IALA GUIDELINE

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HANDBOOK FOR METEOROLOGICAL DATA FOR IALA SOLAR POWER SYSTEM CALCULATION TOOL

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10, rue des Gaudines – 78100 Saint Germain en Laye, France
Tél. +33 (0)1 34 51 70 01 – contact@iala-aism.org
www.iala-aism.org
International Association of Marine Aids to Navigation and Lighthouse Authorities
Association Internationale de Signalisation Maritime

DOCUMENT REVISION

Revisions to this document are to be noted in the table prior to the issue of a revised document.

Date	Details	Approval
December 2017	First issue.	Council 65
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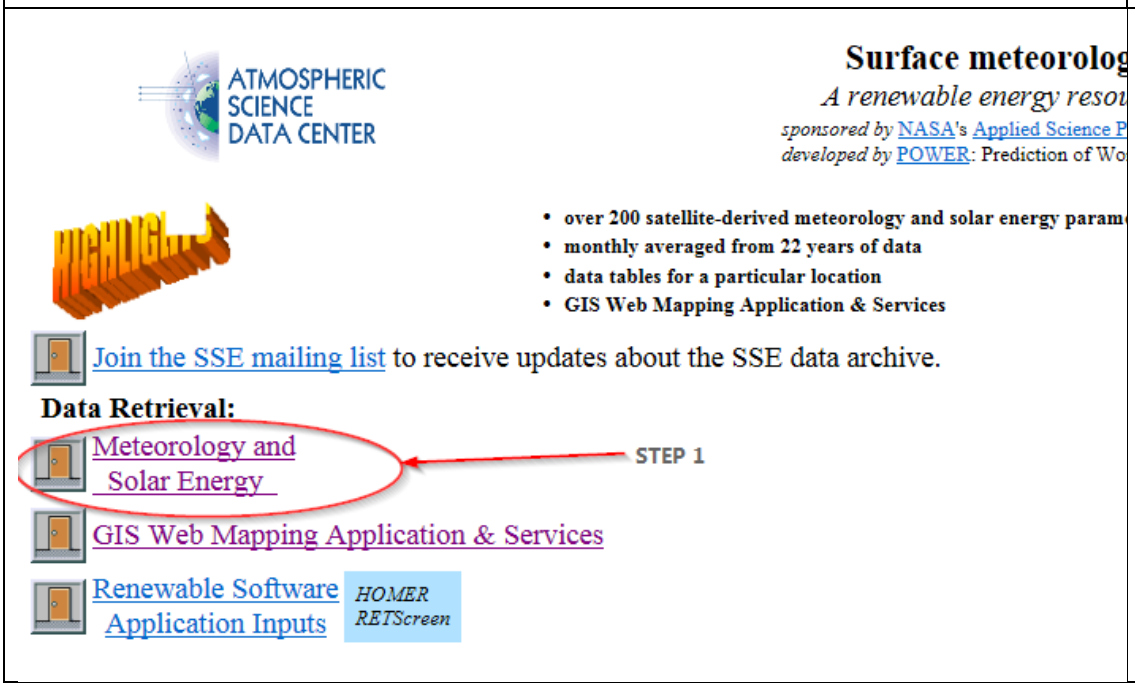
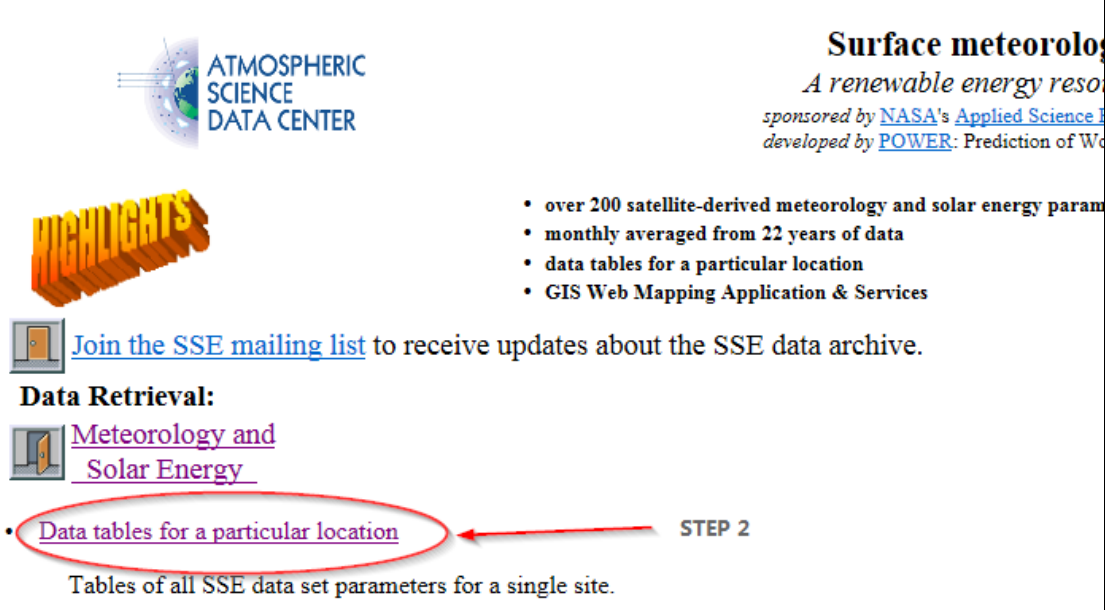
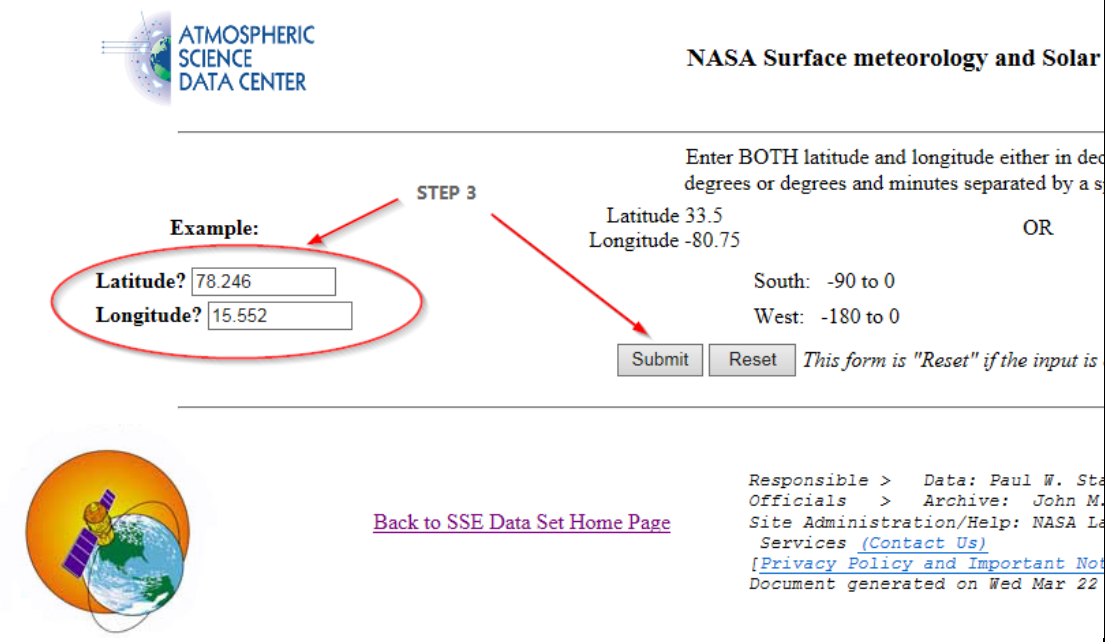
1. INTRODUCTION

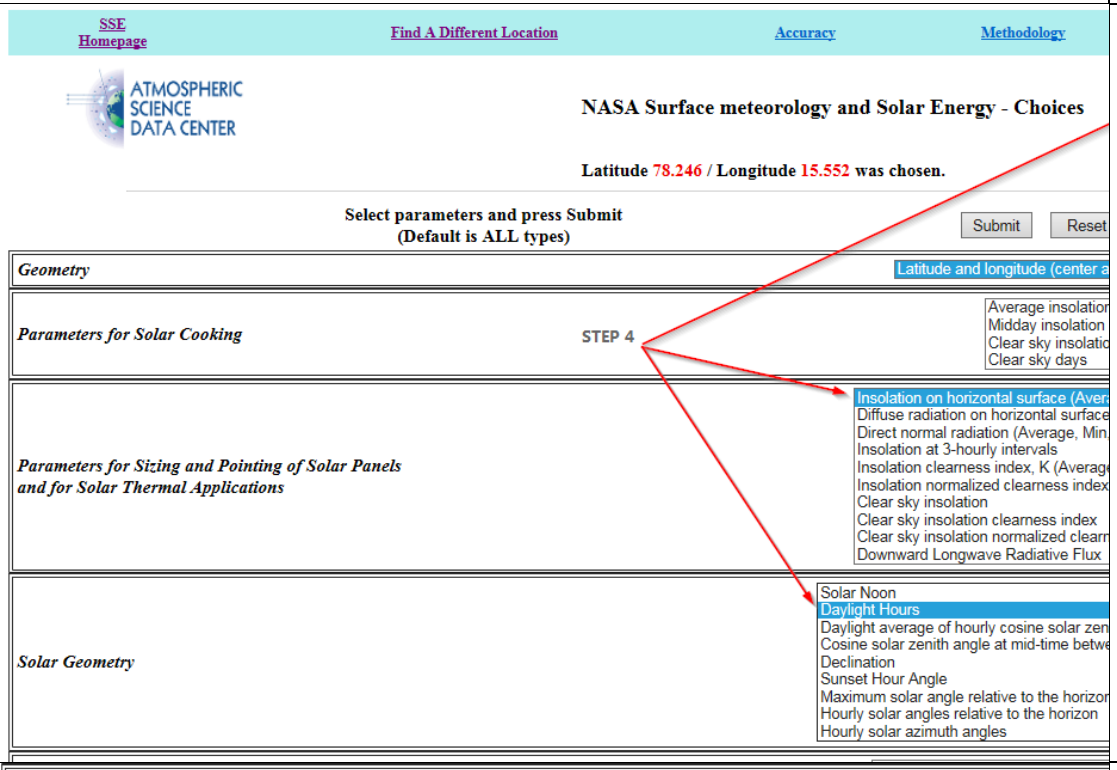
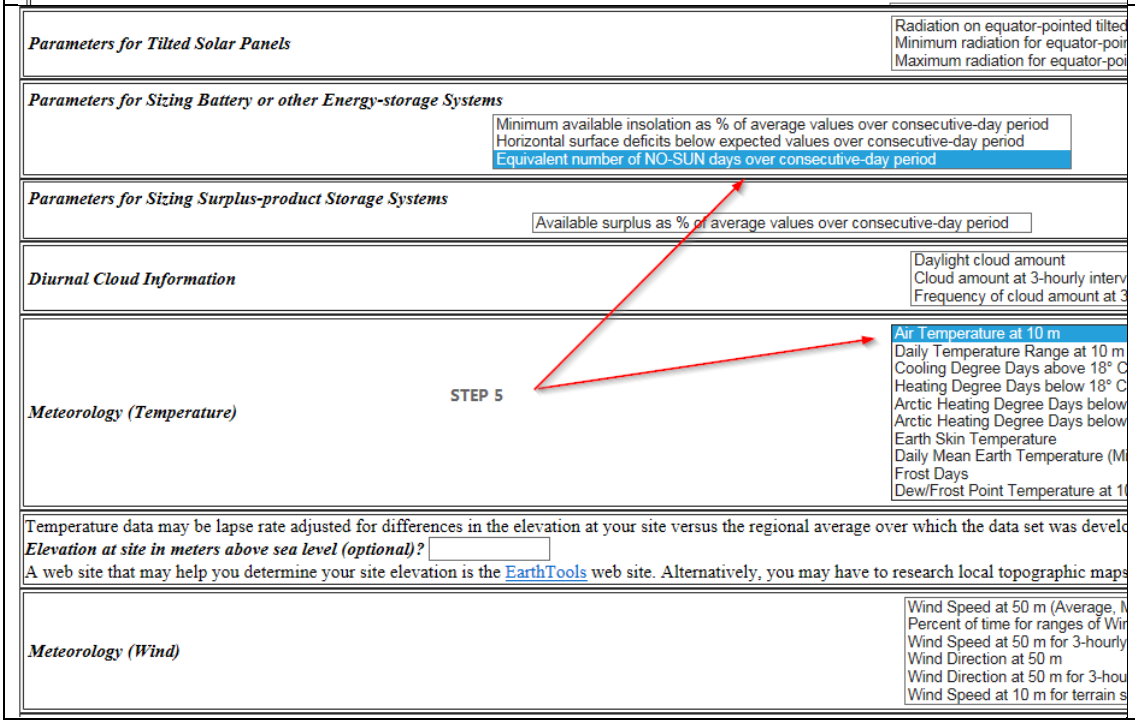
The following the description shows how to extract relevant meteorological and solar energy data from a public NASA website.

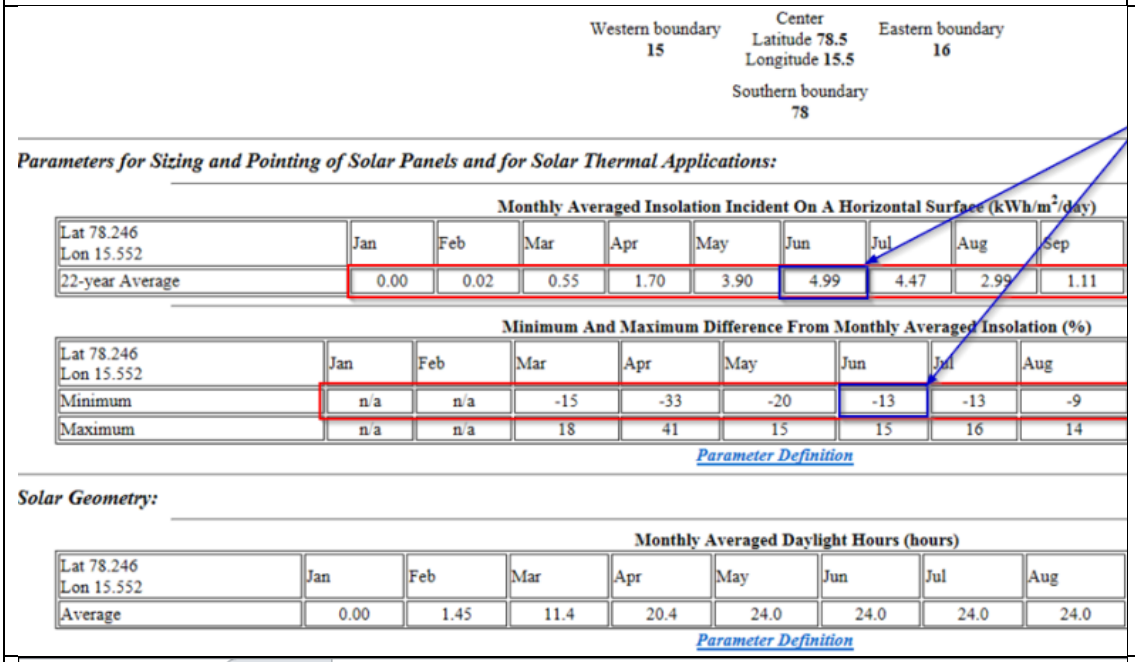
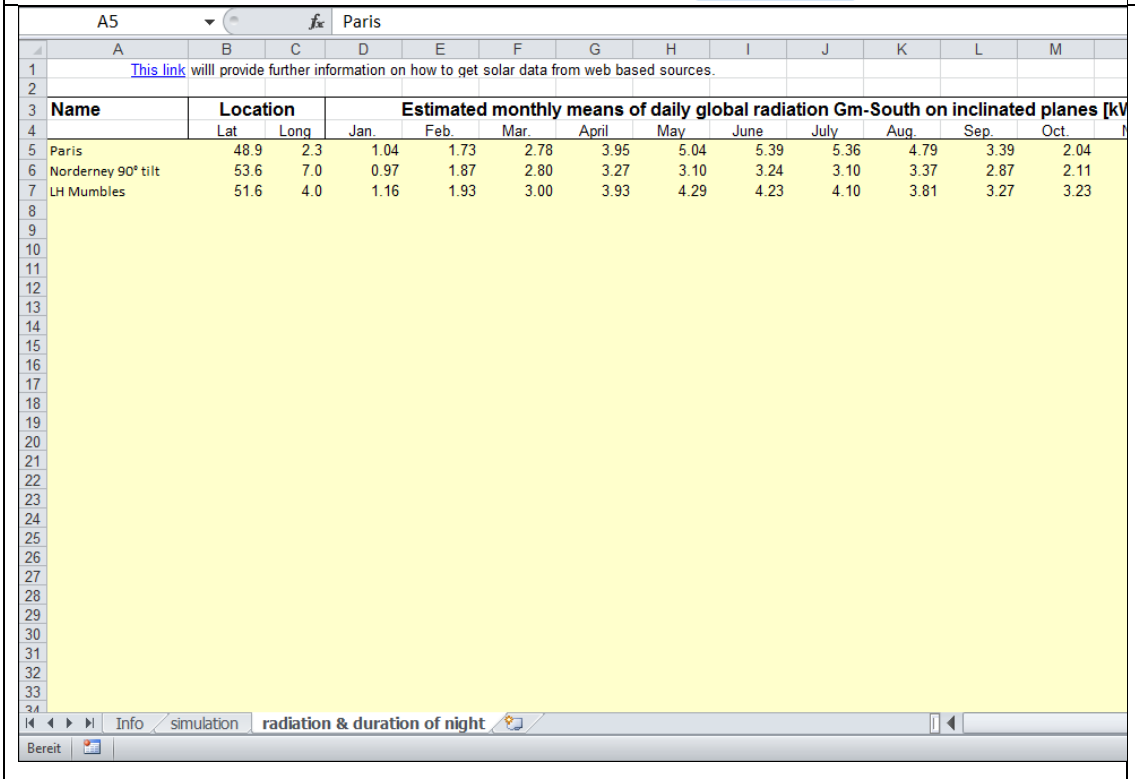
Another website to derive data from is http://re.jrc.ec.europa.eu/pvgis/apps4/pvest.php.

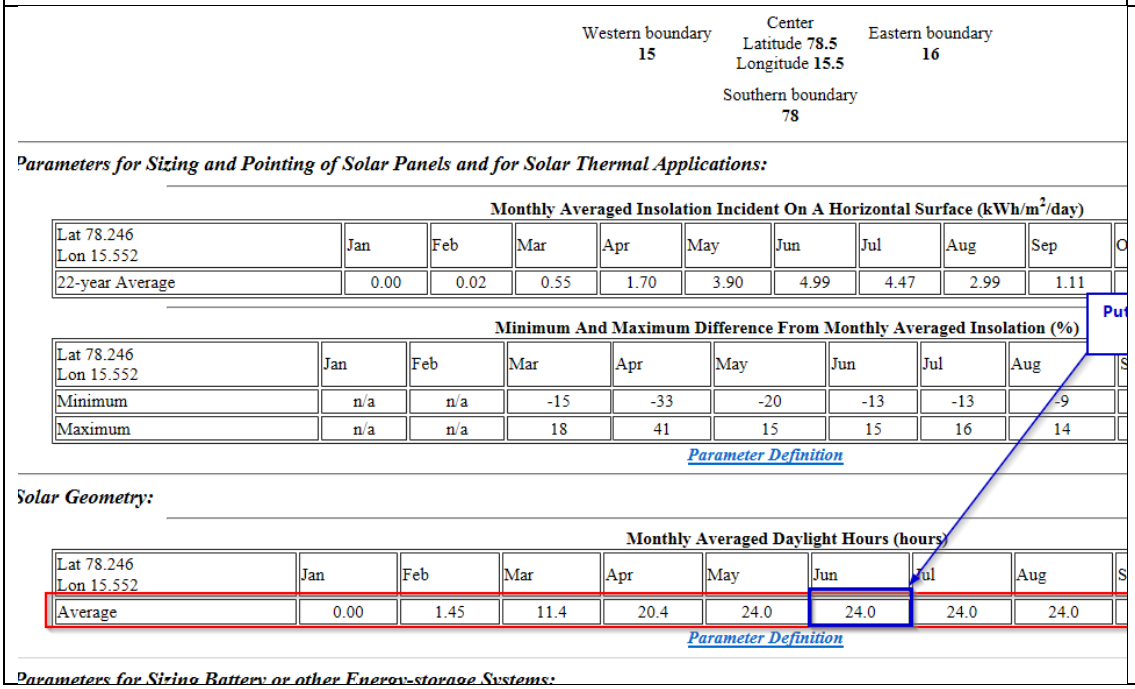
2. SHORT HANDBOOK FOR METEOROLOGY AND SOLAR ENERGY

Description	Action
http://eosweb.larc.nasa.gov/sse/	**Step 1:** Click on the link at the left side to access NASA's website.
	**Step 2:** Click on the link shown on the left side.

Description	Action
	**Step 3:** Click on the link shown on the left side.
	**Step 4:** Enter the geographical position where your AtoN is located. To derive coordinates from a map you can use http://www.latlong.net/ (see short description at the end of the table). Then press the button “Submit”. In this example, a location in Svalbard is used.

Description	Action
	**Step 5:** Select the headlines. Click on the link "Parameters" for more information and definition
	**Step 6:** Add more choices to suit your location Select all parameters and press “Submit” button at the bottom

Description	Action
	**Step 7:** Use parameters in "Monthly Average…" and subtract the percentage difference according to "Minimum" column below. This must be done manually. The result is passed into the IALA excel sheet.
	**Step 8:** Data from step 7 is to be copied in this section of table 'radiation & duration of night' of the Excel sheet.

Description	Action
	**Step 9:** Use the value of NASA table for the monthly average hours of daylight, convert it into duration of night (= 24 – daylight hours) and copy them into the IALA excel sheet. Example for the month of June is shown here.

Western boundary **15** | Center Latitude **78.5** Longitude **15.5** | Eastern boundary **16**

Southern boundary **78**

Parameters for Sizing and Pointing of Solar Panels and for Solar Thermal Applications:

Monthly Averaged Insolation Incident On A Horizontal Surface (kWh/m²/day)

Lat 78.246 Lon 15.552	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	O
22-year Average	0.00	0.02	0.55	1.70	3.90	4.99	4.47	2.99	1.11	

Minimum And Maximum Difference From Monthly Averaged Insolation (%)

Lat 78.246 Lon 15.552	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	S
Minimum	n/a	n/a	-15	-33	-20	-13	-13	-9	
Maximum	n/a	n/a	18	41	15	15	16	14	

Parameter Definition

Solar Geometry:

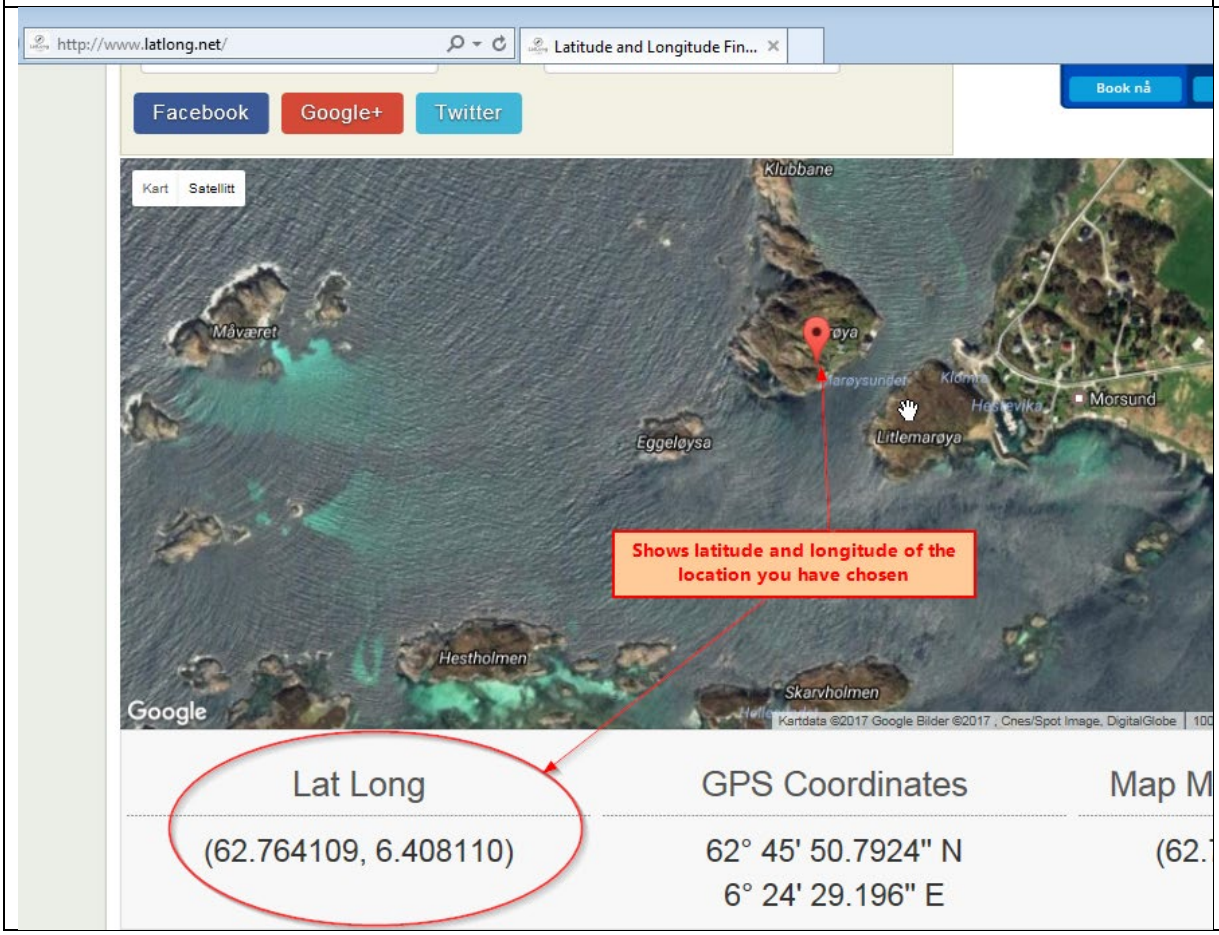
Monthly Averaged Daylight Hours (hours)

Lat 78.246 Lon 15.552	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	S
Average	0.00	1.45	11.4	20.4	24.0	24.0	24.0	24.0	

Parameter Definition

Parameters for Sizing Battery or other Energy-storage Systems:

3. GET LATITUDE AND LONGITUDE OF A SITE FROM A WEB-BASED MAP

Description	Action
http://www.latlong.net/	Click on the link at the left side to access a free program online, to find a certain location
	Click the map and the position with respect. Latitude and longitude of the location you have selected is displayed.