Parliamentary Assembly
Assemblée parlementaire
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COUNCIL OF EUROPE
CONSEIL DE L'EUROPE

Resolution 1080 (1996)[1]

Detection of asteroids and comets potentially dangerous to humankind

Parliamentary Assembly

1. There are two broad categories of extraterrestrial objects which could possibly collide with our planet: comets and asteroids. They are generally known among astronomers as Near-Earth Objects (NEOs). Their total number is unknown, but the number of asteroids of sizes larger than 1 km whose orbits cross that of the Earth is estimated to be about 2 000. These objects are the most dangerous, and only a tiny fraction of them have been detected to date.

2. Considering that the explosion close to the Earth's surface of even an object with a diameter of 60 metres can have the effect of a 10 megaton nuclear weapon, the consequences of larger impacts would be disastrous on a global scale. The best known recent examples are the Tunguska explosion of an NEO with a diameter of about 60 metres (over Siberia) in 1908, resulting in the destruction of over 2 000 square kilometres of largely unpopulated forest, and the violent collisions with Jupiter of the fragments of the comet Shoemaker-Levy 9 (in July 1994). Those fragments were only about 0,5 km in size, but caused devastation to an area larger than that of the Earth. Traces of other smaller impacts on our planet are frequently being discovered, as well as fossil records of cataclysmic collisions which occurred in the past.

3. The significant amount of information gathered over the last few years on asteroid and comet collisions indicates how they can trigger large-scale and large-standing ecological catastrophes, sometimes leading to mass extinctions of species. Such impacts therefore represent a significant threat to our civilisation.

4. Although, statistically speaking, the risk of major collisions in the near future is low, the possible consequences are so vast that every reasonable effort should be encouraged in order to minimise them.

5. The Assembly therefore welcomes various initiatives, such as the Spaceguard Survey report published by Nasa, the creation of the Working Group on Near-Earth Objects by the International Astronomical Union, and the recent decision of NEO specialists to set up a spaceguard foundation to co-ordinate efforts at international level, as important steps in paving the way towards the development of a world-wide surveillance programme aimed at discovering all potentially hazardous NEOs and working out their orbits by computer so that any impact could be foreseen some years in advance, allowing preventive action to be taken as necessary.

6. The Assembly invites governments of member states, those states enjoying observer status and the European Space Agency (ESA) to urge the setting-up and development of the above-mentioned spaceguard foundation and to give the necessary support to an international programme which would:

6.1. establish an inventory of NEOs as complete as possible, with an emphasis on objects larger than 0,5 km in size;

6.2. further our understanding of the physical nature of NEOs, as well as the assessment of the phenomena associated with a possible impact, taking into consideration their various levels of kinetic energy and composition;

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1. See Doc. 7480, report of the Committee on Science and Technology, rapporteur: Mr Lorenzi. Text adopted by the Standing Committee, acting on behalf of the Assembly, on 20 March 1996.

6.3. monitor detected objects regularly over a period of time long enough to enable a sufficiently accurate computation of their orbits, so that any collision could be predicted well in advance;

6.4. .assure the co-ordination of national initiatives, data collection and dissemination, and the equitable geographical distribution of observatories between northern and southern hemispheres;

6.5. participate in designing small, low-cost satellites for observing NEOs which cannot be detected from the ground, and for investigations which can most effectively be conducted from space;

6.6. contribute to a long-term global strategy for remedies against possible impacts.