JavaScript for retrieving Sea Surface Temperature Data in Google Earth Engine

Imported datasets

1. Region of Interest(ROI)

Mark the ROI on the map in the Google Earth Engine window using the geometry drawing tool (eg. rectangle tool). It will automatically create the geometric layer of the ROI. Add an import of that layer into the Import section.

2. Shapefile of the study area

The shapefile of the study area(Here, it is Kalpeni) can be uploaded through the Assets tab. Under the Assets tab, click ‘New’. In the drop down menu that appears, click on shapefiles under the Table upload section. Then, a dialog box will appear. Click on ‘Select’. Then select the shapefile of interest for uploading. Ensure to upload the associated files also (eg. .dbf, .cpg, .prj). Give an appropriate Asset ID and click Upload. The shapefile can be seen under the Assets tab. It can be imported into the script by hovering over it and then click on the right arrow button.

var startDate = ee.Date('2003-01-01'); // set start time for analysis

var endDate = ee.Date('2020-12-31'); // set end time for analysis

var sst = ee.ImageCollection('NASA/OCEANDATA/MODIS-Aqua/L3SMI').select('sst')

.filterBounds(roi)

.filterDate(startDate, endDate);

var nMonths = ee.Number(endDate.difference(startDate,'month')).round();

var byMonth = ee.ImageCollection(

// map over each month

ee.List.sequence(0,nMonths).map(function (n) {

// calculate the offset from startDate

var ini = startDate.advance(n,'month');

// advance just one month

var end = ini.advance(1,'month');

// filter and reduce

return sst.filterDate(ini,end)

.filterBounds(roi)

.select(0).mean()

.set('system:time\_start', ini);

}));

print(byMonth);

Map.addLayer(ee.Image(byMonth.first()),{min: 15, max: 35},'SST');

// plot full time series

print(

ui.Chart.image.series({

imageCollection: byMonth,

region: Kalpeni,

reducer: ee.Reducer.mean(),

scale: 1000

}).setOptions({title: 'SST over time',

hAxis: {title: 'Years'},

vAxis:{title: 'Temperature(°C)'},

})

);

// plot a line for each year in series

print(

ui.Chart.image.doySeriesByYear({

imageCollection: byMonth,

bandName:'sst',

region: Kalpeni,

regionReducer: ee.Reducer.mean(),

scale: 1000

}).setOptions({title: 'SST for each year'}

)

);