The 3rd World Conference on Disaster Risk Reduction

(14-18 March, 2015, Sendai, Japan)

Working Session:
«Lessons from Mega Disasters»

VALERY AKIMOV

DOCTOR OF ENGINEERING SCIENCE, PROFESSOR,

DIRECTOR OF ALL-RUSSIAN
SCIENTIFIC RESEARCH INSTITUTE
OF EMERCOM OF RUSSIA

ADDRESS: 7 DAVYDKOVSKAYA, MOSCOW, RUSSIA
TEL. : +7(499) 233-25-40
FAX: +7 (499) 233-25-36
E-MAIL: VNIIGOCHS@VNIIGOCHS.RU
WWW.VNIIGOCHS.RU

Natural disasters

NATURAL CATASTROPHES - a loss of stability of the natural, naturally-anthropogenic or anthropogenic system, which happens as a result of change of its internal and/or external functional descriptions-parameters. The system, outliving a catastrophe, can not be fully restored to an initial state as the old system collapses and a new system forms.

NATURAL DISASTERS:

Geological: earthquakes, tsunami, volcanism, mountain shocks etc.

Hydrometeorological: droughts, dust storms, hurricanes, typhoons, floods, fires etc.

Natural phenomena in mountains: rock falls, landslides, mudslides, snow avalanches etc.

Countries' indexes of vulnerability to natural disasters (ND) in relation to Japan

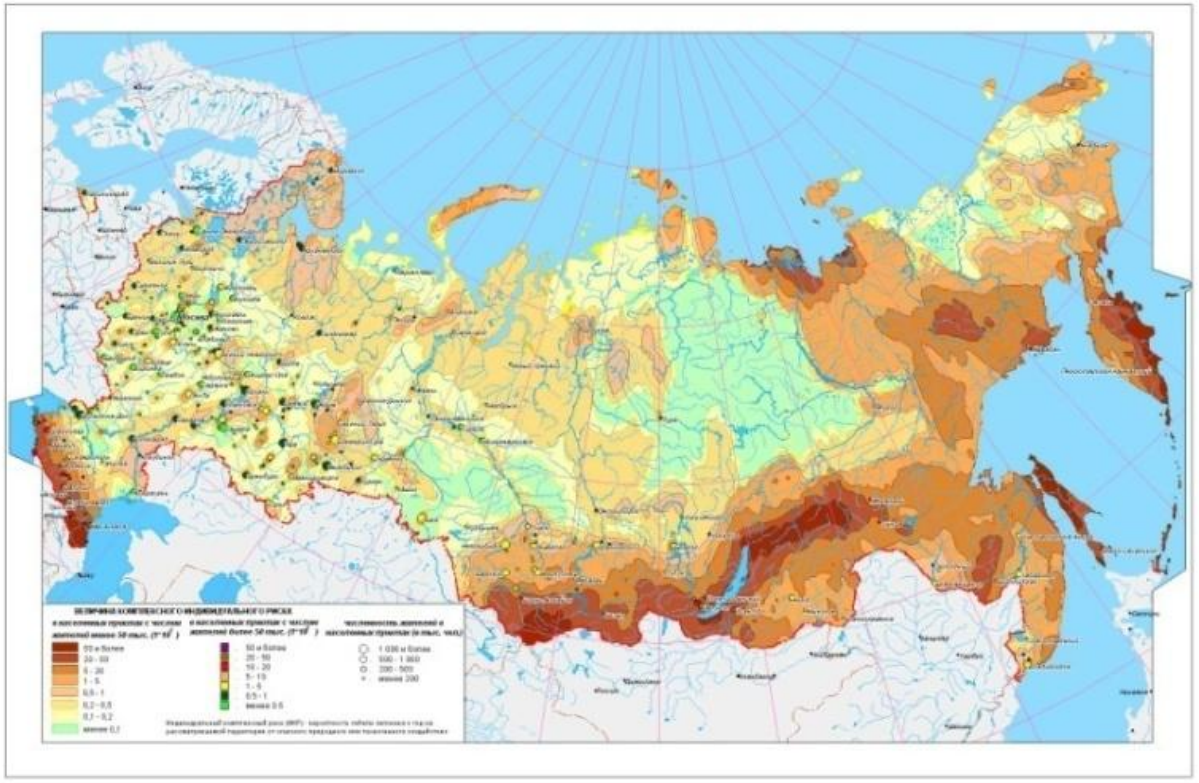
Countries	Amount of ND per unit area	GNP* per unit area	Population density per unit area	Damages caused by ND, per GNP* unit	Number of victims of ND, per 1 million people	Losses per one ND	Damages per one ND
Western Europe	**0,55**	**0,39**	**0,52**	**4,10**	**1,70**	**10,00**	**20,0**
USA	**0,27**	**0,07**	**0,08**	**8,00**	**7,70**	**350,0**	**420,0**

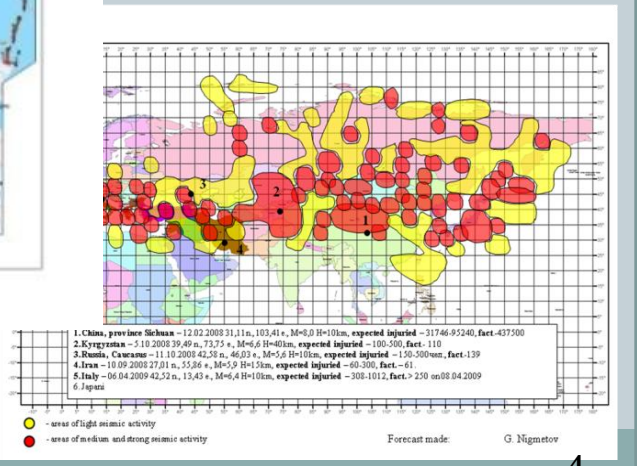
***GNP –** gross national product

Mega-disasters of the 2005-2015

№	Date and place of the disaster	Type of disaster	Number of victims	Number of injured people
1.	December 26, 2004 Indonesia, Sumatra	Earthquake (magnitude 9 on the Richter scale)	230 thousand people	-
2.	May 12, 2008 China, Sichuan Province	Earthquake (magnitude 7,8 on the Richter scale)	70 thousand people	374 thousand people
3.	January 12, 2010 Haiti island	Earthquake (magnitude 7 on the Richter scale)	200 thousand people	300 thousand people
4.	February 27, 2010 Chili	Earthquake (magnitude 8,3 - 8,8 on the Richter scale); Tsunami (after the shocks there was a massive tsunami wave, its height reached up to 3 meters)	800 people	2 million people
5.	March 11, 2011 Japan islands	Earthquake (magnitude 9 on the Richter scale)	15 thousand 703 people	hundreds were injured
6.	March 11, 2011 Japan islands	Tsunami (wave height up to 33 m)	25 thousand people	-
7.	2009 Samoan archipelago	Tsunami (wave height up to 98 m)	189 people	-
8.	December 26, 2004 Indian Ocean	Tsunami, caused by underwater earthquake in the Indian ocean (wave height up to 98 m)	150 thousand people	230 thousand people

Russian Federation map with designated levels of earthquakes and tsunami risks





Estimation of the level of buildings' seismic stability by using mobile diagnostic complex "String"

Total station

Digital camera

GPS

Laser roulette

Ultrasonic «UK 1401»

Dynamic complex «STRING-3»

GPR «OKO-AB-400 and AB-1700 MHz»

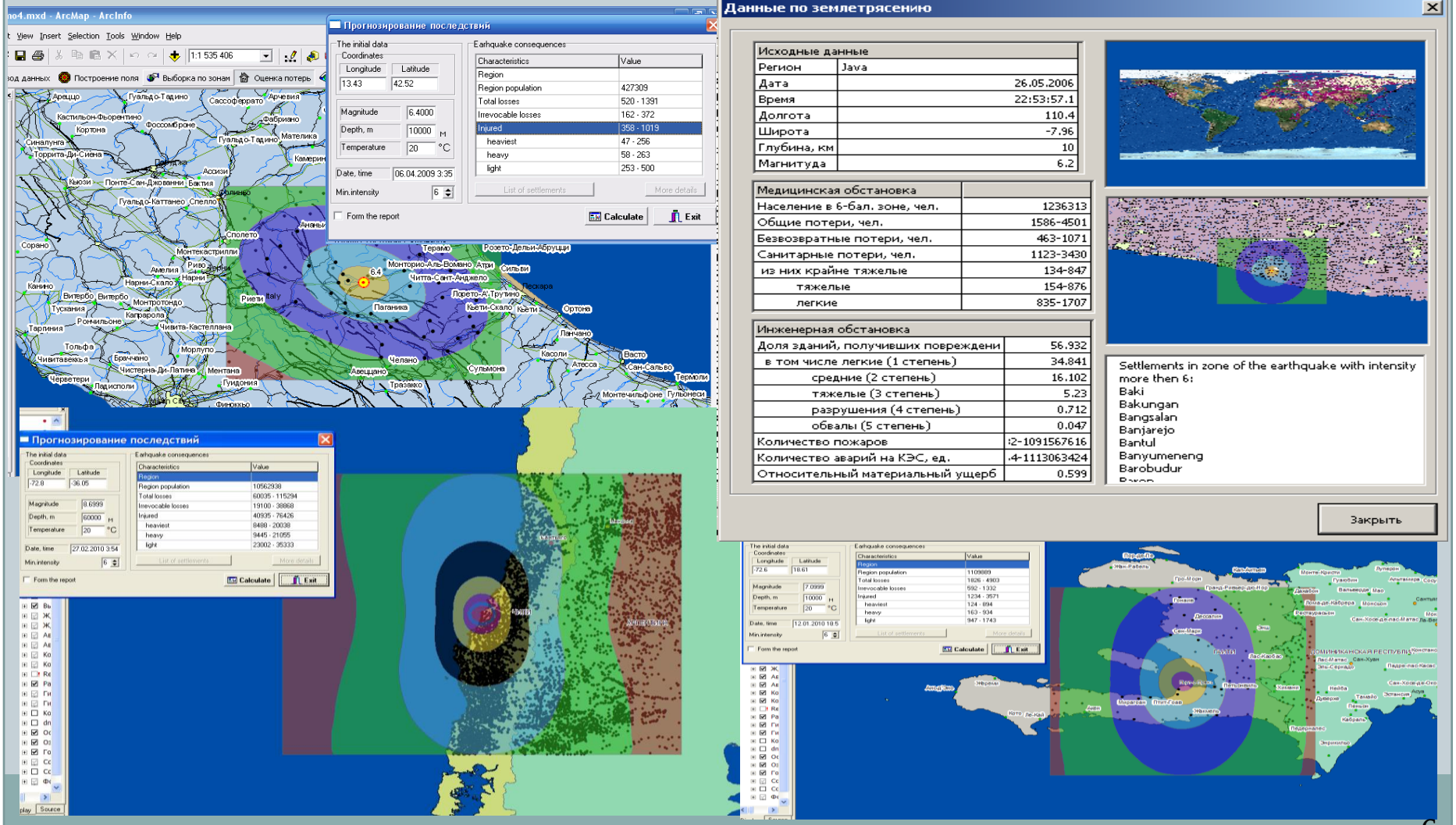
Seismic surveys station «Lakkolit – 24 M2» и «RZG-2»

Thickness gauge «A1209»

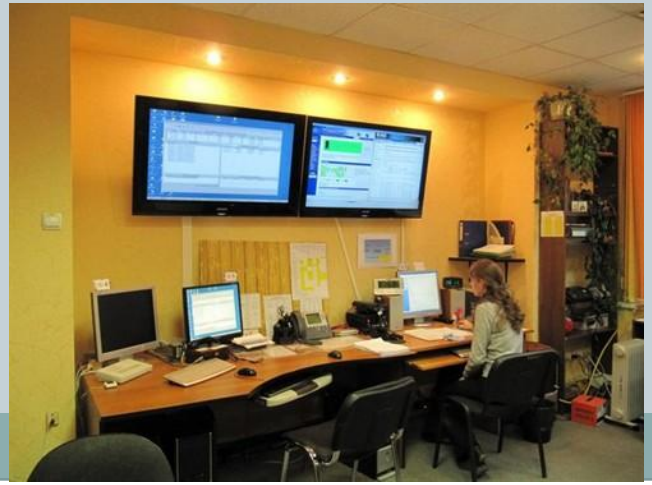
Ultrasonic tester «Pulsar-1.2»

Metal hardness tester «Uzit-3»

Geographic information system of forecast of catastrophes' aftermaths - GIS "Extremum"



Russian tsunami early warning system



Existing tsunami warning system consists of:

- 11 specialized broadband digital seismic stations,

6 of which are auxiliary, while 5 others have basic seismic micro-groups;

- 16 stations of registration of strong motions;

- 3 regional seismic information-processing centers;

- 25 automated coastal level posts;

- 3 territorial tsunami warning Centers;

- 2 bottom hydrophysical stations in the mid-ocean, high-speed channel of collection and dissemination of information, modern technologies and tsunami risks warning *(facilities)* mechanisms.

The 3rd World Conference on Disaster Risk Reduction

(14-18 March, 2015, Sendai, Japan)

Working Session Risk Identification and Assessment «Lessons from Mega Disasters»

VALERY AKIMOV

DOCTOR OF ENGINEERING SCIENCE, PROFESSOR,
CHIEF OF ALL-RUSSIAN RESEARCH INSTITUTE FOR CIVIL DEFENCE AND EMERGENCY MANAGEMENT (UNDER THE RUSSIAN EMERGENCY MINISTRY)

ADDRESS: 7 DAVYDKOVSKAYA, MOSCOW, RUSSIA
TEL. : +7(499) 233-25-40
FAX: +7 (499) 233-25-36
E-MAIL: VNIIGOCHS@VNIIGOCHS.RU
WWW.VNIIGOCHS.RU

~~14 March, 2015, 11:00 – 14:00, Hagi Hall (прим. Соучева – Это название у каждого свое)~~

~~14 марта 2015 г., 11:00 – 14:00, Высокогорный зал №1~~