



# Information and Communication Technologies (ICT) as keys to the enhancement of public awareness about potential earth impacts



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## ABSTRACT

The 2007 Planetary Defense Conference recommends “to provide or enhance Internet sites to show how threats evolve and to illustrate possible action scenarios”. Thereby, establishment of informational and communicational AsteroidAware web-site with the exact, authentic data about the past and the present of Earth’s impact events will assist in achievement of positive results and progress in different directions on political, international, social and scientific levels. Expanded ICT’s capabilities for popularization of planetary defense can help in resolving the problem of low public interest. The project’s primary intent lies in popularizing the concept of planetary defenses and attracting attention to the potential dangers that threaten the Earth from outer space. The result of the efforts falling into the boundaries of this project would be an increased amount of social participation in the process of developing solutions for and increasing awareness of potential collisions between various astral bodies and the Earth. The project is also aimed at creating a foundation for the interaction between scientists and executives from around the world to facilitate international efforts of searching for fitting measures towards lowering threat levels and developing strategies revolving around united actions against potential threats.

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## 1. Introduction

The term “Planetary Defense” was first used in scientific community in the early nineties of the 20th century. However it has received the greatest attention only a decade later. Development of detection and tracking technologies enhances the list of known near-Earth objects (NEO). Since 2004 the quantity of NEO has increased almost three times. Nowadays its number is beyond 7500 among which around 1/6 represent the potential danger to Earth. The discovery of the Apophis asteroid attracted public attention to the issue of planetary defense. Fig. 1.

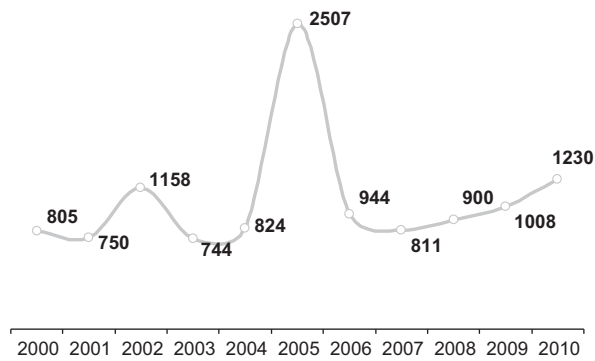
For the last eight years, four special Planetary Defense Conferences have been held (2004, 2007, 2009 and 2011). They contributed to taking this problem to the international level, the UN-COPUOS discussions included. Nevertheless, social awareness is still staying rather at a low level. As a

result it complicates coordination between the decision-makers and the scientists.

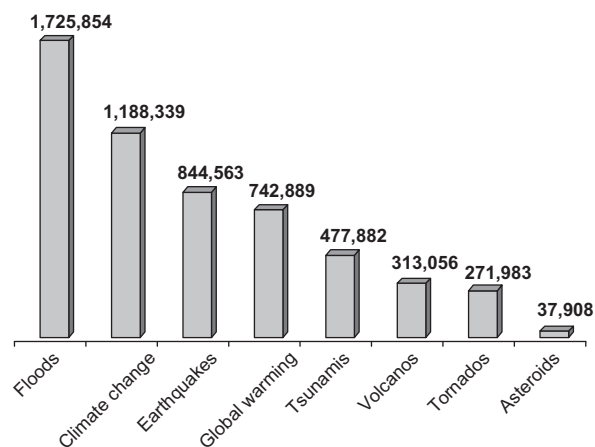
The reasons for low public interest include the shortage of relevant information and its limited accessibility. First reason of high media interest to existential catastrophes (such as earthquakes, floods, cyclones, volcanic eruptions etc.) is that they are already occurring and killing thousands of people almost every month. The media monitoring reveals that the amount of information about the asteroid impact can be found dozens of times more rarely rather than ones on the global warming or climate change and other natural disasters. Fig. 2.

Media products that are not based on scientific reality contribute to the spreading of wrong public ideas about the potential threat. Films that are not based on scientific reality contribute to the spreading of wrong public ideas about the potential threat. In the global network there are thousands of unreliable web-pages which mis-represent information (data) about the potential threat and its consequences. However, besides numerous doubtful facts there

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**Fig. 1.** The dynamics of mentions about the asteroid threats by mass media during the period 2000–2010. Media monitoring by Dow Jones Factiva information services.



**Fig. 2.** Mentions of the disasters compared to the mentions of the asteroid threats by mass media over the past 20 years. Ibid.

exist specialized resources of a high standard which are primarily the websites of space agencies and ad hoc institutions<sup>1</sup>. There are websites that were established to do much (though not all) of what is proposed. Some of these have lapsed into comparative inactivity or narrowed their scopes with time, without actually closing down<sup>2</sup>. Also very informative personal pages can be found<sup>3</sup>. Wiki websites can be very informative, but not all of them can be trustworthy. The problem is that all this websites are not integrated and it takes too much effort to access them. Reliable and objective information from scientific organizations or space agencies is often not clear to the public. A non-specialist cannot apprehend huge amounts of information and evaluate its credibility. Therefore there is a strong need for a unified, easily accessible, and competent source containing specific, relevant, and consistent information and a universal database. It is also important to provide an opportunity for

communication via social network in order to strengthen public trust and intensify interaction between scientific communities and decision makers.

The 2007 Planetary Defense Conference recommends “to provide or enhance internet sites to show how threats evolve and to illustrate possible action scenarios”<sup>4</sup>. Thereby, establishment of informational and communicational asteroid-aware-website with the exact, authentic data about the past and the present of Earth’s impact events will assist in achievement of positive results and progress in different directions on political, international, social, and scientific levels. In the long run it can become a central platform for the forming of the planetary defense system in the future. This system will be responsible for the worldwide warnings and protection actions to encourage international cooperation. Information, social and knowledge-based Internet data should educate governmental officials and the public on the nature of the NEO threats and expectations on NEO detections and warnings. The direct communication between scientists and policy makers through the asteroid-aware-network should increase public awareness and trust. That will also be helpful for international scientific organizations in exchange of research data and forthcoming events. Finally it is worth noting that in 20–30 yrs, when the possible threat may become apparent to the planet, the internet possibly will be one of the main information resources in the world.

## 2. Project description

This article proposed the project called AsteroidAware, the main mission of which is to systemize all the reliable information on the NEO threat. The project is aimed at establishing a single data portal that will unite the existing Internet resources and carry out the function of a search system, a monitoring centre, and a social platform. That will significantly facilitate the process of searching for information and working with it. The project will also contribute to establishing scientific contacts. The project does not have a goal of abolishing the existing resources but, on the contrary, strives to develop and supplement them. The project could unite all the special internet resources on the issue of planetary defense, which will allow to establish an expanding database. The database will facilitate work with information and promote information exchange. Besides its scientific application, the project could stimulate public interest in the planet safety issue and increase public awareness, which in turn will increase the level of public support.

### 2.1. The role of information and communication technology (ICT) in the increasing of public awareness

Modern information and communication technology is an essential tool used in the scientific and educational spheres. ICT enables users to access, store, transfer, and manage huge amounts of information (texts, audio, and video). Moreover, ICT allows to create a single communication space, which

<sup>1</sup> NASA, ESA, RKA, JAXA, ISRO, UN-COPUOS, IAA, IADC, Secure World Foundation (SWF), Association of Space Explorers (ASE), PASSC, The International Astronomical Union (IAU) etc.

<sup>2</sup> An example of this is <http://impact.arc.nasa.gov/>, which still exists but has apparently not been updated since sometime in 2010.

<sup>3</sup> Example: Clark R. Chapman. Website: <http://www.boulder.swri.edu/~cchapman>.

<sup>4</sup> White Paper: Summary And Recommendations. AIAA 2007 Planetary Defense Conference. P. 2.5.2. Website: [http://impact.arc.nasa.gov/news\\_detail.cfm?ID=173](http://impact.arc.nasa.gov/news_detail.cfm?ID=173).

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