

Engaging Communities in Grassroots Monitoring of Environments in Crisis

Shannon Dosemagen— Public Laboratory for Open
Technology and Science



GFDRR
Global Facility for Disaster Reduction and Recovery



Cooperative Governance
Traditional Affairs



ISDR



The
**Public
Laboratory**
for Open Technology and Science



Using inexpensive DIY techniques, we seek to change how people see the world in environmental, social, and political terms. We are activists, educators, technologists, and community organizers interested in new ways to promote action, intervention, and awareness through a participatory research model.

PublicLaboratory.org

Problems with current “citizen science” approach to monitoring

- Expensive
- Limited to hands of experts
- Lag in knowledge between experts and people on the ground
- People on ground don't own the data
- They also don't understand how it is made
- Industry has far greater capacity to generate data

Civic Science Approach to Environmental Health Monitoring

- Community oriented and developed
- Community owned
- Tools can be adapted and spread in an open source fashion
- Supports public exploration and investigation of environments- locals are regarded as experts of their own environments

“The term ‘civic science’ has been used to describe science “that questions the state of things, rather than a science that simply serves the state” (Kim and Mike Fortun 2005:50)

I. Balloon and kite mapping





ERMA GULF RESPONSE

Information Help Recent Data Find



Layers Legend Query Tool Zoom

BP Deepwater Horizon Oil Spill

Wellhead Surface Location

- Wellhead

18-Jun-12 SCAT Oiling Ground Observations

- Heavy
- Moderate
- Light
- Very Light
- No Oil Observed
- Trace < 1%

7-22-10 Shoreline SCAT Oiling Ground Observations (Milestone Date)

- No Oil Observed
- Tar Balls (< 1% cover)
- Very Light
- Light
- Moderate
- Heavy

Scale: 1: 1693 Zoom Level: 18 Location: 29.47609°,-89.91019°



Protect openness with viral licensing



CERN Open Hardware 1.0
Share Back with Attribution



Creative Commons
Share Alike with Attribution
For Media



GNU Public License 3.0
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2012 UR



Balloon mapping kit variations

Public Lab Archive
publiclaboratory.org/archive

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Languages

- [English](#)
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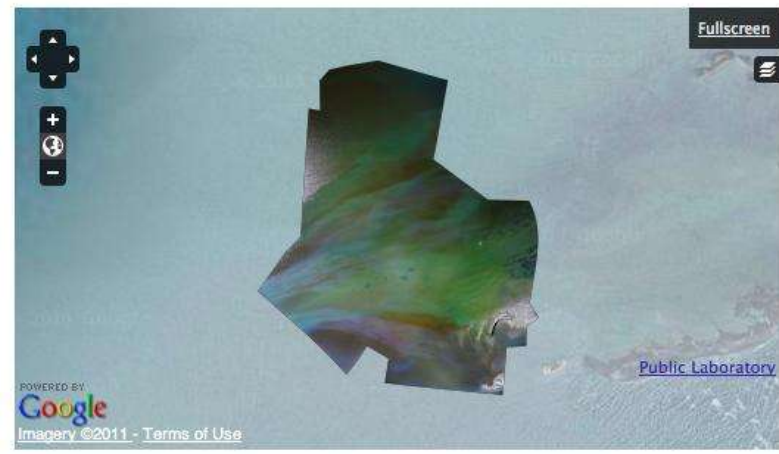
Links

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Chandeleur Islands, Louisiana

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License: Public Domain
 Bounding box: POINT(-88.8701993896 29.798690641) POINT(-88.8620380748 29.8071316946)
 Capture date: May 9, 2010
 Publication date: May 16, 2010
 Mappers: Shannon Dosemagen Stewart Long Mariko Toyoji
 Cartographer: Stewart Long

Need help making a map?

Do you have a site in mind which you'd like to map? Looking for collaborators or just need some tips and advice?

- Join the [mailing list](#) -- it's full of people all over the world who are offer advice and support
- Contact [Public Laboratory staff](#) directly
- Read about [balloon mapping](#) and assemble [your own kit](#)
- Download the 5-page [illustrated guide](#) to balloon and kite mapping

When getting in touch, be sure to mention:

- the coordinates of the site
- context; what you'd like to use the data for

How to use this data

Wilkinson Bay Louisiana
 29° 15' 38.845" N - 91° 54' 22.828" W
 July 22, 2010

This map was made for under \$200 by volunteers using a helium balloon, a digital camera, and a boat.

Know an area that needs to be mapped? Get in touch:
team@publiclaboratory.org
 (504) 398-0647

On Site
 by Barbara Marzotto

Wilkinson Bay Louisiana
 July 22, 2010

Reimagining the data lifecycle
 by Sharon Desrosiers & Jeffrey Warner

Public Laboratory Do-It-Yourself Guides

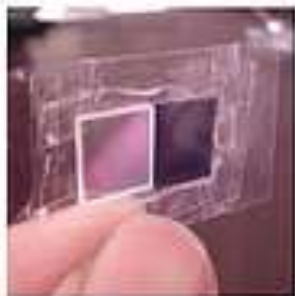
The Public Laboratory for Open Technology & Science

Grassroots Mapping Forum

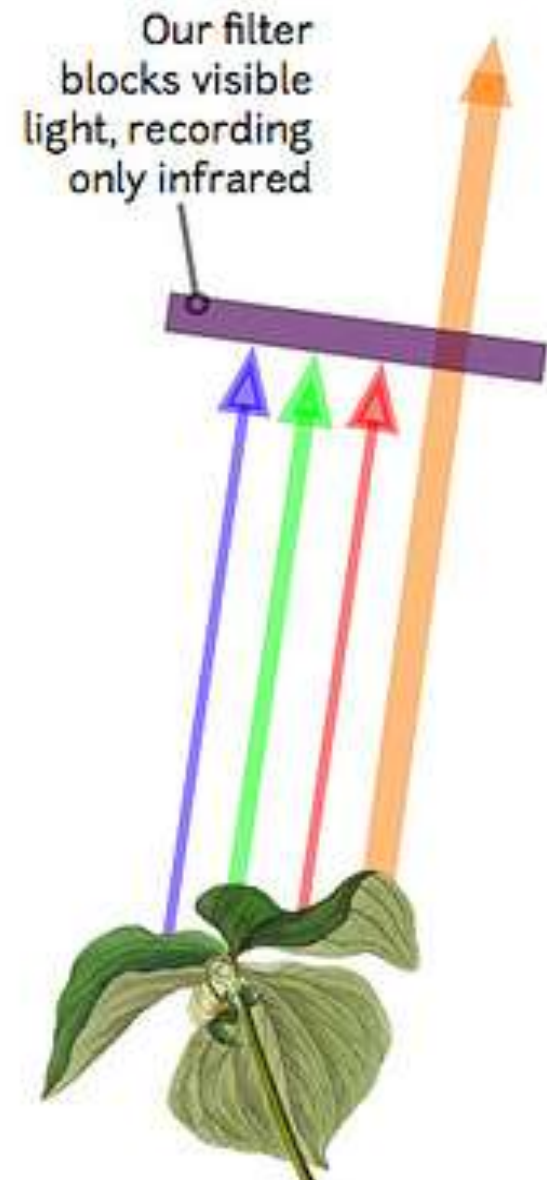
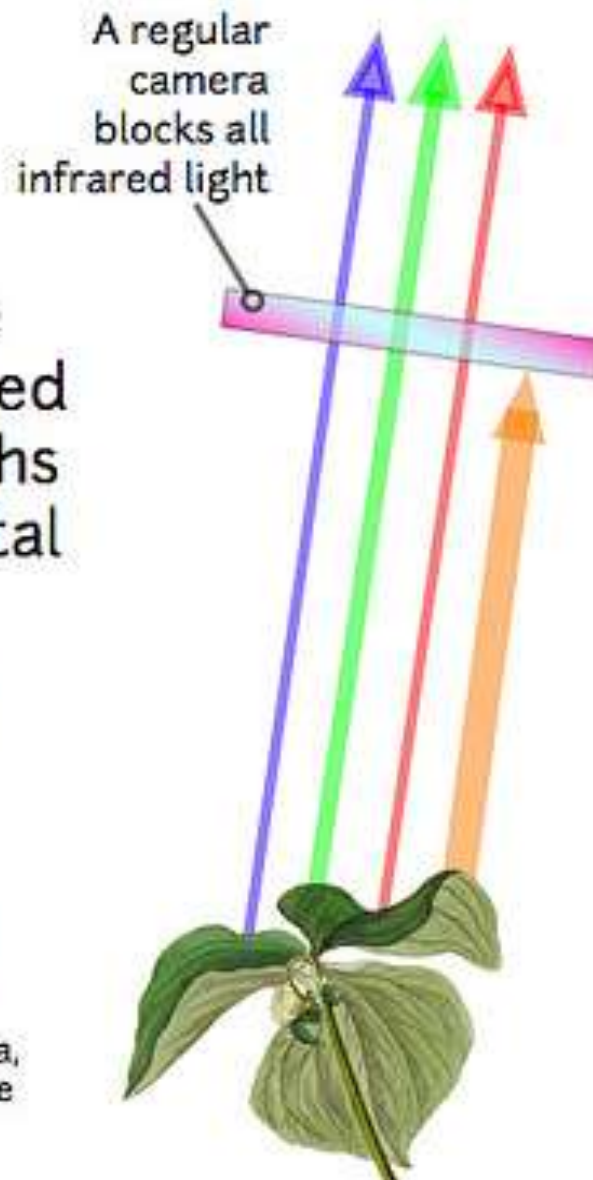
publiclaboratory.org/forum

II. New applications & techniques

How do we take infrared photographs with a digital camera?



We use two filters; one from the camera, and one from a piece of negative film.





Gowanus Canal, Brooklyn, Summer 2011

Hydrogen Sulfide sensing

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Rifle, Colorado

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Bounding box: POINT(-107.726874005 39.440722214) POINT(-107.71206742 39.4494276891)

Capture date: September 16, 2011

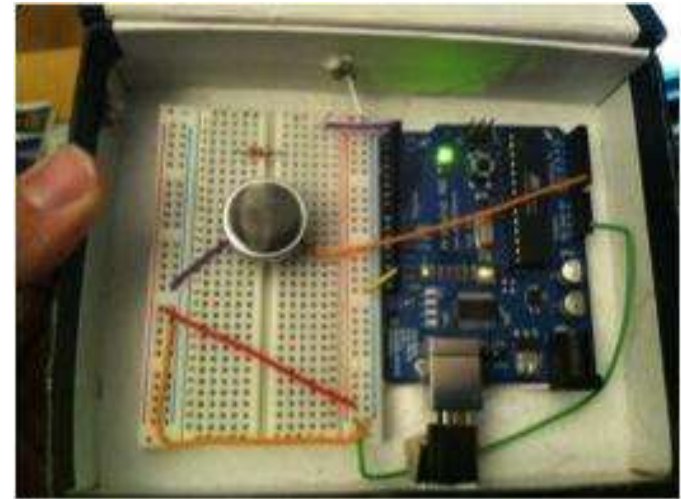
Publication date: September 26, 2011

Mappers: Rick Roles Stewart Long

Cartographer: Stewart Long

Geotiff filesize: 449.0





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Ongoing discussions: [Links for Mailing List](#)

[1981 user follow-up...](#)
Clicking back to this thread after a while will confirm you received the first part of that.
1981 2008

[Thinking in Phosphor \(P4\)...](#)
Three letters, 19 words and Phosphorus (P4) I can't seem to see feedback.
1981 2008

[Small Antennas Edge with me...](#)
I had a small antenna at a regional antenna forum (2008 Regional Workshop in Portland, Ore).
1981 2008

[Miles traveled: Connecting...](#)
The last mile connection is often the most difficult to make. Here's the story.
1981 2008

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Languages

Hydrogen Sulfide Testing With Black and White Film

View: [Small text view](#)

by [jstultz](#) on October 16, 2012 - 19:01

Following is a procedure for Hydrogen Sulfide testing using **Hard MultiGrade IV AC Deluxe MOD LM B&W Paper** which has been borrowed from the procedure published in

The Grassroots Mapping Forum

PLOTS' new community research journal *Zine* map is printed on a single 22.75x35" newspaper sheet, folded down to just over letter size, and includes a full color reproduction of a grassroots map along with essays, illustrated guides, and interviews on the reverse. [Subscribe now!](#)

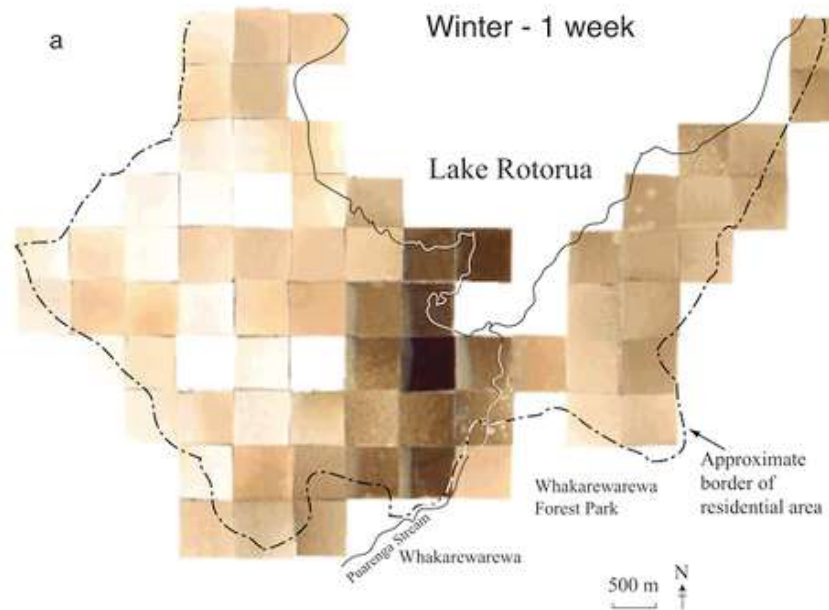
Reports

[Tank Beds: Theoretical & Actual Performance](#)

By [jstultz](#)
 Thursday, 18 July, 2011 - 08:54
 I've built a series of three flat beds out of Tank housewrap and bamboo. The most recent I built is the full flat size, 200in across, and 6' wide. I've been able to fill a



C.J. Horwell et al. / Journal of Volcanology and Geothermal Research 139 (2005) 259–269



Silver halide screen for hydrogen sulfide



Excellent Geoscience Fieldtest of Photostrip H2S Detection

by: [Sara](#)

5 weeks 2 days ago

Research Notes from 5.9.12 conversation with Mathew Gonzales Graduate student Pennsylvania State...

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Tags: [providence](#)

Figure 8-1. Frequency of EPA sites with hydrogen sulfide contamination



Map of EPA National Priorities List sites with H2S issues

by: [Sara](#)

6 weeks 6 days ago

This map of EPA National Priorities List sites with reported concerns about H2S comes from a report...

[Read more »](#)

Tags: [providence](#)



Map of New Mexico Natural Gas Wells in New Mexico and levels of Hydrogen Sulfide

by: [Sara](#)

6 weeks 6 days ago

This maps shows gas wells in the San Juan Basin in New Mexico that have recorded levels of hydrogen...

[Read more »](#)

Tags: [New Mexico](#), [providence](#)

Tags: [providence](#)



Results: Container Testing for Photopaper Test Strips #1

by: [megan](#)

10 weeks 3 days ago

Container Test #1 3/28/2012-4/4/4/2012 Results: Results showed that regardless of location the...

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FOOLING OR REDUCING THE QUANTITY OF H2S (hydrogen sulfide) IN WELL TESTS.

by: [Sara](#)

11 weeks 4 days ago

From Lionel, the engineer who designed the Copper Pipe Test for H2S LJM 21 April 2006 REV = 1, 9...

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Summary of Lionel Milberger's Copper Test

by: [megan](#)

12 weeks 2 days ago

Focus of test is on residential ambient air from a fraction of a ppm to <100ppm Considerations...

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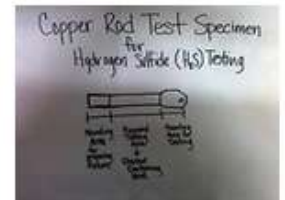
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Project Participants so far:

1. Social Organizers in Texas, New Mexico and Ohio
2. Retired engineer and landowner,
3. Geomorphologists
4. Anthropologists
5. Design Students
6. Wetland researchers

The Public Laboratory for Open Technology & Science

» PublicLaboratory.org



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@sdosemagen *@PublicLab*