Air Quality Data from the Spanish University Admission Exams in June 2021 at the University of A Coruña

Tomás Domínguez-Bolaño, Omar Campos,
Valentín Barral, Carlos J. Escudero, *Member, IEEE*,
and José A. García-Naya, *Senior Member, IEEE*

February 22, 2022

1 Introduction

This is the documentation for the dataset of the Aranet4 sensors data (CO_2, humidity, atmospheric pressure, and temperature) captured in the university admission exams in June 2021 at the University of A Coruña (UDC), Spain.

2 University Admission Exams

In Spain, students that want to get into university must pass the admission exams. The exams are organized by the governments of the different autonomous communities of Spain, and they are celebrated two times each year, first, an "ordinary examination", and second, an "extraordinary examination", intended for students that did not pass the exams the first time or that want to increase the grades obtained. These are written exams, with a duration of 90 minutes each, and which take place over a three days period

in the different universities of the autonomous communities, and, to a lesser extent, in high schools.

For the case of the autonomous community of Galicia (where the University of A Coruña is located), the university admission examination is called ABAU (from Galician "avaliación de bacharelato para o acceso á universidade"). In 2021, these exams were celebrated between June 8 and June 10 (the "ordinary examination" exams), and between July 13 and July 15 (the "extraordinary examination" exams). The published dataset includes the data for the "ordinary examination" exams between June 8 and June 10 of 2021. The timetable for these exams is shown in Table 1.

Time	Day 1: Tuesday, June 8th, 2021	Time	Day 2: Tuesday, June 9th, 2021	Day 3: Tuesday, June 9th, 2021
9:00 – 10:00	Presentation	9:00 – 10:30	Exam 2.1: Galician language and literature II	Exam 3.1: Biology / History of Art
10:00 – 11:30	Exam 1.1: History of Spain			
11:30 – 12:00	Break 1.1	10:30 – 11:00	Break 2.1	Break 3.1
12:00 – 13:30	Exam 1.2: Spanish language and literature II	11:00 – 12:30	Exam 2.2: First Foreign Language II	Exam 3.2: Physics / Geography / Audiovisual Culture II
13:30 – 15:30	Break 1.3	12:30 – 13:00	Break 2.2	Break 3.2
15:30 – 17:00	Exam 1.3: Mathematics Applied to Social Sciences / Fundamentals of art	13:00 – 14:30	Exam 2.3: Mathematics II / Latin	Exam 3.3: Geology / History of Philosophy
		14:30 – 16:00	Break 2.3	Break 3.3
		16:00 – 17:30	Exam 2.4: Technical Drawing II / Performing arts / Second Foreign Language II	Resolution of incidents
17:00 – 17:30	Break 1.4			
17:30 – 19:00	Exam 1.4: Business economics / Design	17:30 – 18:00	Break 2.4	
		18:00 – 19:30	Exam 2.5: Chemistry / Greek II	

Table 1: Timetable for the university admission exams in the autonomous community of Galicia for the year 2021. Times are in UTC+2.

3   Monitored buildings and classrooms

In Fig. 1 we show in detail a map with the different buildings of the University of A Coruña were the 2021 university admission exams took place. The University of A Coruña has buildings in two cities, A Coruña, and Ferrol, located in the northwest of the Iberian Peninsula as shown in map A of Fig. 1. These are small cities, having as of 2018 244,850 and 66,799 inhabitants, respectively. Map B of Fig. 1 shows a closer look at the region of the Iberian Peninsula where the cities of A Coruña and Ferrol are located, it can be seen
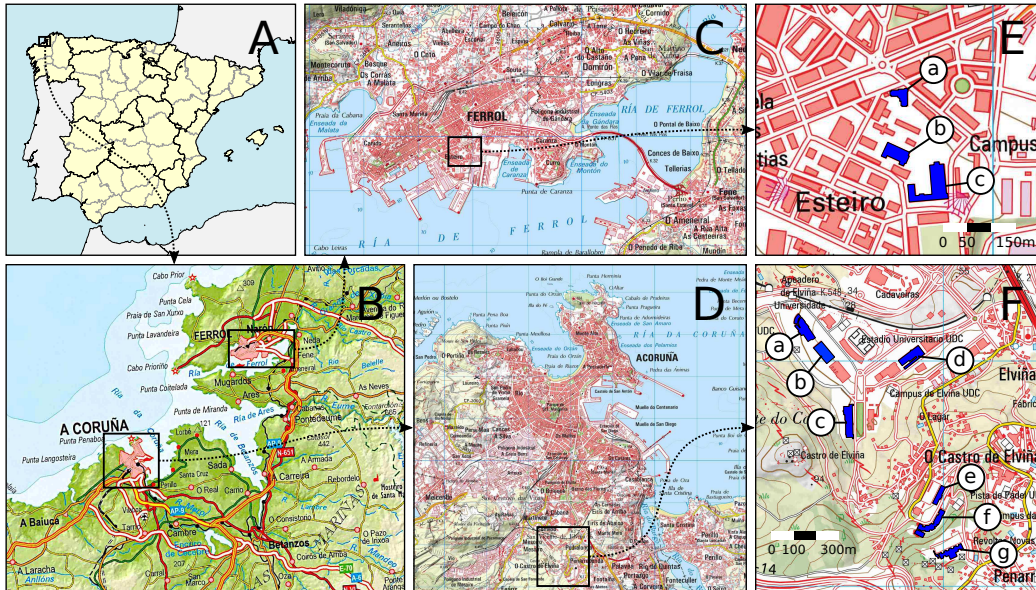
Figure 1: Map showing the location of the University of A Coruña buildings were the 2021 university admission exams took place.

that both cities are relatively close to each other. In Ferrol, buildings of the Esteiro campus were used for the examinations. Map C of Fig. 1 shows a detailed view of the city of Ferrol and the location of the Esteiro campus. In the city of A Coruña, the Elviña campus and the Zapateira campus were used. Map D of Fig. 1 shows a detailed view of the city of A Coruña and the location of the campuses, they are close to each other in the southern outskirts of the city. Finally, maps E and F in Fig. 1 show a closeup of the buildings used in the university admission exams in the cities of Ferrol and A Coruña, respectively. In these two maps, buildings used are marked in blue color and labeled with letters. For the city of A Coruña, the buildings in map F of Fig. 1 are:

a) Faculty of Educational Studies

b) Faculty of Law

c) Faculty of Economics and Business

d) School of Civil Engineering

e) University College of Technical Architecture

f) Faculty of Science

3

g) Faculty of Philology

whereas for the city of Ferrol, the buildings in map E of Fig. 1 are:

a) Faculty of Nursing and Podiatry

b) Faculty of Humanities and Documentation

c) Higher Polytechnic University College

Table 2 shows the data for all the classrooms where sensors were placed, indicating the city, the sensor name, the building, the classroom area in m^2, the volume in m^3, and the maximum occupancy.

4   Dataset Files

The dataset files are included in the file `abau_udc_sensors_data.zip`. In this file, we provide one file per sensor with the gathered data between 8:00 (UTC+2) of June 8, 2021 and 20:30 (UTC+2) of June 10, 2021. The data are in CSV format and include the time, the CO_2 (ppm), the humidity (%), the atmospheric pressure (hPa), and the temperature (°C). Note that times in the data are in UTC. The files are named with format `data_abc.csv`, where `abc` is the name of the sensor as shown in Table 2 without the dot. Hence, for example, the data for sensor 1.01 is provided in file `data_101.csv`.

City	Building	Classroom	Sensor name	Area (m^2)	Volume (m^3)	Maximum occupancy
A Coruña (Fig. 1.F)	Faculty of Educational Studies (*a*)	-1.1	1.09	101.3	335.40	22
		1.2	1.05	101.29	336.99	19
		1.6	1.06	202.9	676.67	48
		2.1	1.10	102.26	349.42	23
		2.4	1.07	101.25	345.46	22
		2.7	1.14	121.16	414.85	28
	Faculty of Law (*b*)	4A	1.03	108.75	320.16	19
		5	1.02	178.54	532.76	38
		6	1.01	178.54	530.44	42
		8	1.04	121.04	359.60	25
	Faculty of Economics and Business (*c*)	1.5	1.22	141.63	682.01	33
		1.7	1.23	140.28	675.51	31
		2.6	1.24	142.27	738.02	33
	School of Civil Engineering (*d*)	DC	1.19	375.83	1175.97	80
		AH	1.11	183.28	497.60	29
		1	1.18	183.28	531.14	49
		2	1.17	183.51	532.17	44
		3	1.16	183.51	529.60	45
		4	1.15	186.5	538.05	48
		5	1.13	90.87	262.52	22
	University College of Technical Architecture (*e*)	DC beginning	1.51	226.10	699.73	150
		DC middle	1.48	307.37	953.22	150
		2.1	1.49	96.55	277.29	32
		2.5	1.50	49.57	143.45	
		2.7	1.47	98.26	284.36	37
	Faculty of Science (*f*)	2	1.42	93.78	372.49	19
		4	1.41	106.8	422.50	19
		8	1.43	93.83	373.34	20
		10	1.44	87.77	346.69	21
		12	1.45	92.92	360.52	19
	Faculty of Philology (*g*)	1.3	1.55	67.66	199.86	20
		2.3	1.52	135.81	648.49	71
		2.7	1.53	135.29	657.51	38
Ferrol (Fig. 1.E)	F. of Nursing and Podiatry (*a*)	1.1	1.27	131.51	394.79	33
		1.2	1.29	128.82	388.90	28
	Faculty of Humanities and Documentation (*b*)	AH	1.30	201.68	1260.29	52
		1.5	1.33	73.44	243.23	14
		2.1	1.35	108	408.56	24
		2.2	1.37	112.08	430.72	24
	Higher Polytechnic University College (*c*)	02	1.36	101.76	341.40	10
		12	1.32	93.88	283.32	27
		13	1.38	101.82	306.98	29
		14	1.31	125.14	420.34	43
		15	1.28	163.84	548.04	58

Table 2: Classroom data (DC stands for drawing classroom, AH stands for assembly hall).