Research, collections and citizen science

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Citizen science

• Research **activity** advanced in **part or in whole** by nonprofessionals

• Broad range of possibilities and examples...
simple to complex

• simplest (‘crowd sourcing’):
  
  SETI@Home
  
  Folding@Home
simple to complex

• more involved, mental engagement:

Galaxy Zoo

eBird
simple to complex

- engagement in question, participation in observations (and analyses):

OpenStreetMap

Projects

#1006 Nepal Earthquake, 2015, Residential areas and buildings - task 7
- Author: Humanitarian OpenStreetMap Volunteers
- Requesting organization: International Response community
- Priority: Urgent
- Imagery: Bing and MapBox

The international community is responding rapidly. The international charter has activated. We are also coordinating with international organizations and the DHI network.

Sunday April 26 More then 2,000 deaths are reported. Communications are difficult and repetitive earthquakes.

Our second priority, the buildings.

For this second serie of tasks, we will add residential areas and buildings.

Created by PierZen - Updated 2 minutes ago - Priority: urgent

#1018 Nepal Earthquake, 2015, detailed mapping 2nd pass
- Author: Humanitarian OpenStreetMap Volunteers
- Requesting organization: International Response community
- Priority: Urgent
- Imagery: Bing and MapBox

‘Community Science’
Why do it?

• Science (?)
  – advancing the field (incremental)
    • capturing and/or standardizing relevant data - human “OCR”

– answering open questions (transformational)
  • assembling and analyzing a ‘designed’ dataset
Why do it?

• Engagement
  – Foster interest in biodiversity - BioBlitz
  – Improve understanding of ‘science’ and the research enterprise
  – Development
Why do it?

• Capacity building / training
  – build public knowledge
  – training in specialized skills – school science projects, research experience opportunities
The optimization

Training / skill building

Discovery / increase knowledge

Engagement
Identifying, weighting the true goal(s)

• Determine true investment
  – Recruitment
  – Training
  – Support

• Establish useful output metrics
  – Knowledge
  – Resources
  – Capacity
  – Broader community participation, investement
biogeography – phylogeography

- Specialized training
- Engagement
- Incremental knowledge

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[Map and fish image with numbered locations]
Sub-strains of *Drosophila* Canton-S differ markedly in their locomotor behavior [v2; ref status: indexed, http://f1000r.es/57i]

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Abstract
We collected five sub-strains of the standard laboratory wild-type *Drosophila melanogaster* Canton Special (CS) and analyzed their walking behavior in Buridan’s paradigm using the CeTrAn software. According to twelve different aspects of their behavior, the sub-strains fit into three groups. The group
Figure 4. Updating principal component analysis of Canton S strains.

Results from the PCA obtained using the same analysis as for Figure 2, but with data uploaded from different laboratories. The version of this figure on the F1000Research site is 'living'; it will automatically re-plot as and when new data for other Canton S strains are submitted, and users can visualize previous versions of this figure. The conclusions of this article only relate to the data available at the time of publication. The prefixes in the key are the initials of the data contributor (except CS_ strains, which were tested by Julien Colomb); full names and affiliations can be found in the figure legend of the article on the F1000Research site. The suffixes denote the initials of the principal investigators from where each sub-strain was sourced. The BB_JB (Jose Botella) strain was ordered from the Bloomington stock center (stock #1) approx. seven years ago. BB_JB falls within the range of variability seen so

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**GR_GR**: Added on 22 Apr 2015 by Gregg Roman, Stefani Garcia and Miguel de la Flor at Department of Biology and Biochemistry, University of Houston, TX, USA. DOI: 10.5256/f1000research.4263.d46290 | Download data | Cite data

**BB_JB**: Added on 21 Apr 2015 by Björn Brembs at Institute of Zoology – Neurogenetics, Universität Regensburg, Germany. DOI: 10.5256/f1000research.4263.d46234 | Download data | Cite data

**CS_TZ**: Added on 30 Jul 2014 by Julien Colomb at Institute of Biology – Neurobiology, Freie Universität, Berlin, Germany. DOI: 10.5256/f1000research.4263.d46232 | Download data | Cite data
“right” investment, “right” expectations