



Technical description for data collection in relation to natural catastrophe risks

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1 Purpose

This document serves as a set of instructions for completing the data collection files concerning natural catastrophe (NatCat) risks in the Swiss Solvency Test (SST), as made available on the FINMA website, that is to say

- the Excel-based standardised data collection file “Standardised natural catastrophe risk data requirements”, which forms part of the annual SST reporting, and
- the Excel-based standardised questionnaire on internal NatCat models entitled “Natural catastrophe risk model questionnaire”, which forms part of the approval process.

For questions relating to the modelling of NatCat risks in the SST that are not addressed in the content of this document, please refer to the technical descriptions set out in the standard model insurance.

2 Introduction

2.1 Terminology

The following terminology is used in the context of collecting data relating to natural catastrophe risks:

Natural catastrophe event (NatCat event)	An event that is caused by a non-anthropogenic ¹ mechanism and which generally has an impact on a large, contiguous area within a limited, uninterrupted period of time.
Peril-region	<p>NatCat events are distinguished on the basis of the type of natural peril (e.g. hurricanes, floods, volcanic eruptions) and geographic region affected.</p> <p>In SST reporting, a segmentation by peril-region is made accordingly . Perils are defined using the following abbreviations: EQ (for earthquake), WS (for wind storm), HU (for hurricane), TY (for typhoon), FL (for flood) and SCS (for severe convective storm). For the segmentation according to geographic region please refer to the appendix.</p>
NatCat exposure	The “NatCat exposure” is a measure of the insured portfolio that is exposed to risks of NatCat events.

¹ Accordingly, man-made disasters are not usually treated as such – although there are exceptions, for example with regard to wildfires.

	<p>The underlying business should reflect the business of the current claims year (earned). Any other choice must be explained.</p> <p>For reporting purposes, NatCat exposure data is collected in the form of the (gross and net) total insured value (TIV) and of the gross premiums.</p>
<p>Total insured value (TIV)</p>	<p>The gross TIV is defined as the sum of all contractual covers provided by the company in the SST one-year period:</p> <ul style="list-style-type: none"> • In the case of the direct insurance business, the gross TIV is the sum of all (inward) sums insured; • In the case of the reinsurance and retrocession business, the gross TIV is the sum of the gross contractual covers/limits.
<p>Net total insured value (Net TIV)</p>	<p>The net TIV is the sum of all net contractual insurance covers, i.e. the gross TIV, less deductibles, co-insurance, reinsurance and insurance-linked securities (ILS) invested in.</p>
<p>Gross premium</p>	<p>Gross expected premium net of brokerage.</p>
<p>Natural catastrophe risk (NatCat risk)</p>	<p>A NatCat risk is the risk of underwriting losses as well as losses on ILS investments and own property portfolios of the insurance company as a result of NatCat events. (In the SST, this corresponds to the 99% expected shortfall.)</p>
<p>Gross loss</p>	<p>Incurred loss of the insurance company after limits, deductibles and co-insurance are applied, but before any forms of passive reinsurance and retrocession.</p>
<p>Net loss</p>	<p>Incurred loss of the insurance company after all forms of passive reinsurance and retrocession are applied. This includes facultative and per risk reinsurance, cat XL contracts and cat bond cover.</p>

Annual aggregate loss distribution	<p>The probability distribution of the annual aggregate loss, which covers all relevant uncertainties and costs, including secondary uncertainty.</p>
Exceedance probability curve	<p>The distribution of the probability that a specific loss variable is exceeded.</p> <p>Examples of use include, in particular, the occurrence exceedance probability (OEP) curve with the maximum event loss as a variable, and the aggregate exceedance probability (AEP) curve with the aggregated annual loss as a variable. Both are provided as standard output by vendor models.</p>
Diversification effect of NatCat risk	<p>Difference between standalone and diversified risk</p> <p>Standalone risk: the total standalone NatCat risk, taking into account diversification between peril-regions but before the diversification with other risk components, such as non-NatCat insurance risk, market risk or credit risk.</p> <p>Diversified risk: as applicable, the allocated NatCat risk in the target capital or, respectively, in the total insurance risk. It corresponds to the contribution of the NatCat risk to the target capital or insurance risk, i.e. in the case of insurance risk after diversification with other components of the insurance risk such as reserve risk or CY risk and in the case of target capital after diversification with the other risk categories such as market risk and credit risk.</p>

2.2 Identification and management of the NatCat risk profile

The NatCat risk profile of an insurance company arises from the identification of the insurance company's exposure to NatCat events ("identified NatCat exposure") and its impact on its portfolio.

Identification of the NatCat risk profile is based on the insurance company's internal risk identification and risk accumulation control systems. In accordance with Article 96 of the Insurance Supervision Ordinance (ISO; SR 961.011), the insurance company must have these in place as part of its risk management system and apply them. With regard to NatCat risks, these instruments provide the necessary input for, by way of example, pricing, determining the need for reinsurance or retrocession, and for the risk capital calculation in the SST.

Using these internal processes, the insurance company identifies and analyses the exposure to NatCat events relevant to its risk profile, which is referred to below as "identified NatCat exposure".

By contrast, other exposure to NatCat events resulting, by way of example, from its negligible risk accumulation, is not explicitly identified by insurance companies as NatCat exposure and hence it is not analysed as such.

The full impact of a NatCat event on an insurance company encompasses all losses insured or financed by this insurance company that may be caused by this event, in relation to:

1. Property insurance exposure: the total exposure from the property insurance line of business (LoB);
2. Exposure from other LoBs: the total exposure from LoBs other than property insurance (e.g. marine, motor, engineering, personal accident, surety, life etc.);
3. Other coverages, including supplementary coverage and/or additional terms and conditions (e.g. business interruption);
4. Losses from secondary perils (e.g. fire following earthquakes, storm surge following hurricanes) and secondary effects (consequential losses such as post-loss amplification) on any LoBs;
5. ILS capital investments.

The NatCat risks are estimated or modelled on the basis of the identified NatCat exposures.

The NatCat risks that are relevant to the risk profile are allocated to a segmentation according to the peril-region and explicitly modelled as NatCat risks using NatCat models. In the SST, these explicitly modelled NatCat risks are modelled using internal models, with the exception of risks relating to losses covered by the Swiss National Hazard Insurance in accordance with the ISO (ES-ISO), which are modelled using the standard model non-life insurance.

Implicitly modelled NatCat risk can arise if the fully identified NatCat exposure of a peril-region only has a low materiality of potential losses from NatCat events, or if the risk accumulation of this exposure is low. In such a case, insurance companies can cover such NatCat risks within a standard model insofar as the modelling approach of the relevant standard model permits this. NatCat events are then typically no longer modelled explicitly, but implicitly, e.g. in the categories “normal losses”, “large losses”, “IE1” or “accumulation losses”. In this case it is then not always possible to separate the NatCat risk from the other risks.

The insurance companies ensure, in relation to the peril-regions, that the explicitly modelled NatCat risks are disjoint from the implicitly modelled NatCat risks. In particular, each peril-region must be modelled either explicitly or implicitly as a whole. Overall, the identified NatCat exposure must be fully covered.

3 Annual standardised data collection for natural catastrophes

In accordance with Chapter III of the Guidelines for preparing the SST report², the identified NatCat exposure and the explicitly modelled NatCat risks are to be reported as part of the annual SST reporting using the Excel-based data collection file for natural catastrophes entitled “Standardised natural catastrophe risk data requirements”³, which is available on the FINMA website.

This does not include the exposure to the Swiss National Hazard Insurance in accordance with the ISO (ES-ISO) and the associated risk information, as this data is collected through the SST non-life template of the SST standard model non-life insurance.

Apart from that exception, the total identified NatCat exposure in Switzerland and abroad must be reported in the tab “**Exposure (insurance)**” using the specified exposure measures. The segmentation corresponds to the perils-regions defined for the SST. If an insurance company is unable to provide the data in the required form, this must be commented on in the template.

Capital investments in insurance-linked securities (ILS) are to be described in the tab “**Exposure (ILS)**”.

The explicitly modelled NatCat risk is to be entered in the tab “**NatCat risk information**” – both the total risk and by peril-region. The granularity of the peril-regions to be used is predefined. Where necessary, up to three additional peril-regions of significant importance to the portfolio can be entered in the columns “Other (please specify)”. The model results (“annual aggregate loss distribution”, “exceedance probability curves”) are to be given non-centred and non-discounted. By contrast, the expected shortfalls for the standalone and the diversified NatCat risk (rows 3-7) are to be shown centred and discounted.

Throughout the entire template, the values must be reported in CHF millions. The current SST exchange rates are to be applied.

Throughout the entire template, the dark salmon-coloured cells are mandatory input cells. If mandatory input cells are left blank, a reason/comment must be added.

The light-coloured cells are voluntary input cells.

² Accessible at www.finma.ch > Supervision > Insurers > Cross-sectoral tools > Swiss Solvency Test (SST) > Tools -> General information

³ Accessible at www.finma.ch > Supervision > Insurers > Cross-sectoral tools > Swiss Solvency Test (SST) > SST reporting tools > Compulsory data collection for internal models

4 Standardised questionnaire to be completed as part of the approval process

As part of the approval process for a (partial) internal model in accordance with Article 46 of the Insurance Supervision Ordinance (ISO; SR 961.011) depicting the NatCat risks, the essential information on the proposed model is to be reported using the Excel-based standardised data collection file for natural catastrophe risks entitled "Natural catastrophe risk model questionnaire".⁴ The "Natural catastrophe risk model questionnaire" is an integral part of the internal NatCat model documentation and must be submitted with the internal model application.

The application for approval of a (partial) internal NatCat model describes the total scope of the identified NatCat exposure, including any components implicitly modelled with standard models.

The questionnaire covers topics and information that are essential to enable a summary review of the model. The information provided in the questionnaire must therefore be presented as completely and accurately as possible, while ensuring it is as easy as possible to understand for the purposes of a summary review.

The questionnaire does not serve to replace the actual model documentation but instead captures that data in a standardised form. The model documentation may refer to the questionnaire.

In each case, the questionnaire reflects the current state of the internal NatCat model used in the SST, including any minor changes. Updates must be made continuously to reflect any and all changes to the model.

The reporting currency for the questionnaire is the SST currency.

⁴ Accessible at: www.finma.ch > Supervision > Insurers > Cross-sectoral-tools > Swiss Solvency Test (SST) > Internal models

Appendix: Geographic segmentation

For the purposes of the SST data collection, the following regional segmentation⁵ is to be used:

Europe (EU)		
Central Europe	Southern Europe	Rest of Europe
Austria	Cyprus	Albania
Belgium	Greece	Belarus
Denmark	Israel	Bosnia-Herzegovina
France	Italy	Bulgaria
Germany	Portugal	Croatia
Ireland	Spain	Czech Republic
Netherlands	Turkey	Estonia
Switzerland		Finland
UK		Georgia
		Hungary
		Lativa
		Liechtenstein
		Lithuania
		Luxemburg
		Macedonia
		Maldovia
		Montenegro
		Norway
		Poland
		Romania
		Serbia
		Slovakia
		Slovenia
		Sweden
		Ukraine

⁵ This corresponds to the usual logic in the insurance sector.

North America (US & Canada)				
Western US	Southern US	Eastern US	Central US	Northern US & Canada
Arizona	Alabama	Connecticut	Colorado	Canada
California	Arkansas	Delaware	Iowa	Alaska
Hawaii	Florida	Illinois	Kansas	
Idaho	Georgia	Indiana	Minnesota	
Nevada	Louisiana	Kentucky	Missouri	
New Mexico	Mississippi	Maine	Montana	
Oregon	North Carolina	Maryland	Nebraska	
Utah	Oklahoma	Massachusetts	North Dakota	
Washington	South Carolina	Michigan	South Dakota	
	Texas	New Hampshire	Wyoming	
		New Jersey		
		New York		
		Ohio		
		Pennsylvania		
		Rhode Island		
		Tennessee		
		Vermont		
		Virginia		
		Washington D.C.		
		West Virginia		
		Wisconsin		

Africa	Asia
Algeria	Australia
Egypt	China
Kenya	India
Libya	Indonesia
Morocco	Japan
Namibia	New Zealand
Nigeria	South Korea
South Africa	Thailand
Tunisia	

Central America & Caribbean	South America	Middle East
Anguilla Antigua & Barbuda Aruba Bahamas Barbados Belize Bermuda British Virgin Islands Cayman Islands Costa Rica Cuba Dominican Republic El Salvador Grenada Guadeloupe Guatemala Haiti Honduras Jamaica Martinique Mexico Montserrat Netherlands Antilles Nicaragua Panama Puerto Rico Saint Barts Saint Kitts & Nevis St. Lucia St. Maarten St. Martin St. Vincent & the Grenadines Trinidad & Tobago Turks & Caicos Islands US Virgin Islands	Argentina Bolivia Brazil Chile Colombia Ecuador Peru Venezuela	Bahrain Jordan Qatar Saudi Arabia United Arab Emirates