



U.S. Geological Survey Fact Sheet

March 1996

FS-085-96

THE NATIONAL GEOCHRONOLOGICAL DATABASE

DESCRIPTION

The National Geochronological Database (NGDB) is a compilation of more than 30,000 individual published K-Ar (with some $^{40}\text{Ar}/^{39}\text{Ar}$), Rb-Sr, U-Th-Pb, Sm-Nd, Pb- α , and fission-track mineral and rock ages that are reported in the published literature. The basic component of the data file is the record, which contains one or more radiometric ages for the approximately 18,000 dated rock samples from the United States thus far incorporated into NGDB. Coverage is estimated to be about 50 percent of all ages on dated rock samples published through 1991. Accompanying each age is supporting geographic, petrologic, chemical, and interpretive information extracted from the respective publications.

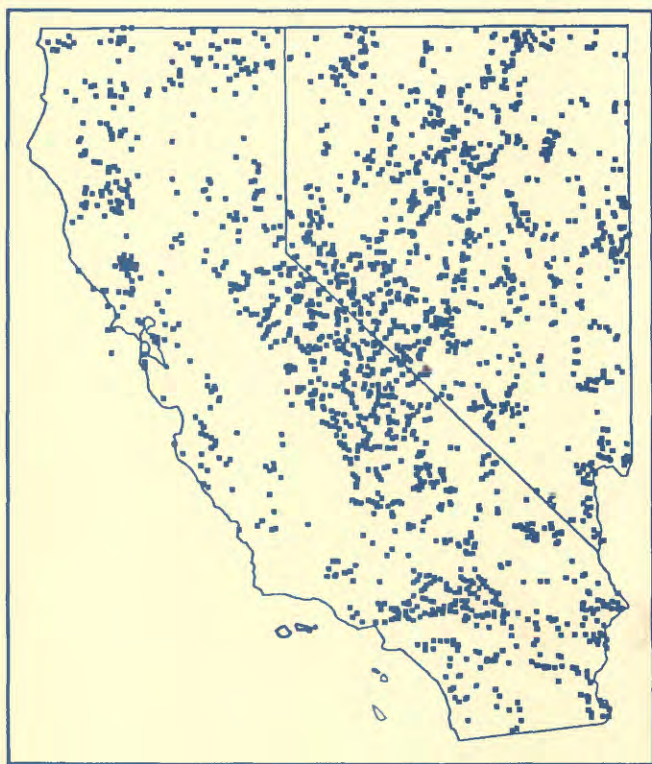


Figure 1. Map showing locations of samples in the database from California (2,748 records) and Nevada (2,160 records).

The 30,000+ radiometric ages in the current version of NGDB have been published as U.S. Geological Survey (USGS) Digital Data Series DDS-14 using CD-ROM technology. Calculated ages in the original data have been recomputed using modern, most commonly accepted decay constants, although the original constants have been retained. An executable program is provided to search the data files by latitude and longitude, State, analytical method, age range, or any combination of these criteria. Each sample provides a Location and Geology Form containing general data about the sample and a methods form for each analysis containing the results of each analysis for each analytical method used. The resulting data may be printed or saved in a disk file for further editing. Examples of the Location and Geology Form and Potassium-Argon Form are shown in figures 2 and 3 on the back of this page showing examples of the data retained in the database. Also, the NGDB is provided as quote-comma delimited ASCII files that can be entered into most commercial spreadsheet programs for customized searches of any record field. Updated versions of NGDB will be released in the future as the compilation is expanded to give more complete coverage of the 1991 and older literature as well as more recently published ages.

OBTAINING DATA

USGS Digital Data Series DDS-14 is for sale by the Book and Open-File Report Sales, U.S. Geological Survey, Denver Federal Center, Box 25286, Denver, CO 80225-0286. Information concerning the use of this disc and associated software is available from USGS CD-ROM Support Center, Attn: Carl Abston, MS 973, Denver Federal Center, Box 25046, Denver, CO 80225-0046, phone (303) 236-1194. Questions concerning data collection and interpretation or the database itself should be addressed to Charles A. Bush, National Cooperative Geologic Mapping Team, MS 974, Denver Federal Center, Box 25046, Denver, CO 80225-0046, phone (303) 236-4723.

| LOCATION & GEOLOGY FORM | |
|-------------------------|---|
| Record Number: | 1699 |
| Reference: | 1971 - 5 |
| Laboratories: | USGS, Denver |
| State: | Massachusetts |
| County: | ESSEX |
| Quad scale: | 1:24,000 |
| Quad Name: | GLOUCESTER |
| Latitude: | 42° 41' 12" North |
| Longitude: | 70° 38' 8" West |
| Location Comment: | ROADCUT ALONG MASSACHUSETTS ROUTE 127; ROCKPORT |
| Precision of Location: | Latitude/longitude accurate to within 1 minute (~1 mile) |
| Source of Sample: | Outcrop or artificial surface exposure |
| Rock Name: | GRANITE |
| Description: | CAPE ANN GRANITE; LIGHT-GRAY, MEDIUM-GRAINED GRANITE |
| Stratigraphic ages: | Late Ordovician Early Silurian |
| Petrography: | granite, alaskite, microgranite, granite porphyry, gneiss |

Figure 2. An example of a typical Location and Geology Form showing the data provided.

| POTASSIUM-ARGON FORM | |
|--------------------------|----------------------|
| RECORD # : | 1699 - 1 |
| Decay Constants: | K21* |
| Lab Sample #: | 164 |
| Rock/Mineral: | Hornblende |
| Sample Comments: | |
| K20: | 1.78 % |
| 40Ar-radiogenic: | 11.06 x E-10 moles/g |
| % radiogenic Ar: | 97 |
| Age: | 387.34 ± 11.00 Ma |
| Type of Analysis: | Conventional K-Ar |
| Analytical Comments: | |
| Sample Suite #: | |
| Age Comments: | |
| Minimum age of intrusion | |
| Other Comments: | |

Figure 3. An example of a typical Potassium-Argon Form showing the data provided.