



## Global Warming—A Real Issue

Back in 1997, more than 84 countries signed the Kyoto protocol, a treaty intended to cut anthropogenic releases of CO<sub>2</sub> and other greenhouse gases into the atmosphere. In the ensuing years, opposition to this treaty has steadily grown, fueled in part by (a) scientific uncertainty as to whether global warming is real and whether humans are really contributing to the problem; (b) the notion that emission cutbacks will thwart economic progress; and (c) concerns about how the proposed limits on emissions are to be enforced in an equitable manner on developed versus developing countries on a worldwide basis.

Perhaps not surprisingly, representatives of 182 nations left The Hague in The Netherlands in November 2000 without an agreement on the terms of the Kyoto protocol.

Notwithstanding the (one hopes temporary) collapse of these negotiations, consensus is now building that global warming is real and that much of the scientific data are sound. Many large oil companies (BPAmoco, RoyalDutch/Shell, ExxonMobil, and Texaco) and even non-energy producers (e.g., Boeing, DuPont, Intel) are either developing in-house technological solutions and market-based emissions trading strategies or working with think-tanks such as the Pew Center on Global Climate Change to address this problem. Even automobile companies—once among the most vehement critics of the evidence for global warming—are taking measures to reduce greenhouse gas emissions.

It is clear that despite differences on how the treaty will ultimately be implemented (and there are future meetings scheduled to discuss this, including one in May 2001), the question no longer is *if* action must be taken to curtail emissions but *how* and *when*. There are also technical issues that must be resolved through continuing research. For example, the recently released Intergovernmental Panel on Climate Change (IPCC) report states that gases from fossil fuel combustion have contributed significantly to the observed warming over the last 50 years. On the other hand, another report (*Proc. Natl. Acad. Sci.*, **97**, 9875, August 2000) argues that rapid warming in recent decades has been caused mainly by non-CO<sub>2</sub> emissions, particularly chlorofluorocarbons, methane, and N<sub>2</sub>O.

What are the consequences and possible scenarios if these emissions continue unabated? Everything from severe droughts (caused by smaller snowpacks in the mountains and earlier water run-off) to national defense/security concerns (stemming from thawing polar ice and opening of the once-un navigable Northwest Passage in the Canadian Arctic) have been presented. Given the enormity and importance of the problem, we thought that a special issue of this magazine highlighting possible solutions to global climate change would be both timely and informative to the ECS community. In this regard, each one of us in this community can do our part to ensure a cleaner, more livable world for future generations to come. Stay tuned.

Raj K.

**Krishnan Rajeshwar**  
Editor

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