



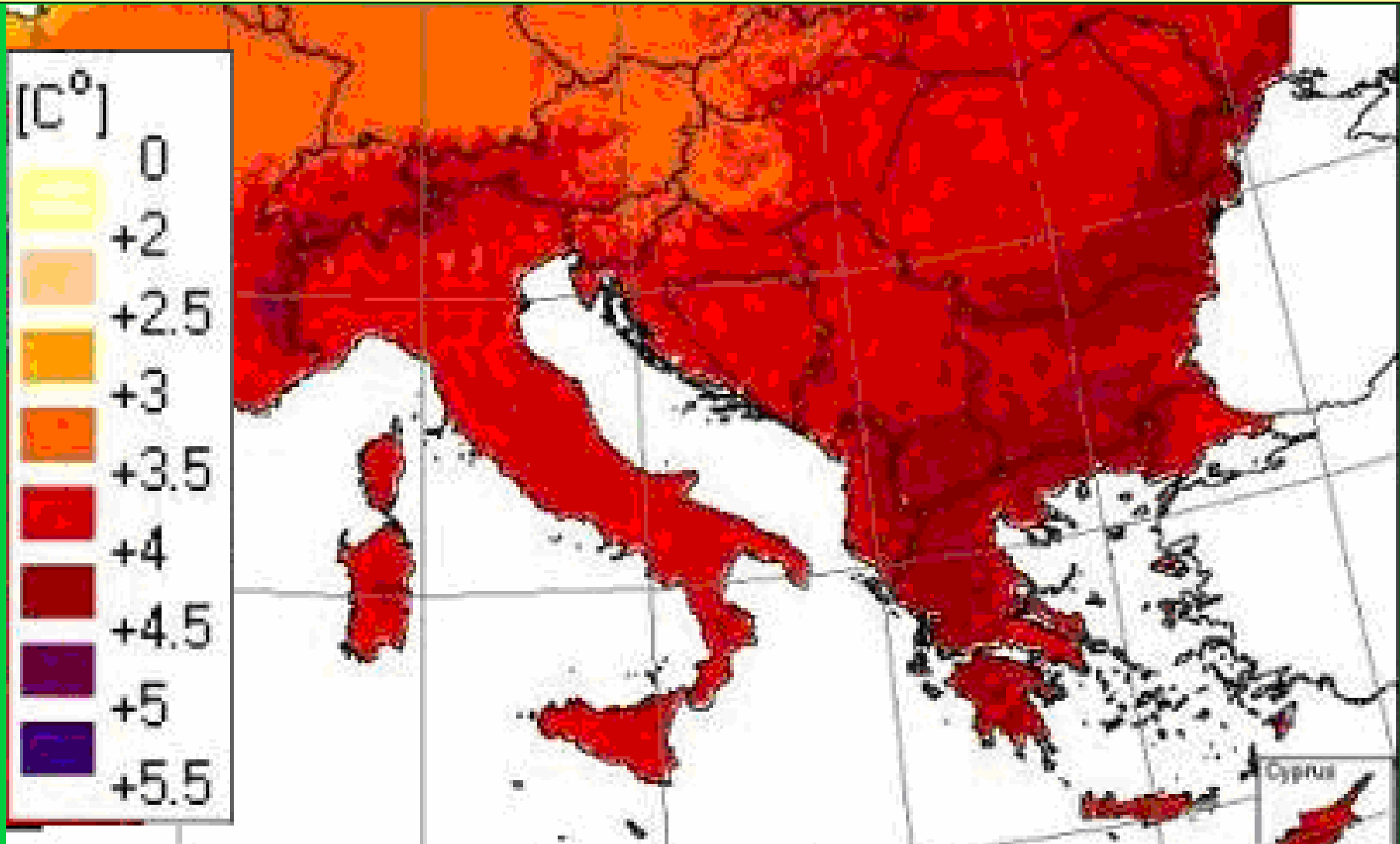
# Climate change, pollution and risks

ΩBX □ INXO vετ

# Map 1. Change in mean annual temperature by the end of this century (figure 1 in the Green Paper about Adaptation)

Absolute change in mean annual temperature between control period 1961-1990 and 2071-2100, under the IPCC SRES scenario A2.

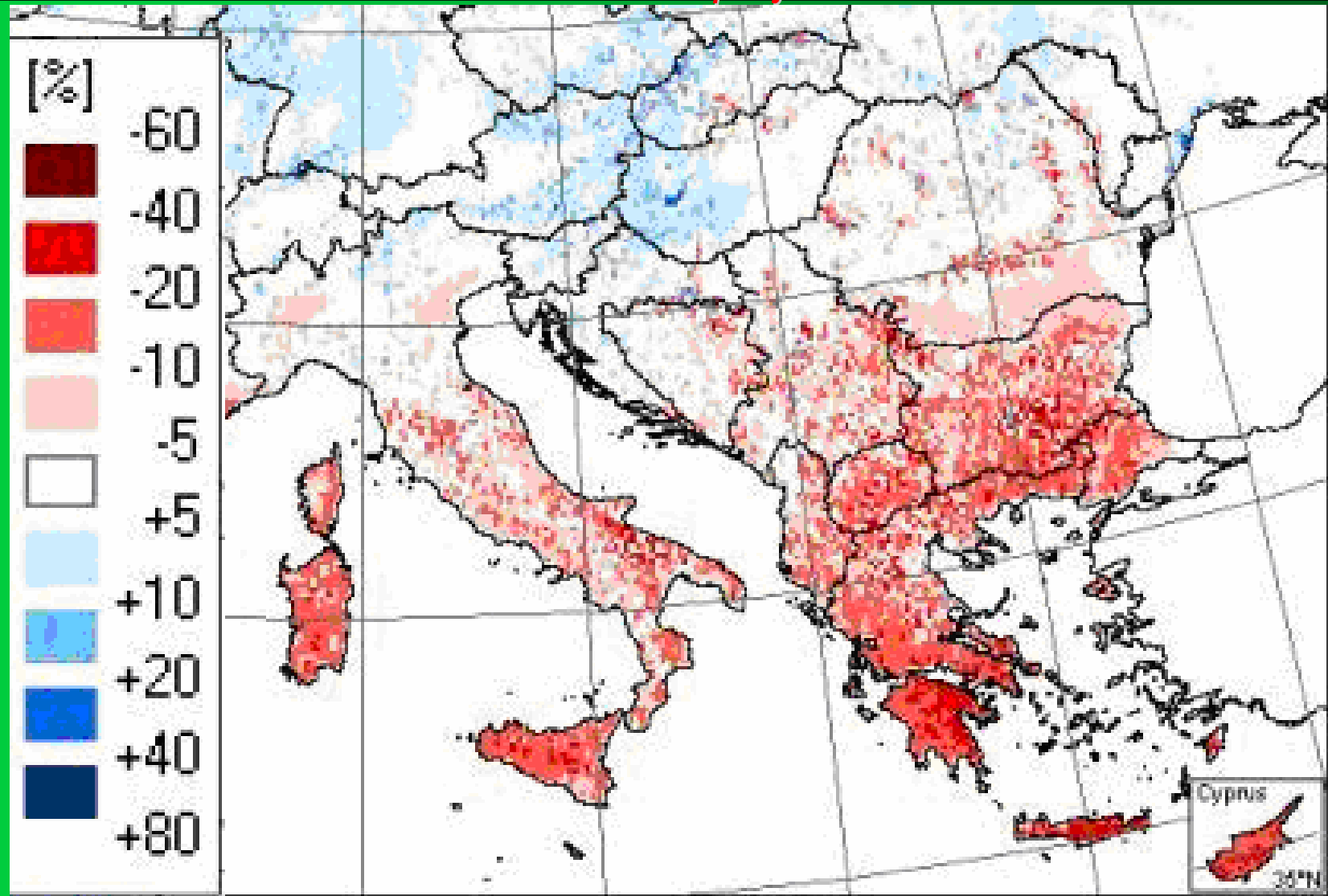
Data from EC-funded project Prudence



**Map 2. Change in mean annual precipitation by the end of this century  
(figure 2 in the Green Paper about Adaptation)**

*Relative change in mean annual precipitation between control period 1961-1990 and 2071-2100, under the IPCC SRES scenario A2.*

*Data from EC-funded project Prudence*



# **Climate change, pollution and risks**

- Pressures on the environment and climate**
- Environment and health**
- Natural hazards**

# **Pressures on the environment and climate**

**Advanced usage of renewable energy  
resources and energy efficiency on the  
territory of WBC as a way for “GHG”  
effect decreasing**

# Environment and health

- **Health Impact Assessment**
- **Clustering of Environmental burden Diseases related to climate Change**

# HAZARDOUS NATURAL PHENOMENA

## ATMOSPHERIC – METEOROLOGICAL

- Hailstorms, Hurricanes, Tornadoes, Tropical storms
- Lightning
- Ice, Frozen
- **Drought**

## GRAVIOTORIAL

- Debris avalanches
- Expansive soils
- **Landslides**
- Rock falls

## WILDFIRE

- Forest fire
- Grass Savannah

## BIOLOGICAL

- Epizooties
- Epiphytoties

## ENDOGENIC

- VOLCANIC (Lava, gas, ash)
- SEISMIC (Earthquake,
- TSUNAMIS

## HYDROLOGIC

- Coastal flooding
- **River flooding**
- **Flash Flooding**
- **Desertification**
- **Salinization**
- **Erosion and sedimentation**

# WILD FIRES

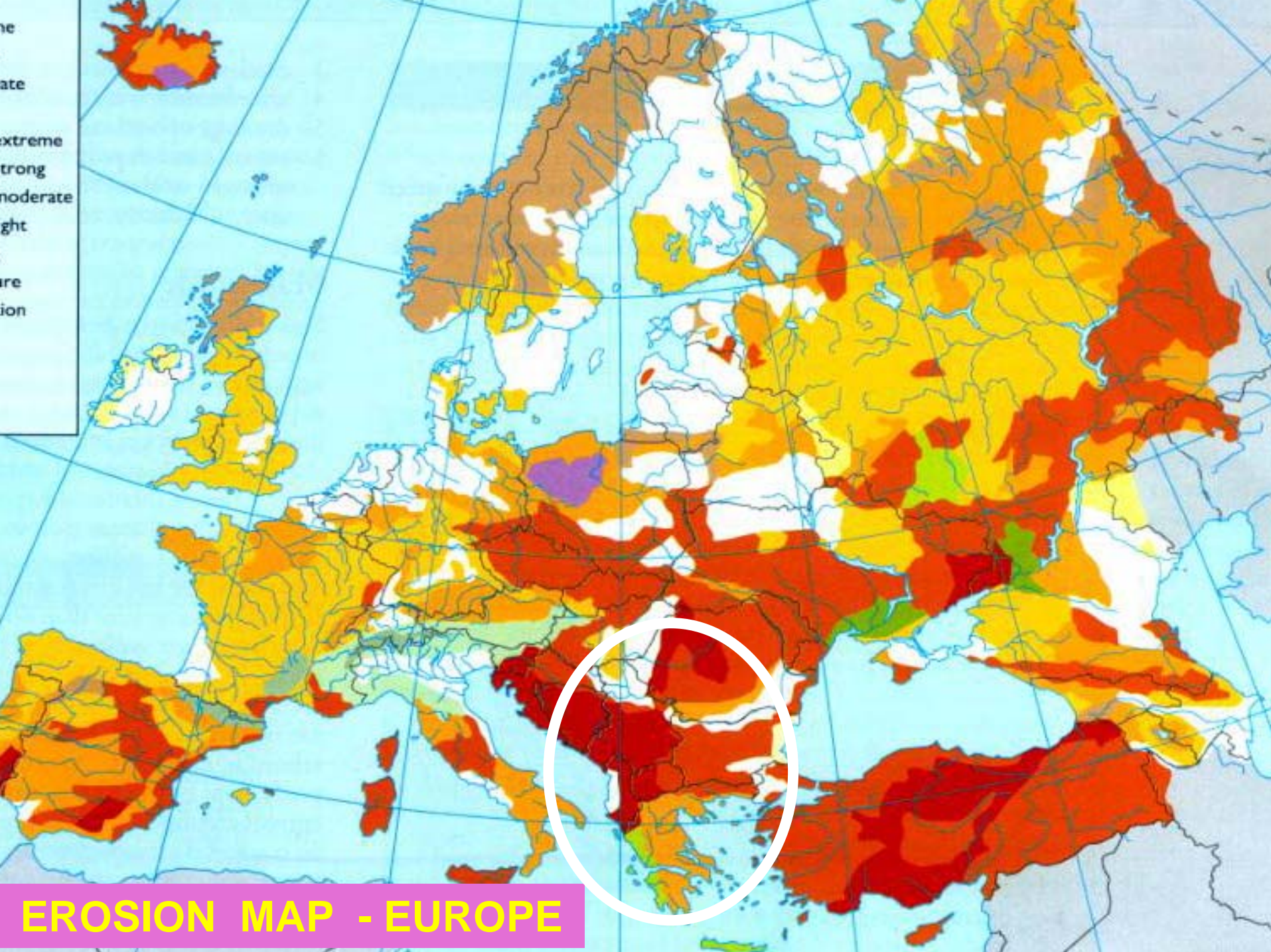


- Burned Pine plantations on extremely eroded land

# FOREST FIRES DISTRIBUTION

Satellite image – 25 July 2007





**EROSION MAP - EUROPE**

# Damage from bombing in SERBIA



## Damages from torrent flash floods



**17 killed, 175 injured**

**Negotino (MK)**

**LANDSLIDES**

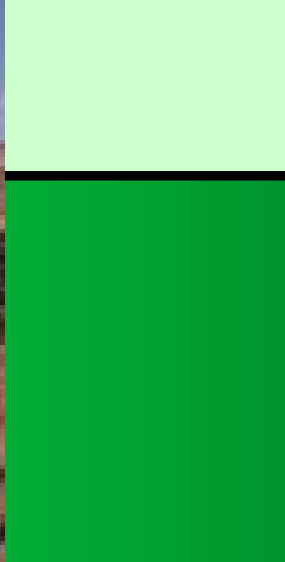


**(BG)**

**LANDFALLS**

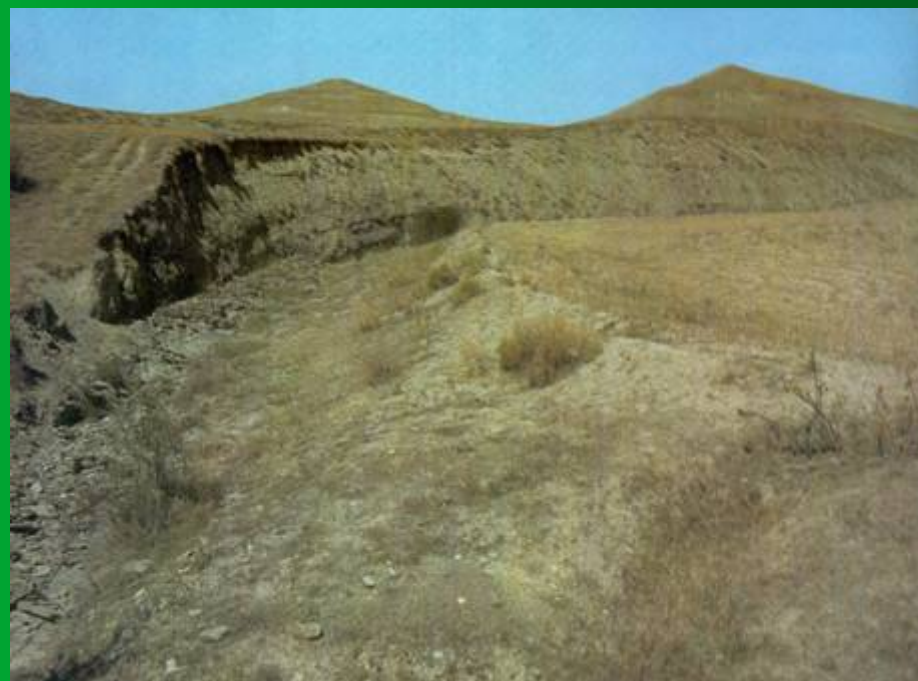
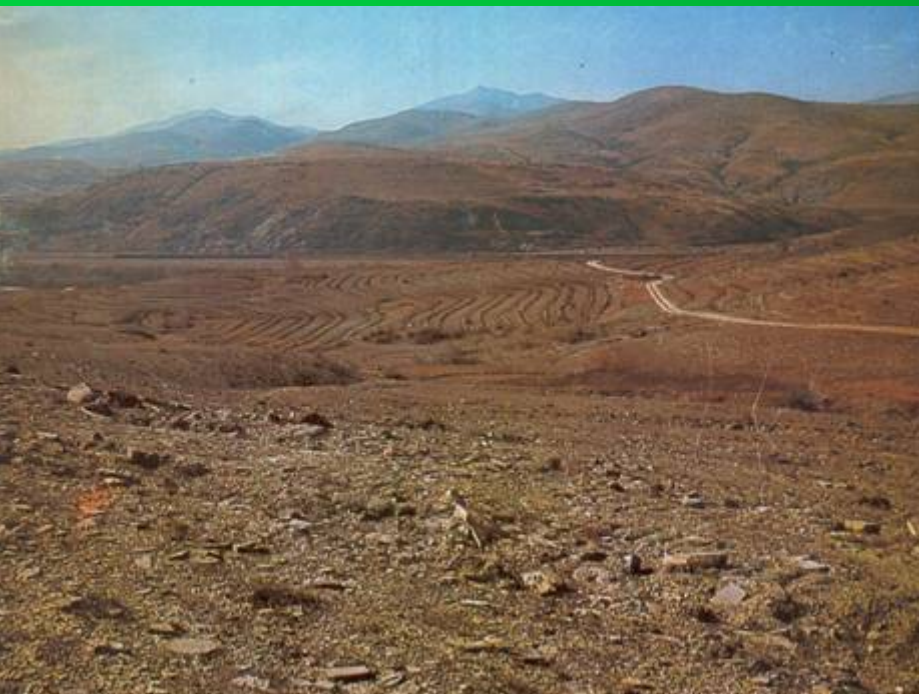
**Mokliste (MK)**





**Extremely dry area - Eroded area >>>> desertification**

**Central Macedonia**



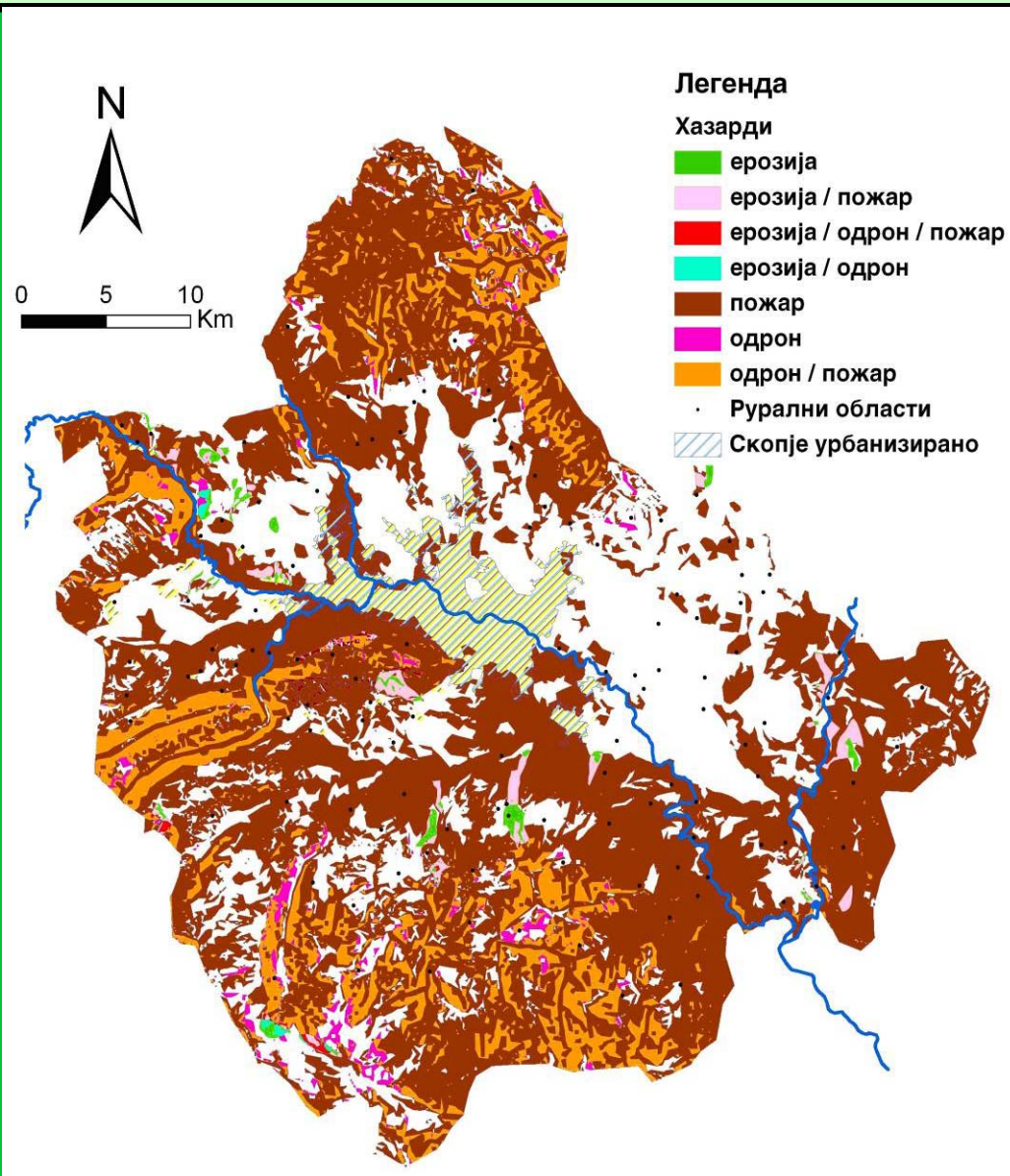
# Future trends

- **Global Climate and hazard**
  - Global warming is increasing weather related disasters
- **Population and hazard**
  - Greater population density leads to higher risk
  - Change in land-use pattern magnifies damages

# NATURAL HAZARDS MODELING

- Atmospheric (heats, storms..)
  - Wild fires (forest fires, bushes, grass..)
  - Gravitational (landslides, landslides, rockfalls...)
  - Biological (epiphytoses, epizooties, epidemics)
  - hydrological (hydrologic drought, regional and flash floods, erosion and sedimentation, desertification..)
- 
- Adopting Single hazard modeling
  - Chain hazards modeling  
(drought>fires>erosion>torrential floods, desertification)
  - Multihazard modeling

# Multyhazard map



Thank you for your attention