Wave Energy-Energy Period

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 Wave Energy Period. 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_energy_period
* SIZE 5.484
* 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_energy_period
* OBJECT TYPE composite
* OBJECT COUNT 42282

ARCGIS FEATURE CLASS PROPERTIES
FEATURE CLASS NAME wave_energy_period
* FEATURE TYPE Simple
* GEOMETRY TYPE Polygon
* HAS TOPOLOGY FALSE
* FEATURE COUNT 42282
* SPATIAL INDEX FALSE
* LINEAR REFERENCING FALSE

Distribution

DISTRIBUTION FORMAT
* NAME Shapefile

TRANSFER OPTIONS
* TRANSFER SIZE 5.484

Fields

DETAILS FOR OBJECT wave_energy_period
* TYPE Feature Class
* ROW COUNT 42282
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 lat
ALIAS lat
* DATA TYPE Double
* WIDTH 10
* PRECISION 10
* SCALE 0
FIELD DESCRIPTION
Latitude

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

FIELD lon
ALIAS lon
* DATA TYPE Double
* WIDTH 10
* PRECISION 10
* SCALE 0
FIELD DESCRIPTION
Longitude

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

FIELD depth_wep
* ALIAS depth_wep
* 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_wep
* ALIAS jan_wep
* DATA TYPE Double
* WIDTH 24
* PRECISION 23
* SCALE 15
FIELD DESCRIPTION
Average January Wave Energy Period

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

FIELD feb_wep
* ALIAS feb_wep
* DATA TYPE Double
* WIDTH 24
* PRECISION 23
* SCALE 15
FIELD DESCRIPTION
Average February Wave Energy Period

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

FIELD mar_wep
* ALIAS mar_wep
* DATA TYPE Double
* WIDTH 24
* PRECISION 23
* SCALE 15
FIELD DESCRIPTION
Average March Wave Energy Period

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

FIELD apr_wep
* ALIAS apr_wep
* DATA TYPE Double
* WIDTH 24
* PRECISION 23
* SCALE 15
FIELD DESCRIPTION
Average April Wave Energy Period

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

FIELD may_wep
* ALIAS may_wep
* DATA TYPE Double
* WIDTH 24
* PRECISION 23
* SCALE 15
FIELD DESCRIPTION
Average May Wave Energy Period

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

FIELD jun_wep
* ALIAS jun_wep
* DATA TYPE Double
* WIDTH 24
* PRECISION 23
* SCALE 15
FIELD DESCRIPTION

Average June Wave Energy Period

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

FIELD jul_wep
* ALIAS jul_wep
* DATA TYPE Double
* WIDTH 24
* PRECISION 23
* SCALE 15
FIELD DESCRIPTION
Average July Wave Energy Period

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

FIELD aug_wep
* ALIAS aug_wep
* DATA TYPE Double
* WIDTH 24
* PRECISION 23
* SCALE 15
FIELD DESCRIPTION
Average August Wave Energy Period

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

FIELD sep_wep
* ALIAS sep_wep
* DATA TYPE Double
* WIDTH 24
* PRECISION 23
* SCALE 15
FIELD DESCRIPTION
Average September Wave Energy Period

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

FIELD oct_wep
* ALIAS oct_wep
* DATA TYPE Double
* WIDTH 24
* PRECISION 23
* SCALE 15
FIELD DESCRIPTION
Average October Wave Energy Period

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

FIELD nov_wep
* ALIAS nov_wep
* DATA TYPE Double
* WIDTH 24
* PRECISION 23
* SCALE 15

FIELD DESCRIPTION
Average November Wave Energy Period

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

FIELD dec_wep
* ALIAS dec_wep
* DATA TYPE Double
* WIDTH 24
* PRECISION 23
* SCALE 15
FIELD DESCRIPTION
Average December Wave Energy Period

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

FIELD ann_wep
* ALIAS ann_wep
* DATA TYPE Double
* WIDTH 24
* PRECISION 23
* SCALE 15
FIELD DESCRIPTION
Average Annual Wave Energy Period

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 24
* PRECISION 23
* SCALE 15
FIELD DESCRIPTION
Target FID

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

FIELD id
ALIAS id
* DATA TYPE Double
* WIDTH 24
* PRECISION 23

* SCALE 15
FIELD DESCRIPTION
ID

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

Metadata Details

* 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 2012-05-15 09:09:22
LAST MODIFIED IN ARCGIS FOR THE ITEM 2012-12-20 10:55:44

AUTOMATIC UPDATES
HAVE BEEN PERFORMED No
LAST UPDATE 2012-12-20
09:52:41

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

Metadata Maintenance

MAINTENANCE
UPDATE FREQUENCY unknown

Thumbnail and Enclosures

THUMBNAIL

THUMBNAIL TYPE JPG

FGDC Metadata (read-only) T