OpenEarth

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TUDelft

Deltares
Enabling Delta Life

Van Oord
Marine ingenuity

OpenEarth en Political Mashup winnen Dataprijs 2012

De Nederlandse Dataprijs gaat dit jaar naar Political Mashup (Dataprijs humaniora en sociale wetenschappen) en OpenEarth (Dataprijs exacte en technische wetenschappen).

De prijswinnaars vlnr: Maarten Marx (Political Mashup) en Thijs Damsma, Gerben de Boer en Mark van Koningsveld (OpenEarth) – Foto: Bart van Vliet
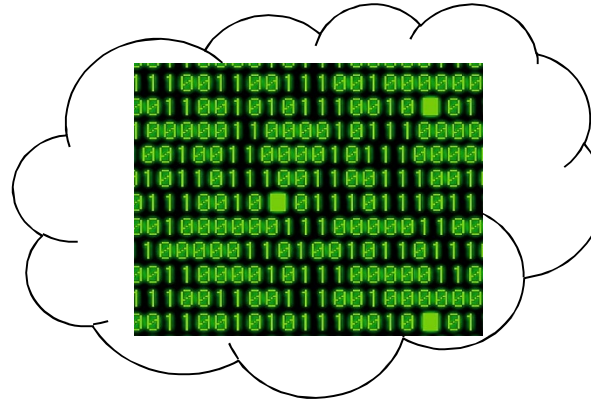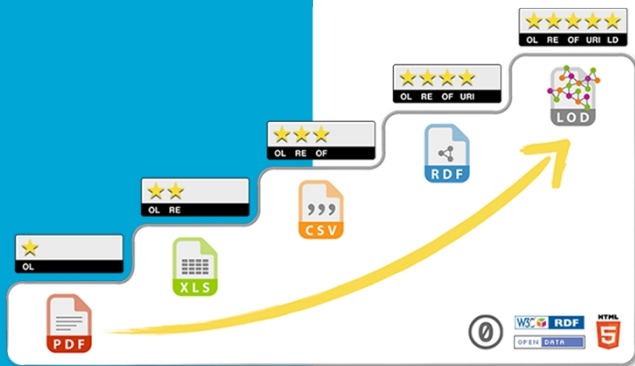
OpenEarth is een open source initiatief dat data, modellen en gereedschappen in waterbouw wil delen. Een flink deel van het budget van waterbouwkundige en kustverdedigingsprojecten gaat naar het vergaren en het beheren van data over stromingen en waterstanden, zo weten de onderzoekers. Maar als het project eenmaal is afgesloten, gebeurt er meestal verder niets met die gegevens. OpenEarth wil daar verandering in brengen door een onderdak te bieden voor de bestanden. Onderzoekers kunnen hier hun data opslaan, hosten en ter beschikking stellen van anderen.
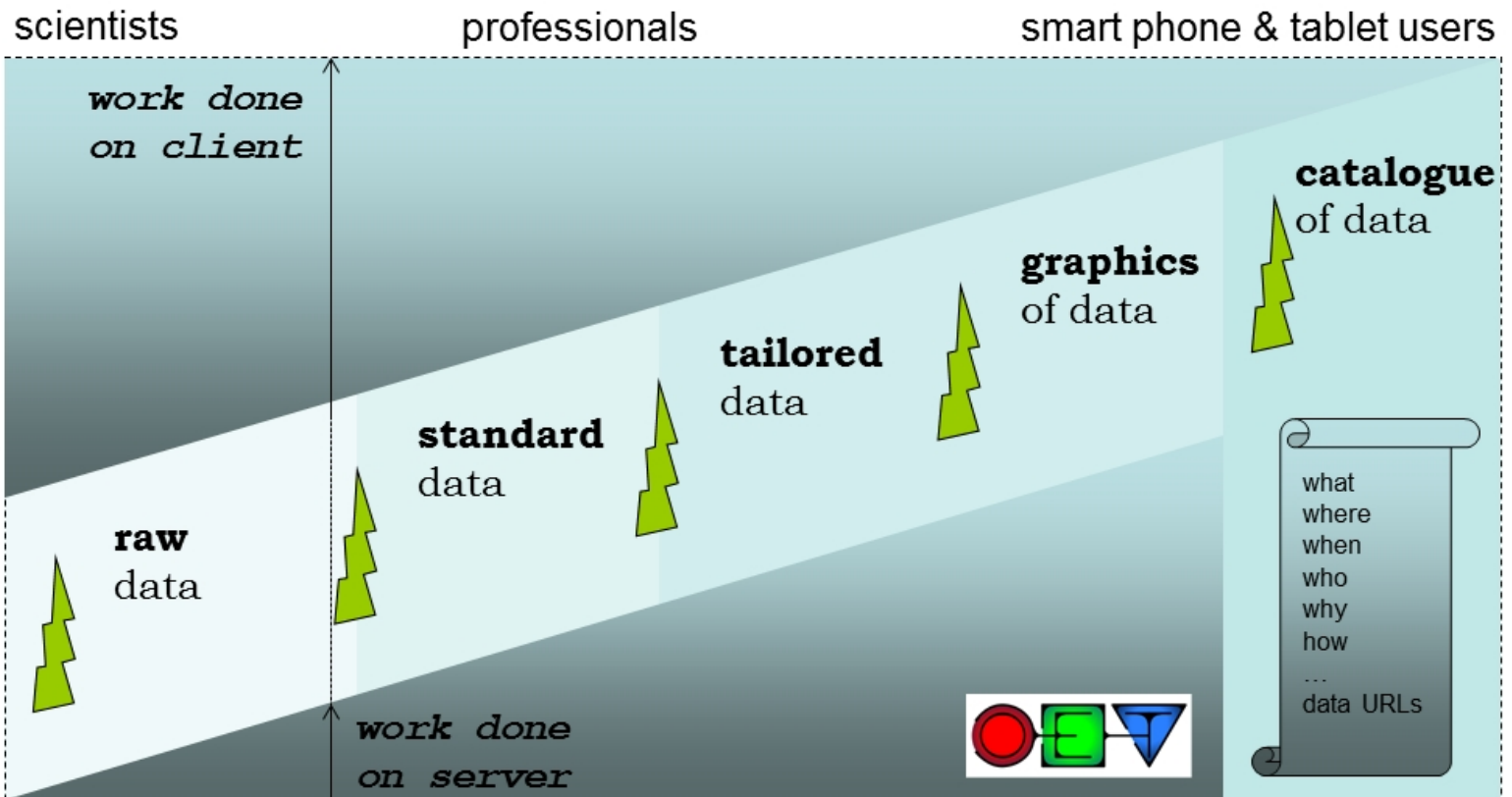
What is OpenEarth

- Make **existing** data, models and tools available
    - in crease efficieny of projects
    - prevent double work
    - prevent loss of previous work
        - > due to lack of archiving (no time to store)
        - > due to new bugs (no time to test)
    - make work nicer: less maintenance, more development

- **a data and source code repository**
- **a community**
  a repository is useless without people using it
- **a philosophy**
  a community is useless without collaboration: **cooperate!**

Deltares

Repository: *web-based* standards

Different layers of standard inspired by Tim Berners-Lee: 5 ★ Open Data

scientists

professionals

smart phone & tablet users

work done on client

raw data

standard data

tailored data

graphics of data

catalogue of data

what
where
when
who
why
how
...
data URLs

work done on server

Repository: *proven* standards

not too new

http://1.bp.blogspot.com/-Z8vfA9SmoOg/T8fTGCF_Xal/AAAAAAAABLM/Wp2nXaTvrEc/s1600/Amsterdam+086.jpg
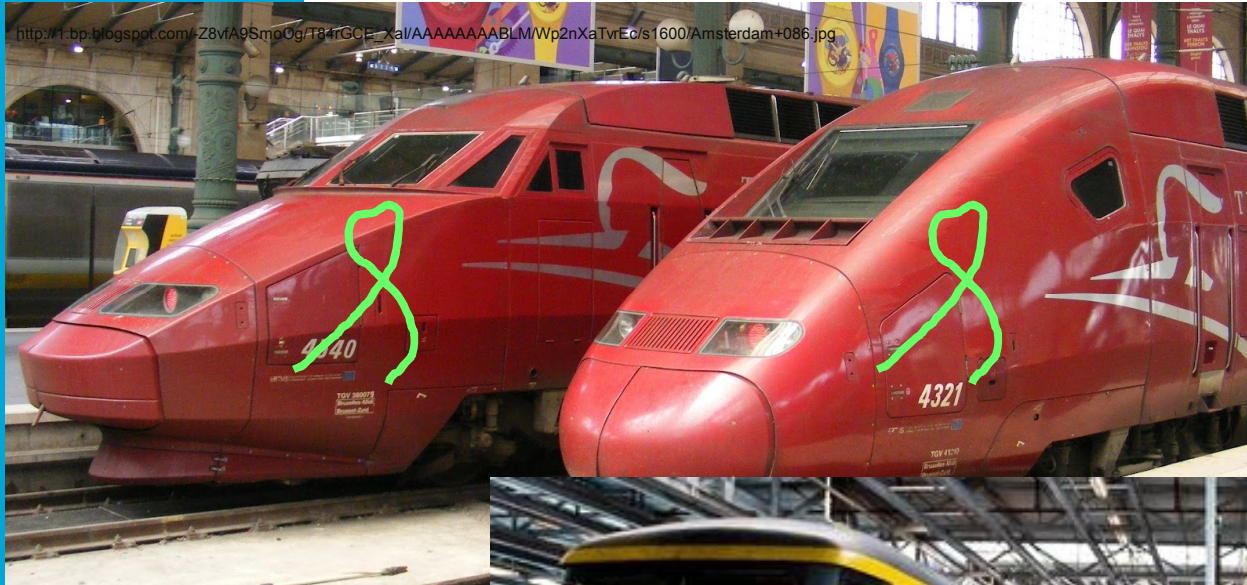
Use proven and existing technology, avoid being guinee pig for too new standards. Standards mature only after using them (like ERTMS).

http://www.bnr.nl/incoming/621827-1301/fyra-578.jpg/ALTERNATES/i/Fyra-578.jpg

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Repository: *current* standards not too old

Google Earth overtook all GIS sciences and standards with Google Maps and open 3D kml: use only GPS WGS84. And UTC for times.

Google Earth can handle multiple planets. Now that's useful meta-data.
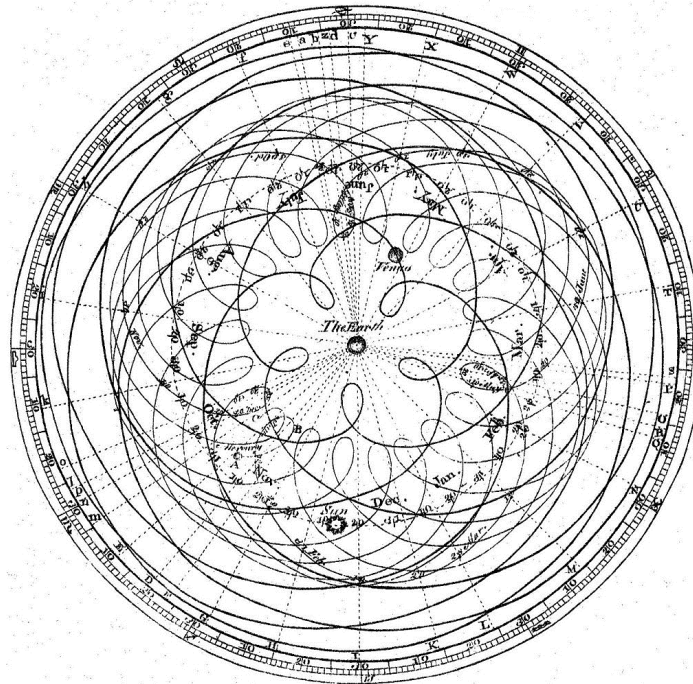
Enormous complexity of earth-centered system became simple with sun-centered one. Occams' razor at best.
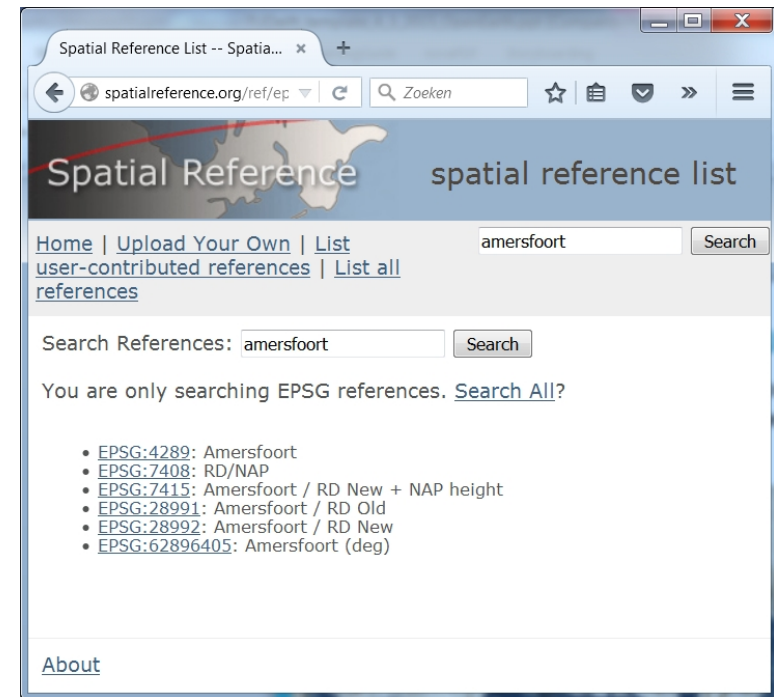
2015: list of 5 ways to map NL. Which one to choose ? None, use GPS + WGS84. The Earth is round !
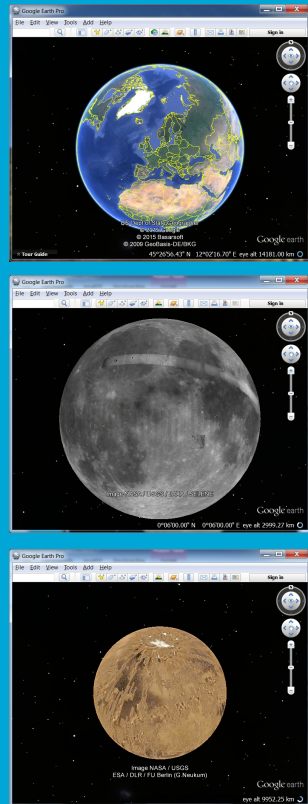
Community: as large as possible
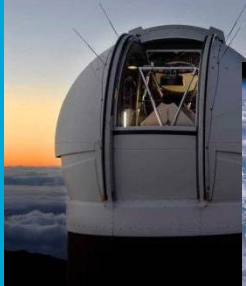
SPACE

Marine/coastal scales

6400 km:
North Atlantic
Oscillation (NAO)
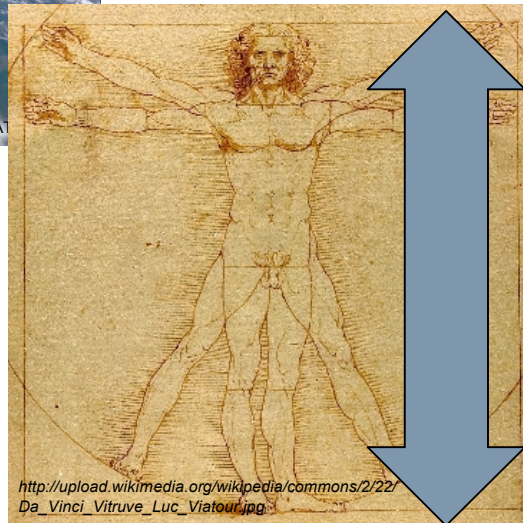
gap $10^{-6} > 10^{+6}$

Water scarcity
Flood protection
Water pollution
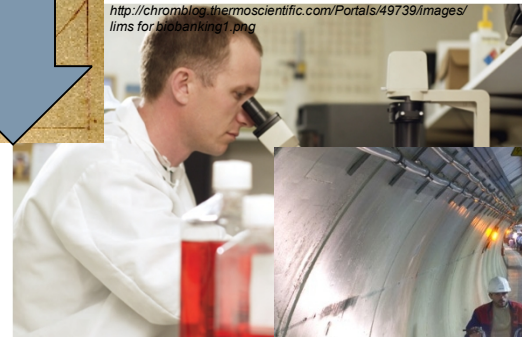
CERN

suspended
mud particle
64 µm

2 former PhD students just started OpenEarth by combining their finished work: **Mark van Koningsveld** (UT: coastal sand) & **Gerben de Boer** (TUD: marine mud)

Social network has grown to **500+ users**, incl 3rd world + Fortune 500.

Community: *social media events/training*

Philosophy: data = raw data + **tools**
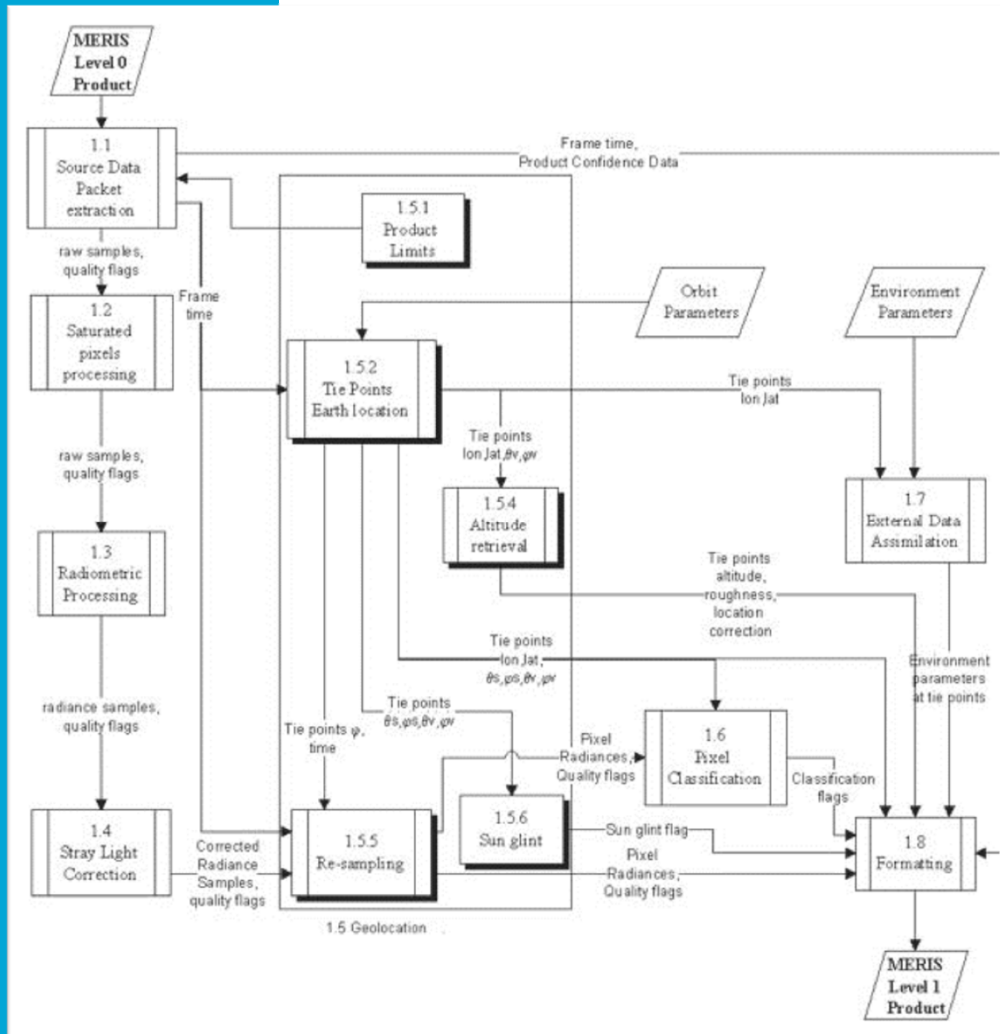
Real data sharing implies:
- Raw data sharing
- Software sharing

Earth observation (NASA, ESA, NOAA): $L1..L4 = f(L0, g)$

- L0 data = raw sensor data
- L1..L4 = interpretation levels
- f = open source software
- g = ancillary data (weather)

Amazon

Philosophy: version control

http://www.knups.nl/leuk_plaatje/56/Helaas_pindakaas.html

9

Philosophy: shared tool versioning

Commits by date

years

Matlab @ svn being replaced by
Python @ svn being replaced by
Python @ https://github.com/openearth (not shown)
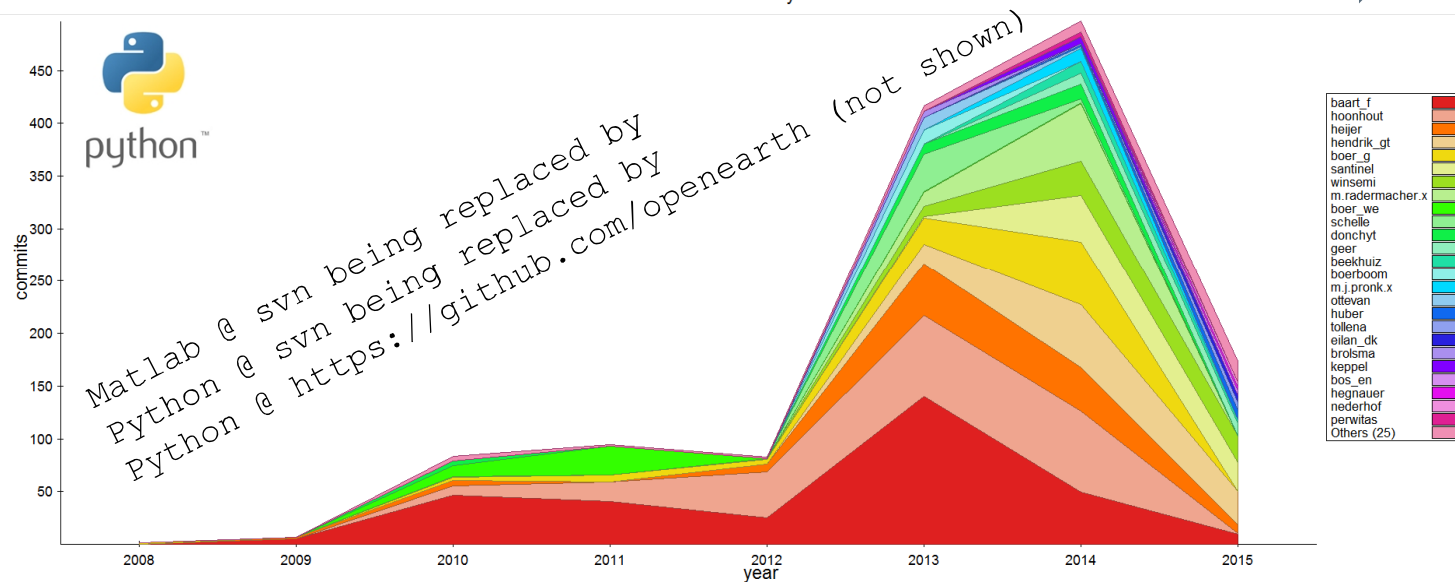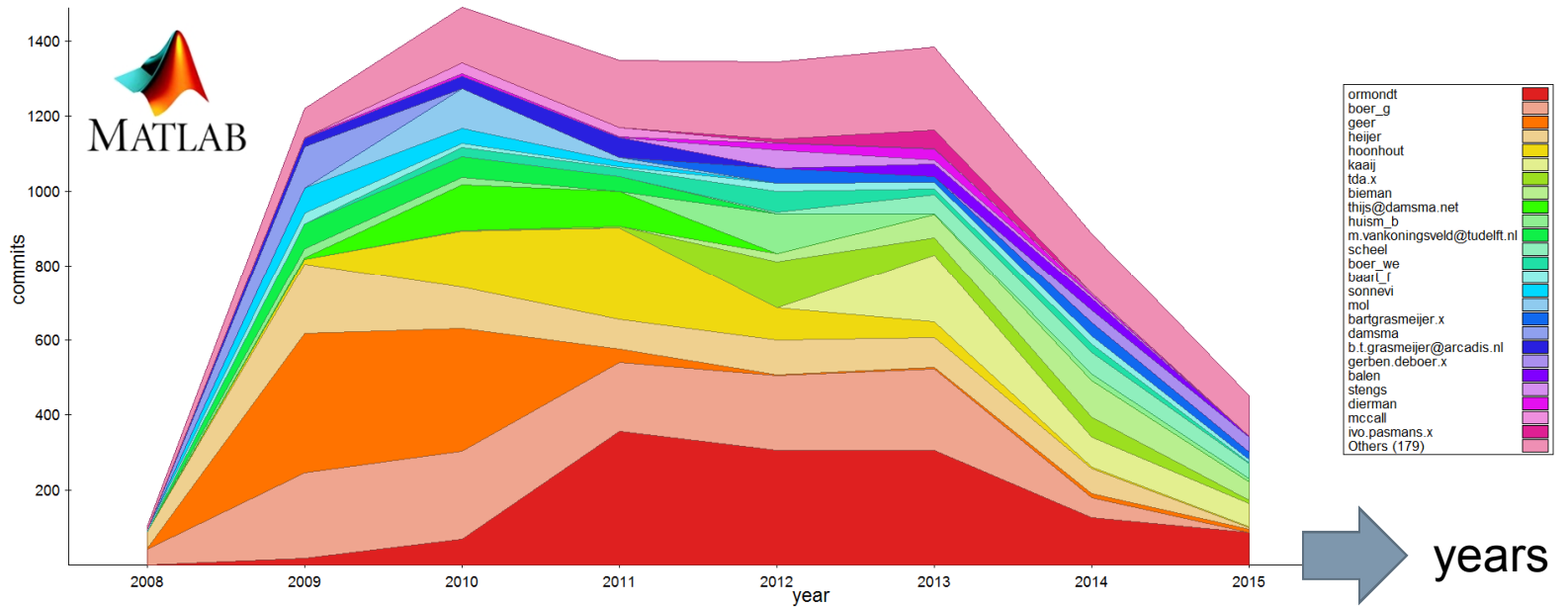
logos ethos > PATHOS

raw *data*

scripts

under version control

http://static.nl.groupon-content.net/25/05/1333050000525.jpg

tailored *data*

http://adaywithsfe.files.wordpress.com/2012/09/eazie5.jpg

http://cdn.chud.com/a/af/afdcafa0_2601_vegetable_lo_mein.jpeg
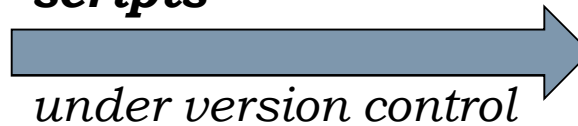
logos ethos > PATHOS: graphics

Spin-off: Van Oord

Spin-off: Rijkswaterstaat
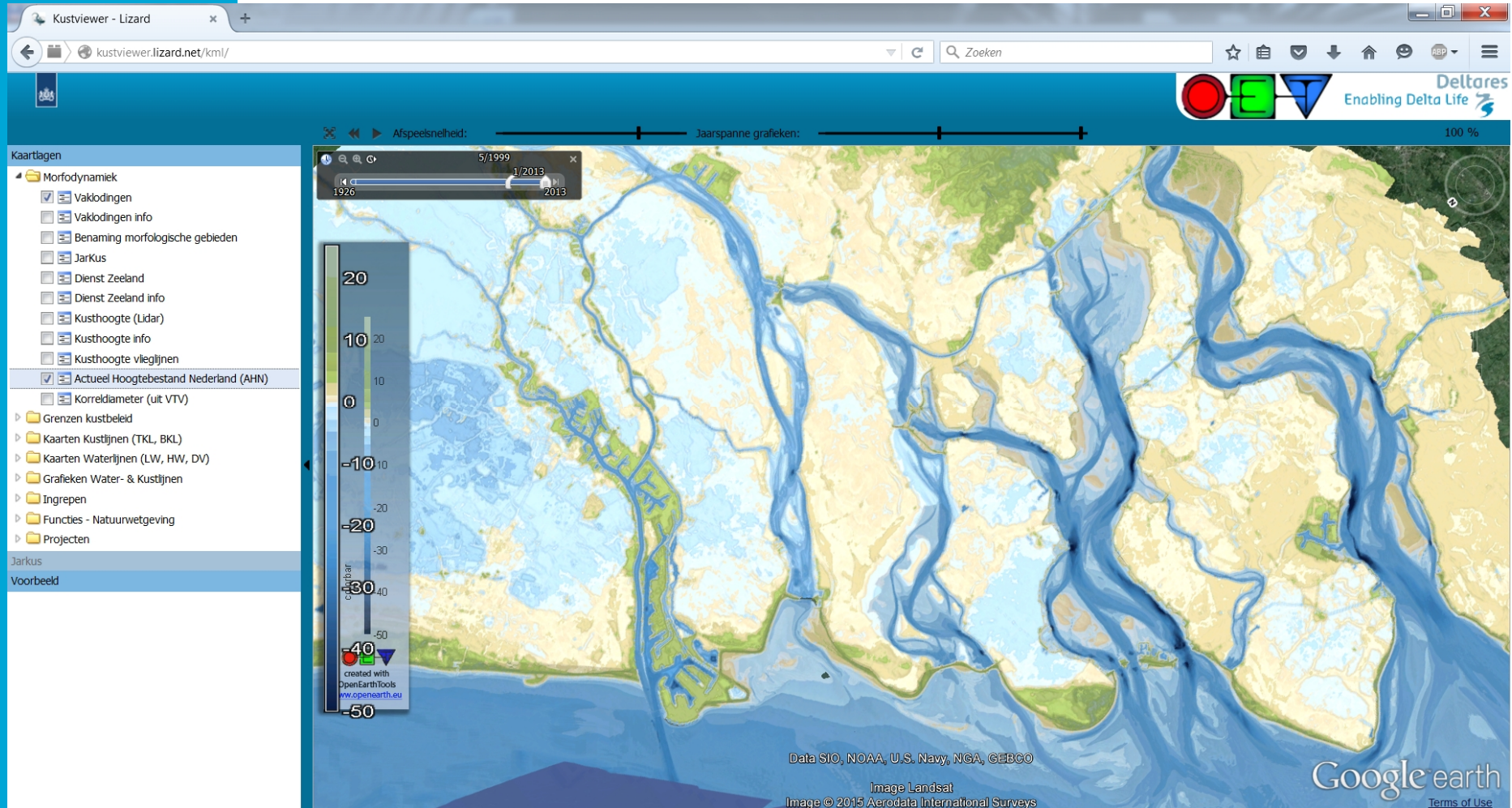
http://kustviewer.lizard.net/
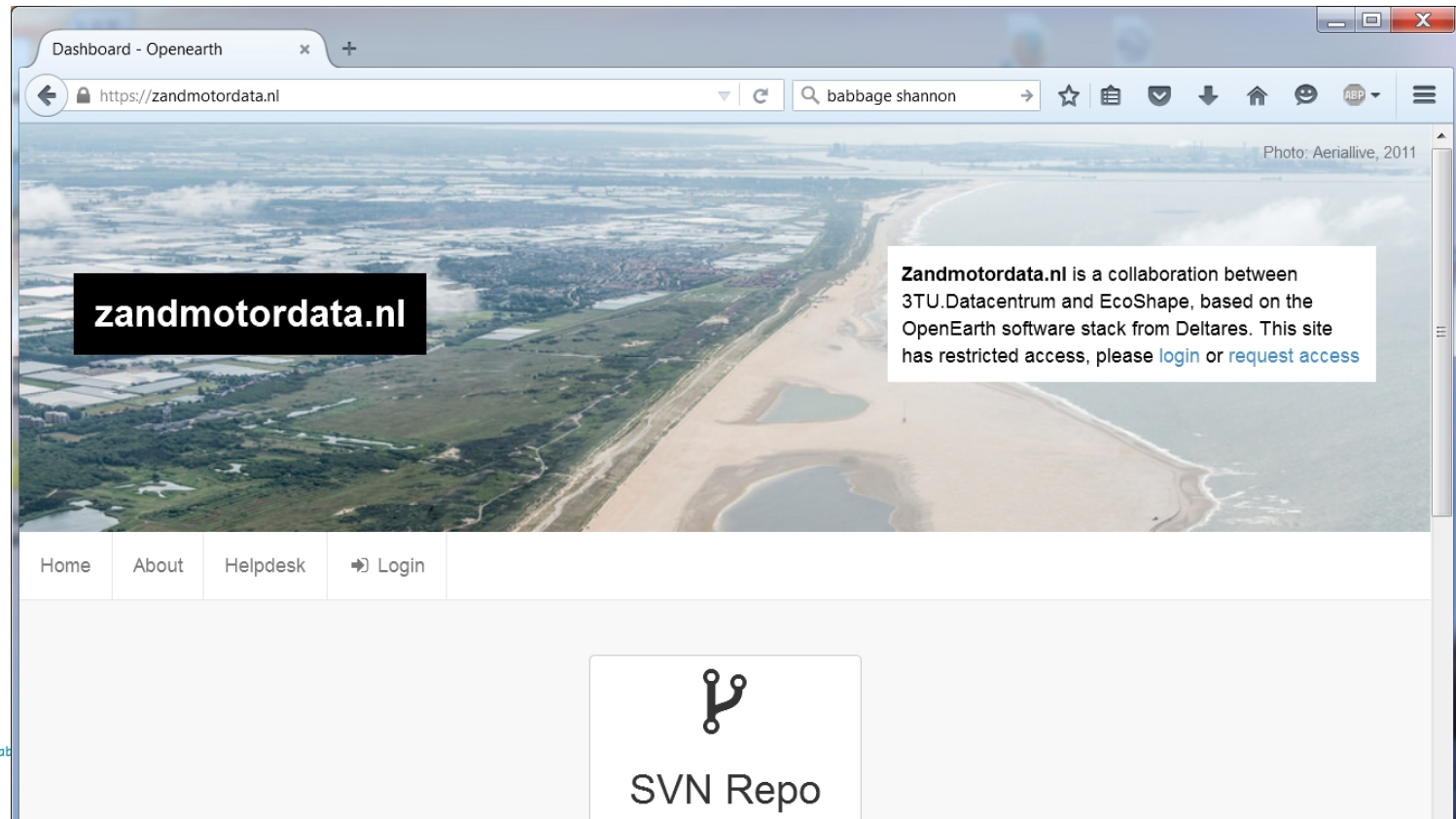Rijkswaterstaat: Kustlijnzorg Programma

Organizational embedding

Deltares hosts OpenEarth tools + data repositories:

- *Synergy with open source model communities Delft3D, XBeach*

3TU.Datacentrum hosts Zandmotor: paid during embargo, free after

- *Synergy with catalogues, DOI etc.*

More information

www.openearth.nl

datacentrum.3tu.nl

www.zandmotordata.nl

kustviewer.lizard.net