Controlling the Global Weather

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The key factor enabling control of the weather is that the atmosphere is sensitive to small perturbations. That is, it is the very instability of the atmosphere's dynamics that makes global weather control a possibility. The Earth's atmosphere may be chaotic, and very likely is very sensitive to small perturbations. Certainly very simple nonlinear dynamical models of the atmosphere are chaotic, and the most realistic numerical weather prediction models are very sensitive to initial conditions. Extreme sensitivity to initial conditions implies that small perturbations to the atmosphere can effectively control the evolution of the atmosphere, if the atmosphere is observed and modeled sufficiently well.

We describe the architecture of a feedback control system to control the global atmosphere, and the components of such a system. Although the weather controller is extremely complex, the existence of the required technology is plausible at the time range of 30-50 years.

While the concept of controlling the weather has often appeared in science fiction literature, our statement of the problem provides a scientific basis and system architecture to actually implement global weather control. The nation that controls its own weather will perforce control the weather of other nations. Weather "wars" are conceivable. An international treaty may be required to ensure that weather control technology be used for the good of all.

In addition to being directly relevant to the call for revolutionary concepts, which expand our vision of the future, many of the technologies involved in our proposed system are areas of interest to NASA that will be developed for other reasons. These include atmospheric science, remote sensing, aviation systems, fleets of low-cost satellites, solar power satellites, advanced computational systems, mega-systems engineering, and more.