

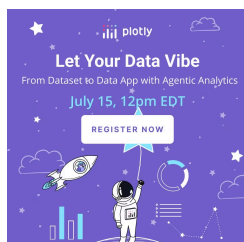


(<https://github.com/plotly/plotly.py/edit/doc-prod/doc/python/mixed-subplots.md>)

## How to make mixed subplots in Python with Plotly.

[Plotly Express \(/python/plotly-express/\)](#) is the easy-to-use, high-level interface to Plotly, which [operates on a variety of types of data \(/python/px-arguments/\)](#) and produces [easy-to-style figures \(/python/styling-plotly-express/\)](#).

*Note:* At this time, Plotly Express does not support creating figures with arbitrary mixed subplots i.e. figures with subplots of different types. Plotly Express only supports [facet plots](#) (`/python/facet-plots/`) and [marginal distribution subplots](#) (`/python/marginal-plots/`). To make a figure with mixed subplots, use the [make\\_subplots](#) (`/python/subplots/`) function in conjunction with [graph objects](#) (`/python/graph-objects/`) as documented below.



```

import plotly.graph_objects as go
from plotly.subplots import make_subplots

import pandas as pd

# read in volcano database data
df = pd.read_csv(
    "https://raw.githubusercontent.com/plotly/datasets/master/volcano_db.csv",
    encoding="iso-8859-1",
)

# frequency of Country
freq = df['Country'].value_counts().reset_index()
freq.columns = ['x', 'Country']

# read in 3d volcano surface data
df_v = pd.read_csv("https://raw.githubusercontent.com/plotly/datasets/master/volcano.csv")

# Initialize figure with subplots
fig = make_subplots(
    rows=2, cols=2,
    column_widths=[0.6, 0.4],
    row_heights=[0.4, 0.6],
    specs=[["type": "scattergeo", "rowspan": 2], {"type": "bar"}],
    [
        None
        , {"type": "surface"}])

# Add scattergeo globe map of volcano locations
fig.add_trace(
    go.Scattergeo(lat=df["Latitude"],
                  lon=df["Longitude"],
                  mode="markers",
                  hoverinfo="text",
                  showlegend=False,
                  marker=dict(color="crimson", size=4, opacity=0.8)),
    row=1, col=1
)

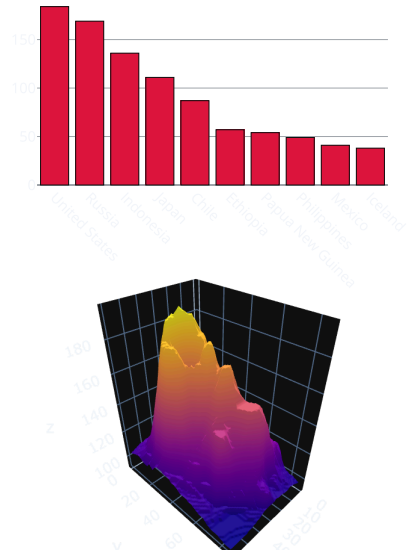
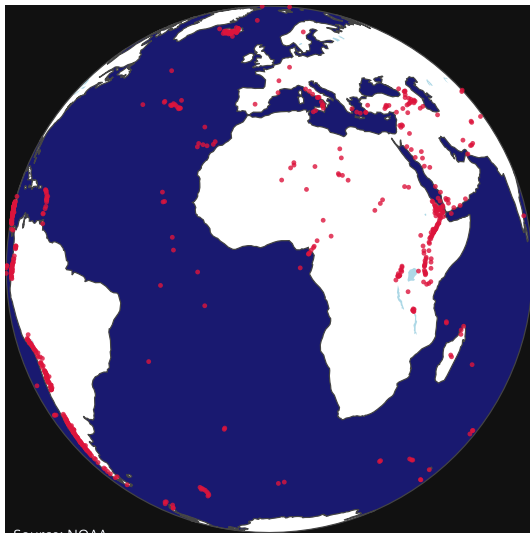
# Add locations bar chart
fig.add_trace(
    go.Bar(x=freq["x"][0:10], y=freq["Country"][0:10], marker=dict(color="crimson"), showlegend=False),
    row=1, col=2
)

# Add 3d surface of volcano
fig.add_trace(
    go.Surface(z=df_v.values.tolist(), showscale=False),
    row=2, col=2
)

# Update geo subplot properties
fig.update_geos(
    projection_type="orthographic",
    landcolor="white",
    oceancolor="MidnightBlue",
    showocean=True,
    lakecolor="LightBlue"
)

# Rotate x-axis labels
fig.update_xaxes(tickangle=45)

# Set theme, margin, and annotation in layout
fig.update_layout(
    template="plotly_dark",
    margin=dict(r=10, t=25, b=40, l=60),
    annotations=[
        dict(
            text="Source: NOAA",
            showarrow=False,
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            x5
```



## Reference

See <https://plotly.com/python/reference/> (<https://plotly.com/python/reference/>) for more information and chart attribute options!

## What About Dash?

**Dash** (<https://dash.plot.ly/>) is an open-source framework for building analytical applications, with no Javascript required, and it is tightly integrated with the Plotly graphing library.

Learn about how to install Dash at <https://dash.plot.ly/installation> (<https://dash.plot.ly/installation>).

Everywhere in this page that you see `fig.show()`, you can display the same figure in a Dash application by passing it to the `figure` argument of the **Graph component** (<https://dash.plot.ly/dash-core-components/graph>) from the built-in `dash_core_components` package like this:

```
import plotly.graph_objects as go # or plotly.express as px
fig = go.Figure() # or any Plotly Express function e.g. px.bar(...)
# fig.add_trace( ... )
# fig.update_layout( ... )

from dash import Dash, dcc, html

app = Dash()
app.layout = html.Div([
    dcc.Graph(figure=fig)
])

app.run(debug=True, use_reloader=False) # Turn off reloader if inside Jupyter
```

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country	pop	continent	lifeExp	gdpPerCap
Afghanistan	33889923	Asia	43.828	974.5803384
Albania	3690522	Europe	76.423	5927.620525999999
Algeria	33332318	Africa	72.381	6223.367665
Angola	12426476	Africa	42.731	4787.231267
Argentina	60805927	Americas	75.32	12779.37964
Australia	20424176	Oceania	81.235	34425.267439999995
Austria	8209769	Europe	79.829	36126.4937
Bahrain	708973	Asia	75.635	29796.06814
Bangladesh	150448339	Asia	64.062	1701.22792
Belgium	10932226	Europe	79.441	33692.46968
Benin	8878814	Africa	56.728	1441.268873
Bolivia	9159152	Americas	65.354	3822.137084

Continent	Avg of lifeExp
Asia	~45
Europe	~75
Africa	~55
Americas	~70
Oceania	~80

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