

NSF Workshop, 8-9 January 2009.

Challenges in Geospatial and Geotemporal Informatics

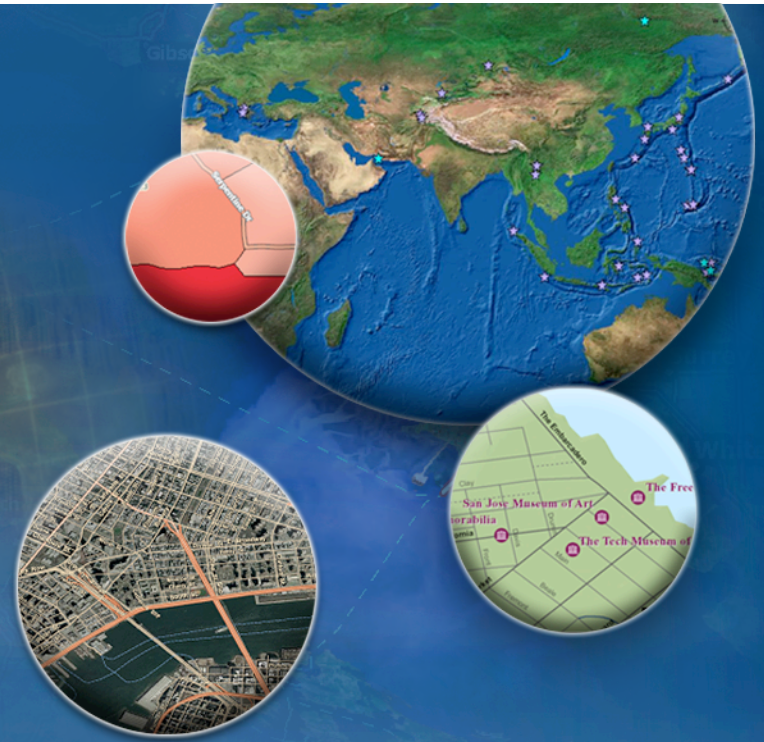
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ESRI

Preface

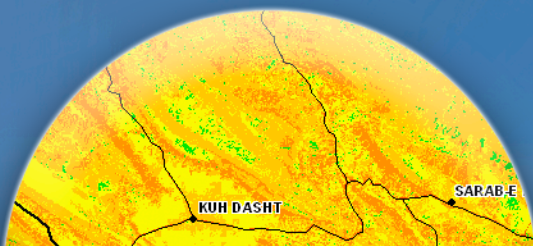
- PhD Geography (SUNY-Buffalo)
- Past 10 years professor of Information Systems (Spain)
 - Different enterprises Geog vs. IT
 - Spatial Thinking a main focus
 - Interdisciplinary research
- Not necessarily opinions of ESRI Inc.



Questions asked of us

1. What has been solved? Successes.

- Basic spatial algorithms (D Mark: nothing new after 1978)
- Topological data structures → Navsat in cars
- High res imagery widely available (in western world)
- Agreement on value of standards
- GIS being used in local/regional/federal government
- GIS in schools (USA)



Questions (2)

2. What is ALMOST solved? Hot topics.

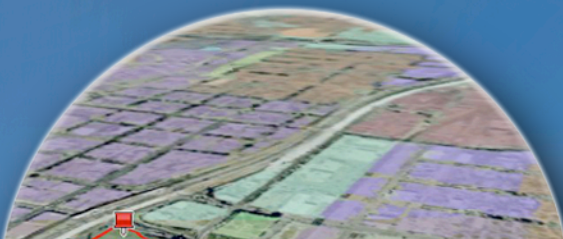
- Spatial data infrastructures (SDI)
- Service oriented architecture (cloud)
- Mobile computing (and mobility)
- Privacy issues related to *where*
- Mashups / Integration
- Real time data feeds <-- sensor web
- Semantic interoperability
- 3D GIS (visualization)



Questions (3)

3. What has failed? (or not met expectations)

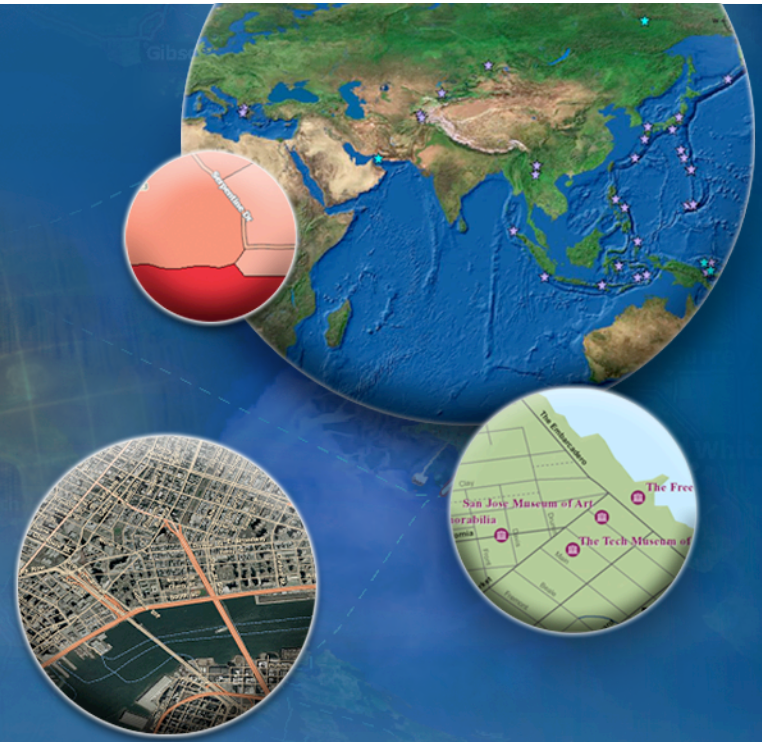
- Geography not centrally involved in new geo technologies
- Systems for geo-collaboration
- True spatio-temporal data handling
- True 3-D (analysis, spatial relations)
- Fast, friendly interfaces like consumer products



Questions (4)

4. What is missing? Not on radar.

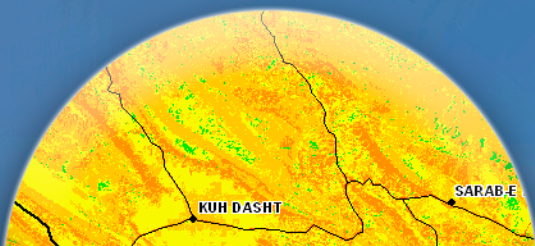
- If we only knew...
- May emerge from collaborative research
- Interdisciplinary, not only multidisciplinary
 - Medici effect
- new geo perspectives on other disciplines
 - Spatial Thinking!
 - Geo-Design



Questions (5)

5. What is needed? High risk and other.

- True spatio-temporal modeling
- Handling changes in space
- Modelling fuzzy and abstract concepts in space (safe or fun areas of a city)
- Multidimensional, multiparticipant Virtual Earths (from 2-D layers to 4-D fishbowl)
- Education (seeding relevance for GI research)
 - Connection to global issues
 - MDGs, GEOSS SBAs



New position paper

The screenshot shows a desktop environment with two windows. The top window is Microsoft Internet Explorer, displaying the GeoTech Center website at <http://www.geotechcenter.org/>. The website features a navigation menu with links for ABOUT US, NEWS, EVENTS, PROFESSIONAL DEVELOPMENT, CURRICULUM, and CAREER INFO. A sidebar on the left lists key goals: "Create a national clear curriculum materials, res...", "Increase the capacity to through new partnerships", "Increase the quantity of technicians to meet U.S.", "Provide a unifying voice interests in organizations", and "Increase the number of geospatial faculty and ser in geospatial professions". A logo for NSF (National Science Foundation) is also visible, along with text stating "GeoTech Center is fund [DUE #0801893]. Opini info@geotechcenter.org".

The bottom window is Adobe Acrobat Professional, displaying a PDF document titled "National_GIS_proposal_1-09[1].pdf". The document content is as follows:

A Proposal for National Economic Recovery

An Investment in Geospatial Information Infrastructure

Building a National GIS

Jack Dangermond, ESRI, jdangermond@esri.com
Anne Hale Miglarese, Booz Allen Hamilton, Miglarese_anne@bah.com

Summary

America's financial crisis, the worst since the end of World War II, will force difficult actions and decisions. Large expenditures of taxpayer money must be designed to yield products of long-term benefit to the country. America has an information economy, and a robust geospatial infrastructure (system of digital maps and tools) is just as vital to its continued development as was the physical infrastructure to the industrial economy. A National GIS, properly designed and effectively

The Acrobat window also shows a sidebar with navigation tools and a small map of the United States at the bottom right.

Looking forward to the coming discussions....

...and to supporting collaborative research initiatives.



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