



@RiskAUG

## Telemeeting Agenda

**January 18, 2011, 10:30 – 11:30**

**1-877-413-4790 conference ID 3381344#**

### Introduction

The forum is the 9th of monthly opportunities to share knowledge about incorporating Hazus Risk Assessment into disaster reduction decisions in Canada. The NRCan Quantitative Risk Assessment Project of the Public Safety Geoscience Program supports the forum until March 2013.

Suggested telemeeting program :

1. Introductions and program
2. Your News and Opportunities
3. Vignette: Flood risk assessment project for Chilliwack, British Columbia; Kris Holm, BGC Engineering Inc, Vancouver, British Columbia.
4. Discussion

## Your News and Opportunities

### *Your Hazus News?*

Joe: Where and when can I get Hazus training in Canada?

A: NRCan is setting up two one hour introductions to Hazus webinars, now scheduled for February 8 and 9. These are designed to introduce Canadian stakeholders in hazard loss reduction to Hazus capability.

1. Hazus Earthquake module: February 8, 2012 at 10 am Pacific Time. Demonstrates earthquake module capabilities.
2. Hazus Flood module: February 9, 2012 at 10 am Pacific Time. Demonstrates flood module capabilities.

NRCan will email an invite with webinar connection information to the complete CanHUG and RAUG mailing lists when the details for the webinars has been finalized. Approximately 100 spaces are available.

A: NRCan is setting up and supplying, in partnership with ESRI Canada, a hands on three day introductory training course in Vancouver. It is targeted to decision makers and practitioners in organizations that have strong potential to continue Hazus use, and engage colleagues in their communities of practice to use Hazus. Scheduled for the last week of February. The training will be given by Kevin Mickey of the Polis Center, Indiana University, Indianapolis, Indiana. Polis serves as the primary curriculum developer and provides instructional services for FEMA's HAZUS-MH tool. The course has space for 11 practitioners and their organization's decision maker (22 people in total).

Kelly alerted the group to a two day course offered in Washington State on the use of Hazus for mitigation planning; February 8 -9, 2012. If you are interested please contact her at [kelly.stone@fema.dhs.gov](mailto:kelly.stone@fema.dhs.gov)

Resources on use of Hazus relevant to Hazus users in Cascadia (Georgia Basin) and in general can be found on the WaHUG pages of [www.usehazus.com](http://www.usehazus.com)

***CRHNet 2012 call for sessions. (Annual Symposium, October 24- 26, 2012, Sutton Place Hotel, Vancouver, BC)***

Call for special sessions is formally closed: Call for abstracts will come out in February.

A Hazus session has been proposed by prospective chairs: Nicky Hastings, Kelly Stone and Bert Struik  
For back ground information about symposium see: [www.crhnet.ca](http://www.crhnet.ca) Follow on twitter @CRHNet2012

**Vignette: Flood Risk Assessment for Chilliwack, British Columbia; Kris Holm, BGC Engineering Inc., Vancouver, BC.**

Access Kris's PDF presentation at:

CanHUG usehazus.com webpage <http://www.usehazus.com/canadianhug/> announcements

CanHUG workspace of <http://GeoRisk.info> under Documents>CanHUG\_Teleconference\_2012-01-18

Kris described a project undertaken by BGC Engineering to demonstrate the advantages and power of doing flood risk assessment over that of simply doing a flood hazard assessment. The convened a consortium of contributors and were funded by a temporary British Columbia program to manage the potential of extreme flooding of the Fraser River in 2007. The project served the purpose to demonstrate the value of risk assessment over hazard assessment. It used elements of the Hazus technology and separate techniques to make the risk evaluation.

Pictures of historical floods of the lower Fraser River were taken from the book "High Water" by the Historical Society of the BC Dairy Association. Recommended reading.

The project evaluated consequences of a potential dyke breach in the area of Chilliwack, British Columbia, known to be in and surrounded by extensive flood plains of the lower Fraser River.

Catastrophic floods of the lower Fraser River have occurred several times in recorded history. The first written record is of the 1894 event. Flood management has been primarily through dyke construction. The dyke breach model was taken from previous research and the site of a potential dyke breach was provided by local experts.

BGC amassed the infrastructure inventory from various sources listed in the presentation. They needed to classify the building inventory into Hazus structural classes. They divided the structural and demographic inventories into the Canadian Census blocks. Location of structures was done by street address or a center point. Some buildings therefore ended up plotting on roadways or such, slightly off centre to their actual location. They used the flood depth-damage curves used in Hazus. The loss-estimate models were run on individual buildings and the results were then aggregated. Hazus amalgamated data first in census blocks and then runs the model. The approach permitted clear assignment of damage to a building in a certain depth of water, rather than assigning an amalgamated damage estimate to an entire Census block which may, for example, have one corner in a flood plain and the rest on high ground.

Damage distribution maps showed potential structural losses across the area. Plots were made of locations of critical facilities anticipated to be put out of commission by the model event. Losses for lifelines (transportation, pipes, electrical and such) were not calculated. The location of those facilities were mapped relative to the flood water depth. Economic losses were calculated by British Columbia Statistics. Potential loss of life was not calculated because all the required elements were not in place. Instead vulnerable populations were identified for those people outside buildings, based on water flow rates, and inside buildings based on water depth. The higher the flow rates, the higher the vulnerability and the deeper the water relative to the number of stories of the building, the higher the vulnerability (above the level of the top floor means no refuge in the home).

## **Discussion**

Q: what was the BC Stats method?

A: input - output.... The calculation was transparent and was inexpensive.

Q: What were the complications?

A: Data gathering and set up. Weakest was having no access to First Nations inventory because it is not housed in the same data sources as others (different jurisdictions and regulations)

Q: Does Hazus use depth of water (flood zone) and velocity of water (floodway)?

A: No. It uses depth of water only. FEMA supported projects in Washington State have created videos of water motion (inundation changes) created from time lapse of flood depth grids. These are very helpful in explaining to clients the impacts of water motion.

A: Hazus developers are considering including flood water motion, because it is needed in the work to create a tsunami model for Hazus.

Q: What would help you if you were to do this again?

A: Being able to use Hazus directly. It could, for example, provide the economic loss calculation directly.

A: An automated way to calculate the potential of a dyke breach.

Q: What about the building inventory?

A: Complicated, because the best data is current data, so it would be best to put effort into creating methods to easily access data sets, rather than compile existing data sets.

A: access to First Nations inventory data.

Comment: Hazus aggregation is best for earthquake loss modelling and site specific data is best for flooding.

Comment: Check out the database shell for user defined data on the WaHUG resource page <http://www.usehazus.com/wahug/resources/>

The template was created and supplied by Eric Coughlin.

*Bert Struik, January 18, 2012*