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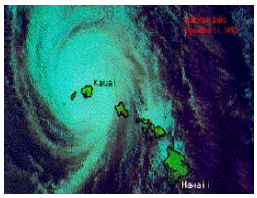
Controlling the Global Weather

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. Certainly, realistic numerical weather prediction models are very sensitive to initial conditions. Extreme sensitivity to initial conditions suggests that small perturbations to the atmosphere may effectively control the evolution of the atmosphere, if the atmosphere is observed and modeled sufficiently well. The architecture of a system to control the global atmosphere and the components of such a system are described. A feedback control system similar to many used in the industrial setting is envisioned. Although the weather controller is extremely complex, the realization of the required technology is plausible in the time range of several decades.



Arthur C. Clark on *weather control*

"It had not been easy to persuade the surviving superpowers to relinquish their orbital fortresses and to hand them over to the Global Weather Authority, in what was – if the metaphor could be stretched that far – the last and most dramatic example of beating swords into plowshares. Now the lasers that had once threatened mankind directed their beams into carefully selected portions of the atmosphere, or onto heat-absorbing target areas in remote regions of the Earth. The energy they contained was trifling compared with that of the smallest storm; but so is the energy of the falling stone that triggers an avalanche, or the single neutron that starts a chain reaction."

A critical concern is the feasibility of the required perturbations. The Phase I research demonstrated a proof-of-concept approach for calculating the perturbations required to move a hurricane. Altering the track of a hurricane is a clear goal of global weather control. The Phase II research will refine this approach, making the results more realistic, and translate the required perturbations into requirements for a fleet of solar reflectors in orbits close to the plane of the terminator, as the physical controller. These requirements, in turn, will be used to estimate the area, and hence the mass, which must be stationed in orbit. 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.