International Consortium for Atmospheric Research on Transport and Transformation (ICARTT): North America to Europe—Overview of the 2004 summer field study

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In the summer of 2004 several separate field programs intensively studied the photochemical, heterogeneous chemical and radiative environment of the troposphere over North America, the North Atlantic Ocean, and western Europe. Previous studies have indicated that the transport of continental emissions, particularly from North America, influences the concentrations of trace species in the troposphere over the North Atlantic and Europe. An international team of scientists, representing over 100 laboratories, collaborated under the International Consortium for Atmospheric Research on Transport and Transformation (ICARTT) umbrella to coordinate the separate field programs in order to maximize the resulting advances in our understanding of regional air quality, the transport, chemical transformation and removal of aerosols, ozone, and their precursors during intercontinental transport, and the radiation balance of the troposphere. Participants utilized nine aircraft, one research vessel, several ground-based sites in North America and the Azores, a network of aerosol-ozone lidars in Europe, satellites, balloon borne sondes, and routine commercial aircraft measurements. In this special section, the results from a major fraction of those platforms are presented. This overview is aimed at providing operational and logistical information for those platforms, summarizing the principal findings and conclusions that have been drawn from the results, and directing readers to specific papers for further details.

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