

## Wave Energy-Significant Wave Height



Tags

Wave Energy, Assessment, WaveWatchIII Grids, Power Density, Energy Period, Significant Wave Height, Hindcast Direction, Study Water Depth, National Renewable Energy Laboratory, NREL, Electric Power Research Institute, EPRI, Virginia Tech, VT

### Summary

This data is representing Significant Wave Height. Bathymetric effects are known to have a large effect on wave characteristics at depths shallower than approximately 20m (~65 ft) on the Atlantic coast and 50 m (~160 ft) on the Pacific coast. A variance between depths exists due to the feature differences for each continental shelf. The methodology used in this resource assessment precludes providing site-specific information to such developers. Reliable site-specific information in shallow waters can only be produced using results from models with higher spatial resolution that include shallow-water physics. The wave resource assessment group acknowledges that its results will not be accurate in the shallower waters of the inner continental shelf. These shallow water regions are located within the dark gray boundaries on the map.

### Description

Grids are derived from WaveWatch III grids. Near the coast of the lower 48 and HI, grids are squares, 4 minutes by 4 minutes (15 per degree). For the Alaska grids AK and BS, the grid is 4 minutes of latitude by 8 minutes of longitude (15 per deg by 7.5 per deg). EXCEPT: The area in the Bering Sea around the Pribilof (St Paul and St George) Islands is 10 min lat by 15 min lon. Limits: 55.666 to 58.000 N, -172.000 to -168.000 E, 17 cols, 15 rows Farther offshore, the grid is 10 min by 10 min. (only seen in WM and PR)The 10 min by 10 min grid appears near the edge of a few grids: - SW corner of WM (off Mexican coast) - SE corner of WM (deep water) - PR - around edges (far from PR and US territory)

### Credits

The Wave Energy Resource Assessment project is a joint venture between NREL, EPRI, and Virginia Tech. EPRI is the prime contractor, Virginia Tech is responsible for development of the models and estimating the wave resource, and NREL serves as an independent validator and also develops the final GIS-based display of the data. Website: <http://en.openei.org/datasets/node/868>

### Use limitations

There are no access and use limitations for this item.

### Extent

West	-180.000000	East	179.997760
North	63.020600	South	16.499967

### Scale Range

Maximum (zoomed in)	1:5,000,000
Minimum (zoomed out)	1:20,000,000

### ArcGIS Metadata

#### Topics and Keywords

\* CONTENT TYPE           Downloadable Data

## Citation

TITLE    Wave Energy Assessment for the United States and Puerto Rico  
PUBLICATION DATE   2011-09-27 00:00:00  
PRESENTATION FORMATS       \* digital map

## Citation Contacts

RESPONSIBLE PARTY  
ORGANIZATION'S NAME   National Renewable Energy Laboratory  
CONTACT'S ROLE        owner

### CONTACT INFORMATION

#### ADDRESS

TYPE   both  
DELIVERY POINT   1617 Cole Blvd.  
CITY    Golden  
ADMINISTRATIVE  
AREA    CO POSTAL  
CODE    80401  
COUNTRY   US

## Resource Details

DATASET LANGUAGES    English (UNITED STATES)  
DATASET CHARACTER SET    utf8 - 8 bit UCS Transfer Format

SPATIAL REPRESENTATION TYPE       \* vector

\* PROCESSING ENVIRONMENT   Microsoft Windows 7 Version 6.1 (Build 7600) ; Esri ArcGIS  
10.1.1.3143

## CREDITS

The Wave Energy Resource Assessment project is a joint venture between NREL, EPRI, and Virginia Tech. EPRI is the prime contractor, Virginia Tech is responsible for development of the models and estimating the wave resource, and NREL serves as an independent validator and also develops the final GIS-based display of the data. Website:  
<http://en.openei.org/datasets/node/868>

## ARCGIS ITEM PROPERTIES

\* NAME   wave\_significant\_height  
\* SIZE   5.483  
\* LOCATION  
\* ACCESS PROTOCOL   Local Area Network

## Extents

### EXTENT

#### GEOGRAPHIC EXTENT

##### BOUNDING RECTANGLE

EXTENT TYPE       Extent used for searching  
\* WEST LONGITUDE   -180.000000  
\* EAST LONGITUDE   179.997760  
\* NORTH LATITUDE   63.020600  
\* SOUTH LATITUDE   16.499967  
\* EXTENT CONTAINS THE RESOURCE   Yes

#### EXTENT IN THE ITEM'S

#### COORDINATE SYSTEM

\* WEST LONGITUDE -180.000000  
\* EAST LONGITUDE 179.997760  
\* SOUTH LATITUDE 16.499967  
\* NORTH LATITUDE 63.020600  
\* EXTENT CONTAINS THE RESOURCE Yes

#### Resource Points of Contact

##### POINT OF CONTACT

ORGANIZATION'S NAME National Renewable Energy Laboratory  
CONTACT'S ROLE point of contact

##### CONTACT INFORMATION

###### ADDRESS

TYPE both  
DELIVERY POINT 1617 Cole Blvd.  
CITY Golden  
ADMINISTRATIVE  
AREA CO POSTAL  
CODE 80401  
COUNTRY US

#### Spatial Reference

##### ARCGIS COORDINATE SYSTEM

\* TYPE Geographic  
\* GEOGRAPHIC COORDINATE REFERENCE GCS\_WGS\_1984  
\* COORDINATE REFERENCE DETAILS

##### GEOGRAPHIC COORDINATE SYSTEM

WELL-KNOWN IDENTIFIER 4326  
X ORIGIN -400  
Y ORIGIN -400  
XY SCALE 11258999068426.238  
Z ORIGIN -100000  
Z SCALE 10000  
M ORIGIN -100000  
M SCALE 10000  
XY TOLERANCE 8.983152841195215e-009  
Z TOLERANCE 0.001  
M TOLERANCE 0.001  
HIGH PRECISION true  
LEFT LONGITUDE -180  
LATEST WELL-KNOWN IDENTIFIER 4326  
WELL-KNOWN TEXT  
GEOGCS["GCS\_WGS\_1984",DATUM["D\_WGS\_1984",SPHEROID  
["WGS\_1984",6378137.0,298.257223563]],PRIMEM["Greenwich",0.0  
],UNIT["Degree",0.0174532925199433],AUTHORITY["EPSG",4326]]

##### REFERENCE SYSTEM IDENTIFIER

\* VALUE 4326  
\* CODESPACE EPSG  
\* VERSION 7.11.2

#### Spatial Data Properties

##### VECTOR

\* LEVEL OF TOPOLOGY FOR THIS DATASET geometry only

## GEOMETRIC OBJECTS

FEATURE CLASS NAME wave\_significant\_height  
\* OBJECT TYPE composite  
\* OBJECT COUNT 42276

## ARCGIS FEATURE CLASS PROPERTIES

FEATURE CLASS NAME wave\_significant\_height  
\* FEATURE TYPE Simple  
\* GEOMETRY TYPE Polygon  
\* HAS TOPOLOGY FALSE  
\* FEATURE COUNT 42276  
\* SPATIAL INDEX FALSE  
\* LINEAR REFERENCING FALSE

## Distribution

### DISTRIBUTION FORMAT

\* NAME Shapefile

### TRANSFER OPTIONS

\* TRANSFER SIZE 5.483

## Fields

### DETAILS FOR OBJECT wave\_significant\_height

\* TYPE Feature Class  
\* ROW COUNT 42276

#### DEFINITION

Object ID

#### FIELD FID

\* ALIAS FID  
\* DATA TYPE OID  
\* WIDTH 4  
\* PRECISION 0  
\* SCALE 0  
\* FIELD DESCRIPTION  
Internal feature number.  
  
\* DESCRIPTION SOURCE  
Esri  
  
\* DESCRIPTION OF VALUES Sequential unique whole numbers that are automatically generated.

#### FIELD Shape

\* ALIAS Shape  
\* DATA TYPE Geometry  
\* WIDTH 0  
\* PRECISION 0  
\* SCALE 0  
\* FIELD DESCRIPTION  
Feature geometry.  
  
\* DESCRIPTION SOURCE  
Esri  
  
\* DESCRIPTION OF VALUES Coordinates defining the features.

#### FIELD gid

\* ALIAS gid  
\* DATA TYPE Double  
\* WIDTH 10  
\* PRECISION 10  
\* SCALE 0  
FIELD DESCRIPTION  
GID

DESCRIPTION SOURCE

National Renewable Energy Laboratory, Electric Power Research Institute, Virginia Tech

FIELD join\_count

\* ALIAS join\_count  
\* DATA TYPE Double  
\* WIDTH 10  
\* PRECISION 10  
\* SCALE 0  
FIELD DESCRIPTION  
Count

DESCRIPTION SOURCE

National Renewable Energy Laboratory, Electric Power Research Institute, Virginia Tech

FIELD target\_fid

\* ALIAS target\_fid  
\* DATA TYPE Double  
\* WIDTH 10  
\* PRECISION 10  
\* SCALE 0  
FIELD DESCRIPTION  
Target FID

DESCRIPTION SOURCE

National Renewable Energy Laboratory, Electric Power Research Institute, Virginia Tech

FIELD id

\* ALIAS id  
\* DATA TYPE Double  
\* WIDTH 10  
\* PRECISION 10  
\* SCALE 0  
FIELD DESCRIPTION  
ID

DESCRIPTION SOURCE

National Renewable Energy Laboratory, Electric Power Research Institute, Virginia Tech

FIELD lat

\* ALIAS lat  
\* DATA TYPE Double  
\* WIDTH 24  
\* PRECISION 23  
\* SCALE 15  
FIELD DESCRIPTION  
Latitude

DESCRIPTION SOURCE

National Renewable Energy Laboratory, Electric Power Research Institute, Virginia Tech

FIELD lon

\* ALIAS lon  
\* DATA TYPE Double  
\* WIDTH 24  
\* PRECISION 23  
\* SCALE 15

FIELD DESCRIPTION

Longitude

DESCRIPTION SOURCE

National Renewable Energy Laboratory, Electric Power Research Institute, Virginia Tech

FIELD depth\_ssh

\* ALIAS depth\_ssh  
\* DATA TYPE Double  
\* WIDTH 24  
\* PRECISION 23  
\* SCALE 15

FIELD DESCRIPTION

Water Depth

DESCRIPTION SOURCE

National Renewable Energy Laboratory, Electric Power Research Institute, Virginia Tech

FIELD jan\_ssh

\* ALIAS jan\_ssh  
\* DATA TYPE Double  
\* WIDTH 24  
\* PRECISION 23  
\* SCALE 15

FIELD DESCRIPTION

Average January Significant Wave Height

DESCRIPTION SOURCE

National Renewable Energy Laboratory, Electric Power Research Institute, Virginia Tech

FIELD feb\_ssh

\* ALIAS feb\_ssh  
\* DATA TYPE Double  
\* WIDTH 24  
\* PRECISION 23  
\* SCALE 15

FIELD DESCRIPTION

Average February Significant Wave Height

DESCRIPTION SOURCE

National Renewable Energy Laboratory, Electric Power Research Institute, Virginia Tech

FIELD mar\_ssh

\* ALIAS mar\_ssh  
\* DATA TYPE Double  
\* WIDTH 24  
\* PRECISION 23  
\* SCALE 15

FIELD DESCRIPTION

Average March Significant Wave Height

DESCRIPTION SOURCE

National Renewable Energy Laboratory, Electric Power Research Institute, Virginia Tech

FIELD apr\_ssh

\* ALIAS apr\_ssh  
\* DATA TYPE Double  
\* WIDTH 24  
\* PRECISION 23  
\* SCALE 15

FIELD DESCRIPTION

Average April Significant Wave Height

DESCRIPTION SOURCE

National Renewable Energy Laboratory, Electric Power Research Institute, Virginia Tech

FIELD may\_ssh

\* ALIAS may\_ssh  
\* DATA TYPE Double  
\* WIDTH 24  
\* PRECISION 23  
\* SCALE 15

FIELD DESCRIPTION

Average May Significant Wave Height

DESCRIPTION SOURCE

National Renewable Energy Laboratory, Electric Power Research Institute, Virginia Tech

FIELD jun\_ssh

\* ALIAS jun\_ssh  
\* DATA TYPE Double  
\* WIDTH 24  
\* PRECISION 23  
\* SCALE 15

FIELD DESCRIPTION

Average June Significant Wave Height

DESCRIPTION SOURCE

National Renewable Energy Laboratory, Electric Power Research Institute, Virginia Tech

FIELD jul\_ssh

\* ALIAS jul\_ssh  
\* DATA TYPE Double  
\* WIDTH 24  
\* PRECISION 23  
\* SCALE 15

FIELD DESCRIPTION

Average July Significant Wave Height

DESCRIPTION SOURCE

National Renewable Energy Laboratory, Electric Power Research Institute, Virginia Tech

FIELD aug\_ssh

\* ALIAS aug\_ssh  
\* DATA TYPE Double  
\* WIDTH 24  
\* PRECISION 23  
\* SCALE 15

FIELD DESCRIPTION

Average August Significant Wave Height

DESCRIPTION SOURCE

National Renewable Energy Laboratory, Electric Power Research Institute, Virginia Tech

FIELD sep\_ssh

\* ALIAS sep\_ssh  
\* DATA TYPE Double  
\* WIDTH 24  
\* PRECISION 23  
\* SCALE 15

FIELD DESCRIPTION

Average September Significant Wave Height

DESCRIPTION SOURCE

National Renewable Energy Laboratory, Electric Power Research Institute, Virginia Tech

FIELD oct\_ssh

\* ALIAS oct\_ssh  
\* DATA TYPE Double  
\* WIDTH 24  
\* PRECISION 23  
\* SCALE 15

FIELD DESCRIPTION

Average October Significant Wave Height

DESCRIPTION SOURCE

National Renewable Energy Laboratory, Electric Power Research Institute, Virginia Tech

FIELD nov\_ssh

\* ALIAS nov\_ssh  
\* DATA TYPE Double  
\* WIDTH 24  
\* PRECISION 23  
\* SCALE 15

FIELD DESCRIPTION

Average November Significant Wave Height

DESCRIPTION SOURCE

National Renewable Energy Laboratory, Electric Power Research Institute, Virginia Tech

FIELD dec\_ssh

\* ALIAS dec\_ssh  
\* DATA TYPE Double  
\* WIDTH 24  
\* PRECISION 23  
\* SCALE 15

FIELD DESCRIPTION

Average December Significant Wave Height

DESCRIPTION SOURCE

National Renewable Energy Laboratory, Electric Power Research Institute, Virginia Tech

FIELD ann\_ssh

\* ALIAS ann\_ssh  
\* DATA TYPE Double  
\* WIDTH 24  
\* PRECISION 23  
\* SCALE 15

FIELD DESCRIPTION

Average Annual Significant Wave Height

DESCRIPTION SOURCE

National Renewable Energy Laboratory, Electric Power Research Institute, Virginia Tech



\* METADATA LANGUAGE English (UNITED STATES)  
METADATA CHARACTER SET utf8 - 8 bit UCS Transfer Format

SCOPE OF THE DATA DESCRIBED BY THE METADATA dataset  
SCOPE NAME \* dataset

\* LAST UPDATE 2012-12-20

#### ARCGIS METADATA PROPERTIES

METADATA FORMAT ArcGIS 1.0  
METADATA STYLE FGDC CSDGM Metadata  
STANDARD OR PROFILE USED TO EDIT METADATA FGDC

CREATED IN ARCGIS FOR THE ITEM 2012-12-20 10:08:32  
LAST MODIFIED IN ARCGIS FOR THE ITEM 2012-12-20 10:56:13

#### AUTOMATIC UPDATES

HAVE BEEN PERFORMED Yes  
LAST UPDATE 2012-12-20 10:12:54

### Metadata Contacts

#### METADATA CONTACT

INDIVIDUAL'S NAME Kevin Hlava  
ORGANIZATION'S NAME Argonne National  
Laboratory CONTACT'S POSITION GIS  
Assistant/Specialist CONTACT'S ROLE  
originator

#### CONTACT INFORMATION

PHONE  
VOICE 1-630-252-0060

#### ADDRESS

TYPE both  
DELIVERY POINT 9700 South Cass Avenue, EVS/Bldg 240  
CITY Argonne  
ADMINISTRATIVE  
AREA IL POSTAL  
CODE 60439  
COUNTRY US  
E-MAIL ADDRESS [khlava@anl.gov](mailto:khlava@anl.gov)

### Metadata Maintenance

#### MAINTENANCE

UPDATE FREQUENCY unknown

### Thumbnail and Enclosures

#### THUMBNAIL

THUMBNAIL TYPE JPG

FGDC Metadata (read-only)