

Catastrophe Modeling e Richiesta di Ricerca

III Convegno Nazionale CINFAI - Il Consorzio tra Offerta e
Richiesta di Ricerca: Analisi e Prospettive di Mercato

Rovereto (TN) 14–15 ottobre 2015

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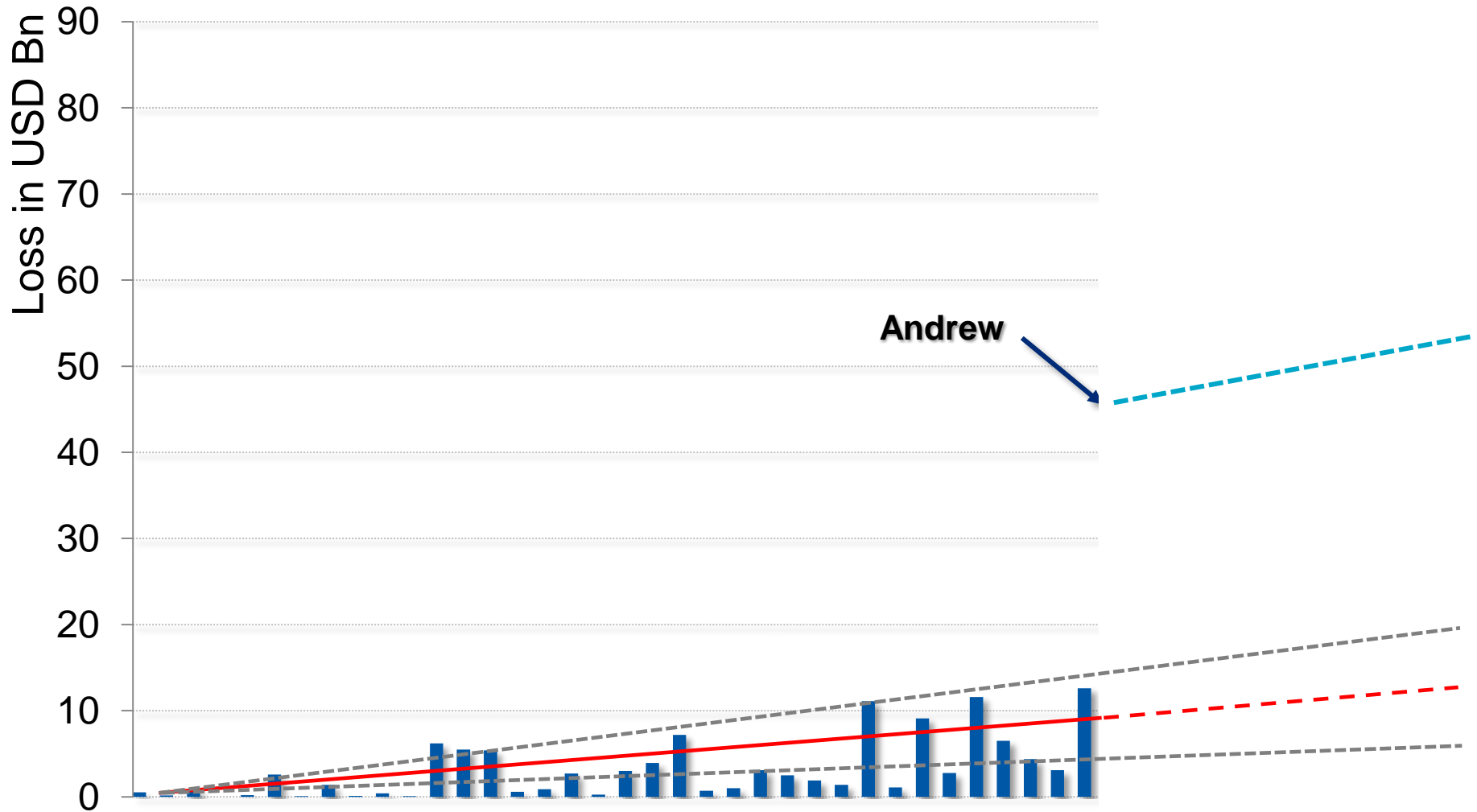
Part I

Catastrophe Modeling



The need for Catastrophe Models

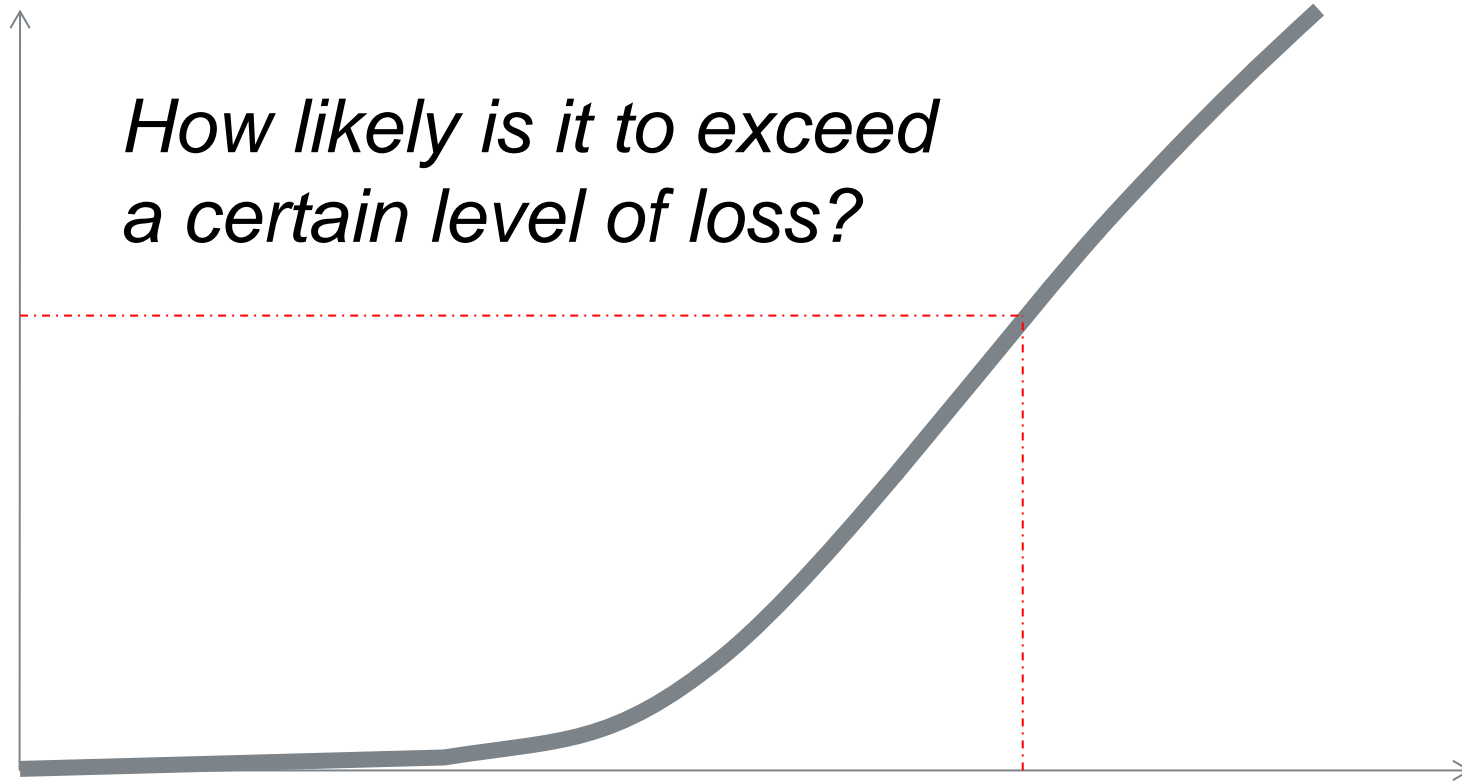
e.g. US Hurricane 1900-2005 total economic cost



Historical records do not always capture the potential range of losses

Exceedance Probability curves

LOSS



RETURN PERIOD

The need to answer this question, has generated a new multi-million niche in the industry: The CAT Modeling industry

Modeling components

Hazard

- Historical set
- Stochastic set

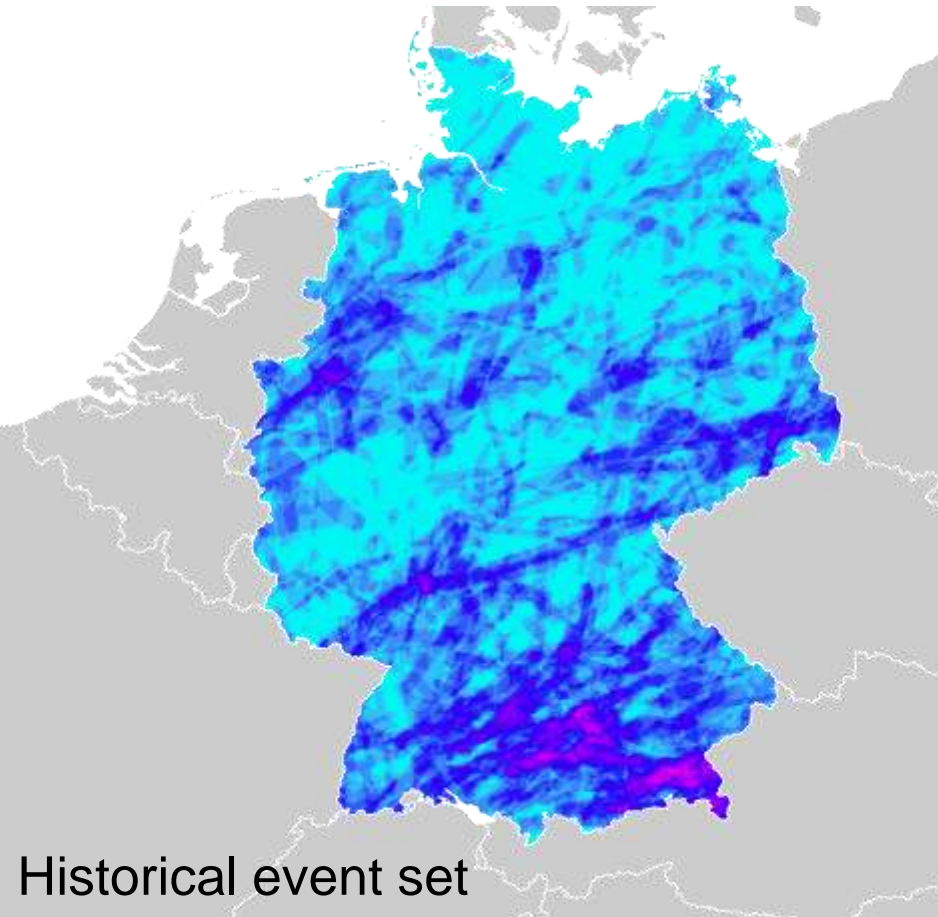
Vulnerability

- Damage functions

Financial

- Exposure
- Policy

Hazard

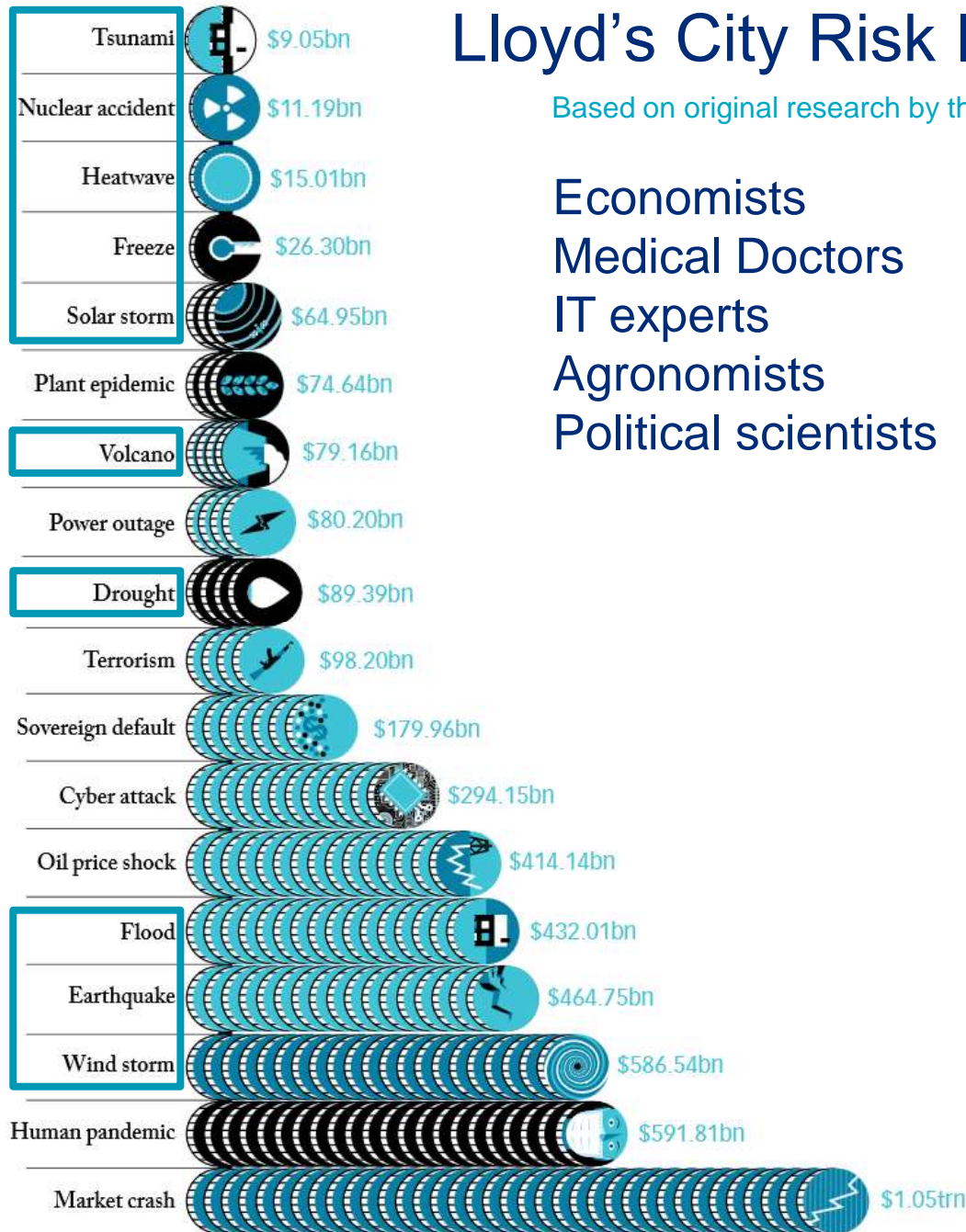


Part II

Richiesta di ricerca

Lloyd's City Risk Index 2015-2025

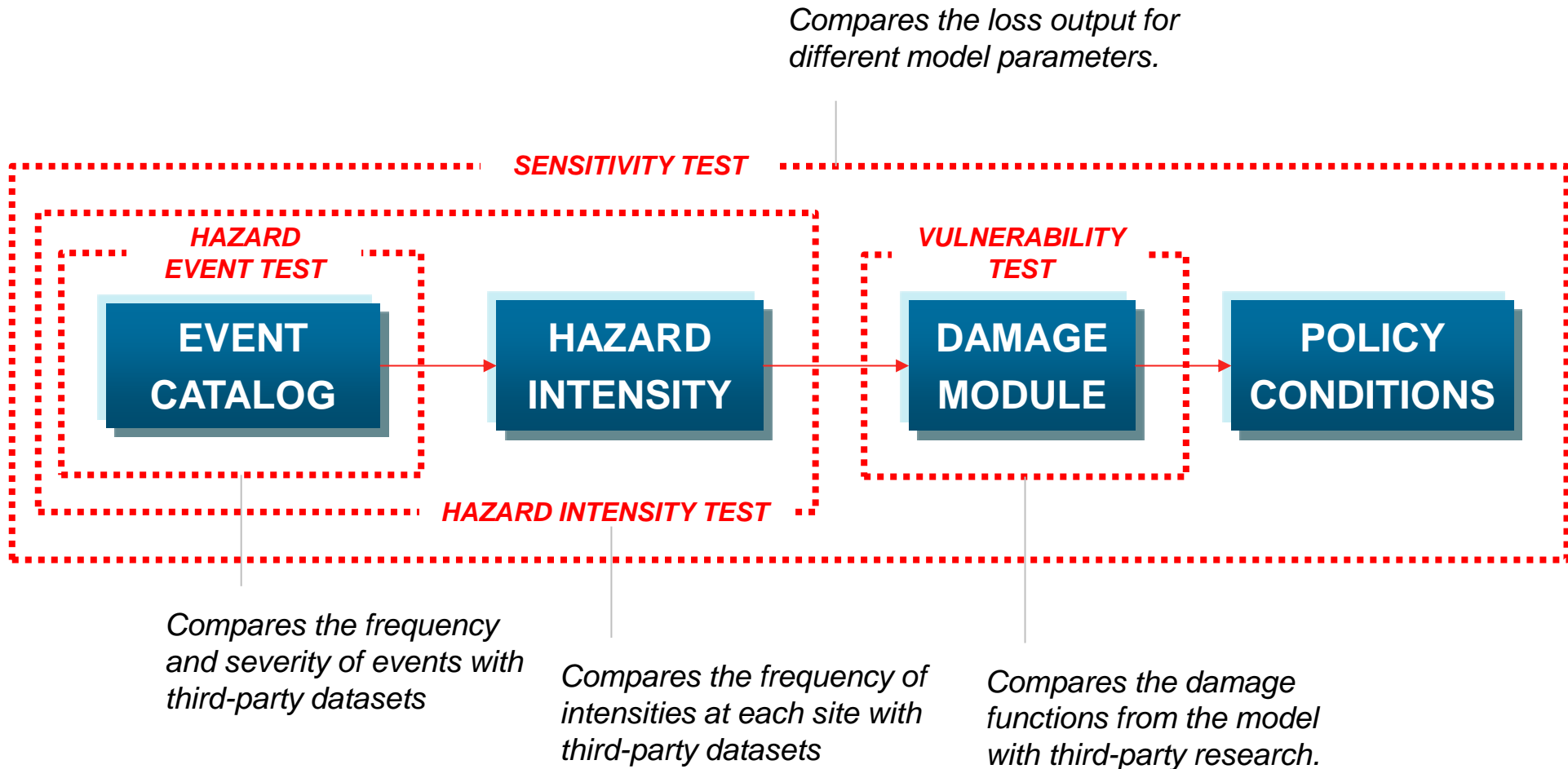
Based on original research by the Cambridge Centre for Risk Studies



Economists
 Medical Doctors
 IT experts
 Agronomists
 Political scientists

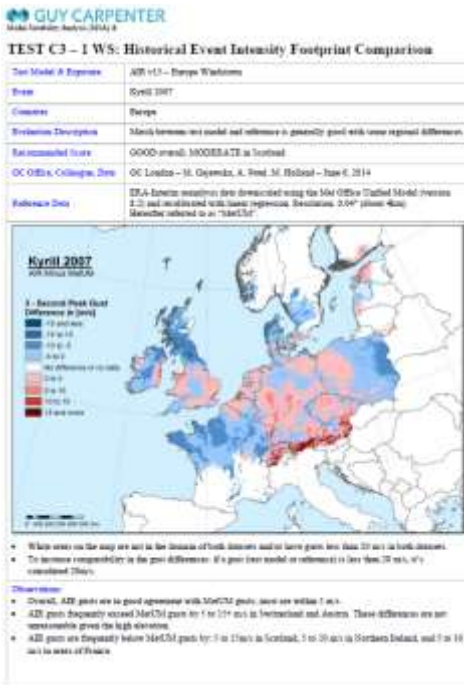
Mathematicians
 Civil engineers
 Seismologists
 Volcanologists
 Meteorologists
 Climatologists
 Hydrologists
 Wind engineers
 Statisticians
 Nuclear Physicists
 Astrophysicist

The Model Suitability Analysis (MSA)[®] Framework

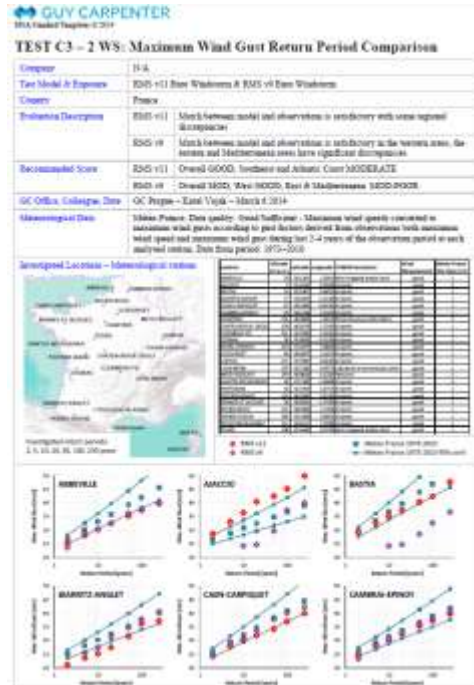


The Model Suitability Analysis (MSA)[®] Framework

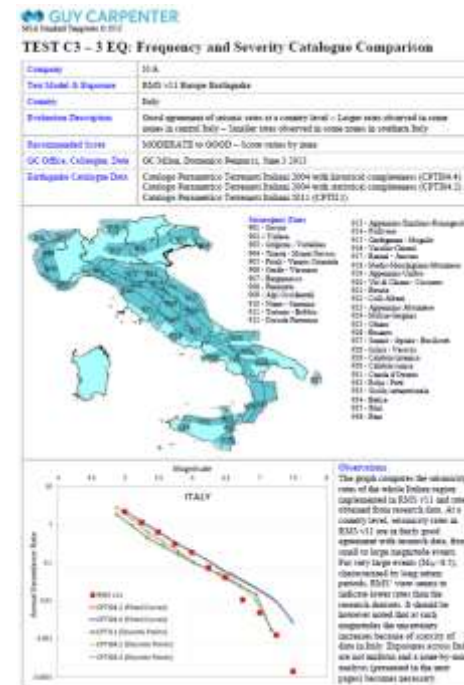
TEST C3-1 Historical Event Hazard Footprints



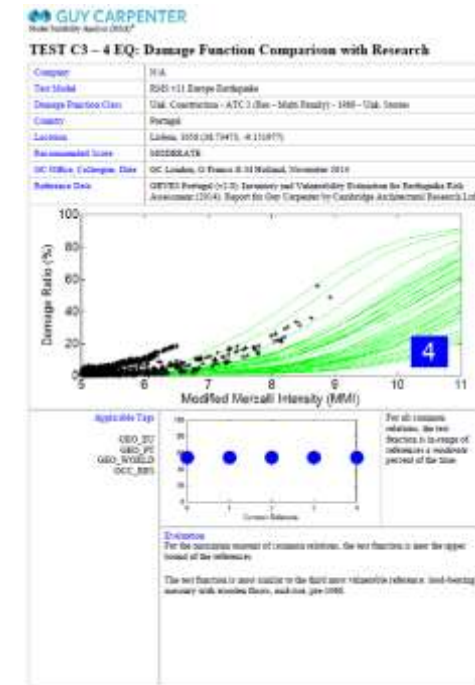
TEST C3-2 Site-by-Site Intensity- Frequency



TEST C3-3 Event Frequency- Severity



TEST C3-4 Damage Functions



Scientific Partners:



Model development

- Flood

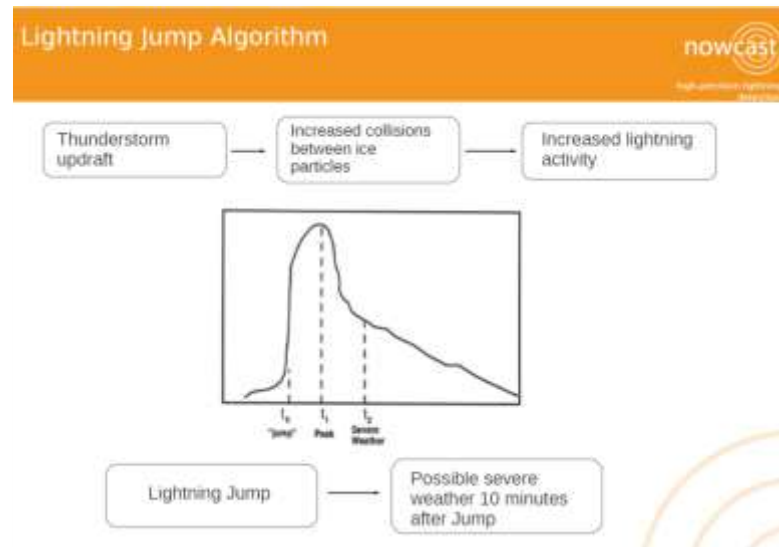
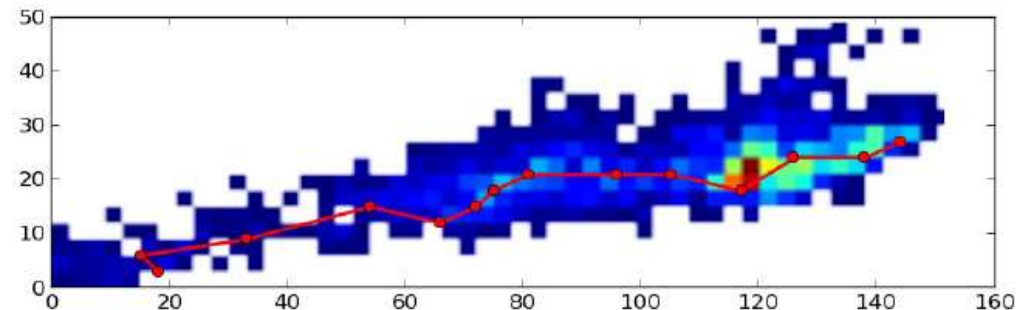
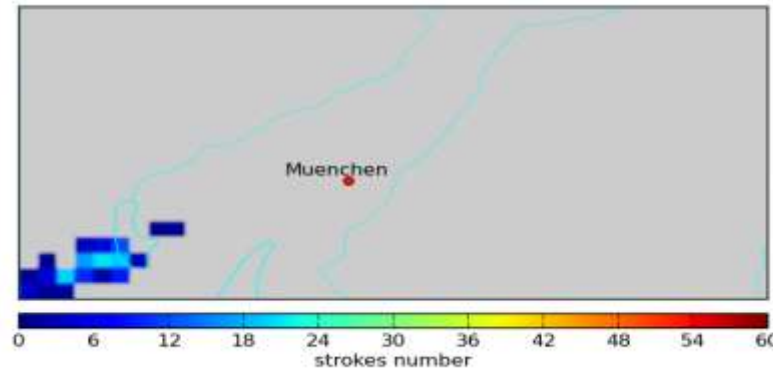
Digital terrain model
Defences/Drainage
Downscaling

- Hail

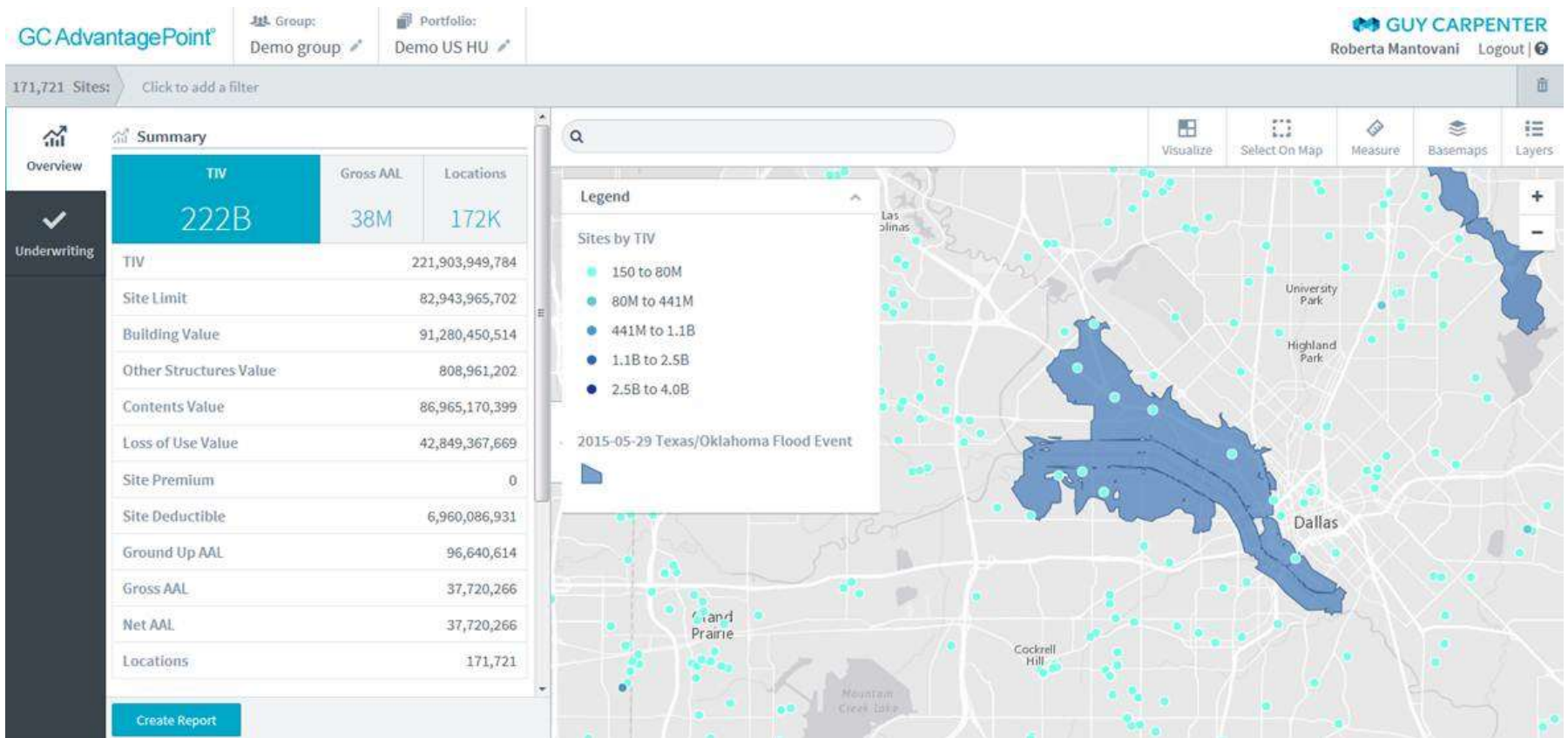
Event observation

- Disaggregation

LULC
Building Environment

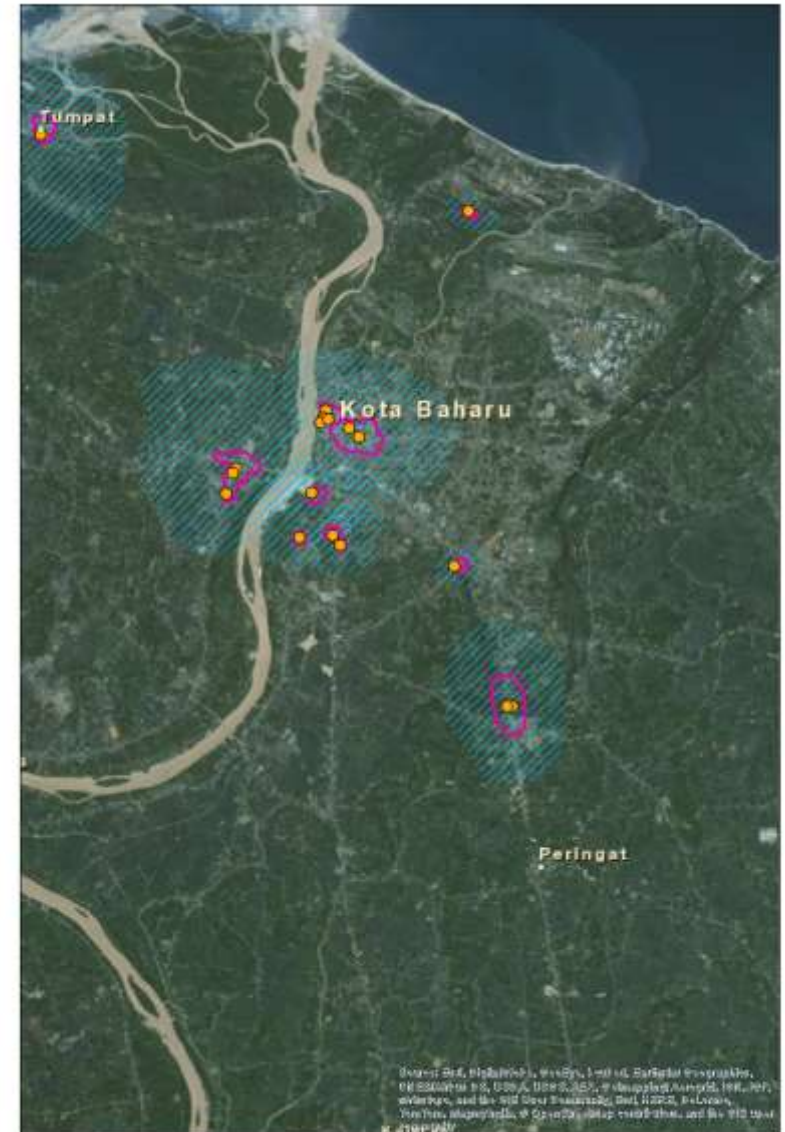


Catastrophe Response



Catastrophe Response

- Flood forecast
- Post-event flood reconstruction
Satellite
Drones
- Post-event hail reconstruction
Radar 3-D



Secondary perils and scenario maps

- Landslide
- Volcanoes
- Tsunami
- Surge

