

Title: Seattle RainWatch and Enhanced Weather Forecasting as Climate Adaptation

Abstract: Developed for Seattle Public Utilities (SPU) by the University of Washington's Mesoscale Analysis and Forecasting Group (UW), Seattle RainWatch is a real-time weather system that provides short-term forecasts (i.e. nowcasts) and rain accumulation totals for the City of Seattle. It uses rainfall estimates derived from radar data that are calibrated with SPU and other local rain gauge networks to improve accuracy over other precipitation estimate products. The forecasts are made using recent radar echo motion vectors and are extrapolated outward temporally and spatially. While primarily a tool for City operators, Seattle RainWatch is a public web application with a social media presence used frequently by city residents and regional weather watchers.

Seattle RainWatch represents the first in a handful of weather forecasting applications recently developed by the City of Seattle to improve decision-making and enhance resiliency. Other tools include a database of impacts to its systems and customers that when combined with customized quantitative precipitation forecasts can help predict where problems are likely to occur and allow for more efficient response. SPU's meteorological database also organizes daily observations and characterizes historical events. The information is used across departments and agencies for a variety response and planning purposes. Other City tools include nowcasting applications, also developed by UW, that inform transportation and energy operations, respectively.

In addition to real-time operational and emergency management uses, Seattle RainWatch and related City applications represent "no regrets" climate adaptation strategies, especially given present uncertainty of changes to extreme precipitation and other climate impacts in the Pacific Northwest. The tools are informing long-term planning processes through the development of enhanced neighborhood-scale climatologies. Ultimately these efforts aspire to lead SPU and the City of Seattle from being data rich to knowledge rich organizations, more resilient to change.