

New system would warn of floods faster

By Matt McClure, Calgary Herald, 19 February 2014

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The federal government plans to have a national flood forecasting system running within two years that could provide earlier and more accurate warnings of disasters like the one last summer that hit Calgary and southern Alberta.

Environment Canada says in the interim it will provide the province's forecasters with long-range weather prediction data in the hope they can alert vulnerable communities sooner.

"This is something we have started to work on a couple of years ago," said Michel Jean, the department's director general of weather and environmental operations. "The Calgary event has just reinforced that a higher priority will be put on that."

Alberta's flood forecasting centre didn't issue warnings to some communities last summer until after they were already inundated.

But a pilot program run by researchers with the European Centre for Mid-Range Weather Forecasts predicted the Bow River would breach its banks 10 days before Calgary saw the surge.

Jean said his department plans to marry a program it has been developing to model river flows to a continent-wide weather prediction system that is already churning out rainfall numbers that are as accurate as those being produced by the European group.

"The system provided strong ties seven days before the event that there would be significant precipitation upstream of Calgary ... We had a 90 per cent certainty that (it) would exceed the 100-millimetre threshold," he said.

"It's pretty clear that if Environment Canada had had an operational river flow system coupled to our ensemble prediction system, probably because we have faster and bigger computers than the province has, potentially we could have provided (the warnings) faster."

Robin Campbell, Alberta's environment minister, was not available to be interviewed, but his department officials said they agree ensemble forecasts could be used to provide earlier warnings.

"We intend to discuss with emergency responders how they could potentially action a response to a long-lead forecast (i.e. evacuation, building of dikes)," the department said in a statement.

In the aftermath of record floods in 2009, Manitoba's forecasters began using the federal department's long-range weather predictions to model river flows.

Jean said Alberta is moving quickly to change its computer systems so it can ingest the same data and use it to help decide when to issue warnings.

"Should the (southern Alberta floods) have happened this next year, perhaps the story could have been somewhat different, but of course we will never know that," he said.

Last June, Jean said, the department's warning preparedness meteorologist in Calgary phoned Alberta's flood forecasters two days before the skies opened to share its dire prediction - the high probability of over 100 mm rainfall within a 60-hour period in the foothills and mountains west of the city.

The call emphasized that almost all of the precipitation would fall as rain, even at higher elevations in the mountains.

The warm temperatures predicted at high altitudes were not typical for a June cold low. Precipitation that might normally accumulate as snow in the mountains was now likely to be rain that would quickly run off.

A day before the rains began, the federal forecaster was telling his provincial partners the maximum accumulation could be up to 150 mm in some areas.

Despite the increasingly worrisome predictions, documents show the maximum amount that provincial flood forecasters ran through their river flow model before the floods was 110 mm of rainfall.

Jean said Environment Canada has concluded it needs to do a better job of communicating with provincial officials when it sees a severe event on the horizon.

"The importance of providing the right information to the right person at the right time," Jean said.

"There were a couple of weaknesses we will be fixing."

He said earlier warnings based on Environment Canada's assessment of a high probability of a huge storm would have given municipal officials more time to mount larger flood defences and to prepare sooner to evacuate those who might be in harm's way.

"I'm not criticizing Alberta," Jean said.

"If the forecast is wrong, you make a very costly mistake. But if the forecast is right and you do nothing, then the economic loss and the loss of life can be quite high."

Four Albertans died and about 100,000 others were forced from their homes during last summer's flooding. The damage estimate has now topped \$6 billion.

While his department is developing a forecasting tool for the entire country, Jean said it is too early to say whether Canada will follow the example of the U.S. and Europe in creating a national or multinational agency to predict floods in rivers that frequently cross political boundaries.

"This is a provincial area of responsibility," he said.

"Whether we go with a national flood forecasting system is something we will have to discuss with the jurisdictions."

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