

Role of vector information for augmenting visualisation of animated maps representing movements

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Abstract. Animated maps have attracted the attention of Cartographers over the last three decades, initially as a paper-based cartoon approach and, after the eighties, in the form of sophisticated 2D and 3D digital representations. Although it is generally accepted that animated maps are a simple and very appealing way of providing a mental model of the dynamic information, their effectiveness has been debated from as early as by Bertin (1967). However, the most suitable cartographic representation of a large information collected over continuous long period such as weather would be an animated map. But Bertin suspected that the presence of motion would distract a user's attention from the important visual variables such as size, colour, and others, thereby resulting in a limited interpretation. Dibiase et. al (1992) and MacEchren (1994) proposed the addition of controls, such as duration, rate of change, frequency, display time and others to manage the flux of information available during the animation, thus allowing for user-defined attention requirements to properly interpret the dynamic information. However, in the absence of formal and generic guidelines on the use of these controls, the author believes that Bertin's objection is still not satisfied. As another alternative, this work proposes the addition of ancillary information, more specifically vector information to attract or freeze the user's attention on relevant aspects of the map. This approach is likely to be most useful for animated maps of continuous information such as weather maps, in which both the scalar and vector attributes of a point are important for an effective understanding. This work demonstrates the possible forms of the vector information such as the direction arrows and the structural framework of the animated maps and assesses their effectiveness. Cited References Bertin, J., (1967). *Semiologie Graphique*, Den Haag: Mouton. Dibiase, D., MacEchren, A.M., Krygier, J.B., Reeves, C., (1992). Animation and the role of map design in scientific visualization. *Cartography and Geographic Information Systems*, 19 (4), 201-204. MacEchren, A.M., (1994). *How Maps Work: Issues in Representations and Design*, New York: Guildford Press.