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THIRD UNITED NATIONS CONFERENCE ON THE EXPLORATION AND PEACEFUL USES OF OUTER SPACE

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Abstract of the paper of the European Space Agency

1. The purpose of the Third United Nations Conference on the Exploration and Peaceful Uses of Outer Space (UNISPACE III) is to review and highlight the significant advances in space science and technology that have taken place since 1982 with a view to promoting their greater use, in particular by developing countries, in all areas of economic, social and cultural development.
2. The present paper reflects the shared thinking of the member States of the European Space Agency (ESA) on some of the most important themes of the agenda of the Conference and sets out the main reasons for conducting space research and using space applications. It is based on the 12 background papers prepared by ESA as input to the secretariat of UNISPACE III (A/CONF.184/BP/1-12). For a clearer presentation of the shared thinking of the 14 ESA member States on advances in space science and technology, the paper has been divided into three topics, as discussed below:

I. Space applications

A. Earth observation

3. There is increasing awareness of the need for better understanding of the Earth's system in its entirety, comprising the atmosphere, oceans and land, and the complex interactions between those components. Observation from space through artificial satellite systems is the best way to monitor the Earth's environment globally. An important advantage of a remote-sensing database is its multidisciplinary nature, meaning that Earth observation data sets can serve different application disciplines, making for optimization of investment in their production.
4. Space meteorology is the application that first became operational, in 1960, and has paved the way to uses of satellite data in many other geophysical and environmental disciplines, such as climatology, forestry, agriculture, geology, oceanography, glaciology and risk management, and in general monitoring of the Earth and its resources.
5. Since 1977, when the first European geostationary meteorological satellite, Meteosat, was launched by ESA, a series of successors have followed. Today those satellites are operated by the European Organization for the Exploitation of Meteorological Satellites, with which ESA is now cooperating on development of the second generation of meteorological satellites, including three polar-orbiting satellites (Metop-1, 2 and 3) dedicated to meteorological and climatological applications. ESA currently has two Earth observation satellites in orbit, ERS-1 and ERS-2, whose capabilities have led to the development of a range of new applications, such as climate

monitoring, land use information and natural hazard detection. A third satellite, Envisat-1, is being developed as their successor and is scheduled for launch by the end of 1999.

B. Global Navigation Satellite System

6. The most significant advance in radio navigation is, without doubt, satellite navigation, which will have a major effect on everyday life. Its impact on transport systems will be considerable and will lead to economies and increases in efficiency. No State that intends to maintain modern, efficient transport infrastructures will be able to ignore its capabilities.

7. There are two satellite navigation systems available at present, the Global Positioning System (GPS) of the United States of America and the Global Orbiting Navigation Satellite System (GLONASS) of the Russian Federation. Both are military systems and have been extended for civilian users, even though they are still operated under military control. Encrypted messages, available to military users only, provide much higher accuracies than the open code, which is degraded intentionally to reduce accuracy to approximately 100 metres.

8. Europe is also preparing for the next generation of satellite navigation, Galileo, previously referred to as the Global Navigation Satellite System-2 (GNSS-2), which is expected to be under civilian control, tailored to the long-term needs of civil user communities and designed for improved navigation performance, while still retaining GPS/GLONASS compatibility.

C. Satellite multimedia systems

9. The Global Information Infrastructure (GII), providing universal access to data, voice and video connections, is going to revolutionize the way people live in the next millennium. Telecommunication satellite systems can play a major part in building up GII by providing interactive broadband services at prices consumers can afford. The best way to overcome ground network capacity and limited range is to use satellite multimedia systems, giving users all over the world immediate access to information resources.

10. Satellite multimedia systems providing telecommunications services all over the world have many applications that could be very useful to developing countries in particular. Broadband satellite services, at affordable costs, are ideally positioned to assist those countries in making a direct transition to modern infrastructures. Examples include telecommunications (distance education, training and integration of large numbers of people into economic activity), telemedicine and agriculture (broadcasting weather reports). Wherever ground infrastructures (radio links, communication lines) are either non-existent or very inefficient, satellites can play an important role.

11. ESA is preparing a programme in the area of broadband satellite multimedia that will lay special emphasis on applications of satellite communications in the fields of health care, education and disaster and emergency management.

II. Basic space science and its benefits

12. A cleaner and quieter environment, the absence of atmosphere, the advantages of exploration *in situ*, rather than from a particular point and gravity on the Earth's surface are so many factors that make space an unequalled arena for the understanding of the universe. At the same time space science requires technology of the highest quality and, in stimulating technological progress, is of immediate value to meeting our daily needs. ESA has a space science programme dedicated to improving man's understanding of the universe, in which it cooperates with other space agencies around the world, the National Aeronautics and Space Administration of the United States, in particular.

13. One of the issues of concern is how developing countries can benefit from space science. The United Nations and ESA are already addressing the issue through the joint organization of workshops dedicated to basic space science.

III. International cooperation

14. During the last 10 years, the conditions for conducting international cooperation have changed dramatically. Less international tension and increased commercialization have opened up fertile ground for international cooperation, creating new opportunities for countries with no space capabilities of their own.

15. ESA welcomed the adoption by the General Assembly, in its resolution 51/122 of 13 December 1996, of the Declaration on International Cooperation in the Exploration and Use of Outer Space for the Benefit and in the Interest of All States, Taking into Particular Account the Needs of Developing Countries, which clearly sets the conditions for international cooperation. The Agency will continue to support, in all relevant forums and in consultation with its member States, the quest for cooperation on global issues that concern all humankind, to which a strong contribution can be made by space activities.
