

# List of Changes



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## Exploring Physical Geography 3rd Edition

Reynolds/Rohli/Johnson/Waylen/Francek

ISBN: 1260364992 / 9781260364996 / © 2021

By any measure, the third edition of *Exploring Physical Geography* represents a major revision. The style, approach, and sequence of chapters are unchanged, but every chapter received new photographs, revised figures, major to minor editing of text blocks and, in a number of cases, major to minor reorganization. We revised text blocks to improve clarity and conciseness and to present recent discoveries and events. Most chapters contain the same number of two-page spreads, but several chapters gained new spreads containing new figures and text. All text and figures were scrutinized by all five authors, and the resulting improvements and clarifications were countless. The content on every two-page spread was modified in some way, from a few text changes to wholesale reorganization within a spread or among spreads. Nearly all changes were made in response to comments by reviewers, students, and instructors who are using the materials.

SEE LIST OF CHANGES ATTACHED.

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## Changes to Reynolds, Exploring Physical Geography, 3e

This edition includes an important new feature, entirely new one- and two-page spreads in an Appendix designed to improve the quantitative skills of students. These quantitative skills pages are referenced within the main chapters and extend the information within that chapter to include more equations, more quantitative material, and more data from specific sites. The mathematics are described in a step-by-step manner, so that every student can understand how to get to the final result and know how to perform such calculations in the future. There is a two-page spread on fundamental units of matter, energy, and motion, and how to convert from one unit to another. There are one- or two-page spreads on Wien's Law, what Earth's temperature would be if we lacked an atmosphere, how to determine flood probabilities, how to locate an earthquake, how to contour data on maps, and other topics. The Appendix also includes globes suitable for students to copy so that they can mark and color these as different topics are covered in class. Positioning all these materials in the Appendix allows students to follow the overall flow of material within the chapter, uninterrupted, but to have a resource for exploring how we approach a topic in a more quantitative way. The position of these materials in the Appendix allows an instructor to skip any material that they feel is too difficult or time consuming to cover.

- This edition contains 250 new and revised illustrations. Figures from the previous edition were replaced with new versions to update information, to improve student understanding of certain complex topics, and for improved appearance. A number of graphs were enlarged and edited to account for the larger size.
- This edition contains 230 new photographs, with a deliberate intention to represent a wider geographic diversity, striving to provide students with local examples from their region. Some existing photographs from the previous edition were reprocessed from the original image to improve clarity and provide more detail. In some sections, existing photographs were enlarged on the page, requiring reprocessing of the original source. All of these changes to the photographs make the book even more vibrant and engaging.
- For every new or replaced photograph, our photography specialist on the team corrected the color, contrast, and fidelity of each image individually, and created files sized for the larger-than-normal images we provide to instructors. We also edited the text describing the photograph and updated the location label that is part of the figure number in the textbook. Most of the new photographs are the authors' or were contributed by the artists that worked on this book.
- We modified some font styles, including the small tags that contain the figure number and the location. These changes make the figure numbers and location information slightly more readable, but still keeps them subtle, as we prefer, to not overly distract a student's attention.

**CHAPTER 1:** The opening chapter is heavily revised, with the addition of a new spread on using concept sketches and a timely new Connections spread on the relationship between drought, wildfires, and debris flows. Between the two new spreads, there are nine new photographs and four new figures. There were minor revisions to several other illustrations. As in all chapters, many text blocks were edited.

**CHAPTER 2:** The second chapter was retitled to be more consistent with the following chapters, and several two-page spreads also received new titles. We revised or rebuilt 26 illustrations, including new versions of seven graphs. We replaced nine photographs, including three in the opening two-page spread.

**CHAPTER 3:** This chapter received 22 revised illustrations, including updating some to include more recent information. We swapped the positions of spreads on mid-latitude and high-latitude circulation, so that coverage moves from the tropics to the poles, rather than our previous order, where the high-latitude spread preceded the mid-latitude one in order to set the stage for covering upper-level circulation in the mid-latitudes.

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**CHAPTER 4:** Six photographs were replaced in this chapter, mostly of clouds and fog. Six illustrations were revised, including some that had to be rebuilt, such as updating a drought map so that it showed current data. Many text blocks were edited, some extensively.

**CHAPTER 5:** For this chapter, we replaced four photos, including ones on haboobs and dust devils, phenomena that were specifically sought out by the authors, in storm-chaser mode. We also revised 20 illustrations. The two-page spread on weather fronts was reorganized, incorporating the symbol for each type of front in the heading for that section, among other things.

**CHAPTER 6:** Chapter 6 contains 22 revised figures, including rebuilt versions of some important figures, such as updated graphs for ocean oscillations. The two-page spread on the phases of ENSO continues to be one of our favorite examples of why an integrated-text-and-figure approach to curricular materials is an obvious advantage over traditional textbooks, where text is in columns without tight linkage to figures.

**CHAPTER 7:** This chapter on climate was heavily revised, especially the section on climate change. The first two spreads in the four-spread sequence on climate change were largely redone to emphasize recent climate change first, with updated graphs for global temperatures, SST, and satellite data. This is followed by a completely new discussion of the types of proxy data we use to investigate past climate change. To match this recent-first approach, the discussion of greenhouse gases was moved to the start of the spread on the causes of climate change. Due in part to these changes, the chapter received 10 revised or rebuilt illustrations. Revised figures included new globes that include the Republic of South Sudan. There are also 12 new or replaced photographs, including six new photographs illustrating climate proxies. The previous Connections spread on Daisy World was moved to the quantitative skills Appendix, which will allow instructors to consider supplementing this spread with the Daisy World computer simulations that are available. The existing two-page spread on modeling climate change became the new Connections spread and was edited to reflect this new role.

**CHAPTER 8:** This chapter on water resources gained a new two-page spread on global, regional, and local water issues, a topic of interest to many students. This new spread features 11 new photographs from various cultures and parts of the world, and also includes a new graph on global population growth and accompanying discussion. In addition to these new photographs, nine other photographs were replaced with author versions from geographically diverse regions. These photographs feature water contamination, ecosystems, springs, and power plants. Six illustrations were also revised.

**CHAPTER 9:** This chapter on landscapes also received a major revision and reorganization. The previous coverage on wind and wind-related features was dramatically increased, with three major new illustrations, including a large, new figure on types of dunes. The wind section now includes 20 photographs, nearly all of them new. The section also contains expanded coverage of the formation of desert pavement, accompanied by a new three-part figure showing its formation. There is also a new illustration and discussion of the variation of wind speed with height. This expanded coverage meshes nicely with detailed material about the cause of deserts in the climate chapter, where it belongs, and material on desert biomes in the biomes chapters. There are a total of 28 new or replaced photographs, including new or improved photographs of rocks. In addition to these extensive changes, we made minor revisions to three figures.

**CHAPTER 10:** Chapter 10 on plate tectonics received relatively minor revision, but contains nine slightly to moderately revised figures. The section on isostasy became a main lettered section, featuring a revised figure surrounded by text with leaders, whereas in the previous edition it was a short column-based narrative. A number of sections were edited, with slightly adjusted layouts, and one section title was changed.

**CHAPTER 11:** This chapter experienced a moderate revision, with 21 new photographs of volcanoes, magmatic conduits, and geologic structures. In particular, the photographs of structures were chosen to broaden the geographic coverage represented in the book, including new photos from the Valley and Ridge Province. Several existing photographs were re-cropped to better portray the full extent of a feature, with resulting changes in layout. Ten illustrations received mostly minor revisions.

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**CHAPTER 12:** This chapter on weathering and mass wasting has 24 new photographs, reflecting new events, like the Oso landslide, and the authors seeking out better examples of features of slopes and weathering. The positions of two spreads on weathering were swapped to consolidate coverage. There were minor revisions to four illustrations.

**CHAPTER 13:** The chapter on streams mostly received minor revisions, except the two-page spread on how streams change over time was reorganized and revised. This revision utilized most of the existing figures, but the layout is new and the sequence in which aspects are discussed is changed. A short section describing the geologic history of the Mississippi River was eliminated. This spread is now more open and inviting. Overall, there are eight new photographs and 18 revised figures.

**CHAPTER 14:** Chapter 14 has ten new photographs from Antarctica, Washington, Colorado, Wyoming, California, and elsewhere. Text was revised in conjunction with the new photographs. Arrows showing the direction of glacial flow were added to topographic maps that show glacial features. In addition, eight illustrations were slightly revised. Like every chapter, text was extensively edited on most pages.

**CHAPTER 15:** The coasts chapter was reorganized by rearranging four spreads on sea level change and coastal hazards, shifting the hazard coverage farther back in the chapter, so that it came after discussion of changes in sea level that accompany climate change. The chapter also features 16 new photographs, including a number from the Outer Banks of North Carolina. Six illustrations were lightly revised.

**CHAPTER 16:** The soils chapter received 10 new photographs and 11 revised illustrations. Accompanying some of the photo replacements are new discussions of the importance of soil to society and soil erosion.

**CHAPTER 17:** Chapter 17 was extensively revised, expanding by four pages. Two existing two-page spreads on individuals and populations in ecosystems were expanded to three two-page spreads, with a complete rearrangement of sections and much new material. Students will get a more detailed introduction to the types of organisms, how those organisms interact, and how populations change. A spread on biodiversity was expanded to include an additional two-page spread, with a new discussion on the threats to biodiversity. Overall, this chapter has 34 new photographs and 12 revised or new illustrations. Many graphs were enlarged compared to the previous edition of the book.

**CHAPTER 18:** We replaced 17 photographs featuring plants, animals, and landforms, each representing geographically diverse locations from Africa to California. There were nine revised figures, including globes.



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