

SEAMONSTER Southeast Monitoring Network for Science Monitoring Telecommunications, Education and Research

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The South East Alaska Monitoring Network for Science, Telecommunications, Education, and Research (SEAMONSTER) is a smart sensor web project designed to support collaborative environmental science with near-real-time recovery of large volumes of environmental data. The project has three technological emphases 1) Network adaptation in response to acquired data and detected events (2) Network nodes that self modify their power management strategy and (3) Flexibility and adaptability to accommodate new sensors, applications and investigators. The primary product of this investigation will be a wireless backbone that will drastically reduce operational cost of data return for a broad spectrum of field investigators in the environmental bellweather of southeast Alaska. This network will be constructed as an aggregate of subnets tied together by long-range communications technology, particularly radio modems or satellite links. The 2007 geographic focus is the Lemon Creek watershed near Juneau Alaska with expansion planned for subsequent years up into the Juneau Icefield and into the coastal marine environment of the Alexander Archipelago and the Tongass National Forest. The network will return data on glacier dynamics and mass balance, watershed hydrology, coastal marine ecology, and human impacts/hazard monitoring. Additional features include a semi-closed network model that employs common communications standards to import data and export configuration directions, power-miserly nodes, redundant connectivity and a robust network transport protocol. New users will be added by “dry connecting” at the University Alaska before proceeding to field deployment. Acquired data will be integrated into environmental science classrooms in Juneau. Project success metrics include area served, returned data volume and breadth, installation survival rate and impact on our understanding of the study sites.