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**Committee on the Peaceful
Uses of Outer Space**
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**“Open Universe” proposal, an initiative under the auspices
of the Committee on the Peaceful Uses of Outer Space for
expanding availability of and accessibility to open source
space science data.**

Proposal by Italy


I. Background

1. The 2030 Agenda for Sustainable Development will require effective, enhanced and innovative tools to support its implementation. Among those tools are the ones offered by space science and technology, which could act as both an enabler and a catalyst for the efforts of countries with regard to progressing towards internationally agreed development goals and for sustainable development. Advancing international cooperation in the peaceful uses of space science and technology and increasing the use of space-derived data and information are at the core of international efforts for harnessing the benefits of outer space for development in the post-2015 framework.

2. The General Assembly, in its resolution 66/71, emphasized the significant progress that has enabled humans to explore the universe, and the extraordinary achievements made over the past fifty years in space exploration efforts, including deepening the understanding of the planetary system and the Sun and the Earth itself, in the use of space science and technology for the benefit of all humankind. Also in that resolution, the General Assembly stressed the need to look more closely into how advanced space research and exploration systems and technologies could increase benefits, in particular for developing countries. Moreover, in that resolution, the General Assembly recognized that the Committee on the Peaceful Uses of Outer Space, assisted by the Office for Outer Space Affairs, serves as a unique platform at the global level for international cooperation in space activities

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and stand at the forefront in bringing the world together in using space science and technology to preserve the Earth and ensure the future of human civilization.

3. Along the same lines, the General Assembly, in its resolutions 68/75 and 70/82, reiterated that the use of space technology should be promoted in efforts towards achieving the objectives of the major United Nations conferences and summits for economic, social and cultural development and related fields, including implementing the Millennium Declaration and contributing to the post-2015 development agenda process. Also in those resolutions, the General Assembly emphasized the need to increase the benefits of space technology and its applications and to contribute to an orderly growth of space activities favourable to sustained economic growth and sustainable development in all countries.

4. Against this backdrop, expanding the availability of and the accessibility to space science data is key.

5. The 2014 report “A World That Counts” prepared by the Independent Expert Advisory Group (IEAG) on Data Revolution for Sustainable Development at the request of the United Nations Secretary-General provides a comprehensive review of data issues. The IEAG, in its report, underscores the need for strong leadership by the United Nations through concrete actions and activities, in order to make data revolution serve sustainable development. It also calls on the United Nations Member States and the United Nations system organizations to speed up work in the field of data revolution placing greater emphasis on user-centred design and user-friendly interfaces.

II. Open Universe — Proposed Initiative

Context and vision

6. In preparation of the fiftieth anniversary of the first United Nation Conference on the Exploration and Peaceful Uses of Outer Space (UNISPACE+50) and in line with its thematic priorities, the present initiative aims at building and strengthening capacity in the use and applications of open source space science data and technology through international cooperation among Member States, at different stages of development, and international space-related entities.

7. We are at a critical juncture in the history of human civilization. Nowadays, computing power, data storage and interconnectivity have become nearly limitless resources potentially available to billions of people in the world at the same time through larger and smaller devices. Direct two-way connections between end users and providers of on-line services have been enabled. At the same time the scope of human cultural and intellectual exchanges has broadened, as the current age of big data sharing and open source gathers pace. In the last few years the users’ community served by providers of open source data from outer space has grown from a very small numbers of specialists up to larger groups of professionals, scientists, scholars, students and common followers at different stages of knowledge and expertise. The quality of data, their availability and accessibility have an impact on all these groups, harnessing their potential and enabling them to enhance their contribution to the global stock of common knowledge.

8. Most of the open source space science data are acquired through projects financed with public money, nurturing the idea that participation by the users' community should be as wide as possible. Today acknowledging that open data access drives innovation and productivity is a well-established principle in every scientific discipline. However, there is still a considerable degree of unevenness in the services currently offered by providers of data from outer space. In the next few years further efforts will be necessary to consolidate, standardize and expand services, promoting a significant inspirational data-driven surge in training, education and discovery. Such a process should be open to people worldwide and supported by a wide initiative of international cooperation of among space science data providers under the auspices of the United Nations.

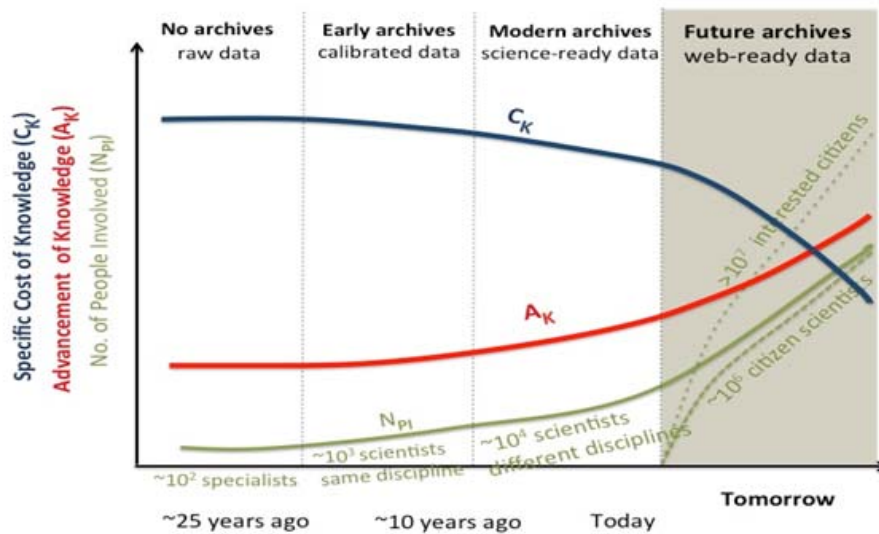
Objectives

9. The initiative intends to foster and spread the culture of space science and astronomy across different countries. It will pursue several interrelated tasks to the benefit of all actual and potential users of space science data, namely:

- (1) Promoting the robust provision and permanent preservation of science-ready data;
- (2) Advancing calibration quality and statistical integrity;
- (3) Fostering the development of new centralized services, both large and small, to exploit the interconnectedness of the modern Internet through new web-ready data;
- (4) Increasing web transparency to space science data;
- (5) Advocating the need for current and future projects to recognise the essential equality of hardware and software and incorporate centralized high-specification end-to-end analytics into cost envelopes;
- (6) Promoting active engagement of the Committee on the Peaceful Uses of Outer Space and other relevant national and international organizations towards tangible actions in this domain.

10. As space science data get closer to web-readiness, becoming, in principle, accessible to and usable by anyone, both the number of benefited users and the overall scientific output are expected to dramatically increase.

11. The chart below represents the expected evolution in space science data archive services, the users' communities and the unit cost of knowledge advancement, notionally measured in terms of scientific publications, either paper or web based. The plot encompasses a time span starting from the early days of scientific satellite activities to the foreseeable future (perhaps 10 years hence). The billion images served by NASA's Astronomy Picture of the Day in its first 17 years provide with an estimate of the very high number of users potentially involved in this trend.



III. Proposed initiatives and actions

12. In this context and with these objectives, we would like to propose the following:

- (1) Establishing under the auspices of the Committee on the Peaceful Uses of Outer Space and with the support of the Office for Outer Space Affairs of the United Nations an initiative to provide independent external review of the quality and performance of providers across the world of extra-terrestrial scientific data to the benefit of all potential users.
- (2) Tasking the Office for Outer Space Affairs with elaborating and regularly updating an Open Data Index listing the reviewed providers according to a published set of criteria on the ease, quality, completeness and timeliness of material made available for research, educational and common users' communities at all levels of knowledge and expertise. The Office would also be tasked to consult and participate widely in relevant international space-science initiatives in order to: further encourage innovation in this domain, cooperation among countries and the use of best practices; to campaign in favour of expanding the access to open source science-ready data provided by both established and emerging providers; to advance the provision of a new category of web-ready data suitable for portable devices.
- (3) Organizing an international workshop on the availability of and accessibility to open source space science data. Italy would consider hosting such a workshop in collaboration with the Office for Outer Space Affairs at the beginning of 2017. It would be open to experts and data providers from all interested countries and its outcome would be part of the process leading to UNISPACE+50.

IV. Expected outcomes of the Open Universe initiative

- Expanded availability of open space science and astronomy data
- Increased level of sharing of scientific discovery among users and with new participants in all parts of the world
- Better use of centralized analytics, expanding their scope and utility.
- Increased calibration quality and statistical integrity
- Promotion of new archive functionality and new means of distribution
- Enhanced open-source cooperation between international partners
- Higher participation of different users' communities in all United Nations Member States
- Empowered global educational services
- More private sector involvement
- Broaden archive perspectives to the Universal context
- Extend to a very large number of citizens the scientific enterprise
- Faster advancement of knowledge