The evolution of North Carolina has taken place over many hundreds of millions of years, as indicated in the table in the chapter overview. However, geologists do not deal only with billions and millions of years. When considering modern earth processes such as earthquakes, volcanic eruptions, hurricanes, and river floods, the time scales shift to hours, days, years, decades, and centuries. Likewise, in considering high-energy coastal systems, geologic time may be experienced during a trip to the beach, a winter storm, an individual life span, or a few generations. Thus, modern coastal processes result in geologic events that range in human time frames from individual storm events to the rise and fall of specific civilizations. *At this scale, geologic time is human time!*

Figure 1-4 contrasts the long range geologic time that reaches back to the early days of the earth's formation 4.6 billion years ago with more recent human time frames, including the last 400 years and the last ten years. On the shorter human time frame in figure 1-4, the last 400 years would be represented by a microscopic dot at the end of the long-term time line. Study the figure so that you understand what it represents.

A good example of geologic change in a short time span is the opening of the inlet on Hatteras Island, formed during Hurricane Isabel on September 18, 2003 (figure 1-5). Panel A is a 1998 aerial photograph of Hatteras Island, east of Hatteras Village. Panel B was taken seven days after Hurricane Isabel. The three red dots are located at the same place in Panels A and B. Panel C is a ground photo of the new Isabel Inlet with what's left of N.C. Highway 12. The photos represent a modern coastal process that results in geologic change occurring in the *human time frame* of a few hours.

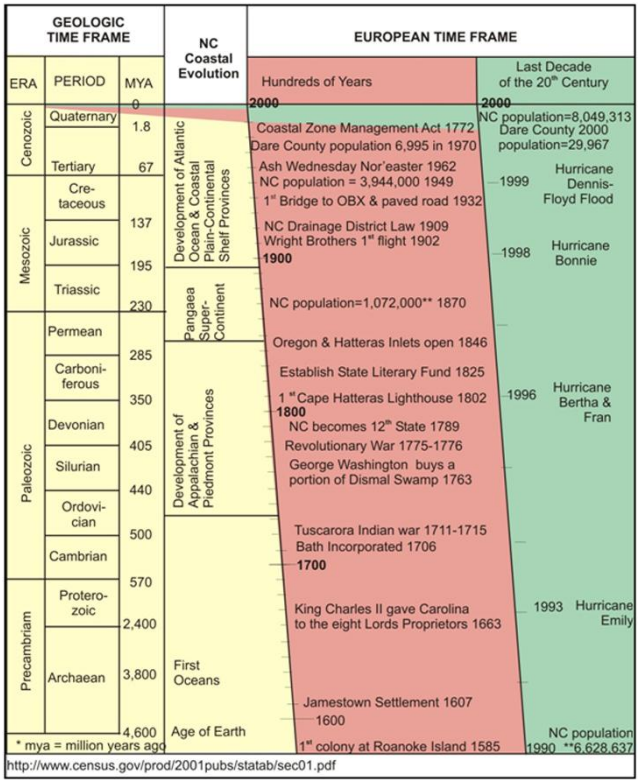

Figure 1-4. This geologic time chart contrasts long-range geologic time that reaches 4.6 billion years back to the earth's formation with the more recent human time frame since European colonization of North Carolina (the last 400 years) and the last decade of the 20th century.

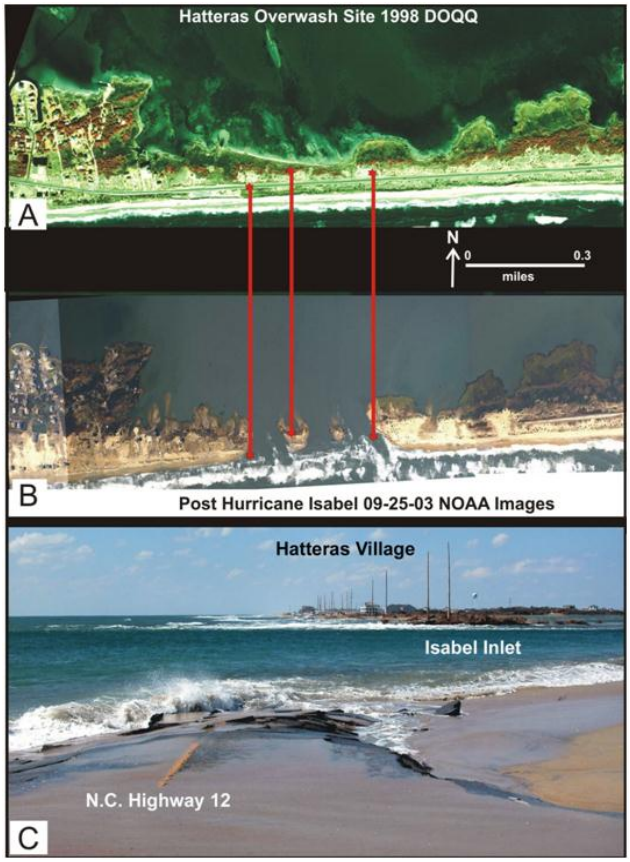

Figure 1-5. Aerial and ground photographs show the site of Isabel Inlet that opened on Sept. 18, 2003 in response to Hurricane Isabel. **Panel A**. A 1998 false color aerial photograph shows the east end of Hatteras Village and the potential inlet site. **Panel B**. An aerial photograph of the same area taken on Sept. 25, 2003 shows the location and three-part character of Isabel Inlet. The red points and associated lines on Panels A and B represent exact common points. **Panel C**. A ground level photo looks west across Isabel Inlet toward Hatteras Village with the "going-to-sea" N.C. Hwy. 12 in the foreground. Figure 8-4-18, p. 141 in Riggs and Ames (2003).