PHYSICAL SETTING

The climate of this coastal region is moderate, with short winters and long springs and falls. Temperatures during the warmest months (July and August) range from the high 80s to the high 90s. From December to February, temperatures usually range from the high 40s to the low 60s, with occasional freezes. Because of the moderating effects of the ocean and sea breezes, temperatures on the barrier islands tend not to be as extreme as those on the coastal mainland.

Average annual rainfall on the coastal islands is about 53 inches. Much of the rain comes from local afternoon thunderstorms (convectional storms) from May through August. Rains during the fall, winter, and early spring are the result of larger storm systems covering greater areas of the United States. In late summer and fall, tropical storms can bring heavy rainfalls. The drier periods seem to be from November through February.

Predominant winds are from the south and southeast in summer, and from the north and northeast in winter. The strongest winds are usually out of the northeast. Hurricanes pass over or near the Georgia coast about once every 10 years. Many hurricanes coming up the Atlantic coast tend to follow the path of warm air above the Gulf Stream, 80 to 100 miles from the coast, so to some extent the area is protected by its extreme western location.

Typical of tidal patterns along the southeastern coast, two high tides and two low tides occur in Georgia waters each day. Not typical is the range of Georgia tides. While Cape Hatteras to the north and Miami to the south generally have 2-foot tides, the Georgia coast has 6 to 9 foot tides.

The coast of Georgia is far to the west of both Miami and Cape Hatteras and is in the approximate center of the curved coastline known as the Georgia Bight that extends from Cape Fear, North Carolina, to Cape Canaveral, Florida. As the tide, a very long wave with a duration of 12 hours and 25 minutes, approaches the Atlantic coast, the wave front reaches the northern portion of the Bight first. As the wave comes in contact with these shores, wave energy is deflected southward. The deflected waves impinge onto the tide front, which is still moving landward toward the center of the Bight. In this way the water piles up, increasing the elevation of the mass of water as the tide reaches the Georgia coast.

Except under storm conditions, the wave energy on the coast of Georgia is low since the energy of waves coming from the open ocean is dissipated by bottom friction as the waves move across the broad shallow shelf waters. From the Georgia coast, the continental shelf declines at an average of 1 to 2 feet per mile. Offshore sand bars and inlet shoals cause further loss of wave energy by forcing the waves to break before reaching the beaches.

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