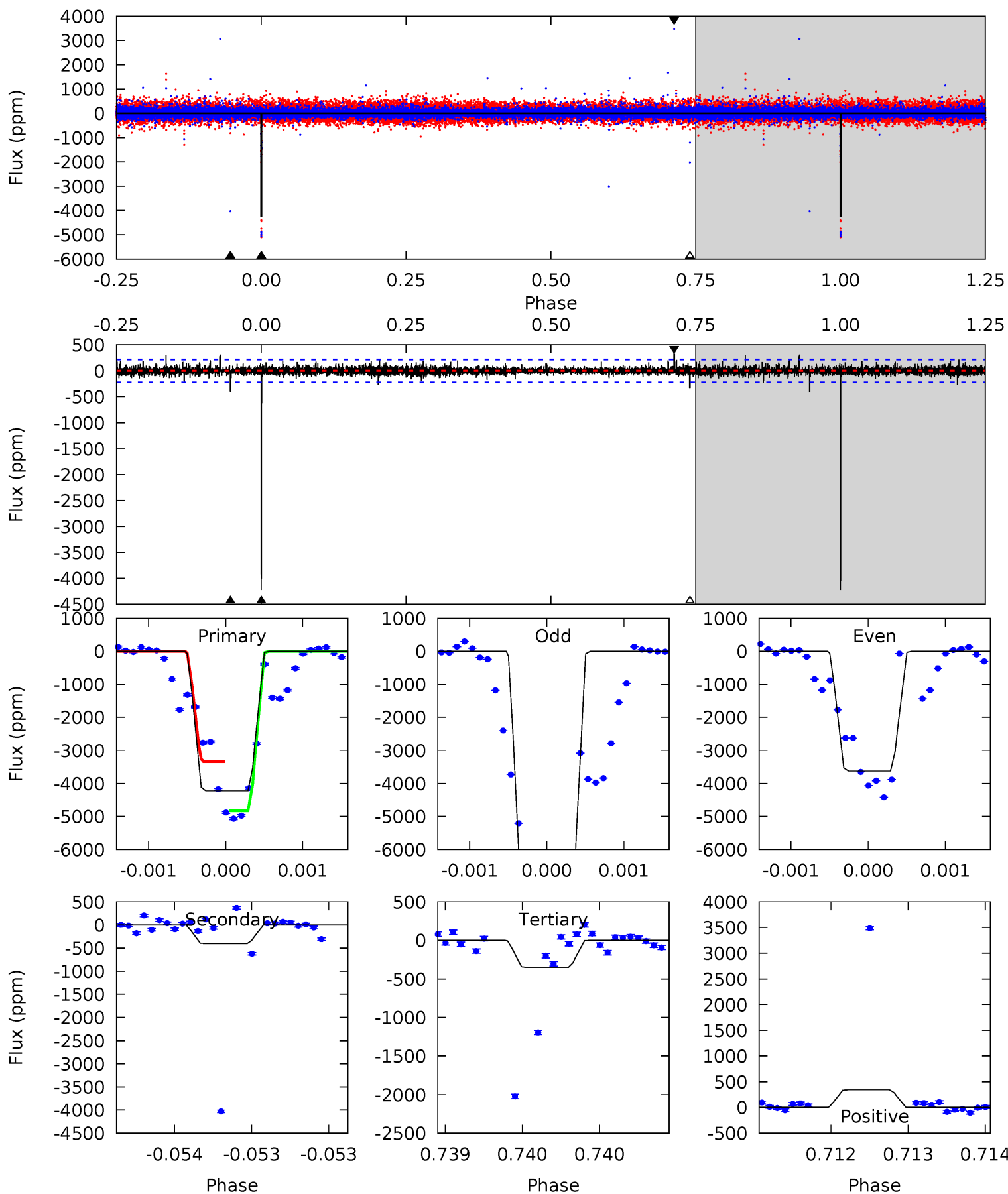
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
11.0	25.2	21.4	23.5	5.52	3.40	3.81	-10.4	-12.5	3.80	1.67	1.72	0.98	0.48	7.15



Alt Model-Shift Uniqueness Test

010736489-05, P = 589.882821 Days, E = 152.359321 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
107.2	10.3	8.90	8.73	5.55	3.44	0.96	98.3	98.4	1.37	1.54	64.4	1.34	0.08	19.9



Stellar Parameters For KIC 010736489

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (g \cdot \text{cm}^{-3})$
	5227^{+183}_{-183}	$4.535^{+0.052}_{-0.105}$	$0.140^{+0.250}_{-0.300}$	$0.838^{+0.125}_{-0.073}$	$0.876^{+0.070}_{-0.077}$	$2.100^{+0.471}_{-0.659}$
	+4%/-4%	+1%/-2%	+179%/-214%	+15%/-9%	+8%/-9%	+22%/-31%
Source	PHO54	PHO54	PHO54	DSEP		

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

Secondary Eclipse Parameters for KIC 010736489-05 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-6640 ± 263	$5.41^{+0.68}_{-0.61}$	259^{+13}_{-12}	6125^{+406}_{-375}	216697^{+58297}_{-45502}
Alt.	-405 ± 39	$6.92^{+0.81}_{-0.66}$	259^{+13}_{-12}	3258^{+118}_{-121}	8020^{+1839}_{-1686}

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 $A_{obs} \gg 1.0$

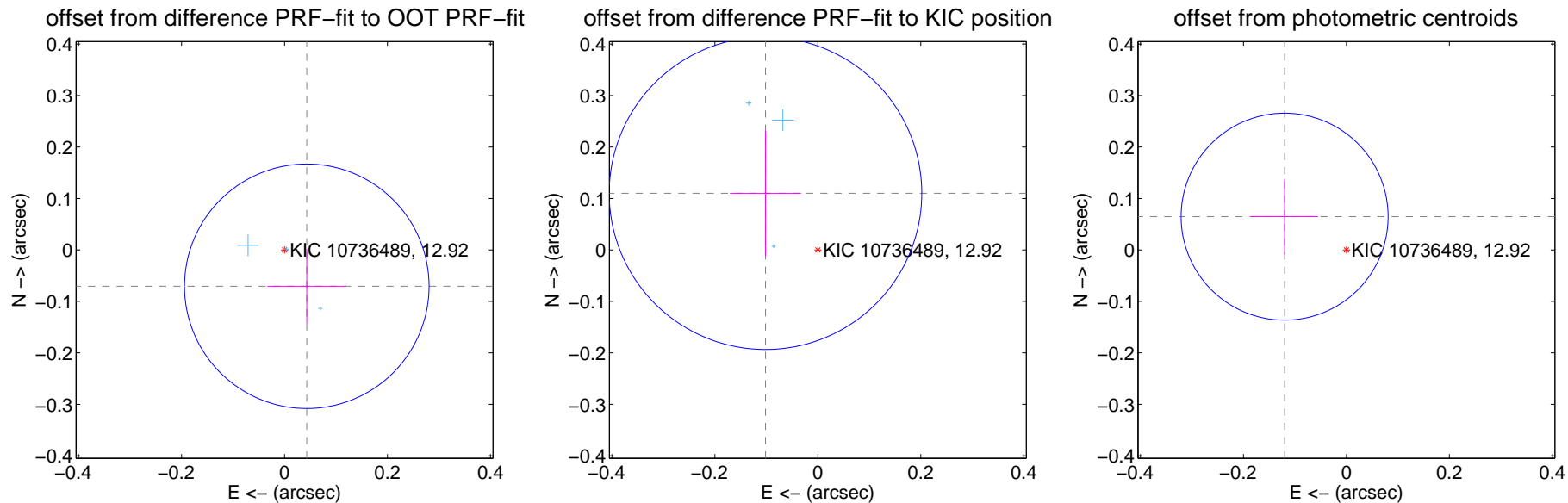
DV Centroid Data

Supplemental centroid analysis for 010736489-05. Kepler magnitude: 12.92. Transit SNR 10.45

There are 3 quarters with good PRF difference image offsets

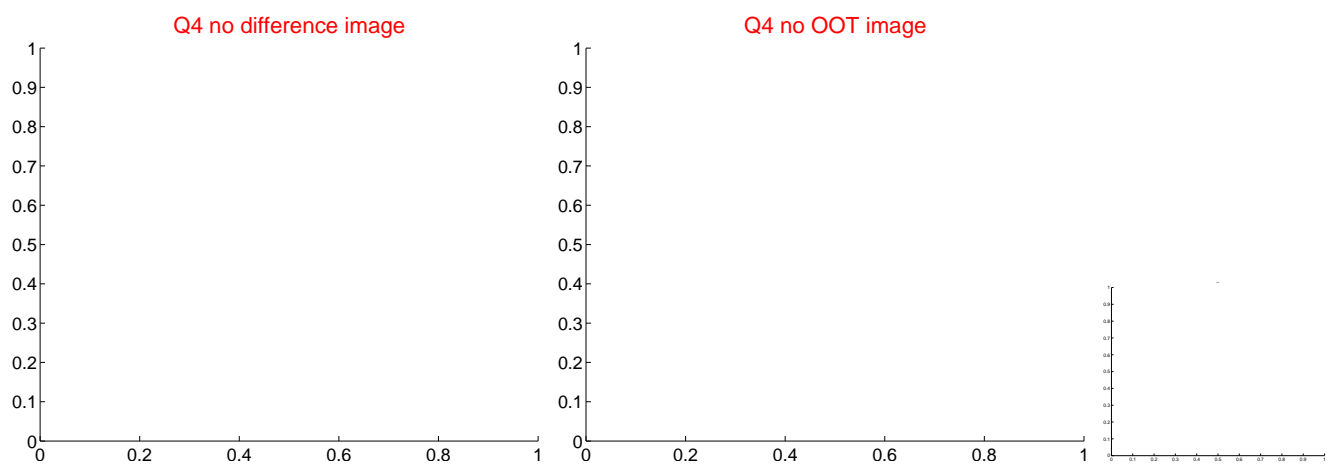
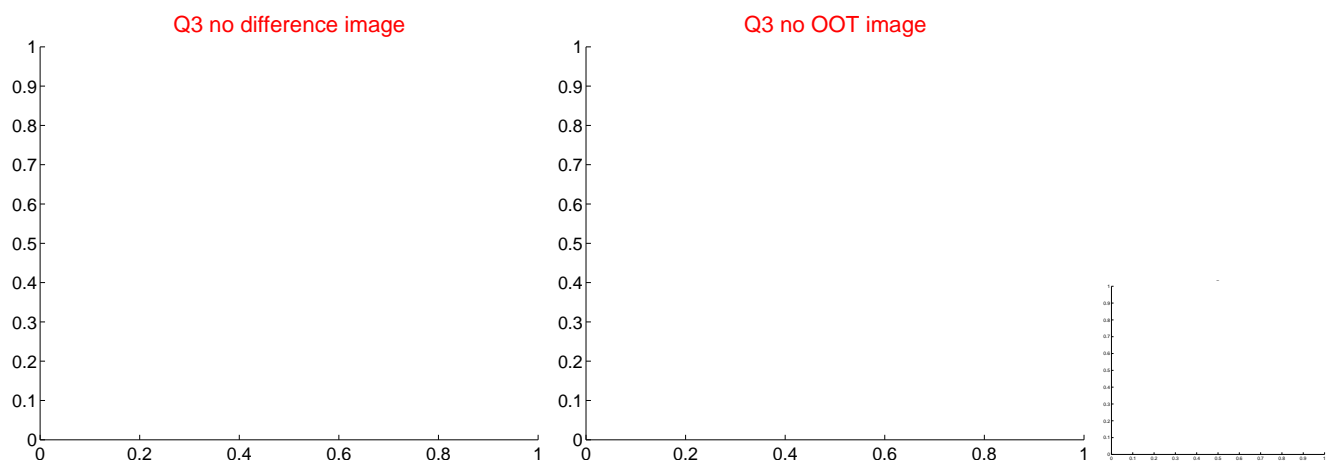
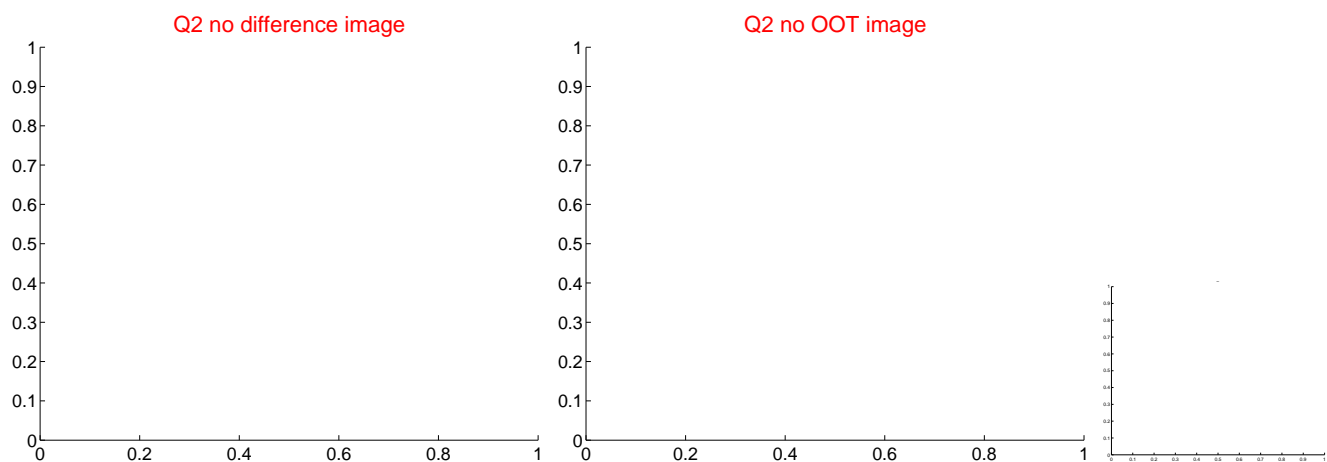
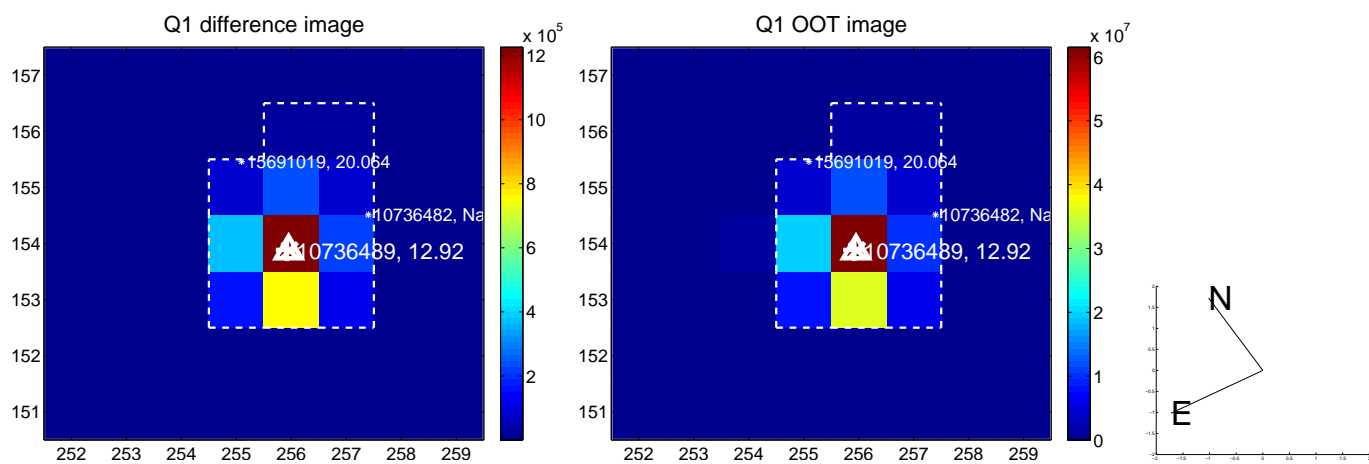
The direct PRF centroid is offset from the target star catalog position by about 0.24 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.083 ± 0.079	1.05	-0.043 ± 0.077	-0.071 ± 0.072
PRF-fit source offset from KIC position	0.150 ± 0.101	1.48	0.102 ± 0.069	0.110 ± 0.122
photometric centroid source offset	0.14 ± 0.07	2.03	0.12 ± 0.06	0.06 ± 0.07



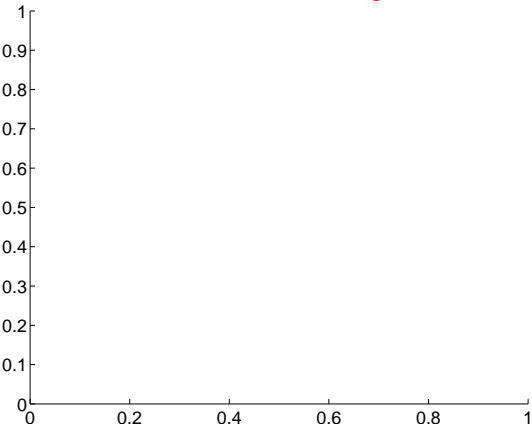
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

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

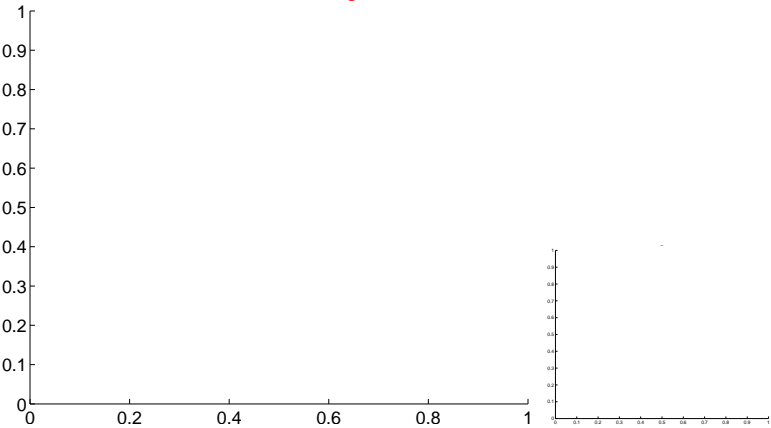


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.

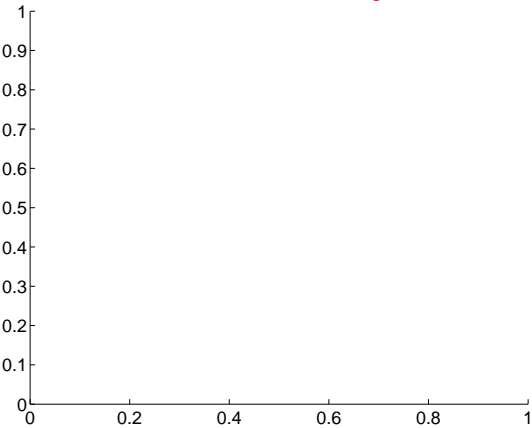
Q5 no difference image



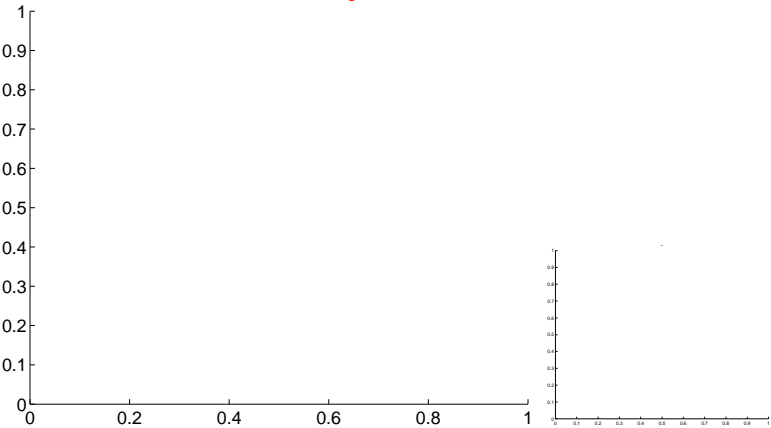
Q5 no OOT image



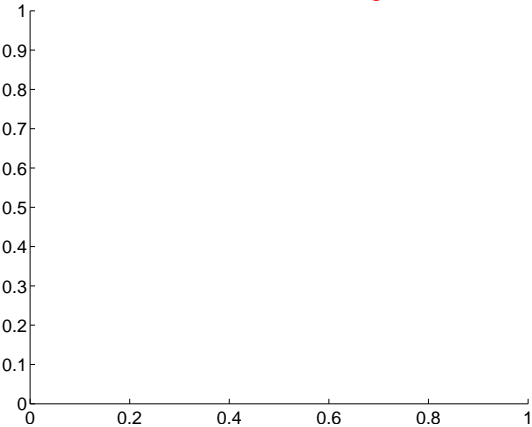
Q6 no difference image



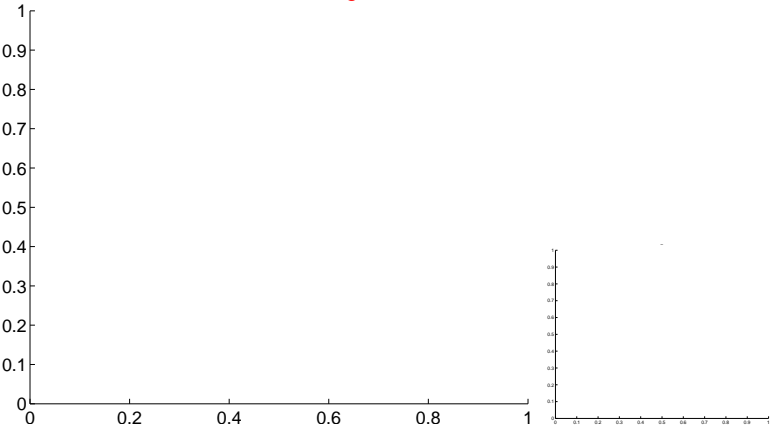
Q6 no OOT image



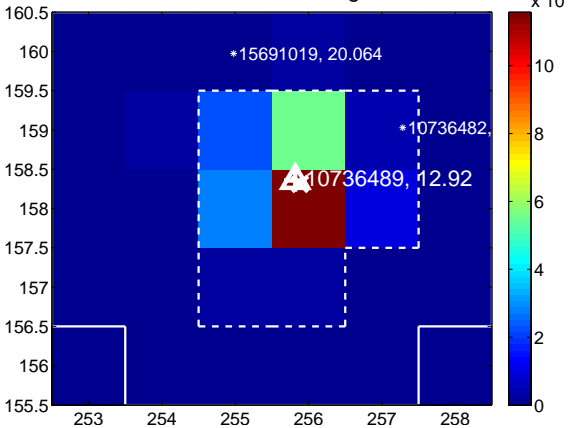
Q7 no difference image



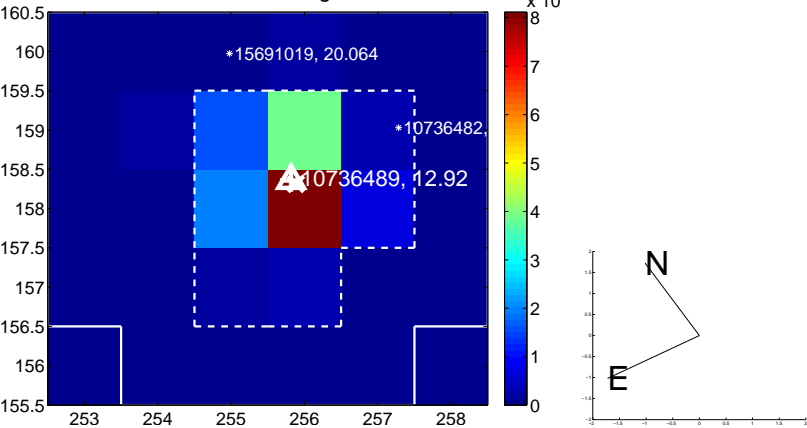
Q7 no OOT image



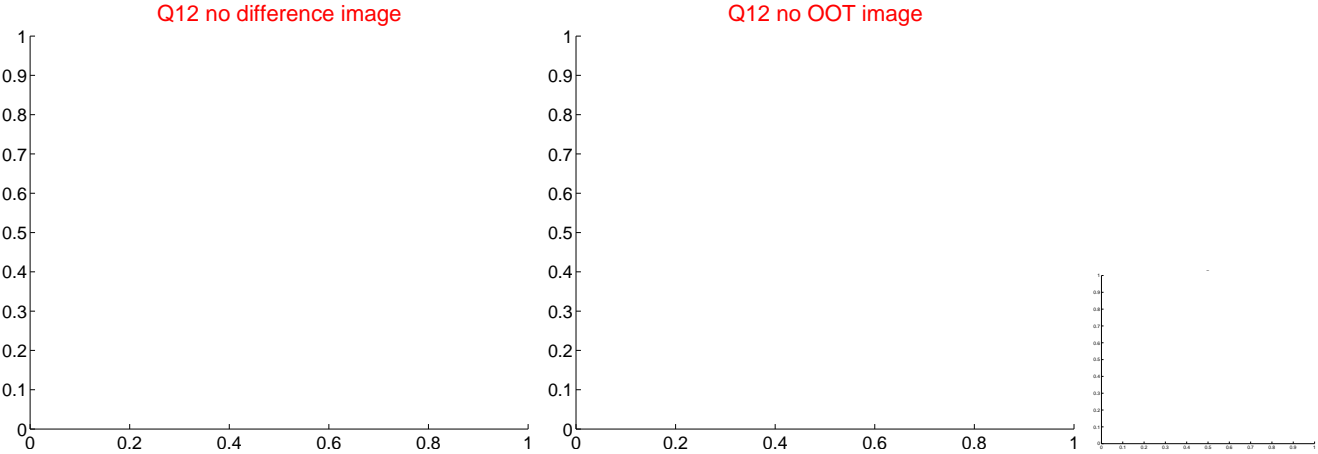
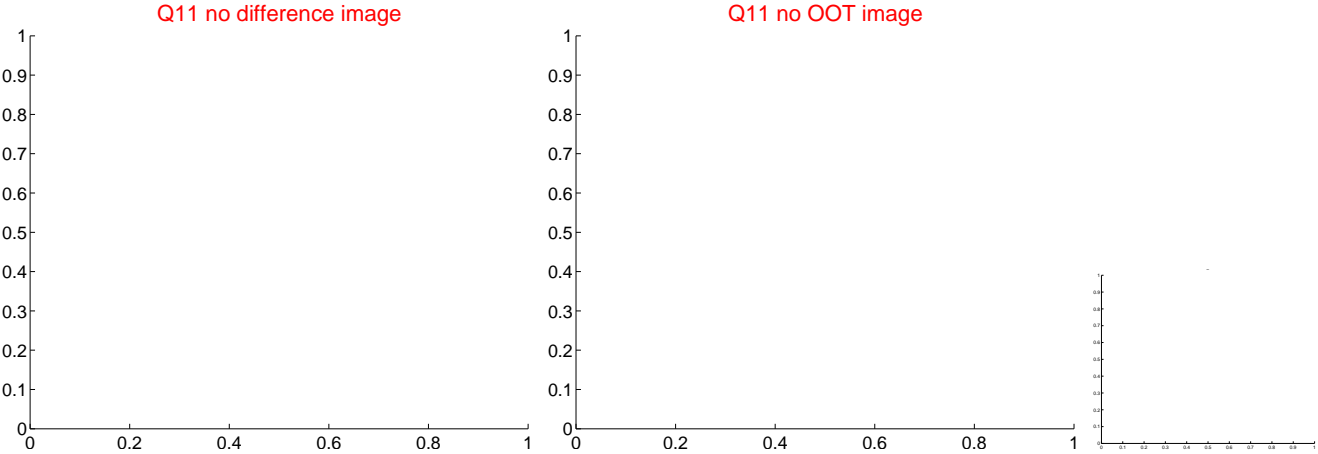
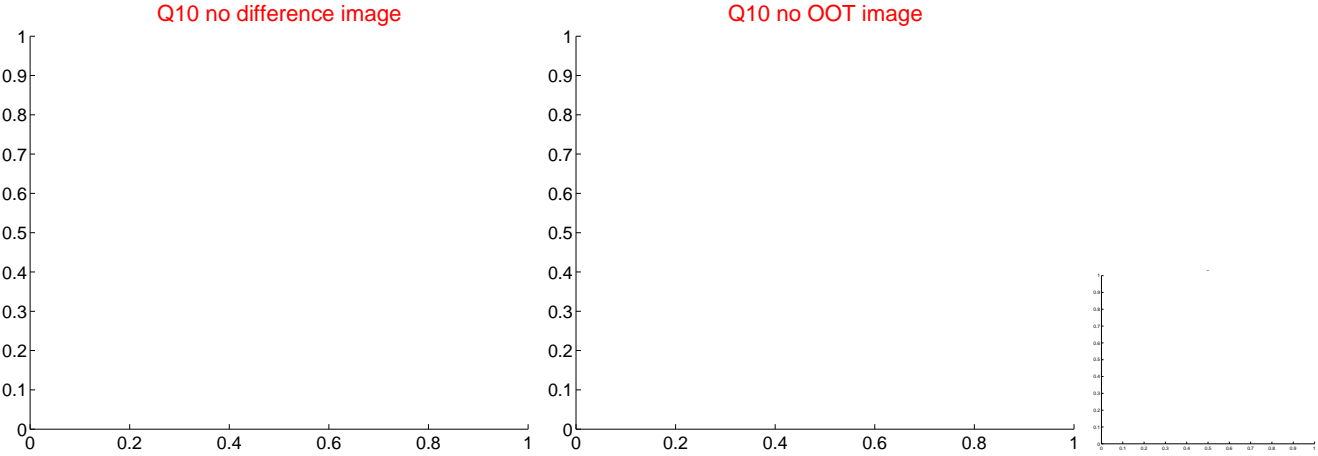
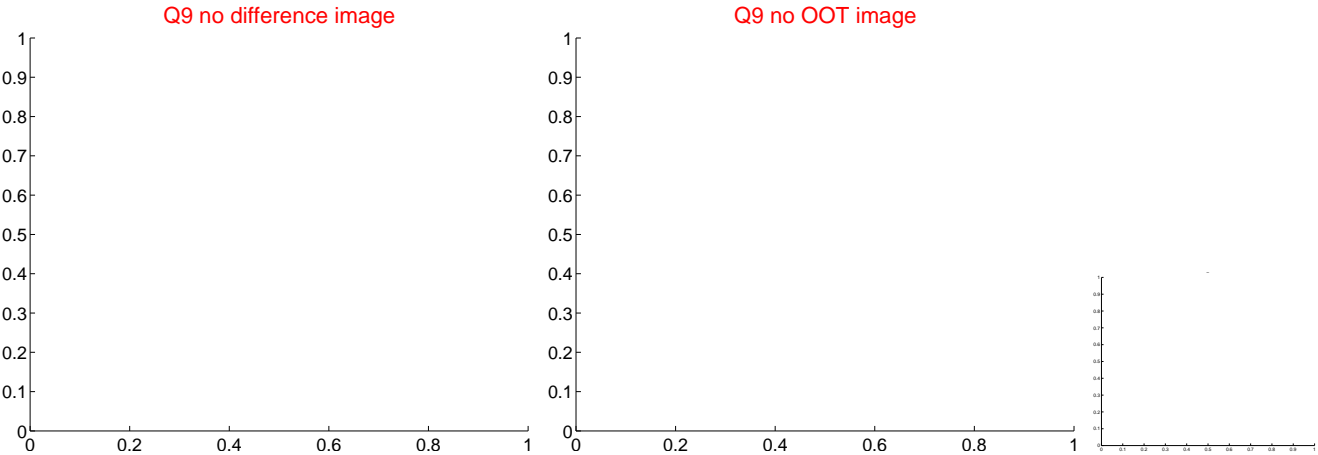
Q8 difference image



Q8 OOT image

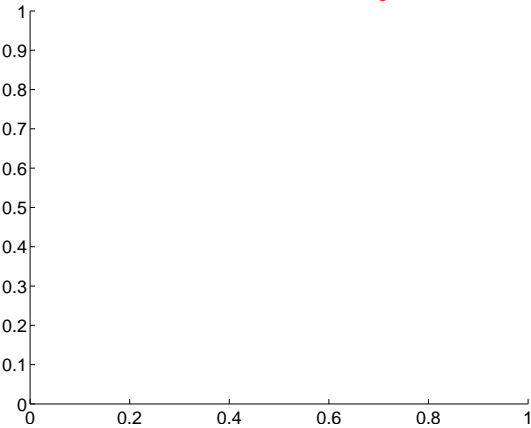


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.

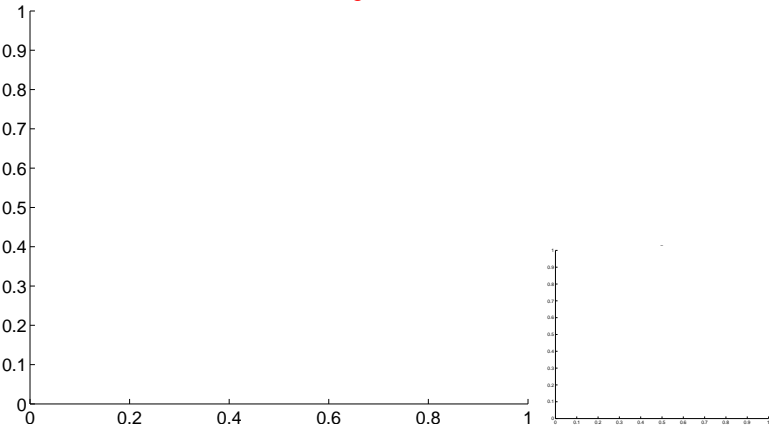


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.

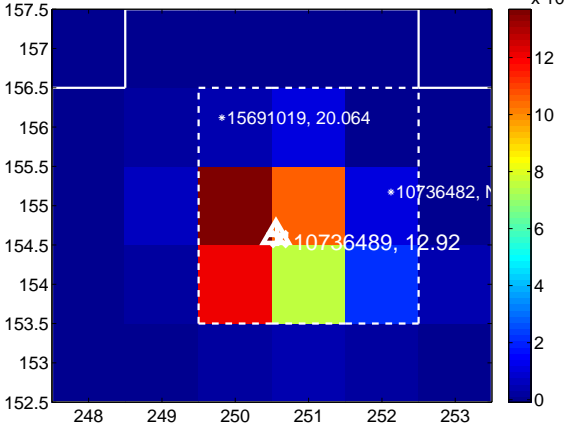
Q13 no difference image



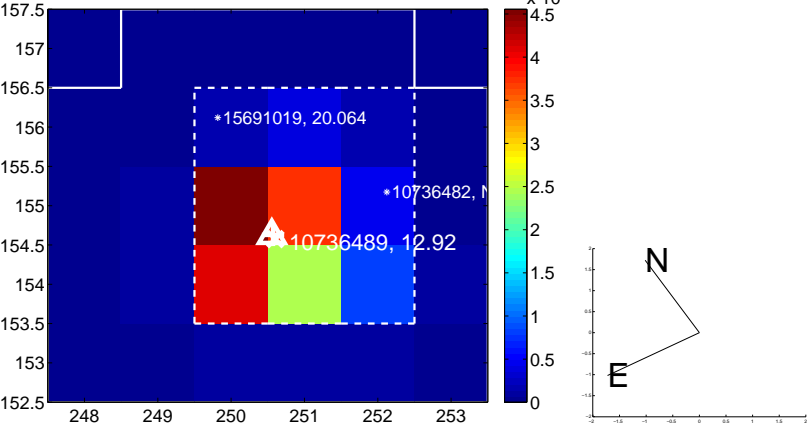
Q13 no OOT image



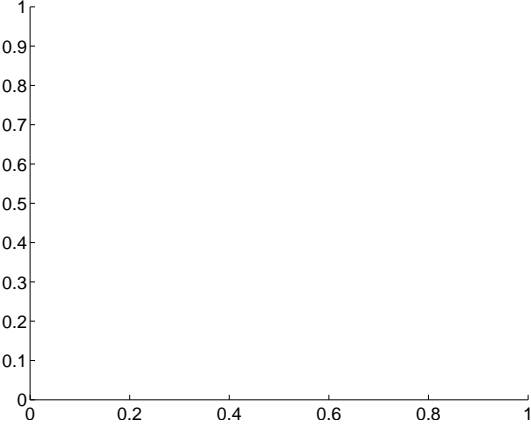
Q14 difference image



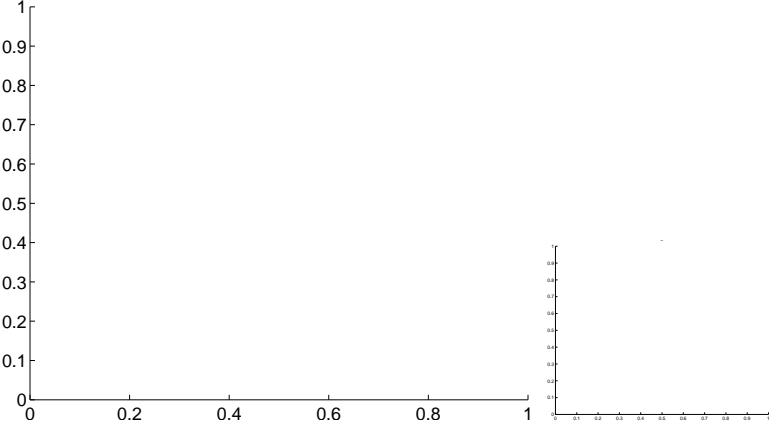
Q14 OOT image



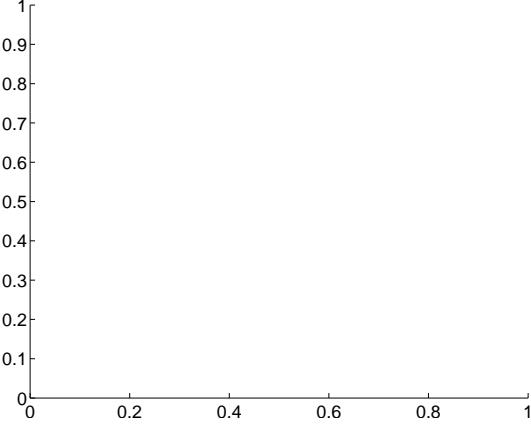
Q15 no difference image



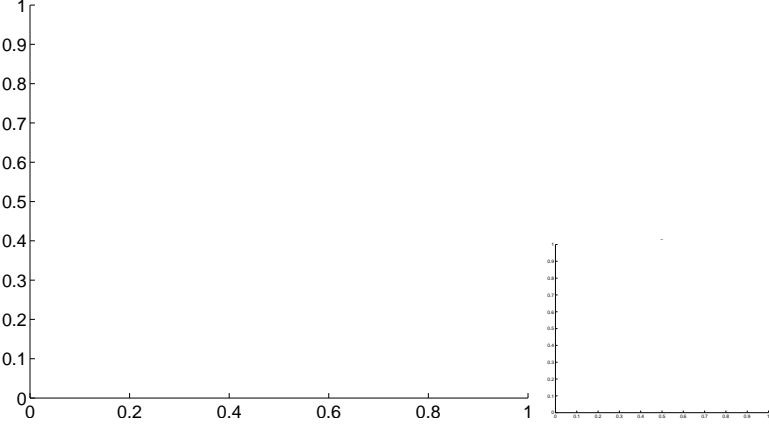
Q15 no OOT image



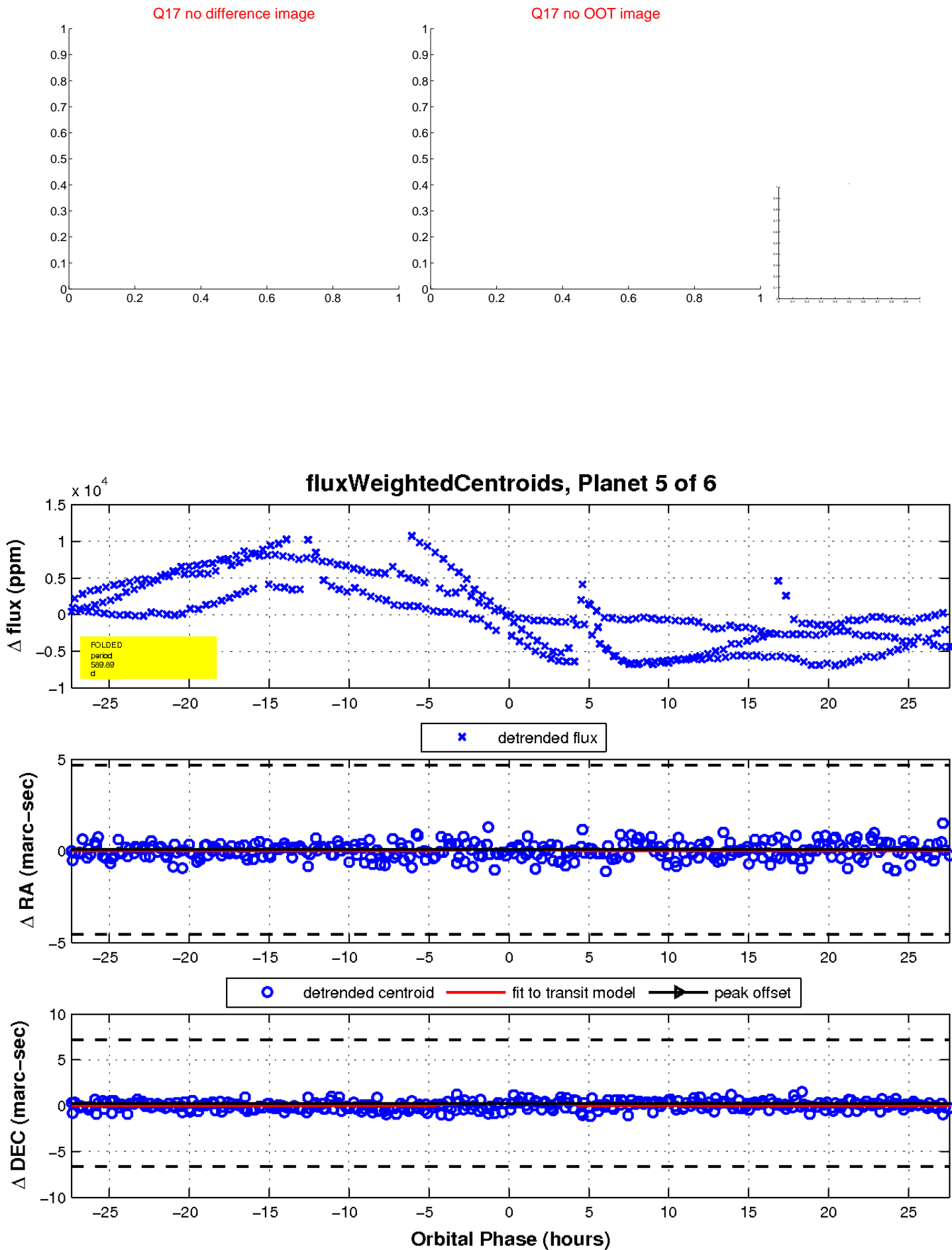
Q16 no difference image



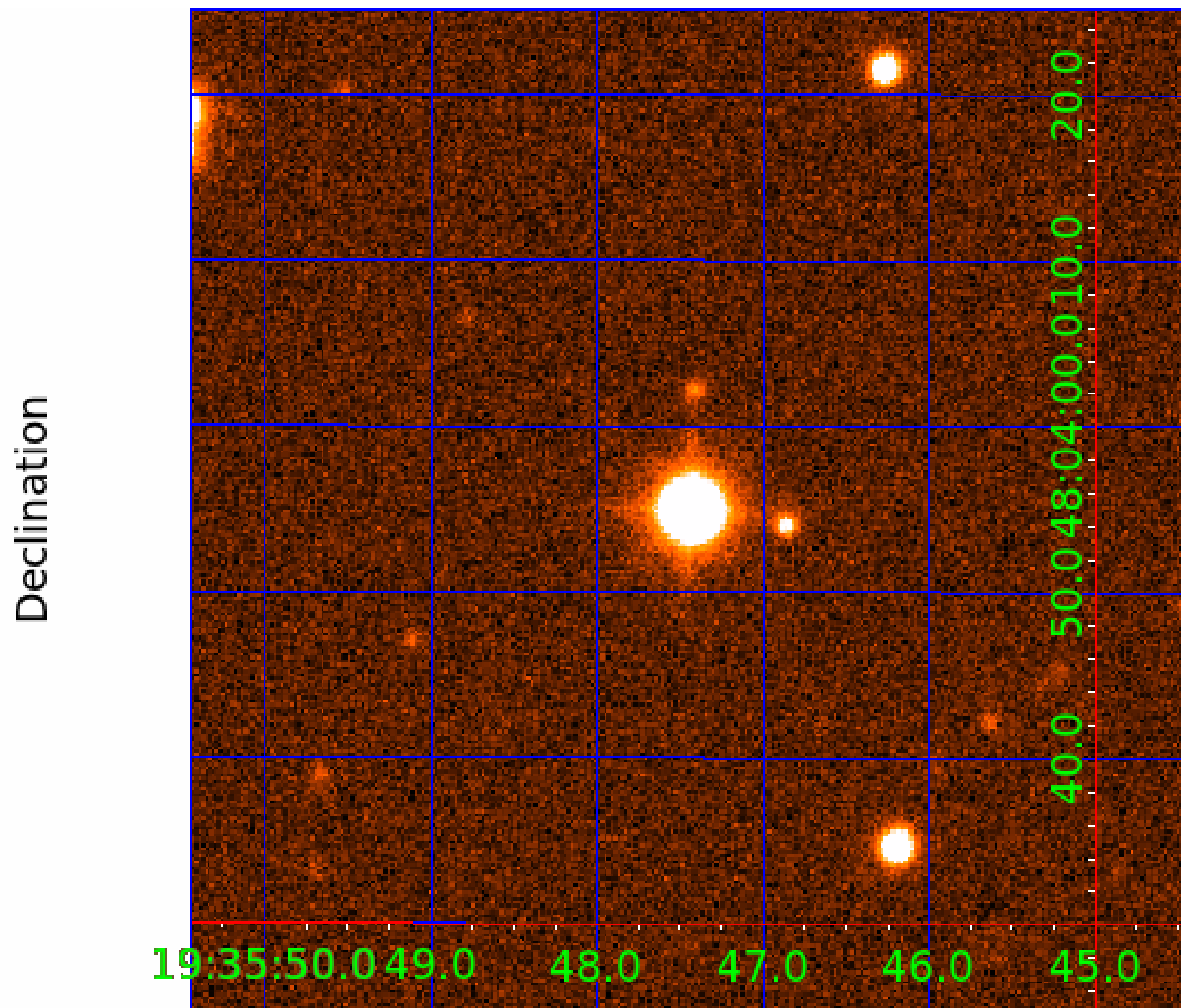
Q16 no OOT image



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



UKIRT Image



KIC 010736489

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})
010736489-01	OBS	7368.01	6.843087	137.038440	657.7	3.154	28.9	32.4	0.84	5227	2.67	102.90
010736489-02	OBS	No	644.151624	150.397424	735.6	7.027	12.3	2.9	0.84	5227	2.65	0.24
010736489-03	OBS	No	325.593377	453.574626	3361.6	20.988	18.4	4.8	0.84	5227	5.99	0.60
010736489-04	OBS	No	221.198496	287.626356	324.9	2.204	14.5	2.0	0.84	5227	1.52	1.00
010736489-05	OBS	No	589.889757	152.303738	4297.0	9.213	13.6	10.5	0.84	5227	5.34	0.27
010736489-06	OBS	No	388.516899	133.959615	311.6	6.000	16.0	-1.0	0.84	5227	1.44	0.47

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
010736489-01	OBS	PC	1.00	0	0	0	0	NO_COMMENT
010736489-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES_TRACKER—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
010736489-03	OBS	FP	0.00	1	0	0	0	LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
010736489-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
010736489-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV
010736489-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES—LPP_DV—ALL_TRANS_CHASES—CENT_NOFITS

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 010736489-06

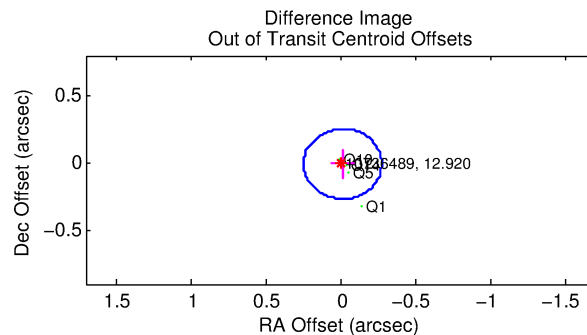
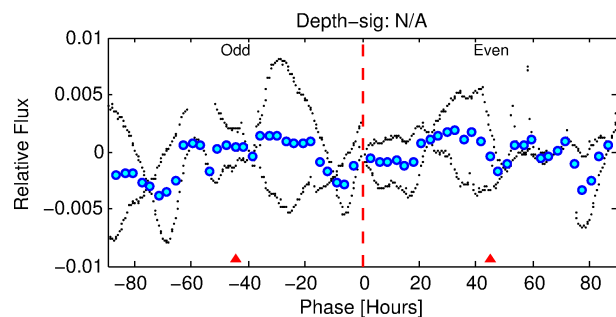
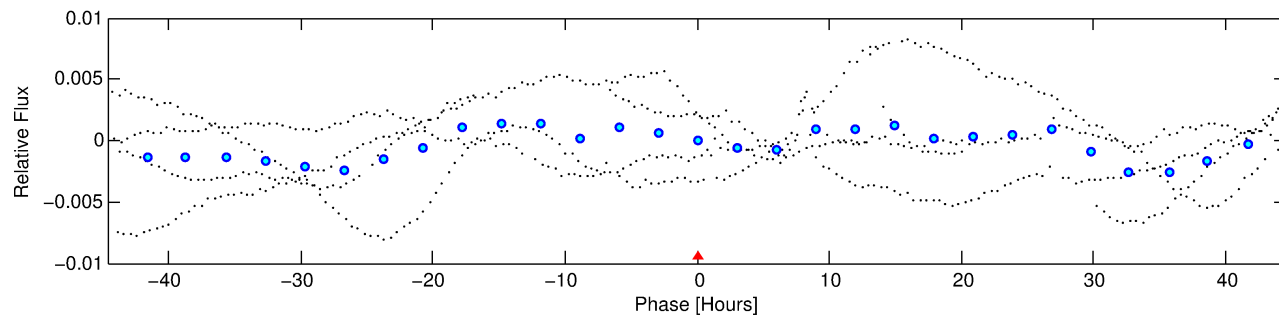
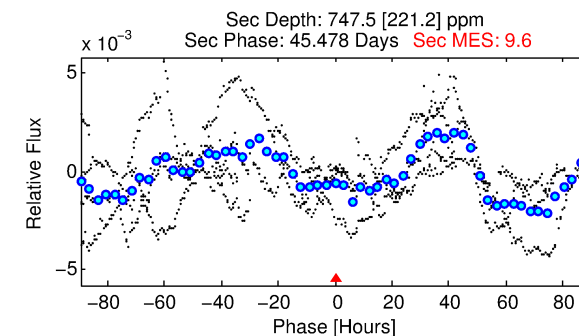
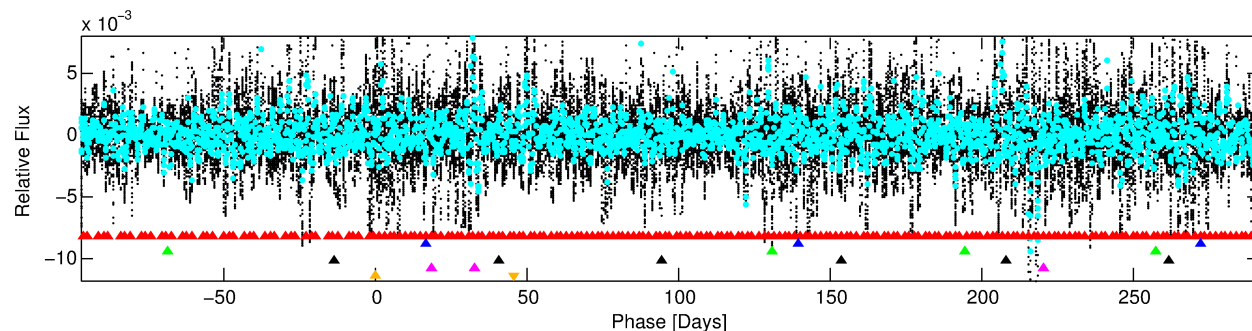
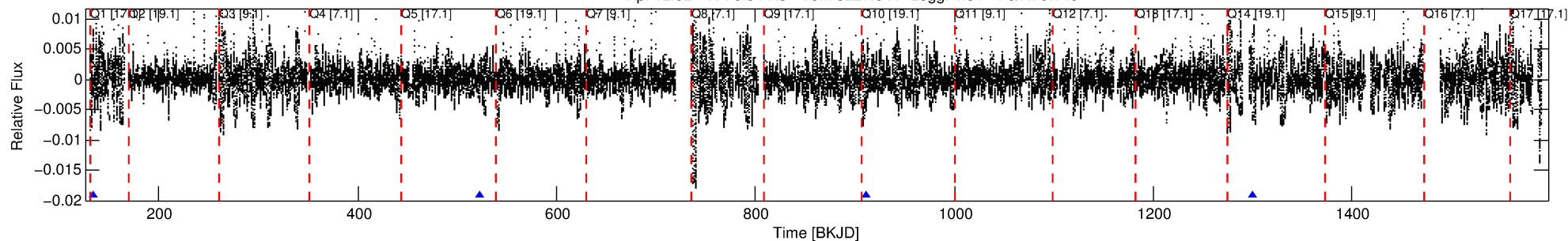
No Significant Match Found

DV One-Page Summary

KIC: 10736489 Candidate: 6 of 6 Period: 388.517 d

KOI: K07368 Corr: No Ephemeris Match

Kp: 12.92 R*: 0.84 Rs Teff: 5227.0 K Logg: 4.54 Fe/H: 0.140



TPS TCE Results:

Period = 388.51690 d
Epoch = 133.9596 BKJD

DV fit results are unavailable

DV Diagnostic Results:

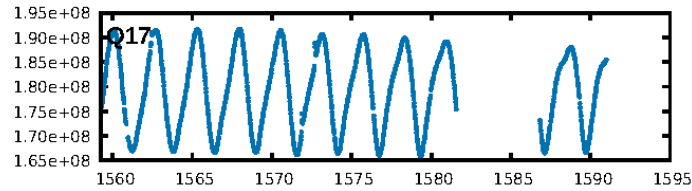
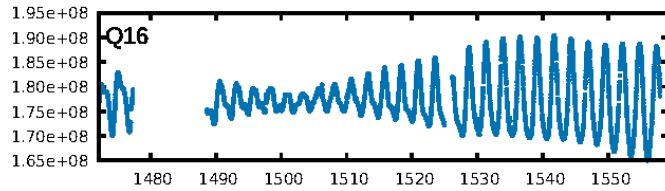
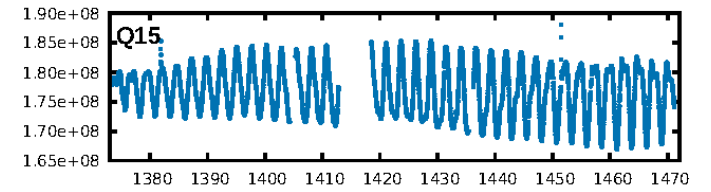
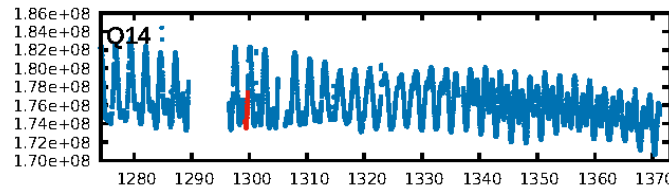
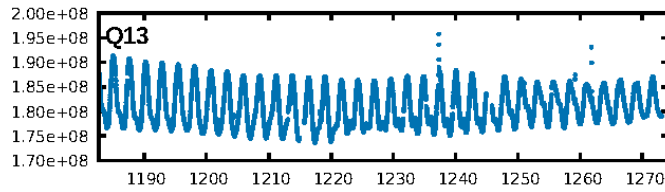
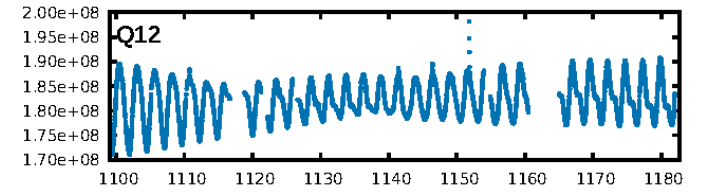
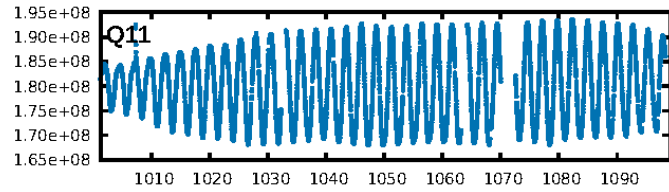
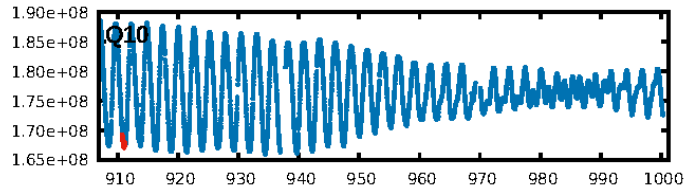
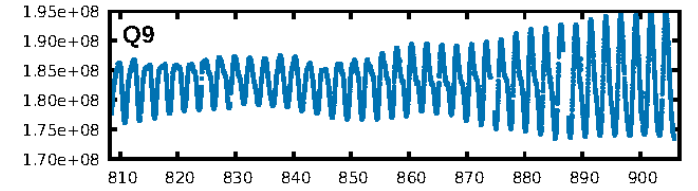
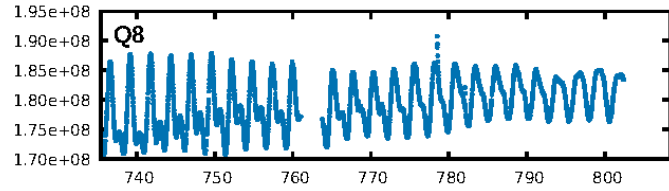
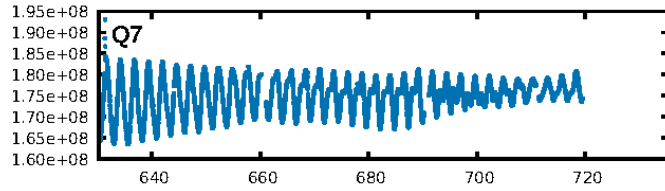
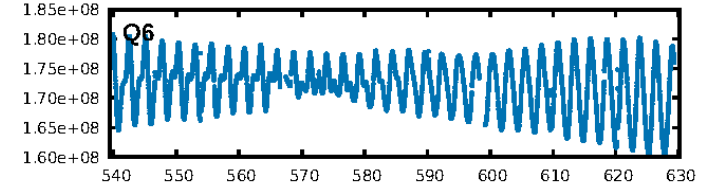
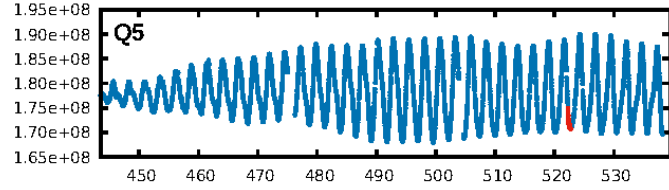
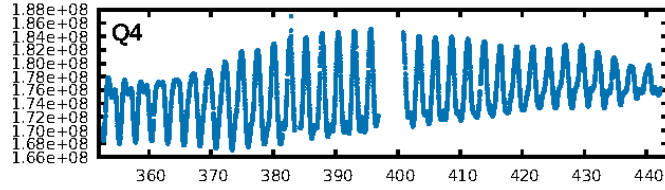
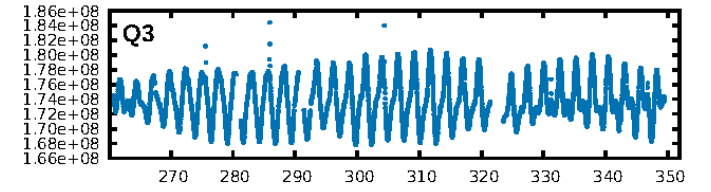
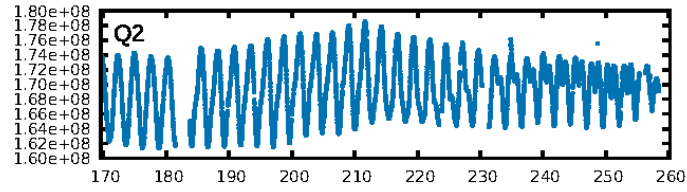
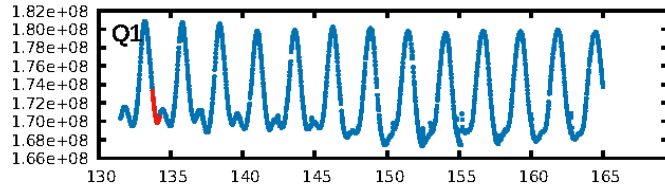
ShortPeriod-sig: 100.0% [69.18 σ]
LongPeriod-sig: 100.0% [439.56 σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [3/3]
GhostDiagnostic-chr: 2.449

Centroid-sig: 5.8%
Centroid-so: 0.371 arcsec [1.17 σ]
OotOffset-rm: 0.018 arcsec [0.21 σ]
KicOffset-rm: 0.251 arcsec [2.02 σ]
OotOffset-st: 2/0/0/2 [4]
KicOffset-st: 2/0/0/2 [4]
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DiffImageOverlap-fno: 0.50 [2/4]

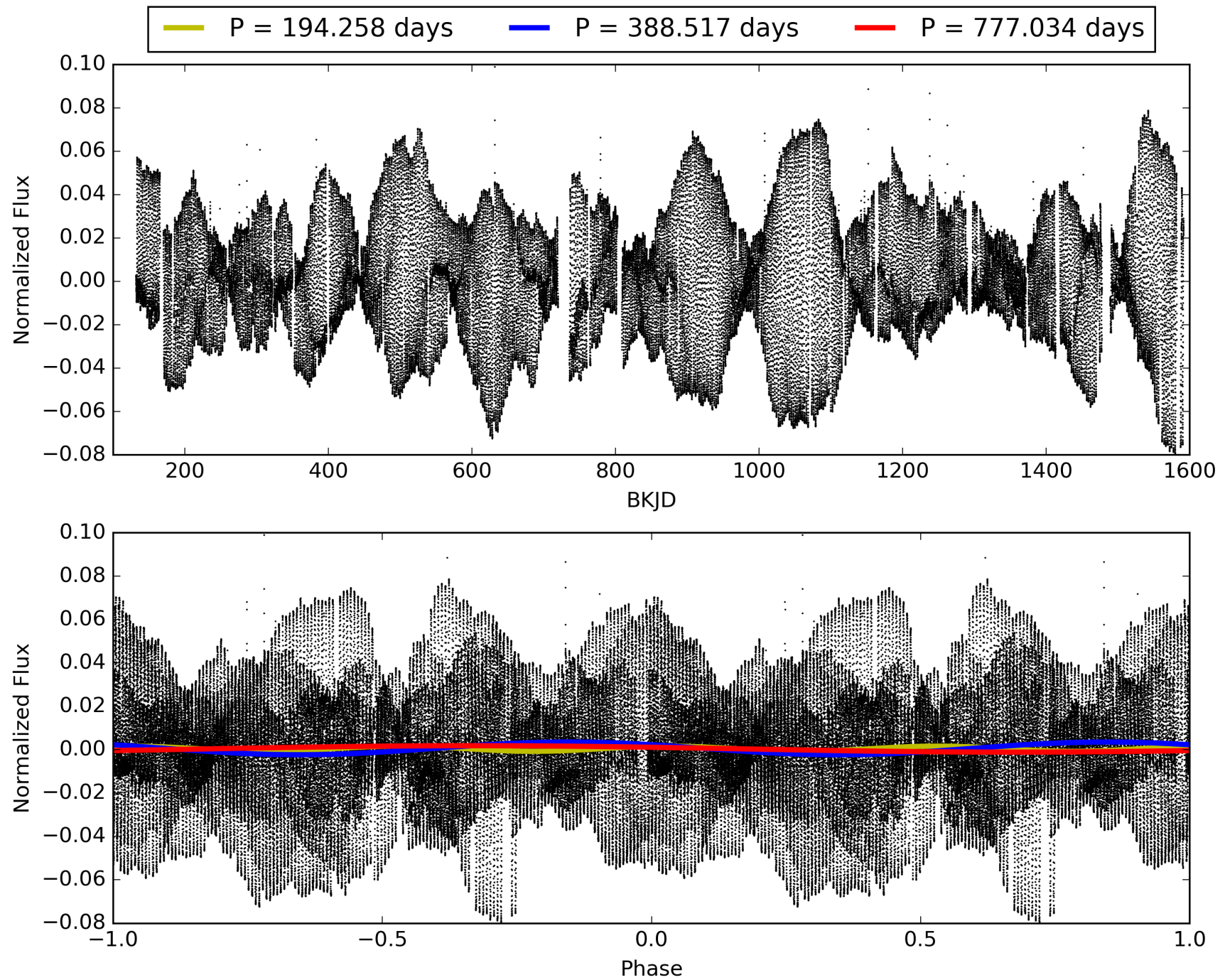
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 05:45:28 Z

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

TCE 010736489-06, PDC Light Curves

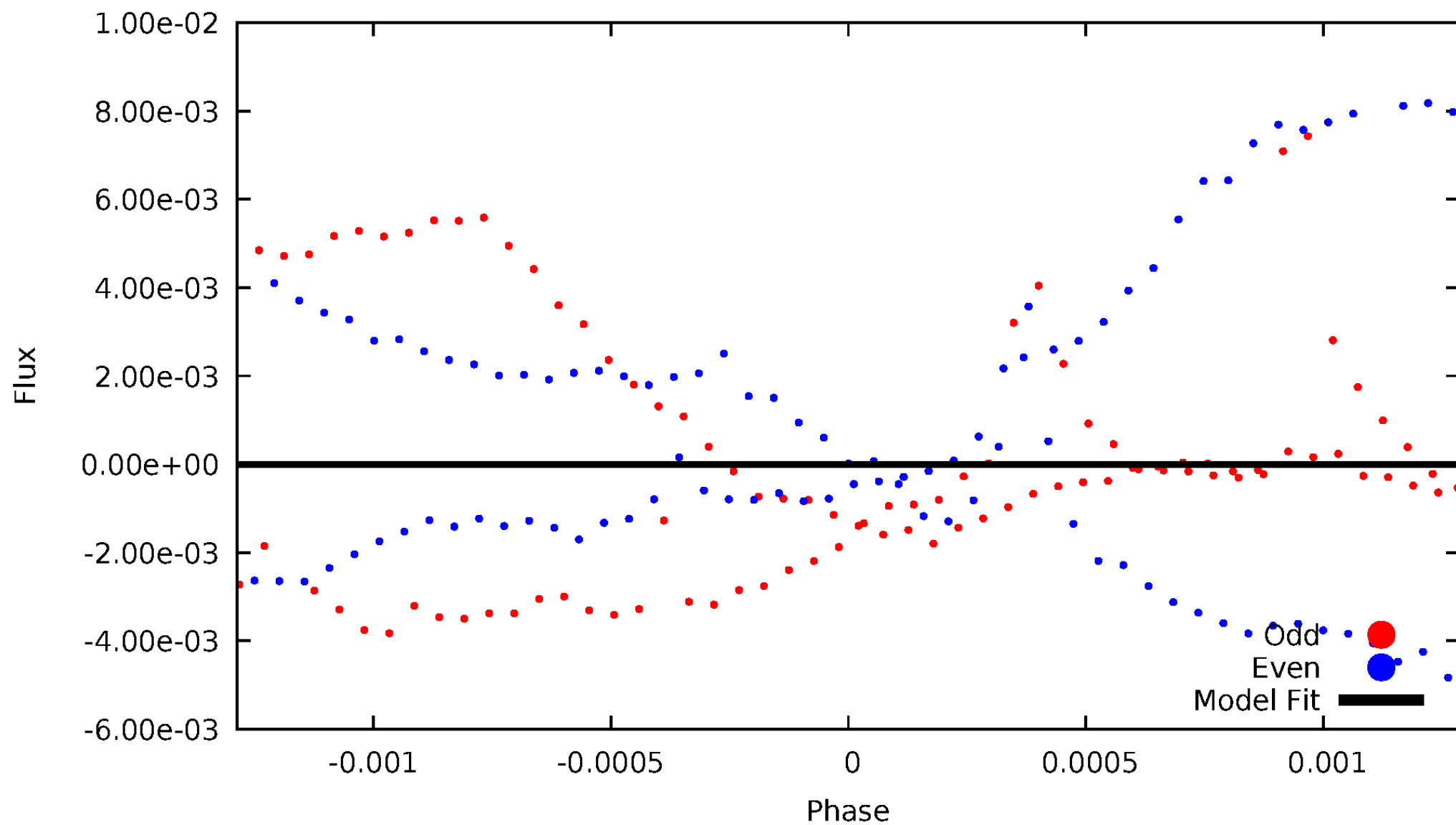


TCE 010736489-06



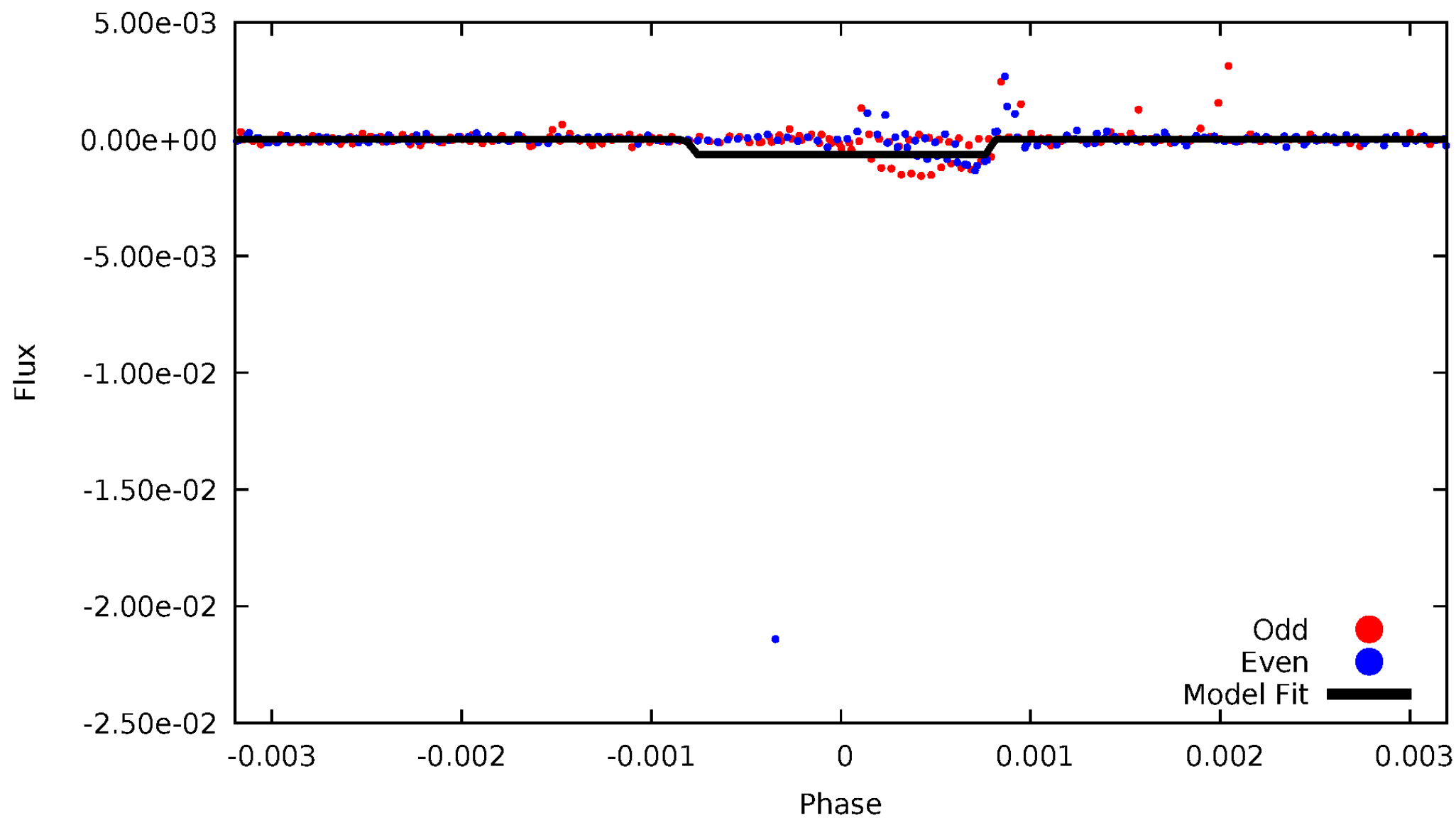
DV Odd/Even

TCE 010736489-06



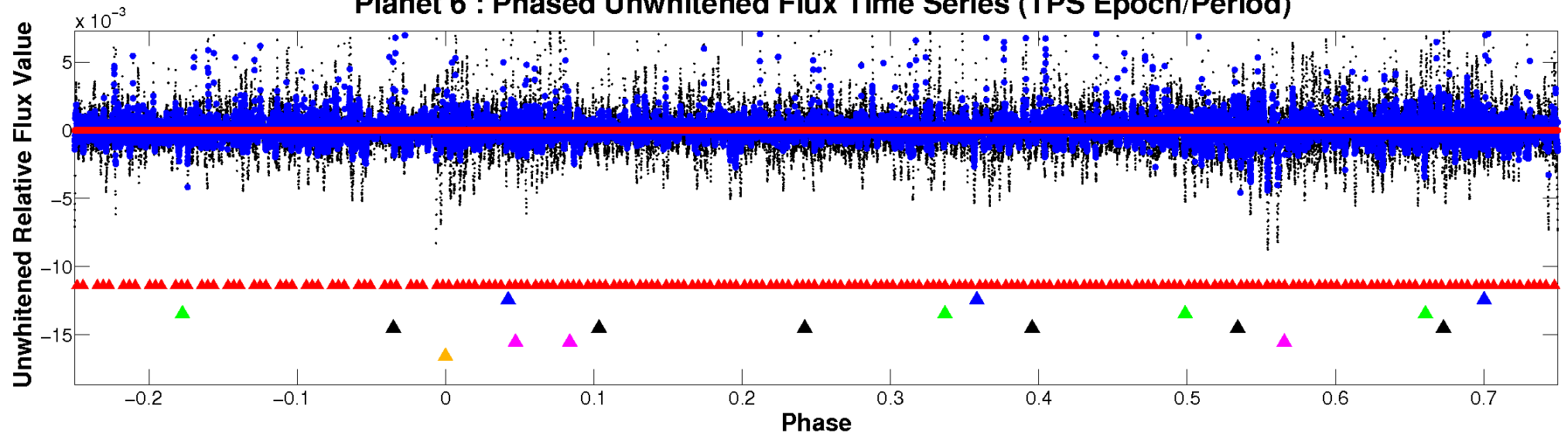
ALT Odd/Even

TCE 010736489-06

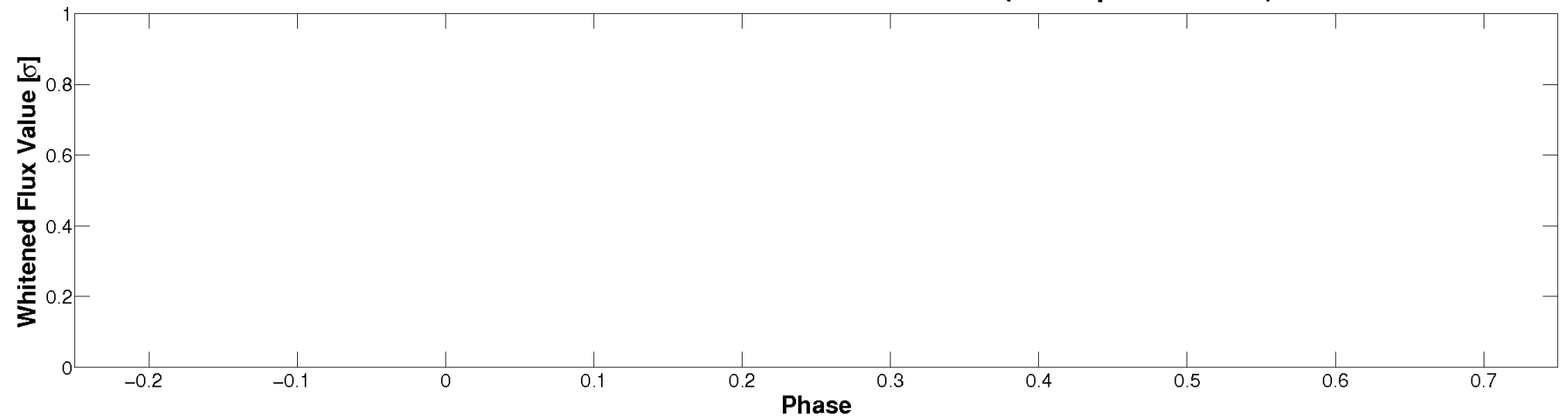


Non-Whitened Vs. Whitened Light Curve

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

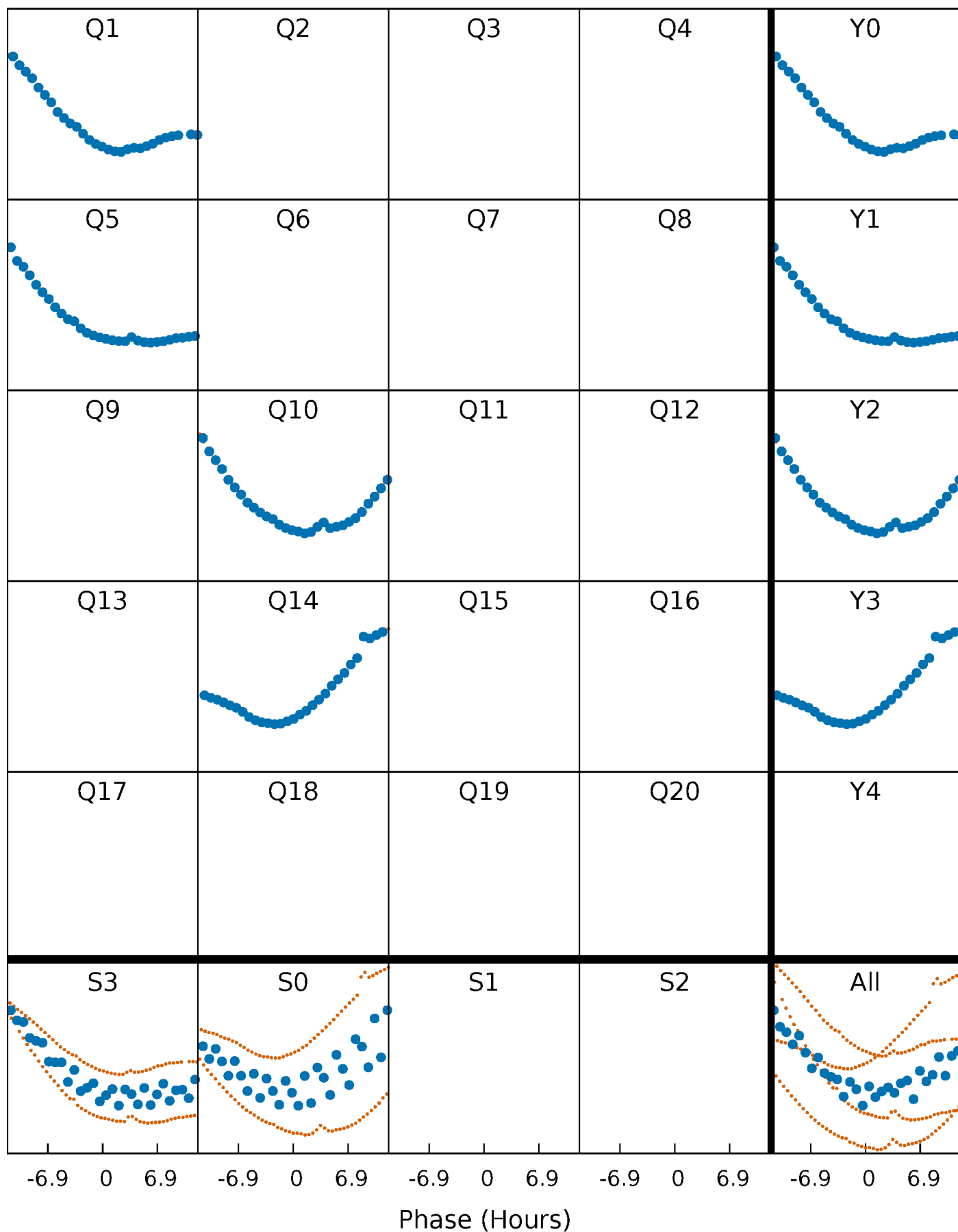


Planet 6 : Phased Whitened Flux Time Series (TPS Epoch/Period)



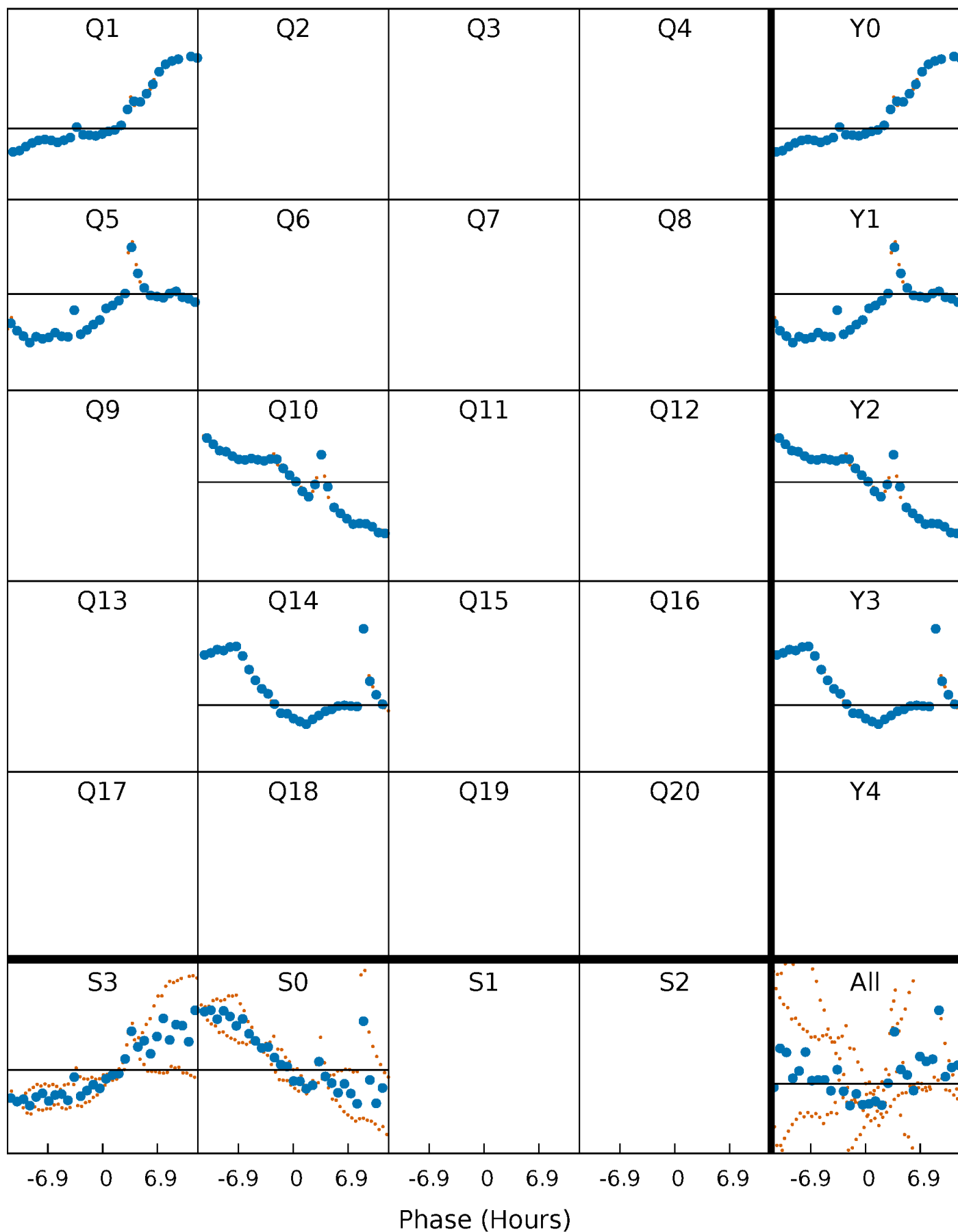
PDC Quarter-Phased Transit Curves

TCE 010736489-06 P=388.516899 Days $T_0=133.959615$ (BKJD)



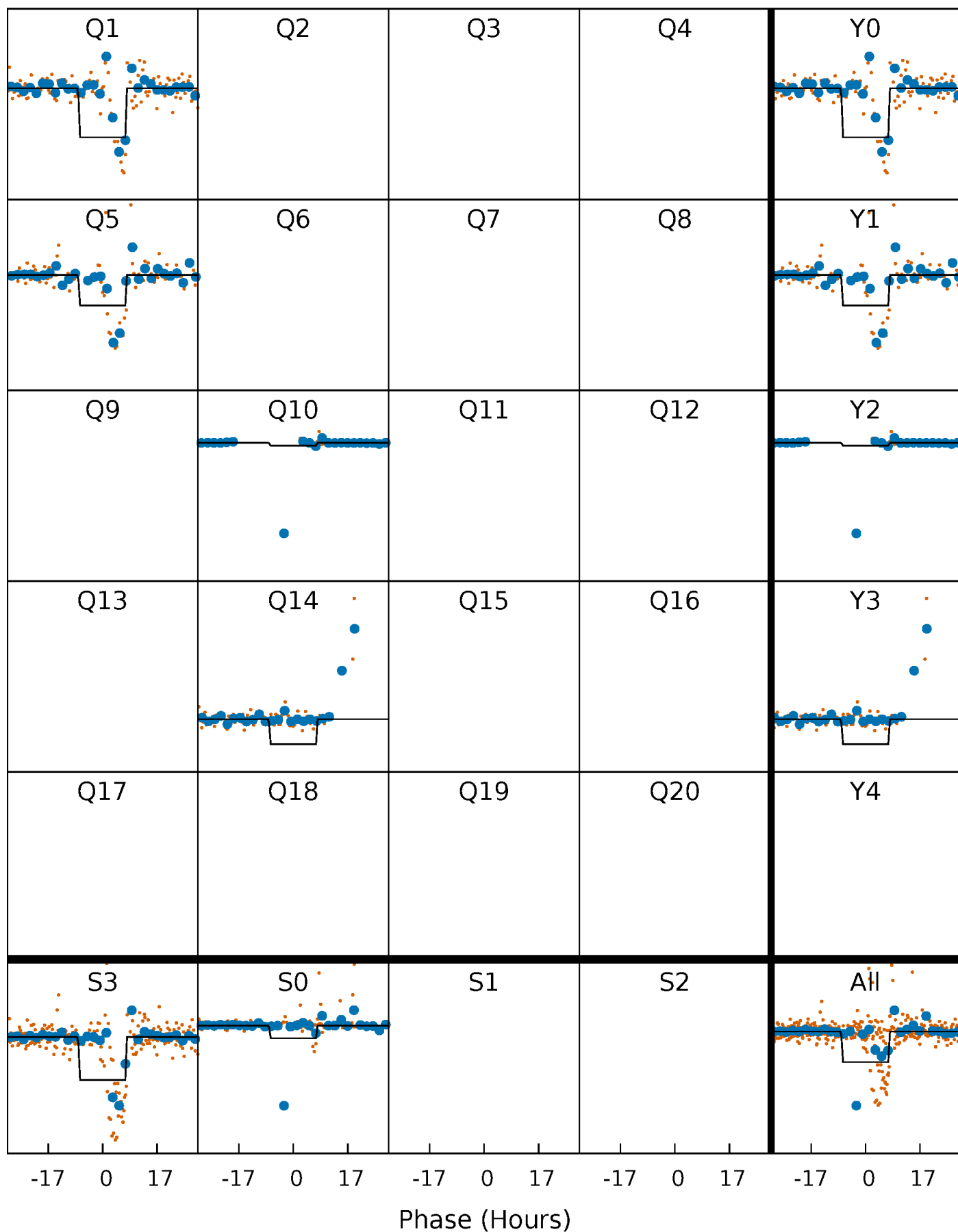
DV Quarter-Phased Transit Curves

TCE 010736489-06 P=388.516899 Days $T_0=133.959615$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

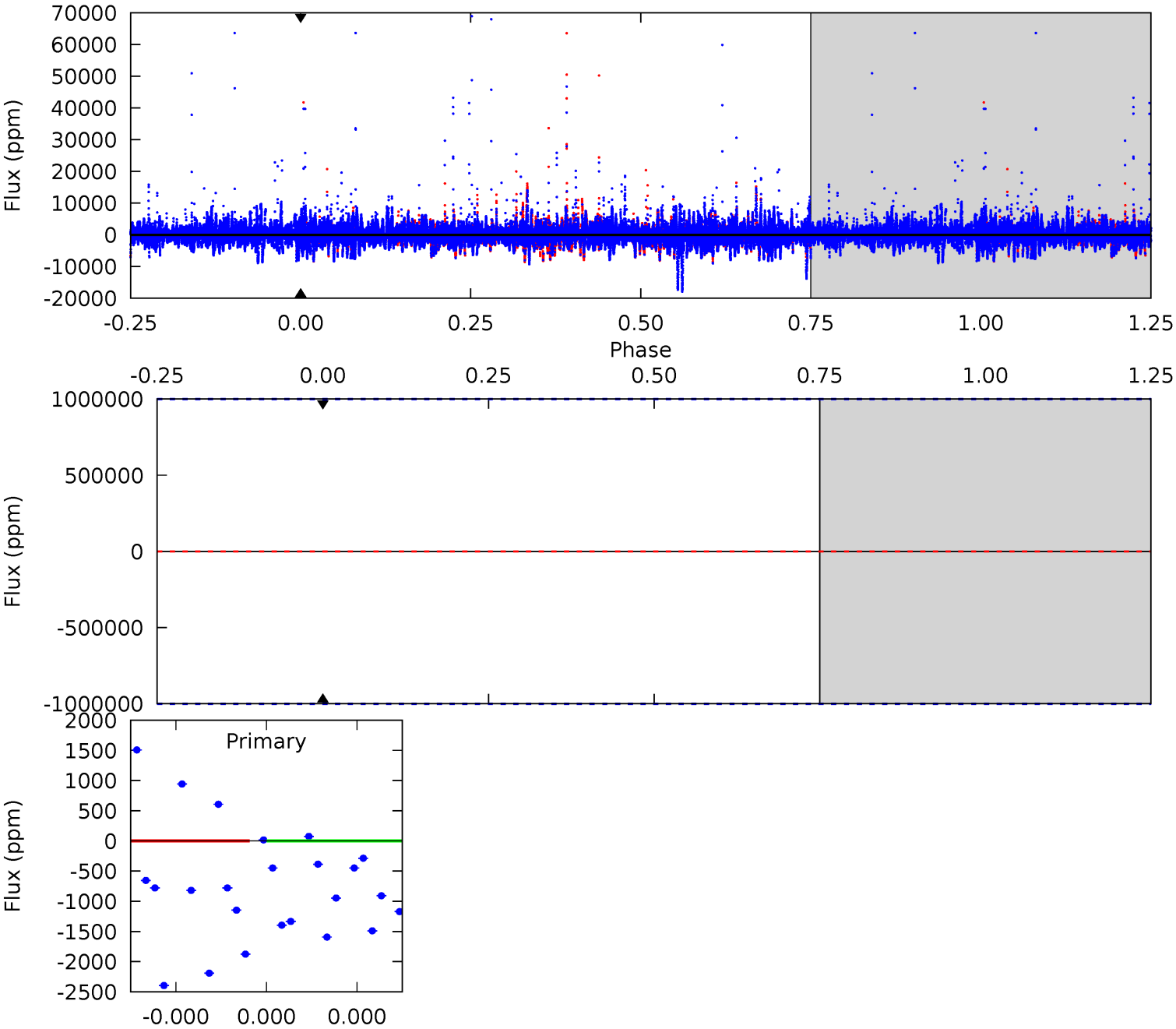
TCE 010736489-06 P=388.516899 Days $T_0=133.766801$ (BKJD)



DV Model-Shift Uniqueness Test

010736489-06, P = 388.516899 Days, E = 133.959615 Days

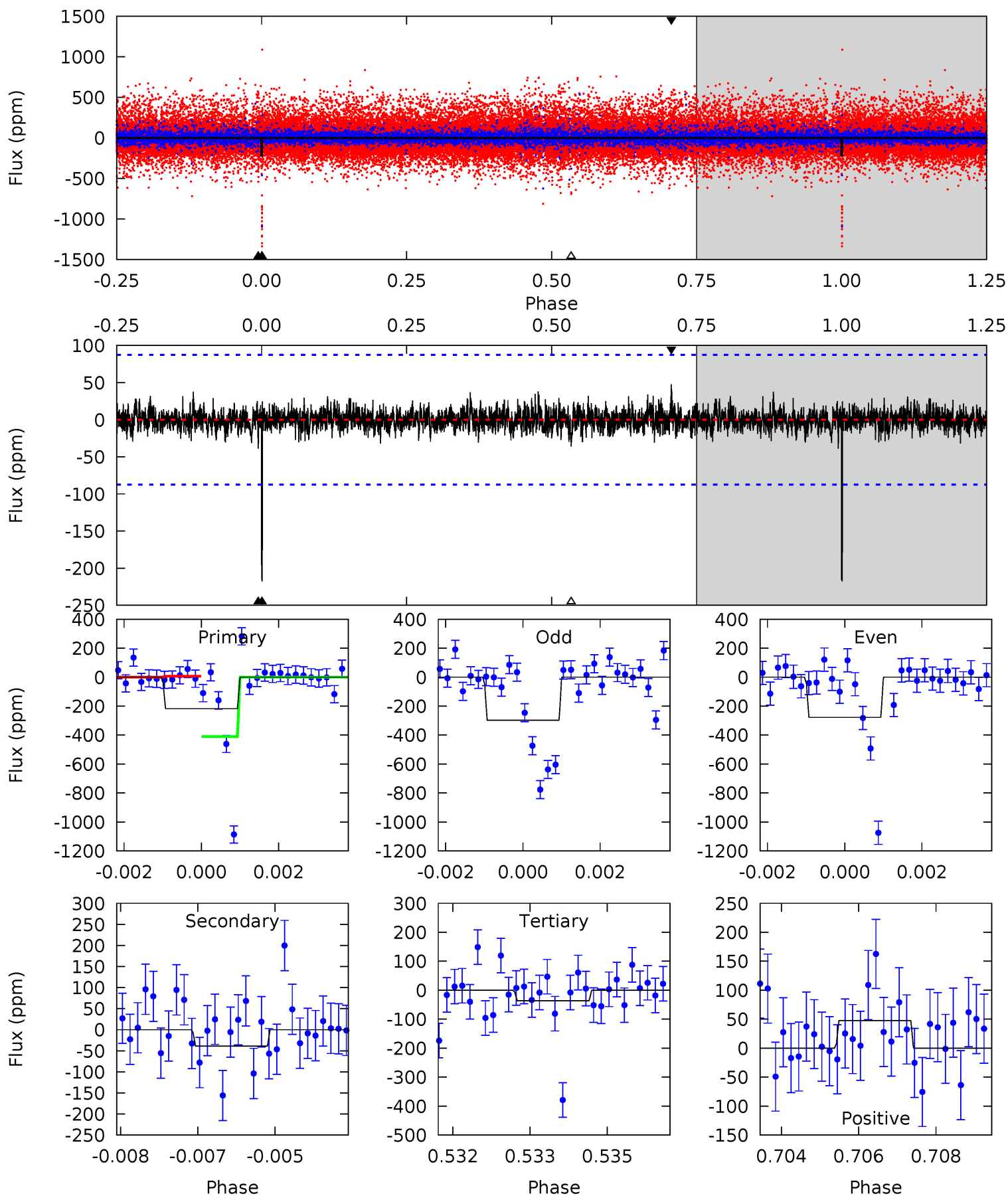
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
0	0	0	0	1.00	1.00	1.00	0	0	0	0	0	0	0	0



Alt Model-Shift Uniqueness Test

010736489-06, P = 388.516899 Days, E = 133.766801 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	2.40	2.21	2.93	5.36	3.15	0.57	11.1	10.4	0.19	-0.53	0.53	1.64	0.18	12.4



Stellar Parameters For KIC 010736489

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (g \cdot \text{cm}^{-3})$
	5227^{+183}_{-183}	$4.535^{+0.052}_{-0.105}$	$0.140^{+0.250}_{-0.300}$	$0.838^{+0.125}_{-0.073}$	$0.876^{+0.070}_{-0.077}$	$2.100^{+0.471}_{-0.659}$
	+4%/-4%	+1%/-2%	+179%/-214%	+15%/-9%	+8%/-9%	+22%/-31%
Source	PHO54	PHO54	PHO54	DSEP		

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

Secondary Eclipse Parameters for KIC 010736489-06 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	0 ± 1000000	$7.23^{+7.10}_{-5.43}$	298^{+15}_{-12}	-4149^{+22786}_{-10549}	$-22372.730^{+2505152.211}_{-1577393.772}$
Alt.	-39 ± 16	$7.27^{+6.93}_{-5.01}$	298^{+14}_{-13}	2344^{+814}_{-347}	372^{+3134}_{-288}

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 $A_{obs} \gg 1.0$

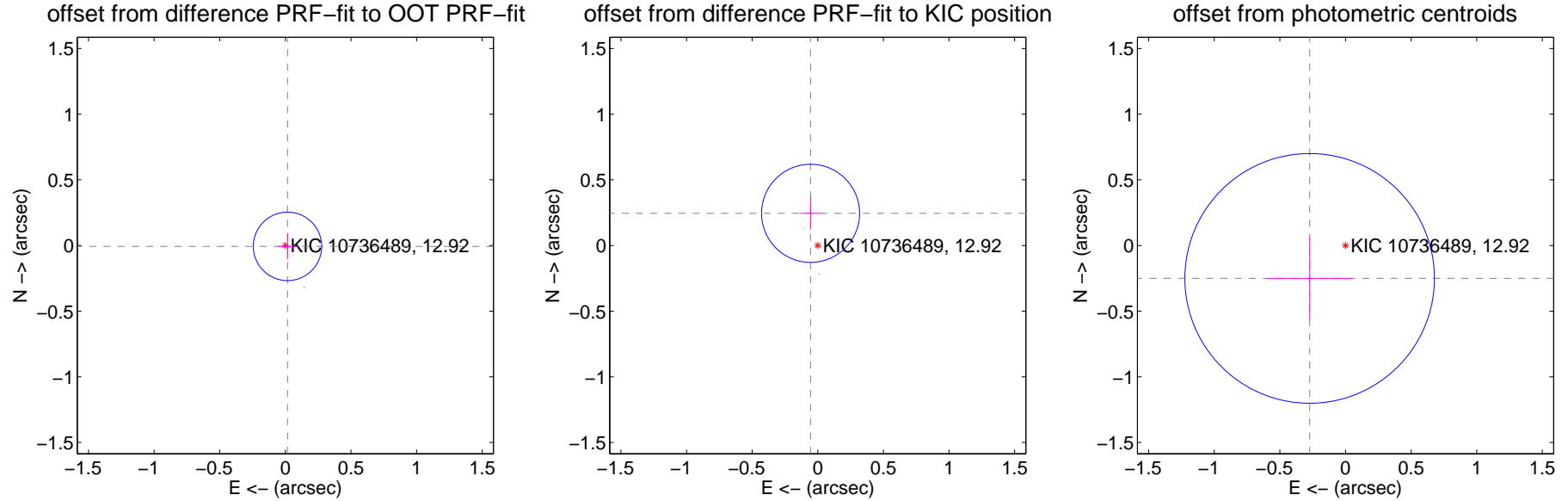
DV Centroid Data

Supplemental centroid analysis for 010736489-06. Kepler magnitude: 12.92. Transit SNR -1.00

There are 4 quarters with good PRF difference image offsets

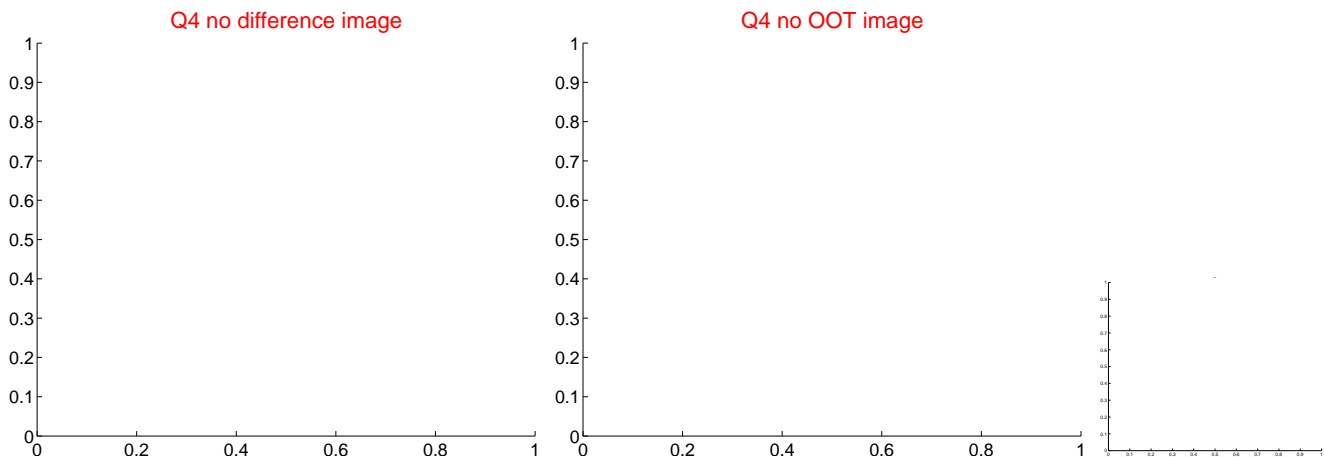
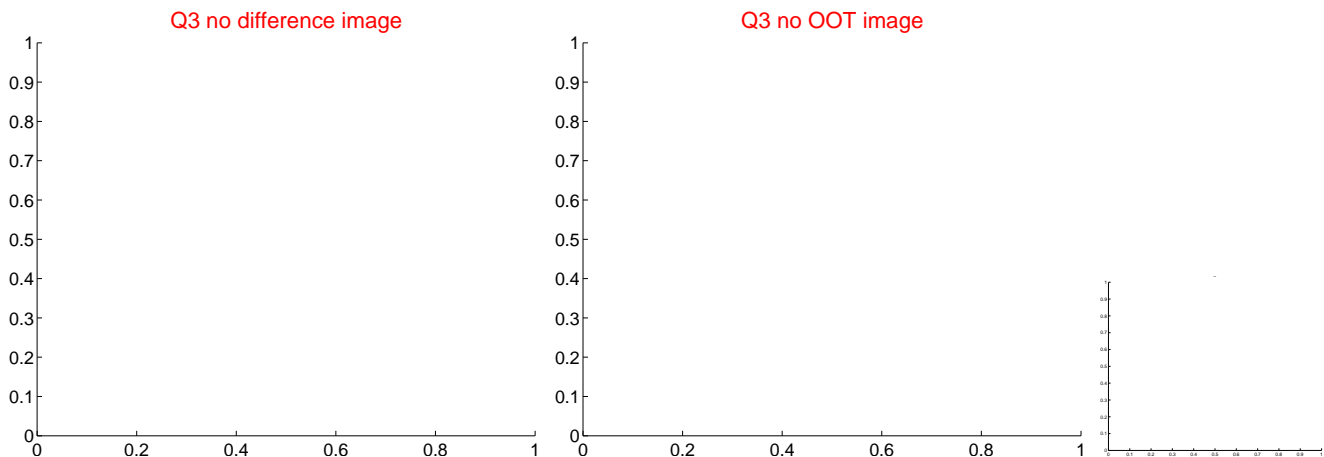
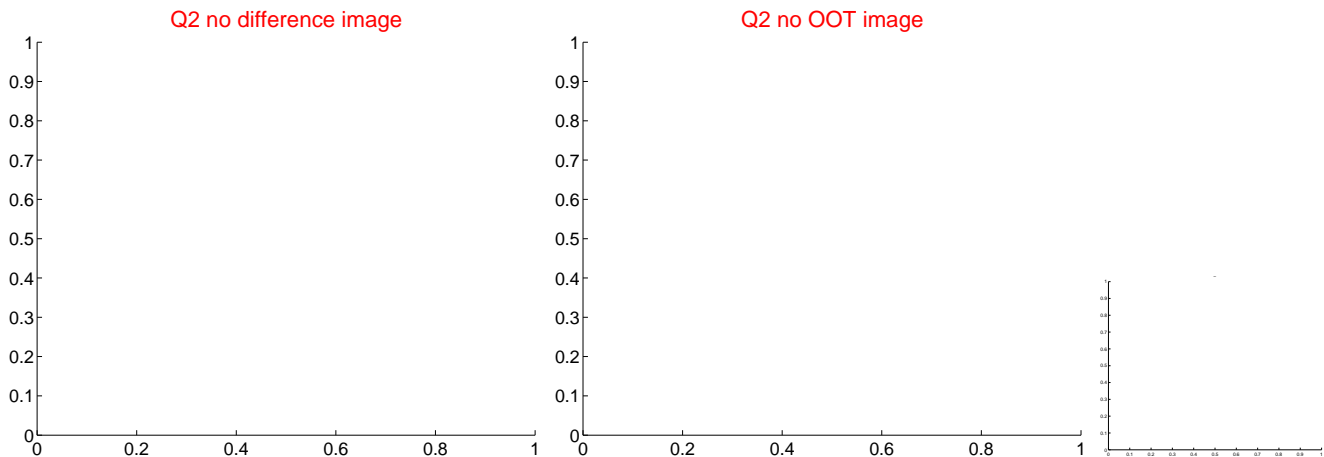
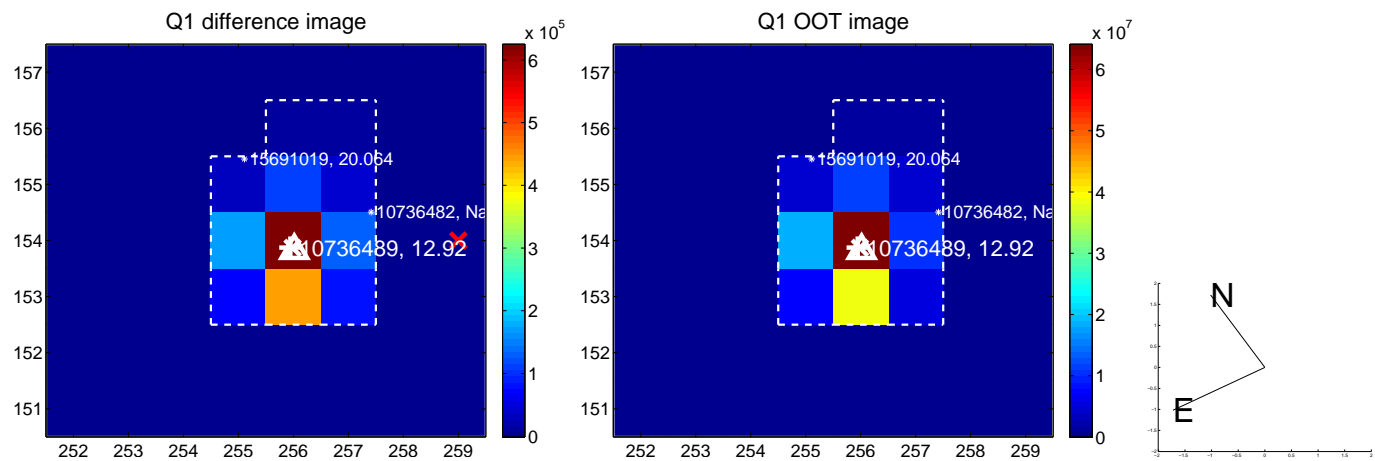
The direct PRF centroid is offset from the target star catalog position by about 0.26 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.018 ± 0.087	0.21	-0.017 ± 0.073	-0.007 ± 0.101
PRF-fit source offset from KIC position	0.251 ± 0.124	2.02	0.055 ± 0.077	0.245 ± 0.123
photometric centroid source offset	0.37 ± 0.32	1.17	0.27 ± 0.32	-0.25 ± 0.31

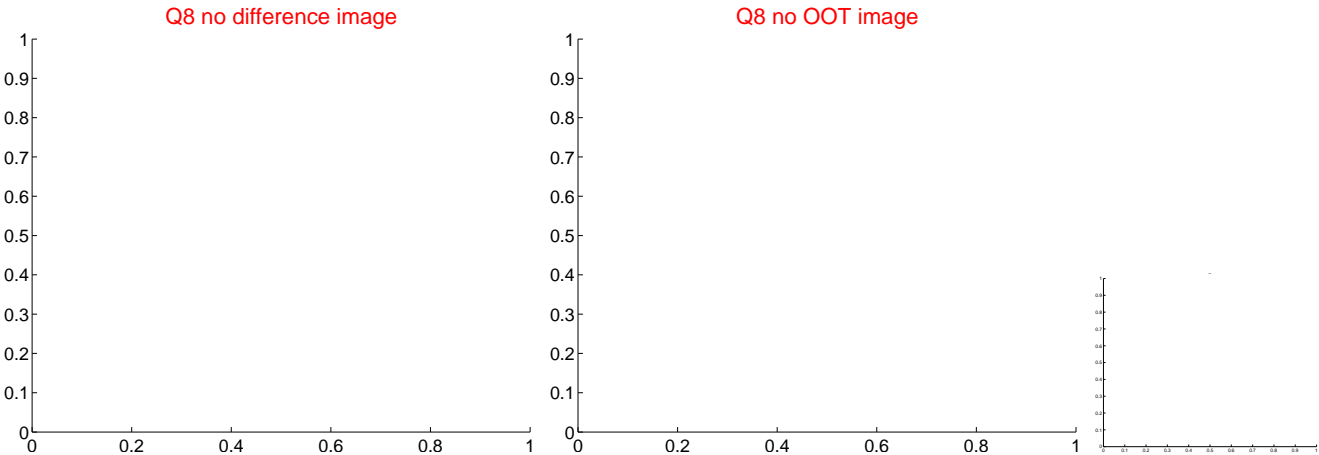
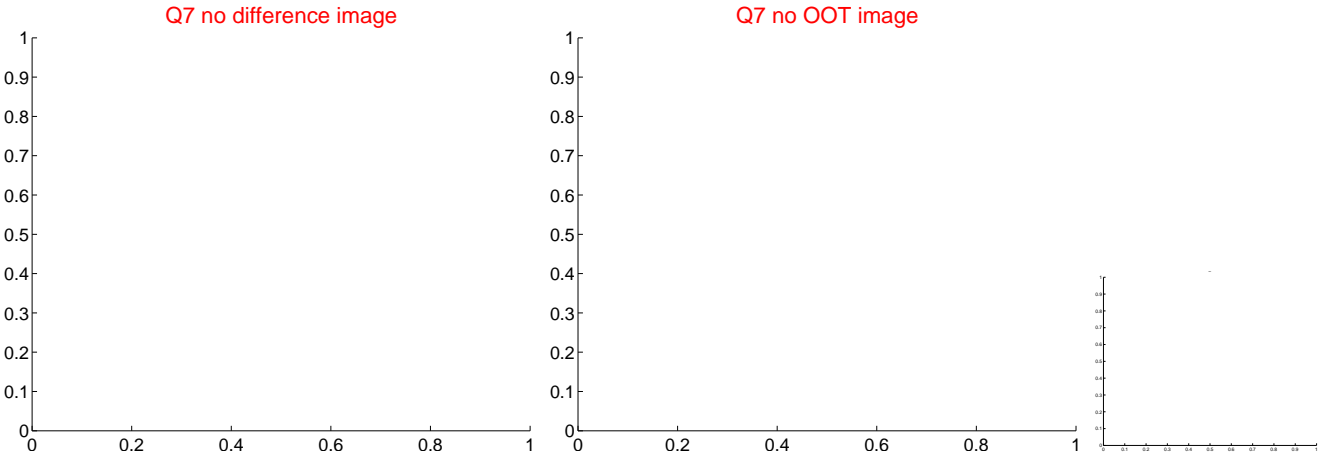
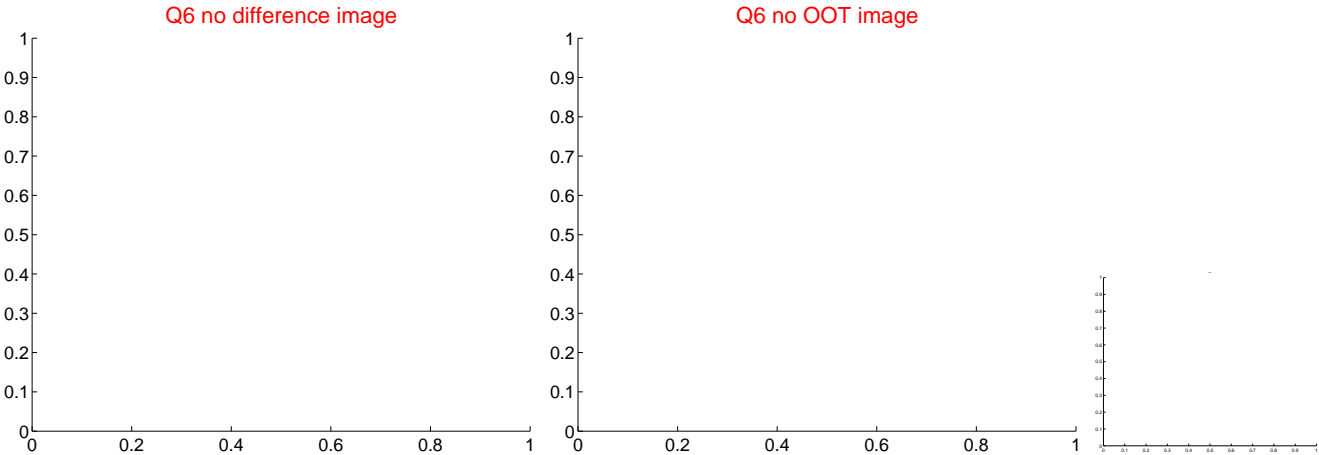
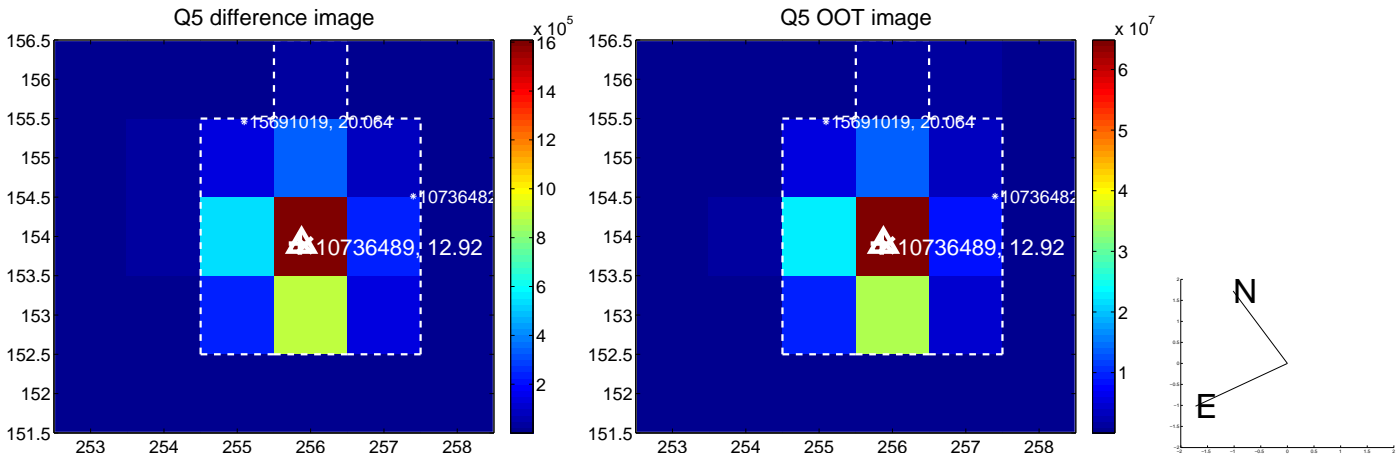


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

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

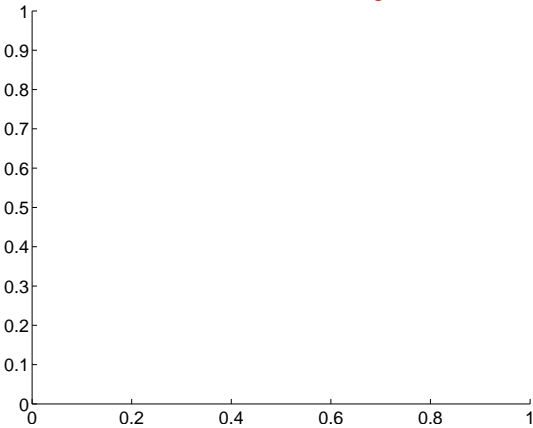


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

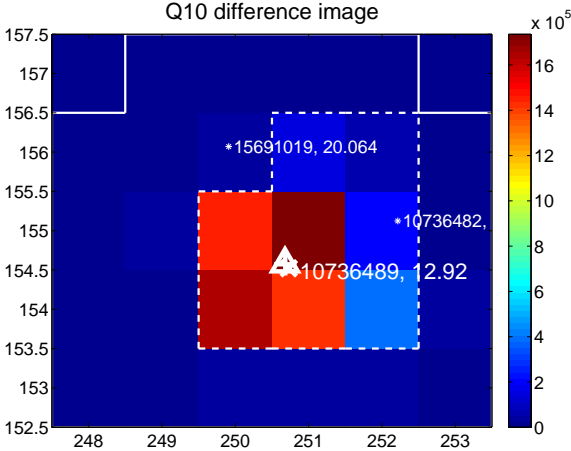
Q9 no difference image



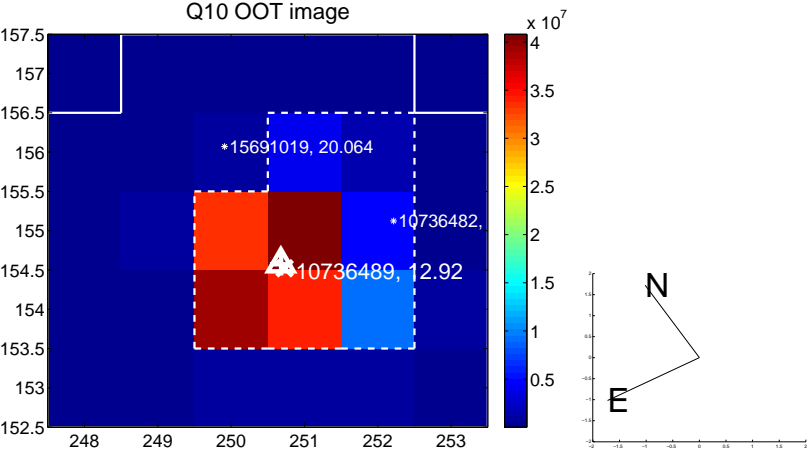
Q9 no OOT image



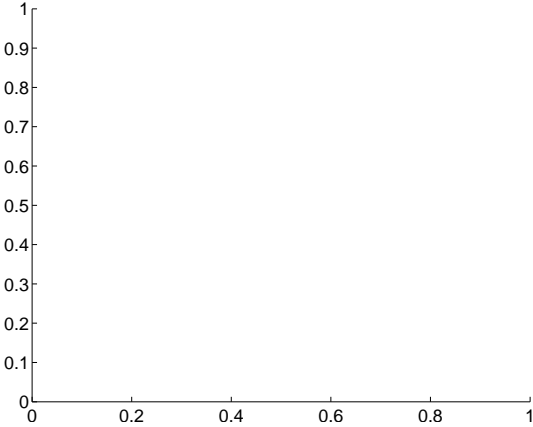
Q10 difference image



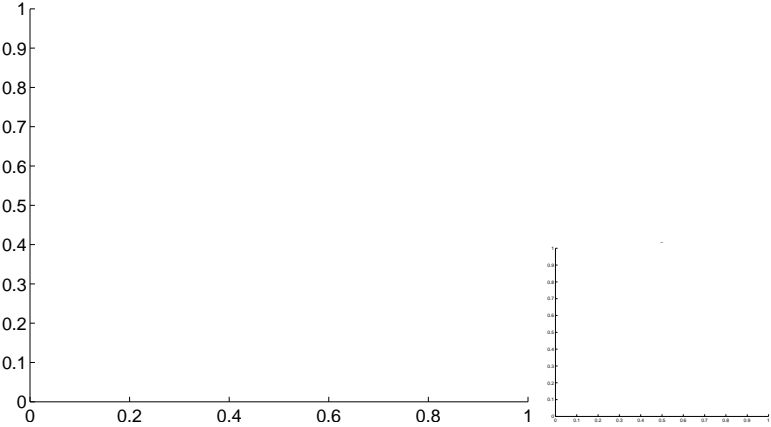
Q10 OOT image



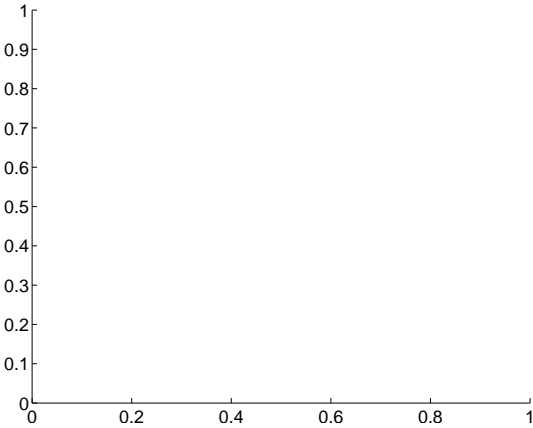
Q11 no difference image



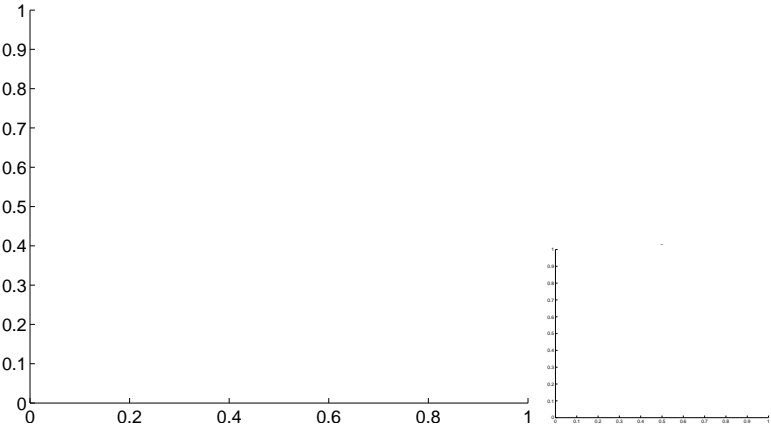
Q11 no OOT image



Q12 no difference image

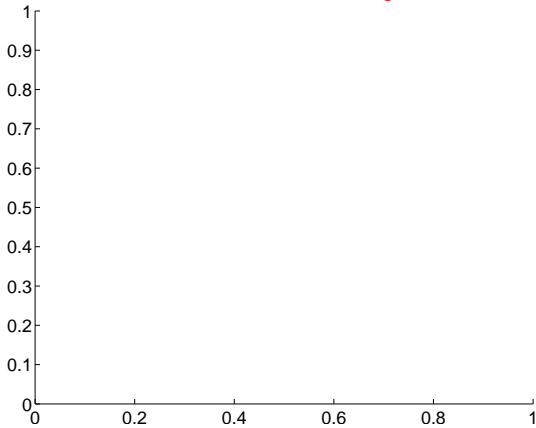


Q12 no OOT image

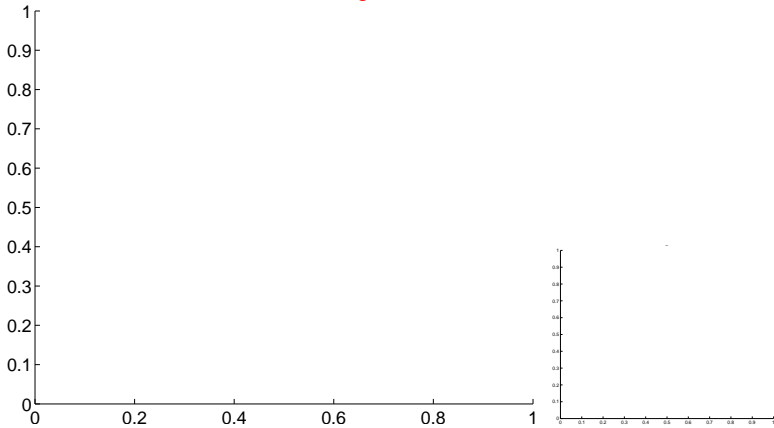


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.

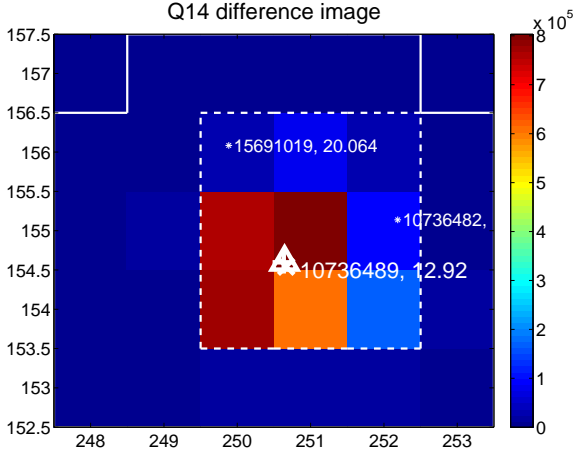
Q13 no difference image



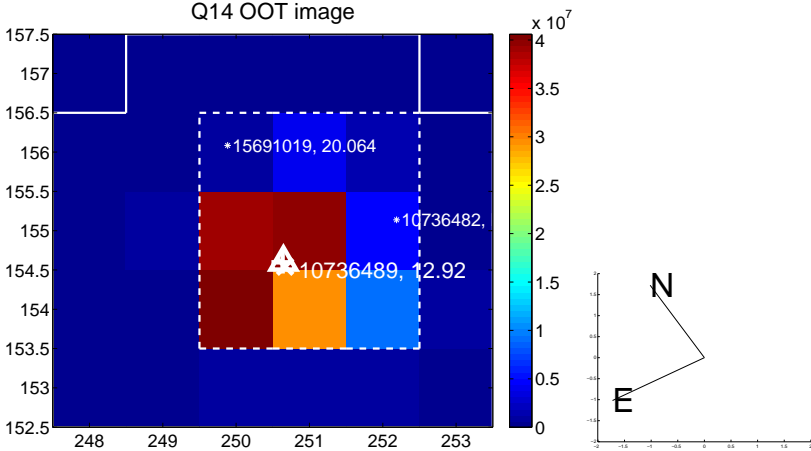
Q13 no OOT image



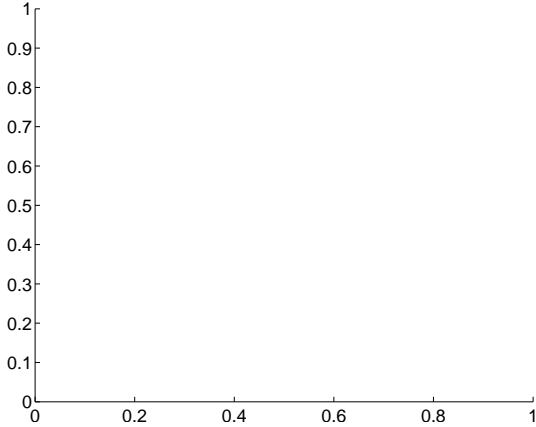
Q14 difference image



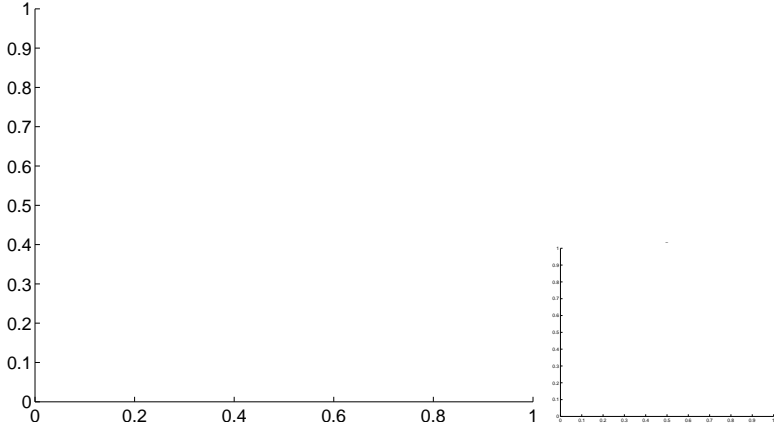
Q14 OOT image



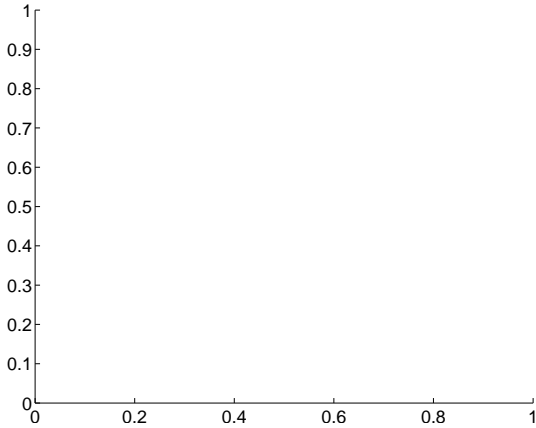
Q15 no difference image



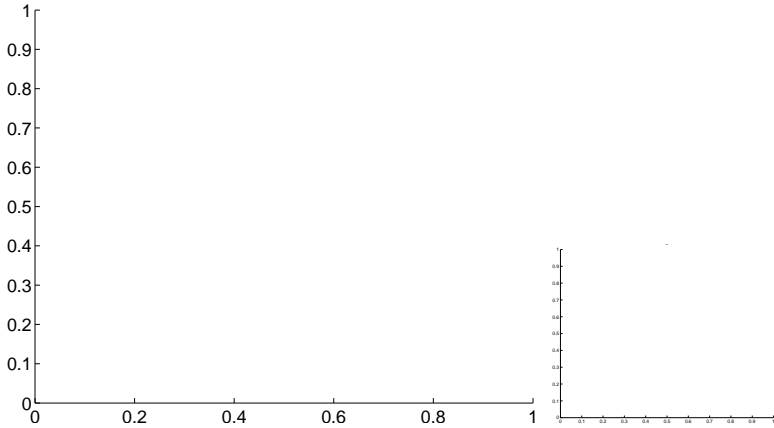
Q15 no OOT image



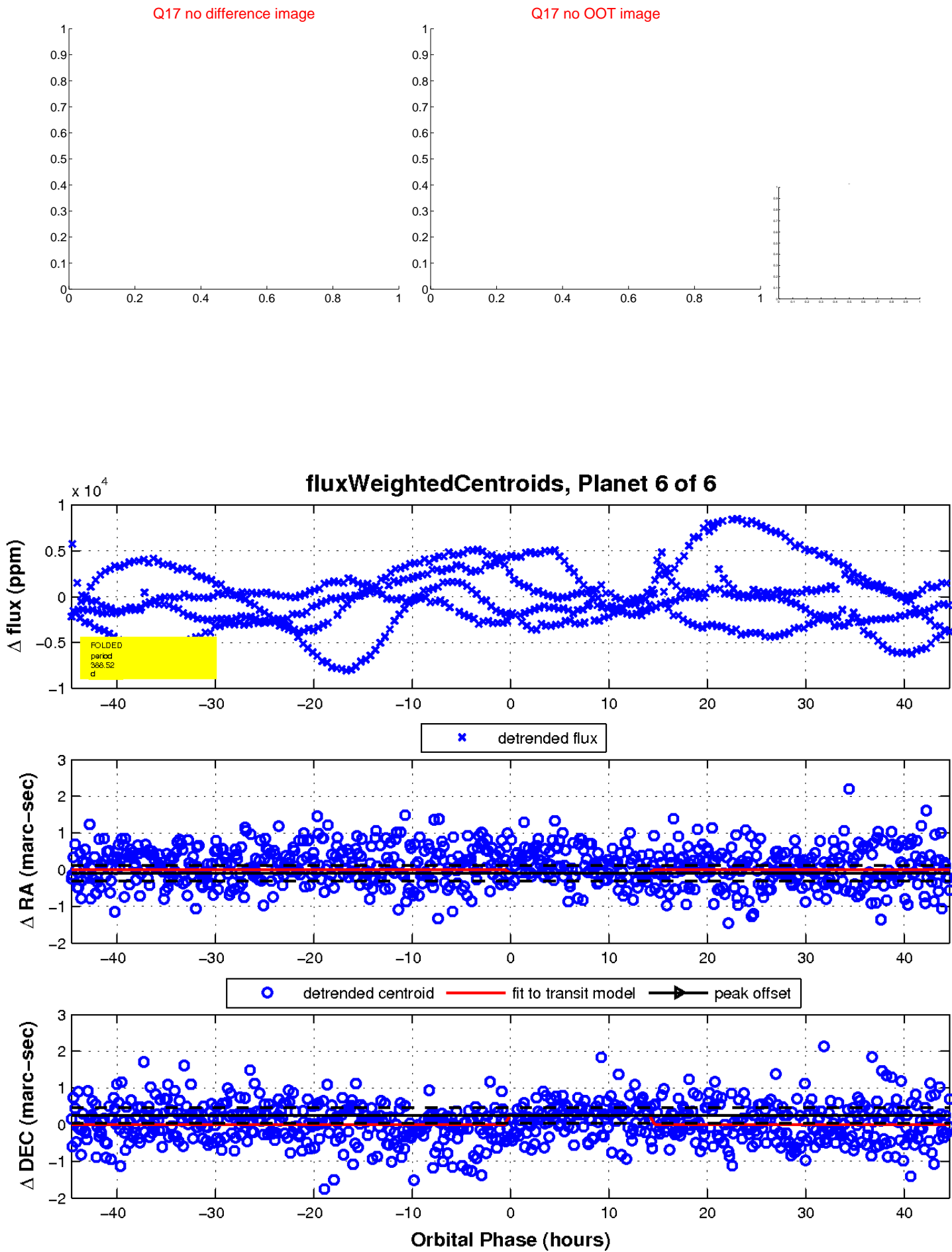
Q16 no difference image



Q16 no OOT image



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



UKIRT Image

