Using Earth Observatory Data Sets to Understanding the Impact of Covid-19 on Tourism and Produce tourism satellite accounting

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Outline

- Importance of Monitoring Tourism statistics.
- Impact Of Covid-19 On Tourism Sector.
- Use of Night Lights to Understand the Impact of covid-19 On Tourism In *Phuket, Bali and Maldives*.
- Research Progress on use of **R-shiny** to Generate Tourism related Statistics information System (Live Demo).
- Questions and Answers

Importance of monitoring Tourism statistics

- World Travel and Tourism Council states that the tourism sector contributed to 10.4% of global GDP

- United Nations Sustainable Development Goals have identified tourism as one of the important tools to attain sustainable economic growth



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Tourists in Phuket

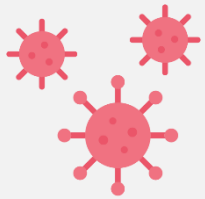




Ref: https://www.thephuketnews.com/new-year-ignites-phuket-tourism-70263.php

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Impact of Covid -19 on Tourists in Phuket



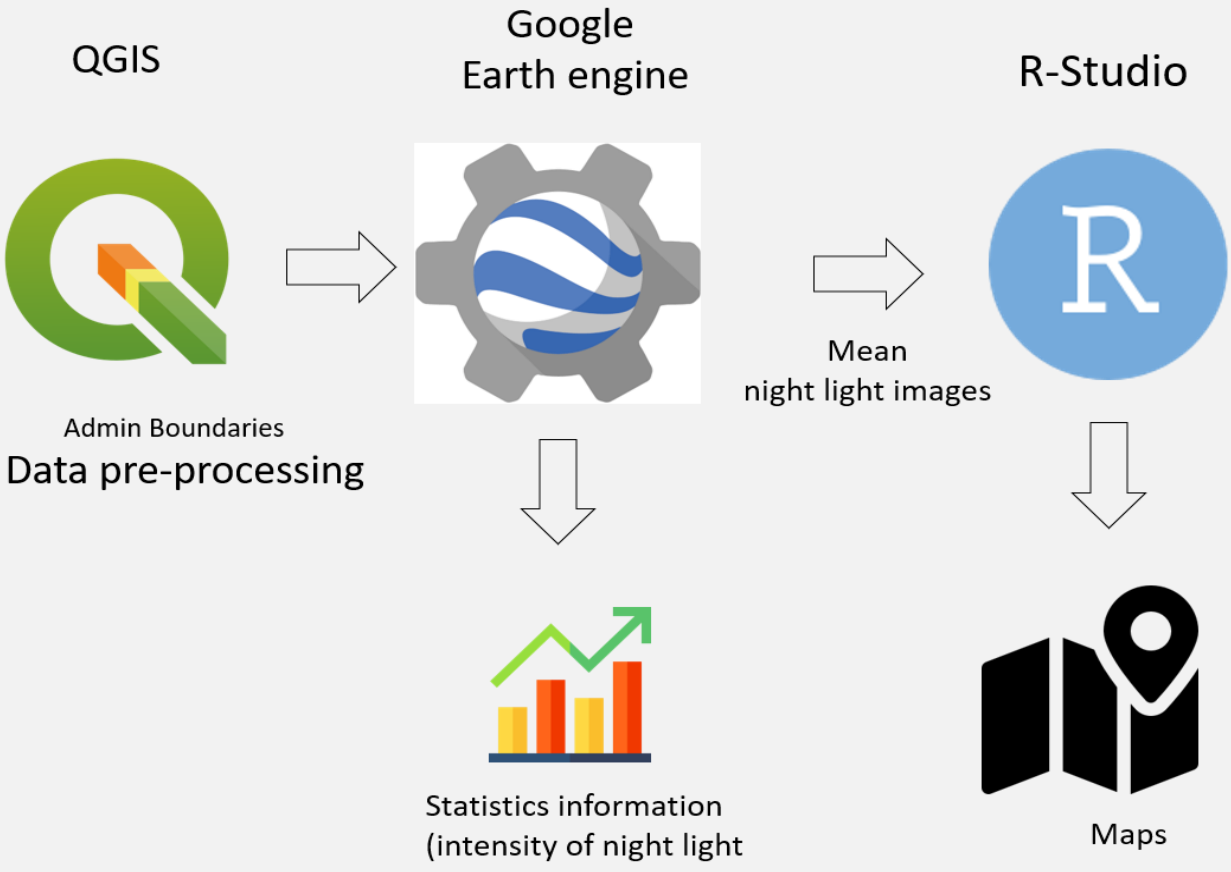




Ref: https://asia.nikkei.com/Life-Arts/Life/Phuket-goes-local-amid-COVID-19-tourism-slump

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Overall Procedure



code.earthengine.google.com

Google Earth Engine

Search places and datasets...

Scripts Docs Assets

Filter scripts... NEW

- Owner (1)
  - users/aahlaadmusunuru1995/Project
    - Chlorofill
    - amphan
      - This folder is empty.
    - Bali
    - Chlorofill Trend
    - Drought Mapping
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    - Forrest Losses
    - Forrest Losses (copy)
    - GLCF_GLS_WATER
    - Kaaf
    - Maldives
    - Night light monthly
    - NightLight
    - Nightlight_Phuket
    - Nightlight_Phuket (copy)
    - Nitrogen
    - Nitrogen Thailand
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    - Nitrogen Thailand with Legend

Bali — Get Link | Save | Run | Reset | Apps

Imports (1 entry)
  var Bali: Table users/aahlaadmusunuru1995/Bali

```
var Bali = ee.FeatureCollection('users/aahlaadmusunuru1995/Bali');
Bali = Bali.geometry();
Map.centerObject(Bali);
Map.addLayer(Bali, {color: 'red'}, 'Bali');

// Import image collection
var dataset = ee.ImageCollection('NOAA/VIIRS/DNB/MONTHLY_V1/VCMSLCFG');
var nightlight = dataset.filterDate('2017-01-01','2020-12-31');
var nighttimeband = nightlight.select('avg_rad');
var TS5l = ui.Chart.image.series(nighttimeband, Bali, ee.Reducer.min(),1000, 'system:time_sta
title: 'Min Intencity of Night light  Full Time Series',
vAxis: {title: 'radiance values'}, });
print(TS5l);

// Import image collection
var dataset = ee.ImageCollection('NOAA/VIIRS/DNB/MONTHLY_V1/VCMSLCFG');
var nightlight = dataset.filterDate('2017-01-01','2020-12-31');
var nighttimeband = nightlight.select('avg_rad');
var TS5me = ui.Chart.image.series(nighttimeband, Bali, ee.Reducer.mean(),1000, 'system:time_s
title: 'Mean Intencity of Night light  Full Time Series',
vAxis: {title: 'radiance values.'}, });
print(TS5me);


// Import image collection
```

Inspector Console Tasks

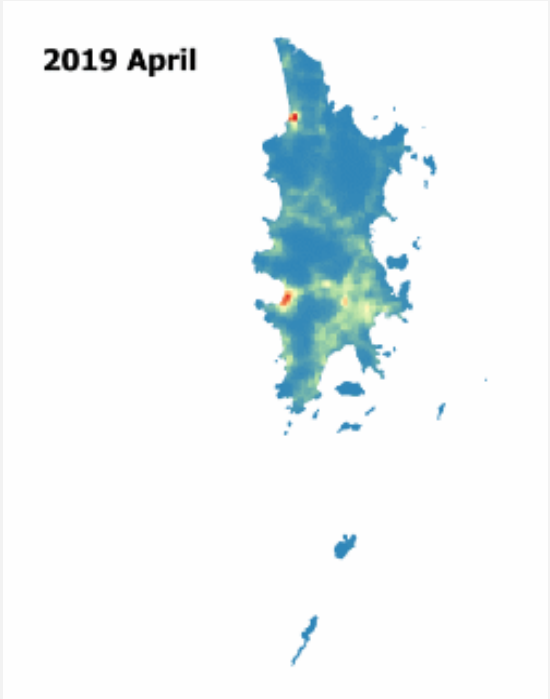
Use print(...) to write to this console.

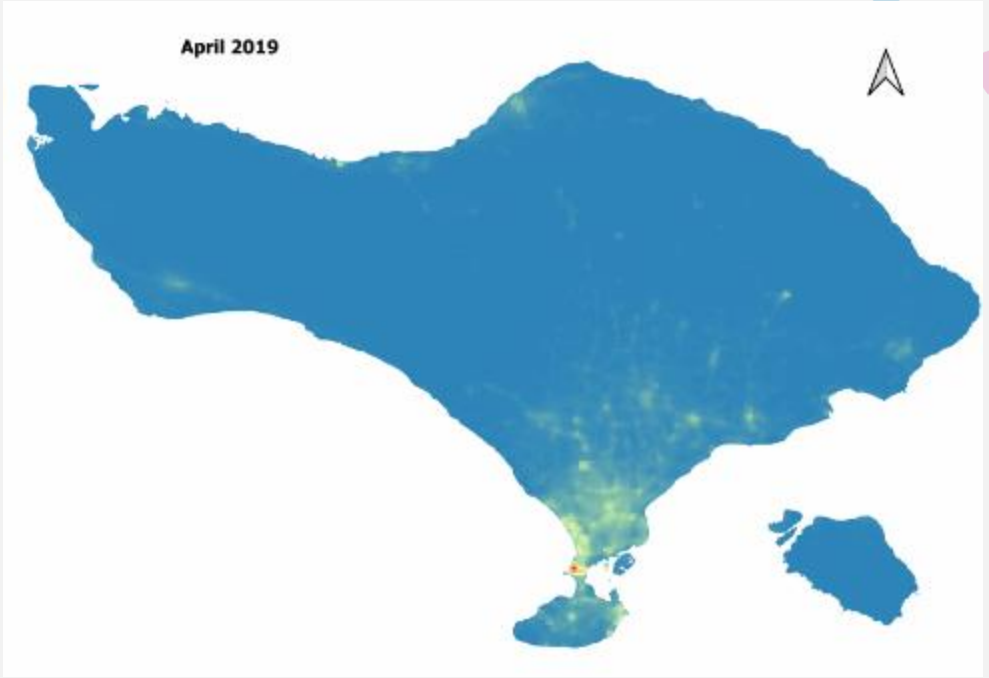
You can now use Earth Engine with Google Cloud Projects! Use the Account menu in the top right to select a project or click here to learn more.



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Use of Night Lights to Understand the Impact of COVID-19 On Tourism







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Satellite Tourism Statical Accounting Using Night Lights

	Bali	Maldives	Phuket
1-Jan-20	1.367	1.692	8.967
1-Feb-20	1.537	1.993	9.188
1-Mar-20	1.54	2.049	8.095
1-Apr-20	1.415	1.964	7.376
1-May-20	1.205	1.501	7.188
1-Jun-20	1.262	1.82	3.967
1-Jul-20	1.151	1.332	6.897
1-Aug-20	1.239	1.964	7.668
1-Sep-20	1.288	1.927	3.466
1-Oct-20	1.25	2.057	8.318
1-Nov-20	1.388	1.504	3.632
1-Dec-20	1.242	1.963	7.884

	Bali	Maldives	Phuket
1-Jan-19	1.209	1.297	8.221
1-Feb-19	1.31	1.599	8.609
1-Mar-19	1.464	1.746	8.115
1-Apr-19	1.446	1.812	7.925
1-May-19	1.394	1.784	7.583
1-Jun-19	1.368	1.699	6.715
1-Jul-19	1.368	1.743	7.854
1-Aug-19	1.408	1.703	7.032
1-Sep-19	1.433	1.736	7.567
1-Oct-19	1.535	1.774	8.34
1-Nov-19	1.458	1.662	7.951
1-Dec-19	1.444	1.741	8.777

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THANK YOU

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