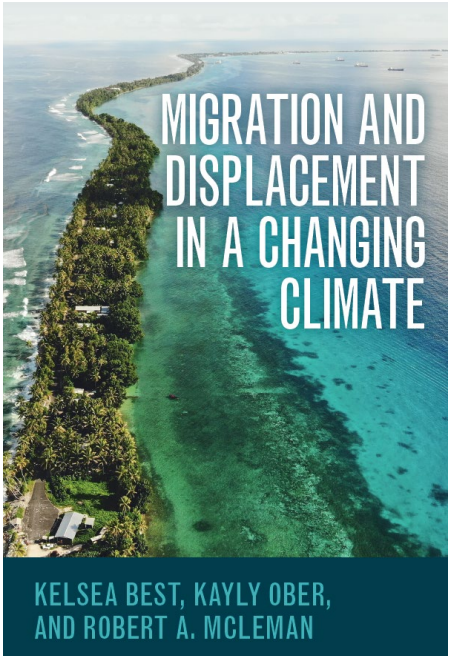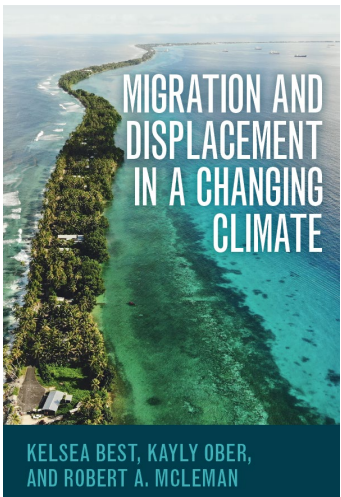# Instructional resource - Figures

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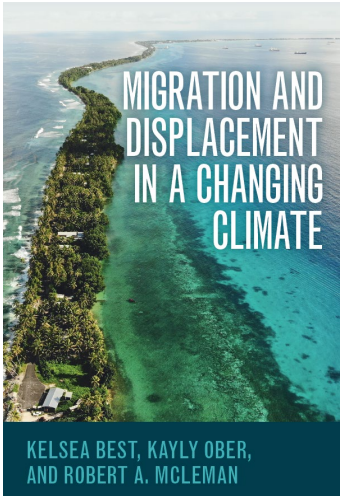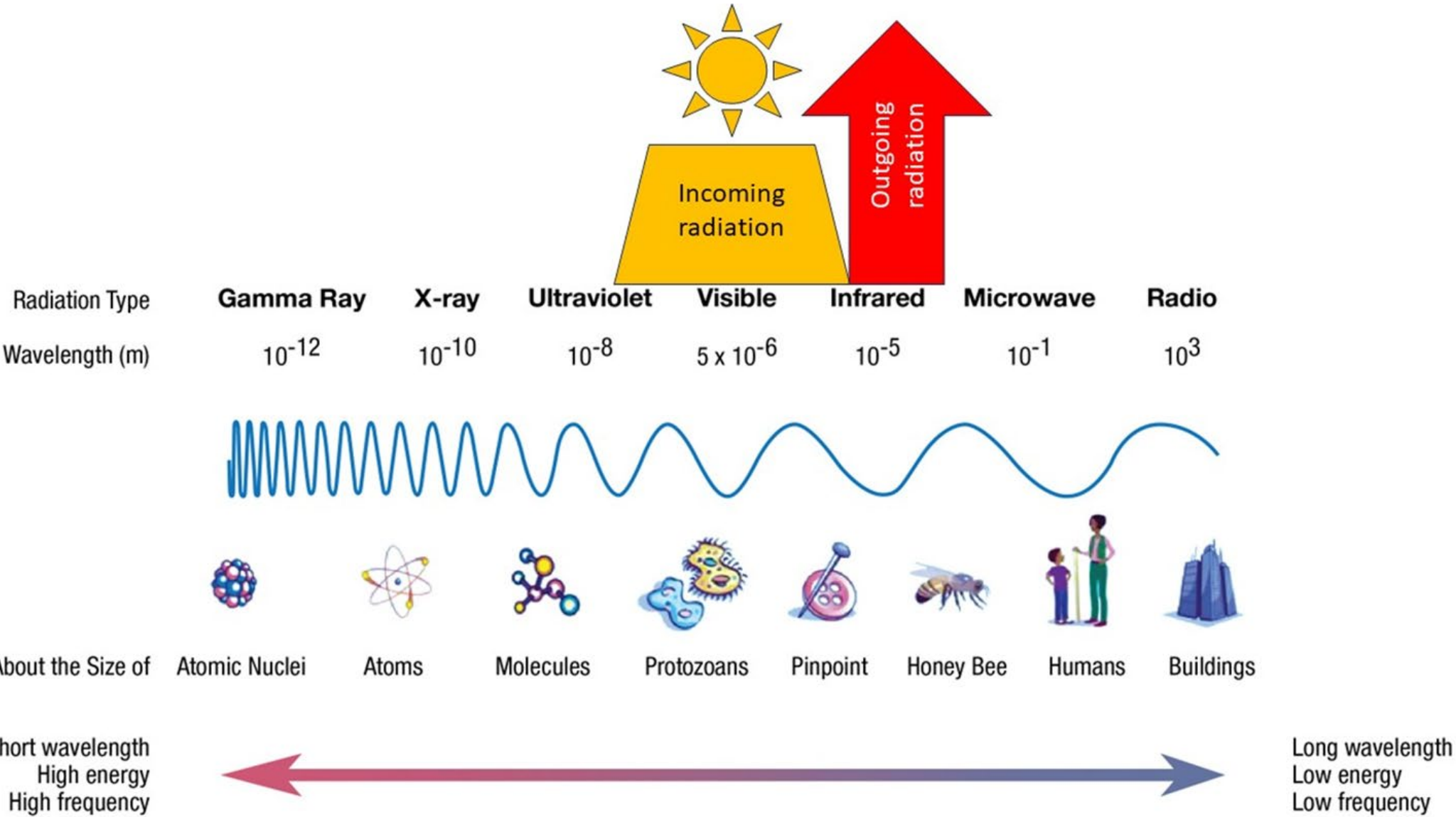
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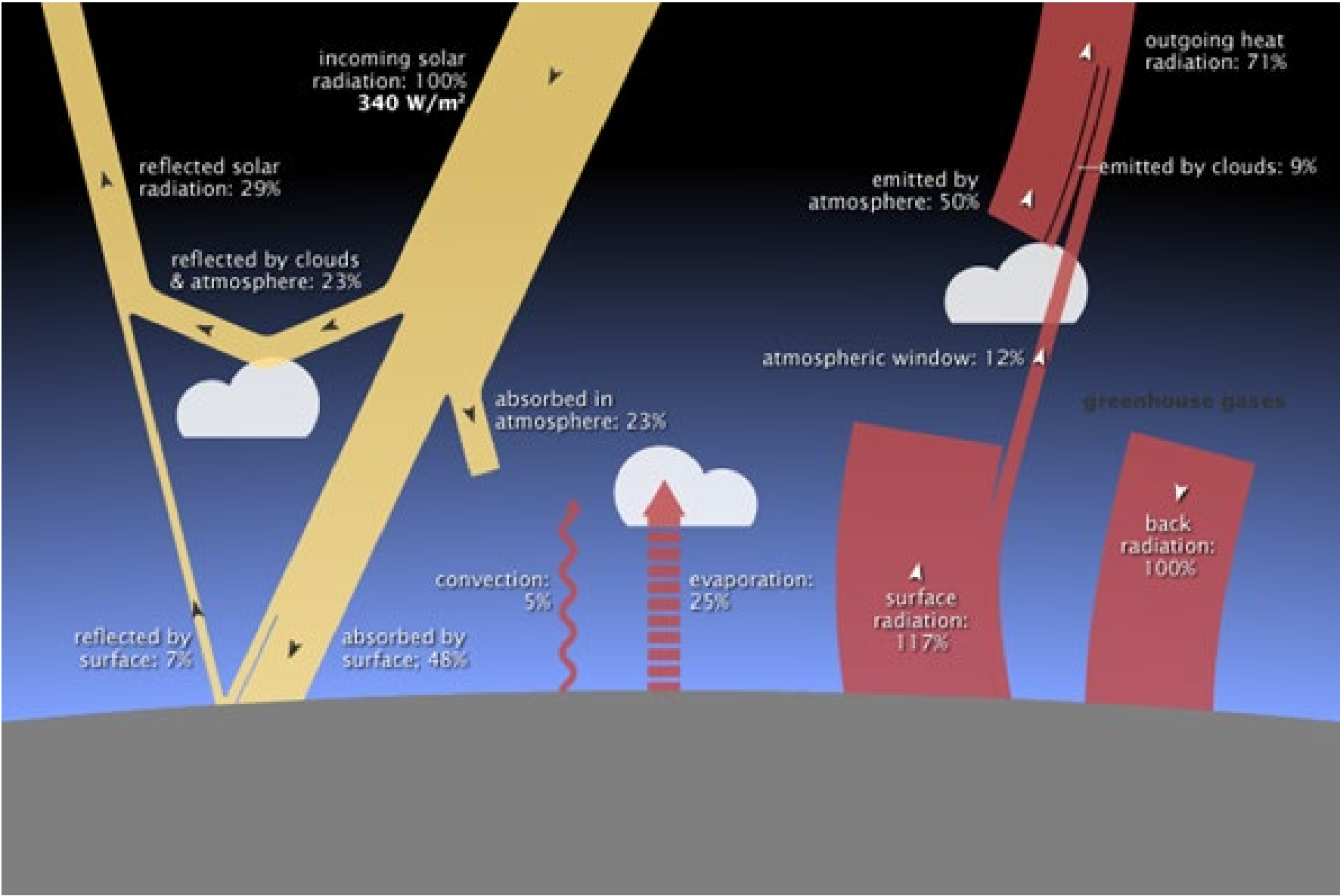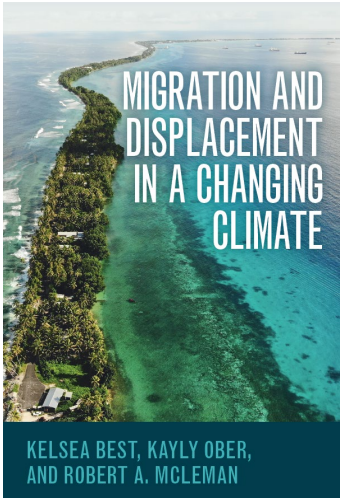Figure 1.1: Anasazi cliff dwelling at Mesa Verde National Park, Colorado, USA

Source: Best, K., Ober, K. & McLeman, R. 2025. *Migration & Displacement in a Changing Climate*. Cambridge University Press.
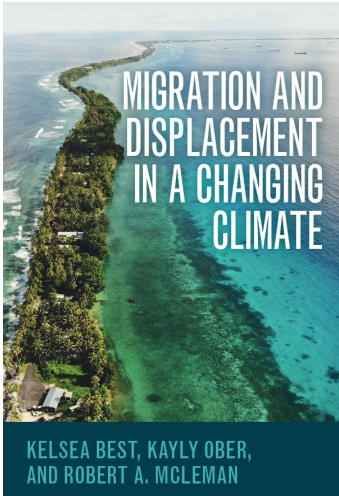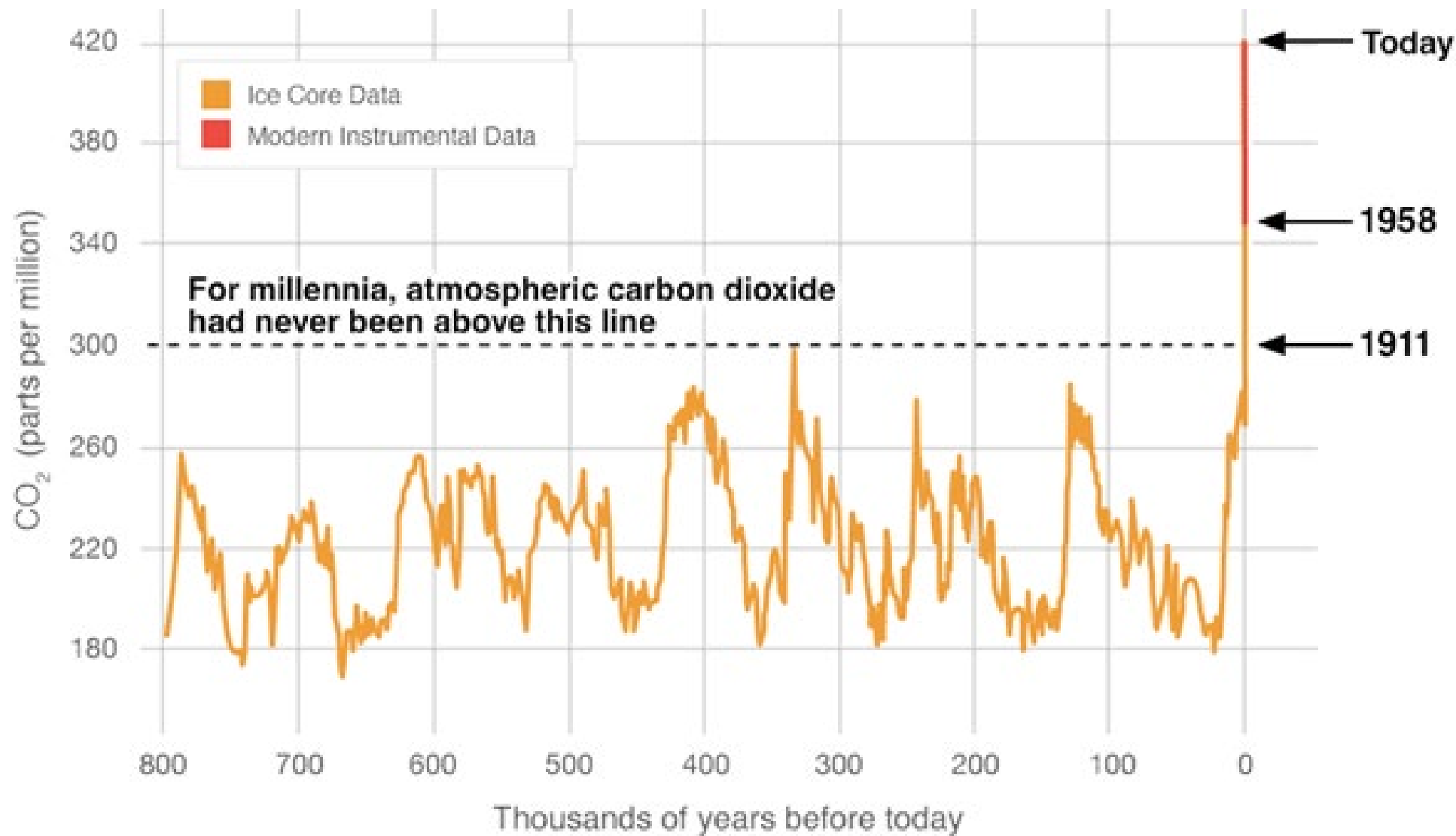
Figure 1.2: Electromagnetic spectrum
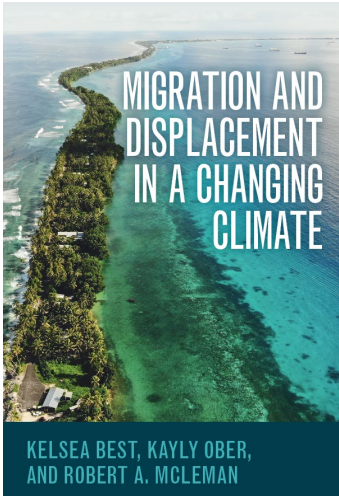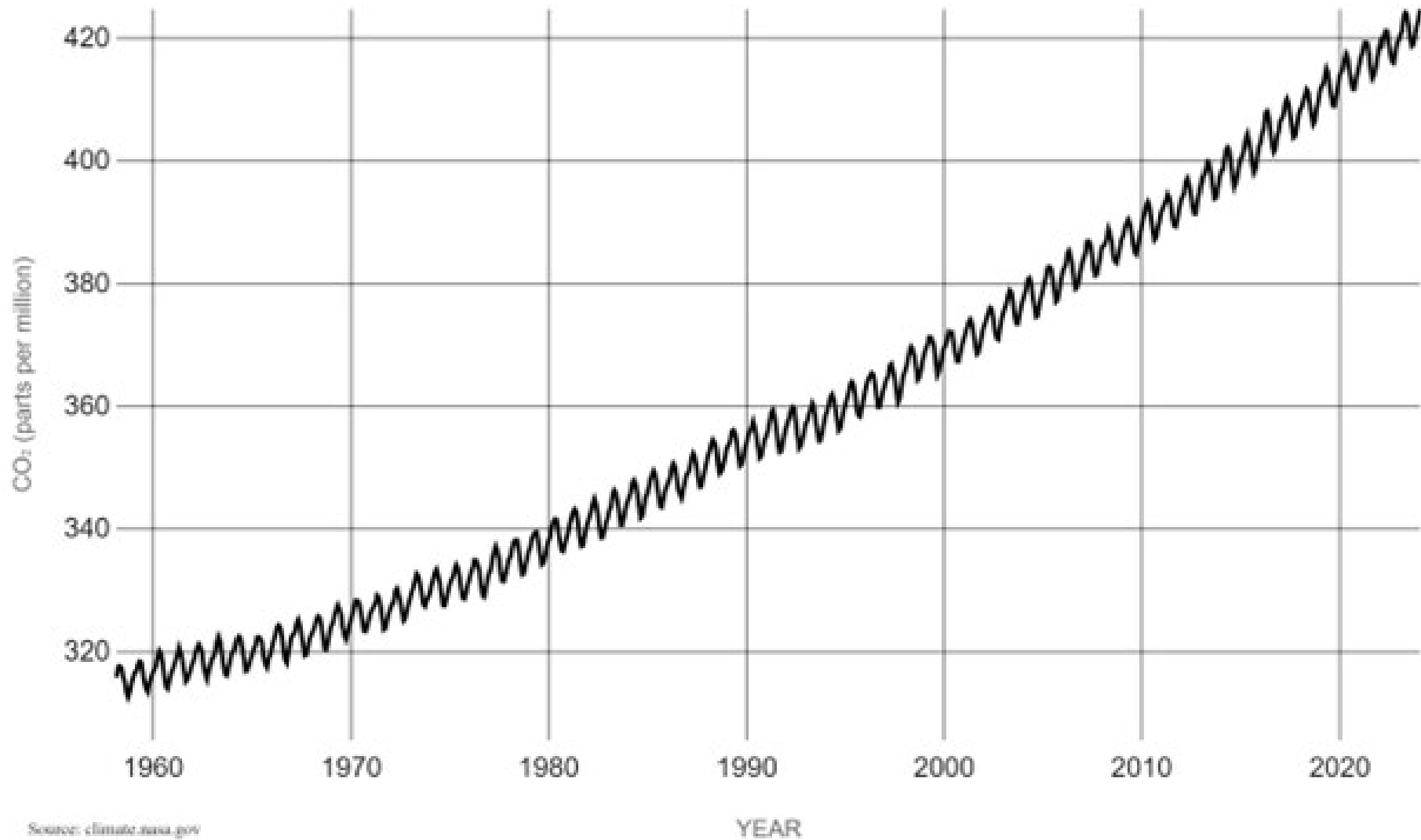
Figure 1.3: Radiation balance

Source: Best, K., Ober, K. & McLeman, R. 2025. *Migration & Displacement in a Changing Climate*. Cambridge University Press.

Figure 1.4: Atmospheric concentrations of carbon dioxide, last 800,000 years
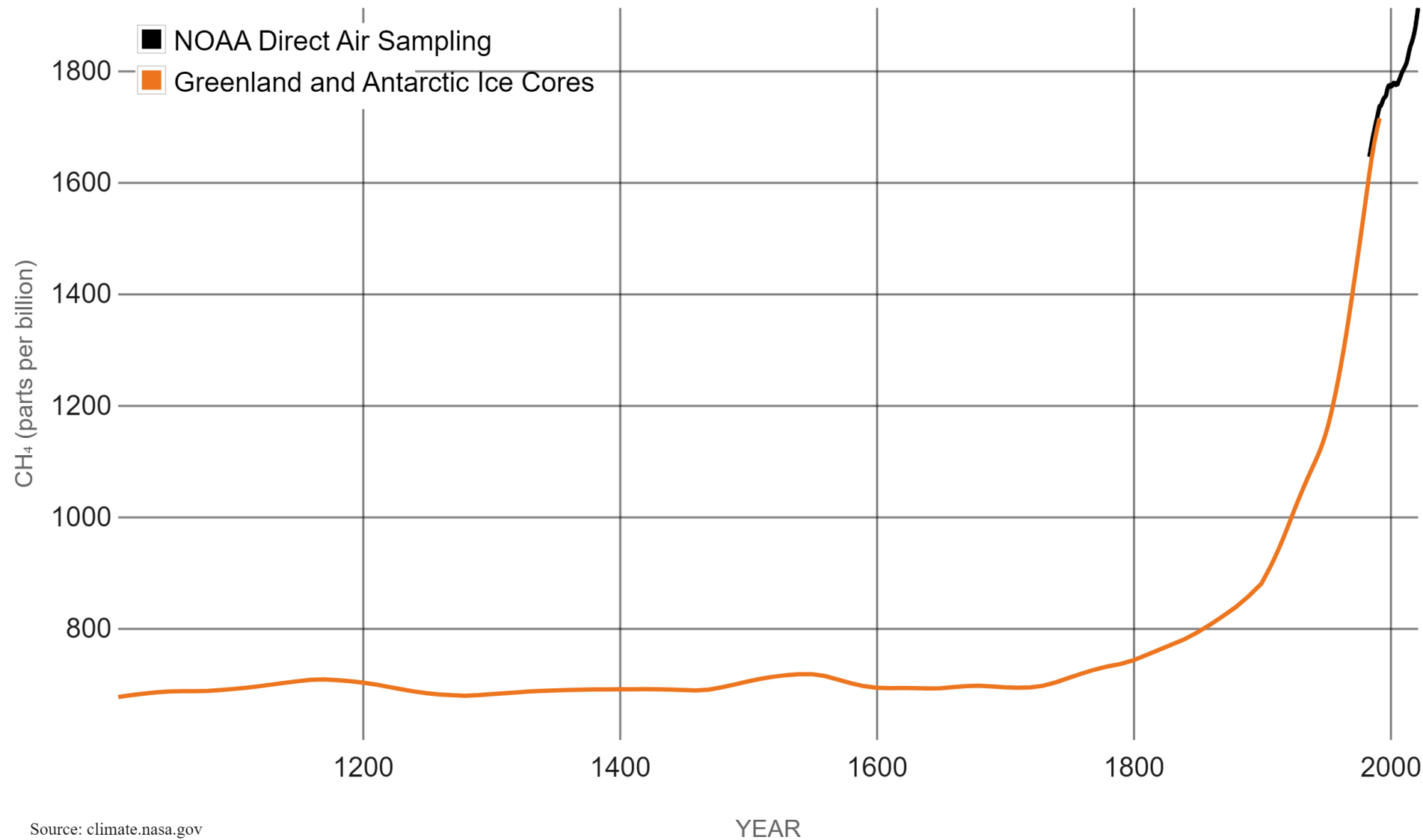

Source: Best, K., Ober, K. & McLeman, R. 2025. *Migration & Displacement in a Changing Climate*. Cambridge University Press.

Figure 1.5: Daily measurements of atmospheric carbon dioxide since 1950s

Figure 1.6: Atmospheric concentrations of methane, last 1,00 years

Source: climate.nasa.gov

Source: Best, K., Ober, K. & McLeman, R. 2025. *Migration & Displacement in a Changing Climate*. Cambridge University Press.
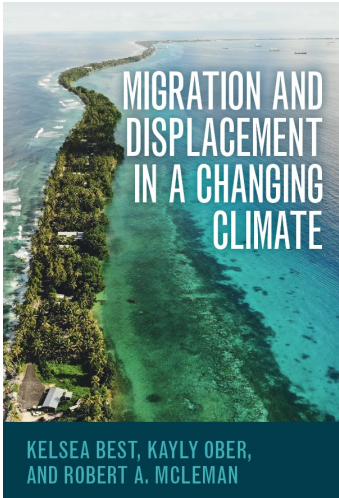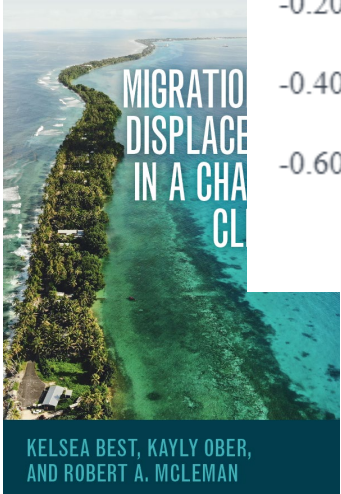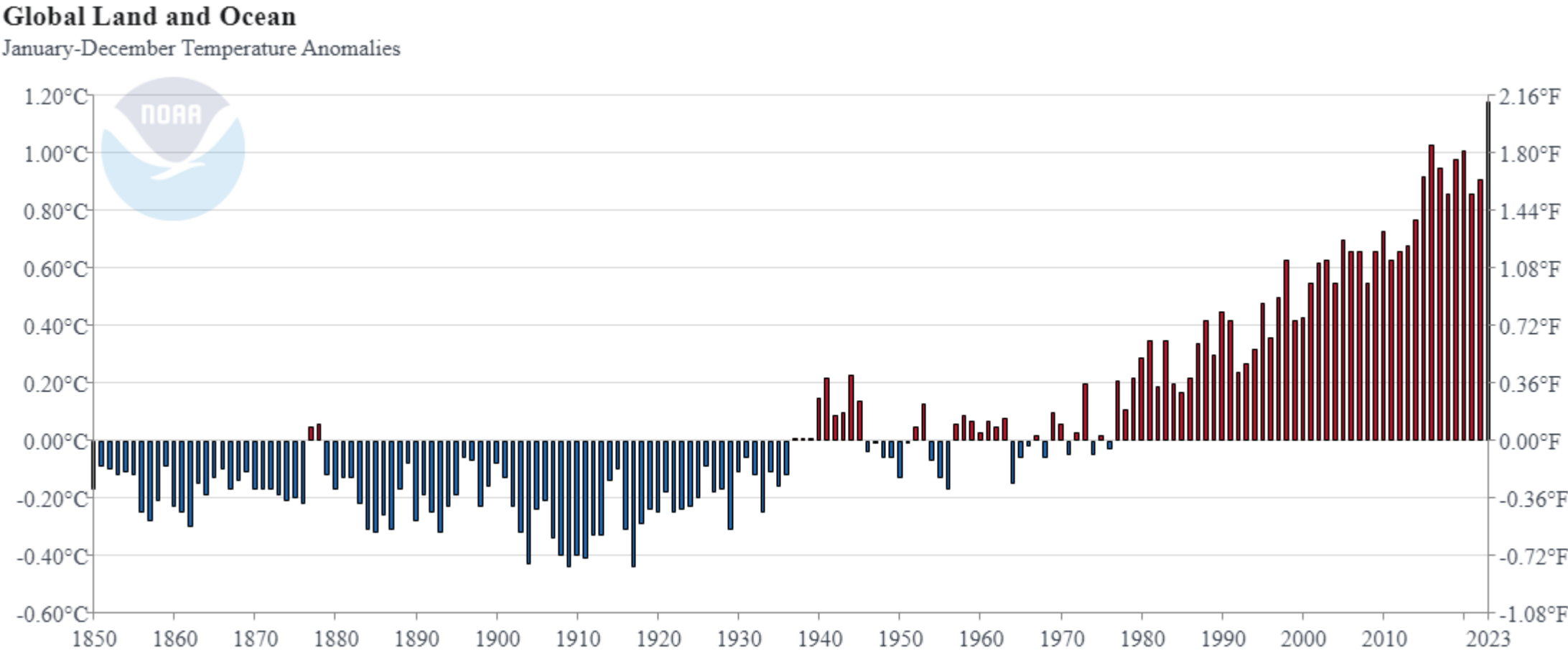
Figure 1.7: Average global temperature change since 1850

Global Land and Ocean
January-December Temperature Anomalies

Figure 1.8: Conceptual diagram of climate risk used in IPCC 2022 Assessment Report
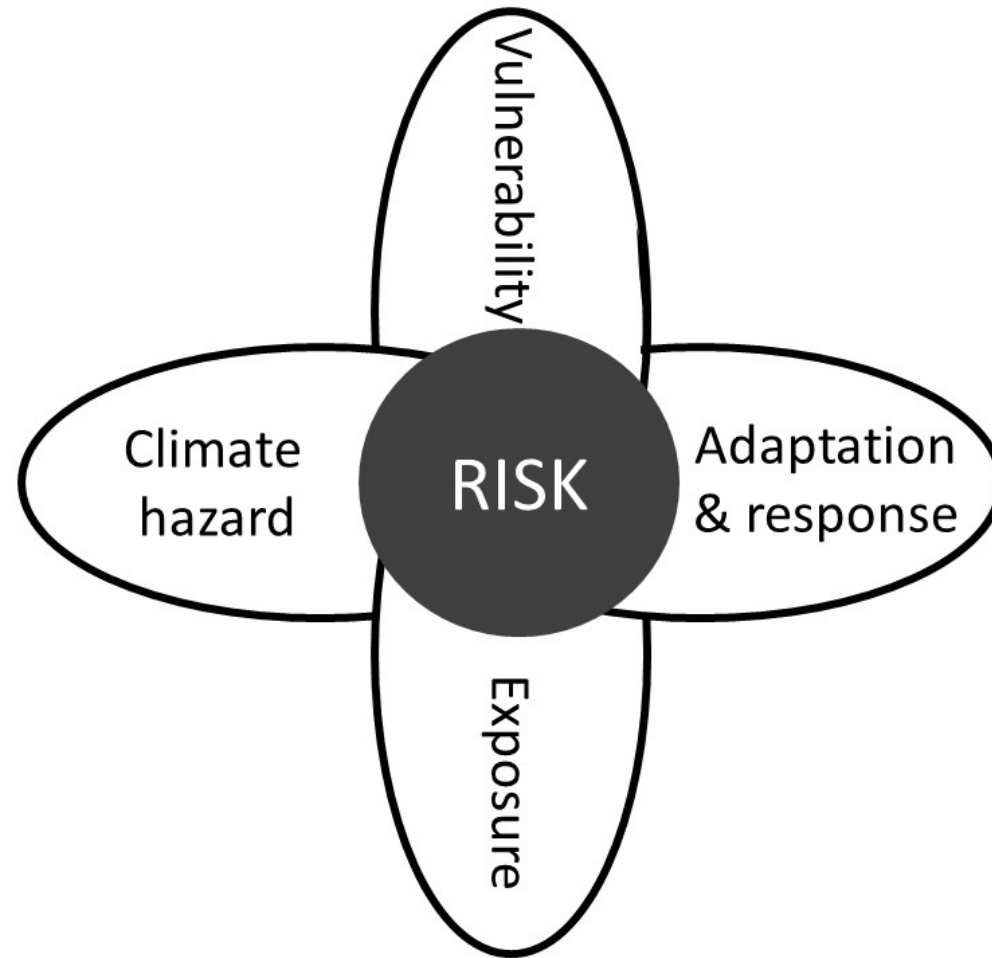
Source: Best, K., Ober, K. & McLeman, R. 2025. *Migration & Displacement in a Changing Climate*. Cambridge University Press.
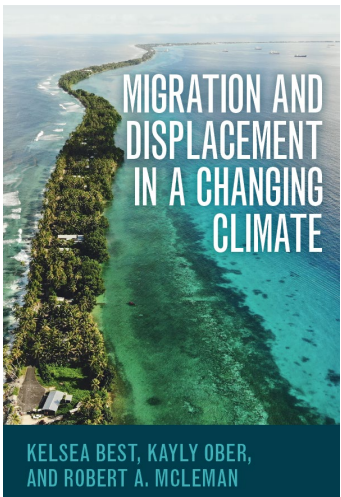
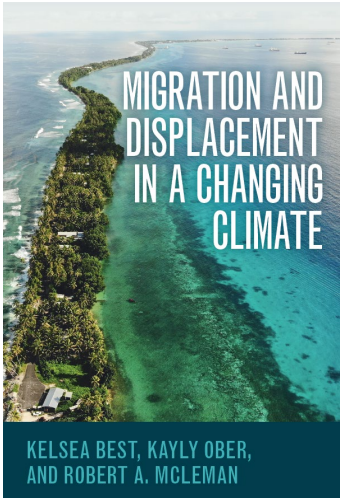# Figure 1.9: Diagram showing climate adaptation process + migration outcomes

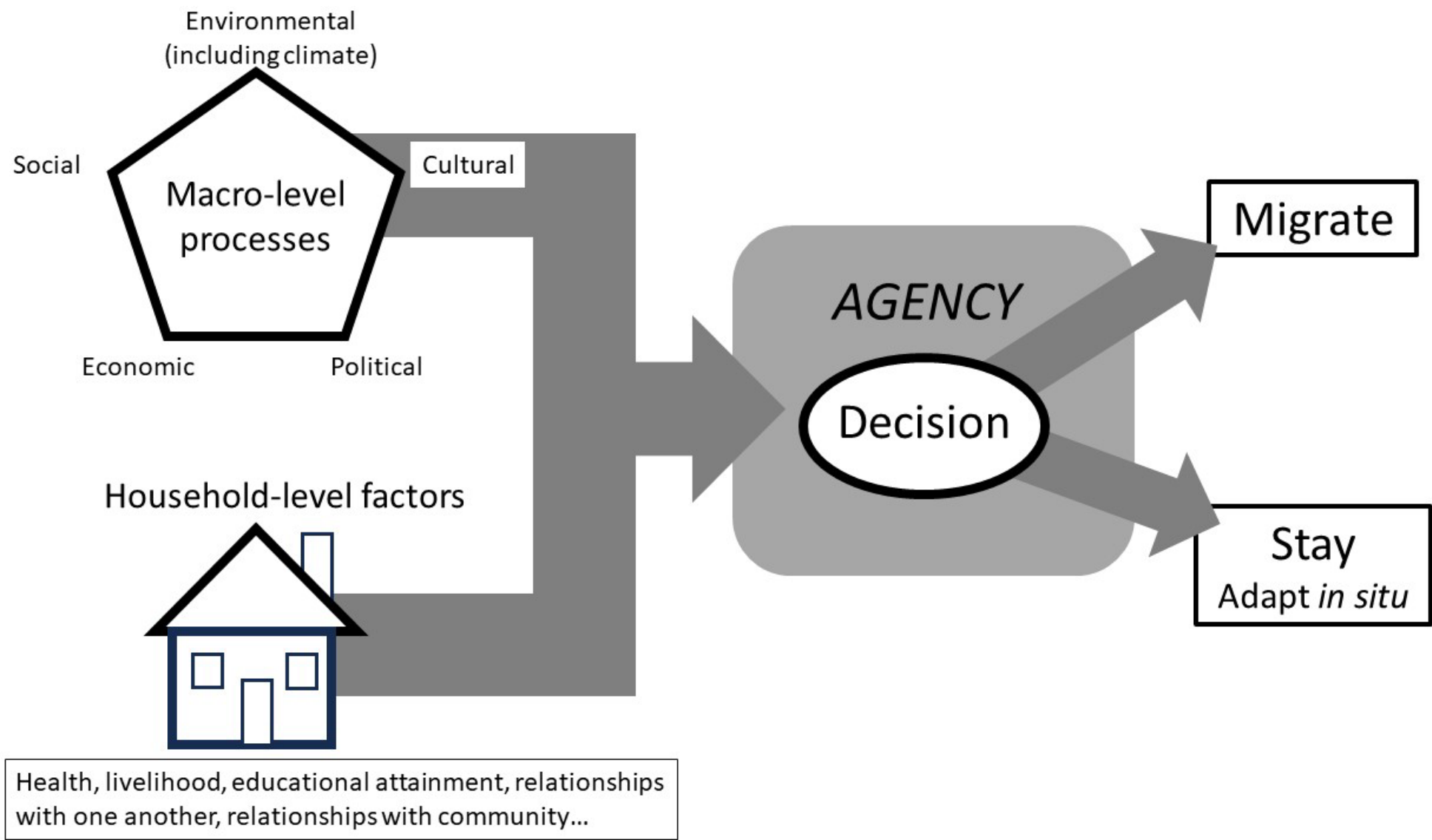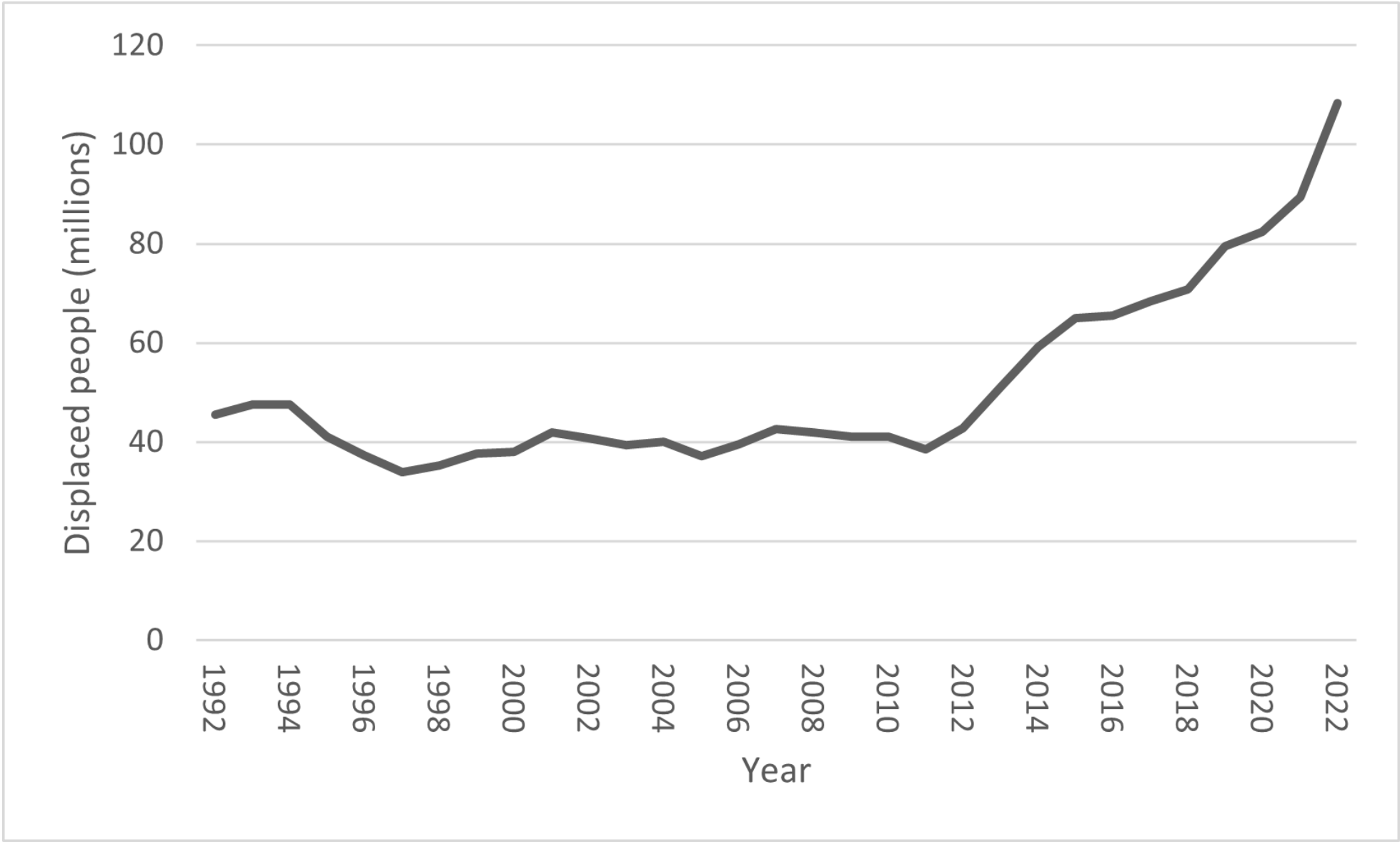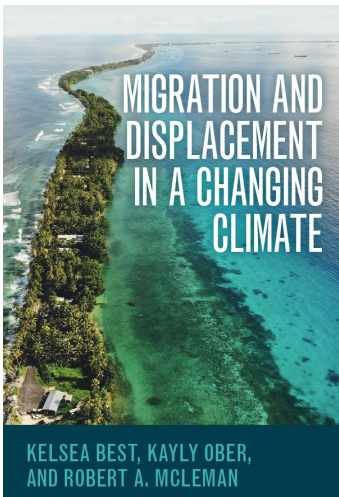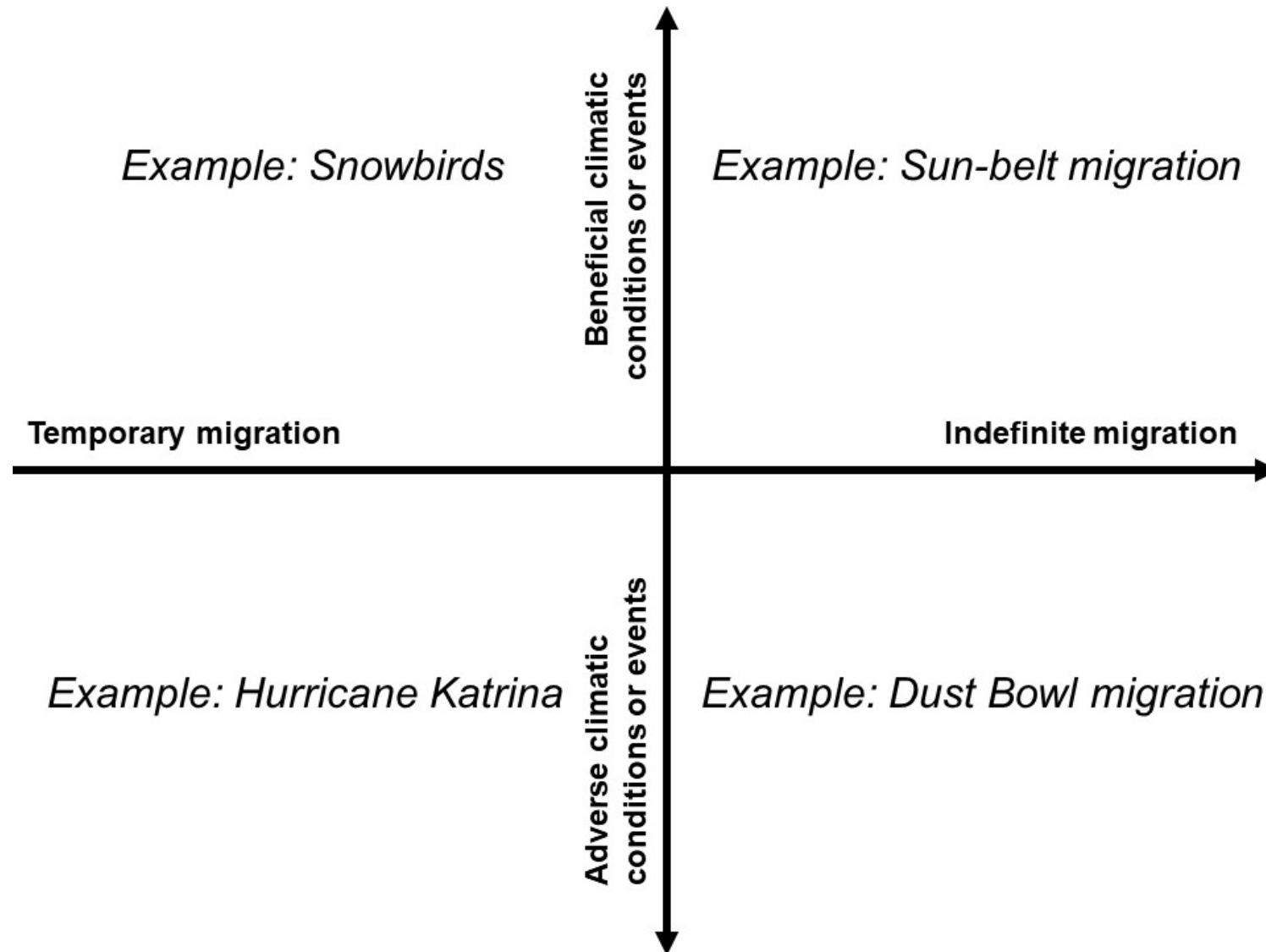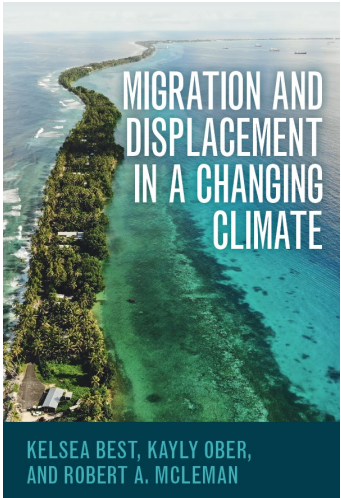Source: Best, K., Ober, K. & McLeman, R. 2025. *Migration & Displacement in a Changing Climate*. Cambridge University Press.

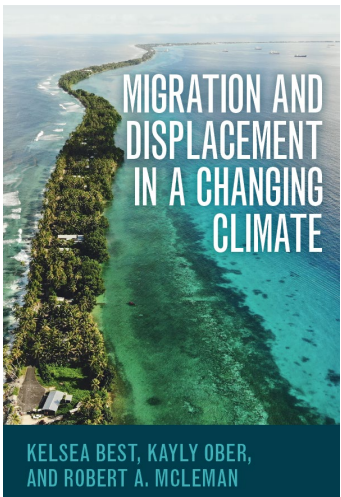# Figure 1.10: Estimated number of people displaced globally, 1992-2022

Figure 1.11: General types of climate-related migration, with examples from USA

Example: Snowbirds

Beneficial climatic conditions or events

Example: Sun-belt migration

Temporary migration

Indefinite migration

Example: Hurricane Katrina

Adverse climatic conditions or events

Example: Dust Bowl migration

MIGRATION AND DISPLACEMENT IN A CHANGING CLIMATE

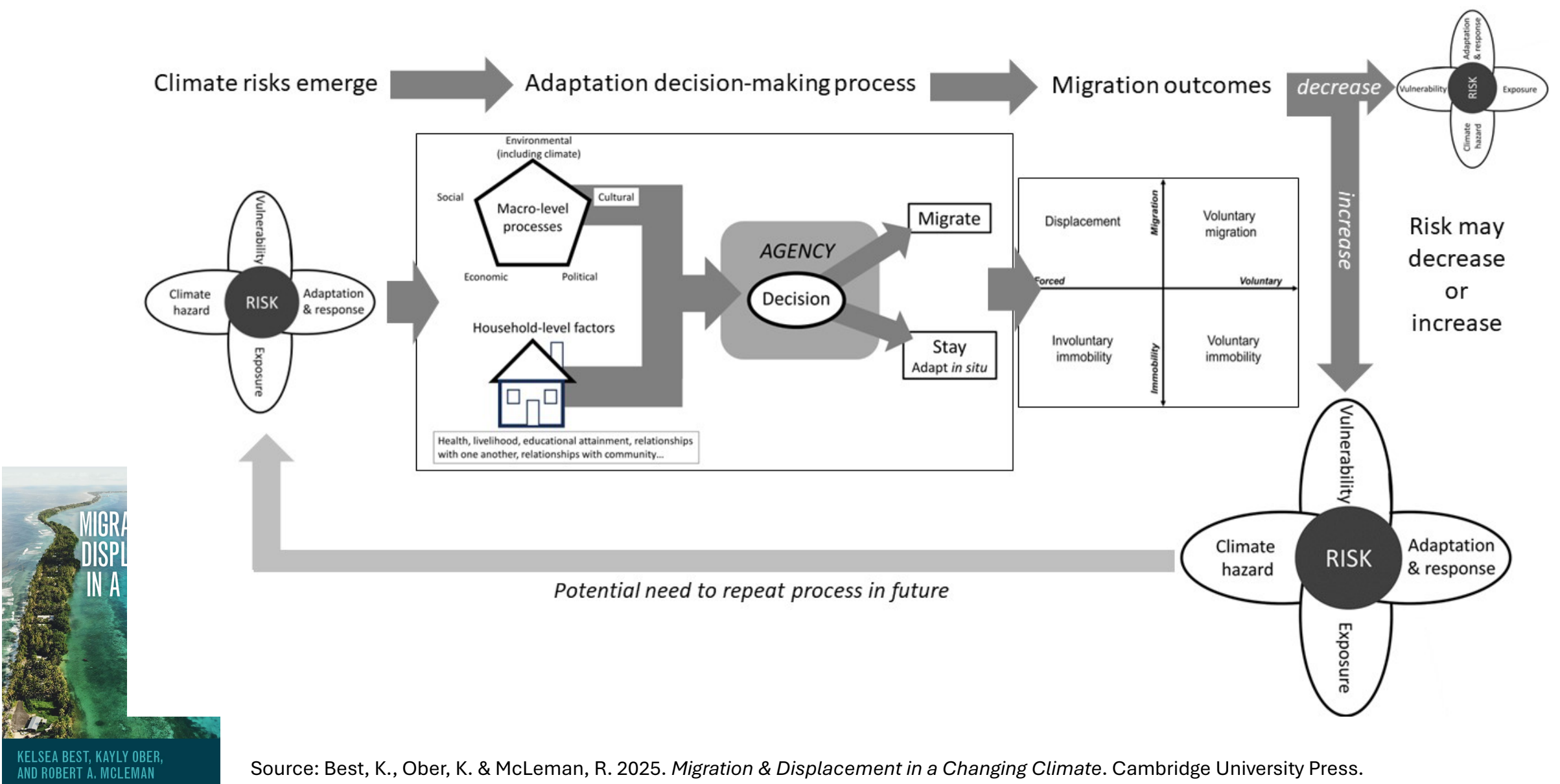KELSEA BEST, KAYLY OBER, AND ROBERT A. MCLEMAN

Source: Best, K., Ober, K. & McLeman, R. 2025. *Migration & Displacement in a Changing Climate*. Cambridge University Press.

Figure 1.12: Four general types of mobility/immobility based on migrant agency
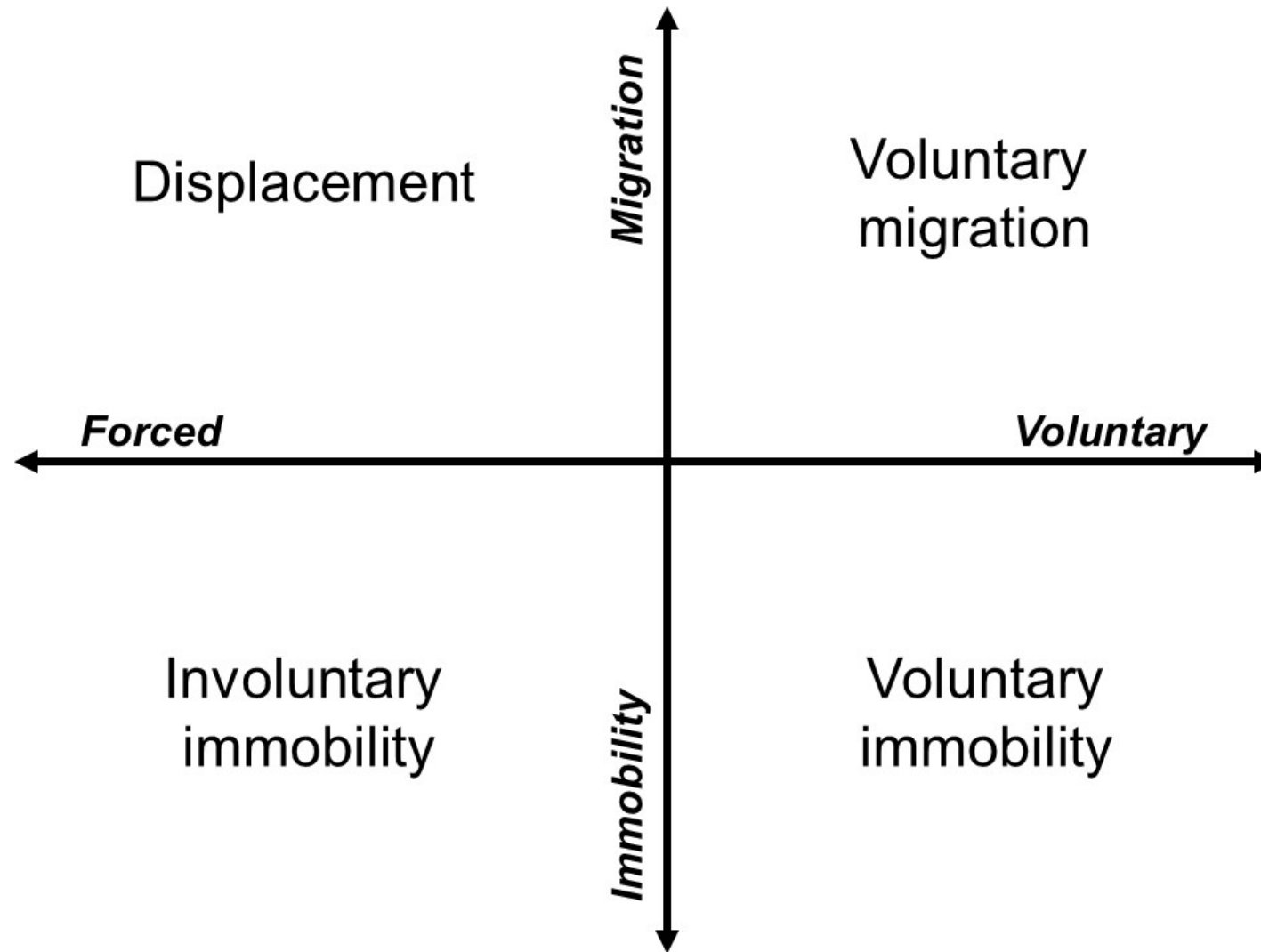
Figure 1.13: Diagram showing processes that shape migration & displacement in changing climate
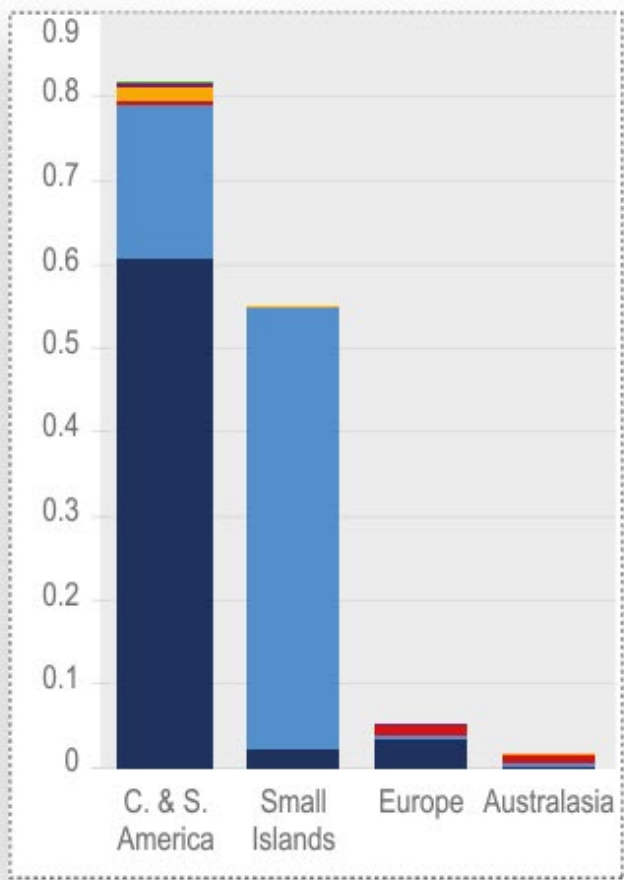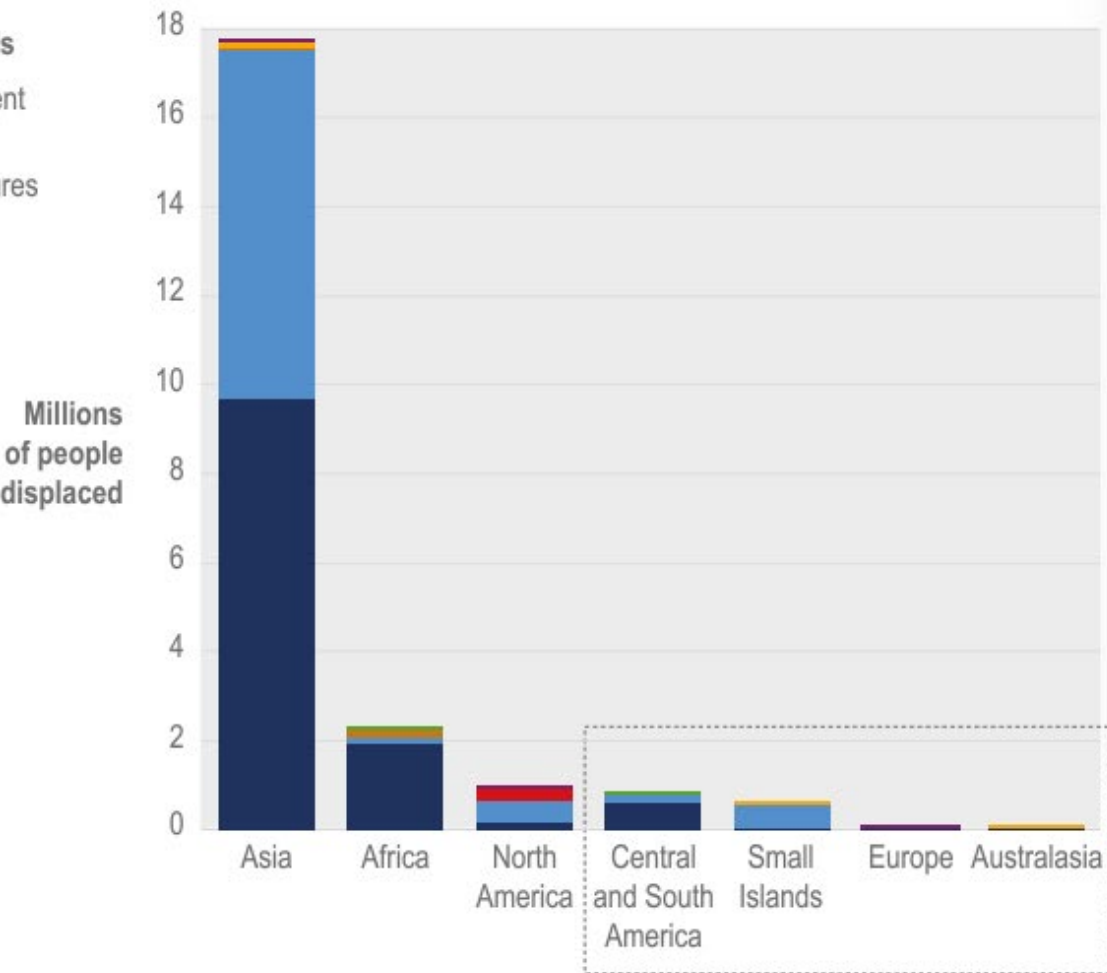

Source: Best, K., Ober, K. & McLeman, R. 2025. *Migration & Displacement in a Changing Climate*. Cambridge University Press.

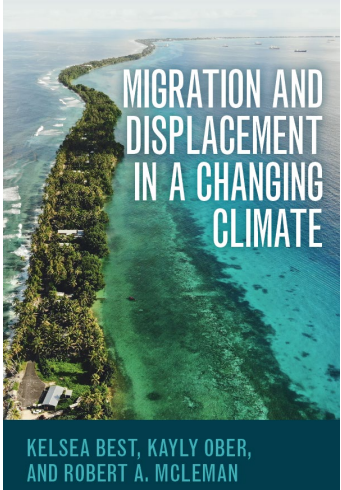# Figure 2.1: Average annual weather-related displacements, by region & hazard type, from IPCC 2022

Source: Best, K., Ober, K. & McLeman, R. 2025. *Migration & Displacement in a Changing Climate*. Cambridge University Press.

Figure 2.2: Global map showing national rate of population increase + emerging hazard risks

Increased frequency of river flooding

Increased frequency of extreme precipitation

Increased frequency of tropical cyclones

Rate of natural increase - births minus deaths (per year for 1,000 population)

Less than 0 | 0 to 5 | 5 to 10 | 10 to 15 | 15 to 20 | 20 to 25 | More than 25
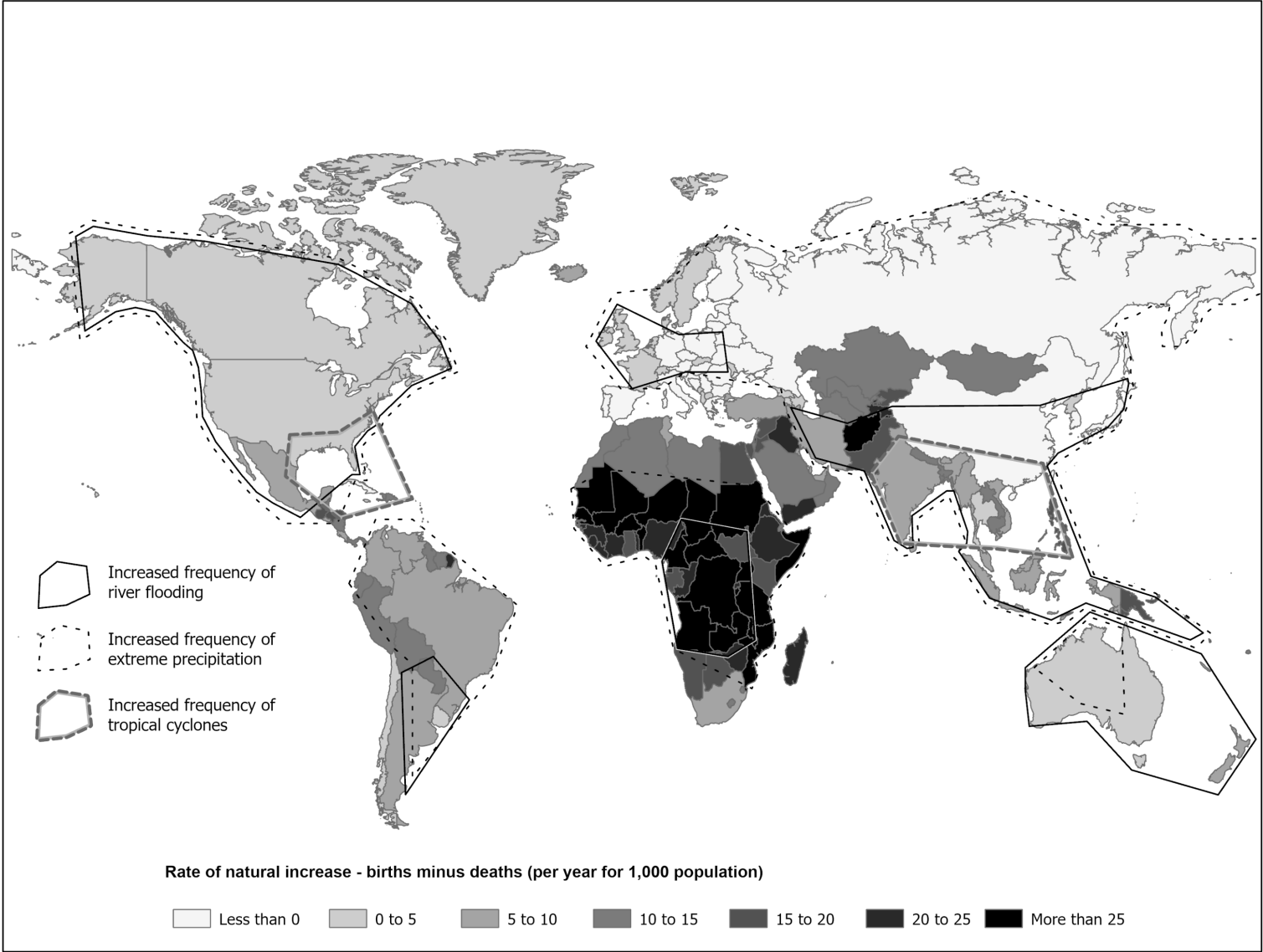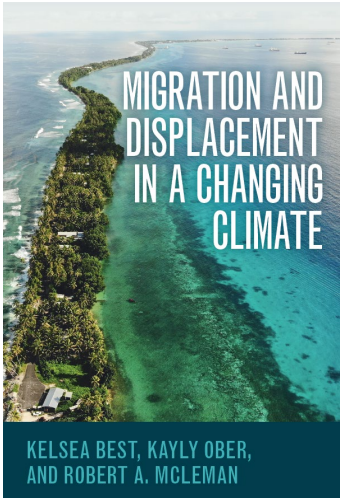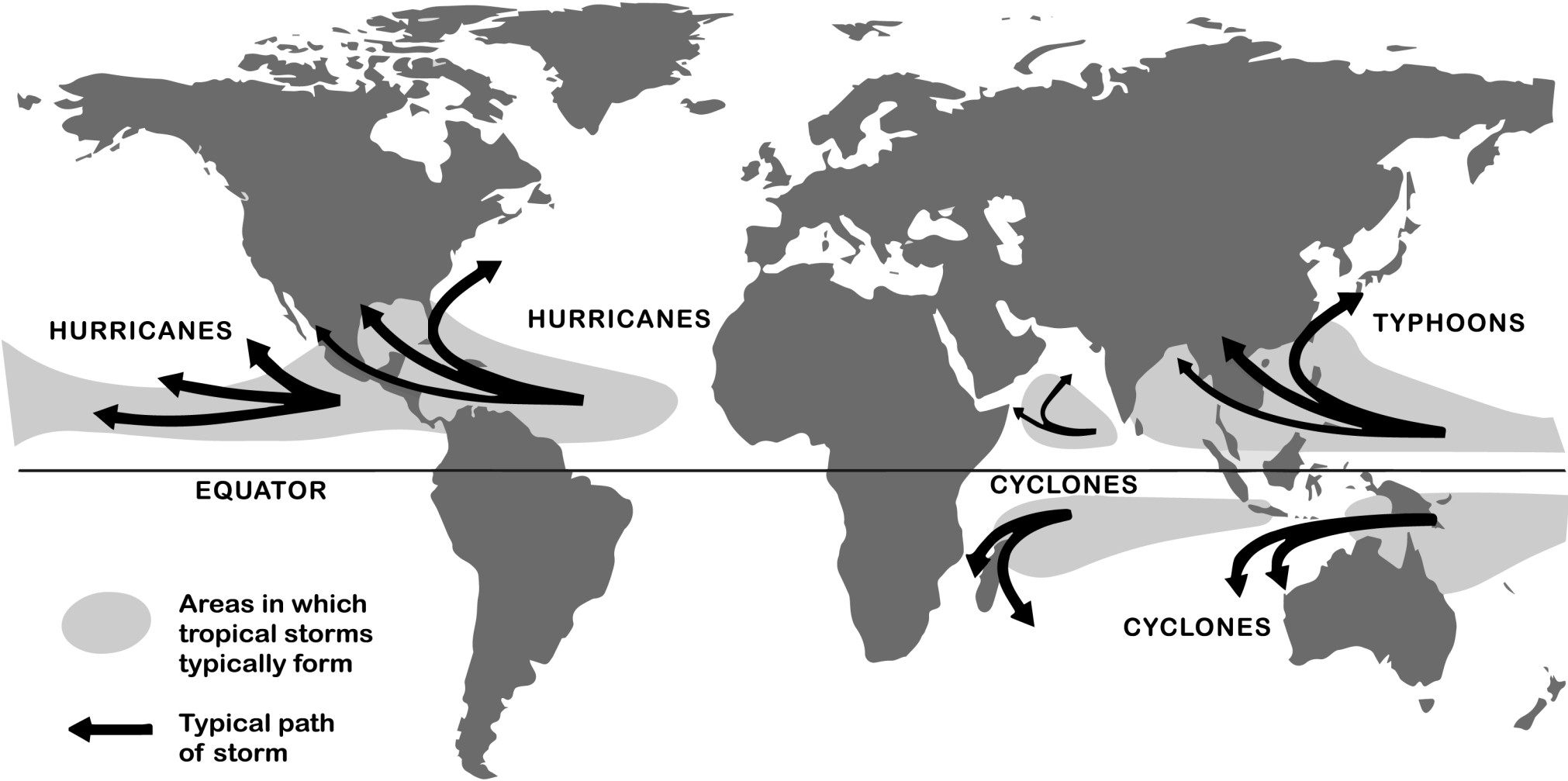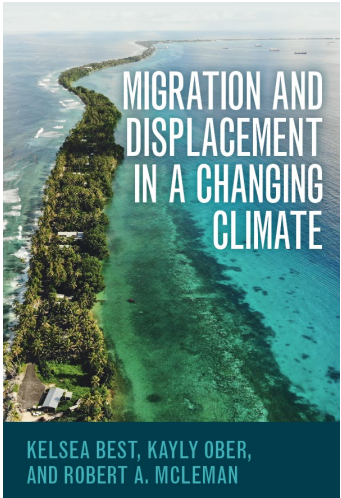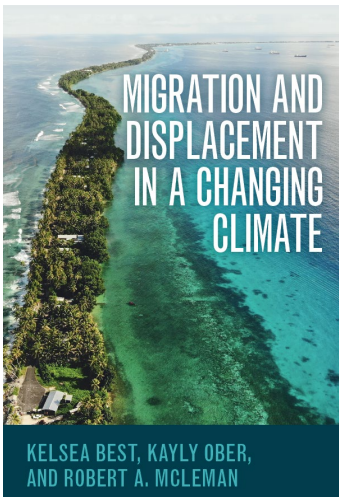
Source: Best, K., Ober, K. & McLeman, R. 2025. *Migration & Displacement in a Changing Climate*. Cambridge University Press.

Figure 2.3: Metal hurricane tie attaching ceiling joist to wall frame
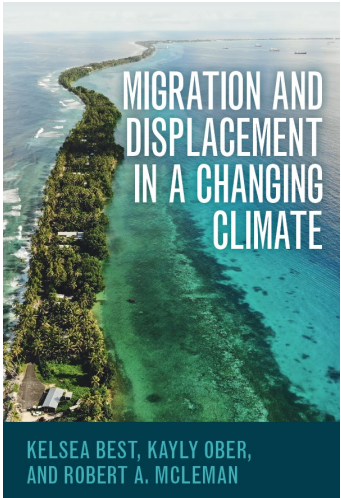

Source: Best, K., Ober, K. & McLeman, R. 2025. *Migration & Displacement in a Changing Climate*. Cambridge University Press.

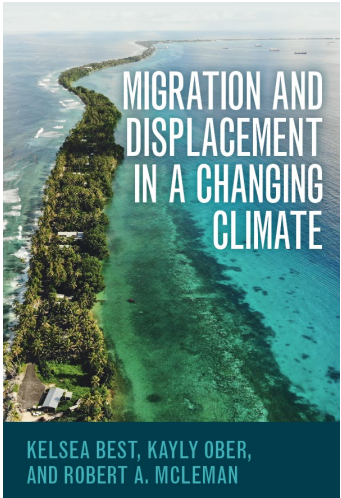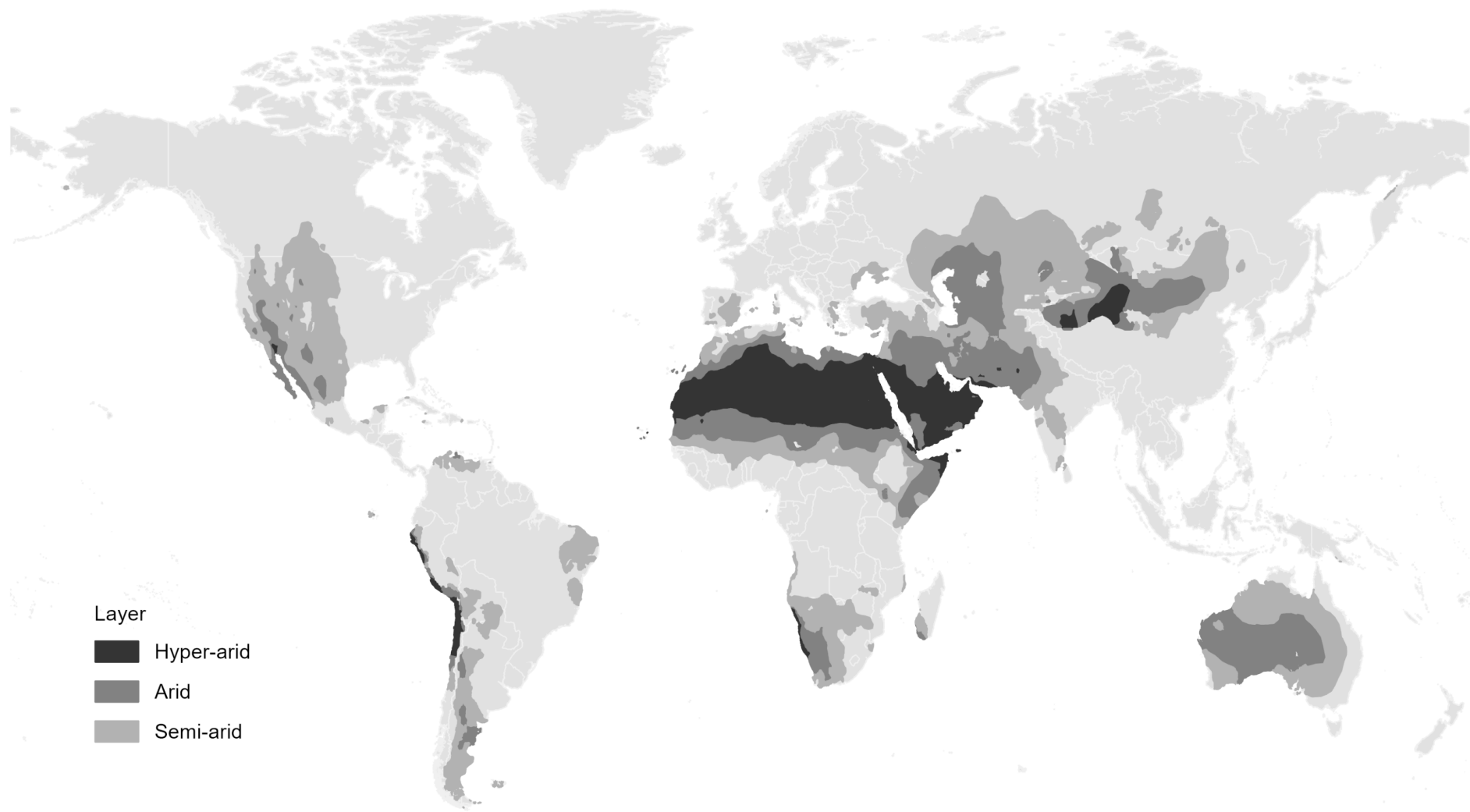# Figure 2.4: Regions where tropical storms & cyclones form

HURRICANES

HURRICANES

TYPHOONS

EQUATOR

CYCLONES

CYCLONES

Areas in which
tropical storms
typically form

Typical path
of storm

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DISPLACEMENT
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Figure 2.5: Map showing where tornadoes form

"Tornado Alley"

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DISPLACEMENT
IN A CHANGING
CLIMATE

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AND ROBERT A. MCLEMAN

Figure 3.1: Arid lands around the world

Layer
- Hyper-arid
- Arid
- Semi-arid

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DISPLACEMENT
IN A CHANGING
CLIMATE

KELSEA BEST, KAYLY OBER,
AND ROBERT A. MCLEMAN

Figure 3.2: Modeled changes in soil moisture under different warming scenarios

Direction of soil moisture change under +4°C warming
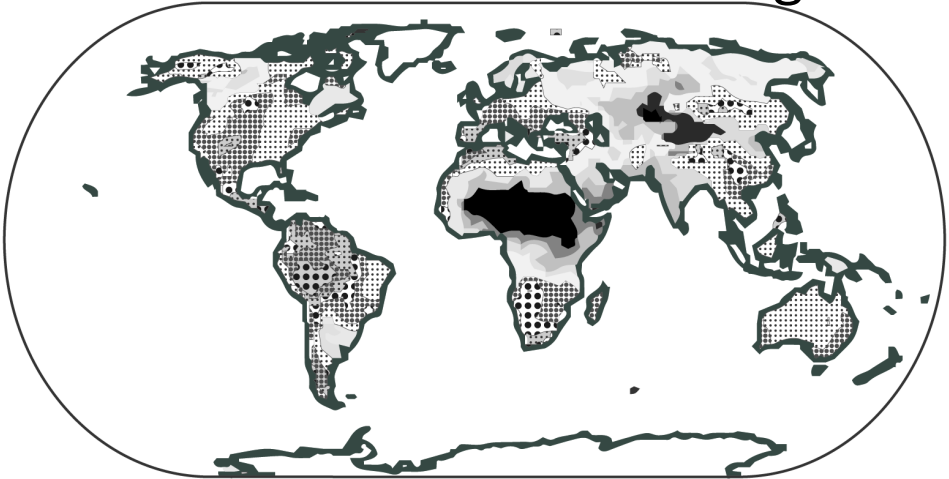
Direction of soil moisture change under +2°C warming

-2.5 -2 -1.5 -1 -0.5 0 0.5 1 1.5 2.0 2.5

δ

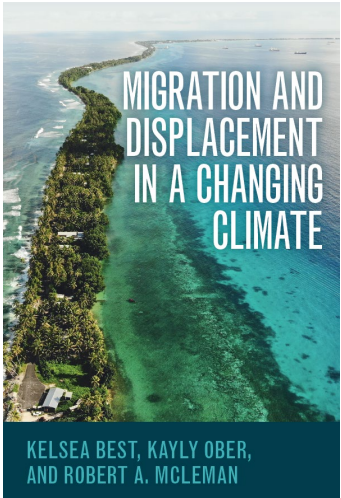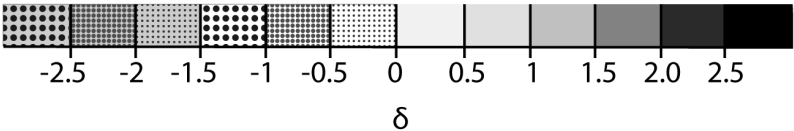MIGRATION AND DISPLACEMENT IN A CHANGING CLIMATE
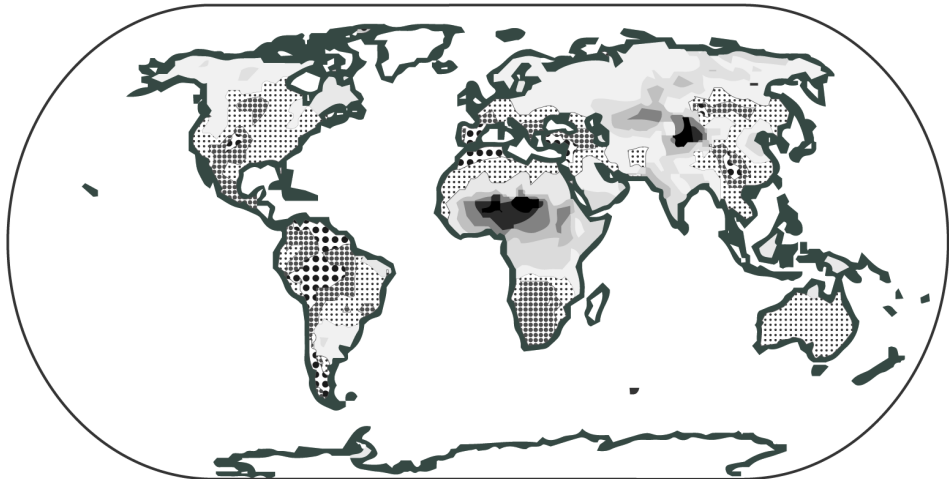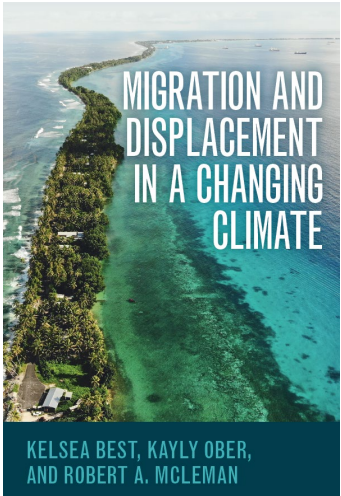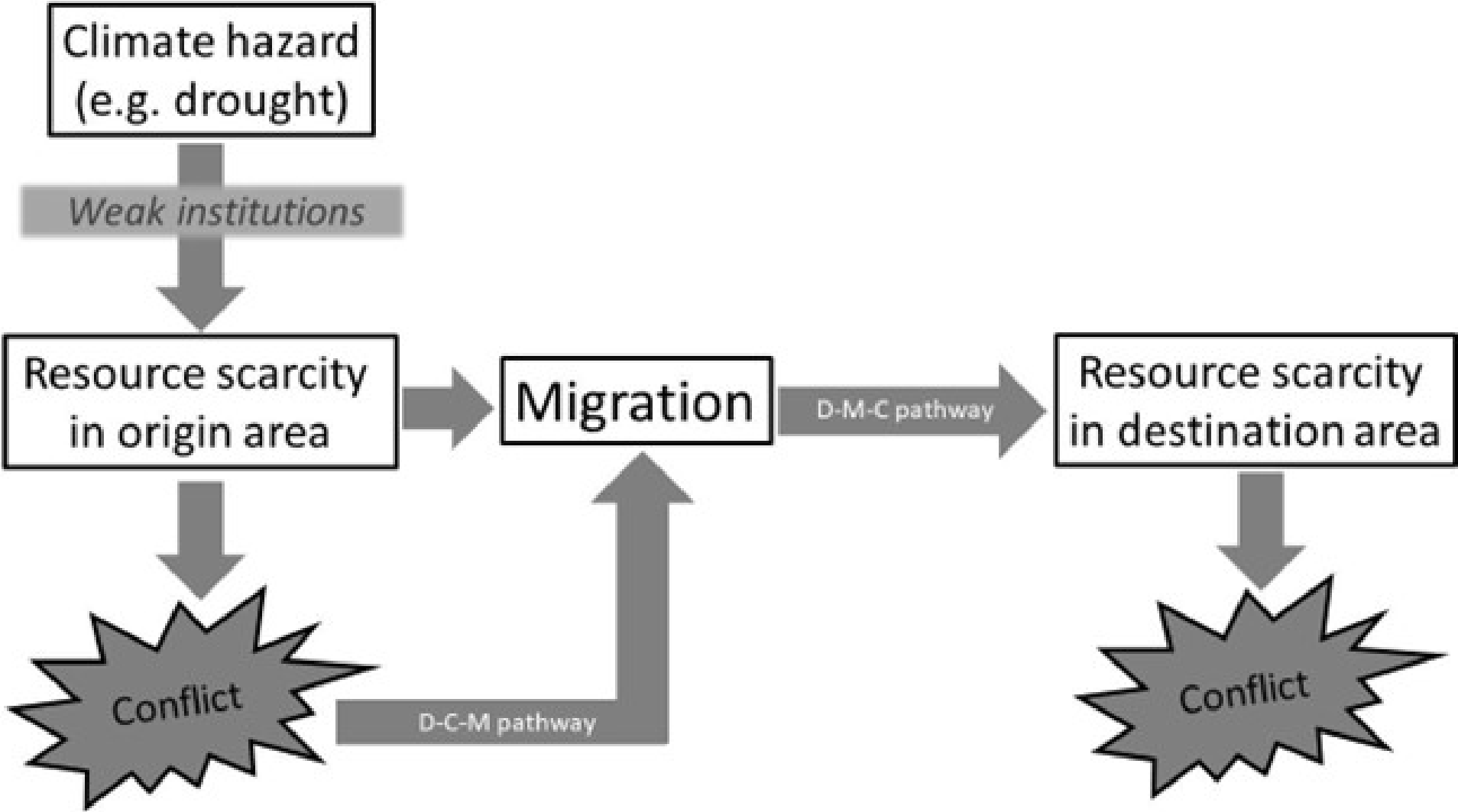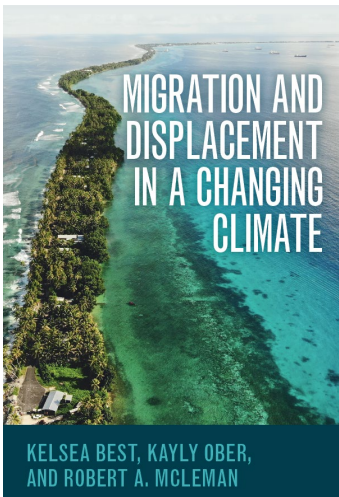
KELSEA BEST, KAYLY OBER, AND ROBERT A. MCLEMAN

Source: Best, K., Ober, K. & McLeman, R. 2025. *Migration & Displacement in a Changing Climate*. Cambridge University Press.

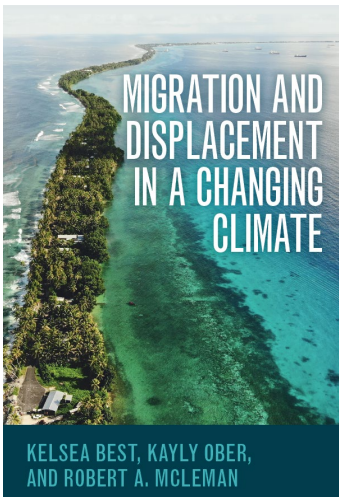# Figure 3.3: Hypothesized links between disasters, conflicts & migration

Source: Best, K., Ober, K. & McLeman, R. 2025. *Migration & Displacement in a Changing Climate*. Cambridge University Press.

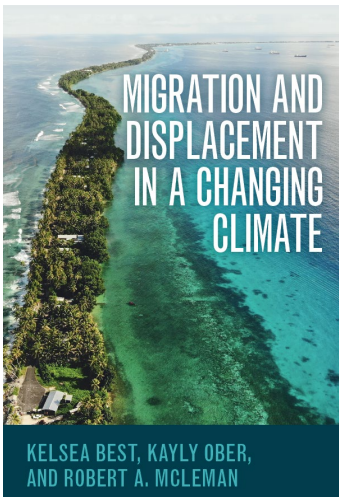# Figure 4.1: Young mangroves, Tampa bay, Florida

Source: Best, K., Ober, K. & McLeman, R. 2025. *Migration & Displacement in a Changing Climate*. Cambridge University Press.

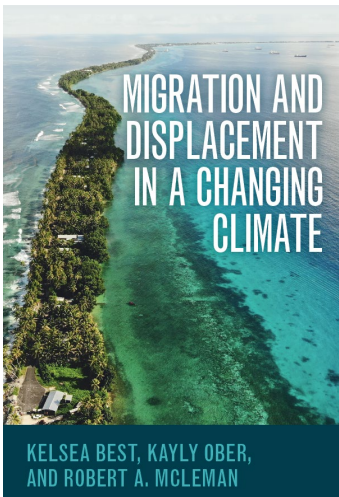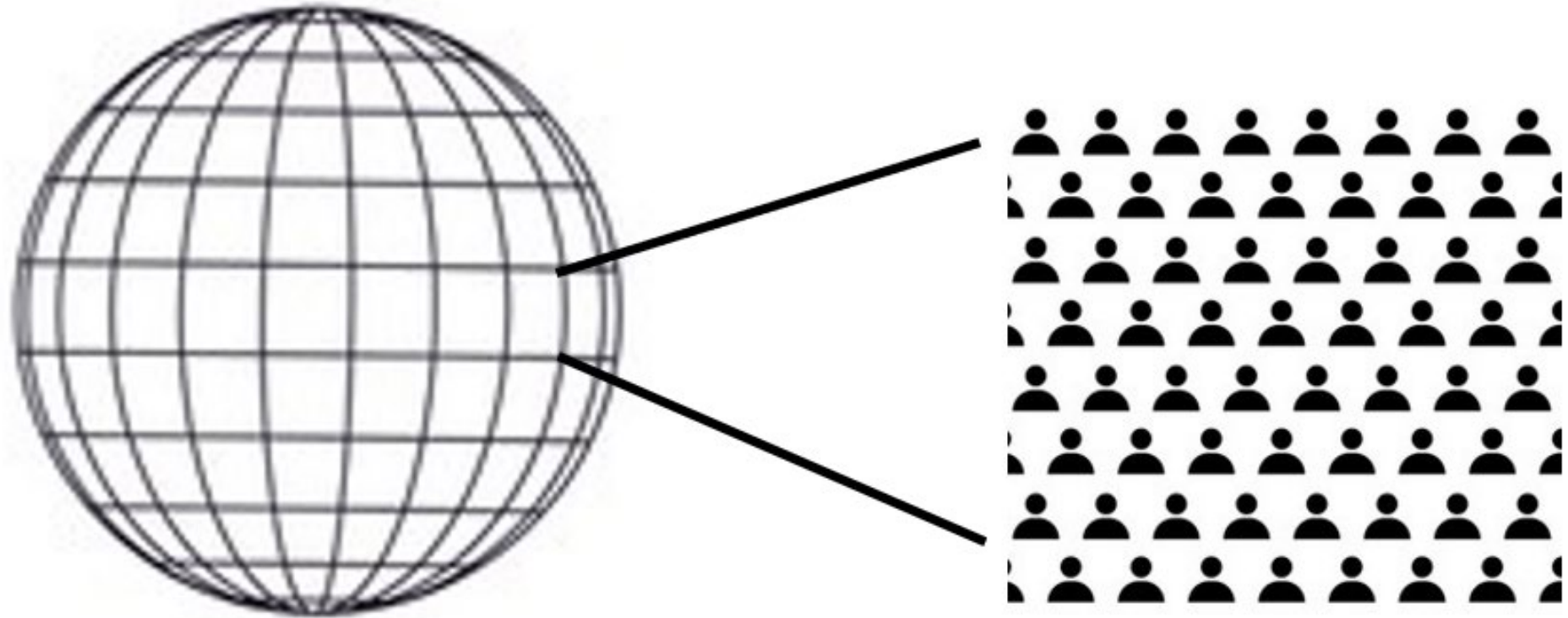# Figure 4.2: School building on stilts, Grand Isle, Louisiana

Figure 4.3: Overhead view of atoll

ISS002E6439 2001/05/24 00:28:46

Source: Best, K., Ober, K. & McLeman, R. 2025. *Migration & Displacement in a Changing Climate*. Cambridge University Press.

Figure 5.1: Diagram showing gridded population data
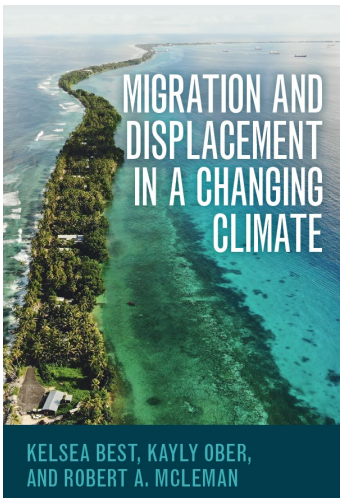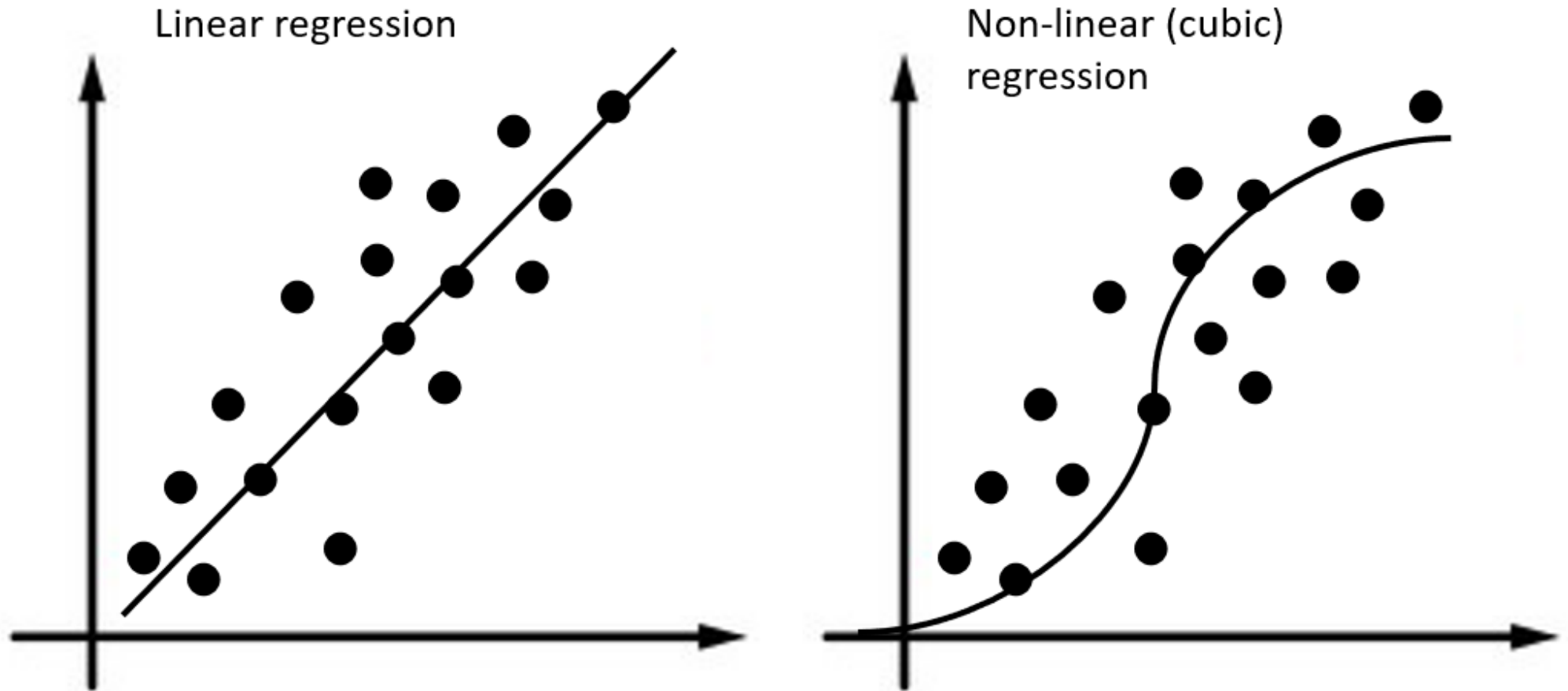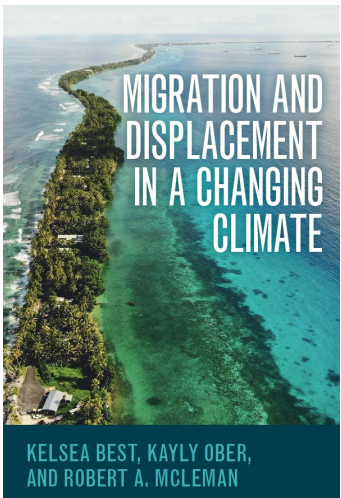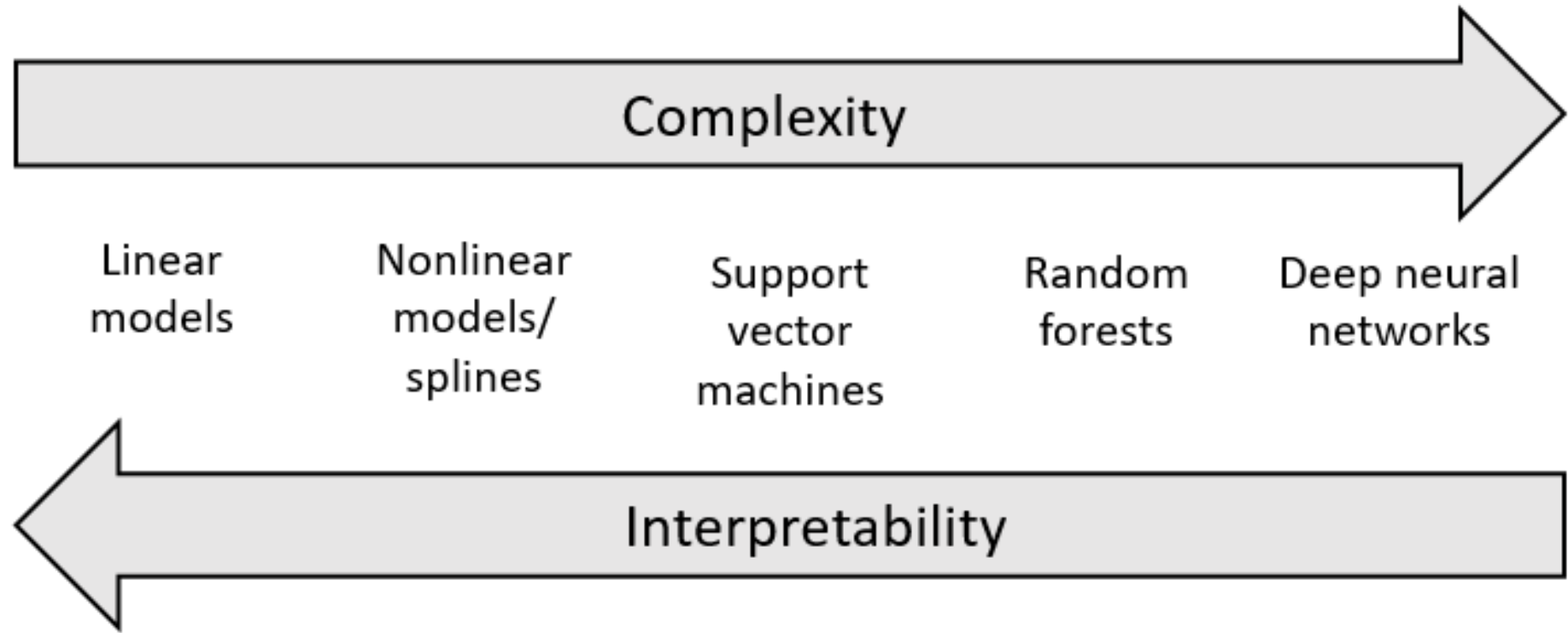

Source: Best, K., Ober, K. & McLeman, R. 2025. *Migration & Displacement in a Changing Climate*. Cambridge University Press.

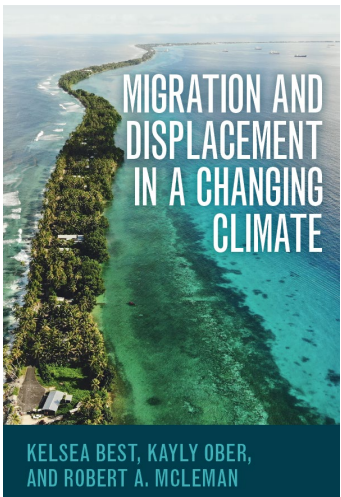# Figure 5.2: Diagram showing linear regression vs non-linear regression
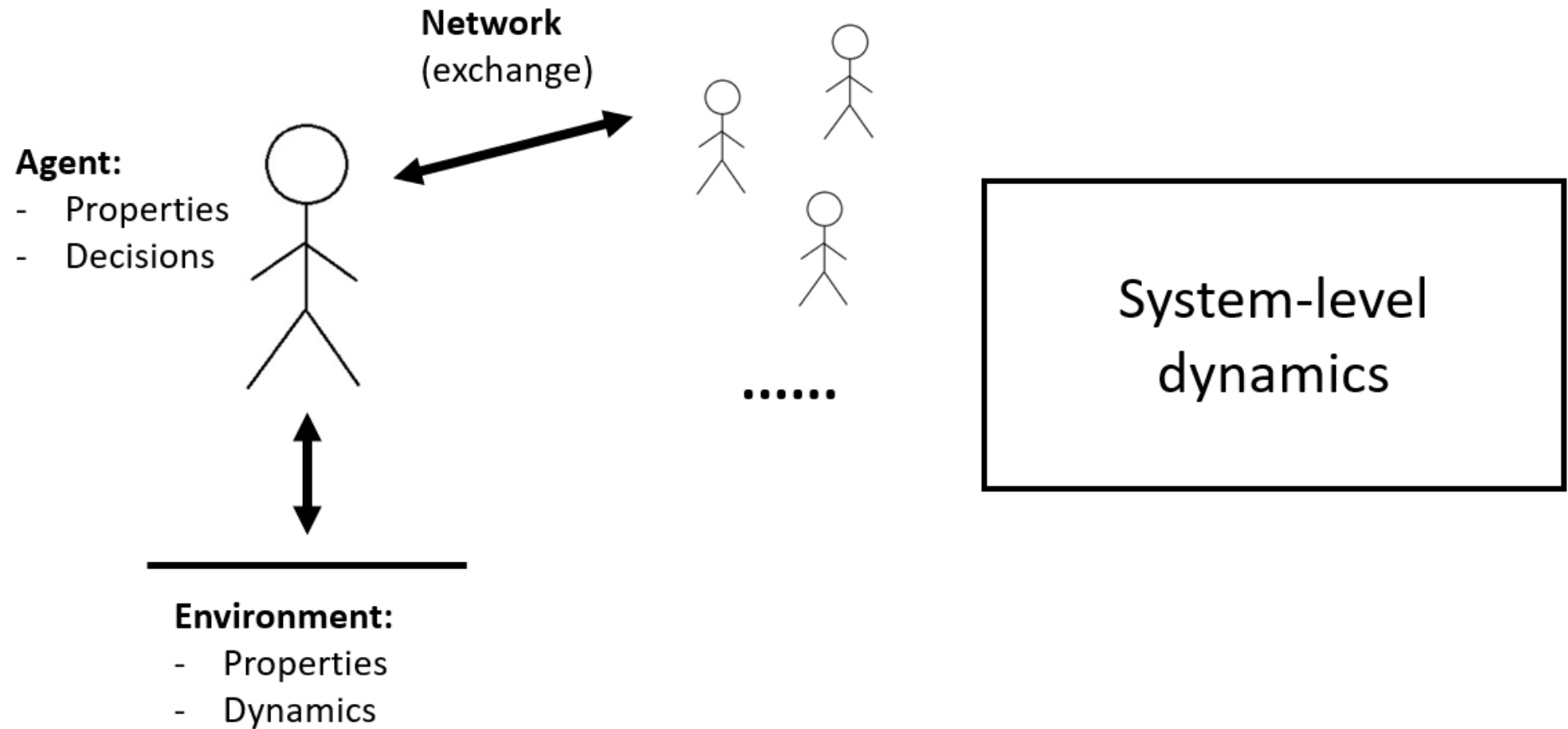

Source: Best, K., Ober, K. & McLeman, R. 2025. *Migration & Displacement in a Changing Climate*. Cambridge University Press.

Figure 5.3: Tradeoffs between complexity & interpretability when selecting model types

Complexity →

Linear models

Nonlinear models/ splines

Support vector machines

Random forests

Deep neural networks
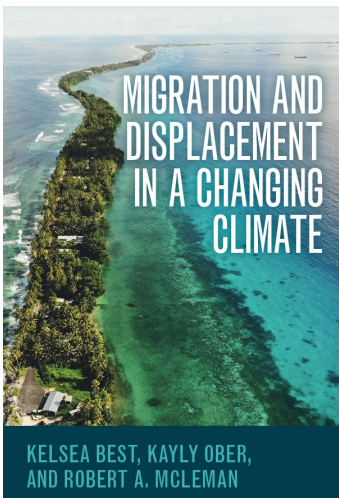
← Interpretability

Source: Best, K., Ober, K. & McLeman, R. 2025. *Migration & Displacement in a Changing Climate*. Cambridge University Press.

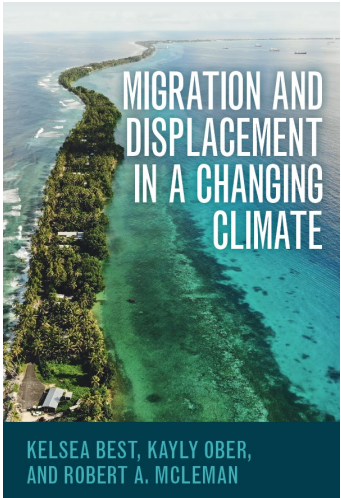# Figure 5.4: Conceptual diagram of agent-based models

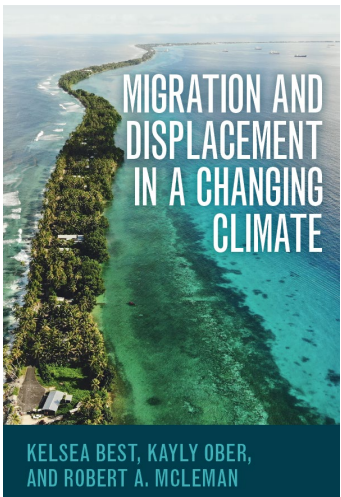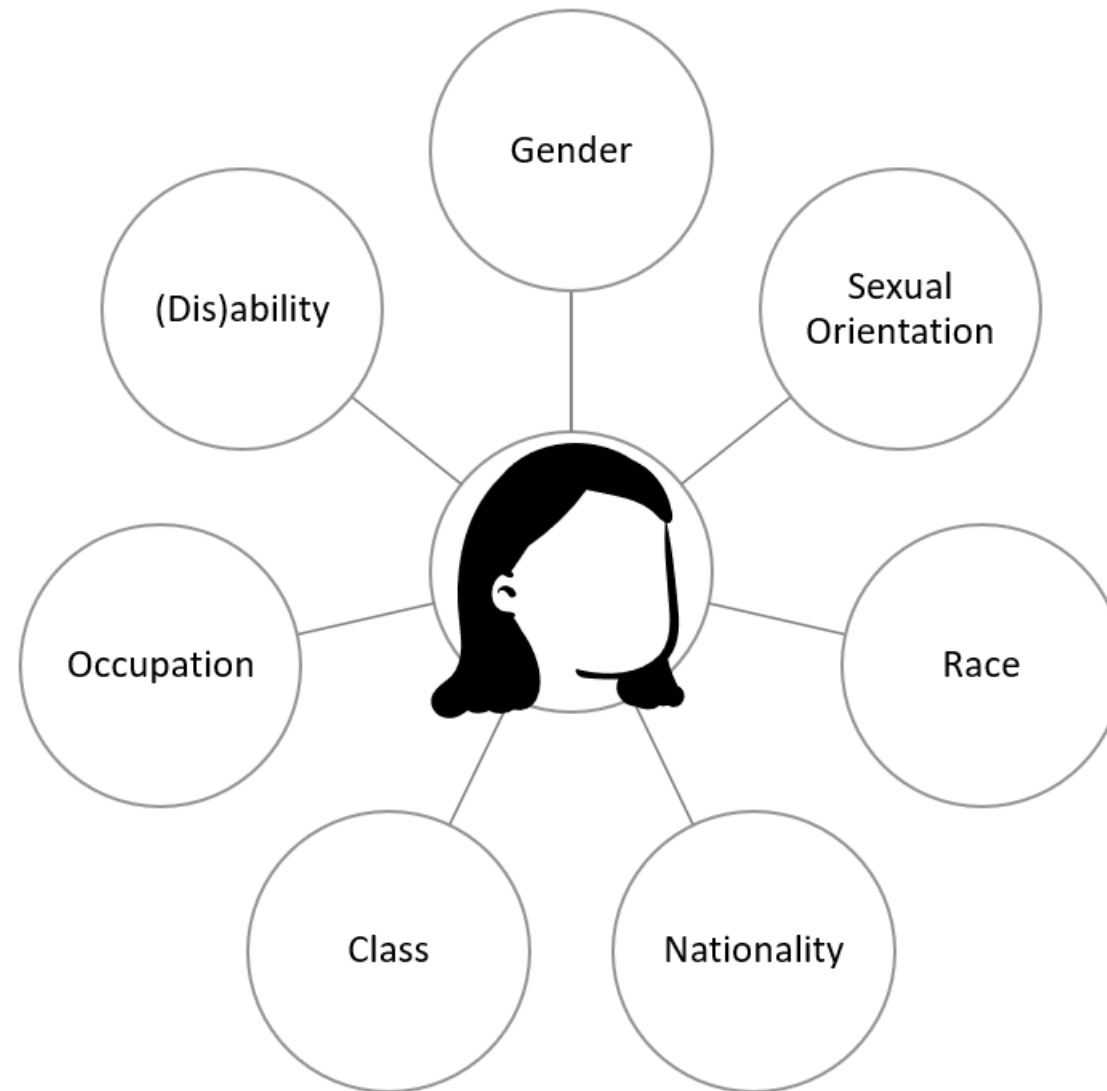# Figure 6.1: Entrance to UNFCCC COP23 meeting, Bonn, Germany, 2017

Source: Best, K., Ober, K. & McLeman, R. 2025. *Migration & Displacement in a Changing Climate*. Cambridge University Press.

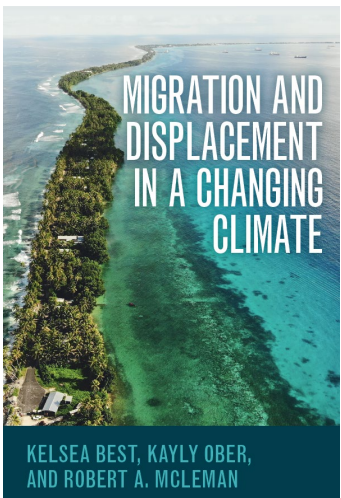# Figure 6.2: The UN Sustainable Development Goals (SDGs)

Source: Best, K., Ober, K. & McLeman, R. 2025. *Migration & Displacement in a Changing Climate*. Cambridge University Press.

Figure 7.1: Components of an individual's identity

Source: Best, K., Ober, K. & McLeman, R. 2025. *Migration & Displacement in a Changing Climate*. Cambridge University Press.

Figure 7.2: Mural in "Little Haiti" neighborhood, Miami, Florida