

# Update Log 2 Starting August 24, 2021

August 24, 2021

- The entire Guide has been updated to include the latest information from the IPCC AR6 WG1 Climate Change 2021: The Physical Science Basis released August 9, 2021. The Guide will be further updated when the remaining two reports are released prior to the end of October this year.

September 6, 2021

- Chapters 11 includes reference to recent modelling and WMO publication describing ENSO.
- Chapter 15 includes recent information on GHG concentrations from NASA (interactive) others.
- Chapter 16 includes observed surface temperature and sea ice extent (Arctic) as a function of location and year – interactive feature produced by NASA.
- Chapter 21 includes interactive feature produced by NASA using IPCC modelling results allowing reporting of sea level changes as a function of location, date and scenario.
- Table of contents, list of figures and list of tables as required.

September 19, 2021

- Chapter 15 updated to include interactive global greenhouse gas information from the World Resources Institute/ Copernicus Climate Change Service/ Climate Watch.
- Chapter 20 edited to reflect changes in Chapter 15.
- Table of contents to reflect changes in Chapter 15.
- List of figures to reflect changes in Chapter 15.
- List of tables to reflect changes in Chapter 15.

September 28, 2021

- Chapter 14 updated to include information on Landsat 9.
- List of figures.

September 30, 2021

- Chapter 14 additional information on Landsat 9 and minor editing.

October 25, 2021

- Preface UNFCCC COP26 and CBD COP25
- Chapter 1 include Nobel Prize winners, evidence of impact of climate change and consensus of scientists on anthropogenic impacts on climate change.

- Chapter 2 editorial issues, history of climate modelling.
- Chapter 7 atmospheric rivers, extreme weather.
- Chapter 15 brief discussion on advances in satellite technology.
- Chapter 16 expansion of discussions on biodiversity, health and sea level.
- Chapter 17 expansion of history of development, Nobel Prize winners, emulator models.
- Chapter 18 atmospheric rivers.
- Chapter 19 updated discussion on health and climate justice.

**November 1, 2021**

- Table of Contents, editing.
- Chapter 4 Include a brief description of causes of climate change by NASA.
- Chapter 16 Include NASA and NOAA discussions on sea level. Update from recent polls on eco-anxiety in section on health.

**November 28, 2021**

- Addition of updates on COP26.

**December 3, 2021**

- List of Figures, editing.
- Chapter 7 Expanded on atmospheric river discussion.
- Chapter 16 Added atmospheric river impacts on southwest British Columbia.

**December 4, 2021**

- Table of Contents, added heat dome to Chapter 7.
- List of Figures, editing.
- Chapter 7 Expanded with discussion on heat domes.
- Chapter 16 Added impact of heat dome on extreme temperatures in the Pacific NW.

**December 5, 2021**

- Table of Contents, Chapter 16, listed new sections in extreme weather wrt atmospheric river and heat dome.
- Chapter 16 moved discussions on atmospheric river and associated flooding in southwest British Columbia and heat dome in the Pacific Northwest to their own sections in extreme weather.
- Chapter 7 Refined and expanded discussion on atmospheric rivers.

**January 1, 2022**

- Table of Contents, Chapter 17 new section on ensemble models and Chapter 21 to include sections on Climateinformation.org and Climate Data for a Resilient Canada.

- Chapter 13 updated section on Little Ice Age.
- Chapter 16 expanded discussion on sea level change, Arctic Reports, Himalaya glaciers, Thwaites glacier Antarctica, lake ice.
- Chapter 17 added section on ensemble models.
- Chapter 19 expanded discussion on financial adaptation including references to books, Risk Thinking in an Uncertain World by Ron S. Dembo and Values: Building a Better World for All by Mark Carney.
- Chapter 21 included sections on Climateinformation.org and Climate Data for a Resilient Canada.
- Chapter 24 add items to list of educational web sites.

#### January 13, 2022

- Chapter 16 recent published report on ocean heat content report that the last seven years have been the hottest on record.

#### February 4, 2022

- Table of Contents, updated and edited.
- Chapter 3 added brief discussion on nature of weather forecasting.
- Chapter 5 added brief description and reference as to how carbon dioxide absorbed by phytoplankton in the oceans contributes to deep ocean sequestration of carbon dioxide.
- Chapter 16 added discussion on frequency and impact of extreme marine heat, occurrence of severe snowstorms and the observation of earlier flowering of plants and potential consequences attributed to climate change.
- Chapter 17 comment regarding difference between models used for weather forecasting and climate change.

#### February 6, 2022

- Chapter 7 expanded discussion of jet streams, description, science and how they affect weather.

#### February 10, 2022

- Chapter 15 expanded discussion on water vapour using recently published discussion from NASA.

#### February 14, 2022

- Table of Contents expanded.
- List of Figures expanded.
- Chapter 7 edited.
- Chapter 16 explanation as to why the Arctic warms faster than the rest of the planet and expanded discussion on Arctic permafrost, occurrence of fossil methane, impact

of a warming Arctic on methane release to atmosphere, and expanded and edited discussion of Antarctica.

**February 23, 2022**

- Chapter 16 update on wildfires in Argentina in 2022 and British Columbia in 2021.

**February 27, 2022**

- Chapter 15 Added discussion on net-zero emissions and the objective to maintain constant GHG concentration in atmosphere.
- Chapter 16 Update on warming Antarctica.
- Table of Contents expanded.
- List of Figures expanded.

**March 13, 2022**

- All content reviewed and edited. All footnotes edited to include IPCC Feb 28 report.
- Chapter 15 edited to include discussion on net zero and committed warming.
- Chapter 17 edited to include discussion on integrated assessment models.
- Chapter 18 edited to include discussion on net zero and committed warming and expanded discussion on integrated assessment models.
- Chapter 21 edited to include discussion on net zero and committed warming and expanded discussion on integrated assessment models.
- Chapter 22 added to discuss latest IPCC report WGII on impacts, adaptability and vulnerability.
- Chapter 23 added. Skelton chapter waiting for IPCC report WGIII.

**April 7, 2022**

- All footnotes edited.
- Table of Contents reviewed and edited.
- List of Figures reviewed and edited.
- Chapter 15 discussion on black and brown carbon expanded.
- Chapter 16 discussions on Arctic methane release from permafrost and fossil sources, temperature increases in Arctic and Antarctica, coral bleaching update, and impact of temperature increases on human health.
- Chapter 18 additional discussion on scenarios.
- Chapter 21 additional discussion on scenarios.
- Chapter 22 edited and updated list of sources of information.
- Chapter 23 completed list of sources of information.

**April 23, 2022 – Earth Day**

- Chapter 1 minor editing and updating.

- **Chapter 16 added discussion on causes for breakup of Larsen C ice shelf Antarctica.**
- **Chapter 21 edited and added commentary by World Resources Institute.**
- **Added short essay, 'Earth is a Place for Life'.**