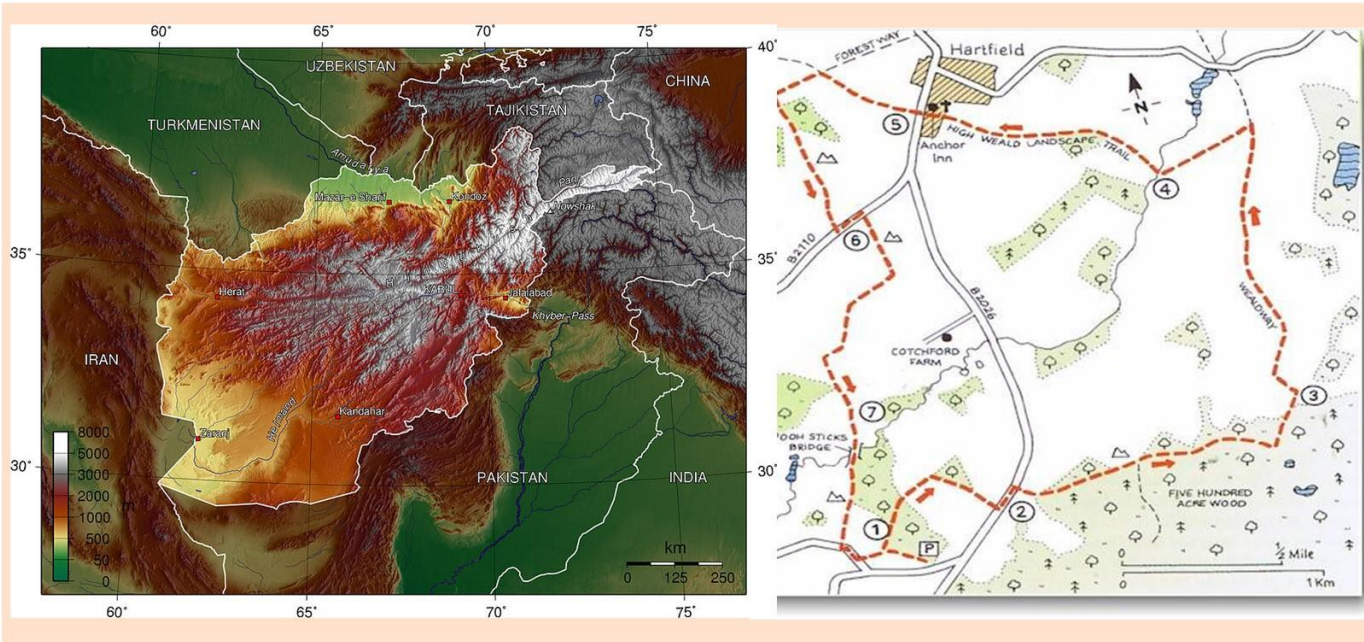


Winter 2025

GEOG 205-3

Cartography & Geomatics

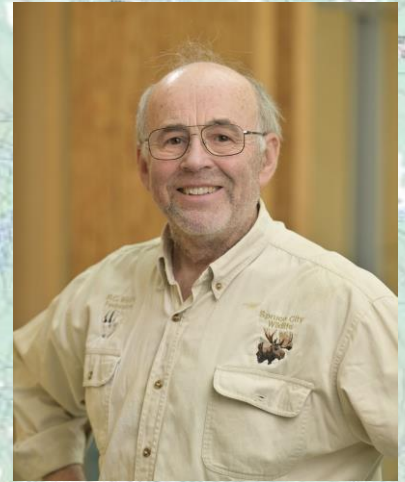
Instructor: Dr. Roger Wheate



- Learn the principles of projections, mapping, and symbolization using topographic and thematic data in GIS software
- Lectures: Tuesday and Thursday, 9:00 - 9:50 am
- Lab: one 3-hour lab per week

GEOG205 Winter 2025:

Cartography & Geomatics



Lectures Tues/Thurs 9.00-9.50

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

Office hours: email me or catch me after lecture

Course labs/lectures: <http://gis.unbc.ca>

Submit labs, quizzes, exams on Moodle

GEOG 205 Labs Winter 2025

Starting next week ... NO labs this week

Tuesday (3) 15:00-17.50, Wed(2) / Fri (1)11.30-14.20

connected to our 'Osmotar' server ->



*Osmotar:
Finnish
Goddess
of Beer*

Lab Instructor: Emily Bornestig
Tuesday Lab



TA: Dinesh Bhatt
Wednesday/Friday Lab



Lab sections each have 9 -11 students = half-full

Lab procedures and the role of Moodle

- Lab periods – 3 hours (Tuesday / Wednesday / Friday)
Lab itself may take ~1.5-2.5 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 submit 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 – posted after the Thursday lecture, due the next Wednesday .. first one =Jan 16

GEOG 205, Student majors - Winter 2025

6 Anthropology

6 Planning

5 Forest Ecology-Management

3 Computer Science

1 Biology, Geography, Geog/Anth, Psychology, English, Env. Science, Environmental-sustainable Studies, Integrated science, Mathematics, Civil Engineering

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*]

.. Both are now fully digital

Geomatics

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)

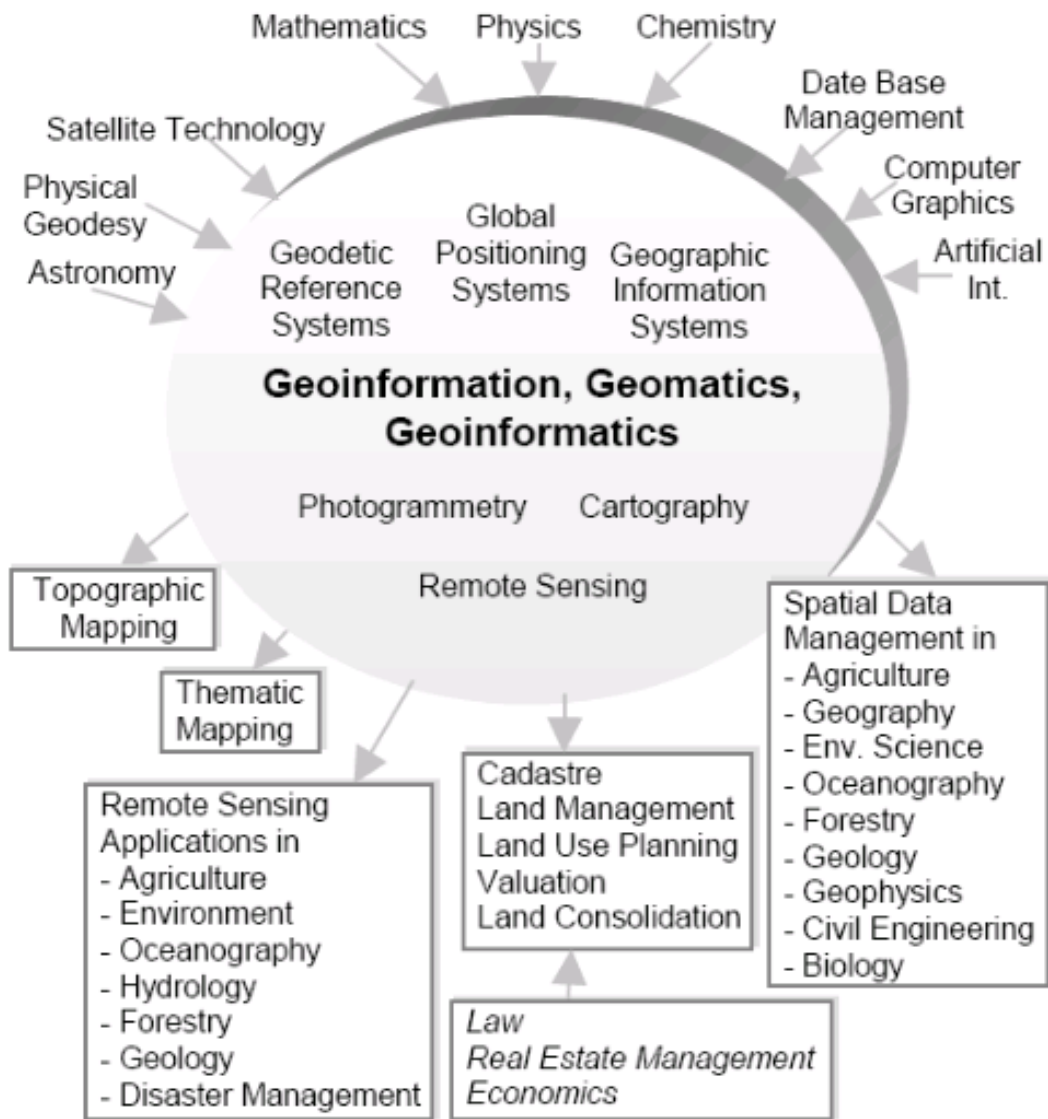
"Acquisition of planetary information from a distance"

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"



Cartography versus GIS in 'Geomatics' umbrella

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

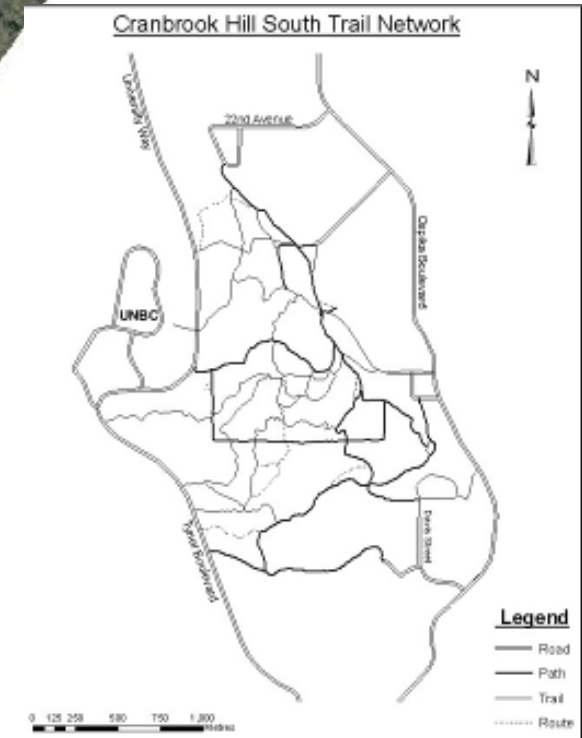
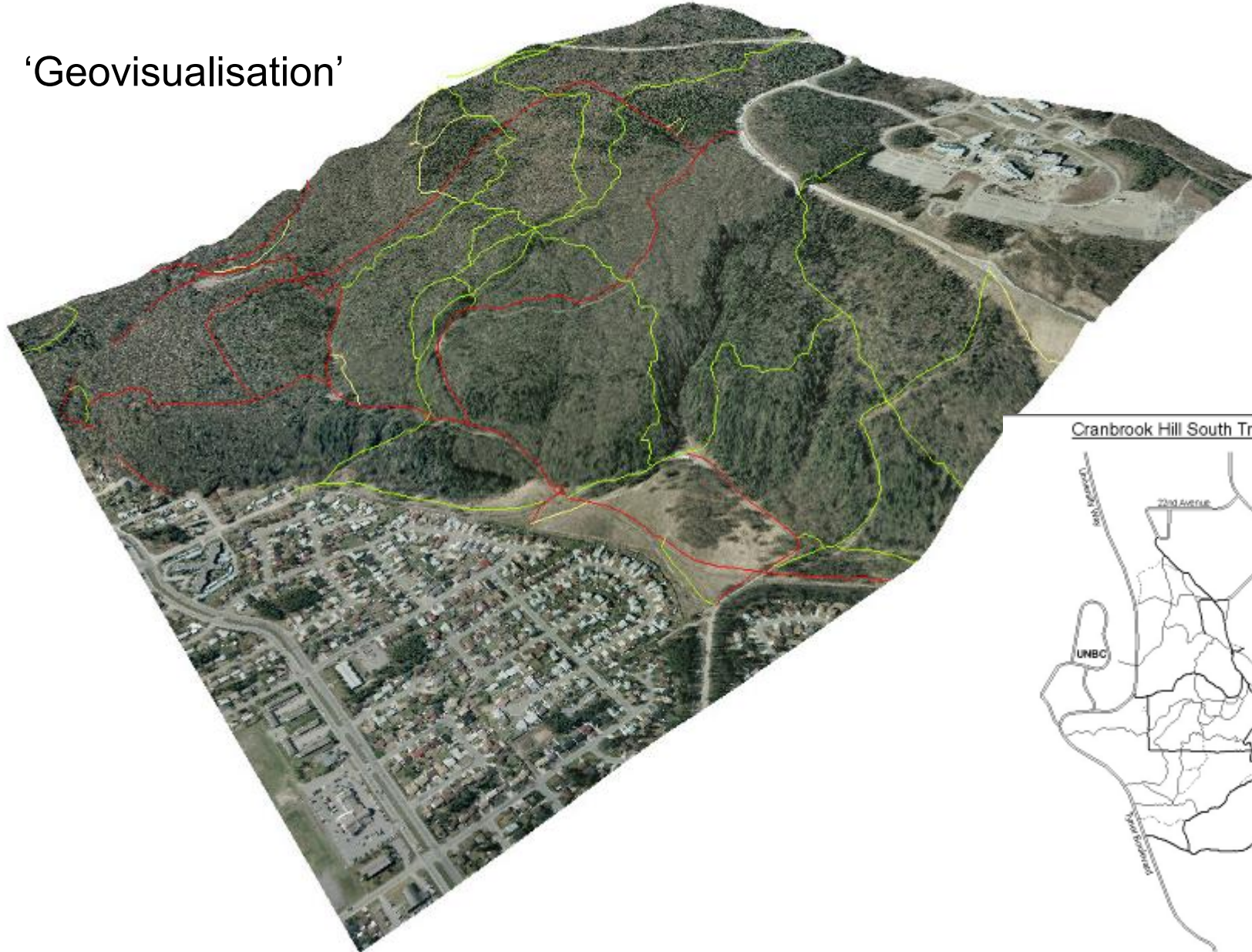
GIS
Input -> **Database** -> **Analysis** -> Output

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

Figure 1. Geomatics (After Konecny, 2002)

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

‘Geovisualisation’



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 (coordinates)

Software

204: QGIS (Quantum) – freely downloadable

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

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

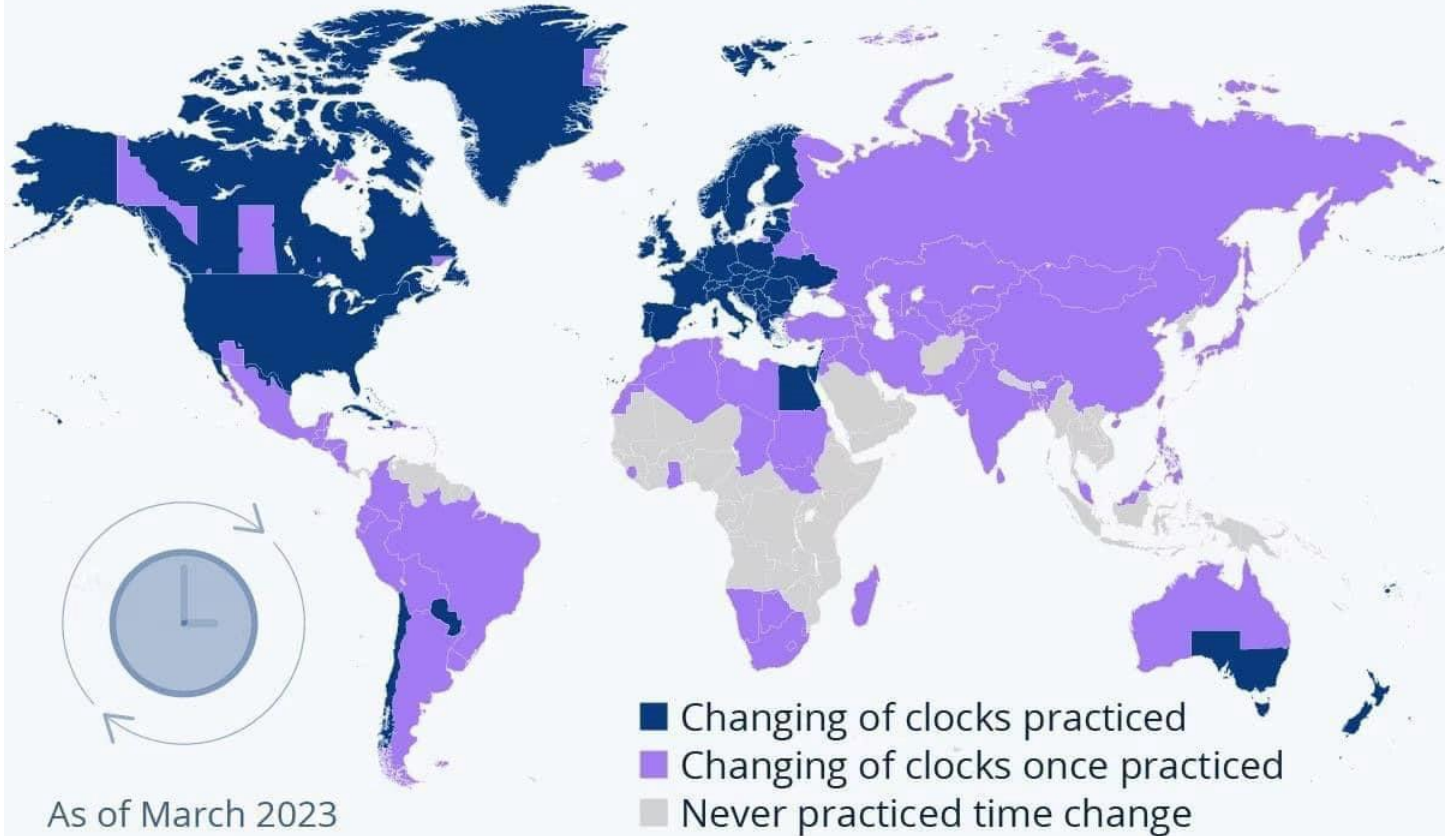
Many educators believe that:

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

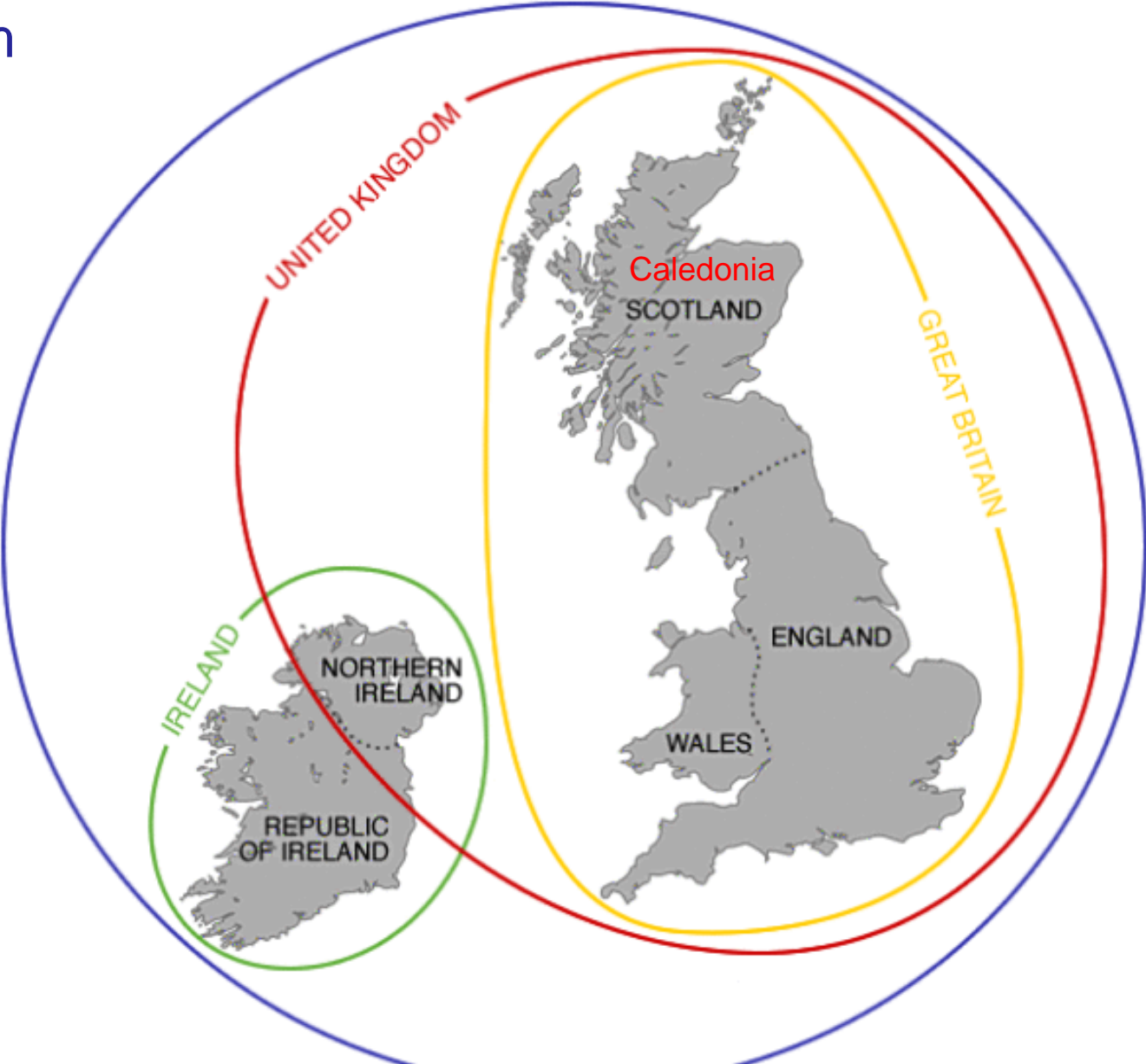
Graphicacy, today more than any other period in history, is crucial to understanding and deciphering information for the 21st century

Which Countries Change the Clock?

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



Infogram



The Irish do not agree:

Hibernia

BRITISH ISLES

Britannia

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



Needed to map read to get around on foot and by car



Most driving routes In Canada have fewer options except in the cities



My jobs in Canada

1994

1978

1981

1979

1975

WWW.FREEWORLDMAPS.NET

UNBC Trails Cranbrook Hill



Legend

- UNBC Connector Trails
- Connector
- Trail (not wheelchair)
- Trail (wheelchair)
- Trail (Service Dog)
- Trail (Hiking)
- Trail (Bike)
- Trail (Snowshoe)
- Trail (Cross-country Ski)
- Trail (Sled Dog)
- Trail (Bike)
- Trail (Horse)
- Trail (Equestrian)
- Trail (Horse)
- Trail (Horse)
- Trail (Horse)



The impact of computers, data and software:

The 'democratisation' of cartography

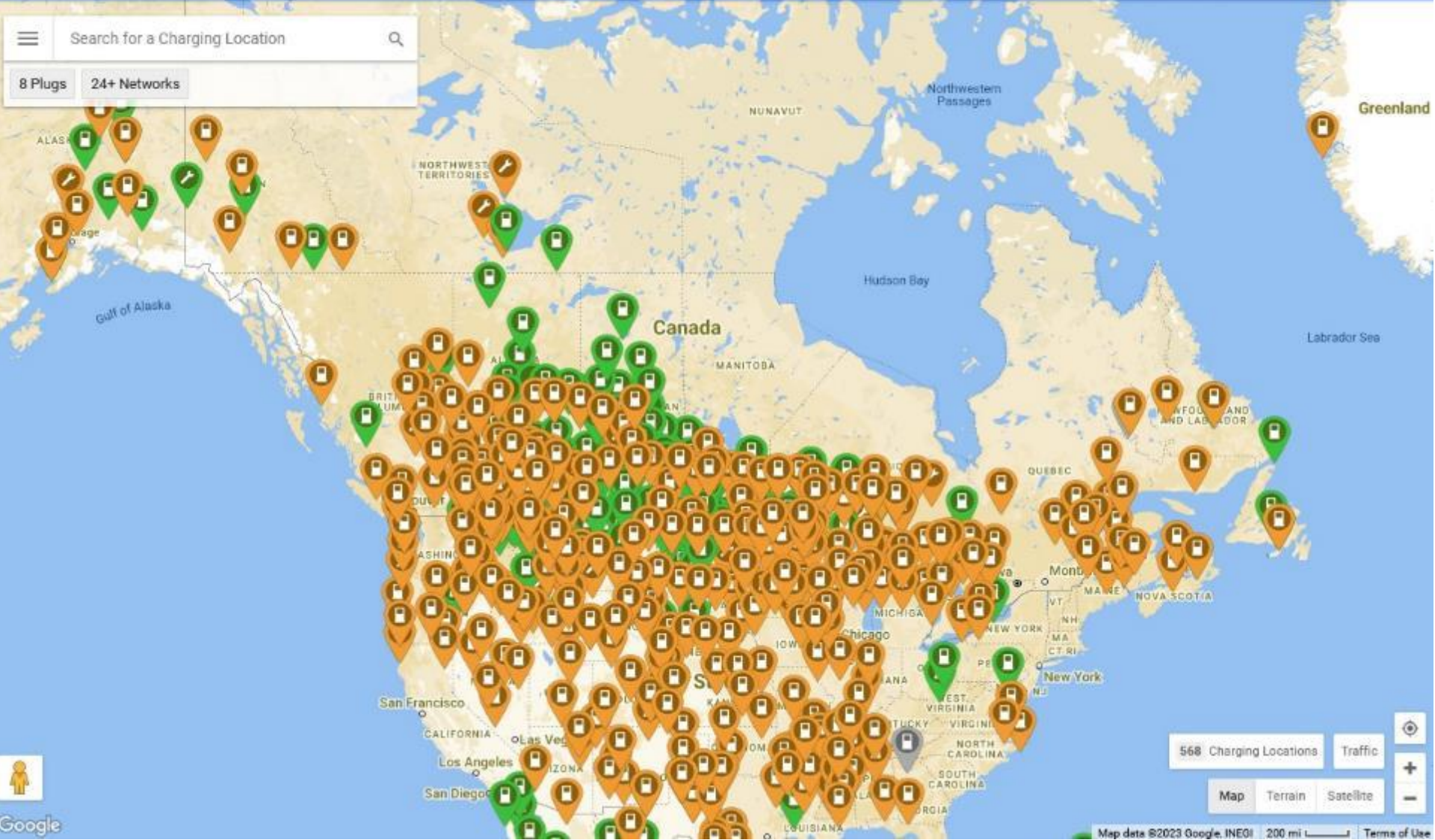
In parallel with arts and social media

= anyone can make maps - good and bad

... and there are new types of maps

Search for a Charging Location

8 Plugs 24+ Networks



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

New (animated) cartography:
'Geovisualisation'

'Cartography is not dead, it is reborn'



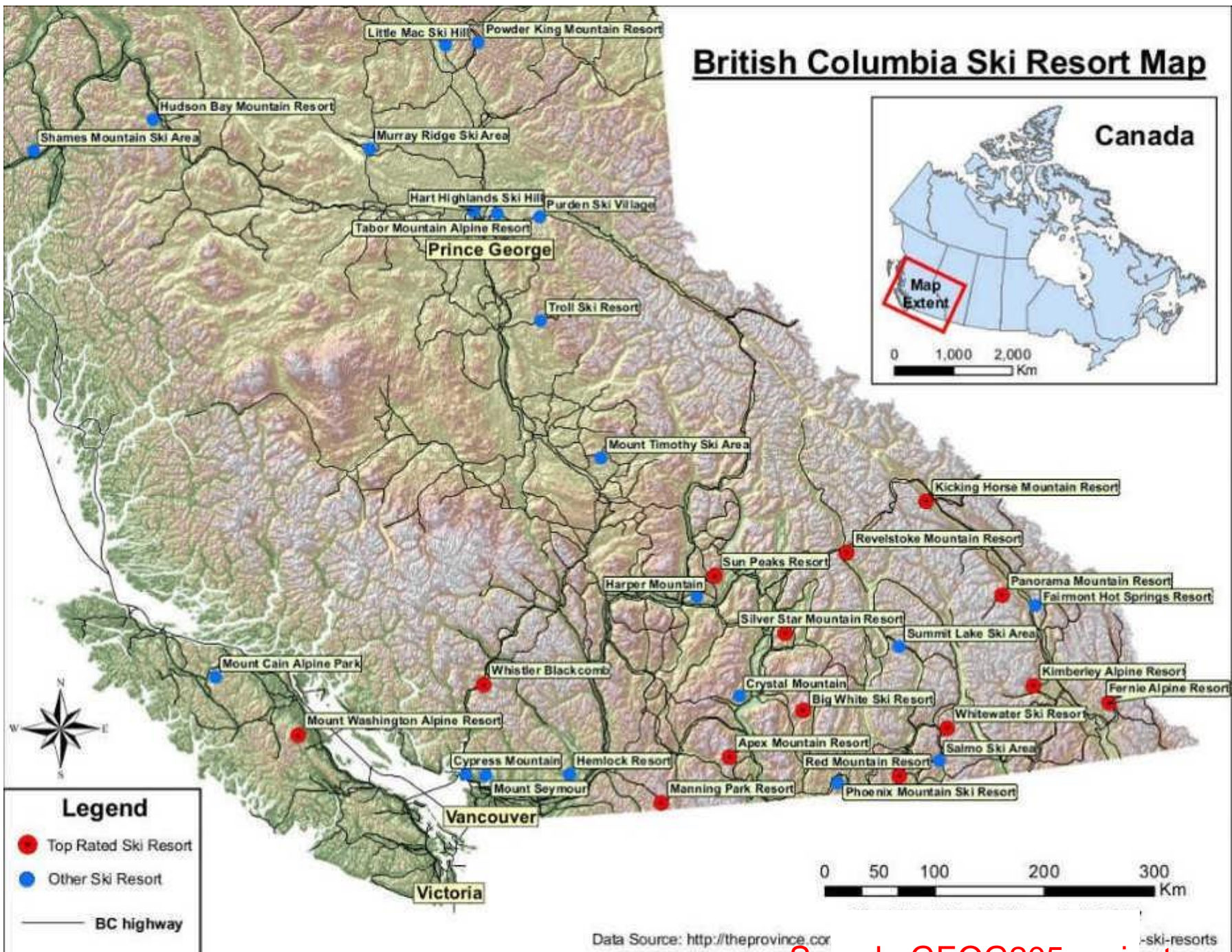
Air Traffic around the World

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

Lab / lecture notes: <http://gis.unbc.ca/courses/geog-205>

DATE	TOPICS	LABS
January		
Jan 6-10	Introduction; Map basics	
13-17	Map Coordinates; Data input	<i>Lab 1: Intro to mapping software</i>
20-24	Generalization; Symbolization,	<i>Lab 2: Topographic Maps / Data</i>
27-31	Lettering; Ancillary info	<i>Lab 3: Data input</i>
February		
Feb 3-7	Thematic maps- Points; Lines/Areas	<i>Lab 4: Symbolization-output</i>
10-14	Relief depiction; <i>Midterm (15%)</i>	<i>Lab 5: Thematic maps</i>
17-21	<i>Reading Week – no classes</i>	<i>No Labs</i>
24-28	DEMs; GPS	<i>Lab 6: Relief – DEMs</i>
March		
Mar 3-7	Remote sensing; Satellite images	<i>Lab 7: Web mapping</i>
10-14	Map projections; types and GIS	<i>Lab 8: Google Earth</i>
17-21	Mountain cartography; Projects	<i>Lab 9: Project – data assembly</i>
24-28	History of cartography; Digital age	<i>Lab 10: Project – data / design</i>
31-April 4	Course review; <i>Midterm2 (10%)</i>	<i>Lab 11: Project – complete map</i>
April		
7-11	<i>April 4 = Last day of classes</i>	<i>Projects due April 7</i>
8-17	<i>no final exam in exam period</i>	

British Columbia Ski Resort Map



COURSE EVALUATION

Lab exercises (lab weeks 2-8)	35%
Exams (in class Feb 13, April 03)	25%
Take home quizzes (Jan 12, Feb 6, Mar 13)	15%
Map project (due April 7)	25%

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

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

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