

## Editorial:

Conflicting headlines scream at one another across the pages of newspapers: on radio and TV deep baritone voices, warning of impending climatic crises, compete with unctuous assurances that "nothing out of the ordinary" is going on in the global climate department. Robert C. Cowen, who writes a "research notebook" column for **The Christian Science Monitor**, examines the entire range of disputatious dialogue and winds up with this observation:

"None of this means we can ignore man-made global warming. Human activity already has added around 2.2 watts per square meter to the atmosphere's natural greenhouse heat-trapping of 151 watts per square meter of Earth's surface averaged over the entire planet and for a full year. There's little dispute about that.

"The annoying fact is that nobody yet can determine whether this has begun to raise the global temperature or merely is expressed in other effects such as undetected changes of cloudiness or ocean circulation."

Which brings Earth's human passenger complement face to face with a mathematical concept known as "type 1 – type 2 errors." A Type 1 error assumes the proposition is false when it may in fact be true. A Type 2 error assumes the proposition is true when in fact it is false. In the Type 1 error, you do nothing, assuming that no problem exists and you suffer the consequences. In the Type 2 error, you mount an effort to meet the possible problem and then it turns out there was no problem.

An examination of this concept allows us, as the deciders and also the victims of whichever error we elect to make, to examine the consequences of both errors. In the case of global climate change, we can elect the Type 1 error: Do nothing, and be unprepared in case of sea level rise, drastic alterations in whole ecosystems, fresh water shortages, entrapment of plant and animal species with no migratory corridors or plans for relocation, and so forth, all the while continuing the human behavior that may be exacerbating climate change.

Or we can elect the Type 2 error: Mount a program designed to avert global warming, engage in massive forestation and reforestation, and above all begin a globally integrated monitoring of earth, air, and water, flora and fauna, that will give us first a baseline set of data, and then a "moving picture" of how this data set is altering – where, in what directions, and how fast.

It should be obvious that the measures appropriate to the Type 2 "error" will be useful whether or not the Earth is heating up. The kinds of information such attention to the global condition will give us will be of immeasurable benefit in ANY event. It is not as though we were preparing for some terrible possibility that, if it fails to materialize, will make of all our preparations only wasted effort. The resources we spend preparing for this kind of threat can only add to our store of useful knowledge and help us sail into the future in a tighter, more manageable ship.

It is noteworthy that in this attempt to heal the earth many government agencies are joining hands with one another, with non-governmental entities, and with groups representing the world beyond our political borders. This summer, for instance, singer John Denver was instrumental in setting up the Aspen Institute for Global Change, co-sponsored by the Amway Corporation, the UN Environmental Program, and the National Aeronautics and Space Administration. Saving the environment, said Denver at a July 26 news conference, "is the most important task that faces the human race at this time."

Obviously Denver, Amway, the UN, and NASA have all opted to make only Type 2 errors.

The National Park Service has tailored its role in global change monitoring and research so that it fits neatly into the pattern of the national and international effort. Included in this issue is a pull-out section that presents the overall context within which the tasks will be performed and the money to do them will be allocated.