Visegrad Fund

Indoor radon activity concentration in thermal water spas: the comparison of three types of passive radon detectors

Preparing article to Radiation Protection Dosimetry

Data from article

Table 1 Results of indoor radon in spas in Visegrad countries

Country	Spa code		Radon activity concentration [Bq.m^{-3}]								
	No.	workplace	Ramarn			Raduet			NRPB		
Czech Republic	C1	pool	3100	+/-	260	2508	+/-	169	2023	+/-	193
		balneotherapy No.1	220	+/-	40	154	+/-	28	123	+/-	21
		balneotherapy No.2	250	+/-	40	193	+/-	36	163	+/-	24
		balneotherapy No.3	250	+/-	40	235	+/-	38	239	+/-	38
		admissions office	195	+/-	30	158	+/-	34	117	+/-	35
		office of director	320	+/-	50	282	+/-	42	213	+/-	35
		documentation	180	+/-	40	165	+/-	18	116	+/-	24
		physician office	270	+/-	40	175	+/-	24	163	+/-	27
Slovakia	S1	balneotherapy No.1	240	+/-	50	214	+/-	39	274	+/-	61
		balneotherapy No.2	230	+/-	70						
		physician office	90	+/-	40	123	+/-	33	117	+/-	39
		pool	190	+/-	50	175	+/-	41	232	+/-	51
	S2	balneotherapy No.1	170	+/-	40	129	+/-	23	168	+/-	39
		balneotherapy No.2	140	+/-	50						
		balneotherapy No.3	190	+/-	70						
		balneotherapy No.4	220	+/-	60						
		physician office	230	+/-	90	167	+/-	44	146	+/-	23
		pool	490	+/-	60						
	S3	pool No.1	90	+/-	60	87	+/-	21			
		balneotherapy No.1	80	+/-	30	92	+/-	17	82	+/-	24
		balneotherapy No.2	120	+/-	50						
		balneotherapy No.3	90	+/-	40						
		physician office	145	+/-	50	104	+/-	33	149	+/-	41
	S4	pool No.1	1400	+/-	210						
		pool No.2	12050	+/-	1500	327	+/-	66	4348	+/-	480
		dressing room	8100	+/-	1000	7620	+/-	651	6802	+/-	918
		pool No.3	690	+/-	140						
		physician office	460	+/-	140						

Country	Spa code		Radon activity concentration [Bq.m^{-3}]								
	No.	workplace	Ramarn			Raduet			NRPB		
Poland	P1	balneotherapy No.1	33	+/-	14	54	+/-	9	70	+/-	12
		balneotherapy No.2	<25			53	+/-	7	62	+/-	12
		physician office	33	+/-	16	37	+/-	10			
	P2	pool No.1	28	+/-	20	39	+/-	8	37	+/-	15
		pool No.2	<25			51	+/-	10	71	+/-	13
		pool No.3	43	+/-	20	55	+/-	8	99	+/-	22
		dressing room No.1	30	+/-	20	34	+/-	9	45	+/-	11
		dressing room No.2	30	+/-	20	64	+/-	4	56	+/-	16
	P3	pool No.1	50	+/-	21	30	+/-	6	40	+/-	7
		pool No.2	33	+/-	24						
		rescue room No.1	<25			47	+/-	6	51	+/-	24
		rescue room No.2	<25			30	+/-	6	66	+/-	25
		pool No.2	<25			32	+/-	9			
Hungary	H1	turkish pool No. 1	540	+/-	70	420	+/-	35	399	+/-	43
		turkish pool No. 2	350	+/-	50	398	+/-	33	365	+/-	29
		sparkling pool	443	+/-	60	360	+/-	32	349	+/-	34
		mirror pool	190	+/-	40	198	+/-	37	155	+/-	32
		small pool	340	+/-	60	333	+/-	34			
		cash desk	170	+/-	40	155	+/-	15	149	+/-	20
	H2	massage 1.room				149	+/-	19	110	+/-	15
		massage 2.room				206	+/-	26	168	+/-	20
		under water massage room	230	+/-	50	202	+/-	20	158	+/-	21
		individual pool room	150	+/-	30	186	+/-	18	179	+/-	20
		thermal water public pool	< 25			253	+/-	20	179	+/-	20
	H3	small thermal bath room	220	+/-	35	189	+/-	28	186	+/-	49
		massage room	< 16			172	+/-	23	139	+/-	23
		info desk	90	+/-	20	80	+/-	12	97	+/-	18
		pool	230	+/-	40	248	+/-	37	241	+/-	30
		storage/changing clothes	220	+/-	35	234	+/-	20	197	+/-	31

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Correlations

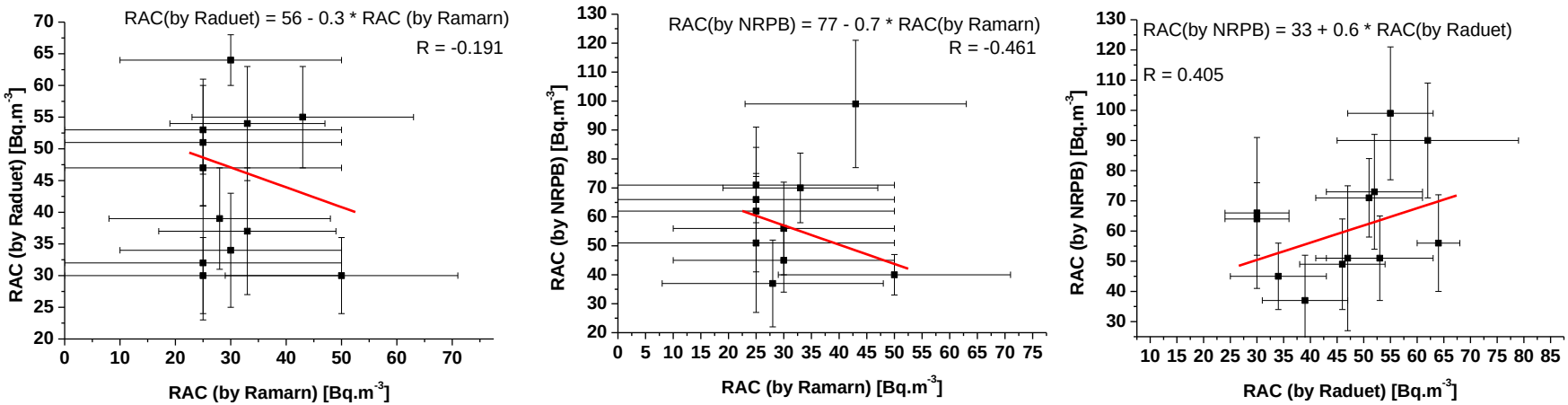

Fig. 1 The comparison radon activity concentration below 80 Bq.m^{-3} given by Ramarn, Raduet and NRPB

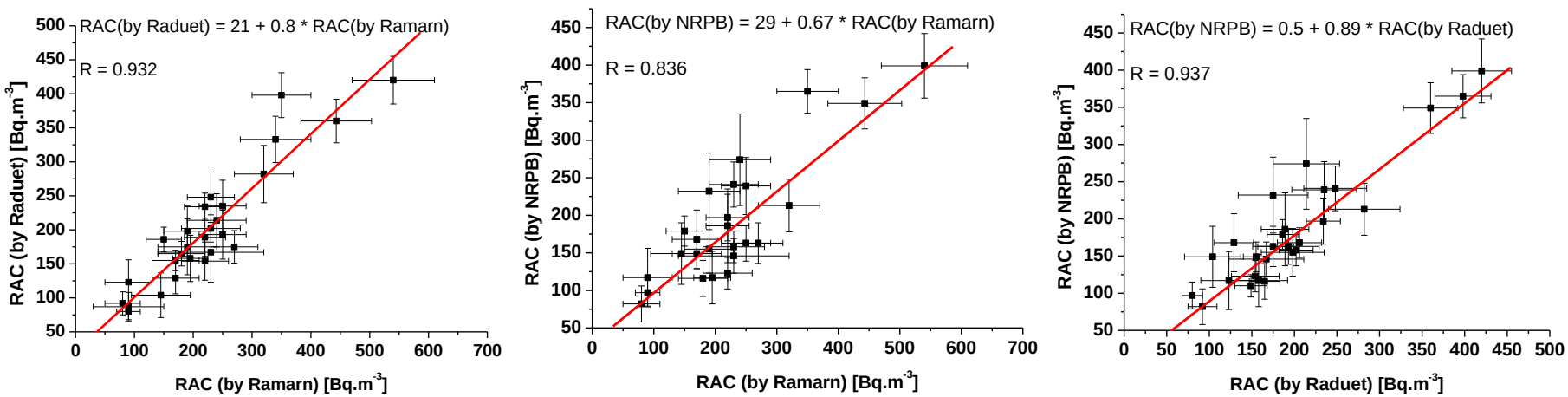

Fig. 2 The comparison radon activity concentration at a level from 80 to 600 Bq.m^{-3} given by Ramarn, Raduet and NRPB detectors

Data from article

Table 2 Radon activity concentration in room with 99% humidity

Used detector	Radon activity concentration [Bq.m^{-3}]
Ramarn	12050 ± 1500
Raduet	327 ± 66
NRPB	4348 ± 480

Present

comparison detectors in radon chamber in IFJ PAN Krakow