Dynamic Map Service Integration
Displaying Spatial PUR data

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CA Environmental Health Tracking Program (CEHTP)

- Last year Eric Roberts gave a presentation on the Central Valley/South Coast pilot project looking at relationships between environmental hazards such as pesticides with childhood health
- Today I will describe another project from this program -
- Displaying PUR and other data on maps in a web browser
CA Environmental Health Tracking Program (CEHTP)

• In 2001, SB 702 started a process to create an Environmental Health Surveillance System to track potential links between environmental exposures and chronic disease

• The SB 702 workgroup recommended that "environmental health tracking data need to be shared and integrated in a standardized manner and communicated to researchers and the public."
CA Environmental Health Tracking Program (CEHTP)

- CEHTP is a collaborative initiative between DHS, Cal/EPA, and UC.
- Funded by the U.S. Center for Disease Control in 2002
- Goal is to develop an environmental health tracking network to integrate data on environmental hazards with data on chronic diseases that have possible links to environment exposures.

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CA Environmental Health Tracking Program (CEHTP)

- Facilitate transformation of data to “information” that is more usable/actionable by researchers/stakeholders
- Identified 40+ databases/systems of interest
CA Environmental Health Tracking Program Staff

- Paul English (PI main grant)
- Eric Roberts (PI pilot projects)
- Michelle Wong, Svetlana Smorodinsky, Eddie Oh, Yu Kuwabara, Lucia Somberg, Maile Newman
- IT/GIS Staff: Craig Wolff (PI drinking water project), Makinde Falade, Liang Guo
Map Visualization Principles

• CEHTP and/or system owners provide easy, systematic, and standards-based access to GIS data for dynamic interactive mapping

• CEHTP and/or system owners maintain maximal control over look-and-feel of GIS data

• CEHTP and/or system owners focus resources on data within their jurisdiction
How a Typical Interactive Map Works

• Browser-based client has controls that take zoom, pan, layer visibility, etc. parameters and process into request to map server
• Map server receives request for map
• Map server processes request into an image file
• Browser-based client displays image file
Google/Hackers Redefine Browser-Based Interactive Mapping

• Google Maps API makes it tremendously easy to put dynamic maps with basemap and high-res satellite imagery on any* website with no non-standard plug-ins
  – See http://www.google.com/apis/maps/

• Hackers figure out how to integrate WMS content in Google Maps API
  – See http://blog.kylemulka.com/?p=287

*Commercial sites must pay

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Google API Drawbacks

• Map client can only display 2 overlapping image tiles simultaneously (“Hybrid”)
• Even if one of those tiles was non-Google data (ie. your own tile data), image opacity is not consistently or elegantly supported across browsers
• Multiple tiles must be overlaid on server-side
CEHTP Custom WMS Layering

- Develop server-side utility that overlays multiple map server image tiles
- Support for consuming most popular map server output (ie. ArcIMS, WMS, UMN MapServer, ArcWeb services)
- Support for individual layer transparency and opacity
- Support for server-side caching (~Google speed)
- Invocation interface is WMS (ie. standard URL access)
CEHTP Dynamic Map Service Integration Demo

- Background
- Layer Options
- View Map
- Build Web Page

Legend

Powered by Google

50 mi
100 km

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CEHTP Dynamic Map Service Integration Demo

Legend
Total 2003 Agricultural Pesticide Use in CA by County (pounds)

- 0.0 – 1047570
- 1047570 – 3214520
- 3214520 – 9.9E10

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CEHTP Dynamic Map Service Integration Demo

Legend
Total 2003 Agricultural Pesticide Use in CA by Section (pounds)

- 0.0 - 1789.03
- 1789.03 - 7362.66
- 7362.66 - 9.9E10

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