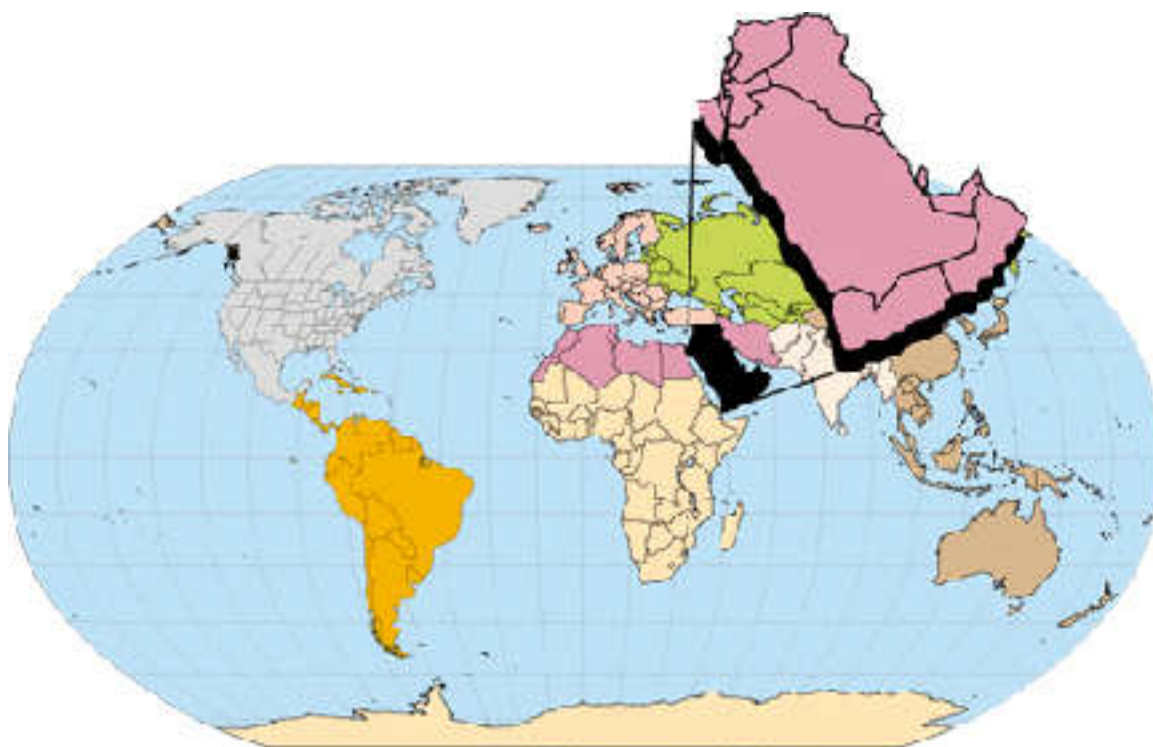


U. S. Department of the Interior
Geological Survey

MAPS SHOWING GEOLOGY, OIL AND GAS FIELDS
AND GEOLOGIC PROVINCES OF THE ARABIAN
PENINSULA

by

Richard M. Pollastro, Amy S. Karshbaum,
and Roland J. Viger



Open-File Report 97-470B

This report is preliminary and has not been reviewed for conformity with U. S. Geological Survey editorial standards and stratigraphic nomenclature. Any use of trade names is for descriptive purposes only and does not imply endorsement by the U. S. government.



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

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Table of Contents

Introduction

Selected References

Geologic provinces in the Arabian peninsula, sorted by province name

Geologic provinces in the Arabian peninsula, sorted by province code

Map showing geologic provinces of the Arabian peninsula

Map showing geology, oil and gas fields and geologic provinces of the Arabian peninsula

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1. INTRODUCTION

This digital map compilation, which includes geology, geologic provinces, and oil and gas fields of the Arabian Peninsula, is part of a map series of the world produced by the U.S. Geological Survey World Energy Project. The goal of the project is to produce a worldwide assessment of the undiscovered, technically recoverable oil and gas resources and report these results by the year 2000. To assess the world's petroleum, a sequence of steps is being undertaken proceeding from defining geologic provinces of the world at a comparable scale, allocating oil and gas fields to these provinces, defining petroleum systems within these provinces, and ultimately assessing the undiscovered petroleum potential of selected provinces of the world. A more in-depth discussion of the geologic provinces and their relative ranking in terms of total known petroleum volume is given in USGS Open File Report 97-463 (see Klett and others, 1997).

For the World Energy assessment, the world was divided into eight energy regions which correspond approximately with the economic regions of the world as defined by the U.S. Department of State. The Arabian Peninsula portion of Region 2 is represented on this CD-ROM (see insert Reference Map on geologic map). The geology map of the Arabian Peninsula was compiled and synthesized primarily from the U.S. Geological Survey--Arabian American Oil Company, 1963, 1:2,000,000 scale Geologic map of the Arabian Peninsula. Additional geology in the northern portion of this map for parts of Iraq, Jordan, Syria, Israel, and Lebanon was derived with permission from the 1:5,000,000 scale, 1971 version of the Geologic Map of Europe, Eastern sheet, published by UNESCO (see Selected References no.4). Specific details of the data sources are given in the metadata file on this CD-ROM. Map units were combined to simplify the map when projected at a larger scale and to maintain consistency with other region maps. Precambrian rocks are undivided and consist of sedimentary,

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Each region was divided into geologic provinces. Geologic province boundaries for the Arabian Peninsula were delineated onshore using data from the U.S. Geological Survey--Arabian American Oil Company, and UNESCO geologic maps (see Selected References), and other tectonic and geographical data from the publications listed in the Selected References section. Offshore geologic province boundaries are defined by the 2000 meter bathymetric contour from the U.S. Geologic Survey--Arabian American Oil Company 1963 geologic map (see Selected References). Provinces may contain one dominant element or a number of contiguous elements or basins that are genetically related. Each geologic province was assigned a unique number; the first digit is the region number. An attempt was made to number the provinces in geographical order. In the Arabian Peninsula the numbering starts in the southernmost portion of the peninsula, generally increasing to the east and north.

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Geological provinces in the Arabian Peninsula, sorted by province name

USGS Province Code	Province
2089	Anah Graben
2101	Arabian Shield
2078	Beirut
2015	Central Oman Platform
2012	East Flank Oman Sub-basin
2075	Euphrates/Mardin
2016	Fahud Salt Basin
2014	Ghaba Salt Basin
2010	Ghudun-Khasfeh Flank Province
2021	Greater Ghawar Uplift
2018	Gulf of Oman Basin
2025	Hail-Ga'Ara Arch
2076	Haleb
2003	Hays Structural Belt
2013	Huqf-Haushi Uplift
2020	Interior Homocline-Central Arch
2026	Jafr-Tabuk Basin
2074	Khleisha Uplift
2032	Levantine Basin
2004	Ma'Rib-Al Jawf Basin
2009	Masila-Jeza Basin
2008	Masirah Trough
2024	Mesopotamian Foredeep Basin
2102	Mirbat Precambrian Basement
2005	Mukalla Rift Basin
2027	North Harrah Volcanics
2017	Oman Mountains
2077	Palmyra Zone

Geological provinces in the Arabian Peninsula, sorted by province name

USGS Province Code	Province
2022	Qatar Arch
2071	Red Sea Basin
2019	Rub Al Khali Basin
2028	Rutbah Uplift
2006	Shabwah Basin
2007	Sharmah Rift Basin
2033	Sinai Basin
2034	South Harrah Volcanics
2011	South Oman Salt Basin
2029	Wadi-Surhan Basin
2023	Widyan Basin-Interior Platform
2001	Yemen Volcanic Basin (North)
2002	Yemen Volcanic Basin (South)
2030	Zagros Fold Belt
2031	Zagros Thrust Zone

Geological provinces in the Arabian Peninsula, sorted by province code

USGS Province Code	Province
2001	Yemen Volcanic Basin (North)
2002	Yemen Volcanic Basin (South)
2003	Hays Structural Belt
2004	Ma'rib-Al Jawf Basin
2005	Mukalla Rift Basin
2006	Shabwah Basin
2007	Sharmah Rift Basin
2008	Masirah Trough
2009	Masila-Jeza Basin
2010	Ghudun-Khasfeh Flank Province
2011	South Oman Salt Basin
2012	East Flank Oman Sub-basin
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USGS Province Code	Province
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2033	Sinai Basin
2034	South Harrah Volcanics
2071	Red Sea Basin
2074	Khleisha Uplift
2075	Euphrates/Mardin
2076	Haleb
2077	Palmyra Zone
2078	Beirut
2089	Anah Graben
2101	Arabian Shield
2102	Mirbat Precambrian Basement



EXPLANATION

- 2000 Province number
- USGS Province Boundary
- International boundary
- Oil and Gas Fields

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Petroleum field location centerpoints used with permission from Petroconsultants International Data Corporation 1996 database.

Country boundaries ARCWorld 1:3M Digital Map of the World.

Source of Geologic Province boundaries is USGS World Energy Project.

Lambert Conformal Conical Projection
Units: Meters, Standard Parallels: 17 00 00, 33 00 00
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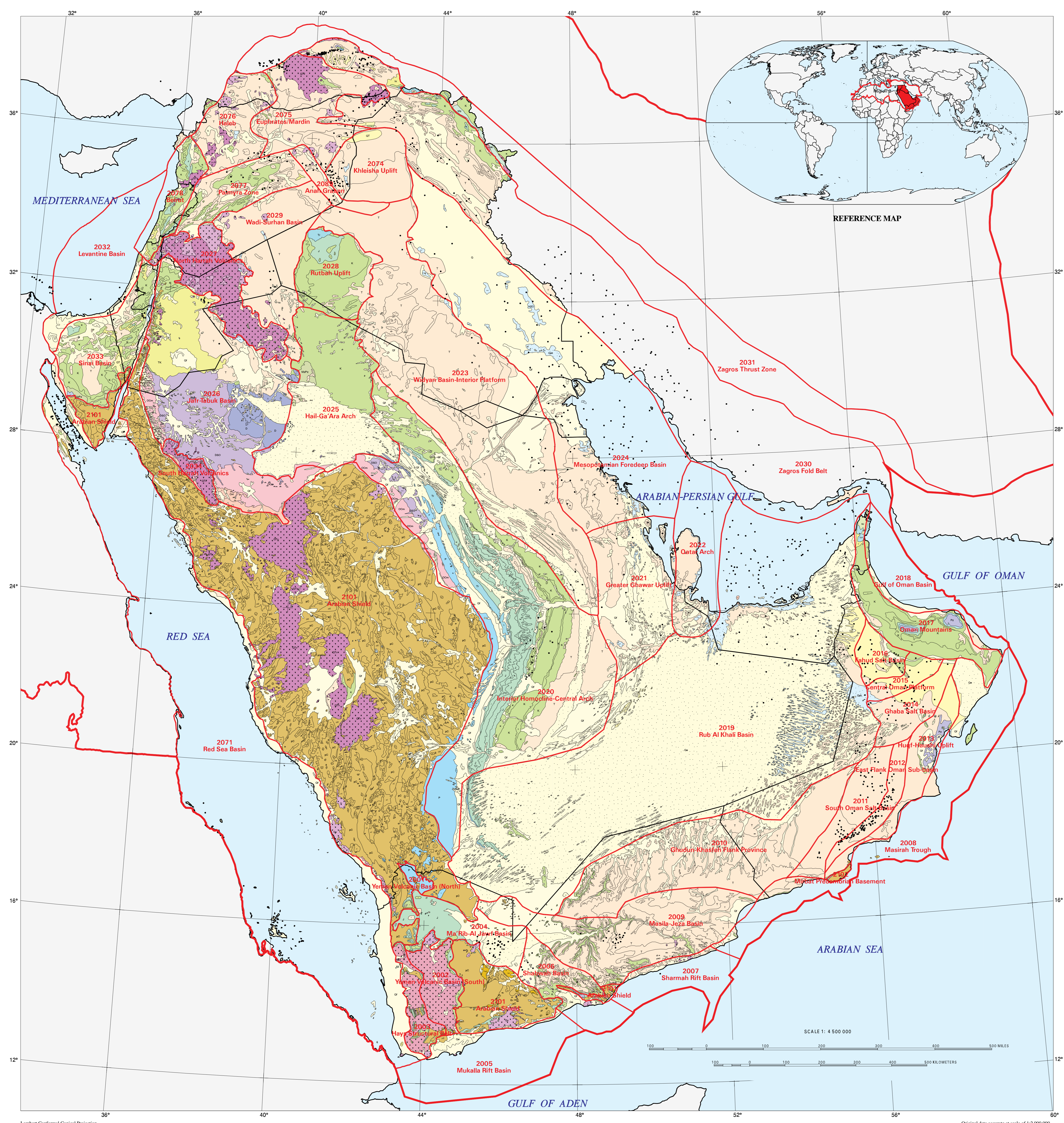
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MAP SHOWING OIL AND GAS FIELDS AND GEOLOGIC PROVINCES OF THE ARABIAN PENINSULA

Map Compiled By Richard M. Pollastro, Amy S. Karshbaum, and Roland J. Viger

1998



INTRODUCTION

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EXPLANATION

Geologic Units	Volcanics and Intrusives
Q Quaternary	Kv Cretaceous volcanics
Qf Quaternary, fluvial	TKc Tertiary Cretaceous volcanics
Qe Quaternary, eolian	TKi Tertiary Cretaceous intrusives
Qsk Quaternary, sabkha	Qv Quaternary volcanics
QT Quaternary Tertiary	QTV Quaternary Tertiary volcanics
T Tertiary	Czi Cenozoic intrusives
TK Tertiary Cretaceous	MzCzi Mesozoic Cenozoic intrusives
K Cretaceous	MzCv Mesozoic Cenozoic volcanics
KJ Cretaceous Jurassic	Pzi Paleozoic intrusives
J Jurassic	
JT Jurassic Triassic	
Tr Triassic	
Tp Triassic Permian	
P Permian	
C Carboniferous	
D Devonian	
DSO Devonian Silurian Ordovician	
OCm Ordovician Cambrian	
Cm Cambrian	
Mz Mesozoic	
MzPz Mesozoic Paleozoic	
Pz Paleozoic	
PzPc Paleozoic Precambrian	
Pc Precambrian undifferentiated	
	2000 Province Number
	Zagros Province Name
	Geologic Province Boundary
	USGS Region 2 Boundary
	Political Boundary
	Geologic Contact
	Oil and Gas Fields
	Water
	Land areas not included in this study

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- International boundary
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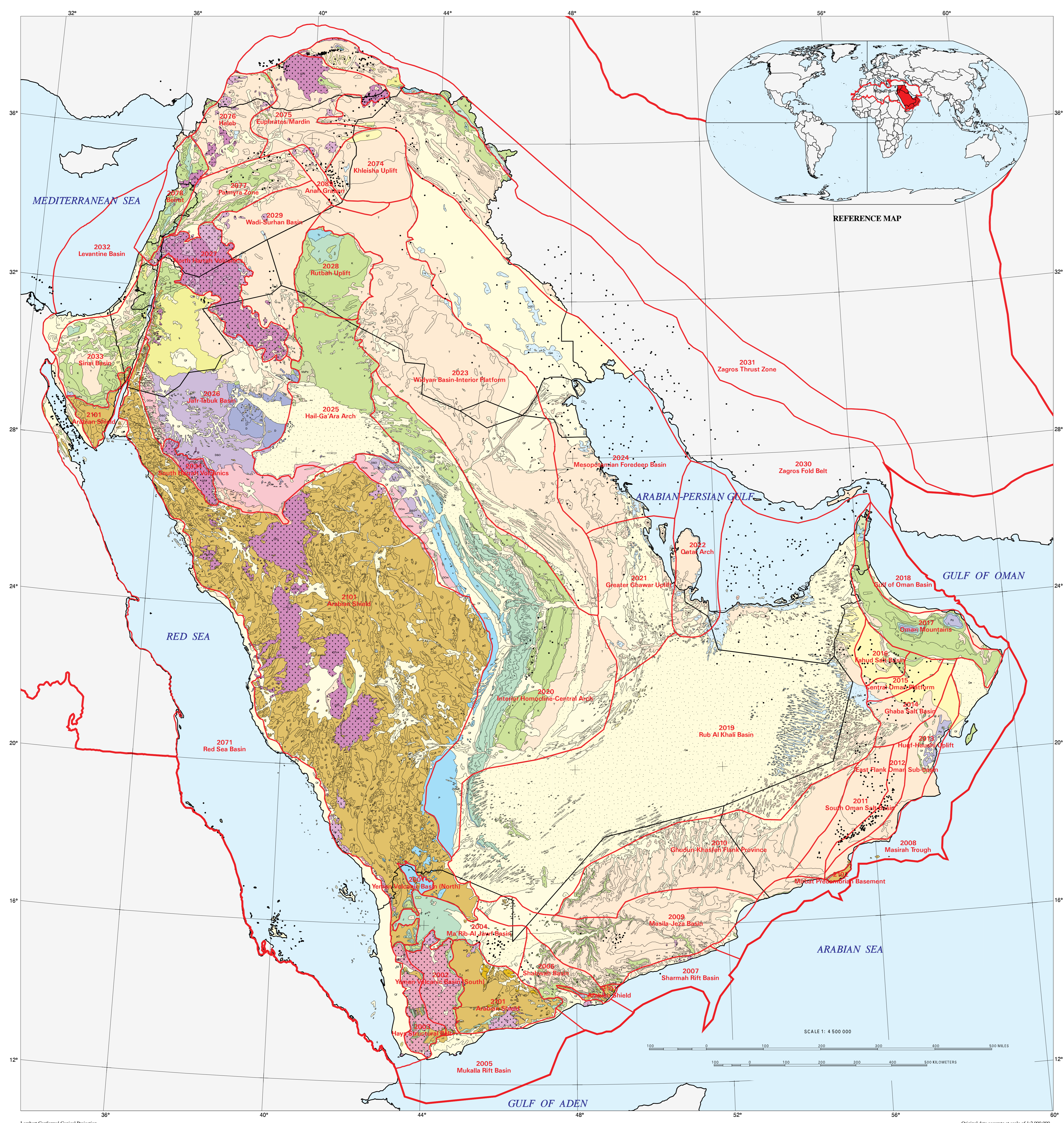
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TK	Tertiary Cretaceous	MzCzi	Mesozoic Cenozoic intrusives
K	Cretaceous	MzCv	Mesozoic Cenozoic volcanics
KJ	Cretaceous Jurassic	Pzi	Paleozoic intrusives
J	Jurassic		
JT	Jurassic Triassic		
Tr	Triassic		
Tp	Triassic Permian		
P	Permian		
C	Carboniferous		
D	Devonian		
DSO	Devonian Silurian Ordovician		
OCm	Ordovician Cambrian		
Cm	Cambrian		
Mz	Mesozoic		
MzPz	Mesozoic Paleozoic		
Pz	Paleozoic		
PzPc	Paleozoic Precambrian		
Pc	Precambrian undifferentiated		
		2000	Province Number
		Zagros	Province Name
		—	Geologic Province Boundary
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Lambert Conformal Conical Projection
Units: Meters, Standard Parallels: 17 00'00", 33 00'00"
Meridian: 47 00'00", Latitude of Origin: 22 00'00"
False Easting: 0, False Northing: 0

Original data accurate at scale of 1:2,000,000.
Map produced at the Central Region, Energy Resource Team GIS Laboratory, Denver, Co.
This map is preliminary and has not been reviewed for conformity with U.S. Geological Survey editorial standards or with the International Stratigraphic Guide.

MAP SHOWING GEOLOGY, OIL AND GAS FIELDS, AND GEOLOGIC PROVINCES OF THE ARABIAN PENINSULA

Map Compiled By Richard M. Pollastro, Amy S. Karshbaum, and Roland J. Viger