

# Practical Software Sustainability at the Netherlands eScience Center

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**eScience center**

by SURF & NWO



# Netherlands eScience Center



By Frits Ahlefeldt

**Bridging the gap between  
science and e-infrastructure**



~~35~~  
**30 eScience Research Engineers**  
(also called Research Software Engineers)

**Broadly oriented  
scientists**

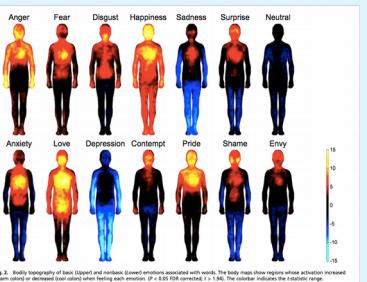
at the interface of  
research and ICT

**Close collaboration  
with researchers**

to implement  
eScience projects  
and technology

**Developing usable &  
sustainable tools**

suitable for a broad  
range of users



# Priority domains

## Humanities & Social Sciences

incl. SMART cities,  
text analysis, creative technologies



## Physics & Beyond

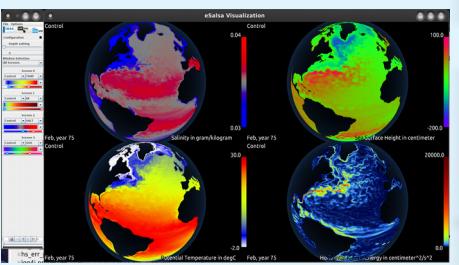
incl. economy,  
high energy physics,  
advanced materials



**~80 projects  
(on many different topics)**

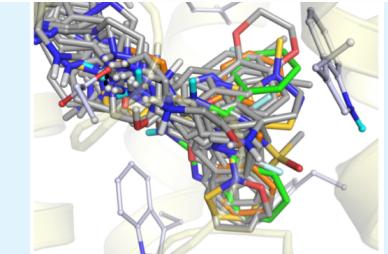
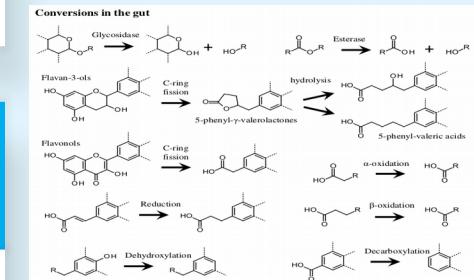
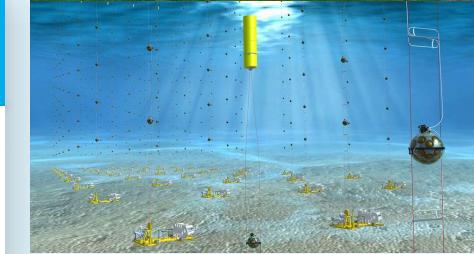
## Sustainability & Environment

incl. climate, ecology, energy, logistics, water management



## Life Sciences & eHealth

incl. bio-imaging,  
next generation sequencing, molecules



# In our experience

## **Most researchers are NOT software engineers**

They don't know about unit or integration testing, code coverage, code quality, etc.

Documentation always 'after the next paper is done'

## **Judged on #papers produced**

... not on software and data releases nor on software quality!

## **Makes our job hard!**

We need to convince researchers SWE is time well spent....

# Our approach



## Educate the researchers

Lead by example (shown them how they will save time in the long run)

Teach software and data carpentry courses



## Generalize and reuse

Reusing tools often allow you to spread the SWE effort

## Change the rules (you need to be a funding organization to do this)

*Stick:* make them set aside a certain percentage of funding for SWE

*Carrot:* give credits for quality software and data releases

# Software Reuse

eScience Technology Platform

Software Projects People Organizations

## Software

Click on the bars to find software projects.  
49 selected out of 49 records  
Reset All

Disciplines

- #eScience Methodology
- Environment & Sustainability
- Humanities & Social Sciences
- Physics & Beyond
- Life Sciences & eHealth

Competence areas

- Big Data Analytics
- Optimized Data Handling
- Efficient Computing

Technical expertises

- Scientific Visualization
- Distributed Computing
- Databases
- Information Visualization
- Handling Sensor Data
- Text Mining
- High-Performance Computing
- Information Retrieval

Technologies used

- Point clouds
- Webservices
- GIS
- Literary
- Visualization
- Distributed
- WebGL
- Dataset

Name	Description
AHN2 pointcloud viewer	WebGL point cloud visualization of AHN2
AMUSE	The Astrophysical Multipurpose Simulation Environment
CClusTera	A 3D web tool for interactive visualization of hierarchically clustered big data
Cesium-ncWMS	3D Globe Visualization of NetCDF data.
Common Sense	User-friendly web application for showing (GIS) data on a map.
Cross-perspective Topic Modeling	A Gibbs sampler that implements Cross-Perspective Topic Modeling
DataVaults	Technology of Attachment to a DBMS of large file repositories
Differential Evolution	Differential Evolution global optimization algorithm, with Metropolis for uncertainty estimation
eAstroViz	This tool can convert and visualize radio astronomy measurement sets, as well as most LOFAR intermediate data products. It also does RFI mitigation.
eEcology Annotation Tool	Visualize & annotate GPS measurements of bird movements
eEcology Tracker calendar	Calendar overview with daily statistics of GPS-tracker
eWaterLeaf	Web-based visualization for the eWaterCycle project
ExtJS-DateTime	Date/Time form input field for ExtJS
FAIR Data Point	FAIR Data Point Metadata Service
GoogleEarth Toolbox for MATLAB	Export data from MATLAB to GoogleEarth's KML format.
Historic Embodied Emotions Model (HEEM) dataset	279 17th and 18th century Dutch theater texts with HEEM labels
Kernel Tuner	A simple CUDA/OpenCL kernel tuner in Python.

## eScience Technology Platform

“An online platform that aims to stimulate collaboration and the reuse of software and knowledge.”

## Stimulate software reuse in dutch Academia

Relevant software, workflows, demos, documentation, training, etc. in one place.  
Organize it in an intuitive way  
Measure the impact of the software

**Prototype:** <http://estep.esciencecenter.nl>

# Get in touch

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