

Developer Meeting Blog

Notes from our meetings, Monday's 11am Central. We try to have weekly meetings to discuss issues and activities related to the Sea Grant sponsored version of the Geo Dashboard.

- Data updates or issues (Paris, All)
- Algorithm updates (Barbara, Tristan, Wenzhao)
- Development status (Terry, Luigi, Nick, Lisa)
- community feedback (Kristin)
- priorities and next steps (All)
- other topics as defined by team...

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02 May 2013

Lisa, Kristin, Paris, Nick and Terry met to discuss the [latest comps](#). Lisa created new comps:

1. Explore Trends (Phosphorus Visualization and other possible data views)
2. Advanced Search using the map to designate location and context-based display of additional parameters

Here are notes from the discussion.

- (all comps) Change "Data Download" to "Advanced Search" on all comps
- (Comp 2) Explore Trends:
 - Limit threshold levels to above (red) and below (green)
 - Remove regional interpolation visualization
 - Use arrow direction to indicate trends (up/down)
- (Trend Graphic) Make user configurable. The default is a 10 year trend but users will want to override the default to define a beginning and end range. E.g. show me the trend over the last 5 years, first 5 years, trend over all data collected.
- (Comp 3) New popup the shows trend line on map select:
 - Show current value e.g. Current Value: Tp 2.34 ug/L April 2010
 - Show the % of the delta of the current value above/below the threshold.
- (Comp 3 & 4) Tp data: trend to toggle between Spring & Summer data collections.
 - Show percent increase/decrease in Trend for the Phosphorus map view
- Indicate zooming functionality on all maps
- (Comp 4 & 5) Advanced Search:
 - Time Period: add more granularity in selecting time (Year & Month)
 - Download Options: Add "create permalink"
 - Select Locations: Add Erie by basins

15 Apr 2013

- Paris: Has an update from intern who was identifying landmarks within the data for seabird data. He'll convey details to Tristan.
- Wenzhao – Triaxus data
 - Resolution comment – Paris mentioned the smaller the better.
 - DO data anomalies – he's looking for a smooth surface from the data. He plans to write up a solution for review.
- Dev Summary
 - The [UI Design v3](#) is close to complete and development implementation will begin.
 - The goal for IAGLR is to make v0.1alpha available from the development site, <http://seagrant.ncsa.illinois.edu>, to include:

- the new UI layout
 - a functional map referencing sample data
 - new visualizations
 - trend view
 - range view
 - depth profiler (seabird)
 - a subset of the real data for demonstration and discussion purposes
- The [IAGLR 2013](#) conference early bird registration closes April 19. Register before the 19th if you plan to attend and want to save money.
- Current Roadmap Milestones
 - Alpha release of Phase II for IAGLR (June 2-6, 2013)
 - Beta release in late Summer/early Fall. (all main features should be finished)
 - 2-3 months of beta testing, bug fixes and refinements based on feedback.
 - First official release of Phase II on the main site, www.greatlakesmonitoring.org, by the end of the year or early Jan 2014.

8 Apr 2013

- Keep box-whisker plot available next to the time series plot. Allow user to toggle the visibility of the box-whisker plot.
- Hovering over a feature of the box-whisker (lower quartile, median, etc.) should display that line on the time series as well.
- Need system for disabling visualizations that are unavailable due to currently selected parameters (depth profile comparisons are nonsensical when one or more of the the data sets being compared do not include depth data)
- Need to scope how much we can accomplish by June.

1 Apr 2013

- UI refinements are WIP. Lisa will send out new compositions for review/comment later this week or early next week for review at the Monday UI meeting.
- Nick is pulling together the UI widgets with real Seabird data and are available at: <http://seagrant.ncsa.illinois.edu:8080/data>
- Luigi has the server API close to complete and will start working with Nick to refactor the webapp.
- Wenzhao noticed a difference in the Triaxis Manitowoc2 data related to the sensor collecting data during the downcast vs. upcast. He was going to plot each cast separately and use one of them for his analytics. Which cast (up/down) is TBD.

18 Mar 2013

Notes for the [UI review](#):

Add description information about the data types, sources and the why's and what for's.

- Mouse over or on station select

Slide 3

- Determine if there are navigation options from the water quality monitoring view for similar data sets.
- Navigation list, checked data to reflect the view of the current data source/type.
- Nav– show selected station in alter color, e.g. red vs. green/blue
- Date interface – split timeline graphic to let users select both start and end dates
 - Default maybe total history begin/end
 - Allow user to define subset e.g. 2000 – 2003

[Download] button needs to be data type centric w.r.t. downloadable products. E.g.

- Graphic
 - Historic
 - Box whisker
 - Comparison
 - other?
 - Filtered data
 - Raw data
 - All

Slide 4

- Compare between lakes and stations across the different lakes
 - Add location/station name
 - Lake Average label
- Compare lake averages.
- Meta data: lake name, station name, historic box whisker
 - Add background graphic/color to represent the historic data values vs. the box whiskers

Slide 5

- Add geo location map indicator
- Correlation graphic, p.190 of Nathan Yau's book.

How do we address parameter views

- Should data parameter types be a first class citizen like Lakes and Stations?

25 Feb 2013

- Kristan/Paris: confirm first round of seabird parameter exposure and data products:
 - parameters: Depth, Temp, conductivity, Oxygen,
 - Data Products: Thermocline, Deep Chlorophyll layer, photic layer
- Wenzhao: created a page to address [Triaxis Data Visualization](#).
- Luigi: working on PostGIS endpoints, Medici 2.0 development, designed a new way of doing plug-able previewers.
- Nick: initial UI mockup: <http://seagrant.ncsa.illinois.edu:9000/>, <http://seagrant.ncsa.illinois.edu:9000/wizard/>
- Terry: various wiki updates

11 Feb 2013

- New result from seabird data to determine Photic zone (the zone where photosynthesis occurs)
 - Wenzhao - The inconsistency is caused due to the different sampling rate of sensors and the different position of sensors. Need to rearrange the data to match the depth value. Discuss with Prof. Bailey about how to detrend the data

4 Feb 2013

- Data/Algorithms
 - Tristan - genetic algorithm approach of selecting optimal rules (~12 out of 300) is inefficient and he will abandon this approach for common approaches to define the deep chlorophyll layer. Changing focus to research the commonly accepted approaches.
 - uploaded the downcast data filter code and a python script for feature extraction (thermal Cline, metalimnion in the src repository under the /geostreaming/analytics directory)
 - Wenzhao - will update notes after a meeting with ?
- Dev
 - Nick, Lisa, Luigi, Terry - Met Thursday to review webapp navigation approaches and paradigms. we spent a fair amount looking at the sites that were created by <http://www.periscopic.com>
 - Nick will focus on layout design and widgets.
 - Luigi is working on backend restful interface that connects to mongodb and is starting to work on the postGIS service.

Jan 28, 2013

- Tristan - updating algorithms, currently has ~500 rules and for looking an optimal set of rules to efficiently generate good results.
- Wenzhao - needs clarification about the different depth definitions in the data set. He and Paris will discuss off-line.
- Nick - ready to discuss UI layouts with current widgets
- Luigi - working on data api and reported on the CZO (Critical Zone Observatory) meeting he attended last week

Jan 2013 Notes

- Paris
 - IAGLR (June 2013) conference presentations - excerpts are due Jan 25th.
 - (Terry & Paris) greatlakesmonitoring.org overview
 - (Tristin) - Seabird downcast data / historical data - mining data to define sampling rules to produce consistency in results.
- NOAA GEOTools (March 25-28, 2013)
 - Paris - greatlakesmonitoring.org overview submitted
 - Dev - team to review and update presentation based on current development activities.
- Tristan working on defining algorithm rules for Sea Bird data.
- Wenzhou - working with R to analyze Triaxis data
- Nick - working on layouts and viz widgets - https://c9.io/scamp115/seagrant_ui/workspace/
- Luigi - has been working on testing and comparing technologies for new backend and is traveling to CZO workshop this week.
- Terry - working on system architectural diagram to define component parts.
- Lisa - iterate on depth profiler and general page/template layout.

Dec 2012 Notes

- https://c9.io/scamp115/seagrant_ui/workspace/viz_page.html - Visualization page mock-up

Nov 2012 Notes

- SeaBird Depth Profiler Prototype - https://c9.io/scamp115/seagrant_ui/workspace/d3_test.html
- Researching JS app API
- Created a library for depth graph, box whisker, and UI components
- Defined v1.0 import schema at: [GeoDashboard Schema](#)

Oct 2012 Notes

- [UI design v2](#) available for review and comment.

Sept 2012 Notes

1. Seabird data - all measured values except pH should be of high enough quality to include in the dashboard. Depth, Temp, and DO have the highest priority for the meeting with Paul.

2. Triaxis data - the rows in the spreadsheet all represent the same time. Certain sensors that sample at longer intervals write down previous results in rows between their new samples.
3. Meeting with Paul - Paul will be coming to Urbana on October 12. For this meeting we should have new Seabird data in the old dashboard as well as polished mockups presenting our vision for the future of the system. We want to answer the question: How are we making it easier for researchers to access the EPA data?
4. Provide Kristin with decision trees that can be passed to other researchers. This will help us determine how a user wants to 'attack' the data.

Aug 2012 Notes

UI discussions about a system greeting page and search wizard

Greeting Page

- single global page (hybrid of: <https://c9.io/> and <https://drive.google.com/start#features>)
- provide user an ability to save links to specific data sets, queries, visualizations, system resources...

Search Wizard

- Need to be careful with data aggregation (Spring vs. Summer, etc..)
- Data Priority:
 1. Parameter/Type or Category (e.g. Tp or Nutrients)
 2. Location
 3. Time
 4. Source
- Search should be free form where users can modify search input requirements before they get a 'green' submit button.
- Always present a list of available options that a user can filter via textbox. Especially important in cases where a user might not know what options are available.
- Filter available options in the wizard based on previous wizard selections.
- Location wizard should have some sensible presets i.e, state waters, whole lakes, etc.