pred_1500

Metadata also available as

Metadata:

- Identification_Information
- Data_Quality_Information
- Spatial_Data_Organization_Information
- Spatial_Reference_Information
- Entity_and_Attribute_Information
- Distribution_Information
- Metadata_Reference_Information

Identification_Information:
Citation:
Citation_Information:
Originator: U.S. Geological Survey
Publication_Date: 2004
Title: pred_1500
Edition: 1
Geospatial_Data_Presentation_Form: raster digital data
Series_Information:
Series_Name: Open-File Report
Issue_Identification: Open-File Report 2004-1324
Publication_Information:
Publication_Place: Baltimore, Maryland
Publisher: U.S. Geological Survey
Online_Linkage: \\fs01dmdtws\gis\projects\reva\maia\final\pred_1500
Description:
Abstract:
The U.S. Geological Survey in cooperation with the U.S. Environmental Protection Agency's Regional Vulnerability Assessment Program, has developed a set of statistical tools to support regional-scale, ground-water quality and vulnerability assessments. The Regional Vulnerability Assessment Program goals are to develop and demonstrate approaches to comprehensive, regional-scale assessments that effectively inform water-resources managers and decision-makers as to the magnitude, extent, distribution, and uncertainty of current and anticipated environmental risks. The U.S. Geological Survey is developing and exploring the use of statistical probability models to characterize the relation between ground-water quality and geographic factors in the Mid-Atlantic Region. Available water-quality data obtained from U.S. Geological Survey National Water-Quality Assessment Program studies conducted in the Mid-Atlantic Region were used in association with geographic data (land cover, geology, soils, and others) to develop logistic-regression equations that use explanatory variables to predict the presence of a selected water-quality parameter exceeding specified management concentration thresholds. The resulting logistic-regression equations were transformed to determine the probability,

P(X), of a water-quality parameter exceeding a specified management threshold. Additional statistical procedures modified by the U.S. Geological Survey were used to compare the observed values to model-predicted values at each sample point. In addition, procedures to evaluate the confidence of the model predictions and estimate the uncertainty of the probability value were developed and applied. The resulting logistic-regression models were applied to the Mid-Atlantic Region to predict the spatial probability of nitrate concentrations exceeding specified management thresholds. These thresholds are usually set or established by regulators or managers at national or local levels. At management thresholds of 1 milligram per liter, and 3 milligrams per liter, the probability of nitrate concentrations exceeding these levels is greater than 50 percent (.50) throughout much of the Mid-Atlantic Region. This includes extensive areas throughout central Maryland, southeastern Pennsylvania, northwestern Pennsylvania and the Delmarva Peninsula. In addition, extensive areas in North Carolina and Virginia also have high probabilities of nitrate concentrations in ground water exceeding management thresholds of 1 milligram per liter and 3 milligrams per liter. The mapped areas showing a high predicted probability of nitrate concentrations in ground water exceeding 1 milligram per liter and 3 milligrams per liter correspond to areas that are mapped as cultivated land cover overlying carbonate rocks. At a management threshold of 10 milligrams per liter (corresponding to the U.S. Environmental Protection Agency standard for nitrate in drinking water of 10 milligrams per liter), the predicted probability of nitrate concentrations in ground water exceeding this level are low for most of the Mid-Atlantic Region except for the Delmarva Peninsula, southeastern Pennsylvania, and areas mapped as carbonate rocks in Virginia, Maryland, and Pennsylvania.

Purpose: Ground-water component to regional vulnerability assesment.

Supplemental_Information:

Grid cells reflect results of a regional logistic regression analysis associating geographic variables to ground-water quality. Cell values are the predicted probability of exceeding various thresholds of nitrate concentrations in ground water.

Specific process steps used to develop this raster data set are found in: Greene, E. A., LaMotte, A. E., and Kelly, K. A., in press, GROUND-WATER VULNERABILITY TO NITRATE CONTAMINATION AT MULTIPLE THRESHOLDS IN THE MID-ATLANTIC REGION USING SPATIAL PROBABILITY MODELS: U. S. Geological Survey Scientific Investigations Report 2004-5118.

Time_Period_of_Content:

Time_Period_Information:

Single_Date/Time:

Calendar_Date: 1992

Currentness_Reference: publication date

Status:

Progress: Complete

Maintenance_and_Update_Frequency: None planned

Spatial_Domain:

Bounding_Coordinates:

West_Bounding_Coordinate: -83.841100

East_Bounding_Coordinate: -73.285938

North_Bounding_Coordinate: 43.928836

South_Bounding_Coordinate: 34.345684

Keywords:

Theme:
Theme_Keyword_Thesaurus: None
Theme_Keyword: ReVA
Theme_Keyword: Regional Vulnerability Assessment
Theme_Keyword: nitrate
Theme_Keyword: logistic regression
Theme_Keyword: confidence interval
Theme_Keyword: land use
Theme_Keyword: land cover
Theme_Keyword: soils
Theme_Keyword: manure
Theme_Keyword: geology
Theme_Keyword: lithology
Place:
Place_Keyword_Thesaurus: None
Place_Keyword: region
Place_Keyword: Mid-Atlantic
Access_Constraints: Available upon request
Use_Constraints: Regional analysis only
Point_of_Contact:
Contact_Information:
Contact_Person_Primary:
Contact_Person: Andrew LaMotte
Contact_Organization: U.S. Geological Survey
Contact_Position: Geographer
Contact_Address:
Address_Type: mailing and physical address
Address: 8987 Yellow Brick Road
City: Baltimore
State_or_Province: Maryland
Postal_Code: 21237
Country: USA
Contact_Voice_Telephone: 410-238-4200
Contact_Facsimile_Telephone: 410-238-4210
Contact_Electronic_Mail_Address: alamotte@usgs.gov
Data_Set_Credit:
Please refer to: Greene, E. A., LaMotte, A. E., and Kelly, K. A., in press, GROUND-WATER VULNERABILITY TO NITRATE CONTAMINATION AT MULTIPLE THRESHOLDS IN THE MID-ATLANTIC REGION USING SPATIAL PROBABILITY MODELS: U. S. Geological Survey Scientific Investigations Report 2004-5118.
Security_Information:
Security_Classification: Unclassified
Native_Data_Set_Environment:
Microsoft Windows 2000 Version 5.1 (Build 2600) Service Pack 1; ESRI ArcCatalog 8.3.0.800
Cross_Reference:
Citation_Information:
Originator: U.S. Geological Survey
Publication_Date: 1999
Title: National Land Cover Data set
Edition: 1993

Geospatial_Data_Presentation_Form: raster digital data
Series_Information:
Series_Name: U.S. Geological Survey Digital Data Series
Issue_Identification: DDS
Publication_Information:
Publication_Place: Sioux Falls, SD
Publisher: U.S. Geological Survey
Online_Linkage: <http://edcwww.cr.usgs.gov/programs/lccp/nationallandcover.html>
Cross_Reference:
Citation_Information:
Originator: Schuben, Paul G.
Originator: Arndt, Raymond E.
Originator: Bawiec, Walter J.
Originator: King, Phillip B.
Originator: Beikman, Helen M.
Publication_Date: 1994
Title:
Geology of the Conterminous United States at 1:2,500,000 Scale --A Digital Representation of the 1974 P.B. King and H.M. Beikman Map
Geospatial_Data_Presentation_Form: vector digital data
Series_Information:
Series_Name: U.S. Geological Survey Digital Data Series
Issue_Identification: DDS-11
Publication_Information:
Publication_Place: Reston, VA
Publisher: U.S. Geological Survey
Online_Linkage: <http://pubs.usgs.gov/dds/dds11>
Larger_Work_Citation:
Citation_Information:
Originator: King, Phillip B.
Originator: Beikman, Helen M.
Publication_Date: 1974
Title: Geology of the Conterminous United States at 1:2,500,000 Scale
Geospatial_Data_Presentation_Form: map
Cross_Reference:
Citation_Information:
Originator: Wolock, D.M.
Publication_Date: 1997
Title: STATSGO soil characteristics for the conterminous United States
Geospatial_Data_Presentation_Form: vector digital data
Series_Information:
Series_Name: Open-File Report
Issue_Identification: OFR-656
Publication_Information:
Publication_Place: Reston, VA
Publisher: U.S. Geological Survey
Online_Linkage: <http://water.usgs.gov/lookup/getspatial?muid>
Larger_Work_Citation:
Citation_Information:
Originator: U.S. Department of Agriculture
Publication_Date: 1994

Title: U.S. Department of Agriculture state soil database
Geospatial_Data_Presentation_Form: digital data

Cross_Reference:
Citation_Information:
Originator: U.S. Geological Survey
Publication_Date: 1998
Title:
County-based estimates of nitrogen and phosphorus content of animal manure in the United States for 1992
Geospatial_Data_Presentation_Form: tabular digital data
Series_Information:
Issue_Identification: Edition 1
Publication_Information:
Publication_Place: Reston, VA
Publisher: U.S. Geological Survey
Online_Linkage: <http://water.usgs.gov/lookup/getspatial?manure>
Larger_Work_Citation:
Citation_Information:
Originator: Larry Puckett
Originator: Kerie Hitt
Originator: Richard Alexander
Publication_Date: 1998
Edition: 1
Geospatial_Data_Presentation_Form: tabular digital data

Data_Quality_Information:
Lineage:
Process_Step:
Process_Step:

Spatial_Data_Organization_Information:
Direct_Spatial_Reference_Method: Raster
Raster_Object_Information:
Raster_Object_Type: Grid Cell
Row_Count: 637
Column_Count: 495
Vertical_Count: 1

Spatial_Reference_Information:
Horizontal_Coordinate_System_Definition:
Planar:
Map_Projection:
Map_Projection_Name: Albers Conical Equal Area
Albers_Conical_Equal_Area:
Standard_Parallel: 29.500000

Standard_Parallel: 45.500000
Longitude_of_Central_Meridian: -96.000000
Latitude_of_Projection_Origin: 23.000000
False_Easting: 0.000000
False_Northing: 0.000000
Planar_Coordinate_Information:
Planar_Coordinate_Encoding_Method: row and column
Coordinate_Representation:
Abscissa_Resolution: 1500.000000
Ordinate_Resolution: 1500.000000
Planar_Distance_Units: meters
Geodetic_Model:
Horizontal_Datum_Name: North American Datum of 1983
Ellipsoid_Name: Geodetic Reference System 80
Semi-major_Axis: 6378137.000000
Denominator_of_Flattening_Ratio: 298.257222

Entity_and_Attribute_Information:
Detailed_Description:
Entity_Type:
Entity_Type_Label: pred_1500
Attribute:
Attribute_Label: ObjectID
Attribute_Definition: Internal feature number.
Attribute_Definition_Source: ESRI
Attribute_Domain_Values:
Unrepresentable_Domain:
Sequential unique whole numbers that are automatically generated.
Attribute:
Attribute_Label: Value
Attribute_Definition:
Grid cell identification number. This value is identical to the identification number of a point (site) that represents the grid cell center and is used to relate point attribute data to its related grid cell.
Attribute:
Attribute_Label: Count
Attribute_Definition: Number of grid cells represented by the same value.
Attribute:
Attribute_Label: Cell-id
Attribute_Definition:
Grid cell identification number. This value is identical to the identification number of a point (site) that represents the grid cell center and is used to relate point attribute data to its related grid cell.
Attribute:
Attribute_Label: Pred_1
Attribute_Definition:
Predicted probability of exceeding 1 mg/L of nitrate concentration
Attribute:
Attribute_Label: Upper_1

Attribute_Definition: Upper limit of the 95% confidence interval
Attribute:
Attribute_Label: Pred_2
Attribute_Definition:
Predicted probability of exceeding 2 mg/L of nitrate concentration
Attribute:
Attribute_Label: Upper_2
Attribute_Definition: Upper limit of the 95% confidence interval
Attribute:
Attribute_Label: Pred_3
Attribute_Definition:
Predicted probability of exceeding 3 mg/L of nitrate concentration
Attribute:
Attribute_Label: Upper_3
Attribute_Definition: Upper limit of the 95% confidence interval
Attribute:
Attribute_Label: Pred_4
Attribute_Definition:
Predicted probability of exceeding 4 mg/L of nitrate concentration
Attribute:
Attribute_Label: Upper_4
Attribute_Definition: Upper limit of the 95% confidence interval
Attribute:
Attribute_Label: Pred_5
Attribute_Definition:
Predicted probability of exceeding 5 mg/L of nitrate concentration
Attribute:
Attribute_Label: Upper_5
Attribute_Definition: Upper limit of the 95% confidence interval
Attribute:
Attribute_Label: Pred_6
Attribute_Definition:
Predicted probability of exceeding 6 mg/L of nitrate concentration
Attribute:
Attribute_Label: Upper_6
Attribute_Definition: Upper limit of the 95% confidence interval
Attribute:
Attribute_Label: Pred_7
Attribute_Definition:
Predicted probability of exceeding 7 mg/L of nitrate concentration
Attribute:
Attribute_Label: Upper_7
Attribute_Definition: Upper limit of the 95% confidence interval
Attribute:
Attribute_Label: Pred_8
Attribute_Definition:
Predicted probability of exceeding 8 mg/L of nitrate concentration
Attribute:
Attribute_Label: Upper_8
Attribute_Definition: Upper limit of the 95% confidence interval
Attribute:

Attribute_Label: Pred_9
Attribute_Definition:
Predicted probability of exceeding 9 mg/L of nitrate concentration
Attribute:
Attribute_Label: Upper_9
Attribute_Definition: Upper limit of the 95% confidence interval
Attribute:
Attribute_Label: Pred_10
Attribute_Definition:
Predicted probability of exceeding 10 mg/L of nitrate concentration
Attribute:
Attribute_Label: Upper_10
Attribute_Definition: Upper limit of the 95% confidence interval
Attribute:
Attribute_Label: Flag
Attribute_Definition: Value of 1 represents no data calculated

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Distribution_Information:
Resource_Description: Downloadable Data
Standard_Order_Process:
Digital_Form:
Digital_Transfer_Information:
Transfer_Size: 30.120 MB

Metadata_Reference_Information:
Metadata_Date: 20040830
Metadata_Contact:
Contact_Information:
Contact_Organization_Primary:
Contact_Organization: U.S. Geological Survey
Contact_Person: Andrew LaMotte
Contact_Position: Geographer
Contact_Address:
Address_Type: mailing and physical address
Address: 8987 Yellow Brick Road
City: Baltimore
State_or_Province: Maryland
Postal_Code: 21237
Country: USA
Contact_Voice_Telephone: 410-238-4200
Contact_Facsimile_Telephone: 410-238-4210
Contact_Electronic_Mail_Address: alamotte@usgs.gov
Metadata_Standard_Name: FGDC Content Standards for Digital Geospatial Metadata
Metadata_Standard_Version: FGDC-STD-001-1998
Metadata_Time_Convention: local time
Metadata_Extensions:
Online_Linkage: <http://www.esri.com/metadata/esriprof80.html>

Profile_Name: ESRI Metadata Profile

Generated by mp version 2.7.3 on Mon Aug 30 13:08:23 2004