

## Guy Carpenter's Natural Catastrophe Analytical Solutions in Central and Eastern Europe



Central and Eastern Europe is a region of growing importance for the insurance community due to its strengthening economies, increasing exposure values and steady growth in insurance penetration. In addition to national insurers, there is a growing influence of multi-national companies in local markets. The range of natural perils faced in Central and Eastern Europe includes diverse hazards such as windstorm, flood, earthquake, landslide and avalanche, leading to increasing pressure on the insurance industry to develop detailed risk management instruments for this region. Guy Carpenter's analytical capabilities in Central and Eastern Europe have been extended to match this trend, and today we can offer a range of natural catastrophe analytical services to clients, including analyses using third party and internally developed modelling solutions.

### Analytical Solutions

Guy Carpenter's strategy in Central and Eastern Europe is to license commercially available catastrophe models and develop a detailed knowledge of their components in order to better understand the model's results. Within Instrat®, Guy Carpenter's analysis and research division, local analytical teams combine their market knowledge and analytical skills with expert know-how provided by the European Model Development Team to illuminate model details and explain results to clients. Additionally, in areas where no modelling solution exists, we seek to develop new solutions in order to provide clients with the results they require. Such projects may be undertaken internally within the Development Team, or externally with a joint development partner. Internal development work and joint development initiatives with companies such as AIR, EQECAT and RMS have helped to build

FIGURE 1: COVERAGE OF MODELLING CAPABILITIES IN CENTRAL AND EASTERN EUROPE



up world-class expertise in model architecture and usage. The solutions currently offered in Central and Eastern Europe include:

**FIGURE 2: AVAILABLE MODELS BY PERIL AND COUNTRY IN CENTRAL AND EASTERN EUROPE**

Ongoing Development Initiatives in Central and Eastern Europe

	COMMERCIAL MODELS	GUY CARPENTER MODELS
Czech Republic	Earthquake/Flood/Storm	—
Hungary	Earthquake/Storm	—
Poland	—	Flood
Romania	Earthquake/Storm	—
Slovakia	—	Flood

**Please note a separate information sheet is available for Austria**

As part of its development strategy, Guy Carpenter is currently involved in several initiatives to develop modelling solutions in Central and Eastern Europe. These include:

#### **Flood Exposure and Loss Database (FELD)**

Guy Carpenter has considerable experience in gathering and analysing flood claims and exposure data. This has enabled us to compile a detailed database of flood exposure and claims information, based on data from multiple countries across Europe. The resulting database can be used internally to test third party flood models using the broadest possible dataset as a basis and to develop depth-damage functions for our internal flood models that are specific to the particular country being studied.

#### **Guy Carpenter Catastrophe Analysis Toolsuite (G-CAT)**

G-CAT is Guy Carpenter's internal catastrophe modelling toolsuite, which will be used as a basis for the development of new models in Central and Eastern Europe. For river flood, the platform uses Digital Terrain Data and river network maps combined with gauge station information to develop a probabilistic event set. The platform models defence failure and subsequent water propagation using a GIS-based approach, and ground-up damage is then calculated using country-specific information from the FELD Database. Finally, InStrat's internal actuarial platform, MetaRisk™, is used to provide estimates of financial loss.

#### **Poland Flood Model**

Guy Carpenter provides a probabilistic river flood model for Poland which will be extended to include the whole of the Odra and Vistula rivers during 2006. As part of the extension, the model will be upgraded to be part of G-CAT and will include enhanced Digital Terrain Models along with river network and defence information. Enhancements to the modelling of water flow, defence failure and propagation will also be carried out.

#### **Slovakia Flood Model**

Guy Carpenter provides a flood model for major rivers in Slovakia which presents the value of a portfolio exposed to flood for a given return period at postcode level.

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