

Metadata:

Identification_Information:

Citation:

Citation_Information:

Originator: Schruben, Paul G.

Originator: Arndt, Raymond E.

Originator: Bawiec, Walter J.

Originator: King, Philip 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: Map

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://minerals.er.usgs.gov/kb/>>

Description:

Abstract:

This CD-ROM contains a digital version of the Geologic Map of the United States, originally published at a scale of 1:2,500,000 (King and Beikman, 1974b). It excludes Alaska and Hawaii. In addition to the graphical formats, the map key is included in ASCII text.

A geographic information system (GIS) allows combining and overlaying of layers for analysis of spatial relations not readily apparent in the standard paper publication. This disc contains only geology. However, digital data on geology, geophysics, and geochemistry can be combined to create useful derivative products--for example, see Phillips and others (1993).

This CD-ROM contains a copy of the text and figures from Professional Paper 901 by King and Beikman (1974a). This text describes the historical background of the map, details of the compilation process, and limitations to interpretation. The digital version of the text can be searched for keywords or phrases.

Purpose:

Conversion of the geologic map of the U.S. to a digital format was undertaken to facilitate the presentation and analysis of earth-science data. Digital maps can be displayed at any scale or projection, whereas a paper map has a fixed scale and projection. However, the geology on this disc is not intended to be used at any scale finer than 1:2,500,000.

Supplemental_Information:

For DOS users, the CD-ROM contains menu-driven analytical software, in which the user selects from an array of topics. The CD-ROM also contains MAPPER display software, a user-friendly package that displays the interactive vector map. The raster image of the geologic map can be displayed with VIEWLBL.

For other types of computer users, the map must be converted from one of the following formats included on the CD-ROM:

ARC/INFO 6.1.1 Export
 Digital Line Graph (DLG) Optional
 Drawing Exchange File (DXF)
 Map Overlay Statistical System (MOSS)
 Time_Period_of_Content:
 Time_Period_Information:
 Multiple_Dates/Times:
 Single_Date/Time:
 Calendar_Date: 1974
 Single_Date/Time:
 Calendar_Date: 1994
 Currentness_Reference: Publication date of the original work (1974) and
 the CD-ROM (1994)
 Status:
 Progress: complete
 Maintenance_and_Update_Frequency: not planned
 Spatial_Domain:
 Bounding_Coordinates:
 West_Bounding_Coordinate: -162.0
 East_Bounding_Coordinate: -66.0
 North_Bounding_Coordinate: 60.0
 South_Bounding_Coordinate: 24.0
 Keywords:
 Theme:
 Theme_Keyword_Thesaurus: None
 Theme_Keyword: Geology
 Theme_Keyword: Bedrock
 Place:
 Place_Keyword_Thesaurus: None
 Place_Keyword: Conterminous United States
 Theme:
 Theme_Keyword_Thesaurus: National Geologic Map Database Catalog themes,
 augmented
 Theme_Keyword: 1100 - Geology
 Theme_Keyword: 1101 - General
 Place:
 Place_Keyword_Thesaurus: Augmented FIPS 10-4 and FIPS 6-4, version 1.0
 Place_Keyword: US01 = Alabama
 Place_Keyword: US04 = Arizona
 Place_Keyword: US05 = Arkansas
 Place_Keyword: US06 = California
 Place_Keyword: US08 = Colorado
 Place_Keyword: US09 = Connecticut
 Place_Keyword: US10 = Delaware
 Place_Keyword: US11 = District of Columbia
 Place_Keyword: US12 = Florida
 Place_Keyword: US13 = Georgia
 Place_Keyword: US16 = Idaho
 Place_Keyword: US17 = Illinois
 Place_Keyword: US18 = Indiana
 Place_Keyword: US19 = Iowa
 Place_Keyword: US20 = Kansas
 Place_Keyword: US21 = Kentucky
 Place_Keyword: US22 = Louisiana
 Place_Keyword: US23 = Maine
 Place_Keyword: US24 = Maryland
 Place_Keyword: US25 = Massachusetts

Place_Keyword: US26 = Michigan
Place_Keyword: US27 = Minnesota
Place_Keyword: US28 = Mississippi
Place_Keyword: US29 = Missouri
Place_Keyword: US30 = Montana
Place_Keyword: US31 = Nebraska
Place_Keyword: US32 = Nevada
Place_Keyword: US33 = New Hampshire
Place_Keyword: US34 = New Jersey
Place_Keyword: US35 = New Mexico
Place_Keyword: US36 = New York
Place_Keyword: US37 = North Carolina
Place_Keyword: US38 = North Dakota
Place_Keyword: US39 = Ohio
Place_Keyword: US40 = Oklahoma
Place_Keyword: US41 = Oregon
Place_Keyword: US42 = Pennsylvania
Place_Keyword: US44 = Rhode Island
Place_Keyword: US45 = South Carolina
Place_Keyword: US46 = South Dakota
Place_Keyword: US47 = Tennessee
Place_Keyword: US48 = Texas
Place_Keyword: US49 = Utah
Place_Keyword: US50 = Vermont
Place_Keyword: US51 = Virginia
Place_Keyword: US53 = Washington
Place_Keyword: US54 = West Virginia
Place_Keyword: US55 = Wisconsin

Theme:

Theme_Keyword_Thesaurus: Gateway to the Earth (USGS) draft 6
Theme_Keyword: geology
Theme_Keyword: geologic maps
Theme_Keyword: lithostratigraphy
Theme_Keyword: faults
Theme_Keyword: folds (geologic)

Access_Constraints: none

Use_Constraints: none

Point_of_Contact:

Contact_Information:

Contact_Person_Primary:

Contact_Person: Schruben, Paul G.

Contact_Organization: Minerals Information Office

Contact_Address:

Address_Type: mailing address

Address:

Mail Stop 920, National Center

U.S. Geological Survey

12201 Sunrise Valley Drive

City: Reston

State_or_Province: VA

Postal_Code: 20192

Contact_Voice_Telephone: (703) 648-6142

Contact_Facsimile_Telephone: (703) 648-6057

Contact_Electronic_Mail_Address: pschruben@usgs.gov

Browse_Graphic:

Browse_Graphic_File_Name: <<http://minerals.er.usgs.gov:80/kb/kb.gif>>

Browse_Graphic_File_Description: Bedrock geologic map units of the conterminous United States

Browse_Graphic_File_Type: GIF

Native_Data_Set_Environment:

Data General AViiON 6220 computer system running the DG/UX version of UNIX.

Cross_Reference:

Citation_Information:

Originator: King, Philip B.

Originator: Beikman, Helen M.

Publication_Date: 1974

Title: Explanatory text to accompany the geologic map of the United States

Series_Information:

Series_Name: U.S. Geological Survey Professional Paper

Issue_Identification: 901

Publication_Information:

Publication_Place: Reston, VA

Publisher: U.S. Geological Survey

Data_Quality_Information:

Attribute_Accuracy:

Attribute_Accuracy_Report:

The linework was captured by hand digitizing as well as scanning from the paper map and negatives. The digital map was assembled and edited

in

ARC/INFO on a State-by-State basis, which caused some edge-matching problems. The final mosaic was adjusted several times to correct for registration problems. The coastline was taken from the 1:2,000,000

scale

Digital Line Graph data (U.S. Geological Survey, 1987), generalized to 1 km.

Construction of a geologic map of an area as large and complex as the conterminous United States requires a great deal of generalization:

geologic

units shown on larger scale maps are combined into broader map units and their contacts are simplified to produce a pattern that is legible at

the

scale of publication. The process of generalization used in the

compilation

of the Geologic Map of the United States is described in King and

Beikman

(1974a, p. 20).

Furthermore, the Geologic Map of the United States is primarily a bedrock

map, which depicts geologic materials present beneath the soil or relatively

thin mantles of surficial deposits, not necessarily the surficial materials

themselves. For example, the map does not depict the glacial deposits

in

the northern States, the widespread eolian deposits in the High Plains,

and

the high-level gravels that mantle older Tertiary and pre-Tertiary units

in

much of the Atlantic and Gulf Coastal Plains.

Logical_Conistency_Report:

The coverages on this disc for the digital geologic map of the conterminous United States differ in several ways from the published map. The county outlines, cities, drainage, and other base-map information are not present on the digital version except as overlays in MAPPER. Only the larger water bodies are included.

The larger geology polygons are split into several smaller polygons to avoid problems with color and pattern fill on screen plots and paper plotters. The maximum polygon size is 1476 vertices, which is PostScript compatible.

The rock-unit names are stored in uppercase letters as well as the published mixed case. For instance:

```
> TMC    Tmc
> TMOE   Tmoe
> UTA    uTa
```

The uppercase names are used in the coverage because an INFO sort in ARC/INFO is case sensitive. The lookup tables must be sorted to work correctly. The mixed-case rock-unit names are in the kbcolor.lut lookup table. Longer rock-unit descriptions such as:

```
> Cretaceous granitic rocks
> Washita Group
```

are in the ROCKDESC column of the .pat file of the KBLEG coverage. Some of the unit names have been modified to avoid ambiguity.

The Pennsylvanian symbol is stored as PP in:

```
> PP
> PP1
> PP1a
> PP2
> PP3
> PP4
```

The Triassic symbol is stored as Tr in:

```
> JTr
> Tr
> TrPe
> Trv
> Tri
> Trg
```

The Cambrian symbol is stored as C in:

```
> C
> Cq
> OC
> Ce
> Cv
> Cg
```

> m1 is replaced with mm1 to avoid confusion with M1
> m2 is replaced with mm2 to avoid confusion with M2
> m3 is replaced with mm3 to avoid confusion with M3
> m4 is replaced with mm4 for consistency

The extent of glaciation appears in the legend but is not present in the coverage.

Completeness_Report:

The map does not include coverage of Alaska, Hawaii, or territories.

The Geologic Map of the United States is primarily a bedrock map, which depicts geologic materials present beneath the soil or relatively thin mantles of surficial deposits, not necessarily the surficial materials themselves. For example, the map does not depict the glacial deposits in the northern States, the widespread eolian deposits in the High Plains, and the high-level gravels that mantle older Tertiary and pre-Tertiary units in much of the Atlantic and Gulf Coastal Plains.

Positional_Accuracy:

Horizontal_Positional_Accuracy:

Horizontal_Positional_Accuracy_Report:

The users of the geologic map on this disc should respect the intentions of the compilers of the map and some of its limitations. The Geologic Map of the United States (King and Beikman, 1974b) is intended to be used at a scale of 1:2,500,000; it is not intended to be used at a more detailed scale. For instance, Colorado is about 10 inches wide at the published scale of the King and Beikman map.

Lineage:

Source_Information:

Source_Citation:

Citation_Information:

Originator: Philip B. King

Originator: Helen M. Beikman

Publication_Date: 1974

Title: Explanatory text to accompany the geologic map of the United States

Series_Information:

Series_Name: U.S. Geological Survey Professional Paper

Issue_Identification: 901

Publication_Information:

Publication_Place: Reston, VA

Publisher: U.S. Geological Survey

Other_Citation_Details: Library of Congress catalog - card No. 74-600169

Source_Scale_Denominator: 2500000

Type_of_Source_Media: Paper

Source_Time_Period_of_Content:

Time_Period_Information:

Single_Date/Time:

Calendar_Date: 1974

Source_Currentness_Reference: Publication date

Source_Citation_Abbreviation: King and Beikman (1974)
Source_Contribution: Data presented on USGS DDS-11 were produced by scanning this printed map.

Process_Step:
Process_Description:
The linework was captured by hand digitizing as well as scanning from the paper map and negatives. The digital map was assembled and edited in ARC/INFO on a State-by-State basis, which caused some edge-matching problems. The final mosaic was adjusted several times to correct for registration problems. The coastline was taken from the 1:2,000,000 scale Digital Line Graph data (U.S. Geological Survey, 1987), generalized to 1 km.

The ARC/INFO version of the Geologic Map of the United States consists of three coverages:

- 1) geology - 12,800 polygons
- 2) faults - 3 fault types and hidden contacts
- 3) legend - 164 rock units

The fault coverage has four line types:

- 1) faults
- 2) dashed faults
- 3) dotted faults
- 4) hidden contacts

The DESC field descriptors are FAULT, DASH, DOT, CONTAC, respectively.

Source_Used_Citation_Abbreviation: King and Beikman (1974)
Process_Date: 1993

Spatial_Data_Organization_Information:
Direct_Spatial_Reference_Method: Vector

Point_and_Vector_Object_Information:
SDTS_Terms_Description:
SDTS_Point_and_Vector_Object_Type: Point
Point_and_Vector_Object_Count: 21465

SDTS_Terms_Description:
SDTS_Point_and_Vector_Object_Type: Complete chain
Point_and_Vector_Object_Count: 29972

SDTS_Terms_Description:
SDTS_Point_and_Vector_Object_Type: GT-polygon composed of chains
Point_and_Vector_Object_Count: 12860

Spatial_Reference_Information:
Horizontal_Coordinate_System_Definition:
Planar:
Map_Projection:
Map_Projection_Name: Albers Conical Equal Area
Albers_Conical_Equal_Area:
Standard_Parallel: 29.50
Standard_Parallel: 45.50
Longitude_of_Central_Meridian: -96.0
Latitude_of_Projection_Origin: 23.0
False_Easting: 0.0
False_Northing: 0.0

Planar_Coordinate_Information:

```

Planar_Coordinate_Encoding_Method: coordinate pair
Coordinate_Representation:
  Abscissa_Resolution: 1000
  Ordinate_Resolution: 1000
Planar_Distance_Units: meters
Geodetic_Model:
  Horizontal_Datum_Name: NAD27
  Ellipsoid_Name: Clarke 1866
  Semi-major_Axis: 6378
  Denominator_of_Flattening_Ratio: 295
Entity_and_Attribute_Information:
  Detailed_Description:
    Entity_Type:
      Entity_Type_Label: Geologic unit
      Entity_Type_Definition:
        Bedrock formations that are, wherever possible, time-stratigraphic--
that
        is, units which are approximately the same geologic ages at all
places,
        such as systems, series, and stages.
      Entity_Type_Definition_Source: U.S. Geological Survey Professional Paper
901
    Detailed_Description:
      Entity_Type:
        Entity_Type_Label: Fault
        Entity_Type_Definition:
          Faults are shown not only to explain offsets of map units, but for
their own
          sake, to express the structural grain of the area. The density of
faults
          represented on the geologic map thus equals that which would appear on
a
          tectonic map of the country, but they are marked simply as faults, not
as
          low-angle or high- angle thrust faults, normal faults, or strike-slip
faults;
          for this information the user should consult the appro- priate
tectonic map.
      Entity_Type_Definition_Source: U.S. Geological Survey Professional Paper
901
    Overview_Description:
      Entity_and_Attribute_Overview:
        Labels of the mapped units described by polygons in the data
        set are as follows:

        C, cat, Ce, Cg, Cq, Cv, D, D1, D2, D2c, D3, D3c, De, dike, DS, DSe, DSv, Dv, J,
        Jc, Jg, Jmi, JTr, Kc, Ke, Kg, Kg1, Kg2, Kg3, Kgn, Ki, Kv, lK, lK1, lK2, lK3,
        lMz, lMze, lMzv, lPz, lPze, lTa, lTf, lTv, M, M1, M2, M3, mm1, mm2, mm3, mm4,
        Ms, O, O1, O1a, O1b, O2, O3, OC, Oe, Ov, P, P1, P1c, P2, P2a, P2ac, P2b, P3, P3a,
        P3b, P4, Pe, PP, PP1, PP1a, PP2, PP3, PP4, Pza, Pzg1, Pzg2, Pzg3, Pzmi, Q,
        Qf, Qh, Qp, Qv, S, S1, S2, S3, Se, SOe, Sv, Ta, Te, Tel, Te2, Te3, Teb, Tec, Tee,
        Tel, Ti, Tm, Tmc, Tmf, Tmoe, Tmv, To, Toc, Toee, Tp, Tpc, Tpf, Tpv, Tr, Trg,
        Tri, TrPe, Trv, Tx, Txc, uK, uK1, uK2, uK3, uK3a, uK3b, uK4, uM, uMze, uPz,
        uPzc, uPze, uTa, W, Wg, Wgn, Wmi, WTER, Wv, X, Xg, Xm, Xv, Y, Y1, Y2, Y3, Ya,
        Yg1, Yg2, Ygn, Ym, Ymi, Ys, Yv, Z, Zg, Zv

        Each line object in the fault coverage has one of four attribute

```


values:

- 1) faults (label FAULT)
- 2) dashed fault (label DASH)
- 3) dotted fault (label DOT)
- 4) hidden contact (label CONTAC)

Full details of the meanings of the attributes are given in USGS Professional Paper 901, whose text is provided with this data set.

Entity_and_Attribute_Detail_Citation:

U.S. Geological Survey Professional Paper 901 is included with this data set (when distributed in CD-ROM format) in ASCII, with figures in TIFF.

Distribution_Information:

Distributor:

Contact_Information:

Contact_Organization_Primary:

Contact_Organization: U.S. Geological Survey Information Services

Contact_Address:

Address_Type: mailing address

Address: Box 25286, Denver Federal Center

City: Denver

State_or_Province: CO

Postal_Code: 80225-0286

Contact_Voice_Telephone: 1-888-ASK-USGS

Contact_Facsimile_Telephone: 1-303-202-4693

Resource_Description: USGS DDS-11

Distribution_Liability:

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Graphical map depictions on this disc are intended to be used within the map scale limits applicable to the source data. Although software enables the user to show images on the disc at various scales, the user is cautioned to refer to the source documentation for the appropriate map scale limitations.

Standard_Order_Process:

Digital_Form:

Digital_Transfer_Information:
Format_Name: ARCE
Format_Information_Content:
Geological bedrock units and faults, also state outlines including coastlines (from 1:2,000,000-scale DLG of USGS).
Transfer_Size: 17 Mb
Digital_Transfer_Option:
Offline_Option:
Offline_Media: CD-ROM
Recording_Format: ISO-9660
Digital_Form:
Digital_Transfer_Information:
Format_Name: Digital Line Graph Optional format
Format_Version_Number: DLG-3
Format_Information_Content: Geological bedrock units and faults
Transfer_Size: 25 Mb
Digital_Transfer_Option:
Offline_Option:
Offline_Media: CD-ROM
Recording_Format: ISO-9660
Digital_Form:
Digital_Transfer_Information:
Format_Name: Drawing Exchange File (DXF)
Format_Information_Content: Geological bedrock units and faults
Transfer_Size: 20 Mb
Digital_Transfer_Option:
Offline_Option:
Offline_Media: CD-ROM
Recording_Format: ISO-9660
Digital_Form:
Digital_Transfer_Information:
Format_Name: Map Overlay Statistical System (MOSS)
Format_Information_Content: Geological bedrock units and faults
Transfer_Size: 17 Mb
Digital_Transfer_Option:
Offline_Option:
Offline_Media: CD-ROM
Recording_Format: ISO-9660
Fees: See <http://mapping.usgs.gov/esic/prices/index.html>
Technical_Prerequisites:
Geographic data included in DDS-11 are intended for use in a Geographic Information System (GIS).

This CD-ROM was produced in accordance with the ISO 9660 standard and thus allows access to the map data files and MAPPER by computers with ISO 9660 software drivers.

In addition, the disc contains menu and display programs that operate on DOS-compatible computers with the following configuration:

- > IBM or compatible personal computer
- > 640 kb RAM (at least 540 kb free memory)
- > Math coprocessor
- > MS- or PC-DOS version 5.0 or later
- > Microsoft MSCDEX version 2.1 or later
- > CD-ROM drive with ISO 9660 software driver
- > Hard disk drive (5 Mb free)

- > Super VGA graphics card (640x480 pixels with 256 colors)
- > VGA color monitor
- > Mouse

Distribution_Information:

Distributor:

Contact_Information:

Contact_Organization_Primary:

Contact_Organization: USGS Mineral Resource Surveys Program

Contact_Person: Paul G. Schruben

Contact_Address:

Address_Type: mailing address

Address:

Mail Stop 920, National Center

U.S. Geological Survey

12201 Sunrise Valley Drive

City: Reston

State_or_Province: VA

Postal_Code: 20192

Contact_Voice_Telephone: 703-648-6142

Contact_Facsimile_Telephone: 703-648-6057

Contact_Electronic_Mail_Address: pschruben@usgs.gov

Distribution_Liability:

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Graphical map depictions on this disc are intended to be used within the map scale limits applicable to the source data. Although software enables the user to show images on the disc at various scales, the user is cautioned to refer to the source documentation for the appropriate map scale limitations.

Standard_Order_Process:

Digital_Form:

Digital_Transfer_Information:

Format_Name: ARCE in UNIX tar file

Format_Version_Number: 7.1.1

Format_Information_Content: Geology and fault coverages

File-Decompression_Technique: tar xvfo kbexport.tar

Transfer_Size: 35

Digital_Transfer_Option:
Online_Option:
Computer_Contact_Information:
Network_Address:
Network_Resource_Name:
<<http://minerals.er.usgs.gov/kb/kbexport.tar>>
Online_Computer_and_Operating_System: Data General AViiON running
DG/UX 5.4R3.10
Digital_Form:
Digital_Transfer_Information:
Format_Name: ARC/INFO coverages in a UNIX tar file
Format_Version_Number: 7.1.1
Format_Information_Content: Bedrock map unit and fault coverages
File-Decompression_Technique: tar xvfo kb.tar
Transfer_Size: 24
Digital_Transfer_Option:
Online_Option:
Computer_Contact_Information:
Network_Address:
Network_Resource_Name: <<http://minerals.er.usgs.gov/kb/kb.tar>>
Online_Computer_and_Operating_System: Data General AViiON running
DG/UX 5.4R3.10
Fees: none
Metadata_Reference_Information:
Metadata_Date: 19990407
Metadata_Contact:
Contact_Information:
Contact_Person_Primary:
Contact_Person: Peter N. Schweitzer
Contact_Address:
Address_Type: mailing address
Address:
Mail Stop 918 National Center
U.S. Geological Survey
12201 Sunrise Valley Drive
City: Reston
State_or_Province: VA
Postal_Code: 20192
Country: USA
Contact_Voice_Telephone: (703) 648-6533
Contact_Facsimile_Telephone: (703) 648-6560
Contact_Electronic_Mail_Address: pschweitzer@usgs.gov
Metadata_Standard_Name: FGDC Content Standards for Digital Geospatial
Metadata
Metadata_Standard_Version: FGDC-STD-001-1998