Representation and Analysis of Space-Time Dynamics

Geog 560 – Graduate Seminar in GIScience, Fall 2016

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Office Hrs: Tuesdays, 1:30-2:30
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Class Meetings: Thursdays, 1:30 – 4:30
Rm. 319 Walker

Description
This seminar will focus on space-time dynamics as an important means for deriving understanding of geographic structures and processes. The scientific study of spatial process is impossible without considering both space and time. While the study of structures and process over geographic space and through time is neither new nor unique, the richness and complexity of space-time data now available from web-based sources, including RSS newsfeeds, tweets and blogs, presents both unprecedented opportunity and challenge. Part of the opportunity is that it enables study of temporal dynamics in near real-time, and at multiple scales. A major challenge lies in selection and potential adaptation of representation and analysis techniques that are suitable for the complexity, richness and sheer volume of these data.

We will first briefly examine the particular characteristics of space-time data. After a brief review of representation techniques, we will explore a number of space-time analysis procedures developed for uncovering pattern in event and in movement data, as well as colocation pattern analysis. We will explore visual means for exploration and analysis of space-time dynamics, and how visual and quantitative approaches have been combined in various fields. The focus will be on how these can be directly applied or modified for use with geographic data. There is flexibility in which specific topics we devote more or less time to within this broad range, depending on participants’ background and interests. Application contexts will focus on, but not be limited to, social science data.

Course Materials
Assigned readings for the course will consist of journal articles and excerpts from:


Both of these books are available online through the PSU libraries.