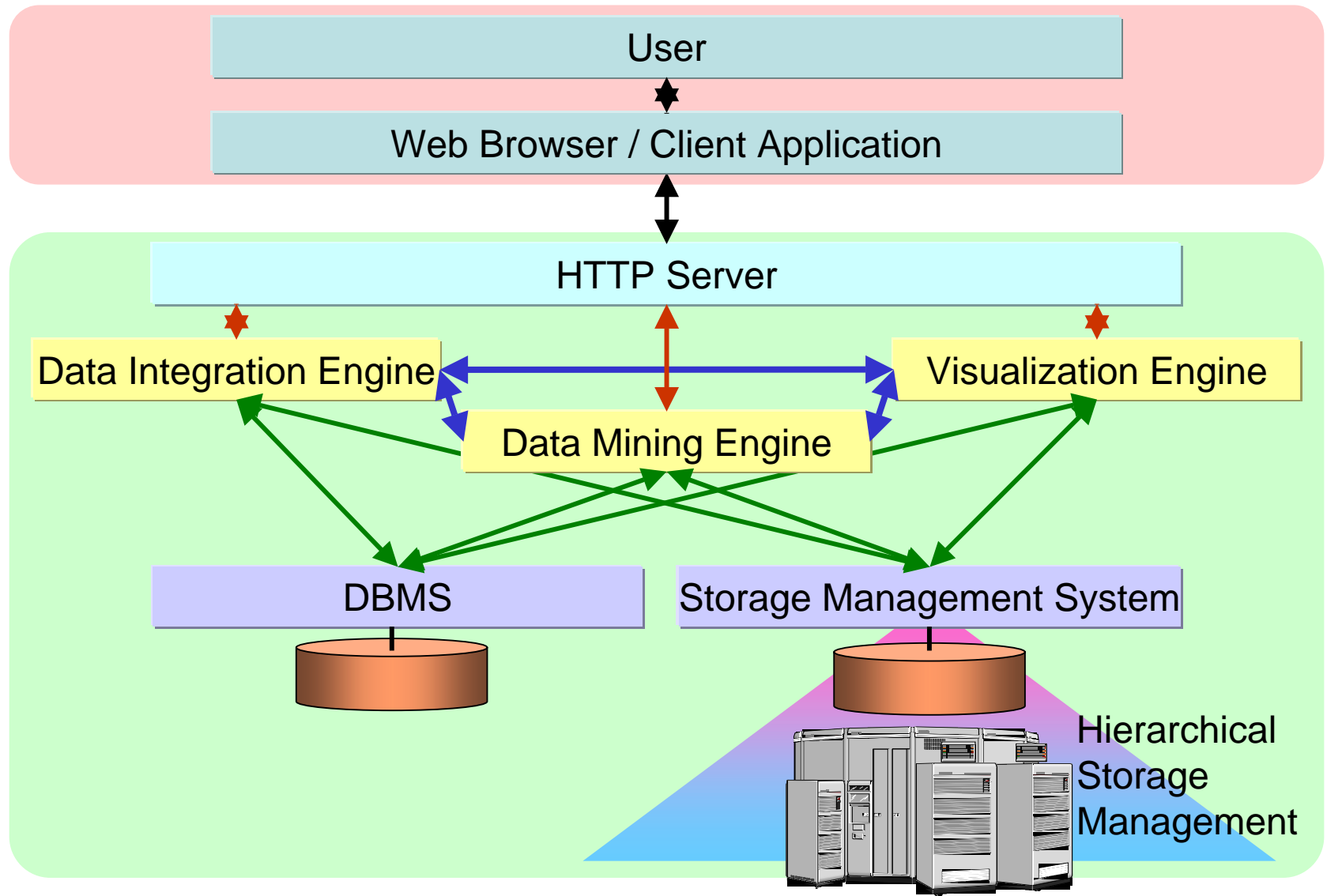# Data Integration Functions and System

Toshihiro NEMOTO
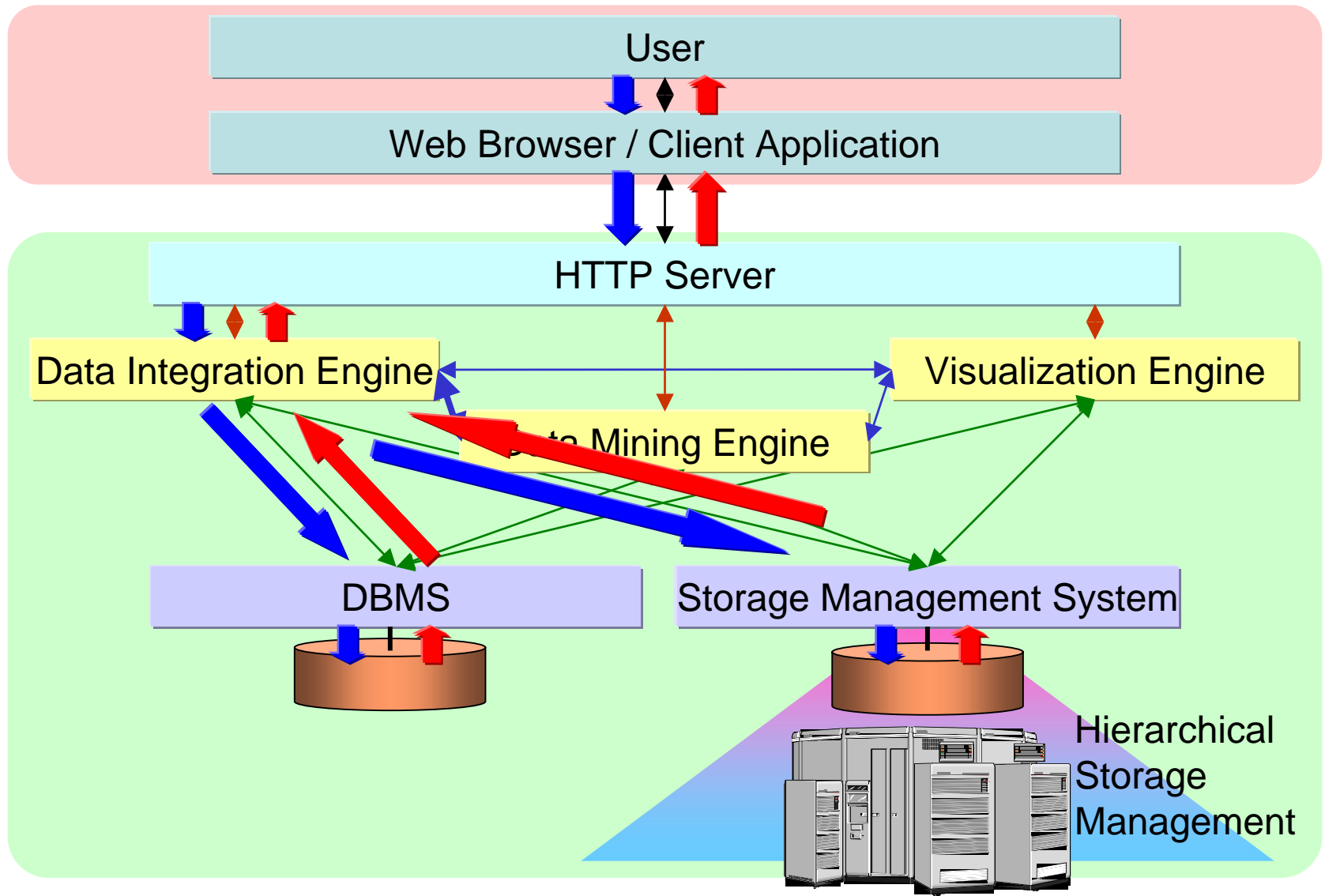
Institute of Industrial Science

University of Tokyo

Architecture of CEOP Data System at Univ. of Tokyo

Request and Data Flow
Data Integration

User

Web Browser / Client Application

HTTP Server

Data Integration Engine

Visualization Engine

Data Mining Engine

DBMS

Storage Management System

Hierarchical Storage Management

Integrated Data Analyzing Functions

Validation
overlay
matching recognition

Averaging
temporal (daily, pentad, monthly, seasonal)
spatial: simple, masked (zonal, land/ocean, lon-lat, by given value)
over identified points and area
skewered: diurnal cycle, seasonal cycle

Section
Longitude-latitude
longitude-time
latitude-time
elevation-time
aslant
along to Rossby phase
along to frontal line
along to satellite orbit
along to user definition

Data interpolation
spline
linear
nearest neighbor

Calculation
wind velocity: (SQRT(U*U+V*V))
transformation among relative humidity, specific humidity, mixing ratio etc.
potential temperature
equivalent potential temperature
advection
vorticity divergence
velocity potential
2D/3D derivative
correlation of trend and anomaly
finite deference
EOF
along to user's definition
unit transformation

Data Comparison
overlay
correlation
regression
subtraction

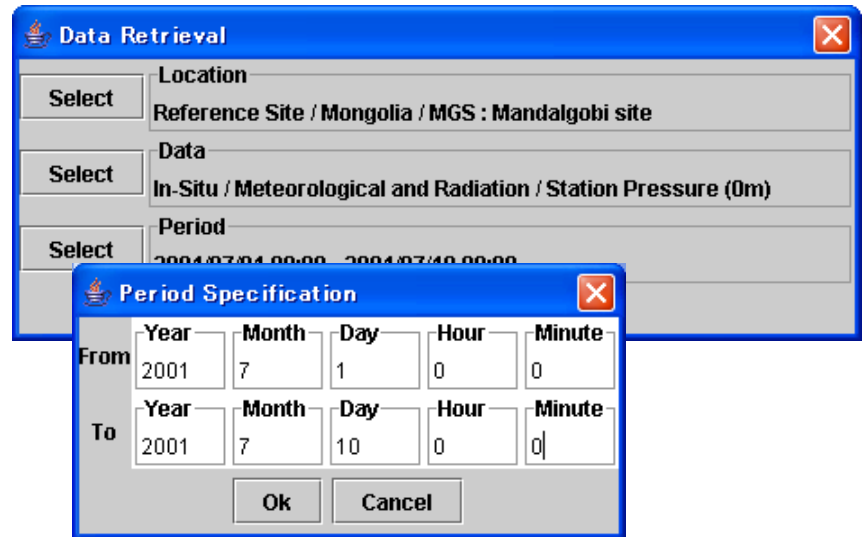# Data Manager (Main Window)

Commands

Retrieved Data

Data Retrieve

Three Parameters
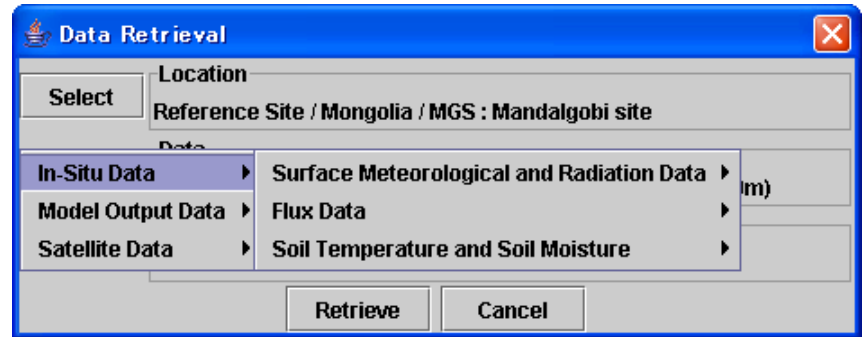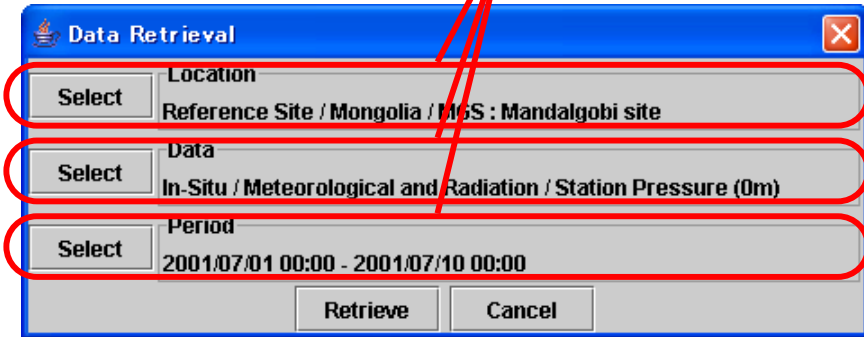
Select by menu

Input date and time for period

Browsing/Processing Data

Select Data and Command

Overlaid Line Chart

Overlaid 2D Images