



Munich Re's Location Risk Intelligence Wildfire HD Edition

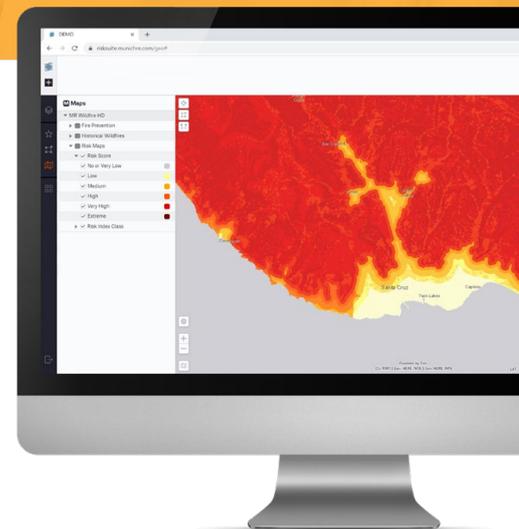
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Munich Re, the pioneer of global natural hazard risk scoring, has developed a new Wildfire Risk HD zoning map for the US states of California, Colorado and Arizona and for Alberta and British Columbia in Canada to support wildfire risk management.

Risk scores are calculated using Munich Re's claims experience and scientific assessment of the impacts of climate change. This new edition is available as part of Munich Re's Risk Suite, a range of modular risk solutions provided as a software portfolio.

The risk maps in the Wildfire HD Edition offer, in contrast to those of Natural Hazards Edition or Climate Change Edition, a significantly higher resolution in order to generate even more detailed assessments.

Alternatively, these maps can also be integrated as a Wildfire HD Module into Natural Hazards Edition or Climate Change Edition.



Munich Re's Risk Suite

Munich Re's Risk Suite is a range of modular risk solutions provided as a software portfolio by Munich Re Service GmbH, a wholly owned subsidiary of the world's leading reinsurer.

It offers companies access to the risk management tools developed in-house and the knowledge and experience of 140 years of one of the world's leading providers of reinsurance, primary insurance and insurance-related risk solutions. Since the introduction of Nathan (Natural Hazards Assessment Network), Munich Re has been a pioneer in the global assessment of natural hazard risks. Munich Re's Risk Suite builds on this expertise and offers a selection of well-engineered risk assessment solutions for technical underwriting, data protection, investment decisions and climate change analysis.

On the other hand, Munich Re's Risk Suite draws on years of experience in global data transfer under regulatory requirements. Against this extensive background of experience, highly efficient solutions for data protection and IT security management were developed, originally for internal use, which ideally complement Munich Re's Risk Suite and thus provide companies with a comprehensive set of tools that covers the management of all risk aspects relevant to a company and is continually being developed further in view of the expected further increase in complexity in the field of data and IT security protection.

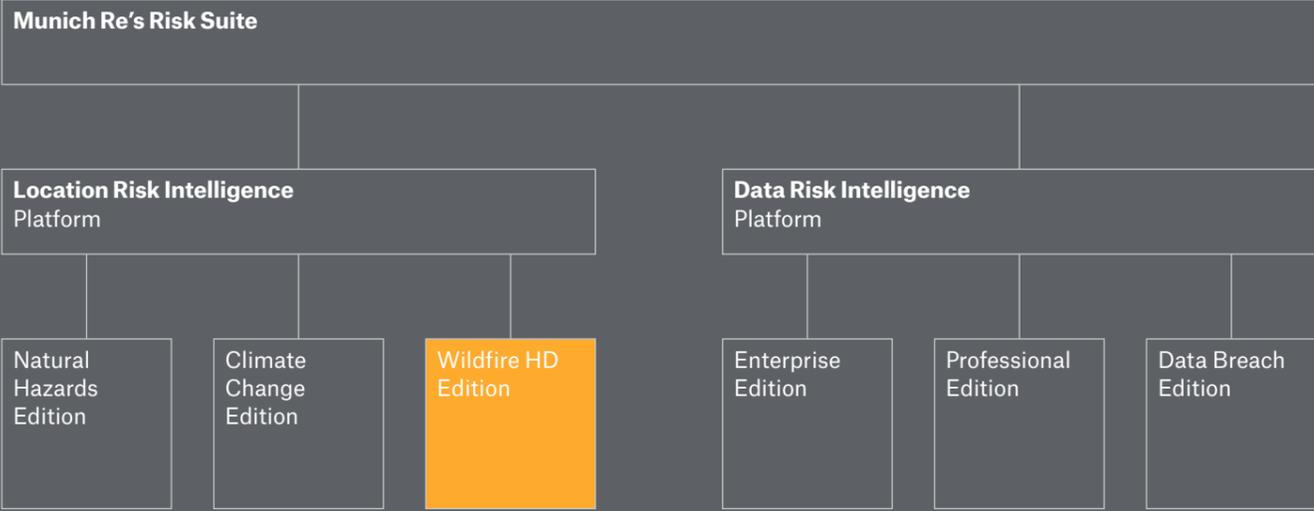


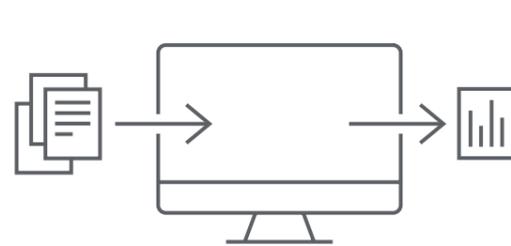
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1. Potential and advantages of Wildfire HD Edition of Location Risk Intelligence

Wildfire HD Edition is the ideal modular SaaS solution for companies who want to reliably evaluate the current status of their portfolios or individual locations.

Munich Re offers high-quality natural hazard expertise to perform efficient exposure analyses of your individual risk locations or entire portfolios. You can cluster main risk hotspots, filter dynamically and identify accumulations in your portfolio to provide greater understanding for better decisions. You can also increase the profitability of your business with optimum risk diversification and advanced portfolio management: Wildfire HD Edition is based on cutting-edge SAP In-Memory technology; we guarantee highest data processing speed and security. Over 50 million risk assessments every year and an annual customer satisfaction score of over 90% demonstrate that this is a globally proven, trusted tool.



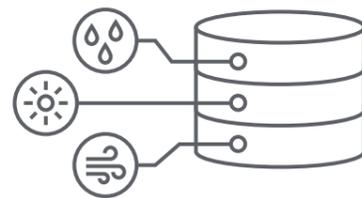
Easy input & output

The Wildfire HD Edition can be accessed via a web application as well as via an API. Because various export formats can be selected, it adapts completely to your needs.



Easy to interpret visualisation

Clear visualisation of the risk scores based on performance indicators in different map types as well as colour shading.



Largest global data collection on natural hazards

40 years of natural hazards data collection from Munich Re combined with climate change data and state-of-the-art scientific data sets for relevant risk scores.



Highly detailed maps

New more detailed risk score maps based on the latest claims and impact of climate change, with a granular 1.5 mile Wildland Urban Interface.

Risk Index

- Defining zones with similar hazard situations based on detailed data
- Significantly broadened range of land use categories enriched by sophisticated vegetation data (type, height & canopy-density) allowing for an improved resolution (up to 30m)
- Distance of urban areas to wildland/bushland by using 5 different Wildland-Urban-Interface-Zones and further smoke damage zone
- Hazard-Zones further improved by impact of slope and elevation, population density, perimeter of historic fires, climate region, building density, building class residential
- Loss experience of major events in 2017 and 2018 are included
- Risk evaluation based on loss experience and risk analyses: perimeter of historic fires, residential/commercial area, insurance data (Munich Re loss data), estimation of loss return periods

Maximum Flexibility

- Single location request
- Portfolio request
- API (Application Programming Interface)
- 100% browser based, no plugin or download needed

Search Options

- Postal address
- Regions, e.g. states
- Geo-coordinates

Search Tools

- Text search
- Latitude-longitude

Organisation Locations

- Easy management and organisation of the locations
- Uploading your own portfolio from CSV or Excel (templates available)

Performance Indicators

- Different event families (geophysical, meteorological, hydrological, climatological)
- Free marking options (Polygon, Oval, Circle, Freehand)

Visualisation based on KPIs (Key Performance Indicators)

- Cluster
- Heatmap
- Grid
- Regions (administrative and postcode regions, CRESTA zones)

Map Views

- Streets
- (Dark) grey
- Hybrid
- Satellite
- OpenStreetMap
- Topography
- Terrain

Elevation Profiles

- Height difference between two locations displayable

Reports and Results

- Download as CSV, Excel or PDF
- Share as link
- API access for individual further processing of the data
- Clear visualisation of the results/risk scores presented in number statistics, loss amount and pie charts, tables and coloured heatmaps

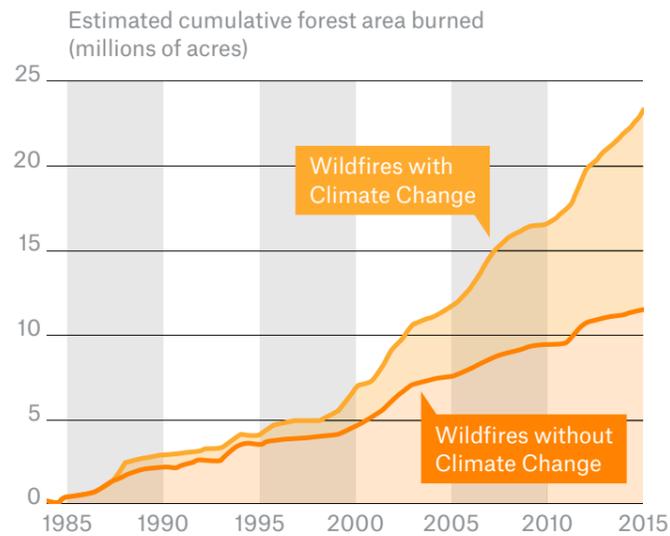
2. Wildfire risk assessment with specific risk scores and high definition maps

Climate data and claims records indicate a significant rise in wildfire hazard and loss levels in the United States and Canada.

The size of the losses highlights the large accumulation potential, something that is often underestimated. The frequency of meteorological conditions that favour severe fire seasons has also increased in many regions around the world. Of major importance for the insurance industry in this context are additional regions with highly exposed values, such as the Mediterranean in Europe and regions in Australia.

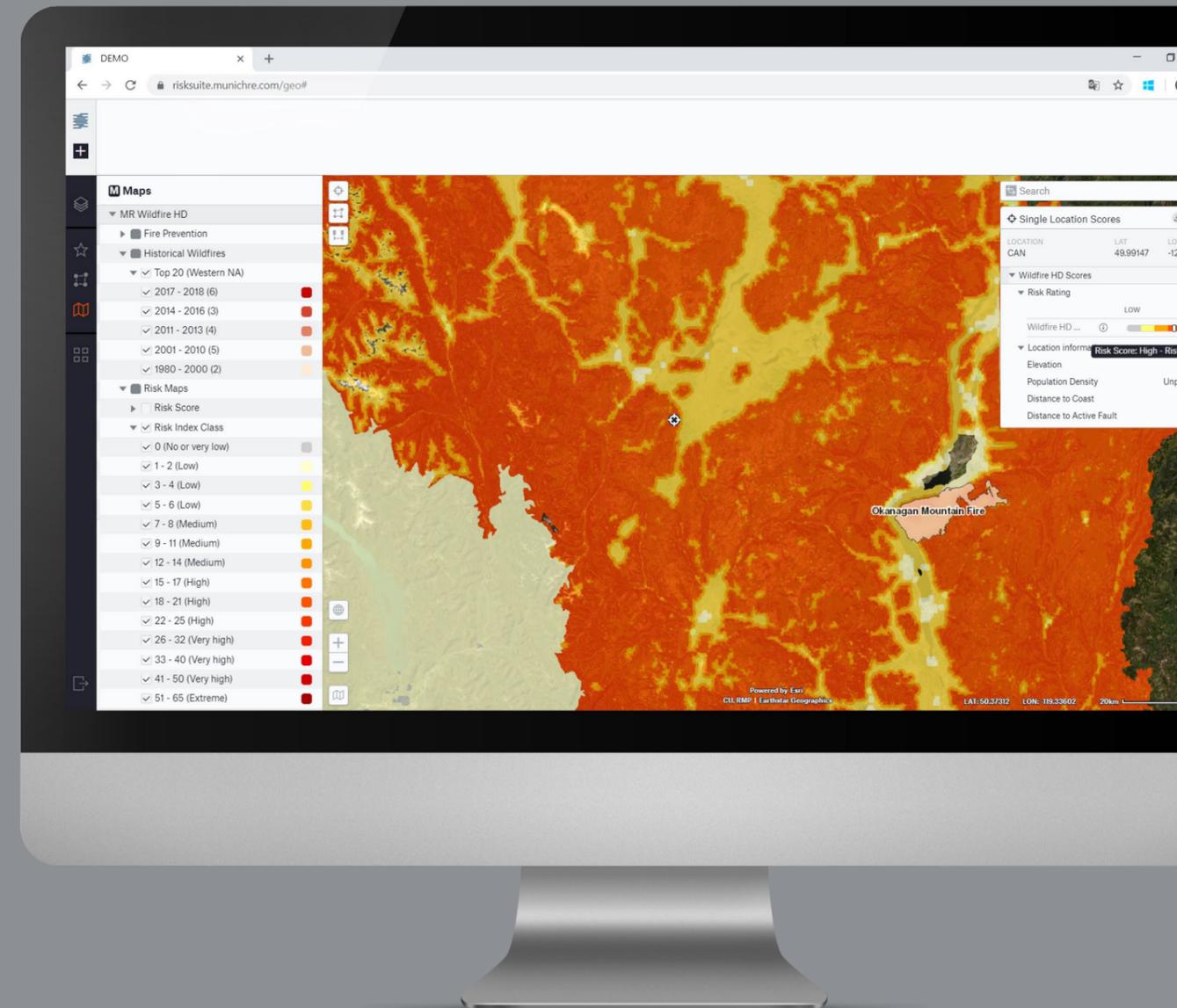
Key benefits

- Higher resolution to better resolve Wildland Urban Interfaces (WUI), key zones for high-risk and high-value locations. The WUI is 1.5 miles (2.4 km) wide and divided into 5 detailed zones.
- Easy to visualise maps for risk acceptance rather than complex stochastic models.
- API available for flexible integration into your existing tools and processes.
- Underpinned by the claims analysis of one of the world's leading reinsurers.
- Taking in account the latest knowledge on the impacts of climate change.



Climate Change has increased wildfire risk
Area burned in the western U.S. since 1984

Source:
Abatzoglou/Williams
2016, PNAS 113



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Munich Re Service GmbH
Königinstr. 107, 80802 Munich, Germany

Tel.: +49 (0)89 3891-0
Fax: +49 (0)89 399056
Email: Risk-Management-Partners@munichre.com

Managing Directors: Christof Reinert, Joachim Mathe

Commercial Register of the Local Court of Munich:
HRB 241444

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