

CÓMO ANALIZAR LOS RESULTADOS (CSV)



Guidelines for analysing SOCIO-BEE data

¿QUÉ VOY A APRENDER?

En esta guía le guiaremos a través del proceso de análisis de los datos SOCIO-BEE y su representación gráfica.

Aprenderá a descargar, importar, comprender, manipular y trazar datos SOCIO-BEE basándose en hipótesis de ejemplo específicas.

Esto mejorará su comprensión de cómo trabajar con datos de calidad del aire y cómo identificar el tipo correcto de datos para validar su hipótesis.

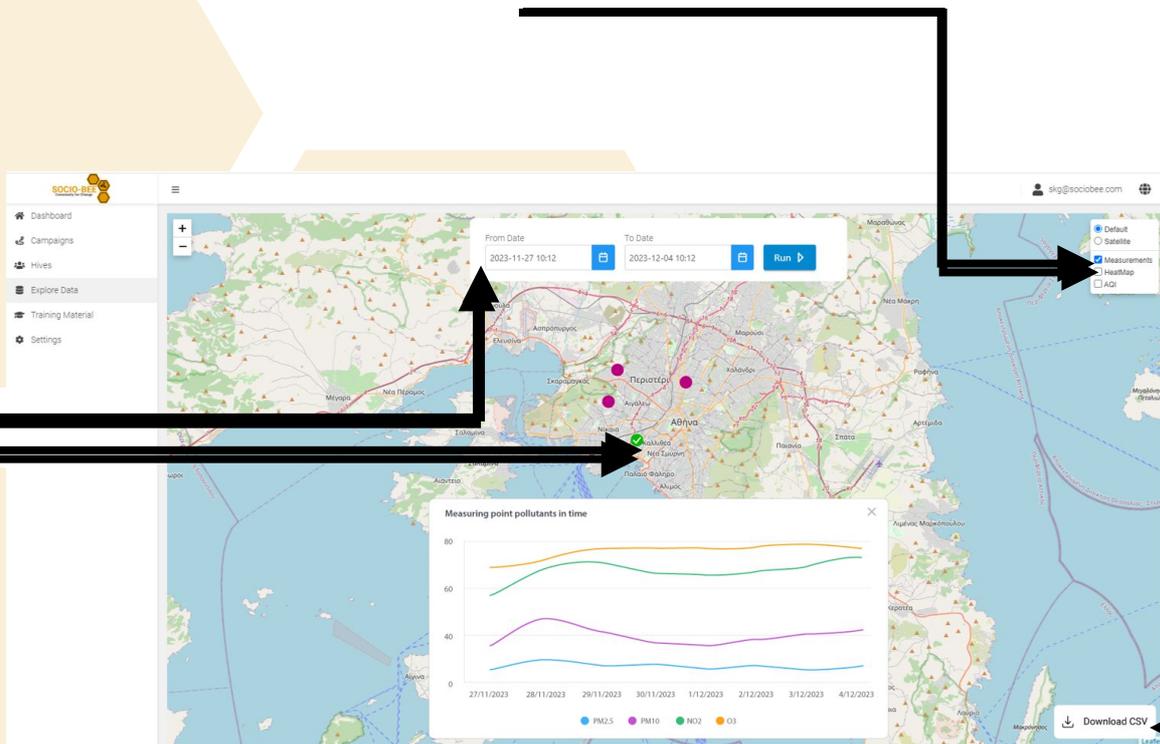
Estas directrices se refieren al uso de Microsoft Excel para analizar los datos, pero siéntase libre de utilizar otro software como OriginLab, MATLAB o R.



¿CÓMO PUEDE DESCARGAR LOS DATOS?

Puede descargar los datos de calidad del aire de SOCIO-BEE de las estaciones de control oficiales y de las campañas en formato CSV.

Para descargar los datos de una estación, vaya a la pestaña "Explorar datos" (izquierda) del menú principal y seleccione "Mediciones" (arriba a la derecha).

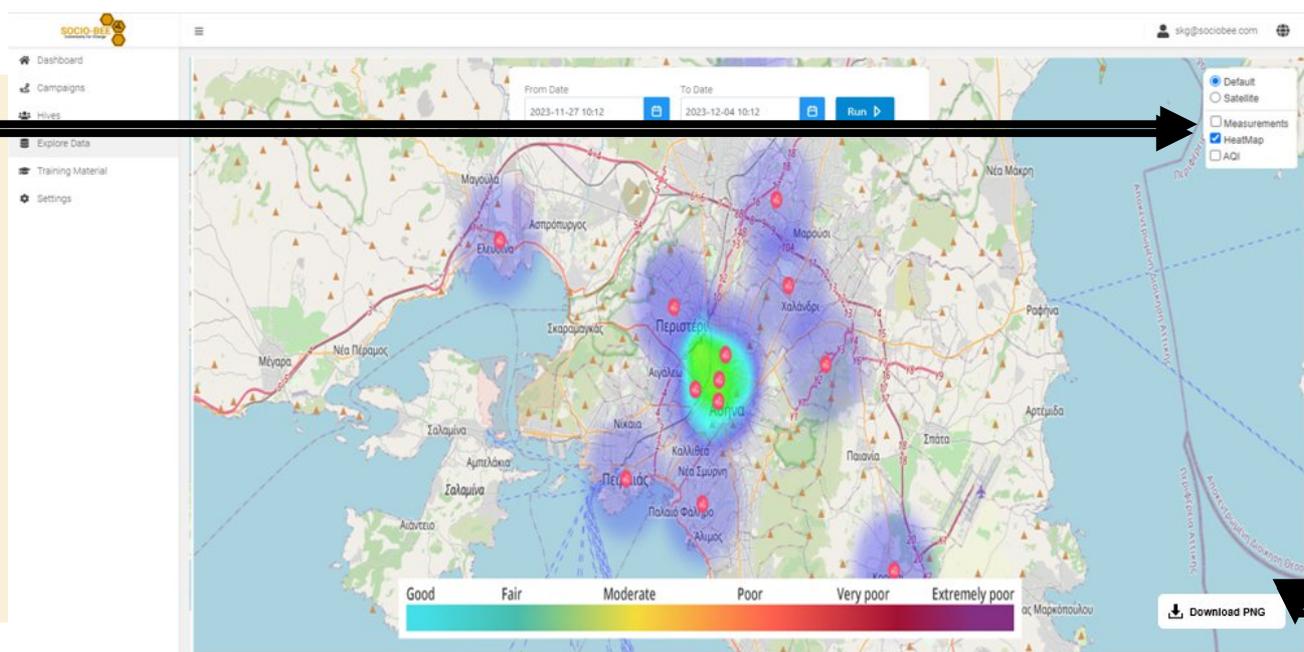


Selecciona la(s) estación(es) e introduce la(s) fecha(s) de la(s) que te interesa obtener datos.

Pulse el botón "Descargar CSV" (abajo a la derecha) y compruebe la carpeta de descarga.

¿CÓMO PUEDE DESCARGAR LOS DATOS?

También puede descargar una captura de pantalla del mapa de calor de SOCIO-BEE en formato PNG.



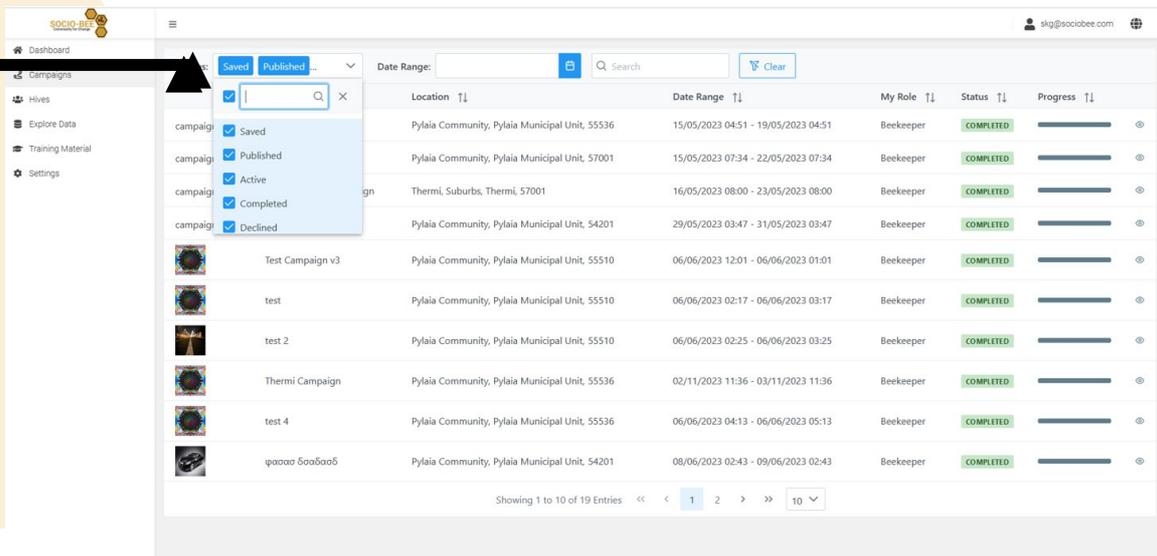
Para ello, primero tienes que cambiar a la vista de mapa de calor haciendo clic en la opción "Mapa de calor" (arriba a la derecha).

A continuación, pulsa el botón "Descargar PNG" (abajo a la derecha) y comprueba tu carpeta de descargas.

¿CÓMO PUEDE DESCARGAR LOS DATOS?

¿Cómo puede

Para descargar los datos de una campaña, vaya a la pestaña "Campañas" (izquierda) del menú principal y seleccione una de las campañas de la lista.



The screenshot shows the SOCIO-BEE dashboard with the 'Campañas' menu item selected. A dropdown filter menu is open, showing options: Saved, Published, Active, Completed, and Declined. The main table lists campaigns with columns for Location, Date Range, My Role, Status, and Progress. All listed campaigns have a status of 'COMPLETED' and a progress bar. An eye icon is visible at the end of each row.

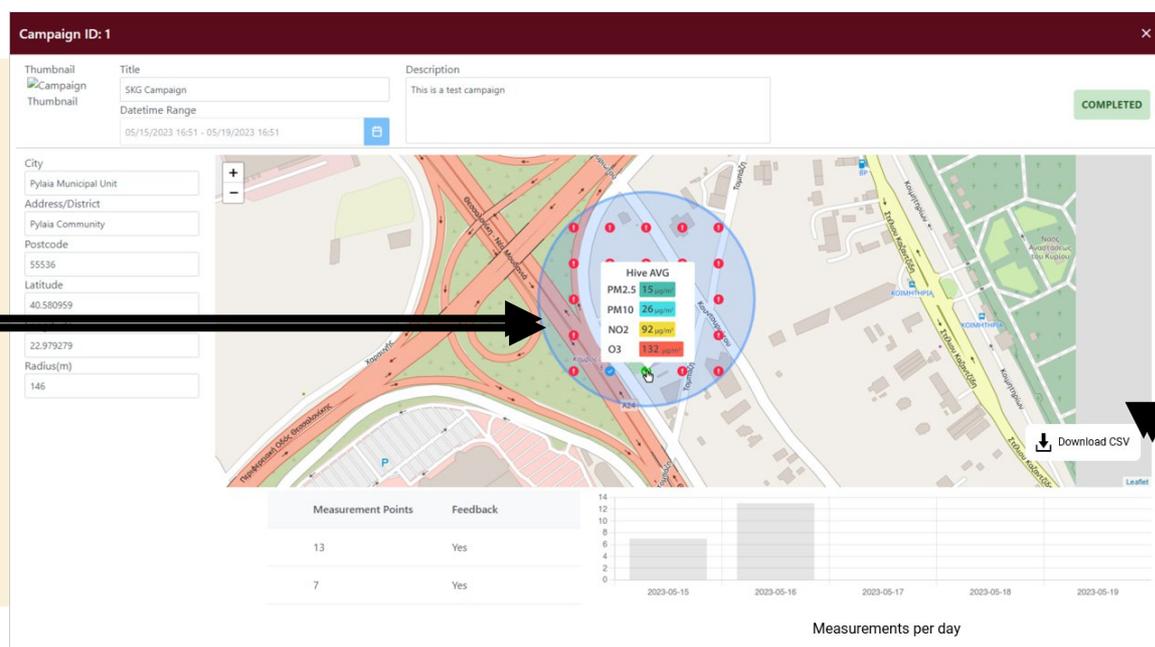
Location	Date Range	My Role	Status	Progress
Pylaia Community, Pylaia Municipal Unit, 55536	15/05/2023 04:51 - 19/05/2023 04:51	Beekeeper	COMPLETED	100%
Pylaia Community, Pylaia Municipal Unit, 57001	15/05/2023 07:34 - 22/05/2023 07:34	Beekeeper	COMPLETED	100%
Thermi, Suburbs, Thermi, 57001	16/05/2023 08:00 - 23/05/2023 08:00	Beekeeper	COMPLETED	100%
Pylaia Community, Pylaia Municipal Unit, 54201	29/05/2023 03:47 - 31/05/2023 03:47	Beekeeper	COMPLETED	100%
Test Campaign v3	06/06/2023 12:01 - 06/06/2023 01:01	Beekeeper	COMPLETED	100%
test	06/06/2023 02:17 - 06/06/2023 03:17	Beekeeper	COMPLETED	100%
test 2	06/06/2023 02:25 - 06/06/2023 03:25	Beekeeper	COMPLETED	100%
Thermi Campaign	02/11/2023 11:36 - 03/11/2023 11:36	Beekeeper	COMPLETED	100%
test 4	06/06/2023 04:13 - 06/06/2023 05:13	Beekeeper	COMPLETED	100%
φρασας διαδοσας	08/06/2023 02:43 - 09/06/2023 02:43	Beekeeper	COMPLETED	100%

Puede filtrar las campañas por su estado actual o por fecha.

Haga clic en el símbolo del ojo (derecha) para ver la campaña.

¿CÓMO PUEDE DESCARGAR LOS DATOS?

Puede ver mediciones específicas en la campaña seleccionada haciendo clic en un punto de medición del mapa.



Campaign ID: 1

Thumbnail: Campaign
Title: SKG Campaign
Description: This is a test campaign
Datetime Range: 05/15/2023 16:51 - 05/19/2023 16:51

City: Pylaia Municipal Unit
Address/District: Pylaia Community
Postcode: 55536
Latitude: 40.580959
Longitude: 22.979279
Radius(m): 146

Hive AVG
PM2.5: 15 µg/m³
PM10: 26 µg/m³
NO2: 92 µg/m³
O3: 132 µg/m³

Measurement Points	Feedback
13	Yes
7	Yes

Measurements per day

Download CSV

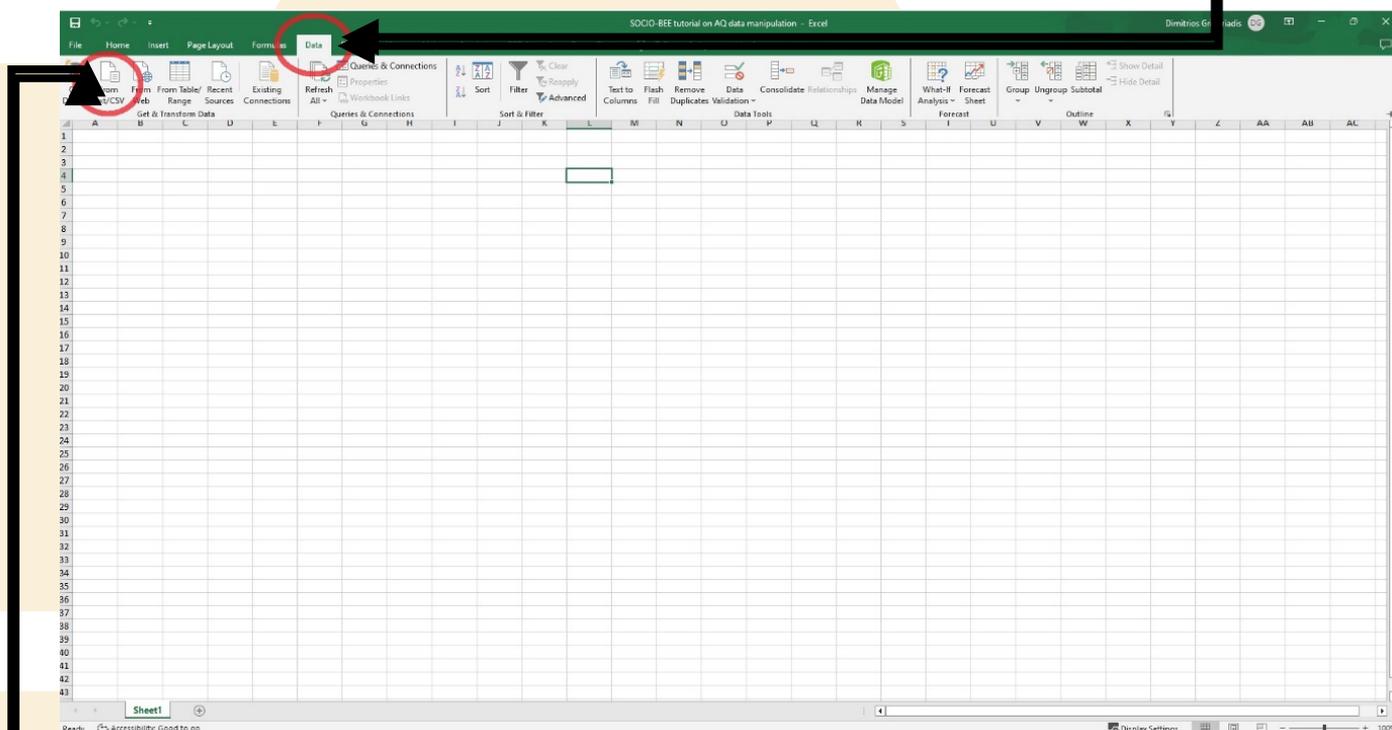
Para descargar un archivo CSV con todos los datos recogidos en la campaña, pulse el botón "Descargar CSV" (derecha).

¿CÓMO IMPORTAR LOS DATOS A EXCEL?

Cuando descargue los datos, obtendrá un archivo en su carpeta de descargas con la terminación .csv. Se trata de un archivo que contiene todos los datos representados en el mapa durante las fechas seleccionadas como valores separados por comas (CSV).

Para analizar y trazar estos datos con el fin de extraer información más específica, necesitarás un software de análisis de datos con funciones de trazado. Uno muy común es Microsoft Excel y Google Sheets para gráficos más sencillos.

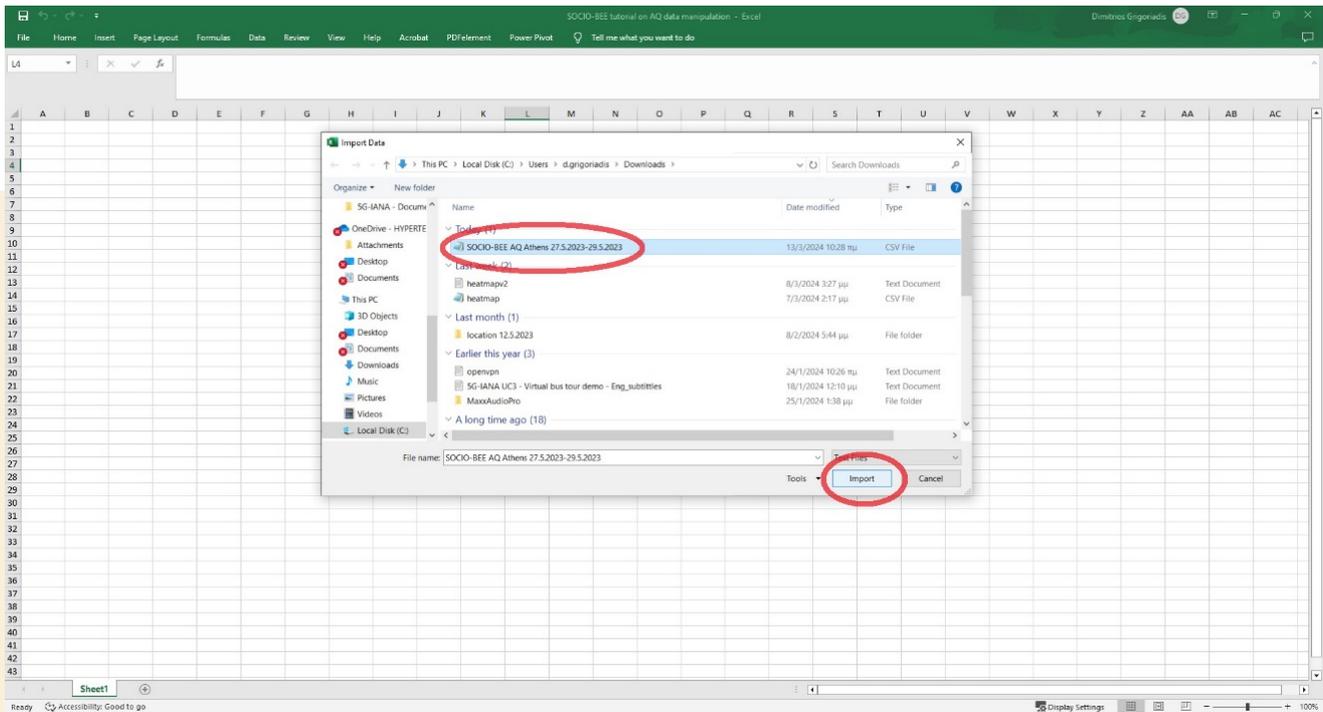
Para importar el archivo CSV descargado, abra primero una hoja de Excel vacía y vaya a la pestaña "Datos".



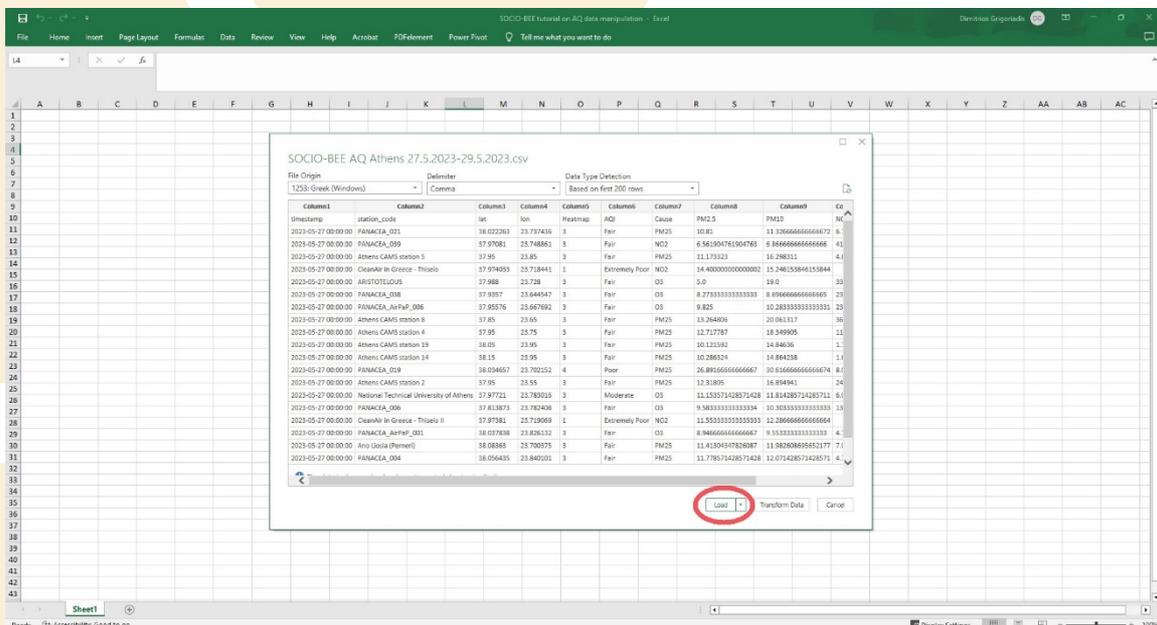
A continuación, seleccione "Desde texto/CSV".

¿CÓMO IMPORTAR LOS DATOS A EXCEL?

Navega por tu carpeta de descargas y selecciona el archivo CSV para importarlo a la hoja de cálculo.



Revisa el formato en el que se importarán los datos a tu hoja de cálculo y pulsa 'Cargar'.





¿CÓMO IMPORTAR LOS DATOS A EXCEL?

Los datos se importan a la hoja de cálculo.

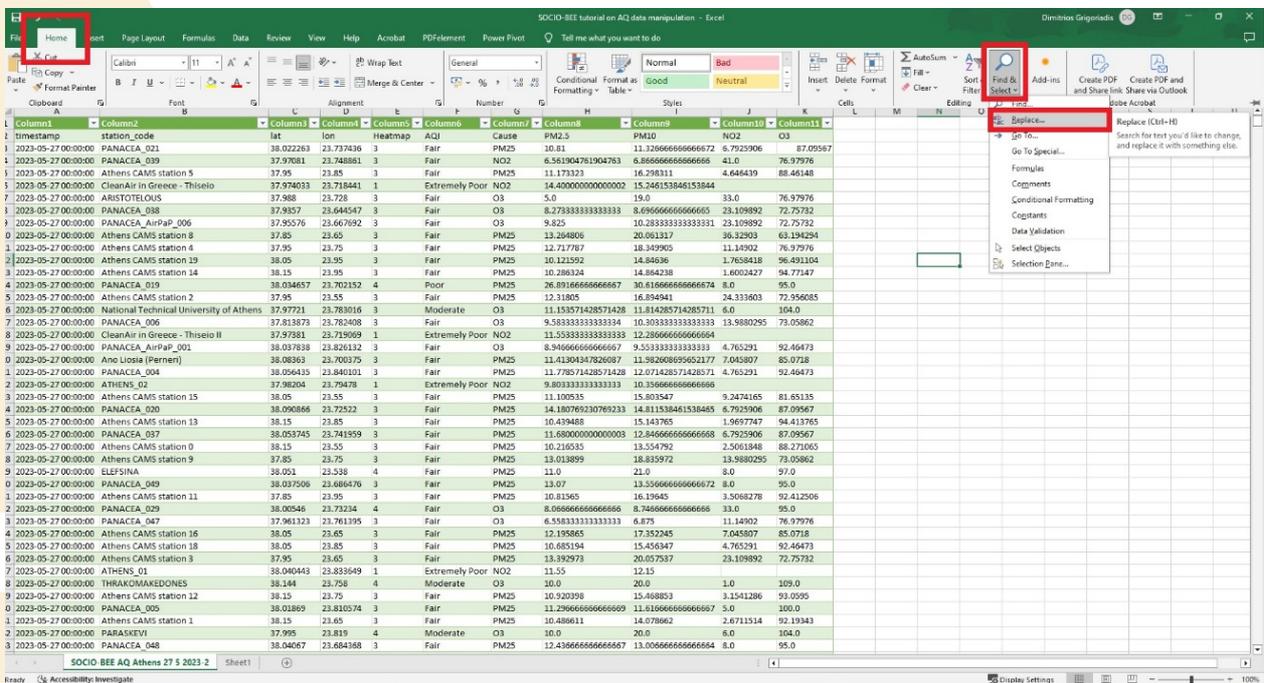
Column1	Column2	Column3	Column4	Column5	Column6	Column7	Column8	Column9	Column10	Column11	
1	timestamp	station_code	lat	lon	Heatmap	AQI	Cause	PM2.5	PM10	NO2	O3
2	2023-05-27 00:00:00	PANACEA_021	38.022623	23.737436	3	Fair	PM25	10.81	11.2666666666667	6.7925906	87.09567
3	2023-05-27 00:00:00	PANACEA_039	37.97081	23.748861	3	Fair	NO2	5.561904761904763	6.866666666666667	41.0	76.97976
4	2023-05-27 00:00:00	Athens CAMS station 5	37.95	23.85	3	Fair	PM25	11.173323	16.29311	4.646439	88.46148
5	2023-05-27 00:00:00	CleanAir in Greece - Thisio	37.974033	23.718441	1	Extremely Poor	NO2	14.400000000000002	15.246153846153844		
6	2023-05-27 00:00:00	ARISTOTELOUS	37.988	23.728	3	Fair	O3	5.0	15.0	33.0	76.97976
7	2023-05-27 00:00:00	PANACEA_038	37.9537	23.644547	3	Fair	O3	8.273333333333333	8.696666666666667	23.109892	72.75732
8	2023-05-27 00:00:00	PANACEA_AirPaP_006	37.95576	23.667692	3	Fair	O3	9.825	10.283333333333333	23.109892	72.75732
9	2023-05-27 00:00:00	Athens CAMS station 8	37.85	23.65	3	Fair	PM25	13.264806	20.061317	36.32903	63.194294
10	2023-05-27 00:00:00	Athens CAMS station 4	37.95	23.75	3	Fair	PM25	12.71787	18.349905	11.14902	76.97976
11	2023-05-27 00:00:00	Athens CAMS station 19	38.00	23.93	3	Fair	PM25	10.121952	14.84636	1.7658418	76.97976
12	2023-05-27 00:00:00	Athens CAMS station 14	38.15	23.95	3	Fair	PM25	10.286324	14.846328	1.6002427	94.77147
13	2023-05-27 00:00:00	PANACEA_019	38.034657	23.702152	4	Poor	PM25	26.891666666666667	30.616666666666674	8.0	95.0
14	2023-05-27 00:00:00	Athens CAMS station 2	37.95	23.55	3	Fair	PM25	12.31805	16.894941	24.333603	72.56085
15	2023-05-27 00:00:00	National Technical University of Athens	37.97721	23.783016	3	Moderate	O3	11.535714285714288	11.814285714285711	6.0	104.0
16	2023-05-27 00:00:00	PANACEA_006	37.813873	23.782408	3	Fair	O3	9.583333333333334	10.303333333333333	13.9880295	73.05862
17	2023-05-27 00:00:00	CleanAir in Greece - Thisio II	37.97381	23.719069	1	Extremely Poor	NO2	11.553333333333333	12.286666666666667		
18	2023-05-27 00:00:00	PANACEA_AirPaP_001	38.037838	23.826132	3	Fair	O3	8.946666666666667	9.533333333333333	4.765291	92.46473
19	2023-05-27 00:00:00	Ano Liosia (Perrier)	38.08363	23.700375	3	Fair	PM25	11.41304347826087	11.98260869552177	7.045807	85.0718
20	2023-05-27 00:00:00	PANACEA_004	38.056435	23.840101	3	Fair	PM25	11.778571428571428	12.071428571428571	4.765291	92.46473
21	2023-05-27 00:00:00	Athens CAMS station 15	37.98204	23.79478	1	Extremely Poor	NO2	9.803333333333333	10.356666666666667		
22	2023-05-27 00:00:00	Athens CAMS station 15	38.05	23.55	3	Fair	PM25	11.100335	15.803347	9.2474165	81.65135
23	2023-05-27 00:00:00	PANACEA_020	38.090866	23.72522	3	Fair	PM25	14.180769230769233	14.811538461538465	6.7925906	87.09567
24	2023-05-27 00:00:00	Athens CAMS station 13	38.15	23.85	3	Fair	PM25	10.439488	15.143765	1.9697747	94.413765
25	2023-05-27 00:00:00	PANACEA_037	38.053745	23.741959	3	Fair	PM25	11.680000000000003	12.846666666666668	6.7925906	87.09567
26	2023-05-27 00:00:00	Athens CAMS station 0	38.15	23.55	3	Fair	PM25	10.216335	13.354792	2.5061848	88.271065
27	2023-05-27 00:00:00	Athens CAMS station 9	37.85	23.75	3	Fair	PM25	13.013899	18.835972	13.9880295	73.05862
28	2023-05-27 00:00:00	ELFSINA	38.051	23.538	4	Fair	PM25	11.0	21.0	8.0	97.0
29	2023-05-27 00:00:00	PANACEA_049	38.037506	23.686476	3	Fair	PM25	13.07	13.556666666666672	8.0	95.0
30	2023-05-27 00:00:00	Athens CAMS station 11	37.83	23.95	3	Fair	PM25	10.81565	16.19645	3.5068278	92.412506
31	2023-05-27 00:00:00	PANACEA_029	38.00546	23.72324	4	Fair	O3	8.066666666666667	8.746666666666667	33.0	95.0
32	2023-05-27 00:00:00	Athens CAMS station 16	37.961323	23.761395	3	Fair	O3	6.558333333333333	6.875	11.14902	76.97976
33	2023-05-27 00:00:00	Athens CAMS station 16	38.05	23.65	3	Fair	PM25	12.159865	17.352245	7.045807	85.0718
34	2023-05-27 00:00:00	Athens CAMS station 18	38.05	23.85	3	Fair	PM25	10.685194	15.456347	4.765291	92.46473
35	2023-05-27 00:00:00	Athens CAMS station 3	37.95	23.65	3	Fair	PM25	13.392973	20.057537	23.109892	72.75732
36	2023-05-27 00:00:00	Athens CAMS station 3	38.04443	23.83649	1	Extremely Poor	NO2	11.5	12.15		
37	2023-05-27 00:00:00	ATHENS_01	38.144	23.758	4	Moderate	O3	10.0	20.0	1.0	109.0
38	2023-05-27 00:00:00	Athens CAMS station 12	38.15	23.75	3	Fair	PM25	10.920398	15.488853	3.1541286	93.0595
39	2023-05-27 00:00:00	PANACEA_005	38.01869	23.810574	3	Fair	PM25	11.296666666666669	11.616666666666667	5.0	100.0
40	2023-05-27 00:00:00	Athens CAMS station 1	38.15	23.65	3	Fair	PM25	10.486611	14.078662	2.6711514	92.19343
41	2023-05-27 00:00:00	PARASKEVI	37.995	23.819	4	Moderate	O3	10.0	20.0	6.0	104.0
42	2023-05-27 00:00:00	PANACEA_048	38.04067	23.684368	3	Fair	PM25	12.436666666666667	13.006666666666664	8.0	95.0

Dependiendo del software que utilice, puede experimentar errores al importar sus datos. Su configuración por defecto puede confundir el signo "." en los datos. Cuando esto ocurre, el software posiciona los números de tus datos a la izquierda de la celda.

Column1	Column2	Column3	Column4	Column5	Column6	Column7	Column8	Column9	Column10	Column11	
1	timestamp	station_code	lat	lon	Heatmap	AQI	Cause	PM2.5	PM10	NO2	O3
2	2023-05-27 00:00:00	PANACEA_021	38.022623	23.737436	3	Fair	PM25	10.81	11.2666666666667	6.7925906	87.09567
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5	2023-05-27 00:00:00	CleanAir in Greece - Thisio	37.974033	23.718441	1	Extremely Poor	NO2	14.400000000000002	15.246153846153844		
6	2023-05-27 00:00:00	ARISTOTELOUS	37.988	23.728	3	Fair	O3	5.0	15.0	33.0	76.97976
7	2023-05-27 00:00:00	PANACEA_038	37.9537	23.644547	3	Fair	O3	8.273333333333333	8.696666666666667	23.109892	72.75732
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12	2023-05-27 00:00:00	Athens CAMS station 14	38.15	23.95	3	Fair	PM25	10.286324	14.846328	1.6002427	94.77147
13	2023-05-27 00:00:00	PANACEA_019	38.034657	23.702152	4	Poor	PM25	26.891666666666667	30.616666666666674	8.0	95.0
14	2023-05-27 00:00:00	Athens CAMS station 2	37.95	23.55	3	Fair	PM25	12.31805	16.894941	24.333603	72.56085
15	2023-05-27 00:00:00	National Technical University of Athens	37.97721	23.783016	3	Moderate	O3	11.535714285714288	11.814285714285711	6.0	104.0
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17	2023-05-27 00:00:00	CleanAir in Greece - Thisio II	37.97381	23.719069	1	Extremely Poor	NO2	11.553333333333333	12.286666666666667		
18	2023-05-27 00:00:00	PANACEA_AirPaP_001	38.037838	23.826132	3	Fair	O3	8.946666666666667	9.533333333333333	4.765291	92.46473
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21	2023-05-27 00:00:00	Athens CAMS station 15	37.98204	23.79478	1	Extremely Poor	NO2	9.803333333333333	10.356666666666667		
22	2023-05-27 00:00:00	Athens CAMS station 15	38.05	23.55	3	Fair	PM25	11.100335	15.803347	9.2474165	81.65135
23	2023-05-27 00:00:00	PANACEA_020	38.090866	23.72522	3	Fair	PM25	14.180769230769233	14.811538461538465	6.7925906	87.09567
24	2023-05-27 00:00:00	Athens CAMS station 13	38.15	23.85	3	Fair	PM25	10.439488	15.143765	1.9697747	94.413765
25	2023-05-27 00:00:00	PANACEA_037	38.053745	23.741959	3	Fair	PM25	11.680000000000003	12.846666666666668	6.7925906	87.09567
26	2023-05-27 00:00:00	Athens CAMS station 0	38.15	23.55	3	Fair	PM25	10.216335	13.354792	2.5061848	88.271065
27	2023-05-27 00:00:00	Athens CAMS station 9	37.85	23.75	3	Fair	PM25	13.013899	18.835972	13.9880295	73.05862
28	2023-05-27 00:00:00	ELFSINA	38.051	23.538	4	Fair	PM25	11.0	21.0	8.0	97.0
29	2023-05-27 00:00:00	PANACEA_049	38.037506	23.686476	3	Fair	PM25	13.07	13.556666666666672	8.0	95.0
30	2023-05-27 00:00:00	Athens CAMS station 11	37.83	23.95	3	Fair	PM25	10.81565	16.19645	3.5068278	92.412506
31	2023-05-27 00:00:00	PANACEA_029	38.00546	23.72324	4	Fair	O3	8.066666666666667	8.746666666666667	33.0	95.0
32	2023-05-27 00:00:00	Athens CAMS station 16	37.961323	23.761395	3	Fair	O3	6.558333333333333	6.875	11.14902	76.97976
33	2023-05-27 00:00:00	Athens CAMS station 16	38.05	23.65	3	Fair	PM25	12.159865	17.352245	7.045807	85.0718
34	2023-05-27 00:00:00	Athens CAMS station 18	38.05	23.85	3	Fair	PM25	10.685194	15.456347	4.765291	92.46473
35	2023-05-27 00:00:00	Athens CAMS station 3	37.95	23.65	3	Fair	PM25	13.392973	20.057537	23.109892	72.75732
36	2023-05-27 00:00:00	Athens CAMS station 3	38.04443	23.83649	1	Extremely Poor	NO2	11.5	12.15		
37	2023-05-27 00:00:00	ATHENS_01	38.144	23.758	4	Moderate	O3	10.0	20.0	1.0	109.0
38	2023-05-27 00:00:00	Athens CAMS station 12	38.15	23.75	3	Fair	PM25	10.920398	15.488853	3.1541286	93.0595
39	2023-05-27 00:00:00	PANACEA_005	38.01869	23.810574	3	Fair	PM25	11.296666666666669	11.616666666666667	5.0	100.0
40	2023-05-27 00:00:00	A									

¿CÓMO IMPORTAR LOS DATOS A EXCEL?

Para solucionarlo, ve a la pestaña 'Inicio' (arriba a la izquierda). Pulsa "Buscar y seleccionar" y luego "Reemplazar". O simplemente pulsa Ctrl+H.



Se abrirá una ventana en la que podrá buscar y sustituir cualquier elemento de sus datos. Inserta el signo '.' en ambos cuadros de texto y selecciona 'Reemplazar todo'.



¿CÓMO IMPORTAR LOS DATOS A EXCEL?

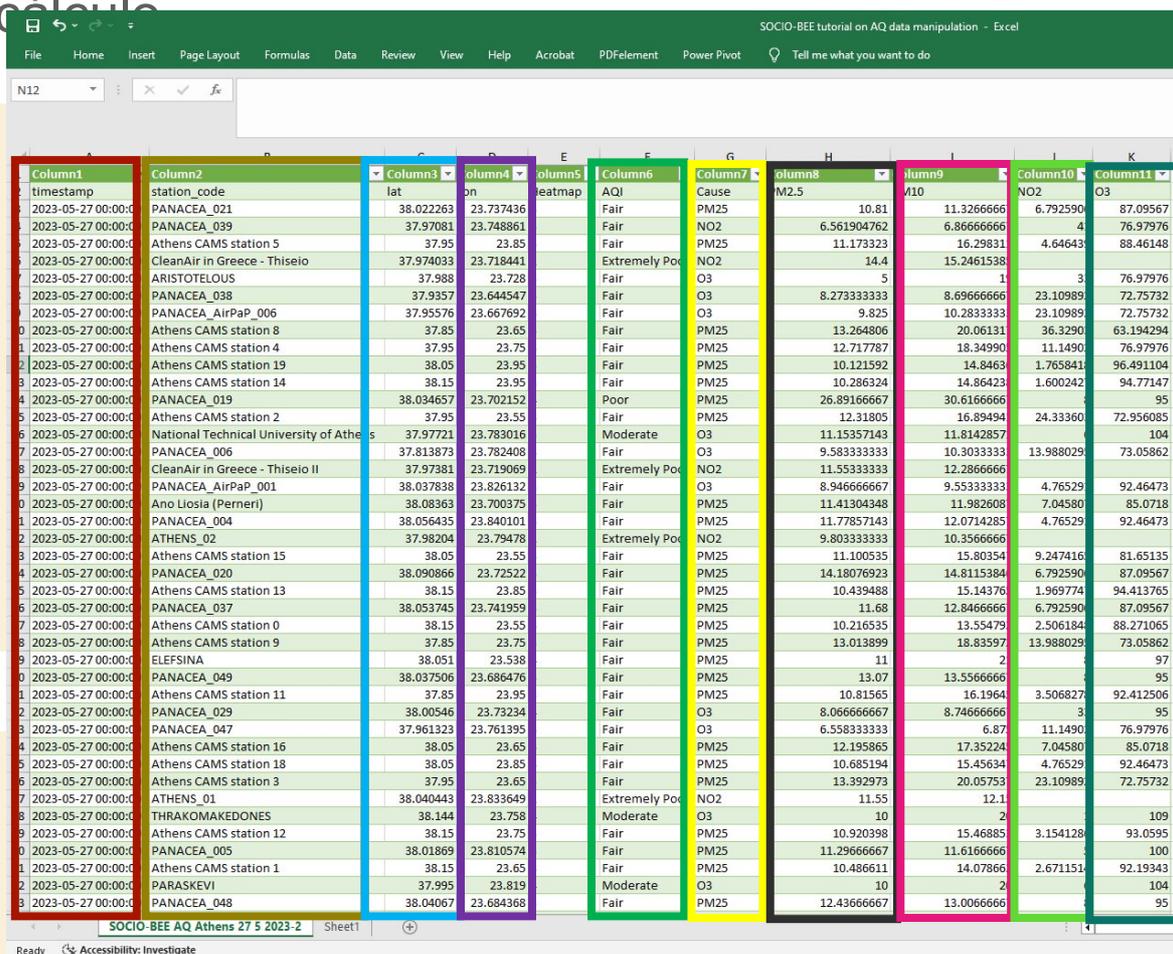
Column1	Column2	Column3	Column4	Column5	Column6	Column7	Column8	Column9	Column10	Column11
timestamp	station_code	lat	lon	Heatmap	AQI	Cause	PM2.5	PM10	NO2	O3
2023-05-27 00:00:00	PANACEA_021	38.022263	23.737436	3	Fair	PM25	10.81	11.3266666666667	6.7925906	87.09567
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2023-05-27 00:00:00	CleanAir in Greece - Thiseio	37.974033	23.718441	1	Extremely Poor	NO2	14.4	15.24613385		
2023-05-27 00:00:00	ARISTOTELEOUS	37.988	23.728	3	Fair	O3	5	15	15	76.97976
2023-05-27 00:00:00	PANACEA_038	37.9357	23.64547	3	Fair	O3	8.273333333	8.096666667	23.10592	72.75732
2023-05-27 00:00:00	PANACEA_AirPap_006	37.95576	23.66792	3	Fair	O3	9.825	10.28333333	23.10592	72.75732
2023-05-27 00:00:00	Athens CAMS station 8	37.85	23.65	3	Fair	PM25	13.264906	20.061317	36.32903	63.194294
2023-05-27 00:00:00	Athens CAMS station 4	37.95	23.75	3	Fair	PM25	12.71787	18.34905	11.14902	76.97976
2023-05-27 00:00:00	Athens CAMS station 19	38.05	23.95	3	Fair	PM25	10.121592	14.84636	17.86818	96.491104
2023-05-27 00:00:00	Athens CAMS station 14	38.15	23.55	3	Fair	PM25	10.286324	14.88428	1.800327	94.77147
2023-05-27 00:00:00	PANACEA_019	38.034657	23.702152	4	Poor	PM25	26.8916667	30.6166667	8	95
2023-05-27 00:00:00	Athens CAMS station 2	37.95	23.55	3	Fair	PM25	12.31805	16.89471	24.333603	72.956083
2023-05-27 00:00:00	National Technical University of Athens	37.97721	23.782016	3	Moderate	O3	11.153571428571428	11.813428571428571	6.0	104.0
2023-05-27 00:00:00	PANACEA_006	37.813873	23.782408	3	Fair	O3	9.583333333	11.81428571	6	104
2023-05-27 00:00:00	CleanAir in Greece - Thiseio II	37.97381	23.719069	1	Extremely Poor	NO2	11.553333333	12.286666667	13.9880295	73.05862
2023-05-27 00:00:00	PANACEA_AirPap_001	38.03788	23.826132	3	Fair	O3	8.946666667	9.553333333	4.765291	92.46473
2023-05-27 00:00:00	Ano Liosia (Perneris)	38.08363	23.700375	3	Fair	PM25	11.4130434878087	11.9826087	7.045807	85.0718
2023-05-27 00:00:00	PANACEA_004	38.056435	23.840101	3	Fair	PM25	11.778571428571428	12.071428571428571	4.765291	92.46473
2023-05-27 00:00:00	ATHENS_02	37.98204	23.79478	3	Extremely Poor	NO2	9.803333333	10.356666667		
2023-05-27 00:00:00	Athens CAMS station 15	38.05	23.55	3	Fair	PM25	11.100535	15.805347	9.2474165	81.65133
2023-05-27 00:00:00	PANACEA_020	38.090866	23.72522	3	Fair	PM25	14.18078923	14.81153846	6.7925906	87.09567
2023-05-27 00:00:00	Athens CAMS station 13	38.15	23.85	3	Fair	PM25	10.439488	15.143765	1.9697747	94.413765
2023-05-27 00:00:00	PANACEA_037	38.03745	23.741959	3	Fair	PM25	11.880000000000003	12.846666666666668	6.7925906	87.09567
2023-05-27 00:00:00	Athens CAMS station 0	38.15	23.55	3	Fair	PM25	10.216535	13.554792	2.5061848	88.271063
2023-05-27 00:00:00	Athens CAMS station 9	37.85	23.75	3	Fair	PM25	13.013899	18.83972	13.9880295	73.05862
2023-05-27 00:00:00	ELEFSINA	38.051	23.538	4	Fair	PM25	11.0	21.0	8.0	97.0
2023-05-27 00:00:00	PANACEA_049	38.037506	23.686476	3	Fair	PM25	13.07	13.556666666666667	8.0	95.0
2023-05-27 00:00:00	Athens CAMS station 11	37.85	23.95	3	Fair	PM25	10.81565	16.19645	3.508278	92.412506
2023-05-27 00:00:00	PANACEA_029	38.00546	23.73234	4	Fair	O3	8.056666666666667	8.746666666666667	33.0	95
2023-05-27 00:00:00	Athens CAMS station 16	38.05	23.65	3	Fair	O3	6.558333333333333	6.875	11.14902	76.97976
2023-05-27 00:00:00	Athens CAMS station 8	38.05	23.65	3	Fair	PM25	12.198805	17.352245	7.045807	85.0718
2023-05-27 00:00:00	Athens CAMS station 18	38.05	23.85	3	Fair	PM25	10.685194	15.456347	4.765291	92.46473
2023-05-27 00:00:00	Athens CAMS station 3	37.95	23.65	3	Fair	PM25	13.352973	20.057537	23.10592	72.75732
2023-05-27 00:00:00	ATHENS_01	38.040443	23.833649	1	Extremely Poor	NO2	11.55	12.15		
2023-05-27 00:00:00	THRAKIMAKEDONES	38.144	23.758	4	Moderate	O3	10.0	20.0	1.0	109.0
2023-05-27 00:00:00	Athens CAMS station 12	38.15	23.75	3	Fair	PM25	10.920398	15.468853	3.1541286	93.0595
2023-05-27 00:00:00	PANACEA_005	38.01869	23.810574	3	Fair	PM25	11.296666666666669	11.616666666666667	5.0	100.0
2023-05-27 00:00:00	Athens CAMS station 1	38.15	23.65	3	Fair	PM25	10.486611	14.078662	2.6711514	92.19343
2023-05-27 00:00:00	PARASKEVI	37.995	23.819	4	Moderate	O3	10.0	20.0	6.0	104.0
2023-05-27 00:00:00	PANACEA_048	38.04067	23.684368	3	Fair	PM25	12.436666666666667	13.006666666666664	8.0	95.0

Una vez hecho esto, verá que todos los números se colocan automáticamente a la derecha de las celdas. Esto significa que el programa los reconoce como números.

Column1	Column2	Column3	Column4	Column5	Column6	Column7	Column8	Column9	Column10	Column11
timestamp	station_code	lat	lon	Heatmap	AQI	Cause	PM2.5	PM10	NO2	O3
2023-05-27 00:00:00	PANACEA_021	38.022263	23.737436	3	Fair	PM25	10.81	11.3266666666667	6.7925906	87.09567
2023-05-27 00:00:00	PANACEA_039	37.97081	23.748861	3	Fair	NO2	6.561904762	6.866666667	41	76.97976
2023-05-27 00:00:00	Athens CAMS station 5	37.95	23.85	3	Fair	PM25	11.173253	6.866666667	4.646439	88.40148
2023-05-27 00:00:00	CleanAir in Greece - Thiseio	37.974033	23.718441	1	Extremely Poor	NO2	14.4	15.24613385		
2023-05-27 00:00:00	ARISTOTELEOUS	37.988	23.728	3	Fair	O3	5	15	15	76.97976
2023-05-27 00:00:00	PANACEA_038	37.9357	23.64547	3	Fair	O3	8.273333333	8.096666667	23.10592	72.75732
2023-05-27 00:00:00	PANACEA_AirPap_006	37.95576	23.66792	3	Fair	O3	9.825	10.28333333	23.10592	72.75732
2023-05-27 00:00:00	Athens CAMS station 8	37.85	23.65	3	Fair	PM25	13.264906	20.061317	36.32903	63.194294
2023-05-27 00:00:00	Athens CAMS station 4	37.95	23.75	3	Fair	PM25	12.71787	18.34905	11.14902	76.97976
2023-05-27 00:00:00	Athens CAMS station 19	38.05	23.95	3	Fair	PM25	10.121592	14.84636	17.86818	96.491104
2023-05-27 00:00:00	Athens CAMS station 14	38.15	23.55	3	Fair	PM25	10.286324	14.88428	1.800327	94.77147
2023-05-27 00:00:00	PANACEA_019	38.034657	23.702152	4	Poor	PM25	26.8916667	30.6166667	8	95
2023-05-27 00:00:00	Athens CAMS station 2	37.95	23.55	3	Fair	PM25	12.31805	16.89471	24.333603	72.956083
2023-05-27 00:00:00	National Technical University of Athens	37.97721	23.782016	3	Moderate	O3	11.153571428571428	11.813428571428571	6	104
2023-05-27 00:00:00	PANACEA_006	37.813873	23.782408	3	Fair	O3	9.583333333	11.81428571	6	104
2023-05-27 00:00:00	CleanAir in Greece - Thiseio II	37.97381	23.719069	1	Extremely Poor	NO2	11.553333333	12.286666667	13.9880295	73.05862
2023-05-27 00:00:00	PANACEA_AirPap_001	38.03788	23.826132	3	Fair	O3	8.946666667	9.553333333	4.765291	92.46473
2023-05-27 00:00:00	Ano Liosia (Perneris)	38.08363	23.700375	3	Fair	PM25	11.4130434878087	11.9826087	7.045807	85.0718
2023-05-27 00:00:00	PANACEA_004	38.056435	23.840101	3	Fair	PM25	11.778571428571428	12.071428571428571	4.765291	92.46473
2023-05-27 00:00:00	ATHENS_02	37.98204	23.79478	3	Extremely Poor	NO2	9.803333333	10.356666667		
2023-05-27 00:00:00	Athens CAMS station 15	38.05	23.55	3	Fair	PM25	11.100535	15.805347	9.2474165	81.65133
2023-05-27 00:00:00	PANACEA_020	38.090866	23.72522	3	Fair	PM25	14.18078923	14.81153846	6.7925906	87.09567
2023-05-27 00:00:00	Athens CAMS station 13	38.15	23.85	3	Fair	PM25	10.439488	15.143765	1.9697747	94.413765
2023-05-27 00:00:00	PANACEA_037	38.03745	23.741959	3	Fair	PM25	11.880000000000003	12.846666666666668	6.7925906	87.09567
2023-05-27 00:00:00	Athens CAMS station 0	38.15	23.55	3	Fair	PM25	10.216535	13.554792	2.5061848	88.271063
2023-05-27 00:00:00	Athens CAMS station 9	37.85	23.75	3	Fair	PM25	13.013899	18.83972	13.9880295	73.05862
2023-05-27 00:00:00	ELEFSINA	38.051	23.538	4	Fair	PM25	11	21	8	97
2023-05-27 00:00:00	PANACEA_049	38.037506	23.686476	3	Fair	PM25	13.07	13.556666667	8	95
2023-05-27 00:00:00	Athens CAMS station 11	37.85	23.95	3	Fair	PM25	10.81565	16.19645	3.508278	92.412506
2023-05-27 00:00:00	PANACEA_029	38.00546	23.73234	4	Fair	O3	8.056666667	8.746666667	33	95
2023-05-27 00:00:00	Athens CAMS station 16	37.961323	23.761395	3	Fair	O3	6.558333333	6.875	11.14902	76.97976
2023-05-27 00:00:00	Athens CAMS station 18	38.05	23.65	3	Fair	PM25	12.195865	17.352245	7.045807	85.0718
2023-05-27 00:00:00	Athens CAMS station 8	38.05	23.85	3	Fair	PM25	10.685194	15.456347	4.765291	92.46473
2023-05-27 00:00:00	Athens CAMS station 3	37.95	23.65	3	Fair	PM25	13.352973	20.057537	23.10592	72.75732
2023-05-27 00:00:00	ATHENS_01	38.040443	23.833649	1	Extremely Poor	NO2	11.55	12.15		
2023-05-27 00:00:00	THRAKIMAKEDONES	38.144	23.758	4	Moderate	O3	10	20	1	109
2023-05-27 00:00:00	Athens CAMS station 12	38.15	23.75	3	Fair	PM25	10.920398	15.468853	3.1541286	93.0595
2023-05-27 00:00:00	PANACEA_005	38.01869	23.810574	3	Fair	PM25	11.296666667	11.616666667	5	100
2023-05-27 00:00:00	Athens CAMS station 1	38.15	23.65	3	Fair	PM25	10.486611	14.078662	2.6711514	92.19343
2023-05-27 00:00:00	PARASKEVI	37.995	23.819	4	Moderate	O3	10	20	6	104
2023-05-27 00:00:00	PANACEA_048	38.04067	23.684368	3	Fair	PM25	12.436666667	13.006666667	8	95

¿QUÉ PUEDE VER EN LOS DATOS?

Para manipular los datos y extraer la información adecuada para tu hipótesis, primero tienes que entender cómo están estructurados los datos en tu hoja de cálculo.



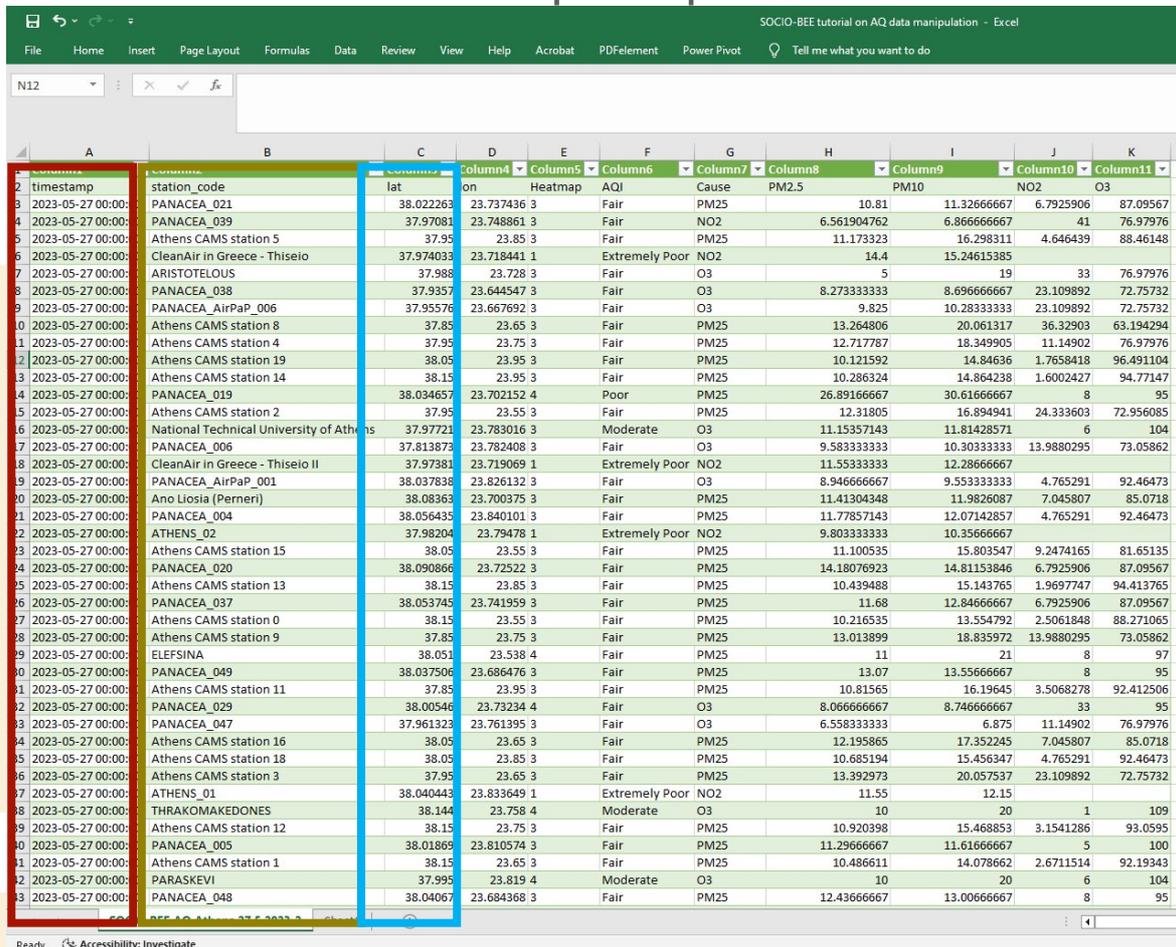
Column1	Column2	Column3	Column4	Column5	Column6	Column7	Column8	Column9	Column10	Column11
timestamp	station_code	lat	lon	heatmap	AQI	Cause	PM2.5	PM10	NO2	O3
2023-05-27 00:00:00	PANACEA_021	38.022263	23.737436		Fair	PM25	10.81	11.3266666	6.792590	87.09567
2023-05-27 00:00:00	PANACEA_039	37.97081	23.748861		Fair	NO2	6.561904762	6.86666666	4	76.97976
2023-05-27 00:00:00	Athens CAMS station 5	37.95	23.85		Fair	PM25	11.173323	16.29831	4.64643	88.46148
2023-05-27 00:00:00	CleanAir in Greece - Thiseio	37.974033	23.718441		Extremely Poor	NO2	14.4	15.2461538		
2023-05-27 00:00:00	ARISTOTELOUS	37.988	23.728		Fair	O3	5	1	3	76.97976
2023-05-27 00:00:00	PANACEA_038	37.9357	23.644547		Fair	O3	8.273333333	8.69666666	23.10989	72.75732
2023-05-27 00:00:00	PANACEA_AirPaP_006	37.95576	23.667692		Fair	O3	9.825	10.28333333	23.10989	72.75732
2023-05-27 00:00:00	Athens CAMS station 8	37.85	23.65		Fair	PM25	13.264806	20.06131	36.3290	63.194294
2023-05-27 00:00:00	Athens CAMS station 4	37.95	23.75		Fair	PM25	12.717787	18.34990	11.1490	76.97976
2023-05-27 00:00:00	Athens CAMS station 19	38.05	23.95		Fair	PM25	10.121592	14.8463	1.765841	96.491104
2023-05-27 00:00:00	Athens CAMS station 14	38.15	23.95		Fair	PM25	10.286324	14.86423	1.600242	94.77147
2023-05-27 00:00:00	PANACEA_019	38.034657	23.702152		Poor	PM25	26.89166667	30.61666666		95
2023-05-27 00:00:00	Athens CAMS station 2	37.95	23.55		Fair	PM25	12.31805	16.89494	24.33360	72.956085
2023-05-27 00:00:00	National Technical University of Athens	37.97721	23.783016		Moderate	O3	11.15357143	11.8142857		104
2023-05-27 00:00:00	PANACEA_006	37.813873	23.782408		Fair	O3	9.583333333	10.30333333	13.988029	73.05862
2023-05-27 00:00:00	CleanAir in Greece - Thiseio II	37.97381	23.719069		Extremely Poor	NO2	11.55333333	12.28666666		
2023-05-27 00:00:00	PANACEA_AirPaP_001	38.037838	23.826132		Fair	O3	8.946666667	9.55333333	4.76529	92.46473
2023-05-27 00:00:00	Ano Liosia (Pernerí)	38.08363	23.700375		Fair	PM25	11.41304348	11.982608	7.04580	85.0718
2023-05-27 00:00:00	PANACEA_004	38.056435	23.840101		Fair	PM25	11.77857143	12.0714285	4.76529	92.46473
2023-05-27 00:00:00	ATHENS_02	37.98204	23.79478		Extremely Poor	NO2	9.803333333	10.35666666		
2023-05-27 00:00:00	Athens CAMS station 15	38.05	23.55		Fair	PM25	11.100535	15.80354	9.247416	81.65135
2023-05-27 00:00:00	PANACEA_020	38.090866	23.72522		Fair	PM25	14.18076923	14.8115384	6.792590	87.09567
2023-05-27 00:00:00	Athens CAMS station 13	38.15	23.85		Fair	PM25	10.439488	15.14376	1.969774	94.413765
2023-05-27 00:00:00	PANACEA_037	38.053745	23.741959		Fair	PM25	11.68	12.84666666	6.792590	87.09567
2023-05-27 00:00:00	Athens CAMS station 0	38.15	23.55		Fair	PM25	10.216535	13.55479	2.506184	88.271065
2023-05-27 00:00:00	Athens CAMS station 9	37.85	23.75		Fair	PM25	13.013899	18.83597	13.988029	73.05862
2023-05-27 00:00:00	ELEFSINA	38.051	23.538		Fair	PM25	11	2		97
2023-05-27 00:00:00	PANACEA_049	38.037506	23.686476		Fair	PM25	13.07	13.55666666		95
2023-05-27 00:00:00	Athens CAMS station 11	37.85	23.95		Fair	PM25	10.81565	16.1964	3.506827	92.412506
2023-05-27 00:00:00	PANACEA_029	38.00546	23.73234		Fair	O3	8.066666667	8.746666666		95
2023-05-27 00:00:00	PANACEA_047	37.961323	23.761395		Fair	O3	6.583333333	6.87	11.1490	76.97976
2023-05-27 00:00:00	Athens CAMS station 16	38.05	23.65		Fair	PM25	12.195865	17.35224	7.04580	85.0718
2023-05-27 00:00:00	Athens CAMS station 18	38.05	23.85		Fair	PM25	10.685194	15.45634	4.76529	92.46473
2023-05-27 00:00:00	Athens CAMS station 3	37.95	23.65		Fair	PM25	13.392973	20.05753	23.10989	72.75732
2023-05-27 00:00:00	ATHENS_01	38.040443	23.833649		Extremely Poor	NO2	11.55	12.1		
2023-05-27 00:00:00	THRAKOMAKEDONES	38.144	23.758		Moderate	O3	10	2		109
2023-05-27 00:00:00	Athens CAMS station 12	38.15	23.75		Fair	PM25	10.920398	15.46885	3.154128	93.0595
2023-05-27 00:00:00	PANACEA_005	38.01869	23.810574		Fair	PM25	11.29666667	11.61666666		100
2023-05-27 00:00:00	Athens CAMS station 1	38.15	23.65		Fair	PM25	10.486611	14.07866	2.671151	92.19343
2023-05-27 00:00:00	PARASKEVI	37.995	23.819		Moderate	O3	10	2		104
2023-05-27 00:00:00	PANACEA_048	38.04067	23.684368		Fair	PM25	12.43666667	13.00666666		95

La tabla contiene datos sobre la calidad del aire registrados por sensores instalados en distintos lugares. Cada fila representa una única entrada de datos recogida en una fecha y hora específicas.

De izquierda a derecha, las columnas son **la marca de tiempo**, **el código de la estación (o ID del dispositivo)**, **latitud**, **longitud**, **AQI**, **Causa**, **PM2,5**, **PM10**, **NO2** y **O3**.

¿QUÉ PUEDE VER EN LOS DATOS?

Veamos con más detalle qué representan las columnas.



Column1	Column2	Column3	Column4	Column5	Column6	Column7	Column8	Column9	Column10	Column11
timestamp	station_code	lat	lon	Heatmap	AQI	Cause	PM2.5	PM10	NO2	O3
2023-05-27 00:00:00	PANACEA_021	38.022263	23.737436	3	Fair	PM25	10.81	11.32666667	6.7925906	87.09567
2023-05-27 00:00:00	PANACEA_039	37.97081	23.748861	3	Fair	NO2	6.561904762	6.866666667	41	76.97976
2023-05-27 00:00:00	Athens CAMS station 5	37.95	23.85	3	Fair	PM25	11.173323	16.298311	4.646439	88.46148
2023-05-27 00:00:00	CleanAir in Greece - Thiseio	37.974033	23.718441	1	Extremely Poor	NO2	14.4	15.24615385		
2023-05-27 00:00:00	ARISTOTELOUS	37.988	23.728	3	Fair	O3	5	19	33	76.97976
2023-05-27 00:00:00	PANACEA_038	37.95576	23.644547	3	Fair	O3	8.273333333	8.696666667	23.109892	72.75732
2023-05-27 00:00:00	PANACEA_AirPaP_006	37.95576	23.667692	3	Fair	O3	9.825	10.28333333	23.109892	72.75732
2023-05-27 00:00:00	Athens CAMS station 8	37.85	23.65	3	Fair	PM25	13.264806	20.061317	36.32903	63.194294
2023-05-27 00:00:00	Athens CAMS station 4	37.95	23.75	3	Fair	PM25	12.717787	18.349905	11.14902	76.97976
2023-05-27 00:00:00	Athens CAMS station 19	38.05	23.95	3	Fair	PM25	10.121592	14.84636	1.7658418	96.491104
2023-05-27 00:00:00	Athens CAMS station 14	38.15	23.95	3	Fair	PM25	10.286324	14.864238	1.6002427	94.77147
2023-05-27 00:00:00	PANACEA_019	38.034657	23.702152	4	Poor	PM25	26.89166667	30.61666667	8	95
2023-05-27 00:00:00	Athens CAMS station 2	37.95	23.55	3	Fair	PM25	12.31805	16.894941	24.333603	72.956085
2023-05-27 00:00:00	National Technical University of Athens	37.97721	23.783016	3	Moderate	O3	11.15357143	11.81428571	6	104
2023-05-27 00:00:00	PANACEA_006	37.813873	23.782408	3	Fair	O3	9.583333333	10.30333333	13.9880295	73.05862
2023-05-27 00:00:00	CleanAir in Greece - Thiseio II	37.97381	23.719069	1	Extremely Poor	NO2	11.55333333	12.28666667		
2023-05-27 00:00:00	PANACEA_AirPaP_001	38.037838	23.826132	3	Fair	O3	8.946666667	9.553333333	4.765291	92.46473
2023-05-27 00:00:00	Ano Liosia (Perneri)	38.08363	23.700375	3	Fair	PM25	11.41304348	11.9826087	7.045807	85.0718
2023-05-27 00:00:00	PANACEA_004	38.056435	23.840101	3	Fair	PM25	11.77857143	12.07142857	4.765291	92.46473
2023-05-27 00:00:00	ATHENS_02	37.98204	23.79478	1	Extremely Poor	NO2	9.803333333	10.35666667		
2023-05-27 00:00:00	Athens CAMS station 15	38.05	23.55	3	Fair	PM25	11.100535	15.803547	9.2474165	81.65135
2023-05-27 00:00:00	PANACEA_020	38.090866	23.72522	3	Fair	PM25	14.18076923	14.81158846	6.7925906	87.09567
2023-05-27 00:00:00	Athens CAMS station 13	38.15	23.85	3	Fair	PM25	10.439488	15.143765	1.9697747	94.413765
2023-05-27 00:00:00	PANACEA_037	38.053745	23.741959	3	Fair	PM25	11.68	12.84666667	6.7925906	87.09567
2023-05-27 00:00:00	Athens CAMS station 0	38.15	23.55	3	Fair	PM25	10.216535	13.545792	2.5061848	88.271065
2023-05-27 00:00:00	Athens CAMS station 9	37.85	23.75	3	Fair	PM25	13.013899	18.835972	13.9880295	73.05862
2023-05-27 00:00:00	ELEFSINA	38.051	23.538	4	Fair	PM25	11	21	8	97
2023-05-27 00:00:00	PANACEA_049	38.037506	23.686476	3	Fair	PM25	13.07	13.55666667	8	95
2023-05-27 00:00:00	Athens CAMS station 11	37.85	23.95	3	Fair	PM25	10.81565	16.19645	3.5068278	92.412506
2023-05-27 00:00:00	PANACEA_029	38.00546	23.73234	4	Fair	O3	8.066666667	8.746666667	33	95
2023-05-27 00:00:00	PANACEA_047	37.961323	23.761395	3	Fair	O3	6.558333333	6.875	11.14902	76.97976
2023-05-27 00:00:00	Athens CAMS station 16	38.05	23.65	3	Fair	PM25	12.195865	17.352245	7.045807	85.0718
2023-05-27 00:00:00	Athens CAMS station 18	38.05	23.85	3	Fair	PM25	10.685194	15.456347	4.765291	92.46473
2023-05-27 00:00:00	Athens CAMS station 3	37.95	23.65	3	Fair	PM25	13.392973	20.057537	23.109892	72.75732
2023-05-27 00:00:00	ATHENS_01	38.040443	23.833649	1	Extremely Poor	NO2	11.55	12.15		
2023-05-27 00:00:00	THRAKOMAKEDONES	38.144	23.758	4	Moderate	O3	10	20	1	109
2023-05-27 00:00:00	Athens CAMS station 12	38.15	23.75	3	Fair	PM25	10.920398	15.468853	3.1541286	93.0595
2023-05-27 00:00:00	PANACEA_005	38.01869	23.810574	3	Fair	PM25	11.29666667	11.61666667	5	100
2023-05-27 00:00:00	Athens CAMS station 1	38.15	23.65	3	Fair	PM25	10.486611	14.078662	2.6711514	92.19343
2023-05-27 00:00:00	PARASKEVI	37.995	23.819	4	Moderate	O3	10	20	6	104
2023-05-27 00:00:00	PANACEA_048	38.04067	23.684368	3	Fair	PM25	12.43666667	13.00666667	8	95

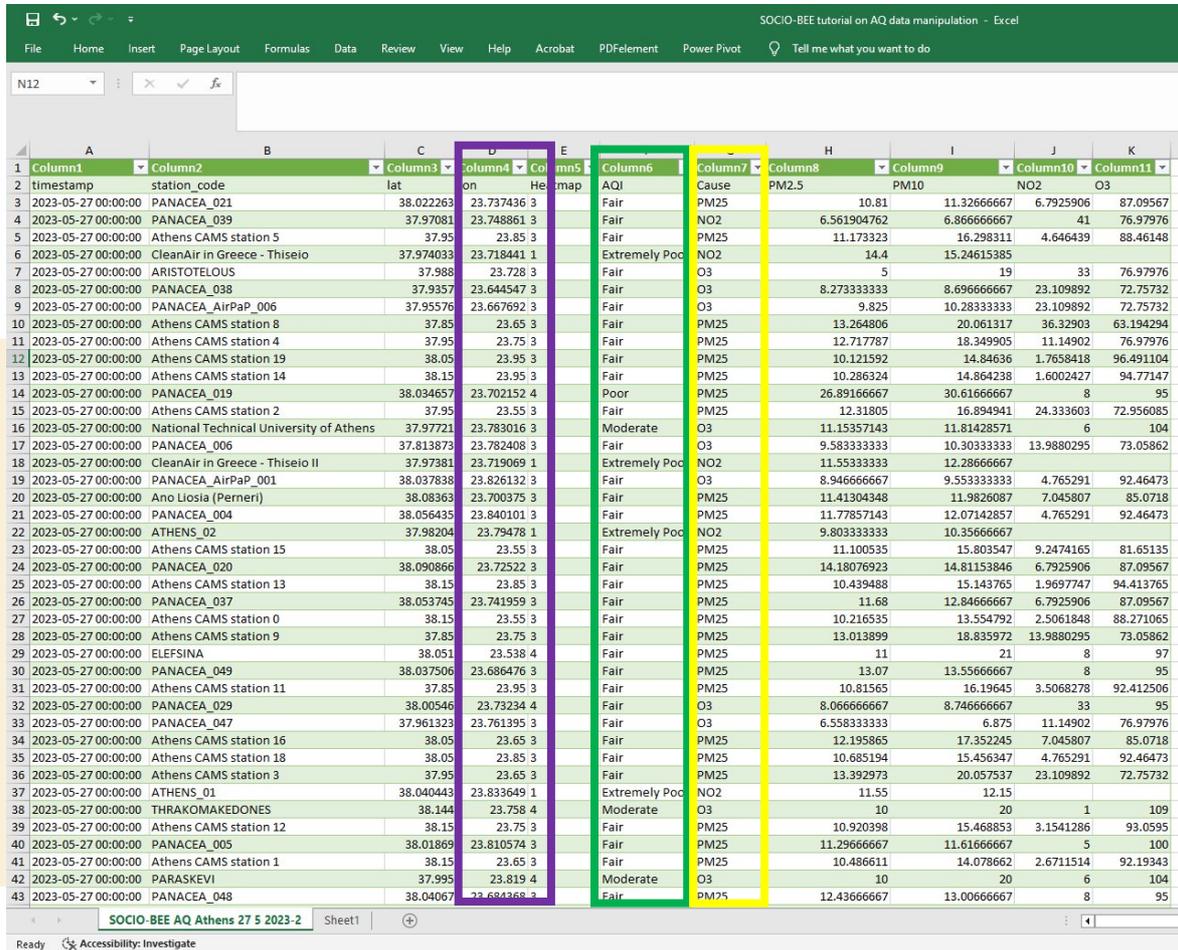
marca de tiempo: La fecha y hora en que el dispositivo wearable o la estación de monitorización registraron los datos de calidad del aire.

ID_dispositivo: identificador único del dispositivo sensor que recopiló los datos.

Código de la estación: El código asignado a la estación de monitorización en la que se recogieron los datos.

latitud: Las coordenadas geográficas de latitud de la estación de monitorización o del dispositivo wearable cuando se recogieron los datos.

¿QUÉ PUEDE VER EN LOS DATOS?



The screenshot shows an Excel spreadsheet titled 'SOCIO-BEE tutorial on AQ data manipulation - Excel'. The spreadsheet contains a table with 11 columns and 43 rows of data. The columns are labeled as follows:

- Column1: timestamp
- Column2: station_code
- Column3: lat
- Column4: lon
- Column5: ICA
- Column6: Cause
- Column7: PM2.5
- Column8: PM10
- Column9: PM10
- Column10: NO2
- Column11: O3

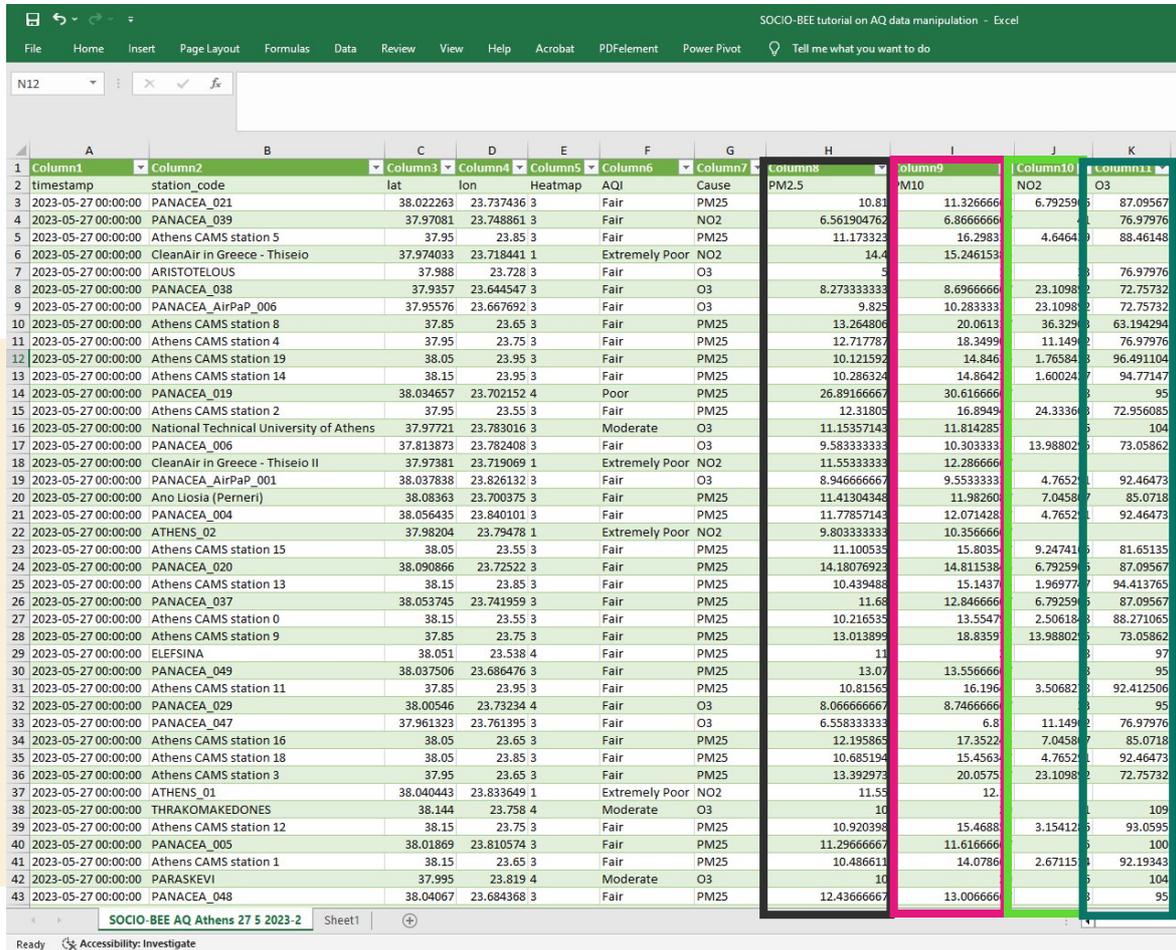
The 'Cause' column (Column6) is highlighted in yellow, and the 'lat' (Column3) and 'lon' (Column4) columns are highlighted in purple. The 'ICA' column (Column5) is highlighted in green. The data rows show various station codes, coordinates, and air quality indices.

Longitud: Las coordenadas de longitud geográfica de la estación de control o del dispositivo wearable cuando se recogieron los datos.

ICA El valor global del índice de calidad del aire calculado a partir de diversas concentraciones de contaminantes medidas en la estación de control o el dispositivo portátil.

Causa: Especifica el contaminante principal o el factor ambiental que contribuye al valor del índice de calidad del aire.

¿QUÉ PUEDE VER EN LOS DATOS?



Column1	Column2	Column3	Column4	Column5	Column6	Column7	Column8	Column9	Column10	Column11
timestamp	station_code	lat	lon	Heatmap	AQI	Cause	PM2.5	PM10	NO2	O3
2023-05-27 00:00:00	PANACEA_021	38.022263	23.737436	3	Fair	PM25	10.81	11.326666	6.79259	87.09567
2023-05-27 00:00:00	PANACEA_039	37.97081	23.748861	3	Fair	NO2	6.561904762	6.8666666	16.2983	76.97976
2023-05-27 00:00:00	Athens CAMS station 5	37.95	23.85	3	Fair	PM25	11.173323	16.2983	4.6464	88.46148
2023-05-27 00:00:00	CleanAir in Greece - Thiseio	37.974033	23.718441	1	Extremely Poor	NO2	14.4	15.246153		
2023-05-27 00:00:00	ARISTOTELOUS	37.988	23.728	3	Fair	O3	5			76.97976
2023-05-27 00:00:00	PANACEA_038	37.9357	23.644547	3	Fair	O3	8.273333333	8.6966666	23.1098	72.75732
2023-05-27 00:00:00	PANACEA_AirPaP_006	37.95576	23.667692	3	Fair	O3	9.825	10.283333	23.1098	72.75732
2023-05-27 00:00:00	Athens CAMS station 8	37.85	23.65	3	Fair	PM25	13.264806	20.0613	36.329	63.194294
2023-05-27 00:00:00	Athens CAMS station 4	37.95	23.75	3	Fair	PM25	12.717787	18.3499	11.149	76.97976
2023-05-27 00:00:00	Athens CAMS station 19	38.05	23.95	3	Fair	PM25	10.121592	14.846	1.76584	96.491104
2023-05-27 00:00:00	Athens CAMS station 14	38.15	23.95	3	Fair	PM25	10.286324	14.8642	1.60024	94.77147
2023-05-27 00:00:00	PANACEA_019	38.034657	23.702152	4	Poor	PM25	26.89166667	30.616666		95
2023-05-27 00:00:00	Athens CAMS station 2	37.95	23.55	3	Fair	PM25	12.31805	16.8949	24.3336	72.956085
2023-05-27 00:00:00	National Technical University of Athens	37.97721	23.783016	3	Moderate	O3	11.15357143	11.814285		104
2023-05-27 00:00:00	PANACEA_006	37.813873	23.782408	3	Fair	O3	9.583333333	10.303333	13.98802	73.05862
2023-05-27 00:00:00	CleanAir in Greece - Thiseio II	37.97381	23.719069	1	Extremely Poor	NO2	11.55333333	12.286666		
2023-05-27 00:00:00	PANACEA_AirPaP_001	38.037838	23.826132	3	Fair	O3	8.946666667	9.5533333	4.7652	92.46473
2023-05-27 00:00:00	Ano Liosia (Pereri)	38.08363	23.700375	3	Fair	PM25	11.41304348	11.98260	7.0458	85.0718
2023-05-27 00:00:00	PANACEA_004	38.056435	23.840101	3	Fair	PM25	11.77857143	12.071428	4.7652	92.46473
2023-05-27 00:00:00	ATHENS_02	37.98204	23.79478	1	Extremely Poor	NO2	9.803333333	10.356666		
2023-05-27 00:00:00	Athens CAMS station 15	38.05	23.55	3	Fair	PM25	11.100533	15.8035	9.24741	81.65135
2023-05-27 00:00:00	PANACEA_020	38.090866	23.72522	3	Fair	PM25	14.18076923	14.811538	6.79259	87.09567
2023-05-27 00:00:00	Athens CAMS station 13	38.15	23.85	3	Fair	PM25	10.439488	15.1437	1.96977	94.413765
2023-05-27 00:00:00	PANACEA_037	38.053745	23.741959	3	Fair	PM25	11.68	12.846666	6.79259	87.09567
2023-05-27 00:00:00	Athens CAMS station 0	38.15	23.55	3	Fair	PM25	10.216535	13.5547	2.50618	88.271065
2023-05-27 00:00:00	Athens CAMS station 9	37.85	23.75	3	Fair	PM25	13.013899	18.8359	13.98802	73.05862
2023-05-27 00:00:00	ELEFSINA	38.051	23.538	4	Fair	PM25	11			97
2023-05-27 00:00:00	PANACEA_049	38.037506	23.686476	3	Fair	PM25	13.07	13.556666		95
2023-05-27 00:00:00	Athens CAMS station 11	37.85	23.95	3	Fair	PM25	10.81568	16.196	3.50682	92.412506
2023-05-27 00:00:00	PANACEA_029	38.00546	23.73234	4	Fair	O3	8.066666667	8.7466666		95
2023-05-27 00:00:00	PANACEA_047	37.961323	23.761395	3	Fair	O3	6.558333333	6.8	11.149	76.97976
2023-05-27 00:00:00	Athens CAMS station 16	38.05	23.65	3	Fair	PM25	12.195865	17.3522	7.0458	85.0718
2023-05-27 00:00:00	Athens CAMS station 18	38.05	23.85	3	Fair	PM25	10.685194	15.4563	4.7652	92.46473
2023-05-27 00:00:00	Athens CAMS station 3	37.95	23.65	3	Fair	PM25	13.392973	20.0575	23.1098	72.75732
2023-05-27 00:00:00	ATHENS_01	38.040443	23.833649	1	Extremely Poor	NO2	11.55	12		
2023-05-27 00:00:00	THRAKOMAKEDONES	38.144	23.758	4	Moderate	O3	10			109
2023-05-27 00:00:00	Athens CAMS station 12	38.15	23.75	3	Fair	PM25	10.920398	15.4688	3.15412	93.0595
2023-05-27 00:00:00	PANACEA_005	38.01869	23.810574	3	Fair	PM25	11.29666667	11.616666		100
2023-05-27 00:00:00	Athens CAMS station 1	38.15	23.65	3	Fair	PM25	10.486611	14.0786	2.67115	92.19343
2023-05-27 00:00:00	PARASKEVI	37.995	23.819	4	Moderate	O3	10			104
2023-05-27 00:00:00	PANACEA_048	38.04067	23.684368	3	Fair	PM25	12.43666667	13.006666		95

PM2,5: La concentración de partículas finas inhalables con un diámetro igual o inferior a 2,5 micrómetros en el aire.

PM10: La concentración de partículas inhalables con un diámetro de 10 micrómetros o menos en el aire en miligramos por metro cúbico.

NO2: La concentración de gas dióxido de nitrógeno en el aire en miligramos por metro cúbico.

O3: La concentración de gas ozono en el aire en miligramos por metro cúbico.

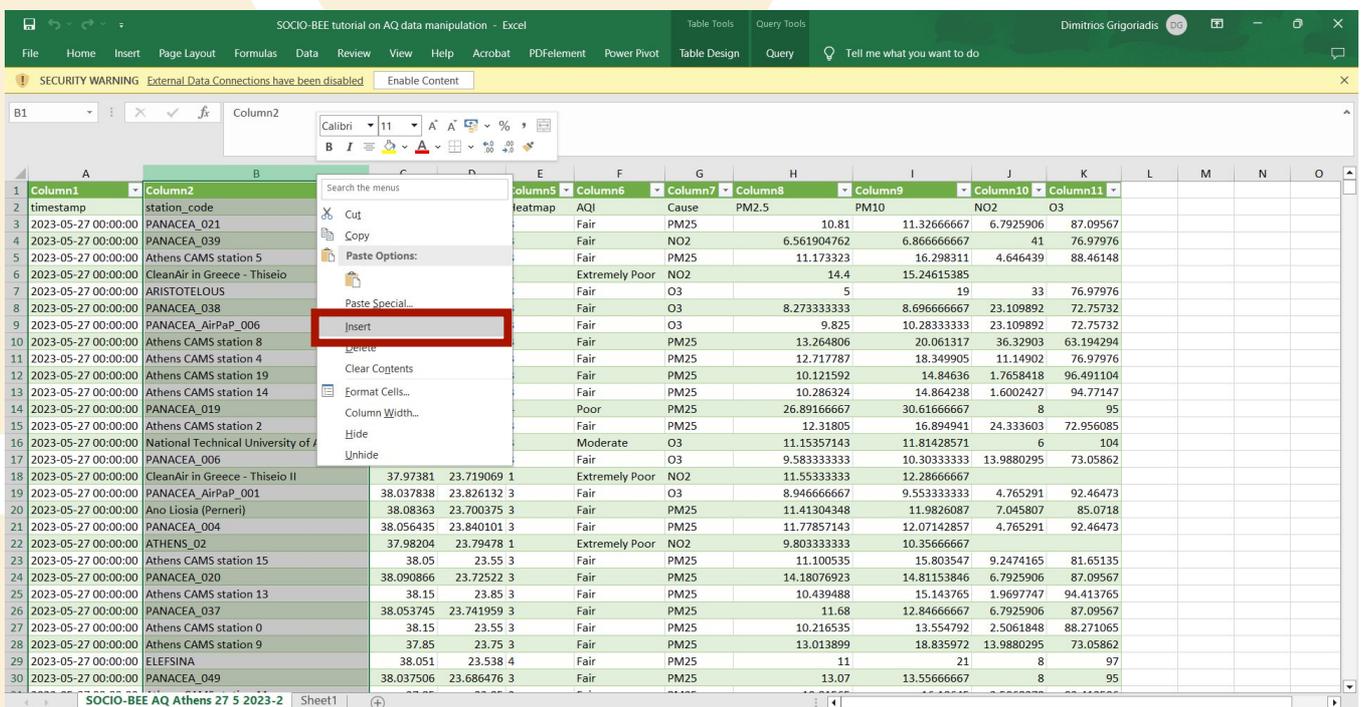
¿QUÉ HAY QUE HACER ANTES DE TRATAR LOS DATOS?

Ahora tienes una mejor idea de lo que se muestra en tu hoja de cálculo, pero todavía necesitas hacer una pequeña modificación en tu hoja de cálculo antes de que puedas empezar a trazar los datos que te interesan.

Habrás observado que la marca de tiempo (columna 1) tiene el formato [AAAA-MM-DD HH:MM:SS].

Para que te resulte más fácil identificar y extraer la información correcta, tendrás que dividir la fecha y la hora en dos columnas separadas.

Empieza por añadir dos nuevas columnas a tu hoja de cálculo. Para ello, selecciona la Columna 2 y haz clic sobre ella con el botón derecho del ratón. En el menú selecciona "Insertar". Esto añadirá una nueva columna vacía a la izquierda de la Columna 2. Repite esta acción para añadir una segunda columna vacía.

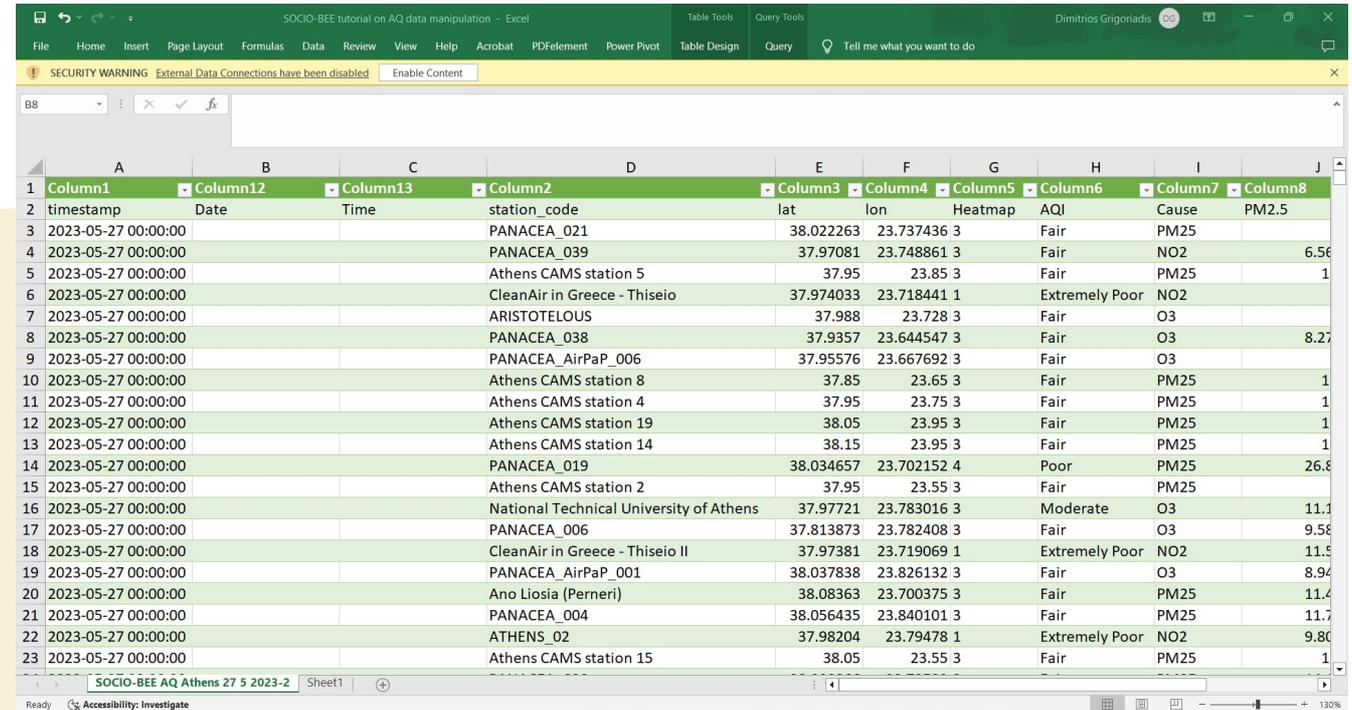


The screenshot shows an Excel spreadsheet with the following data structure:

Column1	Column2	Column3	Column4	Column5	Column6	Column7	Column8	Column9	Column10	Column11
timestamp	station_code	AQI	Cause	PM2.5	PM10	NO2	O3			
2023-05-27 00:00:00	PANACEA_021	Fair	PM25	10.81	11.32666667	6.7925906	87.09567			
2023-05-27 00:00:00	PANACEA_039	Fair	NO2	6.561904762	6.866666667	41	76.97976			
2023-05-27 00:00:00	Athens CAMS station 5	Fair	PM25	11.173323	16.298311	4.646439	88.46148			
2023-05-27 00:00:00	CleanAir in Greece - Thiseio	Extremely Poor	NO2	14.4	15.24615385					
2023-05-27 00:00:00	ARISTOTELOUS	Fair	O3	5	19	33	76.97976			
2023-05-27 00:00:00	PANACEA_038	Fair	O3	8.273333333	8.696666667	23.109892	72.75732			
2023-05-27 00:00:00	PANACEA_AirPaP_006	Fair	O3	9.825	10.28333333	23.109892	72.75732			
2023-05-27 00:00:00	Athens CAMS station 8	Fair	PM25	13.264806	20.061317	36.32903	63.194294			
2023-05-27 00:00:00	Athens CAMS station 4	Fair	PM25	12.717787	18.349905	11.14902	76.97976			
2023-05-27 00:00:00	Athens CAMS station 19	Fair	PM25	10.121592	14.84636	1.7658418	96.491104			
2023-05-27 00:00:00	Athens CAMS station 14	Fair	PM25	10.286324	14.864238	1.6002427	94.77147			
2023-05-27 00:00:00	PANACEA_019	Poor	PM25	26.89166667	30.61666667	8	95			
2023-05-27 00:00:00	Athens CAMS station 2	Fair	PM25	12.31805	16.894941	24.333603	72.956085			
2023-05-27 00:00:00	National Technical University of Athens	Moderate	O3	11.15357143	11.81428571	6	104			
2023-05-27 00:00:00	PANACEA_006	Fair	O3	9.583333333	10.30333333	13.9880295	73.05862			
2023-05-27 00:00:00	CleanAir in Greece - Thiseio II	Extremely Poor	NO2	11.55333333	12.28666667					
2023-05-27 00:00:00	PANACEA_AirPaP_001	Fair	O3	8.946666667	9.553333333	4.765291	92.46473			
2023-05-27 00:00:00	Ano Liosia (Perrier)	Fair	PM25	11.41304348	11.9826087	7.045807	85.0718			
2023-05-27 00:00:00	PANACEA_004	Fair	PM25	11.77857143	12.07142857	4.765291	92.46473			
2023-05-27 00:00:00	ATHENS_02	Extremely Poor	NO2	9.803333333	10.35666667					
2023-05-27 00:00:00	Athens CAMS station 15	Fair	PM25	11.100535	15.803547	9.2474165	81.65135			
2023-05-27 00:00:00	PANACEA_020	Fair	PM25	14.18076923	14.81153846	6.7925906	87.09567			
2023-05-27 00:00:00	Athens CAMS station 13	Fair	PM25	10.439488	15.143765	1.9697747	94.413765			
2023-05-27 00:00:00	PANACEA_037	Fair	PM25	11.68	12.84666667	6.7925906	87.09567			
2023-05-27 00:00:00	Athens CAMS station 0	Fair	PM25	10.216535	13.554792	2.5061848	88.271065			
2023-05-27 00:00:00	Athens CAMS station 9	Fair	PM25	13.013899	18.835972	13.9880295	73.05862			
2023-05-27 00:00:00	ELEFSINA	Fair	PM25	11	21	8	97			
2023-05-27 00:00:00	PANACEA_049	Fair	PM25	13.07	13.55666667	8	95			

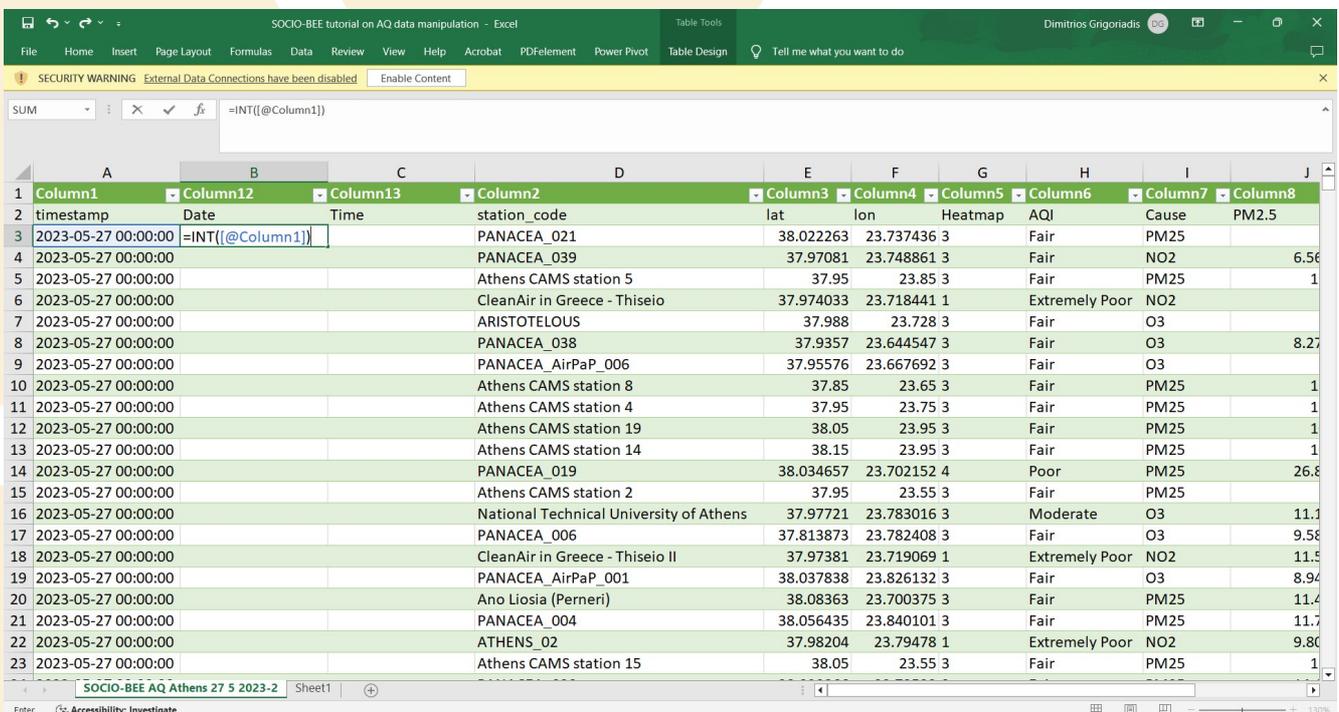
¿QUÉ HAY QUE HACER ANTES DE TRATAR LOS

Nombre la primera columna "Fecha" y la segunda "Hora".



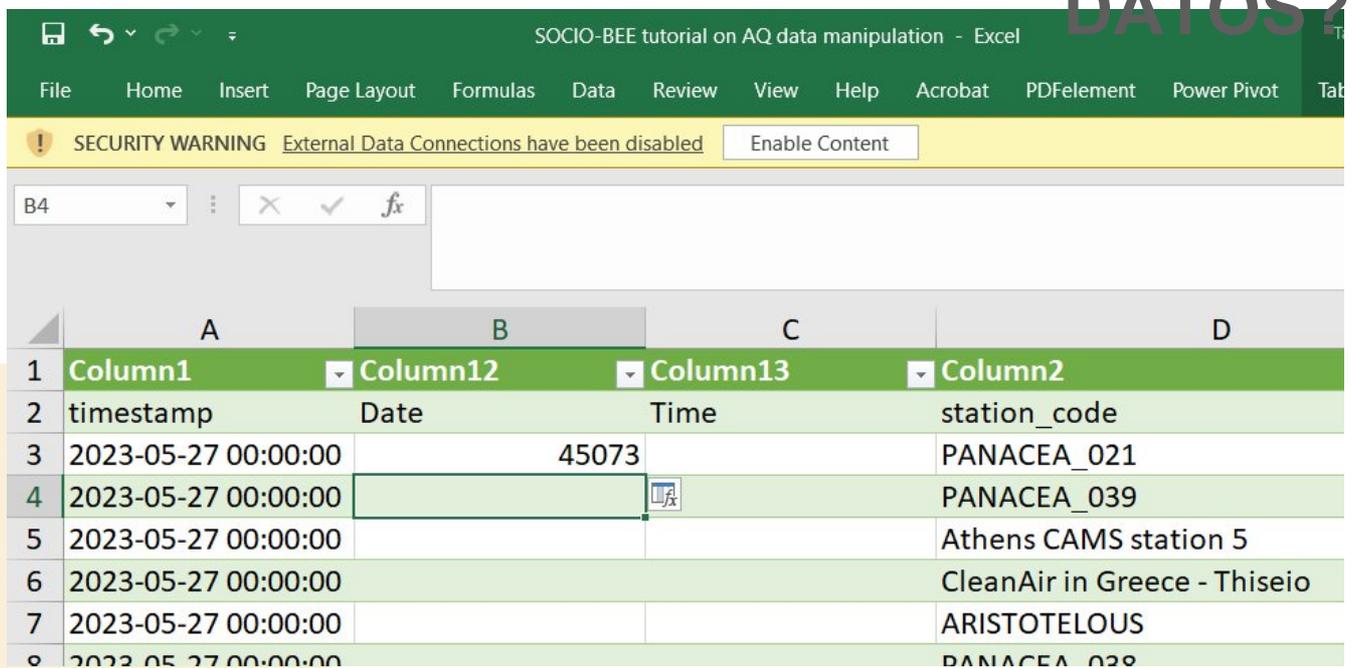
Column1	Column12	Column13	Column2	Column3	Column4	Column5	Column6	Column7	Column8
timestamp	Date	Time	station_code	lat	lon	Heatmap	AQI	Cause	PM2.5
2023-05-27 00:00:00			PANACEA_021	38.022263	23.737436	3	Fair	PM25	
2023-05-27 00:00:00			PANACEA_039	37.97081	23.748861	3	Fair	NO2	6.56
2023-05-27 00:00:00			Athens CAMS station 5	37.95	23.85	3	Fair	PM25	1
2023-05-27 00:00:00			CleanAir in Greece - Thiseio	37.974033	23.718441	1	Extremely Poor	NO2	
2023-05-27 00:00:00			ARISTOTELOUS	37.988	23.728	3	Fair	O3	
2023-05-27 00:00:00			PANACEA_038	37.9357	23.644547	3	Fair	O3	8.27
2023-05-27 00:00:00			PANACEA_AirPaP_006	37.95576	23.667692	3	Fair	O3	
2023-05-27 00:00:00			Athens CAMS station 8	37.85	23.65	3	Fair	PM25	1
2023-05-27 00:00:00			Athens CAMS station 4	37.95	23.75	3	Fair	PM25	1
2023-05-27 00:00:00			Athens CAMS station 19	38.05	23.95	3	Fair	PM25	1
2023-05-27 00:00:00			Athens CAMS station 14	38.15	23.95	3	Fair	PM25	1
2023-05-27 00:00:00			PANACEA_019	38.034657	23.702152	4	Poor	PM25	26.8
2023-05-27 00:00:00			Athens CAMS station 2	37.95	23.55	3	Fair	PM25	
2023-05-27 00:00:00			National Technical University of Athens	37.97721	23.783016	3	Moderate	O3	11.1
2023-05-27 00:00:00			PANACEA_006	37.813873	23.782408	3	Fair	O3	9.58
2023-05-27 00:00:00			CleanAir in Greece - Thiseio II	37.97381	23.719069	1	Extremely Poor	NO2	11.5
2023-05-27 00:00:00			PANACEA_AirPaP_001	38.037838	23.826132	3	Fair	O3	8.94
2023-05-27 00:00:00			Ano Liosia (Perneri)	38.08363	23.700375	3	Fair	PM25	11.4
2023-05-27 00:00:00			PANACEA_004	38.056435	23.840101	3	Fair	PM25	11.7
2023-05-27 00:00:00			ATHENS_02	37.98204	23.79478	1	Extremely Poor	NO2	9.80
2023-05-27 00:00:00			Athens CAMS station 15	38.05	23.55	3	Fair	PM25	1

Para aislar los valores de fecha, seleccione la celda B3 e inserte la siguiente fórmula =INT([@Column1]) y pulse 'Intro'.



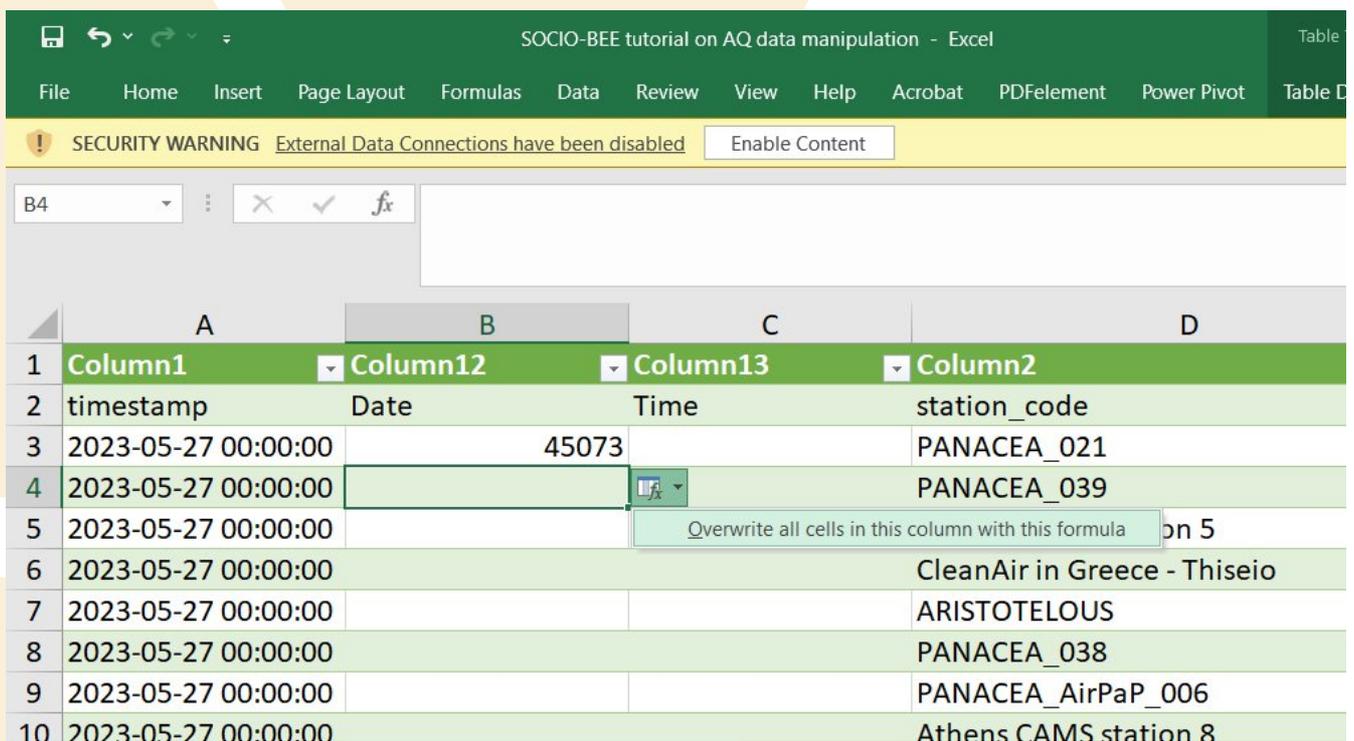
Column1	Column12	Column13	Column2	Column3	Column4	Column5	Column6	Column7	Column8
timestamp	Date	Time	station_code	lat	lon	Heatmap	AQI	Cause	PM2.5
2023-05-27 00:00:00	=INT([@Column1])		PANACEA_021	38.022263	23.737436	3	Fair	PM25	
2023-05-27 00:00:00			PANACEA_039	37.97081	23.748861	3	Fair	NO2	6.56
2023-05-27 00:00:00			Athens CAMS station 5	37.95	23.85	3	Fair	PM25	1
2023-05-27 00:00:00			CleanAir in Greece - Thiseio	37.974033	23.718441	1	Extremely Poor	NO2	
2023-05-27 00:00:00			ARISTOTELOUS	37.988	23.728	3	Fair	O3	
2023-05-27 00:00:00			PANACEA_038	37.9357	23.644547	3	Fair	O3	8.27
2023-05-27 00:00:00			PANACEA_AirPaP_006	37.95576	23.667692	3	Fair	O3	
2023-05-27 00:00:00			Athens CAMS station 8	37.85	23.65	3	Fair	PM25	1
2023-05-27 00:00:00			Athens CAMS station 4	37.95	23.75	3	Fair	PM25	1
2023-05-27 00:00:00			Athens CAMS station 19	38.05	23.95	3	Fair	PM25	1
2023-05-27 00:00:00			Athens CAMS station 14	38.15	23.95	3	Fair	PM25	1
2023-05-27 00:00:00			PANACEA_019	38.034657	23.702152	4	Poor	PM25	26.8
2023-05-27 00:00:00			Athens CAMS station 2	37.95	23.55	3	Fair	PM25	
2023-05-27 00:00:00			National Technical University of Athens	37.97721	23.783016	3	Moderate	O3	11.1
2023-05-27 00:00:00			PANACEA_006	37.813873	23.782408	3	Fair	O3	9.58
2023-05-27 00:00:00			CleanAir in Greece - Thiseio II	37.97381	23.719069	1	Extremely Poor	NO2	11.5
2023-05-27 00:00:00			PANACEA_AirPaP_001	38.037838	23.826132	3	Fair	O3	8.94
2023-05-27 00:00:00			Ano Liosia (Perneri)	38.08363	23.700375	3	Fair	PM25	11.4
2023-05-27 00:00:00			PANACEA_004	38.056435	23.840101	3	Fair	PM25	11.7
2023-05-27 00:00:00			ATHENS_02	37.98204	23.79478	1	Extremely Poor	NO2	9.80
2023-05-27 00:00:00			Athens CAMS station 15	38.05	23.55	3	Fair	PM25	1

¿QUÉ HAY QUE HACER ANTES DE TRATAR LOS DATOS?



Column1	Column12	Column13	Column2
timestamp	Date	Time	station_code
2023-05-27 00:00:00	45073		PANACEA_021
2023-05-27 00:00:00			PANACEA_039
2023-05-27 00:00:00			Athens CAMS station 5
2023-05-27 00:00:00			CleanAir in Greece - Thiseio
2023-05-27 00:00:00			ARISTOTELOUS
2023-05-27 00:00:00			PANACEA_038

A continuación, inserte la misma función en las celdas de abajo. Puede utilizar la ventana 'Pegado especial' que aparecerá, o simplemente puede hacer clic en la esquina inferior derecha de la celda, mantener pulsado y arrastrar el ratón hacia abajo.

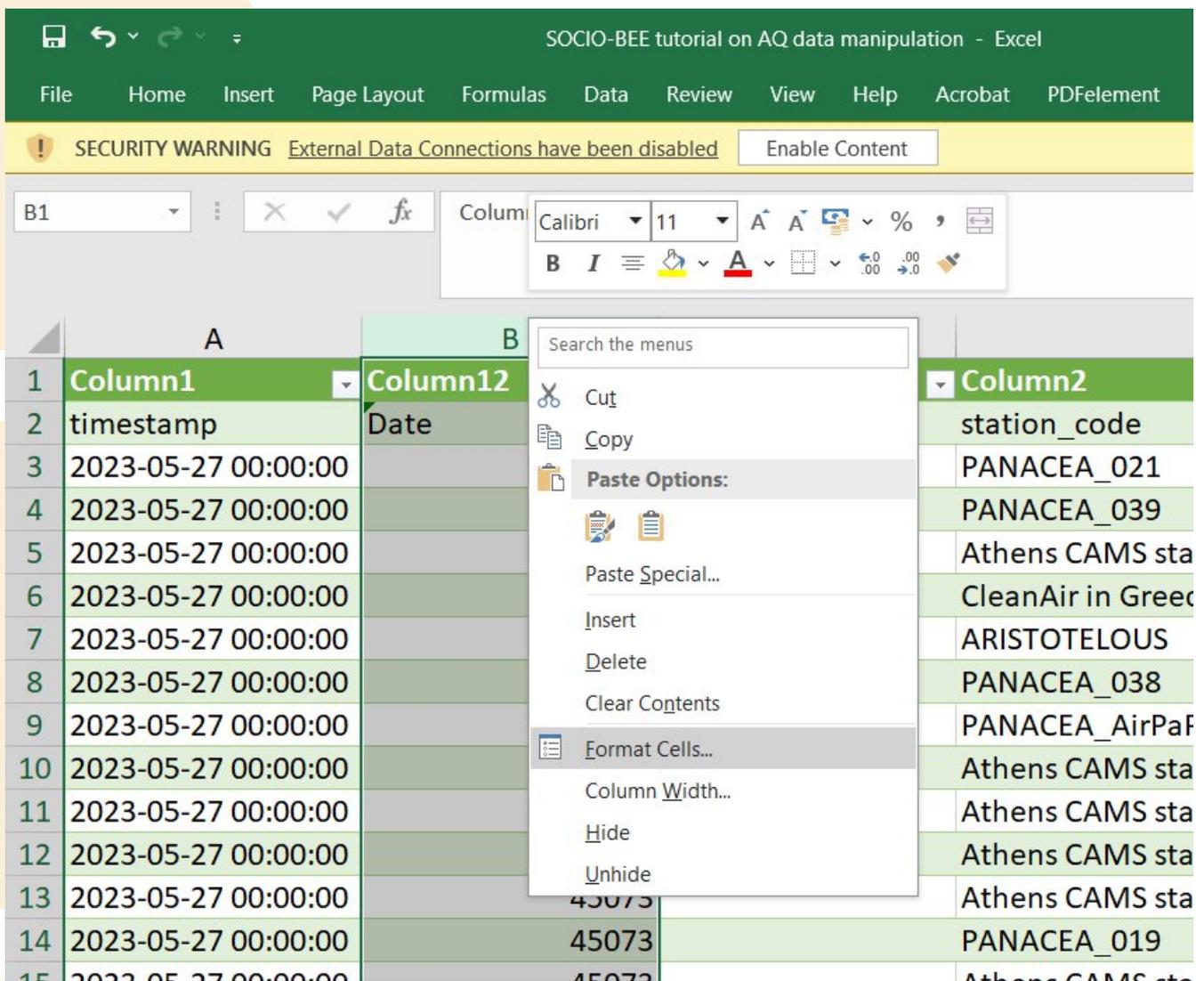


Column1	Column12	Column13	Column2
timestamp	Date	Time	station_code
2023-05-27 00:00:00	45073		PANACEA_021
2023-05-27 00:00:00			PANACEA_039
2023-05-27 00:00:00			Athens CAMS station 5
2023-05-27 00:00:00			CleanAir in Greece - Thiseio
2023-05-27 00:00:00			ARISTOTELOUS
2023-05-27 00:00:00			PANACEA_038
2023-05-27 00:00:00			PANACEA_AirPaP_006
2023-05-27 00:00:00			Athens CAMS station 8

¿QUÉ HAY QUE HACER ANTES DE TRATAR LOS DATOS?

Observarás que el valor que aparece en las celdas no es una fecha.

Para solucionarlo, selecciona toda la columna, haz clic con el botón derecho del ratón para abrir el menú y selecciona "Formato de celdas".



The screenshot shows an Excel spreadsheet with the following data:

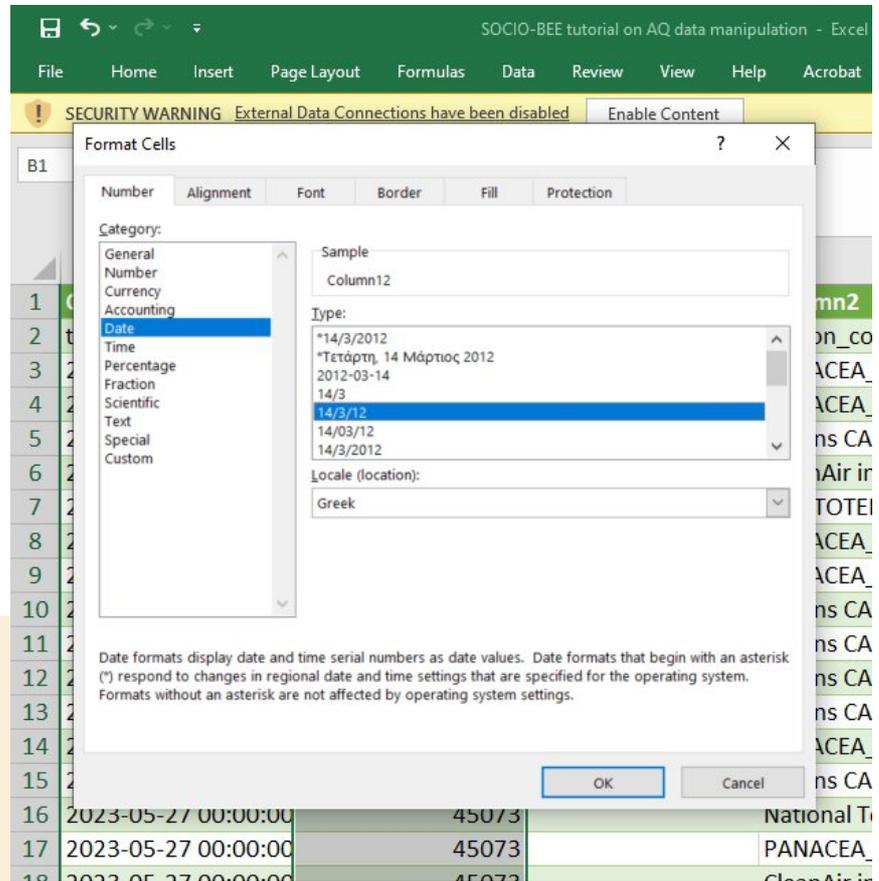
Column1	Column12	Column2
timestamp	Date	station_code
2023-05-27 00:00:00		PANACEA_021
2023-05-27 00:00:00		PANACEA_039
2023-05-27 00:00:00		Athens CAMS sta
2023-05-27 00:00:00		CleanAir in Greec
2023-05-27 00:00:00		ARISTOTELOUS
2023-05-27 00:00:00		PANACEA_038
2023-05-27 00:00:00		PANACEA_AirPaF
2023-05-27 00:00:00		Athens CAMS sta
2023-05-27 00:00:00		Athens CAMS sta
2023-05-27 00:00:00		Athens CAMS sta
2023-05-27 00:00:00	45073	Athens CAMS sta
2023-05-27 00:00:00	45073	PANACEA_019
2023-05-27 00:00:00	45073	Athens CAMS sta

The context menu is open over the 'Date' header, with the following options visible:

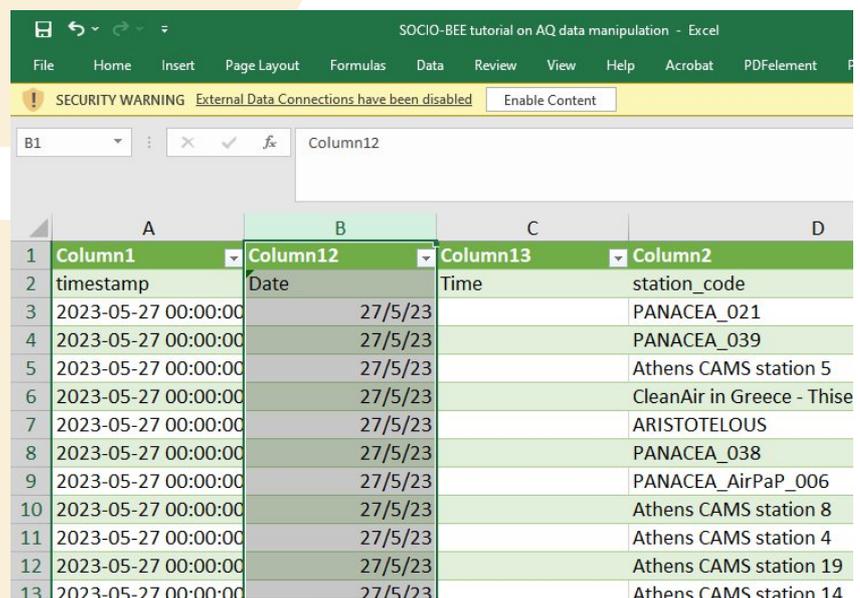
- Cut
- Copy
- Paste Options:
 - Paste Special...
- Insert
- Delete
- Clear Contents
- Format Cells...** (highlighted)
- Column Width...
- Hide
- Unhide

¿QUÉ HAY QUE HACER ANTES DE TRATAR LOS DATOS?

En el menú de formatos, vaya a la pestaña "Número" y seleccione "Fecha" en la lista de categorías de la izquierda. Elija el formato de fecha que desee en la lista de la derecha (en "Tipo").



Pulsa "OK".

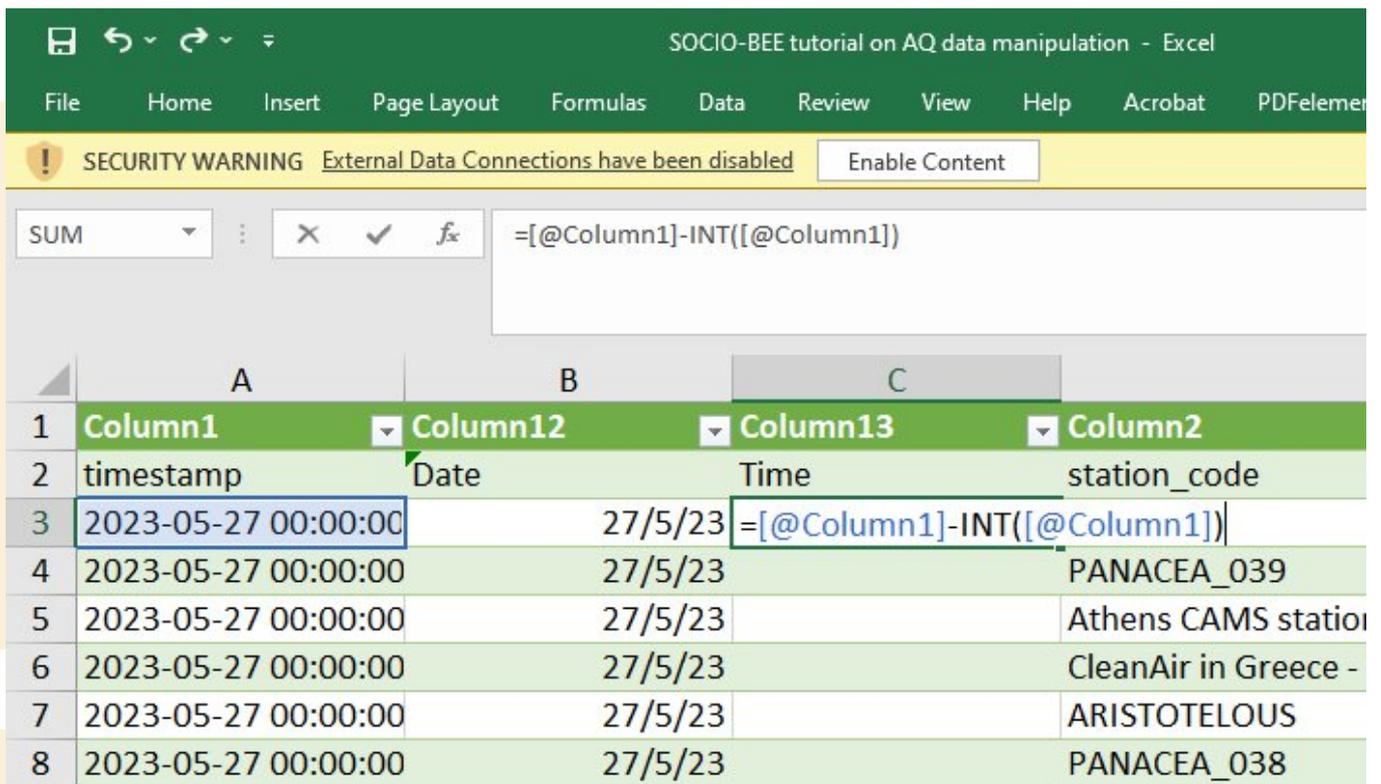


The screenshot shows the Excel spreadsheet after the date format has been applied. The 'timestamp' column (Column1) now displays dates in the format '27/5/23'. The other columns remain unchanged.

Column1	Column12	Column13	Column2
timestamp	Date	Time	station_code
2023-05-27 00:00:00	27/5/23		PANACEA_021
2023-05-27 00:00:00	27/5/23		PANACEA_039
2023-05-27 00:00:00	27/5/23		Athens CAMS station 5
2023-05-27 00:00:00	27/5/23		CleanAir in Greece - Thise
2023-05-27 00:00:00	27/5/23		ARISTOTELOUS
2023-05-27 00:00:00	27/5/23		PANACEA_038
2023-05-27 00:00:00	27/5/23		PANACEA_AirPaP_006
2023-05-27 00:00:00	27/5/23		Athens CAMS station 8
2023-05-27 00:00:00	27/5/23		Athens CAMS station 4
2023-05-27 00:00:00	27/5/23		Athens CAMS station 19
2023-05-27 00:00:00	27/5/23		Athens CAMS station 14

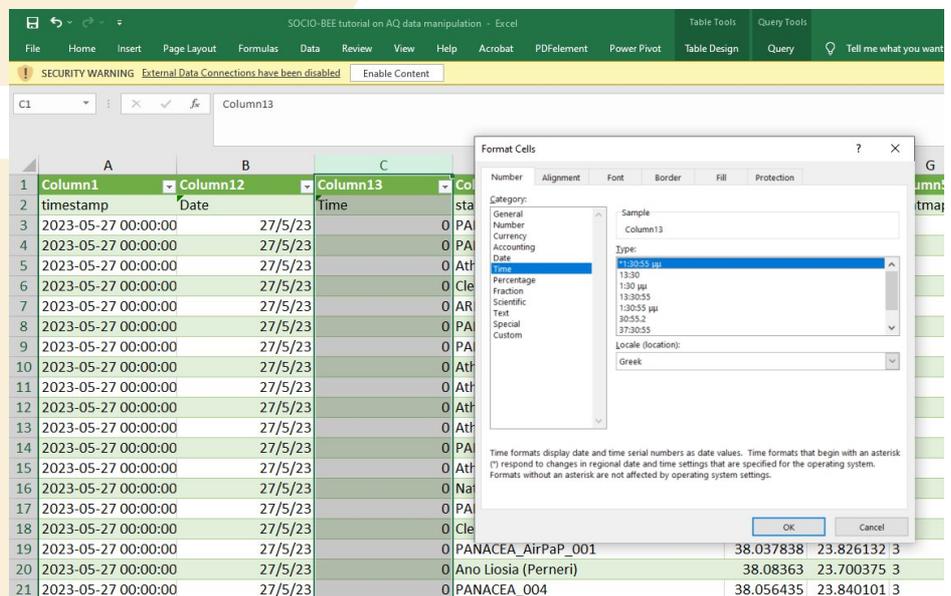
¿QUÉ HAY QUE HACER ANTES DE TRATAR LOS DATOS?

Para aislar los valores de tiempo, seleccione la celda C3 e inserte la siguiente fórmula `=[@Column1]-INT([@Column1])` y pulse 'Intro'.



	A	B	C	
1	Column1	Column12	Column13	Column2
2	timestamp	Date	Time	station_code
3	2023-05-27 00:00:00	27/5/23	<code>=[@Column1]-INT([@Column1])</code>	
4	2023-05-27 00:00:00	27/5/23		PANACEA_039
5	2023-05-27 00:00:00	27/5/23		Athens CAMS station
6	2023-05-27 00:00:00	27/5/23		CleanAir in Greece -
7	2023-05-27 00:00:00	27/5/23		ARISTOTELOUS
8	2023-05-27 00:00:00	27/5/23		PANACEA_038

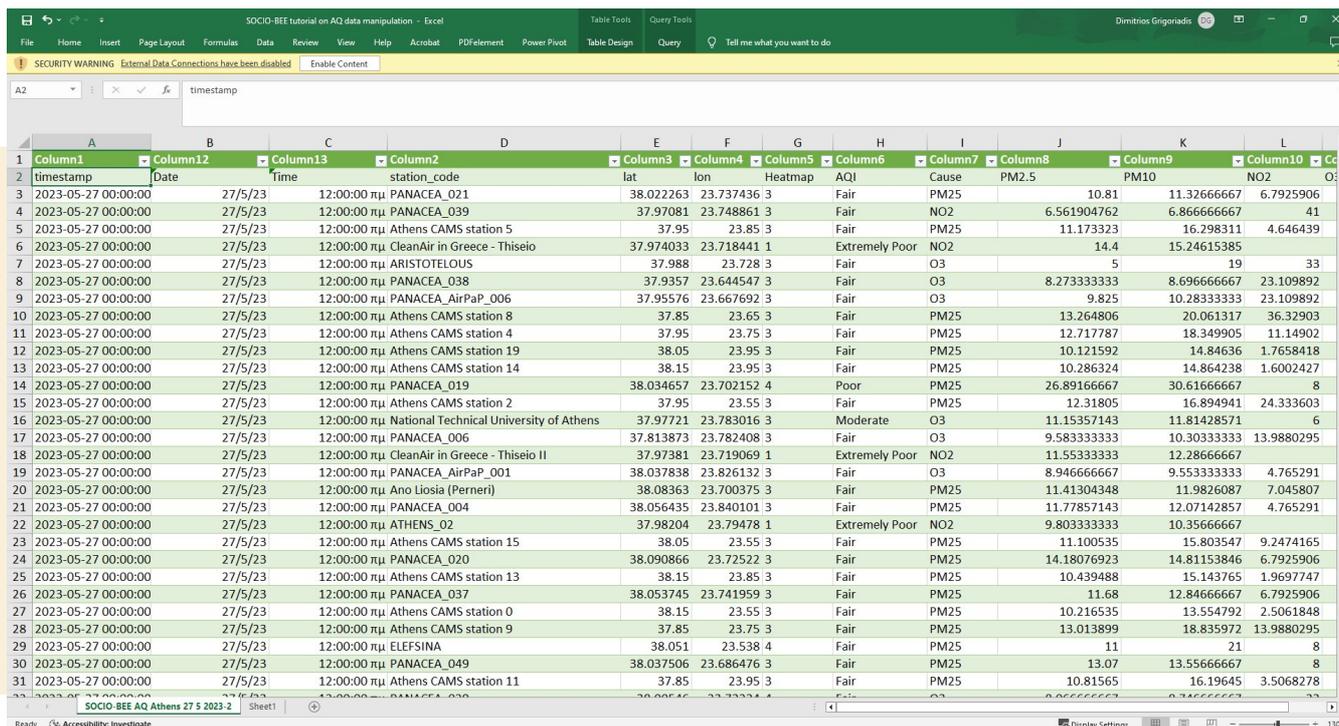
Siga el mismo procedimiento que para la columna "Fecha": pegue la función en las celdas de abajo y cambie el formato de las celdas a "Hora".



	A	B	C	
1	Column1	Column12	Column13	Column2
2	timestamp	Date	Time	station_code
3	2023-05-27 00:00:00	27/5/23		
4	2023-05-27 00:00:00	27/5/23		
5	2023-05-27 00:00:00	27/5/23		
6	2023-05-27 00:00:00	27/5/23		
7	2023-05-27 00:00:00	27/5/23		
8	2023-05-27 00:00:00	27/5/23		
9	2023-05-27 00:00:00	27/5/23		
10	2023-05-27 00:00:00	27/5/23		
11	2023-05-27 00:00:00	27/5/23		
12	2023-05-27 00:00:00	27/5/23		
13	2023-05-27 00:00:00	27/5/23		
14	2023-05-27 00:00:00	27/5/23		
15	2023-05-27 00:00:00	27/5/23		
16	2023-05-27 00:00:00	27/5/23		
17	2023-05-27 00:00:00	27/5/23		
18	2023-05-27 00:00:00	27/5/23		
19	2023-05-27 00:00:00	27/5/23		PANACEA_AirPaP_001
20	2023-05-27 00:00:00	27/5/23		Ano Liosia (Perneri)
21	2023-05-27 00:00:00	27/5/23		PANACEA_004

¿QUÉ HAY QUE HACER ANTES DE TRATAR LOS DATOS?

Tu archivo debería tener ahora este aspecto:



Column1	Column12	Column13	Column2	Column3	Column4	Column5	Column6	Column7	Column8	Column9	Column10	Column11
timestamp	Date	Time	station_code	lat	lon	Heatmap	AQI	Cause	PM2.5	PM10	NO2	OS
2023-05-27 00:00:00	27/5/23	12:00:00	PII PANACEA_021	38.022263	23.737436	3	Fair	PM25	10.81	11.32666667	6.7925906	
2023-05-27 00:00:00	27/5/23	12:00:00	PII PANACEA_039	37.97081	23.748861	3	Fair	NO2	6.561904762	6.866666667	41	
2023-05-27 00:00:00	27/5/23	12:00:00	PII Athens CAMS station 5	37.95	23.85	3	Fair	PM25	11.173333	16.298311	4.646439	
2023-05-27 00:00:00	27/5/23	12:00:00	PII CleanAir in Greece - Thiseio	37.974033	23.718441	1	Extremely Poor	NO2	14.4	15.24615385		
2023-05-27 00:00:00	27/5/23	12:00:00	PII ARISTOTELOUS	37.988	23.728	3	Fair	O3	5	19	33	
2023-05-27 00:00:00	27/5/23	12:00:00	PII PANACEA_038	37.9357	23.644547	3	Fair	O3	8.273333333	8.696666667	23.109892	
2023-05-27 00:00:00	27/5/23	12:00:00	PII PANACEA_AirPaP_006	37.95576	23.667692	3	Fair	O3	9.825	10.28333333	23.109892	
2023-05-27 00:00:00	27/5/23	12:00:00	PII Athens CAMS station 8	37.85	23.65	3	Fair	PM25	13.264806	20.061317	36.32903	
2023-05-27 00:00:00	27/5/23	12:00:00	PII Athens CAMS station 4	37.95	23.75	3	Fair	PM25	12.717787	18.349905	11.14902	
2023-05-27 00:00:00	27/5/23	12:00:00	PII Athens CAMS station 19	38.05	23.95	3	Fair	PM25	10.121592	14.84636	1.7658418	
2023-05-27 00:00:00	27/5/23	12:00:00	PII Athens CAMS station 14	38.15	23.95	3	Fair	PM25	10.286324	14.864238	1.6002427	
2023-05-27 00:00:00	27/5/23	12:00:00	PII PANACEA_019	38.034657	23.702152	4	Poor	PM25	26.89166667	30.61666667	8	
2023-05-27 00:00:00	27/5/23	12:00:00	PII Athens CAMS station 2	37.95	23.55	3	Fair	PM25	12.31805	16.894941	24.333603	
2023-05-27 00:00:00	27/5/23	12:00:00	PII National Technical University of Athens	37.97721	23.783016	3	Moderate	O3	11.15357143	11.81428571	6	
2023-05-27 00:00:00	27/5/23	12:00:00	PII PANACEA_006	37.813873	23.782408	3	Fair	O3	9.583333333	10.30333333	13.9880295	
2023-05-27 00:00:00	27/5/23	12:00:00	PII CleanAir in Greece - Thiseio II	37.97381	23.719069	1	Extremely Poor	NO2	11.55333333	12.28666667		
2023-05-27 00:00:00	27/5/23	12:00:00	PII PANACEA_AirPaP_001	38.037838	23.826132	3	Fair	O3	8.946666667	9.553333333	4.765291	
2023-05-27 00:00:00	27/5/23	12:00:00	PII Ano Liosia (Perneri)	38.08363	23.700375	3	Fair	PM25	11.41304348	11.9826087	7.045807	
2023-05-27 00:00:00	27/5/23	12:00:00	PII PANACEA_004	38.056435	23.840101	3	Fair	PM25	11.77857143	12.07142857	4.765291	
2023-05-27 00:00:00	27/5/23	12:00:00	PII ATHENS_02	37.98204	23.79478	1	Extremely Poor	NO2	9.803333333	10.35666667		
2023-05-27 00:00:00	27/5/23	12:00:00	PII Athens CAMS station 15	38.05	23.55	3	Fair	PM25	11.100535	15.803547	9.2474165	
2023-05-27 00:00:00	27/5/23	12:00:00	PII PANACEA_020	38.090866	23.72522	3	Fair	PM25	14.18076923	14.81153846	6.7925906	
2023-05-27 00:00:00	27/5/23	12:00:00	PII Athens CAMS station 13	38.15	23.85	3	Fair	PM25	10.439488	15.143765	1.9697747	
2023-05-27 00:00:00	27/5/23	12:00:00	PII PANACEA_037	38.053745	23.741959	3	Fair	PM25	11.68	12.84666667	6.7925906	
2023-05-27 00:00:00	27/5/23	12:00:00	PII Athens CAMS station 0	38.15	23.55	3	Fair	PM25	10.216535	13.554792	2.5061848	
2023-05-27 00:00:00	27/5/23	12:00:00	PII Athens CAMS station 9	37.85	23.75	3	Fair	PM25	13.013899	18.835972	13.9880295	
2023-05-27 00:00:00	27/5/23	12:00:00	PII ELEFSINA	38.051	23.538	4	Fair	PM25	11	21	8	
2023-05-27 00:00:00	27/5/23	12:00:00	PII PANACEA_049	38.037506	23.686476	3	Fair	PM25	13.07	13.55666667	8	
2023-05-27 00:00:00	27/5/23	12:00:00	PII Athens CAMS station 11	37.85	23.95	3	Fair	PM25	10.81565	16.19645	3.5068278	

Ahora ya estás listo para empezar a identificar los datos adecuados y cómo trazarlos.

Tenga en cuenta que para encontrar los datos correctos debe revisar la hipótesis de la colmena que dio origen a la(s) campaña(s) que está analizando.

Las páginas siguientes contienen un ejemplo sencillo de una hipótesis y de cómo identificar y trazar los datos pertinentes.

¿CÓMO IDENTIFICAR LOS DATOS CORRECTOS?

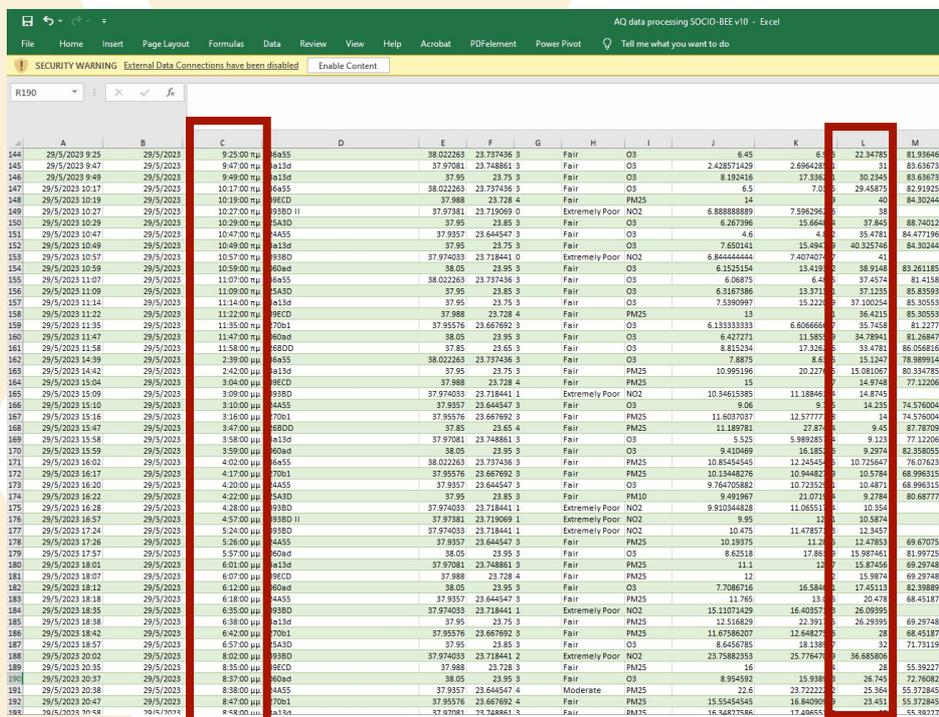
Ejemplo de hipótesis

Suponga que su colmena está probando la siguiente hipótesis: "El aumento de la congestión del tráfico provoca mayores niveles de dióxido de nitrógeno (NO2) en la zona de campaña".

Para comprobar la validez de la hipótesis anterior, necesita conocer el nivel de concentración de NO2 en la zona de campaña en momentos concretos.

A continuación, puede representar gráficamente los "niveles de NO2" en función del "tiempo" y comparar los periodos de hora punta con los periodos de hora no punta.

Esto significa que necesitará los datos de la columna C (Tiempo) y de la columna L (NO2).



	A	B	C	D	E	F	G	H	I	J	K	L	M	
144	29/5/2023	9:25	9:25:00	6a55	38.022263	23.737436	3	Fair	03		6.45	6.5	22.34783	81.93646
145	29/5/2023	9:27	9:27:00	6a5d	37.97081	23.748861	3	Fair	03	2.428571429	2.666429	6.5	30.24545	83.63673
146	29/5/2023	9:49	9:49:00	6a5d	37.95	23.75	3	Fair	03	6.192416	17.3386	6.5	29.45875	82.91925
147	29/5/2023	10:17	10:17:00	6a55	38.022263	23.737436	3	Fair	PM25		6.5	7.0	29.45875	82.91925
148	29/5/2023	10:19	10:19:00	6a5d	37.988	23.728	4	Fair	PM25		6.5	7.0	29.45875	82.91925
149	29/5/2023	10:27	10:27:00	9b9D II	37.97881	23.719059	0	Extremely Poor	NO2	6.888888889	7.596396	6.5	30.24545	83.63673
150	29/5/2023	10:29	10:29:00	5A3D	37.95	23.85	3	Fair	03	6.267396	15.6644	6.5	30.24545	83.63673
151	29/5/2023	10:47	10:47:00	6a55	37.9357	23.644547	3	Fair	03	4.6	4.6	6.5	35.4781	84.477196
152	29/5/2023	10:49	10:49:00	6a5d	37.95	23.75	3	Fair	03	7.632141	15.6644	6.5	40.325346	84.30244
153	29/5/2023	10:57	10:57:00	9b9D	37.974033	23.718441	0	Extremely Poor	NO2	6.844444444	7.407407	6.5	30.24545	83.63673
154	29/5/2023	10:59	10:59:00	60a4d	38.05	23.95	3	Fair	03	6.1325154	13.419	6.5	38.9148	83.26185
155	29/5/2023	11:07	11:07:00	6a55	38.022263	23.737436	3	Fair	03	6.68675	6.4	6.5	37.4574	81.4158
156	29/5/2023	11:09	11:09:00	5A3D	37.95	23.85	3	Fair	03	6.3167396	13.3713	6.5	37.1233	85.83593
157	29/5/2023	11:14	11:14:00	6a5d	37.95	23.75	3	Fair	03	7.5390997	15.222	6.5	37.100154	85.30553
158	29/5/2023	11:22	11:22:00	9b9D	37.988	23.728	4	Fair	PM25		13	13	36.4215	85.30553
159	29/5/2023	11:35	11:35:00	70b1	37.95576	23.667692	3	Fair	03	6.133333333	6.606666667	6.5	45.7458	81.2277
160	29/5/2023	11:47	11:47:00	60a4d	38.05	23.95	3	Fair	03	6.427271	11.5853	6.5	34.78941	81.26847
161	29/5/2023	11:58	11:58:00	6b0D	37.85	23.65	3	Fair	03	8.815234	17.326	6.5	33.4781	86.056816
162	29/5/2023	14:39	14:39:00	6a55	38.022263	23.737436	3	Fair	03	7.8875	8.6	6.5	15.1247	78.989914
163	29/5/2023	14:42	14:42:00	6a5d	37.95	23.75	3	Fair	PM25	10.992196	20.217	6.5	15.08167	80.334785
164	29/5/2023	15:04	15:04:00	9b9D	37.988	23.728	4	Fair	PM25		15	15	14.9748	77.12206
165	29/5/2023	15:09	15:09:00	9b9D	37.974033	23.718441	1	Extremely Poor	NO2	10.34615385	11.18846	6.5	14.8745	74.576004
166	29/5/2023	15:10	15:10:00	6A55	37.9357	23.644547	3	Fair	03	9.06	9.06	6.5	14.235	74.576004
167	29/5/2023	15:16	15:16:00	70b1	37.95576	23.667692	3	Fair	PM25	11.6037037	12.57777	6.5	14	74.576004
168	29/5/2023	15:47	15:47:00	6b0D	37.85	23.65	3	Fair	PM25	11.189781	27.874	6.5	9.45	87.78709
169	29/5/2023	15:58	15:58:00	6a5d	37.97081	23.748861	3	Fair	03	5.525	5.989285	6.5	9.123	77.12206
170	29/5/2023	15:59	15:59:00	6a5d	37.95	23.75	3	Fair	03	9.430469	16.485	6.5	9.2074	82.359055
171	29/5/2023	16:02	16:02:00	6a55	38.022263	23.737436	3	Fair	PM25	10.85454545	12.24545	6.5	10.725647	76.0723
172	29/5/2023	16:17	16:17:00	70b1	37.95576	23.667692	3	Fair	PM25	10.13448276	10.94482	6.5	10.5784	68.996315
173	29/5/2023	16:20	16:20:00	6A55	37.9357	23.644547	3	Fair	03	9.16470382	10.7232	6.5	11.4871	68.996315
174	29/5/2023	16:22	16:22:00	5A3D	37.95	23.85	3	Fair	PM10	9.491967	21.071	6.5	9.2784	80.68777
175	29/5/2023	16:28	16:28:00	9b9D	37.974033	23.718441	1	Extremely Poor	NO2	9.910344828	11.06551	6.5	10.354	69.67075
176	29/5/2023	16:57	16:57:00	9b9D II	37.97381	23.718099	1	Extremely Poor	NO2	9.8	12	6.5	10.3674	69.67075
177	29/5/2023	17:24	17:24:00	9b9D	37.974033	23.718441	1	Extremely Poor	NO2	10.475	11.47857	6.5	13.2457	69.67075
178	29/5/2023	17:26	17:26:00	6A55	37.9357	23.644547	3	Fair	PM25	10.18975	11.2	6.5	12.47853	69.67075
179	29/5/2023	17:57	17:57:00	60a4d	38.05	23.95	3	Fair	03	8.62518	17.86	6.5	15.987461	81.99725
180	29/5/2023	18:01	18:01:00	6a5d	37.97081	23.748861	3	Fair	PM25	11.1	12	6.5	15.87456	69.29748
181	29/5/2023	18:07	18:07:00	9b9D	37.988	23.728	4	Fair	PM25	12	12	6.5	15.9874	69.29748
182	29/5/2023	18:12	18:12:00	60a4d	38.05	23.95	3	Fair	03	7.7086716	16.584	6.5	17.45113	82.39889
183	29/5/2023	18:18	18:18:00	6A55	37.9357	23.644547	3	Fair	PM25	11.765	13	6.5	20.478	68.45187
184	29/5/2023	18:35	18:35:00	9b9D	37.974033	23.718441	1	Extremely Poor	NO2	15.11071429	16.40357	6.5	26.09395	69.29748
185	29/5/2023	18:38	18:38:00	6a5d	37.95	23.75	3	Fair	PM25	12.516829	22.391	6.5	26.29395	69.29748
186	29/5/2023	18:42	18:42:00	70b1	37.95576	23.667692	3	Fair	PM25	11.67586207	12.64827	6.5	28	68.45187
187	29/5/2023	18:57	18:57:00	5A3D	37.95	23.85	3	Fair	03	6.646785	18.116	6.5	21.7139	71.7915
188	29/5/2023	20:02	20:02:00	9b9D	37.974033	23.718441	2	Extremely Poor	NO2	23.75882353	25.77647	6.5	36.68506	68.45187
189	29/5/2023	20:35	20:35:00	9b9D	37.988	23.728	4	Fair	PM25	16	16	6.5	28	55.39227
190	29/5/2023	20:37	20:37:00	60a4d	37.985	23.95	3	Fair	03	8.954582	15.939	6.5	26.145	72.74082
191	29/5/2023	20:58	20:58:00	6A55	37.9357	23.644547	4	Moderate	PM25	22.6	23.72212	6.5	25.564	55.372845
192	29/5/2023	20:47	20:47:00	70b1	37.95576	23.667692	4	Fair	PM25	15.55454545	16.84099	6.5	23.451	55.372845
193	29/5/2023	20:48	20:48:00	6A55	37.92081	23.68861	3	Fair	PM25	16.5483768	17.48655	6.5	23.451	55.372845

¿CÓMO IDENTIFICAR LOS DATOS CORRECTOS?

Vamos a trazar los niveles diarios de concentración de NO2 en función del tiempo.

Para este ejemplo, elegiremos los datos del 29 de mayo de 2023. Desplázate hacia abajo en tu hoja de cálculo para encontrar los datos con esta fecha.

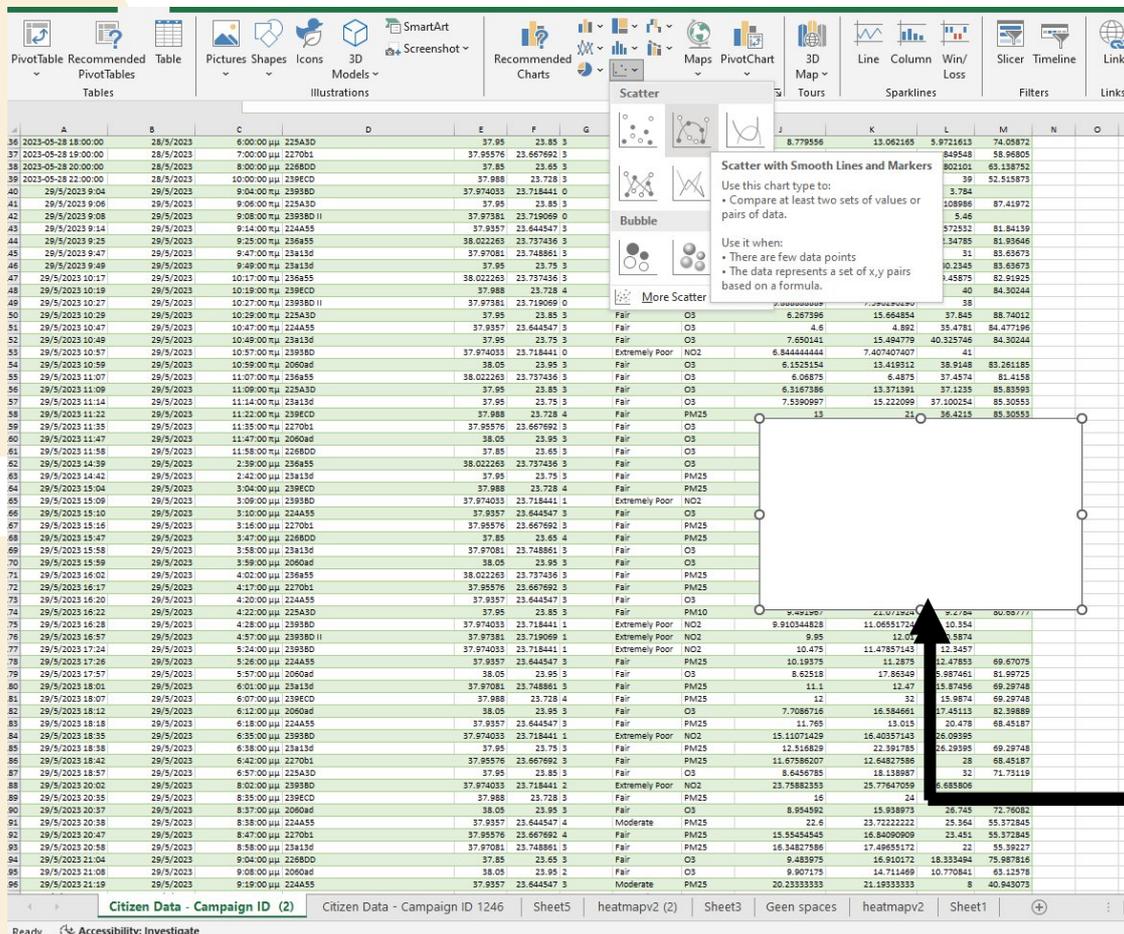
Excel spreadsheet showing AQ data processing for SOCIO-BEE v10. The spreadsheet displays a table with columns for time, location, and various data points. The selected cell L140 shows the value 3.784.

Column1	Column2	Column3	Column4	Column5	Column6	Column7	Column8	Column9	Column10	Column11			
136	2023-05-28 18:00:00	28/5/2023	6:00:00 µµµ	228A5D	37.95	23.85	3	Fair	O3	8.779556	13.062166	5.9721613	74.05872
137	2023-05-28 19:00:00	28/5/2023	7:00:00 µµµ	227001	37.95576	23.667692	3	Fair	O3	9.12	8.73	27.849548	58.96905
138	2023-05-28 20:00:00	28/5/2023	8:00:00 µµµ	226800	37.85	23.65	3	Fair	PM25	11.002544	16.844456	27.802101	63.138792
139	2023-05-28 22:00:00	28/5/2023	10:00:00 µµµ	239E0C	37.988	23.728	3	Fair	PM25	17	20	39	52.515873
140	29/5/2023 9:04	29/5/2023	9:04:00 µµµ	23938D	37.974033	23.718441	0	Extremely Poor	NO2	8.893333333	6.603333333	3.75	
141	29/5/2023 9:06	29/5/2023	9:06:00 µµµ	225A5D	37.95	23.85	3	Fair	O3	7.045032	16.804652	3.7108966	
142	29/5/2023 9:08	29/5/2023	9:08:00 µµµ	23938D II	37.97381	23.719069	0	Extremely Poor	NO2	8.363333333	9.45	5.46	87.41972
143	29/5/2023 9:14	29/5/2023	9:14:00 µµµ	224A55	37.9357	23.644547	3	Fair	O3	5.114285714	5.461904762	11.572532	81.84139
144	29/5/2023 9:25	29/5/2023	9:25:00 µµµ	236A55	38.022263	23.737456	3	Fair	O3	6.45	6.925	22.34785	81.93646
145	29/5/2023 9:47	29/5/2023	9:47:00 µµµ	23A13d	37.97081	23.748861	3	Fair	O3	2.428571429	2.694485714	31	83.63873
146	29/5/2023 9:49	29/5/2023	9:49:00 µµµ	23A13d	37.95	23.75	3	Fair	O3	8.392416	17.336231	30.2345	88.63673
147	29/5/2023 10:17	29/5/2023	10:17:00 µµµ	236A55	38.022263	23.737456	3	Fair	O3	6.5	7.0375	29.45875	82.91925
148	29/5/2023 10:19	29/5/2023	10:19:00 µµµ	239E0C	37.988	23.728	4	Fair	PM25	14	19	40	84.30244
149	29/5/2023 10:27	29/5/2023	10:27:00 µµµ	23938D II	37.97381	23.719069	0	Extremely Poor	NO2	6.888888889	7.596296296	38	
150	29/5/2023 10:29	29/5/2023	10:29:00 µµµ	225A5D	37.95	23.85	3	Fair	O3	6.287296	15.664854	37.848	88.74021
151	29/5/2023 10:47	29/5/2023	10:47:00 µµµ	224A55	37.9357	23.644547	3	Fair	O3	4.6	4.892	35.4781	84.47196
152	29/5/2023 10:49	29/5/2023	10:49:00 µµµ	23A13d	37.95	23.75	3	Fair	O3	7.650141	15.494779	40.325746	84.30244
153	29/5/2023 10:57	29/5/2023	10:57:00 µµµ	23938D	37.974033	23.718441	0	Extremely Poor	NO2	6.844444444	7.407407407	41	
154	29/5/2023 10:59	29/5/2023	10:59:00 µµµ	20609d	38.05	23.95	3	Fair	O3	6.1325154	12.443312	38.9148	83.261585
155	29/5/2023 11:07	29/5/2023	11:07:00 µµµ	236A55	38.022263	23.737456	3	Fair	O3	6.06875	6.4875	37.4574	81.4158
156	29/5/2023 11:09	29/5/2023	11:09:00 µµµ	225A5D	37.95	23.85	3	Fair	O3	6.3187386	13.371391	37.12335	85.83583
157	29/5/2023 11:14	29/5/2023	11:14:00 µµµ	23A13d	37.95	23.75	3	Fair	O3	7.5390997	15.222099	37.100234	85.30593
158	29/5/2023 11:22	29/5/2023	11:22:00 µµµ	239E0C	37.988	23.728	4	Fair	PM25	13	21	35.4215	85.30593
159	29/5/2023 11:35	29/5/2023	11:35:00 µµµ	227001	37.95576	23.667692	3	Fair	O3	6.133333333	6.606666667	35.7458	81.2277
160	29/5/2023 11:47	29/5/2023	11:47:00 µµµ	20609d	38.05	23.95	3	Fair	O3	6.427271	11.585599	34.78941	81.28847
161	29/5/2023 11:58	29/5/2023	11:58:00 µµµ	226800	37.85	23.65	3	Fair	O3	8.815234	17.326216	33.4781	86.098816
162	29/5/2023 12:39	29/5/2023	2:39:00 µµµ	236A55	38.022263	23.737456	3	Fair	O3	7.8875	8.6375	15.1247	78.989944
163	29/5/2023 12:42	29/5/2023	2:42:00 µµµ	23A13d	37.95	23.75	3	Fair	PM25	10.595156	20.127655	15.081087	80.334755
164	29/5/2023 15:04	29/5/2023	3:04:00 µµµ	239E0C	37.988	23.728	4	Fair	PM25	15	17	14.9748	77.12206
165	29/5/2023 15:09	29/5/2023	3:09:00 µµµ	23938D	37.974033	23.718441	1	Extremely Poor	NO2	10.34615385	11.18846154	14.8745	
166	29/5/2023 15:10	29/5/2023	3:10:00 µµµ	224A55	37.9357	23.644547	3	Fair	O3	9.06	9.775	14.235	74.570004
167	29/5/2023 15:16	29/5/2023	3:16:00 µµµ	227001	37.95576	23.667692	3	Fair	PM25	11.6037037	12.5777778	14	74.570004
168	29/5/2023 15:47	29/5/2023	3:47:00 µµµ	226800	37.85	23.65	4	Fair	PM25	11.189791	27.87464	9.45	87.78709
169	29/5/2023 15:58	29/5/2023	3:58:00 µµµ	23A13d	37.97081	23.748861	3	Fair	O3	5.523	5.989285714	9.123	77.12206
170	29/5/2023 15:59	29/5/2023	3:59:00 µµµ	20609d	38.05	23.95	3	Fair	O3	9.410469	16.185246	9.2974	82.358095
171	29/5/2023 16:01	29/5/2023	4:01:00 µµµ	236A55	38.022263	23.737456	3	Fair	PM25	10.85454545	12.45454545	10.725647	76.07613
172	29/5/2023 16:17	29/5/2023	4:17:00 µµµ	227001	37.95576	23.667692	3	Fair	PM25	10.13448276	10.94482759	10.5784	68.996315
173	29/5/2023 16:20	29/5/2023	4:20:00 µµµ	224A55	37.9357	23.644547	3	Fair	O3	9.764705882	10.72352841	10.4871	68.996315
174	29/5/2023 16:22	29/5/2023	4:22:00 µµµ	225A5D	37.95	23.85	3	Fair	PM10	9.491967	21.071924	9.2784	80.68777
175	29/5/2023 16:28	29/5/2023	4:28:00 µµµ	23938D	37.974033	23.718441	1	Extremely Poor	NO2	9.010348218	11.05551724	10.354	
176	29/5/2023 16:57	29/5/2023	4:57:00 µµµ	23938D II	37.97381	23.719069	1	Extremely Poor	NO2	9.95	12.01	10.9874	
177	29/5/2023 17:24	29/5/2023	5:24:00 µµµ	23938D	37.974033	23.718441	1	Extremely Poor	NO2	10.475	11.47857143	12.3487	
178	29/5/2023 17:26	29/5/2023	5:26:00 µµµ	224A55	37.9357	23.644547	3	Fair	PM25	10.19375	11.2875	12.47833	69.67075
179	29/5/2023 17:57	29/5/2023	5:57:00 µµµ	20609d	38.05	23.95	3	Fair	O3	8.62518	17.86549	15.897461	81.99725
180	29/5/2023 18:01	29/5/2023	6:01:00 µµµ	23A13d	37.97081	23.748861	3	Fair	PM25	11.1	12.47	15.87436	69.29748
181	29/5/2023 18:07	29/5/2023	6:07:00 µµµ	239E0C	37.988	23.728	4	Fair	PM25	12	32	15.9874	69.29748
182	29/5/2023 18:12	29/5/2023	6:12:00 µµµ	20609d	38.05	23.95	3	Fair	O3	7.7086716	16.584661	17.45113	82.39889
183	29/5/2023 18:18	29/5/2023	6:18:00 µµµ	224A55	37.9357	23.644547	3	Fair	PM25	11.765	15.015	20.478	68.45187
184	29/5/2023 18:35	29/5/2023	6:35:00 µµµ	23938D	37.974033	23.718441	1	Extremely Poor	NO2	15.110714318	16.40397143	26.69396	
185	29/5/2023 18:38	29/5/2023	6:38:00 µµµ	23A13d	37.95	23.75	3	Fair	PM25	12.516829	22.391785	26.29395	69.29748
186	29/5/2023 18:42	29/5/2023	6:42:00 µµµ	227001	37.95576	23.667692	3	Fair	PM25	11.67588207	12.64827586	28	68.45187
187	29/5/2023 18:57	29/5/2023	6:57:00 µµµ	225A5D	37.95	23.85	3	Fair	O3	8.6456785	16.118697	32	71.71119
188	29/5/2023 20:02	29/5/2023	8:02:00 µµµ	23938D	37.974033	23.718441	2	Extremely Poor	NO2	23.79832333	25.77647059	36.658506	
189	29/5/2023 20:35	29/5/2023	8:35:00 µµµ	239E0C	37.988	23.728	3	Fair	PM25	16	24	28	55.99227
190	29/5/2023 20:37	29/5/2023	8:37:00 µµµ	20609d	38.05	23.95	3	Fair	O3	8.854592	15.938973	26.745	72.76082
191	29/5/2023 20:38	29/5/2023	8:38:00 µµµ	224A55	37.9357	23.644547	4	Moderate	PM25	22.6	23.7222222	25.364	55.372845
192	29/5/2023 20:47	29/5/2023	8:47:00 µµµ	227001	37.95576	23.667692	4	Fair	PM25	15.58454545	16.84090099	23.451	55.372845
193	29/5/2023 20:58	29/5/2023	8:58:00 µµµ	23A13d	37.97081	23.748861	3	Fair	PM25	16.34827586	17.49655172	22	55.99227
194	29/5/2023 21:04	29/5/2023	9:04:00 µµµ	226800	37.85	23.65	3	Fair	O3	9.483975	16.910172	18.333484	78.987816
195	29/5/2023 21:08	29/5/2023	9:08:00 µµµ	20609d	38.05	23.95	2	Fair	O3	9.907175	14.711469	10.770841	63.12578
196	29/5/2023 21:19	29/5/2023	9:19:00 µµµ	224A55	37.9357	23.644547	5	Moderate	PM25	20.23333333	21.19333333	8	40.943073

¿CÓMO SE REPRESENTAN LOS DATOS?

Una vez que haya identificado los datos que desea representar, vaya a "Insertar" y elija el gráfico más apropiado para representar los datos.

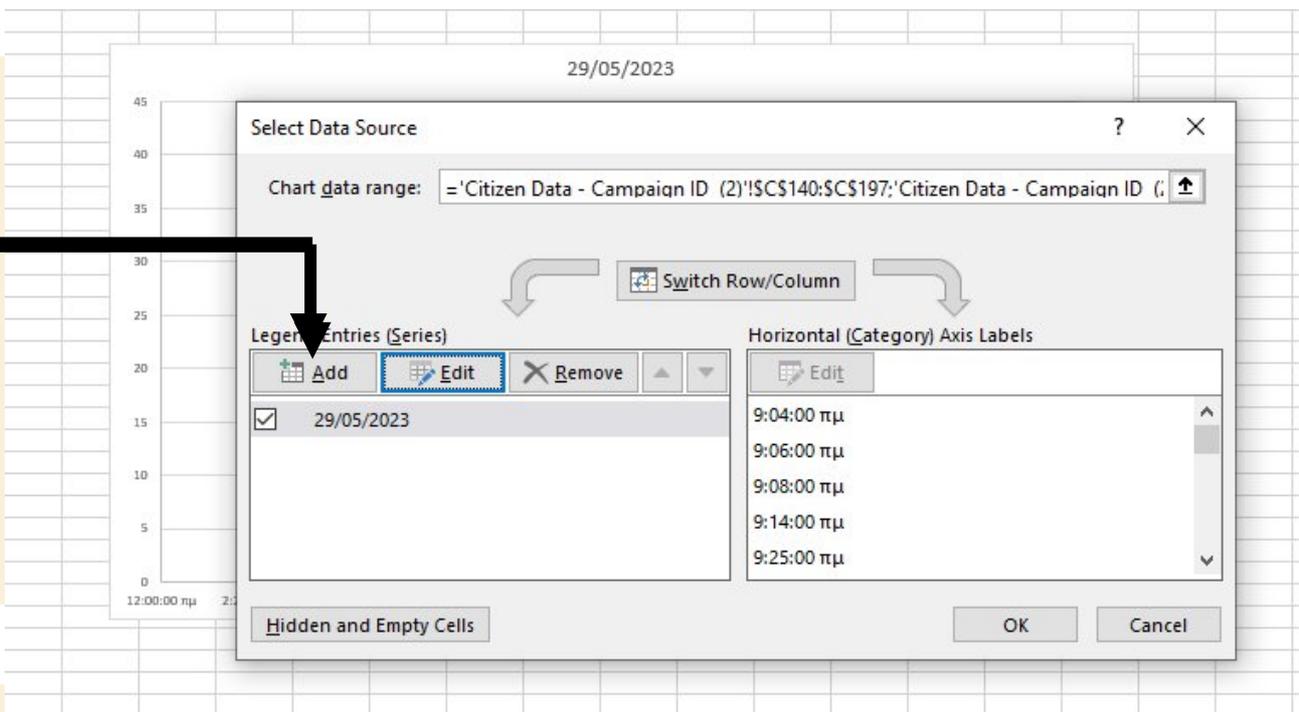
En este ejemplo, utilizaremos un gráfico de dispersión con líneas suaves y marcadores.



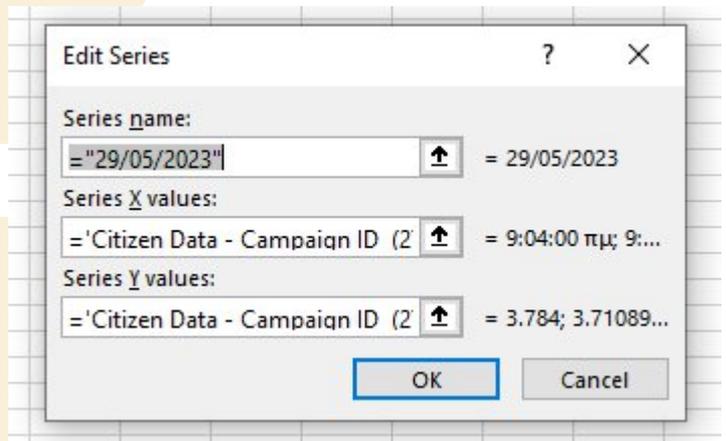
Haga clic con el botón derecho del ratón en el marco blanco vacío y pulse "Seleccionar datos".

¿CÓMO SE REPRESENTAN LOS DATOS?

En la ventana que se abre, seleccione "Añadir" en la parte izquierda para añadir una nueva serie de datos.



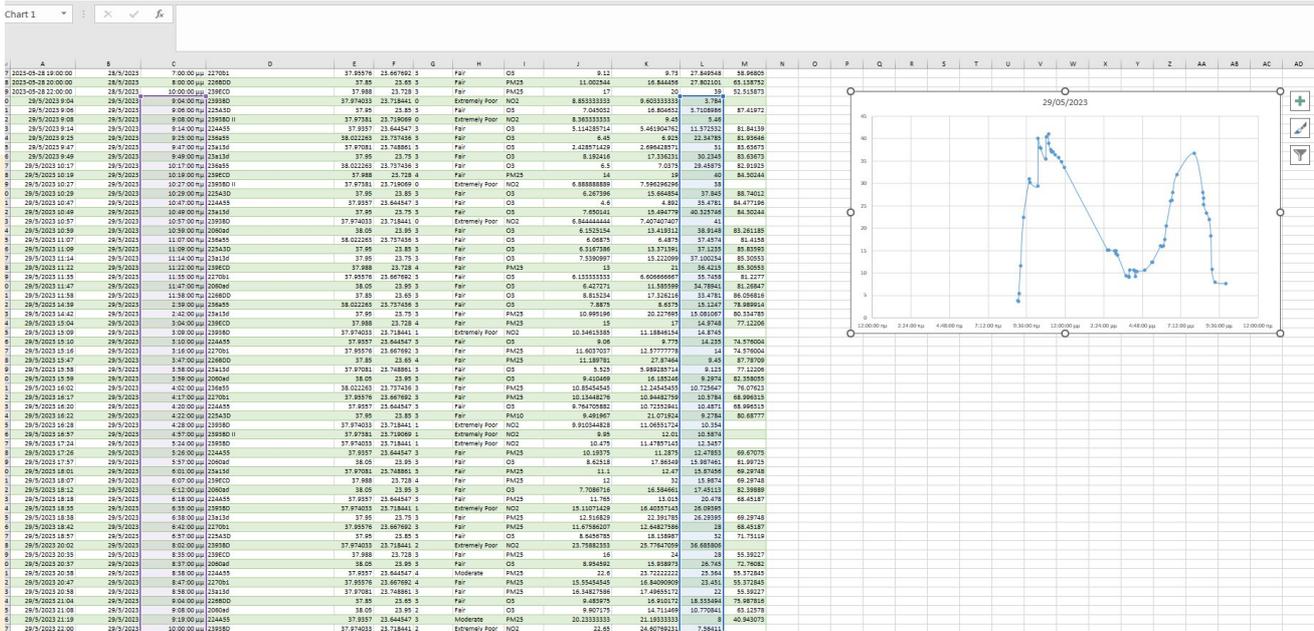
Edite el nombre de la serie de datos y, a continuación, seleccione los valores horizontales (valores X) y los valores perpendiculares (valores Y) de su gráfico.



Normalmente, este tipo de gráficos tienen el tiempo en el eje X y la concentración de contaminantes en el eje Y.

¿CÓMO SE REPRESENTAN LOS DATOS?

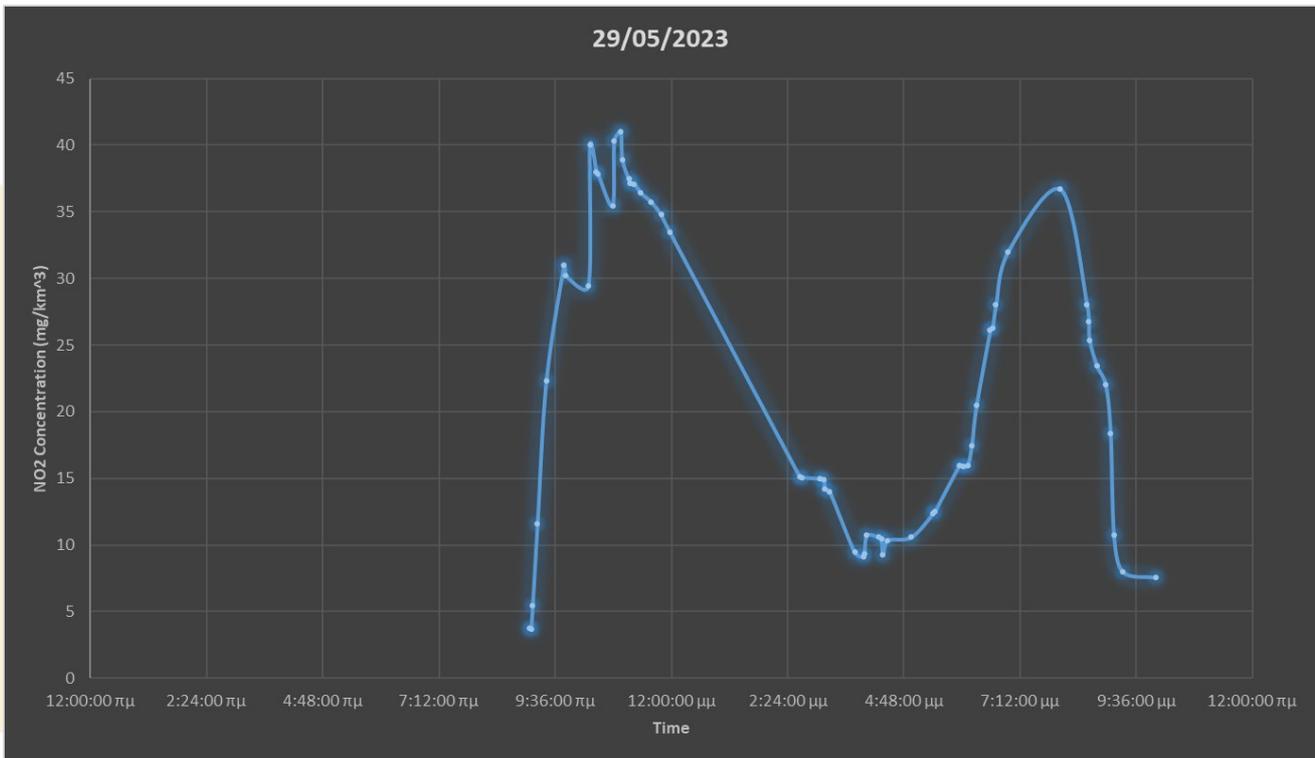
Seleccione "OK" y los datos seleccionados se representarán en el gráfico.



Haz clic en el gráfico para editar elementos como el eje o la leyenda. Siéntete libre de personalizar tu gráfico.

¿CÓMO SE REPRESENTAN LOS DATOS?

Veamos nuestro gráfico final, que representa la evolución diaria de la concentración de NO₂ en la zona de la campaña.



Los datos del lunes 29/05/2023 muestran efectivamente un aumento de la concentración de NO₂ durante las horas punta.

Es un paso adelante en la validación de tu hipótesis.

ATENCIÓN: Este sencillo gráfico no valida totalmente la hipótesis. Puede que necesites varios gráficos diarios, semanales o estacionales con suficientes puntos de datos para llegar a una conclusión segura.

Sin embargo, puedes discutir el gráfico con tu colmena y organizar más campañas o comunicárselas a tu Oso para un análisis más profundo.



SOCIO-BEE
Community for Change



¿Por qué debería consultar también a un experto en calidad del aire?

Como ciudadanos científicos, sus esfuerzos colectivos en SOCIO-BEE desempeñan un papel crucial en el seguimiento y la comprensión de la calidad del aire en nuestras comunidades. Aunque su dedicación y sus contribuciones son inestimables, es esencial reconocer que la interpretación y el análisis de los datos sobre la calidad del aire requieren experiencia y conocimientos especializados.

Para garantizar la exactitud y fiabilidad de sus resultados, animamos a todos los participantes en SOCIO-BEE a buscar la orientación y colaboración de verdaderos científicos y expertos en calidad del aire.

Estos profesionales poseen la experiencia y los conocimientos necesarios para interpretar, trazar y validar eficazmente los datos recogidos por nuestros sensores.

Colaborar con científicos y expertos no sólo mejora la calidad de nuestra investigación, sino que también fomenta un espíritu de cooperación y aprendizaje interdisciplinarios.



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¿Qué más puede trazar basándose en su hipótesis?

Bueno, todo depende de la hipótesis que intente probar. A continuación encontrarás algunos ejemplos de hipótesis:

Hipótesis	¿Qué se puede hacer?
El aumento de la congestión del tráfico provoca mayores niveles de dióxido de nitrógeno (NO ₂) en la zona de campaña.	Representar gráficamente los niveles de NO ₂ en función del tiempo, comparando los periodos de hora punta con los que no lo son.
Las actividades de construcción, como la demolición y la excavación, provocan aumentos temporales de los niveles de polvo en suspensión (PM ₁₀) en las zonas adyacentes.	Trazar los niveles de PM ₁₀ antes, durante y después de los proyectos de construcción para identificar picos en las concentraciones de polvo.
La vegetación y los espacios verdes actúan como purificadores naturales del aire, reduciendo los niveles de ozono (O ₃) y otros contaminantes en los entornos urbanos.	Crear gráficos lineales que comparen las concentraciones de O ₃ en parques urbanos frente a zonas urbanizadas cercanas.
La proximidad a zonas industriales se correlaciona con mayores niveles de partículas (PM _{2,5} y PM ₁₀).	Representar gráficamente los niveles de PM _{2,5} y PM ₁₀ en función del tiempo en zonas con y sin actividad industrial cercana.
El aumento del uso de estufas de leña durante los meses más fríos contribuye a elevar los niveles de partículas (PM _{2,5}) en los barrios residenciales.	<p>Crear gráficos de barras comparando las concentraciones de PM_{2.5} durante los meses de invierno versus los meses de verano.</p> <p>Representar gráficamente las concentraciones horarias de PM_{2,5} para detectar picos diarios en los niveles de PM_{2,5} que coincidan con las horas de calefacción vespertinas.</p>

¿Qué más puede trazar basándose en su hipótesis?

Bueno, todo depende de la hipótesis que intente probar. A continuación encontrarás algunos ejemplos de hipótesis:

Hipótesis	¿Qué se puede hacer?
Los espacios verdes, como parques y bosques, mejoran la calidad del aire al reducir los niveles de contaminantes atmosféricos.	<p>Represente los niveles de contaminantes (por ejemplo, O₃, NO₂) en zonas adyacentes a espacios verdes en comparación con zonas sin vegetación.</p> <p>Descarga el mapa térmico de la calidad del aire como png cerca de espacios verdes y compáralo con zonas sin vegetación.</p>
Los cambios en los patrones de tráfico, como los cierres o desvíos de carreteras, repercuten en la calidad del aire de las zonas cercanas.	<p>Trazar los niveles de contaminantes antes, durante y después de los cierres temporales de carreteras o proyectos de construcción.</p> <p>Compare los niveles de contaminantes en las zonas afectadas por los desvíos de tráfico con los de las zonas no afectadas.</p>
Las emisiones de las actividades marítimas en las zonas portuarias contribuyen a elevar los niveles de dióxido de azufre (SO ₂) y dióxido de nitrógeno (NO ₂) en las regiones costeras.	<p>Generar/obtener mapas térmicos que muestren las concentraciones de SO₂ y NO₂ en las proximidades de los principales puertos y rutas marítimas.</p> <p>Comparar los niveles de contaminantes en las zonas costeras con los del interior para evaluar la influencia de las actividades marítimas.</p>