

Climate Risk Learning Path

for actuarial students and early-career actuaries

From climate science to scenarios, data and actuarial judgment

WHAT THIS GUIDE PROVIDES

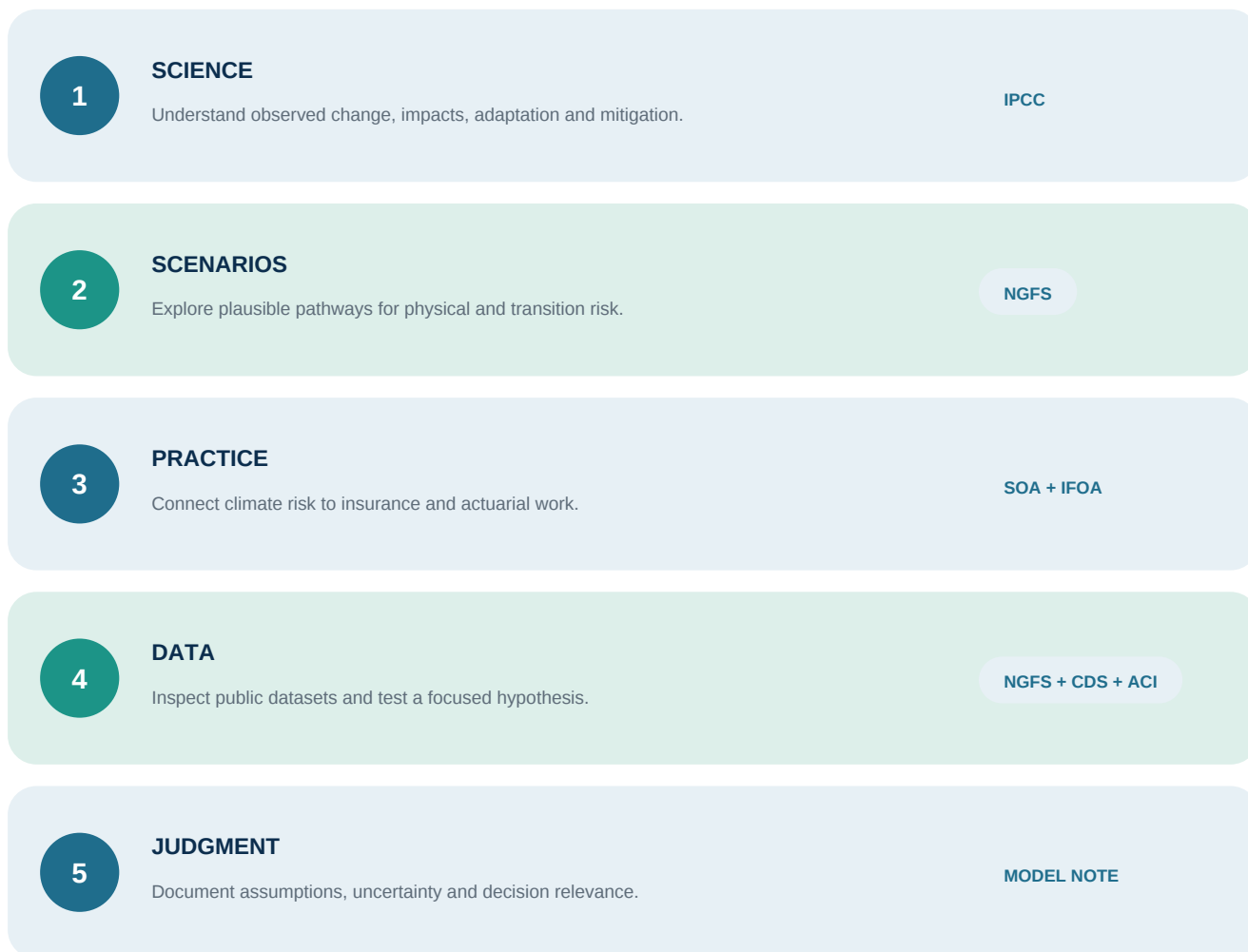
A curated sequence of credible, publicly accessible resources

A four-week study plan and a practical actuarial exercise

A model-governance lens for interpreting scenario outputs responsibly

A practical route through the subject

Climate-risk work sits at the intersection of science, economics, insurance and professional judgment. The sequence below is designed to prevent a common mistake: moving directly to model outputs without first understanding what the scenarios represent and where their limitations lie.



CORE PRINCIPLE

Scenarios are structured descriptions of plausible futures, not point forecasts. Treat their outputs as conditional on assumptions and model choices. [2]

Start with science, then scenarios

These first two resources establish the conceptual base. Read selectively, but do not skip the source documentation.

RESOURCE 1

IPCC

AR6 Synthesis Report: Summary for Policymakers

Why it matters. It synthesises the state of knowledge on climate change, impacts and risks, adaptation and mitigation. It is the most efficient entry point into the Sixth Assessment Report.

How to use it. Read the headline statements first. Then identify one physical hazard relevant to an insurance line and record the confidence language attached to each finding.

[SOURCE \[1\]](#)

[Open primary source](#)

RESOURCE 2

NGFS

NGFS Scenarios Portal and Phase V resources

Why it matters. The portal presents hypothetical long-term pathways combining physical risk, transition risk and macro-financial variables. It distinguishes Orderly, Disorderly, Hot house world, and Too little, too late scenario families. [2]

How to use it. Compare at least one scenario from contrasting families. Trace a variable from scenario narrative to potential balance-sheet or cash-flow effect. Review the technical documentation before using any output quantitatively.

[SOURCE \[2\]-\[3\]](#)

[Open primary source](#)

CURRENT NGFS CAUTION

NGFS states that the paper underpinning certain Phase V physical-loss estimates was retracted. The warning identifies the affected outputs and notes that other variables, short-term scenarios and previous long-term phases are not impacted. Review the warning before analysis. [3]

Move from reading to professional use

The resources below connect climate concepts to actuarial practice, from broad professional guidance to an applied framework for translating climate hazards into mortality and morbidity risk.

RESOURCE 3

SOA RESEARCH INSTITUTE

Incorporating Climate Change into Actuarial Practice

Why it matters. The series is explicitly designed as a starting point for incorporating climate change into day-to-day actuarial work. It covers health, general insurance, life, retirement, investment and ERM. [4]

How to use it. Choose the article closest to your practice area, then read one article outside it. Compare the risk channels and time horizons.

[SOURCE \[4\]](#)

[Open primary source](#)

RESOURCE 4

IFOA

Climate Change Curated Library

Why it matters. The reading list supports self-directed actuarial learning and provides contextual commentary across science, policy, investment, insurance, adaptation, mitigation and reporting. [5]

How to use it. Use it as a navigation tool, not a linear textbook. Select one topic connected to a current actuarial assignment and record why each source is relevant.

[SOURCE \[5\]](#)

[Open primary source](#)

RESOURCE 5

SOA RESEARCH INSTITUTE

Quantifying Mortality and Morbidity Impacts from Climate Risks

Why it matters. This research develops a forward-looking framework for translating climate hazards, geographic exposure and population vulnerability into mortality and morbidity projections. It includes an applied case study of heat-related mortality. [8]

How to use it. Use the framework to trace one climate hazard through exposure and vulnerability to an actuarial outcome. Identify the assumptions, uncertainties and validation steps that would matter before applying the result in practice.

[SOURCE \[8\]](#)

[Open primary source](#)

A focused four-week study plan

A suggested cadence of roughly two hours per week. Adjust the depth to the learner's background and practice area.

WEEK	FOCUS	CORE ACTIVITY	OUTPUT
1	Climate science	Read the IPCC Synthesis Report headline statements and selected SPM sections. Note the calibrated confidence language. [1]	One-page risk brief: hazard, exposure, vulnerability, evidence.
2	Scenario literacy	Compare two contrasting NGFS scenario narratives. Inspect assumptions, time horizons and selected variables. Read the current Phase V warning. [2]-[3]	Scenario comparison table with three implications and three limitations.
3	Actuarial translation	Read the relevant SOA practice article and examine the mortality and morbidity framework as an applied example. Use the IFoA library to add one complementary source. [4], [5], [8]	Causal pathway from climate driver to actuarial assumption and decision.
4	Data and governance	Explore a small NGFS, Copernicus or ACI dataset. Record provenance, version, coverage, transformations and caveats. [2], [6]-[7]	Two-page model note plus a reproducible chart or table.

MENTOR CHECKPOINT

Ask the learner to distinguish clearly between: evidence from the source; a modelling assumption; a judgmental adjustment; and a decision or recommendation. These four items should never be blended into one statement.

From scenario to actuarial questions

The exercise below is deliberately decision-led. It does not prescribe numerical adjustments; it asks the learner to build and challenge a causal pathway.

CASE PROMPT

An insurer wants to understand how two contrasting NGFS pathways could affect a selected portfolio over a decision-relevant horizon. Choose one line of business and define the management decision before selecting variables.

1

Decision

What decision will this analysis inform?

2

Scenario

Why are these pathways decision-relevant?

3

Transmission

Which physical or transition channels matter?

4

Assumptions

Which cash flows or actuarial inputs could change?

5

Test

What sensitivity, validation and monitoring are needed?

REQUIRED CHALLENGE

For every proposed adjustment, write an alternative explanation, a data limitation and a reason the effect might differ by geography, product design, policyholder behaviour or management action. A scenario signal is not automatically an actuarial assumption.

Read critically. Document transparently.

Credible climate-risk work depends as much on disciplined documentation as on technical sophistication.

MINIMUM MODEL-NOTE CHECKLIST

- 1 State the management question, scope, geography and time horizon.
- 2 Record the exact source, release, access date, units and transformations.
- 3 Separate scenario narrative, model output, actuarial judgment and management action.
- 4 Document uncertainty, known limitations and sensitivity to alternative pathways.
- 5 Explain validation, expert review, approvals and the trigger for future updates.

Primary sources

[1] IPCC (2023). Climate Change 2023: AR6 Synthesis Report - Summary for Policymakers.

https://www.ipcc.ch/report/ar6/syr/downloads/report/IPCC_AR6_SYR_SPM.pdf

[2] Network for Greening the Financial System. NGFS Scenarios Portal and Data & Resources.

<https://www.ngfs.net/ngfs-scenarios-portal/>

[3] NGFS. Climate Scenarios for Central Banks and Supervisors - Phase V, including the current notice on affected physical-risk estimates.

<https://www.ngfs.net/en/publications-and-statistics/publications/ngfs-climate-scenarios-central-banks-and-supervisors-phase-v>

[4] Society of Actuaries Research Institute (updated 30 July 2026). Incorporating Climate Change into Actuarial Practice.

<https://www.soa.org/resources/research-reports/2025/climate-change-actuarial-practice/>

[5] Institute and Faculty of Actuaries. Climate Change Curated Library.

<https://actuaries.org.uk/learn/lifelong-learning/sustainability-and-lifelong-learning/climate-change-curated-library/>

[6] Copernicus Climate Change Service. Climate Data Store.

<https://cds.climate.copernicus.eu/>

[7] Actuaries Climate Index. About the Index, graphics and downloadable data.

<https://actuariesclimateindex.org/>

[8] Arocha, Carlos, and Jérôme Crugnola-Humbert (2026). Quantifying Mortality and Morbidity Impacts from Climate Risks: A Practical Framework for Decision-Making. Society of Actuaries Research Institute.

<https://www.soa.org/resources/research-reports/2026/climate-mortality-morbidity-framework/>

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Sources accessed 16 September 2026

FROM LEARNING TO APPLICATION

Turn climate-risk understanding into better actuarial decisions.

This learning path is designed for self-study. When the next step is team alignment, diagnosis or practical implementation, A&A works with actuarial and risk teams to connect climate evidence with assumptions, models, governance and decisions.

BRING THE LEARNING PATH TO YOUR TEAM

Climate Risk Masterclass

A tailored working session for actuarial and risk teams, connecting scenarios, data, assumptions, uncertainty and governance to the decisions participants need to make.

[EXPLORE THE MASTERCLASS →](#)

NEED CLARITY FIRST?

Climate Risk QuickScan

Identify material gaps and define the next priorities.

[EXPLORE QUICKSCAN →](#)

READY TO EMBED?

Integration Sprint

Put a selected climate-risk method, process or control into operation.

[EXPLORE THE SPRINT →](#)

Have a specific climate-risk modelling or integration challenge?

[START A FOCUSED CONVERSATION →](#)