

```

// -----
// Visual Inspection and NDVI Change Analysis
// Israel Vallejo - 2025
// -----

// 1. Define the Area of Interest (AOI)
var aoi = /* color: #d63000 */ee.Geometry.Polygon(
  [[[113.5, -2.3],
    [113.5, -2.9],
    [114.3, -2.9],
    [114.3, -2.3]]], null, false);

// 2. Load Sentinel-2 images and compute NDVI
function getSentinelNDVI(year) {
  var start = year + '-06-01';
  var end = year + '-08-31';
  var s2 = ee.ImageCollection("COPERNICUS/S2_SR")
    .filterBounds(aoi)
    .filterDate(start, end)
    .filter(ee.Filter.lt('CLOUDY_PIXEL_PERCENTAGE', 20))
    .median();
  return s2.normalizedDifference(['B8', 'B4']).rename('NDVI');
}

var ndvi_2020 = getSentinelNDVI(2020).clip(aoi);
var ndvi_2024 = getSentinelNDVI(2024).clip(aoi);

```

```
var ndvi_diff = ndvi_2024.subtract(ndvi_2020).rename('NDVI_diff');
```

```
// 3. Display True Color (RGB) images
```

```
function getTrueColor(year) {
```

```
  var start = year + '-06-01';
```

```
  var end = year + '-08-31';
```

```
  var s2 = ee.ImageCollection("COPERNICUS/S2_SR")
```

```
    .filterBounds(aoi)
```

```
    .filterDate(start, end)
```

```
    .filter(ee.Filter.lt('CLOUDY_PIXEL_PERCENTAGE', 20))
```

```
    .median();
```

```
  return s2.select(['B4', 'B3', 'B2']).clip(aoi); // RGB
```

```
}
```

```
var rgb_2020 = getTrueColor(2020);
```

```
var rgb_2024 = getTrueColor(2024);
```

```
Map.centerObject(aoi, 10);
```

```
Map.addLayer(rgb_2020, {min: 0, max: 3000}, 'Sentinel-2 RGB 2020');
```

```
Map.addLayer(rgb_2024, {min: 0, max: 3000}, 'Sentinel-2 RGB 2024');
```

```
Map.addLayer(ndvi_diff, {min: -0.8, max: 0.8, palette: ['red', 'white', 'green']}, 'NDVI  
Difference');
```

```
// 4. Add MODIS Land Cover layer (MCD12Q1 IGBP classification)
```

```
var modis_2020 =
```

```
ee.Image('MODIS/006/MCD12Q1/2020_01_01').select('LC_Type1').clip(aoi);
```

```
var modis_2024 =  
ee.Image('MODIS/006/MCD12Q1/2020_01_01').select('LC_Type1').clip(aoi); // MODIS  
available only up to 2020
```

```
Map.addLayer(modis_2020, {  
  min: 1, max: 17,  
  palette: ['05450a', '086a10', '54a708', '78d203',  
            '009900', 'c6b044', 'dcd159', 'dade48', 'fbff13', 'b6ff05',  
            '27ff87', 'c24f44', 'a5a5a5', 'ff6d4c', '69fff8', 'f9ffa4', '1c0dff']  
}, 'MODIS Land Cover 2020');
```

// 5. Random sampling of 100 points with NDVI and Land Cover values

```
var sample = ndvi_2020.addBands(ndvi_2024)  
  .addBands(ndvi_diff)  
  .addBands(modis_2020.rename('LC_2020'))  
  .sample({  
    region: aoi,  
    scale: 30,  
    numPixels: 100,  
    seed: 42,  
    geometries: true  
  });
```

```
print("NDVI + Land Cover Sample:", sample);
```

// 6. Export the sample table to Google Drive

```
Export.table.toDrive({
```

```
collection: sample,  
description: 'NDVI_Sample_Borneo',  
folder: 'GEE_exports',  
fileNamePrefix: 'NDVI_Change_Sample_Borneo',  
fileFormat: 'CSV'  
});
```