Biodiversity and Ecosystem Informatics Panel

Yannis Ioannidis
Univ. of Athens, Hellas
Personal Background

• Not involved with any BDEI project
• No immediate knowledge of BDEI projects
• Involved with scientific database projects in other domains
  - biochemistry
  - genetics
  - soil science
Potential Needs

- Original informatics research
- Adaptation of cutting-edge technology
- Off-the-shelf technology
- Organizational infrastructure
- Ecologist training on technology
- More ecologists doing domain research

YES to all!
Others’ Project Titles

- Event and process tagging for information integration for the int’l Gulf of Maine Watershed
- Radar remote sensing of habitat structure for biodiversity informatics
- Designing an infrastructure for heterogeneity of ecosystem data, collaborators and organizations
- Spatial data infrastructure for ecological grant
- Biodiversity information organization using taxonomy
Others’ Project Titles

• Spatio-temporal models of biogeophysical fields for ecological forecasting
• Overcoming nomenclature complications while searching in a distributed database environment
• ... biodiversity monitoring: extending the spatial and temporal scales
• Towards an operational semantics of biological diversity: integrating structure and function in a web-accessible knowledge base
Research Problems?

- Object-based spatial contexts
- Matching data on different spatial scales
- Spatio-temporal querying
- Data classification
- Knowledge inferencing
- Data visualization
Informatics/DB Research

• No new research questions/areas
• Old problems
  - Modeling-Semantics-Ontologies
  - Heterogeneity
  - Spatial and Temporal Data
  - User Interfaces
Informatics/DB Research

- New kinds of data
- New forms of semantic complexity
- New forms of interaction
- Large dataset sizes
- Research for potentially new solutions and new technologies
Additional Activities

• Domain scientists need other help too!
  - Use of off-the-shelf technology for mundane tasks
  - Set up organizational infrastructure
  - Train domain scientists on using existing technology
Bottom Line

• Ecologists and computer-scientists should work together
• They should be willing to spend time up front to learn to communicate
• Computer scientists should be willing to help ecologists on technology
• Computer scientists have great research opportunities by addressing old problems in new contexts