

TeleCartography: Some Cartosemiotic Aspects

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Abstract: *Cartographic and map-like models (products) on hand held displays are a new interesting field for cartosemiotic researches. With theoretical position the selected aspects of telecartography and cartosemiotics (concerning some cartosemiotic models and their peculiarities) are discussed.*

Keywords: *cartosemiotic models, cartosemiotic method of research, cartosemiotics, LBS, map language, mini-display maps, mobile cartography, telecartography, terminology*

1. TeleCartography

New information technologies introduce in cartography not only revolutions, but also evolution. With mobile internet, mobile computing, mobile usage of sign-spatial (cartosemiotic) information etc. the modern cartography identifies its evolution in the mobile environment. All this is still "Neuland" for and in cartography. Telecartography writes today also its page in the history of mobile cartographic environment.

What is a telecartography? After GARTNER/2000/ telecartography is an exchange and transmission process of spatial information on hand held displays. Fig.1 shows a principle of telecartography. Nowadays telecartography focuses on the technology of how best to present and communicate spatial information in mobile environment. It is a new attractiv research field in modern cartography.

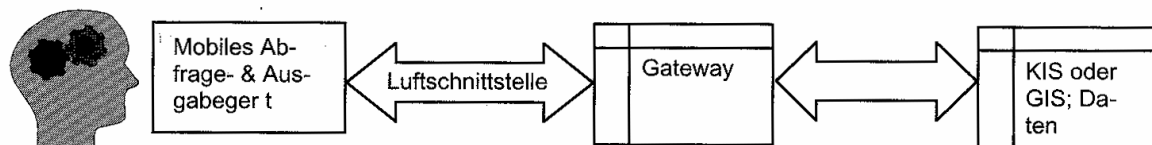


Fig.1 Principle of telecartography /after GARTNER 2003 et al./

Another new term "mobile cartography" is used in the German cartographic literature. Mobile cartography deals with theories and technologies of dynamic cartographic visualisation of spatial information on mobile devices /REICHENBACHER et al. 2002/; in general it can one consider as a geovisualisation of LBS/ REICHENBACHER, MENG 2003/. Terms, telecartography and mobile cartography are concurrent ones of just the same contents and context. Telecartography or mobile cartography deals nowadays with experts and for experts.

2. Cartosemiotics and mini-display maps ("midimaps")

Within framework of cartography the cartosemiotics is a new discipline studying features of cartosemiotic models (from the standpoint of modelling, communication and cognition) with the goal of acquisition of new spatial knowledge or revitalization of forgotten spatial information. Cartosemiotic models are cartographic, map-like, and cartographic-textual products in electronic form and non electronic one (e.g. traditional print form) of the human knowledge about earth (and its parts), planets and cosmos-referred features and relations /WOLODTSCHENKO 2003/.

Until recently cartosemiotics was engaged in research of traditional cartosemiotic models where print (or paper) maps prevailed. Cartographic and map-like models (products) on hand held displays are a new interesting field for cartosemiotic researches. In this research field the cartosemiotics forms two groups of users: mobile and immobile users (Fig. 2).

The small display maps or **mini-display maps** ("midimaps") are new form of cartosemiotic models /WOLODTSCHENKO 2004/. "Midimaps" on mobile phones, Pocket PC etc. have found new user, mobile one (e.g. in tourism and navigation). For many cases these "maps" represent dynamic and/or static part of maps. Usually the many "midimaps" are a part of the whole map only.

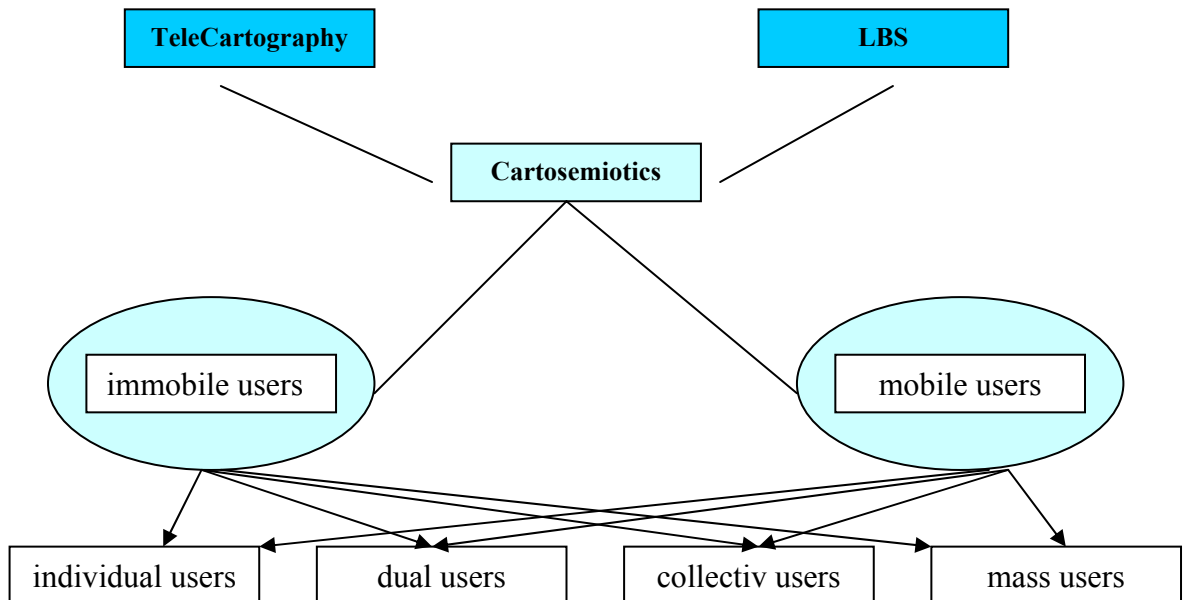


Fig. 2 Cartosemiotic users groups

3. Cartosemiotic method of research and language of "midimaps"

Cartosemiotic method of research is a way to study and understand map language and language of map-like models (products) with their cultural-historical, social and communication aspects /Fig. 3/. Cartosemiotic method of research is also a way for acquisition of new spatial knowledge and/or revitalization of forgotten spatial information with "midimaps".

In the reports and the discussions on the ICA joint seminar in Vilnius / WOLODTSCHENKO 2004; BECONYTE, WOLODTSCHENKO 2004/ repeatedly were raised the questions: Who will teach the language of "midimaps" that to understand them for concrete context and techniques? Where is it possible to study the language of "midimaps"?

From aesthetic point of view the "midimaps" have an interesting relation to postage stamps. Postage stamps with cartographic themes are well known for philatelists-cartographers. In this connection, some analog examples of static part of "midimaps" one can compare with postage stamps of diverse cartographic and cartosemiotic motives (themes).

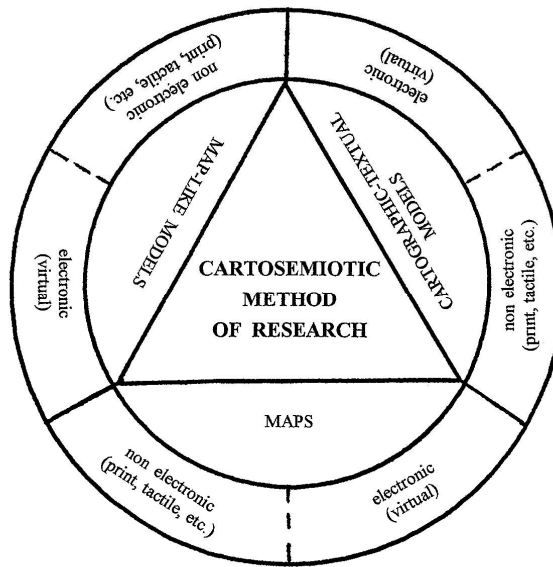


Fig. 3 Structural model of cartosemiotic method of research/WOLODTSCHENKO 2000/

4. Terminology aspects

The contemporary terminological "field" of cartography is characterized by dynamics and active intrusion or introduction of technological terms. And this is natural. New cartographic technologies change old ones with the unpredictable speed. The tele-cartographic terminological "field" is located in the stage of childhood; it is formed still. This lexis field includes cartographic, non cartographic (from other disciplines) and general scientific terms. As an example it is possible to demonstrate the list of the keywords (cartographic terms are distinguished by italics) from the site <http://www.ubimap.net/upimap2004/> "Joint Workshop on Ubiquitous, Pervasive and Internet Mapping": ubiquitous, ubiquity, pervasive, Internet, network, *tele-cartography*, SVG, GML, G-XML, LBS, geo-cast, context awareness, situation, location, affordance, spatial cognition, perception, sensing, egocentric, homogeneous, *map*, *mapping*, spatial interaction, trans-coding, model, schema, visualization, symbology,

generalization, virtual environment, interface, agent, voice, augmented reality, coordination, spontaneous, navigation, mobile, wearable, small personal object, IC tag, universal design, cross cultural issues, privacy, security, education, childhood development, etc.

The process of the formation of tele-mobile-ubiquitous cartographic lexis is still distant from the completion and it will be developed further.

5. Conclusion

Two proceedings "Telekartography and Location Based Services 2002" and "Location Based Services and TeleCartography 2004" edited by the Institute of Cartography and Geo-Media Techniques of the Vienna University of Technology, have been used for my analysis of Telecartography and LBS activities. Technological aspects dominate here indisputably. Diverse cartographic presentations on mobile device (or mini display maps) require not only the improvement of their technological realization and identification, but also the theoretical-conceptual comprehension as new cartosemiotic models. These presentation forms are not yet classified with cartosemiotic characteristics. The mini-display maps are to be investigated under semiotic angles further.

References

- BECONYTE, G., WOLOTDSCHENKO, A.: (2004): Geography and cartography in secondary schools. In: ICA Joint Seminar (paper presentation), June 29, 2004, Vilnius/Lithuania.
- GARTNER, G. (2000): TeleKartographie. In: GIS, 4, 2000. S.21-24.
- GARTNER, G., UHLIRZ, S., PAMMER, A., RADOCZKY, V. (2003): Kartographische Beiträge zur Entwicklung von LBS. In: Kartographische Nachrichten, 1/2003, S.16-22.
- REICHENBACHER, T., ANGRÜSSER, S., MENG, L. (2002): Mobile Kartographie - eine offene Diskussion. In: Kartographische Nachrichten, 4/2002, S.164-166.
- REICHENBACHER, T., MENG, L. (2003): Mobile Kartographie - ein Annäherungsversuch an ein neues Forschungsthema. In: Kartographische Nachrichten, 1/2003, S.4-6.
- WOLOTDSCHENKO, A. (2000): On prospects in theoretical cartography. In: Schlichtmann, H. and A. Wolodtschenko (ed.). Diskussionsbeiträge zur Kartosemiotik und zur Theorie der Kartographie. Band 3. Dresden 2003, S.37-54.
- WOLOTDSCHENKO, A. (2003): Cartography and Cartosemiotics: Interaction and Competition. In: Proceedings of the 21st ICC in Durban/South Africa. ICA 2003, pp.1976-1980, (Cd-version).
- WOLOTDSCHENKO, A. (2004): Cartosemiotics in TU Dresden. In: ICA Joint Seminar (paper presentation), June 29, 2004, Vilnius/Lithuania.

Biographical sketch

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1987 - promotion in Institute of Cartography at the TU Dresden.

1995-1999 member of the ICA Commission "Theoretical fields and definitions in cartography" and Working Group "Map Semiotics"

1999-2003 and 2003-2007 chairman of the ICA Commission on Theoretical Cartography

1991-1995 co-editor of the issue "Kartosemiotik/Kartosemiotika"

Since 1998 co-editor of the issue "Diskussionsbeiträge zur Kartosemiotik und zur Theorie der Kartographie"

Author of more than 100 publications, among them 5 cartosemiotic monographic works.