

GEOLOGICAL SURVEY OF ALABAMA

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GEOLOGIC INVESTIGATIONS PROGRAM

CONTINUATION OF METADATA DEVELOPMENT FOR GEOLOGICAL DATA AT THE GEOLOGICAL SURVEY OF ALABAMA: FINAL REPORT FOR FISCAL YEAR 2009

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ABSTRACT

The Geological Survey of Alabama (GSA) maintains a core and sample storage warehouse that contains about 12,000 square feet of shelved space in which more than 67,000 boxes of samples are stored. The warehouse contains cores and well cuttings from oil and gas wells, well cuttings from water wells, industrial and GSA project cores, coal samples, and vibracores. In a separate facility, GSA also maintains an extensive collection of more than 182,000 Paleozoic, Mesozoic, and Cenozoic fossils that occupies 69 cabinets in its paleontology collection. GSA collections were inventoried during the 2007 Program Year for the National Geological and Geophysical Data Preservation Program (NGGDPP). For Program Year 2008, GSA initiated development of site-specific metadata records for samples in parts of the collections in the core and sample warehouse and for fossils of Paleozoic age in the paleontology collection. For Program Year 2009, GSA continued the development of metadata records for coal samples and oil and gas related cores and well cuttings in the warehouse and for fossils of Mesozoic age in the paleontology collection. A total of 2,267 records were created for unique sets of warehouse samples and 4,902 records have been created for 34,852 specimens in the paleontology collection. The metadata have been uploaded to the NGGDPP National Catalog in a Microsoft Excel spreadsheet file in pipe-delimited CSV format using the template provided by the program.

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FOR GEOLOGICAL DATA AT THE GEOLOGICAL SURVEY OF ALABAMA:
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INTRODUCTION

The Geological Survey of Alabama (GSA) maintains a core and sample storage warehouse in the Mary Harmon Bryant Special Collections Facility on the University of Alabama (UA) campus in Tuscaloosa, Alabama. The warehouse contains about 12,000 square feet of shelved space. GSA is closely affiliated with the State Oil and Gas Board of Alabama (OGB), which requires that cores and well cuttings be submitted and archived, and the samples are maintained by the GSA in its facility. Alabama is a major oil and gas producing state, ranking 14th nationally in natural gas production and 15th in liquid petroleum production. Consequently, GSA maintains an extensive collection of samples from oil and gas wells. The warehouse contains processed well cuttings from about 3,600 oil and gas wells and cores from more than 3,300 oil and gas wells. In addition, the facility houses about 450 industrial cores, 244 vibracores, nearly 2,800 sets of water well cuttings, and more than 1,500 coal samples. In total, more than 67,000 boxes of samples are stored in the GSA warehouse.

The GSA was founded in 1848 and, since then, GSA geologists have made extensive collections of Paleozoic, Mesozoic, and Cenozoic fossils from numerous world-class sites that exist in Alabama. More than 182,000 fossils occupy 69 cabinets and are housed in the basement of Walter B. Jones Hall (the main GSA building on the UA campus) as well as in the warehouse in the Special Collections Facility.

During Fiscal Year 2007, GSA conducted an inventory of its geological and geophysical collections for the National Geological and Geophysical Data Preservation Program (NGGDPP). The results of the inventory were entered into the online survey at the completion of the project. For Fiscal Year 2008, GSA completed development of site-specific metadata records for most of the collections in the core and sample warehouse and for fossils of Paleozoic age in the paleontology collection. For FY 2009, GSA has completed the development of metadata records for additional oil and gas related cores, mud logger well cuttings, and coal samples in the

warehouse and fossils of Mesozoic age in the paleontology collection. These metadata have been uploaded to the National Digital Catalog.

PURPOSE AND METHODS

The purpose of this project is to generate site-specific metadata records that describe, at the individual sample level, the contents of a significant part of the geological collections at the GSA. Where possible, the data were extracted from existing databases. For example, information on oil and gas well cores was extracted from the warehouse manager’s files and the OGB database. Similarly, records for coal samples were extracted from files in the Coal Systems and Technology Section of the Energy Investigations Program at GSA. Construction of records for mud logger cuttings required compilation of information from both digital and paper sources. Additionally, completion of records for oil and gas cores required a physical inventory of samples in the GSA warehouse. Development of metadata records for specimens in the paleontology collection required examination of the paper labels accompanying the individual fossils in the cabinets of the collection.

GOALS

The goals of the Fiscal Year 2009 project were based on the results of the collections inventory completed during Fiscal Year 2007 (table 1). For Fiscal Year 2009, GSA anticipated

Table 1. Comparison of the goals and results for the Fiscal Year 2008 project.

Type of sample	Goals	Completed
Mud logger well cuttings	511	567
Donated oil and gas cores	129	129
Florida cores	36	35
Coal Samples	1,511	1,536
Total warehouse samples	2,187	2,267
Fossils of Mesozoic age	28,541	4,902 records (34,852 total specimens)
Total	30,728	7,169

creating metadata for 511 sets of mud logger well cuttings, 129 cores from oil and gas wells in Alabama that have been donated by exploration companies, 36 cores from oil and gas wells from

locations in Florida that are adjacent to Alabama, and 1,511 coal and related samples. In total, GSA proposed to generate metadata records for 2,187 sets of samples currently stored in the GSA warehouse. GSA estimated that its paleontology collection contains 28,541 fossils of Mesozoic age for which metadata would be prepared. Consequently, the goal of the Fiscal Year 2009 project was to generate 30,728 metadata records.

RESULTS

The actual number of metadata records completed during the Fiscal Year 2009 project is compared with the number of records proposed (goals) in table 1. Discrepancies between the actual numbers and goals are discussed below. The actual number of mud logger well cuttings stored in our warehouse is slightly more than estimated, reflecting previously overlooked samples. The number of records for donated cores and Florida cores closely match the goals. The number of coal sample records is slightly larger than the goal, primarily reflecting the addition of new samples to the collection after the Fiscal Year 2009 proposal was submitted. The number of metadata records for fossils is 4,902; however, the number of specimens is 34,852. This discrepancy is because multiple specimens are often grouped within a specimen tray (especially when the specimens are the same species and/or collected from the same locality on the same date) and assigned a single identifier for the set (one metadata record for multiple specimens). The actual number of Mesozoic specimens in the paleontology collection is slightly more than estimated, reflecting previously overlooked samples that were in Cenozoic specimen cabinets.

The metadata records for the GSA collections were compiled in Microsoft Excel files. The files were formatted according to the instructions posted at http://datapreservation.usgs.gov/docs/NGGDPP_MetadataPreparation.pdf. The files were saved in pipe-delimited csv format and were uploaded to the National Digital Catalog at <http://my.usgs.gov/csc/nggdpp/upload>.

DISCUSSION

The process of constructing metadata records for samples stored in the GSA warehouse resulted in additional benefits. Cross-checking the warehouse manager's records against the actual samples stored in the warehouse revealed several inconsistencies in the manager's records. Because of the data generated during this project, these problems have been corrected. The process of "groundtruthing" the records for samples stored in the GSA warehouse allowed the

Co-Principal Investigator (Osborne) to closely inspect the collections and identify storage problems. Similarly, the physical inspection of paper records in the paleontology collection allowed the collection manager and Co-Principal Investigator (Ebersole) to examine the Mesozoic part of the paleontology collection in great detail, revealing storage and preservation deficiencies. Storage problems in both the GSA warehouse and paleontology collection will be addressed in future NNGDPP Program Years.

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