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The Mid-Atlantic Region and its climate: past, present, and future

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ABSTRACT: The physical and human geographies and the historical climate of the Mid-Atlantic Region of the United States are described to provide a baseline for an ongoing assessment of likely climate change impacts in the region. This region consists of 358 counties intersecting part or all of 8 states and 4 physiographic zones. This geographic diversity provides different sets of options for societies to adapt to environmental changes. Since 1967, the region¹s human population has grown in both number (19%) and income (116%), and important local ecosystems are experiencing associated stresses. Since 1895, the region¹s climate has become slightly warmer (+0.5°C) and significantly wetter (+10%), although the warming has abated recently. Projections indicate that these broad regional socio-economic, ecological and climatic trends should persist through the 21st century. The significance of these changes in society, ecosystems and climate are evaluated in the more detailed, sector-specific analyses in the subsequent articles of this Special.

KEY WORDS: Climate change · Climate variation · Climate scenarios · Socio-economic change · Mid-Atlantic Region

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The climate of the Atlantic sector exhibits considerable variability on a wide range of time scales. A substantial portion is associated with the North Atlantic Oscillation (NAO), a hemispheric meridional oscillation in atmospheric mass with centers of action near Iceland and over the subtropical Atlantic. NAO-related impacts on winter climate extend from Florida to Greenland and from northwestern Africa over Europe far into northern Asia. A remarkable feature of the NAO is its trend toward a more positive phase over the past 30 years, with a magnitude that seems to be unprecedented in the observational record (2). Some of the most pronounced anomalies have occurred since the winter of 1989, when record positive values of the NAO index have been documented (Fig. 1 Lower). The Mid-Atlantic, also called Middle Atlantic states or the Mid-Atlantic states, form a region of the United States generally located between New England and the South Atlantic States. Its exact definition differs upon source, but the region usually includes New York, New Jersey, Pennsylvania, Delaware, Maryland, Washington, D.C., Virginia, and West Virginia. When discussing climate, Connecticut is sometimes included in the region, since its