

**Cooperation of National DRR
Platform with
National Hydrometeorological
Service in the Czech Republic**

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Governance & Organization of DRR in CR

Policy

Government responsibility to ensure safety, security and well-being of citizens
(+ adaptation to climate change)

Legislation

Laws about the state emergency system and integrated rescue system (in force since 2001)

Management Coordination

System of **crisis management staffs (CMSs)**

Central CMS leader – minister of interior
deputy – minister of defense

- Members heads of ministries and agencies

Director of NMHS a member of the Central CMS

Similarly organized CMCs at regional, city
and community levels

Main partners of NMHS

→ **Fire&Rescue Service (Civil Safety)**
- **Military Met Service**
- **River Basin Boards, Nuclear Safety**

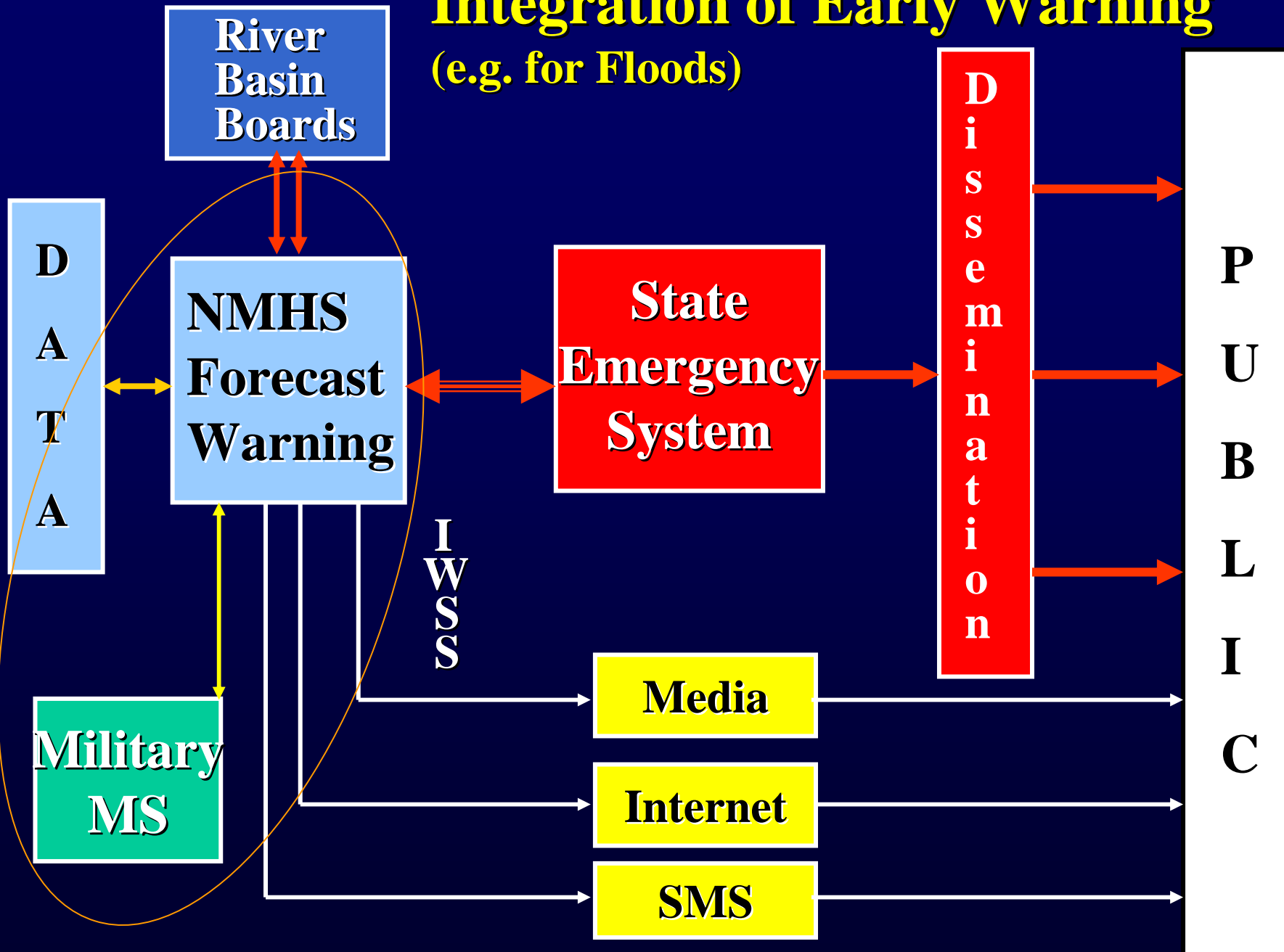
Emergency and Law System in CR

- **Crisis Management Laws package (in force since 2001)**
 - Crisis Management Law
 - Integrated Rescue System Law
 - Related laws (Fire & Rescue Service, Water Act and Clean Air Act)
- **New features:**
 - all aspects of crises including natural disasters are defined by those laws in a systematic way
- **Competencies** of main “players” are defined e.g.
 - government (creates Central Crisis Staff etc.)
 - ministers of interior, minister of defense (**leaders**)
 - other ministries, Czech National Bank
 - regional administration
 - county administration
 - community
 - „limitation of some human rights“ during a crisis

Integrated Rescue System

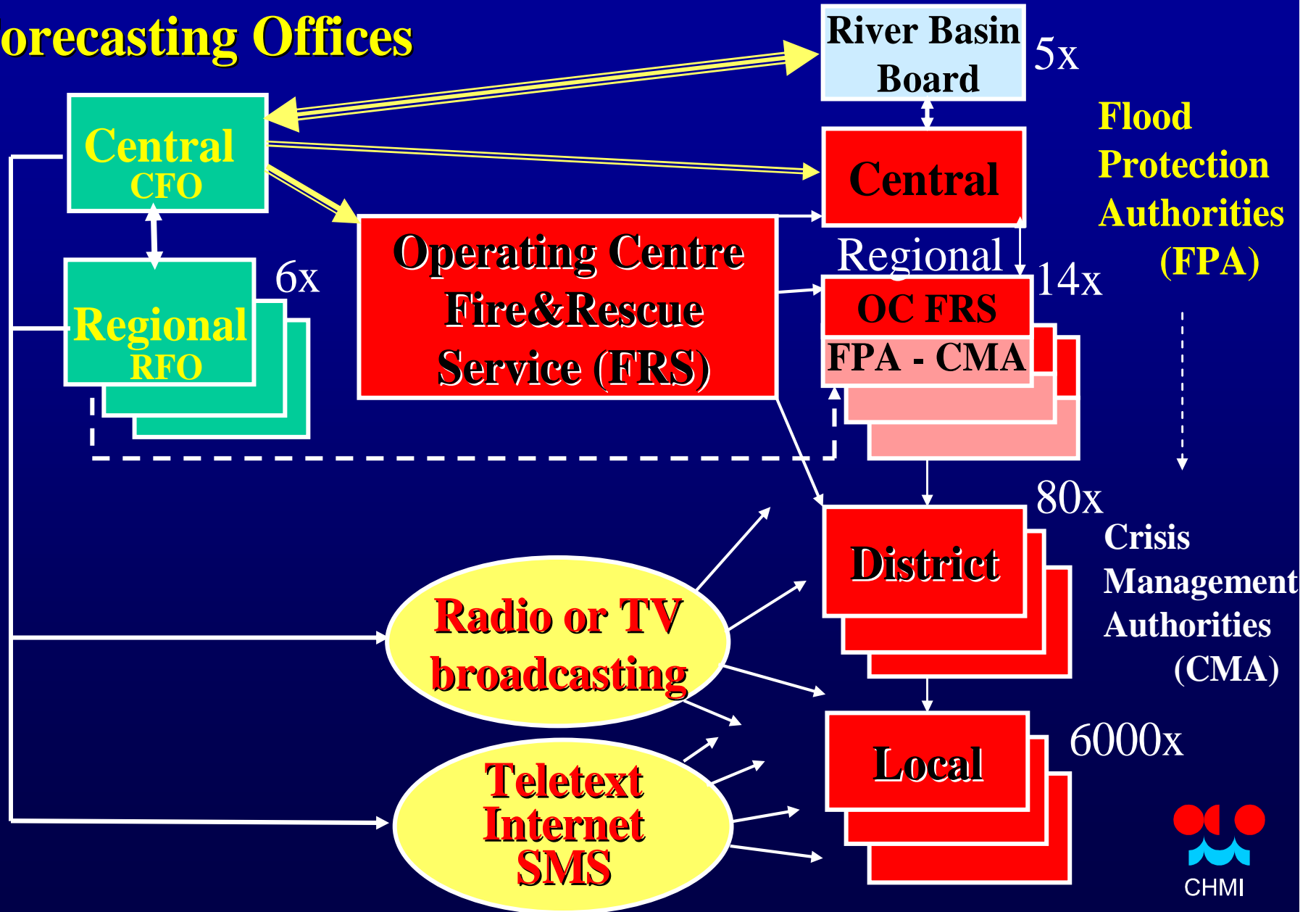
NMHS should be included in the State Emergency System !

Integration of Early Warning (e.g. for Floods)



Dissemination of Flood Warnings in the Czech Republic

Forecasting Offices



Multi-Hazard Warning Service

Integrated Warning Service System (IWSS)
NMHS+Military MS

natural hazards

meteorological

hydrological

smog warning
ozone warning

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directly

environ.

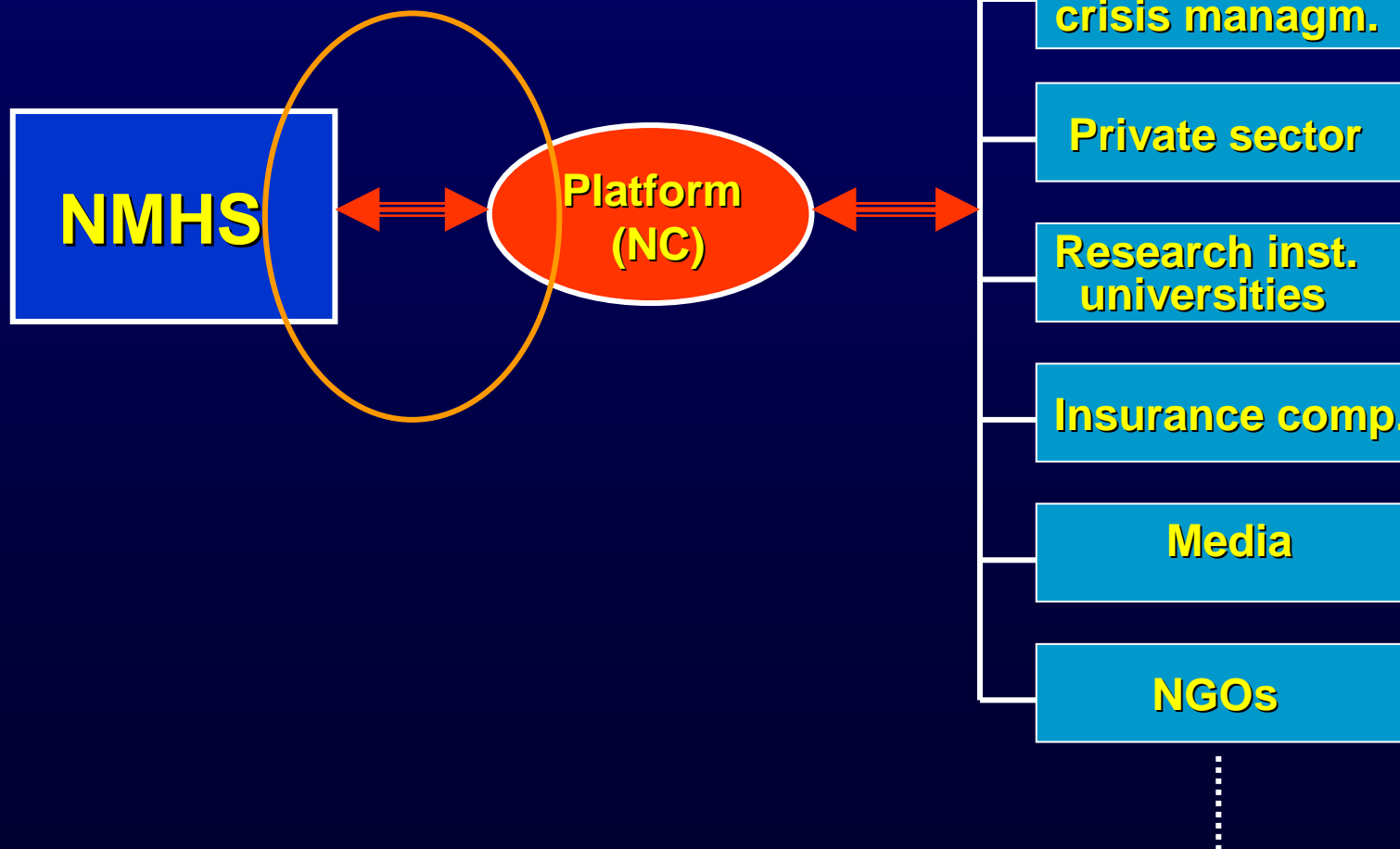
in
cooperation
with other
bodies

nuclear
chemical
biological

man-made hazards

Cooperation of NMHSs with other stakeholders in emergency systems

The role of national DR platforms



Benefits of Participation of NMHS in DRR Platforms:

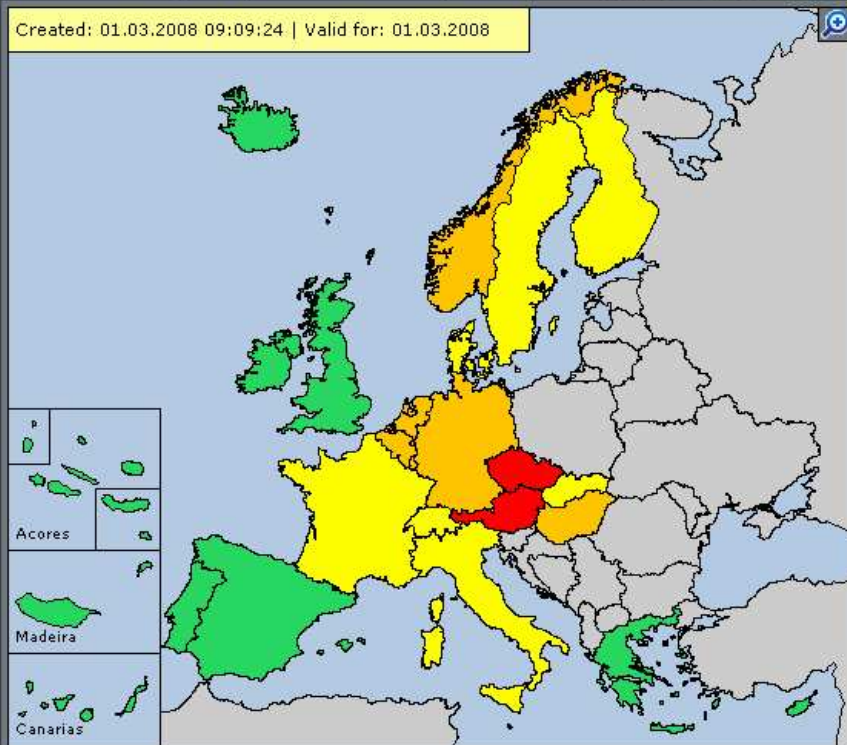
- **improvement in communication and dissemination** of warnings to the public and local and regional administration
- **better understanding to warnings and climate change problems** by various recipients and finally by the public
- creation of closer and mostly **personal contacts** with various partners of NMHSs within a state emergency system
- obtaining information about possible **new applications** of NMHSs products
- improvement of performance of NMHSs warning services by **participation in exercises, workshops and trainings** organized by DRR platforms
- exchange of information about various projects and other ways of funding (possibilities of joint projects)
- information about **new legislation** and also possibility of cooperation in a process of a development of new crisis management laws, etc.
- wider scope of **international cooperation** (emergency systems, etc.)

» Europe:

Weather warnings: Europe:

awareness types: Display:

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Awareness Reports

You can find detailed information about the warnings in the awareness reports issued for each country. Select the re

AT					
BE					
CH					
CY					
CZ					
DE					
DK					
ES					
FI					
FR					
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NO					
PT					
SE					
SK					
UK					

The most adverse effects of climate change for the CR

A) Increase in frequency and intensity of extreme events:

- **Floods** - The most dangerous are large floods caused by longer-term precipitation and also flash floods caused by local storms.

Floods in the CR have **specific features** as practically all rivers in the country start on its territory and then continue abroad towards several seas.

⇒ Development of floods has been relatively fast and dependent strongly on precipitation - then, **early warning** cannot rely on warnings and information from neighboring countries.

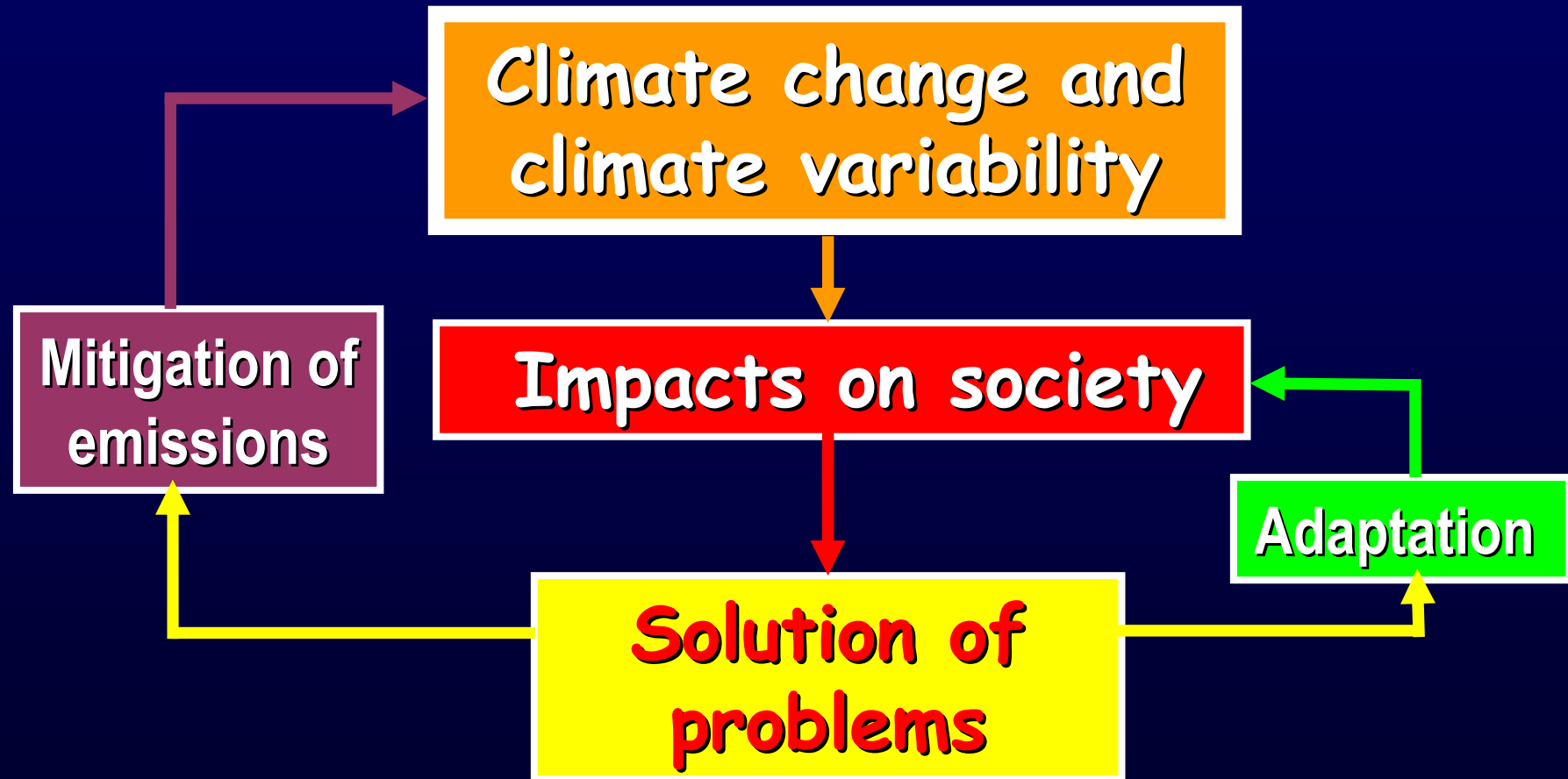
- **Other types of extreme weather** - wind and storm storms, freezing waves, small tornadoes, etc. probably will increase their frequency
- Longer duration and increased frequency of **heat waves**

The most adverse effects of climate change for the CR

B) Long-term temperature and precip. distribution change:

- **Increase** of average temperatures, shifts of maximal and minimal temperature
- **Changes in distribution** of precipitation – less precipitations in summer and spring, more precipitations in late autumn and winter
- **Changes in snow cover** – less snowing days, shift of snow cover into higher elevations
- **Periods of longer drought** in late spring, summer and early autumn

How to solve problems with climate change ?



Adaptation to climate change 1/2

- **Early warning** - (more frequent weather extremes, floods, drought, heat and cold waves, storms, etc.)
 - ❑ **Action – higher precision and prolongation of lead time of forecasts and warnings**
 - ❑ **addition of instructions – what could and must not be done by people during an extreme event**
- **Building industry** - increase of resilience of buildings to floods and heat waves, etc.
 - ❑ **Strict building codes, better isolation**
 - ❑ **land planning with respect to risks**
- **Water management** - dams, polders, removable dykes,
 - ❑ **special measures in landscape**
 - ❑ **decrease and regulation of water consumption (drought)**

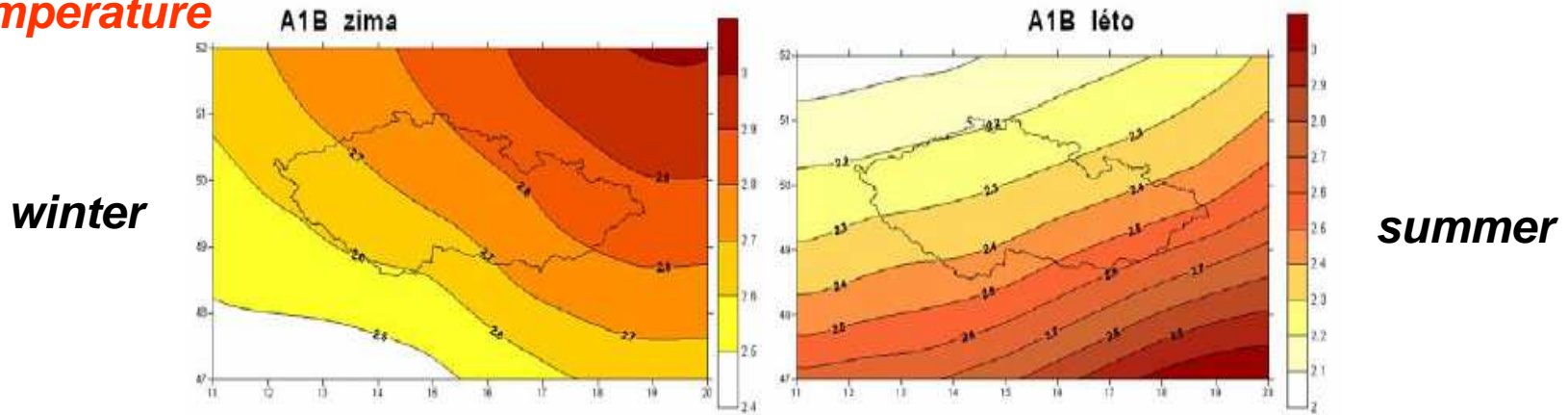
Adaptation to climate change 2/2

- Agriculture - different crops, different growing regime
 - ❑ biofuels
 - ❑ use of irrigation
- Forestry - different composition of trees
 - ❑ different management of forests
- Public Health - heat waves
 - ❑ shift of diseases to North
 - ❑ elimination of influence of abrupt weather changes
 - ❑ air conditioning
- Transport - problems with water transport (drought)
 - ❑ highway surface, air condition in vehicles
 - ❑ winter weather extremes, snow tires
- Energetics – increased demand
 - ❑ nuclear and renewable sources
 - ❑ increased consumption in summer
- Social measures - care about seniors, handicaped, etc.

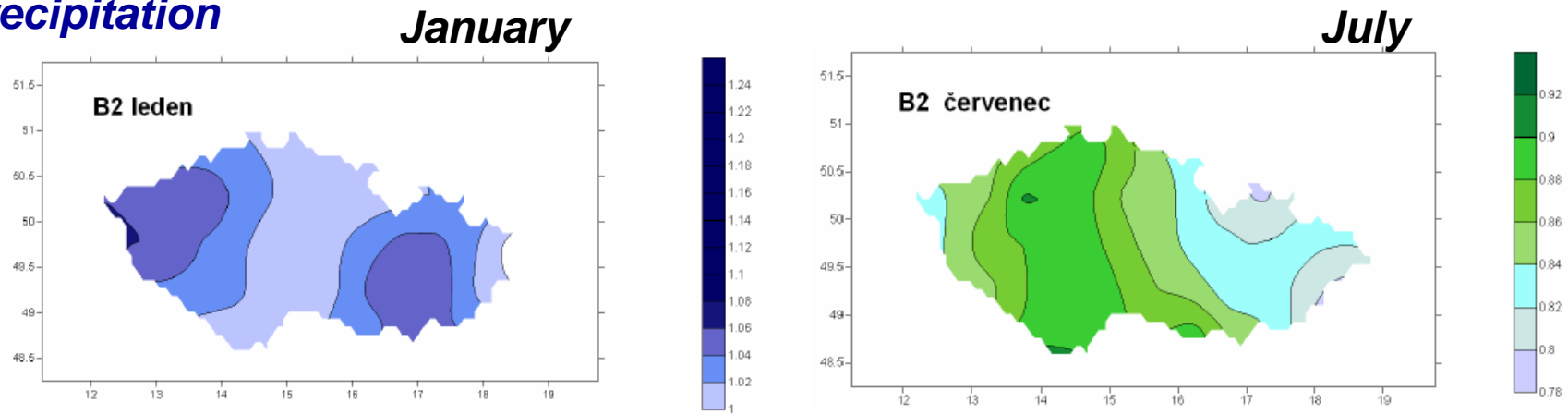
Regional climatic model „2008“ (→ 2050)

ALADIN - CLIMATE

Temperature



Precipitation



Research project - Modeling and impact on various economical sectors (2008-2009)

Adaptation strategy



- **Synergies between adaptation and mitigation measures should be created by means of:**
 - ❑ avoiding negative impacts of mitigation activities on the resilience of agricultural and forestry systems, natural ecosystems and, in particular, **water resources**
 - ❑ Integrated national climate change strategy should contain the **linkages between mitigation and adaptation strategies.**
- **Further research activities are necessary and they should focus primarily on:**
 - ❑ better understanding and quantification throughout the chain of “emissions – climate change – physical impacts – ecological impacts – disaster risk - socio-economic impacts” and improving the communication and handling of uncertainty in political decision making process
 - ❑ linking climate, hydrological, biophysical and socio-economic approaches to better understand the complexity of the **water cycle** and how these will react to climate change, in particular at regional and local level scales.



Thank you

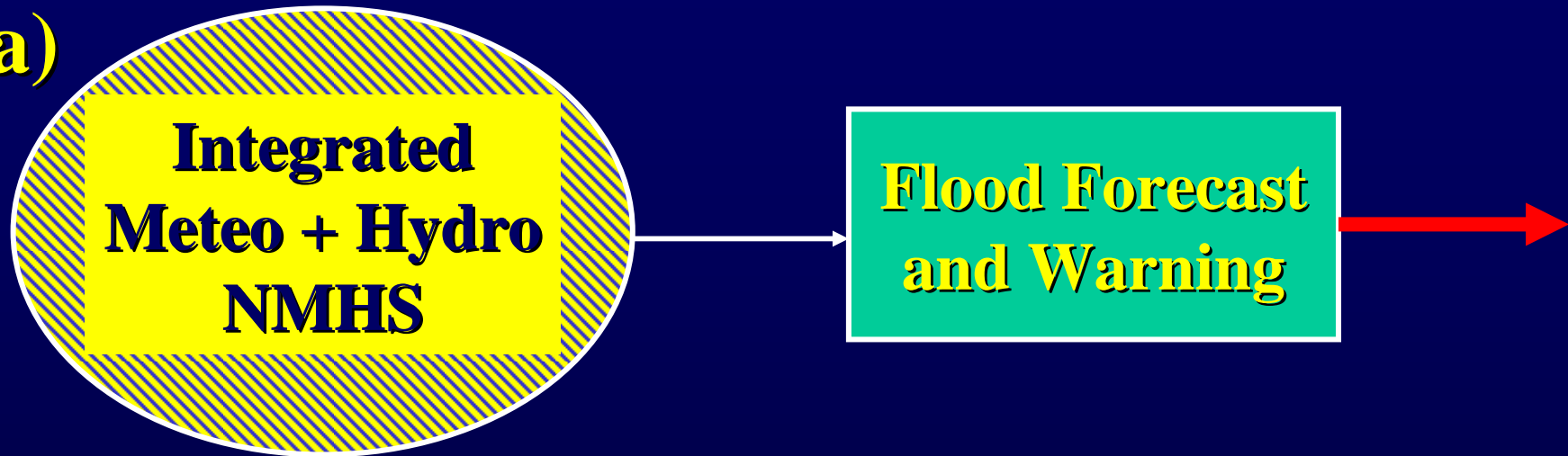




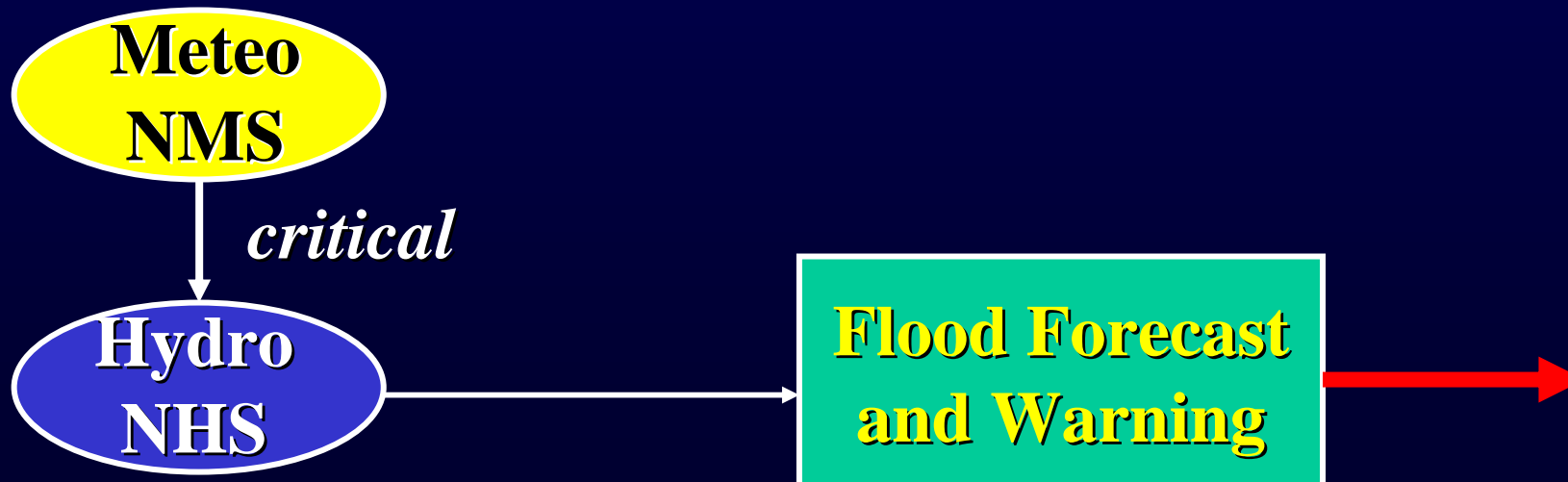
2 basic types of National Meteorological and Hydrological Services (NMHSs) within WMO



a)



b)



Cooperation among National Hydrometeorological Services (NMHSs)

level

body

members

World

World Meteorological
Organization (WMO)

all services

Europe

The Network of
European Meteorological
Services (EUMETNET)
EUMETSAT, ECMWF

most of European
NMHSs

Central Europe

Informal Conference of
Central European Directors
(ICCED)

A, CZ, D, HU, PL,
CRO, SL, SK

National

National (Hydro)Met
Services (NMHSs)

Czech National
(Hydro)Met Service
CHMI

Cooperation among National DRR Platforms

level

body

members

World

International Strategy
for Disaster Reduction
(UN ISDR)

all platforms

Europe

European Network
of Platforms

D, F, CH, CZ...

Central Europe

Central European Forum
for Disaster Prevention
(CEUDIP)

CZ, D, HU, PL,
SK, A

National

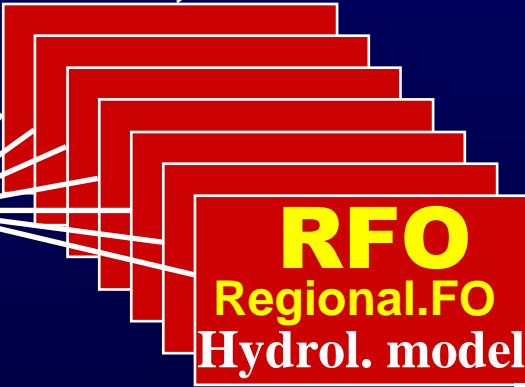
National Platforms
(Committies)

Czech National
Committee for
Disaster Reduction

observation

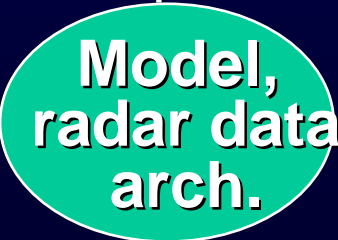


Output Forecast Warnings



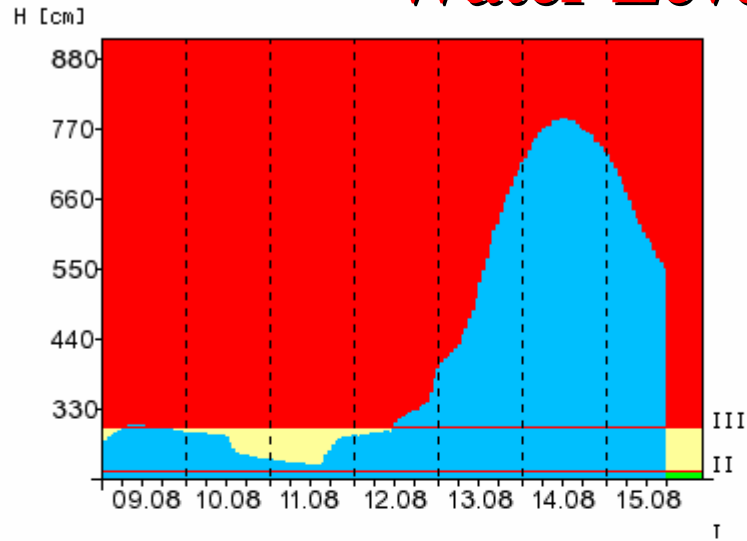
Output Forecasts Warnings

Internet/Intranet



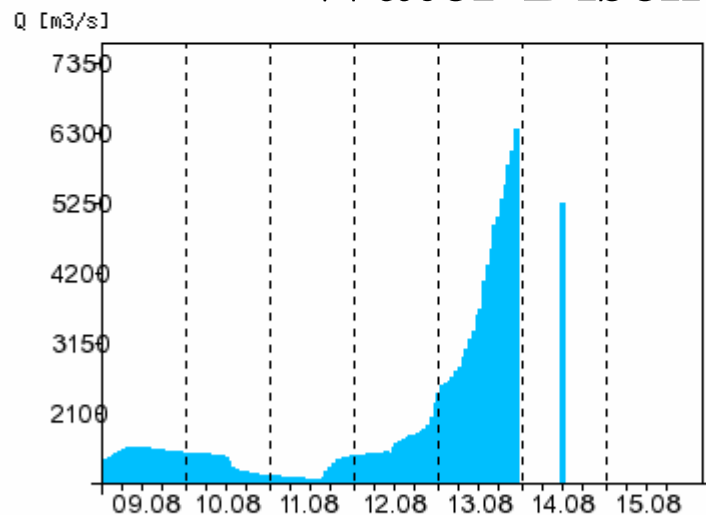
Vodní stavy

Water Levels



Průtoky

Water Discharges



datum čas	stav H[cm]	průtok Q[m³s⁻¹]
15.08 17:00	547	
15.08 16:00	558	
15.08 15:00	565	
15.08 14:00	577	
15.08 13:00	588	
15.08 12:00	597	
15.08 11:00	606	
15.08 10:00	618	
15.08 09:00	628	
15.08 08:00	640	
15.08 07:00	654	
15.08 06:00	667	
15.08 05:00	680	
15.08 04:00	693	
15.08 03:00	705	
15.08 02:00	716	
15.08 01:00	727	
15.08 00:00	732	
14.08 23:00	740	
14.08 22:00	747	
14.08 21:00	748	
14.08 20:00	758	
14.08 19:00	763	
14.08 18:00	766	
14.08 17:00	769	
14.08 16:00	774	
14.08 15:00	780	
14.08 14:00	782	
14.08 13:00	784	
14.08 12:00	785	5250
14.08 11:00	780	
14.08 10:00	780	
14.08 09:00	773	

Vltava River

Vltava Chuchle

15.8.02 17h

Hotovo

Místní síť intranet

Místní síť intranet