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THE INTERNATIONAL GEOPHYSICAL YEAR

The International Geophysical Year designates a program of cooperative research by more than 30 nations in some ten fields of geophysics. This international effort will occur during 1957-58, when intensive observations and measurements will be made simultaneously throughout the world. Studies at existing stations and observatories will be intensified; new stations will be established at critical sites, ranging from the North Polar regions to the Antarctic. Every major land and sea mass will be covered in this study, and the measurements will extend from oceanic depths to a hundred and more miles above the surface of the earth where rockets will carry instruments to determine directly the nature of the upper atmosphere.

The period of actual observations, as well as the stations which will be used, have been selected with the object of having a minimum program with maximum results. Since the sun is the key to many geophysical problems, especially those related to weather and telecommunications, the time set was based on the increased probability of occurrence of solar flares and other disturbances during 1957-58, a period of sunspot maximum.

The need for an international program in geophysics stems largely from the global nature of the phenomena. The weather in one place,

for example, has had its origin many thousands of miles away in a set of complex events related to solar activity, to oceanography, and to hydrology. Any marked advance in weather forecasting depends upon world-wide meteorological data of both the lower and upper atmosphere in both the Northern and Southern Hemispheres. At present reasonably adequate data exist only for the lower atmosphere in the Northern Hemisphere.

As with meteorology, studies of the ionosphere--necessary for improvements in radio transmission--require international collaboration on a broad scale. Each of the other fields in the program is characterized by similar needs for world-wide measurements made synchronously; and, since these fields are also inter-related in a complex fashion, the value of such data in one field enhances, and is enhanced by, the value of the data in all the others.

The United States program has been prepared by the U. S. National Committee for the IGY established by the National Academy of Sciences - National Research Council, as the adhering U. S. body to the International Council of Scientific Unions. The Academy turned to the National Science Foundation in December 1953 as the logical Federal agency for the securing and administering of Government funds for this activity, which has many broad National values and implications and which is of particular interest to the Government.

The total budget approved by the Bureau of the Budget for the United States program is $13,000,000. Of this the Bureau of the Budget

has recommended that $2,500,000 be appropriated for the coming fiscal year (1955) in order to permit the purchase of scientific equipment having long lead-time and for the further planning of the program; the remaining ~~approximately~~ $10,500,000 will be needed in the succeeding fiscal year (1956).

The Government has many interests in the International Geophysical Year program. To some extent these interests relate to the general national welfare where the implications of geophysical research to weather forecasting, radio communications and navigation, mapping and surveying, and upper atmosphere flight are apparent. These interests relate to commerce, industry, and agriculture. These interests also relate to our national defenses: the atmosphere, particularly the upper atmosphere, grows steadily in importance. And they concern our international relations.

In several of these areas the various Executive Departments have appreciable responsibilities and interests. The Office of Defense Mobilization, with general scientific advisory functions and, in particular, with responsibility for telecommunications policy, has commented on the value of the IGY effort from these two--one general and one highly specific--points of view. The defense interests and implications are recognized by the Department of Defense. The State Department has endorsed the program from the international relations point of view. The Department of Commerce, with operational interests in weather and radio propagation and with overall business and industry

interests, has also endorsed this program and, like the Department of Defense, will participate in its execution.

Beyond its specific scientific and technologic aspects, the International Geophysical Year program also has broad international aspects. It affords, for example, an opportunity for world leadership by the United States in keeping with the President's often-expressed desires for international cooperation. In particular, the President recently expressed his hope for international cooperation in the peaceful uses of atomic energy. With respect to science itself, the President on March 17, 1954, stressed the vital role of science to the Nation. The International Geophysical Year in effect presents immediately at hand an international cooperative program in science; it is a program that is destined to go ahead and to succeed; and it affords an opportunity for the United States to assume world leadership in a constructive program of benefit to all.

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