U.S. Department of the Interior
U.S. Geological Survey

U.S. Geological Survey Open-File Report 97-470-L

Map Showing Geology, Oil and Gas Fields, and Geologic Provinces of the Gulf of Mexico Region

Digitally Compiled by Christopher D. French and Christopher J. Schenk

Lambert Conformal Conic Projection
Central Meridian: -90.0
Standard Parallel 1: 28.0
Standard Parallel 2: 22.0
Latitude of Origin: 25.0
Datum: WGS 1984

Explanation

Sedimentary Rocks

- Quaternary [Q]
- Quaternary and Tertiary marine limestone, sandstone, and shale [QT]
- Quaternary and Tertiary continental deposits [QTc]
- Pliocene [Tpl, Tp]
- Miocene [Tm]
- Oligocene [To] (Post-Eocene marine strata - Caribbean [uT])
- Eocene [Te] (Tertiary - U.S. [Te])
- Paleocene [Tpal, Tx] (Eocene and (or) Paleocene - Caribbean [lT])
- Upper Cenozoic clastic rocks [Cuc]
- Lower Cenozoic continental strata [Clc] (Tertiary continental - U.S. and Caribbean [Tc])
- Tertiary and Cretaceous marine strata [TK]
- Tertiary and Cretaceous continental strata [TKc]
- Cretaceous - undifferentiated [K]
- Upper Cretaceous [Ku, uK]
- Mid-Cretaceous [Km]
- Lower Cretaceous [Kl, lK]
- Jurassic [J]
- Triassic [Tr]
- Triassic and Jurassic [TrJ, JTr]
- Mesozoic [Mz]
- Permian [P1]
- Upper Paleozoic [Pzu, PP]
- Paleozoic - undifferentiated [Pz, M]
- Lower Paleozoic [Pzl, O]
- Precambrian [pC]

Volcanic Rocks

- Quaternary volcanic edifices, flows, and pyroclastic deposits [Qv]
- Quaternary pumice fills and pyroclastic mantles [Qvi]
- Upper Cenozoic volcanic rocks [Cuv] (Tertiary volcanic - U.S. and Caribbean [Tmv, Tv])
- Middle Cenozoic volcanic rocks [Cmv] (lower Tertiary volcanic - U.S.[lTv])
- Tertiary and Cretaceous volcanic rocks [TKv]
- Cretaceous volcanic rocks [Kv]
- Cretaceous andesitic to silicic volcanic rocks [Kva]
- Paleozoic volcanic rocks - Caribbean [Pzv])

Intrusive Rocks

- Lower Cenozoic intrusive rocks [Cli] (Tertiary intrusive rocks - U.S. [Ti], Tertiary plutons - Caribbean [Ti])
- Tertiary and Cretaceous plutons, mostly intermediate to silicic [TKi]
- Cretaceous Intrusive [Ki] (Cretaceous plutons - Caribbean [Ki])
- Mesozoic intrusive rocks [Mzi]
- Paleozoic intrusive rocks [Pzi] (Paleozoic mafic intrusive - U.S. [Pzmi], Paleozoic plutons - Caribbean [Pzi])
- Paleozoic granitic rocks [Pzg1]

Other Symbols

- Oil Field
- Gas Field
- City
- Country boundary
- Geologic province

Bathymetry

Depth in meters below sea level

1 — 6,800

Metamorphic Rocks

- Tertiary and Cretaceous complex of deformed sedimentary rocks [TKx]
- Mesozoic and Paleozoic metasedimentary and metaigneous rocks [MzPzm]
- Mesozoic amphibolites and associated metasedimentary rocks [Mzb]
- Mesozoic metavolcanic and associated metasedimentary rocks [Mzg]
- Mesozoic metamorphic rocks [Mzm]
- Paleozoic metamorphic rocks [Pzm] (Paleozoic and Precambrian metamorphic rocks - Caribbean [Pzm])
- Precambrian metamorphic rocks [pCm]

Rocks of Unknown Age

- Sedimentary rocks [Z]
- Granitic rocks [Yg2]
- Intrusive rocks, undivided, mostly intermediate to silicic [i]
- Metamorphic rocks [Ygn]
- Ultramafic rocks [um, u]
- Gabbro and related rocks [g]
- Undetermined [Und]

- Water [W]

Labels

Geologic Province Name & Number
COUNTRY
State
City
Geologic Symbol
Undersea Feature

This map was created as part of a worldwide series of geologic maps for the U.S. Geological Survey's World Energy Project, available on CD-ROM and through the Internet. The goal of the project is to assess the undiscovered, technically recoverable oil and gas resources of the world. Geologic provinces were created for ranking purposes in the World Petroleum Assessment 2000 (U.S. Geological Survey World Energy Assessment Team, 2000). A modified subset of these provinces are shown on the map, based on new bathymetric data and geologic knowledge. Geologic province boundaries are not intended to be taken for country boundaries or exclusive economic zone (EEZ) boundaries. The USGS World Petroleum Assessment 2000 - Description and Results can be found online at: http://pubs.usgs.gov/dds/dds-060. Oil and gas fields are represented by a single geographic point in the center of the field and displays field type (oil or gas) only. The map includes three surface geology datasets, which were modified for display purposes.

Additional information regarding the map compilation and data can be found on the CD-ROM for USGS Open-File Report 97-470-L, also available online at: http://pubs.usgs.gov/of/1997/ofr-97-470/OF97-470L/

Several software packages were used to generate this map, including: Environmental Systems Research Institute, Inc. (ESRI) ArcGIS 8.3, ArcInfo, Adobe Photoshop CS, Illustrator CS, and Acrobat 6.0.

Data Sources

French, C.D., and Schenk, C.J., 2004, Map showing geology, oil and gas fields, and geologic provinces of the Caribbean Region: U.S. Geological Survey Open-File Report 97-470-K, 1 map. [CD-ROM]. [on-line] available at: **http://pubs.usgs.gov/of/1997/ofr-97-470/OF97-470K/**

Instituto Nacional de Estadística Geografía e Informática, Natural Resources Canada, and the U.S. Geological Survey, 2004, North American Atlas - Political Boundaries.

IOC, IHO, and BODC, 2003 , "Centenary Edition of the GEBCO Digital Atlas", published on CD-ROM on behalf of the Intergovernmental Oceanographic Commission and the International Hydrographic Organization as part of the General Bathymetric Chart of the Oceans; British Oceanographic Data Centre, Liverpool.

Klett, T.R., Ahlbrandt, T.S., Schmoker, J.W., and Dolton, G.L., 1997, Ranking of the world's oil and gas provinces by known petroleum volumes: U.S. Geological Survey Open-File Report 97-463, 10 p. [CD-ROM]. [on-line] available at: **http://pubs.usgs.gov/of/1997/ofr-97-463/**

NRG Associates, 2001, [includes data current as of 1999], The significant oil and gas fields of the United States: Colorado Springs, Colorado, NRG Associates, Inc.; database available from NRG Associates, Inc.; P.O. Box 1655, Colorado Springs, CO 80901, U.S.A.

Petroconsultants International Data Corp. 2002, Petroleum exploration and production database: Petroconsultants International Data Corp.

Ramos, E.L., and Mejorada, S.H.S., 1976, Carta Geologica de la Republica Mexicana: Instituto de Geologia U.N.A.M., Ciudad Universitaria, scale 1:2,000,000.

Schruben, P., Arndt, R., and Bawiec, W., 1994, Geologic units 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: U.S. Geological Survey Digital Data Series DDS-11. [on-line] available at: **http://pubs.usgs.gov/dds/dds11/**

Note: Variation exists among attributes of the three geologic datasets used in this compilation, therefore traditional age symbols have not been placed in the corresponding symbols in this explanation. Attribute name variations and their general location are found in parentheses next to the color symbol.

Separate datasets were used for the United States, Caribbean, and Mexico. Attributes and original geometry were maintained for this compilation.

Reference

U.S. Geological Survey World Energy Assessment Team, 2000, U.S. Geological Survey World Petroleum Assessment 2000: U.S. Geological Survey Digital Data Series DDS 60, 4 CD-ROMs. [on-line] available at: **http://pubs.usgs.gov/dds/dds-060/**