

NAEMP

National Aquatic Ecological Monitoring Program

A Database Approach to NAEMP in Korea

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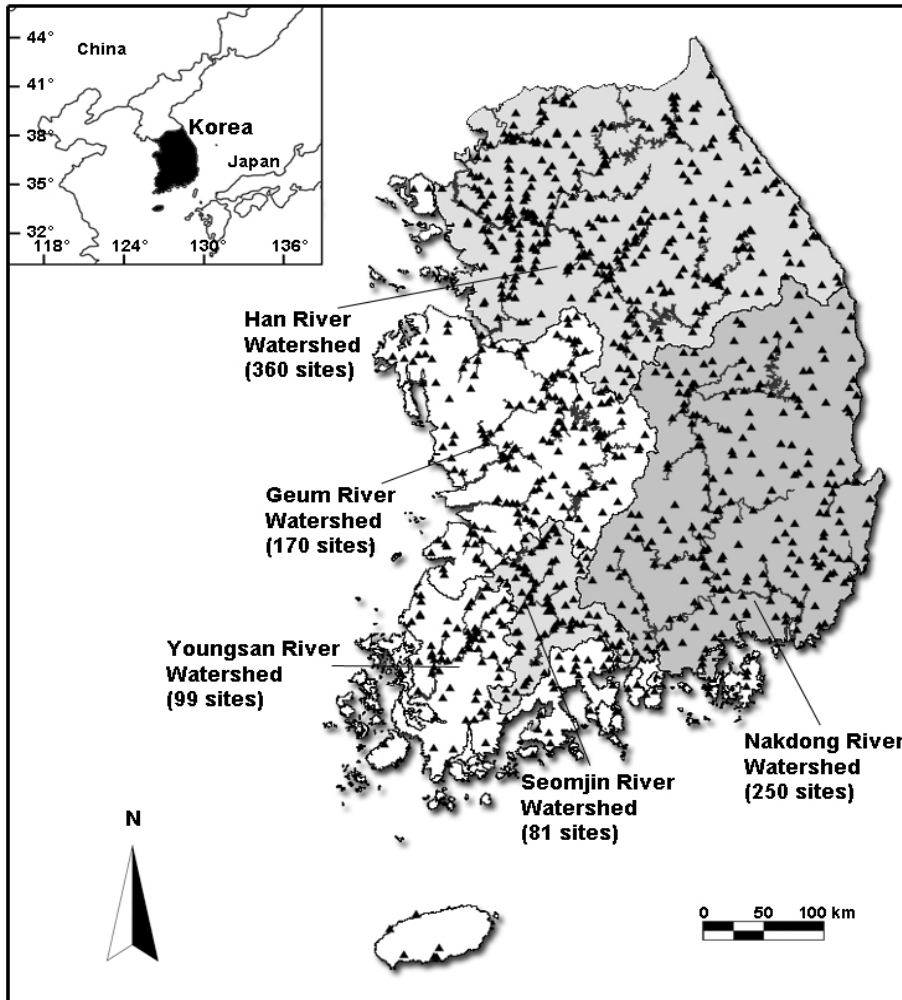
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Goal

**Assess the health condition of
rivers and streams in Korea**

Establish Monitoring Network



- Five major rivers
 - Han
 - Geum
 - Nakdong
 - Youngsan and Seomjin
- Total 960 Sites

Develop Criteria

Choose monitoring parameters

Des

Physico-chemical parameters

BOD, pH, DO, SS, COD, T-N, T-P

Biological parameters

Benthic diatoms, Macro invertebrates, Fish

Habitat quality

channel development, lateral and longitudinal connectivity, substrate condition, riparian land use

Simple hydraulic parameters

Water velocity, width, and depth

Conduct monitoring

Twice every year
From 2007 to 2014

What's the Problem?

	코드	G001	G002	G003	G004	G005	G006	G007
	조사구간명	장수천	금강 03	진안천	금강 07	안창천 02	금강 10	원당천 01
위치	대권역	금강	금강	금강	금강	금강	금강	금강
	수계	금강	금강	금강	금강	금강	금강	금강
	중권역	용담댐	용담댐	용담댐	용담댐	용담댐하류	용담댐하류	무주남대천
	소권역	장계천합류점	진안천합류점	진안천	용담댐	용담댐하류	용담댐하류	무주남대천소
	하천명	장수천	금강	진안천	금강	안창천	금강	원당천
	분류_지류 구 지류	분류	지류	분류	지류	분류	지류	지류
조사지점	위도(도, 분, 초)	35:39:332	35:48:62	35:48:392	35:57:12	35:56:57	35:59:34	35:54:1275
	경도(도, 분, 초)	127:32:291	127:31:28	127:27:14	127:31:317	127:33:57	127:37:02	127:47:416
조사일	조사일(YMMDD)		100928	100928	100928		100928	
날씨	1 맑음, 2 흐림, 3 비(눈)	1		1	1		1	
조사수행	조사기관	2차제외	충남대학교	충남대학교	충남대학교	2차제외	충남대학교	2차제외
	조사자	2차제외	안광국	안광국	안광국	2차제외	안광국	2차제외
	<i>Tribolodon</i>	대황어						
	<i>Pungtungia</i>	돌고기	4	8	6		8	
	<i>Microphysog</i>	물마자						
	<i>Gobiobotia</i>	물상어						
	<i>Iksookimia</i>	동방종개						
	<i>Odontobutis</i>	동사리	4	6	4		2	
	<i>Pseudobagr</i>	동자개						
	<i>Microphysog</i>	튀김모치						
	<i>Saurogobio</i>	두우쟁미						
	<i>Cottus kore</i>	독종개						
	<i>Monopterus</i>	드렁허리						
	<i>Chelon affir</i>	등줄송어						
	<i>Rhodeus no</i>	떡납줄갱이						
	<i>Carassius c</i>	떡붕어						
	<i>Periophthal</i>	말뚝망둥어						
	<i>Silurus asot</i>	메기						
	<i>Pseudogobi</i>	모래무지	29	24			4	
	<i>Microphysog</i>	모래주사						
	<i>Squalidus ja</i>	몰개		5				
	<i>Oncorhynch</i>	무지개송어						
	<i>Anguilla ma</i>	무태장어						
	<i>Acheilognat</i>	묵납자루						
	<i>Acanthogob</i>	문절망둑						
	<i>Misgurnus n</i>	미꾸라지		1			1	

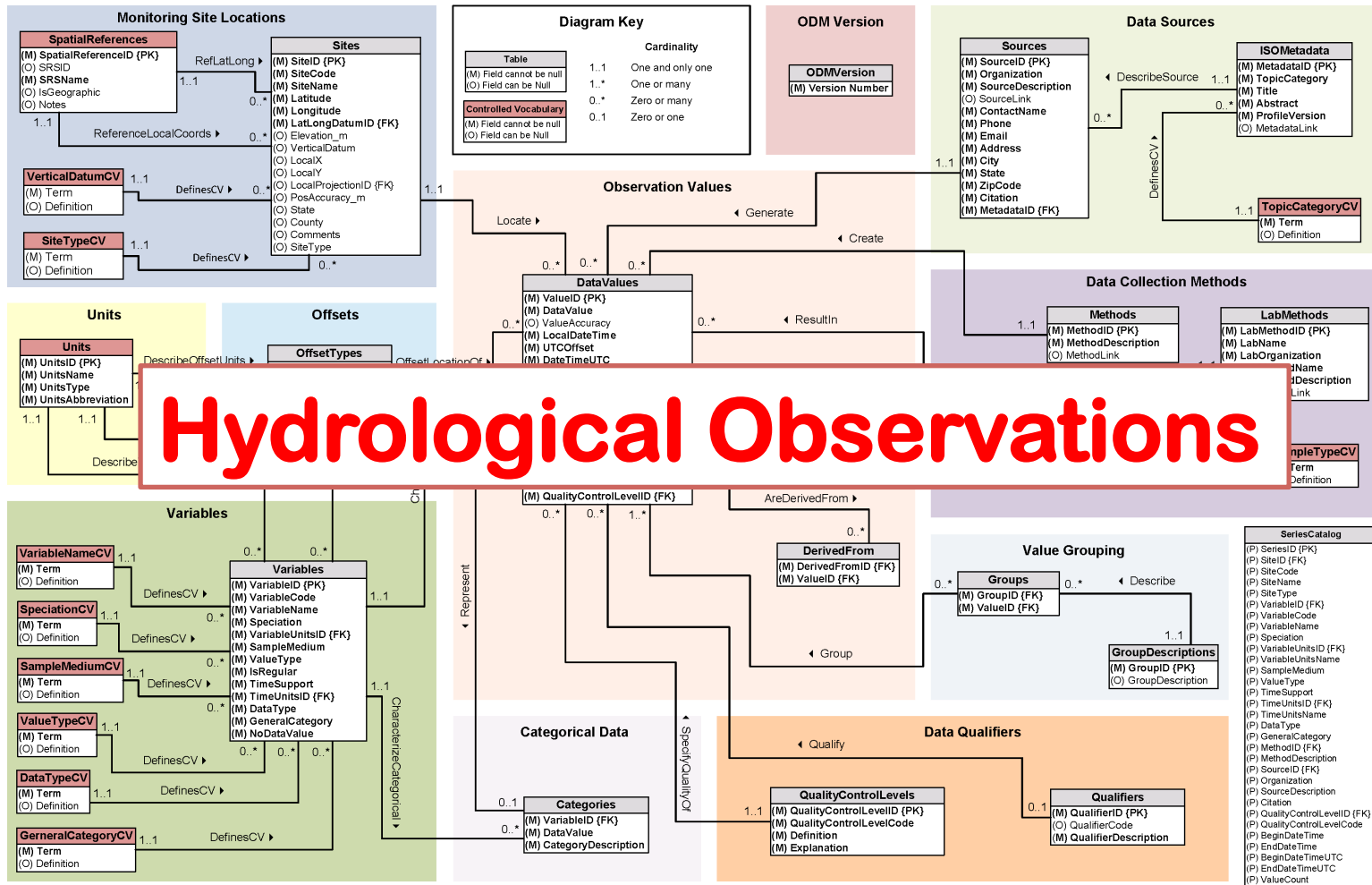
Challenging Issues

- **Data Searching**
 - Hard to know and locate what kind of data is stored in files
- **Data Reorganization**
 - New analyses or reports require a substantial amount of reorganization to structure files
- **Data Conservation**
 - Some data that are not included in file structure are likely to be lost and never recovered in the future

Database Approach!

Design a Data Model
Develop Database
Support Data Access

Related Work?

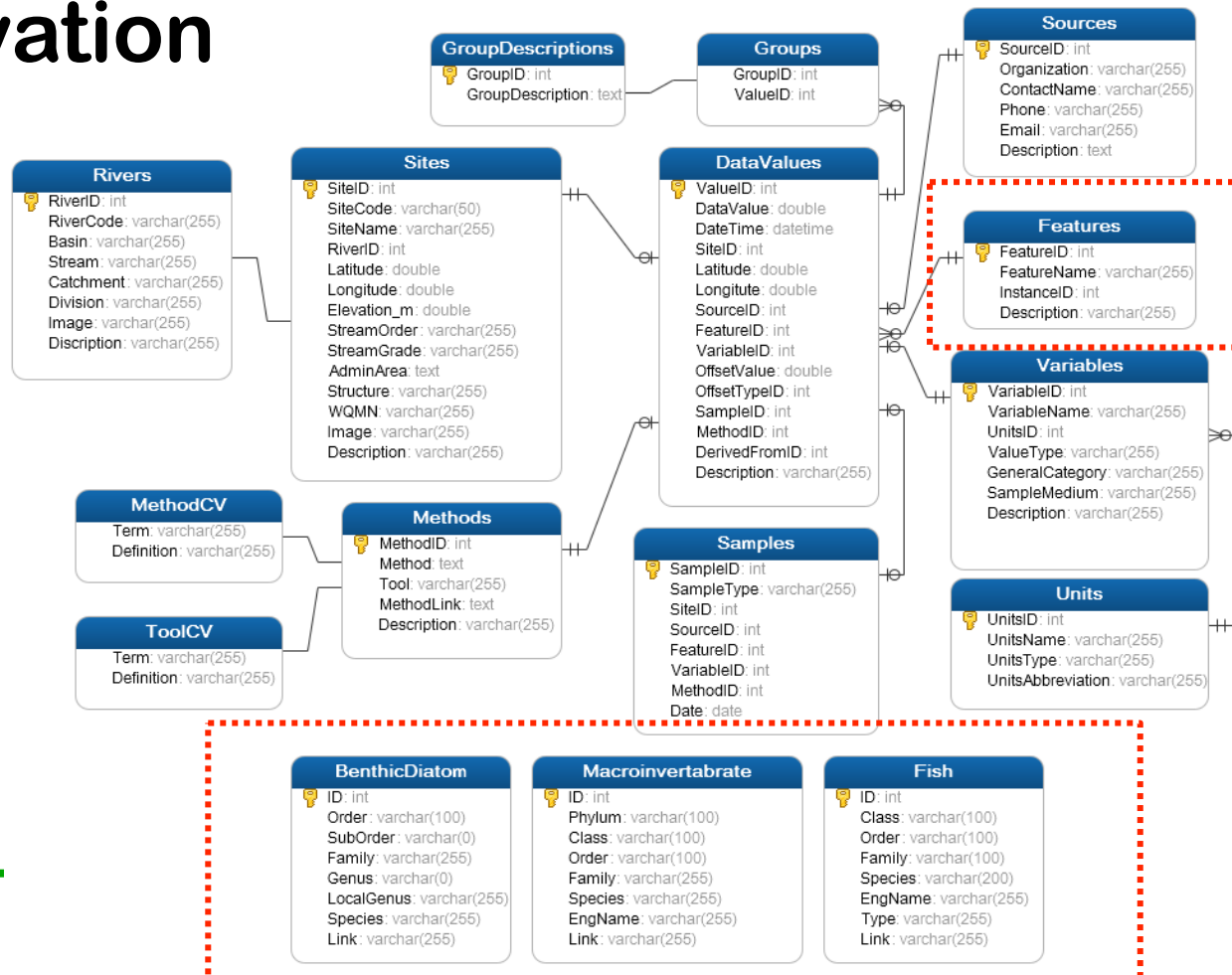


Hydrological Observations



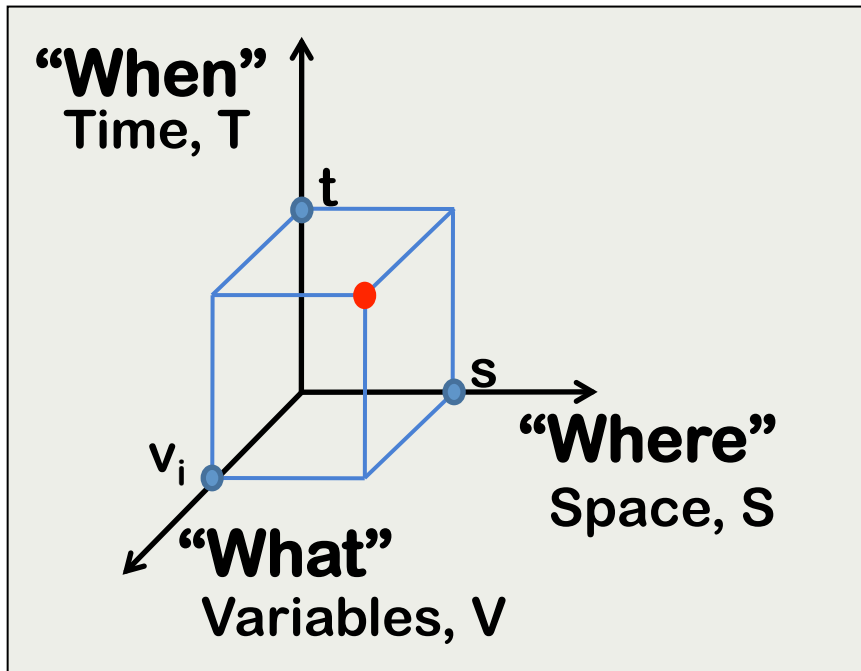
What more is there?

Taxonomic information for Biological Observation



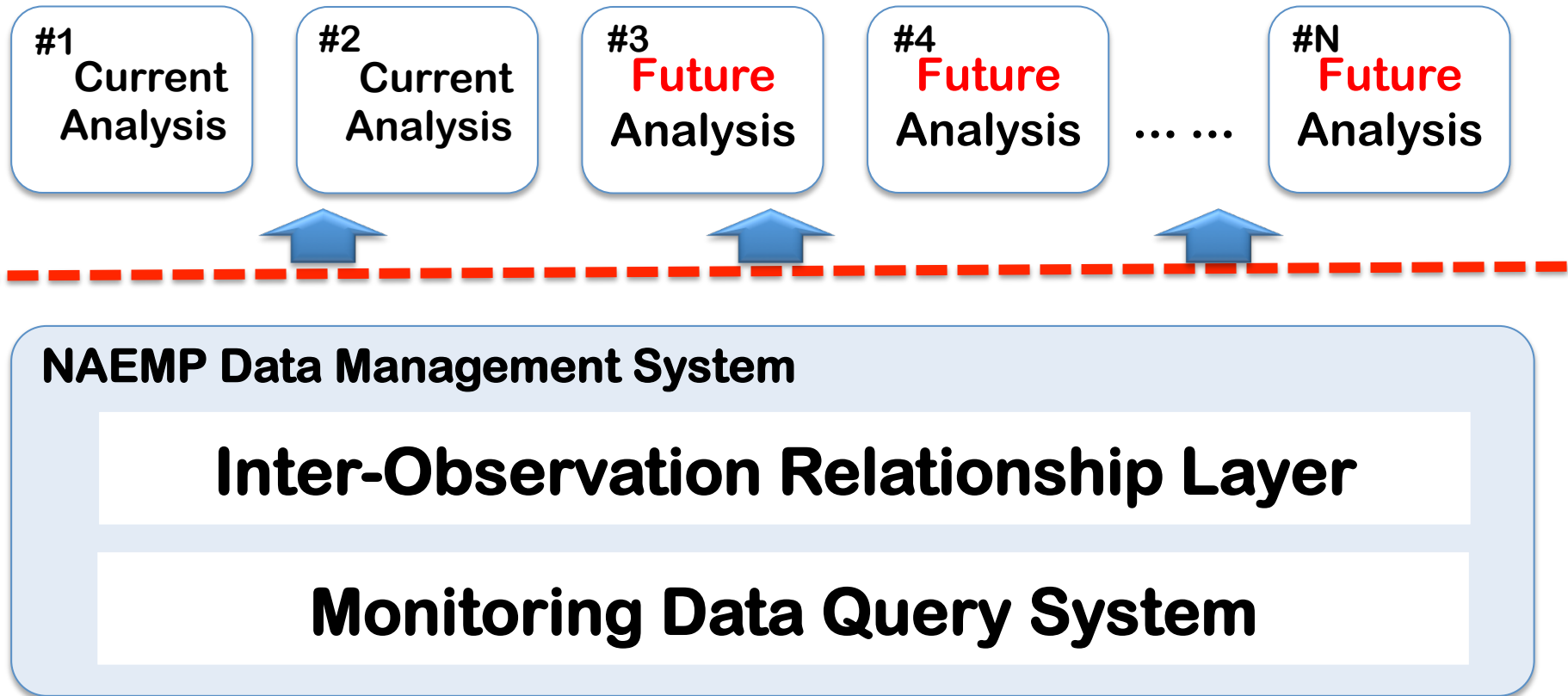
Data Access

Query: Space, Time, Variables and Taxonomy



Taxonomy

Data Management System



Summary

- **Brief introduction to NAEMP in Korea**
- **Challenging issues in data management**
 - Largely raised from spreadsheet file based management for specific analysis and report
- **The Database Approach**
 - Adding the support for monitoring data based on the CUAHSI ODM
 - Supporting Data Access by Query System

Thank you 😊