Preface to the 5th International Workshop on Spatial and Spatio-Temporal Data Mining (SSTDM-10: http://www.ornl.gov/sci/knowledgediscovery/sstdm-10/)

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BACKGROUND

The field of Geoinformatics focuses on the development of novel scientific algorithms and the implementation of computational methods to provide solutions to pressing earth-related problems. With advances in remote sensors, sensor networks, and proliferation of location sensing devices into common walks of lives and businesses, the generation of disparate, dynamic, and geographically distributed spatiotemporal data has exploded in recent years. Geoinformation and the knowledge extracted from spatial and spatiotemporal data plays a critical role in our daily lives, whether it is to understand the human implications of global environmental changes, responding to natural disasters, or simply finding alternate routes in case of an emergency. However, geoinformatics field is leading into a data-rich but information-poor environment as the rate at which the geospatial data being generated clearly exceeds our ability to organize and analyze it to extract useful patterns that are critical to the understanding of dynamically changing world in a timely manner. It is therefore, imperative that efficient and effective data mining techniques are needed for extracting useful information from these large heterogeneous and multi-modal datasets. However, traditional data mining techniques are ineffective as they don’t incorporate idiosyncrasies of spatial domain, such as, spatial autocorrelation, spatial context, and spatial constraints. Recognizing the need for an international forum to disseminate research results and discuss the needs of the spatial and spatiotemporal data mining community, the SSTDM series of workshops were started in 2006 as satellite event with IEEE ICDM.

Initial workshops (SSTDM/ICDM-06, SSTDM/ICDM-07, STD/MCDE-07) have mostly focused on algorithmic aspects of SSTDM on vector data types. Starting with ICDM-08, SSTDM workshop was combined with GeoInformatics (DM4GeoInformatics) workshop, which brought together vector and raster datasets, and theory and applications under a single platform. Popularity of SSTDM workshop has steadily increased over the years owing to several factors: recognition and broadening of the field, increasing applications, especially in geo-intelligence, climate, and earth sciences, and finally increasing quality and quantity of submissions and participants. For the past five years, SSTDM workshops have received on an average more than 35 submissions per year. Moreover, SSTDM remained highly appealing to the ICDM authors, as more and more authors are selecting SSTDM as their preferred workshop. The workshop is also found to be highly useful to participants due to the quality and relevance of invited speakers. This year we had received 34 submissions of which 10 papers were selected based on minimum of three PC reviews. Prof. Vipin Kumar of Minnesota will deliver a keynote talk. Invited speakers to the previous workshops included NSF program managers and well-known subject matter experts. SSTDM workshop will continue to provide a leading international forum for researchers, developers, and practitioners in the field of geoinformatics to identify current research foci, vital areas of need, and critical points of synergy.

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