Process and plot DashT Performance CSV-file output

> **Note** that this file is build and processed under Jupyter Lab. There is a PDF file (TWA_TWS_STW_history) illustrating the result. The Python 3 code below does not require Jupyter Lab to be executed.

DashT and its Tactics instruments with profiling features - baro, wind and performance history - have an option to record the values they are displaying into a CSV-formatted files with time stamps.

In this example, we study the polar performance history records. They are providing Tactics smoothed performance and boat speed but also smoothed TWA and TWS values.

For the usage of common Panda data tools, it is recommended to request DashT to record also the clock ticks: they are the easiest to parse.

> Useful reading about Unix timestamps: https://nikgrozev.com/2015/12/27/pandas-in-jupyter-quickstart-and-useful-snippets/ (https://nikgrozev.com/2015/12/27/pandas-in-jupyter-quickstart-and-useful-snippets/)
>
> About filters: https://data36.com/pandas-tutorial-1-basics-reading-data-files-dataframes-data-selection/ (https://data36.com/pandas-tutorial-1-basics-reading-data-files-dataframes-data-selection/)
>
> About plotting: https://tutorials.technology/tutorials/17-how-to-plot-with-python-pandas.html (https://tutorials.technology/tutorials/17-how-to-plot-with-python-pandas.html)

In [1]:
```
import pandas as pd
df = pd.read_csv("polar.csv", sep=',')
```

Let's study the structure first

In [2]:
```
df.head()
```

Out[2]:

	ClockTicks	UTC-ISO8601	Date	local Time	AvgTWA	AvgTWS	smoothed BoatSpd
0	1569172920482	2019-09-22T17:22:00Z	9/22/2019	7:22:00 PM	140	23.3	6.03
1	1569172920930	2019-09-22T17:22:00Z	9/22/2019	7:22:00 PM	128	23.2	6.05
2	1569172925552	2019-09-22T17:22:05Z	9/22/2019	7:22:05 PM	131	23.3	6.07
3	1569172930553	2019-09-22T17:22:10Z	9/22/2019	7:22:10 PM	135	23.2	6.04
4	1569172935553	2019-09-22T17:22:15Z	9/22/2019	7:22:15 PM	137	23.0	6.01

In [3]:
```
df.tail()
```

Out[3]:

	ClockTicks	UTC-ISO8601	Date	local Time	AvgTWA	AvgTWS	smoothed BoatSpd
464	1569175240663	2019-09-22T18:00:40Z	9/22/2019	8:00:40 PM	86	21.9	6.63
465	1569175245661	2019-09-22T18:00:45Z	9/22/2019	8:00:45 PM	75	21.3	6.65
466	1569175250662	2019-09-22T18:00:50Z	9/22/2019	8:00:50 PM	65	21.1	6.54
467	1569175255664	2019-09-22T18:00:55Z	9/22/2019	8:00:55 PM	68	21.1	6.5
468	1569175260661	2019-09-22T18:01:00Z	9/22/2019	8:01:00 PM	60	21.2	6.5

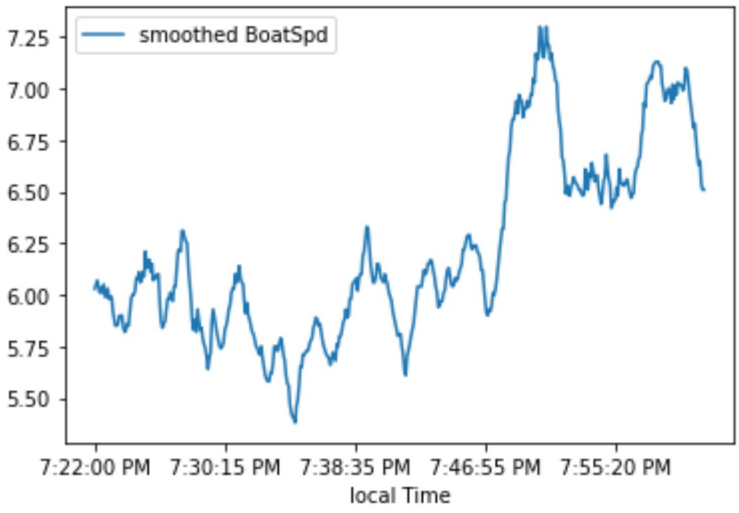
In [4]:
```
dates_df = pd.read_csv("polar.csv", sep=',', parse_dates=['ClockTicks'])
```

Convert Unix timestamps

In [5]:
```
dates_df['ClockTicks'] = pd.to_datetime(df['ClockTicks'], unit='ms')
```

Plot Boat Speed

In [6]:
```
import matplotlib.pyplot as plt
df.plot(x='local Time',y='smoothed BoatSpd')
plt.show()
```



In [ ]: