Why rain in the mountains matters on the Prairies

John Pomeroy, Canada Research Chair in Water Resources and Climate Change and director of the U of S Centre for Hydrology, is hoping his research leads to better flood prediction.

BEVERLY FAST
TERRY ALLINGTON

June 18, 2013: it was already raining hard at Marmot Creek, Alta. when John Pomeroy (BSc'83, PhD'88) decided to call it a day. He told his team of 15 U of S researchers spread out across Alberta's Kananaskis and Canmore areas to get inside and stay safe.

Pomeroy is one of Canada's leading hydrology experts. He studies how snow accumulates, how it is moved around by wind, how it is trapped in forests, how it melts, how rain and snow infiltrate into frozen soil, how water evaporates, and the impact on runoff and streamflow.

Looking at the rain pouring down on Marmot Creek, one of his six western Canadian research basins, he knew downstream flooding was inevitable.

"It had been a cold spring, and the upper areas of the basin were still covered by snow. In some places, the snow pack was several metres deep. The warm rain on cold snow led to rapid snow melt and a rain-on-snow melt flood—something no one could remember happening in their lifetime," he said.

The flood came fast and furious, reaching the town of High River early on June 20. By mid-afternoon, flooding was widespread; 150 people had to be rescued from rooftops, and a full evacuation was ordered—all 13,000 residents had to leave. Similar scenes were playing out across southern Alberta.

Within days, it was clear the province had suffered a major natural disaster—the worst in its history. Could earlier warnings have mitigated the losses? Pomeroy believes so, and his research continues to build a foundation for better predictive modelling and forecasting tools. ▶