

WORLD METEOROLOGICAL ORGANIZATION

DECLARATION
OF THE
WORLD CLIMATE CONFERENCE



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The World Climate Conference, a conference of experts on climate and mankind, held in Geneva, from 12 to 23 February 1979, was sponsored by the World Meteorological Organization in collaboration with other international bodies.

The specialists from many disciplines assembled for the Conference expressed their views concerning climatic variability and change and the implications for the world community. On the basis of their deliberations, they adopted the following.

An Appeal to Nations

Having regard to the all-pervading influence of climate on human society and on many fields of human activity and endeavour, the Conference finds that it is now urgently necessary for the nations of the world:

- (a) to take full advantage of man's present knowledge of climate;
- (b) to take steps to improve significantly that knowledge;
- (c) to foresee and to prevent potential man-made changes in climate that might be adverse to the well-being of humanity.

The problem

The global climate has varied slowly over past millennia, centuries and decades and will vary in the future. Mankind takes advantage of favourable climate, but is also vulnerable to changes and variations of climate and to the occurrence of extreme events such as droughts and floods. Food, water, energy, shelter, and health are all aspects of human life that depend critically on climate. Recent grain harvest failures and the serious decline in some fisheries emphasize this vulnerability. Even normal variations and modest changes relative to the normal climate have a significant influence upon man's activities.

All countries are vulnerable to climatic variations, and developing countries, especially those in arid, semi-arid, or high rainfall regions, are particularly so. On the other hand, unfavourable impacts may be mitigated and positive benefits may be gained from use of available climate knowledge.

The climates of the countries of the world are interdependent. For this reason, and in view of the increasing demand for resources by the growing world population that strives for improved living conditions, there is an urgent need for the development of a common global strategy for a greater understanding and a rational use of climate.

Man today inadvertently modifies climate on a local scale and to a limited extent on a regional scale. There is serious concern that the continued expansion of man's activities on earth may cause significant extended regional and even global

changes of climate. This possibility adds further urgency to the need for global co-operation to explore the possible future course of global climate and to take this new understanding into account in planning for the future development of human society.

Climate and the future

Climate will continue to vary and to change due to natural causes. The slow cooling trend in parts of the northern hemisphere during the last few decades is similar to others of natural origin in the past, and thus whether it will continue or not is unknown.

Research is revealing many basic features of climatic changes of the past and is providing the basis for projections of future climate. The causes of climate variations are becoming better understood, but uncertainty exists about many of them and their relative importance.

Nevertheless, we can say with some confidence that the burning of fossil fuels, deforestation, and changes of land use have increased the amount of carbon dioxide in the atmosphere by about 15 per cent during the last century and it is at present increasing by about 0.4 per cent per year. It is likely that an increase will continue in the future. Carbon dioxide plays a fundamental role in determining the temperature of the earth's atmosphere, and it appears plausible that an increased amount of carbon dioxide in the atmosphere can contribute to a gradual warming of the lower atmosphere, especially at high latitudes. Patterns of change would be likely to affect the distribution of temperature, rainfall and other meteorological parameters, but the details of the changes are still poorly understood.

It is possible that some effects on a regional and global scale may be detectable before the end of this century and become significant before the middle of the next century. This time scale is similar to that required to redirect, if necessary, the operation of many aspects of the world economy, including agriculture and the production of energy. Since changes in climate may prove to be beneficial in some parts of the world and adverse in others, significant social and technological readjustments may be required.

Increasing energy use and thus release of heat have already caused local climatic changes. In the future such heat sources from densely populated and heavily industrialized regions could possibly have some effects on climate on a larger scale. Other human activities such as agriculture, pastoral practices, deforestation, increased use of nitrogen fertilizers and release of chlorofluoromethanes might have climatic consequences and therefore require careful study. Also, a systematic search for still other possible effects on climate of major human efforts is needed.

Some forms of warfare have local climatic effects. World thermonuclear conflict, besides its catastrophic consequences for mankind, would degrade the natural environment and might cause climatic changes on a large scale.

It is conceivable that in the future man may be able to produce limited changes in climate on a large scale by deliberate intervention. It would be

irresponsible to consider such actions until we have acquired the essential understanding of the mechanisms governing climate that is needed to predict the consequences. Moreover, international agreement must be reached before such projects are implemented.

Conclusions and Recommendations

The World Climate Programme proposed by the World Meteorological Organization deserves the strongest support of all nations

Its main thrusts are:

- Research into the mechanisms of climate in order to clarify the relative roles of natural and anthropogenic influences. This will require the further development of mathematical models which are the tools for simulating, and assessing the predictability of, the climate system. They will also be used to investigate the sensitivity of climate to possible natural and man-made stimuli such as the release of carbon dioxide and to estimate the climatic response.
- Improving the acquisition and availability of climatic data. The success of the climate programme depends on the development of a vast amount of meteorological, hydrological, oceanographic and other pertinent geophysical data. Furthermore, climatic impact studies and practical application of knowledge of climate by nations in addition requires detailed information about their natural resources and socio-economic structures.
- Application of knowledge of climate in planning, development and management. This effort should include programmes to assist national meteorological and hydrological services to increase the awareness of users of the potential benefits to be gained through the use of climate information, to improve capabilities to provide and disseminate this information, and to facilitate training in nationally significant climate applications. It should include programmes to develop new methodologies for the application of climate data in the food, water, energy and health sectors.
- Study of the impacts of climatic variability and change on human activities and the translation of the findings of such studies in terms of greatest use to governments and the people. This will require improvements in our understanding of the relationships between climate and human society including:
 - (i) The possible range of societal adjustments to climate variations and change;
 - (ii) The characteristics of human societies at different stages of development and in different environments that make them especially vulnerable or resilient in the face of climate variability and change;
 - (iii) The means by which human societies can protect against adverse consequences of, and take advantage of the opportunities presented by, climate variations and changes.

The overall purposes of the Programme are thus to provide the means to foresee possible future changes of climate and to aid nations in the application of climatic data and knowledge to the planning and management of all aspects of man's activities. This will require an inter-disciplinary effort of unprecedented scope at the national and international levels.

The conduct of the World Climate Programme involves a broad range of activities and requires leadership and co-ordination among international bodies and close collaboration among nations

It is fully recognized that the international co-operation which is the prerequisite for any world climate programme can only be successfully pursued under conditions of peace.

There is an immediate need for nations to utilize existing knowledge of climate and climatic variations in the planning for social and economic development

In some parts of the world, there is already sufficient information to provide many applied climate services. However, only a start has been made; data and expertise are generally lacking in developing countries. Programmes must be set up to assist them to participate fully in the World Climate Programme through training and the transfer of appropriate methodologies.

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The long-term survival of mankind depends on achieving a harmony between society and nature. The climate is but one characteristic of our natural environment that needs to be wisely utilized. All elements of the environment interact, both locally and remotely. Degradation of the environment in any national or geographical area must be a major concern of society because it may influence climate elsewhere. The nations of the world must work together to preserve the fertility of the soils; to avoid misuse of the world's water resources, forests and rangelands; to arrest desertification; and to lessen pollution of the atmosphere and the oceans. These actions by nations will require great determination and adequate material resources, and they will be meaningful only in a world at peace.
