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Title	SORVEGLIATI SPAZIALI – A UNIQUE COMMUNICATION EXPERIENCE IN PLANETARY DEFENSE AS A POSSIBLE STARTING POINT FOR THE ITALIAN INVOLVEMENT IN THE INTERNATIONAL YEAR OF PLANETARY DEFENSE
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COMMUNICATION EXPERIENCE IN
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INVOLVEMENT IN THE INTERNATIONAL
YEAR OF PLANETARY DEFENSE**

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Extended Abstract

The aim of this paper is to present both the public outreach project “Sorvegliati Spaziali” of the Italian National Institute for Astrophysics, entirely dedicated to all-round Planetary Defense, and the team’s previous experience in the International Year of Astronomy IYA2009 as a possible starting point for the Italian involvement in the International Year of Planetary Defense.

1. Introduction

Our Planet offers an ideal environment for life, representing a unique oasis in the Solar System. We are nowadays particularly aware of the relative fragility of this complex system, which is exposed both to natural and man-made threats. As concerns the hazards coming from space, various scientific issues go under the area of Planetary Defense: impacts of asteroids or comets during close transits, meteors or meteorite impacts; management and monitoring of orbital space traffic (operative satellites and space debris); and the study of the space weather, in particular of the solar activity events which could, for example, cause electrical black-outs or malfunctions of artificial satellites.

Although these topics are of global interest and particularly appealing for the general public and somehow understood as relevant to their lives, there are few outreach products worldwide designed for communicating all-round Planetary Defense and even

fewer are those coordinated by research bodies.

On the other side, frequent alarms published on generalist media (i.e. on asteroids fresh of discovery in a sure collision course with the Earth) show that Planetary Defense is currently an area for misinformation and fake news. Hence, an accurate and effective public outreach campaign is essential.

With this aim was born Sorvegliati Spaziali - looking up to Space to protect our Planet, a public dissemination project of the Italian National Institute for Astrophysics (INAF) [1] entirely dedicated to Planetary Defense and endorsed by the Outreach Office [2] of the NASA Planetary Defense Coordination Office [3].

Sorvegliati Spaziali represents the first public outreach initiative in Italy and one among the first ones in the world coordinated by a research body on the all-round Planetary Defense.

2. Main goals of the project

The project Sorvegliati Spaziali started in spring 2021 with the main goal of providing timely scientific, technical and cultural knowledge to convey how our Planet is exposed to various natural and man-made threats in Space, meanwhile rowing against the many fake news about Planetary Defense that has biased the collective imagination. In particular, it covers the following four major themes of Planetary Defense: Near-Earth Objects, space debris, space weather, and meteors and meteorites.

The communication strategy of Sorvegliati Spaziali is based on the development of state-of-the-art multimedia and online tools, in order to ensure the widest possible dissemination to a variety of targets (general public, schools, amateurs), on a coherent merging of the already existing INAF outreach efforts in Planetary Defense and through a strong and consistent visual identity.

To do that, a coordinated INAF working group with personnel (communicators, scientists and technologists) from multiple INAF sites on the Italian territory was created, in a cooperation based on sharing know-how and skills and in collaboration with external institutions active in the field, external firms and theatre professional actors.

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3. The Sorvegliati Spaziali website

The main communication product of the project is the entirely graphic and multimedia website sorvegliatispaziali.inaf.it available online since October 2021 (in Italian and partially in English) and where all the other outreach products of the project are published. The website has been developed in collaboration with the web design firm *demarka* [4], based in Bologna.

In the website, Planetary Defense is presented through a variety of original INAF information and in-depth products, meanwhile relaunching news from other national and international research bodies.

INAF products include: news, video clips about basic concepts, curiosities, news and interviews to experts; monthly NEO bulletins, reporting asteroid close approaches observables through amateur telescopes and tips for observing them from Italy; daily solar bulletins and on monthly basis in video format, infographics, glossary of Planetary Defense terms, map with live real-time satellites and space debris tracking (whose positions are taken from public catalogues) and with geo-location.

According to Google Analytics statistics, since its launch date the website has got about 20.000 total visitors with an average time spent on the site of about 2 minutes.

4. Asteroid Day public event

Sorvegliati Spaziali organised its first public outreach event on the occasion of Asteroid Day 2022.

The event, with title “Sorvegliati Spaziali - Asteroidi fastidiosi e come affrontarli” (Sorvegliati Spaziali - tiresome asteroids and how to deal with them, in English) was held at the Visitor Center Marcello Ceccarelli [5] managed by INAF Institute of Radio Astronomy [6] close to the INAF Radio Telescopes of Medicina on the 2nd of July 2022.

It was an hybrid one-afternoon event with multiple activities for general public as follows:

- 1) exhibition of meteorites and Tunguska finds;
- 2) the screening of the documentary “Cavezzo – storia di una meteorite”(2021) on the recovery of a meteorite in January 2020 on the Italian soil, thanks to INAF PRISMA [7] network calculations
- 3) a moderated panel discussion with the participation of INAF Planetary Defense scientists accompanied by screenings of the movie Don't look up (2021), for ideas and reflections.

Participants have been offered an aperitif and gadgets. The panel discussion was also live streamed on the Sorvegliati Spaziali website, thanks to the collaboration with *Associazione Handmedia* [8], in charge of the video shooting and streaming broadcast.

The event sold out for most of the activities with a total of 120 participants in person and 30.000 viewers via “live stream”.

The organisation of the second edition, which will be held on the 30th of June 2023 in the main library “Sala Borsa” of Bologna in the downtown, is underway.

5. Next communication products

Sorvegliati Spaziali is exploring other languages of communication. In particular, we are finalising the realisation of an augmented reality brochure of the project, both in Italian and English, where in-depth content and illustrations can be displayed through the use of personal mobile devices (smartphone/tablet).

The necessary app to enable the AR experience, for both Android and iOS operating systems, is being developed and designed by the company *demarka*.

The brochure consists of a concise presentation of the project and of the four major topics covered (see 2.) and offers four augmented reality experiences, one per theme, with in-depth material.

When completed, the brochure will be physically printed for mass distribution. Moreover, digital copies will be made available online on the Sorvegliati Spaziali website for home printing.

Finally, we are working on the realisation of a series of ten theatre short video clips, in collaboration with the Italian professional theatre company Il Piccolo Teatro d'Arte [9], based in Turin and in which both Planetary Defense sciences and humanistic and mythological content will be proposed.

6. Useful past experience in view of a possible International Planetary Defense Year 2029

Speaking about an International Year of “Planetary Defense” we can surely bring our past and strong experience in the International Year of Astronomy 2009 (IYA2009) [10] [11].

The IYA2009 has been a global effort initiated by the International Astronomical Union (IAU) and UNESCO to help the citizens of the world rediscover their place in the Universe through the day- and night-time sky, and thereby engage a personal sense of wonder and discovery.

It marked the 400th anniversary of the first astronomical observations through a telescope by Galileo Galilei. It has been, and still is, a global celebration of astronomy and its contributions to society and culture, with a strong emphasis on education, public engagement, and the involvement of young people, with events at national, regional, and global levels throughout the whole of 2009. IAU played the main role under the coordination of Pedro Russo, but, as Galileo was Italian, Italy also had a

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key role in the submission of the request to the United Nations, and in the Educational, Scientific and Cultural Organization of all the initiatives.

IYA 2009 has had an undeniable success because it allowed everyone to realise the impact of astronomy and other fundamental sciences on our daily lives, and to understand how scientific knowledge can contribute to a more equitable and peaceful society.

IYA2009 activities took place locally, nationally, regionally and internationally. National Nodes in each country runned activities throughout 2009 establishing collaborations between professional and amateur astronomers, science centres and science communicators.

In order to coordinate such a huge global programme and to provide an important resource for the participating countries, the IAU established a central Secretariat and an IYA2009 website (www.astronomy2009.org) as the principal IYA2009 resource for public, professionals and media alike.

The International Year of Astronomy 2009 was endorsed by the United Nations and the International Council of Science (ICSU).

Regarding Italy, all the national communication was managed by the INAF Communication Office in which two of the members of the Sorvegliati Spaziali's team worked at that time (Caterina Boccato and Marco Galliani).

The INAF office curated the realisation of all visual identity material, of the website and of the Communication all over Italy. It also managed the organisations of all related events such as an extraordinary exhibition in the Vatican Museums of Rome of old astronomical instruments and books that made the history of Italian and Vatican astronomy, from Galileo until 2009. Another big effort was the successful IYA 2009 Closing Ceremony that was hosted by the University of Padova, co-organized by IAU and UNESCO, under the High Patronage of the President of the Republic of Italy and several Italian institutions and

academies, particularly the *Accademia dei Lincei* [12] of which Galileo was one of the first members.

From the Closing Ceremony, which not for nothing was called Astronomy Beyond 2009, with the IAU and Pedro Russo effort we gave continuity to a process that is still running today, in which the awareness of our place in the Universe is arising day after day.

This last point, the awareness of our place in the Universe, is strongly linked to the topics that should be faced in the possible future Year of Planetary Defense for 2029.

In addition the public outreach project Sorvegliati Spaziali, described above, is a very good starting point for all the possible topics of such a proposal.

Finally, we think that it is more a duty than a possibility to use all this past experience in promoting and implementing, after twenty years, an effective program for the celebration of the International Planetary Defence Year 2029.

7. References

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8. Acknowledgments

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