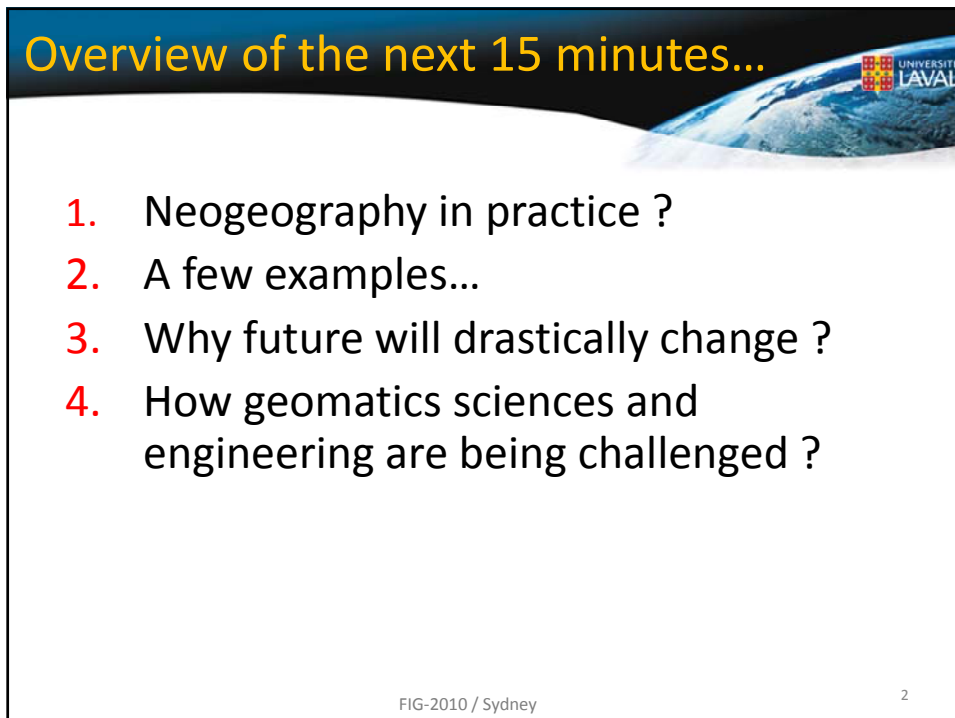


**UNIVERSITÉ
LAVAL**

10 ans
DÉPARTEMENT DES
SCIENCES GÉOMATIQUES
Universitaire depuis 1907

**Geoweb, Neogeography, and VGI:
new challenges for geomatics
sciences and engineering**

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Overview of the next 15 minutes...

1. Neogeography in practice ?
2. A few examples...
3. Why future will drastically change ?
4. How geomatics sciences and engineering are being challenged ?

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Neogeography in practice

<http://en.wikipedia.org/wiki/Neogeography>

• Multiple origins

- 1922: Yearbook of the Carnegie Institution of Washington, *"Palaeogeography has a far wider field and can only be defined in the terms of neogeography"*.
- 1944: the Encyclopaedia of Bible Life, *"between the extremes of the geopoliticians and the non-environmentalists, the Neogeographers have adopted an intermediate position in which the effect of geography can be plainly traced in some instances in human conduct"*.
- 1950: The international biological and agricultural series Chronica Botanica, *"Neogeographers seem to avoid consultation with well-informed and easily-available specialists in other fields."*
- 1977: philosopher F. Dagognet, titled one of his books *"Une Epistémologie de l'espace concret: Neo-geographie"*

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Neogeography in practice

<http://en.wikipedia.org/wiki/Neogeography>

- 1990: Kenneth Dowling, the Librarian of the City and County of San Francisco, related to the study of online communities

• Contemporary meaning, from the industry

- "the geospatial Web" and "the geoaware Web" (both 2005) ; "Where 2.0" conf (2005); "a dissident cartographic aesthetic" and "mapping and counter-mapping" (2006).

• Current definition

- 2006, 2007: Randall Szott, larger and broader scope (artiste...)
- **2006**: Andrew Turner, *Introduction to Neogeography* (O'Reilly, 2006). *"geographical techniques and tools used for personal activities or for utilization by a non-expert group of users; not formal or analytical."*

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Neogeography in practice



- Real academic interests :
 - at least 12 sessions at AAG10-Vegas, only 2 at AAG07-SF,
 - a series of recent e-seminars,
 - many publications,
 - special issue of geo journal, LBS Journal and Geomatica (on track),
 - tools development, OS geotech (R&D),
 - discussion (blog), theory building (?), M. Goodchild : not a science, neogeography vs. VGI,

FIG-2010 / Sydney

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Neogeography in practice



BUT

- fundamentally Neogeography is only a neologism used to describe the **geospatial democratisation process** and its main components (technologies, information, practices),
- classical innovation diffusion process (Rogers),

THEN

- speaking about neogeography seems to me:
 - reducing this process to its consequences for geographers and GI scientists, without taking into account the other dimensions of this democratization process
 - admitting that there is a new geography (?)
- did we ever talk about neo-computer science ? (however, computer sciences was an expert issue before its democratisation)

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A few examples

- Indeed, this process of democratisation has multiple dimensions
 - New type of information (POI) , new technologies and standards (Web 2.0: API, WIKI, KML), new practices (geotaging, geocaching, mashup), and new user-creators (my grandmother, your uncle...)
- and different forms of materialisation, one of the most popular is Google (but many others),
 - Examples : local directory, VGI, geoblog, wikicarto, pictures geotaging, geocaching, GPS navigation, LBS...

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Geo-taging (POI)



The screenshot shows the dismoi.org website interface. On the left, there is a list of tags such as 'maison', 'faire du sport', 'faire mes courses', 'faire mon shopping', 'manger', 'mes services', 'prendre soin de moi', 's'habiller', 's'occuper des enfants', 'se divertir', 'se déplacer', 'se soigner', 'se voir', 'travailler', 'trouver un logement', and 'visiter'. A black arrow points from this list to a map on the right. The map displays various colored pins representing geotags. Another black arrow points from a search bar at the top right of the map area to the text 'Searching by Tag or key word' in a black box. The website header includes 'dismoi.org' and navigation links like 'maison', 'jeux', 'membres', 'export', and 'Pharmacie'. The footer of the slide contains the text 'FIG-2010 / Sydney' and the number '8'.

FIG-2010 / Sydney

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LBGaming (Geocaching)

- Large community (national, regional, local chapters)
- TV games, series, shows
- Tour operators
- Business

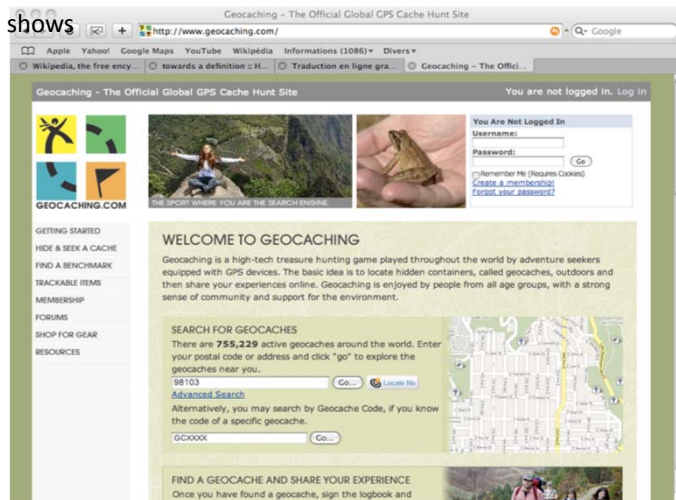


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Wiki-mapping (wikimapia)

- “Redlining” and a few wiki capabilities (for geometric components)

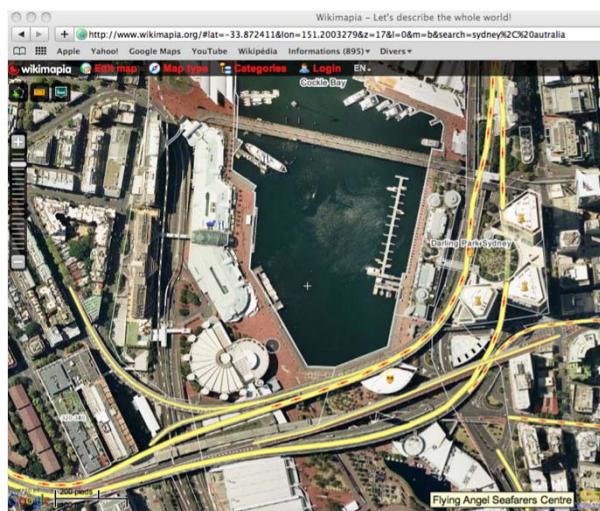
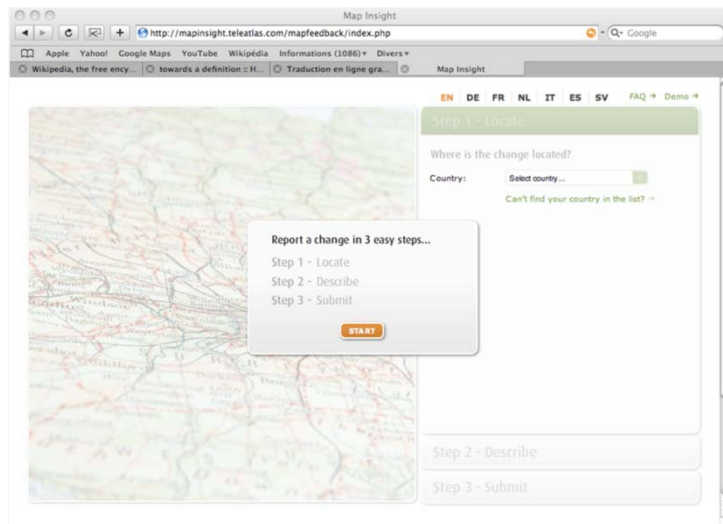


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Geo-crowdsourcing

- Teletlas MapInsight (a map feedback service)
- Idem NAVTEQ Map Reporter or TomTom Mapshare



API: Google, Bing Maps and ...

- API (*Application Programming Interface*)
- new geospatial reference framework for geoweb 2.0 applications

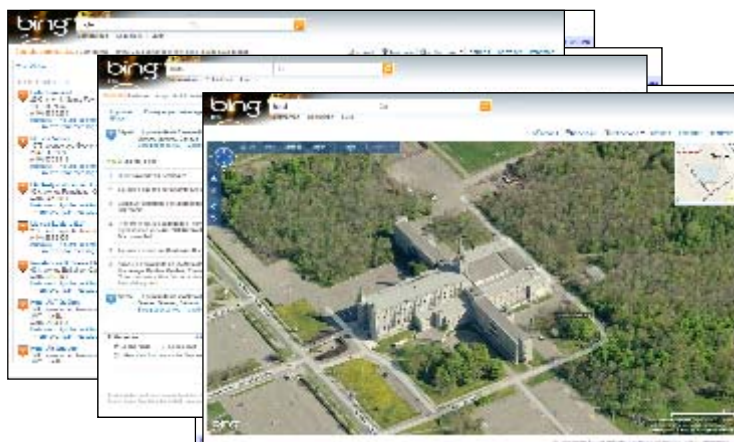


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Mashup

- Mashups are becoming the main components of the Geoweb, especially mapping and photo, for various areas (real time road and air traffic, classifieds (housing, jobs), Holiday Picture, news agencies...)

Source: Programmableweb.com

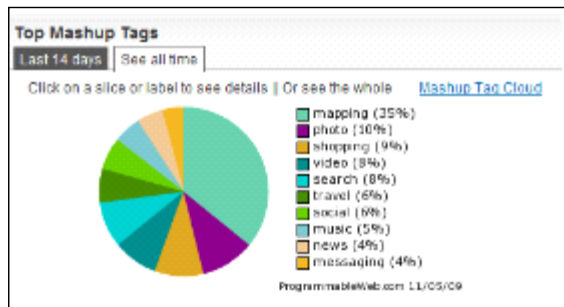


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Our future will drastically change

- Something new is developing:
 - (Geo) Crowdsourcing (Wikipedia) : *“act of taking a task traditionally performed by an employee or contractor and outsourcing it to an undefined, generally large group of people or community in the form of an open call”*. – Mapshare, Map Reporter, Map Insight...
 - VGI and human sensor (M. Goodchild) – Openstreet map,
 - Wikification of GIS (D. Sui),
 - Hybridation experts / non-experts (T. Joliveau), even in business , POI (from expert and non expert sources database sellers),

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Our future will drastically change



- Democratisation is a positive (and normal) evolution for experts (GIScientists, Geomatics Eng., Surveyor...), it reflects the maturity of the field,
 - A way and a new vector (google) to improve people (non-experts) spatial knowledge and skills (not sure for spatial reasoning capabilities),
 - Questioning and challenging scientists and professionals about their own practices (epistemological discussion),
 - Richness and potential capitalisation of VGI and UGC to improve management, decision-making in various fields (Goodchild's Human Sensors)
 - Empowerment (citizens sciences),
 - Local knowledge globally accessible...

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Our future will drastically change



- Weaknesses
 - Homogenisation and standardisation (Google API becomes "the unique way" to represent and interact with earth),
 - Simplification (impoverishment of cartographic representation),
 - Graphical Semiology weaknesses,
 - Progressive loss of cartographic expertise
 - Data quality (misuse and misinterpretation, the 'out-of-context' issue),
 - Non-expert spatial reasoning capabilities (not really improved),

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Geomatics Sc. & Eng. are challenged



54 rue boucher, G6J1G1, saint-etienne-de-lauzon, québec - Google Maps

http://maps.google.ca/maps?hl=fr&tab=wl

Google Maps

54 rue boucher, G6J1G1, saint-etienne-de-lauzon, québec

Rechercher une carte

54 Rue Boucher
Saint-Étienne-de-Lauzon, QC

The trees were cut in may 2006
The trail was built in june 2006
My house was built in spring 2006
So images were taken between may and june 2006

© 2009 doesn't refer to the data update date

Geomatics Sc. & Eng. are challenged



http://mappemonde.mgm.fr/num20/internet/int08401.htm

Quel planisphère de référence pour Google Maps ?

http://mappemonde.mgm.fr/num20/internet/int08401.html

(parce qu'elle préserve les angles, et donc les caps). Son usage, toujours courant comme on le justement) critiqué hors de cette utilisation spécifique (1): les déformations de surface induites sont considérées très fausses des proportions relatives des masses continentales (2). Cette projection est ainsi largement représentée dans l'application à l'échelle mondiale - des données que l'on peut visualiser «satellite» et «relief». Et les pôles ne sont pas représentables. Dans cette projection cylindrique, ils ne (fig. 2).

Projection du point S de la surface terrestre à partir du centre C sur le point C' du cylindre. Le pôle P n'est pas projetable.

Fig. 2. Projection cylindrique à l'équateur

Fig. 3. Comparaison des images produites par la projection de Mercator (en gris) et une projection respectant les surfaces

With Mercator projection, surface are not conserved (pole exaggeration)
Justified by technical constraints : tile-based cartography (Mercator orthogonal parallels and meridians)
Technically oriented choice, non cartographically oriented

Plus on s'approche des pôles, plus les déformations s'accroissent: la distorsion des surfaces entre équateur et hautes latitudes est extrême (fig. 3). Le Groenland semble aussi étendu que l'Afrique ou que l'Amérique du Sud, au moins six fois plus que l'Inde (alors que cette dernière est nettement plus grande, de 50% environ). Et lorsqu'un utilisateur français ouvre Google Maps, il voit apparaître une Europe de l'Ouest (affichage par défaut de la version française) où l'Islande est deux fois plus grande que l'Irlande, alors que la différence de superficie n'est que de 17%.

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Geomatics Sc. & Eng. are challenged



- Market pull and technology push
 - GIS editors (ESRI, Mapinfo, Bentley...) offering new Google exchange capabilities,
 - KML becoming a standard *de facto* (particularly since the OGC's google membership),
 - Geomatics' customers asking for Google compliance,
- Geospatial data mashup (expert and non-expert sources) and data quality, certification and metadata issues (ex. my house doesn't exist in Google)
- Role of Geomatics Eng., professional certification (looking inside the black box: ex Google and the cartographic projection issue),

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Geomatics Sc. & Eng. are challenged



- Pressure from political representative (Mayor of Quebec City and Transportation Minister asked for Google applications),
- **“Why do we have to pay for something that we could get for free on Google ?”**

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To conclude...



• Before

- Traditionally national maps (topographic formal maps) were most of the time provided by NMA,
- Their specifications (datum, projection, semiology, legend, toponymy...) were officially established (and different from a country to another),
- Such maps were the main basis for geospatial reference framework,

• Today

- Google (and NavTech, Teleatlas... data) is now the new geostapial reference framework for all User Generated GeoContents (and even for institutional GI applications, just the beginning).
- All this UGC create a patchwork of local geospatial data based on the same global framework-API (a kind of parallel law-cost SDI),
- BUT how this patchwork could be interrelated to regional, national and global SDI initiatives?