SABBATICAL REPORT: WRITINGS ON "PHYSICS OF THE OUTDOORS"

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BACKGROUND

- Observing and explaining nature was the origin of physics
- Nature provides amazing, beautiful, and complex examples of physics principles we teach in introductory physics
- But mathematics behind "real" nature examples are too complex for students to analyze
- My interest is to distill the concepts in a non-technical way so everyone can appreciate the hidden "beauty" of nature

My project: Begin writing a popular science book on the physics of "observable" nature, presented in a non-mathematical way

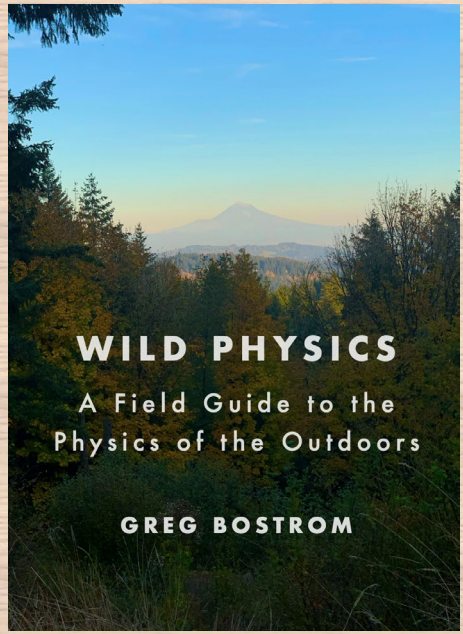
Sabbatical Accomplishments

Writing Course: Completed a writing class entitled Nature's Muse, which focused nonfiction writing of short essays about nature (one for each season). I used this to improve my use of descriptive language and analogies when explaining physics phenomenon

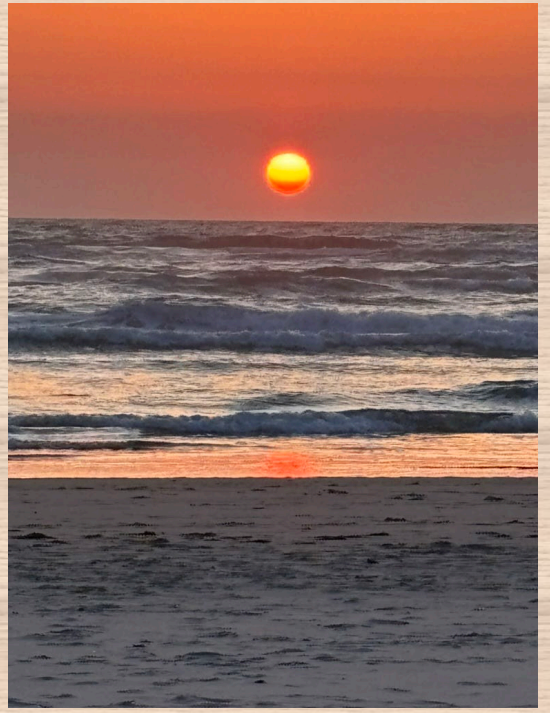
Literature Review: Reviewed several existing "popular science" physics books to get a sense of the style, and how my planned book would fit and stand out in the space.

Field Research: Spent time camping and hiking, where I developed topic ideas, and began research on both high level and non-technical explanations.

Writing: Completed rough draft of one chapter (Winds and its sound) and developed a table of contents for the rest. One more chapter completed over the summer (blue sky), and in the fall, currently in the middle of 4th chapter.



EXAMPLES



STUDENT FOCUS

- I have developed useful connections and examples I can use to help my students understand concepts
  - Incorporated explanation for light waves into winter terms (Electricity and Magnetism)
  - Spring term offers the opportunity to incorporate more from my completed works as it deals with fluids, light and optics
- Long Term Plan: Create a conceptual (minimal math requirement) physics course designed around the topics and explanations I am developing.
  - Our current physics courses can seem out of reach to students due to the math requirements and reputation.
  - "Physics for non-science majors" class would provide options to many who are curious about how the world works, especially the natural world--could be used to satisfy lab-science requirements (Universities offer 100-level Conceptual Physics course)
  - Could also become part of ASC courses (Integrated Science Inquiry)