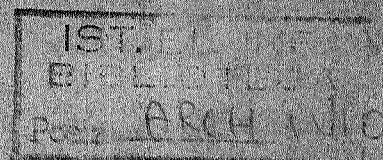


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SOUTH-POLE

THE ITALIAN SYSTEM FOR ANTARCTIC DATA EXCHANGE

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ABSTRACT

The Italian Antarctic Data Exchange Project (South-Pole) is described. The phase one project is under way and all the scientific components are asked to join their efforts in order to speed up the realization of this 'data-bases system', which may be considered as a basic tool for future antarctic researches.

1.- Introduction

Now that the preliminary phase (which lasted 5 years) of the P.N.R.A. (National Program for Antarctic Researches) came to an end and a new Government Law is under study for a permanent financial support of researches in Antarctica, the advisability to collect all the data of the past and forthcoming expeditions in a National Data-Base System has been considered. The aim of this project is mainly to allow the whole national scientific community to share data from Antarctica, in order to justify the national investment related to the South-Pole.

The Italian research in Antarctica covers a wide range of fundamental disciplines, like biology, medical sciences, cosmophysics, earth sciences, environmental impact, oceanography, physic of Earth atmosphere and technology. With the increasing number of scientific Groups involved in the PNRA, it became more evident the need of coordination between the results obtained by the various Groups (for instance remote sensing as support to oceanography and Earth atmosphere).

Therefore, the set up of a multidisciplinary integrated data-base system is going to be a basic tool for the planning of future research and for the analysis of scientific data.

2.- SOUTH-POLE: the basic ideas

The structure of the South-Pole system is shown in Fig.1.

Because to collect all data in a main center would have required enormous effort on a national scale, this idea was abandoned.

On the contrary, a radial structure formed by a Main Center and different Research Field Centers has been identified as the most suitable both for a more efficient operation and for a faster realization.

The link between the Main Center and the Field Centers is assured by the recent realization of the national Italian fast informatic network (GARR). The Main Center will provide the user with the information necessary to establish the link with the inquired Field Center.

Connection to international networks will be done by linking the Main Center to the European and American networks.

Users will enter the South-Pole system by linking to the Main Center, which is planned to act as a bridge toward the Field Centers and the international network.

A Directory of the Data-bases available in the system will be resident on line in the Main Center. By inquiring the Directory, the user should be able to identify both the required data-base and the Field Center where it is located.

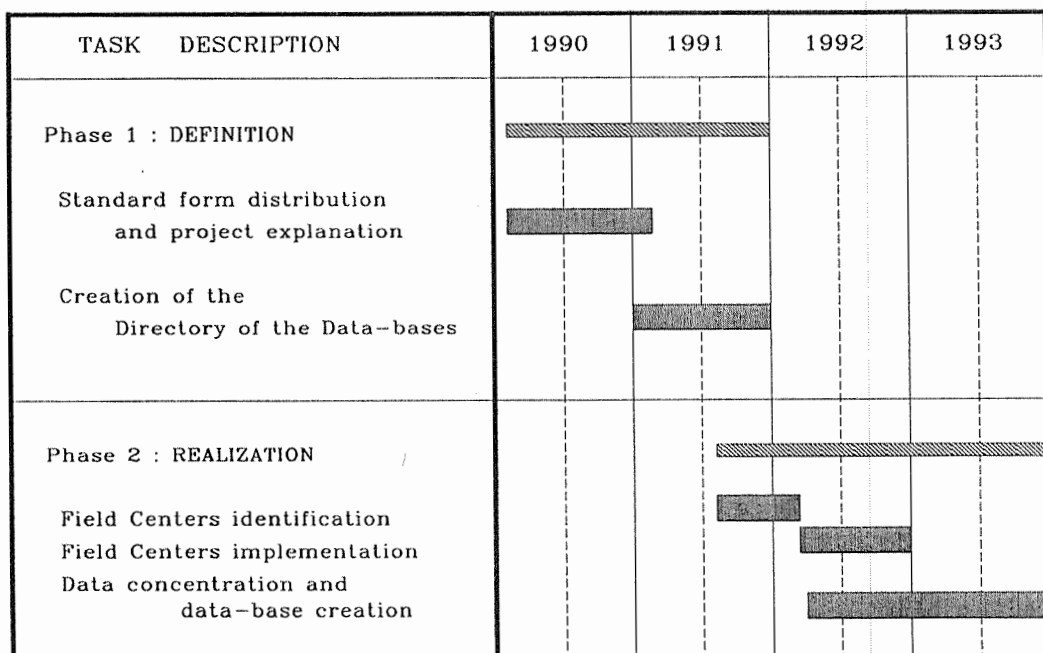
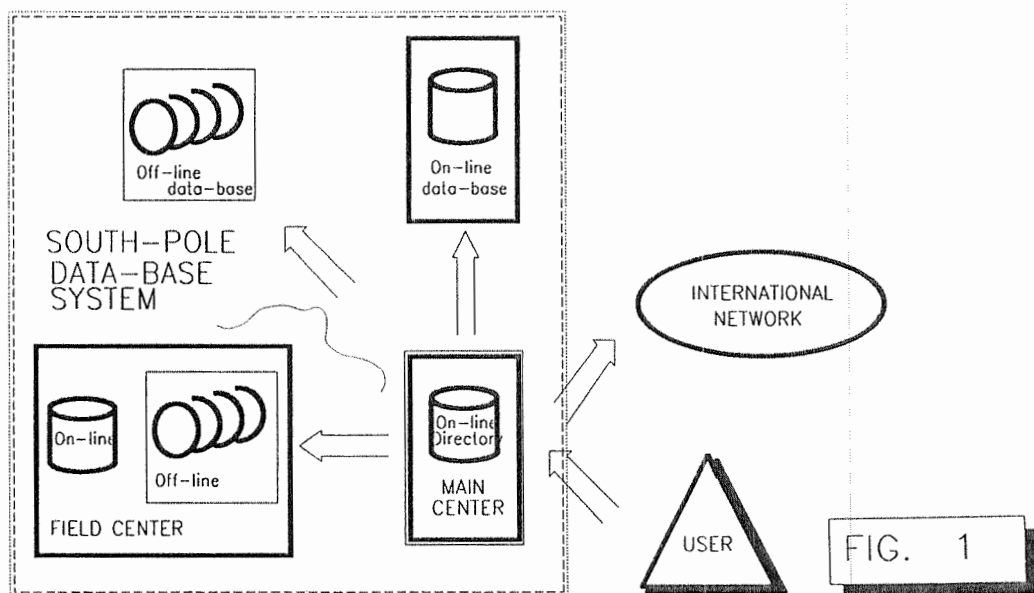


FIG. 2

3.- Phase development of the South-Pole project

The South-Pole project is mainly constituted by two phases: a definition phase and a realization phase.

The first phase is now in progress and is planned to last until the end of 1991.

During this phase, the final task of which is the creation of the Directory of the Data-bases, all the research Groups involved in Antarctic research will be asked to notify their own data collections by filling a standard form. The IEI/CNR (Istituto Elaborazione Informazione, Consiglio Nazionale Ricerche) committed itself to define and to circulate such standard form as a preliminary step necessary to create the Directory, while the ENEA/Progetto Antartide has the duty to round illustrate the project in its whole, with the aim to induce the scientific community to collaborate.

Beside the creation of the Directory of the data-bases, the decision of what kind of methodology will be adopted in setting up the whole Data-bases system is another task of the IEI/CNR. In doing this, the IEI/CNR decided to adopt the NASA D.I.F. (Data Interchange Format) to create a first catalog, and the relational system "ORACLE" as Data Base Management System. As a first basic result, the Directory will be totally consistent with pre-existing international data-base structures (i.e. the ESA-P.I.D., Prototype International Directory), thus facilitating the international diffusion of the South-Pole project products.

The second phase of the project (realization phase) is planned to start in early 1992. Its task will be to identify the Field Centers of the project.

Field Centers will be then implemented, if necessary, with a link to GARR and with the missing Hardware necessary to perform their duties.

The collection of all the antarctic data of the research field associated to the Center, their organization in a national data-base and its action as a "user's desk" will be the final goal of a Field Center.

4.- The time-schedule of the project

The scheduling of the main steps of the project is shown in fig.2.

As can be seen, the project is planned to last 4 years, starting in 1990.

The Definition phase is now in progress. We hope that all the researches Groups who participate in expeditions to Antarctica will collaborate by carefully filling the standard form needed to set up the Directory of the data-bases and returning it to IEI/CNR.

Only when the definition phase will be terminated, it will be possible to start the realization phase.

The request of the collaboration of the research Groups, in the Definition phase as well as in the Realization phase, points out the need of a wide consent of the National Scientific Community to realize and to run the "Italian Antarctic Data Exchange System South-Pole".

5.- Conclusions

The data-base system, described in this note, may fulfill the request from the SCAR (Scientific Committee for Antarctic Researches) that data from antarctic researches must be available to the scientific community both national and international.

Once that the South-Pole project has come to an end, its product, i.e. the data-base system, will surely represent the scientific image of the PNRA in the international meetings.

Aknowledgements

This short communication contains the basic arguments used to illustrate the South-Pole Project in

several scientific meetings (held during October 1990) and which have been later more extensively discussed in the enclosed References. Some of the idea were already pointed out earlier by one of the author (L.R.) in a preliminary document circulating during April 1990 among the people involved in this project.

Several discussions were held with persons involved in such work, which helped to define some details of the project (i.e. L. Fusco of ESRIN, European Space Agency Center in Frascati).

All future suggestions aimed to improve the South-Pole System structure and operation will be welcome.

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