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Towards Modular Service Definitions for Sensor, Simulation, and Statistics Data

EGU 2011

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Peter Baumann

Jacobs University Bremen,
rasdaman GmbH



Overview

- Introduction
- OGC Coverage Data
- OGC Coverage Services
- Conclusion



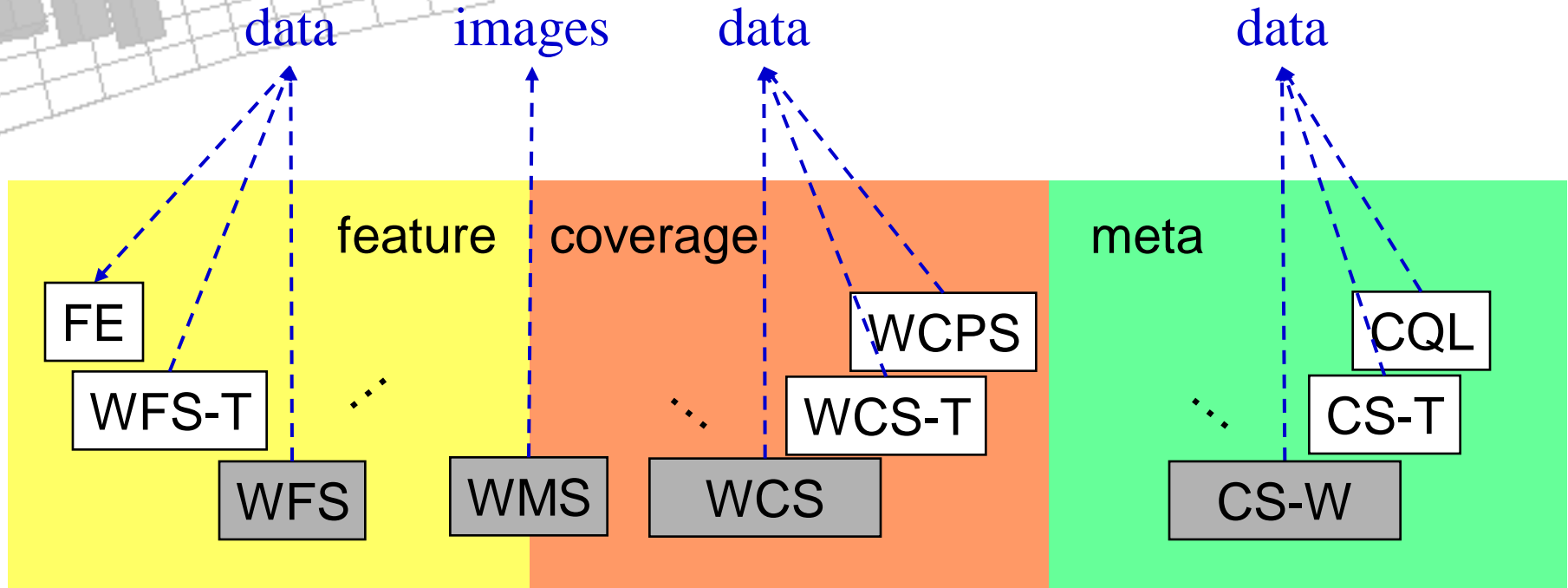
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Acknowledgement

Work funded by ESA as part of HMA-FO Task 3. Results presented have been elaborated in HMA-FO team (Stephan Meissl et al) WCS.SWG team (Max Martinez et al), SWE.SWG (Clemens Portele, David Burggraf et al), ...and the rasdaman team.

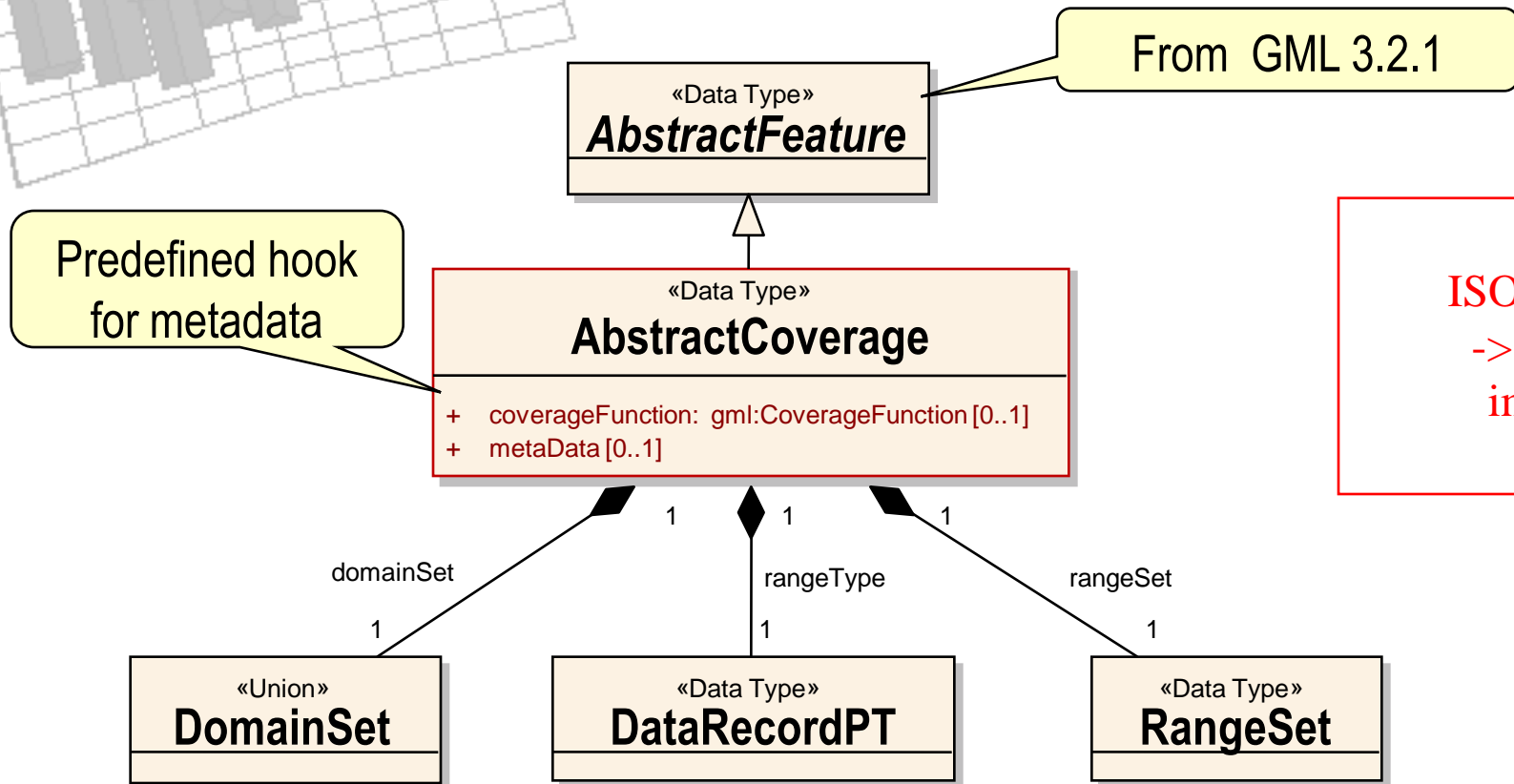


(Part of) The OGC Quilt



- Coverage = n-D "space-time-varying phenomenon" [ISO 19123]

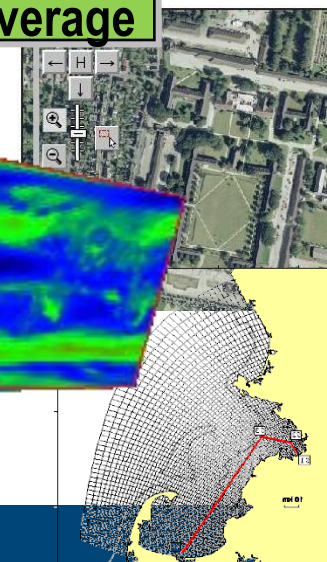
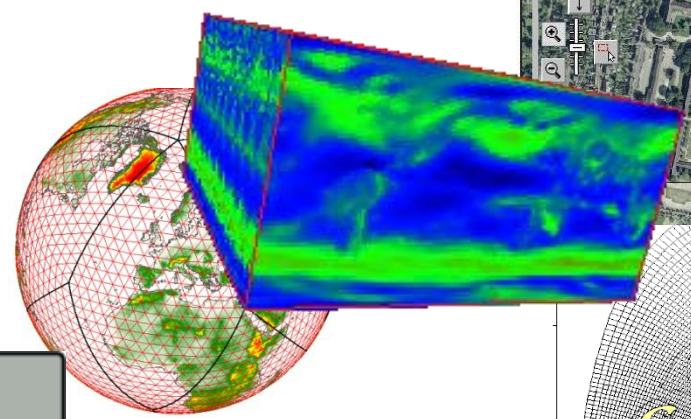
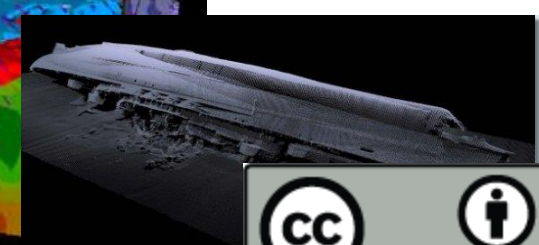
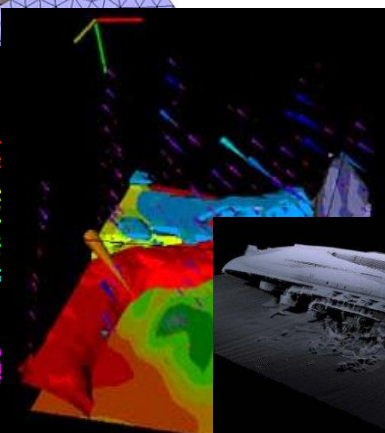
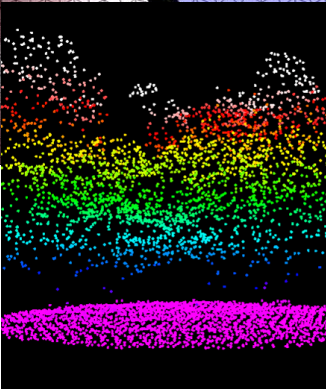
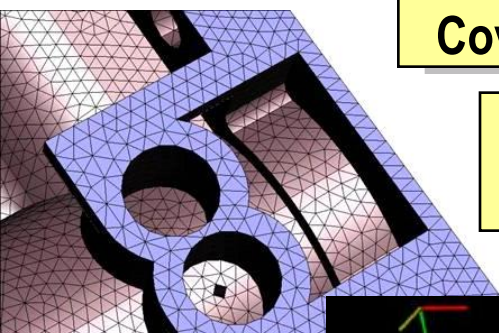
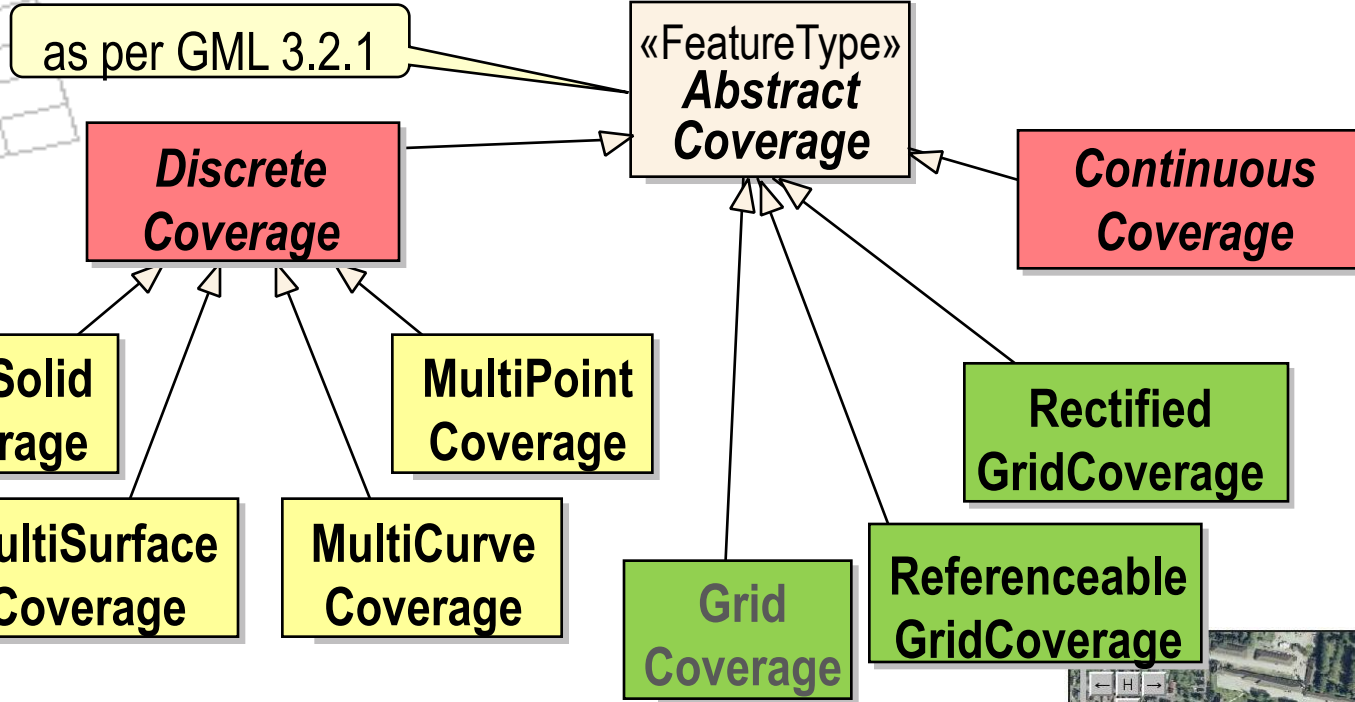
Coverage Definition



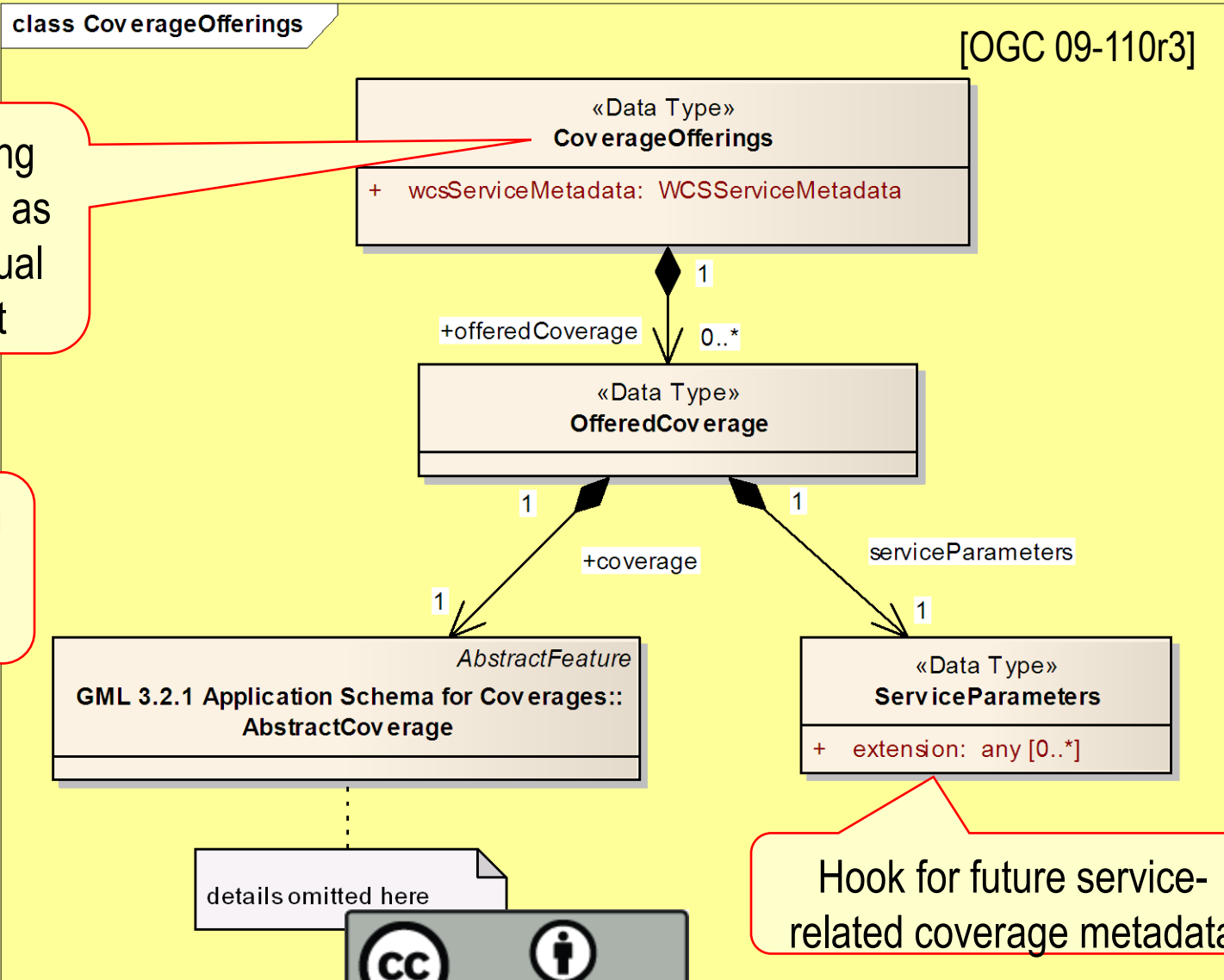
[OGC 09-146r1]



Outlook: Coverage Subtypes



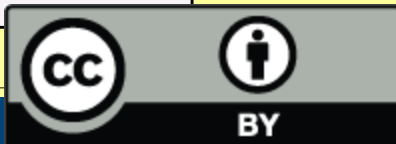
WCS Data Model



WCS offering can be seen as a single virtual document

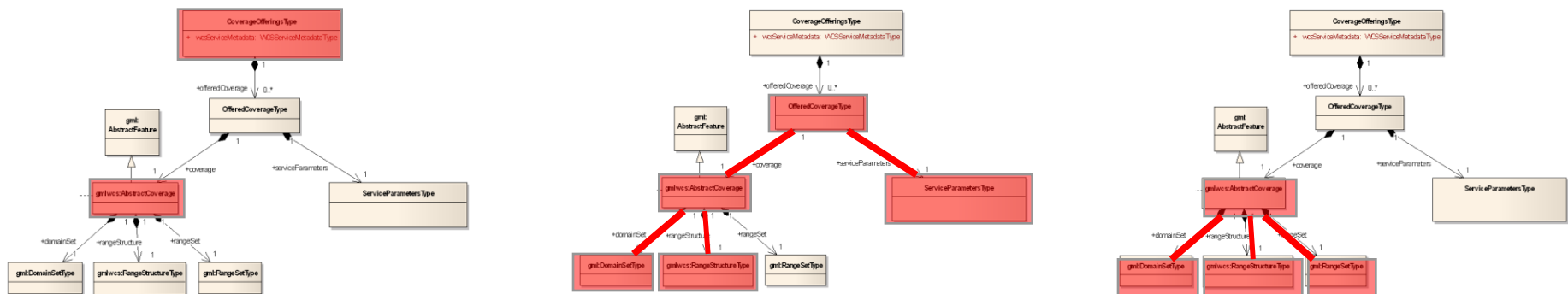
Notwithstanding other actual encodings

Hook for future service-related coverage metadata



WCS Service Model

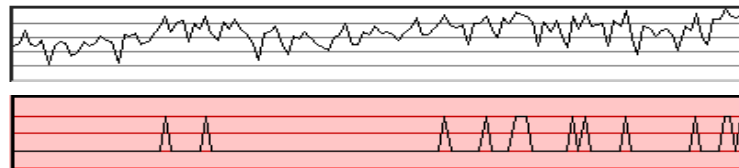
- *GetCapabilities* what service extensions? What coverages?
- *DescribeCoverage* coverage metadata
- *GetCoverage* coverage, or subset thereof
- ...now concisely defined as pruning from coverage offerings;
in future: **reasoning** on coverages, towards Semantic Web



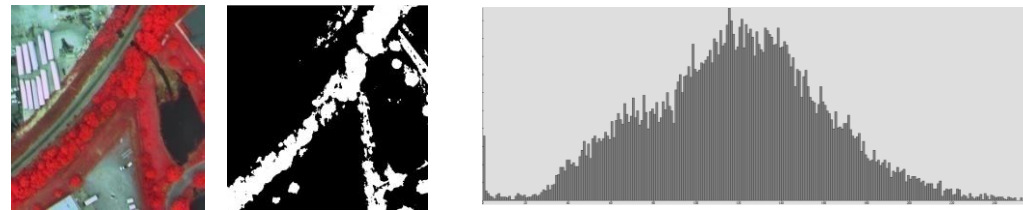
Web Coverage Processing Service

“XQuery for n-D rasters”: ad-hoc navigation, extraction, aggregation, analytics

- Time series



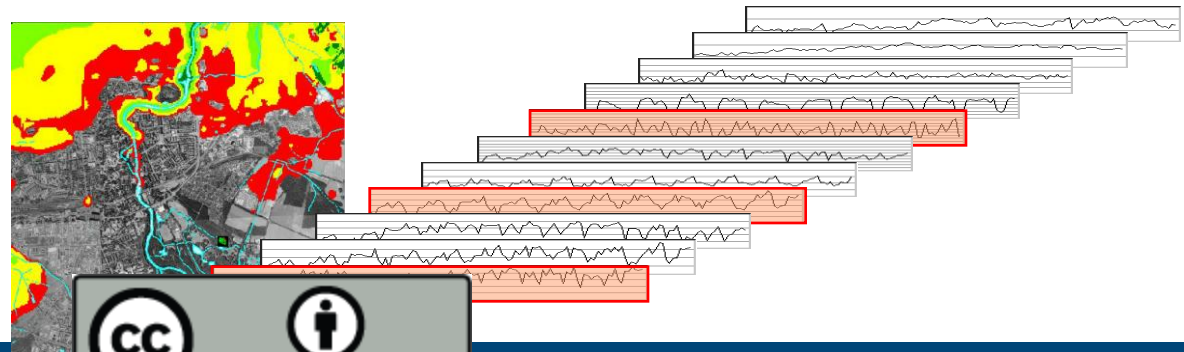
- Image processing



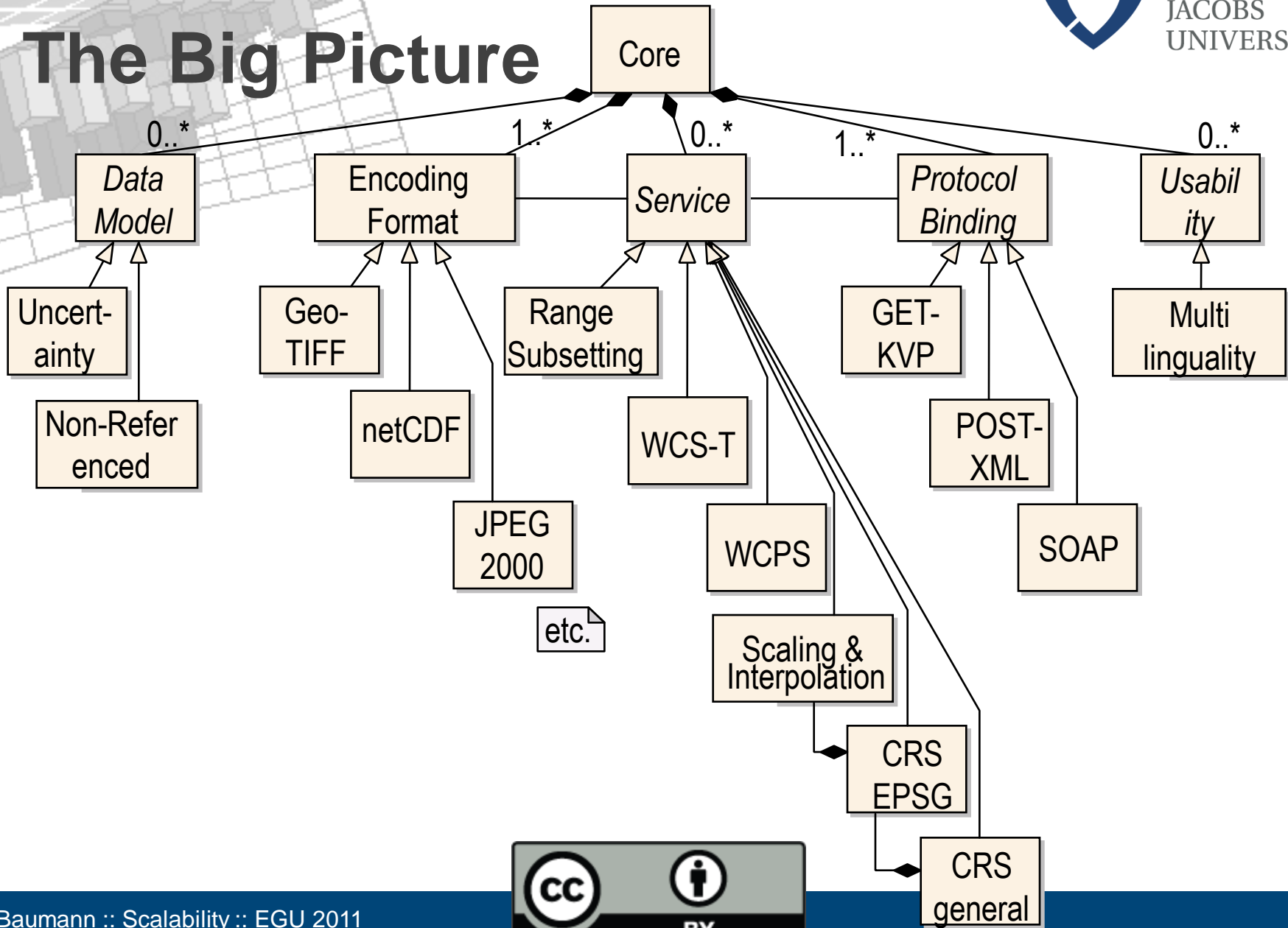
- Summary data

- current value is **8220.0**;
- average over all values up to now currently is **7461.7692307692305**.

- Sensor fusion
& pattern mining



WCS Suite: The Big Picture



Use Case Study: EO-WCS

- OGC10-140 **WCS Earth Observation Application Profile**

- Candidate standard, in adoption process

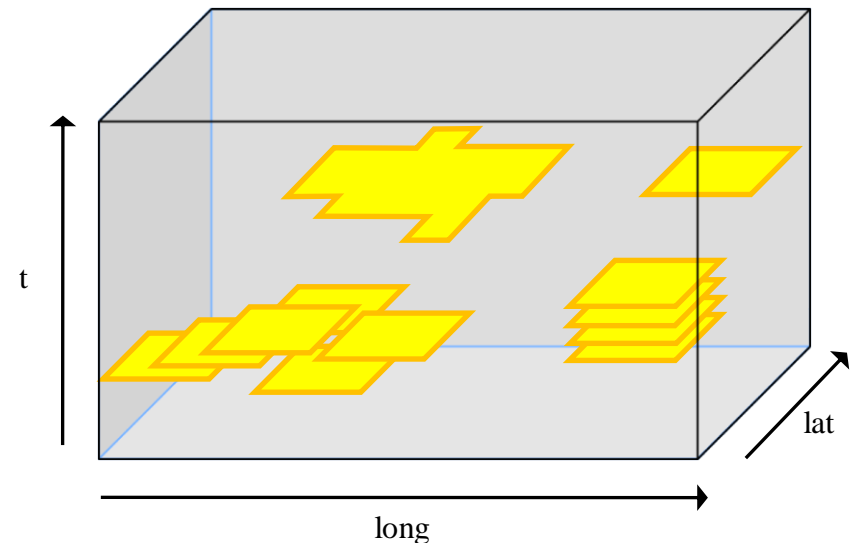
- Hierarchical groupings

- Stitched Mosaic: **homogeneous** grouping
→ can be viewed as single coverage
- Dataset Series: **general** grouping
→ just a set of coverages

- Uniform **spatio-temporal retrieval**:

DescribeEOCoverageSet

- Additional request type: „all objects within given space/time bounding box“



[Stephan Meissl, EOX]

Conclusion

Send me your WCSs:
p.baumann@jacobs-university.de



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- unified, **service-independent** OGC coverage model
 - 09-146r1 GML Application Schema for Coverages
 - nD rasters, curvilinear grids, point clouds, meshes, ...
- **Extensible** core coverage service
 - 09-110r3 WCS Core
 - ftp-style tile → versatile extraction & analytics
 - **Array Databases** give high-performance **analytics & collaboration** support
 - Both at acquisition time and for „long-tail science“
- **Demo** this afternoon 17:30
 - ...or www.earthlook.org

