GeoteknikPro Studio Seismic

Ground Motion Record Scaling / Wavelet Scaling Analysis Report

Report date: 10.11.2026 13:26

In this report, the 'Final Record' is the result of wavelet matching / scaling with the common β amplitude factor also applied, where the TBDY mean-spectrum check required it. β is never reduced below 1 in order to pull the mean down; if the mean is above the target, β=1.000 is kept.

1. Target Spectrum and Structure Information

Parameter	Value
Source	Turkish Building Earthquake Code 2018 (5% damping)
Damping	%5
Ss	1.115
S1	0.284
Soil Class	ZD
Fs	1.054
F1	2.032
S_{DS}	1.175
S_{D1}	0.577
TA / TB / TL	0.098 / 0.491 / 6 s
Tn	0.85 s

2. Analysis Settings and Approach

Setting	Value
Method	Wavelet Scaling - Al Atik & Abrahamson (2010)
Matching Min T	0.17 s
Matching Max T	1.275 s
TBDY check band	0.17 - 1.275 s
Common final β	1.023
β critical period	1.11 s
β applied?	YES — records were amplified by β
§2.5.3 literal reading (all periods) β	3.113 @ T = 5.89 s (BİLGİ AMAÇLI — uygulanmaz)
Compliance criterion	§2.5.3: the MEAN of the matched records ≥ target (see the scope note)
Algorithm	Al Atik & Abrahamson (2010)
Target Factor	1
Mismatch tolerance	max 10% and mean 5% (in band, log-spaced control grid)
Max. iterations	30
Min. normalized eigen	0.01
Wavelet placement	log-spaced along the band (≈6%), ≤ 40 per iteration
Off-diagonal reduction	1
Group size	250
Dynamic padding	Open
Successive pass seed	Current matched result
TBDY analysis dimension	2D - In-plane (mean ≥ target, no factor)

Scope (TBDY §2.5.2.1)

SCOPE: TBDY §2.5.2.1 defines these simple scaling criteria "EXCLUDING the site response analyses to be performed according to 16.5.2 or 16.10". The check here applies to records to be used in STRUCTURAL time domain analysis. If the records are being prepared as input for a site-specific SITE RESPONSE ANALYSIS, the §2.5.2 criteria are out of scope; in that case the provisions of §16.5.2 govern.

The check band is 0.2Tp – 1.5Tp. TBDY §2.5.2.1(b) states that this period range may differ for SEISMICALLY ISOLATED BUILDINGS (see §14.14.4.2). The band can be changed from the Min×Tn / Max×Tn fields.

Workflow

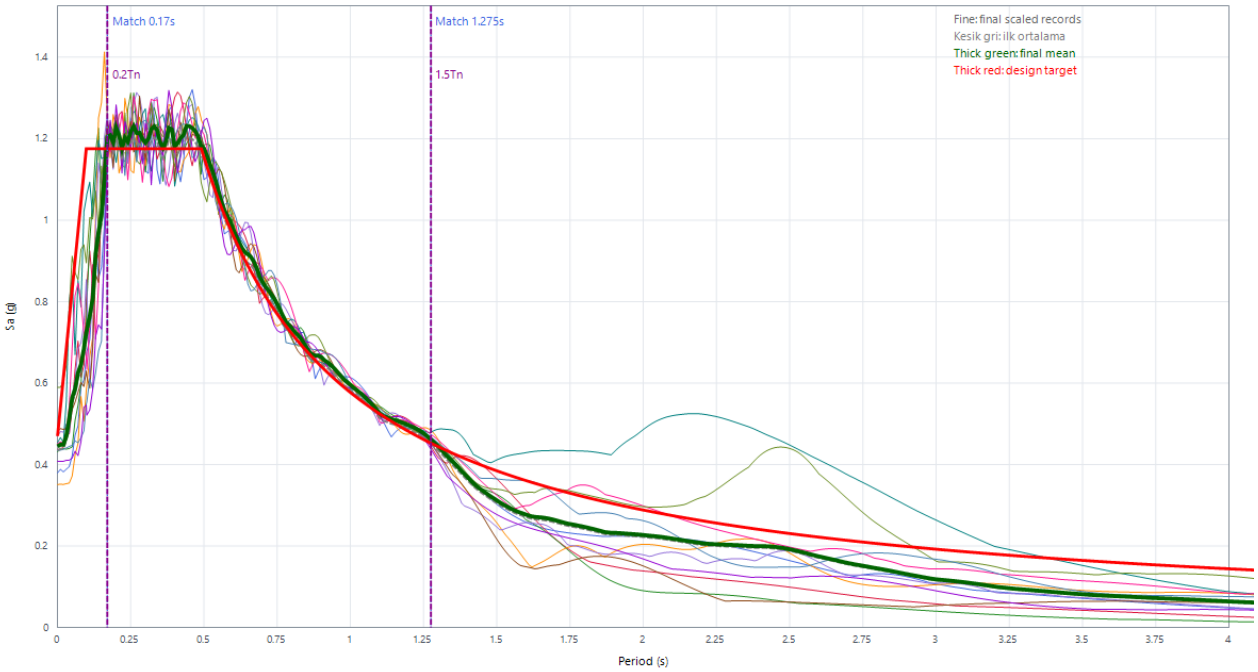
1) The mismatch distribution of the raw record with respect to the target spectrum is computed. 2) Local wavelet corrections are applied at the relevant response-peak times within the user's Match Min/Max band. 3) Convergence (in band max |Sa/target−1| ≤ 10% and mean ≤ 5%) and the velocity/displacement residual drift audit are checked. 4) The mean of the record suite is compared with the target in the independent TBDY control band. 5) If the mean falls below the target at any point, only the minimum required common factor β>=1 is applied to all matched time series. 6) The Time Series screen, the TXT export and this report use the final record (including β).

3. Record Set Summary

Record	Method	Match T (s)	Iter.	Convergence	Match Max. Error (before β)	Audit
RSN6_H1	Wavelet Scaling - Al Atik & Abrahamson (2010)	0.17-1.275	4	Tolerans dışı (maks %12.4, ort %4.1)	%12.36	Inspect
RSN558_H1	Wavelet Scaling - Al Atik & Abrahamson (2010)	0.17-1.275	2	Tolerans dışı (maks %11.8, ort %3.4)	%11.85	Adequate
RSN995_H2	Wavelet Scaling - Al Atik & Abrahamson (2010)	0.17-1.275	4	Tolerans dışı (maks %11.7, ort %3.1)	%11.75	Adequate
RSN1042_H2	Wavelet Scaling - Al Atik & Abrahamson (2010)	0.17-1.275	11	Tolerans dışı (maks %10.5, ort %3.7)	%10.54	Adequate
RSN1048_H1	Wavelet Scaling - Al Atik & Abrahamson (2010)	0.17-1.275	17	Tolerans dışı (maks %11.9, ort %4.0)	%11.9	Adequate
RSN1063_H2	Wavelet Scaling - Al Atik & Abrahamson (2010)	0.17-1.275	3	Yakınsadı (maks %8.8, ort %3.0)	%8.843	Adequate
RSN1602_H1	Wavelet Scaling - Al Atik & Abrahamson (2010)	0.17-1.275	4	Tolerans dışı (maks %11.7, ort %5.1)	%11.67	Adequate
RSN4866_CHUETSU_65039NS	Wavelet Scaling - Al Atik & Abrahamson (2010)	0.17-1.275	9	Tolerans dışı (maks %11.5, ort %3.5)	%11.47	Adequate
RSN5827_H1	Wavelet Scaling - Al Atik & Abrahamson (2010)	0.17-1.275	2	Tolerans dışı (maks %11.7, ort %4.0)	%11.65	Adequate
RSN6923_H1	Wavelet Scaling - Al Atik & Abrahamson (2010)	0.17-1.275	5	Tolerans dışı (maks %11.0, ort %3.4)	%11.04	Adequate
RSN8124_CCHURCH_RHSCS04W	Wavelet Scaling - Al Atik & Abrahamson (2010)	0.17-1.275	17	Tolerans dışı (maks %12.6, ort %4.1)	%12.63	Inspect

4. Mean Spectrum Check

Check band 0.17-1.275 s. Final common β=1.023. If β has been applied, the final time series below have also been amplified by the same factor.



Mean response spectrum of the record set, target spectrum and control bands.

5.1. Kayıt: RSN6_H1

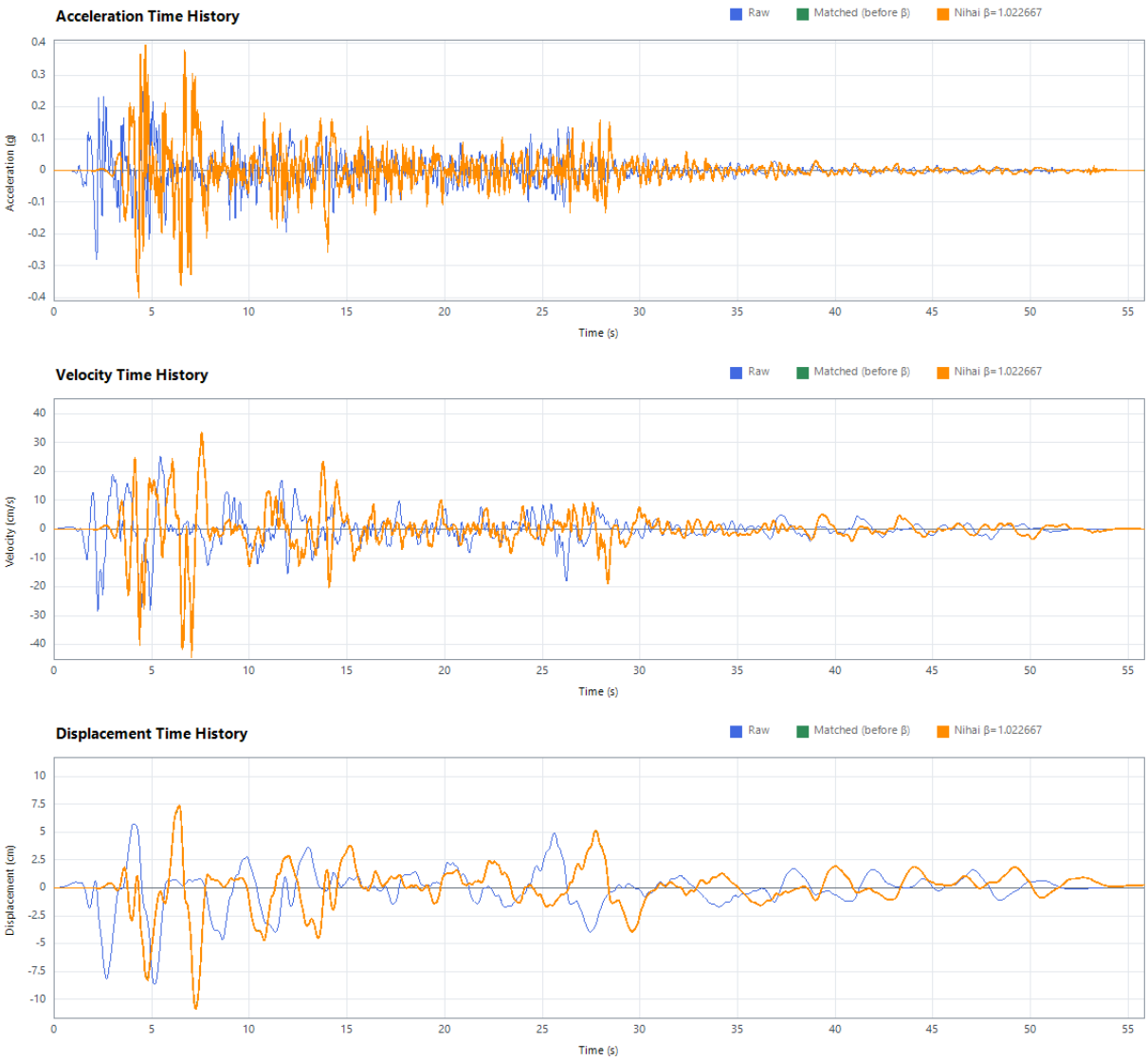
Record Information	Value
dt	0.01 s
NPTS	5372
Method	Wavelet Scaling - Al Atik & Abrahamson (2010)
Match band	0.17 - 1.275 s
Target Factor	1
Iteration	4
Convergence	Tolerans dışı (maks %12.4, ort %4.1)
Matching max. mismatch (before β)	%12.36
Quality Audit	Inspect
Common β	1.023
Exported data	NİHAİ zaman serisi (β dahil)

Wavelet Transition History

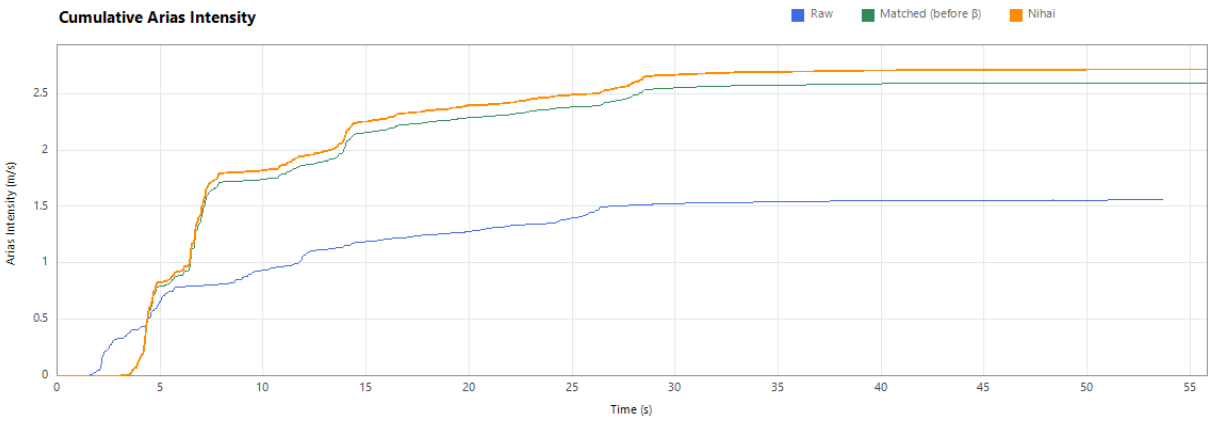
Transition	Setting / Result
1	AA2010 | 0.17-1.275 s | TF=1 | Tol maks=10% ort=5% | MaxIter=30 | Eigen=0.01 | Waves=34 (≤40) | OffDiag=1 | Pad=On 2.13 s | iter=4 | Yakınsadı (maks %10.0, ort %3.4) | tolerans sağlandı

Ground Motion Parameters - Raw / Final

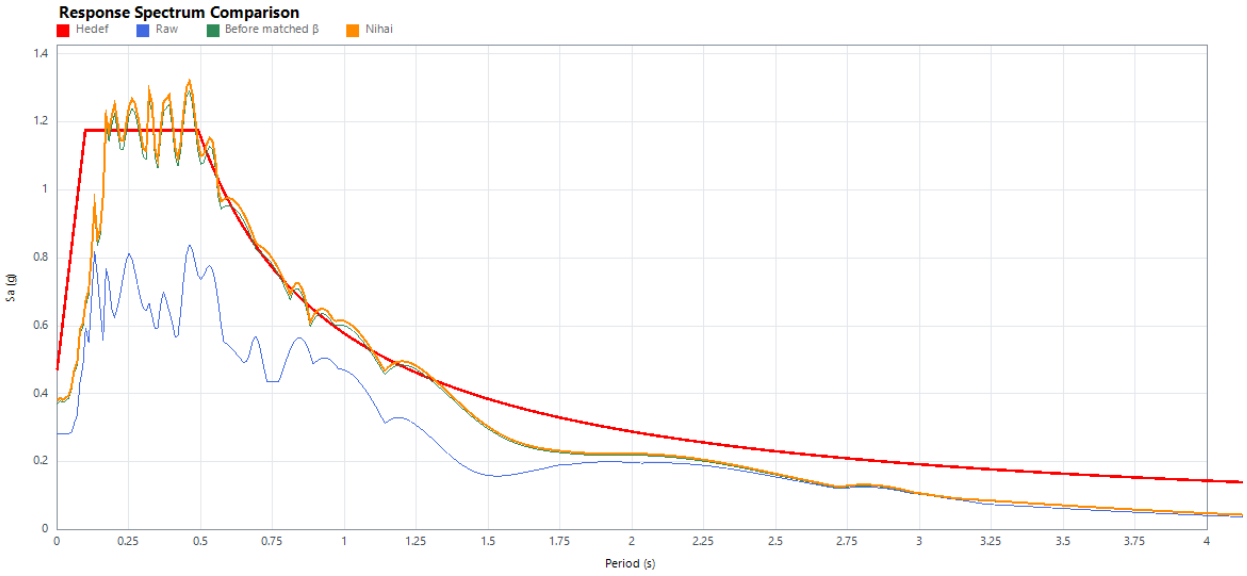
Parameter	Unit	Raw	Final	Change
PGA	g	0.281	0.38	35.24%
PGV	cm/s	30.93	41.84	35.28%
PGD	cm	8.662	10.83	25.03%
Vmax / Amax	s	0.112	0.112	0.03%
Acceleration RMS	g	0.0434	0.0562	29.55%
Velocity RMS	cm/s	5.281	6.346	20.17%
Displacement RMS	cm	1.802	1.896	5.20%
Sustained Max Acc. (3)	g	0.234	0.375	59.99%
Sustained Max Acc. (5)	g	0.218	0.338	55.11%
Sustained Max Vel. (3)	cm/s	28.06	37.99	35.37%
Sustained Max Vel. (5)	cm/s	23.02	26.91	16.90%
Total Duration	s	53.71	55.84	3.97%
D_{5-75}	s	12.18	9.634	-20.89%
D_{5-95}	s	24.19	23.83	-1.49%
Bracketed Duration	s	43.98	40.04	-8.96%
Arias Intensity	m/s	1.556	2.714	74.48%
CAV	cm/s	1325.6	1593.3	20.20%
SED	cm^2/s	1498	2248.9	50.13%
Characteristic Intensity	-	0.0662	0.0995	50.34%
MIV	cm/s	53.23	75.17	41.22%
Damage Index	-	0.686	1.672	143.75%
NoEC	-	4.483	3.889	-13.25%
Impulsivity Index	-	43.01	38.22	-11.14%
Standardized CAV	g·s	1.259	1.542	22.47%
CAV_5	g·s	1.323	1.597	20.71%
A95 parameter	g	0.254	0.368	44.73%
EDA (9 Hz LP)	g	0.295	0.39	32.22%
Uniform Duration	s	0	0	-
Effective Duration	s	24	24.44	1.83%
VSI (ξ=%5)	cm	129.2	179.8	39.22%
Housner SI original (ξ=20%)	cm	75.6	108.1	43.00%
Fourier Dominant Frequency	Hz	1.471	1.468	-0.16%
Fourier Dominant Period (T_F)	s	0.68	0.681	0.16%
Predominant Period T_p (argmax Sa)	s	0.46	0.46	0%
Mean Period T_m	s	0.579	0.569	-1.75%



Acceleration-velocity-displacement comparison of the raw, wavelet-matched (before β, if available) and final time series.



Comparison of cumulative Arias Intensity.



Comparison of the raw, matched/final and target response spectra.

5.2. Kayıt: RSN558_H1

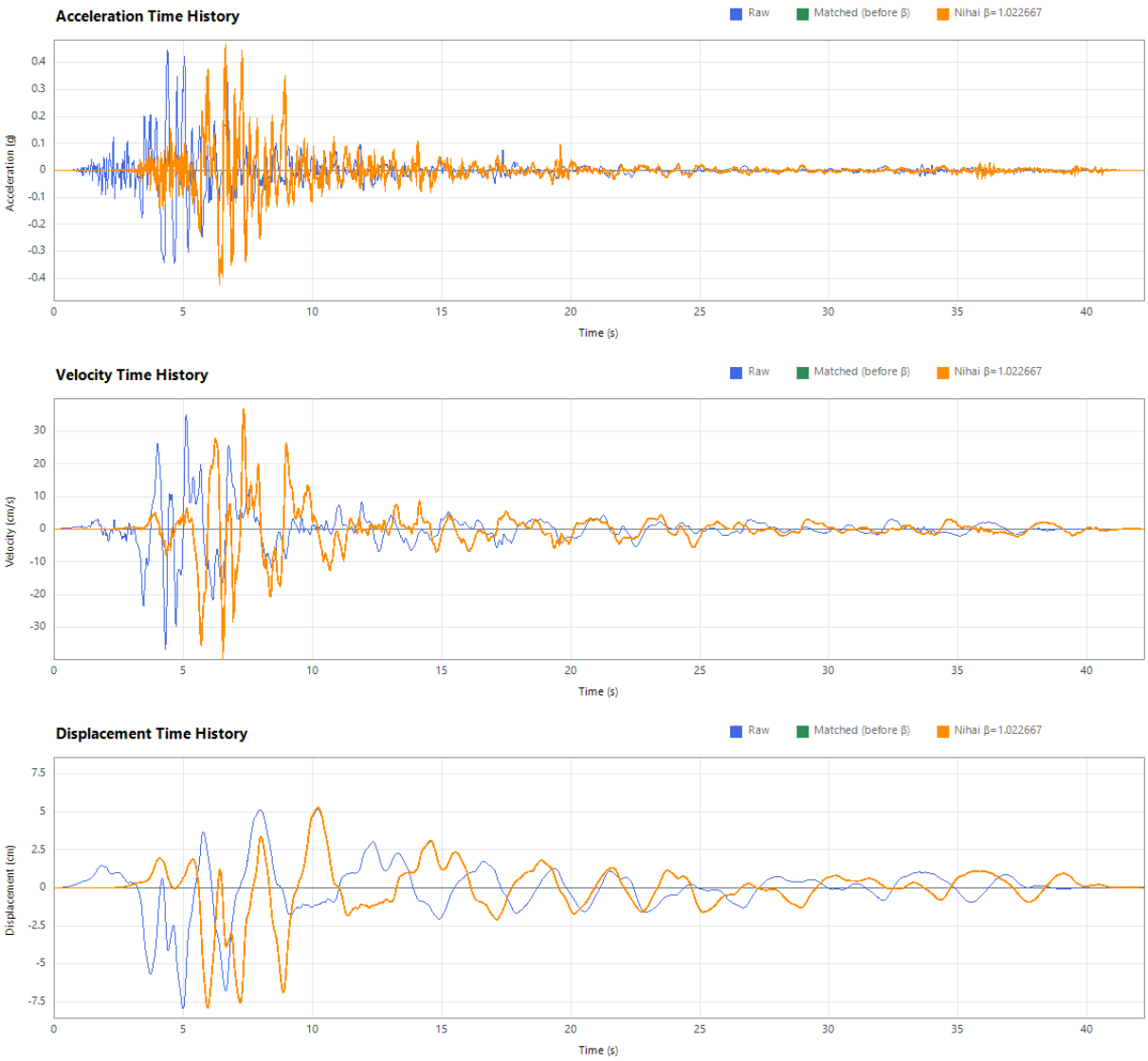
Record Information	Value
dt	0.005 s
NPTS	7999
Method	Wavelet Scaling - Al Atik & Abrahamson (2010)
Match band	0.17 - 1.275 s
Target Factor	1
Iteration	2
Convergence	Tolerans dışı (maks %11.8, ort %3.4)
Matching max. mismatch (before β)	%11.85
Quality Audit	Adequate
Common β	1.023
Exported data	NİHAİ zaman serisi (β dahil)

Wavelet Transition History

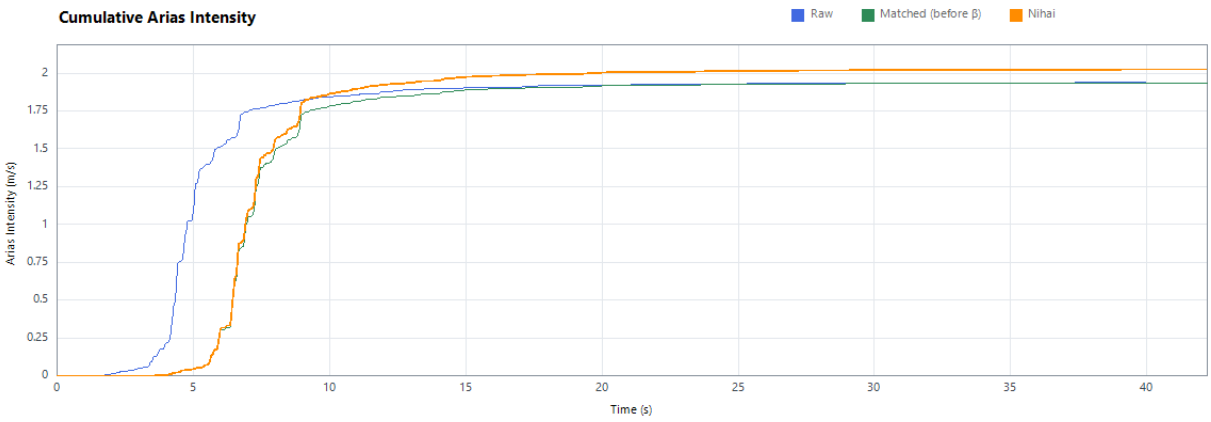
Transition	Setting / Result
1	AA2010 | 0.17-1.275 s | TF=1 | Tol maks=10% ort=5% | MaxIter=30 | Eigen=0.01 | Waves=34 (≤40) | OffDiag=1 | Pad=On 2.23 s | iter=2 | Yakınsadı (maks %9.4, ort %2.1) | tolerans sağlandı

Ground Motion Parameters - Raw / Final

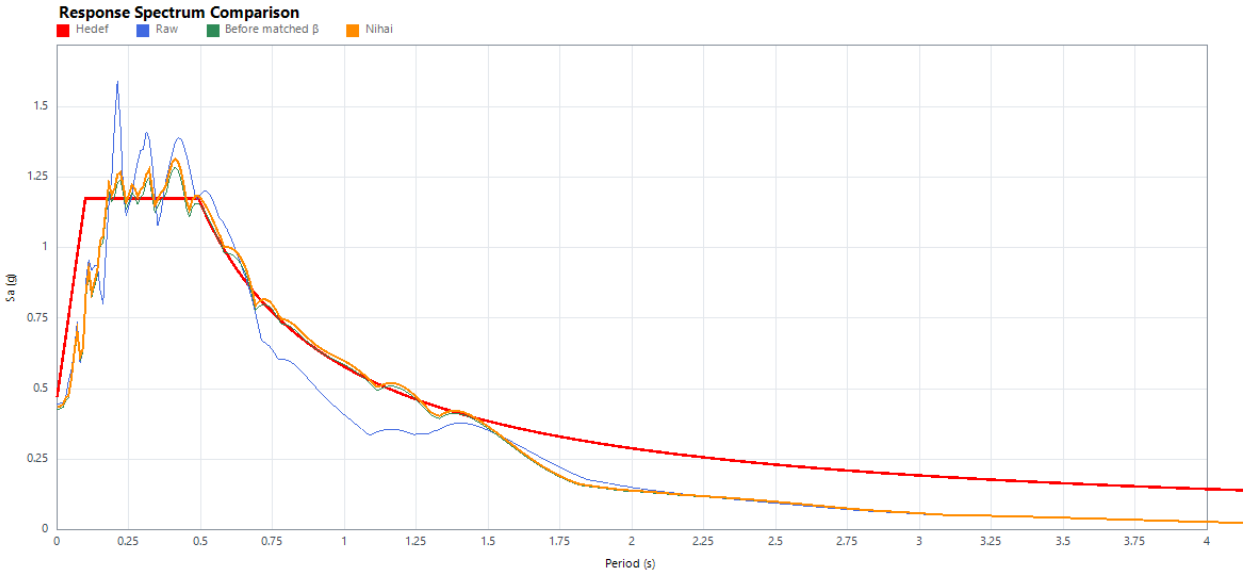
Parameter	Unit	Raw	Final	Change
PGA	g	0.447	0.437	-2.24%
PGV	cm/s	36.79	37	0.56%
PGD	cm	7.945	7.895	-0.63%
Vmax / Amax	s	0.0839	0.0863	2.86%
Acceleration RMS	g	0.0561	0.0558	-0.49%
Velocity RMS	cm/s	5.421	5.741	5.91%
Displacement RMS	cm	1.6	1.631	1.94%
Sustained Max Acc. (3)	g	0.356	0.391	10.03%
Sustained Max Acc. (5)	g	0.344	0.343	-0.08%
Sustained Max Vel. (3)	cm/s	30.04	35.43	17.95%
Sustained Max Vel. (5)	cm/s	25.98	26.94	3.69%
Total Duration	s	39.99	42.22	5.58%
D_{5-75}	s	2.246	2.342	4.27%
D_{5-95}	s	6.169	6.274	1.71%
Bracketed Duration	s	32.19	32.89	2.16%
Arias Intensity	m/s	1.938	2.026	4.54%
CAV	cm/s	927.5	959.1	3.40%
SED	cm^2/s	1175.2	1391.7	18.42%
Characteristic Intensity	-	0.084	0.0857	1.99%
MIV	cm/s	63.22	64.77	2.46%
Damage Index	-	1.574	1.78	13.10%
NoEC	-	3.128	3.129	0.01%
Impulsivity Index	-	25.36	26.13	3.03%
Standardized CAV	g·s	0.848	0.898	5.97%
CAV_5	g·s	0.912	0.945	3.56%
A95 parameter	g	0.438	0.413	-5.87%
EDA (9 Hz LP)	g	0.467	0.44	-5.84%
Uniform Duration	s	0	0	-
Effective Duration	s	6.641	7.076	6.55%
VSI (ξ=%5)	cm	150.5	163.2	8.43%
Housner SI original (ξ=20%)	cm	86.8	92.45	6.51%
Fourier Dominant Frequency	Hz	1.7	1.705	0.29%
Fourier Dominant Period (T_F)	s	0.588	0.586	-0.29%
Predominant Period T_p (argmax Sa)	s	0.21	0.41	95.24%
Mean Period T_m	s	0.477	0.514	7.66%



Acceleration-velocity-displacement comparison of the raw, wavelet-matched (before β, if available) and final time series.



Comparison of cumulative Arias Intensity.



Comparison of the raw, matched/final and target response spectra.

5.3. Kayıt: RSN995_H2

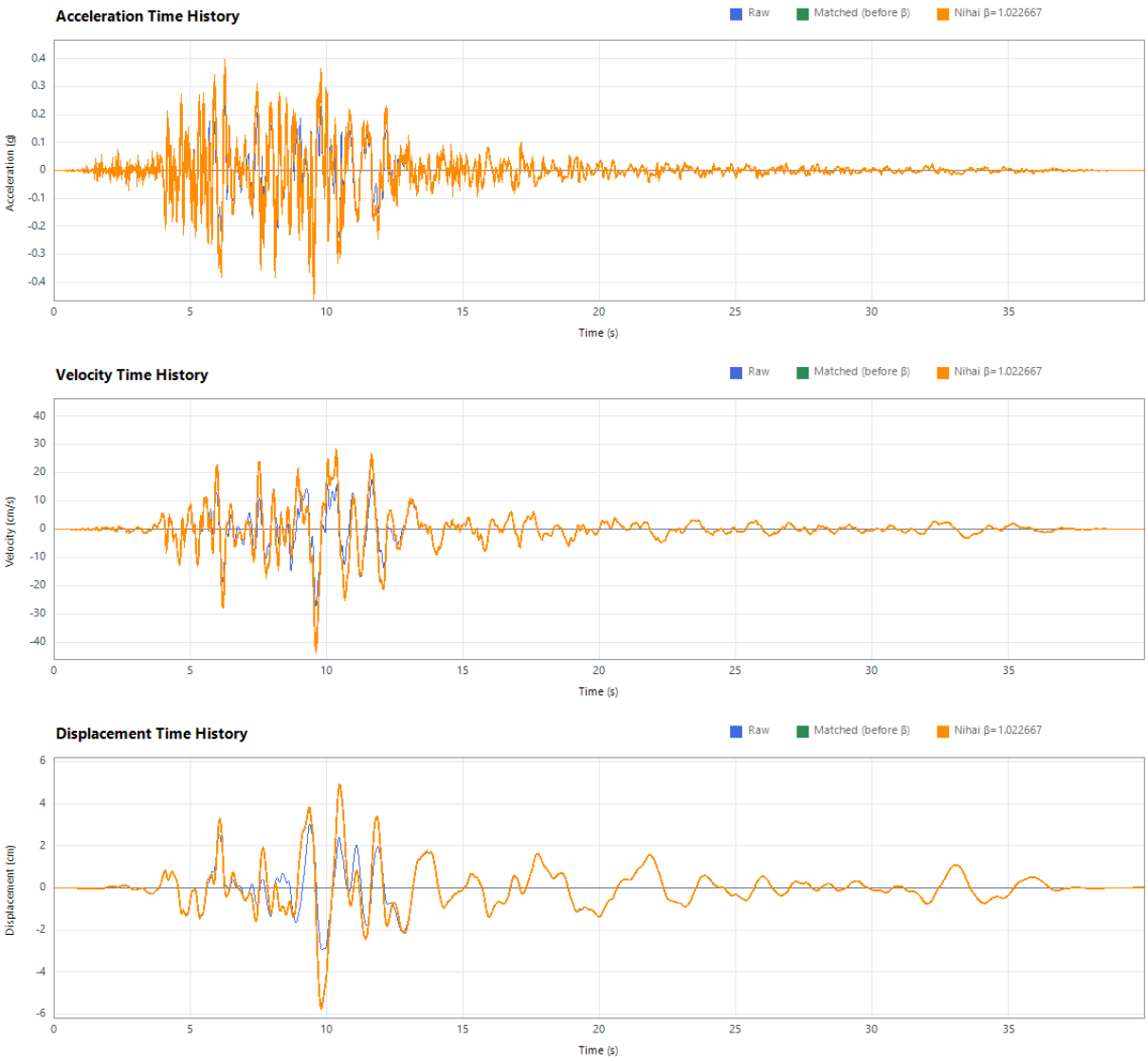
Record Information	Value
dt	0.02 s
NPTS	2000
Method	Wavelet Scaling - Al Atik & Abrahamson (2010)
Match band	0.17 - 1.275 s
Target Factor	1
Iteration	4
Convergence	Tolerans dışı (maks %11.7, ort %3.1)
Matching max. mismatch (before β)	%11.75
Quality Audit	Adequate
Common β	1.023
Exported data	NİHAİ zaman serisi (β dahil)

Wavelet Transition History

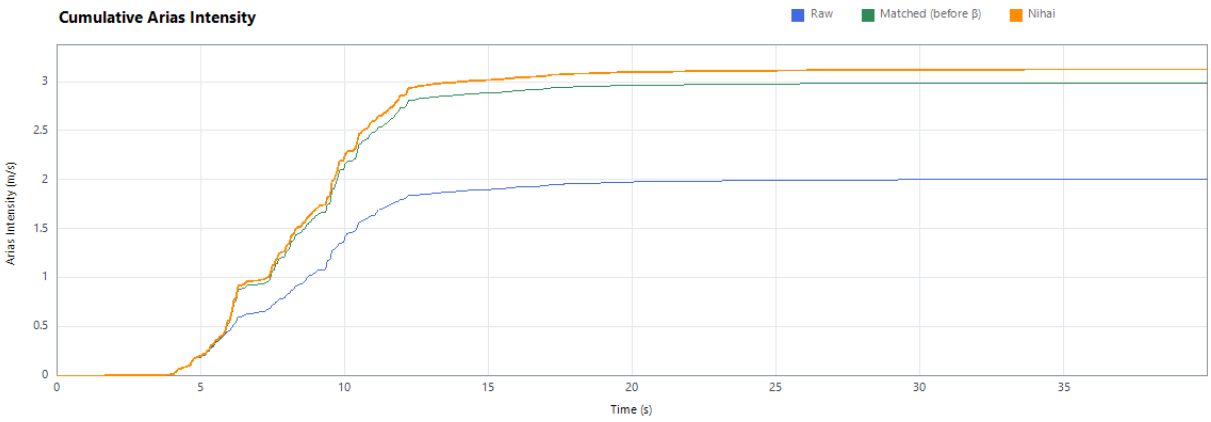
Transition	Setting / Result
1	AA2010 | 0.17-1.275 s | TF=1 | Tol maks=10% ort=5% | MaxIter=30 | Eigen=0.01 | Waves=34 (≤40) | OffDiag=1 | Pad=On 0 s | iter=4 | Yakınsadı (maks %9.3, ort %2.1) | tolerans sağlandı

Ground Motion Parameters - Raw / Final

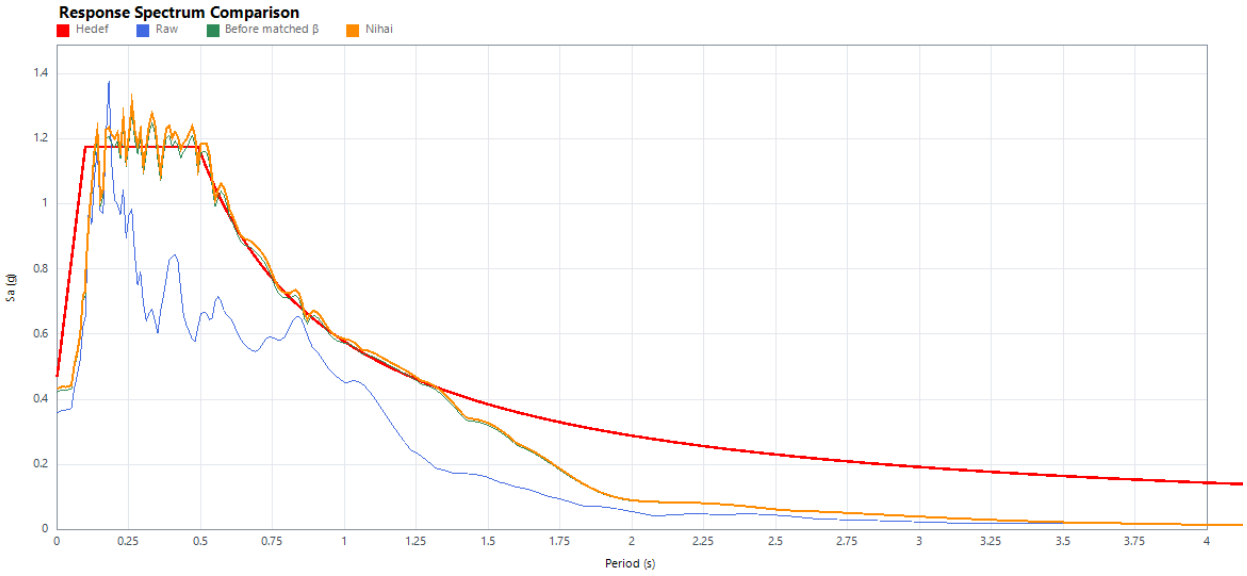
Parameter	Unit	Raw	Final	Change
PGA	g	0.358	0.432	20.52%
PGV	cm/s	27.37	42.79	56.34%
PGD	cm	3.027	5.727	89.20%
Vmax / Amax	s	0.0779	0.101	29.72%
Acceleration RMS	g	0.057	0.0713	24.91%
Velocity RMS	cm/s	4.264	5.965	39.89%
Displacement RMS	cm	0.761	1.015	33.35%
Sustained Max Acc. (3)	g	0.284	0.352	24.03%
Sustained Max Acc. (5)	g	0.256	0.335	31.15%
Sustained Max Vel. (3)	cm/s	17.85	27.78	55.65%
Sustained Max Vel. (5)	cm/s	15.99	24.68	54.32%
Total Duration	s	39.98	39.98	0%
D_{5-75}	s	5.8	5.69	-1.90%
D_{5-95}	s	10.65	8.286	-22.20%
Bracketed Duration	s	30.68	30.68	0%
Arias Intensity	m/s	2.004	3.127	56.02%
CAV	cm/s	1144.7	1357.4	18.58%
SED	cm^2/s	726.9	1422.6	95.71%
Characteristic Intensity	-	0.0861	0.12	39.60%
MIV	cm/s	34.92	52.18	49.43%
Damage Index	-	1.547	2.577	66.61%
NoEC	-	5.841	5.026	-13.95%
Impulsivity Index	-	41.32	31.39	-24.03%
Standardized CAV	g·s	1.09	1.305	19.75%
CAV_5	g·s	1.182	1.4	18.42%
A95 parameter	g	0.301	0.352	16.88%
EDA (9 Hz LP)	g	0.331	0.405	22.12%
Uniform Duration	s	0	0	-
Effective Duration	s	10.07	10.38	3.09%
VSI (ξ=%5)	cm	95.6	151.6	58.60%
Housner SI original (ξ=20%)	cm	51.92	87.15	67.86%
Fourier Dominant Frequency	Hz	1.175	2.05	74.47%
Fourier Dominant Period (T_F)	s	0.851	0.488	-42.68%
Predominant Period T_p (argmax Sa)	s	0.18	0.26	44.44%
Mean Period T_m	s	0.374	0.441	17.95%



Acceleration-velocity-displacement comparison of the raw, wavelet-matched (before β, if available) and final time series.



Comparison of cumulative Arias Intensity.



Comparison of the raw, matched/final and target response spectra.

5.4. Kayıt: RSN1042_H2

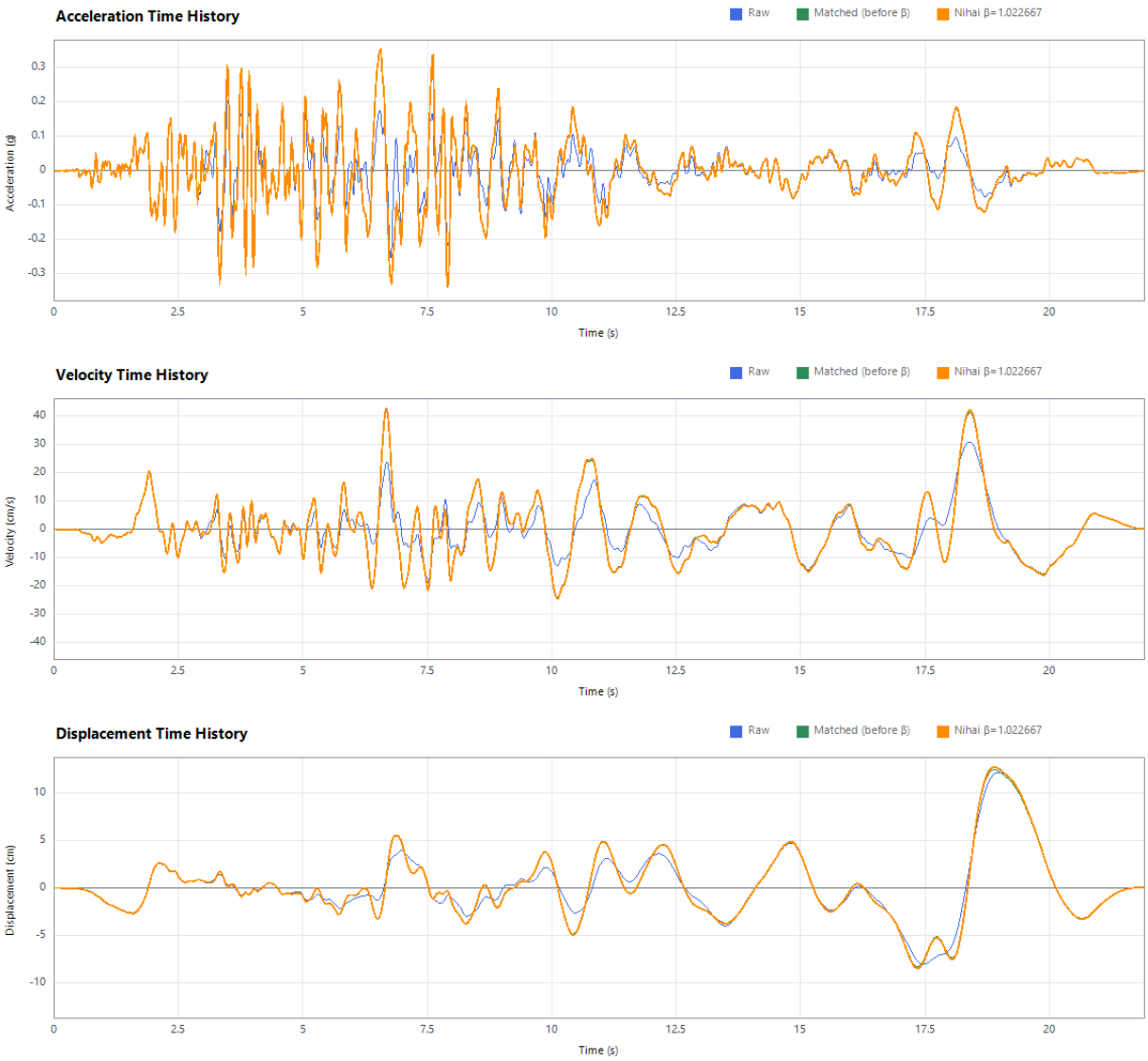
Record Information	Value
dt	0.01 s
NPTS	2192
Method	Wavelet Scaling - Al Atik & Abrahamson (2010)
Match band	0.17 - 1.275 s
Target Factor	1
Iteration	11
Convergence	Tolerans dışı (maks %10.5, ort %3.7)
Matching max. mismatch (before β)	%10.54
Quality Audit	Adequate
Common β	1.023
Exported data	NİHAİ zaman serisi (β dahil)

Wavelet Transition History

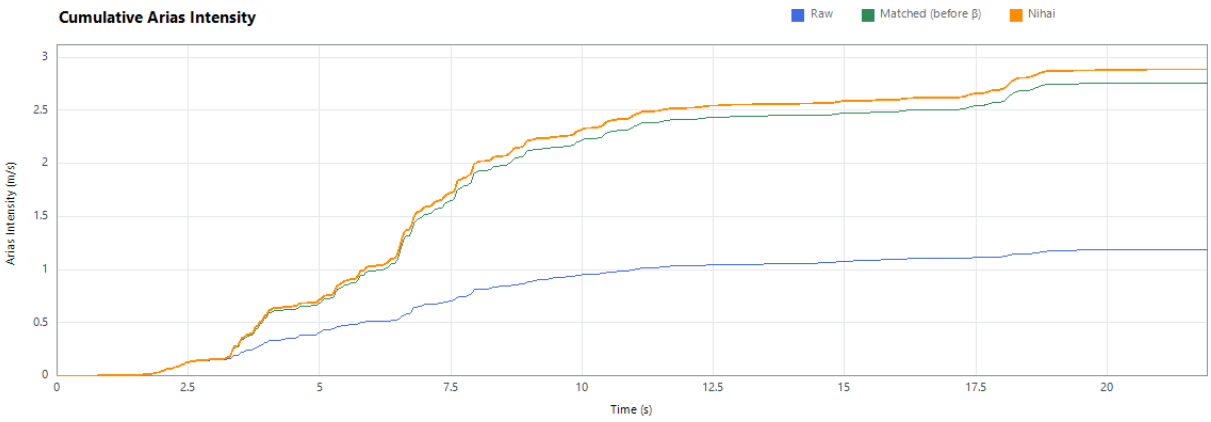
Transition	Setting / Result
1	AA2010 | 0.17-1.275 s | TF=1 | Tol maks=10% ort=5% | MaxIter=30 | Eigen=0.01 | Waves=34 (≤40) | OffDiag=1 | Pad=On 0 s | iter=11 | Yakınsadı (maks %8.1, ort %3.1) | tolerans sağlandı

Ground Motion Parameters - Raw / Final

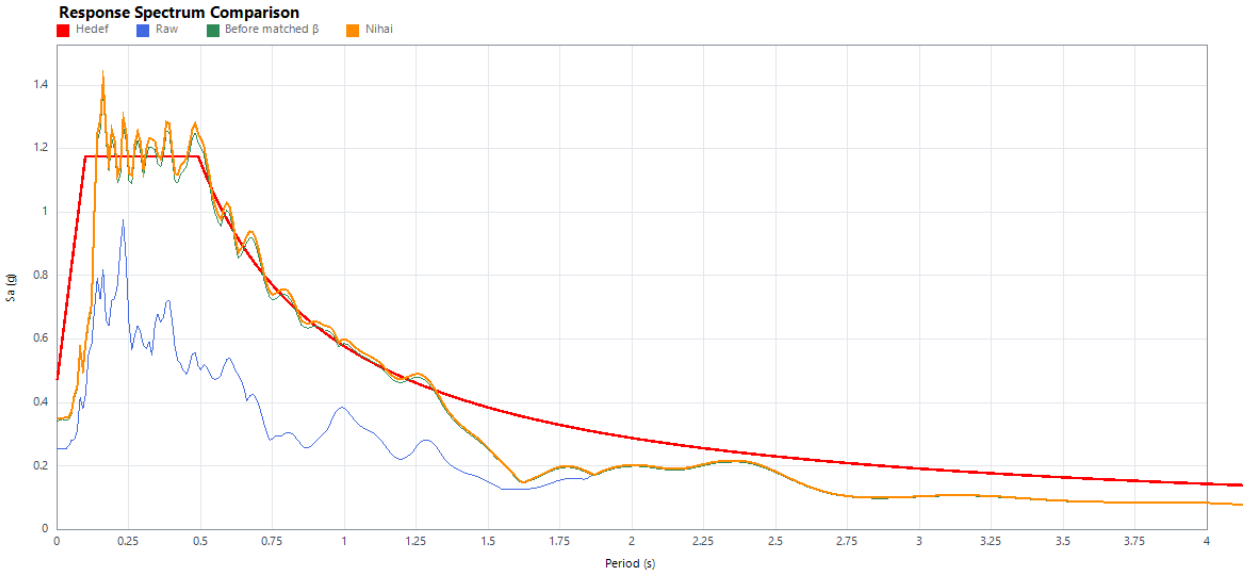
Parameter	Unit	Raw	Final	Change
PGA	g	0.254	0.351	38.54%
PGV	cm/s	30.79	42.59	38.32%
PGD	cm	12.18	12.71	4.37%
Vmax / Amax	s	0.124	0.124	-0.16%
Acceleration RMS	g	0.0594	0.0925	55.67%
Velocity RMS	cm/s	8.029	10.82	34.80%
Displacement RMS	cm	3.407	3.641	6.85%
Sustained Max Acc. (3)	g	0.205	0.335	63.91%
Sustained Max Acc. (5)	g	0.187	0.318	70.35%
Sustained Max Vel. (3)	cm/s	20.01	24.84	24.12%
Sustained Max Vel. (5)	cm/s	17.36	24.57	41.50%
Total Duration	s	21.91	21.91	0%
D_{5-75}	s	6.99	6.181	-11.57%
D_{5-95}	s	16.03	15.42	-3.79%
Bracketed Duration	s	20.35	20.32	-0.15%
Arias Intensity	m/s	1.191	2.887	142.32%
CAV	cm/s	904.9	1367.7	51.15%
SED	cm^2/s	1412.3	2566.1	81.70%
Characteristic Intensity	-	0.0678	0.132	94.22%
MIV	cm/s	46.69	63.44	35.88%
Damage Index	-	0.6	2.027	238.00%
NoEC	-	6.238	6.17	-1.09%
Impulsivity Index	-	29.35	32.08	9.29%
Standardized CAV	g·s	0.918	1.39	51.41%
CAV_5	g·s	0.922	1.396	51.37%
A95 parameter	g	0.216	0.335	55.35%
EDA (9 Hz LP)	g	0.253	0.353	39.41%
Uniform Duration	s	0	0	-
Effective Duration	s	13.14	16.53	25.83%
VSI (ξ=%5)	cm	113.4	172.6	52.14%
Housner SI original (ξ=20%)	cm	62.18	94.31	51.67%
Fourier Dominant Frequency	Hz	4.38	0.776	-82.29%
Fourier Dominant Period (T_F)	s	0.228	1.289	464.71%
Predominant Period T_p (argmax Sa)	s	0.23	0.16	-30.43%
Mean Period T_m	s	0.559	0.563	0.64%



Acceleration-velocity-displacement comparison of the raw, wavelet-matched (before β, if available) and final time series.



Comparison of cumulative Arias Intensity.



Comparison of the raw, matched/final and target response spectra.

5.5. Kayıt: RSN1048_H1

Record Information	Value
dt	0.01 s
NPTS	2999
Method	Wavelet Scaling - Al Atik & Abrahamson (2010)
Match band	0.17 - 1.275 s
Target Factor	1
Iteration	17
Convergence	Tolerans dışı (maks %11.9, ort %4.0)
Matching max. mismatch (before β)	%11.9
Quality Audit	Adequate
Common β	1.023
Exported data	NİHAİ zaman serisi (β dahil)

Wavelet Transition History

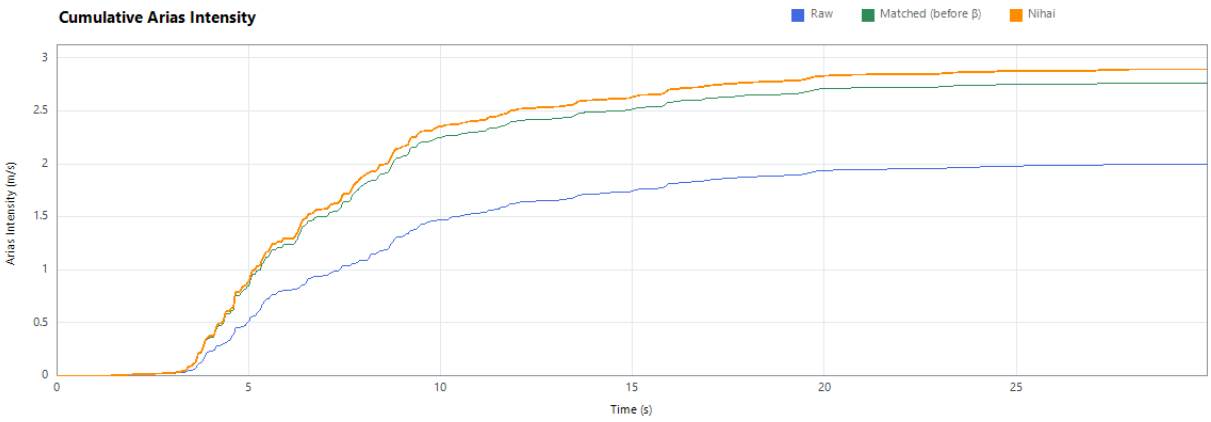
Transition	Setting / Result
1	AA2010 | 0.17-1.275 s | TF=1 | Tol maks=10% ort=5% | MaxIter=30 | Eigen=0.01 | Waves=34 (≤40) | OffDiag=1 | Pad=On 0 s | iter=17 | Yakınsadı (maks %9.7, ort %3.3) | tolerans sağlandı

Ground Motion Parameters - Raw / Final

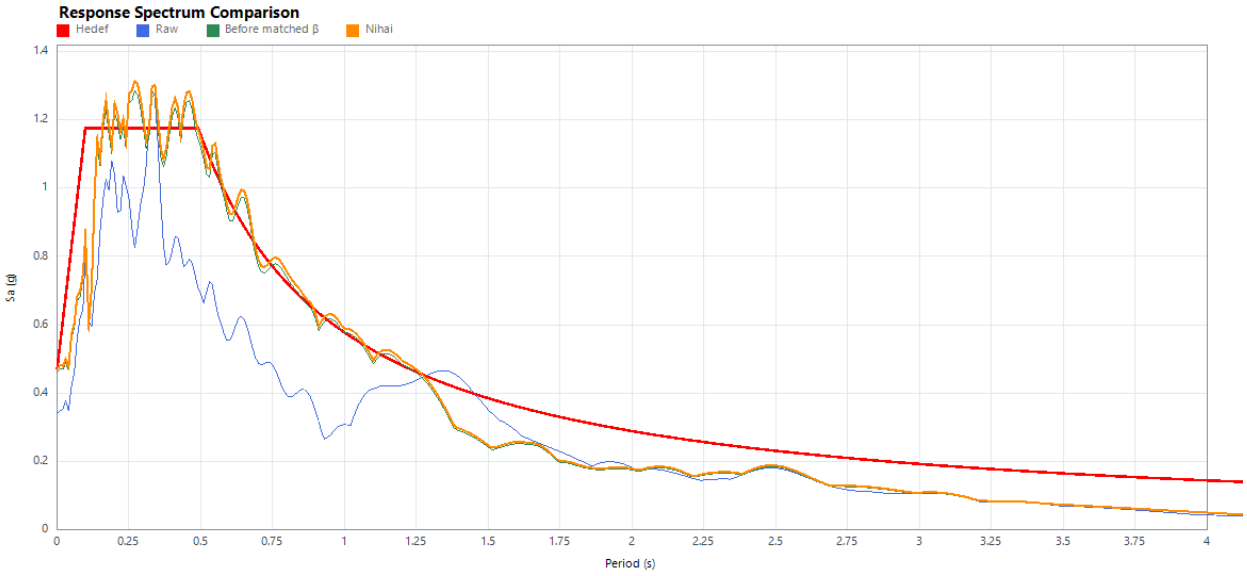
Parameter	Unit	Raw	Final	Change
PGA	g	0.341	0.471	37.81%
PGV	cm/s	31.43	35.72	13.67%
PGD	cm	8.954	9.157	2.27%
Vmax / Amax	s	0.0938	0.0774	-17.52%
Acceleration RMS	g	0.0657	0.0792	20.42%
Velocity RMS	cm/s	8.765	9.632	9.89%
Displacement RMS	cm	3.321	3.41	2.69%
Sustained Max Acc. (3)	g	0.257	0.319	24.30%
Sustained Max Acc. (5)	g	0.246	0.298	20.97%
Sustained Max Vel. (3)	cm/s	26.81	34.87	30.07%
Sustained Max Vel. (5)	cm/s	25.56	26.6	4.06%
Total Duration	s	29.98	29.98	0%
D_{5-75}	s	6.635	5.439	-18.03%
D_{5-95}	s	15.69	13.67	-12.87%
Bracketed Duration	s	27.16	26.69	-1.73%
Arias Intensity	m/s	1.995	2.893	45.02%
CAV	cm/s	1273.8	1469.9	15.39%
SED	cm^2/s	2303.2	2781.4	20.76%
Characteristic Intensity	-	0.0923	0.122	32.15%
MIV	cm/s	53.25	54.78	2.87%
Damage Index	-	1.138	2.051	80.27%
NoEC	-	5.382	3.848	-28.51%
Impulsivity Index	-	40.52	41.13	1.50%
Standardized CAV	g·s	1.271	1.471	15.68%
CAV_5	g·s	1.295	1.496	15.50%
A95 parameter	g	0.254	0.326	28.17%
EDA (9 Hz LP)	g	0.278	0.396	42.14%
Uniform Duration	s	0	0	-
Effective Duration	s	15.85	16.08	1.47%
VSI (ξ=%5)	cm	144.7	169	16.78%
Housner SI original (ξ=20%)	cm	80.77	83.53	3.42%
Fourier Dominant Frequency	Hz	0.7	1.734	147.62%
Fourier Dominant Period (T_F)	s	1.428	0.577	-59.62%
Predominant Period T_p (argmax Sa)	s	0.335	0.335	0%
Mean Period T_m	s	0.598	0.579	-3.24%



Acceleration-velocity-displacement comparison of the raw, wavelet-matched (before β, if available) and final time series.



Comparison of cumulative Arias Intensity.



Comparison of the raw, matched/final and target response spectra.

5.6. Kayıt: RSN1063_H2

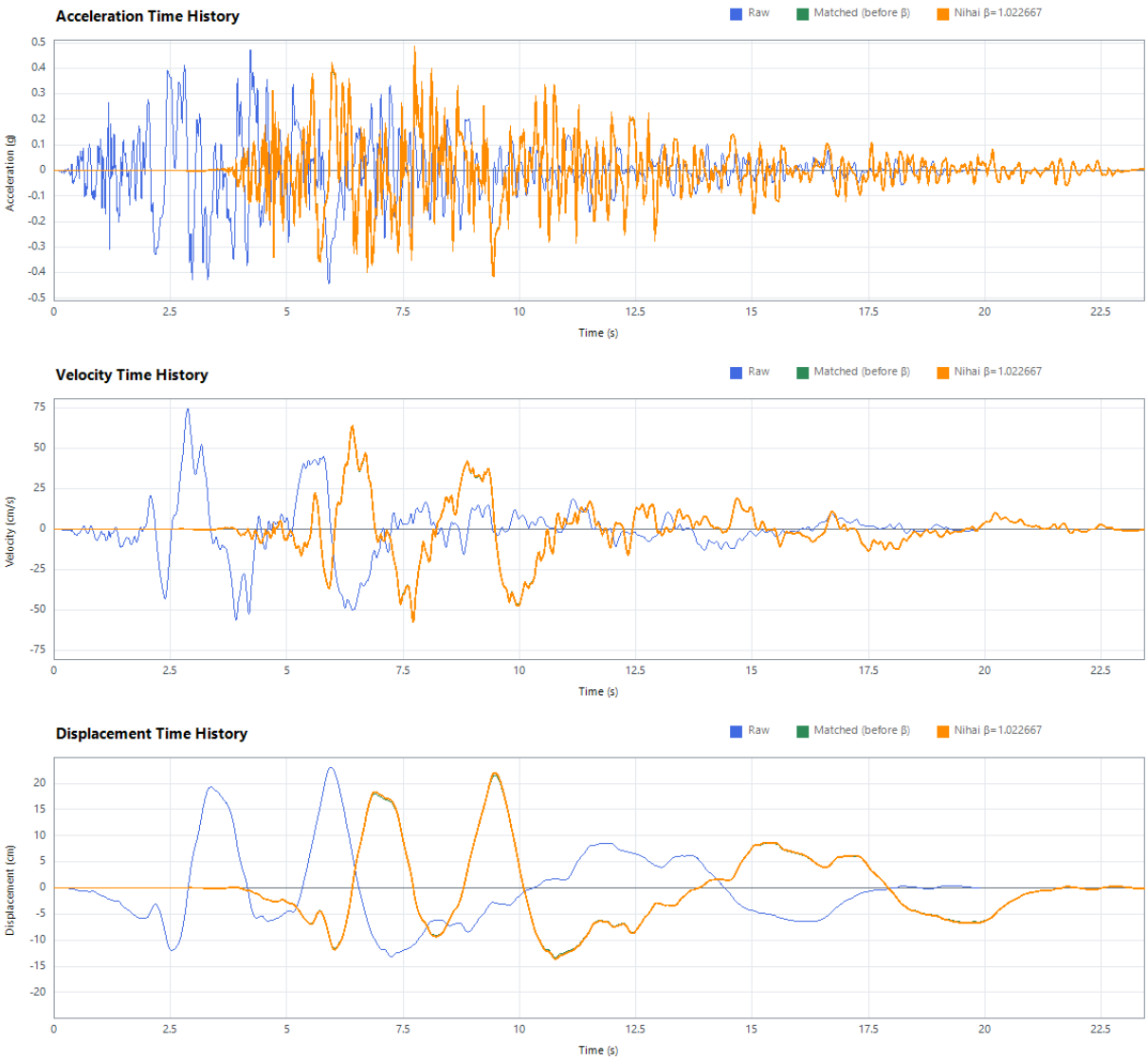
Record Information	Value
dt	0.01 s
NPTS	1991
Method	Wavelet Scaling - Al Atik & Abrahamson (2010)
Match band	0.17 - 1.275 s
Target Factor	1
Iteration	3
Convergence	Yakınsadı (maks %8.8, ort %3.0)
Matching max. mismatch (before β)	%8.843
Quality Audit	Adequate
Common β	1.023
Exported data	NİHAİ zaman serisi (β dahil)

Wavelet Transition History

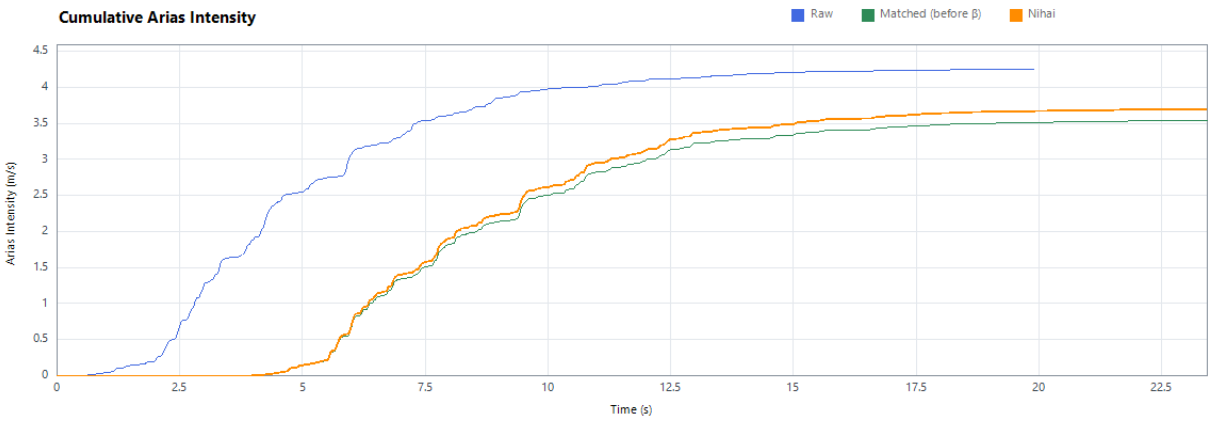
Transition	Setting / Result
1	AA2010 | 0.17-1.275 s | TF=1 | Tol maks=10% ort=5% | MaxIter=30 | Eigen=0.01 | Waves=34 (≤40) | OffDiag=1 | Pad=On 3.53 s | iter=3 | Yakınsadı (maks %9.9, ort %1.9) | tolerans sağlandı

Ground Motion Parameters - Raw / Final

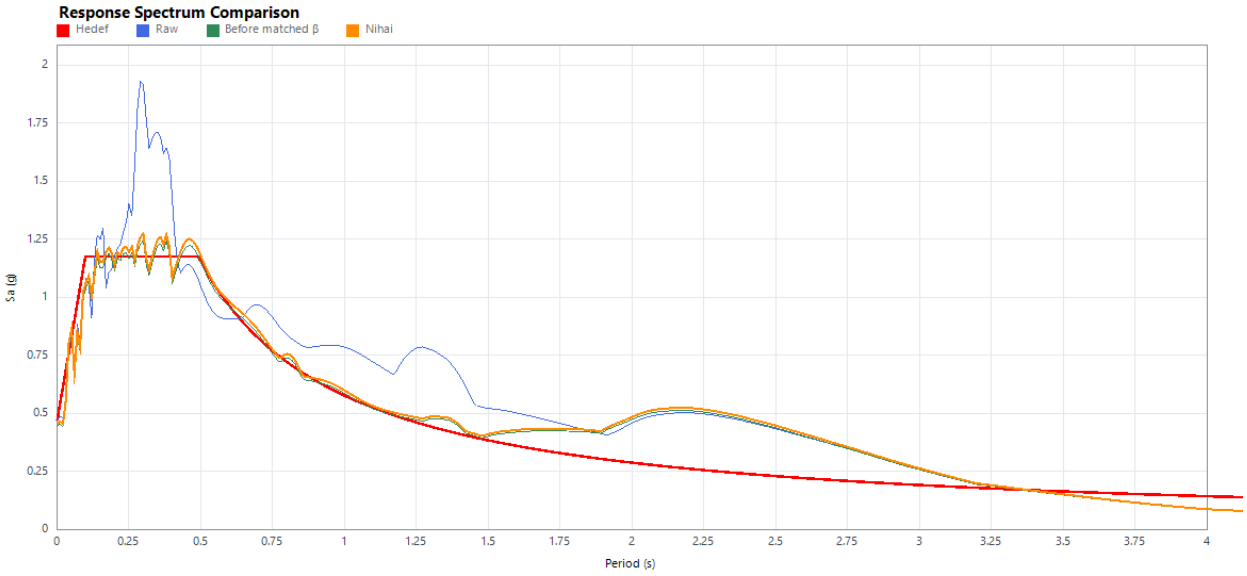
Parameter	Unit	Raw	Final	Change
PGA	g	0.472	0.454	-3.86%
PGV	cm/s	74.75	63.91	-14.50%
PGD	cm	23.09	22.04	-4.54%
Vmax / Amax	s	0.161	0.144	-11.06%
Acceleration RMS	g	0.118	0.101	-14.04%
Velocity RMS	cm/s	16.9	14.94	-11.62%
Displacement RMS	cm	7.13	6.679	-6.33%
Sustained Max Acc. (3)	g	0.427	0.411	-3.78%
Sustained Max Acc. (5)	g	0.411	0.366	-10.94%
Sustained Max Vel. (3)	cm/s	52.63	47.52	-9.70%
Sustained Max Vel. (5)	cm/s	50.15	47.02	-6.24%
Total Duration	s	19.9	23.43	17.74%
D_{5-75}	s	4.339	5.287	21.84%
D_{5-95}	s	9.101	9.777	7.42%
Bracketed Duration	s	18.53	18.56	0.16%
Arias Intensity	m/s	4.251	3.698	-13.00%
CAV	cm/s	1489.9	1414.4	-5.06%
SED	cm^2/s	5684	5227.9	-8.02%
Characteristic Intensity	-	0.18	0.156	-13.52%
MIV	cm/s	117.8	82.36	-30.10%
Damage Index	-	4.339	3.993	-7.96%
NoEC	-	5.612	6.172	9.98%
Impulsivity Index	-	19.84	22.08	11.30%
Standardized CAV	g·s	1.514	1.441	-4.84%
CAV_5	g·s	1.53	1.451	-5.17%
A95 parameter	g	0.425	0.398	-6.44%
EDA (9 Hz LP)	g	0.435	0.418	-3.80%
Uniform Duration	s	0	0	-
Effective Duration	s	12.19	12.41	1.76%
VSI (ξ=%5)	cm	291.5	263.5	-9.62%
Housner SI original (ξ=20%)	cm	163.2	149.1	-8.62%
Fourier Dominant Frequency	Hz	3.265	0.469	-85.63%
Fourier Dominant Period (T_F)	s	0.306	2.131	595.68%
Predominant Period T_p (argmax Sa)	s	0.295	0.295	0%
Mean Period T_m	s	0.618	0.605	-1.99%



Acceleration-velocity-displacement comparison of the raw, wavelet-matched (before β, if available) and final time series.



Comparison of cumulative Arias Intensity.



Comparison of the raw, matched/final and target response spectra.

5.7. Kayıt: RSN1602_H1

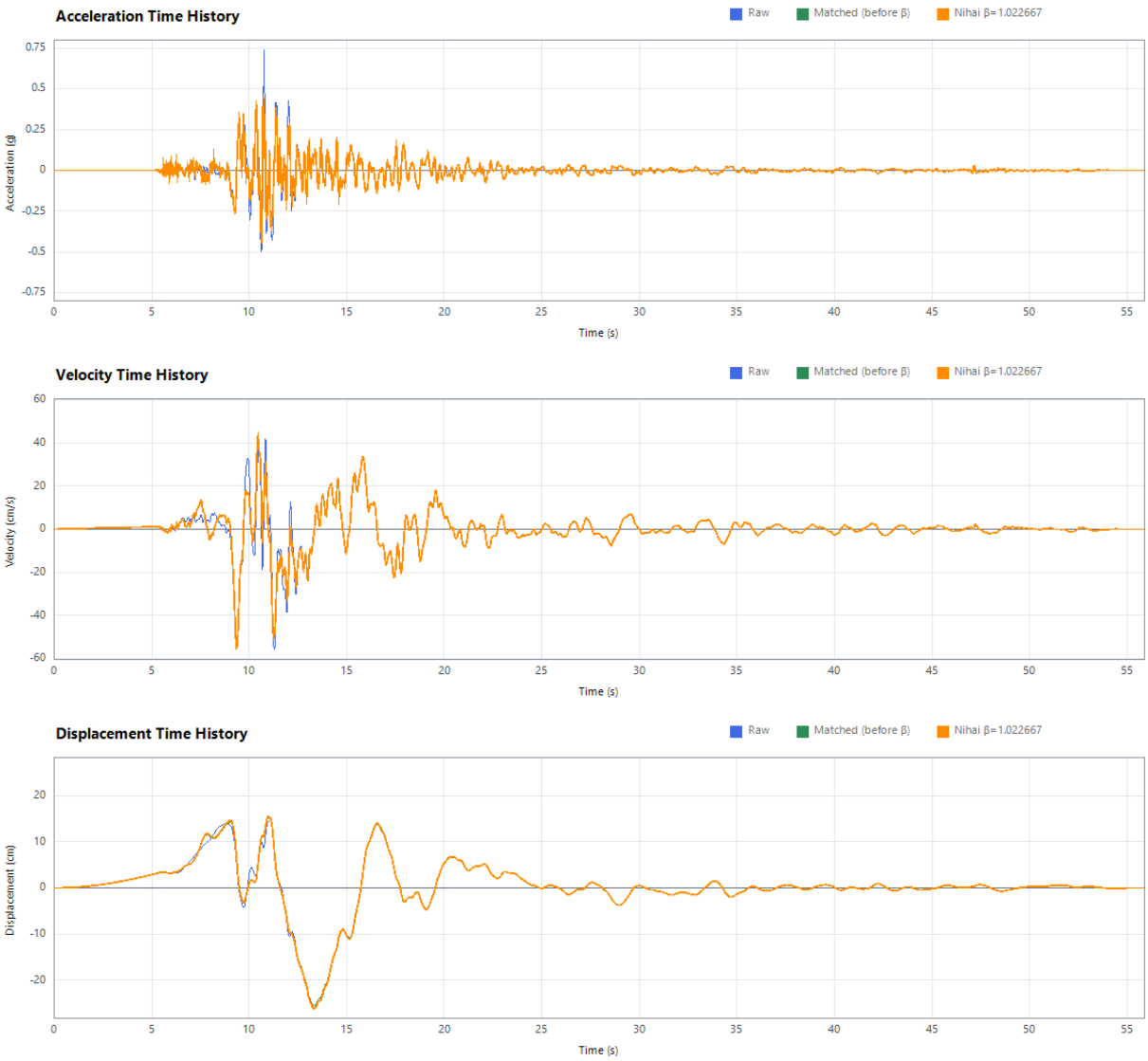
Record Information	Value
dt	0.01 s
NPTS	5590
Method	Wavelet Scaling - Al Atik & Abrahamson (2010)
Match band	0.17 - 1.275 s
Target Factor	1
Iteration	4
Convergence	Tolerans dışı (maks %11.7, ort %5.1)
Matching max. mismatch (before β)	%11.67
Quality Audit	Adequate
Common β	1.023
Exported data	NİHAİ zaman serisi (β dahil)

Wavelet Transition History

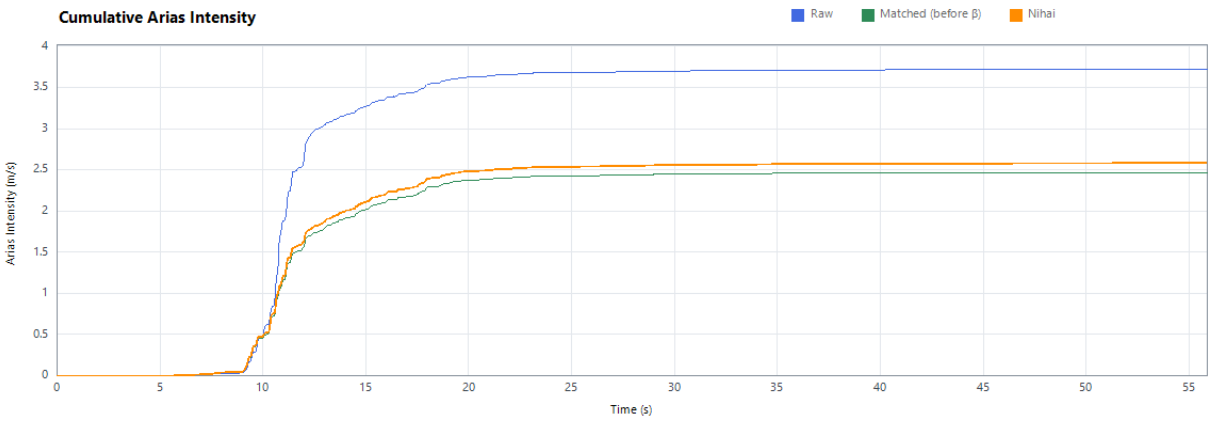
Transition	Setting / Result
1	AA2010 | 0.17-1.275 s | TF=1 | Tol maks=10% ort=5% | MaxIter=30 | Eigen=0.01 | Waves=34 (≤40) | OffDiag=1 | Pad=On 0 s | iter=4 | Yakınsadı (maks %9.9, ort %3.9) | tolerans sağlandı

Ground Motion Parameters - Raw / Final

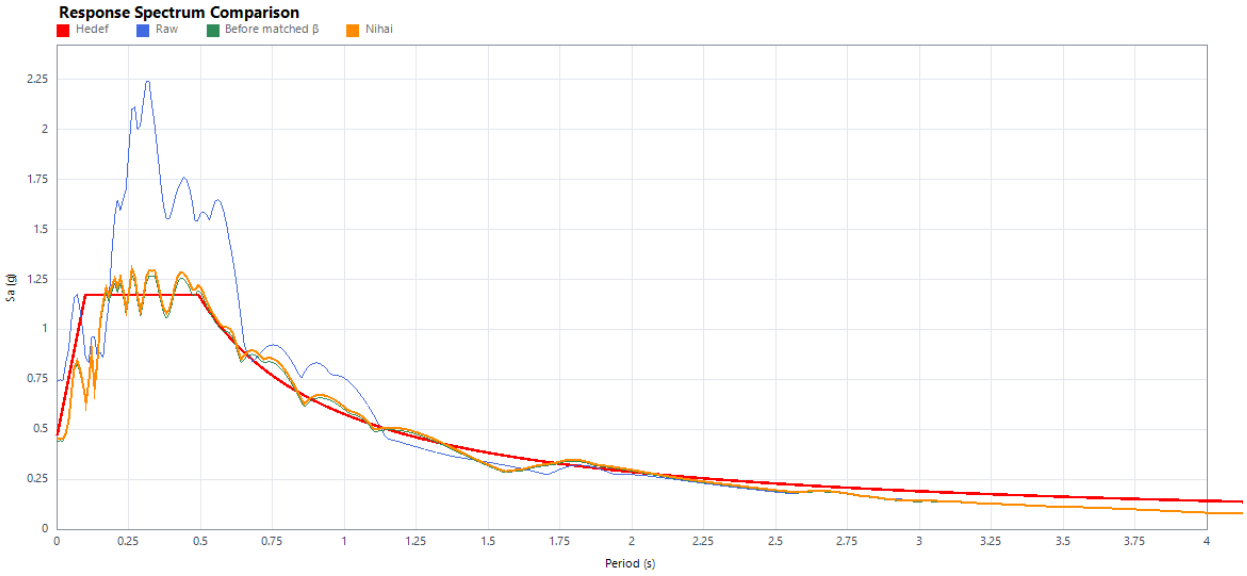
Parameter	Unit	Raw	Final	Change
PGA	g	0.739	0.452	-38.91%
PGV	cm/s	55.92	55.28	-1.13%
PGD	cm	25.58	26.16	2.27%
Vmax / Amax	s	0.0771	0.125	61.84%
Acceleration RMS	g	0.0657	0.0548	-16.71%
Velocity RMS	cm/s	8.346	8.161	-2.21%
Displacement RMS	cm	5.61	5.742	2.35%
Sustained Max Acc. (3)	g	0.437	0.384	-12.07%
Sustained Max Acc. (5)	g	0.42	0.341	-18.77%
Sustained Max Vel. (3)	cm/s	41.88	42.92	2.48%
Sustained Max Vel. (5)	cm/s	38.81	31.97	-17.63%
Total Duration	s	55.89	55.89	0%
D_{5-75}	s	2.65	4.206	58.70%
D_{5-95}	s	8.549	9.925	16.09%
Bracketed Duration	s	17.21	41.64	141.95%
Arias Intensity	m/s	3.721	2.582	-30.63%
CAV	cm/s	1477.7	1363.6	-7.72%
SED	cm^2/s	3892.7	3722.8	-4.36%
Characteristic Intensity	-	0.126	0.0958	-23.99%
MIV	cm/s	62.39	60.15	-3.60%
Damage Index	-	3.725	1.802	-51.63%
NoEC	-	1.946	2.988	53.56%
Impulsivity Index	-	26.6	24.84	-6.61%
Standardized CAV	g·s	1.401	1.292	-7.74%
CAV_5	g·s	1.472	1.356	-7.88%
A95 parameter	g	0.648	0.393	-39.34%
EDA (9 Hz LP)	g	0.632	0.453	-28.37%
Uniform Duration	s	0	0	-
Effective Duration	s	12.74	12.8	0.47%
VSI (ξ=%5)	cm	214	200.5	-6.31%
Housner SI original (ξ=20%)	cm	128.8	120.3	-6.60%
Fourier Dominant Frequency	Hz	1.843	1.843	0%
Fourier Dominant Period (T_F)	s	0.543	0.543	0%
Predominant Period T_p (argmax Sa)	s	0.315	0.335	6.35%
Mean Period T_m	s	0.548	0.614	11.97%



Acceleration-velocity-displacement comparison of the raw, wavelet-matched (before β, if available) and final time series.



Comparison of cumulative Arias Intensity.



Comparison of the raw, matched/final and target response spectra.

5.8. Kayıt: RSN4866_CHUETSU_65039NS

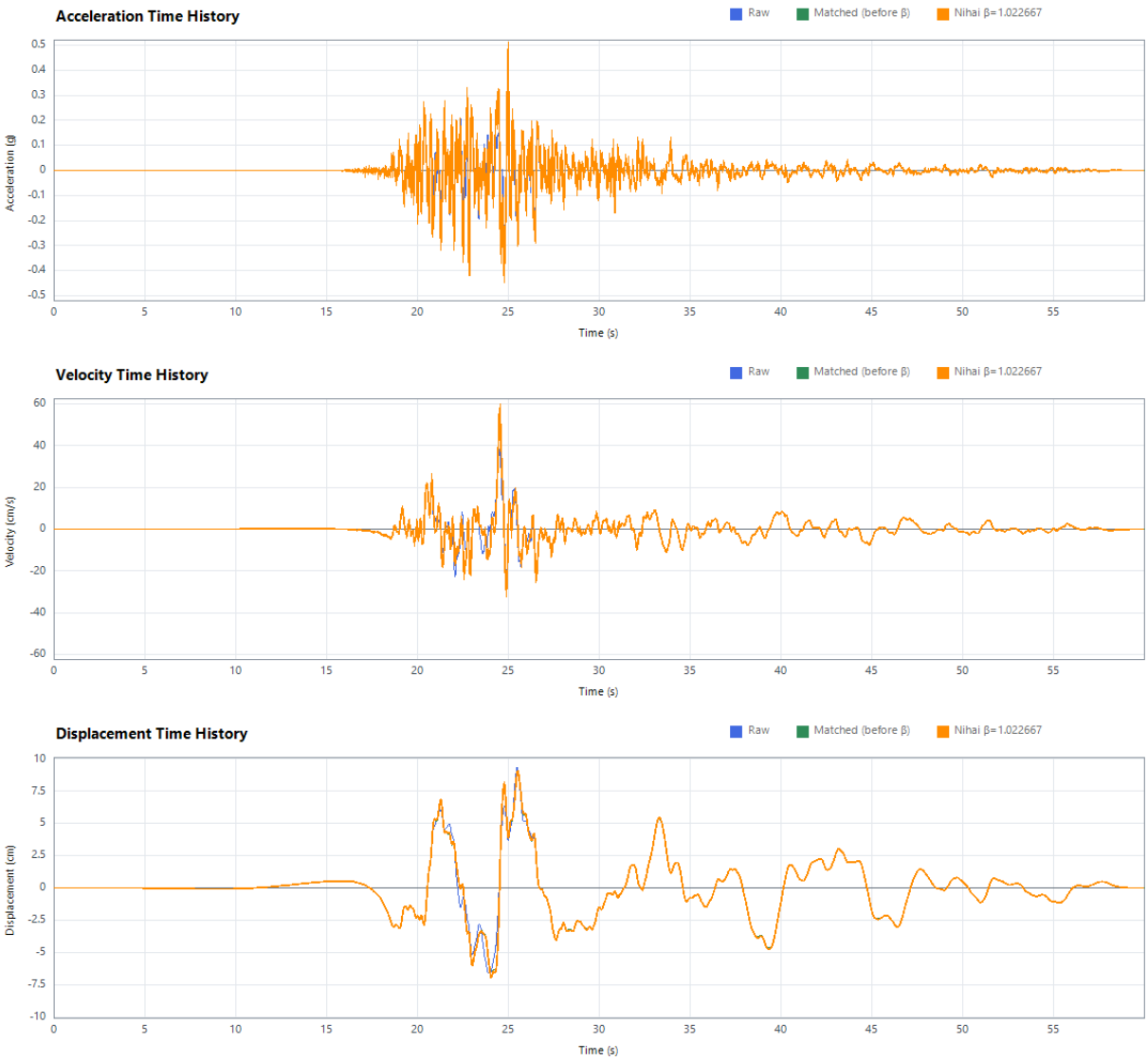
Record Information	Value
dt	0.01 s
NPTS	6000
Method	Wavelet Scaling - Al Atik & Abrahamson (2010)
Match band	0.17 - 1.275 s
Target Factor	1
Iteration	9
Convergence	Tolerans dışı (maks %11.5, ort %3.5)
Matching max. mismatch (before β)	%11.47
Quality Audit	Adequate
Common β	1.023
Exported data	NİHAİ zaman serisi (β dahil)

Wavelet Transition History

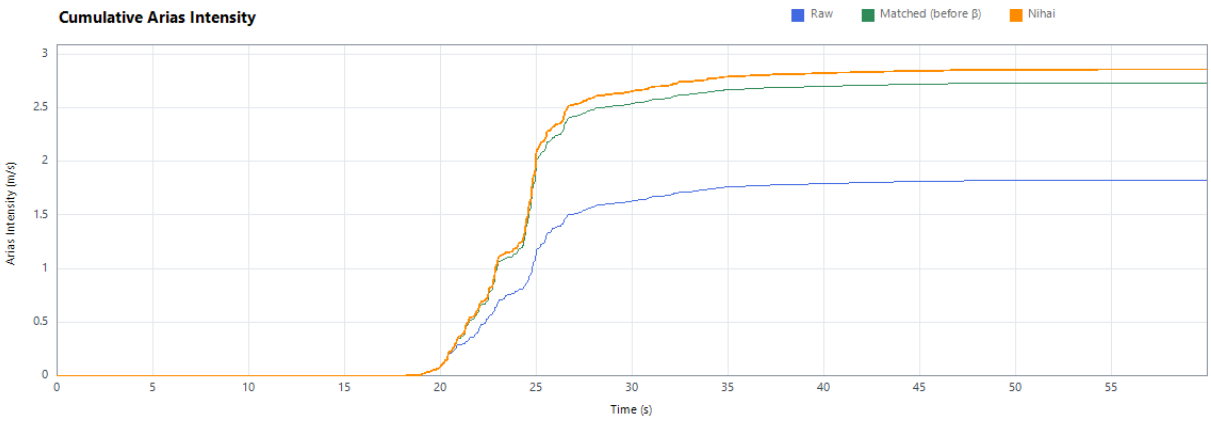
Transition	Setting / Result
1	AA2010 | 0.17-1.275 s | TF=1 | Tol maks=10% ort=5% | MaxIter=30 | Eigen=0.01 | Waves=34 (≤40) | OffDiag=1 | Pad=On 0 s | iter=9 | Yakınsadı (maks %9.3, ort %2.6) | tolerans sağlandı

Ground Motion Parameters - Raw / Final

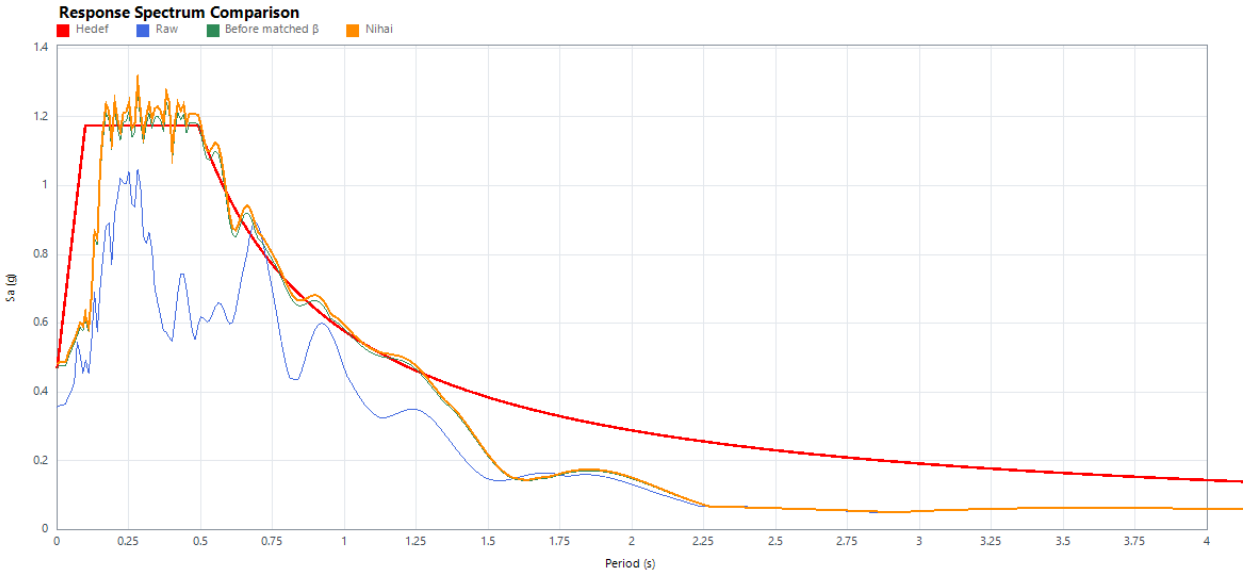
Parameter	Unit	Raw	Final	Change
PGA	g	0.357	0.482	35.16%
PGV	cm/s	38.6	57.89	49.98%
PGD	cm	9.361	9.101	-2.77%
Vmax / Amax	s	0.11	0.122	10.97%
Acceleration RMS	g	0.0444	0.0556	25.13%
Velocity RMS	cm/s	4.615	5.29	14.62%
Displacement RMS	cm	2.046	2.115	3.35%
Sustained Max Acc. (3)	g	0.274	0.392	43.34%
Sustained Max Acc. (5)	g	0.243	0.331	36.40%
Sustained Max Vel. (3)	cm/s	21.3	24.26	13.89%
Sustained Max Vel. (5)	cm/s	20.78	22.01	5.93%
Total Duration	s	59.99	59.99	0%
D_{5-75}	s	5.802	4.903	-15.49%
D_{5-95}	s	13.88	11.8	-15.00%
Bracketed Duration	s	33.36	33.16	-0.60%
Arias Intensity	m/s	1.825	2.857	56.58%
CAV	cm/s	1222.4	1421.5	16.29%
SED	cm^2/s	1277.9	1678.8	31.37%
Characteristic Intensity	-	0.0725	0.102	39.97%
MIV	cm/s	35.52	87.24	145.57%
Damage Index	-	1.169	2.394	104.83%
NoEC	-	4.362	3.33	-23.66%
Impulsivity Index	-	32.13	24.87	-22.59%
Standardized CAV	g·s	1.178	1.39	17.93%
CAV_5	g·s	1.223	1.426	16.61%
A95 parameter	g	0.283	0.414	46.14%
EDA (9 Hz LP)	g	0.326	0.449	37.94%
Uniform Duration	s	0	0	-
Effective Duration	s	13.33	13.38	0.31%
VSI (ξ=%5)	cm	113.5	147.6	30.06%
Housner SI original (ξ=20%)	cm	70.64	99.34	40.64%
Fourier Dominant Frequency	Hz	1.117	2.233	100.00%
Fourier Dominant Period (T_F)	s	0.896	0.448	-50.00%
Predominant Period T_p (argmax Sa)	s	0.285	0.28	-1.75%
Mean Period T_m	s	0.467	0.453	-2.97%



Acceleration-velocity-displacement comparison of the raw, wavelet-matched (before β, if available) and final time series.



Comparison of cumulative Arias Intensity.



Comparison of the raw, matched/final and target response spectra.

5.9. Kayıt: RSN5827_H1

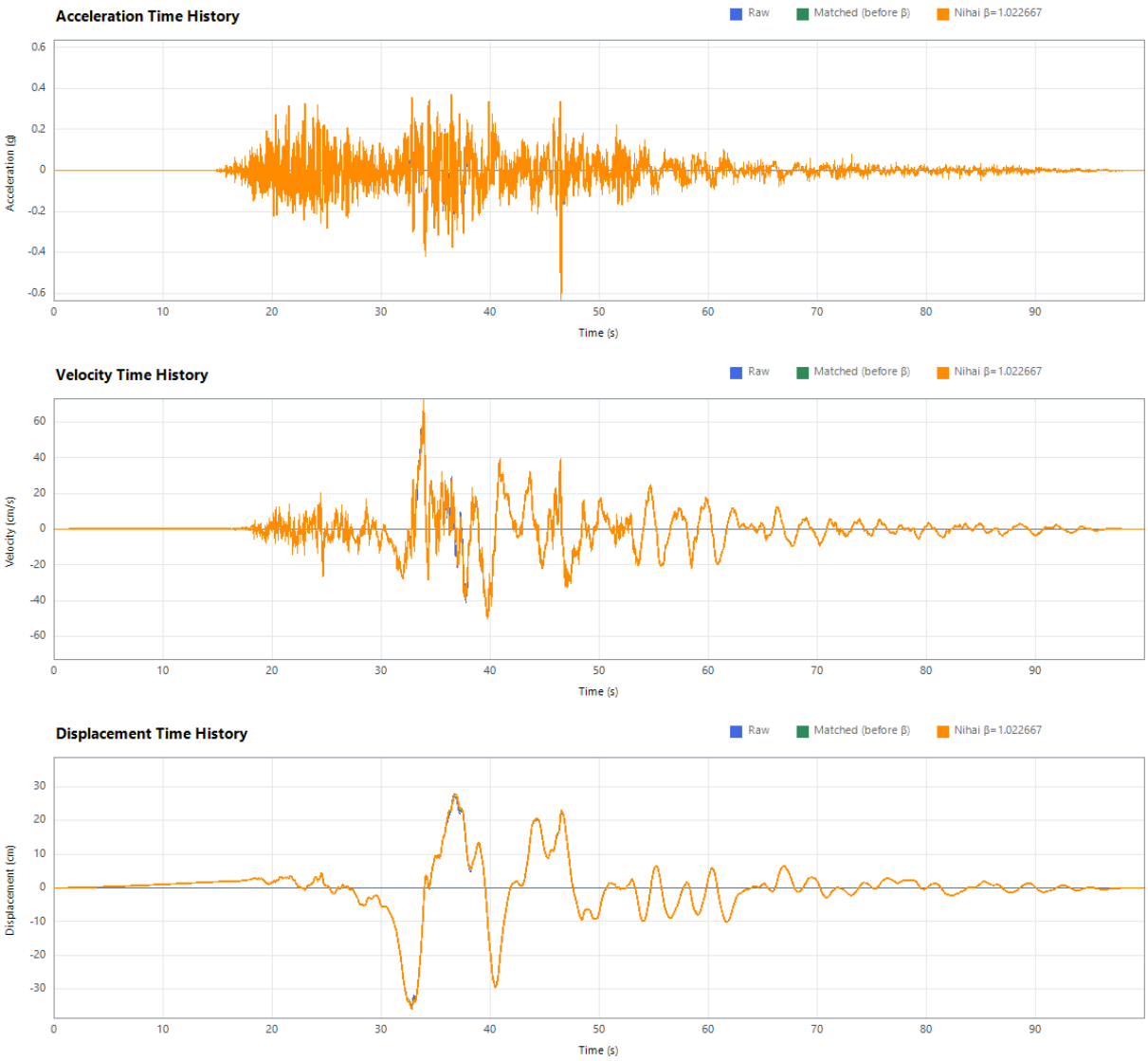
Record Information	Value
dt	0.005 s
NPTS	20000
Method	Wavelet Scaling - Al Atik & Abrahamson (2010)
Match band	0.17 - 1.275 s
Target Factor	1
Iteration	2
Convergence	Tolerans dışı (maks %11.7, ort %4.0)
Matching max. mismatch (before β)	%11.65
Quality Audit	Adequate
Common β	1.023
Exported data	NİHAİ zaman serisi (β dahil)

Wavelet Transition History

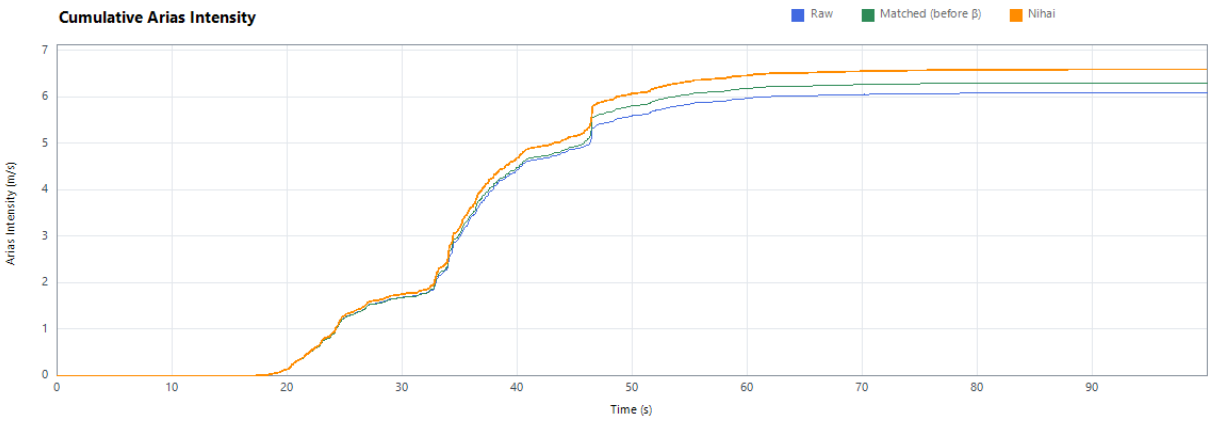
Transition	Setting / Result
1	AA2010 | 0.17-1.275 s | TF=1 | Tol maks=10% ort=5% | MaxIter=30 | Eigen=0.01 | Waves=34 (≤40) | OffDiag=1 | Pad=On 0 s | iter=2 | Yakınsadı (maks %9.8, ort %3.3) | tolerans sağlandı

Ground Motion Parameters - Raw / Final

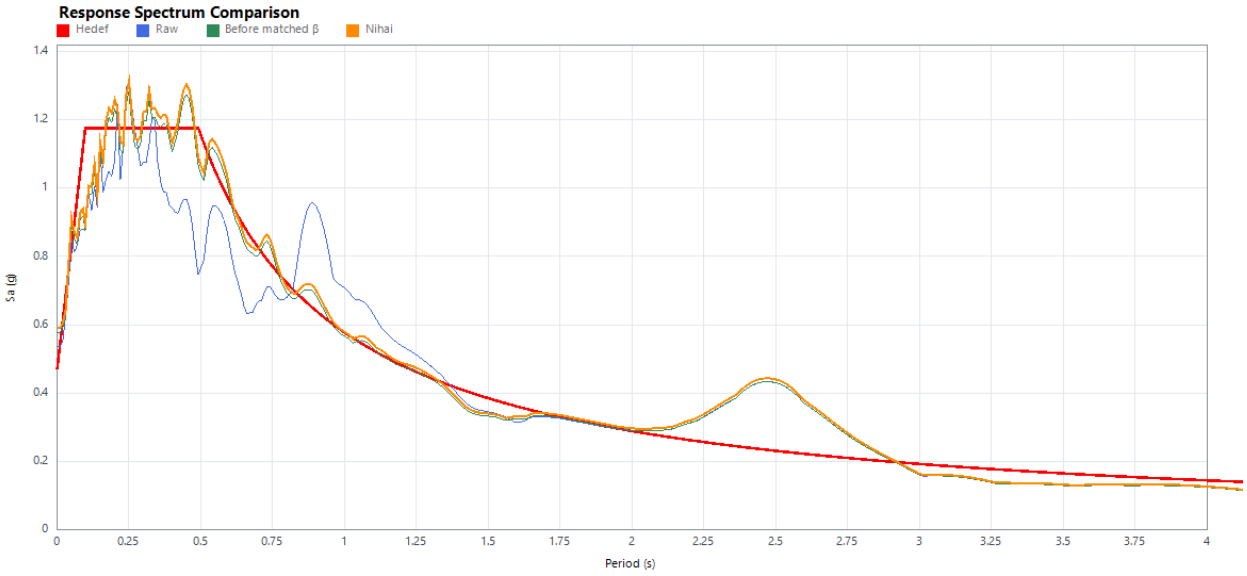
Parameter	Unit	Raw	Final	Change
PGA	g	0.538	0.59	9.68%
PGV	cm/s	61.53	67.63	9.91%
PGD	cm	34.59	35.77	3.41%
Vmax / Amax	s	0.117	0.117	0.21%
Acceleration RMS	g	0.0629	0.0654	4.04%
Velocity RMS	cm/s	9.653	9.795	1.47%
Displacement RMS	cm	7.397	7.561	2.22%
Sustained Max Acc. (3)	g	0.396	0.396	0%
Sustained Max Acc. (5)	g	0.373	0.368	-1.48%
Sustained Max Vel. (3)	cm/s	49.07	49.51	0.90%
Sustained Max Vel. (5)	cm/s	41.32	43.14	4.41%
Total Duration	s	100	100	0%
D_{5-75}	s	19.77	21.39	8.19%
D_{5-95}	s	32.67	32.32	-1.08%
Bracketed Duration	s	62.24	62.22	-0.03%
Arias Intensity	m/s	6.094	6.596	8.24%
CAV	cm/s	3310.4	3427.9	3.55%
SED	cm^2/s	9317.8	9593	2.95%
Characteristic Intensity	-	0.158	0.167	6.12%
MIV	cm/s	86.36	91.59	6.06%
Damage Index	-	6.496	7.336	12.93%
NoEC	-	8.048	8.206	1.96%
Impulsivity Index	-	54.03	50.89	-5.81%
Standardized CAV	g·s	3.258	3.382	3.82%
CAV_5	g·s	3.353	3.474	3.62%
A95 parameter	g	0.369	0.395	6.93%
EDA (9 Hz LP)	g	0.511	0.562	9.98%
Uniform Duration	s	0	0	-
Effective Duration	s	42.09	42.17	0.20%
VSI (ξ=%5)	cm	217.9	220.1	1.02%
Housner SI original (ξ=20%)	cm	135.9	138.4	1.85%
Fourier Dominant Frequency	Hz	0.43	0.43	0%
Fourier Dominant Period (T_F)	s	2.326	2.326	0%
Predominant Period T_p (argmax Sa)	s	0.25	0.25	0%
Mean Period T_m	s	0.566	0.546	-3.59%



Acceleration-velocity-displacement comparison of the raw, wavelet-matched (before β, if available) and final time series.



Comparison of cumulative Arias Intensity.



Comparison of the raw, matched/final and target response spectra.

5.10. Kayıt: RSN6923_H1

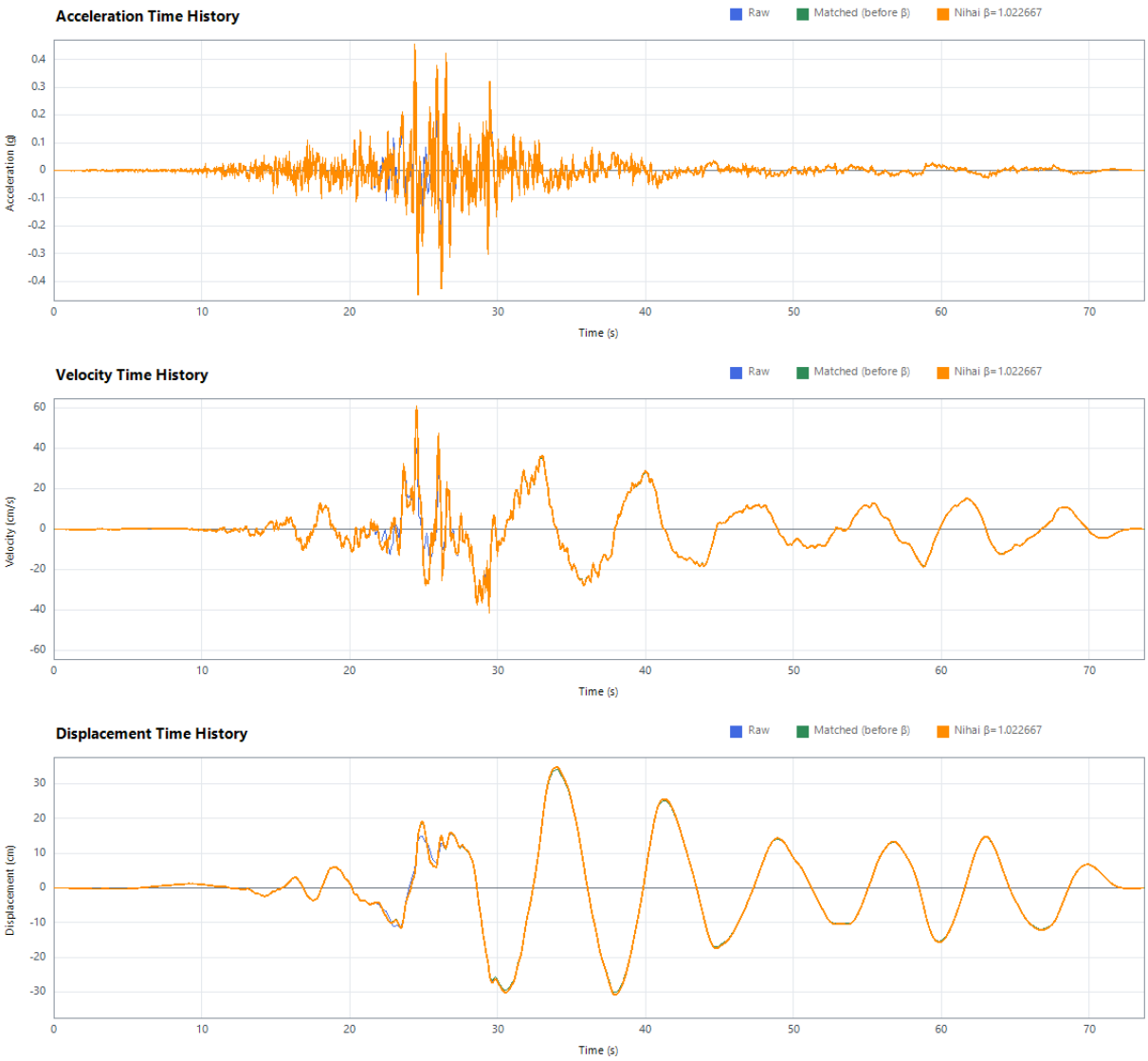
Record Information	Value
dt	0.005 s
NPTS	14746
Method	Wavelet Scaling - Al Atik & Abrahamson (2010)
Match band	0.17 - 1.275 s
Target Factor	1
Iteration	5
Convergence	Tolerans dışı (maks %11.0, ort %3.4)
Matching max. mismatch (before β)	%11.04
Quality Audit	Adequate
Common β	1.023
Exported data	NİHAİ zaman serisi (β dahil)

Wavelet Transition History

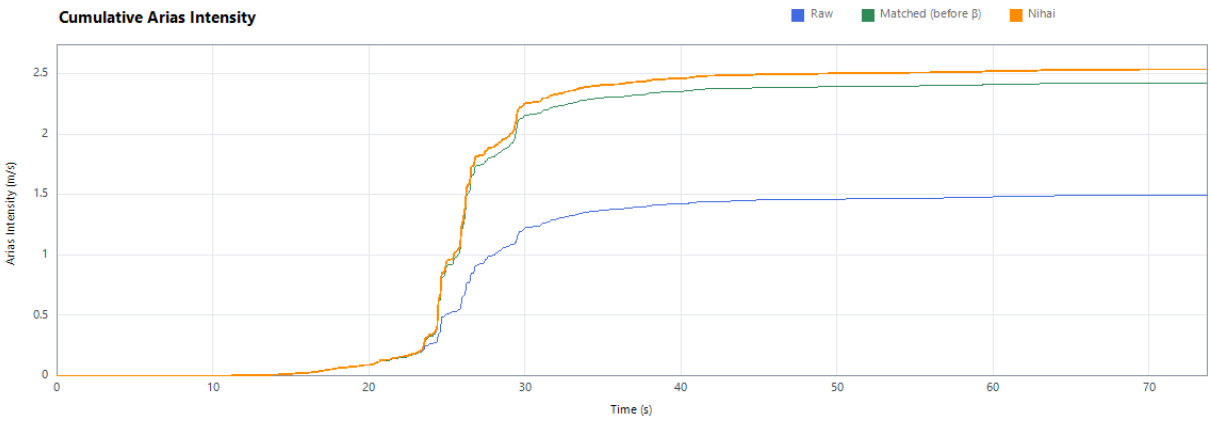
Transition	Setting / Result
1	AA2010 | 0.17-1.275 s | TF=1 | Tol maks=10% ort=5% | MaxIter=30 | Eigen=0.01 | Waves=34 (≤40) | OffDiag=1 | Pad=On 0 s | iter=5 | Yakınsadı (maks %8.6, ort %2.6) | tolerans sağlandı

Ground Motion Parameters - Raw / Final

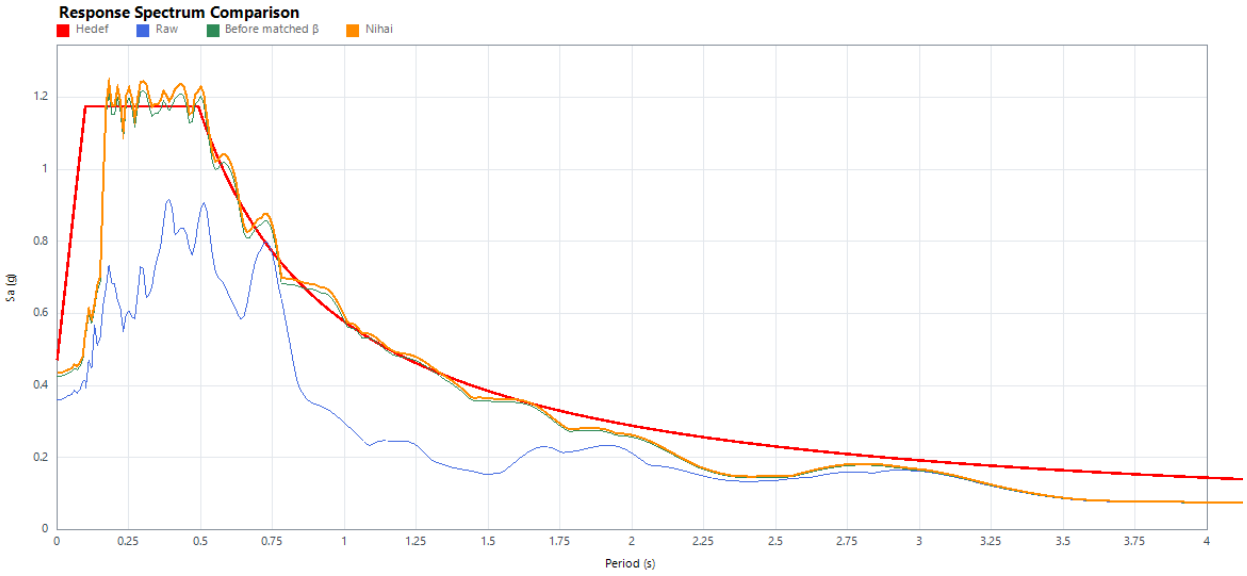
Parameter	Unit	Raw	Final	Change
PGA	g	0.36	0.436	21.11%
PGV	cm/s	40.14	59.66	48.62%
PGD	cm	34.09	34.86	2.27%
Vmax / Amax	s	0.114	0.14	22.72%
Acceleration RMS	g	0.0363	0.0472	30.29%
Velocity RMS	cm/s	10.74	11.43	6.42%
Displacement RMS	cm	11.52	11.79	2.42%
Sustained Max Acc. (3)	g	0.283	0.415	46.65%
Sustained Max Acc. (5)	g	0.241	0.35	45.55%
Sustained Max Vel. (3)	cm/s	35.61	37.94	6.55%
Sustained Max Vel. (5)	cm/s	33.8	36.42	7.74%
Total Duration	s	73.73	73.73	0%
D_{5-75}	s	10.33	7.333	-29.03%
D_{5-95}	s	20.13	14.61	-27.43%
Bracketed Duration	s	56.23	50.66	-9.90%
Arias Intensity	m/s	1.493	2.535	69.76%
CAV	cm/s	1368.6	1586.4	15.92%
SED	cm^2/s	8498.4	9624.7	13.25%
Characteristic Intensity	-	0.0593	0.0882	48.72%
MIV	cm/s	40.07	66.08	64.93%
Damage Index	-	0.788	1.836	132.97%
NoEC	-	2.97	2.867	-3.46%
Impulsivity Index	-	34.4	26.79	-22.11%
Standardized CAV	g·s	1.173	1.404	19.73%
CAV_5	g·s	1.349	1.572	16.51%
A95 parameter	g	0.309	0.418	35.39%
EDA (9 Hz LP)	g	0.336	0.431	28.15%
Uniform Duration	s	0	0	-
Effective Duration	s	20.31	21.42	5.46%
VSI (ξ=%5)	cm	122.3	187.5	53.34%
Housner SI original (ξ=20%)	cm	70.34	113.6	61.55%
Fourier Dominant Frequency	Hz	0.136	0.136	0%
Fourier Dominant Period (T_F)	s	7.373	7.373	0%
Predominant Period T_p (argmax Sa)	s	0.39	0.295	-24.36%
Mean Period T_m	s	0.611	0.588	-3.69%



Acceleration-velocity-displacement comparison of the raw, wavelet-matched (before β, if available) and final time series.



Comparison of cumulative Arias Intensity.



Comparison of the raw, matched/final and target response spectra.

5.11. Kayıt: RSN8124_CCHURCH_RHSCS04W

Record Information	Value
dt	0.005 s
NPTS	4401
Method	Wavelet Scaling - Al Atik & Abrahamson (2010)
Match band	0.17 - 1.275 s
Target Factor	1
Iteration	17
Convergence	Tolerans dışı (maks %12.6, ort %4.1)
Matching max. mismatch (before β)	%12.63
Quality Audit	Inspect
Common β	1.023
Exported data	NİHAİ zaman serisi (β dahil)

Wavelet Transition History

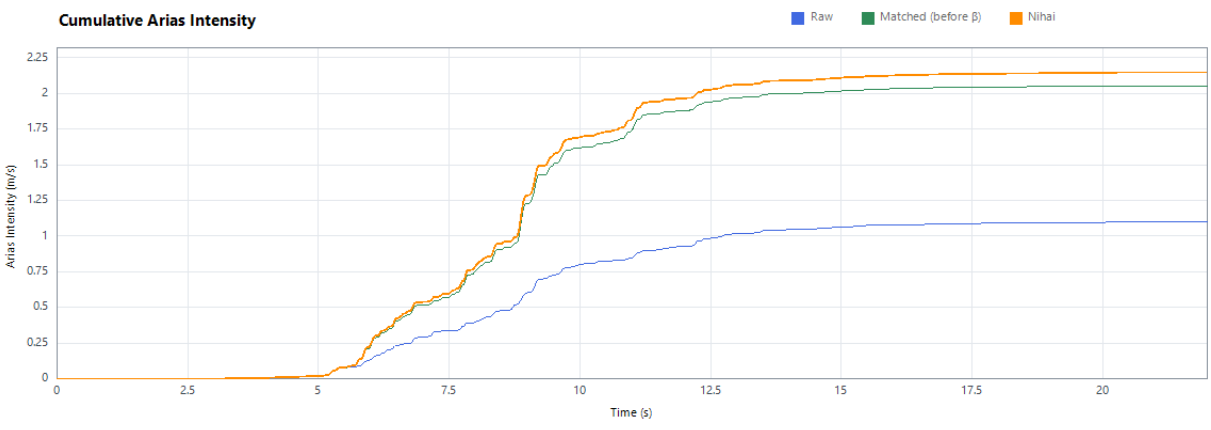
Transition	Setting / Result
1	AA2010 | 0.17-1.275 s | TF=1 | Tol maks=10% ort=5% | MaxIter=30 | Eigen=0.01 | Waves=34 (≤40) | OffDiag=1 | Pad=On 0 s | iter=17 | Tolerans dışı (maks %10.2, ort %3.5) | adım araması ve kurtarma denemeleri iyileşme bulamadı

Ground Motion Parameters - Raw / Final

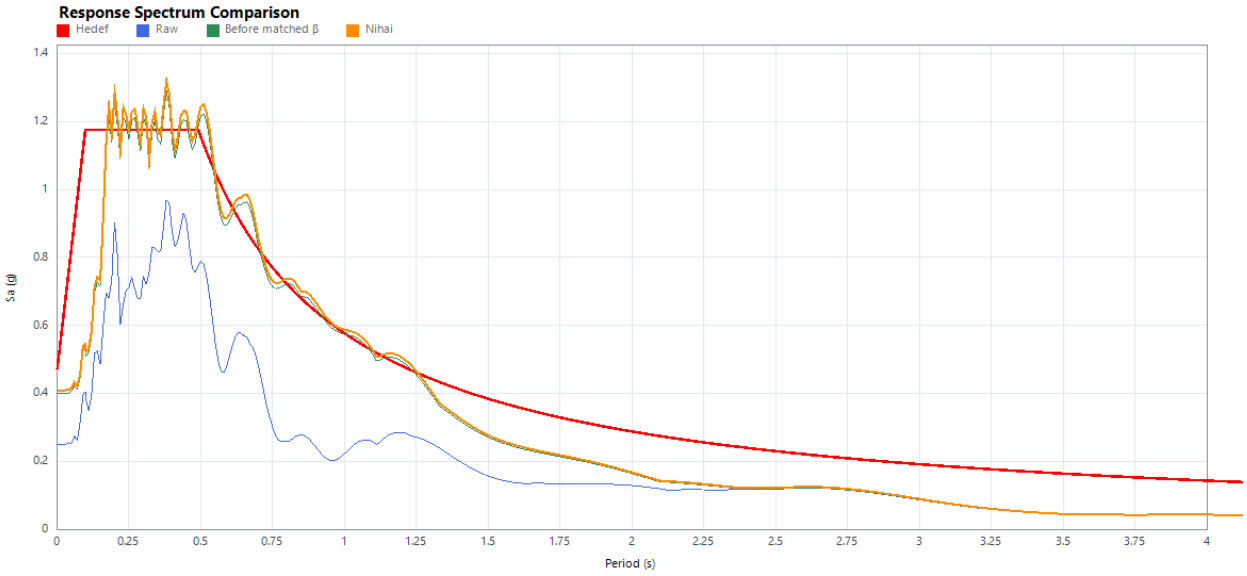
Parameter	Unit	Raw	Final	Change
PGA	g	0.25	0.408	63.50%
PGV	cm/s	25.23	38.15	51.22%
PGD	cm	6.647	8.735	31.42%
Vmax / Amax	s	0.103	0.0953	-7.51%
Acceleration RMS	g	0.057	0.0796	39.77%
Velocity RMS	cm/s	6.076	7.959	30.98%
Displacement RMS	cm	2.332	2.511	7.68%
Sustained Max Acc. (3)	g	0.204	0.313	53.60%
Sustained Max Acc. (5)	g	0.19	0.264	39.50%
Sustained Max Vel. (3)	cm/s	20.49	30.76	50.14%
Sustained Max Vel. (5)	cm/s	19.02	23.89	25.59%
Total Duration	s	22	22	0%
D_{5-75}	s	5.261	3.899	-25.89%
D_{5-95}	s	8.633	6.976	-19.19%
Bracketed Duration	s	17.36	16.89	-2.74%
Arias Intensity	m/s	1.1	2.148	95.35%
CAV	cm/s	762.7	989.7	29.76%
SED	cm^2/s	812.2	1393.4	71.56%
Characteristic Intensity	-	0.0638	0.105	65.24%
MIV	cm/s	34.09	65.7	92.74%
Damage Index	-	0.514	1.474	187.07%
NoEC	-	5.402	3.263	-39.59%
Impulsivity Index	-	30.35	26.01	-14.28%
Standardized CAV	g·s	0.762	0.993	30.35%
CAV_5	g·s	0.769	1.001	30.18%
A95 parameter	g	0.208	0.396	90.41%
EDA (9 Hz LP)	g	0.252	0.415	64.30%
Uniform Duration	s	0	0	-
Effective Duration	s	8.075	8.108	0.41%
VSI (ξ=%5)	cm	98.48	163.2	65.67%
Housner SI original (ξ=20%)	cm	56.51	98.15	73.69%
Fourier Dominant Frequency	Hz	2.272	3.09	36.00%
Fourier Dominant Period (T_F)	s	0.44	0.324	-26.47%
Predominant Period T_p (argmax Sa)	s	0.385	0.38	-1.30%
Mean Period T_m	s	0.485	0.493	1.65%



Acceleration-velocity-displacement comparison of the raw, wavelet-matched (before β, if available) and final time series.



Comparison of cumulative Arias Intensity.



Comparison of the raw, matched/final and target response spectra.

6. Conclusion Note

The Word report is a snapshot of the current analysis state. The time series used in the TXT export and in the 'Final Data' plots is the same. If a common β has been applied, the acceleration, velocity, displacement and the motion parameters recomputed from this time series include the effect of β.

7. References

[1] Al Atik, L., & Abrahamson, N. (2010). An improved method for nonstationary spectral matching. Earthquake Spectra, 26(3), 601–617.

[2] Hancock, J., Watson-Lamprey, J., Abrahamson, N. A., Bommer, J. J., Markatis, A., McCoy, E., & Mendis, R. (2006). An improved method of matching response spectra of recorded earthquake ground motion using wavelets. Journal of Earthquake Engineering, 10(S_1), 67–89.

[3] Republic of Turkey Ministry of Environment and Urbanization. (2018). Turkish Building Earthquake Code (TBDY 2018).