

SCI-WMS CI-2014 Book Chapter Outline

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1 Motivation

1. What is the problem?
2. Why is the problem important?
3. How does SCI-WMS solve the problem?
4. State Novelties and Contributions
 - 4.1. Support for arbitrary projections specified by client through EPS string.
 - 4.2. SCI-WMS is the first WMS to support unstructured CF-Compliant data.

2 SCI-WMS

1. Overview of OpenGIS WMS specification
 - 1.1. What is a WMS specification?
 - 1.2. getCapabilities, getFeatureInfo, and getMap
 - 1.3. Standard Http Interface
 - 1.4. REST-like API for client-server separation
2. Overview of CF-Standard
 - 2.1. Standard names for Atmospheric, Climate, Weather and Forecasting data
3. Overview of Grid Types and Models
 - 3.1. ADCIRC
 - 3.2. SELFE
 - 3.3. FVCOM
 - 3.4. SLOSH
 - 3.5. ROMS

4. Overview of R-Tree Database

- (a) WMS getMap requests are orthogonal range queries, ideally suited for Rtree datastructures
- (b) Rtree figure?
- (c) Create local cache of unstructured grid points using Rtree database
- (d) Run time of creation
- (e) Run time analysis of query
- (f) Each getMap request finds the indices of the appropriate data in optimal time via queries to the Rtree database.

3 COMT-IOOS Deployment

- 1. Mission of COMT-IOOS
- 2. Use case of federated dataset hosted at multiple organizations unified by a CSW catalogue.
- 3. SCI-WMS deployed for qualitative parameter selection, skill assessment and model comparison.