IBC’s New Flood Maps - Leveraging data to effectively assess and manage flood risk

Speakers:
- Lapo Calamai - Director, Catastrophe Risk and Economic Analysis, IBC
- Simon de la Hoyde - Head of Sales, Insurance, UK, Ireland and Canada, LexisNexis Risk Solutions
- Richard Toomey - Manager, GIS Analytics, Insurance, LexisNexis Risk Solutions
- Dermot McNally - Product Champion, Insurance, LexisNexis Risk Solutions
- Helen Smith - JBA Risk Management
Agenda

• Overview of the work LexisNexis and IBC have been doing
  • Simon de la Hoyde - Head of Sales, Insurance, UK, Ireland and Canada, LexisNexis Risk Solutions

• Key findings from the research
  • Richard Toomey - Manager, GIS Analytics, Insurance, LexisNexis Risk Solutions

• Best practices for using the data in pricing and underwriting
  • Dermot McNally - Product Champion, Insurance, LexisNexis Risk Solutions

• JBA flood models and mapping methodology
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Overview

• In 2015, IBC selected LexisNexis as lead vendor to manage its national flood program initiative

• Leverage LexisNexis® **Map View** risk assessment and exposure management platform
  • Extensive experience working with insurers in the UK, Ireland, Europe, US and Canada

• A key component of this initiative is the creation of all **new pluvial and fluvial flood maps for Canada** produced by JBA Risk Management
Key Goals of the Program

• Quantify the extent of flood risk and exposure across Canada
• Identify the number of properties at risk of flooding and the associated economic losses for any geography in Canada
• Identify exposure hotspots
• allow IBC to perform sensitivity testing of flood exposure and potential losses based on various scenario analyses
The driving forces in the Canadian market

Cat Losses

Investment Returns
2013 was a record year for cat loss with total insured losses at 3.2B

- Across Canada, insured damages from extreme weather events have cost almost $8 billion since 2010.
- This is only a portion of the total economic costs to the country.
Water now the #1 peril, accounting for 50% of all claims

$22 Billion in flood damage across Canada in the past 10 yrs
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### Data Gathering

#### Specific Data Types

- Terrain data (higher resolution the better)
- Hydrometric Data
- Snow cover
- Rainfall data
- Flood Defences outlines
- Historical Flood data
- Landcover

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Flood Models:
- River (Fluvial) Model
- Surface Water (Pluvial) Model
- Combined Model

Return Periods:
- 1:20 year
- 1:50 year
- 1:75 year
- 1:100 year
- 1:200 year
- 1:500 year
- 1:1500 year

ADR: Annual Damage Ratio
- Property level version
- VRG version
- ADR Defended and Undefended view

Confidence Layer:
- Layer denoting the level of accuracy in the data in a particular area.

Defended Layer:
- Layer denoting where there is a defence
Property Counts

- 8.6m residential addresses in Canada
- 1.8m susceptible to some level of flood according to JBA flood models.
- 2.1m covered by some type of flood defense.

Residential Property Count, by Return Period (Fluvial Flood)

Residential Property Count, by Return Period (Surface Water Flood)
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Map View Platform Objective

• **Act as a hub for all of this data**
  • Active Policy/Risk data
  • Quote/what-if data
  • Peril data sets
  • Points Of Interest (Fire stations, key hazard locations etc.)

• **Provides required geospatial processing capabilities**
  • Geocoding: finds the spatial position of a specified address
  • Distance calculation
  • Point-in-polygon (for peril scoring and other purposes)
  • Accumulation calculations
  • On-map visualisation
  • Interactive selection tools, shape drawing

• **Deliver this optimised for the Insurance industry**
  • Follow industry process
  • Used directly by Insurance professional
  • Workflow and tools unconstrained by traditional GIS approach
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