



***Overview
of the CEOP
Satellite Data Gateway***

**Masaki Yasukawa
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Center for

Information Fusion

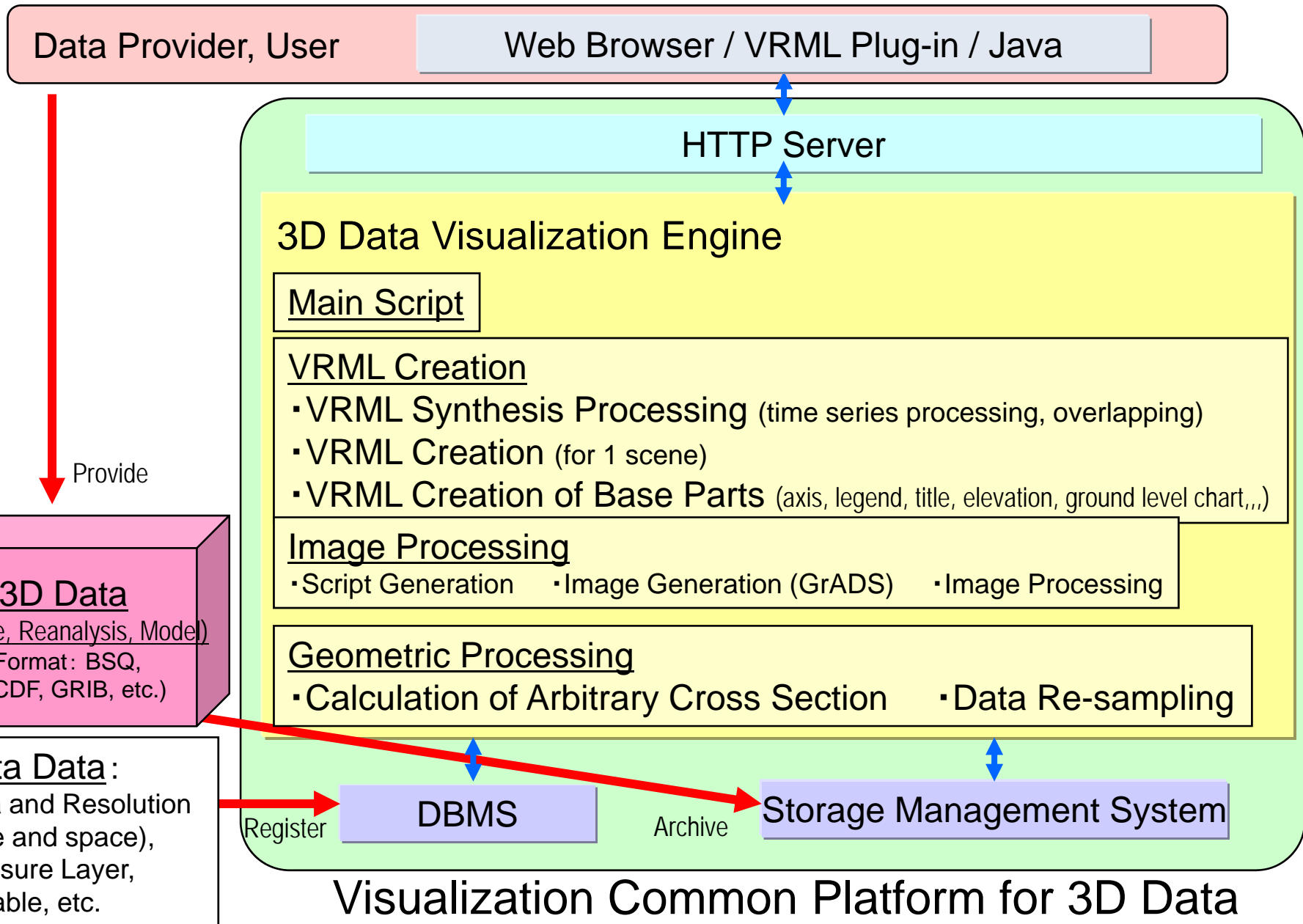
Applications on DIAS Core System

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#1

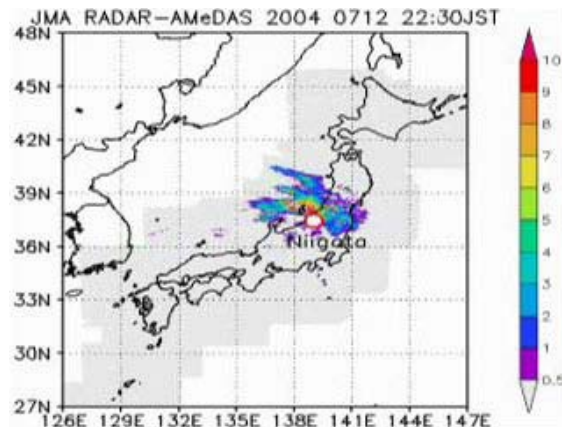
Analysis of Bai-u front in
Japanese Islands

Powered Visualizer for 3D Data



Heavy Rainfall in Niigata Prefecture and Fukui Prefecture in 2004

- ◆ 2004/07/09-2004/07/14
- ◆ Water vapor ratio of AIRS products
 - AIRS (Atmospheric Infrared Sounder) on Aqua Satellite
 - 28 pressure levels
 - Arbitrary cross section (Shaded contour plot)
- ◆ Geopotential height and wind of NCEP/NCAR reanalysis data
 - 17 pressure levels (Original)
 - Contour line (geopotential height)
 - Arrow (wind)





Center for

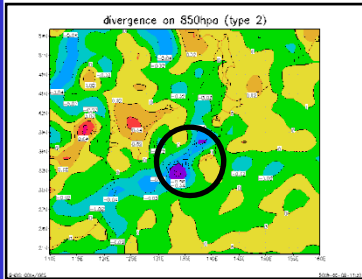
Information Fusion

#2

Climate model analysis

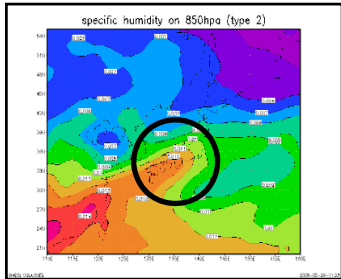
Integrated Analysis for an Effect of Global Warming on Baiu in Japan by Extra-large Volume IPCC Climate Model Output and Reanalysis Data

Convergence

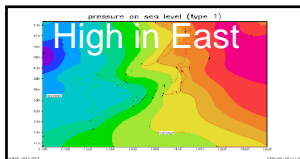


Strong convergence zone along Japan (blue)

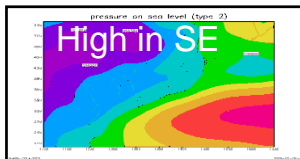
Specific Humidity



Moisture inflow in Japan (moist tongue: red)



× Pressure Pattern



Diagnostic analysis of synoptic scale condition causing heavy rainfall

①

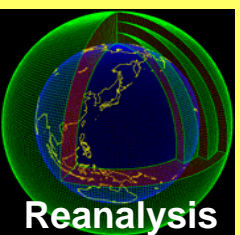
②

Making "template" from typical conditions

Hourly rainfall by AMeDAS

JMA

Off-line data archiving



Reanalysis (18TB)

A Prototype of Data Integration and Analysis

Application Layer

User Apps. User Apps. User Apps. User Apps.

Common Software Layer

•Visualizer (w display wall) •Data Quality Manager •ETL •Data Manager
•Discovery Work Flow Assist •Data Transformer •Data Crawler •Data Navigator
•Meta Data Manger

Data Management Layer

•DBMS

File System Layer

•PB Scale Logical File

•Storage Management System
•Power Management System

Storage Layer

Disk Array

Parallel Data Transferring from

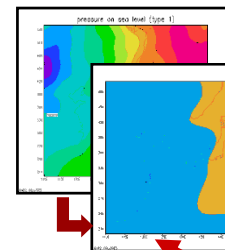
WCRP CMIP3 Multi-Model Data

Home Data About ESC Login

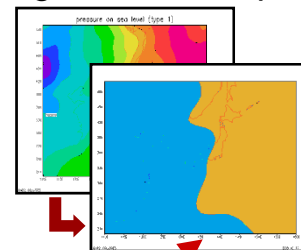
3 scenarios by 12 models in IPCC4
Total: 26 output from climate models (40TB)

- Climate models: Coarse resolution
=Not applicable for heavy rainfall prediction
- ➔Defining features of synoptic conditions in heavy rainfall events by AMeDAS rainfall data and reanalysis
- ➔Investigate the frequency of the heavy rainfall patterns in the climate model output

Templates



Target model output



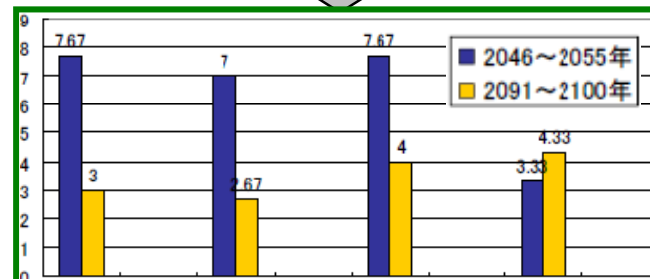
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Pattern recognition

Extra-large volume Visual mining

Searching the similar patterns from 40TB model output

④



Frequency of the heavy rainfall patterns decrease with global warming in 3 from 4 models