

Update Log 1 – January 9, 2021 to July 2, 2021

January 9, 2021

Ch 16 Observations

- Tree line
- Starfish
- 2020 tied for hottest year
- CO2 emissions 2020
- Pine bark beetle

January 13, 2021

Ch 8 Ocean circulation

- Gulf stream

Ch 16 Observations

- Insect loss
- Fish warm water migration
- Temperature oceans
- Jelly fish
- Seabirds

Ch 19 Adaptation

- Fish regulatory
- Sahel. One Planet Summit

January 16, 2021

Ch 20

- Grammar
- Paris Agreement

Ch 19

- Paris Agreement
- Adaptation Gap Report 2020

January 18, 2021

Ch 15

- Added section on carbon footprint and audit

Ch 20

- **Comment on need for carbon footprint and audit**

Ch 22

- **Minor editing**

January 19, 2021

Ch 16

- **Minor editing**
- **Added URLs for animal species listed under Section 16.15 Habitat change**

January 27, 2021

Ch 16

- **Minor editing**
- **Added section on extreme weather.**

Ch 15

- **Added section on definition and use of carbon intensity**

January 29, 2021

Ch 16

- **Added videos on decline of Arctic sea ice**
- **Added section on desertification**

February 1, 2021

Ch 16

- **Update on iceberg A-68, article and video**

February 3, 2021

Ch 15

- **Added section on other carbon description terms**

February 5, 2021

Ch 4

- **Added reference on GHGs.**

Ch 15

- **Added Table 15.1.**
- **Added discussion on carbon allowances, caps, and purchase of allowances and off sets.**

Ch 16

- **Discussion on polar amplification.**

Ch 18

- **Discussion on polar amplification.**

February 6, 2021

Ch 5

- **Added Section 5.8 Weathering and Figure 5.5**

February 7, 2021

Ch 6

- **Added information on formation of glacial lakes and their danger.**
- **Added description of calving process.**

Ch 16

- **Added recent observations of glacial lakes, danger and outburst.**

Ch 19

- **Added web pages regarding Prince Charles Terra Carta initiative**
- **Added comments by WHO and Mark Carney on expected mortality due to climate change.**

February 13, 2021

Front matter: updated for Ch 15 additions

Ch 5

- **Editing**

Ch 15

- **Added section 15.3 carbon dioxide emissions by fuel type**
- **Added section 15.4 carbon dioxide emissions from cement production**

- Added section 15.5 methane emissions
- Added section 15.12 carbon neutral, decarbonizing, net zero, carbon efficiency
- Added section 15.13 carbon management which includes cap-and-trade, carbon tax, carbon dividend, carbon leakage, carbon tariff and carbon pricing.

February 21, 2021

Front matter: updated for Chapters 23 and 24

- Ch 23 Glossary
- Ch 24 Added Selected Web Sites

February 24, 2021

- Ch. 24 Selected Web Sites. Added newsletters.

February 28, 2021

Front matter: updated for Chapters 15 and 16

- Ch 1 updated to properly consider Chapters 23 and 24
- Ch 15 added terminology for GHG emission management
- Ch 16 wildfire reference NASA

March 3, 2021

- Ch 8 updated to include recent information on the Atlantic Meridional Ocean Circulation
- Ch 11 updated to include recent information on the Atlantic Meridional Ocean Circulation

March 7, 2021

- Ch 13 updated to include reference to book, *The Ends of the World* and improved reference to book, *Paleoclimatology from Snowball Earth to the Anthropocene*.
- Ch 16 updated to include reference to the books, *The Ends of the World* and *Paleoclimatology from Snowball Earth to the Anthropocene* and discussion of habitat fragmentation.
- Ch 22 updated to include reference to book, *The Ends of the World*.

March 12, 2021

- Ch 15 updated Water Resource Institute for GHG assessments

March 31, 2021

- Ch 24 addition of education resources for public schools

April 5, 2021

- Ch 5 add reference NASA air-sea carbon dioxide exchange.
- Ch 13 Leaf wax proxy.
- Ch 12 additional reference on proxy data.
- Ch 14 Instrumental Period – added NASA reference.

April 11,2021

- Ch 14 add consideration of impact of fisheries using trawling and loss of peatland habitat.
- Ch 15 add consideration of impact of fisheries using trawling and loss of peatland habitat.

April 12, 2021

- Ch 16 add consideration of impact of global warming on endemic species and impact of global warming on Antarctic ice shelves

April 16, 2021

- Ch 11 recent studies on how El Nino is affected by global warming.
- Ch17 discussion on regional climate models to include convection permitting models or CPM's

April 24, 2021

- Ch 14 and Ch 16 use of the Grace satellites to estimate ice mass loss from Greenland and Antarctica

April 30, 2021

- Ch 14 and Ch 16 use of Terra satellite to monitor glacier loss world wide.

May 23, 2021

- Ch 15 include discussion on aerosols and atmospheric rivers
- Ch 16 include recent publication by the USEPA on climate indicators.

June 1, 2021

- Ch 16 include recent publication in the journal Nature of Climate Change on heat-related deaths.

June 4, 2021

- Ch 6 include recent research on clouds and their impact on the energy budget.
- Ch 16 include recent discussion on global warming of lake habitat.

June 24, 2021

- **Ch 18 discussion of tipping points.**

June 25, 2021

- **Ch 6 additional discussion on snow melt.**
- **Ch 18 additional discussion on AR6 WGII and impact of climate change on mountain snow melt.**

July 2, 2021

- **Updated acknowledgements and index**
- **Ch 6 update**
- **Ch 14 add info on satellite, Sentinel-6 Michael Freilich, that measures sea surface elevation and other characteristics.**
- **Ch 16 to discuss impact on sea level rise on marshes, Arctic temperature increases and their impact on sea ice, Greenland Ice Sheet, ice caps, permafrost, habitat, wildfires and the impact global warming may have on extreme weather. Also discuss recent heat wave/ heat dome experience in Canada and the USA.**
- **Ch 19 financial consequences of trying to adapt to the effects of global warming and climate change.**
- **Ch 24 updated newsletters.**