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Prospects of Russia in the International Cooperation on the Asteroid/Comet Impact Hazard Problem

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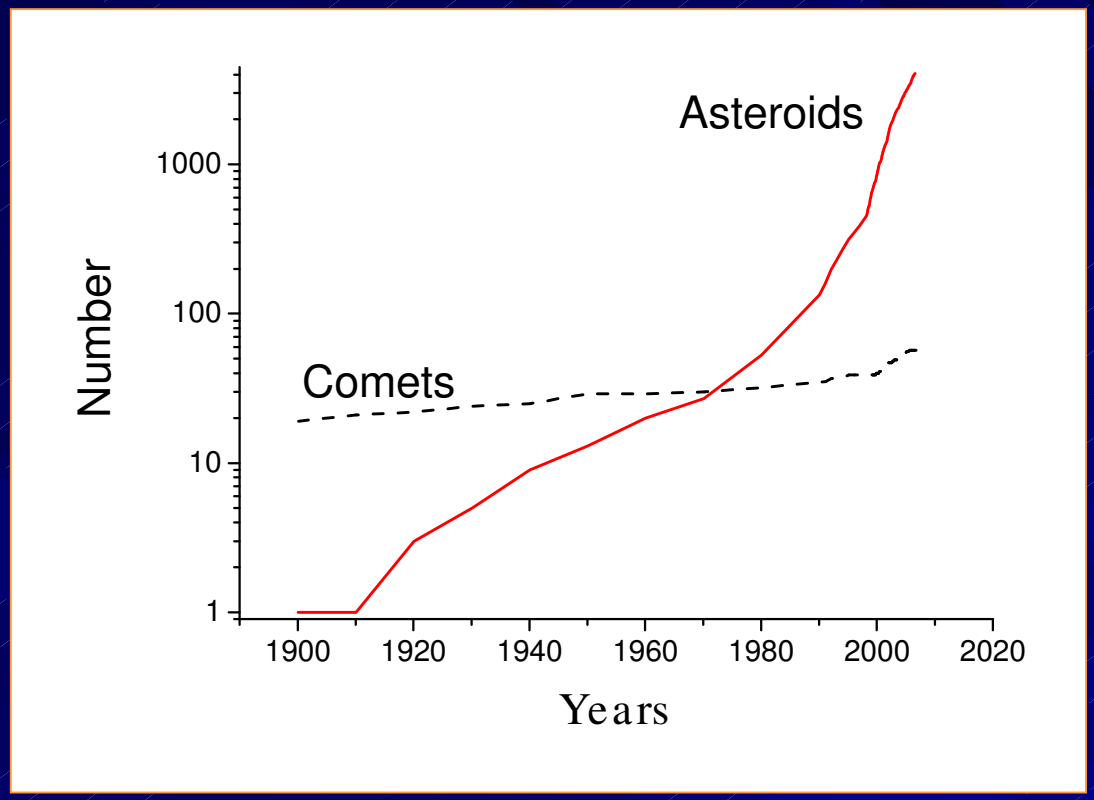
Large Meteorite Craters in Russia

Crater name	Coordinates		Diameter km	Age mln. years
	latitude	longitude		
Popigay (Попигай)	71°38'	111°11'	100	35.7 ± 0.2
Kara (Кара)	69°06'	64°09'	65 ?	70.3 ± 2.2
Puchezh-Katun (Пучеж- Катун)	56°58'	43°43'	80	167 ± 3
Kamensky (Каменский)	48°21'	40°30'	25	49.15 ±0.18
Logancha (Логанча)	65°31'	95°56'	20	40 ±20
Elgygytgyn (Эльгыгытгын)	67°30'	172°05'	18	3.5 ± 0.5
Kaluzhsky (Калужский)	54°30'	36°12'	15	380
Yanisyarvi (Янисъярви)	61°58'	30°55'	14	700 ± 5
Karlinsky (Карлинский)	54°55'	48°02'	10	5 ± 1



Growth of number of potentially hazardous comets and asteroids

P1 McNaught comet 23-01-07

Directions of activity in Russia

- Detection, remote characterisation, orbit determination and cataloguing of NEO. This requires development of system (participation in the international system) of NEO detection and monitoring;

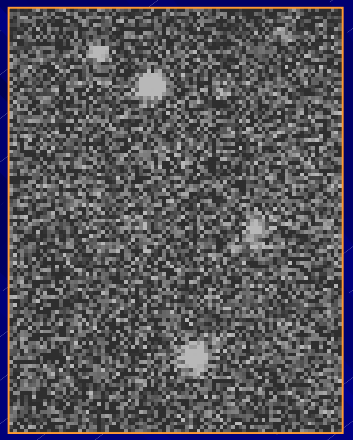
- In-situ characterisation (investigation of physical and chemical properties of minor bodies);

- Mitigation.

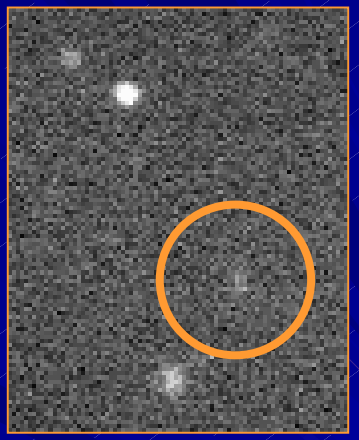
In all these directions there are premises and perspectives for further participation of Russia in the international cooperation!

Forthcoming Near Earth Transitions of Asteroids

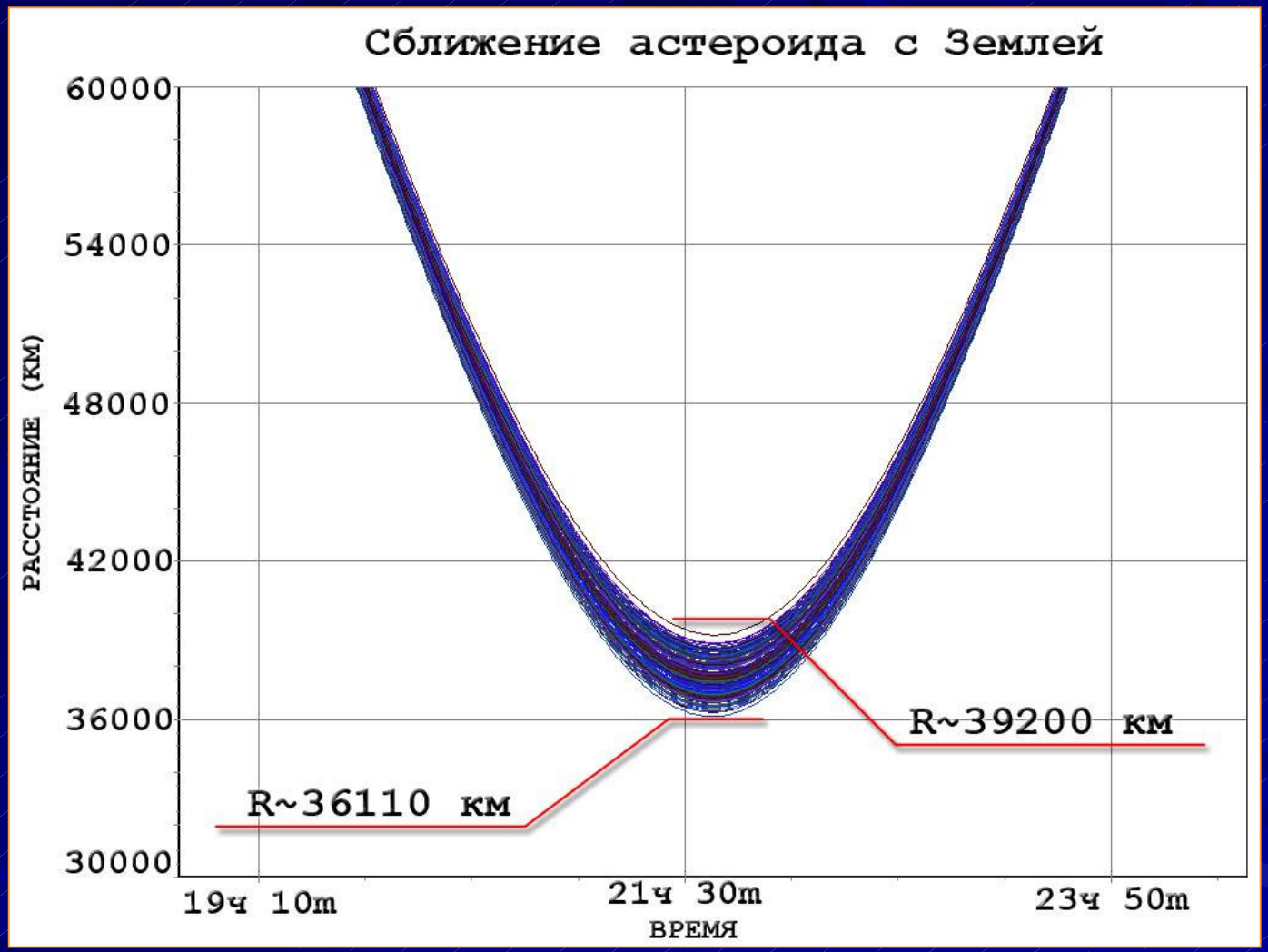
Number	*Name*	*Date of approach*	*Distance, a.u.*
(99942)	Apophis	2029 Apr. 13.91	0.0002318
	2005 YU55	2011 Nov. 8.98	0.001065
	2000 WO107	2140 Dec. 1.82	0.001623
	2001 WN5	2028 June 26.23	0.001670
(85640)	1998 OX4	2148 Jan. 22.14	0.002004
	1999 AN10	2027 Aug. 7.29	0.002654
	1998 MZ	2116 Nov. 26.98	0.002750
(35396)	1997 XF11	2136 Oct. 28.49	0.002762
	2004 XP14	2006 July 3.18	0.002891
	2003 QC10	2066 Sept.24.86	0.003396



2004mn4
11.05.2005
(Terskol
Observatory)



Discovered in 2004 potentially dangerous 120-350 m size object 2004MN4=(99942) Apophis will pass in the risk proximity to the Earth in 2029. The probability of the collision with the Earth (or falling into the geostationary orbit zone) in 2036 is non-zero. Apophis provides the mankind with the natural opportunity of close multilateral cooperation in space.



Estimated flyby distances for Apophis In 2029 г.

Development of observational facilities

Study of small bodies of the Solar System in-situ

(Phobos-Grunt Mission)

Mission goals - to deliver soil samples from Phobos to the Earth and to carry out scientific studies of Phobos and Mars.

Leading organizations:

Scientific payload

- GEOKHI, IKI RAS

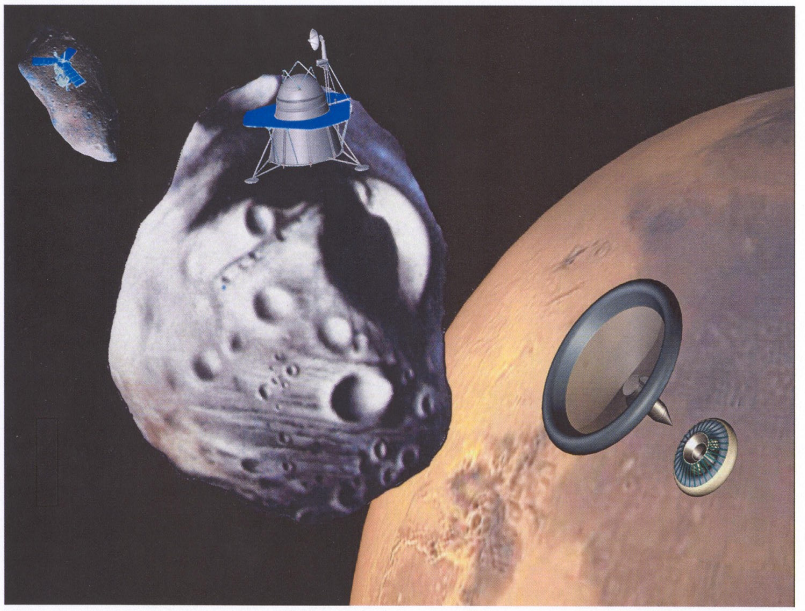
Space mission components

- Lavochkin Association

Launch - 2009

Mass of the Phobos soil sample delivered to the Earth – 0,1 kg.

Duration of flight to the Mars activity sphere - 850 days. Duration of flight to the Earth - 285 days.



Mitigation

Being one of the nuclear powers and having highly developed space technologies as well as the rich experience in space missions, Russia can not and should not be aloof from this problem.

At present such investigations are carried out in Russia as initiatives.

Organizational activity

1. The Expert Working Group on the Asteroid/Comet Impact Hazard Problem was formed in Feb 2007 at the RAS Space Council. The group includes representatives from RAS, Roscosmos, EMERCOM, Rosatom as well as from other organizations interested in the problem.

2. The main current task of the Group is to work out the Federal scientific and technical program “Asteroid/Comet Impact Safety of Russia”.

3. Program objectives: to coordinate activity on a national scale and to carry out activities aimed at strengthening of safety of Russia as well as of all the world community.

http://www.inasan.ru/rus/asteroid_hazard/ (in Russian)

On the Prospects of Russia in the International Cooperation

Russia as the most geographically extended country (therefore having the highest probability to suffer from asteroid and comet impact) as well as the country that tries to stay at its positions in the world will not remain aloof from international attempts to solve the Asteroid and Comet Impact Hazard Problem.

Russia is ready for development and extension of different forms of international cooperation on the problem!

Thank you for your attention!