THE UNIVERSITY OF THE WEST INDIES
MONA CAMPUS, JAMAICA, WEST INDIES

USAID
FROM THE AMERICAN PEOPLE

CADMUS

Solar PV and Wind Site Suitability Map of Jamaica

User Guide

2023

Department of Physics
The University of the West Indies Mona, Jamaica

Foreword

In 2020 the United States Agency for International Development (USAID) under the Global Development Alliance (GDA) annual program statement, entered a three-year partnership with the Jamaica Energy Resilience Alliance (JERA) known as "Strengthening Energy Sector Resilience in Jamaica" (SESR/Jamaica).

Funding was by USAID under agreement with the head of the JERA – the Cadmus Group LLC. JERA's mission includes support to local businesses by providing financial assistance and knowledge enhancement on solar photovoltaics, and the regulatory and installation processes to reduce their overall power costs.

The project is intended to enhance Jamaica's ability to withstand and rebound from natural and man-made disasters by developing an enabling environment for the implementation of renewable technologies.

The University of the West Indies, Mona, submitted to USAID a proposal for PV+ storage and site studies and training which was incorporated into JERA. This map presents the results of a study to identify suitable sites for utility and distributed-scale solar PV and wind technologies across the island of Jamaica. These results should be considered quite preliminary as a more in-depth analysis would be required by any potential developers. This website is hosted by the University of the West Indies, Mona Campus at cater.mona.uwi.edu.

The researchers of this study would like to extend their gratitude to the Cadmus Group LLC., USAID, and The University of the West Indies Mona for their partnership and funding of this project.

Home Page

A landing page with two options is presented upon entering the site, as seen in Figure 1. Before selecting any of the options presented, scroll down the landing page for further information such as the project's background, data sources, and contact information.

The first option provides the user with a summary 'User Guide' and an option to view or download a detailed user manual.

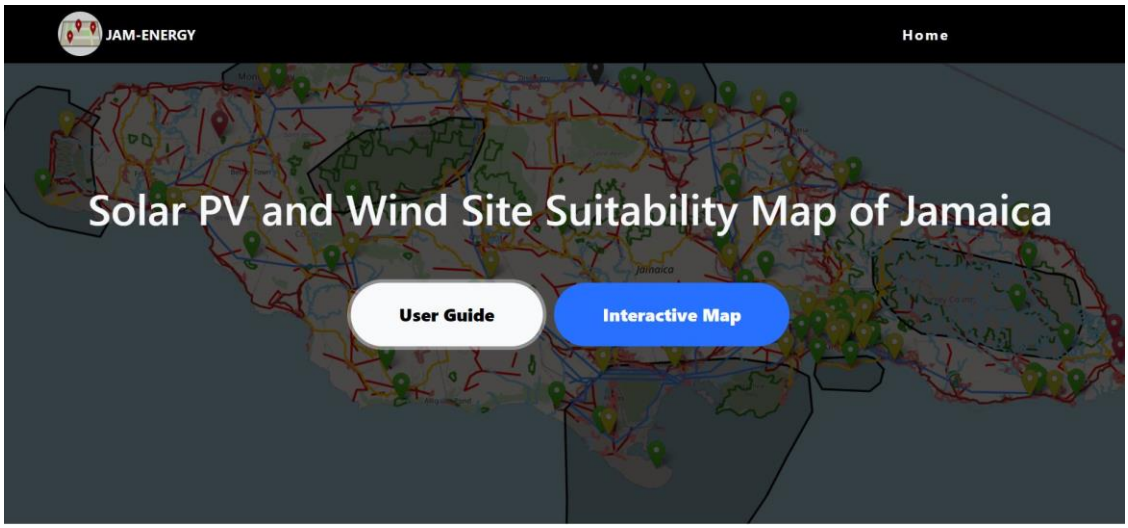

Figure 1. The landing page of the Jamaica solar PV and Wind site suitability map website

Interactive map

Selecting **'Interactive Map'** takes the user to a new page as shown in Figure 2 below. To the left of the page is a selection legend that allows users to select different features for display and explore the map.

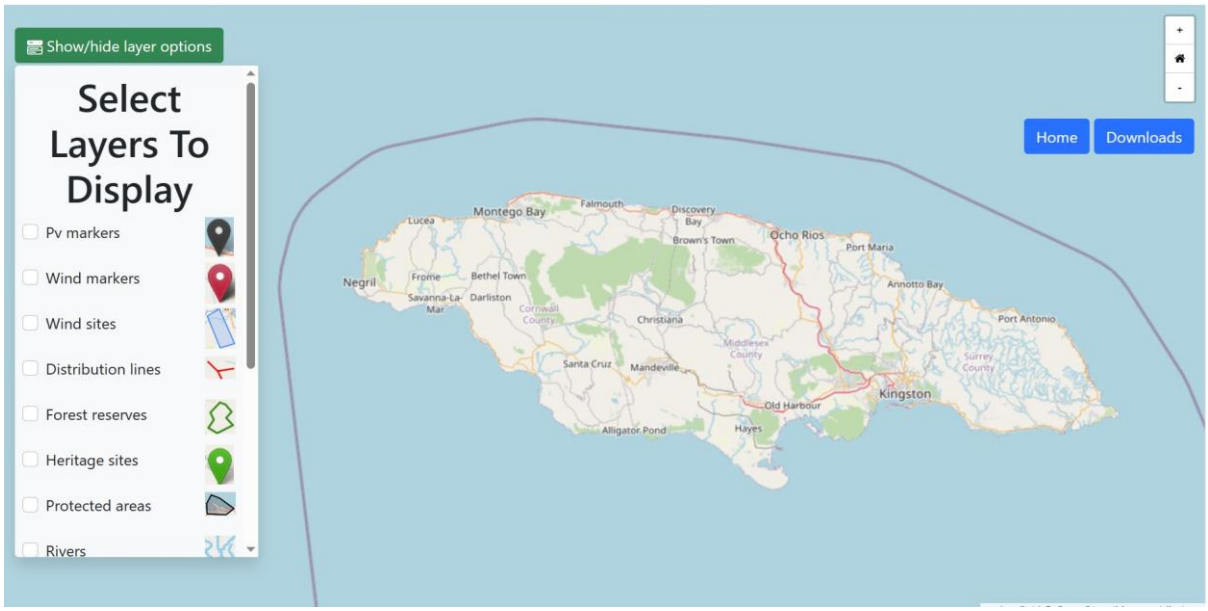

Figure 2. Interactive display page of the site suitability map

The **'Show/hide layer options'** tab located in green above the legend allows the user to collapse or expand the legend, this is useful when zooming in on the map.

To the top right is a white block containing icons that allow users to zoom in and out of the map. This function can also be performed by using the scrolling ball on a mouse. Also seen at the top right of Figure 2, is a **'Home'** tab that returns the user to the home page. A **'Download'** tab is provided which takes the user to a repository of downloadable documents.

Displaying map features

To display a layer on the map, **'check'** the box beside the feature of interest, scroll down, and **'click'** the blue **'Update map'** tab. The map updates and selected layers are displayed as seen in Figure 3 below. Yes, multiple layers can be selected at a time.

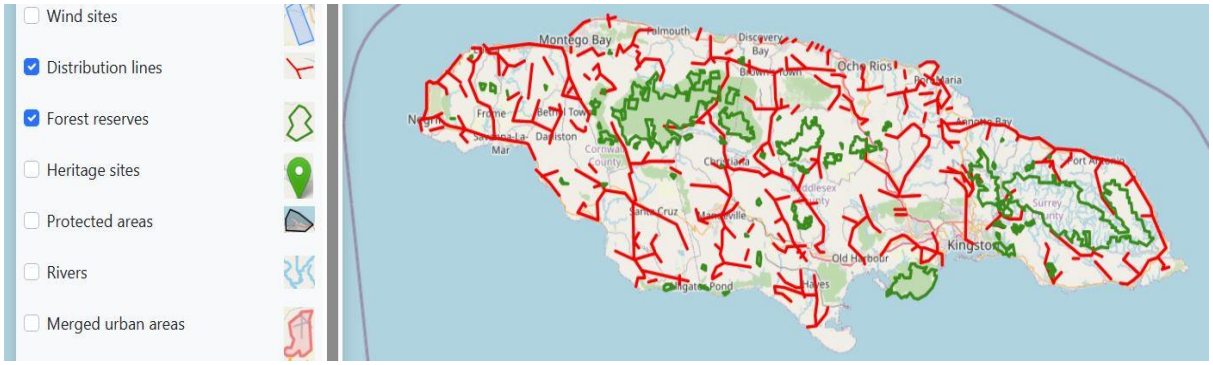

Figure 3. Sample image showing selected layers displayed on the map

Some layers such as PV markers, PV sites, Wind markers, Wind sites, and Roadways contain sub-layers of information as shown in Figure 4 below. To display some or all this information, **'press'** and **'hold' CTRL** on your keyboard while clicking on the features of interest. Once the features have been selected, **'release' CTRL** and **'scroll'** down the to **'Update map'** tab and **'click'** to update the map and display the layers.

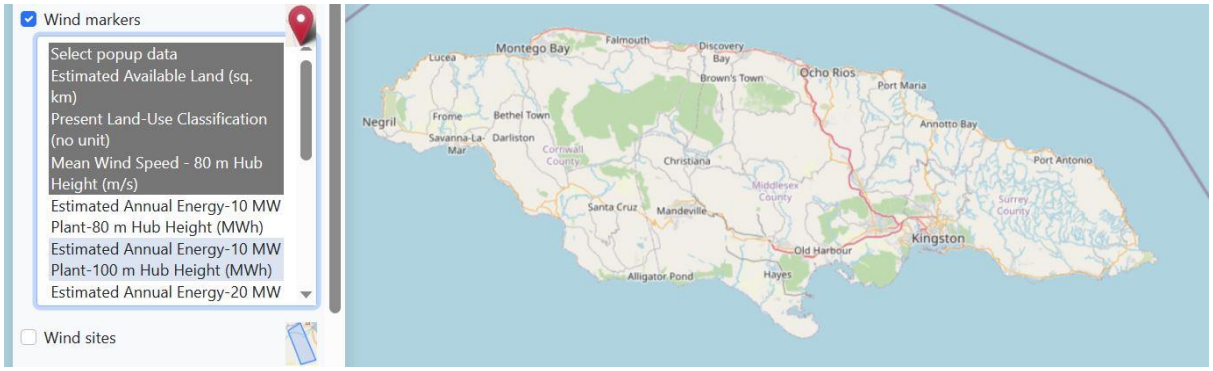

Figure 4. Selecting multiple sub-layers of features to display

Figure 5 demonstrates a sample of what is displayed when multiple sub-layers of information are selected. In this example, multiple layers of information are selected under Wind markers. To view this information, **'click'** on a marker on the map, and a menu pops up displaying the data for that site.

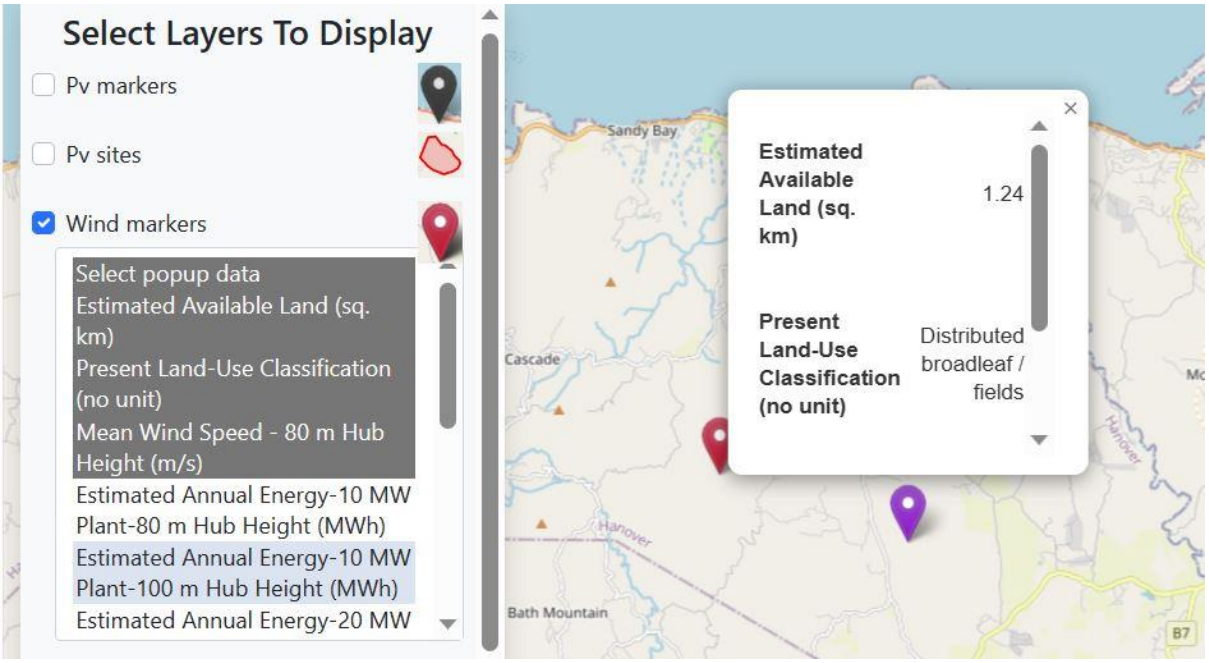

Figure 5. Viewing multiple sub-layers of information on the map

Special notes

PV and Wind Markers

The user will observe on the map that different color markers are used to indicate these sites as shown in Figure 6.

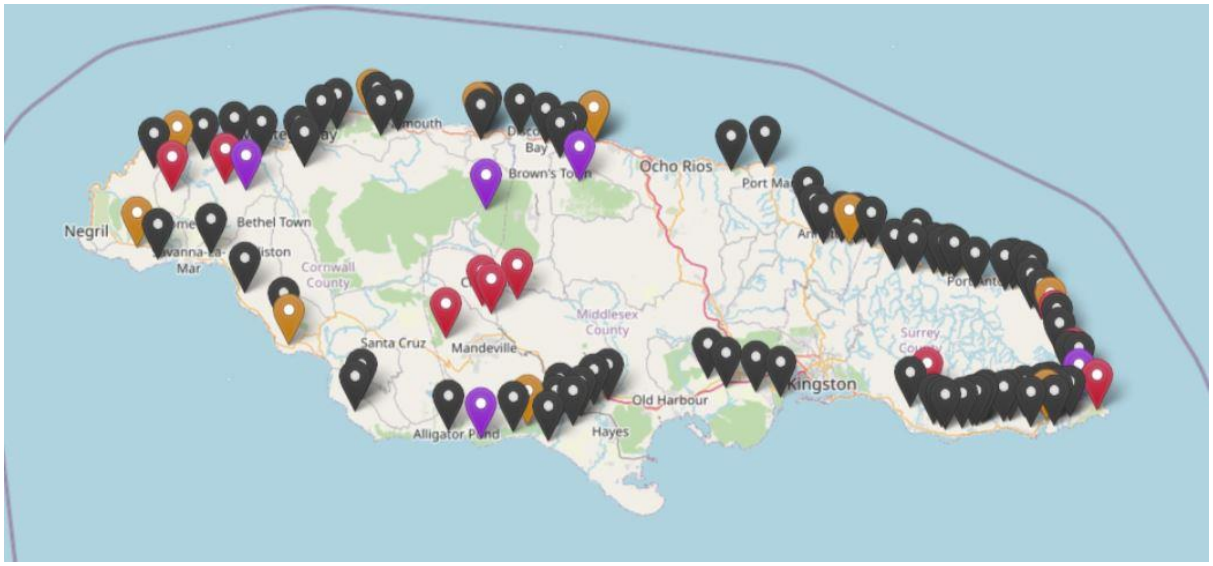

Figure 6. Different coloured PV and Wind markers displayed on the map

Black – PV site

Orange – PV site where a physical site visit was attempted or conducted.

Red – Wind site

Purple – Wind site where a physical site visit was attempted or conducted.

Elevation contours

On the legend there is an option to display elevation contours, these contours were taken from NASA's SRTM database. Due to a high-resolution display of 10 meters, the contours are broken into smaller sections across Jamaica.

'Check' the box next to Elevation contours and a drop-down menu appears displaying the different regions for contours. Only **ONE** region may be selected at a time as the data file is large and may some time (3 – 4 minutes) to load and be displayed on the map.

Downloads

As previously mentioned, there is a data repository containing documents that may be downloaded, see Figure 7. To download a file, **'click'** on Download to open the file, then '**right-click'** on your mouse to download or save the file.

Wind Markers

Site Name	Parish	
WN12	Clarendon	Download
WN3	Hanover	Download
WN14	Hanover	Download
WN15	Hanover/Westmoreland	Download
WN5	Manchester	Download
WN8	Manchester	Download
WN9	Manchester	Download
WN10	Manchester	Download

Figure 7. Data repository containing downloadable documents

Currently, the documents contained here are image files depicting the elevation contours and a north-south cross-sectional profile showing change in elevation with change in latitude, at each of the renewable energy sites in the study.

Data obtained from:

Mona Geoinformatics Institute; National Environmental and Planning Agency (NEPA), Jamaica; Mr. Errol Dias, Jamaica Public Service (JPS); OpenStreetMap; NASA SRTM.

Results:

The results of this study are based on the Master of Philosophy Thesis "Towards 100% renewables: Estimating the land space for Jamaica to achieve 100% renewable electricity generation" by Mrs. Khatiza Mohammed-Koon Koon

Website developers:

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CONTACT US

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