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THE DIGITAL GEOLOGIC MAP OF NEW MEXICO IN ARC/INFO FORMAT

By

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Open-File Report

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The database can be downloaded via 'anonymous ftp' from the USGS. The files are located on greenwood.cr.usgs.gov in a directory named /pub/open-file-reports/ofr-97-0052.

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This geologic map was prepared as part of a study of digital methods and techniques as applied to complex geologic maps. The geologic map was digitized in GSMAP version 8 (Selner and Taylor, 1992) at Socorro, New Mexico by Orin Anderson and Glen Jones and published as the Geologic Map of New Mexico 1:500,000 (Anderson and Jones, 1994) in GSMAP format. The vector line work and polygon point labels were converted to ARC/INFO format on a DOS based PC with GSMARC (Green and Selner,1988). These data were transferred to a Data General UNIX system and loaded into ARC/INFO. Each vector and polygon was given attributes derived from the original 1994 GSMAP geologic map. Both digital versions are at 1:500,000 scale using the Lambert Conformal Conic map projection parameters of the State base map.

This database was developed on a Data General computer system using DG/UX Release 5.4R3.10 UNIX and ARC/INFO 7.0.3 software. The lineset and shadeset files are coded for a HP 650C plotter.

The authors wish to thank Orin Anderson for providing access to the Geologic Map of New Mexico GSMAP data sets. For the digital review, we also thank Nancy Shock and Pat Stamile of the USGS.

The map and figures were converted to Adobe Portable Document File (PDF) format. To view the PDF files, Adobe Acrobat Viewer for nearly all platforms is available at http://www.adobe.com/acrobat. Acrobat allows the user to view the New Mexico Geologic Map without loading the data into ARC/INFO.

Directory contents:

0READ.ME Text file that contains this Open-File 97-52 document.

0READ.MET A text version of the ARC DOCUMENT metafile.

LOAD.AML ARC/INFO commands to create the data bases.

NNMAP.AML ARCPLOT commands that create a plot file of the geologic map from the data bases.

NMMAP.E00 Contacts, dikes and faults file for the Geologic Map of New Mexico.

NMAP1.TXT Text files for the Geologic Map
through
NMMAP2.TXT

VENTS.E00 Volcanic Vents for the Geologic Map of New Mexico.

MAPBAR.AML ARCPLOT commands for the scale bar, courtesy of Bill Beeman, USGS.

LAMBERT.PRJ The Geologic Map of New Mexico projection parameters.

NMLIN.E00 ARC/INFO lineset NMLIN.LIN, the palette of line types.

NMSHD.E00 ARC/INFO shadeset NMSHD.SHD, the palette of colors.

FNT003.E00 ARC/INFO geologic symbols font file.

NMINDEX.AML ARCPLOT commands that create a plot file of the index sheet.

NMINDEX.E00 Data base of the geologic map explanation.

NMINDEX1.TXT Text files for the sheet two of the explanation.
through
NMINDEX8.TXT

NMINDEX1.FRM Formation text files for sheet two of the explanation.
through
NMINDEX8.FRM

SOURCES.AML ARCPLOT commands that create a plot file of the source of data sheet.

SOURCES.E00 Data base of the sources data sheet.

NMSCR1.TXT Text files for the sources of data sheet.
through
NMSCR4.TXT

In order to use this database, ARC/INFO software and hardware and FTP transfer software to copy the database to the ARC/INFO platform are required. To install the database, run LOAD.AML.

WATER, ROADS, CONTOURS, AND TOWNS:

Published geologic maps are prepared using a USGS topographic base map that contains the hydrology, hypsography, and political features. Because this digital version of the Geologic Map of New Mexico started as a geologic map, these features were not present. Only those water bodies that were required to close polygons were added. The digital hydrology is not complete or as accurate as the original USGS 1:500,000 topographic base. A few water bodies were added for visual effect. No roads, contours, or towns were present on the GSMAP version of the geologic map and none were added to this ARC/INFO version.

LINESETS, SHADESETS, AND FONTS:

The plot program NMMAP.AML uses one lineset, NMLIN.LIN. As the NMMAP AML runs, the line color and width are set by the INFO item HP.

To produce polygons, NMMAP.AML uses the INFO item HP to panel fill based on colors in the NMSHD.SHD shadeset.

The text font, FNT003.FNT, contains four special geologic symbols. The ASCII code for @ has been redefined to the symbol for Triassic, the ASCII code for & has been redefined to the symbol for Pennsylvanian, the ASCII code for _ has been redefined to the symbol for Cambrian, and the ASCII code for ! has been redefined to the symbol for Proterozoic and Late Archean.

Nmmap.aml, the geologic map sheet aml, will produce an ARC graphic .gra of 47.9 by 52.1 inches. The resulting plot is to large for E size paper. Try the trick of plotting the map twice. Once in the conventinal manner and once after using the ARC command ROTATEPLOT twice. The results can be spliced together.

CONTACTS, DIKES, INDEX and SOURCES coverages:

The Digital New Mexico Geologic Map is made of two spatial datasets. The map coverages are (1) contacts, dikes and faults, and (2) the volcanic vents. The attributed vector portion of the contact coverage is NMMAP.AAT. The attributed closed polygons of the contact coverage is NMMAP.PAT. VENTS.PAT is a point file of the isolated volcanic vents. At a scale of 1:500,000 these vents are best represented by a marker symbol.

The Index and Sources coverages are graphic versions of our attempt to present this traditional information within the limits of ARC/INFO. Nmindex.aml, the index sheet aml, will produce an ARC graphic .gra of 25.9 by 32.7 inches. Sources.aml, the sources of data sheet aml, will produce an ARC graphic .gra of 22.7 by 35.4 inches.

CODING SCHEME FOR ARC ATTRIBUTES:

ITEM	FEATURE
P1	GSMAP Shorthand attribute
HP	Line pattern from NMLIN.LIN
NAME	Name

Line Types and Attributes

P1	HP	Name
1	1	contact
2	501	Ti dikes
5	102	solid faults
6	102	thrust faults
8	114	dashed fault
9	1	group to specific (lump grouping)
11	106	dotted faults
12	507	Yi dikes
21	127	Map Border
22	505	TKi dikes
32	503	Tli dikes
42	508	Tif dikes
50	1	Dams
51	1	Mine dumps
52	502	Tuim dikes
62	504	Tui dikes
72	506	Zi dikes
75	1	Precambrian shear zone
400	4	water (shore line)
401	4	water (playa)

CODING SCHEME FOR POLYGON ATTRIBUTES:

ITEM	FEATURE
P1	GSMAP Shorthand attribute
HP	Shade pattern from NMSHD.SHD
NAME	Name

Polygon Types and Attributes

P1	HP	NAME
1	1	Qa
2	2	Ql
3	3	Qe
4	4	Qeg
5	58	Qd
6	5	Qpl
7	8	Qp
8	181	Qb
9	243	Qr
10	113	Qv
11	18	Qbo

12	22	Qvr
13	118	Qbt
14	218	Qoa
15	83	QTb
17	59	QTt
18	9	QTp
19	11	QTg
20	10	QTsf
21	17	QTs
23	61	Tus
25	6	Tfl
26	60	Tsf
27	42	To
28	40	Tlp
29	15	Tos
30	19	Thb
31	72	Tnb
32	55	Tpb
33	41	Tmb
34	52	Tnr
35	51	Tnv
36	16	Tc
37	56	Tv
38	20	Tif
39	24	Tuv
40	25	Tlv
41	63	Tuau
42	31	Tual
43	18	Turp
44	12	Tlrp
45	13	Tla
46	68	Turf
47	7	Tlrf
48	26	Ti
49	54	Tui
50	57	Tuim
51	73	Tli
52	45	Tps
53	90	Tsj
54	91	Tn
55	92	Toa
56	102	Tpc
57	109	TKr
58	107	TKpr
59	93	TKa
60	261	TKav
61	267	TKi
62	238	K
64	255	Ki
65	221	Ka
66	239	Ku
67	236	Kmc
68	134	Kvt
69	79	Kkf

70	81	Kpc
71	82	Kls
72	208	Kpn
73	233	Knf
74	231	Kmv
75	123	Kch
76	129	Klv
77	124	Kmf
78	225	Kpl
79	170	Kms
80	219	Kph
81	242	Kmm
82	197	Kcc
83	223	Kg
84	226	Kmg
85	169	Kmr
86	227	Kpg
87	191	Kth
88	232	Kma
89	78	Km
90	171	Kmu
91	241	Kml
92	186	Kdr
93	80	Kdm
94	166	Kd
95	229	Kc
96	187	Kgg
97	237	Kgh
98	192	Kgr
99	165	Kdg
100	164	Kbm
101	163	Kl
102	142	J
103	143	Jm
104	148	Jmsu
105	151	Jz
106	150	Jze
107	149	Je
108	144	Jsr
109	120	@
110	206	@rp
111	121	@c
112	122	@r
113	125	@b
114	126	@t
115	127	@g
116	128	@s
117	86	@cu
118	162	@m
119	254	Pz
120	253	P
121	184	Pqr
122	172	Pqm
123	173	Pr

124	174	Psl
125	183	Pc
126	252	Pat
127	188	Pty
128	189	Psr
129	190	Pgq
130	194	Pcp
132	246	Pbc
133	204	Pcc
136	110	Psa
137	167	Pg
138	234	Psg
139	153	Pco
140	154	Pvp
141	222	Py
142	168	Pa
143	131	Pau
145	205	Pys
146	209	Pay
147	88	Pct
148	228	Ph
149	247	Pb
150	193	P&
151	135	P&sc
152	116	&
153	158	&m
154	111	&me
155	94	&s
156	251	&ps
157	256	&lc
158	178	M
160	258	MD
161	177	M_
162	264	D
163	262	SO
164	89	SO_
165	98	O_
166	99	O_p
169	101	Ys
170	161	Yp
171	87	YXp
172	85	X
173	117	Xms
174	160	Xm
175	97	Xp
176	112	Xmo
177	1	Qa/QTs
178	1	Qa/QTsf
184	2	Ql/QTs
189	8	Qp/QTs
190	8	Qp/QTsf
191	8	Qp/Tsf
193	3	Qe/Qa
194	3	Qe/Qp

195	3	Qe/Qpl
196	3	Qe/QTs
197	3	Qe/QTsf
198	9	QTp
199	224	Kgc
200	3	Qe/Tnb
201	36	ds
202	137	Xmu
203	218	Qoa/To
400	216	Water
401	216	Playa
300	0	blank

Reference cited:

Anderson, O. J., and Jones, G. E., 1994, Geologic Map of New Mexico: New Mexico Bureau of Mines and Mineral Resources, Open-file Report 408-A and B, Geologic map and 15 magnetic disks, 1:500,000.

Selner, G.I. and Taylor, R.B., 1992, System 8, computer file: GSMAP, GSMEDIT, GSMUTIL, GSPOST, GSDIG and other programs version 8: U.S. Geological Survey Open-File Report 92-217-A and B, 217 p. and magnetic disk.

Green, G.N., and Selner, G.I., 1988, GSMARC: A program and procedure to convert GSMAP data bases into ARC/INFO coverages, GSDARC: A counterpart program for GSDRAW data bases and an ARC/INFO procedure to topologically structure resultant data: U.S. Geological Survey Open-File Report 88-430-A and B, 16 p. and magnetic disk.