Group of Experts on
Geographical Names
Sixteenth Session
New York, 13-24 June 1994

Provisional Agenda Item 9

THE GEOGRAPHIC NAMES PROCESSING SYSTEM
AT THE DEFENSE MAPPING AGENCY

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SUMMARY

The Defense Mapping Agency (DMA) supports the United States Board on Geographic Names (U.S. BGN) through standardization and application of foreign geographic place names to DMA Mapping, Charting and Geodesy (MC&G) products. To automate and modernize this support, DMA has developed the Geographic Names Processing System (GNPS). The GNPS utilizes a database management system to file, sort, and correlate feature names data. The system uses a client/server architecture made up of commercial-off-the-shelf hardware and software. GNPS is capable of supporting map/chart production, gazetteer production, database maintenance, the U.S. BGN and external inquiries for geographic names data. GNPS is fully operational at two DMA production centers. Future enhancements to the system include placement of the Geographic Names Database onto MILNET and developing an GNPS interface to DMA's Digital Production System.

United Nations Group of
Experts on Geographical Names

Seventeenth Session
New York, 13-24 June 1994

Item No. 9 of the
Provisional Agenda: Meeting of the Working Group
on Toponymic Data Files and Gazetteers

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The Defense Mapping Agency (DMA) supports the United States Board on
Geographic Names (U.S. BGN) through the standardization of foreign
geographic place names and their application to DMA Mapping, Charting
and Geodesy (MC&G) products. The Geographic Names Processing System
(GNPS) was developed and delivered to the DMA in November 1993 in
order to improve this process. The GNPS enables DMA/U.S. BGN to
automate the Foreign Place Names File (FPNF) through the Geographic
Names Database (GNDB). The GNPS is fully operational at the DMA
Hydrographic/Topographic Center (DMAHTC) in Bethesda, Maryland and
the DMA Aerospace Center (DMAAC) in St. Louis, Missouri.

GNPS operational capabilities include: map/chart production,
gazetteer production, GNDB maintenance, U.S. BGN support and
external inquiry support. The GNPS operates in the following
manner: DMA personnel capture geographic names data from scanning
selected hardcopy MC&G source material and comparing this
material, in softcopy format with names data already stored in the
GNDB. A database management system is utilized to file, sort, and
correlate feature names data. The system uses automated tools to
acquire geographic coordinates from hardcopy and softcopy sources.
Softcopy and physical keyboard templates are provided to aid the
geographer for inputting names containing diacritics and special
characters into the GNDB. Sixty-four different language keyboards
are available on the system. The system does not currently allow
for the input, storage, retrieval, and output capability of non-
Roman scripts, but future modifications to the GNPS will allow for
this. The GNPS produces geographic names/production overlays for
map/chart production, digital names information, and printed names
information.

GNPS uses a client/server network architecture made up of
commercial-off-the-shelf (COTS) hardware and software so that the
system is flexible and easily expandable. Two SUN SPARCserver 690
System Servers at DMAHTC are configured with a Local Area Network
(LAN) which connects thirty SUN SPARCstations,

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a Lasermaster high speed laser printer and two Tangent graphic drum scanners. The two servers manage the primary and back-up GNDB, provide a gateway for system access to peripherals and supply the processing, memory and mass storage for the system. The workstations enable the operators to interface with the GNDB, display and exploit large softcopy source images, and enter geographic names text and geographic coordinate information. The GNPS also consists of the following peripherals: one Howtek graphic table-top scanner, one Xerox text table-top scanner, two Altek digitizers, two Versatec plotters, and two DEC general purpose printers. The table-top scanners are used to scan atlases and foreign produced gazetteer sources. The digitizers are used to digitize boundaries and select coordinate information off of hardcopy sources.

The GNDB is located at DMAHTC and is accessed by DMAAC names analysts via a communication link interface. The GNPS at DMAAC consists of one SUN SPARCserver 690, 5 SUN SPARCstations, one Tangent graphic drum scanner, one Howtek graphic table-top scanner, two Versatec plotters, and one QMS high speed laser printer. All are configured within two LANs.

The GNDB was populated with existing Names Information Tapes (NITs). The database initialization process included quality review for all NITs prior to their placement into the GNDB. Approximately 3.2 million features with 4.5 million names are contained in the GNDB.

The GNPS provides DMA with an automated method to significantly increase the size of the FPNF while providing timely support to MC&G production and U.S. BGN names activities. The system also provides flexibility to support future requirements.

Future enhancements to the GNPS include the development of a digital interface for external customers/users of the foreign place names information provided in the GNDB. This interface will be accomplished by placing the GNDB onto the MILNET, which will allow U.S. Department of Defense users to directly query the GNDB. Full operational capability for MILNET access is scheduled for September 1994.

Also, DMA has begun an effort to develop an interface between the GNPS and DMA's Digital Production System (DPS). This activity will produce an operational concept to demonstrate how digital names data can directly flow into the automated mapping process.