Map Impact

Supporting Climate Risk Materiality Assessment under PRA SS5/25: A Hazard-Led Approach

A hazard-only, portfolio-wide framework aligned to supervisory expectation

Map Impact Whitepaper, January 2026

Executive Summary

The Prudential Regulation Authority's Supervisory Statement 5/25 (SS5/25) marks a clear shift in regulatory expectations for the management of climate-related financial risks. Regulated firms are now required to demonstrate evidence-based, portfolio-level assessments of physical climate risk materiality, supported by transparent data, documented assumptions and appropriate governance. Within six months of SS5/25's publication, firms must complete a gap analysis and prepare a Board-approved implementation plan, signalling an immediate supervisory focus on capability rather than aspiration.

A central challenge for many firms is the lack of consistent, property-level physical climate hazard data capable of supporting defensible materiality assessments across portfolios. Legacy approaches, often limited to flood and coastal erosion, provide an incomplete view of physical climate risk and are insufficient to meet SS5/25's expectations, where other hazards such as heat stress, drought and wildfire may be relevant.

This technical white paper sets out a hazard-led approach to supporting SS5/25 implementation. It explains how Map Impact's physical climate hazard datasets are constructed, how they align with supervisory expectations for data suitability and governance, and how they may be used by regulated firms as inputs to materiality assessment, scenario analysis and internal model development. The paper is explicitly scoped to hazard identification and interpretation. Map Impact provides hazard scores, hazard categories and scenario-aligned hazard deltas only; it does not estimate probability, vulnerability, exposure or financial loss.

By maintaining a clear separation between hazard inputs and firm-owned risk modelling, the approach described supports proportionality, model risk management and supervisory challenge. High-resolution, property-level hazard data enables firms to identify where physical climate risks may be material, justify qualitative or quantitative treatment, and embed climate considerations into existing credit, capital and governance frameworks without over-engineering or opacity.

This paper is intended for first-line risk and modelling teams, as well as second-line risk, model valuation, internal audit, and regulatory liaison functions involved in the review, governance and supervisory justification of climate-related data and methodologies.

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1. Introduction

Climate risks are now recognised by UK regulators as material drivers of prudential risk. The publication of Supervisory Statement 5/25 (SS5/25) confirms a clear supervisory expectation that firms must identify, measure and manage the physical impacts of climate change across their business models, governance structures, risk management processes, capital frameworks and disclosures. SS5/25 replaces SS3/19 and reinforces the requirement for firms to move beyond high-level awareness towards demonstrable implementation.

SS5/25 also mandates that all regulated firms undertake a gap analysis within six months of publication and prepare a Board-approved implementation plan setting out how deficiencies will be addressed. This requirement signals an intensification of regulatory focus and a more engaged supervisory stance.

A critical challenge for firms is the need to assess physical climate hazards - such as heat stress, drought, and wildfire - at a level of granularity appropriate to their exposure profile. Regulators accept that data limitations persist and that firms will need to rely on assumptions, estimates and proxies, provided these are transparent, justified and subject to model governance. However, physical hazard information used as an input to firms' internal credit, underwriting and capital assessment frameworks must be consistent, auditable and capable of supporting supervisory scrutiny.

This technical white paper sets out how Map Impact's climate hazard and nature datasets - HeatView, DroughtView, WildfireView and BiodiversityView - are constructed, how they align with SS5/25 expectations, and how they may be used by regulated firms as inputs to materiality assessments, scenario analysis, model development and governance processes. Map Impact provides hazard scores and hazard categories, not probability or loss estimates, allowing firms to embed climate drivers safely within their own internal risk models.

2. Regulatory Context

The supervisory landscape for climate-related financial risks has matured significantly since the introduction of SS3/19. With SS5/25, the Prudential Regulation Authority (PRA) sets out a clearer operational framework that places emphasis on evidence-based materiality assessment, scenario alignment, model governance, transparency of assumptions and continuous risk monitoring. SS5/25 maintains the principle that climate risks are risk drivers of existing categories - credit risk, market risk, operational risk, insurance risk - rather than independent risk types.

Under SS5/25:

- Firms must apply a proportionate but evidence-based approach to identifying physical climate hazards within their portfolios.
- Exposures deemed material must be subject to quantitative analysis, supported by transparent data and documented assumptions.
- Exposures deemed immaterial may be addressed qualitatively, but firms must justify their materiality decision.
- Climate hazard information must be capable of supporting scenario analysis and informing firms' internal risk models.
- All climate-related data, assumptions and models fall under the remit of Model Risk Management (MRM) and internal audit scrutiny.

SS5/25 also acknowledges the limitations of existing vendor data and encourages firms to adopt transparent, challengeable hazard metrics as inputs to internal credit, underwriting, stress-testing and capital processes. This reinforces the need for property-level hazard data that can be consistently integrated into prudential frameworks.

SS5/25 introduces a six-month implementation expectation that materially changes how firms must approach climate-risk assessment. The requirement to complete a gap analysis and prepare a Board-approved implementation plan implies that firms must already be able to demonstrate a portfolio-level understanding of where physical climate risks may be material, rather than deferring analysis until future reporting cycles or model upgrades.

In practice, this means that firms cannot rely solely on legacy hazard coverage such as flood or coastal erosion data to support their initial SS5/25 materiality assessment. While such hazards remain relevant, they represent only a subset of physical climate risk drivers. Heat stress, drought and wildfire increasingly affect asset condition, habitability, insurance availability and long-term collateral resilience across large portions of UK portfolios that may exhibit little or no flood exposure.

The six-month period under SS5/25 is therefore not a deferral window but a capability test. Firms must be able to identify, at portfolio scale, which physical hazards are relevant, where concentrations exist, and why certain exposures are judged material or immaterial. Regulators explicitly recognise that data limitations persist and that firms may rely on assumptions, proxies and estimates at this stage, provided these are transparent, documented and subject to governance. What is not acceptable is the absence of a defensible, portfolio-wide hazard view.

Establishing this baseline understanding across multiple physical hazards is a prerequisite for proportionate scenario analysis, credit modelling integration and capital planning in subsequent cycles.

3. The Data and Modelling Gap

Climate-related financial risk assessment continues to be constrained by limitations in the availability, consistency and transparency of physical hazard data. Regulators, industry bodies and academic reviews - including the PRA, the Climate Financial Risk Forum (CFRF) and the Global Association of Risk Professionals (GARP) benchmarking study - have highlighted significant variation across vendors in hazard definitions, spatial resolution, climate scenario application and methodological documentation. These issues create challenges for firms seeking to meet the expectations set out in SS5/25, particularly around materiality assessments, modelling justification and supervisory challenge.

3.1. Data Weaknesses

A number of structural weaknesses in the wider market persist:

3.1.1. Inconsistent hazard metrics

Vendors frequently adopt differing definitions for heat stress, drought, or wildfire, using bespoke or opaque hazard indices that are not readily comparable or reproducible. These inconsistencies make it difficult for firms to integrate hazard inputs into credit and capital models in a defensible manner.

3.1.2. Coarse spatial resolution

Property-intensive lenders and insurers require hazard data that reflects meaningful local variation. Many datasets operate at resolutions (100m–1km) too coarse to identify risks at the level of individual assets. This reduces the accuracy of materiality assessments and complicates internal risk modelling.

3.1.3. Scenario divergence

Across the industry, there are significant differences in how climate pathways (e.g. RCP/SSP) are interpreted, downscaled and applied to hazard projections. Firms must be able to justify scenario assumptions, and inconsistent vendor methods can undermine this requirement.

3.1.4. Opacity of methodological choices

Some vendor products rely on less transparent processing techniques or composite indices, without clear documentation. Under SS5/25, firms must understand and explain the data they rely upon, and opacity undermines internal model governance.

3.1.5. Limited treatment of environmental context

Many hazard datasets ignore landcover, ecological condition or human-modified landscapes, despite the fact these factors materially influence how hazards manifest. SS5/25 requires firms to understand how environmental attributes influence hazard formation.

These challenges reinforce the need for transparent, property-level hazard datasets that are scientifically grounded, auditable, and designed for integration within credit, underwriting and capital frameworks. Map Impact's approach addresses these data gaps by providing consistent, reproducible hazard scores with clear definitions, thematic weighting and structured scenario application.

3.2 Granularity, Downscaling and the Meaning of "Property-Level" Data

Industry reviews by bodies such as the CFRF and GARP have highlighted that the term "property-level" is used inconsistently across the climate-risk data market and can obscure important methodological differences. For regulated firms, these differences are relevant to data suitability, explainability and governance under SS5/25.

In many cases, datasets described as property-level originate from global or regional climate models or hazard layers operating at relatively coarse spatial resolutions, typically hundreds of metres to kilometres. These outputs are subsequently downscaled, interpolated or redistributed to finer spatial units, such as postcodes, parcels or individual addresses, in order to support asset-level attribution. While this approach can improve usability for portfolio analysis, it does not necessarily introduce new physical information at the scale of the individual property.

Consistent with CFRF and GARP guidance, SS5/25 does not prohibit the use of downscaled data. However, it requires firms to demonstrate a clear understanding of how hazard data is constructed, how spatial resolution is achieved, what assumptions underpin any transformation, and why the resulting outputs are suitable for their intended purpose. Transparent documentation of these factors is essential to meeting supervisory expectations for proportionality, traceability and challenge ability.

To support consideration of data suitability and governance under SS5/25, Table 1 summarises key differences in granularity, explainability and validation burden across common approaches to physical climate hazard data.

Table 1. Granularity and Suitability Considerations.

Consideration	Native High-resolution Hazard Modelling	Downscaled or Redistributed Outputs
Source resolution	Hazard indicators derived at high spatial resolution	Hazard indicators derived from coarser source data
Asset attribution	Occurs after hazard formation	Occurs through spatial redistribution
Physical signal at property scale	Directly represented	Inferred from coarser information
Explainability	Clear linkage between drivers and outputs	Requires explanation of spatial transformations
Governance burden	Lower interpretive complexity	Higher documentation and validation requirements
Suitability under SS5/25	Well suited to materiality and segmentation	Requires careful justification and controls

4. Map Impact Data Solutions

Map Impact provides a suite of physical hazard and nature datasets - HeatView, DroughtView, WildfireView and BiodiversityView - designed to support regulated firms in assessing climate-related hazards at property level. These datasets provide hazard scores and hazard categories, derived from climate, environmental and earth-observation indicators. They do not estimate probability, susceptibility, vulnerability or financial loss; rather, they are inputs that firms may use to inform their own internal risk modelling.

All datasets are constructed with:

- A 50m national grid, enabling consistent and repeatable asset-level hazard attribution appropriate for portfolio and property-referenced analysis.
- Unique Property Reference Number (UPRN) linkage, ensuring compatibility with credit and underwriting datasets.
- Thematic indicator weighting, supporting transparent hazard formation.
- Quantisation into hazard classes, aiding comparability and governance.
- Scenario deltas aligned to recognised climate pathways (Representative Concentration Pathways (RCPs) / Shared Socioeconomic Pathways (SSPs) / Network for Greening the Financial System (NGFS)).
- Full documentation to support supervisory challenge and MRM requirements

Below is a summary of each hazard dataset.

4.1. HeatView

HeatView provides a composite heat hazard score derived from climatic, environmental and land-surface indicators. Indicators typically include surface temperature behaviour, urban heat island intensity, landcover structure, shading and vegetation condition. These are normalised, weighted and combined into a quantised hazard class.

HeatView supports firms by:

- Identifying locations with elevated baseline heat hazard.
- Providing scenario-aligned changes in heat hazard under RCP/SSP pathways.
- Allowing firms to consider heat hazard exposure as a contextual input within their internal Probability of Default (PD)/Loss Given Default (LGD) modelling frameworks, where material, and supported by internal evidence.
- Supporting materiality assessments and long-horizon business planning.

HeatView does not estimate building damage, overheating probability or operational disruption; it provides a structured hazard metric suitable for internal risk integration.

4.2. DroughtView

DroughtView provides a drought and soil-related hazard score, reflecting climatic moisture deficit, soil composition, hydrological behaviour and landcover characteristics. These indicators are combined into a composite hazard index and categorised into drought hazard classes.

DroughtView supports firms by:

- Identifying areas where soil moisture stress is elevated.
- Supporting analysis of potential shrink–swell or structural movement risk.
- Providing scenario-driven changes in drought hazard under future climate projections.
- Offering evidence inputs for materiality, PD/LGD adjustments and Internal Capital Adequacy Assessment Process (ICAAP) modelling.

DroughtView does not estimate subsidence probability or financial loss; firms apply their own risk models.

4.3. WildfireView

WildfireView provides a wildfire hazard score, combining indicators such as vegetation condition, fuel availability, landcover structure, slope, aspect and climatic fire-weather conditions. These are combined into a composite wildfire hazard index.

WildfireView supports firms by:

- Identifying areas where wildfire hazard is materially elevated.
- Differentiating between rural, peri-urban and wildland–urban interface contexts.
- Providing scenario-aligned changes in wildfire hazard.
- Supporting integration into underwriting, PD/LGD adjustments and portfolio steering.

WildfireView does not model ignition probability, spread dynamics or insured loss.

4.4. BiodiversityView

BiodiversityView provides indicators of habitat type, ecological condition, fragmentation and natural resilience. While not itself a hazard model, BiodiversityView informs how environmental context may influence or interact with hazard formation.

BiodiversityView supports firms by:

- Enhancing environmental understanding around assets
- Providing evidence relevant to governance, scenario explanations and transition planning
- Offering contextual inputs to firms' internal climate-risk analysis.

BiodiversityView does not estimate ecological loss, nature-related risk or hazard probability.

4.5. Shared Design Principles

Across the dataset suite:

- Hazard scores are transparent, traceable and reproducible.
- Scenario deltas allow forward-looking hazard assessment.
- Annual updates maintain alignment with evolving climate data.
- Documentation meets the needs of model governance, audit and supervisory review.

Map Impact provides hazard information, not probabilistic or loss-based estimates. Firms integrate these hazard metrics into internal PD / LGD / Expected Credit Loss (ECL) models, materiality assessments, ICAAP or Own Risk and Solvency Assessment (ORSA) exercises, consistent with SS5/25 expectations.

All Map Impact hazard scores are derived natively at high spatial resolution using earth-observation, environmental and climate indicators, rather than through post-hoc downscaling or redistribution of coarse global datasets.

5. Methodology and Data Standards

Map Impact's datasets are built on a transparent, documented and reproducible hazard-modelling framework designed to align with SS5/25 expectations for model governance, data quality and supervisory challenge. The methodology reflects recognised climate science, environmental datasets, geospatial standards and the need for firms to use hazard data as an input into their own internal risk models. Map Impact does not estimate probability of event occurrence, vulnerability, susceptibility or financial loss. All outputs represent hazard scores and hazard categories.

Detailed methodological documentation, including indicator definitions, thematic weighting structures, scenario application logic, quality assurance processes and version control, is maintained in Map Impact's Methodology Pack. This document is designed to support internal model risk management, audit review and supervisory scrutiny, and is made available to regulated firms as part of due diligence and implementation.

The modelling framework is structured around four pillars:

1. Scientific and environmental data foundations.

2. Spatial architecture and property alignment.

3. Hazard indicator processing and composite hazard formation.

4. Scenario application, governance and version control.

These pillars ensure that the hazard outputs are consistent, auditable and suitable for regulated use.

5.1. Scientific & Data Foundations

Map Impact's hazard models draw upon a range of climate, environmental and earth observation (EO) datasets, including:

- UKCP18 climate projections for temperature, precipitation and soil moisture.
- RCPs / SSPs for scenario alignment.
- Sentinel-1 and Sentinel-2 satellite imagery for vegetation condition, fuel availability, soil moisture proxies and heat-surface behaviour.
- Landsat, and Moderate Resolution Imaging Spectroradiometer (MODIS) long-term vegetation indices (Normalized Difference Vegetation Index (NDVI) / Enhanced Vegetation Index (EVI)).
- Digital elevation models (DEM) for slope, aspect and terrain.
- UKHab habitat classifications.
- Ordnance Survey base layers and AddressBase UPRN referencing.
- National soil and geological datasets.

These data sources ensure the hazard models are built upon established scientific inputs with national coverage and reliable spatial referencing.

5.2. Spatial Architecture & Property-Level Alignment

All Map Impact datasets operate on a 50m national grid, selected to provide a balance between spatial precision, computational efficiency and national scalability. Each grid cell contains the processed hazard indicators and resulting composite hazard score.

Every grid cell is then aligned to the UPRN via centroid and parcel matching. This enables:

- Direct integration with mortgage, insurance and commercial-risk datasets.

- Accurate identification of hazard intensity at the specific property level.
- Consistency across geography, portfolios and product lines.
- Elimination of the geolocation errors commonly observed in industry benchmarking studies.

This spatial architecture ensures that firms can rely on Map Impact hazard scores for both portfolio analysis and individual exposure assessment.

5.3. Hazard Modelling Framework

Map Impact models hazard, not probability, vulnerability or financial loss. Each hazard dataset is constructed using a transparent, indicator-based approach that reflects well-established scientific understanding of the processes underlying heat, drought, and wildfire behaviour in the UK. The approach is designed to be fully traceable, reproducible and compliant with SS5/25 expectations for governance, proportionality and supervisory challenge.

The hazard modelling framework comprises the following structured components:

5.3.1. Indicator Definition and Scientific Rationale

For each peril, Map Impact identifies a set of hazard-relevant indicators grounded in peer-reviewed climate and environmental science. Indicators are selected because they represent physical drivers of hazard behaviour. Examples include:

- Heat: land surface temperature behaviour, urban form and surface materials, canopy cover, vegetation health, radiative balance.
- Drought: soil moisture deficit indicators, evapotranspiration patterns, soil composition and hydrological context.
- Wildfire: vegetation dryness, fuel availability, landcover structure, slope and aspect, historical fire-weather trends.

Indicators are chosen not simply for correlation, but because they represent causal physical mechanisms documented in climate hazard research.

5.3.2. Pre-Processing and Harmonisation

Indicators derived from earth observation (EO), climate data and environmental datasets undergo:

- Temporal normalisation.
- Spatial harmonisation to a 50m grid.

- Filtering for noise, cloud cover and outliers.
- Validation against climatological behaviour.

This step ensures scientific consistency across data sources and supports robust downstream modelling.

5.3.3. Quantisation (Binning of Indicators)

Indicators are converted into discrete classes using quantisation schemes (such as 6 or 12 bin distributions) based on national value ranges or long-term climatology. This has three key advantages:

- Reduces sensitivity to outliers and noise.
- Supports comparability across indicators.
- Facilitates reproducible hazard category formation.

Quantisation also reflects the regulatory preference for interpretable, auditable inputs rather than opaque continuous transformations.

5.3.4. Thematic Domains & Weighting Structure

Indicators are grouped into thematic domains that reflect different aspects of hazard behaviour. Typical examples may include:

- Thermal regime.
- Landcover and vegetation.
- Hydrological and soil conditions.
- Topographic context.
- Urban morphology.

Each domain contributes a different level of influence to the hazard. A documented weighting structure then assigns proportional importance to each theme based on scientific literature and domain relevance.

Weighting is transparent, stable across versions, and recorded in version-control logs.

5.3.5. Composite Hazard Score Formation

Indicator classes, grouped by thematic domains and weighted accordingly, are aggregated into a composite hazard index. This index represents the combined influence of multiple physical hazard drivers at a given location.

The composite hazard index is then standardised and prepared for categorisation.

5.3.6. Hazard Categories

Hazard scores represent relative intensity of physical hazard drivers and are not calibrated to observed credit outcomes, losses or asset performance.

Composite hazard scores are mapped into categorical hazard levels (e.g. Negligible, Very Low, Low, Medium, High, Very High). Categorisation enables:

- Clear communication of hazard intensity.
- Portfolio segmentation.
- Materiality assessments.
- Board- and executive-level reporting.
- Transparent scenario interpretation.

Categories follow consistent thresholds across the dataset suite.

5.3.7. Scenario Delta Application

For future climate analysis, Map Impact applies scenario deltas derived from RCP/SSP-aligned climate pathways. These deltas represent the expected change in hazard-relevant indicators under specified climate scenarios.

Future hazard scores are generated for time horizons such as:

- 2030
- 2050
- 2070
- 2100

This enables firms to perform:

- Scenario analysis.
- Stress testing.
- ICAAP/ORSA assessments.
- Long-term credit modelling.
- Estate and strategic planning.

Map Impact applies scenario deltas only to hazard indicators, not to financial variables.

5.3.8. Clear Scope Boundary

Map Impact's hazard outputs are explicitly limited to:

- Hazard indicators.
- Composite hazard scores.
- Hazard categories.

- Scenario-aligned hazard projections.

Map Impact does not model:

- Probability of event occurrence.
- Susceptibility.
- Exposure.
- Vulnerability.
- Severity or damage.
- Expected loss.
- Financial impact.

These responsibilities sit with regulated firms using established risk models, ensuring alignment with SS5/25 model governance expectations.

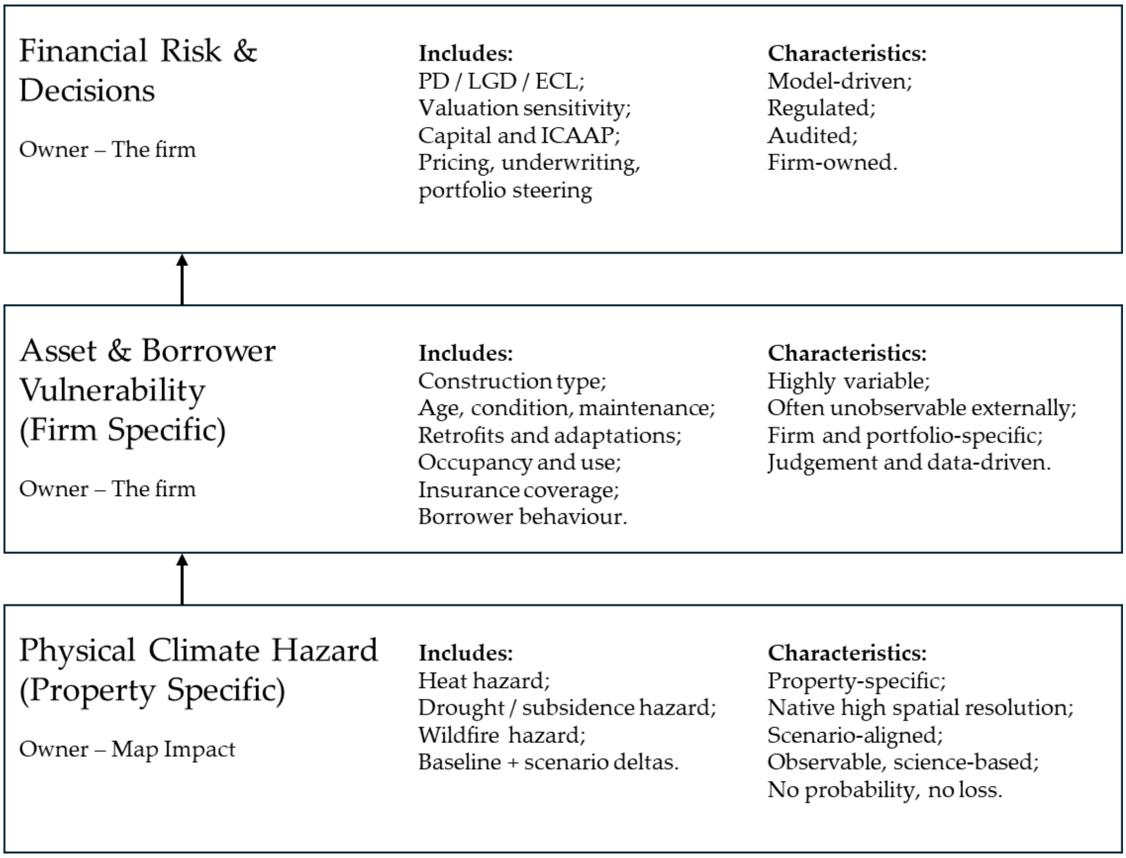

Figure 1. Illustrating the separation between physical climate hazard identification, firm-specific vulnerability assessment and financial risk modelling, highlighting the distinct ownership and governance responsibilities associated with each layer.

5.4. Scenario Framework (RCP, SSP, NGFS Alignment)

All scenario outputs are documented and aligned to recognised climate pathways. Map Impact applies deltas drawn from:

- RCP2.6, RCP4.5, RCP8.5.
- SSP1, SSP2, SSP3.
- Temperature trajectories compatible with NGFS pathways.

Scenario assumptions, interpolation techniques and parameter selections are fully documented to support supervisory challenge.

5.5. Quality Assurance & Version Control

Each dataset release undergoes structured Quality Assurance (QA)/Quality Control (QC) for the purpose of:

- Spatial accuracy checks.
- Indicator-level anomaly detection.
- Internal consistency validation.
- Cross-referencing against climatology and long-term EO behaviour.

Version notes include:

- Parameter adjustments.
- Indicator updates.
- Weighting revisions.
- Data-source refreshes.
- Methodological refinements.

Historical versions are archived for audit and comparability.

5.6. Transparency, Documentation & Governance Support

SS5/25 emphasises the need for transparent data and models. Map Impact provides:

- Full methodological documentation.
- Indicator definitions and weighting structure.
- Data lineage diagrams.
- Scenario application notes.
- Version control logs.

This enables:

- Model risk management alignment.
- Internal audit review.
- Supervisory scrutiny.
- Justification of data selection by firms.

5.7. Suitability for Regulated Use

Map Impact hazard datasets are designed to be used as:

- Inputs to materiality assessments.
- Contextual hazard inputs used by firms to support segmentation, sensitivity analysis or scenario conditioning within PD/LGD/ECL models, where material and appropriately governed.
- Inputs to ICAAP/ORSA hazard-driven scenario modules.
- Evidence for Board Management Information (MI).
- Evidence for Pillar 3 disclosures.

They do not constitute independent risk models and do not assign probability, vulnerability or expected loss. This design ensures compliance with model governance expectations while providing firms with consistent and transparent hazard information.

For clarity on scope and accountability, Table 2 summarises the allocation of responsibilities between hazard data provision and firm-owned modelling, governance and decision-making activities.

Table 2. Scope Boundary & Allocation of Responsibility.

Area	Map Impact Provides	Responsibility of Firm
Physical Climate Hazards	High-resolution, property-level hazard indicators for Heat, Drought and Wildfire	Determination of which hazards are material to the firm
Spatial Attribution	UPRN-linked hazard attribution to property assets	Validation of asset mapping within internal systems
Scenario Alignment	Scenario-aligned hazard deltas under recognised climate pathways	Selection of scenarios and time horizons for use in ICAAP, IFRS and stress testing
Probability Estimation	Not Provided	Estimation of likelihood, frequency or transition dynamics
Vulnerability Assessment	Not provided	Assessment of asset sensitivity, borrower behaviour and adaptive capacity
Loss / Valuation Impact	Not provided	Translation of hazards into valuation, PD, LGD, ECL or capital impacts
Credit Modelling	Not provided	Development, testing and approval of credit and capital models
Governance & Approval	Transparent methodology and documentation	Model risk management, internal audit and supervisory engagement

6. Application Across the Credit Risk Lifecycle

Throughout the credit risk lifecycle, Map Impact hazard metrics act solely as contextual environmental inputs. They do not determine, calibrate or predict credit outcomes, and all quantitative impacts are derived exclusively through firms' internally governed models.

SS5/25 requires firms to embed climate-related considerations within their existing risk management frameworks, including governance, credit risk, capital assessment, underwriting, scenario analysis and disclosure. The PRA's position is clear; physical climate risks act as risk drivers, influencing credit, market, operational and insurance risks. As such, firms must understand how physical hazards may affect their portfolios and must apply proportionate but evidence-based approaches when exposures are material.

Map Impact's datasets provide hazard scores and hazard categories, not probability or loss estimates. These hazard metrics support firms in identifying where climate-driven physical hazards may be relevant to creditworthiness, collateral values, operational continuity or capital adequacy. They are intended for use as inputs to firms' internal modelling frameworks, not as standalone risk models, allowing institutions to remain fully aligned with SS5/25's model governance expectations.

6.1. Governance, Oversight & Decision-Making

SS5/25 expects firms' boards and senior management to demonstrate appropriate oversight of climate-related financial risk. Hazard information plays a key role in enabling this oversight by providing clear, evidence-based visibility of where physical climate hazards may meaningfully affect exposures.

Map Impact hazard datasets support governance through:

- Property-level hazard visibility across heat, drought, and wildfire.
- Ability to report hazard distributions across portfolios, segments or geographies.
- Structured hazard categories that can be used for Board MI, risk appetite articulation and early-warning indicators.
- Transparent documentation that supports internal challenge, audit and supervisory review.

Hazard metrics do not prescribe decisions; they enable informed decisions under the governance principles of SS5/25.

6.2. Materiality Assessment

Materiality is central to proportionality under SS5/25. Firms must determine, based on evidence, whether climate hazards are material to their exposures. Where hazards are material, quantitative analysis is expected. Where hazards are immaterial, qualitative assessment may be sufficient, provided the rationale is documented.

Map Impact hazard data supports this process by:

- Identifying locations where hazard intensity is elevated.
- Highlighting geographic or product-level concentrations.
- Providing hazard categories that allow firms to segment exposures coherently.
- Offering scenario-aligned future hazard scores for long-horizon assessments.

Hazard data therefore provides the evidential basis firms need to justify their materiality decisions and demonstrate proportionality.

6.3. Integration with Credit Risk Modelling (PD, LGD, ECL)

Where exposures are deemed material, SS5/25 requires firms to quantify the potential implications for credit risk. Map Impact provides hazard scores that firms may incorporate into their internal modelling frameworks, consistent with model risk management expectations.

The following points summarise areas of alignment with SS5/25 supervisory expectations, focusing on data suitability, governance and proportionality.

Hazard scores can be used to:

- Support PD model adjustments, where heat, drought or wildfire hazard is considered relevant to borrower behaviour, asset condition or arrears performance.
- Inform LGD adjustments, particularly in relation to collateral that may be exposed to hazards such as drought-related soil movement or wildfire.
- Feed into International Financial Reporting Standards (IFRS 9) ECL models through scenario-linked hazard changes and portfolio segmentation.

Crucially Map Impact does not calculate PD, LGD or ECL impacts. These are produced by firms' own internal models, which incorporate hazard inputs as one component among many.

6.4. Scenario Analysis

SS5/25 expects firms to perform forward-looking scenario analysis when climate hazards are material. Scenario analysis requires transparent use of climate pathways, justified assumptions and alignment with time horizons relevant to capital planning and strategic decisions.

Map Impact supports scenario analysis by providing:

- Scenario deltas for hazard-relevant indicators under RCP/SSP pathways.
- Future hazard scores for key horizon years (e.g. 2030, 2050, 2070, 2100).
- Documentation describing scenario alignment, parameter choice and transformation methods.

These scenario-aligned hazard metrics enable firms to:

- Construct climate-sensitive credit risk scenarios.
- Integrate hazard changes into internal PD/LGD/ECL pathways.
- Support ICAAP, ORSA and long-term strategic planning.
- Explain scenario assumptions during supervisory engagement.

Map Impact provides hazard trajectories, not economic or loss projections.

6.5. Portfolio Monitoring & Early-Warning Indicators

Ongoing monitoring is a core component of climate-risk management under SS5/25. Firms must be able to demonstrate that they track emerging risks, new hotspots and changes in hazard intensity.

Map Impact hazard datasets support monitoring by:

- Providing annual updates with version-controlled hazard scores.
- Allowing firms to identify hazard migration or intensification across their portfolios.
- Enabling the development of climate-aligned early-warning indicators (EWIs).
- Supporting ongoing materiality reassessment.

Monitoring hazard trajectories helps firms demonstrate active risk management and identify where additional investigation may be required.

6.6. Underwriting, Origination and Pricing

SS5/25 reinforces that climate considerations must be integrated across the full product lifecycle. Hazard information forms an evidence base for consistent, defendable underwriting and origination practices.

Hazard scores can be used to:

- Inform loan origination decisions where physical hazard intensity may affect long-term collateral resilience.
- Support property-level underwriting decisions in insurance or specialist lending.
- Assist in portfolio rebalancing or pricing differentiation where justified through internal models.
- Provide transparency to customers and counterparties around hazard exposure.

Importantly, hazard scores do not determine credit decisions; they inform them within firms' existing risk frameworks.

6.7. Capital Planning and ICAAP

Where climate hazards are material, capital frameworks must incorporate climate-relevant stress outcomes. Map Impact's scenario-aligned hazard deltas enable firms to construct capital-relevant hazard pathways, which are then translated into credit or operational risk impacts through internal modelling.

The following points summarise areas of alignment with SS5/25 supervisory expectations, focusing on data suitability, governance and proportionality.

Hazard scores support capital processes by:

- Feeding into climate-augmented PD/LGD pathways.
- Providing evidence for ICAAP documentation.
- Supporting severe-but-plausible hazard scenario design.
- Enabling long-run capital trajectory assessments consistent with firms' business models.

The separation of hazard input (Map Impact) from risk modelling (the firm) remains consistent throughout.

6.8. Disclosures and Reporting

Hazard information is increasingly expected to feature in climate-related reporting, particularly under Pillar 3, International Sustainability Standards Board (ISSB)-aligned disclosures and stakeholder transparency expectations.

Firms can use Map Impact hazard metrics to:

- Report the distribution of hazard exposure within portfolios.
- Explain scenario methodologies, linking hazard trajectories to financial modelling.

- Provide evidence of materiality assessment processes.
- Enhance internal reporting to boards, risk committees and audit functions.

All outputs are documented and traceable, supporting both internal and external disclosure requirements.

6.9. Summary

Across the credit risk lifecycle, Map Impact provides structured, transparent hazard metrics that enable firms to meet SS5/25 expectations for:

- Governance.
- Materiality assessment.
- Scenario analysis.
- PD/LGD/ECL model integration.
- Portfolio monitoring.
- Underwriting and origination.
- Capital planning.
- Disclosure.

Map Impact produces hazard data, not probabilistic or financial loss models. This ensures that regulated firms remain fully compliant with model governance requirements while incorporating climate-relevant information into their own internal frameworks.

Nothing in this paper implies a direct or statistically validated relationship between hazard scores and PD, LGD or ECL outcomes; any such relationships must be independently developed, tested and approved within firms' own model governance frameworks.

7. Illustrative Hazard-led Portfolio Assessment

7.1. Purpose and scope

This illustrative example demonstrates how property-level climate hazard data can be used by a regulated lender to support evidence-based materiality assessment, portfolio segmentation and downstream modelling under SS5/25. The example is intentionally limited to hazard identification and interpretation. It does not estimate probability, vulnerability, loss, credit impact or capital outcomes.

All modelling, calibration and financial interpretation remain the responsibility of the regulated firm.

7.2. Portfolio Context

A representative UK residential mortgage portfolio is used to illustrate how hazard information may be analysed at scale. The portfolio comprises a broad cross-section of property types and locations across England and Wales. Each property is linked via UPRN to Map Impact's 50m hazard grid, enabling consistent attribution of Heat, Drought and Wildfire hazard categories.

No borrower characteristics, loan balances, credit performance or valuation assumptions are used at this stage.

7.3. Baseline Hazard Distribution & Concentration Analysis

The lender begins by examining the distribution of hazard categories across the portfolio for each peril.

Key questions addressed may include:

- What proportion of properties fall into Medium, High or Very High hazard bands?
- Are elevated hazards geographically clustered or dispersed?
- Do certain property types or vintages appear more exposed?

This initial analysis provides a portfolio-wide hazard baseline, enabling the firm to move beyond qualitative assumptions and anecdotal evidence. For example:

- Heat hazard may be concentrated in dense urban areas with limited vegetation cover.
- Drought-related hazard may cluster in regions with clay soils and older housing stock.
- Wildfire hazard may be spatially concentrated at the rural–urban interface.

At this stage, hazard data is used only to identify where exposure exists, not to infer financial impact.

7.4. Supporting materiality assessment under SS5/25

Using the hazard distributions, the firm conducts an evidence-based materiality assessment consistent with SS5/25 proportionality principles.

Hazards may be considered potentially material where:

- a meaningful share of the portfolio is exposed to Medium and above hazard categories,
- exposure is geographically concentrated,

- scenario analysis indicates material hazard intensification over relevant time horizons,
- there is a plausible transmission channel to credit risk, collateral resilience or insurance availability.

Conversely, hazards may be judged immaterial where:

- exposure is minimal or highly dispersed,
- hazard levels remain low across scenarios,
- transmission mechanisms are weak or unsupported by evidence.

Crucially, Map Impact provides the hazard evidence, while the materiality judgement is owned and documented by the firm.

Figure 2 provides a schematic representation of the hazard-led sequencing expected under SS5/25, showing how hazard data supports portfolio-level materiality assessment before any firm-owned modelling or capital analysis is undertaken.

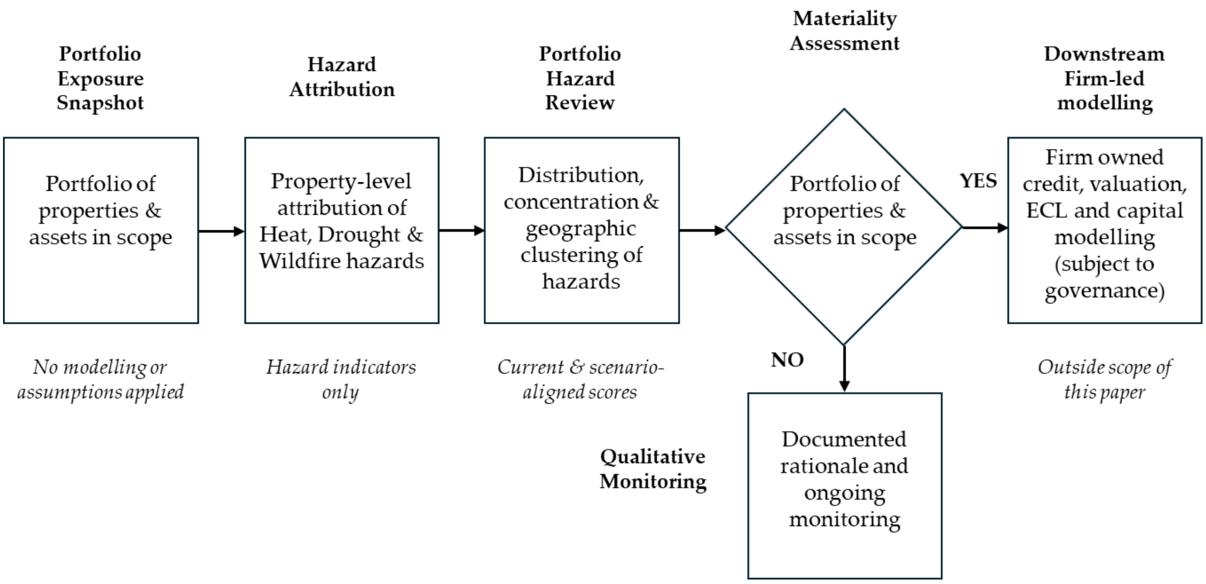

Figure 2. Hazard-led Climate Risk Materiality Assessment under SS5/25. Hazard Data supports identification and prioritisation. All modelling, calibration and decision-making remains the responsibility of the regulated firm.

7.5. Scenario-aligned Hazard Evolution

To support forward-looking assessment, the firm reviews scenario-aligned changes in hazard categories under recognised climate pathways (e.g. RCP4.5).

This allows the firm to observe:

- migration of properties into higher hazard categories over time,
- expansion of hazard-affected geographies,
- changes in the relative importance of different hazards.

These outputs support SS5/25 requirements for forward-looking analysis without requiring immediate quantification of financial impact.

7.6. Enabling Downstream Modelling and Capital Analysis

Once hazards are deemed material, the hazard data can be consumed by the firm's internal models, subject to governance and validation.

Examples include:

- segmentation variables within PD or LGD models,
- scenario conditioning of IFRS 9 ECL assumptions,
- design of ICAAP climate stress narratives,
- identification of portfolios requiring enhanced monitoring or management action.

Map Impact does not perform or prescribe these steps. It provides transparent, auditable hazard inputs that firms may integrate proportionately within their existing frameworks.

7.7. Governance, documentation and supervisory readiness

Throughout the process, hazard data supports:

- clear documentation of assumptions and limitations,
- traceability of data lineage,
- consistency across portfolios and time horizons,
- audit and model risk management review.

This enables firms to explain:

- why certain hazards were considered material or immaterial,
- how scenario analysis was grounded in physical exposure,
- how climate risk identification has been embedded into governance processes.

7.8. Summary

This illustrative example shows how high-resolution, property-level hazard data can provide early, defensible insight into where climate-related physical risks may be relevant within a portfolio. By supporting materiality assessment, scenario interpretation and prioritisation, hazard data forms a critical foundation for firms' own credit, capital and risk modelling activities under SS5/25.

Map Impact supplies hazard intelligence only. All financial interpretation, modelling and decision-making remain with the regulated firm.

Table 3 sets out how hazard data is intended to support each stage of the SS5/25 materiality assessment process, from initial exposure review through to documented judgement and governance.

Table 3. Hazard Data Role within SS5/25 Materiality Assessment

Stage of Assessment	Purpose	Role of Hazard Data
Portfolio exposure snapshot	Establish baseline view of assets in scope	Spatial attribution of hazard categories across the portfolio
Hazard distribution analysis	Identify scale and concentration of hazard exposure	Comparison of properties across hazard bands
Forward-looking assessment	Assess potential evolution of hazards	Scenario-aligned hazard deltas over relevant horizons
Materiality judgement	Determine whether risks warrant further modelling	Evidence base to support quantitative or qualitative judgements
Documentation and governance	Support audit and supervisory review	Transparent, traceable hazard inputs and assumptions

8. Competitive Advantage and Differentiation

The market for climate-related physical hazard data is diverse, with vendors offering a wide range of products covering climate scenarios, catastrophe models, Environmental Social Governance (ESG) scores, spatial analytics, and physical hazard indicators. However, recent regulatory guidance (SS5/25) and industry benchmarking exercises (including CFRF/GARP reviews) have highlighted substantial differences in methodology, granularity, transparency, and suitability for regulated use across this landscape. These differences have significant implications for firms seeking to justify their climate-risk approaches under supervisory scrutiny.

Map Impact occupies a distinct position in this market by providing property-level hazard datasets constructed using transparent, reproducible methods. The datasets are designed to support regulated firms' internal risk processes without implying probability, susceptibility, vulnerability, or loss estimation.

The following points summarise areas of alignment with SS5/25 supervisory expectations, focusing on data suitability, governance and proportionality.

8.1. Market Segments for Climate and Hazard Data

Vendors operating in the climate-risk space broadly fall into four categories:

8.1.1. Catastrophe Model Providers

These vendors offer probabilistic loss models for perils such as flood, windstorm, hail or coastal surge. While well-established in insurance, catastrophe models:

- Are typically global or regional in scale.
- Focus on event likelihood and financial loss.
- Use proprietary modelling frameworks.
- Provide limited transparency on internal mechanics.
- Are not designed for PD/LGD/ECL integration in credit portfolios.

Catastrophe models serve a different purpose from hazard-only data and may be disproportionate for many lenders under SS5/25.

8.1.2. ESG and Climate Scoring Platforms

These tools provide corporate or asset-level climate indices, often combining physical, transition and governance factors. Their limitations include:

- Low spatial precision.
- Weak links to physical scientific indicators.
- Normalised scores that mask hazard-specific behaviour.
- Limited use in internal credit modelling or capital frameworks.

Such scores do not provide the granularity or transparency required for SS5/25 materiality assessments.

Platforms not originally designed to support hazard-only inputs for regulated credit and capital frameworks can be challenging to adapt for this purpose, particularly where assumptions or transformations are embedded across multiple layers.

8.1.3. Geospatial and Environmental Consultancies

These providers offer bespoke mapping, remote sensing analytics or environmental datasets. They are valuable for project-specific analysis but:

- Do not typically provide national, standardised hazard products
- Lack scenario alignment
- Are not optimised for integration into automated risk processes or credit models.

8.1.4. Climate Analytics Start-ups

Many emerging vendors produce climate-linked indices using machine learning or reanalysis data. Benchmarking exercises have shown:

- Significant methodological differences between vendors.
- Inconsistent indicator selection and weighting.
- Limited documentation or transparency.
- Misalignment between global datasets and local asset-level needs.
- Challenges for firms undertaking supervisory justification.

These factors make validation and model governance difficult for regulated firms.

8.2. Industry-Wide Data Limitations Identified by CFRF and GARP

Industry reviews have repeatedly identified structural limitations in climate hazard data markets, including:

8.2.1. Geolocation Errors

Some providers use coordinates with coarse spatial resolution or error-prone mapping to asset references, leading to misclassification of hazard exposure.

8.2.2. Non-transparent Indices

Composite scores may combine unrelated quantities or use undocumented weighting schemes, complicating supervisory challenge.

8.2.3. Scenario Divergence

Vendors may use different climate baselines, downscaling methods or scenario applications, resulting in materially different hazard outputs for the same location.

8.2.4. Incomplete Peril Coverage

Some vendors focus solely on global flood or heat exposures, overlooking local hazards such as drought-mediated property hazard or UK-specific wildfire contexts.

8.2.5. Lack of Methodological Traceability

Many vendors provide limited documentation of assumptions, transformations and indicator selection - an issue under SS5/25's emphasis on transparency and justifiability.

These limitations make hazard data selection a critical component of firms' climate-risk governance.

8.3. Supervisory Expectations Under SS5/25

SS5/25 does not prescribe specific vendors but explicitly requires firms to ensure that:

- data sources are well understood,
- assumptions are documented,
- limitations are acknowledged,
- and inputs are suitable for their intended use.

Firms must be able to explain and defend their data choices during supervisory challenge. Hazard data must therefore be transparent, traceable, reproducible and appropriate for use in internal models.

Map Impact's hazard-only architecture aligns well with these supervisory needs because:

- Hazard indicators are clearly defined.
- Weighting is documented and version-controlled.
- Scenario transformations follow recognised pathways.
- Outputs are transparent and auditable.
- No black-box risk modelling is embedded in the datasets.

This makes the data well-suited to MRM and internal audit requirements.

8.4. Map Impact's Differentiation in the Hazard Data Market

Map Impact differs from many market offerings in several key ways:

8.4.1. Hazard-Only Approach (No Probability or Loss Modelling)

Map Impact provides hazard scores, not susceptibility, vulnerability, probability or risk estimates. This ensures:

- Alignment with SS5/25 model governance expectations.
- Clarity of scope.
- Avoidance of less transparent hazard-scoring practices.
- Ease of integration into firms' internal models.

8.4.2. Property-Level Granularity

Hazard scores are produced at a 50m grid resolution and mapped directly to UPRNs, supporting:

- Precise exposure mapping.
- Credit-level modelling.
- Accurate materiality assessments.

8.4.3. Transparent, Indicator-Based Methodology

All indicators, weighting structures and processing steps are documented, version-controlled and auditable.

8.4.4. Scenario-Aligned Hazard Trajectories

Hazard deltas follow recognised climate pathways (RCP/SSP/NGFS), enabling effective integration into scenario analysis, PD/LGD modelling and ICAAP processes.

8.4.5. Coverage of UK-Relevant Hazards

Heat, drought, and wildfire are all underrepresented in traditional hazard datasets yet increasingly relevant to UK assets - Map Impact fills this gap.

8.4.6. Integration into Credit and Capital Workflows

Hazard outputs are designed for:

- Materiality assessments.
- PD/LGD/ECL segmentation.
- ICAAP scenario construction.
- Portfolio steering.

without implying risk, probability or financial loss.

8.5. Implications for Regulated Firms

Firms required to comply with SS5/25 must adopt hazard datasets that:

- Are transparent and documented.
- Can withstand supervisory challenge.

- Support model governance and audit.
- Integrate into credit, underwriting and capital frameworks.
- Offer sufficient granularity for property-level lending.

Map Impact's approach provides hazard data that meets these evidentiary needs while avoiding the modelling assumptions, opacities or proprietary probabilistic frameworks that complicate regulatory compliance.

8.6. Summary

In a fragmented and inconsistent hazard data market, Map Impact provides regulated firms with:

- Transparent, scientifically grounded hazard metrics.
- High spatial precision (50m grid with UPRN alignment).
- Scenario-aligned hazard trajectories.
- Full methodological documentation.
- Clear scope boundaries (hazard-only inputs, not risk models).

This makes Map Impact's hazard datasets well-suited for the requirements of SS5/25, supporting firms' materiality assessments, internal modelling, scenario analysis, governance and supervisory engagement.

9. Implementation and Delivery

SS5/25 requires regulated firms to undertake a structured and evidence-based approach to implementing climate-risk capabilities. Within six months of publication, all firms must complete a gap analysis identifying areas where their current risk management frameworks do not meet supervisory expectations. A Board-approved implementation plan must then set out how these gaps will be remediated, with clear timeframes, ownership and governance.

Map Impact's hazard datasets support these implementation requirements by providing transparent, auditable hazard information that can be integrated into firms' governance, risk, modelling, capital and disclosure frameworks. The datasets provide hazard scores, hazard categories and scenario-aligned hazard trajectories, but do not estimate probability, susceptibility, vulnerability or financial loss. This separation of responsibility supports model governance and supervisory expectations.

9.1. The SS5/25 Gap Analysis Requirement

Because the gap analysis must be completed within six months of SS5/25's publication, firms require immediate access to portfolio-wide hazard information across relevant physical climate risks, rather than relying on incremental extensions of existing flood-focused datasets.

The following points summarise areas of alignment with SS5/25 supervisory expectations, focusing on data suitability, governance and proportionality.

The six-month gap analysis must identify:

- Areas where climate hazards may be material to lending, underwriting or investment exposures.
- Insufficient or inconsistent hazard information.
- Gaps in scenario analysis frameworks.
- Weaknesses in governance, documentation, model integration or monitoring.
- Data dependencies requiring improvement or replacement.

Map Impact hazard datasets help firms meet this requirement by enabling:

- A baseline understanding of heat, drought, and wildfire hazards across portfolios.
- Geographic segmentation to identify concentrations of elevated hazard.
- Evidence for determining where exposures are material.
- Scenario-aligned hazard projections to assess long-term implications.
- Transparent documentation for internal review and supervisory engagement.

The hazard-only architecture avoids the opacity or overreach associated with embedded risk scoring.

9.2. Integrating Hazard Data into Implementation Plans

Implementation plans must demonstrate how firms will incorporate climate-related considerations into governance, risk, modelling and capital processes. Map Impact hazard datasets support this integration across six key workstreams:

9.2.1. Governance and Oversight

- Incorporation of hazard information into Board and risk committee MI.
- Support for risk appetite articulation where hazard exposures are material.
- Clear documentation of data sources, assumptions and limitations.

9.2.2. Risk Identification and Measurement

- Mapping of asset-level hazard scores across mortgage, commercial real estate or insurance portfolios
- Use of hazard categories to identify higher-hazard geographies.
- Integration of hazard information into risk registers and "top risk" discussions.

9.2.3. Scenario Analysis

- Application of scenario-aligned hazard deltas to create climate-relevant future hazard pathways.
- Use of future hazard scores to support ICAAP, ORSA and stress testing.
- Justification of scenario assumptions during supervisory challenge.

9.2.4. Credit Risk Modelling

- Use of hazard scores as segmentation or supporting variables in PD, LGD and ECL models (where material).
- Clear separation between hazard inputs (Map Impact) and financial modelling (the firm).
- Documentation of how hazard information is used within internal models.

9.2.5. Capital Assessment

- Integration of future hazard pathways into severe-but-plausible capital scenarios.
- Use of hazard information to inform ICAAP narratives, sensitivities and risk factor analysis.

9.2.6. Monitoring and Reporting

- Annual updates to hazard datasets to track changes over time.
- Development of early-warning indicators aligned with hazard behaviours.
- Regular re-evaluation of materiality in response to new data.

Hazard data forms the foundation of these processes, while firms remain responsible for all credit, underwriting and capital modelling.

9.3. Data Delivery and Technical Integration

Map Impact supports multiple delivery formats to ensure compatibility with firms' existing systems:

9.3.1. Batch Data Delivery

- UPRN-linked hazard tables suitable for ingestion into risk engines, credit models or analytics platforms.
- Secure File Transfer Protocol (SFTP) or cloud exchange.

9.3.2. Application Programming Interface (API) Access

- For real-time integration in underwriting, origination or portfolio tools.

9.3.3. Geospatial Layers

- Geographic Information System (GIS)-compatible hazard surfaces for mapping, exposure analysis and MI dashboards.

9.3.4. Metadata and Supporting Documentation

Each delivery includes:

- A data dictionary
- Methodology documentation
- Version control record
- Indicator descriptions and weighting structures
- Scenario explanation documents

This supports both internal governance and supervisory clarity.

9.4. Governance, Model Risk Management and Audit Alignment

The Map Impact Methodology Pack provides the primary artefact used by firms' model validation, internal audit and second-line functions to review hazard construction, assumptions, limitations and version changes, consistent with SS5/25 expectations.

SS5/25 places strong emphasis on transparency, traceability and challenge ability. Map Impact datasets align naturally with these requirements through:

- Clear methodological documentation.
- Indicator-level clarity, including weighting and transformation steps.
- Versioning and change logs.
- Scenario alignment notes.
- Reproducible processing workflows.

These features enable firms to incorporate hazard data into their MRM frameworks and provide audit-ready evidence for validation and supervisory review.

9.5. Ongoing Supervisory Engagement

Post–gap analysis, the PRA will engage more actively with firms to assess:

- Materiality decisions and supporting evidence.
- Scenario assumptions and justification.
- Governance, challenge and oversight processes.
- Integration of hazard information into credit, underwriting and capital models.

Map Impact hazard datasets enable firms to respond effectively by:

- Providing transparent data sources.
- Documenting assumptions and processing steps.
- Supporting clear explanations around hazard behaviour, intensification and impacts.
- Maintaining alignment between baseline and scenario outputs.

The hazard-only architecture reduces the risk of misinterpretation and supports articulate supervisory dialogue.

9.6. Proportionality and Avoiding Over-Engineering

SS5/25 is explicit that climate-risk management should be proportionate to firms' exposures. Hazard data helps firms:

- Distinguish between material and immaterial exposures.
- Focus analytical resources where justified.
- Avoid unnecessary modelling complexity.
- Maintain clarity of scope and accountability.

Hazard-only datasets avoid overstating modelling precision and allow firms to apply their own modelling techniques within established frameworks.

9.7. Example Implementation Roadmap: Illustrative Timing and Current Market Position

The roadmap below reflects supervisory expectations under SS5/25 rather than the current state of implementation across the market. In practice, many firms entered the SS5/25 implementation window without portfolio-wide hazard data beyond flood or coastal erosion, and with limited capability to assess heat, drought or wildfire exposure at scale.

The PRA has explicitly recognised that data gaps and capability constraints persist. However, the six-month requirement means that firms must now accelerate rapidly, using available hazard data, assumptions and proxies to establish a defensible baseline materiality assessment. The roadmap therefore illustrates the compressed sequencing firms are expected to follow from this point onward, rather than a hypothetical greenfield implementation starting on day one.

An illustrative roadmap for integrating hazard data as part of an SS5/25 implementation plan:

9.7.1. Months 0–2: (or immediately where delayed) Gap Analysis

- Rapid acquisition or consolidation of portfolio-wide hazard data sufficient to support initial materiality assessment.
- Load hazard data and map to all assets.
- Identify hazard concentrations and hotspots.
- Conduct initial materiality assessment.
- Document gaps in modelling, governance and data.

9.7.2. Months 2–4: Framework Design

- Define how hazard data will feed PD/LGD/ECL models where material.
- Develop scenario-aligned hazard pathways.
- Update risk appetite statements, policies and MI.
- Draft ICAAP-aligned climate modules.

9.7.3. Months 4–6: Implementation Planning

- Integrate hazard feeds into credit and risk systems
- Establish annual refresh cycles and governance
- Design Board reporting structures
- Finalise and approve the implementation plan

9.7.4. Post–6 Months: Ongoing Refinement

- Respond to PRA challenge
- Update materiality assessments
- Iterate models as new evidence emerges
- Maintain audit and MRM compliance

9.8. Summary

Map Impact’s hazard datasets provide a transparent, structured basis for firms seeking to comply with SS5/25. By offering clear hazard scores, hazard categories and scenario-aligned future hazard trajectories, without embedding probability or financial risk modelling, the datasets support:

- Evidence-based materiality assessment.
- Integration into PD/LGD/ECL models.
- Climate scenario analysis and ICAAP support.
- Governance, documentation and supervisory challenge.
- Ongoing monitoring and reporting.

This enables firms to meet regulatory expectations while retaining full control over credit, underwriting, capital and decision-making processes.

10. Conclusion

The publication of SS5/25 marks a significant evolution in the regulatory approach to climate-related financial risks, with clear expectations for evidence-based materiality assessments, scenario analysis, model integration, governance and disclosure. Firms are now required to move beyond qualitative descriptions of climate risk and adopt structured, transparent approaches that can be justified to both internal stakeholders and supervisors.

Map Impact's hazard and nature datasets - HeatView, DroughtView, WildfireView, and BiodiversityView - provide a robust technical foundation for this transition. By offering property-level hazard scores, hazard categories and scenario-aligned hazard trajectories, Map Impact enables firms to analyse physical climate hazards at the granularity needed for modern credit and underwriting portfolios. These datasets are constructed using transparent, indicator-based methods and are accompanied by documentation suitable for model risk management and supervisory challenge.

Importantly, Map Impact provides hazard information only. It does not estimate probability, exposure, vulnerability or financial loss. This ensures that firms retain full responsibility for translating hazard information into credit risk, capital or underwriting metrics using their own internal models. The separation of hazard input (Map Impact) from financial impact modelling (the firm) is central to SS5/25's emphasis on proportionality, accountability and model governance.

As firms complete their SS5/25 gap analyses and implementation plans, high-quality hazard datasets will play a critical role in demonstrating compliance with regulatory expectations. Map Impact's transparent and reproducible hazard methodology helps firms:

- Identify where hazards may be material.
- Support PD/LGD/ECL model adjustments where justified.
- Develop scenario-aligned ICAAP climate pathways.

- Enhance governance, documentation and supervisory readiness.
- Strengthen risk oversight and long-term strategic planning.

By adopting a hazard-only architecture grounded in scientific indicators, Map Impact enables firms to integrate climate considerations safely, proportionately and credibly across their risk management frameworks. This supports not only regulatory compliance but also the long-term resilience of the financial system as physical climate hazards continue to evolve.

Appendix A: Glossary

AddressBase

A national dataset assigning a Unique Property Reference Number (UPRN) to every addressable UK location, enabling property-level hazard alignment.

Climate Hazard

A physical climate driver - such as extreme heat, drought, soil-related movement or wildfire - measured using environmental and climatic indicators. Map Impact models hazards only; it does not model probability or financial impact.

Composite Hazard Score

A weighted aggregation of hazard-relevant indicators, normalised and categorised into hazard classes. Represents hazard intensity, not risk.

Hazard Category

A qualitative grouping (e.g., Negligible, Very Low, Low, Medium, High, Very High) derived from the composite hazard score to support interpretation, segmentation and governance.

Scenario Delta

A projected change in hazard-relevant indicators under a climate scenario (e.g., RCP/SSP), used to generate forward-looking hazard scores.

RCP (Representative Concentration Pathway)

A greenhouse gas concentration trajectory used in climate modelling (e.g., RCP2.6, RCP4.5, RCP8.5).

SSP (Shared Socioeconomic Pathway)

A socioeconomic trajectory describing global development pathways that influence climate outcomes.

NGFS Pathway

A set of climate scenarios published by the Network for Greening the Financial System, used by regulators and central banks.

Hazard-Only Model

A modelling architecture that estimates hazard intensity using environmental, climatic and geospatial indicators without estimating probability, loss or vulnerability.

UPRN (Unique Property Reference Number)

A unique identifier used to map hazard scores to individual properties.

Materiality (SS5/25)

An assessment of whether climate hazards may be meaningfully relevant to risk outcomes. Determines whether quantitative modelling is required.

Model Risk Management (MRM)

The governance framework ensuring that models and data used in risk processes are validated, documented and auditable.

Appendix B: Regulatory Extracts

This appendix summarises a small number of high-level statements from the PRA's Supervisory Statement 5/25 (SS5/25) that are relevant to the interpretation and use of physical climate hazard data. These summaries are provided for contextual clarity only and do not replace the full regulatory publication:

Governance

The PRA expects boards and senior management to ensure that the firm has appropriate capabilities, data, and processes to identify, measure and manage the financial risks arising from climate change. Firms must be able to explain and justify the data and assumptions they rely upon.

Materiality and Proportionality

Firms must assess the materiality of climate-related risks using evidence-based methods. Where exposures are material, quantitative analysis is required. Where exposures are immaterial, qualitative approaches may be used, provided the rationale is clearly documented.

Scenario Analysis

Where physical climate risks are material, firms should undertake forward-looking scenario analysis aligned to recognised climate pathways. Scenario assumptions, data sources and methodologies must be transparent and subject to internal challenge.

Use of Data, Assumptions and Proxies

The PRA recognises that data gaps persist. Firms may rely on assumptions, estimates and proxies to support their analysis, provided these are appropriately justified, traceable and embedded within the firm's model governance framework.

Integration into Risk Frameworks

Climate-related risk drivers should be incorporated into firms' existing risk management frameworks, including credit risk, underwriting, capital assessment and strategic planning, rather than treated as standalone risk categories.

Implementation Timelines

Firms must complete a gap analysis within six months of SS5/25's publication and prepare a Board-approved implementation plan describing how identified gaps will be addressed.

Supervisory Engagement

The PRA will assess progress through ongoing supervisory dialogue. Firms should be prepared to provide clear evidence of data selection, methodology, model usage, scenario alignment and governance controls.

Appendix C: Map Impact Data Dictionary Outline

The following outlines the structure of the key fields in Map Impact's hazard datasets.

Core Identifiers:

Field	Description
UPRN	Unique Property Reference Number used for asset-level alignment
GRID_X / GRID_Y	Coordinates of the 50m grid cell assigned to the property

Hazard Metrics (Per Peril):

Field	Description
HEAT_HAZARD_SCORE	Composite heat hazard score from weighted indicators
HEAT_HAZARD_CATEGORY	Heat hazard class (e.g., Low, Medium, High)
DROUGHT_HAZARD_SCORE	Composite drought hazard score
DROUGHT_HAZARD_CATEGORY	Drought hazard class
WILDFIRE_HAZARD_SCORE	Composite wildfire hazard score
WILDFIRE_HAZARD_CATEGORY	Wildfire hazard class

Environmental & Ecological Indicators:

Field	Description
HABITAT_TYPE	Habitat classification aligned with UKHab
ECOLOGICAL_CONDITION	Indicator of habitat or landcover condition
VEGETATION_INDEX	NDVI/EVI-based indicator relevant to drought/wildfire hazard

Scenario-Adjusted Fields:

Field	Description
HEAT_HAZARD_SCORE_2030_RCP45	Future heat hazard score under 2030 RCP4.5
DROUGHT_HAZARD_SCORE_2050_RCP85	Future drought hazard score under 2050 RCP8.5
WILDFIRE_HAZARD_SCORE_2070_RCP26	Future wildfire hazard score under 2070 RCP2.6
SCENARIO_DELTA_HEAT_RCP45	Hazard delta for heat under RCP4.5
SCENARIO_DELTA_DROUGHT_RCP85	Hazard delta for drought under RCP8.5

(Final field names may vary according to your implementation schema.)

Metadata & Governance:

Field	Description
DATA_VERSION	Dataset version identifier
METHODOLOGY_VERSION	Version of the hazard methodology applied
QA_FLAG	Indicator that the grid cell passed quality/consistency checks
SOURCE_REFERENCE	Reference to source datasets used for hazard calculation

Appendix D: Methodology Version Notes

Map Impact maintains full methodological transparency through version control, documentation and quality assurance processes in line with SS5/25 expectations.

Versioning Framework

Each dataset release includes:

- A unique version identifier.
- A complete change log documenting indicator updates, weighting changes, or scenario refinements.
- Archived historical versions to support audit, model validation and regulatory review.
- Consistent naming conventions to support reproducibility.

Data Lineage

Lineage documentation details:

- Source datasets (climate, EO, landcover, elevation, soils).
- All preprocessing steps (harmonisation, filtering, quantisation).
- Indicator transformations and thematic weighting.
- Composite hazard score calculation.
- Scenario delta application.
- UPRN alignment.

This supports supervisory challenge and internal validation.

Quality Assurance (QA) & Quality Control (QC)

QA/QC protocols include:

- Spatial accuracy checks against OS basemaps.
- Indicator-level anomaly detection.
- Cross-checks with long-term climatology and EO records.
- Internal consistency checks across years and scenarios.
- Validation of indicator weights and category boundaries.

Governance Alignment

The methodology is structured to support firms' internal governance frameworks:

- Transparent hazard formation.
- Clear scope boundaries (hazard only, no risk estimation).
- Separation of hazard input from credit or capital modelling.
- Documentation to support internal audit and MRM requirements.
- Reproducible processes enabling supervisory confidence.