

GEOG205 Winter 2024:

Cartography & Geomatics



Lectures Mon/Fri 8.30-9.20 10-4034

Roger Wheate wheate@unbc.ca (8-307)

Office hours: arrange with me at lecture or by email

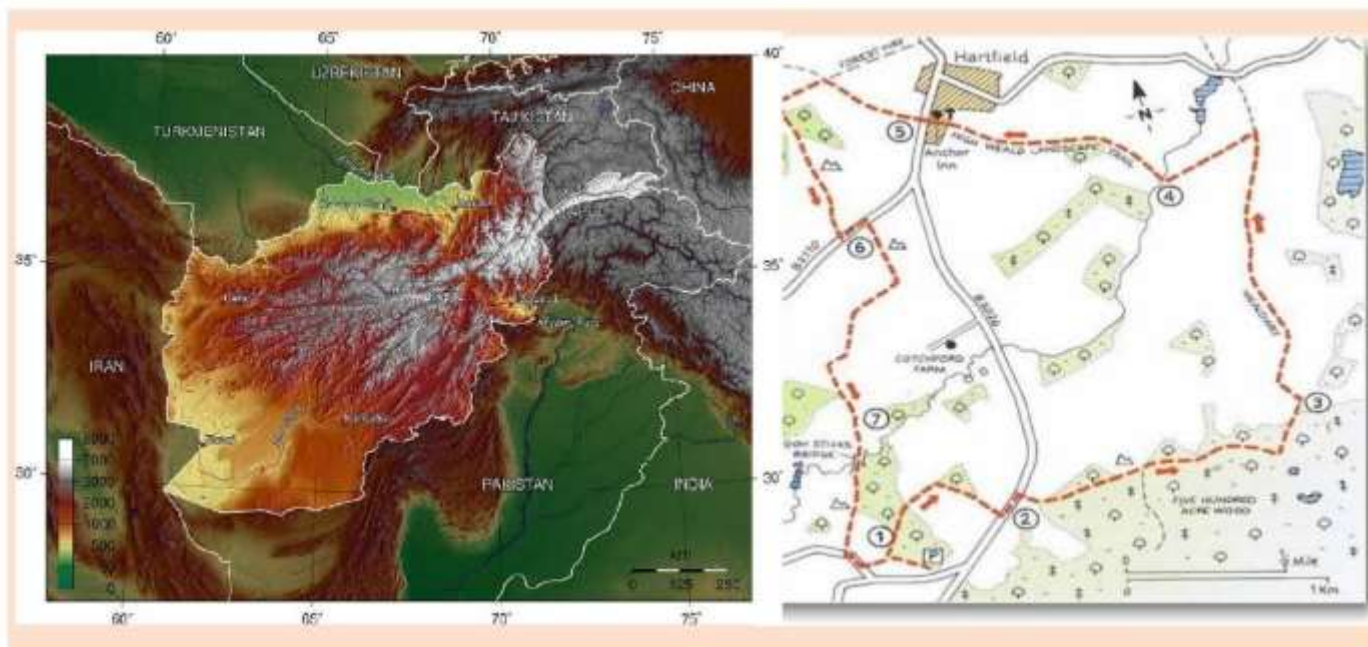
Course notes: <http://gis.unbc.ca>

Winter 2024

GEOG 205-3

Cartography & Geomatics

Instructor: Dr. Roger Wheate



- **Learn the principles of projections, mapping, and symbolization using topographic and thematic data in GIS software**
- **Lectures: Monday and Friday, 8:30 - 9:20 am**
- **Lab: one 3-hour lab per week**

GEOG 205 Labs Winter 2024

Starting **next** week ...

Software: ArcGIS Pro (Esri)
connected to our 'Osmotar' server ->



Osmotar

SLI: Matt McLean
Wednesday lab



TA: Emily Bornestig
Thursday Lab



TA: Dinesh Bhatt
Friday Lab



Lab sections each have 18 registered = not quite full

Lab procedures and the role of Moodle

Lab periods – 3 hours (Wednesday / Thursday / Friday)

Lab itself takes ~1-2 hours

Recommended you do most of the assignment in the remaining time, when help is available; don't leave it to the last day

Labs are due – before your next week lab starts

Labs and quizzes submitted via Moodle (but labs are posted on gis.unbc.ca)

Labs – 5% Assignment each week, labs 2-8

Quizzes on 3 topics:

a. Map coordinates, b. Thematic mapping and c. map projections – available after the Friday lecture, due the next Thursday (midnight).. First one =Jan 12

**Students only fail this course if they stop doing the labs / project*

GEOG 205, Student majors - Winter 2024

10 Computer Science

9 Forest ecology & management, Civil Engineering

5 Northern-Rural Community planning

3 Biochem & Molecular Biology, Biology, Env.Science

2 Environmental/sustainable Studies, Geography,
First Nations Planning, Natural Resources Planning

1 Psychology, Finance. undeclared

Why are you taking it: required / elective course ?

- Useful skill, love maps, course reputation, other ?

What are 'Cartography and Geomatics' ?

Cartography

"The art, science and technology of making maps"

[Canadian Cartographic Association (CCA) 1975]

- **Map:** A scaled representation of a planetary surface
 - includes printed maps, online displays, animations

Geomatics (Geomatique)

"An umbrella term for the mapping technologies"

"the discipline of gathering, storing, processing, displaying geographic information"
(geographic = has a spatial location)

[Canadian Institute of Geomatics 1992/Can. Inst of Surveying and Mapping 1882]

Geomatics

"an umbrella term for the mapping technologies"

Cartography: art, science and technology of making maps

Geographic Information Systems (GIS)

"The management, analysis, input and output of spatial data"

Remote sensing (satellite and aerial imagery)

"Acquisition of planetary information from a distance"

Global Positioning Systems (GPS)

"determination of ground locations using measurements from satellites"

Surveying and Photogrammetry

"derivation of 2D or 3D locations from the ground/aerial photography"

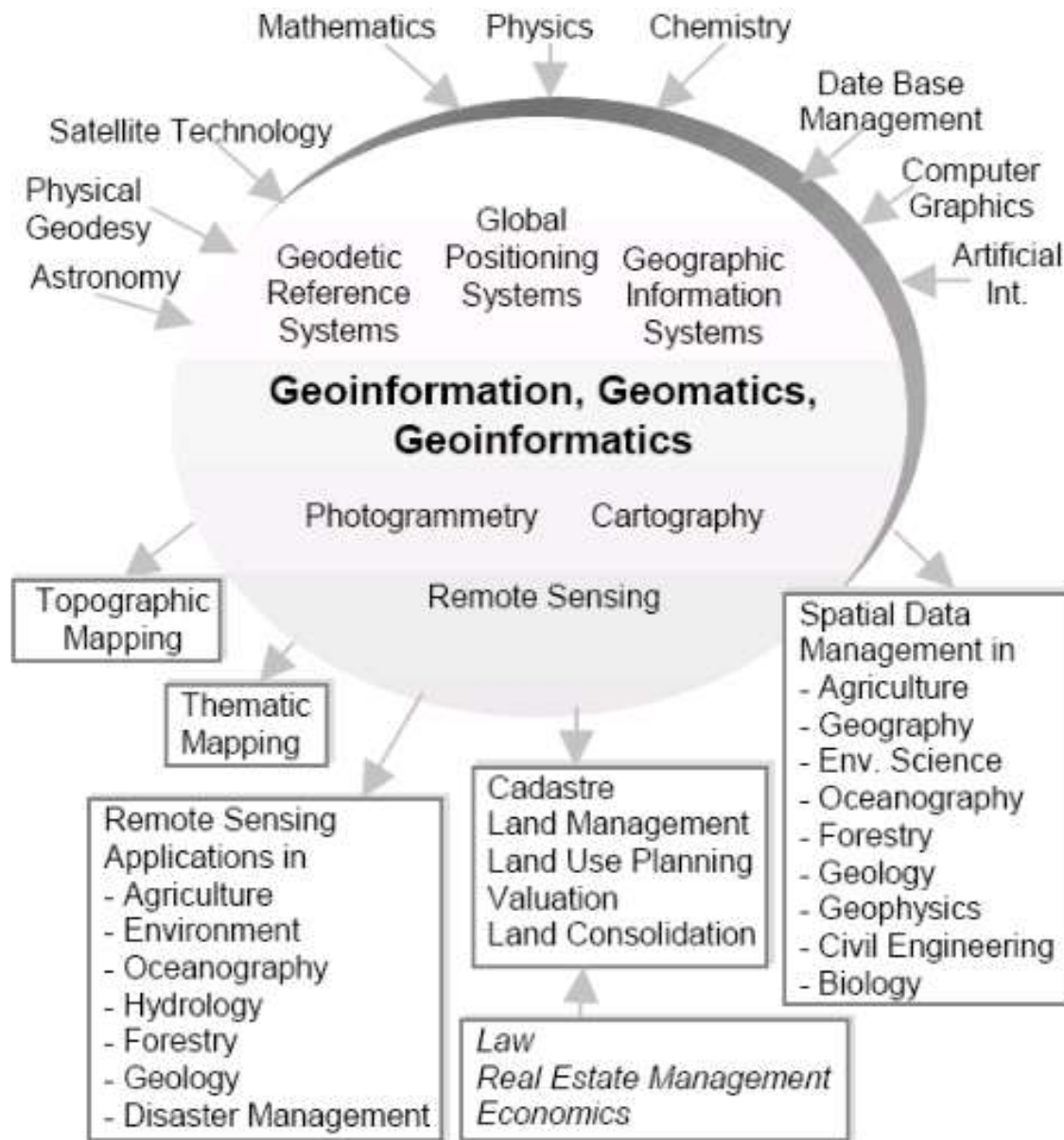


Figure 1. Geomatics (After Konecny, 2002)

Cartography versus GIS in the 'Geomatics' umbrella

Cartography

Input -> **map design** -> Output

GIS

Input -> **Database** -> **Analysis** -> Output

GIS developed from Cartography, in the 1960s, 70s, 80s

GEOG205 and related ‘Geomatics’ courses

GEOG204: Intro to GIS applications – datasets, analysis

GEOG205: Focus on display / mapping

GEOG300: (Intermediate GIS) Focus on spatial analysis

Some unavoidable overlap e.g. data input, elevation models

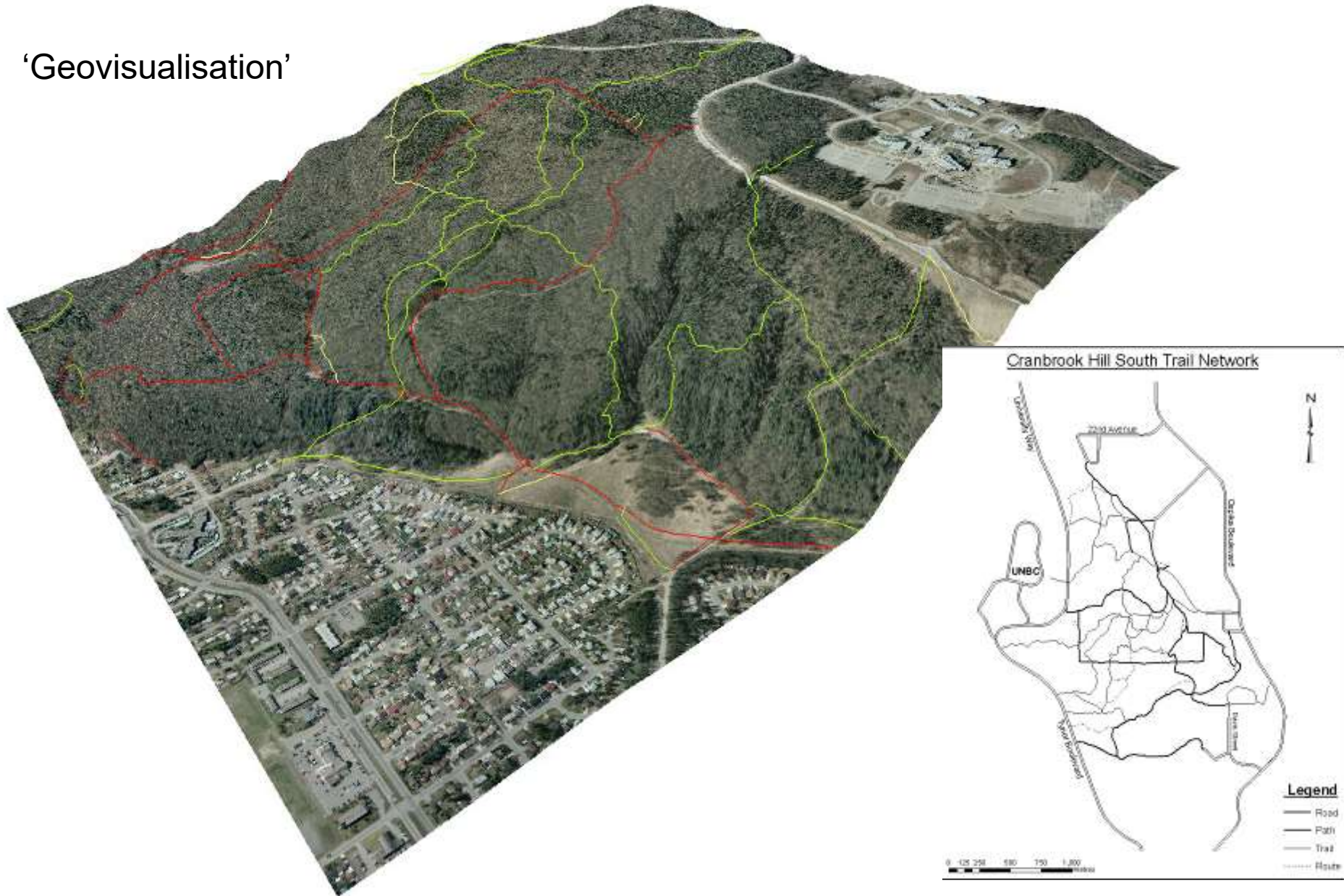
Software

204: QGIS (Quantum) – freely downloadable

205 / 300: ArcGIS Pro .. “industry standard”

400 level independent study, to map trails below campus, 2003 (pre-Google Earth)

‘Geovisualisation’



Why are Cartography and Geomatics important?

*"The **eye** will learn more in one hour from a **mappe** than the eare will learn from discourse"*

(Thomas Fuller, 1690)

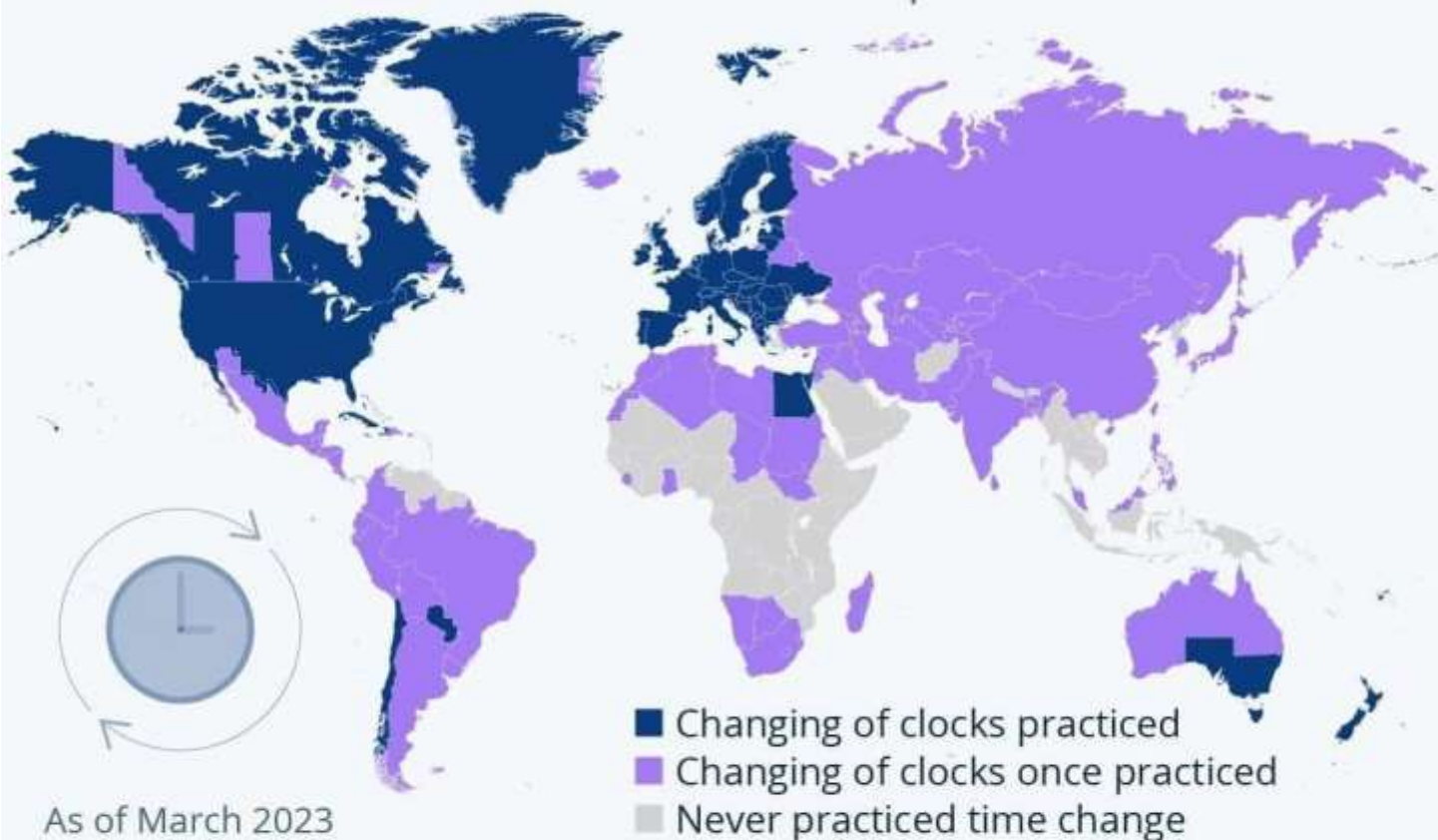
= a picture says 1000 words

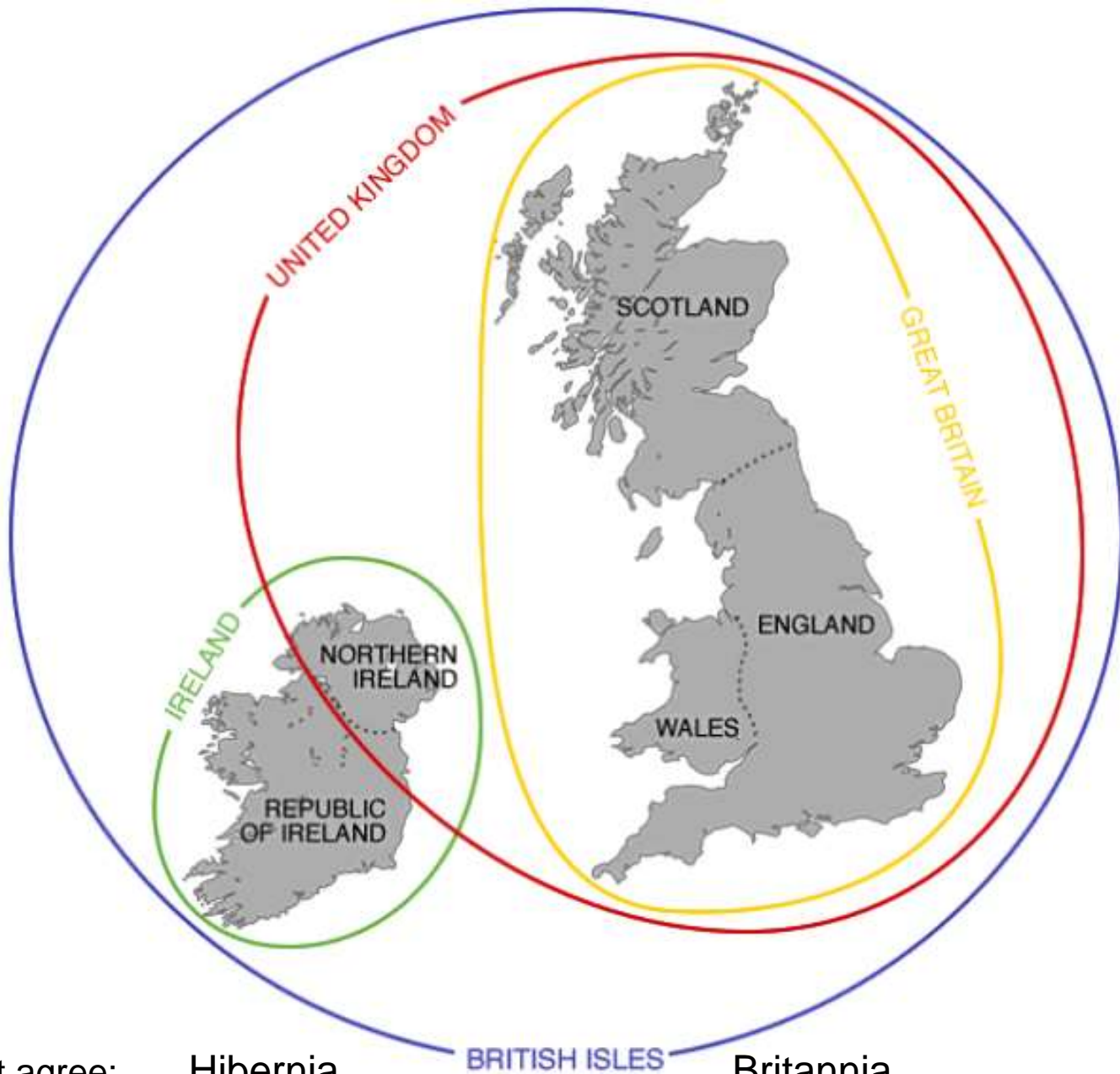
Some educators believe that

.... *'gRaphicacy'* should be the 4th 'R'

Which Countries Change the Clock?

Countries and regions which practice daylight savings and those which have done so in the past





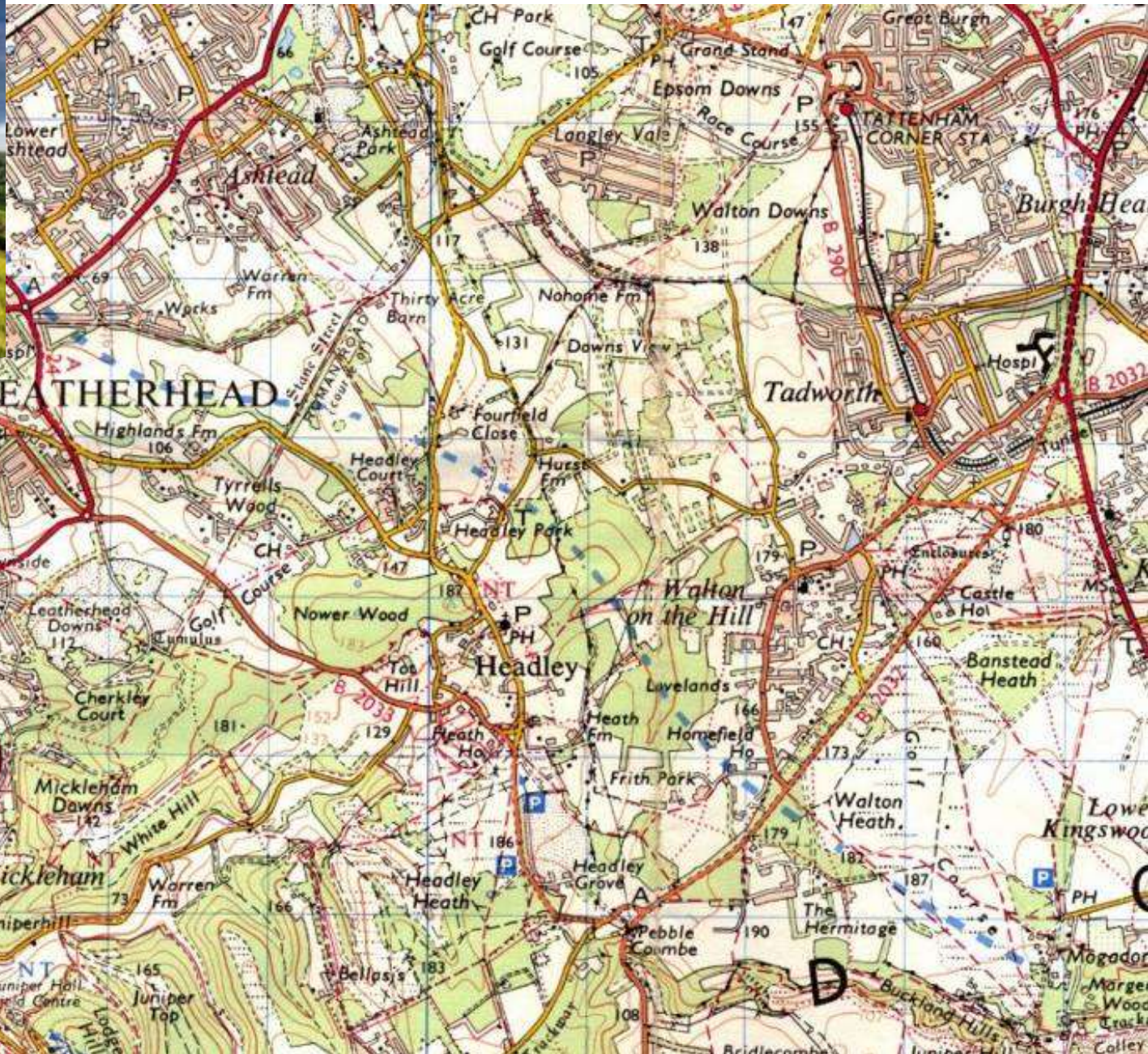
The Irish do not agree:

Hibernia

BRITISH ISLES

Britannia

A bit about me ... my 'most important' early map



- UNESCO World Heritage Site
- Cruise Itinerary
- Land Routing
- Train Routing
- Air Routing
- Post-Program Routing





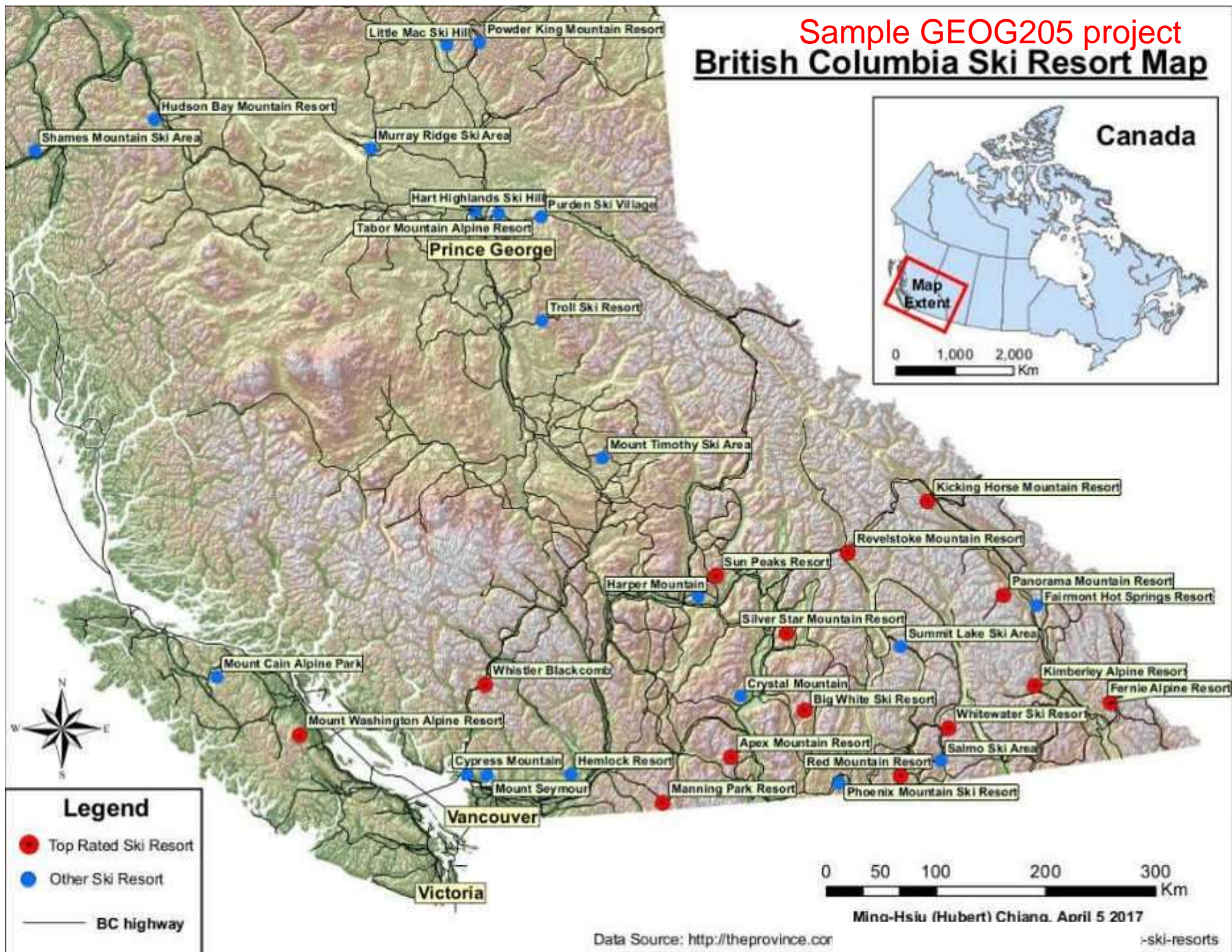


Map Design and Trail Planning
 Service: Recreation and Travel Software
 Data Sources: Unpublished, Contours, Elevation, Labels, Roads
 With Map City of Africa Design/Draw/Track
<http://www.mapcity.com>
 From Map City of Africa Design/Draw/Track
 Map City of Africa Design/Draw/Track



Sample GEOG205 project

British Columbia Ski Resort Map



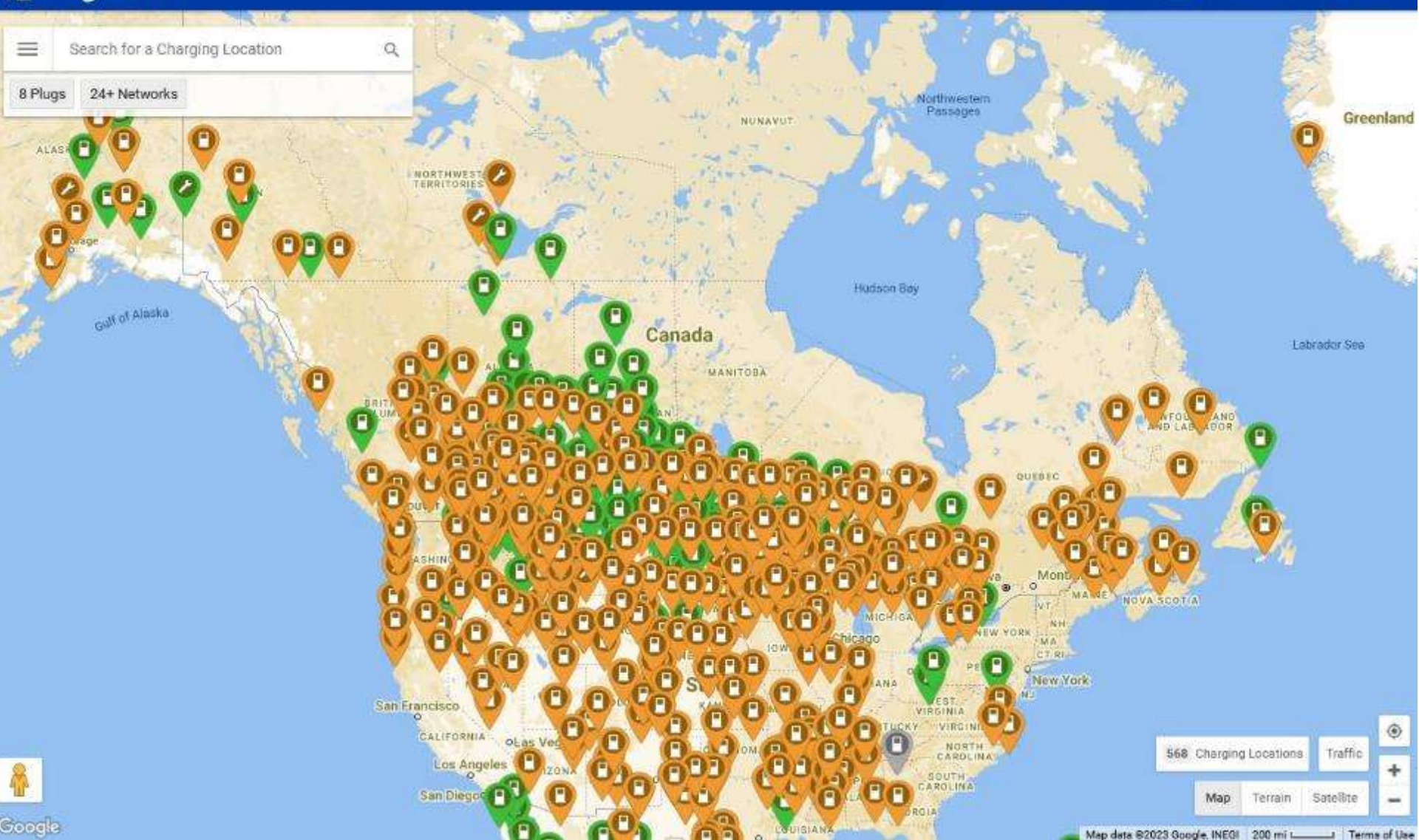
The impact of computers, data and software:

The 'democratisation' of cartography

In parallel with arts and social media

= anyone can make maps - good and bad

... and there are new types of maps



<https://www.plugshare.com/map>

New (animated) cartography:
'Geovisualisation'

'Cartography is not dead, it is reborn'



Air Traffic around the World

<http://www.youtube.com/watch?v=NNzTPfARdwQ&feature=related>

COURSE EVALUATION

Lab exercises	35%
Exams (in class Feb 16, April 04)	25%
Take home quiz (Jan 12, Feb 7, Mar 15)	15%
Map project (due April 10)	25%

syllabus: <http://gis.unbc.ca>

No required textbook: library books on cartography (GA105.3)

Selected online map viewer sites

World: <http://maps.google.com>

Canada: <http://atlas.nrcan.gc.ca>

iMap BC: <https://maps.gov.bc.ca/ess/hm/imap4m/>

PG map: <https://pgmap.princegeorge.ca/Html5Viewer/index.html?viewer=PGMap>

Today's Intro class: <https://tmackinnon.com/cartography>

Other references: web links given with lectures