JERICO summerschool
Friday june 20th 2014

OpenEarth 4 JERICO

Gerben de Boer (middle →)

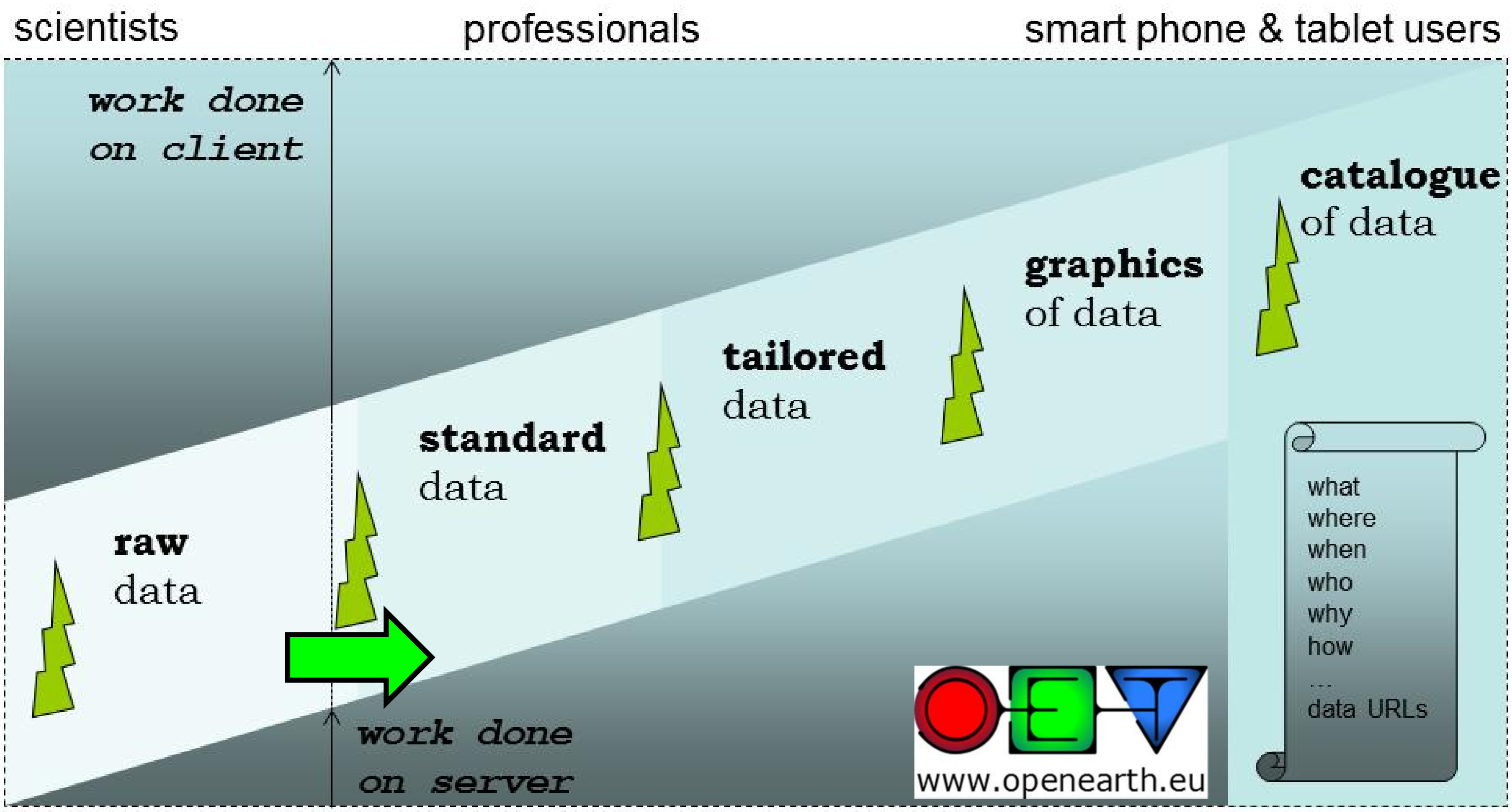
Dutch Data Award for beta sciences 2012

www.openearth.eu

3TU.Datacentrum

5 step geospatial standards: only web services

inspired by 5-stardata of Tim-Berners Lee



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

www.openearth.eu

The step from raw to standard is the hardest step: it is completely manual.
This is called ETL by database professionals: Extract, Transform, Load.
Once if is standard, the rest is only configuration (can still be time consuming)

Raw data + scripts = standard data

Compare with old-style and new-style Asian restaurants

http://farm4.static.flickr.com/3330/3599399622_839ec0cc66.jpg

raw data

scripts under version control

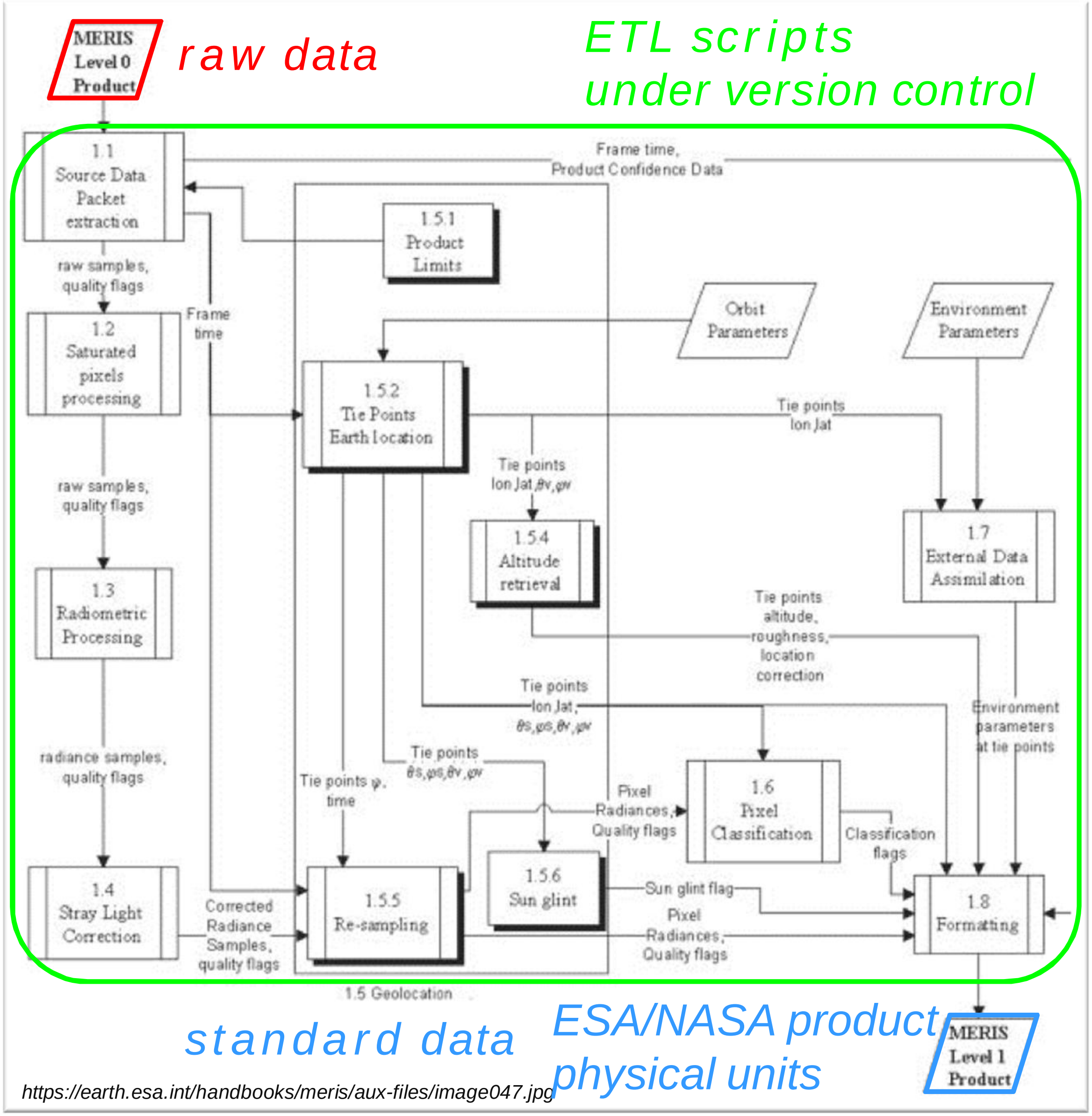
standard data

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

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

http://cdn.chud.com/a/af/afdcafa0_2601_vegetable_lo_mein.jpeg

Satellites: L0 (raw) + script = L1,L2,L3,L4


MERIS Level 0 Product
1.1 Source Data Packet extraction
Frame time, Product Confidence Data
1.5.1 Product Limits
raw samples, quality flags
Frame time
1.2 Saturated pixels processing
Orbit Parameters
Environment Parameters
1.5.2 Tie Points Earth location
Tie points lon,lat
Tie points lon,lat,θv,φv
raw samples, quality flags
1.5.4 Altitude retrieval
1.7 External Data Assimilation
1.3 Radiometric Processing
Tie points altitude, roughness, location correction
Tie points lon,lat, θs,φs,θv,φv
Environment parameters at tie points
radiance samples, quality flags
Tie points θs,φs,θv,φv
Tie points φ, time
Pixel Radiances, Quality flags
1.6 Pixel Classification
Classification flags
1.4 Stray Light Correction
Corrected Radiance Samples, quality flags
1.5.5 Re-sampling
1.5.6 Sun glint
Sun glint flag
Pixel Radiances, Quality flags
1.8 Formatting
1.5 Geolocation
MERIS Level 1 Product

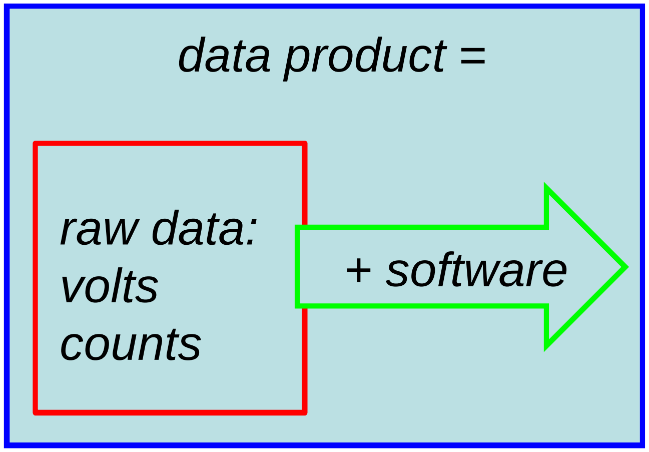
raw data

ETL scripts
under version control

standard data

ESA/NASA product
physical units

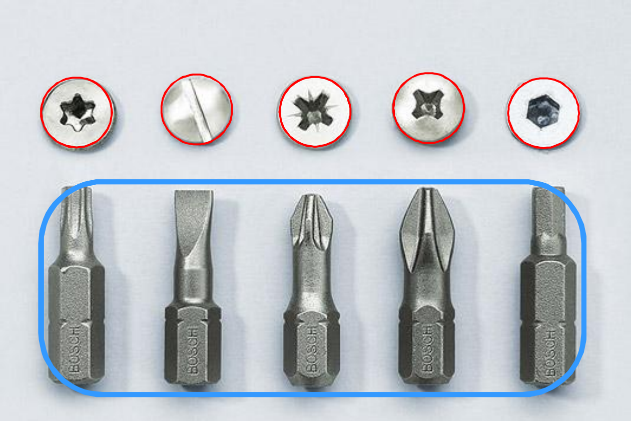
https://earth.esa.int/handbooks/meris/aux-files/image047.jpg



data product =

raw data:
volts
counts

+ software



http://logfurniturehowto.com/wp-content/uploads/2012/07/
Types-Of-Screwdrivers-And-Their-Uses.jpg

In situ should behave as satellite data

The peanut butter principle

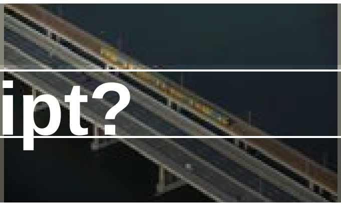
- Store all raw data
- Make automatic processing routines
    - Store routines
    - Keep on updating all routines
- At regular intervals re-apply tools to historic data
    - Data should always have a version number, or not be used
    - Just like a jar of peanut butter always has an expiration date

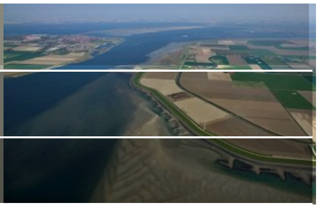
http://www.food-info.net/nl/national/ww-pindakaas_clip_image001.jpg

Helaas
PINDAKAAS
MET STUKJES NOOT

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

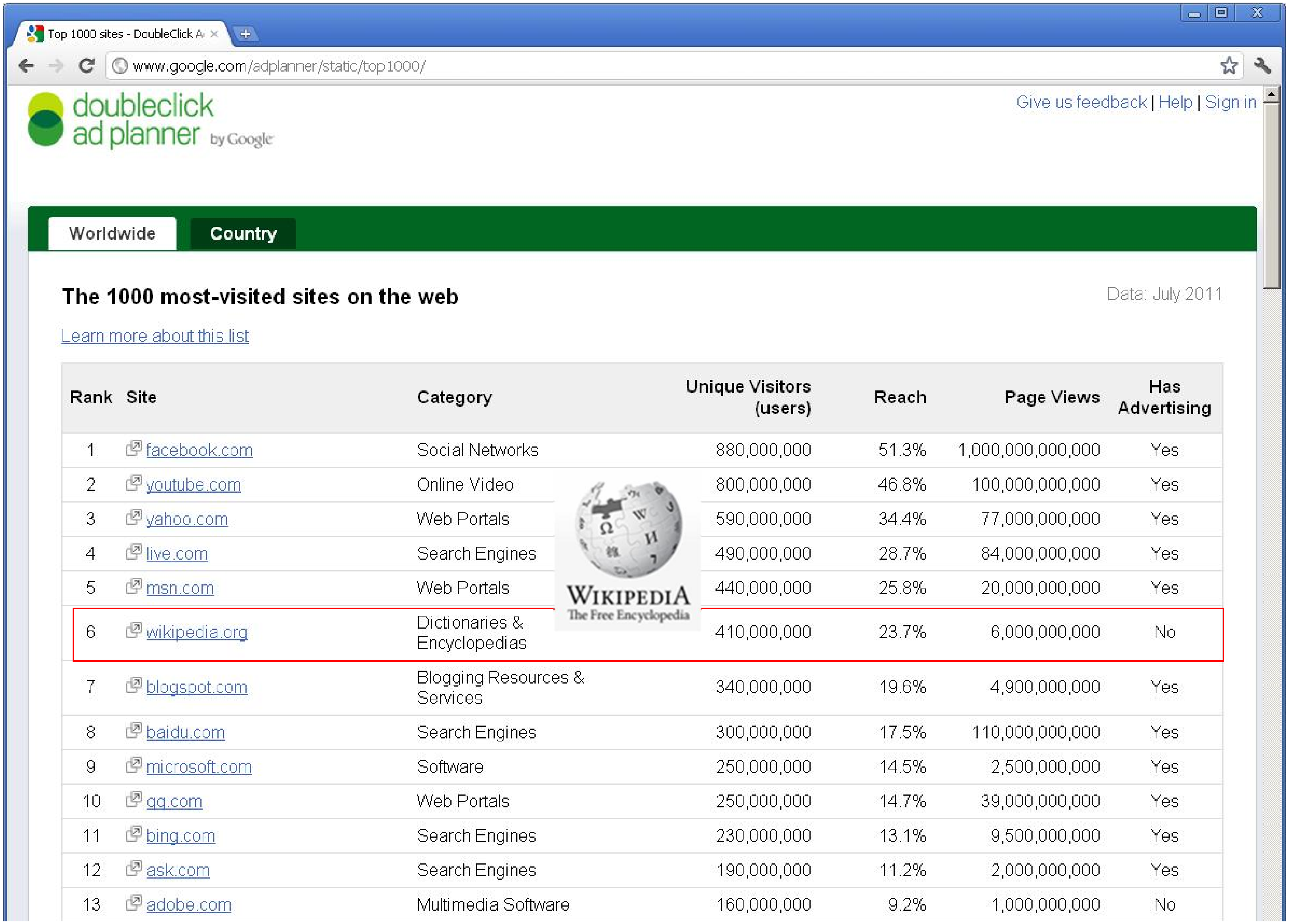
How to store raw data and script?





- Professional software is already stored in SubVersion
  (or alikes: newer: GIT, mercurial, older: vss, csv)
- Why not add the *data* to this version control repository too?
- Your raw data gets a url:
  - Image ftp with version control
  - Dropbox
- The version control system already exists
- Version control also allows others to help you edit your data (i.e. edit your data processing)
- Like wikipedia …

Communities: for science we can: 400 million


Top 1000 sites - DoubleClick A
www.google.com/adplanner/static/top1000/
doubleclick ad planner by Google
Give us feedback | Help | Sign in
Worldwide
Country
WIKIPEDIA
The Free Encyclopedia

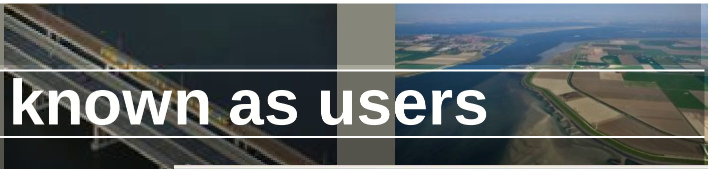
The 1000 most-visited sites on the web

Data: July 2011

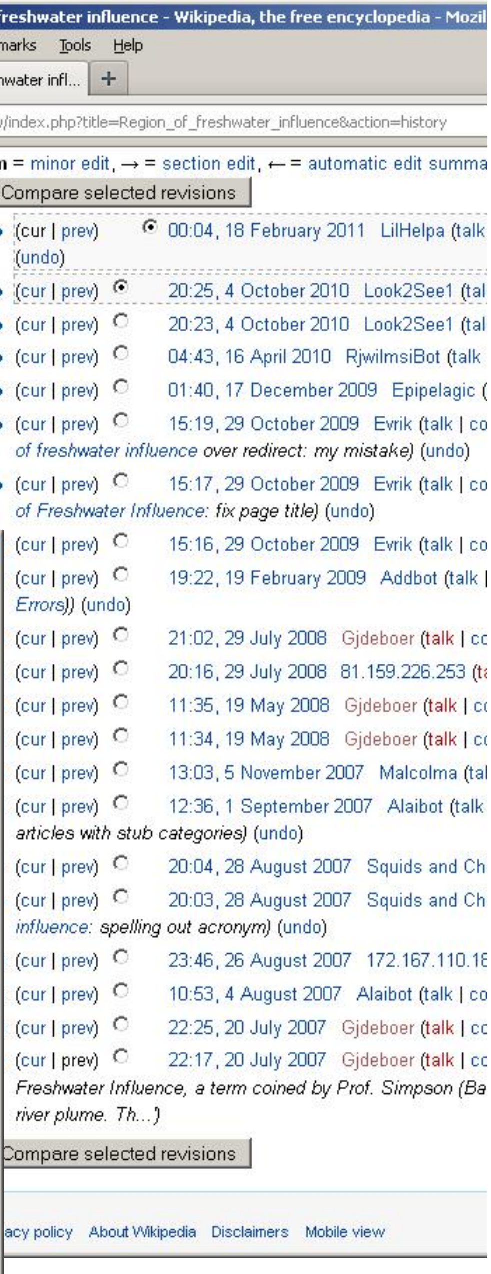
Learn more about this list

Rank	Site	Category	Unique Visitors (users)	Reach	Page Views	Has Advertising
1	facebook.com	Social Networks	880,000,000	51.3%	1,000,000,000,000	Yes
2	youtube.com	Online Video	800,000,000	46.8%	100,000,000,000	Yes
3	yahoo.com	Web Portals	590,000,000	34.4%	77,000,000,000	Yes
4	live.com	Search Engines	490,000,000	28.7%	84,000,000,000	Yes
5	msn.com	Web Portals	440,000,000	25.8%	20,000,000,000	Yes
6	wikipedia.org	Dictionaries & Encyclopedias	410,000,000	23.7%	6,000,000,000	No
7	blogspot.com	Blogging Resources & Services	340,000,000	19.6%	4,900,000,000	Yes
8	baidu.com	Search Engines	300,000,000	17.5%	110,000,000,000	Yes
9	microsoft.com	Software	250,000,000	14.5%	2,500,000,000	Yes
10	qq.com	Web Portals	250,000,000	14.7%	39,000,000,000	Yes
11	bing.com	Search Engines	230,000,000	13.1%	9,500,000,000	Yes
12	ask.com	Search Engines	190,000,000	11.2%	2,000,000,000	Yes
13	adobe.com	Multimedia Software	160,000,000	9.2%	1,000,000,000	No

Communities: developers formerly known as users



- Wikipedia's 1 % rule:
  - 100 visitors: only 1 contributes
  - many users = many contributions
  - 1% of 400 million = 4 million
  - provided the workflow is organized smoothly
- Is the marine & coastal community big enough ?


on of freshwater influence - Wikipedia, the free encyclopedia - Mozil
Bookmarks Tools Help
of freshwater infl... +
a.org/w/index.php?title=Region_of_freshwater_influence&action=history
Compare selected revisions
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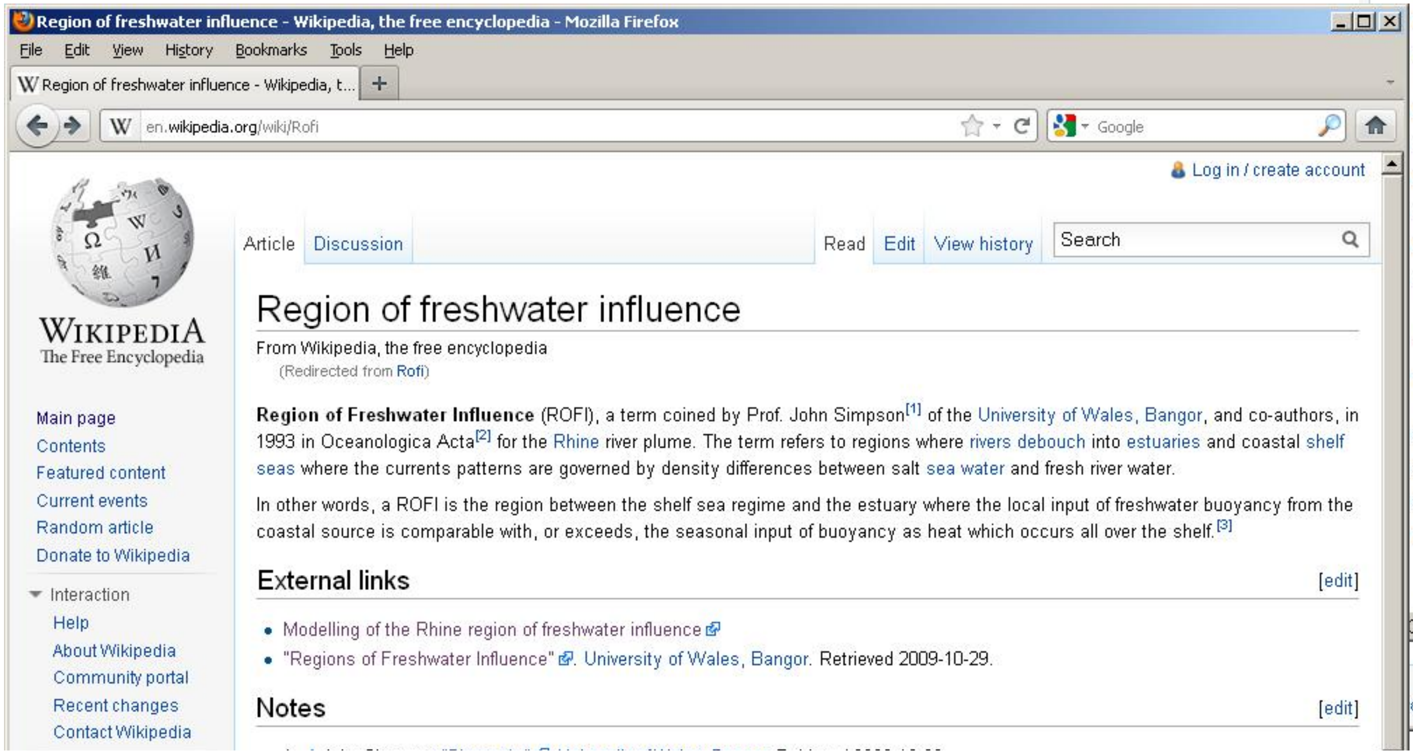
m = minor edit, → = section edit, ← = automatic edit summa

- (cur | prev) ● 00:04, 18 February 2011 LilHelpa (talk (undo)
- (cur | prev) ● 20:25, 4 October 2010 Look2See1 (tal
- (cur | prev) ○ 20:23, 4 October 2010 Look2See1 (tal
- (cur | prev) ○ 04:43, 16 April 2010 RjwilmsiBot (talk
- (cur | prev) ○ 01:40, 17 December 2009 Epipelagic (
- (cur | prev) ○ 15:19, 29 October 2009 Evrik (talk | co *of freshwater influence over redirect: my mistake)* (undo)
- (cur | prev) ○ 15:17, 29 October 2009 Evrik (talk | co *of Freshwater Influence: fix page title)* (undo)
- (cur | prev) ○ 15:16, 29 October 2009 Evrik (talk | co
- (cur | prev) ○ 19:22, 19 February 2009 Addbot (talk | *Errors))* (undo)
- (cur | prev) ○ 21:02, 29 July 2008 Gjdeboer (talk | co
- (cur | prev) ○ 20:16, 29 July 2008 81.159.226.253 (ta
- (cur | prev) ○ 11:35, 19 May 2008 Gjdeboer (talk | c
- (cur | prev) ○ 11:34, 19 May 2008 Gjdeboer (talk | c
- (cur | prev) ○ 13:03, 5 November 2007 Malcolma (tal
- (cur | prev) ○ 12:36, 1 September 2007 Alaibot (talk *articles with stub categories)* (undo)
- (cur | prev) ○ 20:04, 28 August 2007 Squids and Ch
- (cur | prev) ○ 20:03, 28 August 2007 Squids and Ch *influence: spelling out acronym)* (undo)
- (cur | prev) ○ 23:46, 26 August 2007 172.167.110.18
- (cur | prev) ○ 10:53, 4 August 2007 Alaibot (talk | co
- (cur | prev) ○ 22:25, 20 July 2007 Gjdeboer (talk | co
- (cur | prev) ○ 22:17, 20 July 2007 Gjdeboer (talk | co *Freshwater Influence, a term coined by Prof. Simpson (Ba river plume. Th...)*


Region of freshwater influence - Wikipedia, the free encyclopedia - Mozilla Firefox
File Edit View History Bookmarks Tools Help
Region of freshwater influence - Wikipedia, t... +
en.wikipedia.org/wiki/Rofi
Google
Log in / create account
WIKIPEDIA
The Free Encyclopedia
Main page
Contents
Featured content
Current events
Random article
Donate to Wikipedia
Interaction
Help
About Wikipedia
Community portal
Recent changes
Contact Wikipedia
Article
Discussion
Read
Edit
View history
Search

Region of freshwater influence

From Wikipedia, the free encyclopedia

(Redirected from Rofi)

Region of Freshwater Influence (ROFI), a term coined by Prof. John Simpson[1] of the University of Wales, Bangor, and co-authors, in 1993 in Oceanologica Acta[2] for the Rhine river plume. The term refers to regions where rivers debouch into estuaries and coastal shelf seas where the currents patterns are governed by density differences between salt sea water and fresh river water.

In other words, a ROFI is the region between the shelf sea regime and the estuary where the local input of freshwater buoyancy from the coastal source is comparable with, or exceeds, the seasonal input of buoyancy as heat which occurs all over the shelf.[3]

External links [edit]

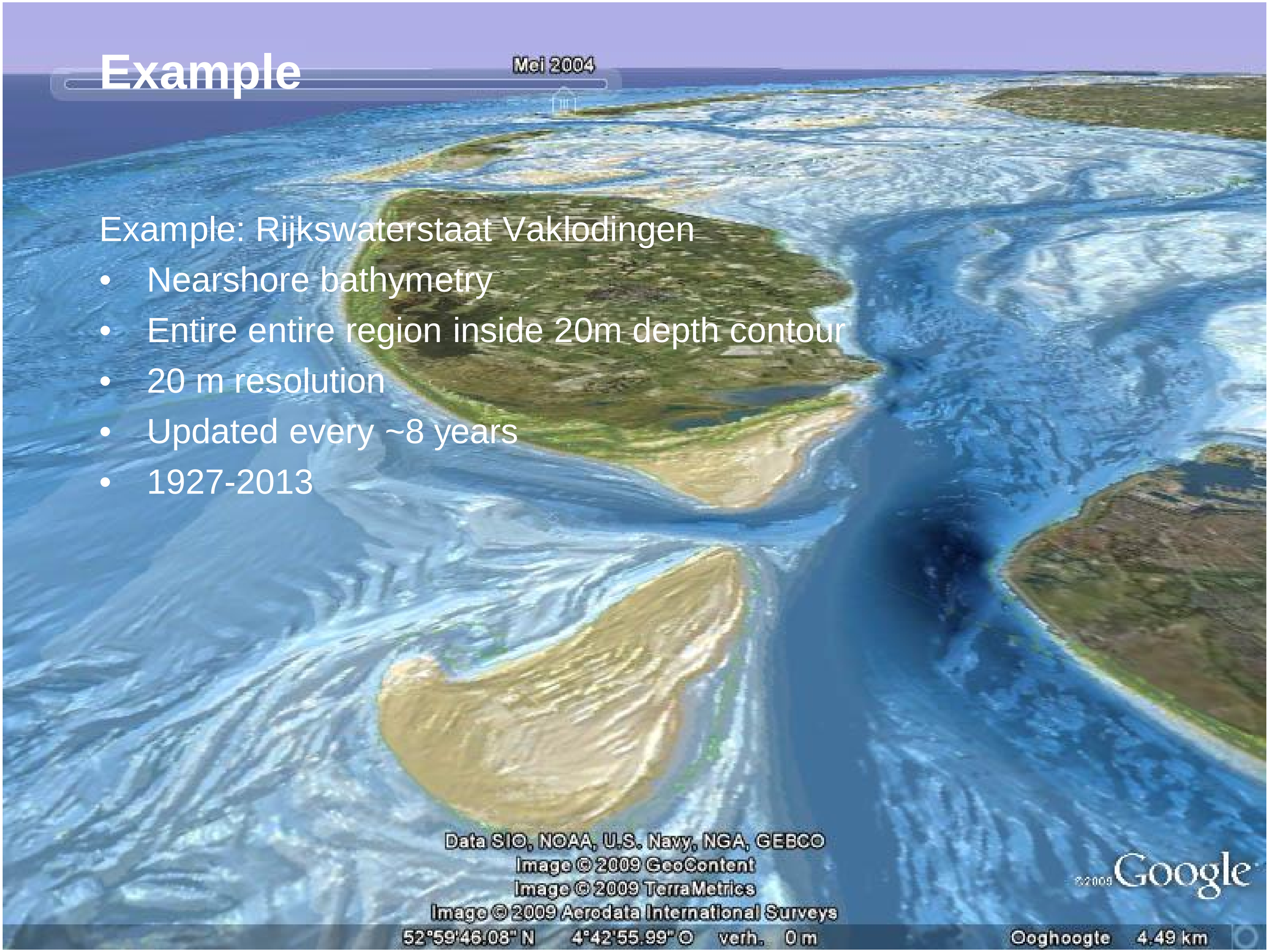
- Modelling of the Rhine region of freshwater influence
- "Regions of Freshwater Influence". University of Wales, Bangor. Retrieved 2009-10-29.

Notes [edit]

Example

Example: Rijkswaterstaat Vaklodingen

- Nearshore bathymetry
- Entire entire region inside 20m depth contour
- 20 m resolution
- Updated every ~8 years
- 1927-2013


Mei 2004
Data SIO, NOAA, U.S. Navy, NGA, GEBCO
Image © 2009 GeoContent
Image © 2009 TerraMetrics
Image © 2009 Aerodata International Surveys
52°59'46.08" N
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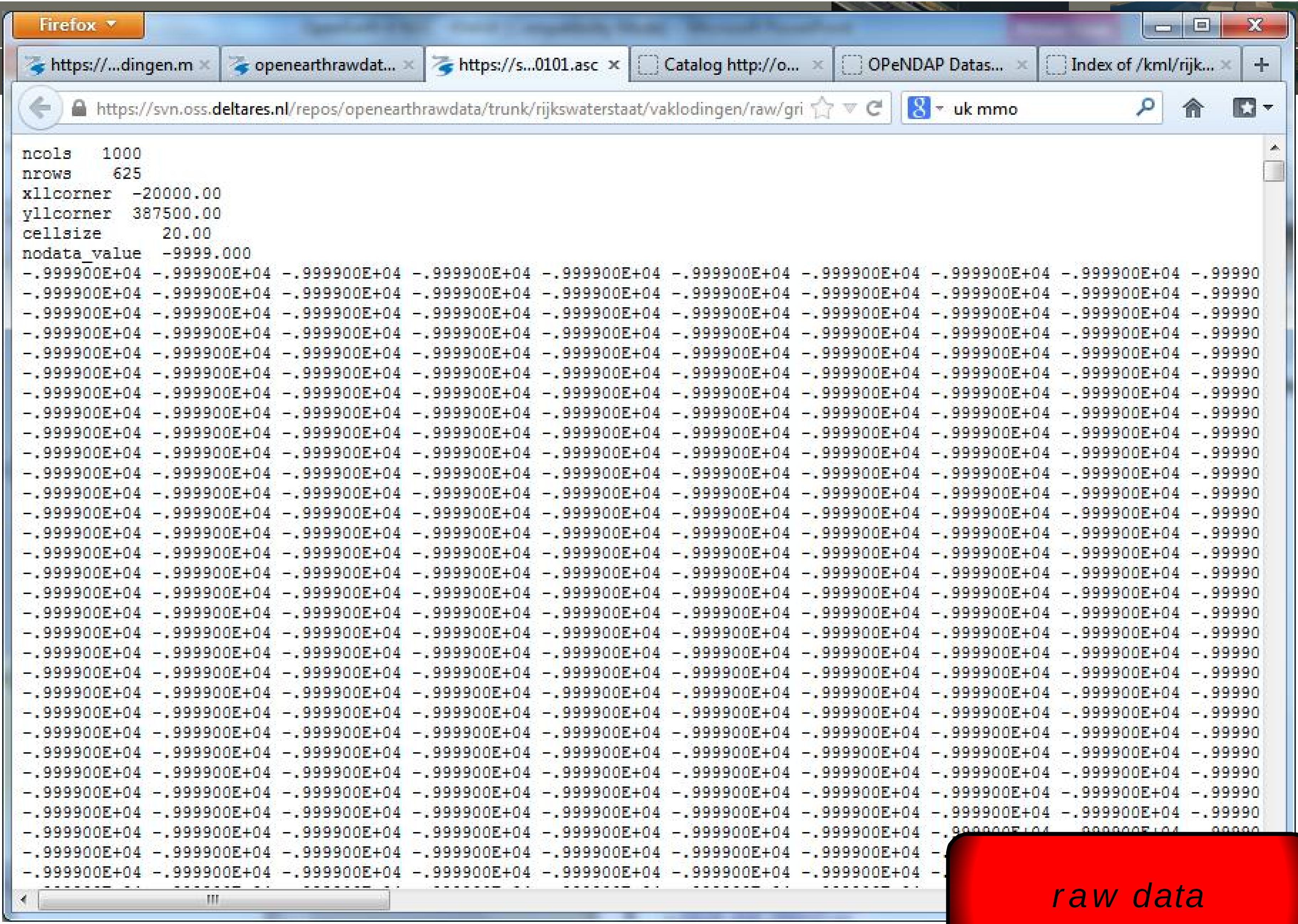
©2009 Google



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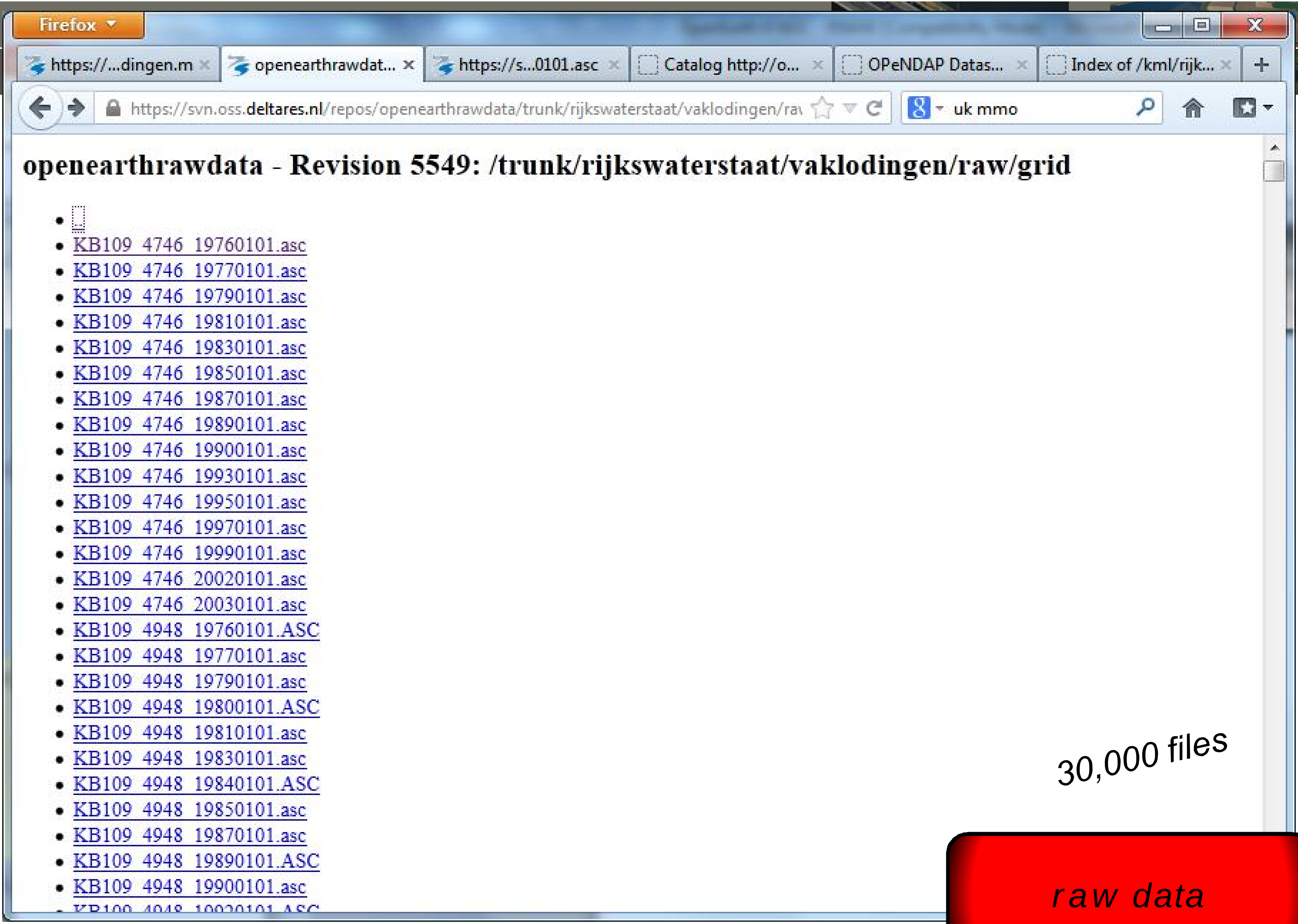
raw data
]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openearthrawdat...
https://s...0101.asc
Catalog http://o...
OPeNDAP Datas...
Index of /kml/rijk...
https://svn.oss.deltares.nl/repos/openearthrawdata/trunk/rijkswaterstaat/vaklodingen/raw
uk mmo

openearthrawdata - Revision 5549: /trunk/rijkswaterstaat/vaklodingen/raw/grid

- ..
- KB109_4746_19760101.asc
- KB109_4746_19770101.asc
- KB109_4746_19790101.asc
- KB109_4746_19810101.asc
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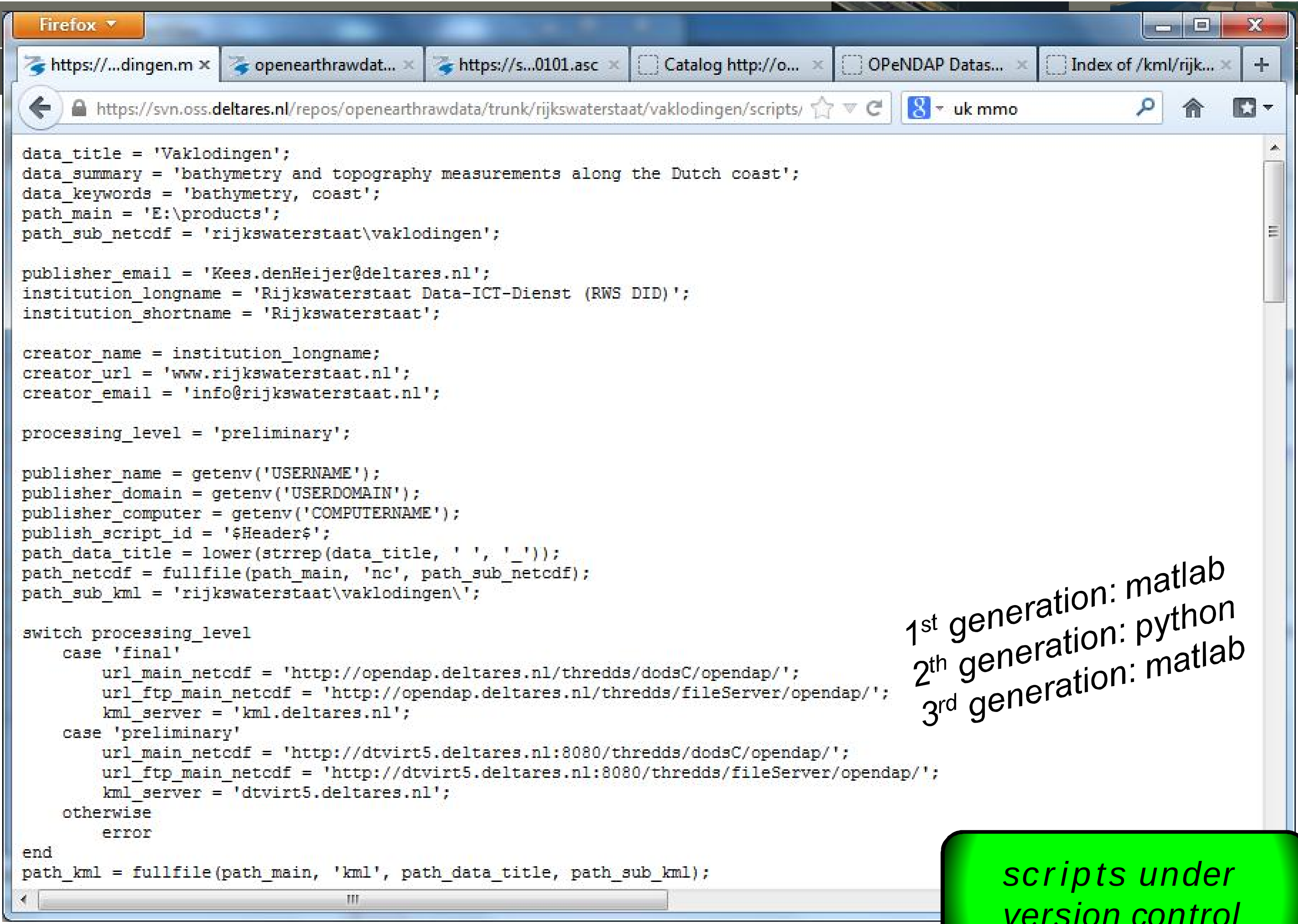
- KB109_4948_19890101.ASC
- KB109_4948_19900101.asc

30,000 files

raw data


Firefox
https://...dingen.m
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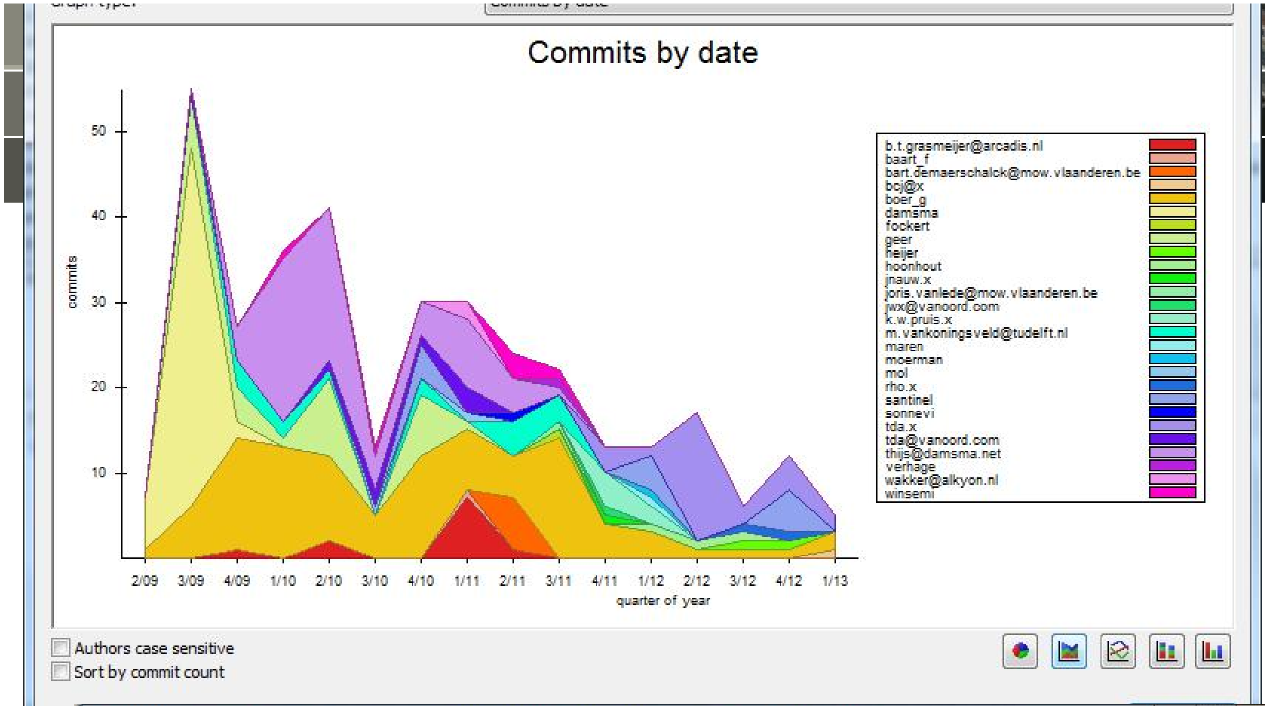
Catalog http://o...
OPeNDAP Datas...
Index of /kml/rijk...
https://svn.oss.deltares.nl/repos/openearthrawdata/trunk/rijkswaterstaat/vaklodingen/scripts/
uk mmo

```
data_title = 'Vaklodingen';
data_summary = 'bathymetry and topography measurements along the Dutch coast';
data_keywords = 'bathymetry, coast';
path_main = 'E:\products';
path_sub_netcdf = 'rijkswaterstaat\vaklodingen';

publisher_email = 'Kees.denHeijer@deltares.nl';
institution_longname = 'Rijkswaterstaat Data-ICT-Dienst (RWS DID)';
institution_shortname = 'Rijkswaterstaat';

creator_name = institution_longname;
creator_url = 'www.rijkswaterstaat.nl';
creator_email = 'info@rijkswaterstaat.nl';

processing_level = 'preliminary';

publisher_name = getenv('USERNAME');
publisher_domain = getenv('USERDOMAIN');
publisher_computer = getenv('COMPUTERNAME');
publish_script_id = '$Header$';
path_data_title = lower(strrep(data_title, ' ', '_'));
path_netcdf = fullfile(path_main, 'nc', path_sub_netcdf);
path_sub_kml = 'rijkswaterstaat\vaklodingen\';

switch processing_level
    case 'final'
        url_main_netcdf = 'http://opendap.deltares.nl/thredds/dodsC/opendap/';
        url_ftp_main_netcdf = 'http://opendap.deltares.nl/thredds/fileServer/opendap/';
        kml_server = 'kml.deltares.nl';
    case 'preliminary'
        url_main_netcdf = 'http://dtvirt5.deltares.nl:8080/thredds/dodsC/opendap/';
        url_ftp_main_netcdf = 'http://dtvirt5.deltares.nl:8080/thredds/fileServer/opendap/';
        kml_server = 'dtvirt5.deltares.nl';
    otherwise
        error
end
path_kml = fullfile(path_main, 'kml', path_data_title, path_sub_kml);
```

1st generation: matlab
2th generation: python
3rd generation: matlab

scripts under version control


Commits by date
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50
40
30
20
10
2/09
3/09
4/09
1/10
2/10
3/10
4/10
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4/11
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2/12
3/12
4/12
1/13
quarter of year
b.t.grasmeijer@arcadis.nl
baart_f
bart.demaerschalck@mow.vlaanderen.be
bcj@x
boer_g
damsma
fockert
geer
heijer
hoonhout
jnauw.x
joris.vanlede@mow.vlaanderen.be
jwx@vanoord.com
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santinel
sonnevi
tda.x
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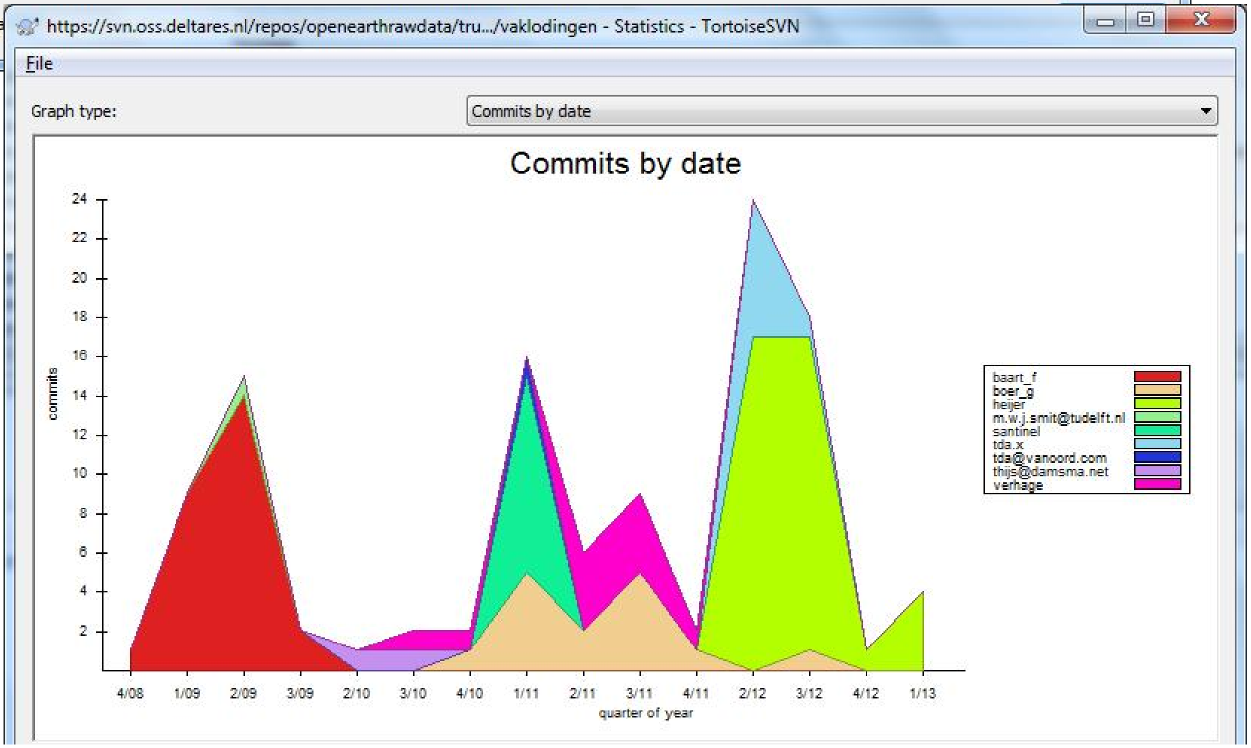
thijs@damsma.net
verhage
wakker@alkyon.nl
winsemi

☐ Authors case sensitive
☐ Sort by commit count



https://svn.oss.deltares.nl/repos/openearthrawdata/tru.../vaklodingen - Statistics - TortoiseSVN

File

Graph type: Commits by date

Commits by date
commits
24
22
20
18
16
14
12
10
8
6
4
2
4/08
1/09
2/09
3/09
2/10
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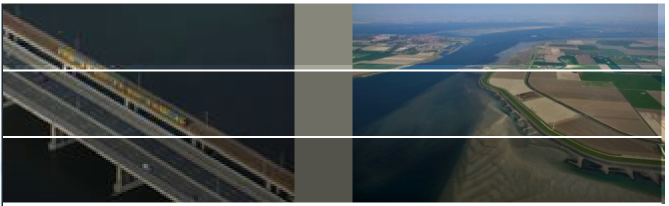
4/11
2/12
3/12
4/12
1/13
quarter of year
baart_f
boer_g
heijer
m.w.j.smit@tudelft.nl
santinel
tda.x
tda@vanoord.com
thijs@damsma.net
verhage

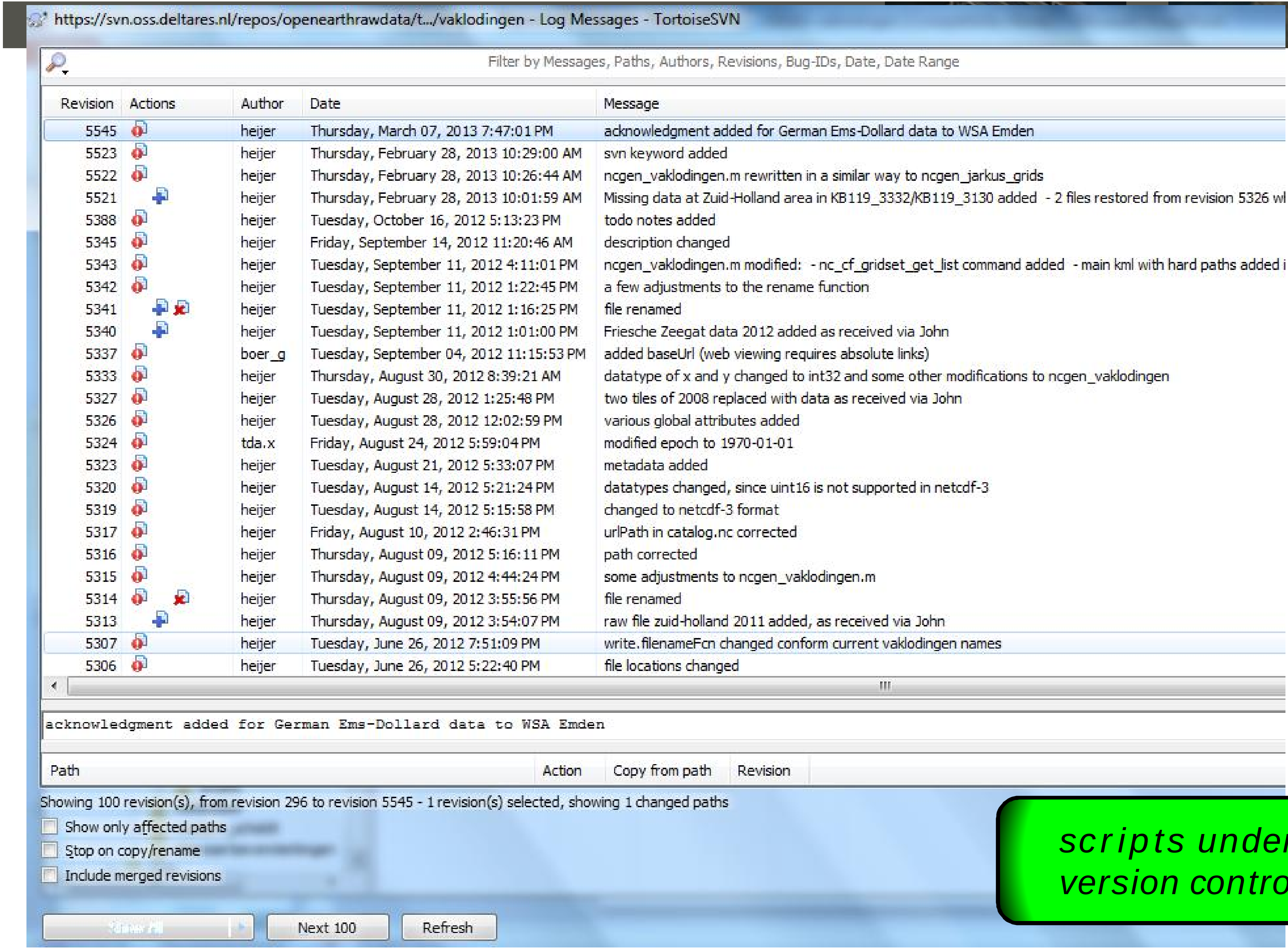


Revisions:

OpenEarthTools 7143
← GooglePlot 351

OpenEarthRawData 5414
← Vaklodingen 112

scripts under version control


https://svn.oss.deltares.nl/repos/openearthrawdata/t.../vaklodingen - Log Messages - TortoiseSVN

Filter by Messages, Paths, Authors, Revisions, Bug-IDs, Date, Date Range

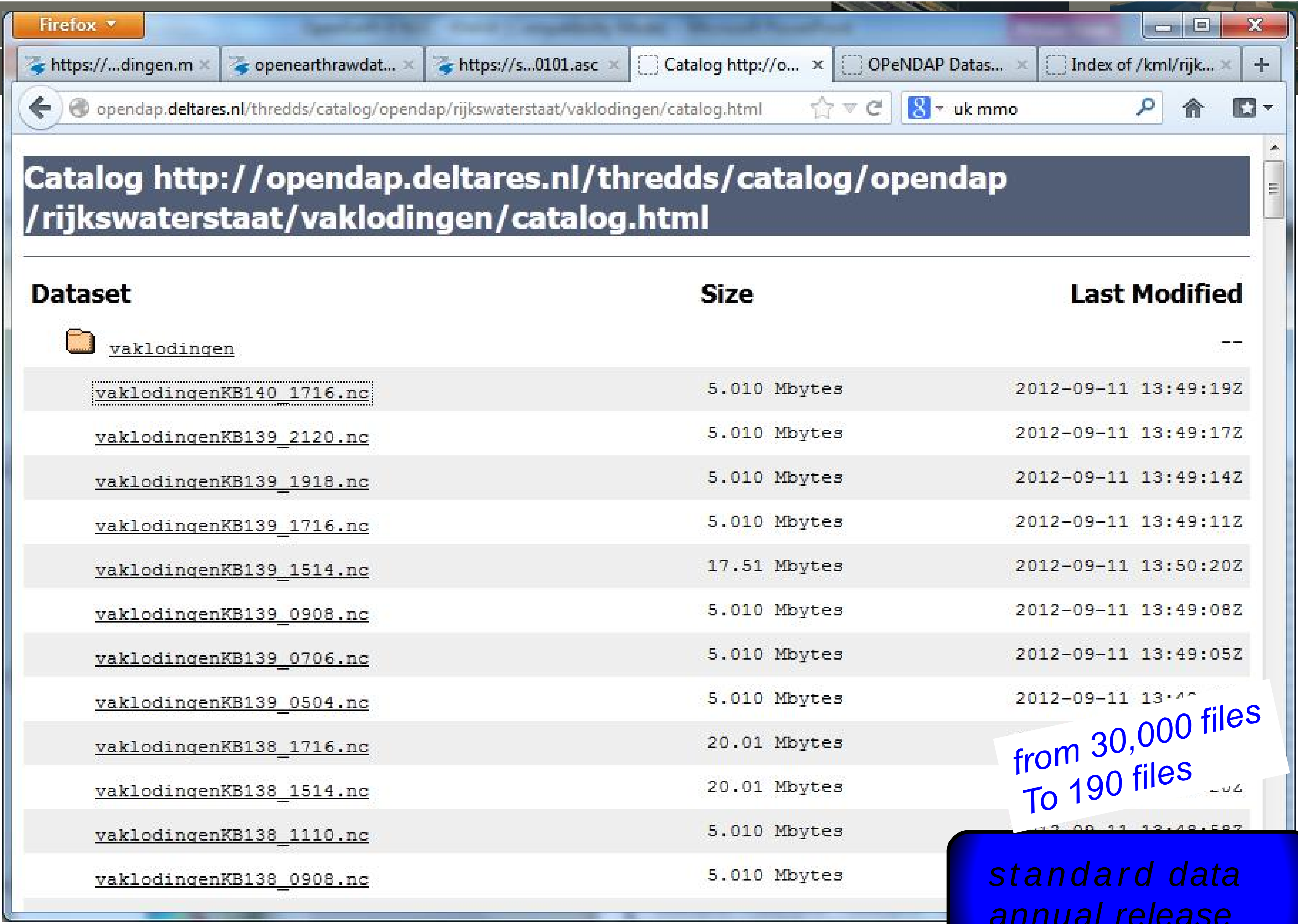
Revision	Actions	Author	Date	Message
5545		heijer	Thursday, March 07, 2013 7:47:01 PM	acknowledgment added for German Ems-Dollard data to WSA Emden
5523		heijer	Thursday, February 28, 2013 10:29:00 AM	svn keyword added
5522		heijer	Thursday, February 28, 2013 10:26:44 AM	ncgen_vaklodingen.m rewritten in a similar way to ncgen_jarkus_grids
5521		heijer	Thursday, February 28, 2013 10:01:59 AM	Missing data at Zuid-Holland area in KB119_3332/KB119_3130 added - 2 files restored from revision 5326 w
5388		heijer	Tuesday, October 16, 2012 5:13:23 PM	todo notes added
5345		heijer	Friday, September 14, 2012 11:20:46 AM	description changed
5343		heijer	Tuesday, September 11, 2012 4:11:01 PM	ncgen_vaklodingen.m modified: - nc_cf_gridset_get_list command added - main kml with hard paths added i
5342		heijer	Tuesday, September 11, 2012 1:22:45 PM	a few adjustments to the rename function
5341		heijer	Tuesday, September 11, 2012 1:16:25 PM	file renamed
5340		heijer	Tuesday, September 11, 2012 1:01:00 PM	Friesche Zeegat data 2012 added as received via John
5337		boer_g	Tuesday, September 04, 2012 11:15:53 PM	added baseUrl (web viewing requires absolute links)
5333		heijer	Thursday, August 30, 2012 8:39:21 AM	datatype of x and y changed to int32 and some other modifications to ncgen_vaklodingen
5327		heijer	Tuesday, August 28, 2012 1:25:48 PM	two tiles of 2008 replaced with data as received via John
5326		heijer	Tuesday, August 28, 2012 12:02:59 PM	various global attributes added
5324		tda.x	Friday, August 24, 2012 5:59:04 PM	modified epoch to 1970-01-01
5323		heijer	Tuesday, August 21, 2012 5:33:07 PM	metadata added
5320		heijer	Tuesday, August 14, 2012 5:21:24 PM	datatypes changed, since uint16 is not supported in netcdf-3
5319		heijer	Tuesday, August 14, 2012 5:15:58 PM	changed to netcdf-3 format
5317		heijer	Friday, August 10, 2012 2:46:31 PM	urlPath in catalog.nc corrected
5316		heijer	Thursday, August 09, 2012 5:16:11 PM	path corrected
5315		heijer	Thursday, August 09, 2012 4:44:24 PM	some adjustments to ncgen_vaklodingen.m
5314		heijer	Thursday, August 09, 2012 3:55:56 PM	file renamed
5313		heijer	Thursday, August 09, 2012 3:54:07 PM	raw file zuid-holland 2011 added, as received via John
5307		heijer	Tuesday, June 26, 2012 7:51:09 PM	write.filenameFcn changed conform current vaklodingen names
5306		heijer	Tuesday, June 26, 2012 5:22:40 PM	file locations changed

```
acknowledgment added for German Ems-Dollard data to WSA Emden
```

Showing 100 revision(s), from revision 296 to revision 5545 - 1 revision(s) selected, showing 1 changed paths

☐ Show only affected paths
☐ Stop on copy/rename
☐ Include merged revisions

scripts under version control

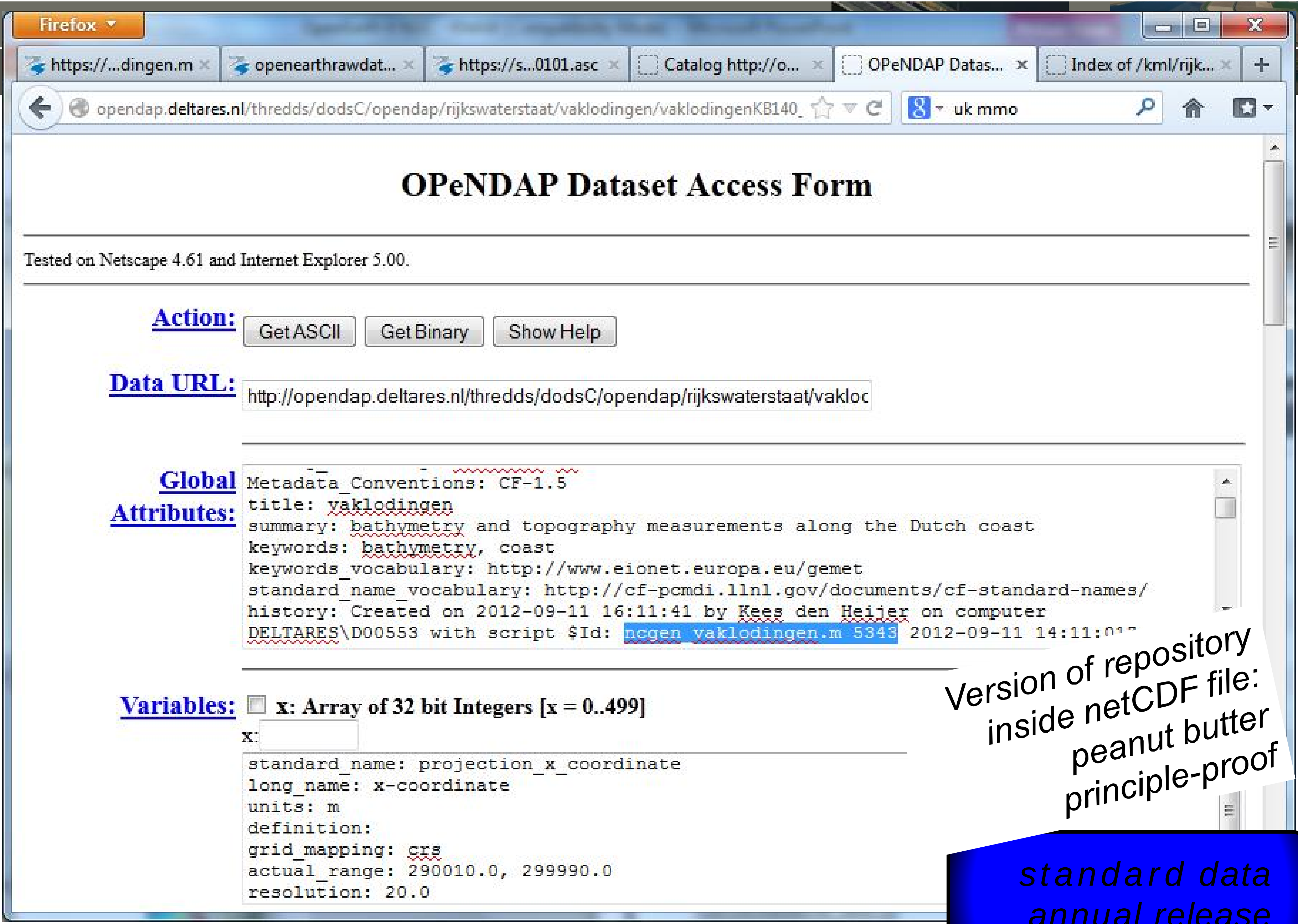

Firefox
https://...dingen.m
openearthrawdat...
https://s...0101.asc
Catalog http://o...
OPeNDAP Datas...
Index of /kml/rijk...
opendap.deltares.nl/thredds/catalog/opendap/rijkswaterstaat/vaklodingen/catalog.html
uk mmo

Catalog http://opendap.deltares.nl/thredds/catalog/opendap/rijkswaterstaat/vaklodingen/catalog.html

Dataset	Size	Last Modified
vaklodingen		--
vaklodingenKB140_1716.nc	5.010 Mbytes	2012-09-11 13:49:19Z
vaklodingenKB139_2120.nc	5.010 Mbytes	2012-09-11 13:49:17Z
vaklodingenKB139_1918.nc	5.010 Mbytes	2012-09-11 13:49:14Z
vaklodingenKB139_1716.nc	5.010 Mbytes	2012-09-11 13:49:11Z
vaklodingenKB139_1514.nc	17.51 Mbytes	2012-09-11 13:50:20Z
vaklodingenKB139_0908.nc	5.010 Mbytes	2012-09-11 13:49:08Z
vaklodingenKB139_0706.nc	5.010 Mbytes	2012-09-11 13:49:05Z
vaklodingenKB139_0504.nc	5.010 Mbytes	2012-09-11 13:4
vaklodingenKB138_1716.nc	20.01 Mbytes	
vaklodingenKB138_1514.nc	20.01 Mbytes	20Z
vaklodingenKB138_1110.nc	5.010 Mbytes	12-09-11 13:48:58Z
vaklodingenKB138_0908.nc	5.010 Mbytes	

from 30,000 files
To 190 files

standard data annual release


Firefox
https://...dingen.m
openearthrawdat...
https://s...0101.asc
Catalog http://o...
OPeNDAP Datas...
Index of /kml/rijk...
opendap.deltares.nl/thredds/dodsC/opendap/rijkswaterstaat/vaklodingen/vaklodingenKB140_
uk mmo

OPeNDAP Dataset Access Form

Tested on Netscape 4.61 and Internet Explorer 5.00.

Action: Get ASCII | Get Binary | Show Help

Data URL: http://opendap.deltares.nl/thredds/dodsC/opendap/rijkswaterstaat/vakloc

Global Attributes:

```
Metadata_Conventions: CF-1.5
title: vaklodingen
summary: bathymetry and topography measurements along the Dutch coast
keywords: bathymetry, coast
keywords_vocabulary: http://www.eionet.europa.eu/gemet
standard_name_vocabulary: http://cf-pcmdi.llnl.gov/documents/cf-standard-names/
history: Created on 2012-09-11 16:11:41 by Kees den Heijer on computer
DELTARES\D00553 with script $Id: ncgen_vaklodingen.m 5343 2012-09-11 14:11:0
```

Variables: ☐ **x: Array of 32 bit Integers [x = 0..499]**

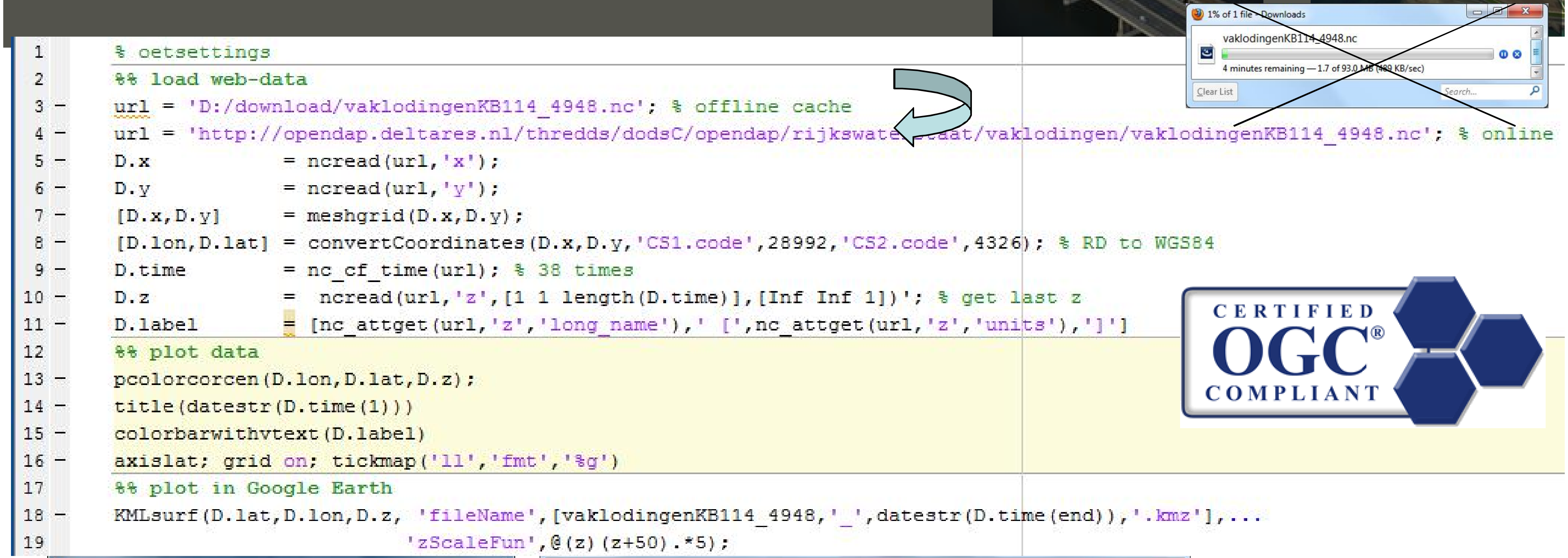
x:

```
standard_name: projection_x_coordinate
long_name: x-coordinate
units: m
definition:
grid_mapping: crs
actual_range: 290010.0, 299990.0
resolution: 20.0
```

Version of repository inside netCDF file: peanut butter principle-proof

standard data annual release

② How we switched to web-data changing *one line* of code



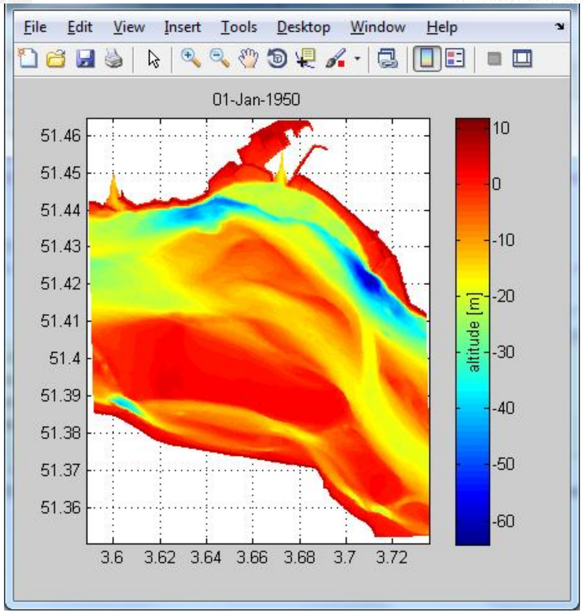
1% of 1 file - Downloads

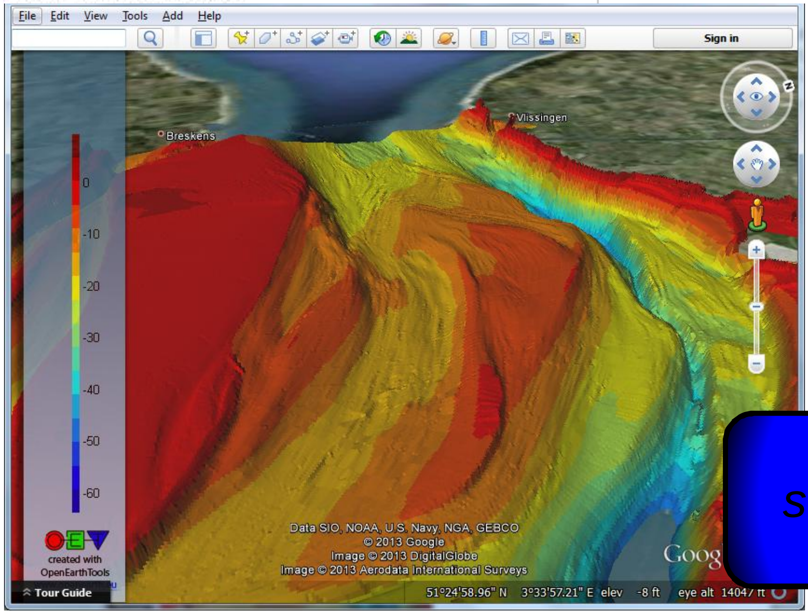
vaklodingenKB114_4948.nc

4 minutes remaining — 1.7 of 93.0 MB (489 KB/sec)

Clear List
Search...

```
% oetsettings
%% load web-data
url = 'D:/download/vaklodingenKB114_4948.nc'; % offline cache
url = 'http://opendap.deltares.nl/thredds/dodsC/opendap/rijkswaterstaat/vaklodingen/vaklodingenKB114_4948.nc'; % online
D.x            = ncread(url,'x');
D.y            = ncread(url,'y');
[D.x,D.y]      = meshgrid(D.x,D.y);
[D.lon,D.lat] = convertCoordinates(D.x,D.y,'CS1.code',28992,'CS2.code',4326); % RD to WGS84
D.time         = nc_cf_time(url); % 38 times
D.z            =  ncread(url,'z',[1 1 length(D.time)],[Inf Inf 1])'; % get last z
D.label        = [nc_attget(url,'z','long_name'),' [',nc_attget(url,'z','units'),']']
%% plot data
pcolorcorcen(D.lon,D.lat,D.z);
title(datestr(D.time(1)))
colorbarwithvtext(D.label)
axislat; grid on; tickmap('ll','fmt','%g')
%% plot in Google Earth
KMLsurf(D.lat,D.lon,D.z, 'fileName',[vaklodingenKB114_4948,'_',datestr(D.time(end)),'.kmz'],...
                        'zScaleFun',@(z) (z+50).*5);
```




File
Edit
View
Tools
Add
Help
Sign in
Vlissingen
Breskens
0
-10
-20
-30
-40
-50
-60
created with
OpenEarthTools
Tour Guide
Google

Data SIO, NOAA, U.S. Navy, NGA, GEBCO
© 2013 Google
Image © 2013 DigitalGlobe
Image © 2013 Aerodata International Surveys

51°24'58.96" N 3°33'57.21" E elev -8 ft eye alt 14047 ft

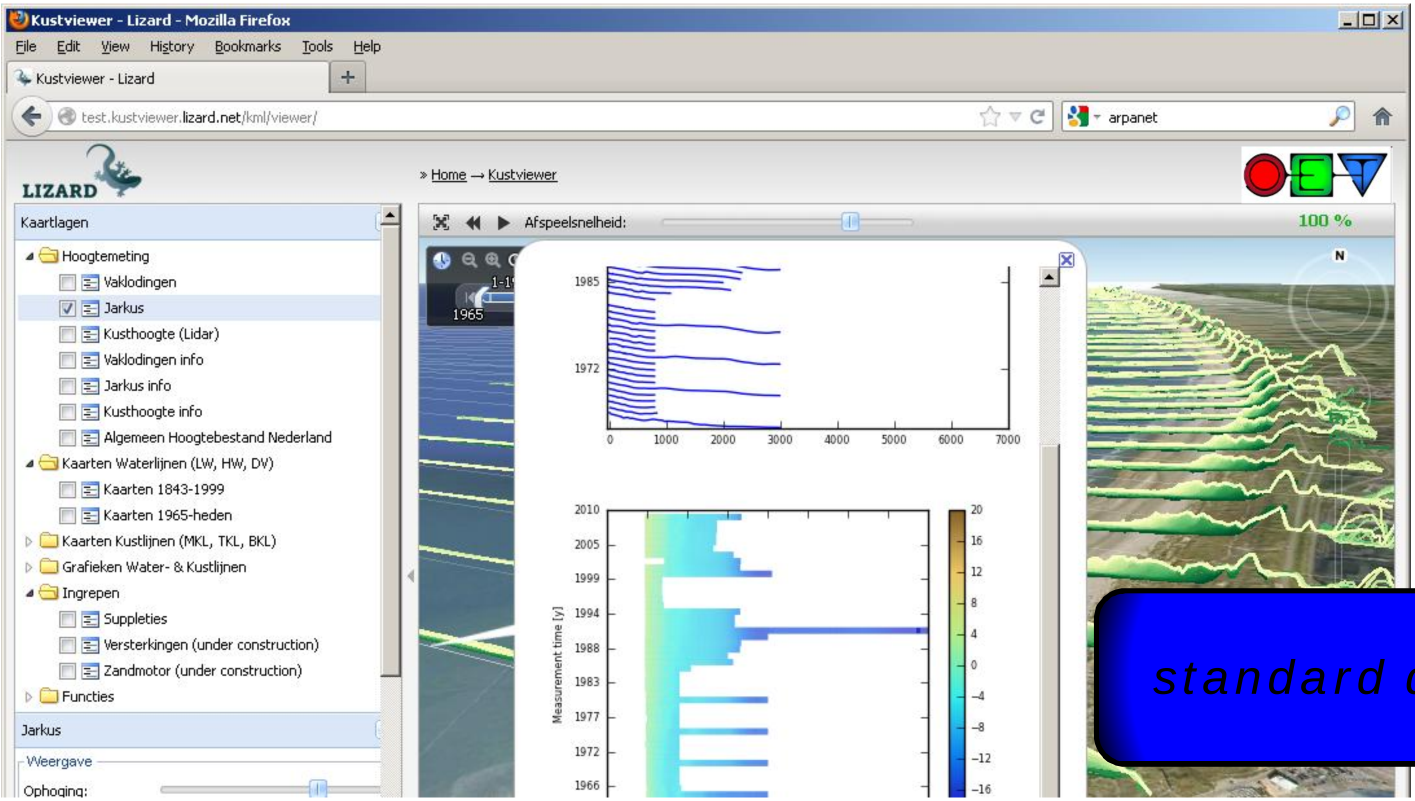
How scientist work with standard data

standard data

4th paradigm: interactive web viewer: http://kustviewer.lizard.net/

Data scarcity > data abundance: data scientist most sexy job 21st century

1. 1000’s yrs: Empirical Archimedes ea.
2. 100’s yrs: Theoretical Newton ea.
3. 10’s yrs: Computational Neumann ea.
4. Now 4th paradigm by Microsoft Research

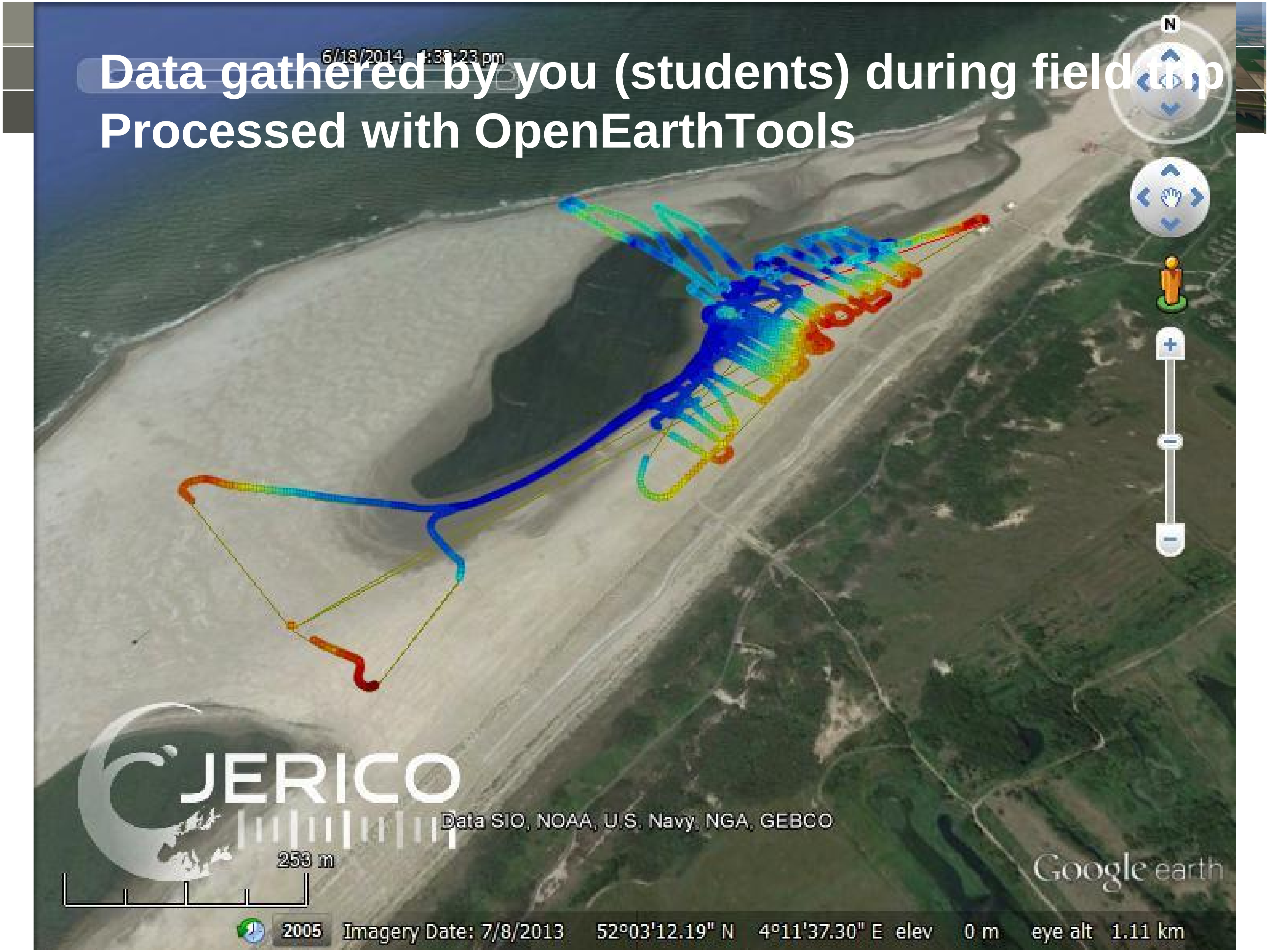

Kustviewer - Lizard - Mozilla Firefox
File Edit View History Bookmarks Tools Help
Kustviewer - Lizard
test.kustviewer.lizard.net/kml/viewer/
arpanet
LIZARD
» Home → Kustviewer
Kaartlagen
Hoogtemeting
☐ Vaklodingen
☑ Jarkus
☐ Kusthoogte (Lidar)
☐ Vaklodingen info
☐ Jarkus info
☐ Kusthoogte info
☐ Algemeen Hoogtebestand Nederland
Kaarten Waterlijnen (LW, HW, DV)
☐ Kaarten 1843-1999
☐ Kaarten 1965-heden
Kaarten Kustlijnen (MKL, TKL, BKL)
Grafieken Water- & Kustlijnen
Ingrepen
☐ Suppleties
☐ Versterkingen (under construction)
☐ Zandmotor (under construction)
Functies
Jarkus
Weergave
Ophoging:
Afspeelsnelheid:
100 %
1965
N
1985
1972
0
1000
2000
3000
4000
5000
6000
7000
2010
2005
1999
1994
1988
1983
1977
1972
1966
Measurement time [y]
20
16
12
8
4
0
−4
−8
−12
−16

standard data

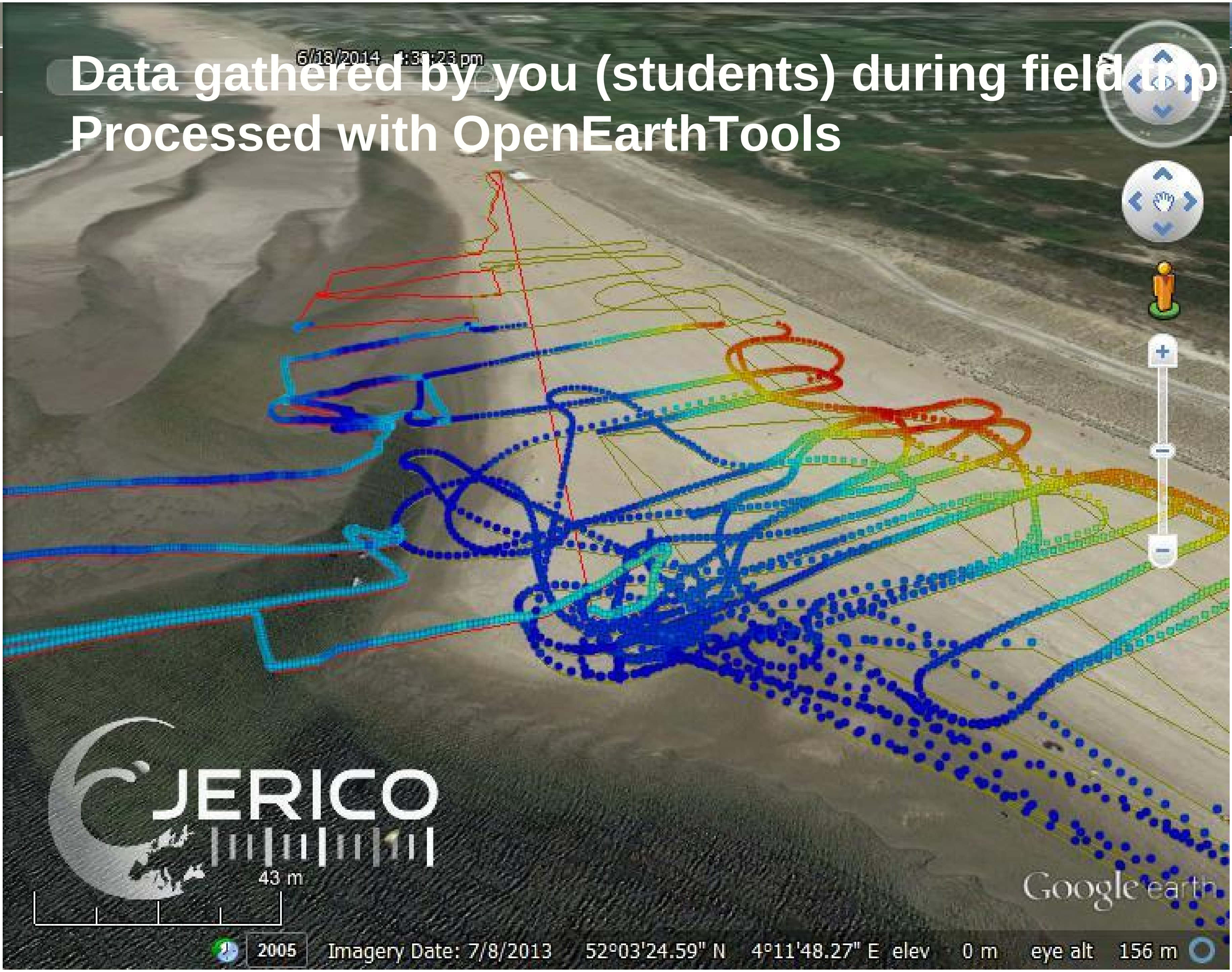
4th paradigm: client-server in this summerschool

- This summer school featured 1 day courses
- 1 day is too short to get hands-on with a complex command line executable
- Many difficult analyses this week deployed an interactive web tool:
  - 15th interactive EMECO web tool
  - 16th interactive DIVA web tool
  - 16th interactive DINEOF web tool
  - 17th interactive ICES web tool
  - 17th interactive EMODnet-physics web tool
  - 20th OpenEarth web tool on dune profiles
  - (20th instead of: EMODnet chemistry web tool)
- Your generation will be the ones making/using such tools
- Exercise: analysis the elevation “transects” gathered by JERICO summer school using OpenEarthTools or any other tool

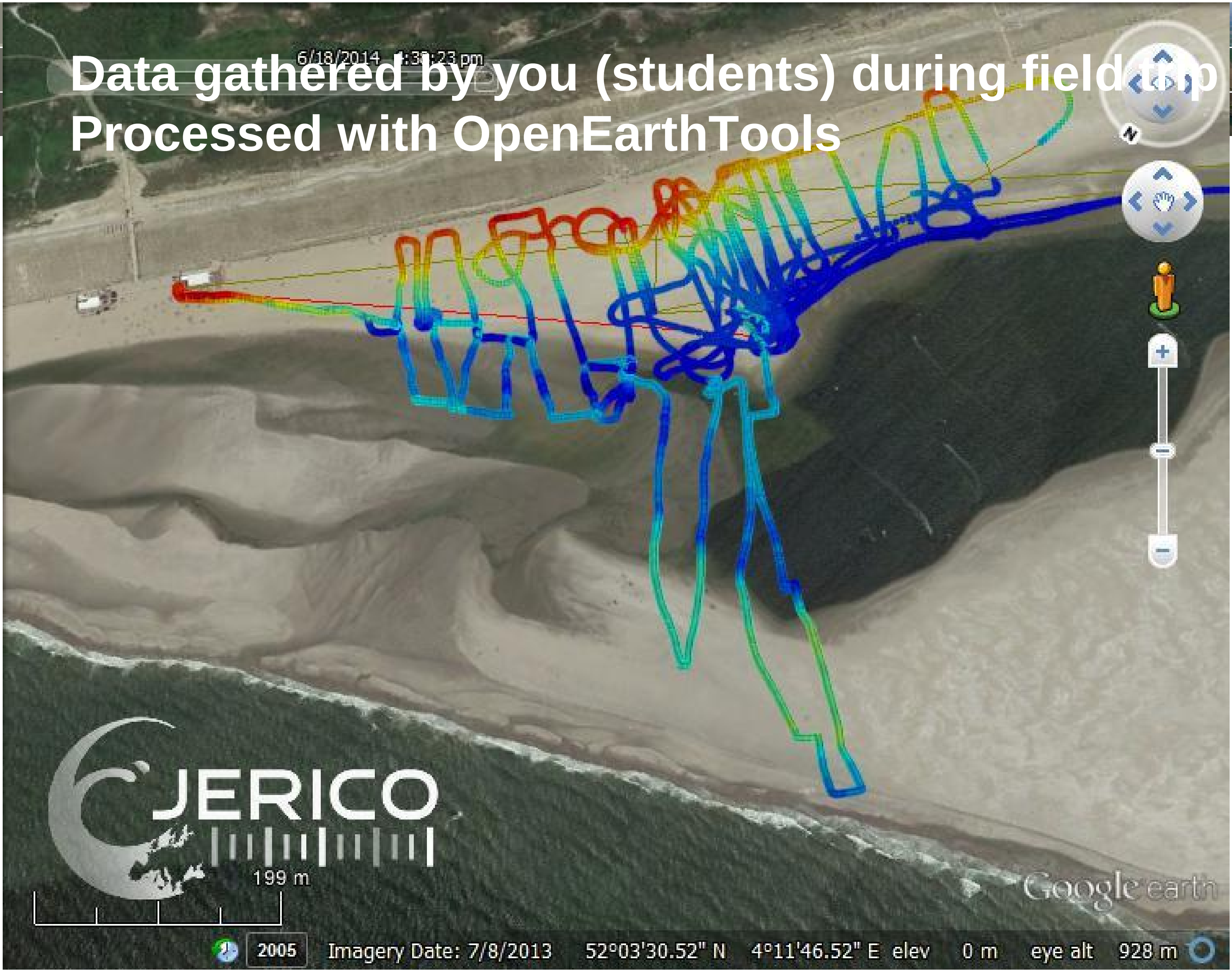
Data gathered by you (students) during field trip
Processed with OpenEarthTools


6/18/2014
N
Data SIO, NOAA, U.S. Navy, NGA, GEBCO
250 m
Google earth
2005
Imagery Date: 7/8/2013
52°03'12.19" N 4°11'37.30" E elev 0 m
eye alt 1.11 km

Data gathered by you (students) during field trip
Processed with OpenEarthTools


6/18/2014
JERICO
43 m
2005
Imagery Date: 7/8/2013 52°03'24.59" N 4°11'48.27" E elev 0 m eye alt 156 m
Google earth

Data gathered by you (students) during field trip
Processed with OpenEarthTools


6/18/2014
JERICO
199 m
Google earth
2005
Imagery Date: 7/8/2013
52°03'30.52" N
4°11'46.52" E
elev
0 m
eye alt
928 m

Raw data (ascii) + script (m) = processed data (kmz)

raw data

- Raw data (ascii + mat) for download from JERICO wiki: frozen
- https://publicwiki.deltares.nl/display/OET/jerico

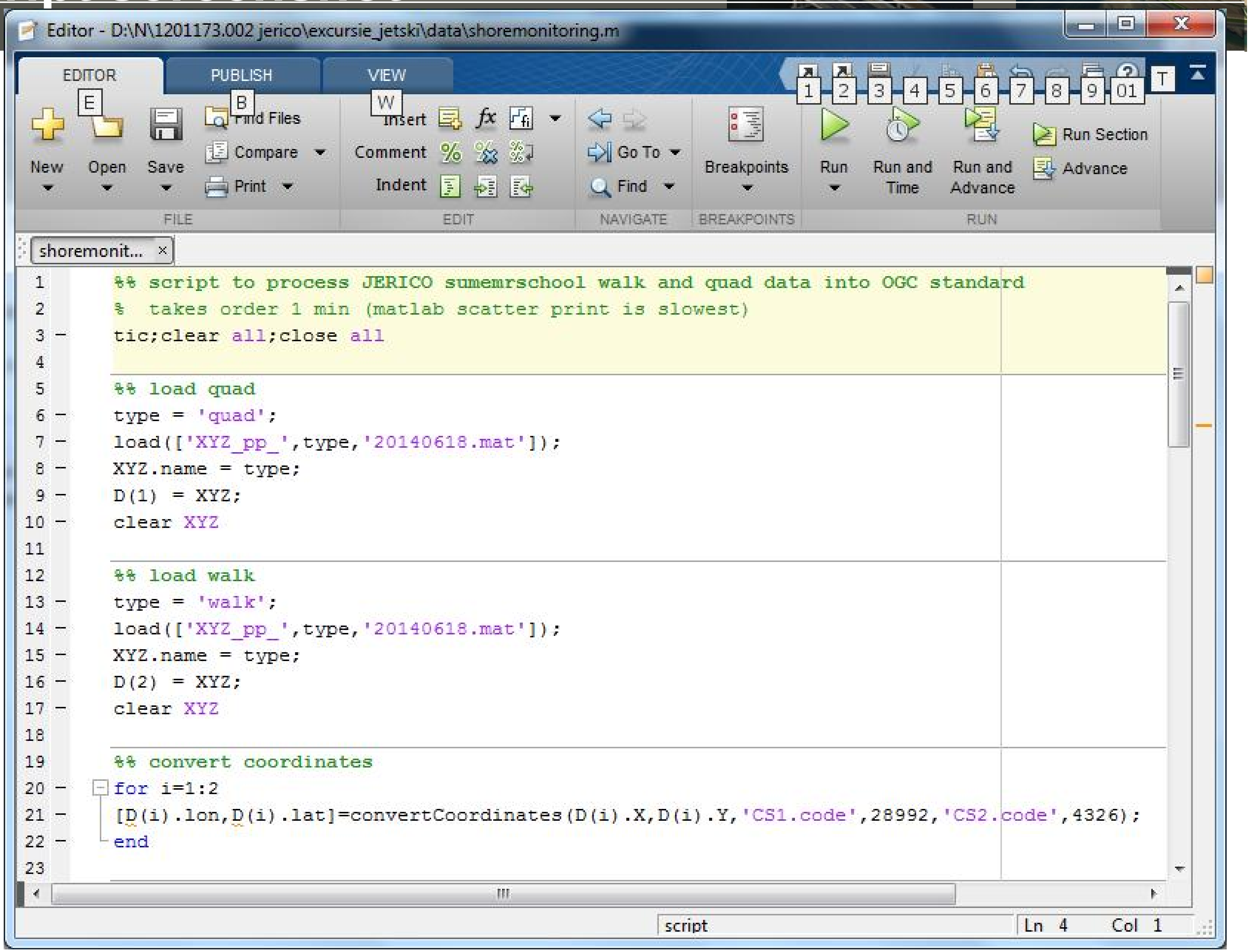
scripts under version control

- Matlab scripts: not for download, added to SubVersion repository:
- Get OpenEarth account: oss.deltares.nl > sign-up (upper right)
- Install TortoiseSvn, make checkout of (only jerico folder due to size!!)
- http://svn.oss.deltares.nl/repos/openearthrawdata/trunk/jerico

standard data

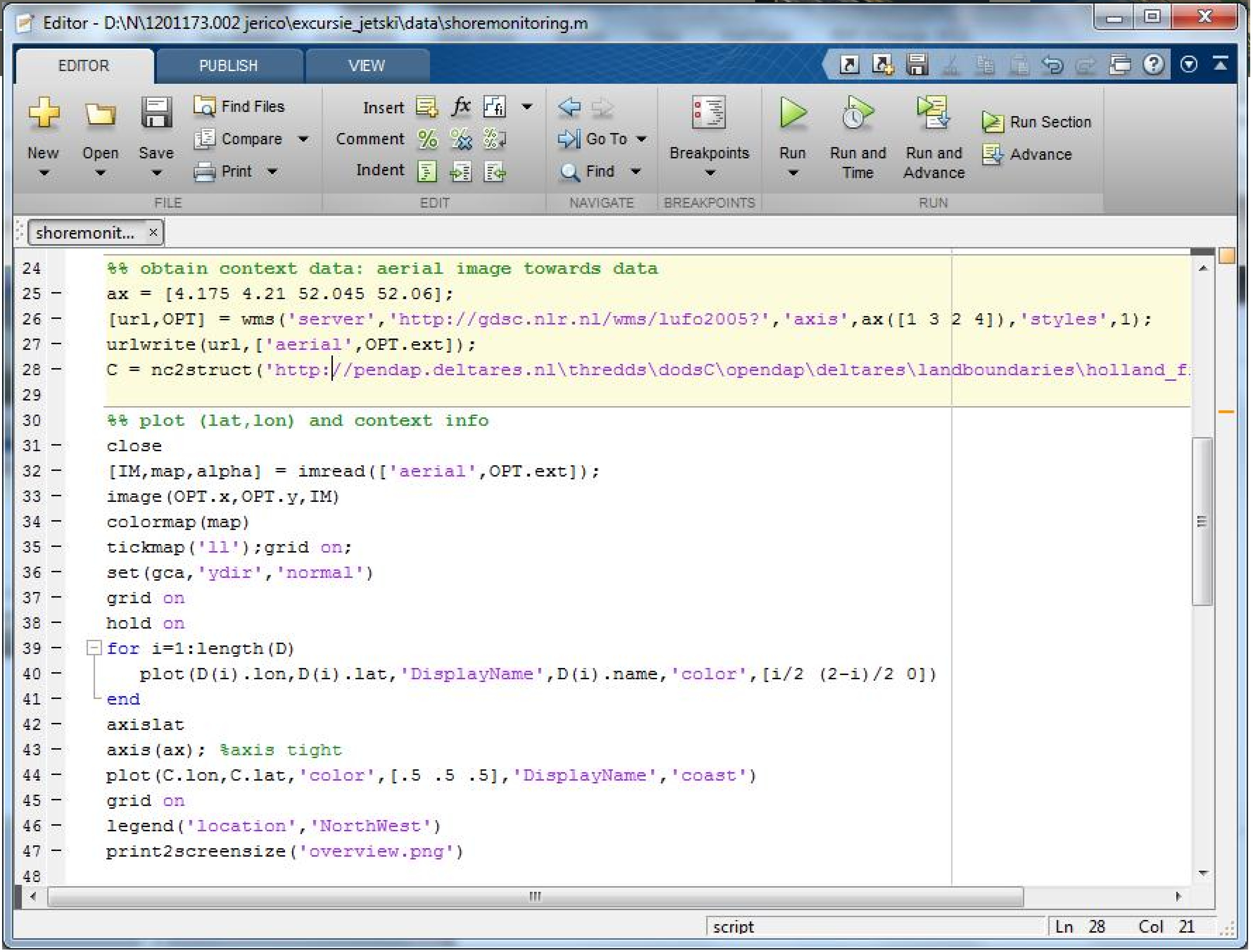
- Processed data product (kmz) for download from JERICO wiki: https://publicwiki.deltares.nl/display/OET/jerico

Script screenshot

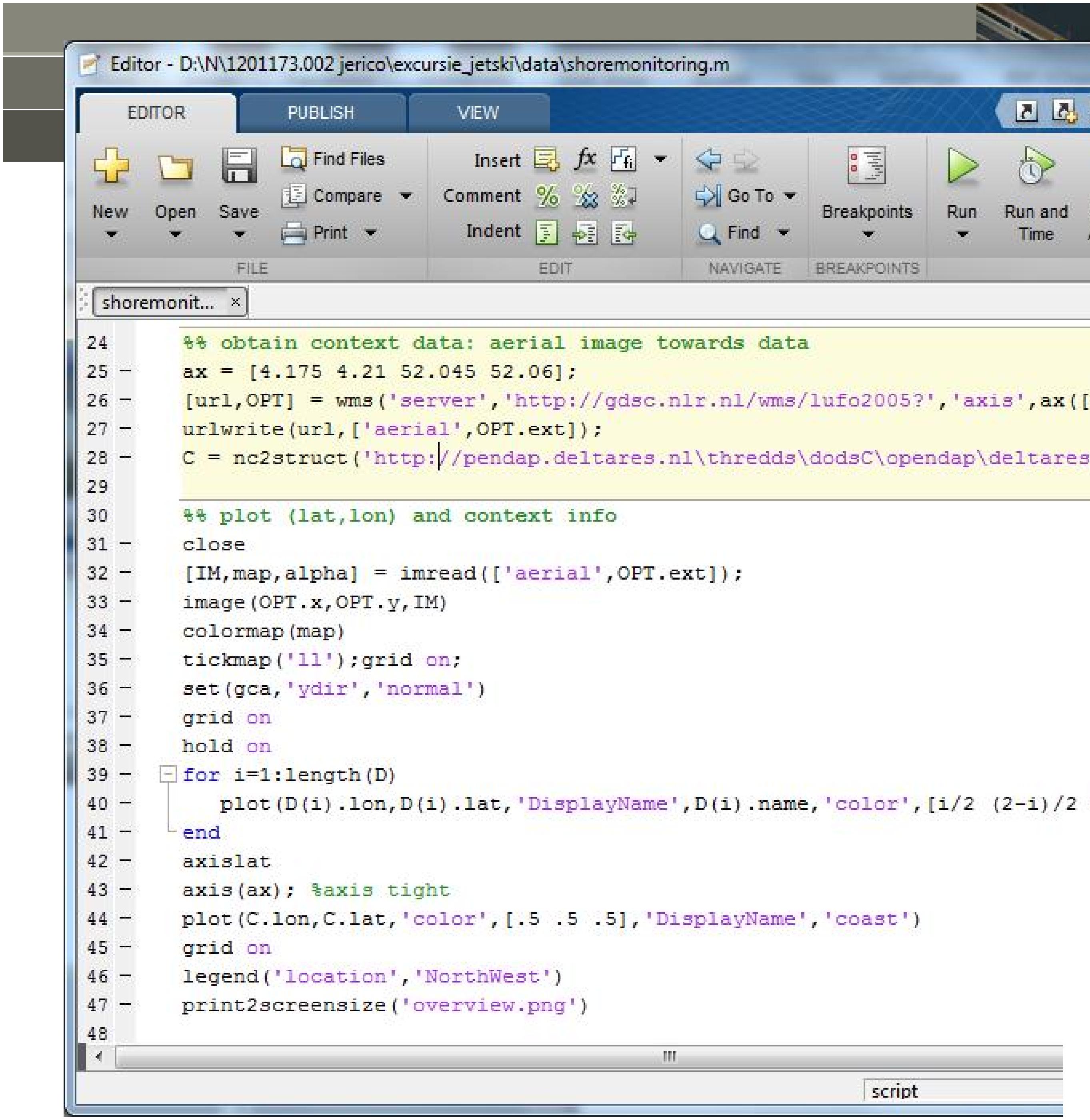

EDITOR
PUBLISH
VIEW
New
Open
Save
Find Files
Compare
Print
Insert
Comment
Indent
Go To
Find
Breakpoints
Run
Run and Time
Run and Advance
Run Section
Advance
FILE
EDIT
NAVIGATE
BREAKPOINTS
RUN
shoremonit...
script
Ln 4
Col 1

Editor - D:\N\1201173.002 jerico\excursie_jetski\data\shoremonitoring.m

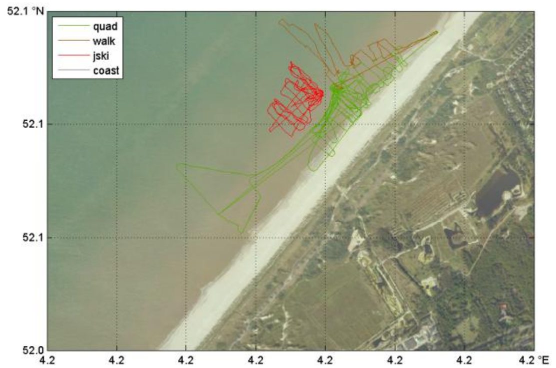
```
%% script to process JERICO sumemrschool walk and quad data into OGC standard
%  takes order 1 min (matlab scatter print is slowest)
tic;clear all;close all

%% load quad
type = 'quad';
load(['XYZ_pp_',type,'20140618.mat']);
XYZ.name = type;
D(1) = XYZ;
clear XYZ

%% load walk
type = 'walk';
load(['XYZ_pp_',type,'20140618.mat']);
XYZ.name = type;
D(2) = XYZ;
clear XYZ

%% convert coordinates
for i=1:2
[D(i).lon,D(i).lat]=convertCoordinates(D(i).X,D(i).Y,'CS1.code',28992,'CS2.code',4326);
end
```

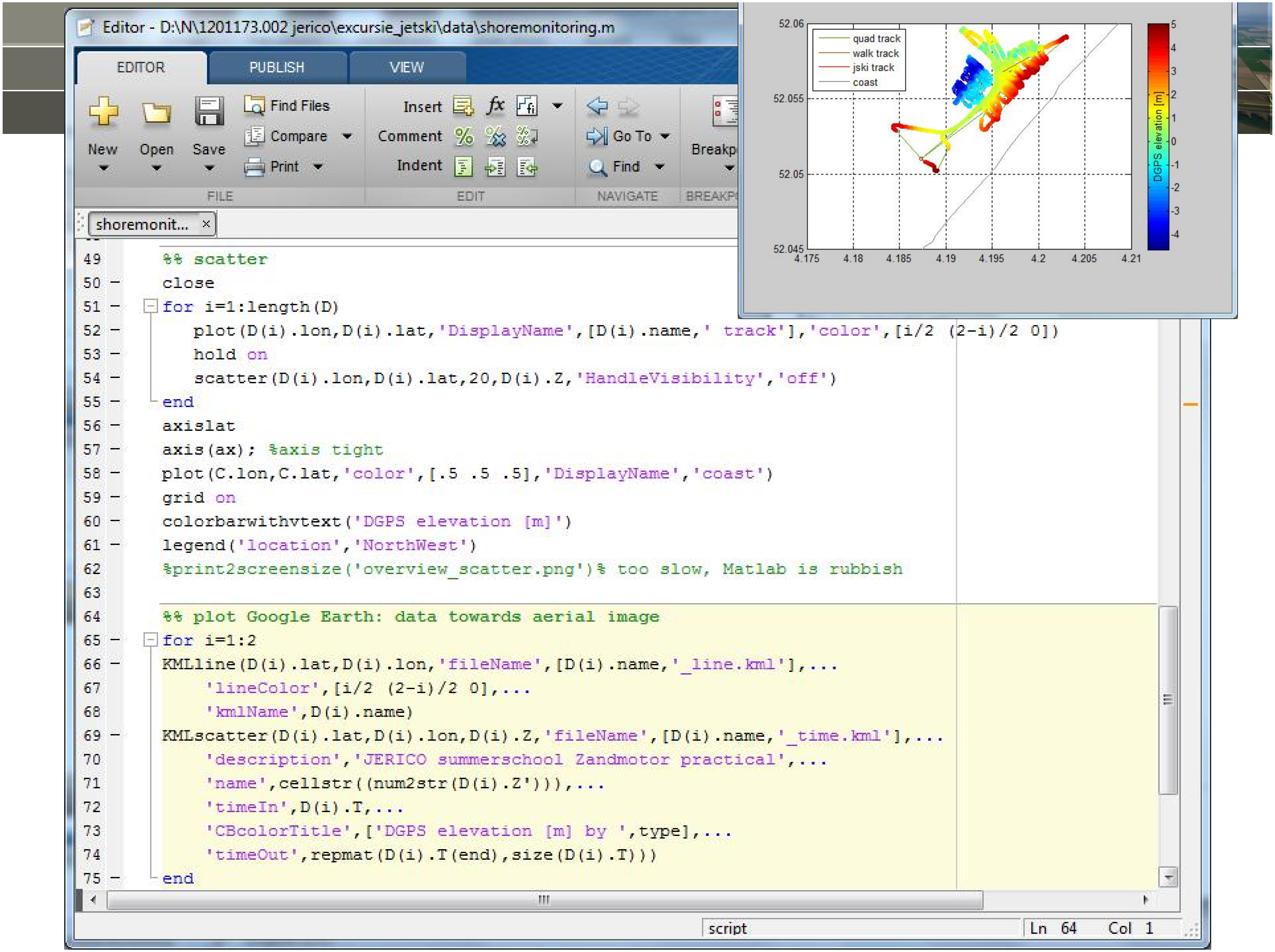

Editor - D:\N\1201173.002 jerico\excursie_jetski\data\shoremonitoring.m
EDITOR
PUBLISH
VIEW
New
Open
Save
Find Files
Compare
Print
FILE
Insert
Comment
Indent
EDIT
Go To
Find
NAVIGATE
Breakpoints
BREAKPOINTS
Run
Run and Time
Run and Advance
Run Section
Advance
RUN
shoremonit...
script
Ln 28
Col 21

```
%% obtain context data: aerial image towards data
ax = [4.175 4.21 52.045 52.06];
[url,OPT] = wms('server','http://gdsc.nlr.nl/wms/lufo2005?','axis',ax([1 3 2 4]),'styles',1);
urlwrite(url,['aerial',OPT.ext]);
C = nc2struct('http://pendap.deltares.nl\thredds\dodsC\opendap\deltares\landboundaries\holland_f

%% plot (lat,lon) and context info
close
[IM,map,alpha] = imread(['aerial',OPT.ext]);
image(OPT.x,OPT.y,IM)
colormap(map)
tickmap('ll');grid on;
set(gca,'ydir','normal')
grid on
hold on
for i=1:length(D)
    plot(D(i).lon,D(i).lat,'DisplayName',D(i).name,'color',[i/2 (2-i)/2 0])
end
axislat
axis(ax); %axis tight
plot(C.lon,C.lat,'color',[.5 .5 .5],'DisplayName','coast')
grid on
legend('location','NorthWest')
print2screensize('overview.png')

```


Editor - D:\N\1201173.002 jerico\excursie_jetski\data\shoremonitoring.m
EDITOR
PUBLISH
VIEW
New
Open
Save
Find Files
Compare
Print
FILE
Insert
Comment
Indent
EDIT
Go To
Find
NAVIGATE
Breakpoints
BREAKPOINTS
Run
Run and Time
Run and Advance
Run Section
Advance
RUN
shoremonit...
script

```
%% obtain context data: aerial image towards data
ax = [4.175 4.21 52.045 52.06];
[url,OPT] = wms('server','http://gdsc.nlr.nl/wms/lufo2005?','axis',ax([1 3 2 4]),'styles',1);
urlwrite(url,['aerial',OPT.ext]);
C = nc2struct('http://pendap.deltares.nl\thredds\dodsC\opendap\deltares\landboundaries\holland_f

%% plot (lat,lon) and context info
close
[IM,map,alpha] = imread(['aerial',OPT.ext]);
image(OPT.x,OPT.y,IM)
colormap(map)
tickmap('ll');grid on;
set(gca,'ydir','normal')
grid on
hold on
for i=1:length(D)
   plot(D(i).lon,D(i).lat,'DisplayName',D(i).name,'color',[i/2 (2-i)/2 0])
end
axislat
axis(ax); %axis tight
plot(C.lon,C.lat,'color',[.5 .5 .5],'DisplayName','coast')
grid on
legend('location','NorthWest')
print2screensize('overview.png')

```


52.1 °N
52.1
52.1
52.0
4.2
4.2
4.2
4.2
4.2
4.2
4.2
4.2 °E
quad
walk
jski
coast



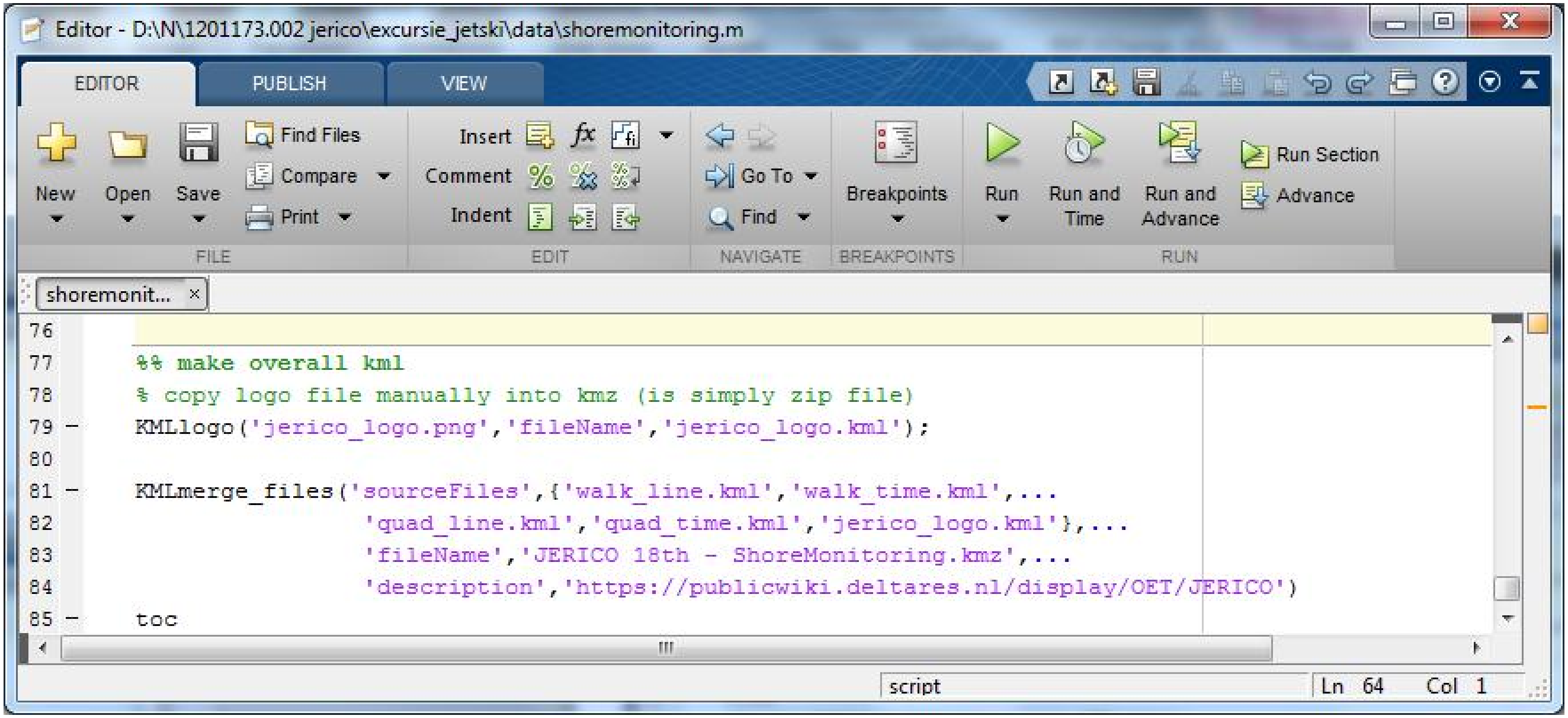
Editor - D:\N\1201173.002 jerico\excursie_jetski\data\shoremonitoring.m
EDITOR
PUBLISH
VIEW
New
Open
Save
Find Files
Compare
Print
FILE
Insert
Comment
Indent
EDIT
Go To
Find
NAVIGATE
Breakp
BREAKP
shoremonit...
52.06
52.055
52.05
52.045
4.175
4.18
4.185
4.19
4.195
4.2
4.205
4.21
quad track
walk track
jski track
coast
DGPS elevation [m]
5
4
3
2
1
0
-1
-2
-3
-4
script
Ln 64
Col 1

```
%% scatter
close
for i=1:length(D)
   plot(D(i).lon,D(i).lat,'DisplayName',[D(i).name,' track'],'color',[i/2 (2-i)/2 0])
   hold on
   scatter(D(i).lon,D(i).lat,20,D(i).Z,'HandleVisibility','off')
end
axislat
axis(ax); %axis tight
plot(C.lon,C.lat,'color',[.5 .5 .5],'DisplayName','coast')
grid on
colorbarwithvtext('DGPS elevation [m]')
legend('location','NorthWest')
%print2screensize('overview_scatter.png')% too slow, Matlab is rubbish

%% plot Google Earth: data towards aerial image
for i=1:2
KMLline(D(i).lat,D(i).lon,'fileName',[D(i).name,'_line.kml'],...
    'lineColor',[i/2 (2-i)/2 0],...
    'kmlName',D(i).name)
KMLscatter(D(i).lat,D(i).lon,D(i).Z,'fileName',[D(i).name,'_time.kml'],...
    'description','JERICO summerschool Zandmotor practical',...
    'name',cellstr((num2str(D(i).Z'))),...
    'timeIn',D(i).T,...
    'CBcolorTitle',['DGPS elevation [m] by ',type],...
    'timeOut',repmat(D(i).T(end),size(D(i).T)))
end
```

Running this script requires OpenEarthTools

https://publicwiki.deltares.nl/display/OET/Join+OpenEarth

http://oss.deltares.nl/web/delft3d/webinars, see webinar no 15

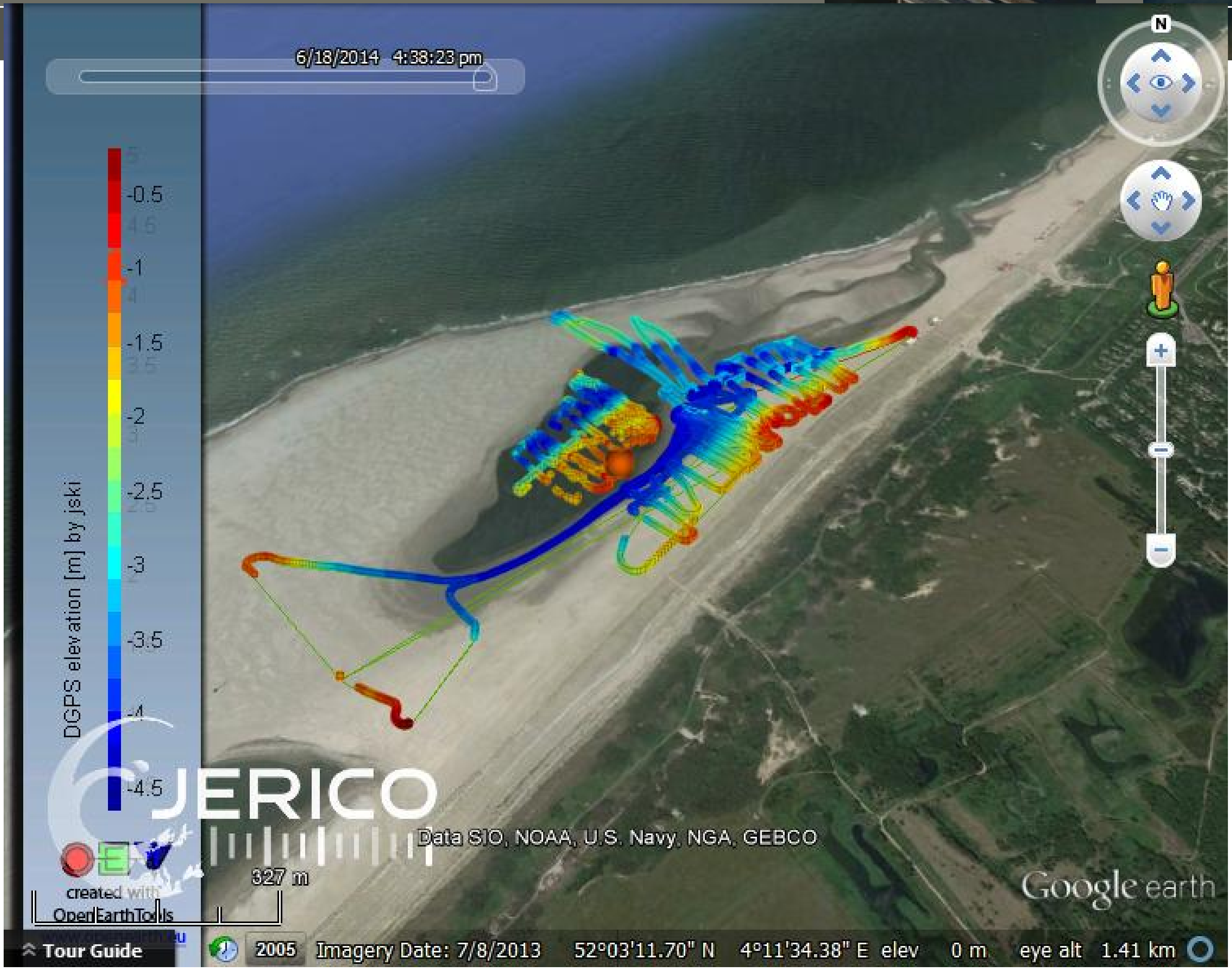


Editor - D:\N\1201173.002 jerico\excursie_jetski\data\shoremonitoring.m

EDITOR
PUBLISH
VIEW
New
Open
Save
Find Files
Compare
Print
Insert
Comment
Indent
Go To
Find
Breakpoints
Run
Run and Time
Run and Advance
Run Section
Advance
FILE
EDIT
NAVIGATE
BREAKPOINTS
RUN
shoremonit...

```

%% make overall kml
% copy logo file manually into kmz (is simply zip file)
KMLlogo('jerico_logo.png','fileName','jerico_logo.kml');

KMLmerge_files('sourceFiles',{'walk_line.kml','walk_time.kml',...
               'quad_line.kml','quad_time.kml','jerico_logo.kml'},...
               'fileName','JERICO 18th - ShoreMonitoring.kmz',...
               'description','https://publicwiki.deltares.nl/display/OET/JERICO')
toc
```

script
Ln 64
Col 1


6/18/2014 4:38:23 pm
DGPS elevation [m] by jski
-0.5
-1
-1.5
-2
-2.5
-3
-3.5
-4
-4.5
JERICO
Data SIO, NOAA, U.S. Navy, NGA, GEBCO
327 m
created with OpenEarthTools
Google earth
N
Tour Guide
2005
Imagery Date: 7/8/2013
52°03'11.70" N
4°11'34.38" E
elev 0 m
eye alt 1.41 km