

Google Earth Engine Script to visualize NO2 by Country

// Define the country of interest by specifying its name

```
var countryName = 'Ghana'; // Change this to any country name (e.g., "Côte d'Ivoire",  
'Nigeria', 'Kenya')
```

// Load country boundary data and filter by the specified country name

```
var country = ee.FeatureCollection('FAO/GAUL_SIMPLIFIED_500m/2015/level0')  
    .filter(ee.Filter.eq('ADM0_NAME', countryName));
```

// Define the year and month for visualization

```
var year = 2023;
```

```
var month = 1; // Change this value (1 to 12) to view different months
```

// Function to get the start and end date for a specific month

```
function getMonthDates(year, month) {  
    var startDate = ee.Date.fromYMD(year, month, 1);  
    var endDate = startDate.advance(1, 'month');  
    return {startDate: startDate, endDate: endDate};  
}
```

// Get the date range for the specified month

```
var dates = getMonthDates(year, month);
```

// Load Sentinel-5P NO2 data for the selected month

```
var no2Data = ee.ImageCollection('COPERNICUS/S5P/NRTI/L3_NO2')  
    .filterDate(dates.startDate, dates.endDate)  
    .select('NO2_column_number_density')  
    .mean()
```

```

        .clip(country); // Clip to the country's boundary

// Set visualization parameters for NO2 concentration
var no2VisParams = {
  min: 0,
  max: 0.0002,
  palette: ['blue', 'green', 'yellow', 'orange', 'red']
};

// Add the NO2 layer to the map
Map.centerObject(country, 6);
Map.addLayer(no2Data, no2VisParams, 'Monthly NO2 Concentration for ' +
countryName + ', Month ' + month);

// Add a color bar to represent the NO2 concentration scale
var colorBar = ui.Panel({
  style: {
    position: 'bottom-left',
    padding: '8px 15px'
  }
});

// Define the color bar visualization
var colorBarGradient = ui.Thumbnail({
  image: ee.Image.pixelLonLat().select(0),
  params: {
    bbox: [0, 0, 1, 0.1],
    dimensions: '100x10',
    format: 'png',

```

```

    min: 0,
    max: 1,
    palette: no2VisParams.palette
  },
  style: {
    stretch: 'horizontal',
    margin: '0px 8px',
    maxHeight: '20px'
  }
});

```

// Define color bar labels

```

var colorBarLabelPanel = ui.Panel({
  widgets: [
    ui.Label('Low', {margin: '4px 8px', textAlign: 'left', stretch: 'horizontal'}),
    ui.Label('High', {margin: '4px 8px', textAlign: 'right'})
  ],
  layout: ui.Panel.Layout.flow('horizontal')
});

```

// Add the color bar and labels to the map

```

colorBar.add(ui.Label('NO2 Concentration (mol/m2)'));
colorBar.add(colorBarGradient);
colorBar.add(colorBarLabelPanel);

Map.add(colorBar);

```