



Calgary's 2013 flood could have been 'much, much worse,' expert says

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Alberta's historic flooding could have been even worse had the rain-on-snow event been similar to the ones in the United States, says a hydrologist who studies in the Rockies.

At a recent meeting of the American Geophysical Union in San Francisco, John Pomeroy talked about his detailed diagnosis of the 2013 floods in southern Alberta.

"What we had was an exceptional flood," he said during a press conference at the December meeting. "It was driven by rain, and there's nothing exceptional about that, but we have never had a rain-on-snow flood in recent memory.

"So when you see a climatic event that's not occurred before, those things without statistics become strong indicators of a changing climate."

The flooding, which left five people dead and caused an estimated \$6 billion in damage, has been deemed the worst natural disaster in Canadian history. At least 250 millimetres of precipitation fell over three days in June 2013.

"The rain fell on the snow," said Pomeroy, noting rain-on-snow events cause large floods during the middle of winter in the United States. In Alberta, the University of Saskatchewan hydrologist said it ended up being a different event.

"We didn't see an acceleration of the snowmelt rate," he said. "It actually decelerated because we were near the summer solstice and the cloudiness associated with the rain-on-snow reduced the solar radiation energy driving snowmelt.

"If we had the high energy associated with some mid-winter U.S. rain-on-snow events, it would have been much, much worse in Calgary."

As a result, Pomeroy called it a 'cold' rain-on-snow event that would require more research because it means Alberta won't be able to rely on the work in the Pacific Northwest or British Columbia in preparing for future floods.

"We had our first large rain-on-snow event in recent memory in 2012," he said, referring to Cougar Creek flooding in Canmore. "Then we had another one the next year, and there are elements of that in 2014 down in Lethbridge. So clearly this is an element of our floods and high-flow generations out of the Rockies.

"It's a really different mechanism than just straight rain or straight snowmelt, and we need to understand it better so we can better predict it and better design our floodplain areas ... and better anticipate how large floods will be in the future."