



MNM

TEAM

MUNICH NETWORK MANAGEMENT TEAM

Towards Environmental Computing Compendium

Matti Heikkurinen¹, Dieter Kranzlmüller²

¹Munich Network Management Team
Ludwig-Maximilians-Universität München (LMU)

²Leibniz Supercomputing Centre



■ What is environmental computing?

Historical perspective

- Observations during the last 10-15 years of bringing new applications to top-level HPC
 - Similar questions, stumbling blocks, issues with vocabulary
 - **Can we streamline this process?**

- Increasing number of inter-disciplinary environmental modelling projects
 - As above, but a multi-party phenomena
 - **Can we provide both IT services and facilitation**

- Reuse tools across disciplines
 - Generic components: workflows, data mgt,...
 - Framework reuse (from AMUSE to OMUSE)
 - **Can we support consolidation of the shared “toolbox”**

- “Creating actionable, environment-related knowledge using tools pushed beyond their comfort zone”

What do we mean by "actionable knowledge"?

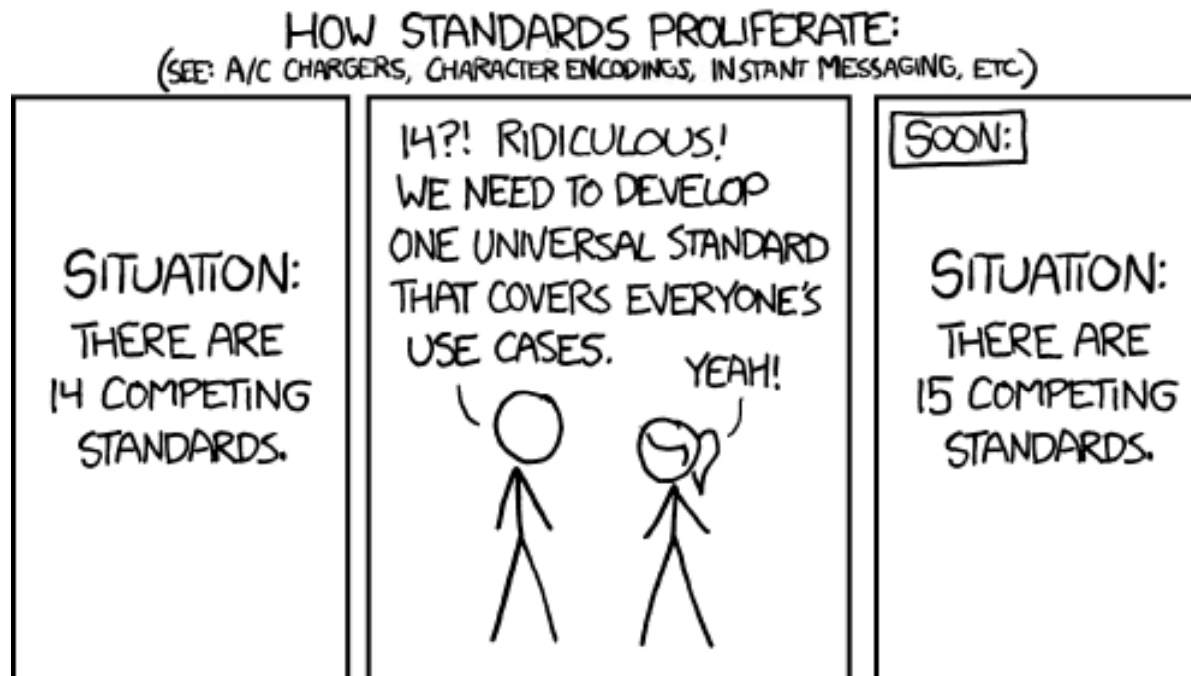
- Knowledge that can inform decision making (relatively) directly
 - E.g. use model results directly as an argument for a course of action (vs. using conclusions of scientific papers presenting the model results)
- Why the distinction to knowledge in general?
 - Higher degree of trust in tools required
- Examples of actionable knowledge produced by environmental modelling:
 - Weather reports
 - Tsunami warnings

What do we mean by “beyond comfort zone”

- Largely subjective definition
- Technical causes
 - New tools still in development
 - Established, standardised tools used in novel context
 - Scaled beyond what is routine
- Procedural causes
 - Part of a workflow (that might produce “interesting” input values)
 - Used in absence of a domain expert

Aren't people already looking into this?

- Perhaps - but it seems that many of the interest groups are
 - Focused on specific technologies (supercomputing, big data,...), or
 - Specific discipline (seismology, meteorology, climate,...), or
 - Specific problem ("environmental modelling for X")
- => **We see demand for a complementary, open network of generalist (environmental computing specialists)**



Why do we need the compendium?

- Way to bring community together
 - Shared state of the art
 - Encourage tool and data reuse
 - Speed up maturing of the new modelling solutions
 - Increase visibility among policy makers, users, funding agencies,...
-
- In general, help achieving critical mass!

The “two out of three” compendium dilemma

- You can choose two out of three
 - Full coverage
 - Accurate & up to date
 - Sufficient detail
- Mitigation strategies (bootstrap phase)
 - Initially make adding information easy
 - Decide what to optimise at which stage
- Real solution: more eyeballs
 - Find a community that considers the compendium “common good”
 - Make sending updates/corrections easy

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ENVIRONMENTAL COMPUTING RELATED INITIATIVES, PROJECTS, GROUPS AND TOOLS

Infrastructures and similar:

- [APFM – Associated Programme on Flood Management](#)
 - “Integrated flood management (IFM) calls for a paradigm shift from the traditional, fragmented and localized approach, and encourages the use of the resources of a river basin as a whole, employing strategies to maintain or augment the productivity of floodplains, while at the same time providing protective measures against losses due to flooding”
- [Copernicus](#)
 - “Copernicus, previously known as GMES (Global Monitoring for Environment and Security), is the European Programme for the establishment of a European capacity for Earth Observation”
- [ECMWF](#)
 - “ECMWF is both a research institute and a 24/7 operational service, producing and disseminating numerical weather predictions to its Member States. This data is fully available to the national meteorological services in the Member States.”
- [ESGF](#)
 - “The Earth System Grid Federation (ESGF) Peer-to-Peer (P2P) enterprise system is a collaboration that develops, deploys and maintains software infrastructure for the management, dis-



Version 2

Environmental computing reso x Matti

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This website is a joint effort of



The website is intended to serve anyone involved in generating actionable knowledge through advanced environmental modelling.

SOCIAL MEDIA

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RECENT POSTS

ICCS workshop deadline extended (Feb 10th)!

Special FDSE session 25th November 2016 (Can Tho City, Vietnam)

ENVIRONMENTAL COMPUTING RESOURCES (BETA)

Column visibility Copy CSV Excel PDF Print

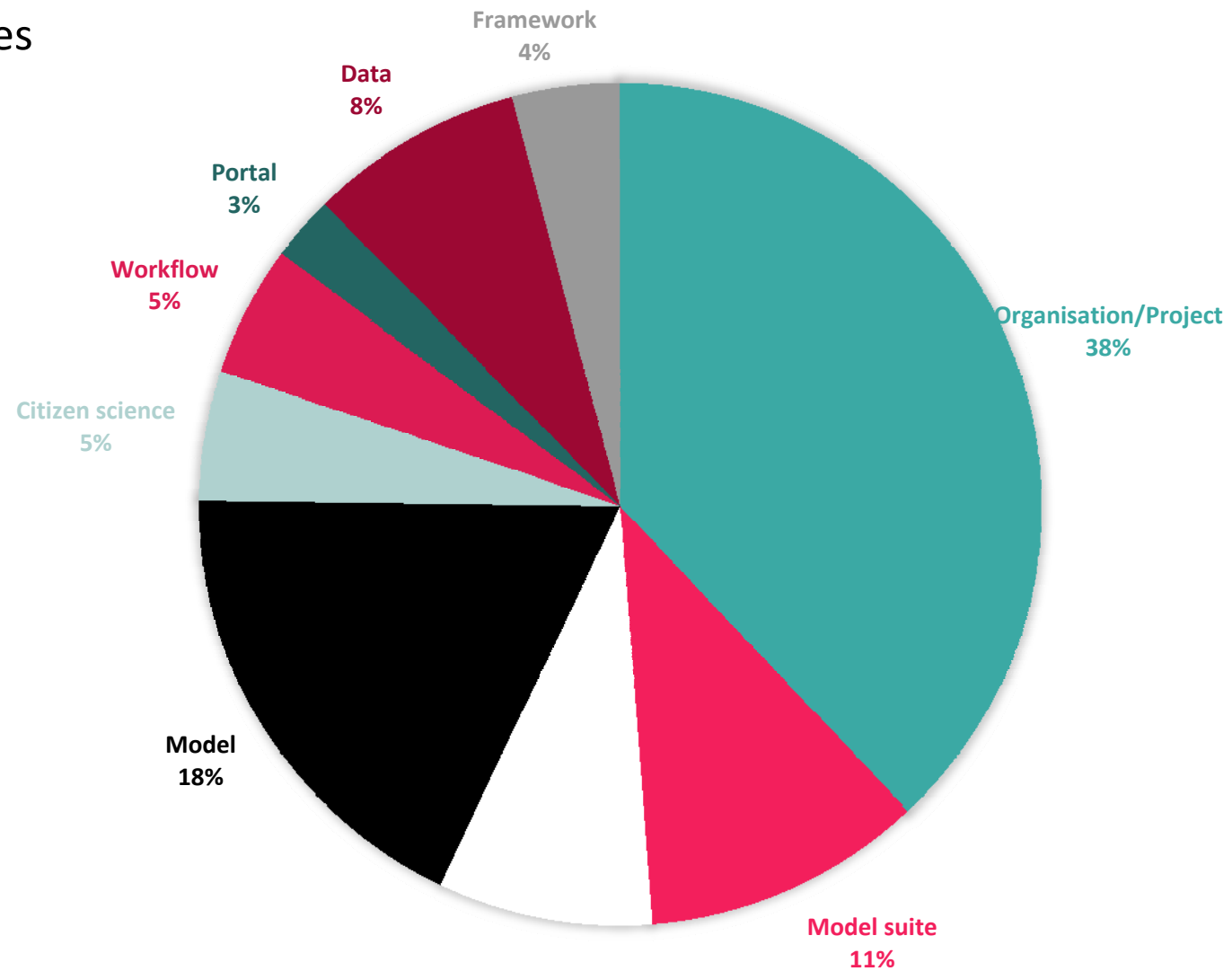
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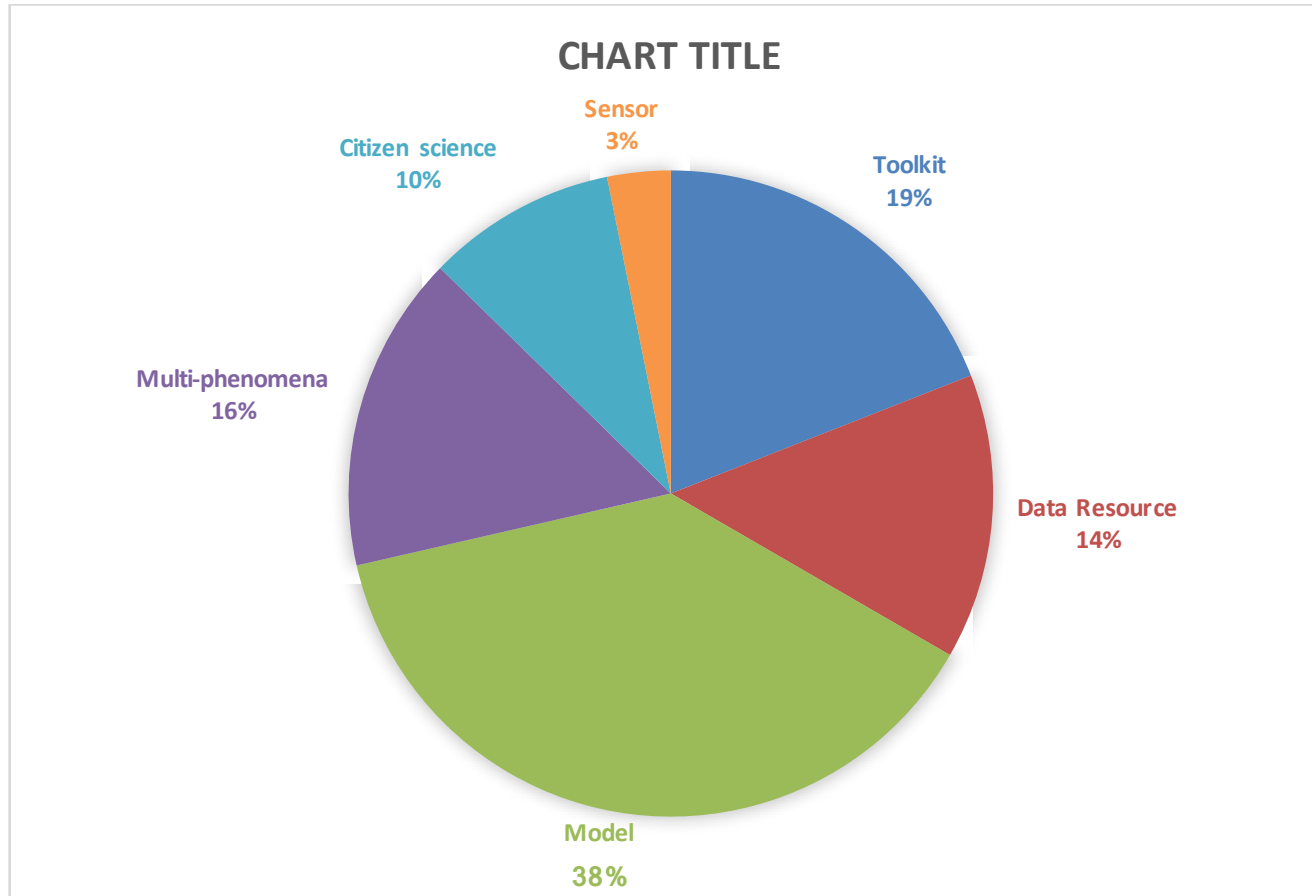
NAME	TYPE
+ ACTRIS	Organisation/Project
+ akvo.org	organisation/Project
+ AnaEE	Organisation/Project
+ APFM - Associated Programme on Flood Management	Organisation/Project
+ ASTARTE	Organisation/Project
+ BGRM - the French Geological Survey	Organisation/Project
+ Bio-Linux	Model suite
+ BiodiversityCatalogue	Network
+ BMI	Framework
+ CAM	Model
+ CAPRA	Framework

Current contents

■ 120+ entries



Software data types



Next steps

- Increase coverage
 - Go through publications
- Review classification
 - Perfect classification impossible
- Similar approach to publications
 - Current plan: export from Zotero library
 - One-click add to the library, web publishing a bit more involved

Questions, comments?

- The new Compendium is online (beta launch)
 - <http://www.envcomp.eu/Compendium>
 - Please tell us if we're missing something!
- The next environmental computing workshops
 - ICCS 2017
 - eScience 2017
- For more information
 - www.envcomp.eu
 - info@envcomp.eu