

Supplementary Materials: Nitrates in Groundwater Discharges from the Azores Archipelago: Occurrence and Fluxes to Coastal Waters

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Table S1. Groundwater chemical data (mean values for the monitored springs (spr) and drilled wells (wll)), discharge (Q) and nitrates enrichment factor (EF) (SMA—Santa Maria island; SMG—São Miguel; TER—Terceira; GRA—Graciosa; SJZ—São Jorge; PIC—Pico; FAI—Faial; FLO—Flores; COR—Corvo; n.d.—not determined).

Island	Name	Type	Temp. °C	pH	Cond. µS/cm	CO ₂ mg/L	Na mg/L	Mg mg/L	K mg/L	Ca mg/L	Cl mg/L	SO ₄ mg/L	HCO ₃ mg/L	NO ₃ mg/L	SiO ₂ mg/L	Q m ³ /day	EF
SMA	Santo António	spr	15.6	7.28	281.00	95.75	34.12	9.96	2.32	9.61	42.29	7.03	88.80	8.05	35.32	87.00	0.95
	Grota da Calçada	spr	15.6	6.76	178.75	94.52	20.81	5.79	1.29	5.46	36.17	5.51	44.56	6.41	20.67	29.00	0.76
	Ladeira do Brejo	spr	17.1	6.37	301.50	97.88	40.12	8.71	2.25	6.22	62.00	12.26	39.89	23.33	33.42	260.00	2.76
	Azenha de Baixo	spr	15.9	6.91	267.58	95.68	29.88	9.31	2.07	9.52	45.33	9.21	68.44	13.58	33.54	260.00	1.61
	Ribeira do Engenho	spr	16.9	6.57	197.15	98.17	20.33	6.39	1.51	8.31	36.14	12.70	41.30	8.38	15.83	260.00	0.99
	Fonte Grande	spr	18.0	6.50	248.08	97.04	36.11	6.24	2.31	4.55	52.29	10.68	39.78	14.71	34.17	87.00	1.74
	Santana	spr	18.3	7.79	583.23	92.02	73.10	17.08	4.53	24.61	101.38	17.10	151.50	8.44	50.35	44.00	1.00
	Covas	wll	16.7	7.44	556.17	91.88	122.27	13.87	3.64	20.00	89.83	16.03	153.17	15.50	60.27	504.00	1.83
	Santo António	wll	16.8	8.44	257.08	101.92	30.94	8.10	2.23	10.13	41.62	6.87	74.30	8.30	28.26	160.00	0.98
	João Luís	wll	18.1	7.91	509.64	93.04	71.17	10.10	2.92	10.91	74.50	10.53	109.36	10.43	50.35	527.00	1.23
	São José	wll	18.1	7.69	509.57	90.55	88.15	10.96	4.78	10.21	75.07	11.39	164.91	13.50	53.45	475.00	1.60
	Valverde	wll	18.6	7.92	750.71	81.84	107.91	24.33	4.36	20.78	121.00	30.64	216.55	19.50	46.16	335.00	2.30
SMG	Chã das Éguas	spr	14.9	6.23	129.15	91.77	20.86	1.50	6.17	2.21	16.14	3.59	85.64	3.95	43.15	0.22	0.47
	Portões Vermelhos	spr	14.5	7.23	168.79	99.59	22.02	4.11	4.95	6.60	19.00	4.69	126.42	10.51	39.82	0.86	1.24
	Mata Alta	spr	13.1	7.14	87.63	110.83	13.46	1.42	4.41	1.72	11.80	2.74	35.00	1.72	30.73	4.73	0.20
	Chã Canto	spr	14.2	6.70	104.08	109.52	15.51	1.20	3.71	1.41	16.33	3.59	27.70	1.59	37.17	5.04	0.19

Falude	spr	14.0	7.33	111.23	100.23	15.46	1.50	4.25	1.69	16.00	2.49	37.50	0.35	43.70	1.08	0.04
Mãe d'água	spr	16.3	7.42	150.83	103.49	22.42	2.56	5.49	2.90	25.67	4.68	39.90	2.95	57.53	3.97	0.35
Janela do Inferno	spr	14.3	7.39	112.00	101.16	19.23	1.42	4.79	1.59	17.40	4.45	30.63	3.58	40.36	0.82	0.42
Fontainha	spr	15.4	7.17	148.67	99.98	24.02	2.32	5.45	2.66	15.67	5.22	41.90	18.17	44.30	0.15	2.15
Espigão Torto	spr	14.7	7.10	153.50	105.38	20.87	2.52	6.27	4.53	18.50	4.55	50.75	7.54	61.93	0.66	0.89
Labçal	spr	13.9	6.74	130.93	96.74	14.87	4.22	2.97	5.95	14.63	3.12	57.00	1.18	40.98	1.42	0.14
Rocha Alta	spr	16.7	6.34	337.43	80.19	18.56	18.16	5.62	23.86	22.38	4.01	173.08	5.56	62.63	2.33	0.66
Ribeira da Ponte	spr	15.4	6.59	140.64	89.13	13.92	4.72	3.08	5.29	17.50	4.76	43.00	11.09	26.49	0.48	1.31
Grota dos Lagos	spr	15.3	6.73	112.36	96.34	12.58	2.67	2.29	3.75	15.38	4.12	33.08	8.89	27.08	0.18	1.05
Anieiras	spr	13.0	6.43	92.49	87.53	11.45	2.18	1.90	4.78	11.71	2.11	37.18	3.03	32.04	n.d.	0.36
Espigão da Ponte	spr	13.2	7.43	115.57	105.20	10.90	4.43	2.33	7.52	13.00	2.82	53.08	0.31	40.76	n.d.	0.04
Água nova Lourais	spr	13.8	7.32	125.89	101.73	11.03	3.82	3.28	6.48	13.75	4.31	45.71	4.79	24.00	1.94	0.57
Lagoa Empadadas	spr	12.3	7.02	47.17	95.83	6.83	0.97	1.23	2.23	13.33	3.27	9.83	0.53	2.90	n.d.	0.06
Canário Poço	spr	12.5	7.41	120.21	98.22	15.24	3.43	4.97	3.74	15.75	3.06	45.25	1.79	44.53	1.57	0.21
Fonte Louro	spr	15.4	6.32	163.75	88.44	22.14	2.98	6.48	4.05	18.00	5.79	42.30	23.67	35.40	1.3	2.80
Moinhos I	spr	14.7	7.76	188.79	97.94	36.64	1.33	3.47	4.39	26.38	5.33	66.50	4.26	42.90	0.63	0.50
Moinhos Mosteiros	spr	15.4	7.70	347.69	101.45	53.36	6.16	10.08	7.46	53.43	11.14	81.45	25.62	58.81	0.57	3.03
Rocha de Stº Ant. I	spr	14.8	7.40	168.07	98.78	18.12	3.86	4.89	4.32	19.50	8.03	46.33	8.53	42.16	10.75	1.01
José do Canto	spr	13.7	7.13	129.43	108.58	18.45	1.89	4.47	2.01	19.33	4.55	34.83	1.40	37.78	3.99	0.17
Lomba da Erva	spr	12.6	7.61	96.82	113.72	9.73	2.21	1.80	5.57	12.33	1.88	40.50	0.02	29.73	n.d.	0.00
Nova Galego	spr	14.2	6.11	120.50	98.20	15.08	2.33	5.57	3.04	13.33	3.18	48.00	2.85	53.50	5.92	0.34
JK2	wll	16.7	6.97	323.73	97.50	41.68	10.55	10.36	9.05	29.59	10.88	90.13	50.73	55.90	245.80	6.00
Lagoa do conde 1	wll	16.0	7.49	243.92	90.49	21.85	8.04	7.97	5.62	26.92	7.50	75.30	9.34	48.38	864.00	1.10
AC1	wll	17.2	7.47	300.86	98.85	35.09	11.32	6.03	4.16	69.43	9.55	313.09	2.96	50.71	1296.00	0.35
Marques Britas	wll	18.2	7.20	446.00	99.51	45.03	12.40	24.64	10.00	61.43	16.36	70.67	66.21	38.95	48.00	7.83

	JK3	wll	17.2	7.10	1680.83	111.03	247.33	52.97	19.23	13.73	434.17	65.17	166.33	19.00	48.02	432.00	2.25
	Nasce água I	spr	15.2	6.94	140.75	109.83	20.05	2.17	4.05	2.42	22.40	3.98	38.50	4.95	47.30	6800.00	0.59
	Negrão de Cima	spr	12.5	7.36	116.00	100.55	15.50	2.00	4.30	1.10	19.00	3.75	18.50	11.00	43.50	80.00	1.30
	Areeiros I	spr	12.3	7.00	72.50	98.00	10.00	1.50	1.90	1.40	14.50	2.90	7.50	6.50	20.00	9.79	0.77
	Cerro	spr	14.9	6.60	95.65	107.90	11.45	1.56	3.02	2.22	18.20	3.13	17.25	2.21	25.39	160.00	0.26
	Furna do Cabrito	spr	14.1	7.23	127.50	109.58	23.28	1.49	2.60	1.38	15.20	3.59	47.88	2.73	39.05	3600	0.32
	Furna da água	spr	13.8	7.23	119.13	100.49	21.83	3.07	2.22	1.29	15.40	4.01	39.75	3.40	44.84	4500.00	0.40
	Fonte da Telha I	spr	15.7	6.62	126.00	107.74	16.20	2.23	2.71	2.32	22.80	3.90	18.63	11.13	30.35	50.00	1.32
	Rolo dos Moinhos	spr	15.9	6.95	174.50	110.75	30.71	2.25	3.13	2.29	24.40	6.41	40.75	15.38	44.46	864.00	1.82
	Alagoa	spr	16.5	7.36	249.13	110.64	41.18	3.32	5.44	3.28	41.80	8.19	40.75	27.50	65.83	650.00	3.25
	Frechas I	spr	14.0	8.13	184.38	100.28	47.10	0.94	3.01	1.23	18.20	4.25	92.88	4.19	81.94	167.00	0.49
	Bicas da Saúde III	spr	15.9	7.59	176.75	102.76	21.10	4.90	3.33	7.26	24.20	3.79	40.25	22.38	30.16	15.00	2.64
	Borges I	spr	16.5	7.03	188.67	101.12	26.38	3.39	4.41	3.14	35.67	8.27	20.33	15.67	42.35	40.00	1.85
	Cantaria	spr	16.0	7.07	212.42	92.27	28.45	4.31	4.97	4.31	17.33	3.90	26.83	12.33	45.38	26.67	1.46
	Terra Chã	wll	20.7	6.50	568.63	101.09	87.23	12.54	11.43	14.69	91.75	42.04	188.63	5.34	78.33	1397.95	0.63
	São Sebastião	wll	16.3	7.14	204.25	107.84	25.30	5.31	4.76	6.19	30.88	7.28	41.88	23.63	38.95	628.86	2.79
	Barreiro	wll	19.4	7.46	1136.25	114.30	171.63	23.56	7.34	30.64	340.38	34.75	71.88	11.00	47.71	643.64	1.30
	Covas	wll	17.2	6.92	629.13	119.14	96.45	12.03	6.57	13.54	155.00	16.34	83.38	10.95	56.95	653.28	1.29
	Areeiros I	wll	17.7	7.63	637.00	109.74	84.93	14.14	4.77	16.09	165.13	19.38	56.50	23.75	43.13	737.67	2.81
	Canada das Bicas	wll	17.7	7.66	646.38	111.58	92.24	14.86	4.93	15.60	177.50	19.36	61.00	7.55	36.11	1806.63	0.89
	Biscoitos	wll	17.8	5.95	211.00	98.35	41.60	5.36	4.89	6.78	16.50	4.55	90.50	5.00	78.25	n.d.	0.59
	Serra das Fontes	spr	17.8	7.64	500.00	101.54	51.54	11.64	20.86	13.17	126.25	9.70	48.57	16.00	29.77	11.89	1.89
	Tanques	spr	16.8	8.07	295.25	99.60	36.29	7.38	4.86	11.45	51.20	6.37	78.71	4.56	36.43	3.48	0.54
	Cova	spr	18.2	7.50	400.13	98.13	45.99	11.70	4.35	17.39	58.25	9.44	100.14	29.75	37.51	31.13	3.52
	JK1	wll	20.0	7.06	2536.00	101.66	366.50	59.28	18.38	37.50	741.60	86.25	109.75	26.40	40.45	804.62	3.12

	AC3	wll	22.6	7.48	2775.00	98.88	227.56	91.44	10.80	89.50	859.83	74.60	93.40	16.00	36.46	374.05	1.89
	ITC1	wll	23.3	7.69	1164.50	108.50	174.50	36.20	7.35	35.35	307.50	32.50	88.00	18.00	39.00	609.11	2.13
	JK5	wll	20.1	7.10	1149.00	105.30	318.00	44.00	13.00	33.00	480.00	64.00	86.00	25.00	36.00	381.28	2.96
SJZ	Abelheira II	spr	14.4	7.55	123.75	98.30	15.24	3.49	4.32	3.67	14.50	3.99	320.57	4.40	19.46	278.20	0.52
	Sete Fontes	spr	15.2	7.00	203.75	97.53	23.07	5.92	1.53	7.08	32.50	6.16	41.71	9.13	23.90	191.81	1.08
	Cabral III	spr	15.8	6.45	133.50	111.40	15.00	5.70	0.90	5.70	19.00	9.30	40.00	10.30	19.00	103.68	1.22
	Poujal II	spr	15.6	7.03	156.25	97.71	16.10	5.24	0.74	7.91	23.00	2.84	52.57	4.81	24.70	164.16	0.57
	Sete Fontes	spr	16.2	7.02	247.75	97.61	26.00	9.29	5.54	9.51	28.75	9.84	50.71	37.39	16.39	172.80	4.42
	Cancela de Água	spr	16.0	6.98	157.67	97.90	16.82	5.94	1.00	5.26	25.00	4.33	41.50	12.85	18.20	n.d.	1.52
	JK5	wll	20.1	7.10	1149.00	105.30	318.00	44.00	13.00	33.00	480.00	64.00	86.00	25.00	36.00	1000.00	0.43
PIC	Nossa Sr ^a -St ^o Amaro	spr	12.2	7.70	86.00	103.50	9.40	2.70	1.80	4.90	11.00	2.30	38.00	2.45	22.00	100.00	0.29
	Landroal de Cima	spr	14.0	7.73	72.99	97.18	7.95	2.04	1.66	3.77	9.61	1.49	31.90	0.08	17.09	70.00	0.01
	Cabeço de Lança	spr	14.6	7.70	98.50	89.14	10.18	2.62	1.59	4.54	12.26	3.13	39.00	1.36	20.25	61.00	0.16
	JK2	wll	14.4	7.22	882.00	94.38	140.40	20.89	9.93	15.19	203.42	27.10	130.30	1.69	42.95	189.23	0.20
	BSH1	wll	16.0	7.95	241.42	95.23	29.15	5.89	2.38	9.40	75.67	6.28	50.90	4.00	29.61	n.d.	0.47
	AC1	wll	14.0	7.47	1096.30	102.66	198.00	32.94	10.91	11.78	236.10	37.38	196.38	2.72	36.06	158.67	0.32
	BSH2cb	wll	13.9	7.35	1370.00	94.00	43.00	21.00	7.10	8.80	337.50	17.00	119.00	2.90	46.00	n.d.	0.34
	JK2	wll	14.8	7.82	961.33	93.44	177.80	19.65	8.36	10.73	274.67	40.80	38.80	2.93	25.55	739.73	0.35
	JK4	wll	16.2	7.79	1961.58	90.13	309.80	44.04	14.99	21.57	567.67	74.90	97.40	5.65	28.36	111.45	0.67
	ITC5	wll	15.4	7.06	676.25	92.45	108.42	32.88	7.08	16.71	122.75	45.20	142.90	2.50	36.49	199.57	0.30
	Criação Velha	wll	16.1	7.36	2111.67	113.60	404.00	61.60	18.77	13.65	446.00	59.20	477.17	5.02	33.45	405.07	0.59
	Ribeiras	wll	17.0	6.50	563.00	93.60	71.00	20.20	6.40	15.00	107.00	17.00	126.00	3.60	40.50	248.21	0.43
FAI	Canada Larga	spr	14.7	7.67	107.00	96.80	14.00	2.35	9.35	3.10	12.50	2.05	44.50	2.07	24.05	n.d.	0.24
	Castelhano GIII	spr	12.6	7.31	96.59	101.15	12.44	1.73	3.78	3.13	19.50	1.99	40.86	0.17	37.11	68.30	0.02
	Águas Claras 13	spr	12.8	6.91	85.26	99.94	10.81	1.88	3.91	1.99	12.25	2.33	32.57	0.26	28.47	72.50	0.03

	Águas Claras 10	spr	12.2	7.27	78.73	102.60	11.39	1.36	3.14	1.46	11.50	2.31	34.14	0.36	30.67	103.70	0.04
	Areias	spr	13.8	7.30	184.00	90.00	23.00	5.10	2.20	5.20	43.00	7.80	38.00	0.00	28.00	4.84	0.00
	Joana Alves	wll	15.5	7.79	207.25	101.68	31.67	3.77	4.53	4.43	35.50	23.87	60.33	3.23	38.00	559.43	0.38
	JK3	wll	16.7	6.73	1234.00	97.80	214.00	26.50	13.50	10.10	332.67	42.00	150.00	1.37	59.00	291.06	0.16
	AC3	wll	16.8	7.26	683.70	102.51	71.30	34.68	6.29	16.57	152.22	18.61	154.33	5.45	35.19	734.29	0.64
	AC1	wll	18.1	7.67	641.89	99.99	56.84	32.08	5.00	22.61	124.11	16.25	152.00	5.82	29.46	786.19	0.69
	JHF3	wll	15.7	8.07	127.67	106.43	17.00	3.10	3.55	4.70	15.67	2.85	51.50	1.77	29.50	1592.44	0.21
FLO	Ponta Delgada/Caldeira	spr	15.3	7.04	145.10	104.96	19.71	2.97	1.79	4.20	28.20	5.81	27.50	2.62	30.65	67.39	0.31
	Cedros II	spr	15.0	6.32	105.50	101.90	12.94	2.42	1.21	4.10	17.60	3.41	32.50	0.99	20.69	34.56	0.12
	Ribeira da Fazenda/Figueira	spr	15.2	6.78	140.50	124.68	18.03	3.36	1.27	5.51	28.75	3.65	30.00	2.52	24.75	n.d.	0.30
	Caveira	spr	15.2	7.41	138.22	114.68	14.46	4.41	1.37	8.41	17.80	3.45	53.88	1.57	25.97	76.03	0.19
	Ribeira das Lajes/Espigão	spr	14.9	7.00	151.90	110.82	16.01	5.60	1.31	6.24	22.60	3.78	52.00	3.16	18.54	86.40	0.37
	Ladeira dos Pinheiros ou Vale	spr	15.6	7.36	186.14	106.04	19.76	5.83	2.16	8.69	28.50	4.06	60.20	1.84	20.22	43.20	0.22
	Boca das Canadas/Covão	spr	14.7	6.88	122.10	107.35	15.49	3.92	1.34	4.82	20.40	3.10	32.63	2.70	19.56	31.10	0.32
	Costa do Lajedo/Cerrado	spr	14.9	7.23	202.10	109.94	24.08	4.11	4.15	6.78	37.00	6.06	52.50	1.98	57.65	201.13	0.23
	Lajedo	spr	14.4	7.51	179.90	106.37	25.96	3.04	3.98	4.50	38.40	5.45	35.50	0.60	47.49	50.98	0.07
	Caldeirões	spr	14.1	6.56	103.60	105.37	11.19	2.83	1.19	5.16	17.80	2.74	31.13	0.30	24.26	106.27	0.04
	Fajã Grande II	spr	16.1	7.61	233.00	103.81	25.93	6.68	2.70	11.93	38.80	6.08	75.50	2.18	28.50	319.17	0.26
	Ponte Ruiva	spr	14.2	6.83	157.67	104.27	19.00	5.27	1.32	9.30	17.00	4.00	70.67	1.13	28.90	12.18	0.13

	Veredas	spr	14.3	6.91	225.67	112.27	29.60	5.65	3.34	9.17	49.00	5.10	52.00	2.93	38.00	n.d.	0.35
	Fonte Velha	spr	15.3	7.12	315.50	106.93	43.34	7.09	2.83	7.23	71.25	8.53	43.43	5.39	31.99	61.30	0.64
COR	Tanque	spr	15.5	6.94	212.00	106.41	28.96	4.39	3.50	6.54	41.75	7.41	51.14	2.78	39.04	74.60	0.33
	Trevo	spr	15.8	7.01	182.13	105.68	21.39	3.74	1.22	4.78	37.25	5.03	29.86	2.70	18.39	24.60	0.32