

Appendix

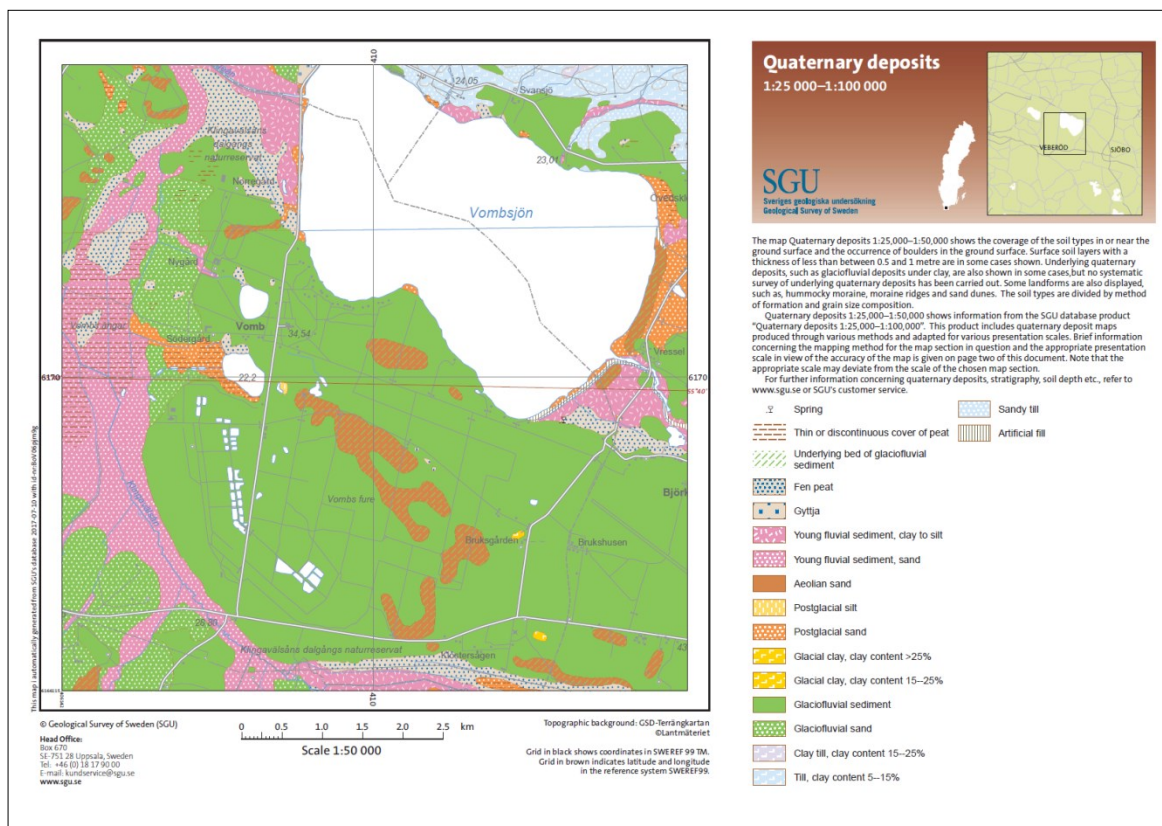


Fig. A1 Overview of the study area (Source: Geological Survey of Sweden, © Sveriges geologiska undersökning, www.sgu.se)

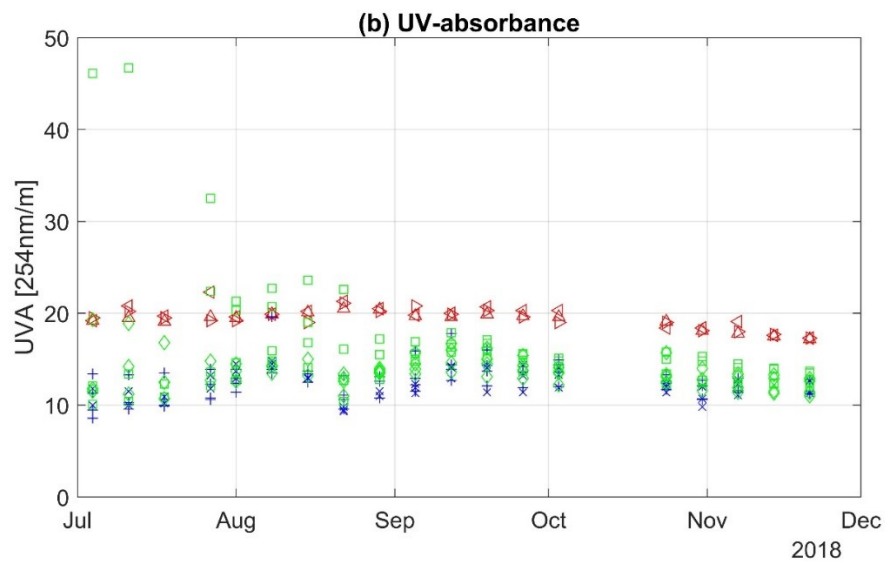
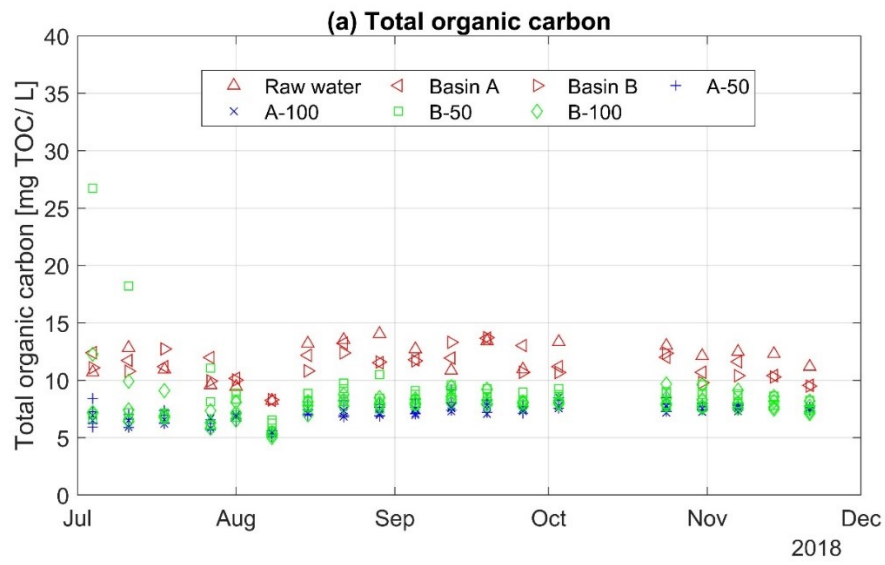


Fig. A2 Natural organic matter variability during artificial recharge. The figure shows (a) TOC and (b) UVA from raw water, Basin A and B, and all individual soil water samplers

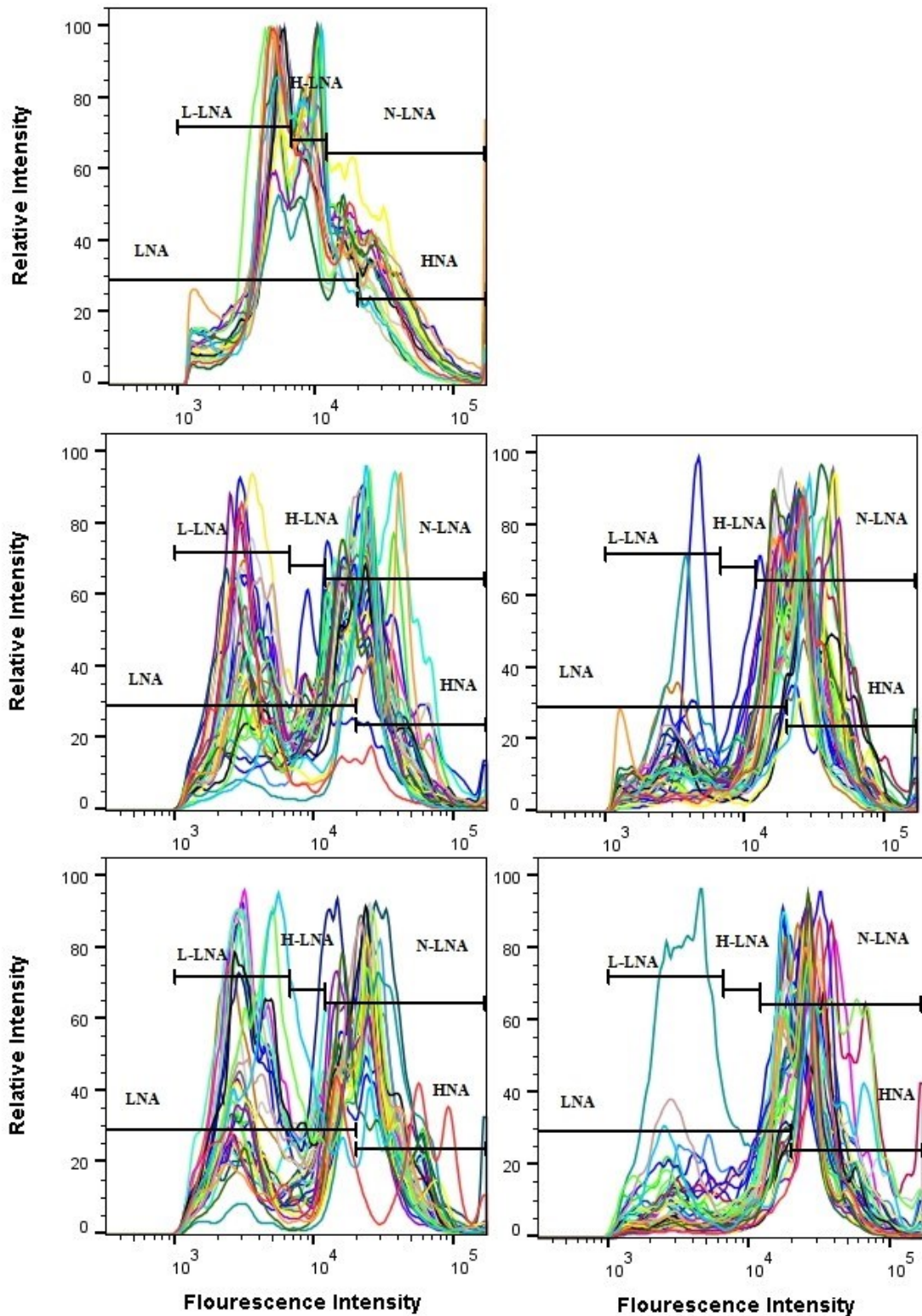


Fig. A3 Fingerprints of all the collected fingerprints for the raw water (top left), A-50 (center left), A-100 (bottom left), B-50 (center right) and B-100 (bottom right). Each line represents one of the triplicates from each water sample. The figure shows a clear difference between samples taken from Basin A and B. Percent HNA was significantly higher in samplers under Basin B whereas the HNA peaks for both sides are similar to one another compared to the LNA peaks. The LNA peaks on the A-side are not present on the B-side, with three exceptions.

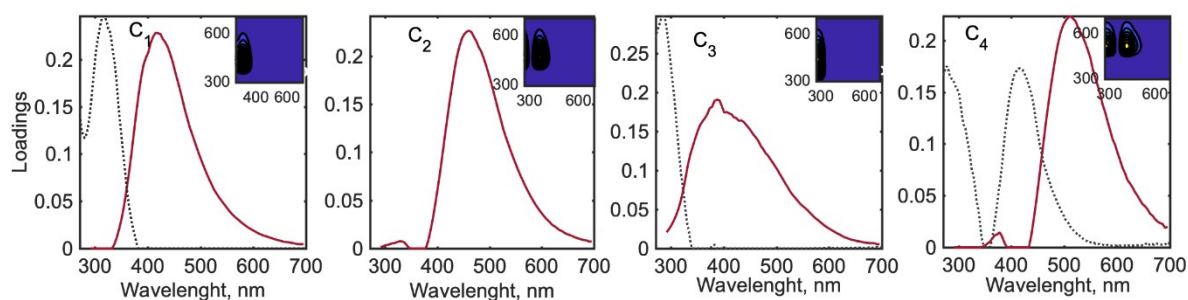


Fig. A4 Spectral properties of the PARAFAC components.

Table A1 All results from t-test conducted on the TOC and UVA measurements by comparing two pairs of locations (L_1 and L_2). Location “All samplers” refers to all soil water samples. A-50, B-50, A-100 and B-100 refers to all samplers at 50 and 100 cm under Basin A and B, respectively. The table shows the samplings location, the parameter, the mean value, the variance, p-value from one and two tailed test.

Location, L_1	Location, L_2	Parameter	$\bar{T}_1 + \sigma^2$	$\bar{T}_2 + \sigma^2$	ρ -value one tailed	ρ -value two tailed
Raw water	All samplers	TOC (mg/ L)	11.8 + 2.6	7.4 + 0.6	1.6e-11	3.3e-11
Raw water	All samplers	UVA (m^{-1})	19.3 + 0.9	12.8 + 1.5	2.1e-19	4.3e-19
50 cm (all)	100 cm (all)	TOC (mg/ L)	7.4 + 0.6	7.4 + 0.6	0.42	0.84
50 cm (all)	100 cm (all)	UVA (m^{-1})	12.8 + 1.9	12.8 + 1.2	0.49	0.98
All samplers A-side	All samplers B-side	TOC (mg/ L)	7.2 + 0.5	7.6 + 0.8	0.05	0.10
All samplers A-side	All samplers B-side	UVA (m^{-1})	12.3 + 1.5	13.5 + 1.7	0.006	0.011
A-50	B-50	TOC (mg/ L)	7.3 + 0.5	7.6 + 0.8	0.09	0.19
A-100	B-100	TOC (mg/ L)	7.1 + 0.4	7.5 + 0.7	0.04	0.08
A-50	B-50	UVA (m^{-1})	12.5 + 1.7	13.4 + 2.6	0.03	0.06
A-100	B-100	UVA (m^{-1})	12.1 + 1.6	13.5 + 1.6	0.001	0.002
A-50	A-100	TOC (mg/ L)	7.3 + 0.5	7.1 + 0.4	0.19	0.39
B-50	B-100	TOC (mg/ L)	7.6 + 0.8	7.5 + 0.7	0.34	0.67
A-50	A-100	UVA (m^{-1})	12.5 + 1.7	12.1 + 1.6	0.19	0.37
B-50	B-100	UVA (m^{-1})	13.4 + 2.6	13.5 + 1.6	0.42	0.85
Raw water	All samplers	TOC and UVA reduction (%)	37 + 40	34 + 40	0.04	0.08
Raw water	B3 and B4-50	C1	$0.73 + 1.8 \cdot 10^{-6}$	$0.58 + 1 \cdot 10^{-4}$	$1 \cdot 10^{-8}$	$2 \cdot 10^{-8}$
Raw water	B3 and B4-50	C2	$0.42 + 1.2 \cdot 10^{-6}$	$0.35 + 7.3 \cdot 10^{-5}$	$6.4 \cdot 10^{-7}$	$1.3 \cdot 10^{-6}$
Raw water	B3 and B4-50	C3	$0.45 + 6.6 \cdot 10^{-6}$	$0.29 + 4.2 \cdot 10^{-5}$	$9.4 \cdot 10^{-12}$	$1.9 \cdot 10^{-11}$
Raw water	B3 and B4-50	C4	$0.12 + 2 \cdot 10^{-6}$	$0.11 + 1 \cdot 10^{-5}$	$5.1 \cdot 10^{-5}$	$1 \cdot 10^{-4}$

Table A2 All results from t-test conducted on the flow cytometric measurements by comparing two pairs of locations (L_1 and L_2). Location “All samplers” refers to all soil water samples. A-50, B-50, A-100 and B-100 refers to all samplers at 50 and 100 cm under Basin A and B, respectively. The table shows the samplings location, the parameter, the mean value, the variance, p-value from one and two tailed test.

Location, L_1	Location, L_2	Parameter	$\bar{T}_1 + \sigma^2$	$\bar{T}_2 + \sigma^2$	ρ -value one tailed	ρ value two tailed
Raw water	All samplers	TCC (cells/ mL)	$6.4 \cdot 10^6 + 4.4 \cdot 10^{12}$	$7.4 \cdot 10^4 + 1 \cdot 10^9$	$1.8 \cdot 10^{-10}$	$3.6 \cdot 10^{-11}$
A-50	B-50	TCC (cells/ mL)	$6.6 \cdot 10^4 + 3.9 \cdot 10^9$	$9.2 \cdot 10^4 + 2.6 \cdot 10^{10}$	0.19	0.38
All samplers A-side	All samplers B-side	TCC (cells/ mL)	$7.3 \cdot 10^4 + 4.8 \cdot 10^9$	$7.7 \cdot 10^4 + 1.4 \cdot 10^{10}$	0.40	0.80
A-50	A-100	TCC (cells/ mL)	$6.6 \cdot 10^4 + 4.1 \cdot 10^9$	$7.9 \cdot 10^4 + 5.6 \cdot 10^9$	0.23	0.45
B-50	B-100	TCC (cells/ mL)	$9.2 \cdot 10^4 + 2.6 \cdot 10^{10}$	$6.2 \cdot 10^4 + 2.8 \cdot 10^9$	0.15	0.30

Raw water	All samplers	ICC (%)	41 + 600	78 + 200	2.8·10⁻⁶	5.5·10⁻⁶
A-50	B-50	ICC (%)	72 + 331	79 + 78	0.02	0.04
All samplers A-side	All samplers B-side	ICC (%)	74 + 281	80 + 94	0.005	0.010
A-50	A-100	ICC (%)	72 + 330	76 + 230	0.18	0.36
B-50	B-100	ICC (%)	79 + 78	81 + 110	0.23	0.47
Raw water	All samplers	HNA (%)	20 + 30	46 + 30	3·10⁻¹⁷	5.2·10⁻¹⁷
A-50	B-50	HNA (%)	35 + 163	53 + 144	4·10⁻⁹	8·10⁻⁹
All samplers A-side	All samplers B-side	HNA (%)	36 + 175	56 + 166	2·10⁻¹⁶	3·10⁻¹⁶
A-50	A-100	HNA (%)	34 + 117	37 + 146	0.13	0.27
B-50	B-100	HNA (%)	53 + 116	58 + 134	0.03	0.05
Raw water	All samplers A-side	L-LNA (%)	40 + 33	35 + 27	0.003	0.007
Raw water	All samplers B-side	L-LNA (%)	40 + 33	16 + 13	4·10⁻¹⁵	9·10⁻¹⁵
A-50	B-50	L-LNA (%)	35 + 155	18 + 75	1·10⁻⁸	2·10⁻⁸
All samplers A-side	All samplers B-side	L-LNA (%)	35 + 27	16 + 13	6e·10⁻¹³	1·10⁻¹²
A-50	A-100	L-LNA (%)	35 + 155	35 + 136	0.47	0.94
B-50	B-100	L-LNA (%)	18 + 75	15 + 83	0.05	0.11
Raw water	All samplers A-side	H-LNA (%)	26 + 10	10 + 3	2·10⁻¹⁶	4·10⁻¹⁶
Raw water	All samplers B-side	H-LNA (%)	26 + 10	7 + 4	2·10⁻¹⁹	3·10⁻¹⁹
A-50	B-50	H-LNA (%)	11 + 10	7 + 10	3·10⁻⁶	6·10⁻⁶
All samplers A-side	All samplers B-side	H-LNA (%)	10 + 3	7 + 4	4·10⁻⁶	8·10⁻⁶
A-50	A-100	H-LNA (%)	11 + 10	9 + 16	0.013	0.026
B-50	B-100	H-LNA (%)	7 + 10	6 + 6	0.07	0.14
Raw water	All samplers A-side	N-HNA (%)	34 + 29	55 + 36	1·10⁻¹²	2·10⁻¹²
Raw water	All samplers B-side	N-HNA (%)	34 + 29	77 + 21	1·10⁻²³	2·10⁻²³
A-50	B-50	N-HNA (%)	54 + 149	75 + 84	3·10⁻¹¹	7·10⁻¹¹
All samplers A-side	All samplers B-side	N-HNA (%)	55 + 36	77 + 21	3·10⁻¹³	6·10⁻¹³
A-50	A-100	N-HNA (%)	54 + 149	56 + 204	0.29	0.58
B-50	B-100	N-HNA (%)	75 + 84	79 + 107	0.03	0.06

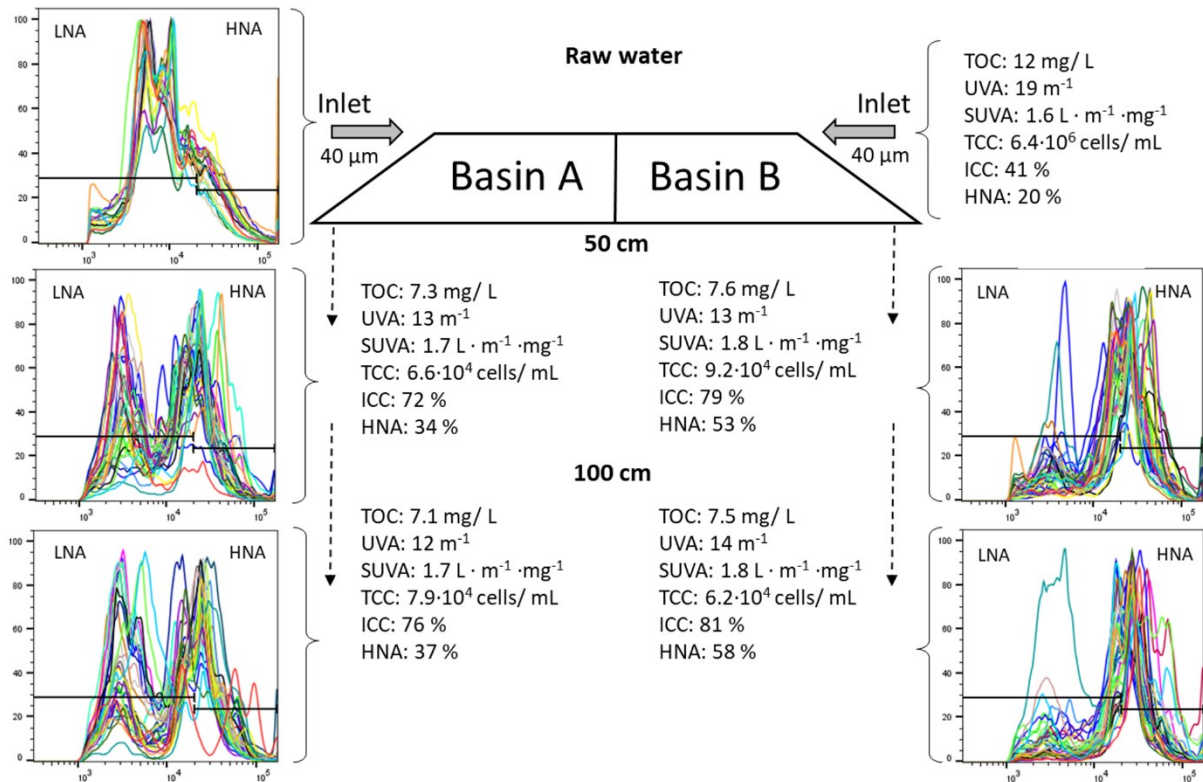


Fig. A5 Overview of all the results during the whole period. The TOC, UVA, SUVA_{TOC}, TCC, % ICC and % HNA measurements are presented as averages over the whole period.