**Geographic Information Mediation in Support of Sustainable Futures: linking data and knowledge systems to understand the Arctic**

**When:** Thursday December 20, 2018  
**Time:** 3:00-4:20  
**Location:** Loeb A220

**Abstract:**  
Recent environmental and social change has resulted in an increased focus on the Arctic region by governments and the general public. Much of this interest is generated in the context of the concept of sustainability and the global implications of a changing Arctic. Concurrently, there is a recognition by researchers, Arctic communities, and decision makers that Arctic observations and data are not readily available in a usable form to all who need them. As a starting point, this talk provides a review of Arctic data as a complex system of interrelated data resources, technology, funding, human and machine actors, and other components that can be modeled as a "data ecosystem." Improving the flow and interoperability of data will require more than simply making these data easier to discover and access in their raw form. New approaches to "mediating" or transforming data to meet the needs of different producer and user communities are needed and increasingly possible. In particular, research is needed to bridge worldviews, concepts and semantics represented in information systems. Results from a study that examined multiple conceptualizations of sea ice are presented. This study reveals that the conceptualization and articulation of sea ice from the perspective of an Inupiat sea ice expert is different in form and function in comparison to conceptualizations published by the operational (e.g., shipping) community. The implications of similarities and differences in these conceptualizations are discussed and prototype models for mediation based on the "Semantic Web" suite of standards and technologies are presented. Enhancing the system will require a broad commitment to dialogue and critical thinking across different worldviews and communities of practice. The talk concludes with a review of existing and emerging research projects and programs focused on Arctic data as part of the broader global data ecosystem.

**Biography:**  
Peter Pulsifer is a research scientist at the National Snow and Ice Data Center, University of Colorado, where he leads the Exchange for Local Observations and Knowledge of the Arctic (ELOKA) and other projects. His research addresses questions around computer-based information representation with a particular focus on interoperability and sharing across knowledge domains. This includes examining technical and social aspects of data and information sharing. In his for more than a decade, Dr. Pulsifer has partnered with arctic Indigenous communities and their representative organizations to better understand how to link data and information constructed through Western science approaches with information and knowledge derived from Indigenous Knowledge and ways of knowing. In his role as Chair of the international Arctic Data Committee, co-chair of the U.S. Inter-agency Arctic Research Policy Committee, and a participant in the Second Arctic Science Ministerial process, Peter is active in leading the coordination of polar data resources.