

# Wind Rose and Polar Bar Charts in Python

How to graph wind rose charts in python. Wind Rose charts display wind speed and direction of a given location.

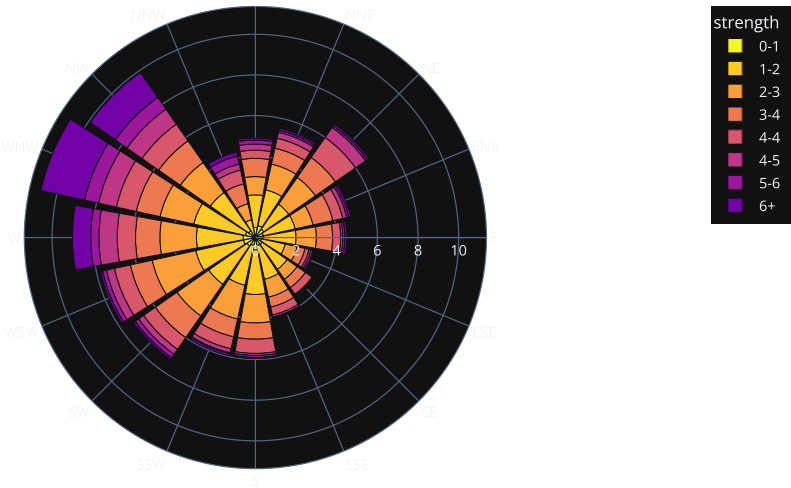
Plotly Studio: Transform any dataset into an interactive data application in minutes with AI. [Sign up for early access now. \(https://plotly.com/studio/?utm\\_medium=graphing-libraries&utm\\_campaign=studio\\_early\\_access&utm\\_content=sidebar\)](https://plotly.com/studio/?utm_medium=graphing-libraries&utm_campaign=studio_early_access&utm_content=sidebar)

## Wind Rose Chart with Plotly Express

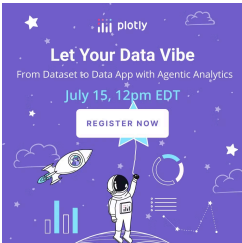
A [wind rose chart \(https://en.wikipedia.org/wiki/Wind\\_rose\)](https://en.wikipedia.org/wiki/Wind_rose) (also known as a polar bar chart) is a graphical tool used to visualize how wind speed and direction are typically distributed at a given location. You can use the `px.bar_polar` function from Plotly Express as below, otherwise use `go.Barpolar` as explained in the next section.

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

```
import plotly.express as px
df = px.data.wind()
fig = px.bar_polar(df, r="frequency", theta="direction",
                  color="strength", template="plotly_dark",
                  color_discrete_sequence= px.colors.sequential.Plasma_r)
fig.show()
```



## Basic Wind Rose Chart



```

import plotly.graph_objects as go

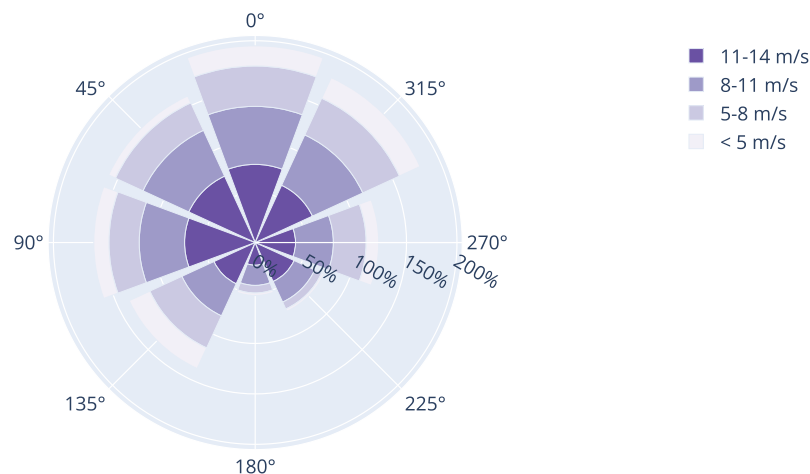
fig = go.Figure()

fig.add_trace(go.Barpolar(
    r=[77.5, 72.5, 70.0, 45.0, 22.5, 42.5, 40.0, 62.5],
    name='11-14 m/s',
    marker_color='rgb(106,81,163)'
))
fig.add_trace(go.Barpolar(
    r=[57.5, 50.0, 45.0, 35.0, 20.0, 22.5, 37.5, 55.0],
    name='8-11 m/s',
    marker_color='rgb(158,154,200)'
))
fig.add_trace(go.Barpolar(
    r=[40.0, 30.0, 30.0, 35.0, 7.5, 7.5, 32.5, 40.0],
    name='5-8 m/s',
    marker_color='rgb(203,201,226)'
))
fig.add_trace(go.Barpolar(
    r=[20.0, 7.5, 15.0, 22.5, 2.5, 2.5, 12.5, 22.5],
    name='< 5 m/s',
    marker_color='rgb(242,240,247)'
))

fig.update_traces(text=['North', 'N-E', 'East', 'S-E', 'South', 'S-W', 'West', 'N-W'])
fig.update_layout(
    title=dict(text='Wind Speed Distribution in Laurel, NE'),
    font_size=16,
    legend_font_size=16,
    polar_radialaxis_ticksuffix='%',
    polar_angularaxis_rotation=90,
)
fig.show()

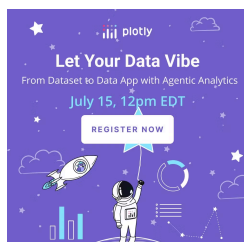
```

Wind Speed Distribution in Laurel, NE



## Reference

See [function reference for px.bar\\_polar](https://plotly.com/python-api-reference/generated/plotly.express.bar_polar) ([https://plotly.com/python-api-reference/generated/plotly.express.bar\\_polar](https://plotly.com/python-api-reference/generated/plotly.express.bar_polar)) or <https://plotly.com/python/reference/barpolar/> (<https://plotly.com/python/reference/barpolar/>) 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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### My First App with Data, Graph, and Controls

pop

lifeExp

gdpPerCap

country	pop	continent	lifeExp	gdpPerCap
Afghanistan	31889923	Asia	43.828	974.5883384
Albania	3600523	Europe	76.423	5937.829525999999
Algeria	33333216	Africa	72.381	6223.367465
Angola	12420476	Africa	42.731	4707.231267
Argentina	40301927	Americas	75.32	12779.37964
Australia	20434176	Oceania	81.235	34435.367439999995
Austria	8199783	Europe	79.829	36126.4927
Bahrain	706573	Asia	75.635	29796.04834
Bangladesh	150448339	Asia	64.062	1701.253792
Belgium	10391226	Europe	79.441	33062.04908
Benin	8878314	Africa	56.728	1441.284873
Bolivia	9119152	Americas	65.554	3821.137884



([https://dash.plotly.com/tutorial?utm\\_medium=graphing\\_libraries&utm\\_content=python\\_footer](https://dash.plotly.com/tutorial?utm_medium=graphing_libraries&utm_content=python_footer))

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