

Identification_Information:

Citation:

Citation_Information:

Originator: Delaware Geological Survey, University of Delaware

Publication_Date: 2005

Title: Dry_dtw: DGS Digital Product 05-01 Sussex County

Geospatial_Data_Presentation_Form: raster digital data

Series_Information:

Publication_Information:

Publisher: Delaware Geological Survey, University of Delaware

Publication_Place: Newark, Delaware

Online_Linkage: <http://www.dgs.udel.edu/data>

Native_Data_Set_Environment: Microsoft Windows XP Version 5.1 (Build 2600) Service Pack 2; ESRI ArcCatalog 9.1.0.722

Description:

Abstract:

This digital product contains gridded estimates of depth to water (dtw) under dry conditions for Sussex County, Delaware. Files containing the point data used to create the grids are also included. This work is the final component of a larger effort to provide estimates of water-table elevations and depths to water for the Coastal Plain portion of Delaware. Mapping was supported by the Delaware Department of Natural Resources and Environmental Control and the Delaware Geological Survey.

These grids were produced with the same multiple linear regression (MLR) method as Andres and Martin (2005). Briefly, this method consists of: identifying dry, normal, and wet periods from long-term observation well data (Nc45-01, Ng11-01, Qe44-01); estimating a minimum water table (Sepulveda, 2002) by fitting a localized polynomial surface to elevations of surface water features (e.g., streams, swamps, and marshes); and computing a second variable in the regression from water levels observed in wells. A separate MLR equation was determined for dry, normal, and wet periods, and these equations were used in ArcMap v.9 (ESRI, 2004) to estimate grids of water-table elevations and depths to water. Grids produced in this project were merged with those previously completed for eastern Sussex and smoothed to minimize edge effects.

The grids have 30-m horizontal and 1-ft vertical resolutions. In the accompanying digital data, grid world files and ground-water level observation data are in UTM-18N, 1983 projection in meters and elevations are in feet, NAVD 1988. Files are in ESRI, Inc., grid format.

REFERENCES CITED

Andres, A. S., and Martin, M. J., 2005, Estimation of the water-table surface for the Inland Bays watershed, Delaware: Delaware Geological Survey Report of Investigations No. 68, 20p.

ESRI, 2004, ArcMap v. 9, Redlands, California.

Sepulveda, N., 2003, A statistical estimator of the spatial distribution of the water-table altitude: Ground Water, vol. 41, p. 66-71.

Purpose: This work is part of a larger effort to provide estimates of water-table elevations and depths to water for the Coastal Plain portion of Delaware. These maps will be used in risk assessments and for environmental management decision-making.

Time_Period_of_Content:

Currentness_Reference: ground condition

Time_Period_Information:

Single_Date/Time:

Calendar_Date: 2005

Status:

Progress: Complete

Maintenance_and_Update_Frequency: None planned

Spatial_Domain:

Bounding_Coordinates:

West_Bounding_Coordinate: -75.723667

East_Bounding_Coordinate: -75.048122

North_Bounding_Coordinate: 38.962443

South_Bounding_Coordinate: 38.449010

Keywords:

Theme:

Theme_Keyword_Thesaurus: none

Theme_Keyword: inlandWaters

Theme_Keyword: Water Table

Theme_Keyword: groundwater

Theme_Keyword: Delaware Hydrology

Place:

Place_Keyword: Delaware

Place_Keyword: Sussex County

Place_Keyword: Bethany Beach

Place_Keyword: Bethel

Place_Keyword: Blades

Place_Keyword: Bridgeville

Place_Keyword: Dagsboro

Place_Keyword: Delmar

Place_Keyword: Ellendale

Place_Keyword: Fenwick Island

Place_Keyword: Frankford

Place_Keyword: Georgetown

Place_Keyword: Greenwood

Place_Keyword: Henlopen Acres

Place_Keyword: Laurel

Place_Keyword: Lewes

Place_Keyword: Milford

Place_Keyword: Millsboro

Place_Keyword: Millville

Place_Keyword: Milton

Place_Keyword: Ocean View

Place_Keyword: Rehoboth Beach

Place_Keyword: Seaford

Place_Keyword: Selbyville

Place_Keyword: Slaughter Beach

Place_Keyword: South Bethany

Place_Keyword_Thesaurus: USGS GNIS

Access_Constraints: None

Use_Constraints: The Delaware Geological Survey (DGS) is constantly gathering data from multiple sources, interpreting data, and reflecting its interpretations in a variety of data formats. DGS's interpretations are conceptualized in these grids of Depth to Water for Sussex County, DE. The water table is a continuous surface; however, observations of the surface exist at irregularly spaced locations. In this instance, regularly spaced grids of water-table elevations were estimated from site-specific observational data and are the model used to represent the water-table surface. Reasonable efforts have been made by the DGS to verify that the digital data provided hereon accurately interpret the source data used in its preparation. These are estimated surfaces and they may be inappropriate for some applications. Detailed site-specific investigation may be required for evaluating individual sites. Persons wishing to apply the data in these grids to more detailed scales are encouraged to contact the DGS office for advisement. Nothing contained herein shall be deemed an expressed or implied waiver of the sovereign immunity of the State of Delaware or its duly authorized representatives, agents, or employees.

Point_of_Contact:

Contact_Information:

Contact_Organization_Primary:

Contact_Organization: Delaware Geological Survey

Contact_Person: Digital Data Coordinator

Contact_Voice_Telephone: 302-831-2833

Contact_Facsimile_Telephone: 302-831-3579

Contact_Electronic_Mail_Address: DelGeoSurvey@udel.edu

Contact_Address:

Address_Type: mailing and physical address

City: Newark

State_or_Province: Delaware

Postal_Code: 19716-7501

Country: USA

Address: Delaware Geological Survey, University of Delaware

Address: 257 Academy Street

Contact_Position: Digital Data Coordinator

Hours_of_Service: Mon - Fri; 8:00am to 4:30pm EST

Data_Set_Credit: Matthew J. Martin and A. Scott Andres

Data_Quality_Information:

Lineage:

Source_Information:

Positional_Accuracy:

Vertical_Positional_Accuracy:

Quantitative_Vertical_Positional_Accuracy_Assessment:

Vertical_Positional_Accuracy_Value: 0.5 foot

Vertical_Positional_Accuracy_Explanation: The raster grid cell has a 1-foot vertical resolution.

Horizontal_Positional_Accuracy:

Quantitative_Horizontal_Positional_Accuracy_Assessment:

Horizontal_Positional_Accuracy_Explanation: 30-meter resolution based on the grid cell.

Metadata_Reference_Information:

Metadata_Standard_Name: FGDC Content Standards for Digital Geospatial Metadata

Metadata_Standard_Version: FGDC-STD-001-1998

Metadata_Time_Convention: local time
Metadata_Contact:
 Contact_Information:
 Contact_Address:
 Address_Type: mailing and physical address
 City: Newark
 State_or_Province: Delaware
 Postal_Code: 19716-7501
 Country: USA
 Address: Delaware Geological Survey, University of Delaware
 Address: University of Delaware
 Contact_Voice_Telephone: 302-831-2833
 Contact_Facsimile_Telephone: 302-831-3579
 Contact_Organization_Primary:
 Contact_Organization: Delaware Geological Survey, University of Delaware
Delaware
 Contact_Person: Digital Data Coordinator
 Contact_Position: Digital Data Coordinator
 Contact_Electronic_Mail_Address: DelGeoSurvey@udel.edu
 Hours_of_Service: Mon - Fri; 8:00am to 4:30pm EST
Metadata_Date: 20101215
Metadata_Extensions:
 Online_Linkage: <http://www.esri.com/metadata/esriprof80.html>
 Profile_Name: ESRI Metadata Profile
Distribution_Information:
 Resource_Description: Downloadable Data
 Standard_Order_Process:
 Digital_Form:
 Digital_Transfer_Information:
 Transfer_Size: 1.805
Distributor:
 Contact_Information:
 Contact_Address:
 Address_Type: mailing and physical address
 City: Newark
 State_or_Province: Delaware
 Postal_Code: 19716-7501
 Country: USA
 Address: Delaware Geological Survey, University of Delaware
 Address: University of Delaware
 Contact_Organization_Primary:
 Contact_Organization: Delaware Geological Survey, University of Delaware
Delaware
 Contact_Person: Digital Data Coordinator
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 Contact_Facsimile_Telephone: 302-831-3579
 Contact_Electronic_Mail_Address: DelGeoSurvey@udel.edu
 Contact_Position: Digital Data Coordinator
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 Distribution_Liability: The Delaware Geological Survey (DGS) is constantly gathering data from multiple sources, interpreting data, and reflecting its interpretations in a variety of data formats. DGS's interpretations are conceptualized in these grids of Depth to Water for Sussex County, DE. The water table is a continuous surface; however,

observations of the surface exist at irregularly spaced locations. In this instance, regularly spaced grids of water-table elevations were estimated from site-specific observational data and are the model used to represent the water-table surface. Reasonable efforts have been made by the DGS to verify that the digital data provided hereon accurately interpret the source data used in its preparation. These are estimated surfaces and they may be inappropriate for some applications. Detailed site-specific investigation may be required for evaluating individual sites. Persons wishing to apply the data in these grids to more detailed scales are encouraged to contact the DGS office for advisement. Nothing contained herein shall be deemed an expressed or implied waiver of the sovereign immunity of the State of Delaware or its duly authorized representatives, agents, or employees.

Spatial_Data_Organization_Information:

Direct_Spatial_Reference_Method: Raster

Raster_Object_Information:

Raster_Object_Type: Grid Cell

Row_Count: 1891

Column_Count: 1950

Vertical_Count: 1

Spatial_Reference_Information:

Horizontal_Coordinate_System_Definition:

Planar:

Planar_Coordinate_Information:

Planar_Coordinate_Encoding_Method: row and column

Planar_Distance_Units: meters

Coordinate_Representation:

Abscissa_Resolution: 30.000000

Ordinate_Resolution: 30.000000

Grid_Coordinate_System:

Grid_Coordinate_System_Name: Universal Transverse Mercator

Universal_Transverse_Mercator:

UTM_Zone_Number: 18

Transverse_Mercator:

Scale_Factor_at_Central_Meridian: 0.999600

Longitude_of_Central_Meridian: -75.000000

Latitude_of_Projection_Origin: 0.000000

False_Easting: 500000.000000

False_Northing: 0.000000

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

Vertical_Coordinate_System_Definition:

Altitude_System_Definition:

Altitude_Datum_Name: North American Vertical Datum of 1988

Altitude_Distance_Units: feet

Depth_System_Definition:

Depth_Datum_Name: Local surface

Depth_Resolution: 1-foot resolution

Depth_Distance_Units: feet

Entity_and_Attribute_Information:

Detailed_Description:

Entity_Type:
Entity_Type_Label: dry_dtw
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: Depth to water in feet below land surface.
Attribute:
Attribute_Label: Count
Attribute_Definition: This refers to the total number of grid cells within the raster grid that have a particular "value" (see above).
Overview_Description: