Access of Fieldwork Data on the Web

Internet Geologic Data System Using WWW+Java™ +DB Technique, Tertiary Deposits of Korea

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Overview

- Introduction
  - **Classical Fieldwork**
  - **Geospatial Data and Its Application**
  - **New Communication, Internet**
- Implementation
  - **Internet Data Stream(Server-Client)**
  - **Using Java and database conectivity**
  - **MsqlJava and IGDS**
- Application
  - **Case study area: Tertiary deposits of Korea**
  - **Construction of field database**
  - **Avaliablity, Limit and Suggestion**

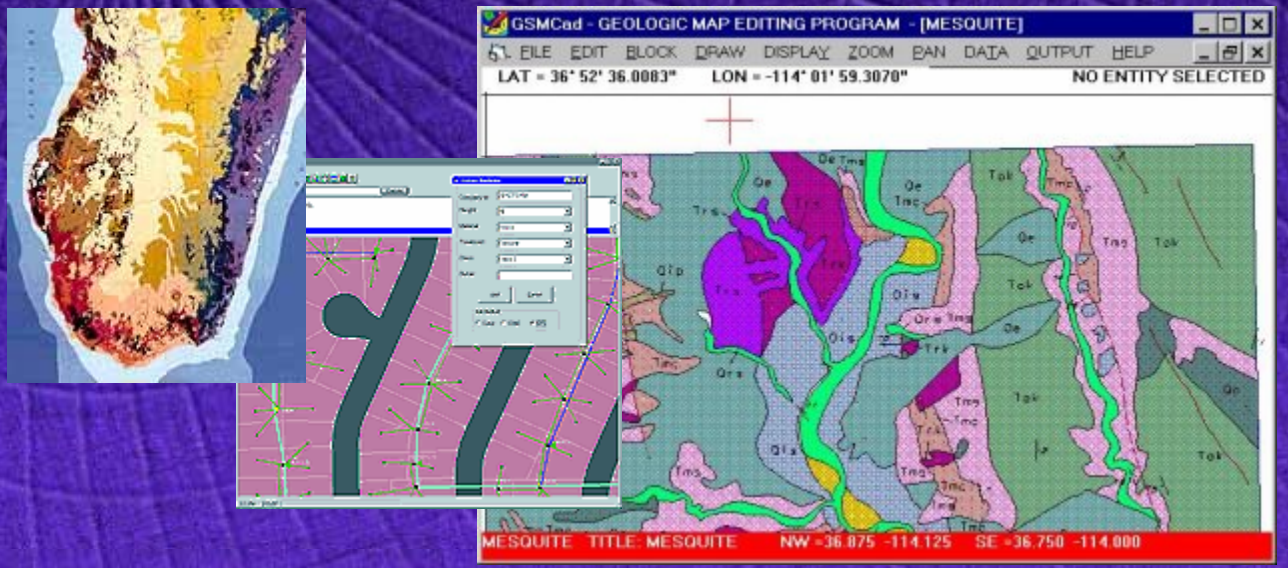
INTRODUCTION

Classical Fieldwork and Now(1)

- Methods in field
  - **Mapping to tophographic map immediately**
  - **Write down outcrop information to fieldnote**
  - **Rearrangement of data, another room research**

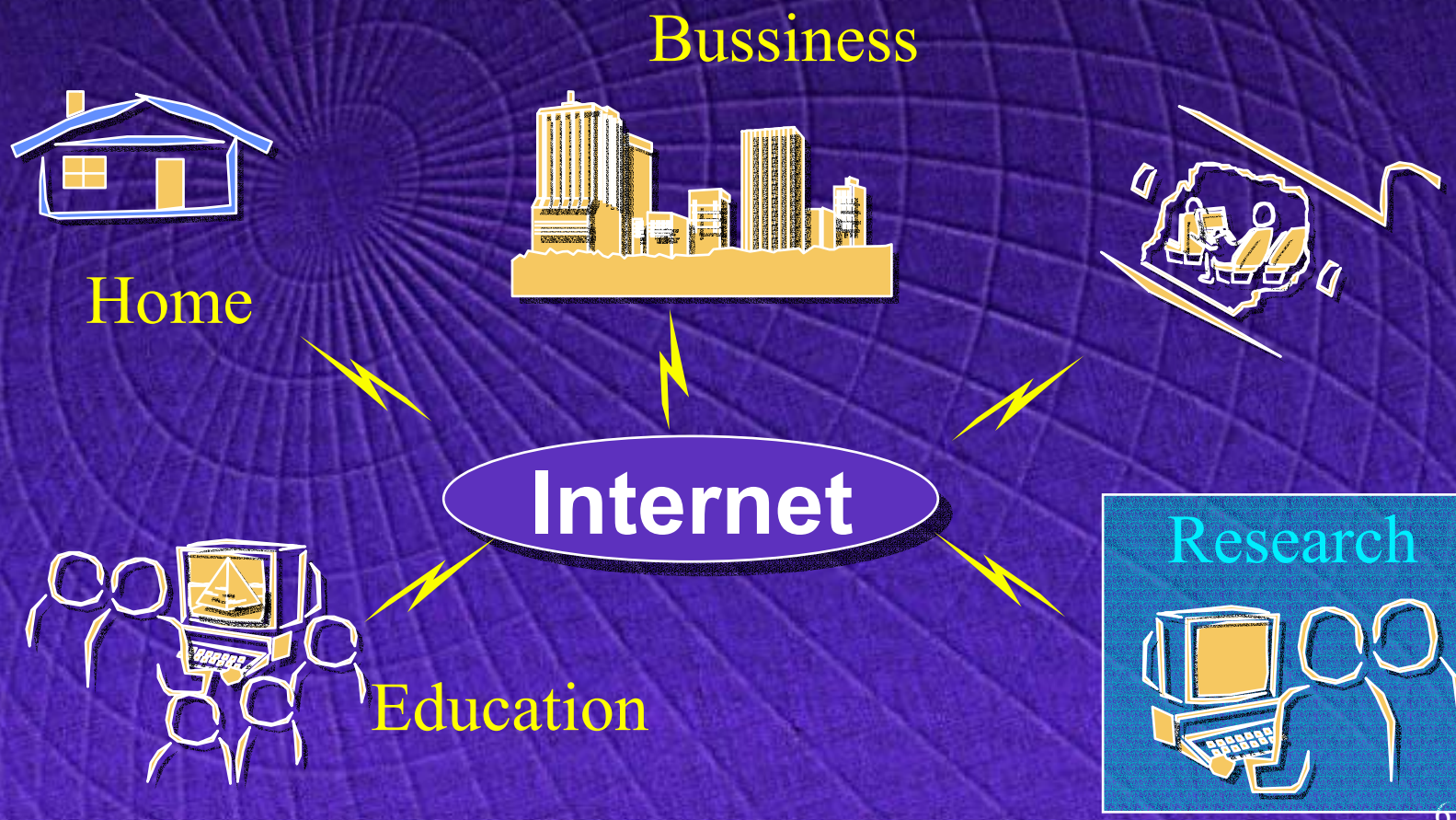
Classical Fieldwork and Now(2)

- New current
  - **Desktop Softwares and GIS database**
    - **Fieldlog: AutoCad & GSC**
    - **GSMACD: USGS Mapping tool**
    - **ArcView, ArcInfo: ESRI**
  - **Laptop field-data system: FIELDTOOL of KIGAM**



New Communication Wave: Internet

- Whst is Internet? Global Network of Network



Basic idea of IGDS

Outcrop/Field

- Easy, factly and avaliable
- Graphic user interfaced communication method

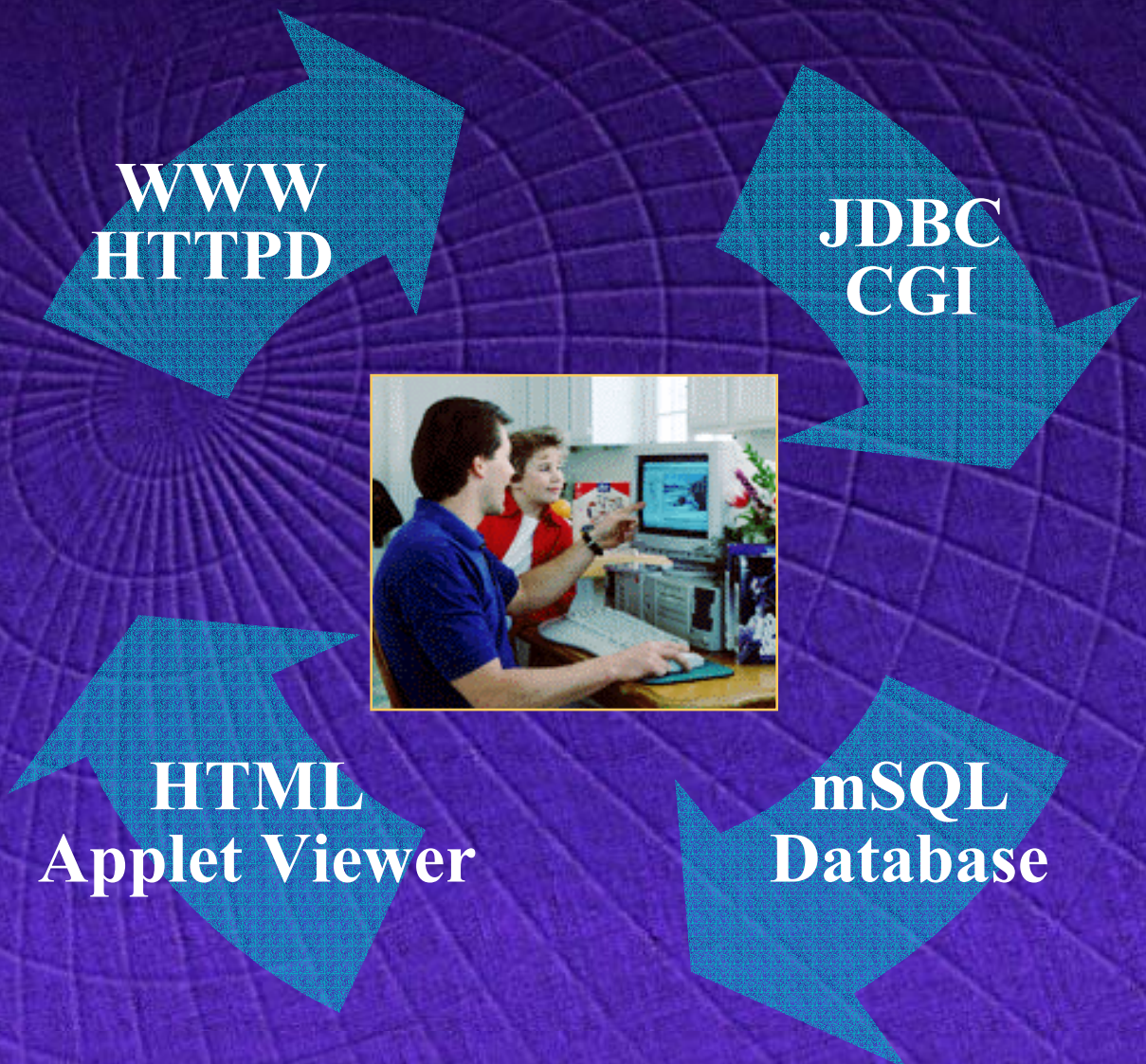
Internet

- Modem connection
- Use slip/ppp protocol
- Realtime data transferring and processing

Laboratory

IMPLEMENTATION

Idea to realize: IGDS Cycles



Java™(1)

- Overview - What is Java (*http://java.sun.com)*
  - **New, general purpose object-oriented programming language from Sun Microsystems**
  - **Allows users to interact with Web pages simply**
  - **Allows interaction with program running as an extension to your Web browser**
  - **May be used for writing both network-oriented and local application programs**
- It's Simple, Object Oriented, Secure, Portable, Fast (potentially) and Multi-threaded

Java™(2)

- Why Java to geologic data?
  - **HTML is statical and impossible of inputting multi-points and area selecting as like field data. Java can solve them!**
  - **Java is platform-independent, object-oriented, easy to learn and access to network in field area**
  - **Java fits this conditions for re-engineering the geospacial broswer to receive dynamic data**
- Java is proper to coding and running in network environment to offer pre-programmed geologic database and software

Mini SQL Server

- Mini SQL 2.0 is good small database system and freeware
  - **Designed to provide high speed access to small data sets**
  - **Based on UNIX workstation**
  - **Software has proven to be popular on Internet**
- Many contributions for mSQL, especially internet, mSQL-CGI, Java etc.
- Developed by Mr. Hughes

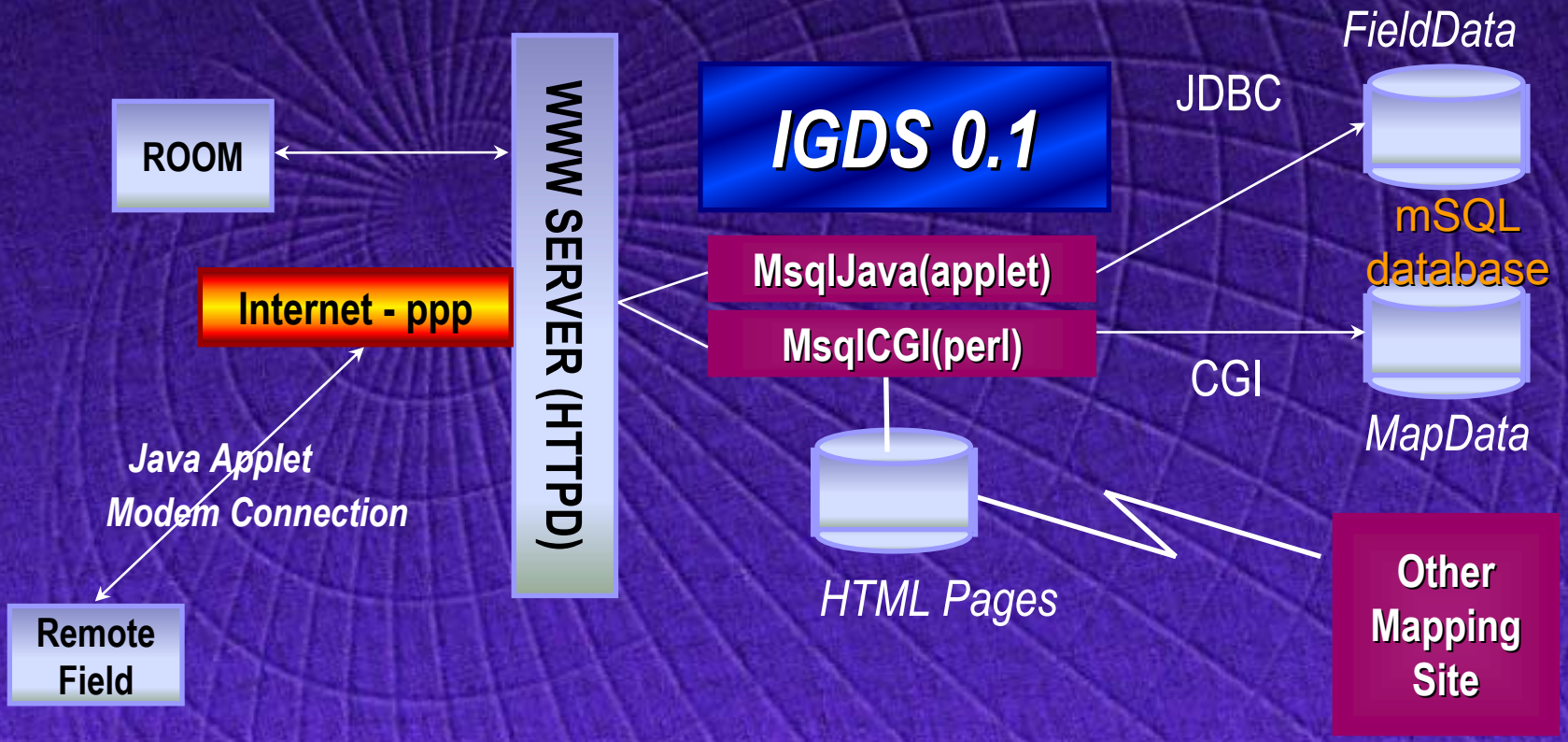
  URL: http://www.hughes.com.au/

MsqlJava

- MsqlJava is a Java class library mSQL database
  - **Client for mini-SQL (mSQL) database server**
  - **Written entirely in Java**
  - **Released early November 1995**
- MsqlJava based on JDBC:
  - **SUN's ODBC for Java**
  - **Wrapper for mSQL-Java developed by George Reese**
- Developed by Darryl Collins
- URL: http://www.minmet.uq.oz.au/msqljava

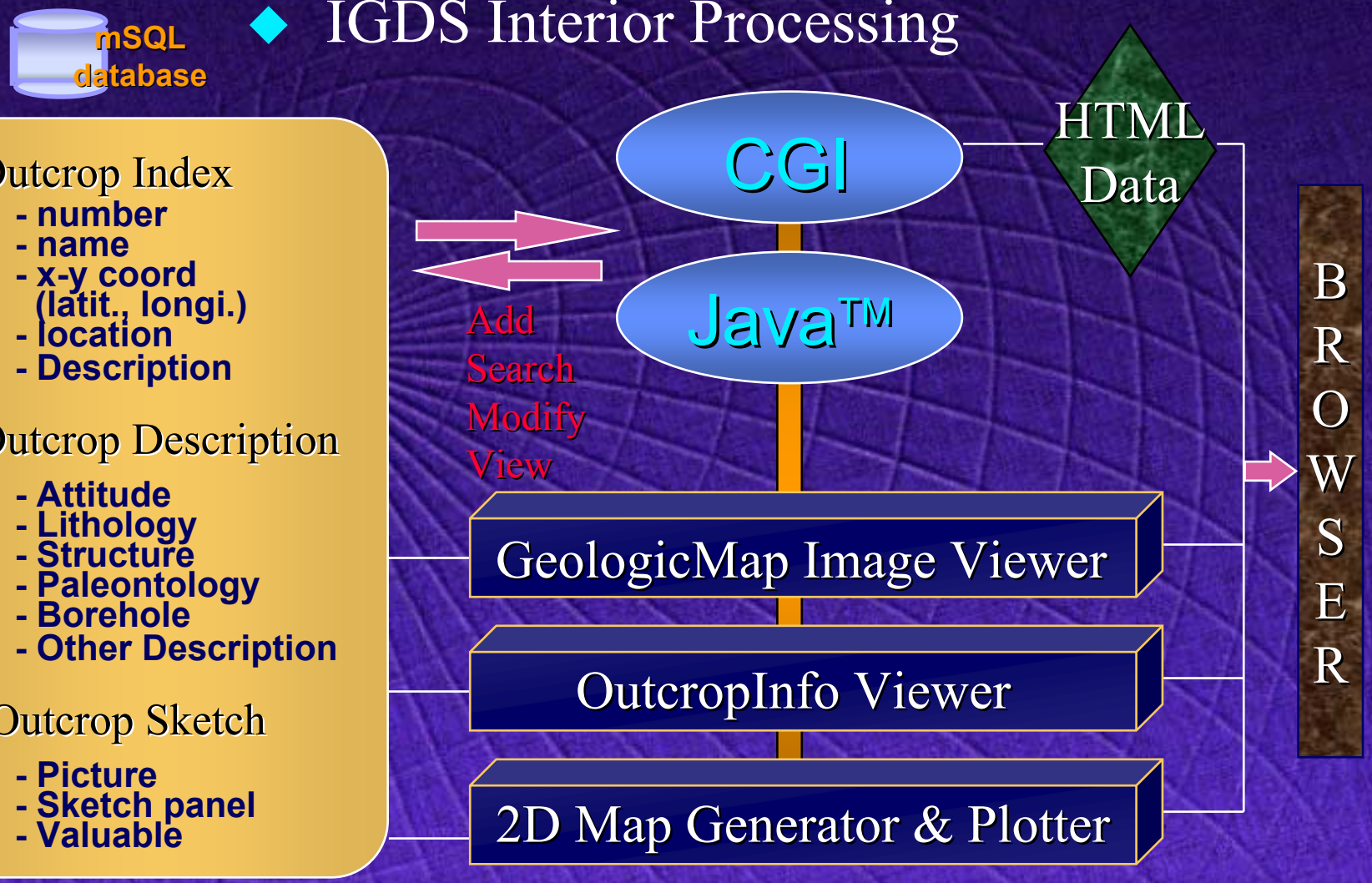
IGDS: WWW+Java™ +DB Architecture(1)

- IGDS Schema in view of field

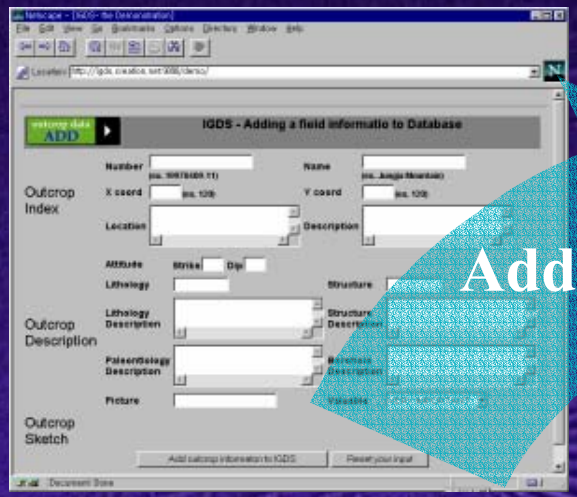


IGDS: WWW+Java™ +DB Architecture(2)

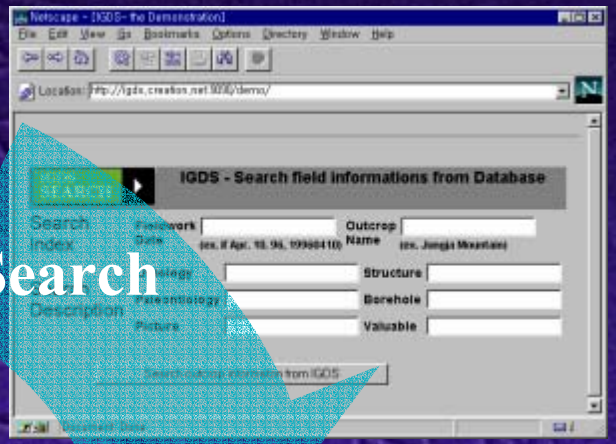
- IGDS Interior Processing



IGDS: DB Architecture

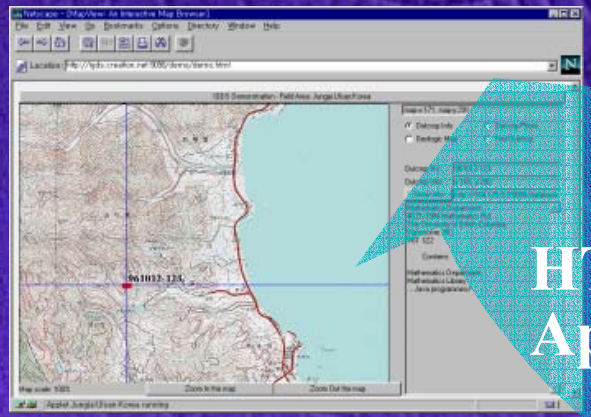


Add

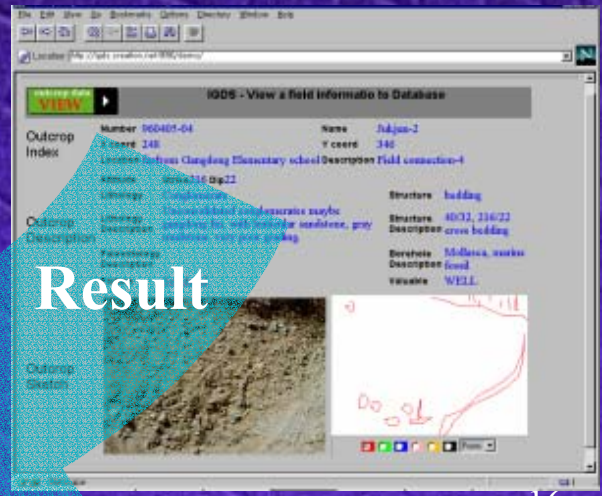


Search

JDBC
CGI

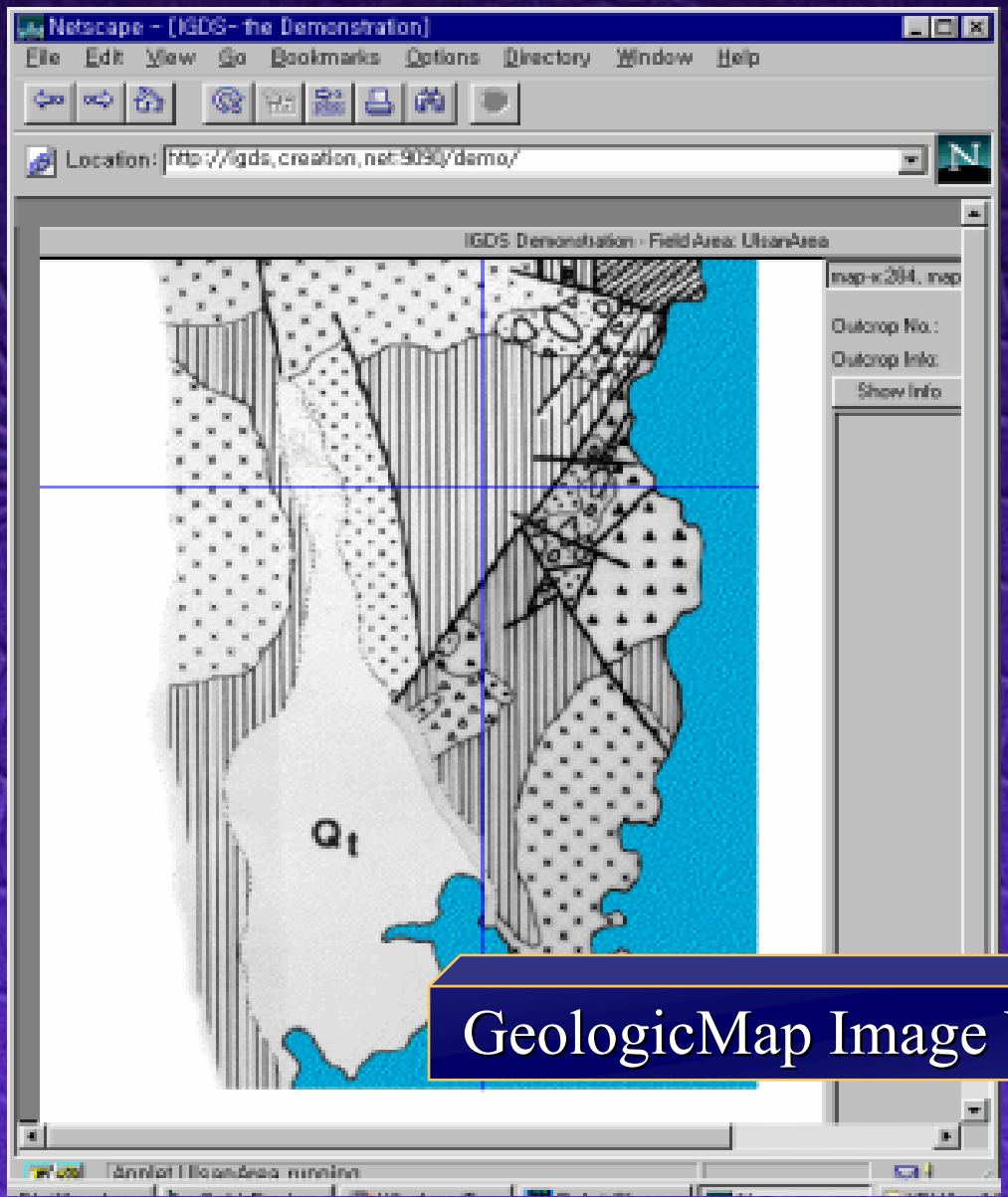


HTML
Applet Viewer



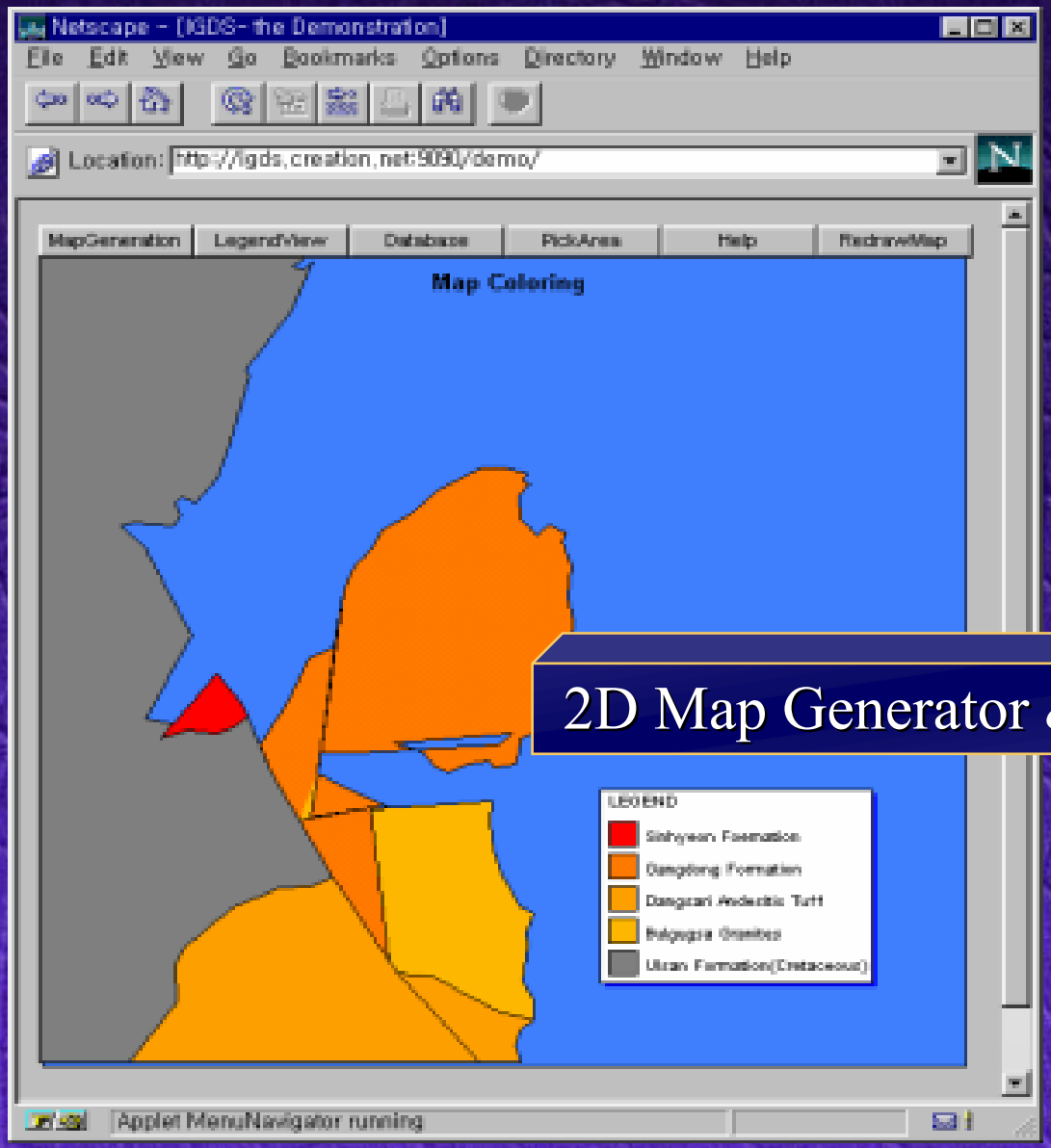
Result

IGDS:Viewer Architecture (1)



IGDS:Viewer Architecture (2)

IGDS:Viewer Architecture (3)



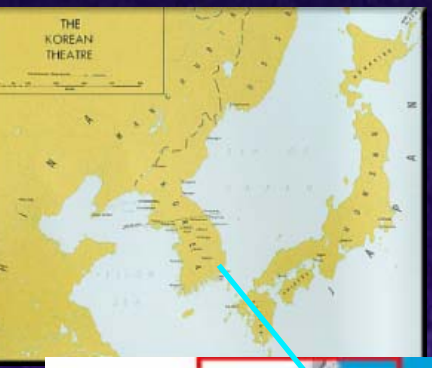
2D Map Generator & Plotter

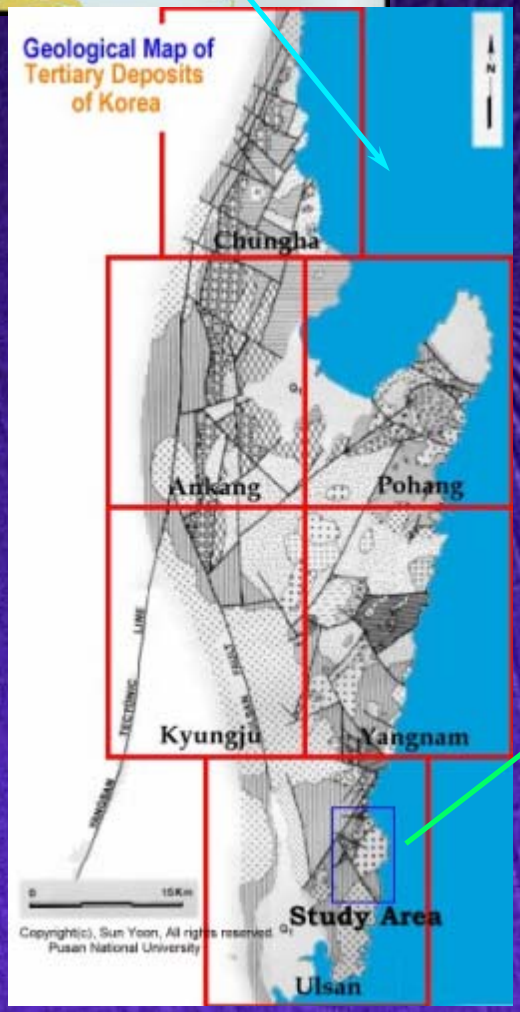
APPLICATION

Application to fieldwork

- Fieldwork: Jungja area in Ulsan, Tertiary deposit of Korea
- Period: April 1996 - October 1996
- Computing Equipment:
  - **In Field: 486-CPU(RAM 16, Win31 OS) Netscape Broswer enabled Laptop client**
  - **In Room: Sun Center2000(Solaris 2.4 OS) Apache httpd enabled server with mSQL**

Geological Setting(1)





Age	Yangnam Basin	Pohang Basin
Middle Miocene		Heunghae Fm. Hagjeon Fm.
Early Miocene	Sinhyeon Fm. Gandong Fm. Girimsa Dacite Jeondong Fm. Janghang Fm Andongri Cgi. Eoil Basits Manghaesan Fm. Ochen Fm. Jeongcheolli Cgi. Hudongni Fm. Sangjeongdong Fm.	Cheongogsa Fm Danguri Cgl.
Eocene	Wangsan Fm.	
Creta.	Gyeongsang Supergroup /Bulgugsa Granite	

(Tertiary deposits of Southern Korea, From Sun Yoon, 1992)

Geological Setting(2)

Age	Geologic Column
Middle Miocene	Sinhyeon Fm.
	Gandong Fm.
Early Miocene	Dangsari Andesites & Andesitic tuff
Early Eocene	Granites
Creta.	Ulsan Fm.

(from Seokchan Yun, 1996)

- Dangsari Andesite & Andesitic Tuff
  - Gray color volcanic ash and breccia, aged 14-21Ma originated by land volcanic activiries
- Gangdong Formation
  - Conglomerate strata, very poor sorted and bedded from piedmont-fluvial deposits
  - Transition from non-marine to marine environments
- Sinhyeon Formation
  - Alternation of sandstone and mudston interlated with thin lenticular cgl. beds
  - Yield marine molluscan fossils belonging to *Vicarya-Anadara* Assemblage(Yoon, 1979).

Do you hav any Question?

Contact Seokchan Yun right now!

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