



EUDAT 1st Working Groups Meeting - – Track: Array Databases

Tentative Agenda

Meeting facilitator: [Peter Baumann](#)

Multi-dimensional arrays play a core role in many, if not most science and engineering domains where they typically represent spatio-temporal sensor, image, simulation output, and statistics data. The research field of Array Databases has emerged in the attempt to augment the traditionally set-driven paradigm with modelling and query support for large, n-D arrays. Declarative query languages allow “any question, anytime” while opening the door widely for server-side optimization and parallelization to achieve scalability to Petabyte datacubes. Specifically, querying such n-D arrays – or “datacubes” – allows considering not only spatial, but also temporal dimensions. This makes them particularly amenable to timeseries analysis.

Technology existing and evolving is underpinned by standardization of such query languages, in particular: ISO SQL/MDA (“Multi-Dimensional Arrays”) and OGC Web Coverage Processing Service (WCPS) for spatiotemporal cubes. EUDAT responding to this challenge by establishing a dedicated Array Database Working Group.

Some primer material:

- Array Databases: http://en.wikipedia.org/wiki/Array_DBMS
- RDA Array Database WG Charter (draft): <https://rd-alliance.org/group/case-statement/array-database-working-group.html>
- WCPS: http://en.wikipedia.org/wiki/Web_Coverage_Processing_Service
- ISO SQL/MDA: [D. Misev, P. Baumann: Homogenizing Data and Metadata Retrieval in Scientific Applications. Proc. ACM CIKM DOLAP, Melbourne, Australia, October 23, 2015, pp. 25 - 34](#)

This workshop brings together “techies” and “users” (scientists, service operators) in the wider sense. In preparation of your talk and for discussion, can we ask you to consider these questions:

- for us users: *what capability did you always want to have on your data (and didn't dare to ask your IT for) ?*
- for us techies: *what is your coolest thing that can make people's life better, and how?¹*

12. November, 2015		
11.00	Welcome by EUDAT and BSC	Peter Wittenburg and Sergi Girona
11.05	Introduction to EUDAT, the Workshop Intentions, Q&A	PeterWittenburg
11.25	Moving to track locations	
11.30	Introducing the Main Questions for the track	Peter Baumann
11.40	In a Nutshell: Promises and Challenges of Array Databases	Peter Baumann
12.00	European Strategic View	Carlos Morais Pires
12:15	Array Databases	Kwo-Sen Kuo
12:30	Citation & Arrays	Stefan Pröll
12.45	Discussion	Peter Baumann

¹ Short live demos are welcome, bearing in mind the schedule limits.

13.00	Lunch break	
14.00	Arrays in Physics	Juan Bicarregui
14:15	Arrays in Atmospheric Research / Radar (EISCAT)	Ingemar Hägström
14.30	Arrays in Earth Observation	Simone Mantovani
14.45	Arrays in the Environmental Sciences	Alessandro Spinuso
15.00	Arrays in the Environmental Sciences	Luca Trani
15:15	Discussion	Peter Baumann
15.30	Coffee break	
16.00	Arrays in Biodiversity	Johannes Peterseil
16.15	Arrays in the Humanities and Material Sciences	Thomas Zastrow
16:30	Arrays in Astronomy	Joshua Bloom
16:45	Timeseries Analysis: Common Patterns Across Domains	Costantino Thanos
17.00	Discussion and Wrap Up	Peter Baumann
17.45	Wrap Up of the day	
20.00	Dinner	
13. November, 2015		
9.00	Spotting services relevant for EUDAT	PeterBaumann, Mark Van de Sanden
9.30	Discussion	
10.30	Coffee break	
11.00	Consolidation & conclusions from this Track, key questions: a) Which Array DB practices and components are common? b) Would a EUDAT Array DB service make sense? c) How to get concrete, who is on board? (cf Array DB WG!)	
13.00	Lunch break	
14.00	Reporting and General Conclusions	chairs
14.45	Wrap-Up of Organizers	Daan Broeder, Peter Wittenburg
15.00	End	

Note: Sessions common for all 3 meeting tracks are highlighted in a darker shade

At the end of this event a few questions should become clear and time to discuss these questions has been reserved for this:

- What are common components of a distributed data mining solution and is there a convergence on open standards?
- Would an EUDAT service make sense and what would be the implications?
- Would it be useful to start a Working Group on this issue including concrete tests etc.?
- Is there an interest in starting a EUDAT WG from the participants and who else should be contacted?

Further comments and suggestions to optimize the agenda are welcome.