

IN VIAGGIO FRA LE STELLE:

The making of the GSC II

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ABSTRACT

We present here "IN VIAGGIO FRA LE STELLE" (Journey amongst the Stars), a project to develop an educational application for Microsoft Windows based on multimedia and interactive tools that will be distributed as a CD-ROM. The uniqueness of this project consists in using the making of an astrometric catalogue (GSC II) as its guiding theme in the explanation of many different branches of astronomy from the Solar System to Cosmology. The choice of such a specialized subject, apparently so ill-suited for popularisation at first sight, as the guiding theme, will highlight the process of research instead of focusing only on the final achievements, giving a clear idea of how science evolves in practice. Its modular structure will permit its use as a classical tool for the popularization of the many fields of astronomy and astrophysics.

THE PROJECT

The general approach to the popularization of science, and of astronomy in particular, focuses on the final results of the research, or on the historical point of view. This technique induces the user to forget the practical work and the methodology that is behind the "final product", and hides the rich world of interconnections among apparently distant subjects. This project will be an attempt to shed light on these aspects of scientific research by describing the genesis and development of a real astronomical project and the influence that it has had (and will have) on the various areas of astronomy.

This will be done by producing an educational application that will be distributed via CD-ROM and entitled "IN VIAGGIO FRA LE STELLE". It will use multimedia and interactive tools developed under Microsoft Windows and the making of GSC II (the Second Guide Star Catalogue) as its guiding theme. GSC II is the largest collection of celestial objects in existence, whose realization is the product of a ten-year collaboration between the Astronomical Observatory of Turin and the STScI, Baltimore, with the support of several other international astronomical institutions. The idea is to take a project such as the construction of an astrometric catalogue, a highly technical and specialized subject that would seem ill-suited for popularisation at first sight, and make it accessible to an audience with little if any expertise in the field.

This material will be made appealing and easy to follow by combining the flexibility of multimedia applications with an original approach to the subject, i.e. by favouring a narrative rather than a didactic style. Examples of the approaches used and some of the technical material that will be used can be found on the CD-ROM "The Making of GSC-II" that was distributed at this conference. The general structure of the CD-ROM will be a tour of the different branches of astronomy, from the Solar System to cosmology shown schematically in the flow chart below. The CD-ROM will be distributed through several channels, involving both public and private institutions, scientific exhibitions, special astronomical events, and Italian popular science magazines. In addition, the executable file will be available for download via the web.

The CD-ROM will be organized in several sections (Fig. 1). Each section can stand alone, but they will follow a logical path that will introduce the user to both a general view of astronomy and how the GSCII fits into this picture. The sections are reported below, along with a brief explanation.

- **Introduzione (Introduction):** the GSCII will be described briefly using images, videoclips, animations, audio and text. The history of the GSCII will be presented as an example of the genesis and development of a scientific idea.
- **GSCII:** composed of several subsections that will explain why the GSCII was compiled, its contents, how it was implemented and who contributed to its making.
- **Storia (History):** the birth of astronomy as a science, referring in particular to the reasons that brought mankind to the observation of the sky and describing its evolution from the early days of astrology to modern astronomy. In some specific sections the effort made by ancient astronomers (from Hipparcos to the Renaissance) to catalogue the objects in the sky will be highlighted. A final section will emphasise the evolution of modern astronomy thanks to the techniques of astronomical photography.
- **Utilizzo (Use):** how the GSCII is used by several space telescopes and also by the largest ground-based ones.
- **Sistema Solare (The Solar System):** the first step of the virtual journey through the Universe where the GSCII will be used as road map dealing with the planets, asteroids and comets of our system before crossing its boundaries to the nearest stars.
- **Via Lattea (The Milky Way):** will show all the different types of objects of our Galaxy (e.g. stars, halo objects, star clusters) and will explain the structure of the Galaxy.

THE STRUCTURE OF THE CD-ROM

- **Universo (The Universe):** This section will show the different types of galaxies. It will also talk about the birth and fate of the Universe according to the most recent cosmological theories, and will introduce the user to different types of exotic objects such as black holes and QSOs.
- **Viaggi (Voyages):** This is an educational section with games, short films, tests, etc., mainly devoted to the clarification of some concepts not in every day use. Two examples are astronomical distances, which will be explained using the famous documentary “Powers of 10” as a model, or the description of the history of the Universe in a year.
- **Futuro (The Future):** This section will be about the astronomy that will be possible in the future from new space telescopes (NGST, GAIA, etc.) to the most advanced ground-based telescopes (LSST and others).

Figure 1: Structure of the CD-ROM.

