

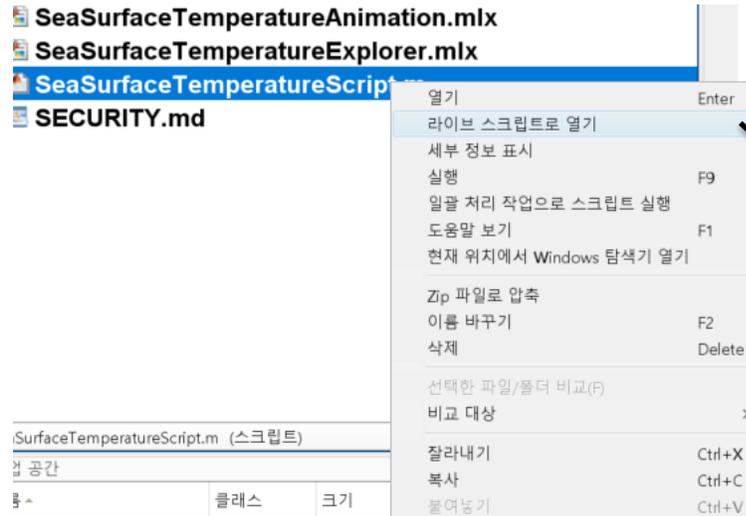
# MATLAB EXPO

개발 코드 스크립트에서 코드 추가 없는 신속한 앱(App)개발

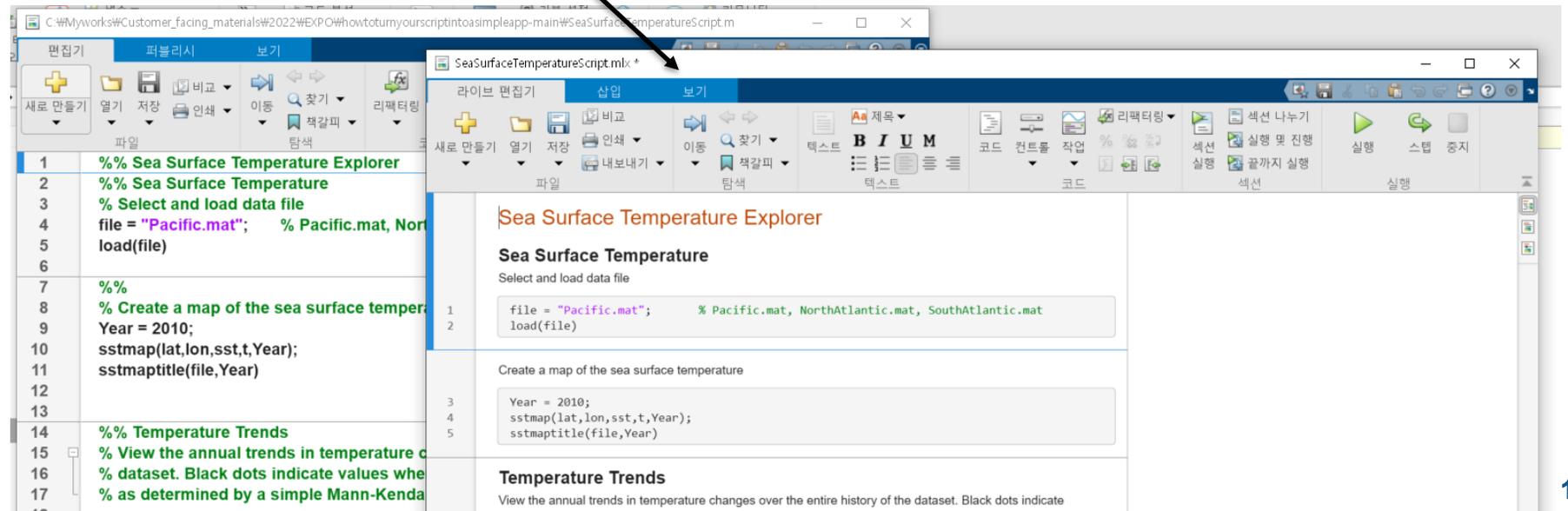
성호현 부장, 매스웍스코리아



# Open Your Script as a Live Script



Turn your Script to Rich Text format automatically



# Replacing literal values with interactive controls in Live Scripts (1)

The screenshot shows the MATLAB Live Editor interface. The title bar includes '파일 편집기', '삽입', and '보기'. The ribbon contains various toolboxes like '파일', '탐색', '텍스트', '코드', '컨트롤', '작업', '리팩터링', '섹션', and '실행'. A dropdown menu is open over the '컨트롤' (Controls) section, with '숫자 슬라이더' (Number Slider) highlighted. Below the menu, the Live Script content is visible:

```

1 file = "Pacific.mat"; % Pacific.mat, NorthAtlantic.mat
2 load(file)

Create a map of the sea surface temperature

3 Year = 2010;
4 sstmap(lat, lon, sst, t, Year);
5 sstmaptitle(file, Year)
  
```

The value '2010' in line 3 is highlighted with an orange box, indicating it is the target for replacement.

The screenshot shows the configuration panel for the 'Year' variable. The title is 'Create a map of the sea surface temperature'. The configuration includes:

- 레이블 (Label):** Year
- 값 (Value):** 2000 (with a range from 1970 to 2020)
- 최솟값 (Minimum):** 1970
- 최댓값 (Maximum):** 2020
- 간격 (Interval):** 1
- 디폴트 값 (Default Value):** 2010
- 실행 지점 (Execution Point):** 변경되는 값 (When changed)
- 실행 (Execution):** 현재 섹션 (Current section)

The configuration panel is highlighted with an orange border. The Live Script content is visible in the background:

```

3 Year = 2000;
4 sstmap(lat, lon, sst, t, Year);
5 sstmaptitle(file, Year);

6 ssttrend(lat, lon, sst, t, Year, sig = 0.05);
7

8 trendmat = ssttrend;
9 % Mark the trend lines
10 Laticude = 30;
11 Longitude = 120;
12 marklat = Laticude;
13 marklon = Longitude;
14 % Stop the plot
15 showstppie = true; % show statistics
16
  
```

# Replacing literal values with interactive controls in Live Scripts (2)

```

3 Year = 2000 ;
4 sstmap(lat,lon,sst,t,Year);
5 sstmaptitle(file,Year)

Temperature Trends
View the annual trends in temperature changes over the entire history of the dataset. Black dots indicate values where the change is statistically significant, as determined by a simple Mann-Kendall test.

6 ssttrend = trend(sst); % Annual trend
7 sig = mann_kendall(sst); % Statistical significance

8 trendmap(lon,lat,ssttrend,file,t);
9
10 % Mark Latitude and Longitude for time history plot
11 Latitude = mean(lat);
12 Longitude = mean(lon);
13 marklatlon(Latitude, Longitude)
14
15 % Stipple
16 showstipple = true; % Show statistical significance
17 if showstipple
18     hold on
19     stipple(lon,lat,sig)
20     hold off
21 end
22
23 % Colormap
24 cmap = "balance",
25 center = true; % Center colormap about 0
26 trendmapcolor(cmap,center)
    
```

Sea Surface Temperature Explorer

Sea Surface Temperature

Select and load data file

Create a map of the sea surface temperature

Year 2000

cific Sea Surface Temperature in 2000

Latitude

Longitude

레이블

코드가 숨겨진 경우 표시할 텍스트 입력

레이블 Center colormap about

디폴트 값

디폴트 값 true

실행

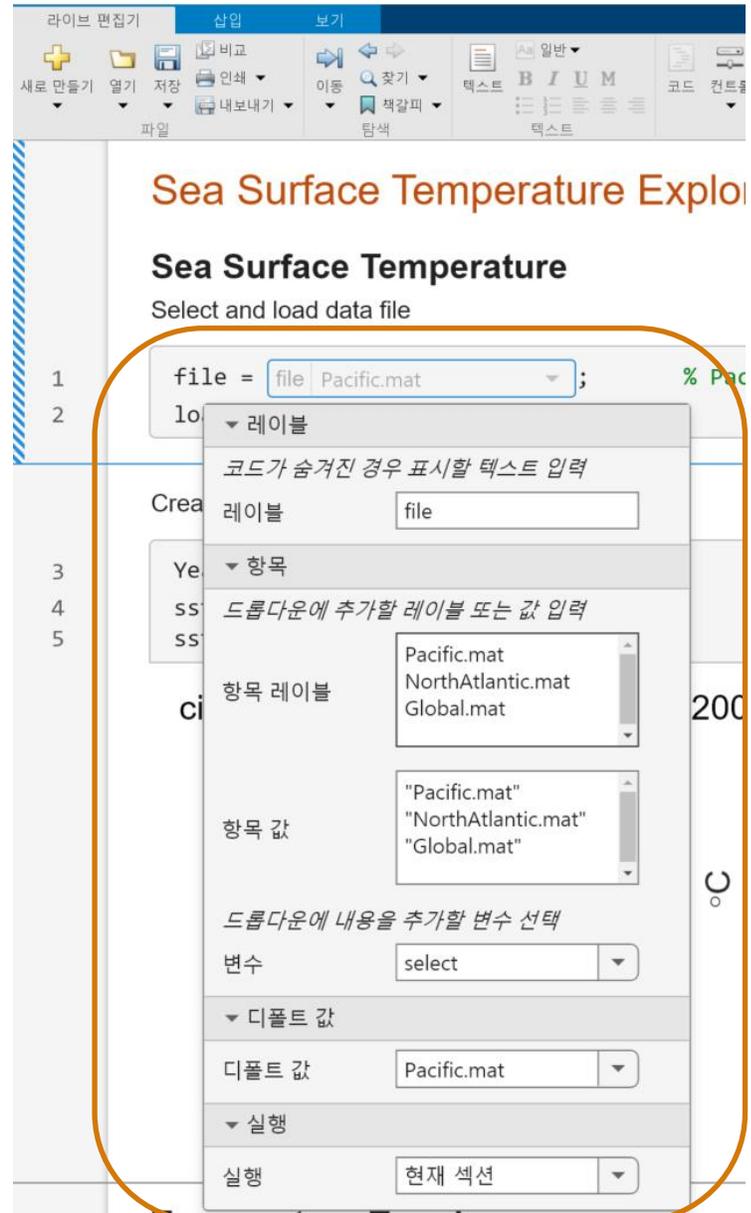
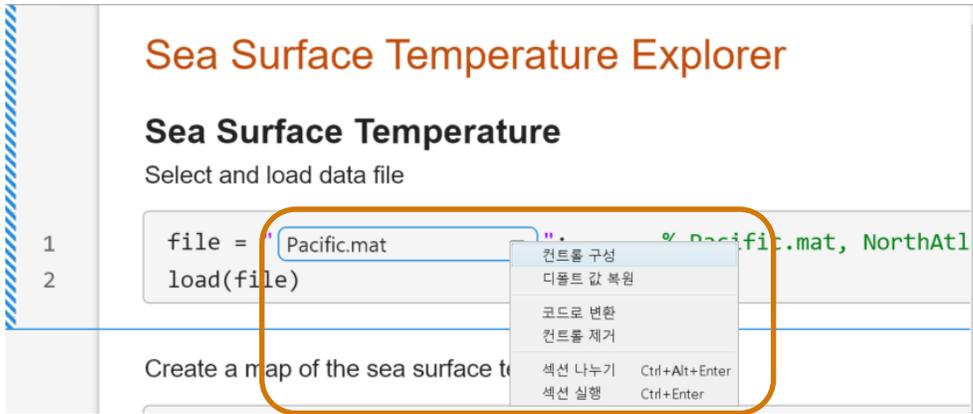
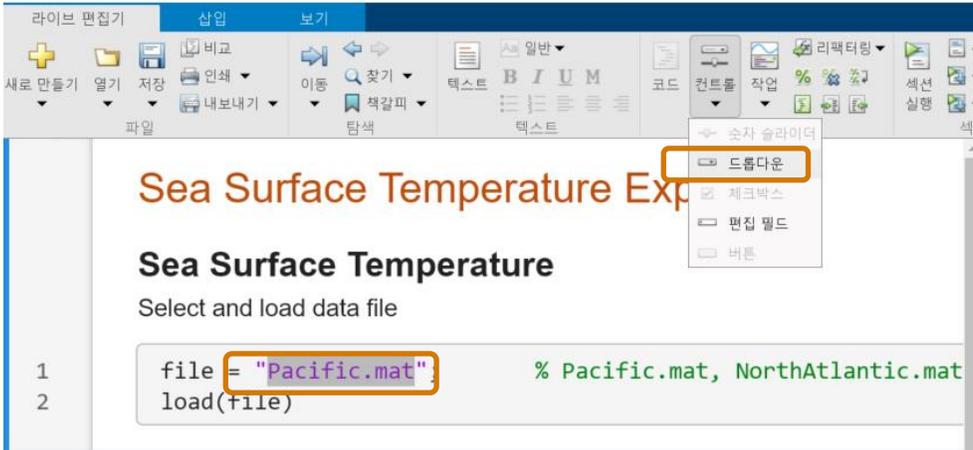
실행 현재 섹션

Center colormap about 0

코드숨기기

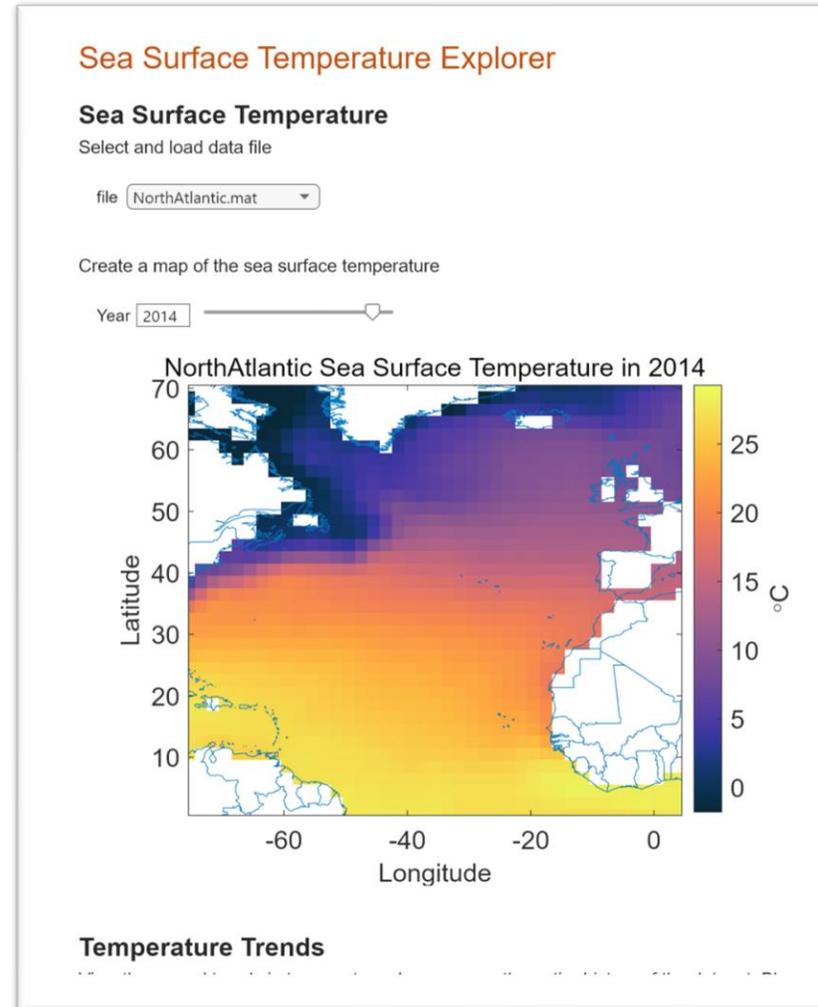
Build Simple Interactive App !

# Linking interactive controls in Live Scripts to values in the code

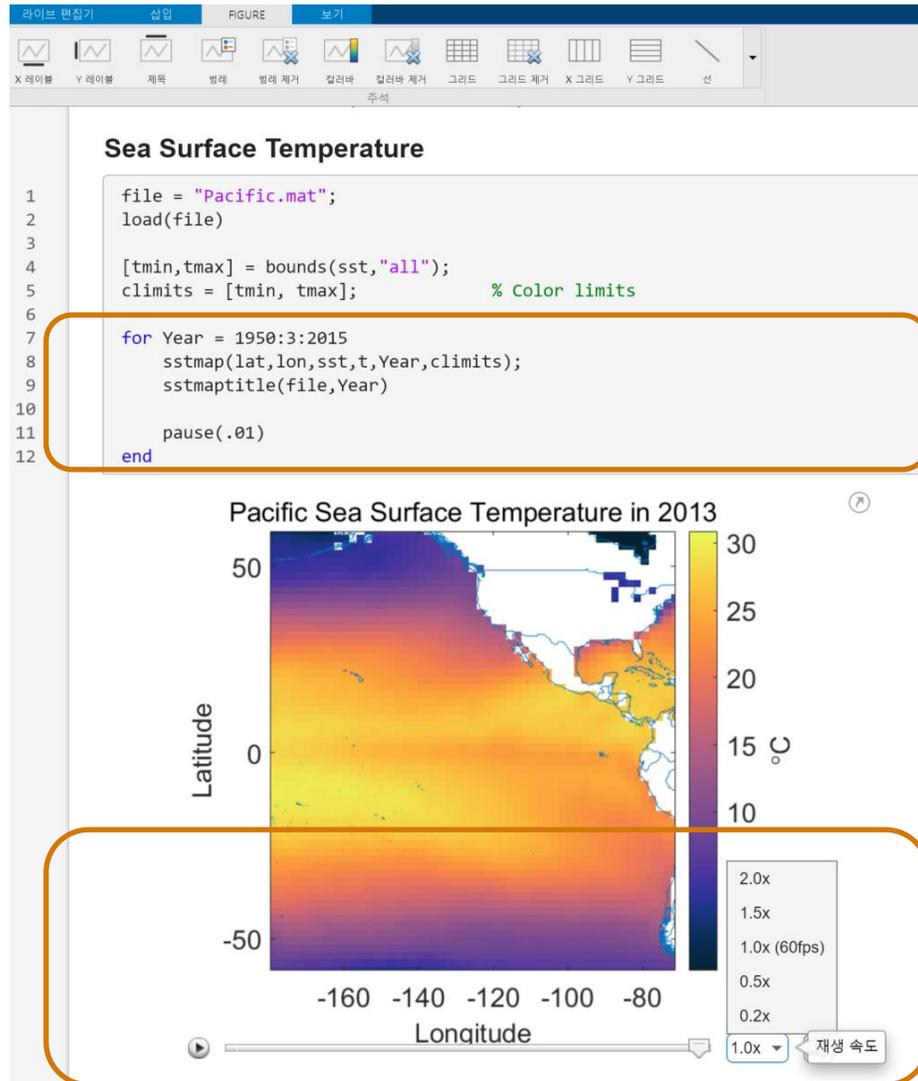


# Simple Interactive App from Your Script

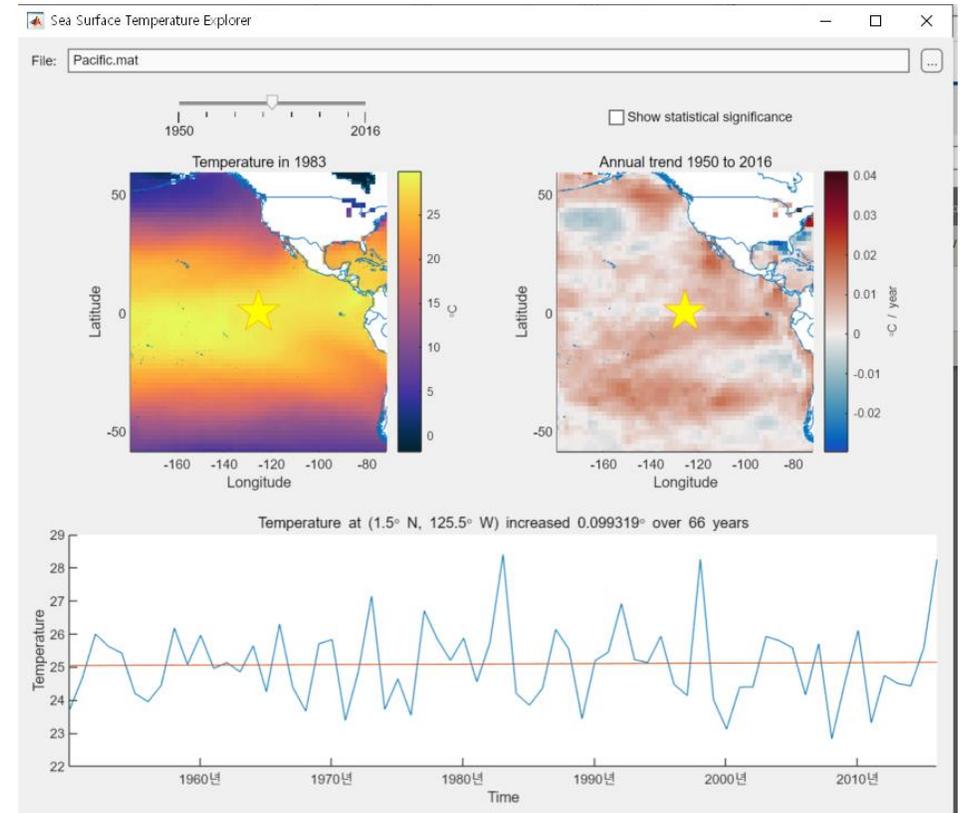
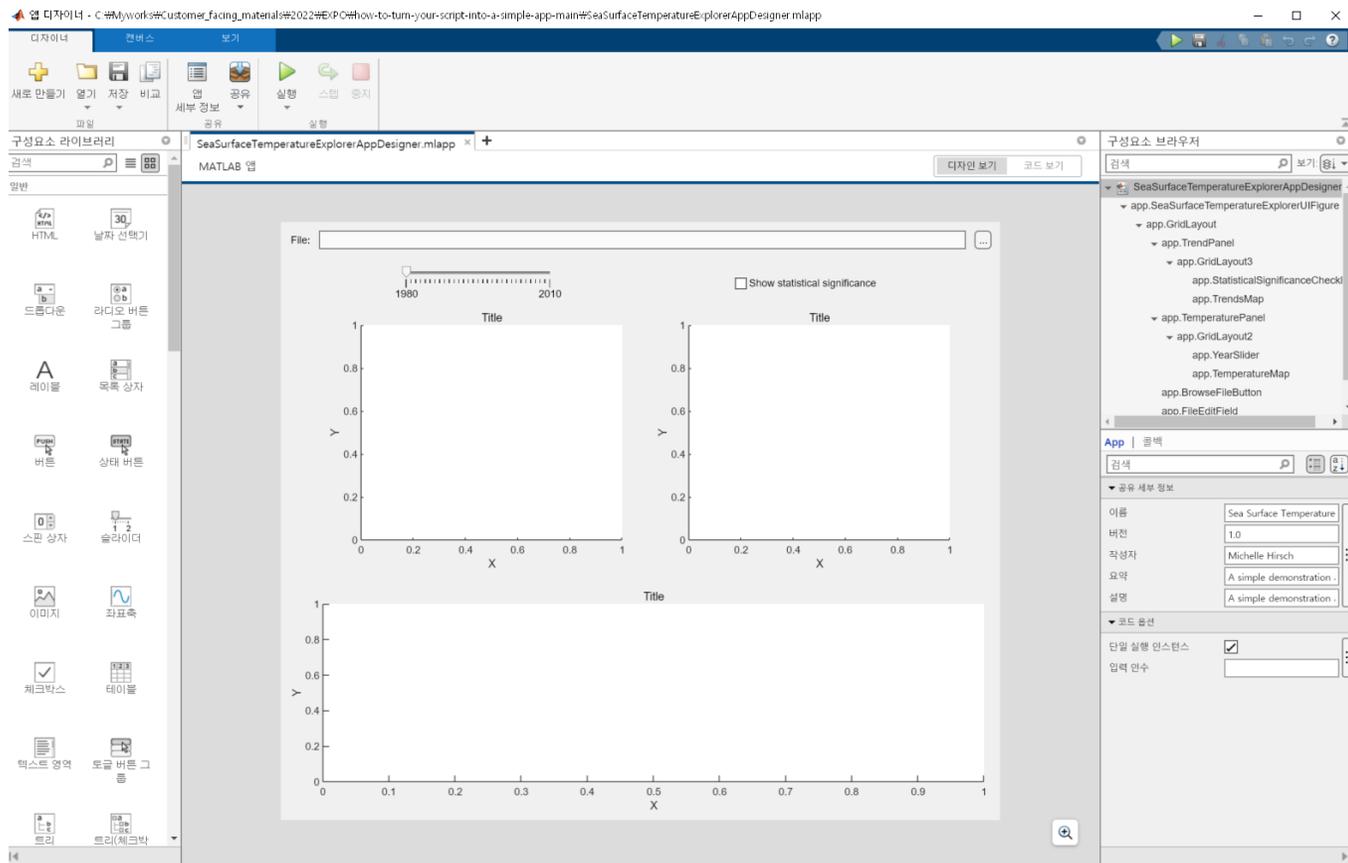
- Replacing literal values with interactive controls in Live Scripts
- Linking interactive controls in Live Scripts to values in the code



# Live Editor automatically creates animations when a plot is updated in a loop



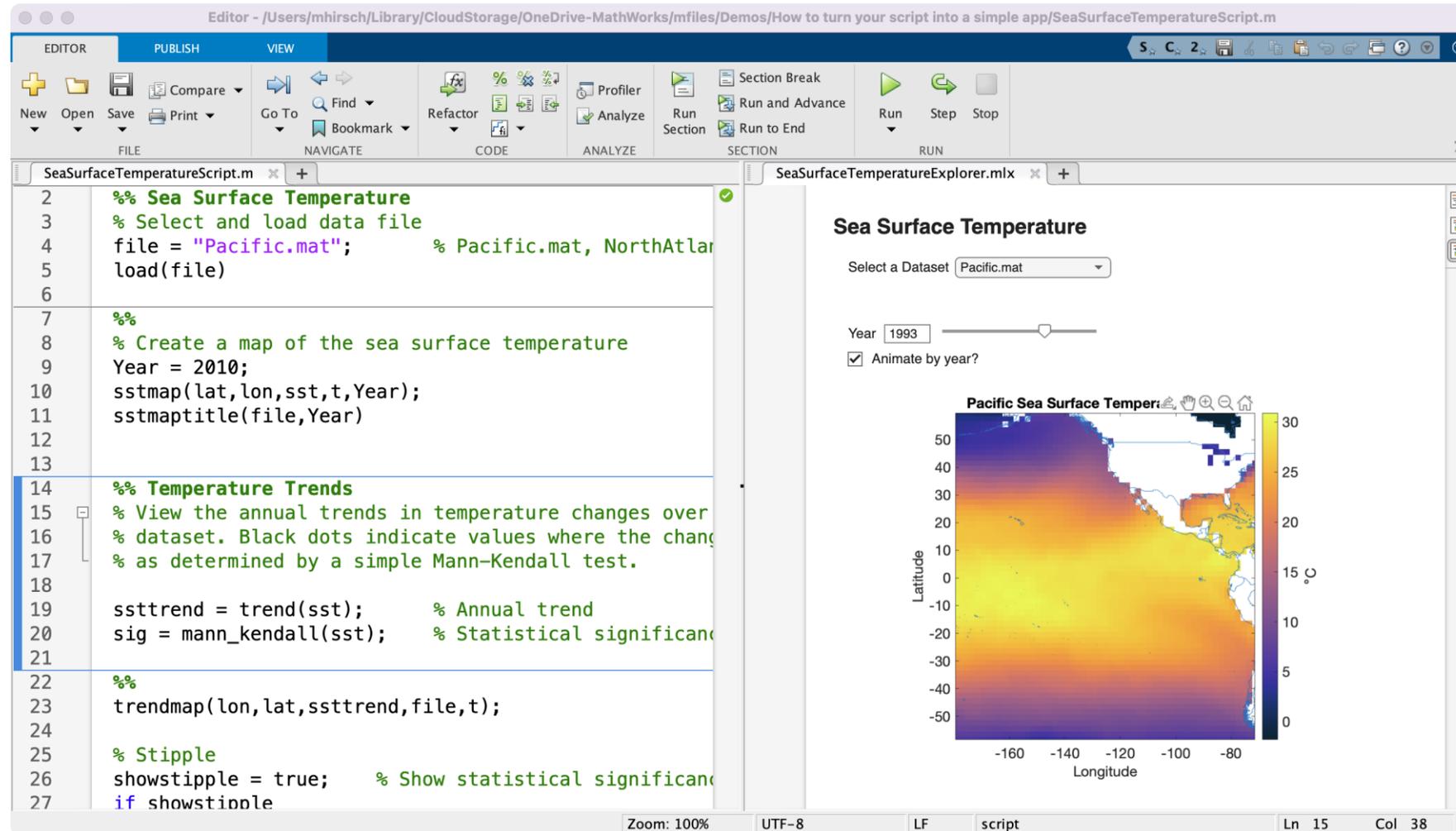
# App Designer let you build more interactive Apps!



>> AppDesigner

# Download demo source code

<https://github.com/mathworks/how-to-turn-your-script-into-a-simple-app>



The screenshot displays the MATLAB Editor interface. The left pane shows the source code for 'SeaSurfaceTemperatureScript.m'. The right pane shows the 'Sea Surface Temperature Explorer' app interface, which includes a dataset selector, a year slider, an animation checkbox, and a heatmap of the Pacific Ocean.

```
2 %% Sea Surface Temperature
3 % Select and load data file
4 file = "Pacific.mat"; % Pacific.mat, NorthAtlantic
5 load(file)
6
7 %%
8 % Create a map of the sea surface temperature
9 Year = 2010;
10 sstmap(lat, lon, sst, t, Year);
11 sstmaptitle(file, Year)
12
13
14 %% Temperature Trends
15 % View the annual trends in temperature changes over
16 % dataset. Black dots indicate values where the change
17 % as determined by a simple Mann-Kendall test.
18
19 ssttrend = trend(sst); % Annual trend
20 sig = mann_kendall(sst); % Statistical significance
21
22 %%
23 trendmap(lon, lat, ssttrend, file, t);
24
25 % Stipple
26 showstipple = true; % Show statistical significance
27 if showstipple
```

**Sea Surface Temperature**

Select a Dataset: Pacific.mat

Year: 1993

Animate by year?

**Pacific Sea Surface Temperature**

Latitude: 50, 40, 30, 20, 10, 0, -10, -20, -30, -40, -50

Longitude: -160, -140, -120, -100, -80

Color scale: 0, 5, 10, 15, 20, 25, 30

Zoom: 100% UTF-8 LF script Ln 15 Col 38

# MATLAB EXPO

Thank you



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