

# COME ANALIZZARE I RISULTATI DELLE CAMPAGNE (CSV)



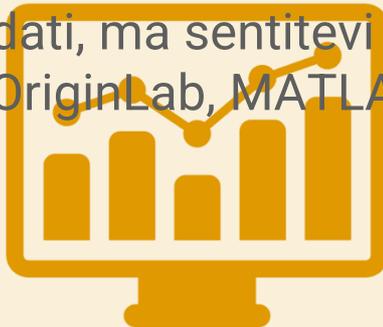
# COSA IMPARERÒ?

In questa guida vi guideremo attraverso il processo di analisi dei dati SOCIO-BEE e la loro rappresentazione in grafici significativi.

Imparerete a scaricare, importare, comprendere, manipolare e tracciare i dati SOCIO-BEE sulla base di specifiche ipotesi esemplificative.

Questo migliorerà la vostra comprensione di come lavorare con i dati sulla qualità dell'aria e come identificare il giusto tipo di dati per convalidare le vostre ipotesi.

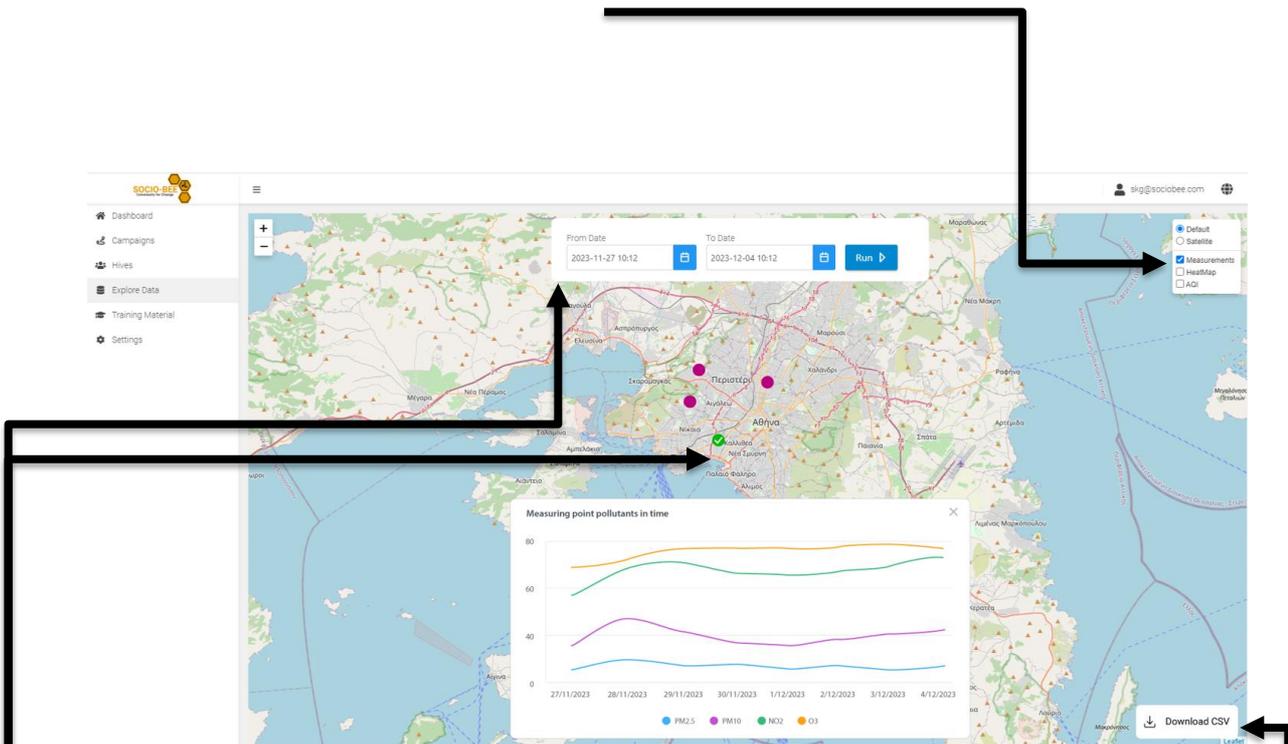
Queste linee guida si riferiscono all'uso di Microsoft Excel per analizzare i dati, ma sentitevi liberi di usare altri software come OriginLab, MATLAB o R.



# COME SI POSSONO SCARICARE I DATI?

È possibile scaricare i dati sulla qualità dell'aria di SOCIO-BEE dalle stazioni di monitoraggio ufficiali e dalle campagne in formato CSV.

Per scaricare i dati di una stazione, accedere alla scheda "Esplora dati" (a sinistra) nel menu principale e selezionare "Misure" (in alto a destra).

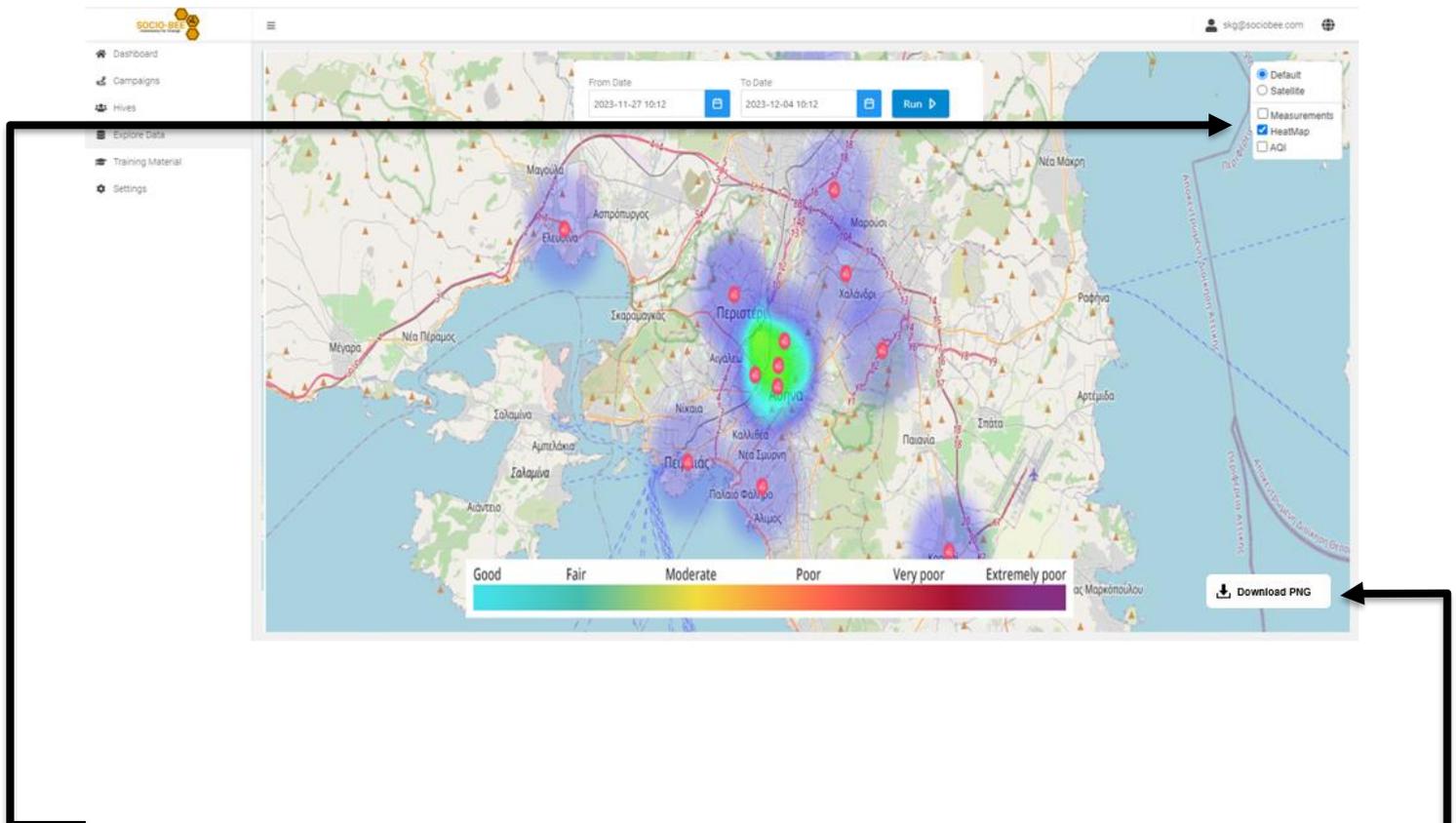


Selezionare la stazione o le stazioni e inserire la data o le date da cui si desidera ottenere i dati.

Premere il pulsante "Scarica CSV" (in basso a destra) e controllare la cartella di download.

# COME SI POSSONO SCARICARE I DATI?

È inoltre possibile scaricare una schermata della mappa di calore SOCIO-BEE in formato PNG.

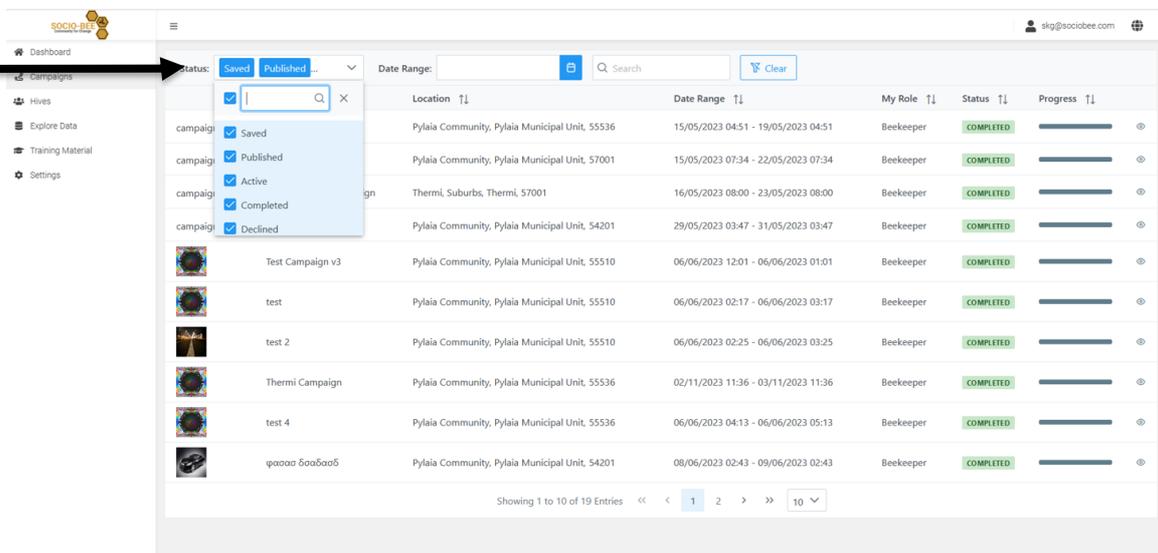


Per farlo, è necessario passare alla visualizzazione della mappa di calore facendo clic sull'opzione "Heatmap" (in alto a destra).

Quindi premere il pulsante "Scarica PNG" (in basso a destra) e controllare la cartella di download.

# COME SI POSSONO SCARICARE I DATI?

Per scaricare i dati di una campagna, accedere alla scheda "Campagne" (a sinistra) nel menu principale e selezionare una delle campagne nell'elenco.



The screenshot shows the Socio-BEE dashboard interface. On the left, a navigation menu includes 'Dashboard', 'Campagne', 'Hives', 'Explore Data', 'Training Material', and 'Settings'. The 'Campagne' menu item is highlighted with a black arrow. The main content area displays a table of campaigns with columns for 'Location', 'Date Range', 'My Role', 'Status', and 'Progress'. A filter dropdown menu is open over the 'Status' column, showing options: 'Saved', 'Published', 'Active', 'Completed', and 'Declined'. The table lists several campaigns, all with a 'COMPLETED' status and a progress bar. A black arrow points to the eye icon at the end of the 'test' row.

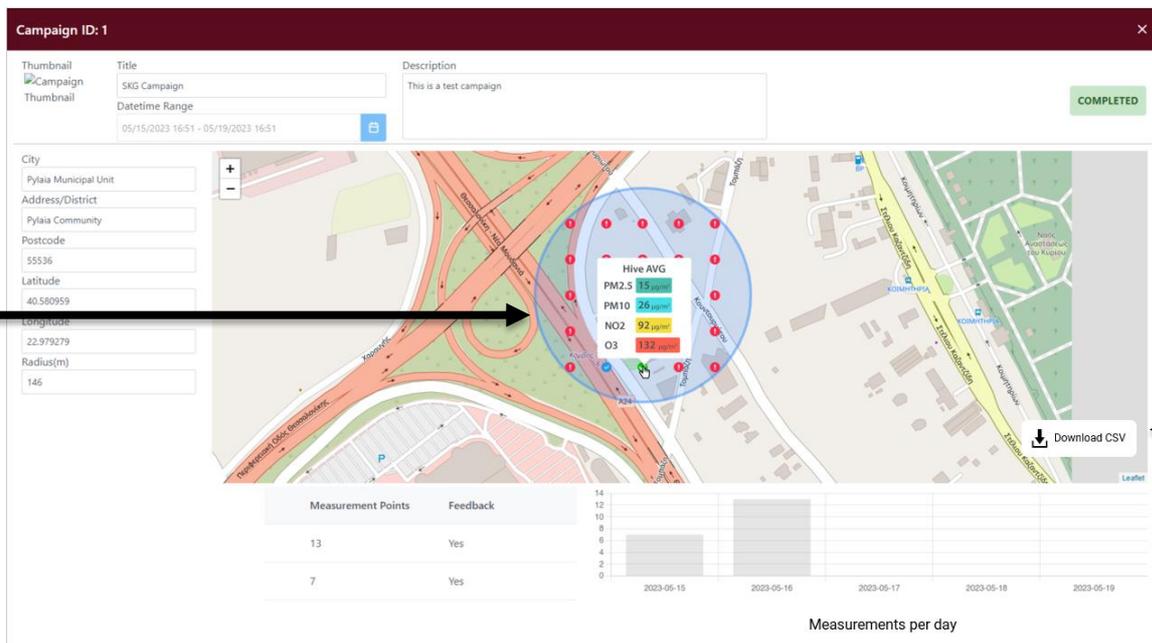
Location	Date Range	My Role	Status	Progress
Pylaia Community, Pylaia Municipal Unit, 55536	15/05/2023 04:51 - 19/05/2023 04:51	Beekeeper	COMPLETED	100%
Pylaia Community, Pylaia Municipal Unit, 57001	15/05/2023 07:34 - 22/05/2023 07:34	Beekeeper	COMPLETED	100%
Thermi, Suburbs, Thermi, 57001	16/05/2023 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%
φασαα βααβααδ	08/06/2023 02:43 - 09/06/2023 02:43	Beekeeper	COMPLETED	100%

È possibile filtrare le campagne in base allo stato attuale o alla data.

Cliccare sul simbolo dell'occhio (a destra) per visualizzare la campagna.

# COME SI POSSONO SCARICARE I DATI?

È possibile visualizzare misurazioni specifiche nella campagna selezionata facendo clic su un punto di misurazione sulla mappa.



The screenshot shows a web interface for a campaign. At the top, it says 'Campaign ID: 1'. Below this, there are fields for 'Title' (SKG Campaign), 'Description' (This is a test campaign), and 'Datetime Range' (05/15/2023 16:51 - 05/19/2023 16:51). A 'COMPLETED' status is shown in a green box. On the left, there are input fields for 'City' (Pylaia Municipal Unit), 'Address/District' (Pylaia Community), 'Postcode' (55536), 'Latitude' (40.580959), 'Longitude' (22.979279), and 'Radius(m)' (146). The main area features a map with a blue circle highlighting a specific measurement point. A popup window over this point displays 'Hive AVG' data: PM2.5 (15 µg/m³), PM10 (26 µg/m³), NO2 (92 µg/m³), and O3 (132 µg/m³). Below the map is a table with two columns: 'Measurement Points' and 'Feedback'. The table has two rows: the first row shows 13 measurement points with a 'Yes' feedback, and the second row shows 7 measurement points with a 'Yes' feedback. To the right of the table is a bar chart titled 'Measurements per day' showing data for the dates 2023-05-15, 2023-05-16, 2023-05-17, 2023-05-18, and 2023-05-19. A 'Download CSV' button is located at the bottom right of the interface.

Measurement Points	Feedback
13	Yes
7	Yes

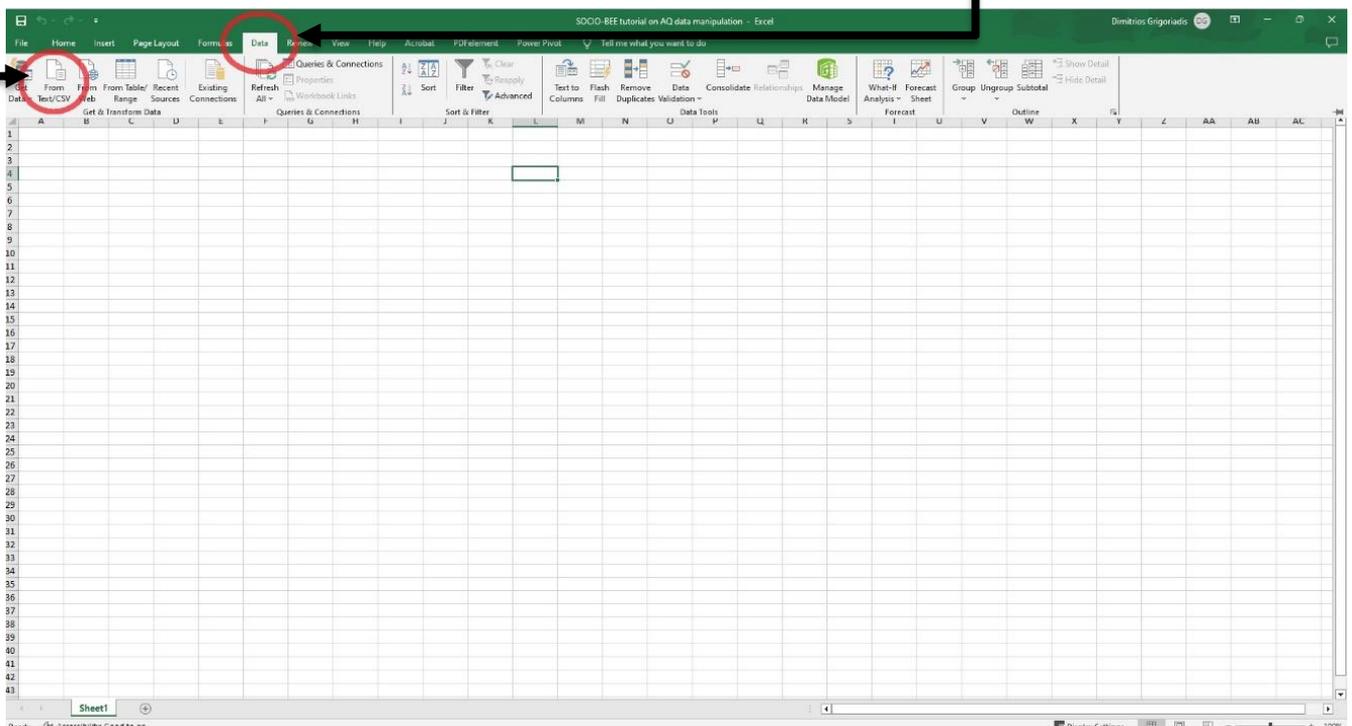
Per scaricare un file CSV contenente tutti i dati raccolti nella campagna, premere il pulsante "Scarica CSV" (a destra).

# COME SI POSSONO IMPORTARE I DATI IN EXCEL?

Quando si scaricano i dati, nella cartella dei download si ottiene un file con estensione .csv. Si tratta di un file che contiene tutti i dati rappresentati sulla mappa nelle date selezionate, in formato CSV (Comma Separated Values).

Per analizzare e tracciare questi dati per estrarre informazioni più specifiche, è necessario un software di analisi dei dati con capacità di tracciare. Uno molto comune è Microsoft Excel e Google Sheets per i grafici più semplici.

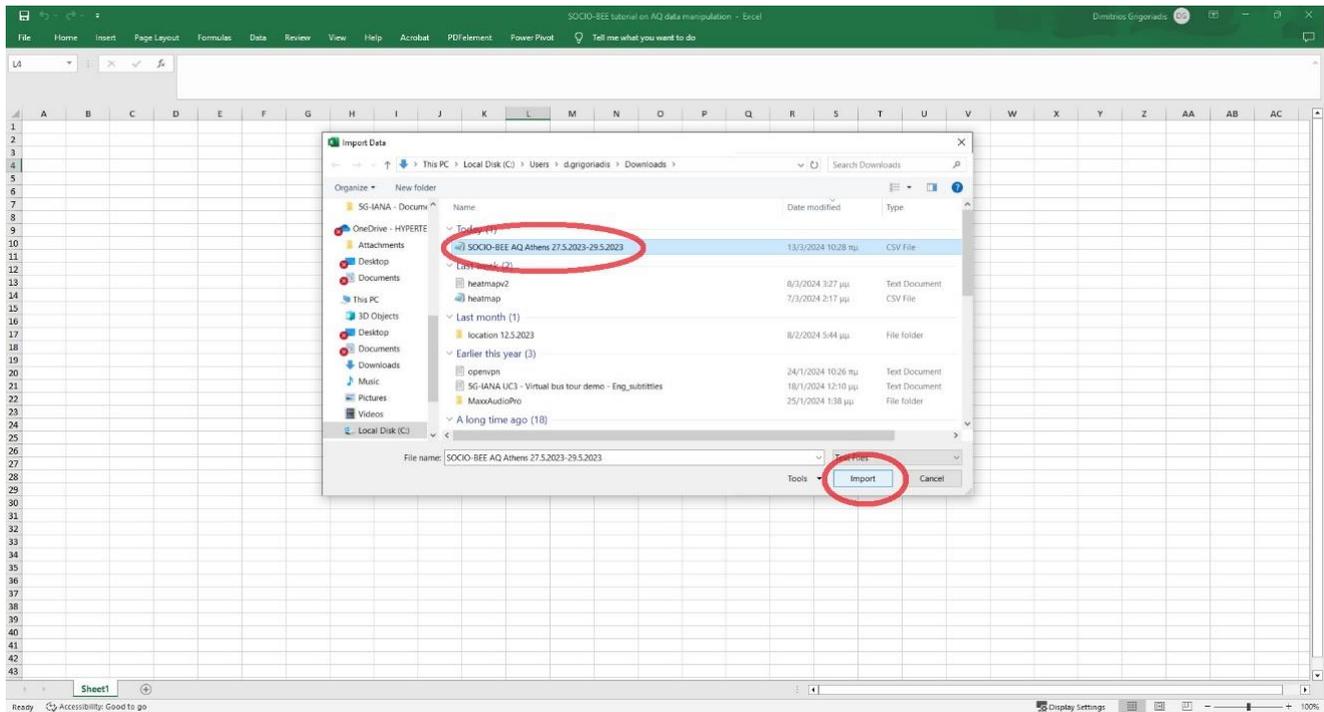
Per importare il file CSV scaricato, aprire prima un foglio Excel vuoto e andare alla scheda "Dati".



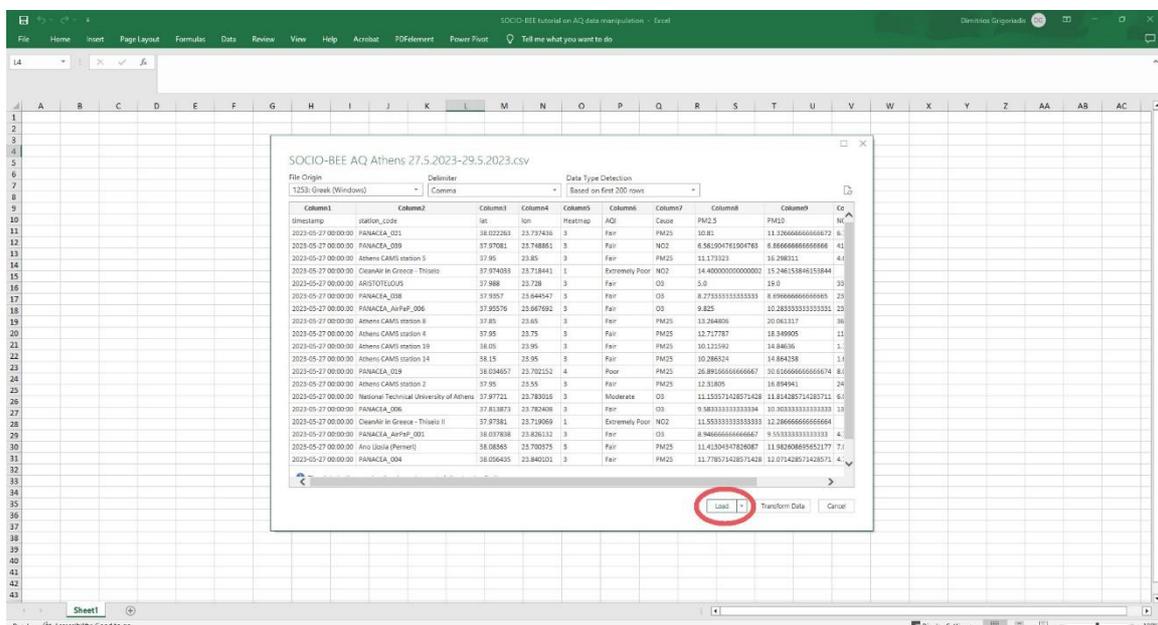
Quindi selezionare "Da testo/CSV".

# COME SI POSSONO IMPORTARE I DATI IN EXCEL?

Sfogliare la cartella dei download e selezionare il file CSV per importarlo nel foglio di calcolo.



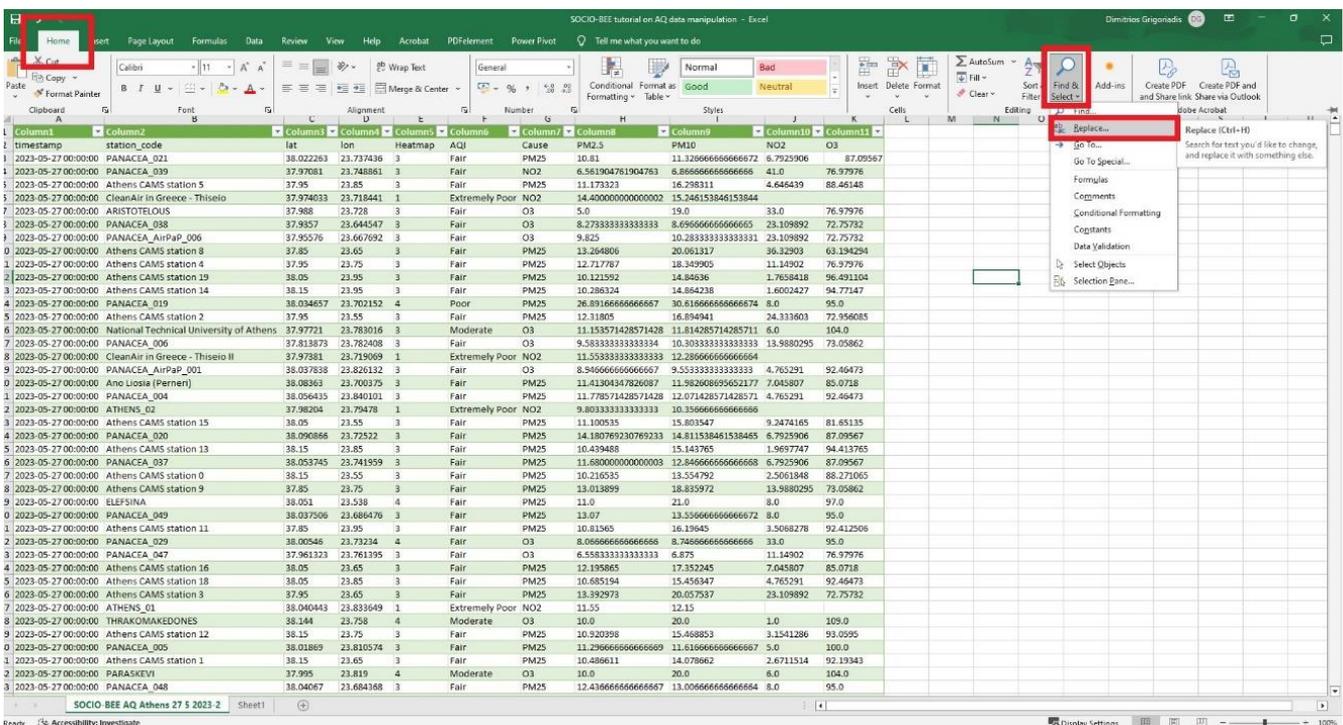
Controllare il formato in cui i dati verranno importati nel foglio di calcolo e premere "Carica".





# COME SI POSSONO IMPORTARE I DATI IN EXCEL?

Per risolvere il problema, andare alla scheda "Home" (in alto a sinistra). Premere "Trova e seleziona" e poi selezionare "Sostituisci". Oppure premere semplicemente Ctrl+H.



The screenshot shows the Microsoft Excel interface. The 'Home' tab is selected in the ribbon. The 'Find & Select' button in the Editing group is highlighted with a red box. A dropdown menu is open, and the 'Replace...' option is also highlighted with a red box. The background shows a data table with columns for timestamp, station\_code, lat, lon, Heatmap, AQI, Cause, PM2.5, PM10, NO2, and O3.

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	23.734736	3	Fair	PM25	10.81	11.326666666666667	6.7923906	87.09567
2023-05-27 00:00:00	PANACEA_039	37.97081	23.748861	3	Fair	NO2	6.561904761904763	6.866666666666667	41.0	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	14.400000000000002	15.246153846153844		
2023-05-27 00:00:00	ARISTOTELEUS	37.968	23.728	3	Fair	O3	5.0	19.0	33.0	76.97976
2023-05-27 00:00:00	PANACEA_038	37.9557	23.644547	3	Fair	O3	8.273333333333333	8.696666666666667	23.109892	72.75782
2023-05-27 00:00:00	PANACEA_AirPaP_006	37.95576	23.667692	3	Fair	O3	9.825	10.283333333333331	23.109892	72.75782
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	12.717767	18.349905	11.14902	76.97976
2023-05-27 00:00:00	Athens CAMS station 19	38.05	23.95	3	Fair	PM25	10.121952	14.84636	1.768418	96.491104
2023-05-27 00:00:00	Athens CAMS station 14	38.15	23.95	3	Fair	PM25	10.288324	14.864238	1.6002427	94.77147
2023-05-27 00:00:00	PANACEA_019	38.034657	23.702152	4	Poor	PM25	26.891666666666667	30.616666666666674	8.0	95.0
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	11.153571428571428	11.814285714285711	6.0	104.0
2023-05-27 00:00:00	PANACEA_006	37.813873	23.782408	3	Fair	O3	9.583333333333334	10.303333333333333	13.9880295	73.05862
2023-05-27 00:00:00	CleanAir in Greece - Thiseio II	37.97381	23.739069	1	Extremely Poor	NO2	11.553333333333333	12.286666666666667		
2023-05-27 00:00:00	PANACEA_AirPaP_001	38.057828	23.829132	3	Fair	O3	8.946666666666667	9.553333333333333	4.765291	92.46473
2023-05-27 00:00:00	Ane Liosia (Parneni)	38.08363	23.700375	3	Fair	PM25	11.41304347826087	11.982068659652177	7.045807	85.0718
2023-05-27 00:00:00	PANACEA_004	38.056433	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	1	Extremely Poor	NO2	9.803333333333333	10.356666666666667		
2023-05-27 00:00:00	Athens CAMS station 15	38.05	23.55	3	Fair	PM25	11.100535	15.801347	9.2474165	81.85135
2023-05-27 00:00:00	PANACEA_020	38.096866	23.72522	3	Fair	PM25	14.180789230769233	14.811538461538465	6.7923906	87.09567
2023-05-27 00:00:00	Athens CAMS station 13	38.15	23.85	3	Fair	PM25	10.429468	15.143765	1.9697747	94.413765
2023-05-27 00:00:00	PANACEA_037	38.053745	23.741959	3	Fair	PM25	11.680000000000003	12.846666666666668	6.7923906	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	18.833972	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	23.686478	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	10.81365	16.19645	3.5068278	92.412506
2023-05-27 00:00:00	PANACEA_029	38.00546	23.73234	4	Fair	O3	8.066666666666666	8.746666666666666	33.0	95.0
2023-05-27 00:00:00	PANACEA_047	37.961323	23.761395	3	Fair	O3	6.583333333333333	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	10.885194	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	72.75782
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	10.0	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	23.85	3	Fair	PM25	10.486611	14.078862	2.6711514	92.13443
2023-05-27 00:00:00	PARASKEVI	37.995	23.819	4	Moderate	O3	8.0	20.0	6.0	104.0
2023-05-27 00:00:00	PANACEA_048	38.04067	23.684168	3	Fair	PM25	12.436666666666667	13.006666666666664	8.0	95.0

Si aprirà una finestra in cui è possibile trovare e sostituire qualsiasi cosa nei dati. Inserire il segno '.' in entrambe le caselle di testo e selezionare "Sostituisci tutto".

# COME SI POSSONO IMPORTARE I DATI IN EXCEL?

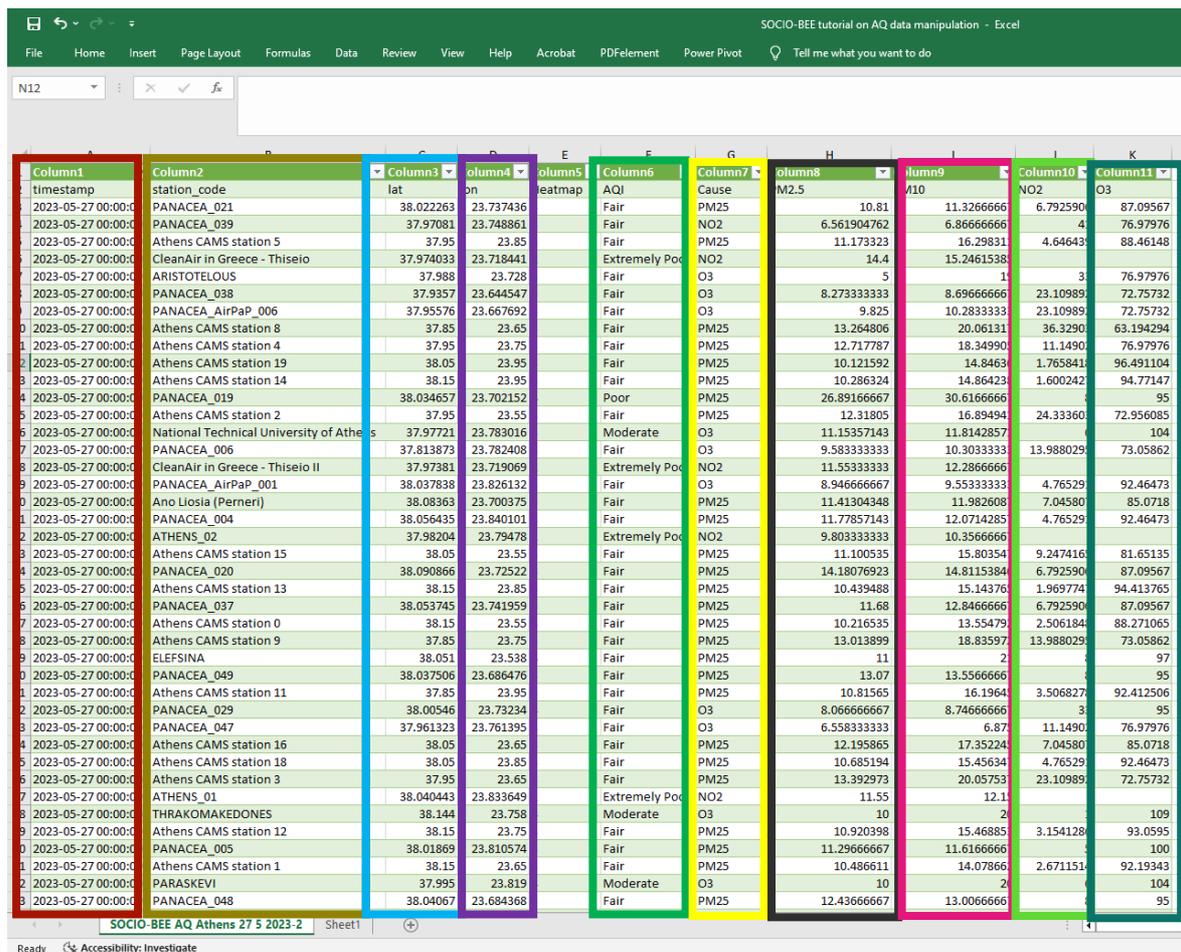
Column1	Column2	Column3	Column4	Column5	Column6	Column7	Column8	Column9	Column10	Column11
timestamp	station_code	lat	lon	Heatmap	AQI	Cause	PM2.5	PM10	NO2	O3
2023-05-27 00:00:00	PANACEA_021	38.022263	23.737436	3	Fair	PM25	10.81	11.3266666666667	6.7925906	87.09567
2023-05-27 00:00:00	PANACEA_039	37.97081	23.748861	3	Fair	NO2	6.561904762	6.8666666666667	41.0	76.97976
2023-05-27 00:00:00	Athens CAMS station 5	37.95	23.85	3	Fair	PM25	11.173253	6.8666666666667	4.664139	88.40148
2023-05-27 00:00:00	CleanAir in Greece - Thiseio	37.974033	23.718441	1	Extremely Poor	NO2	11.5533333333333	12.2866666666667		
2023-05-27 00:00:00	ARISTOTELIUS	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	8.696666667	23.10592	72.75732
2023-05-27 00:00:00	PANACEA_AirPap_006	37.95576	23.67892	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	13.264806	20.061317	36.32903	63.194294
2023-05-27 00:00:00	Athens CAMS station 4	37.95	23.75	3	Fair	PM25	12.71787	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	1.7658418	96.491104
2023-05-27 00:00:00	Athens CAMS station 14	38.15	23.55	3	Fair	PM25	10.286324	14.884238	1.6003427	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	16.89491	24.333603	92.412506
2023-05-27 00:00:00	National Technical University of Athens	37.97721	23.782016	3	Moderate	O3	11.153571428571428	11.81428571	6.0	104.0
2023-05-27 00:00:00	PANACEA_006	37.97381	23.782408	3	Fair	O3	9.583333333	11.81428571	6.875	11.14902
2023-05-27 00:00:00	PANACEA_006	37.97381	23.782408	3	Fair	O3	9.583333333	11.81428571	6.875	11.14902
2023-05-27 00:00:00	CleanAir in Greece - Thiseio II	37.97381	23.719069	1	Extremely Poor	NO2	11.5533333333333	12.2866666666667		
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	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 (Pernerli)	38.08363	23.700375	3	Fair	PM25	11.413043487826087	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	37.96204	23.79478	1	Extremely Poor	NO2	9.803333333	10.566666667		
2023-05-27 00:00:00	Athens CAMS station 15	38.05	23.55	3	Fair	PM25	11.100535	15.803547	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	11.868000000000003	12.8466666666667	6.7925906	87.09567
2023-05-27 00:00:00	Athens CAMS station 0	38.15	23.55	3	Fair	PM25	10.216533	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	18.839972	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	13.566666667	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	3.5068278	92.412506
2023-05-27 00:00:00	PANACEA_029	38.00546	23.73234	4	Fair	O3	8.066666667	8.746666667	33.0	95.0
2023-05-27 00:00:00	PANACEA_047	37.961323	23.761395	3	Fair	O3	6.558333333333333	6.875	11.14902	76.97976
2023-05-27 00:00:00	Athens CAMS station 16	38.05	23.65	3	Fair	PM25	12.198865	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	THRAKOMAKEDONES	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	93.0959
2023-05-27 00:00:00	PANACEA_005	38.01869	23.810574	3	Fair	PM25	11.296666667	11.616666667	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	12.436666667	13.006666667	8.0	95.0

Una volta eseguita questa operazione, si noterà che tutti i numeri sono ora allineati automaticamente sul lato destro delle celle. Ciò significa che il software li riconosce come numeri.

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	6.8666666666667	41.0	76.97976
2023-05-27 00:00:00	Athens CAMS station 5	37.95	23.85	3	Fair	PM25	11.173253	6.8666666666667	4.664139	88.40148
2023-05-27 00:00:00	CleanAir in Greece - Thiseio	37.974033	23.718441	1	Extremely Poor	NO2	11.553333333	12.286666667		
2023-05-27 00:00:00	ARISTOTELIUS	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	8.696666667	23.10592	72.75732
2023-05-27 00:00:00	PANACEA_AirPap_006	37.95576	23.67892	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	13.264806	20.061317	36.32903	63.194294
2023-05-27 00:00:00	Athens CAMS station 4	37.95	23.75	3	Fair	PM25	12.71787	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	1.7658418	96.491104
2023-05-27 00:00:00	Athens CAMS station 14	38.15	23.55	3	Fair	PM25	10.286324	14.884238	1.6003427	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	16.89491	24.333603	92.412506
2023-05-27 00:00:00	National Technical University of Athens	37.97721	23.782016	3	Moderate	O3	11.153571428571428	11.81428571	6.0	104.0
2023-05-27 00:00:00	PANACEA_006	37.97381	23.782408	3	Fair	O3	9.583333333	11.81428571	6.875	11.14902
2023-05-27 00:00:00	PANACEA_006	37.97381	23.782408	3	Fair	O3	9.583333333	11.81428571	6.875	11.14902
2023-05-27 00:00:00	CleanAir in Greece - Thiseio II	37.97381	23.719069	1	Extremely Poor	NO2	11.553333333	12.286666667		
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	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 (Pernerli)	38.08363	23.700375	3	Fair	PM25	11.413043487826087	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	37.96204	23.79478	1	Extremely Poor	NO2	9.803333333	10.566666667		
2023-05-27 00:00:00	Athens CAMS station 15	38.05	23.55	3	Fair	PM25	11.100535	15.803547	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	11.868000000000003	12.8466666666667	6.7925906	87.09567
2023-05-27 00:00:00	Athens CAMS station 0	38.15	23.55	3	Fair	PM25	10.216533	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	18.839972	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	13.5666667	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	12.198865	17.352245	7.045807	85.0718
2023-05-27 00:00:00										

# What can you see in the data?

Per manipolare i dati ed estrarre le informazioni giuste per la vostra ipotesi, dovete prima capire come sono strutturati i dati nel vostro foglio di calcolo.



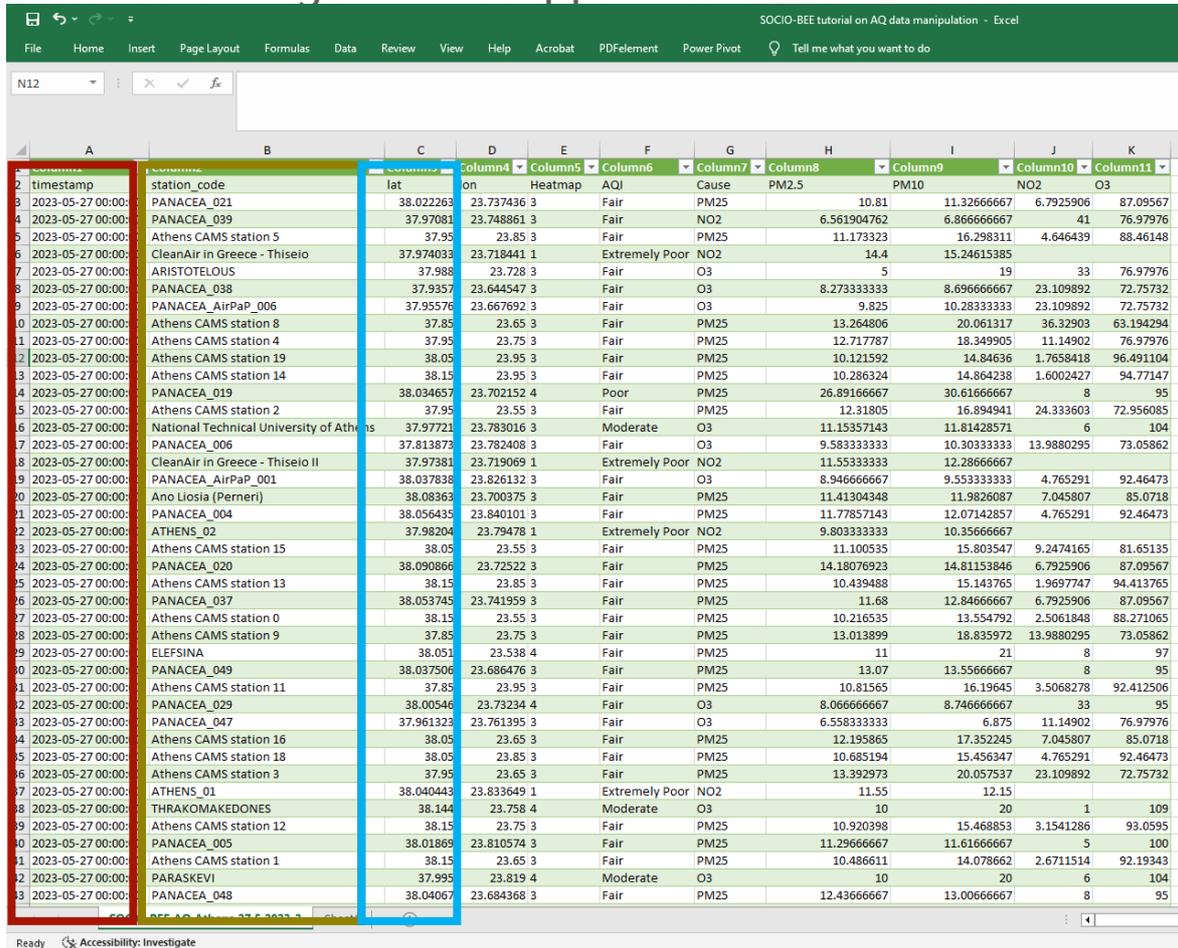
Column1	Column2	Column3	Column4	Column5	Column6	Column7	Column8	Column9	Column10	Column11
timestamp	station_code	lat	lon	beatmap	AQI	Cause	PM2.5	PM10	NO2	O3
2023-05-27 00:00:00	PANACEA_021	38.022263	23.737436		Fair	PM25	10.81	11.3266666	6.792590	87.09567
2023-05-27 00:00:00	PANACEA_039	37.97081	23.748861		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	ARISTOTELIOUS	37.988	23.728		Fair	O3	5	1	3	76.97976
2023-05-27 00:00:00	PANACEA_038	37.9357	23.64547		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	14.8423	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 (Perneri)	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	6.558333333	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 tabella contiene i dati sulla qualità dell'aria registrati dai sensori dislocati in varie località. Ogni riga rappresenta un singolo dato raccolto in una data e ora specifiche.

Da sinistra a destra, le colonne sono il timestamp, il codice della stazione (o Device ID), la latitudine, la longitudine, l'AQI, la causa, il PM2.5, il PM10, il NO2 e l'O3

# COSA SI PUÒ VEDERE NEI DATI?

Vediamo in dettaglio cosa rappresentano le colonne.



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	ARISTOTELIOUS	37.988	23.728	3	Fair	O3		5	19	33	76.97976
2023-05-27 00:00:00	PANACEA_038	37.9537	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	14.81153846	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	38.053745	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	13.554792	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

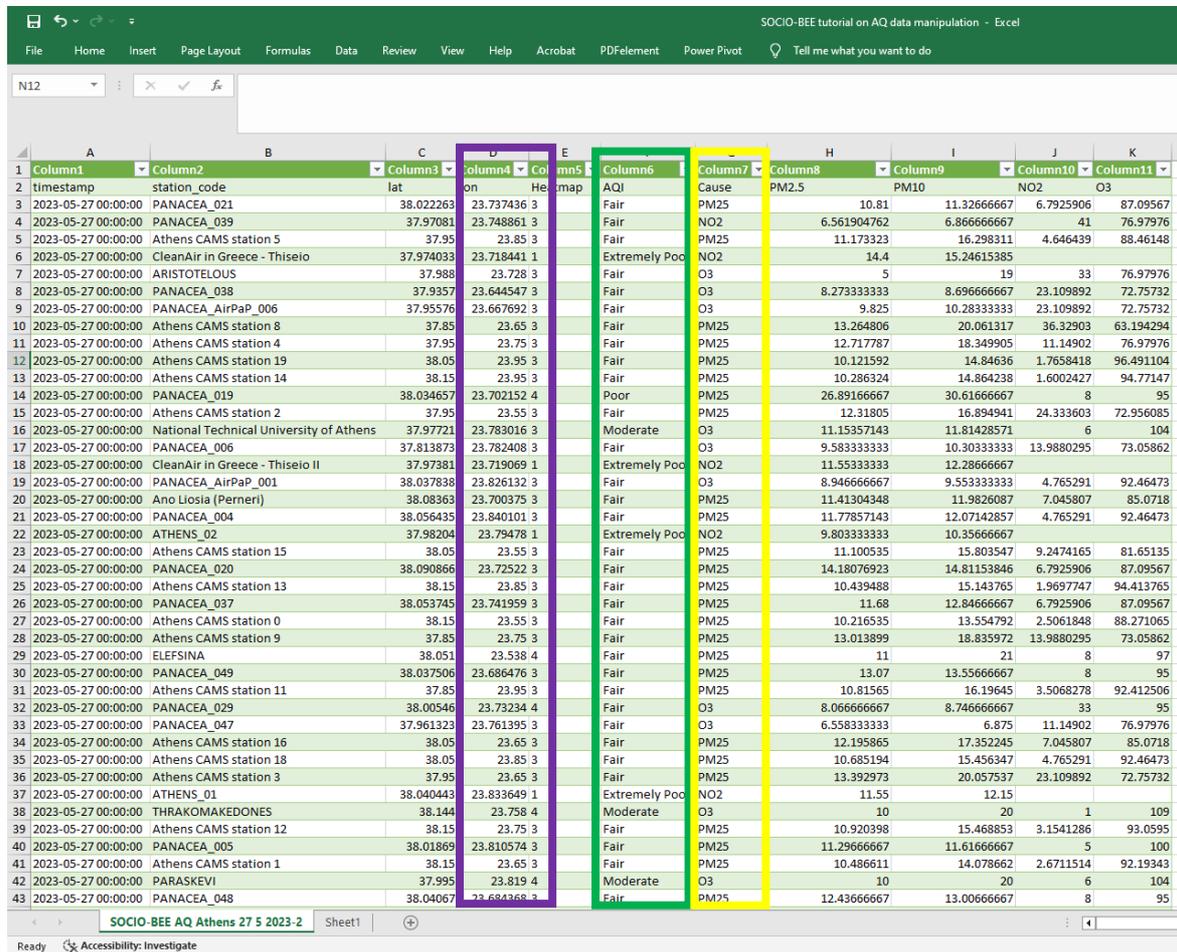
**timestamp** La data e l'ora in cui i dati sulla qualità dell'aria sono stati registrati dal dispositivo indossabile o dalla stazione di monitoraggio.

**Device\_ID:** identificativo univoco del dispositivo di rilevamento che ha raccolto i dati.

**Codice stazione** Il codice assegnato alla stazione di monitoraggio in cui sono stati raccolti i dati.

**latitudine:** Le coordinate geografiche di latitudine della stazione di monitoraggio o del dispositivo indossabile quando sono stati raccolti i dati.

# COSA SI PUÒ VEDERE NEI DATI?



SOCIO-BEE tutorial on AQ data manipulation - Excel

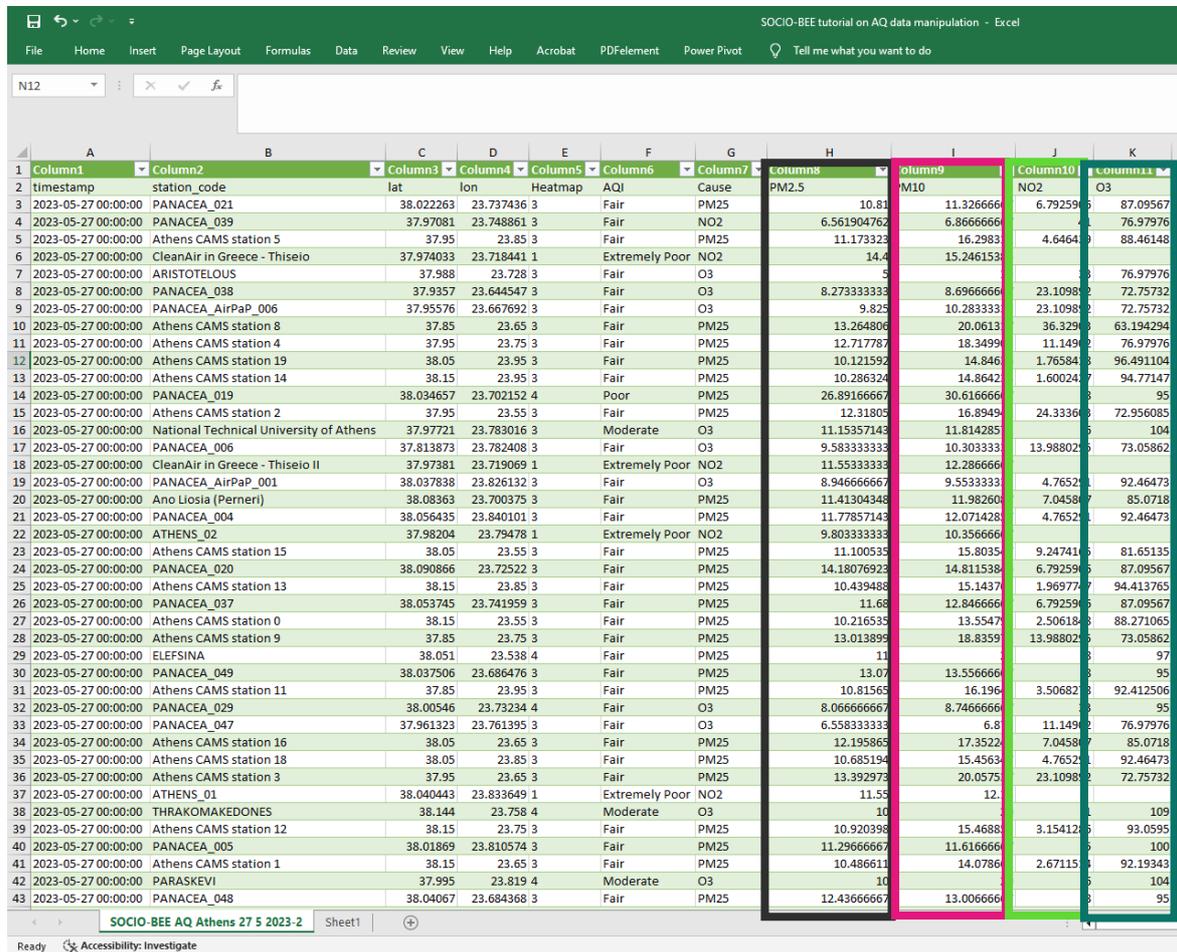
Column1	Column2	Column3	Column4	Column5	Column6	Column7	Column8	Column9	Column10	Column11	
timestamp	station_code	lat	lon	aqi	aqi	Cause	PM2.5	PM10	NO2	O3	
2023-05-27 00:00:00	PANACEA_021	38.022263	23.737436	3	Fair	PM25		10.81	11.32666667	6.7925906	87.09567
2023-05-27 00:00:00	PANACEA_039	37.97081	23.748861	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	37.9357	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 (Pereri)	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	14.81153846	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	38.053745	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	13.554792	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
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
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
2023-05-27 00:00:00	PANACEA_048	38.04067	23.684368	3	Fair	PM25	12.43666667	13.00666667		8	95

**Longitude:** The geographic longitude coordinates of the monitoring station or wearable device when the data was collected.

**AQI:** The overall air quality index value calculated based on various pollutant concentrations measured at the monitoring station or wearable device.

**Cause:** Specifies the primary pollutant or environmental factor contributing to the air quality index value.

# COSA SI PUÒ VEDERE NEI DATI?



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		
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 concentrazione nell'aria di particelle fini inalabili con diametro pari o inferiore a 2,5 micrometri.

**PM10:** la concentrazione di particelle inalabili di diametro pari o inferiore a 10 micrometri nell'aria, espressa in milligrammi per metro cubo.

**NO2:** La concentrazione di biossido di azoto nell'aria in milligrammi per metro cubo.

**O3:** La concentrazione di ozono nell'aria in milligrammi per metro cubo.

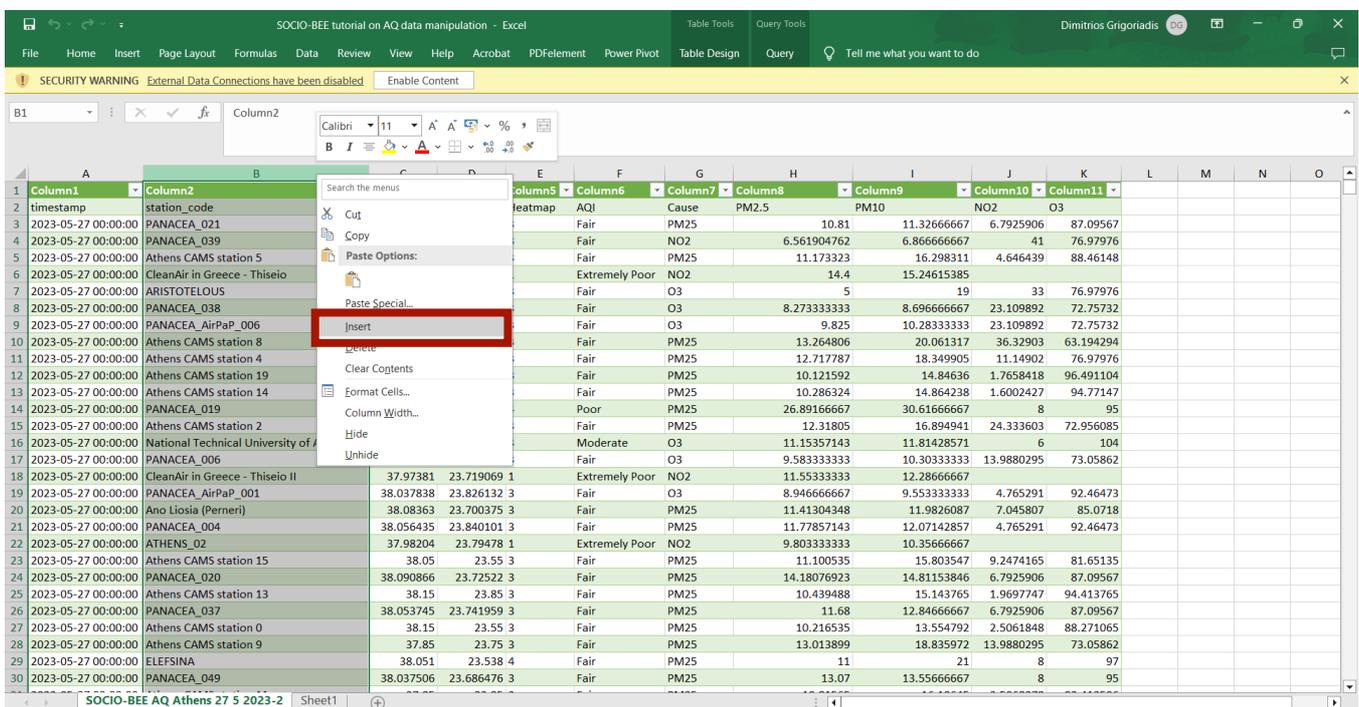
# COSA OCCORRE FARE PRIMA DI TRATTARE I DATI?

Ora avete un'idea più precisa di ciò che viene visualizzato nel vostro foglio di calcolo, ma dovete ancora apportare una piccola modifica al vostro foglio di calcolo prima di poter iniziare a tracciare i dati che vi interessano.

Si sarà notato che il timestamp (colonna 1) ha il formato [YYYY-MM-DD HH:MM:SS].

Per facilitare l'identificazione e l'estrazione delle informazioni corrette, è necessario dividere la data e l'ora in due colonne separate.

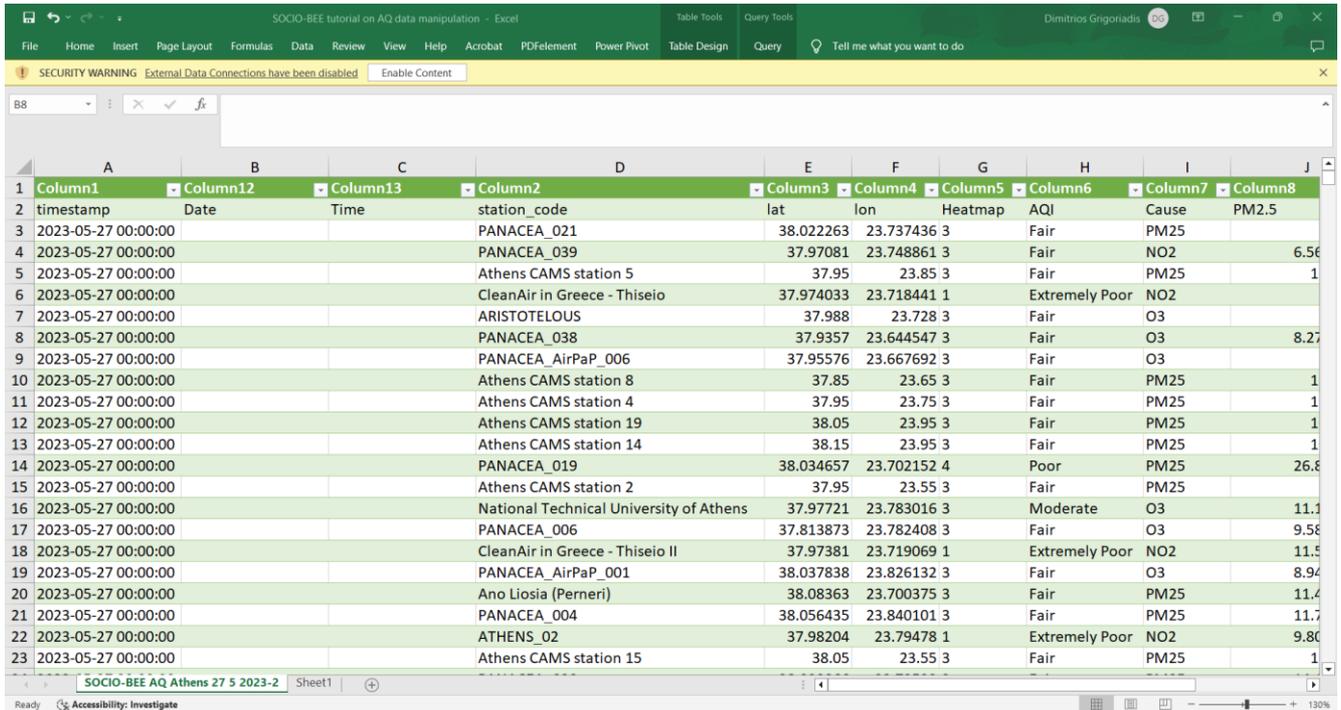
Iniziate aggiungendo due nuove colonne al foglio di calcolo. A tale scopo, selezionare la colonna 2 e fare clic con il pulsante destro del mouse su di essa. Nel menu selezionare "Inserisci". In questo modo si aggiunge una nuova colonna vuota a sinistra della colonna 2. Ripetere l'operazione per aggiungere una seconda colonna vuota. Ripetete l'operazione per aggiungere una seconda colonna vuota.



Column1	Column2	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	ARISTOTELIOUS	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	

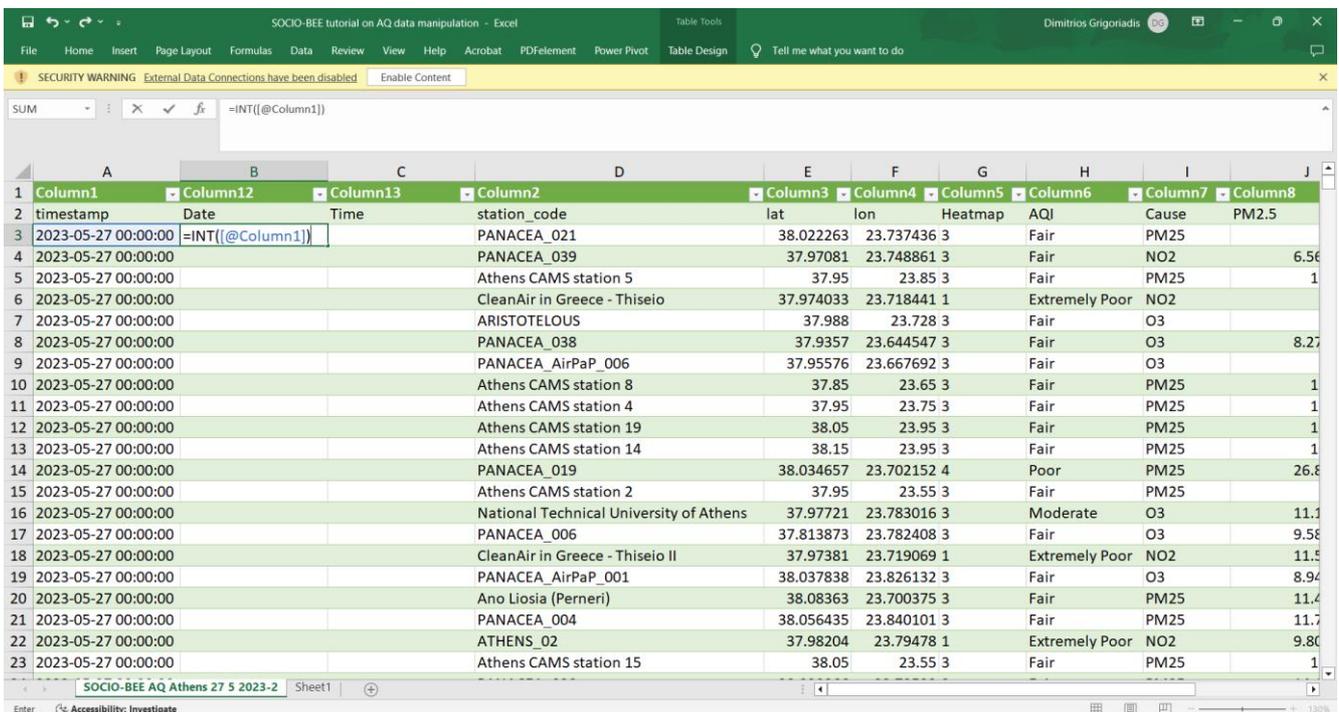
# COSA OCCORRE FARE PRIMA DI TRATTARE I DATI?

Nominare la prima colonna "Data" e la seconda "Ora".



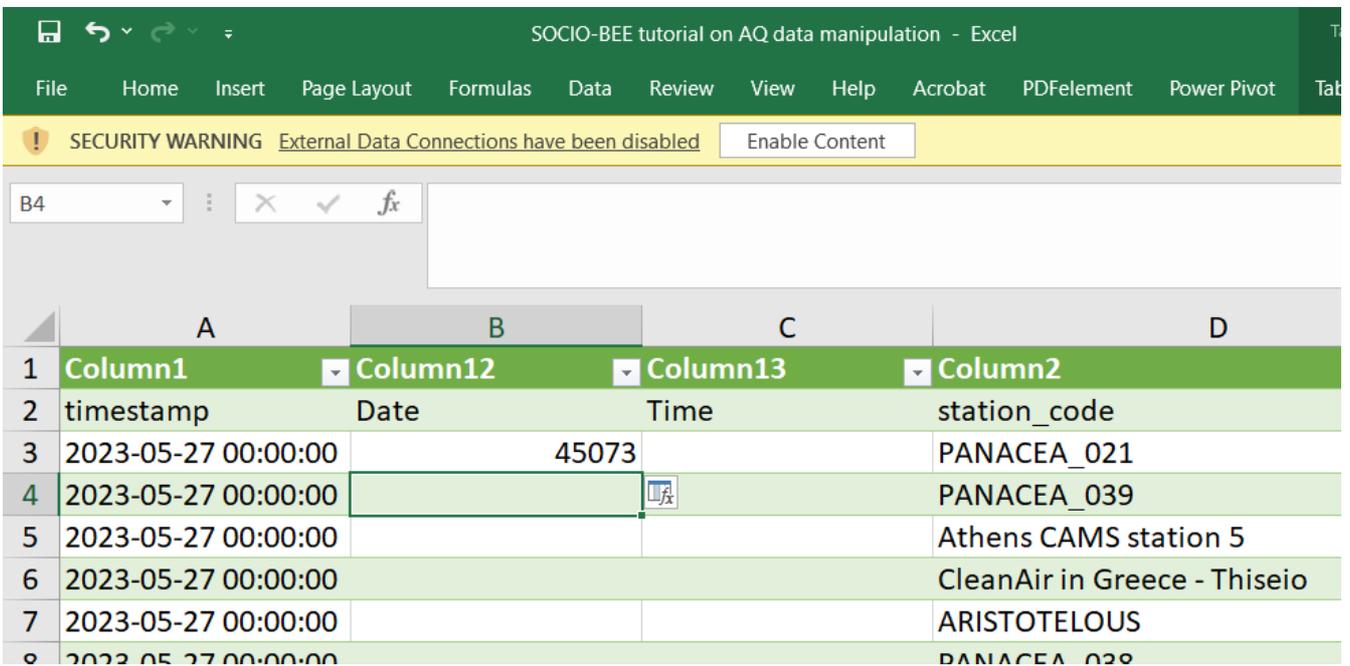
1	Column1	Column12	Column13	Column2	Column3	Column4	Column5	Column6	Column7	Column8
2	timestamp	Date	Time	station_code	lat	lon	Heatmap	AQI	Cause	PM2.5
3	2023-05-27 00:00:00			PANACEA_021	38.022263	23.737436	3	Fair	PM25	
4	2023-05-27 00:00:00			PANACEA_039	37.97081	23.748861	3	Fair	NO2	6.56
5	2023-05-27 00:00:00			Athens CAMS station 5	37.95	23.85	3	Fair	PM25	1
6	2023-05-27 00:00:00			CleanAir in Greece - Thiseio	37.974033	23.718441	1	Extremely Poor	NO2	
7	2023-05-27 00:00:00			ARISTOTELOUS	37.988	23.728	3	Fair	O3	
8	2023-05-27 00:00:00			PANACEA_038	37.9357	23.644547	3	Fair	O3	8.27
9	2023-05-27 00:00:00			PANACEA_AirPaP_006	37.95576	23.667692	3	Fair	O3	
10	2023-05-27 00:00:00			Athens CAMS station 8	37.85	23.65	3	Fair	PM25	1
11	2023-05-27 00:00:00			Athens CAMS station 4	37.95	23.75	3	Fair	PM25	1
12	2023-05-27 00:00:00			Athens CAMS station 19	38.05	23.95	3	Fair	PM25	1
13	2023-05-27 00:00:00			Athens CAMS station 14	38.15	23.95	3	Fair	PM25	1
14	2023-05-27 00:00:00			PANACEA_019	38.034657	23.702152	4	Poor	PM25	26.8
15	2023-05-27 00:00:00			Athens CAMS station 2	37.95	23.55	3	Fair	PM25	
16	2023-05-27 00:00:00			National Technical University of Athens	37.97721	23.783016	3	Moderate	O3	11.1
17	2023-05-27 00:00:00			PANACEA_006	37.813873	23.782408	3	Fair	O3	9.58
18	2023-05-27 00:00:00			CleanAir in Greece - Thiseio II	37.97381	23.719069	1	Extremely Poor	NO2	11.5
19	2023-05-27 00:00:00			PANACEA_AirPaP_001	38.037838	23.826132	3	Fair	O3	8.94
20	2023-05-27 00:00:00			Ano Liosia (Perneri)	38.08363	23.700375	3	Fair	PM25	11.4
21	2023-05-27 00:00:00			PANACEA_004	38.056435	23.840101	3	Fair	PM25	11.7
22	2023-05-27 00:00:00			ATHENS_02	37.98204	23.79478	1	Extremely Poor	NO2	9.80
23	2023-05-27 00:00:00			Athens CAMS station 15	38.05	23.55	3	Fair	PM25	1

Per isolare i valori della data, selezionare la cella B3 e inserire la seguente formula =INT([@Colonna1]) e premere 'Invio'.



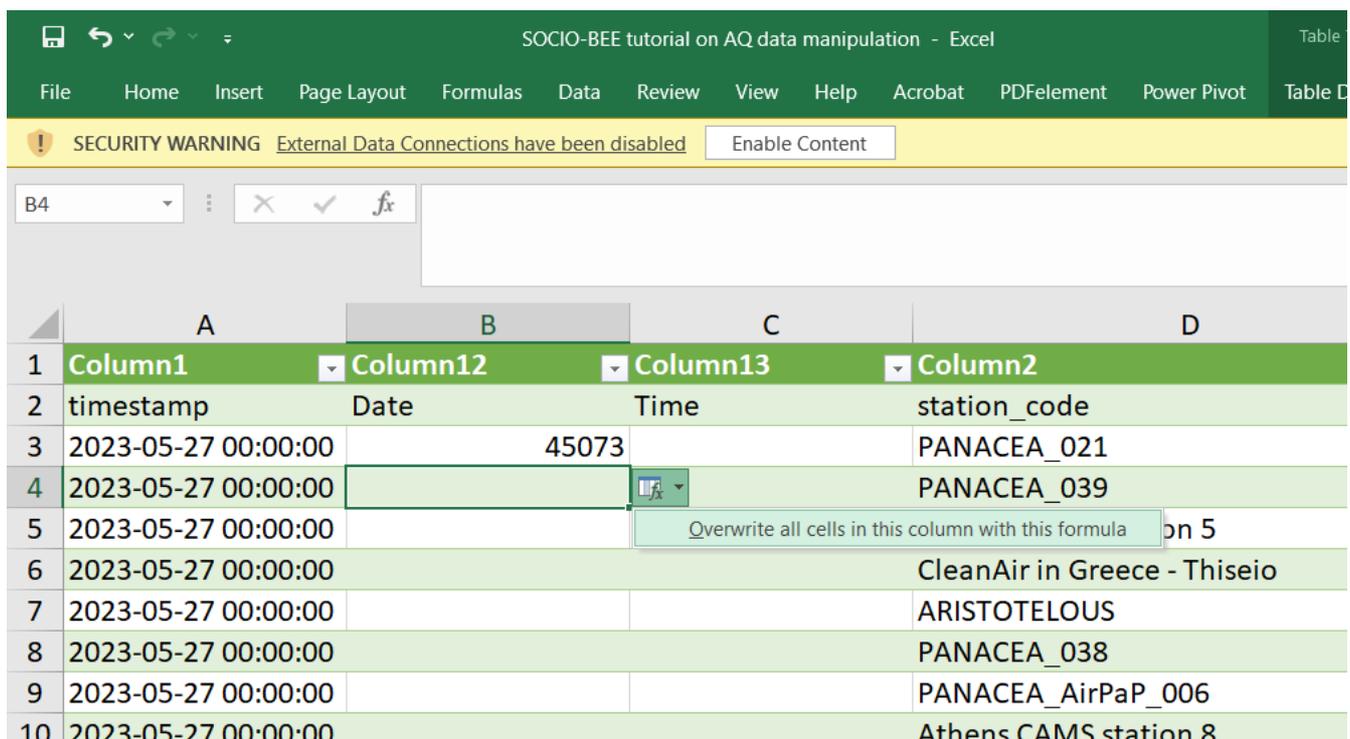
1	Column1	Column12	Column13	Column2	Column3	Column4	Column5	Column6	Column7	Column8
2	timestamp	Date	Time	station_code	lat	lon	Heatmap	AQI	Cause	PM2.5
3	2023-05-27 00:00:00	=INT([@Colonna1])		PANACEA_021	38.022263	23.737436	3	Fair	PM25	
4	2023-05-27 00:00:00			PANACEA_039	37.97081	23.748861	3	Fair	NO2	6.56
5	2023-05-27 00:00:00			Athens CAMS station 5	37.95	23.85	3	Fair	PM25	1
6	2023-05-27 00:00:00			CleanAir in Greece - Thiseio	37.974033	23.718441	1	Extremely Poor	NO2	
7	2023-05-27 00:00:00			ARISTOTELOUS	37.988	23.728	3	Fair	O3	
8	2023-05-27 00:00:00			PANACEA_038	37.9357	23.644547	3	Fair	O3	8.27
9	2023-05-27 00:00:00			PANACEA_AirPaP_006	37.95576	23.667692	3	Fair	O3	
10	2023-05-27 00:00:00			Athens CAMS station 8	37.85	23.65	3	Fair	PM25	1
11	2023-05-27 00:00:00			Athens CAMS station 4	37.95	23.75	3	Fair	PM25	1
12	2023-05-27 00:00:00			Athens CAMS station 19	38.05	23.95	3	Fair	PM25	1
13	2023-05-27 00:00:00			Athens CAMS station 14	38.15	23.95	3	Fair	PM25	1
14	2023-05-27 00:00:00			PANACEA_019	38.034657	23.702152	4	Poor	PM25	26.8
15	2023-05-27 00:00:00			Athens CAMS station 2	37.95	23.55	3	Fair	PM25	
16	2023-05-27 00:00:00			National Technical University of Athens	37.97721	23.783016	3	Moderate	O3	11.1
17	2023-05-27 00:00:00			PANACEA_006	37.813873	23.782408	3	Fair	O3	9.58
18	2023-05-27 00:00:00			CleanAir in Greece - Thiseio II	37.97381	23.719069	1	Extremely Poor	NO2	11.5
19	2023-05-27 00:00:00			PANACEA_AirPaP_001	38.037838	23.826132	3	Fair	O3	8.94
20	2023-05-27 00:00:00			Ano Liosia (Perneri)	38.08363	23.700375	3	Fair	PM25	11.4
21	2023-05-27 00:00:00			PANACEA_004	38.056435	23.840101	3	Fair	PM25	11.7
22	2023-05-27 00:00:00			ATHENS_02	37.98204	23.79478	1	Extremely Poor	NO2	9.80
23	2023-05-27 00:00:00			Athens CAMS station 15	38.05	23.55	3	Fair	PM25	1

# COSA OCCORRE FARE PRIMA DI TRATTARE I DATI?



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

Inserite quindi la stessa funzione nelle celle sottostanti. È possibile utilizzare la finestra "Incolla speciale" che apparirà, oppure è sufficiente fare clic sull'angolo inferiore destro della cella, tenere premuto e trascinare il mouse verso il basso.

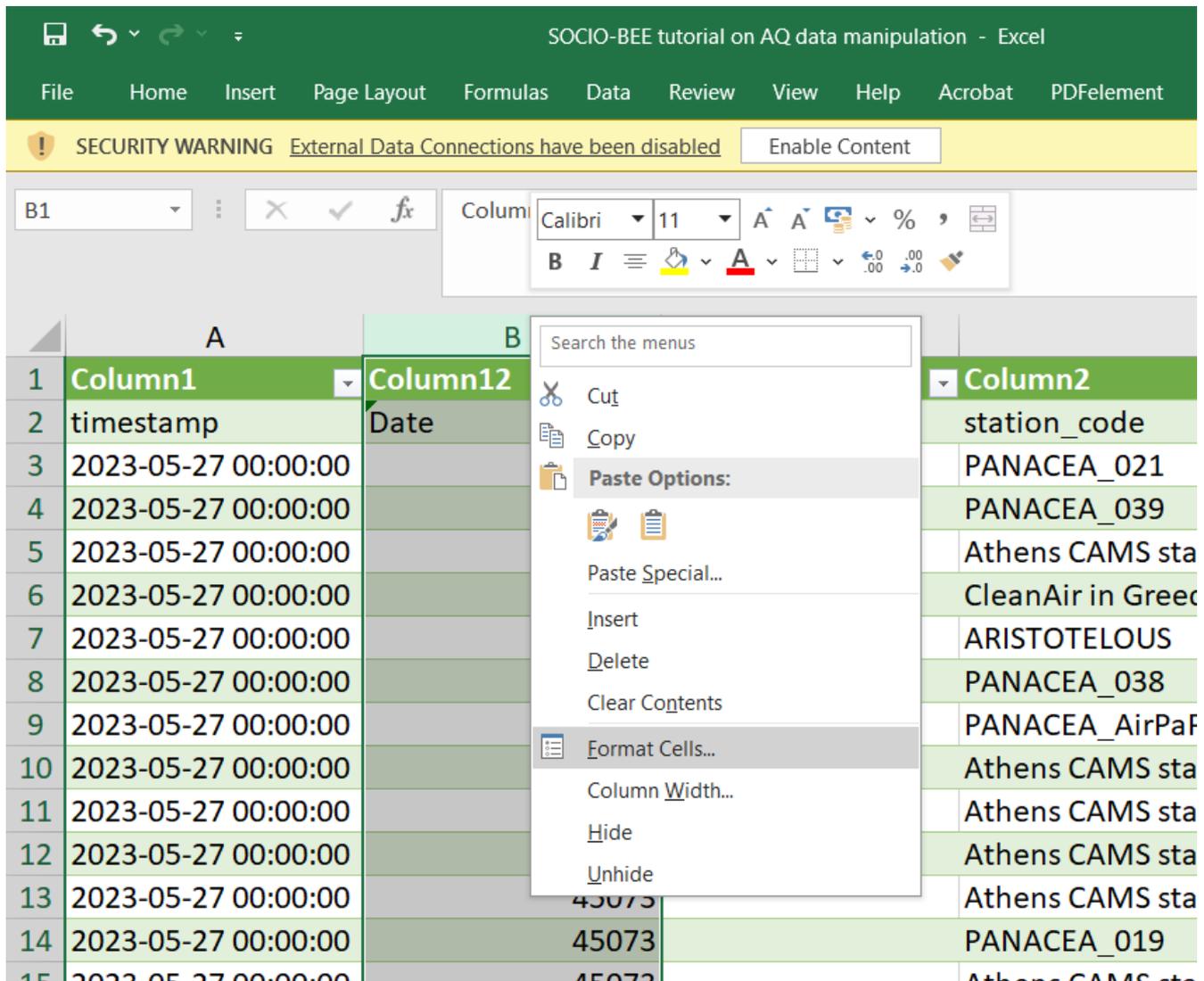


Column1	Column12	Column13	Column2
timestamp	Date	Time	station_code
2023-05-27 00:00:00	45073		PANACEA_021
2023-05-27 00:00:00			PANACEA_039
2023-05-27 00:00:00			Athens CAMS station 5
2023-05-27 00:00:00			CleanAir in Greece - Thiseio
2023-05-27 00:00:00			ARISTOTELOUS
2023-05-27 00:00:00			PANACEA_038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

# COSA OCCORRE FARE PRIMA DI TRATTARE I DATI?

Si noterà che il valore visualizzato nelle celle non è una data.

Per risolvere il problema, selezionare l'intera colonna, fare clic con il pulsante destro del mouse per aprire il menu e selezionare "Formatta celle".

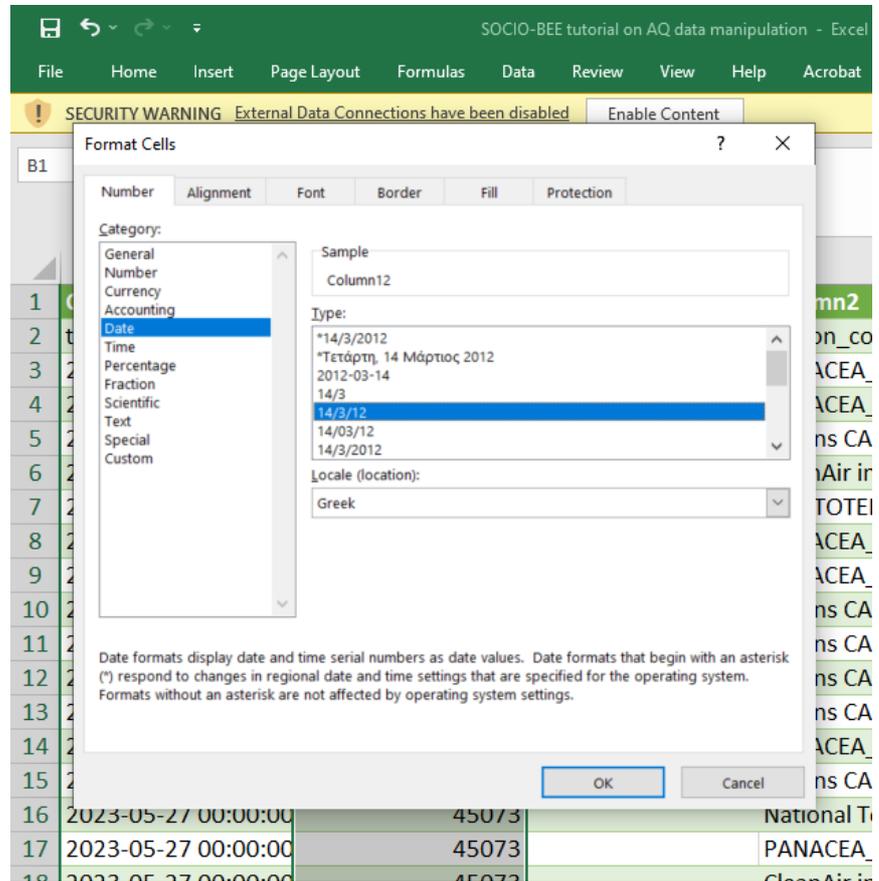


The screenshot shows the Excel interface with the following details:

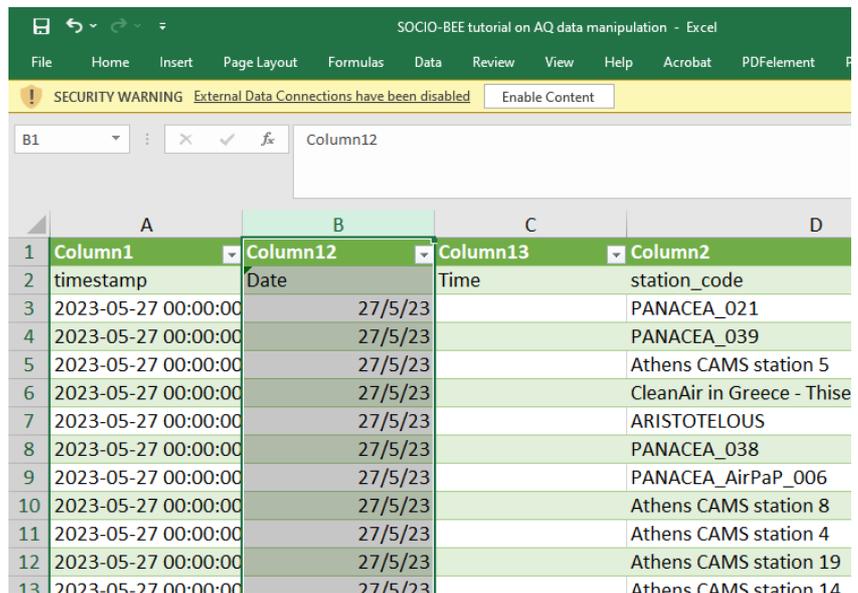
- Title Bar:** SOCIO-BEE tutorial on AQ data manipulation - Excel
- Menu Bar:** File, Home, Insert, Page Layout, Formulas, Data, Review, View, Help, Acrobat, PDFelement
- Status Bar:** SECURITY WARNING External Data Connections have been disabled
- Formula Bar:** B1, Calibri, 11, Bold, Italic, Underline, Text Color, Fill Color, Alignment, Number Format, Undo, Redo
- Worksheet:**
  - Column A:** Column1, timestamp, 2023-05-27 00:00:00 (repeated 15 times)
  - Column B:** Column12, Date, (blank)
  - Column C:** Column2, station\_code, PANACEA\_021, PANACEA\_039, Athens CAMS sta, CleanAir in Greec, ARISTOTELOUS, PANACEA\_038, PANACEA\_AirPaF, Athens CAMS sta, Athens CAMS sta, Athens CAMS sta, Athens CAMS sta, PANACEA\_019, Athens CAMS sta
- Context Menu:**
  - Search the menus
  - Cut
  - Copy
  - Paste Options:
    - Paste Special...
  - Insert
  - Delete
  - Clear Contents
  - Format Cells...** (highlighted)
  - Column Width...
  - Hide
  - Unhide

# COSA OCCORRE FARE PRIMA DI TRATTARE I DATI?

Nel menu del formato, andare alla scheda "Numero" e selezionare "Data" dall'elenco delle categorie a sinistra. Scegliere il formato di data desiderato dall'elenco a destra (sotto "Tipo").



Premere "OK".

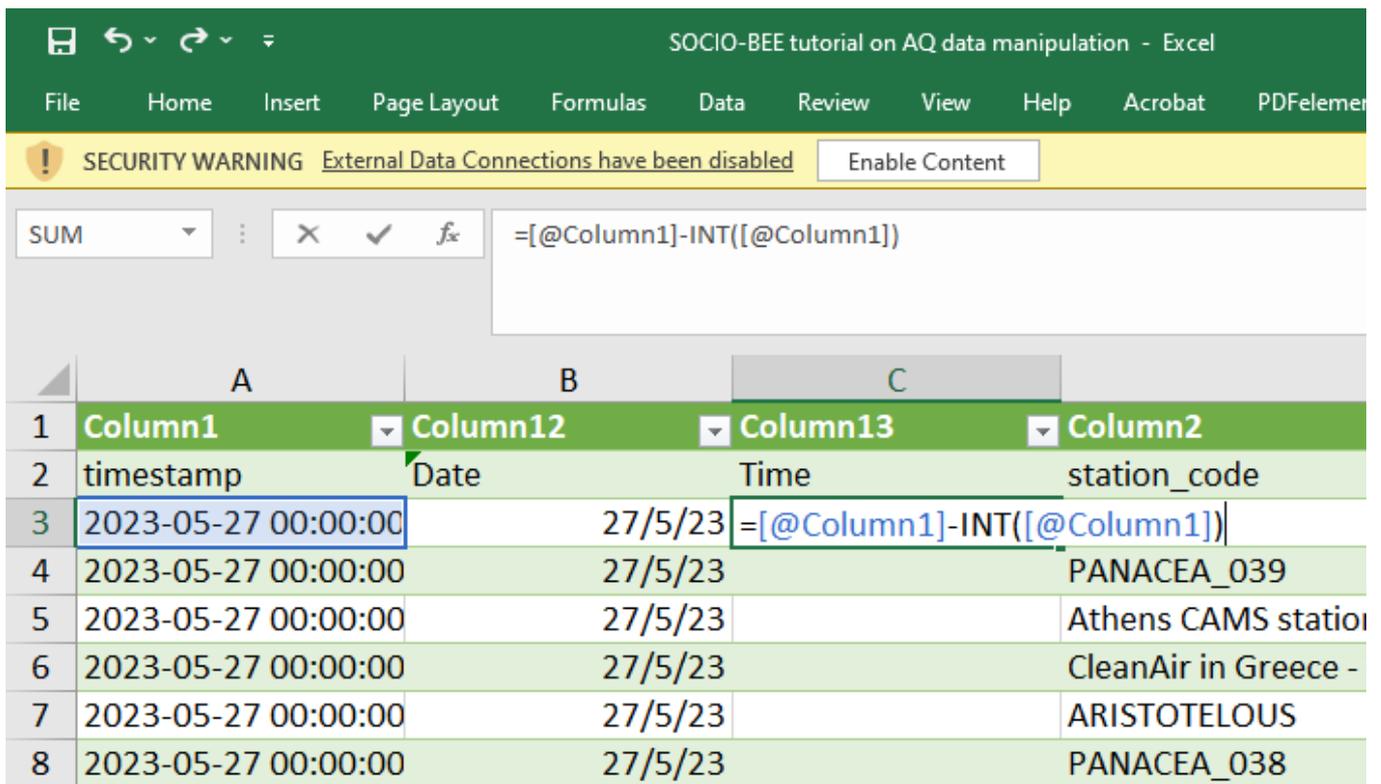


The screenshot shows the Excel spreadsheet after the date format has been applied. The data is as follows:

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

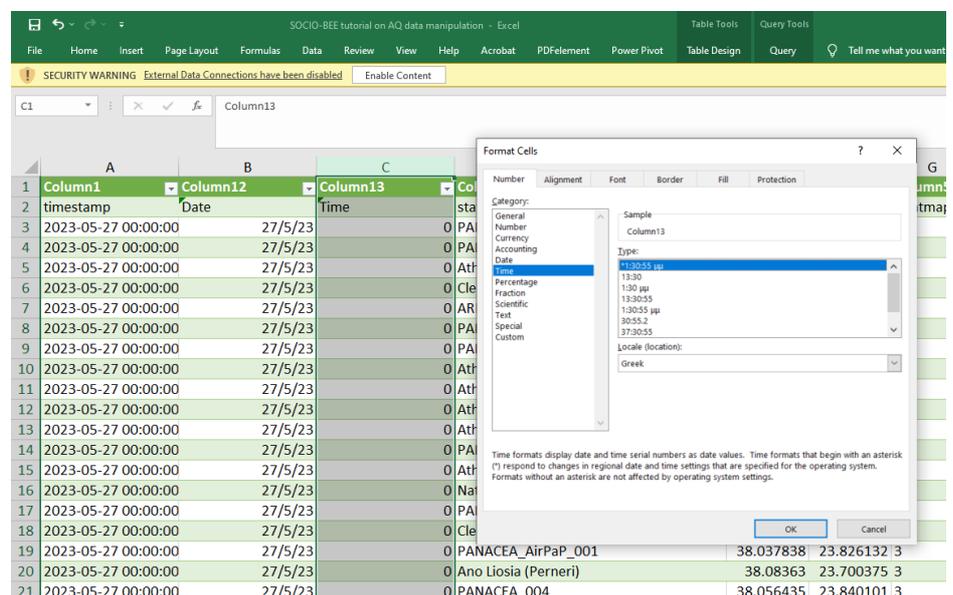
# COSA OCCORRE FARE PRIMA DI TRATTARE I DATI?

Per isolare i valori temporali, selezionare la cella C3 e inserire la seguente formula  $=[@Colonna1]-INT([@Colonna1])$  e premere 'Invio'.



	A	B	C
1	Column1	Column12	Column13
2	timestamp	Date	Time
3	2023-05-27 00:00:00	27/5/23	$=[@Column1]-INT([@Column1])$
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

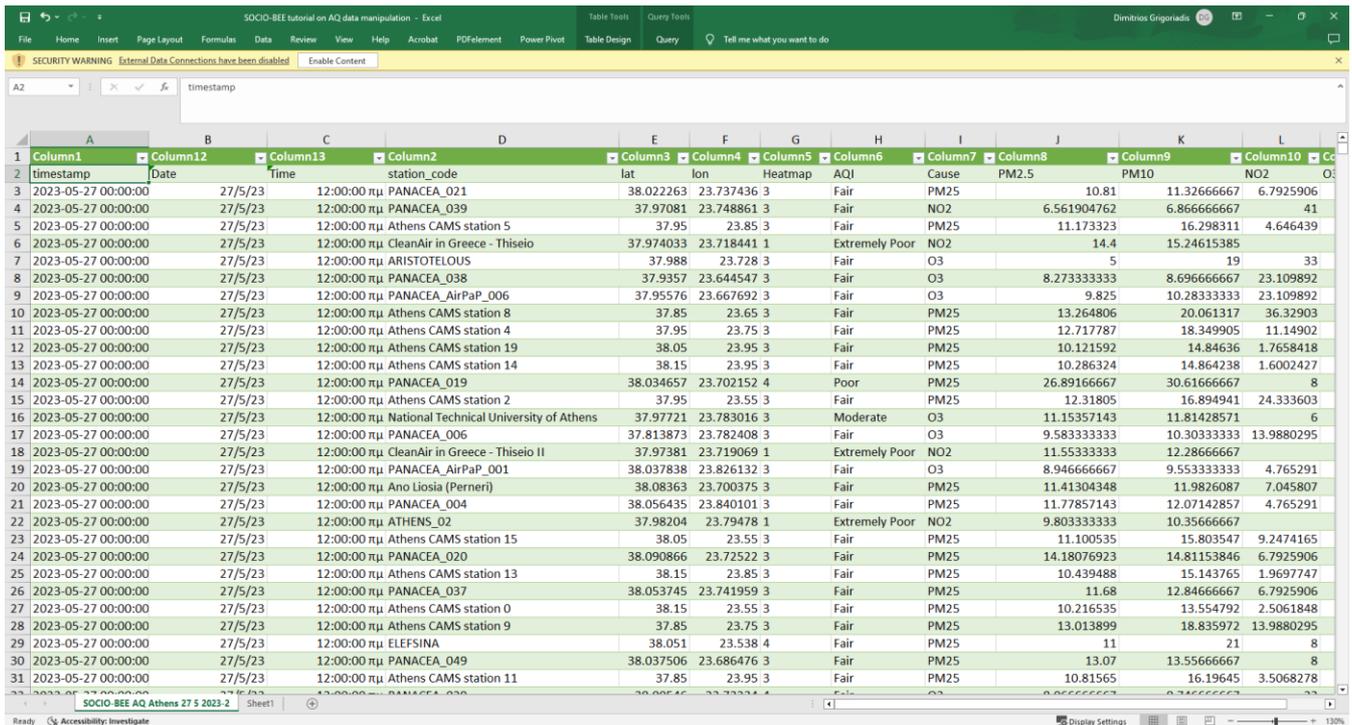
Seguite la stessa procedura della colonna 'Data': incollate la funzione nelle celle sottostanti e cambiate il formato delle celle in 'Ora'.



	A	B	C
1	Column1	Column12	Column13
2	timestamp	Date	Time
3	2023-05-27 00:00:00	27/5/23	0 PA
4	2023-05-27 00:00:00	27/5/23	0 PA
5	2023-05-27 00:00:00	27/5/23	0 Ath
6	2023-05-27 00:00:00	27/5/23	0 Cle
7	2023-05-27 00:00:00	27/5/23	0 AR
8	2023-05-27 00:00:00	27/5/23	0 PA
9	2023-05-27 00:00:00	27/5/23	0 PA
10	2023-05-27 00:00:00	27/5/23	0 Ath
11	2023-05-27 00:00:00	27/5/23	0 Ath
12	2023-05-27 00:00:00	27/5/23	0 Ath
13	2023-05-27 00:00:00	27/5/23	0 Ath
14	2023-05-27 00:00:00	27/5/23	0 PA
15	2023-05-27 00:00:00	27/5/23	0 Ath
16	2023-05-27 00:00:00	27/5/23	0 Na
17	2023-05-27 00:00:00	27/5/23	0 PA
18	2023-05-27 00:00:00	27/5/23	0 Cle
19	2023-05-27 00:00:00	27/5/23	0 PANACEA_AirPaP_001
20	2023-05-27 00:00:00	27/5/23	0 Ano Liosia (Perneri)
21	2023-05-27 00:00:00	27/5/23	0 PANACEA_004

# COSA OCCORRE FARE PRIMA DI TRATTARE I DATI?

Il file dovrebbe ora avere il seguente aspetto:



Column1	Column12	Column13	Column2	Column3	Column4	Column5	Column6	Column7	Column8	Column9	Column10
timestamp	Date	Time	station_code	lat	lon	Heatmap	AQI	Cause	PM2.5	PM10	NO2
2023-05-27 00:00:00	27/5/23	12:00:00	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	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	Athens CAMS station 5	37.95	23.85	3	Fair	PM25	11.1733323	16.298311	4.646439
2023-05-27 00:00:00	27/5/23	12:00:00	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	ARISTOTELOUS	37.988	23.728	3	Fair	O3	5	19	33
2023-05-27 00:00:00	27/5/23	12:00:00	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	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	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	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	Athens CAMS station 19	38.05	23.95	3	Fair	PM25	10.121592	14.846238	1.7658418
2023-05-27 00:00:00	27/5/23	12:00:00	Athens CAMS station 14	38.15	23.95	3	Fair	PM25	10.286324	14.846238	1.6002427
2023-05-27 00:00:00	27/5/23	12:00:00	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	ELEFSINA	38.051	23.538	4	Fair	PM25	11	21	8
2023-05-27 00:00:00	27/5/23	12:00:00	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	Athens CAMS station 11	37.85	23.95	3	Fair	PM25	10.81565	16.19645	3.5068278

Ora siete pronti per iniziare a identificare i dati giusti e come tracciarli.

Tenete presente che per trovare i dati giusti è necessario rivedere l'ipotesi dell'alveare che ha dato il via alla campagna o alle campagne che state esaminando.

Le pagine seguenti contengono un semplice esempio di ipotesi e di come identificare e tracciare i dati rilevanti.



# COME SI IDENTIFICANO I DATI GIUSTI?

## Esempio di ipotesi

Supponiamo che il vostro alveare stia testando la seguente ipotesi: "L'aumento della congestione del traffico porta a livelli più elevati di biossido di azoto (NO2) nell'area della campagna".

Per verificare la validità dell'ipotesi precedente, è necessario conoscere il livello di concentrazione di NO2 nell'area della campagna in momenti specifici.

Quindi è possibile tracciare un grafico dei "livelli di NO2" rispetto al "tempo" e confrontare i periodi delle ore di punta con quelli delle ore non di punta.

Ciò significa che sono necessari i dati della colonna C (Tempo) e della colonna L (NO2).

	A	B	C	D	E	F	G	H	I	J	K	L	M
144	29/5/2023 9:25	29/5/2023	9:25:00 nu	6a55	38.022263	23.737436	3	Fair	O3	6.45	6.5	22.34785	81.95646
145	29/5/2023 9:47	29/5/2023	9:47:00 nu	a13d	37.97081	23.748861	3	Fair	O3	2.42851249	2.696428	11	83.63673
146	29/5/2023 9:49	29/5/2023	9:49:00 nu	a13d	37.95	23.75	3	Fair	O3	8.192416	17.336	30	20.2345
147	29/5/2023 10:17	29/5/2023	10:17:00 nu	6a55	38.022263	23.737436	3	Fair	O3	6.5	7.0	29.45873	82.91925
148	29/5/2023 10:19	29/5/2023	10:19:00 nu	98CD	37.988	23.728	4	Fair	PM25	14	14	40	84.30244
149	29/5/2023 10:27	29/5/2023	10:27:00 nu	98BD	37.97881	23.749690	0	Extremely Poor	NO2	6.88888889	7.596296	9	38
150	29/5/2023 10:29	29/5/2023	10:29:00 nu	5A3D	37.95	23.85	3	Fair	O3	6.287396	15.664	37.845	88.74012
151	29/5/2023 10:47	29/5/2023	10:47:00 nu	4A55	37.9357	23.644547	3	Fair	O3	4.6	4.2	35.4781	84.47196
152	29/5/2023 10:49	29/5/2023	10:49:00 nu	a13d	37.95	23.75	3	Fair	O3	7.650241	15.048	40.32516	84.30244
153	29/5/2023 10:57	29/5/2023	10:57:00 nu	98BD	37.974033	23.718441	0	Extremely Poor	NO2	6.84444444	7.407407	7	41
154	29/5/2023 10:59	29/5/2023	10:59:00 nu	60ad	38.05	23.95	3	Fair	O3	6.1525154	13.419	38.9148	89.26188
155	29/5/2023 11:07	29/5/2023	11:07:00 nu	6a55	38.022263	23.737436	3	Fair	O3	6.168875	6.4	35.4781	81.4158
156	29/5/2023 11:09	29/5/2023	11:09:00 nu	5A3D	37.95	23.85	3	Fair	O3	6.348786	13.911	37.1325	83.8589
157	29/5/2023 11:14	29/5/2023	11:14:00 nu	a13d	37.95	23.75	3	Fair	O3	7.5390997	15.212	37.100154	85.30553
158	29/5/2023 11:22	29/5/2023	11:22:00 nu	98CD	37.988	23.728	4	Fair	PM25	13	13	36.4215	85.30553
159	29/5/2023 11:35	29/5/2023	11:35:00 nu	70c1	37.95576	23.667692	3	Fair	O3	6.13333333	6.606666	7	35.7458
160	29/5/2023 11:47	29/5/2023	11:47:00 nu	60ad	38.05	23.95	3	Fair	O3	6.427271	11.585	34.78941	81.26847
161	29/5/2023 11:58	29/5/2023	11:58:00 nu	80DD	37.85	23.65	3	Fair	O3	8.815234	17.326	33.4781	86.056816
162	29/5/2023 14:39	29/5/2023	2:39:00 pm	6a55	38.022263	23.737436	3	Fair	O3	7.8875	8.6	15.1247	76.989164
163	29/5/2023 14:42	29/5/2023	2:42:00 pm	a13d	37.95	23.75	3	Fair	PM25	10.995196	20.217	15.081027	80.334785
164	29/5/2023 15:04	29/5/2023	3:04:00 pm	98CD	37.988	23.728	4	Fair	PM25	15	15	14.9748	77.12206
165	29/5/2023 15:09	29/5/2023	3:09:00 pm	98BD	37.974033	23.718441	1	Extremely Poor	NO2	10.34615385	11.18846	14.8745	14.8745
166	29/5/2023 15:10	29/5/2023	3:10:00 pm	4A55	37.9357	23.644547	3	Fair	O3	9.06	8	14.235	74.576004
167	29/5/2023 15:16	29/5/2023	3:16:00 pm	70c1	37.95576	23.667692	3	Fair	PM25	11.6037037	12.57777	8	14
168	29/5/2023 15:47	29/5/2023	3:47:00 pm	80DD	37.85	23.65	3	Fair	PM25	11.189781	27.87	9.45	87.78709
169	29/5/2023 15:58	29/5/2023	3:58:00 pm	a13d	37.97081	23.748861	3	Fair	O3	5.525	5.969285	9.123	77.12206
170	29/5/2023 15:59	29/5/2023	3:59:00 pm	60ad	38.05	23.95	3	Fair	O3	9.410469	16.185	9	82.389055
171	29/5/2023 16:02	29/5/2023	4:02:00 pm	6a55	38.022263	23.737436	3	Fair	PM25	10.5454545	12.24545	9	10.725647
172	29/5/2023 16:17	29/5/2023	4:17:00 pm	70c1	37.95576	23.667692	3	Fair	PM25	10.13448276	10.94482	10	10.5784
173	29/5/2023 16:20	29/5/2023	4:20:00 pm	4A55	37.9357	23.644547	3	Fair	O3	9.16470382	10.71252	10	10.4473
174	29/5/2023 16:22	29/5/2023	4:22:00 pm	5A3D	37.95	23.85	3	Fair	PM10	9.491967	21.071	9	9.2784
175	29/5/2023 16:28	29/5/2023	4:28:00 pm	98BD	37.974033	23.718441	1	Extremely Poor	NO2	9.910344828	11.05551	14	10.354
176	29/5/2023 16:37	29/5/2023	4:37:00 pm	98BD II	37.97381	23.719089	1	Extremely Poor	NO2	9.96	12	10.3494	10.3494
177	29/5/2023 17:24	29/5/2023	5:24:00 pm	98BD	37.974033	23.718441	1	Extremely Poor	NO2	10.475	11.47857	9	12.3457
178	29/5/2023 17:26	29/5/2023	5:26:00 pm	4A55	37.9357	23.644547	3	Fair	PM25	10.19375	11.2	12.47853	69.67075
179	29/5/2023 17:57	29/5/2023	5:57:00 pm	60ad	38.05	23.95	3	Fair	O3	8.62518	17.86	15.987461	81.99725
180	29/5/2023 18:01	29/5/2023	6:01:00 pm	a13d	37.97081	23.748861	3	Fair	PM25	11.1	12	15.87456	69.29748
181	29/5/2023 18:07	29/5/2023	6:07:00 pm	98CD	37.988	23.728	4	Fair	PM25	12	12	15.9874	69.29748
182	29/5/2023 18:12	29/5/2023	6:12:00 pm	60ad	38.05	23.95	3	Fair	O3	7.7086716	16.584	17.45113	82.39889
183	29/5/2023 18:18	29/5/2023	6:18:00 pm	4A55	37.9357	23.644547	3	Fair	PM25	11.765	13	20.478	68.45187
184	29/5/2023 18:35	29/5/2023	6:35:00 pm	98BD	37.974033	23.718441	1	Extremely Poor	NO2	15.11071429	16.40357	9	26.09395
185	29/5/2023 18:38	29/5/2023	6:38:00 pm	a13d	37.95	23.75	3	Fair	PM25	12.516829	22.391	26.29395	69.29748
186	29/5/2023 18:42	29/5/2023	6:42:00 pm	70c1	37.95576	23.667692	3	Fair	PM25	11.67586207	12.64827	8	28
187	29/5/2023 18:57	29/5/2023	6:57:00 pm	5A3D	37.95	23.85	3	Fair	O3	8.646765	18.118	12	17.11519
188	29/5/2023 20:02	29/5/2023	8:02:00 pm	98BD	37.974033	23.718441	2	Extremely Poor	NO2	23.75882353	25.77647	9	36.685806
189	29/5/2023 20:35	29/5/2023	8:35:00 pm	98CD	37.988	23.728	4	Fair	PM25	26	26	55.39227	82.39889
190	29/5/2023 20:37	29/5/2023	8:37:00 pm	60ad	38.05	23.95	3	Fair	O3	8.995592	15.939	26.145	67.76082
191	29/5/2023 20:58	29/5/2023	8:58:00 pm	4A55	37.9357	23.644547	4	Moderate	PM25	11.6	12.72212	25.364	55.372845
192	29/5/2023 20:47	29/5/2023	8:47:00 pm	70c1	37.95576	23.667692	4	Fair	PM25	15.55454545	16.84999	9	55.372845
193	29/5/2023 20:48	29/5/2023	8:48:00 pm	a13d	37.97081	23.748861	3	Fair	PM25	16.5482768	17.46655	10	55.38272

# COME SI IDENTIFICANO I DATI GIUSTI?

Tracciamo il grafico dei livelli di concentrazione giornaliera di NO2 rispetto al tempo.

Per questo esempio, sceglieremo i dati del 29 maggio 2023. Scorrere il foglio di calcolo per trovare i dati con questa data.

AQ data processing SOCIO-BEE v10 - Excel

File Home Insert Page Layout Formulas Data Review View Help Acrobat PDFelement Power Pivot Table Design Query Tell me what you want to do

SECURITY WARNING External Data Connections have been disabled Enable Content

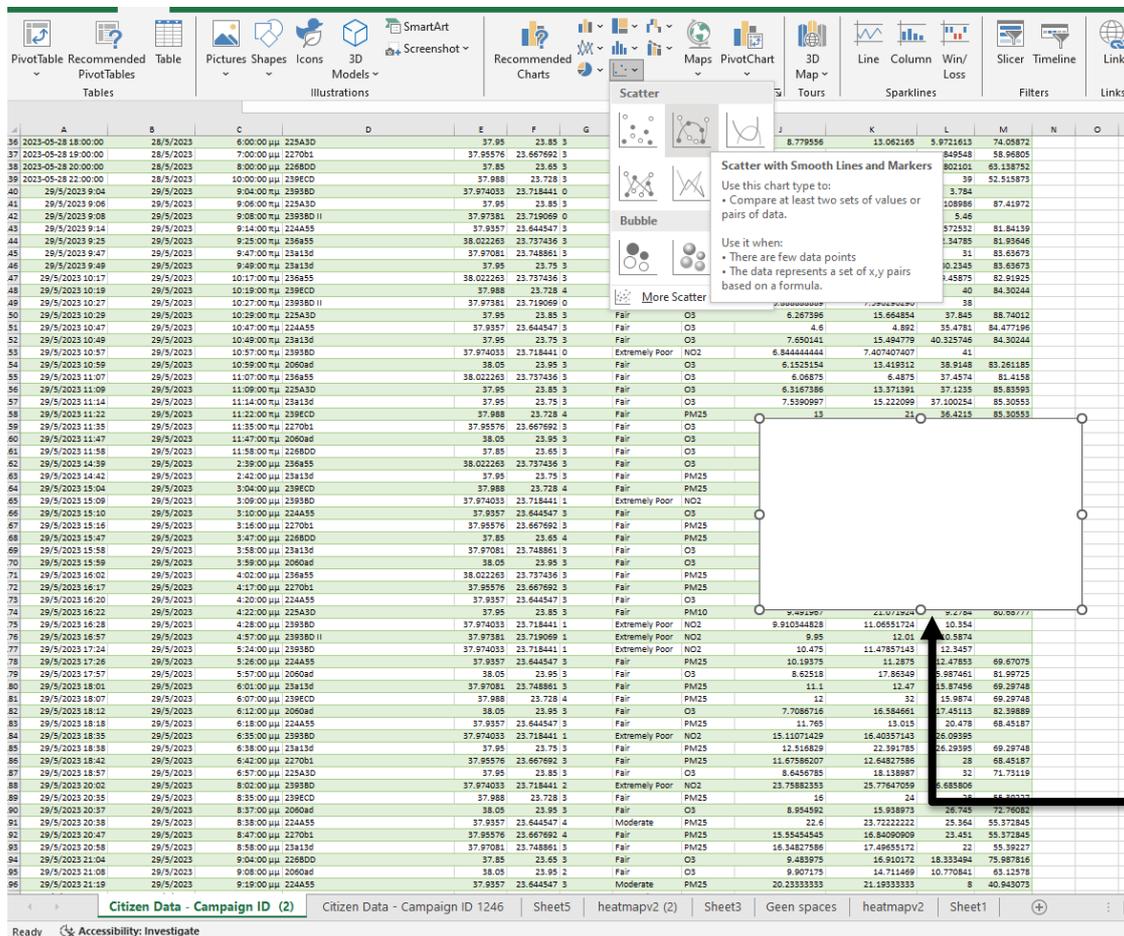
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Column1	Column2	Column3	Column4	Column5	Column6	Column7	Column8	Column9	Column10	Column11			
136	2023-05-28 18:00:00	28/5/2023	6:00:00 pm	229A5D	37.95	23.85	3	Fair	OS	8.779556	13.062166	5.9721613	74.05872
137	2023-05-28 19:00:00	28/5/2023	7:00:00 pm	227001	37.9576	23.667692	3	Fair	OS	9.12	8.73	27.849148	58.96905
138	2023-05-28 20:00:00	28/5/2023	8:00:00 pm	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 pm	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 pm	239380	37.974033	23.718441	0	Extremely Poor	NO2	8.853333333	9.603333333	3.75	
141	29/5/2023 9:06	29/5/2023	9:06:00 pm	225A3D	37.95	23.85	3	Fair	OS	7.045032	16.804652	3.7108966	
142	29/5/2023 9:08	29/5/2023	9:08:00 pm	239380 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 pm	224A55	37.9357	23.644547	3	Fair	OS	5.114285714	5.461904762	11.572332	81.84139
144	29/5/2023 9:25	29/5/2023	9:25:00 pm	236A55	38.022263	23.737436	3	Fair	OS	6.45	6.923	22.34785	81.93646
145	29/5/2023 9:47	29/5/2023	9:47:00 pm	231134	37.97081	23.748861	3	Fair	OS	2.428571429	2.694448751	31	83.63673
146	29/5/2023 9:49	29/5/2023	9:49:00 pm	23913D	37.95	23.75	3	Fair	OS	8.392416	17.336231	30.2345	88.63673
147	29/5/2023 10:17	29/5/2023	10:17:00 pm	236A55	38.022263	23.737436	3	Fair	OS	6.5	7.0375	29.45875	82.91923
148	29/5/2023 10:19	29/5/2023	10:19:00 pm	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 pm	239380 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 pm	225A3D	37.95	23.85	3	Fair	OS	6.287596	15.664854	37.848	88.74021
151	29/5/2023 10:47	29/5/2023	10:47:00 pm	224A55	37.9357	23.644547	3	Fair	OS	4.6	4.892	35.4781	84.477196
152	29/5/2023 10:49	29/5/2023	10:49:00 pm	231134	37.95	23.75	3	Fair	OS	7.650141	15.494779	40.325746	84.30244
153	29/5/2023 10:57	29/5/2023	10:57:00 pm	239380	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 pm	20609d	38.05	23.95	3	Fair	OS	6.1525154	12.443512	38.9148	83.261185
155	29/5/2023 11:07	29/5/2023	11:07:00 pm	236A55	38.022263	23.737436	3	Fair	OS	6.06875	6.4875	37.4574	81.4158
156	29/5/2023 11:09	29/5/2023	11:09:00 pm	225A3D	37.95	23.85	3	Fair	OS	6.3187386	13.371391	37.1235	85.83583
157	29/5/2023 11:14	29/5/2023	11:14:00 pm	231134	37.95	23.75	3	Fair	OS	7.5390997	15.222099	37.100234	85.30553
158	29/5/2023 11:22	29/5/2023	11:22:00 pm	239E0C	37.988	23.728	4	Fair	PM25	15	21	35.4215	85.30553
159	29/5/2023 11:35	29/5/2023	11:35:00 pm	227001	37.95576	23.667692	3	Fair	OS	6.133333333	6.606666667	35.7458	81.2277
160	29/5/2023 11:47	29/5/2023	11:47:00 pm	20609d	38.05	23.95	3	Fair	OS	6.427271	11.585559	34.78941	81.28847
161	29/5/2023 11:58	29/5/2023	11:58:00 pm	226800	37.85	23.65	3	Fair	OS	8.815234	17.326216	35.4781	86.058816
162	29/5/2023 12:39	29/5/2023	2:39:00 pm	236A55	38.022263	23.737436	3	Fair	OS	7.8875	8.6375	15.1247	76.989944
163	29/5/2023 13:42	29/5/2023	2:42:00 pm	231134	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 pm	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 pm	239380	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 pm	224A55	37.9357	23.644547	3	Fair	OS	9.06	9.775	14.255	74.576004
167	29/5/2023 15:16	29/5/2023	3:16:00 pm	227001	37.95576	23.667692	3	Fair	PM25	11.6037037	12.5777778	14	74.576004
168	29/5/2023 15:47	29/5/2023	3:47:00 pm	226800	37.85	23.65	4	Fair	PM25	11.189781	27.87464	9.45	87.78709
169	29/5/2023 15:58	29/5/2023	3:58:00 pm	231134	37.97081	23.748861	3	Fair	OS	5.523	5.989285714	9.123	77.12206
170	29/5/2023 15:59	29/5/2023	3:59:00 pm	20609d	38.05	23.95	3	Fair	OS	9.410469	16.185246	9.2974	82.358055
171	29/5/2023 16:02	29/5/2023	4:02:00 pm	236A55	38.022263	23.737436	3	Fair	PM25	10.85454545	12.45454545	10.725647	76.67623
172	29/5/2023 16:17	29/5/2023	4:17:00 pm	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 pm	224A55	37.9357	23.644547	3	Fair	OS	9.784708581	10.72352841	10.4871	68.996315
174	29/5/2023 16:22	29/5/2023	4:22:00 pm	225A3D	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 pm	239380	37.974033	23.718441	1	Extremely Poor	NO2	9.910048218	11.05591724	10.354	
176	29/5/2023 16:57	29/5/2023	4:57:00 pm	239380 II	37.97381	23.719069	1	Extremely Poor	NO2	9.95	12.01	10.5874	
177	29/5/2023 17:24	29/5/2023	5:24:00 pm	239380	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 pm	224A55	37.9357	23.644547	3	Fair	PM25	10.19975	11.2875	12.47833	69.67075
179	29/5/2023 17:57	29/5/2023	5:57:00 pm	20609d	38.05	23.95	3	Fair	OS	8.62518	17.86549	15.807461	81.99725
180	29/5/2023 18:01	29/5/2023	6:01:00 pm	231134	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 pm	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 pm	20609d	38.05	23.95	3	Fair	OS	7.7089716	16.584661	17.45113	82.38889
183	29/5/2023 18:18	29/5/2023	6:18:00 pm	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 pm	239380	37.974033	23.718441	1	Extremely Poor	NO2	15.110714538	16.40397143	26.69396	
185	29/5/2023 18:38	29/5/2023	6:38:00 pm	231134	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 pm	227001	37.95576	23.667692	3	Fair	PM25	11.67582027	12.64827586	28	68.45187
187	29/5/2023 18:57	29/5/2023	6:57:00 pm	225A3D	37.95	23.85	3	Fair	OS	8.6456785	16.136997	32	71.71119
188	29/5/2023 19:02	29/5/2023	8:02:00 pm	239380	37.974033	23.718441	2	Extremely Poor	NO2	23.79832353	25.77647059	36.685806	
189	29/5/2023 20:35	29/5/2023	8:35:00 pm	239E0C	37.988	23.728	5	Fair	PM25	16	24	28	55.99227
190	29/5/2023 20:37	29/5/2023	8:37:00 pm	20609d	38.05	23.95	3	Fair	OS	8.954592	15.938973	26.745	72.76082
191	29/5/2023 20:38	29/5/2023	8:38:00 pm	224A55	37.9357	23.644547	4	Moderate	PM25	22.6	23.72222222	25.364	55.372845
192	29/5/2023 20:47	29/5/2023	8:47:00 pm	227001	37.95576	23.667692	4	Fair	PM25	15.58454545	16.84090099	23.455	55.372845
193	29/5/2023 20:58	29/5/2023	8:58:00 pm	231134	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 pm	226800	37.85	23.65	3	Fair	OS	9.489375	16.910172	18.333484	75.987816
195	29/5/2023 21:08	29/5/2023	9:08:00 pm	20609d	38.05	23.95	2	Fair	OS	9.907175	14.711469	10.770841	63.12578
196	29/5/2023 21:19	29/5/2023	9:19:00 pm	224A55	37.9357	23.644547	5	Moderate	PM25	20.23333333	21.19333333	8	40.943073

# COME SI TRACCIANO I DATI?

Una volta identificati i dati che si desidera tracciare, andare su 'Inserisci' e scegliere il grafico più appropriato per tracciare i dati.

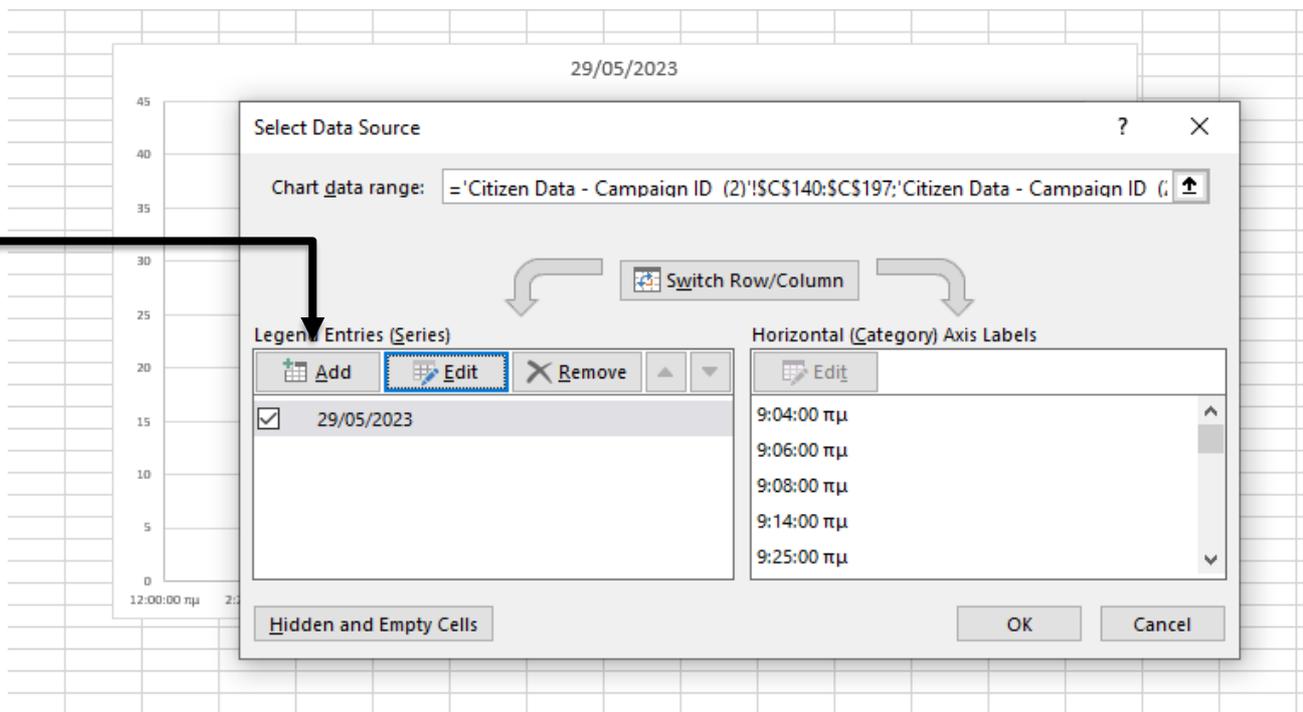
In questo esempio, utilizzeremo un grafico di dispersione con linee e marcatori uniformi.



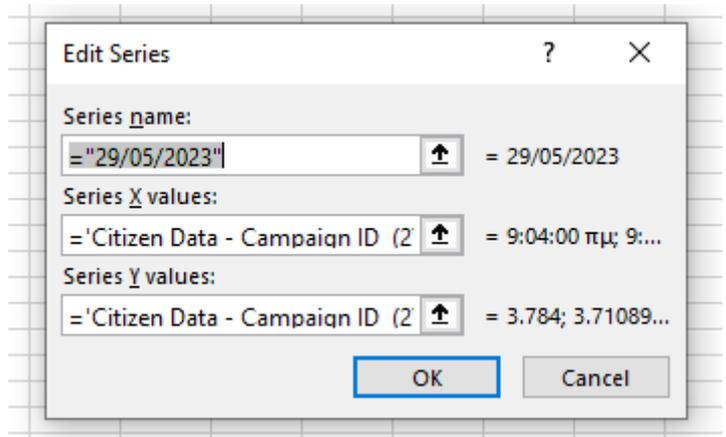
Fare clic con il tasto destro del mouse sulla cornice bianca vuota e fare clic su "Seleziona dati".

# COME SI TRACCIANO I DATI?

Nella finestra che si apre, selezionare "Aggiungi" sul lato sinistro per aggiungere una nuova serie di dati.



Modificare il nome della serie di dati e selezionare i valori orizzontali (valori X) e perpendicolari (valori Y) del grafico.

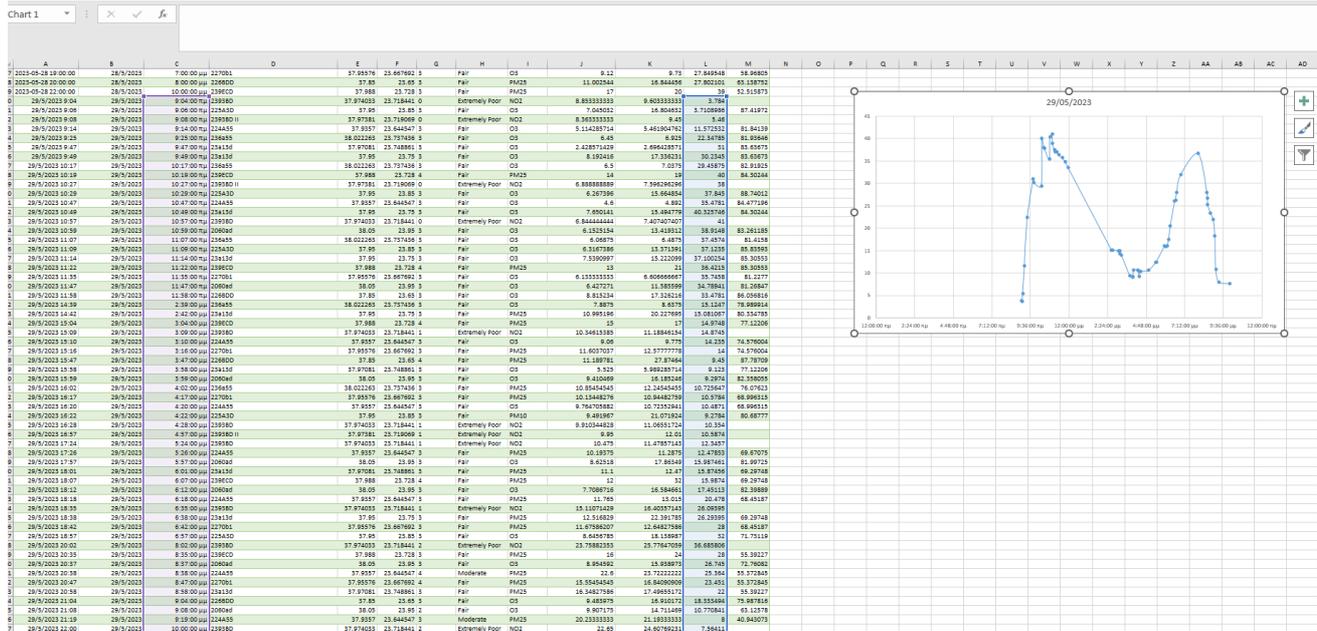


In genere, questo tipo di grafici ha il tempo sull'asse delle X e la concentrazione di inquinanti sull'asse delle Y.



# COME SI TRACCIANO I DATI?

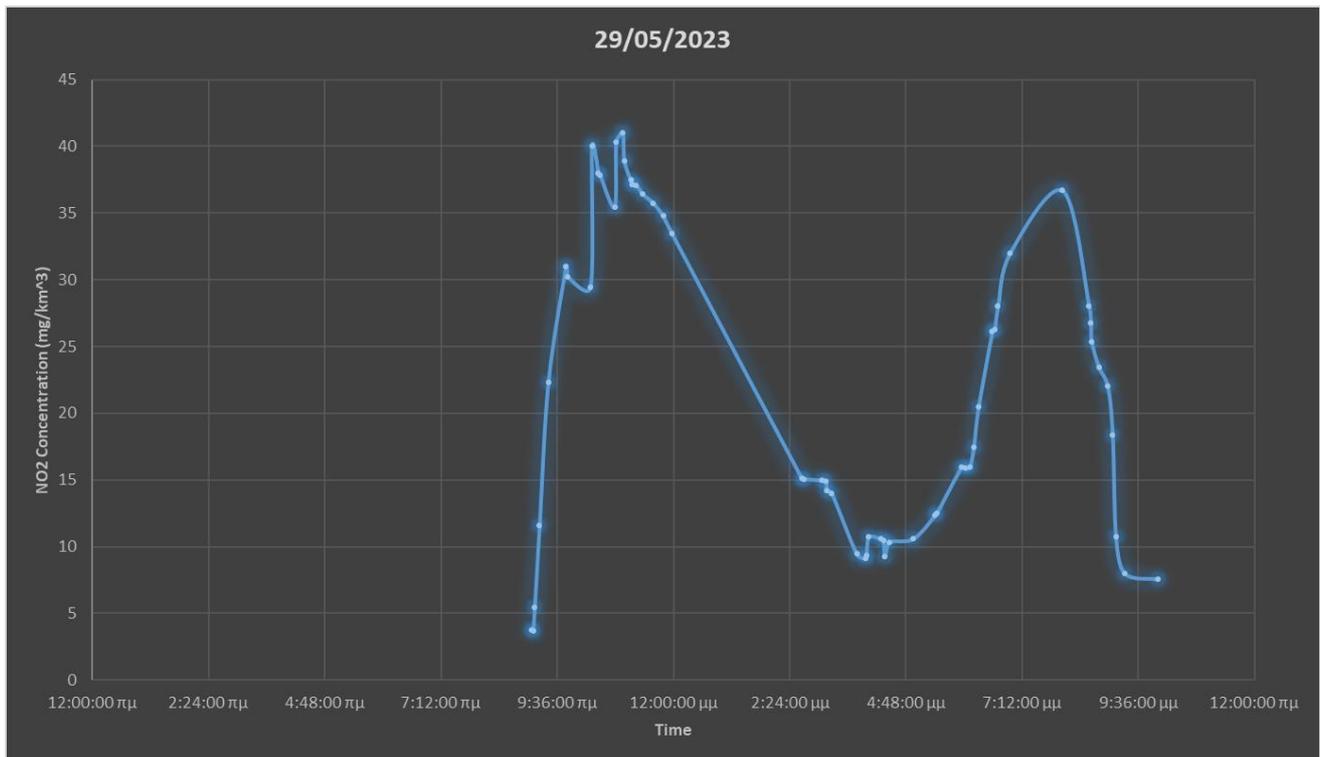
Selezionare "OK" e i dati selezionati verranno tracciati sul grafico.



Fare clic sul grafico per modificare gli elementi del grafico, come l'asse o la legenda. Sentitevi liberi di personalizzare il vostro grafico.

# COME SI TRACCIANO I DATI?

Diamo un'occhiata al grafico finale che illustra l'evoluzione giornaliera della concentrazione di NO<sub>2</sub> nell'area della campagna.



I dati di lunedì 29/05/2023 mostrano effettivamente un aumento della concentrazione di NO<sub>2</sub> nelle ore di punta. È un passo avanti verso la convalida della vostra ipotesi!

**ATTENZIONE:** questo semplice grafico non convalida completamente l'ipotesi. Potrebbero essere necessari diversi grafici giornalieri, settimanali o stagionali con un numero sufficiente di punti dati per giungere a una conclusione sicura. Tuttavia, potete discutere il grafico con il vostro alveare e organizzare altre campagne o comunicarle al vostro Orso per un'analisi più approfondita.

# PERCHÉ SI DOVREBBE CONSULTARE ANCHE UN ESPERTO DI QUALITÀ DELL'ARIA?

In qualità di cittadini scienziati, il vostro impegno collettivo in SOCIO-BEE svolge un ruolo cruciale nel monitoraggio e nella comprensione della qualità dell'aria nelle nostre comunità. Sebbene il vostro impegno e il vostro contributo siano inestimabili, è essenziale riconoscere che l'interpretazione e l'analisi dei dati sulla qualità dell'aria richiedono competenze e conoscenze specialistiche.

Per garantire l'accuratezza e l'affidabilità dei vostri risultati, incoraggiamo tutti i partecipanti a SOCIO-BEE a cercare la guida e la collaborazione di veri scienziati ed esperti di qualità dell'aria.

Questi professionisti possiedono l'esperienza e le conoscenze necessarie per interpretare, tracciare e convalidare efficacemente i dati raccolti dai nostri sensori.

La collaborazione con scienziati ed esperti non solo migliora la qualità della nostra ricerca, ma promuove anche uno spirito di cooperazione e apprendimento interdisciplinare.



# COS'ALTRO SI PUÒ TRACCIARE IN BASE ALLA VOSTRA IPOTESI?

Tutto dipende dall'ipotesi che si sta cercando di verificare. Di seguito sono riportati alcuni esempi di ipotesi:

Ipotesi	Cosa si può fare?
L'aumento della congestione del traffico porta a livelli più elevati di biossido di azoto (NO <sub>2</sub> ) nell'area della campagna.	Tracciare i livelli di NO <sub>2</sub> in funzione del tempo, confrontando i periodi delle ore di punta con quelli delle ore non di punta.
Le attività di costruzione, come le demolizioni e gli scavi, comportano un aumento temporaneo dei livelli di polvere nell'aria (PM <sub>10</sub> ) nelle aree adiacenti.	Tracciare i livelli di PM <sub>10</sub> prima, durante e dopo i progetti di costruzione per identificare i picchi di concentrazione di polvere.
La vegetazione e gli spazi verdi agiscono come depuratori naturali dell'aria, riducendo i livelli di ozono (O <sub>3</sub> ) e altri inquinanti negli ambienti urbani.	Creare grafici a linee che confrontino le concentrazioni di O <sub>3</sub> nei parchi urbani rispetto alle aree edificate vicine.
La vicinanza a zone industriali è correlata a livelli più elevati di particolato (PM <sub>2,5</sub> e PM <sub>10</sub> ).	Tracciare i livelli di PM <sub>2,5</sub> e PM <sub>10</sub> in funzione del tempo in aree con e senza attività industriali vicine.
L'aumento dell'uso di stufe a legna durante i mesi freddi contribuisce ad aumentare i livelli di particolato (PM <sub>2,5</sub> ) nei quartieri residenziali.	Creare grafici a barre per confrontare le concentrazioni di PM <sub>2,5</sub> nei mesi invernali rispetto a quelli estivi.

# COS'ALTRO SI PUÒ TRACCIARE IN BASE ALLA VOSTRA IPOTESI?

Ipotesi	Cosa si può fare?
<p>Gli spazi verdi, come i parchi e le foreste, migliorano la qualità dell'aria riducendo i livelli di inquinanti presenti nell'aria.</p>	<p>Tracciare i livelli di inquinanti (ad esempio, O<sub>3</sub>, NO<sub>2</sub>) nelle aree adiacenti agli spazi verdi rispetto alle aree prive di verde. Scaricare la mappa di calore della qualità dell'aria come png in prossimità degli spazi verdi e confrontarla con le aree prive di verde.</p>
<p>I cambiamenti nei modelli di traffico, come la chiusura o la deviazione delle strade, hanno un impatto sulla qualità dell'aria nelle aree vicine.</p>	<p>Tracciare i livelli di inquinanti prima, durante e dopo la chiusura temporanea delle strade o i progetti di costruzione. Confrontare i livelli di inquinanti nelle aree interessate dalle deviazioni del traffico con quelli delle aree non interessate.</p>
<p>Le emissioni provenienti dalle attività di navigazione nelle aree portuali contribuiscono ad elevare i livelli di biossido di zolfo (SO<sub>2</sub>) e biossido di azoto (NO<sub>2</sub>) lungo le regioni costiere.</p>	<p>Generare/ottenere mappe di calore che mostrino le concentrazioni di SO<sub>2</sub> e NO<sub>2</sub> in prossimità dei principali porti e delle rotte di navigazione. Confrontare i livelli di inquinanti nelle aree costiere con quelli delle aree più interne per valutare l'influenza delle attività marittime.</p>