

Table S1. The concentrations of radionuclides ^{238}U , ^{232}Th , ^{40}K and the radiological hazard indices.

Samples. No	U-238 (Bq/kg)	Th-232 (Bq/kg)	K-40 (Bq/kg)	Ra _{eq} (Bq/kg)	H _{in}	H _{ex}	I _γ	D _{air} (nG/h)	AED _{out} (mSv)	AED _{in} (mSv)	AGDE (mSv)	ELCR	$^{238}\text{U}/^{232}\text{Th}$
S1	26	21	407	87	0.3	0.2	0.3	41.4	0.05	0.2	0.3	0.0002	1.2
S2	46	30	689	141	0.5	0.4	0.5	67.2	0.08	0.3	0.5	0.0003	1.5
S3	32	28	532	113	0.4	0.3	0.4	53.3	0.07	0.3	0.4	0.0002	1.2
S4	38	22	501	109	0.4	0.3	0.4	51.7	0.06	0.3	0.4	0.0002	1.7
S5	25	11	376	69	0.3	0.2	0.3	33.2	0.04	0.2	0.2	0.0001	2.3
S6	26	15	407	79	0.3	0.2	0.3	38.0	0.05	0.2	0.3	0.0002	1.7
S7	22	10	376	65	0.2	0.2	0.2	31.6	0.04	0.2	0.2	0.0001	2.3
S8	22	13	376	70	0.2	0.2	0.3	33.5	0.04	0.2	0.2	0.0001	1.7
S9	36	22	407	98	0.4	0.3	0.4	46.2	0.06	0.2	0.3	0.0002	1.7
S10	80	57	939	234	0.8	0.6	0.9	109.9	0.13	0.5	0.8	0.0005	1.4
S11	49	39	532	147	0.5	0.4	0.5	68.4	0.08	0.3	0.5	0.0003	1.3
S12	161	73	1252	361	1.4	1.0	1.3	169.6	0.21	0.8	1.2	0.0007	2.2
S13	33	22	563	107	0.4	0.3	0.4	51.5	0.06	0.3	0.4	0.0002	1.5
S14	33	22	470	100	0.4	0.3	0.4	47.7	0.06	0.2	0.3	0.0002	1.5
S15	75	42	626	183	0.7	0.5	0.7	85.7	0.11	0.4	0.6	0.0004	1.8
S16	109	37	939	234	0.9	0.6	0.9	111.3	0.14	0.5	0.8	0.0005	2.9
S17	111	57	939	265	1.0	0.7	1.0	124.2	0.15	0.6	0.9	0.0005	2.0
S18	100	42	626	208	0.8	0.6	0.8	97.1	0.12	0.5	0.7	0.0004	2.4
S19	133	37	1252	283	1.1	0.8	1.0	135.5	0.17	0.7	1.0	0.0006	3.6
S20	136	57	1252	314	1.2	0.8	1.2	148.4	0.18	0.7	1.1	0.0006	2.4
S21	185	85	1283	406	1.6	1.1	1.5	189.7	0.23	0.9	1.3	0.0008	2.2
S22	88	53	1064	246	0.9	0.7	0.9	116.3	0.14	0.6	0.8	0.0005	1.6
S23	46	20	501	113	0.4	0.3	0.4	53.7	0.07	0.3	0.4	0.0002	2.3
S24	131	76	1440	350	1.3	0.9	1.3	165.4	0.20	0.8	1.2	0.0007	1.7
S25	163	81	1283	378	1.5	1.0	1.4	177.0	0.22	0.9	1.2	0.0008	2.0
S26	144	61	1283	330	1.3	0.9	1.2	156.2	0.19	0.8	1.1	0.0007	2.4
S27	482	57	376	592	2.9	1.6	2.0	272.3	0.33	1.3	1.8	0.0012	8.5
S28	238	93	1502	488	2.0	1.3	1.8	228.1	0.28	1.1	1.6	0.0010	2.6
S29	333	89	1471	574	2.5	1.6	2.0	268.3	0.33	1.3	1.9	0.0012	3.7
S30	275	57	1252	453	2.0	1.2	1.6	212.9	0.26	1.0	1.5	0.0009	4.8
S31	168	61	1315	356	1.4	1.0	1.3	168.3	0.21	0.8	1.2	0.0007	2.8
S32	309	74	1346	519	2.2	1.4	1.8	242.7	0.30	1.2	1.7	0.0010	4.2
S33	100	69	1002	276	1.0	0.7	1.0	129.0	0.16	0.6	0.9	0.0006	1.4
S34	642	53	939	791	3.9	2.1	2.7	367.3	0.45	1.8	2.5	0.0016	12.1
S35	149	85	1440	382	1.4	1.0	1.4	179.6	0.22	0.9	1.3	0.0008	1.8
S36	103	81	1221	313	1.1	0.8	1.2	146.5	0.18	0.7	1.0	0.0006	1.3

S37	104	69	1064	284	1.0	0.8	1.0	133.2	0.16	0.7	0.9	0.0006	1.5
S38	46	30	689	141	0.5	0.4	0.5	67.2	0.08	0.3	0.5	0.0003	1.5
S39	73	51	908	215	0.8	0.6	0.8	101.5	0.12	0.5	0.7	0.0004	1.4
S40	114	61	1096	285	1.1	0.8	1.0	134.2	0.16	0.7	0.9	0.0006	1.9
S41	222	85	1283	443	1.8	1.2	1.6	206.8	0.25	1.0	1.4	0.0009	2.6
S42	173	76	1471	395	1.5	1.1	1.4	186.1	0.23	0.9	1.3	0.0008	2.3
S43	274	183	1346	639	2.5	1.7	2.3	292.2	0.36	1.4	2.0	0.0013	1.5
S44	99	74	1221	298	1.1	0.8	1.1	140.3	0.17	0.7	1.0	0.0006	1.3
S45	222	57	814	366	1.6	1.0	1.3	170.4	0.21	0.8	1.2	0.0007	3.9
S46	98	68	1471	308	1.1	0.8	1.2	146.6	0.18	0.7	1.0	0.0006	1.4
S47	247	93	1409	489	2.0	1.3	1.8	228.3	0.28	1.1	1.6	0.0010	2.6
S48	371	93	1346	608	2.6	1.6	2.2	282.8	0.35	1.4	2.0	0.0012	4.0
S49	73	49	939	215	0.8	0.6	0.8	101.6	0.12	0.5	0.7	0.0004	1.5
S50	22	17	344	74	0.3	0.2	0.3	34.9	0.04	0.2	0.2	0.0001	1.3
S51	99	63	1127	276	1.0	0.7	1.0	130.1	0.16	0.6	0.9	0.0006	1.6
S52	173	62	1002	338	1.4	0.9	1.2	158.2	0.19	0.8	1.1	0.0007	2.8
S53	519	85	1502	756	3.4	2.0	2.7	352.7	0.43	1.7	2.4	0.0015	6.1
S54	179	65	1409	380	1.5	1.0	1.4	179.7	0.22	0.9	1.3	0.0008	2.8
S55	204	85	1534	444	1.7	1.2	1.6	208.5	0.26	1.0	1.5	0.0009	2.4
S56	114	57	1096	279	1.1	0.8	1.0	131.7	0.16	0.6	0.9	0.0006	2.0
S57	185	85	1283	406	1.6	1.1	1.5	189.7	0.23	0.9	1.3	0.0008	2.2
S58	235	66	1440	440	1.8	1.2	1.6	207.2	0.25	1.0	1.5	0.0009	3.6
S59	168	89	1315	397	1.5	1.1	1.4	185.4	0.23	0.9	1.3	0.0008	1.9
S60	210	89	1409	446	1.8	1.2	1.6	208.7	0.26	1.0	1.5	0.0009	2.4
S61	124	69	1096	307	1.2	0.8	1.1	143.7	0.18	0.7	1.0	0.0006	1.8
S62	95	58	939	250	0.9	0.7	0.9	117.3	0.14	0.6	0.8	0.0005	1.6
S63	32	28	532	113	0.4	0.3	0.4	53.3	0.07	0.3	0.4	0.0002	1.2
S64	99	37	908	222	0.9	0.6	0.8	105.4	0.13	0.5	0.7	0.0005	2.6
S65	94	68	876	259	1.0	0.7	0.9	120.5	0.15	0.6	0.9	0.0005	1.4
S66	99	73	1127	290	1.1	0.8	1.1	136.0	0.17	0.7	1.0	0.0006	1.4
S67	124	69	1252	319	1.2	0.9	1.2	150.1	0.18	0.7	1.1	0.0006	1.8
S68	188	74	1283	392	1.6	1.1	1.4	184.0	0.23	0.9	1.3	0.0008	2.5
S69	124	77	1440	345	1.3	0.9	1.3	162.7	0.20	0.8	1.2	0.0007	1.6
S70	120	81	1064	318	1.2	0.9	1.2	148.0	0.18	0.7	1.0	0.0006	1.5
S71	210	97	1471	463	1.8	1.2	1.7	216.2	0.27	1.1	1.5	0.0009	2.2
S72	198	97	1471	450	1.8	1.2	1.6	210.5	0.26	1.0	1.5	0.0009	2.0
S73	148	85	1346	374	1.4	1.0	1.4	175.1	0.21	0.9	1.2	0.0008	1.7
S74	152	80	1315	368	1.4	1.0	1.3	172.4	0.21	0.8	1.2	0.0007	1.9

S75	395	92	1002	604	2.7	1.6	2.1	279.1	0.34	1.4	1.9	0.0012	4.3
S76	126	70	1440	337	1.3	0.9	1.3	159.7	0.20	0.8	1.1	0.0007	1.8
S77	94	73	1346	302	1.1	0.8	1.1	142.7	0.17	0.7	1.0	0.0006	1.3
S78	57	32	751	160	0.6	0.4	0.6	76.2	0.09	0.4	0.5	0.0003	1.8
S79	58	37	814	174	0.6	0.5	0.7	82.7	0.10	0.4	0.6	0.0004	1.6
S80	1087	89	250	1234	6.3	3.3	4.2	566.3	0.69	2.8	3.8	0.0024	12.2
S81	114	69	1127	299	1.1	0.8	1.1	140.4	0.17	0.7	1.0	0.0006	1.6
S82	115	57	1158	285	1.1	0.8	1.1	134.9	0.17	0.7	1.0	0.0006	2.0
S83	136	77	1502	362	1.3	1.0	1.3	171.0	0.21	0.8	1.2	0.0007	1.8
S84	333	73	1502	554	2.4	1.5	2.0	259.8	0.32	1.3	1.8	0.0011	4.6
S85	115	81	1502	347	1.2	0.9	1.3	163.7	0.20	0.8	1.2	0.0007	1.4
S86	126	85	1502	364	1.3	1.0	1.3	171.3	0.21	0.8	1.2	0.0007	1.5
S87	259	89	1283	486	2.0	1.3	1.7	226.4	0.28	1.1	1.6	0.0010	2.9
S88	173	82	1471	404	1.6	1.1	1.5	190.0	0.23	0.9	1.3	0.0008	2.1
S89	148	81	1377	370	1.4	1.0	1.4	174.0	0.21	0.9	1.2	0.0007	1.8
S90	38	22	501	109	0.4	0.3	0.4	51.7	0.06	0.3	0.4	0.0002	1.7
S91	51	30	751	151	0.5	0.4	0.6	72.1	0.09	0.4	0.5	0.0003	1.7
S92	121	73	1377	332	1.2	0.9	1.2	156.5	0.19	0.8	1.1	0.0007	1.7
S93	1007	97	1221	1240	6.1	3.4	4.2	573.9	0.70	2.8	3.9	0.0025	10.3
S94	185	76	1471	407	1.6	1.1	1.5	191.5	0.23	0.9	1.4	0.0008	2.5
S95	119	93	1502	368	1.3	1.0	1.4	172.8	0.21	0.8	1.2	0.0007	1.3
S96	121	70	1346	325	1.2	0.9	1.2	153.3	0.19	0.8	1.1	0.0007	1.7
S97	161	81	1440	388	1.5	1.0	1.4	182.3	0.22	0.9	1.3	0.0008	2.0
S98	122	77	1346	336	1.2	0.9	1.2	158.3	0.19	0.8	1.1	0.0007	1.6
S99	148	81	1377	370	1.4	1.0	1.4	174.0	0.21	0.9	1.2	0.0007	1.8
S100	107	61	939	267	1.0	0.7	1.0	124.9	0.15	0.6	0.9	0.0005	1.8
S101	40	27	563	122	0.4	0.3	0.5	57.8	0.07	0.3	0.4	0.0002	1.5
S102	371	53	1283	545	2.5	1.5	1.9	255.7	0.31	1.3	1.8	0.0011	7.0
S103	1235	77	125	1355	7.0	3.7	4.5	622.3	0.76	3.1	4.2	0.0027	16.0
S104	605	89	876	800	3.8	2.2	2.8	369.5	0.45	1.8	2.5	0.0016	6.8
S105	117	77	1471	341	1.2	0.9	1.3	161.1	0.20	0.8	1.1	0.0007	1.5
S106	1198	162	1659	1558	7.4	4.2	5.4	719.6	0.88	3.5	4.9	0.0031	7.4
S107	121	89	1471	362	1.3	1.0	1.3	170.2	0.21	0.8	1.2	0.0007	1.4
S108	154	85	1158	365	1.4	1.0	1.3	170.3	0.21	0.8	1.2	0.0007	1.8
S109	231	82	1346	452	1.8	1.2	1.6	211.4	0.26	1.0	1.5	0.0009	2.8
S110	41	35	783	150	0.5	0.4	0.6	71.8	0.09	0.4	0.5	0.0003	1.2
S111	26	24	532	101	0.3	0.3	0.4	48.3	0.06	0.2	0.3	0.0002	1.1
S112	25	11	376	69	0.3	0.2	0.3	33.2	0.04	0.2	0.2	0.0001	2.3
S113	52	32	563	142	0.5	0.4	0.5	66.7	0.08	0.3	0.5	0.0003	1.6

S114	642	77	1096	837	4.0	2.3	2.9	388.2	0.48	1.9	2.7	0.0017	8.3
S115	152	81	1283	367	1.4	1.0	1.3	171.8	0.21	0.8	1.2	0.0007	1.9
S116	741	82	1315	960	4.6	2.6	3.3	446.0	0.55	2.2	3.0	0.0019	9.0
S117	163	69	1252	358	1.4	1.0	1.3	168.3	0.21	0.8	1.2	0.0007	2.4
S118	185	89	1502	429	1.7	1.2	1.6	201.1	0.25	1.0	1.4	0.0009	2.1
S119	78	49	783	208	0.8	0.6	0.8	97.5	0.12	0.5	0.7	0.0004	1.6
S120	47	35	783	157	0.5	0.4	0.6	74.6	0.09	0.4	0.5	0.0003	1.4
S121	69	50	845	206	0.7	0.6	0.8	97.0	0.12	0.5	0.7	0.0004	1.4
S122	64	49	845	199	0.7	0.5	0.7	93.7	0.11	0.5	0.7	0.0004	1.3
S123	58	44	783	181	0.6	0.5	0.7	85.4	0.10	0.4	0.6	0.0004	1.3
S124	70	50	876	210	0.8	0.6	0.8	98.9	0.12	0.5	0.7	0.0004	1.4
S125	54	35	720	159	0.6	0.4	0.6	75.5	0.09	0.4	0.5	0.0003	1.6
S126	2100	162	250	2351	12.0	6.4	7.9	1078.3	1.32	5.3	7.2	0.0046	12.9
S127	432	82	1409	657	2.9	1.8	2.3	306.7	0.38	1.5	2.1	0.0013	5.3
S128	193	66	1346	390	1.6	1.1	1.4	183.9	0.23	0.9	1.3	0.0008	2.9
S129	51	53	939	199	0.7	0.5	0.7	94.0	0.12	0.5	0.7	0.0004	1.0
S130	78	42	563	182	0.7	0.5	0.7	84.5	0.10	0.4	0.6	0.0004	1.8
S131	59	44	626	170	0.6	0.5	0.6	79.5	0.10	0.4	0.6	0.0003	1.4
S132	48	37	563	145	0.5	0.4	0.5	67.9	0.08	0.3	0.5	0.0003	1.3
S133	43	33	532	132	0.5	0.4	0.5	61.9	0.08	0.3	0.4	0.0003	1.3
S134	44	28	501	123	0.5	0.3	0.5	58.0	0.07	0.3	0.4	0.0002	1.6
S135	99	31	720	198	0.8	0.5	0.7	93.8	0.12	0.5	0.7	0.0004	3.2
S136	101.3	50.3	719.9	228.7	0.9	0.6	0.8	106.7	0.13	0.5	0.7	0.0005	2.0
Aver- age	192.5	62.7	1033.6	361.8	1.5	1.0	1.3	169.2	0.2	0.8	1.2	0.0007	2.7
SD	267.8	28.6	382.3	298.2	1.5	0.8	1.0	137.0	0.2	0.7	0.9	0.0006	2.5
W. A.	33.0	45.0	412.0	370.0	<1	<1	1.0	59.0	0.07	0.41	3.5	0.00029	3.5