

Program revitalizácie krajiny a integrovaného manažmentu povodí a krajiny (2011-12)

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People and Water, NGO
Slovakia



ARR, Košice, 18. September 2014

1. More heavy storms
2. More natural damages
3. Increasing of extremality of weather and heavyrain
4. More water erosion process
5. More fires
6. Time and space changes of rain distribution
7. Luck of water sources for nature
8. More drying up regions
9. Treat of safety of food
- 10.Treat of biodiversity
- 11.Groing of population



Bad perspective with drying up of landscape

Water runoff on forestry road network!



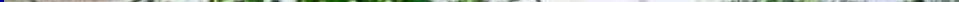
Water runoff on forestry road network!



Agricultural lands drying by roads !



Agricultural lands drying by bad management !



Drying lands by roads

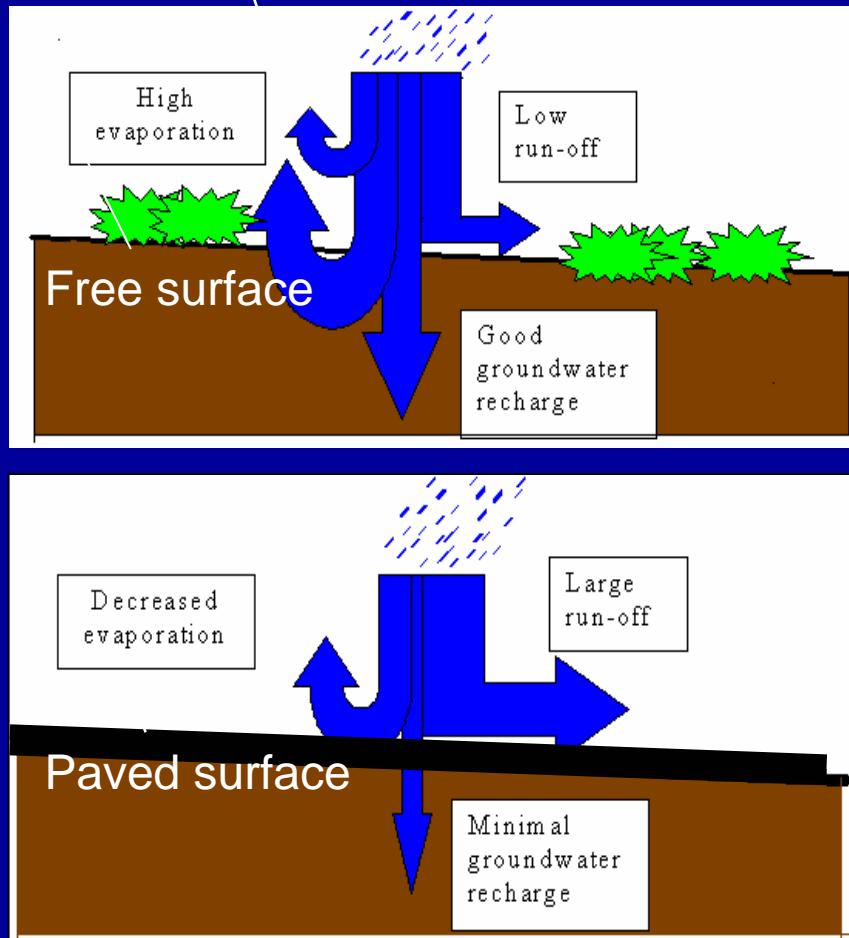


SOIL SEALING IN CITIES

about 20 billion m³ of rainwater sluiced from municipalities of Europe annually, and about 760 bil m³ sluiced from all continents annualy.



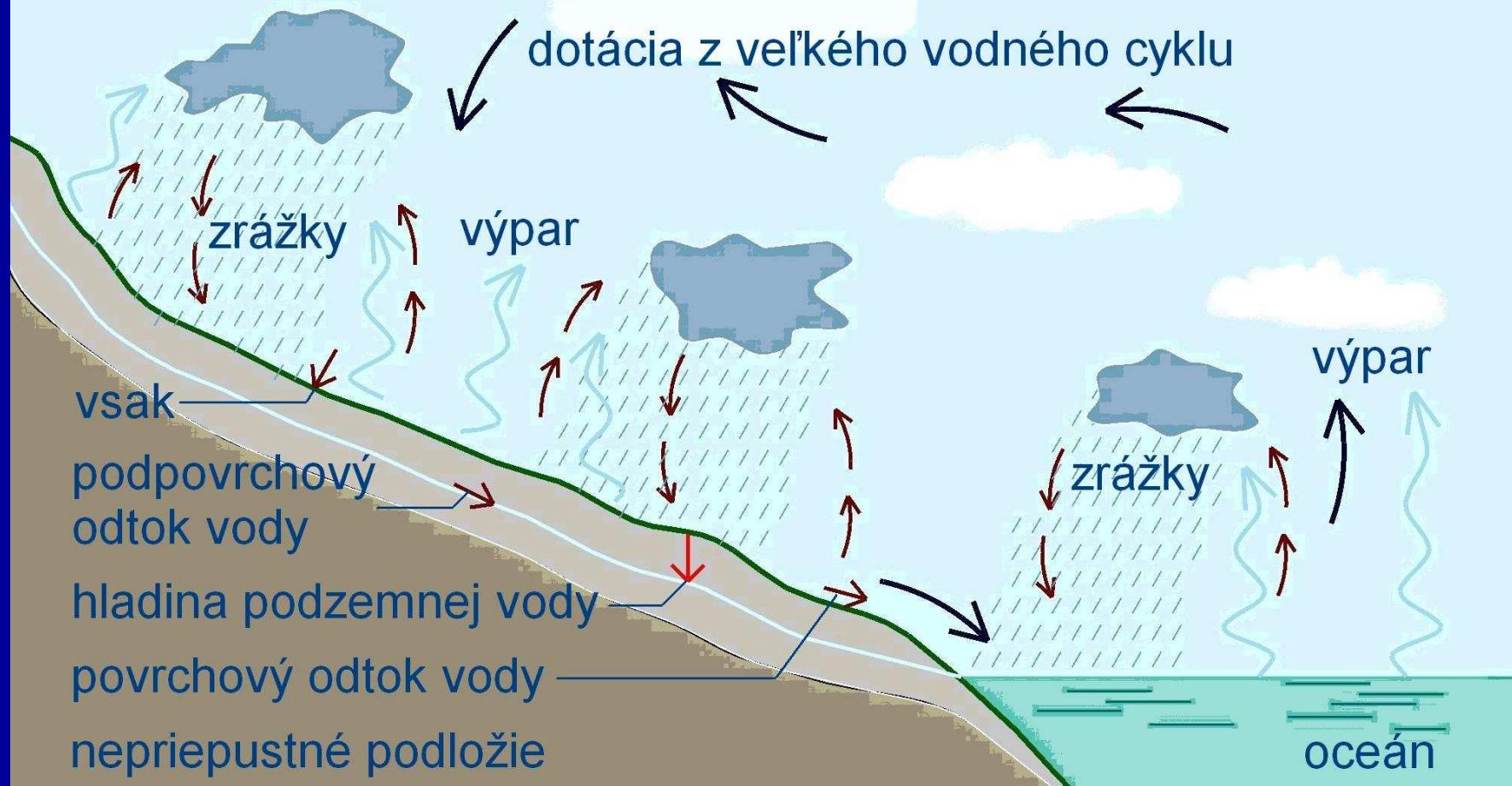
Impact of deforestation, agriculture and urbanization on state of water in small water cycles:



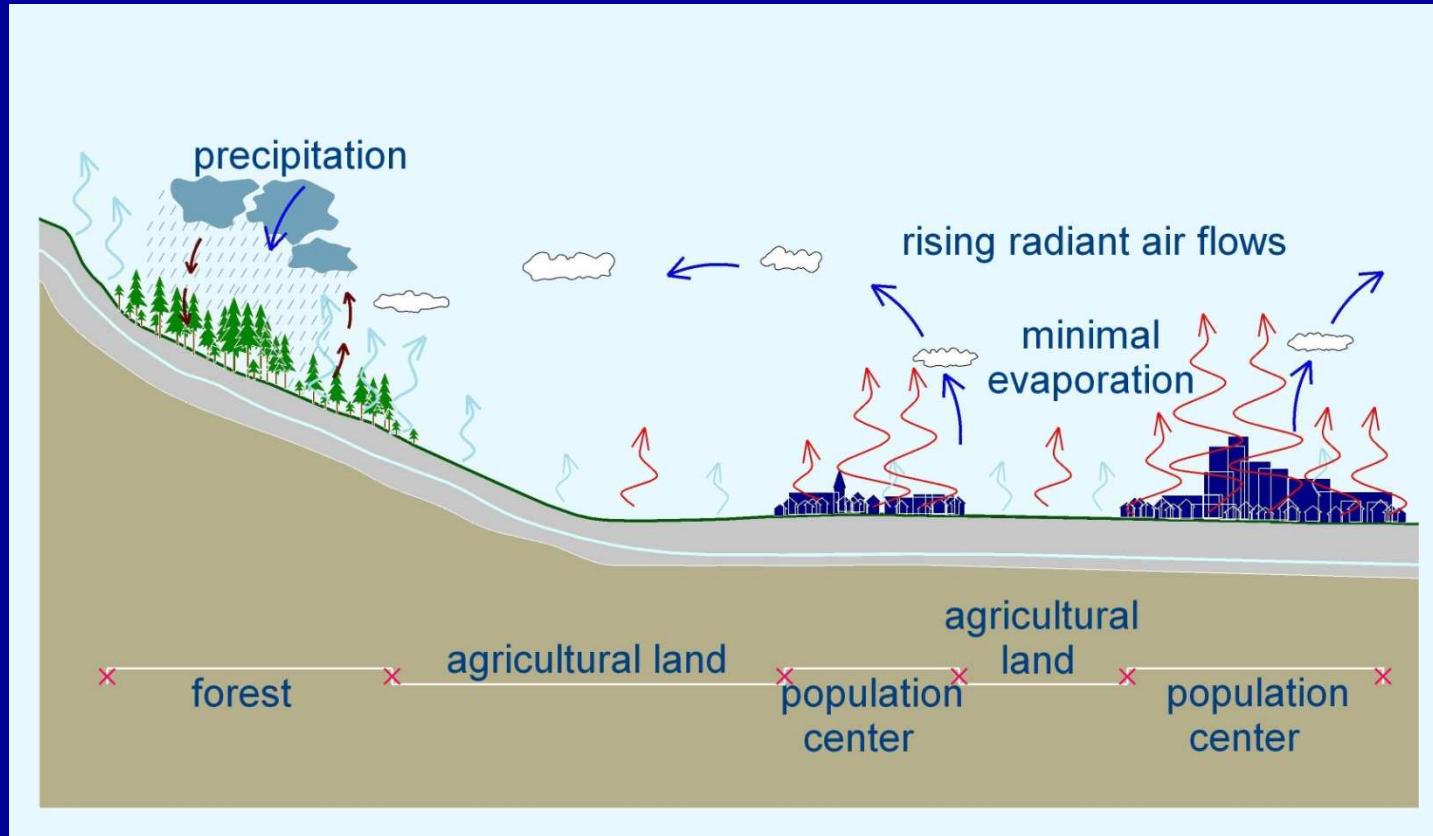
- **runoff increases, infiltration and evaporation decrease**
- **More than 30.000 billion m³ of rainwater was lost from landscape of continents over last 70 years**
- **More than 10 cm sea level rise**

Ubúданie vody z malých vodných cyklov nad kontinentmi a zvýšená produkcia tepla do atmosféry

Nad krajinou prebieha množstvo malých vodných cyklov naraz

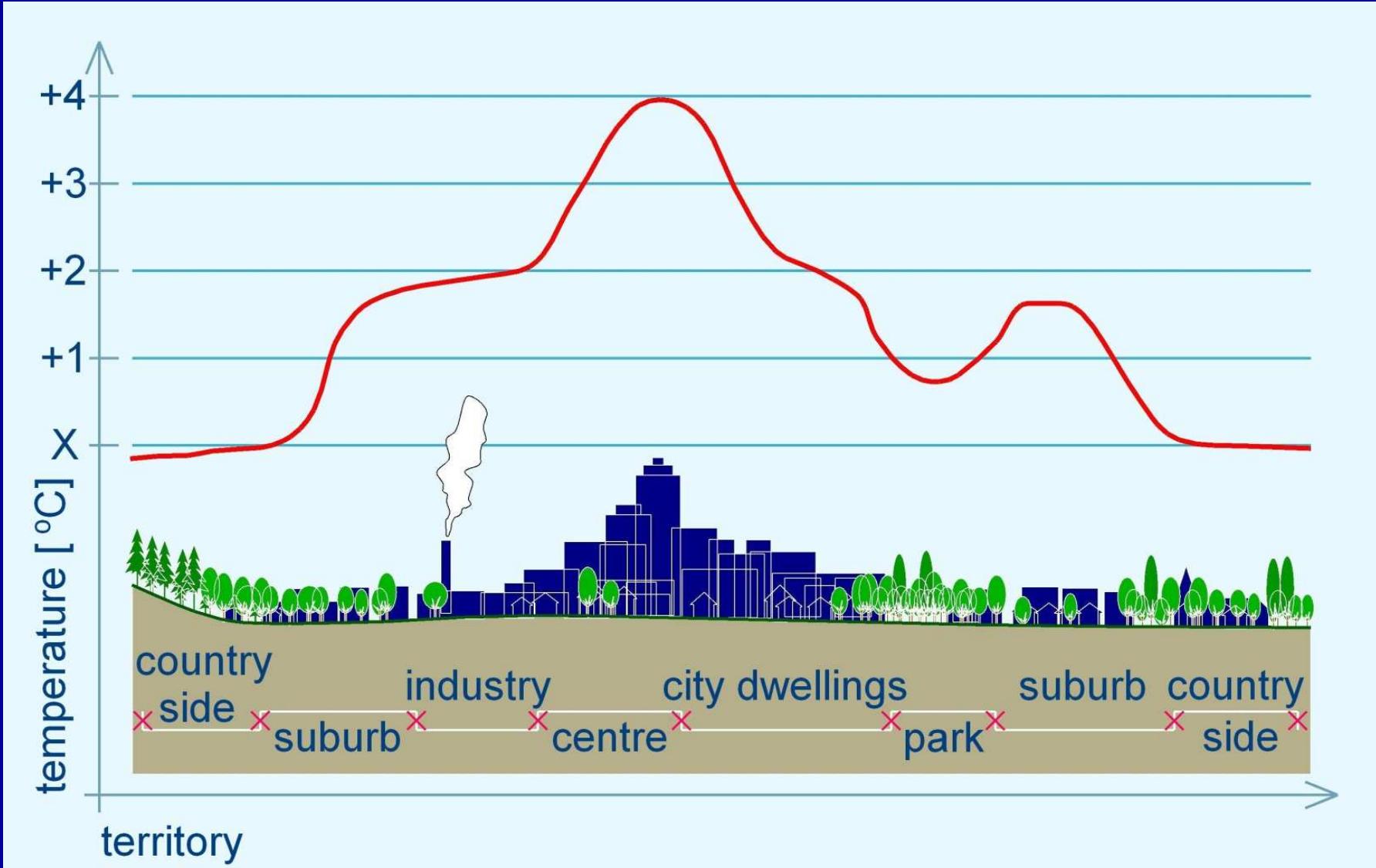


IMPACTS ON WEATHER / CLIMATE

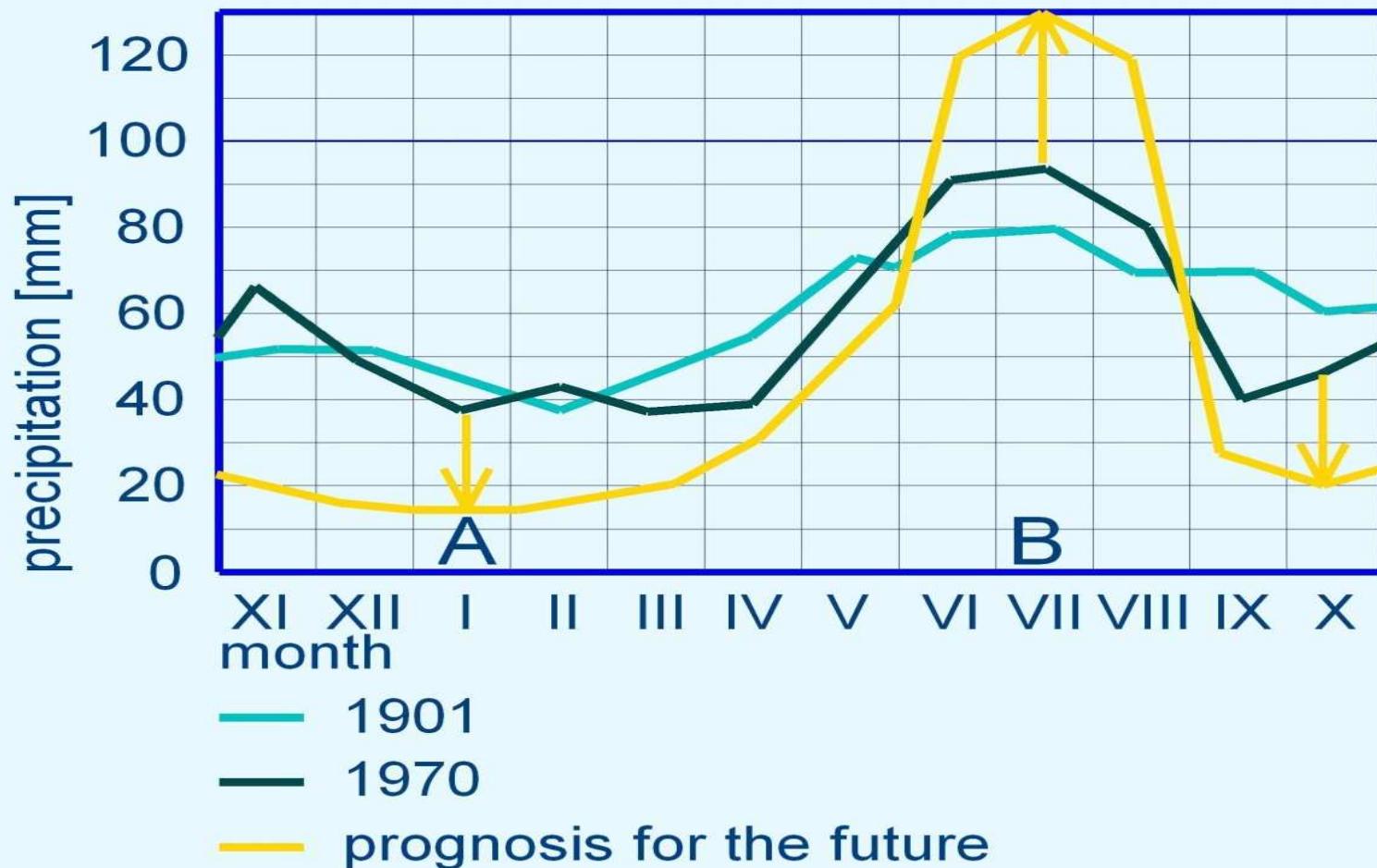


Frequency of droughts and
floods increasing

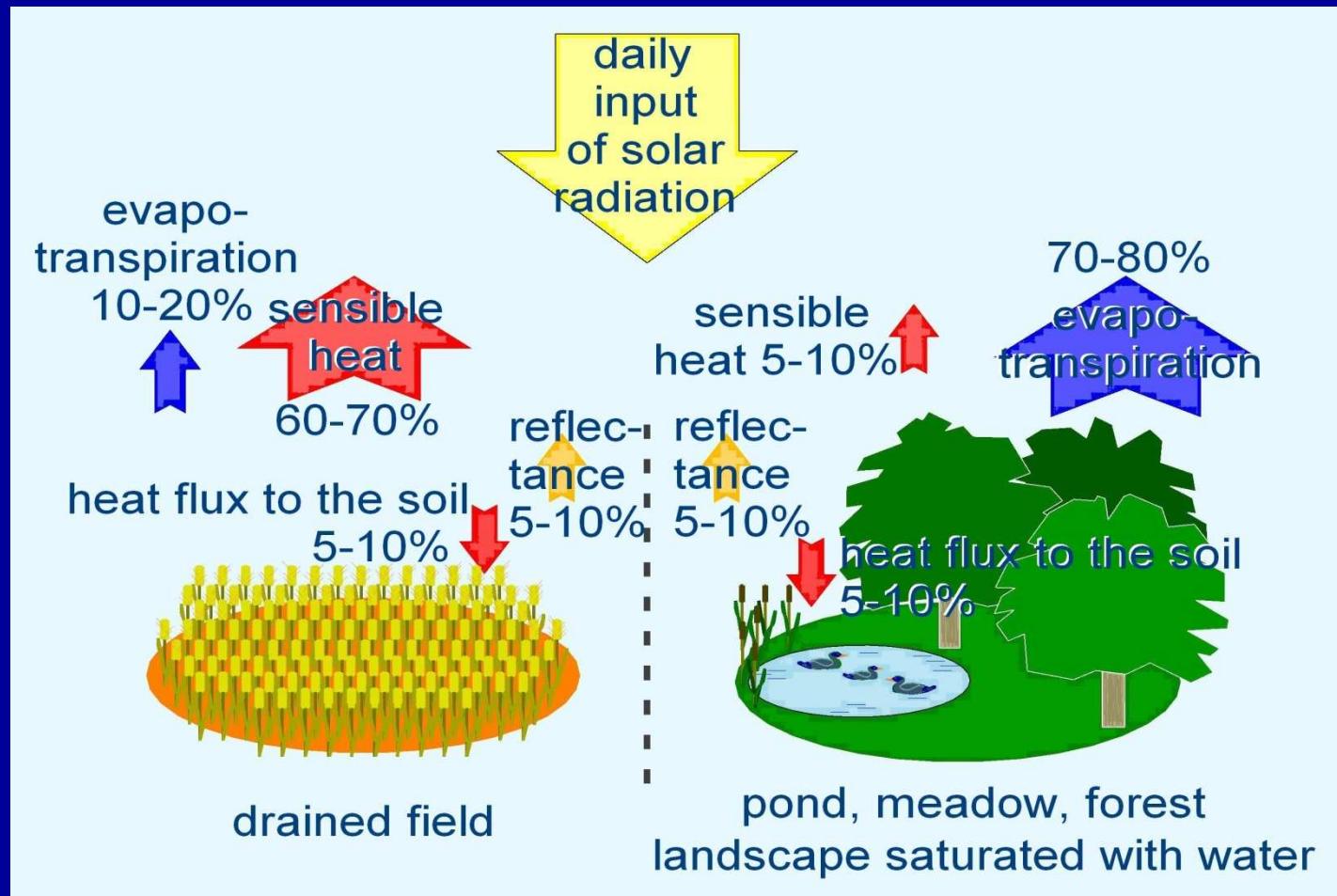
HEAT ISLANDS OVER DRY and HOT LANDSCAPE



PRECIPITATION TRENDS IN SLOVAKIA

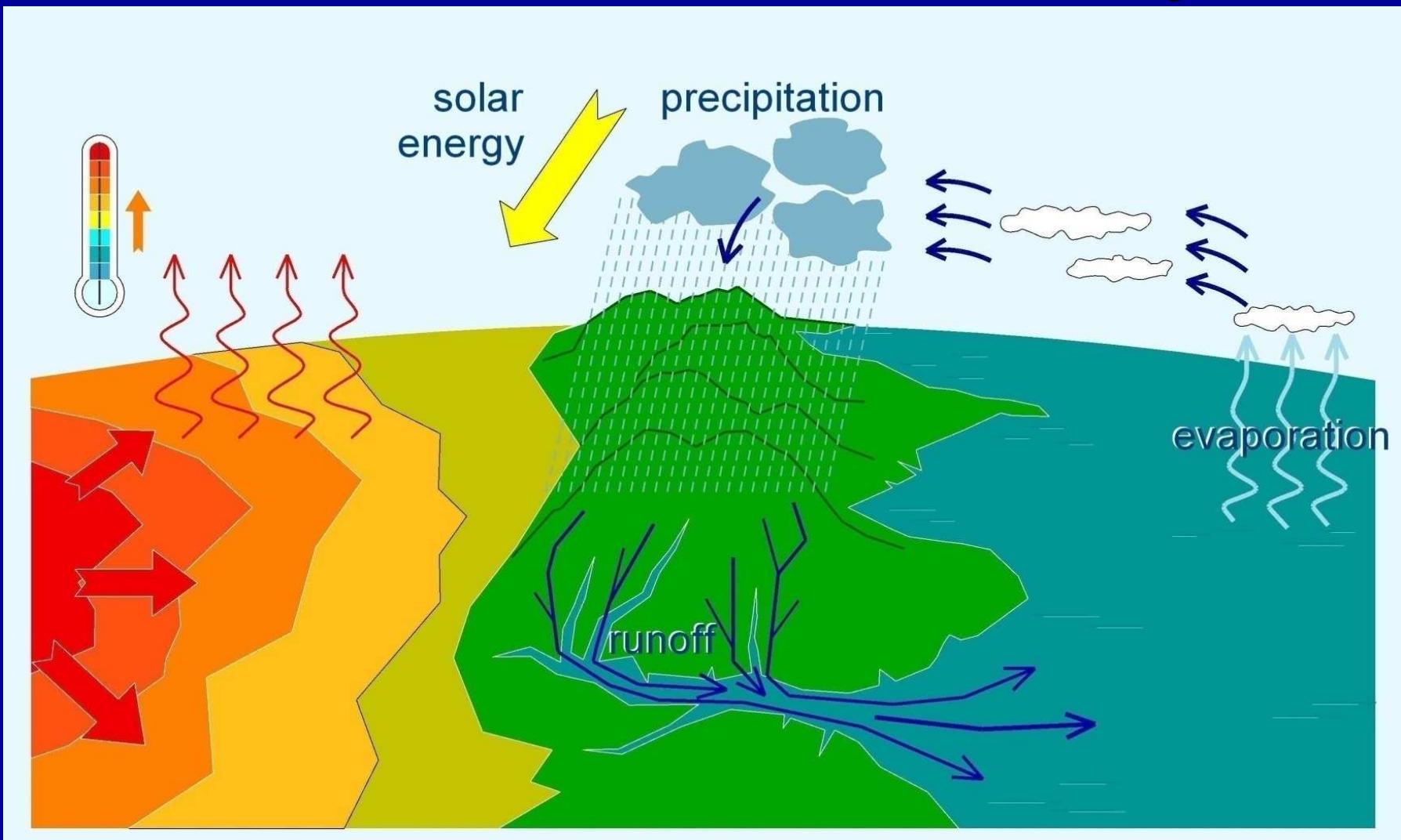


DISTRIBUTION OF SOLAR ENERGY

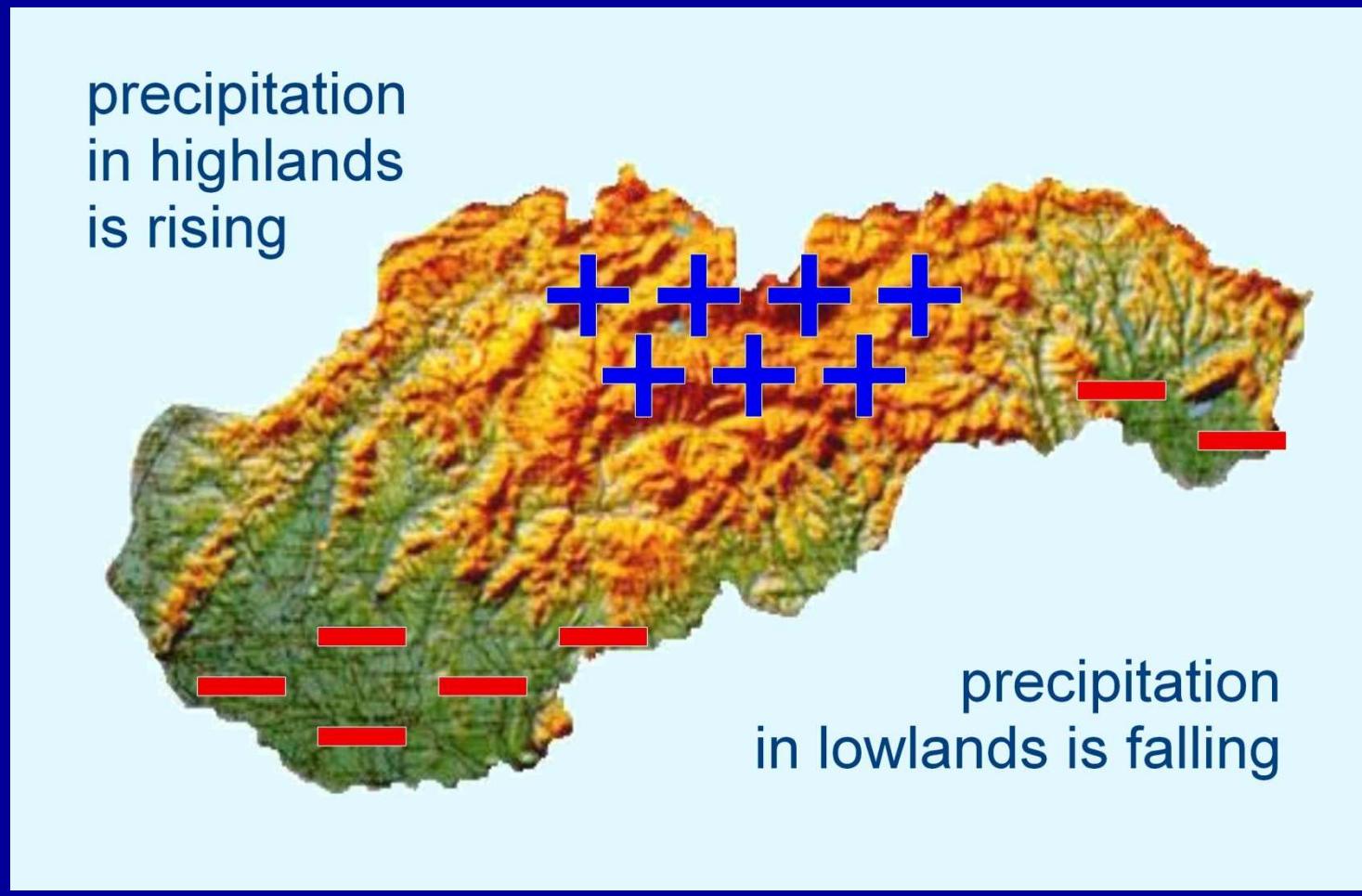


Dry land: Most solar energy is changed into *sensible heat*,
Wet land: Most solar energy is consumed on vapor water from landscape

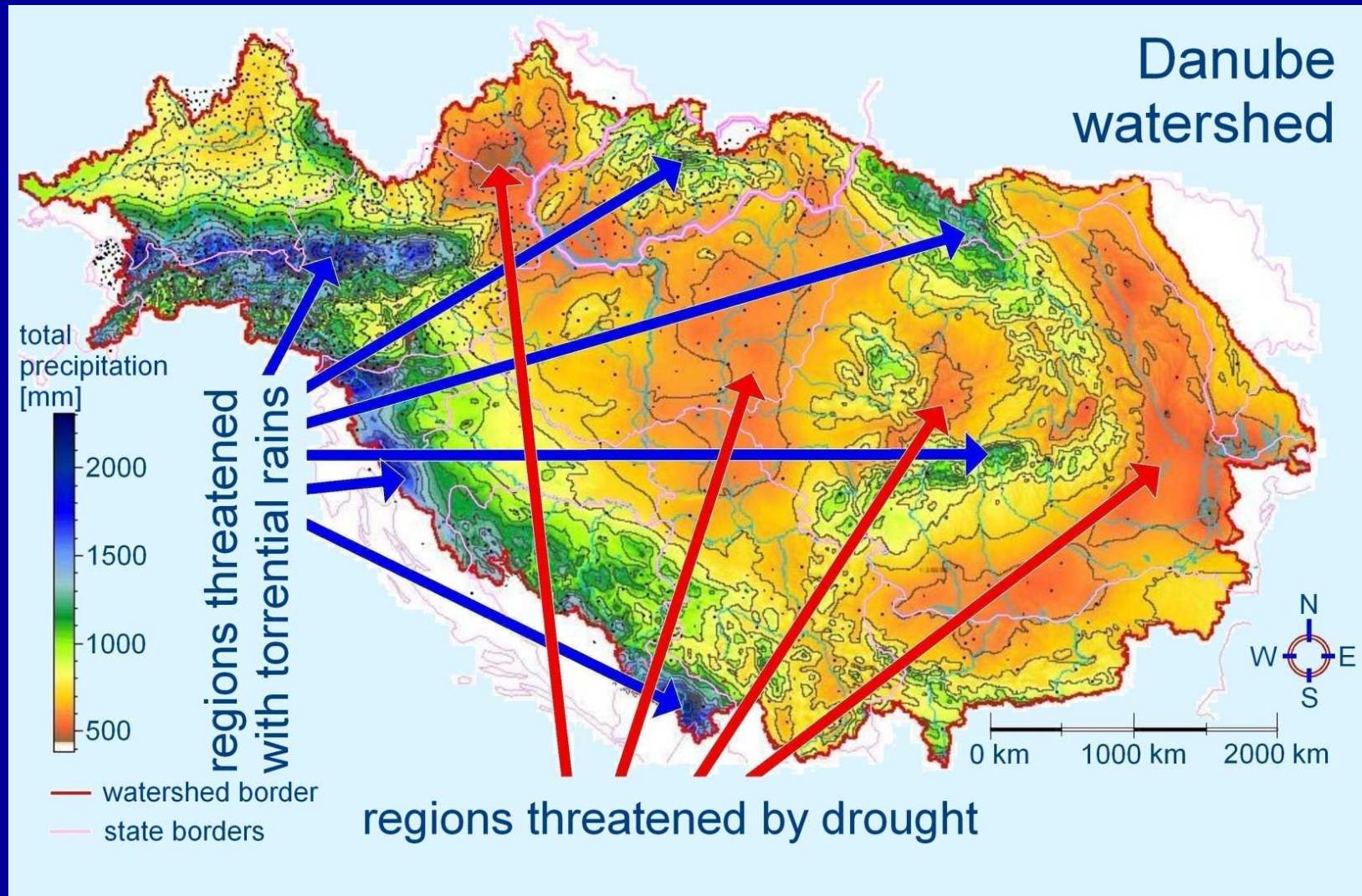
Expansion of deserts with the breakdown of small water cycle



The rain in Slovakia fails mainly on the plain...

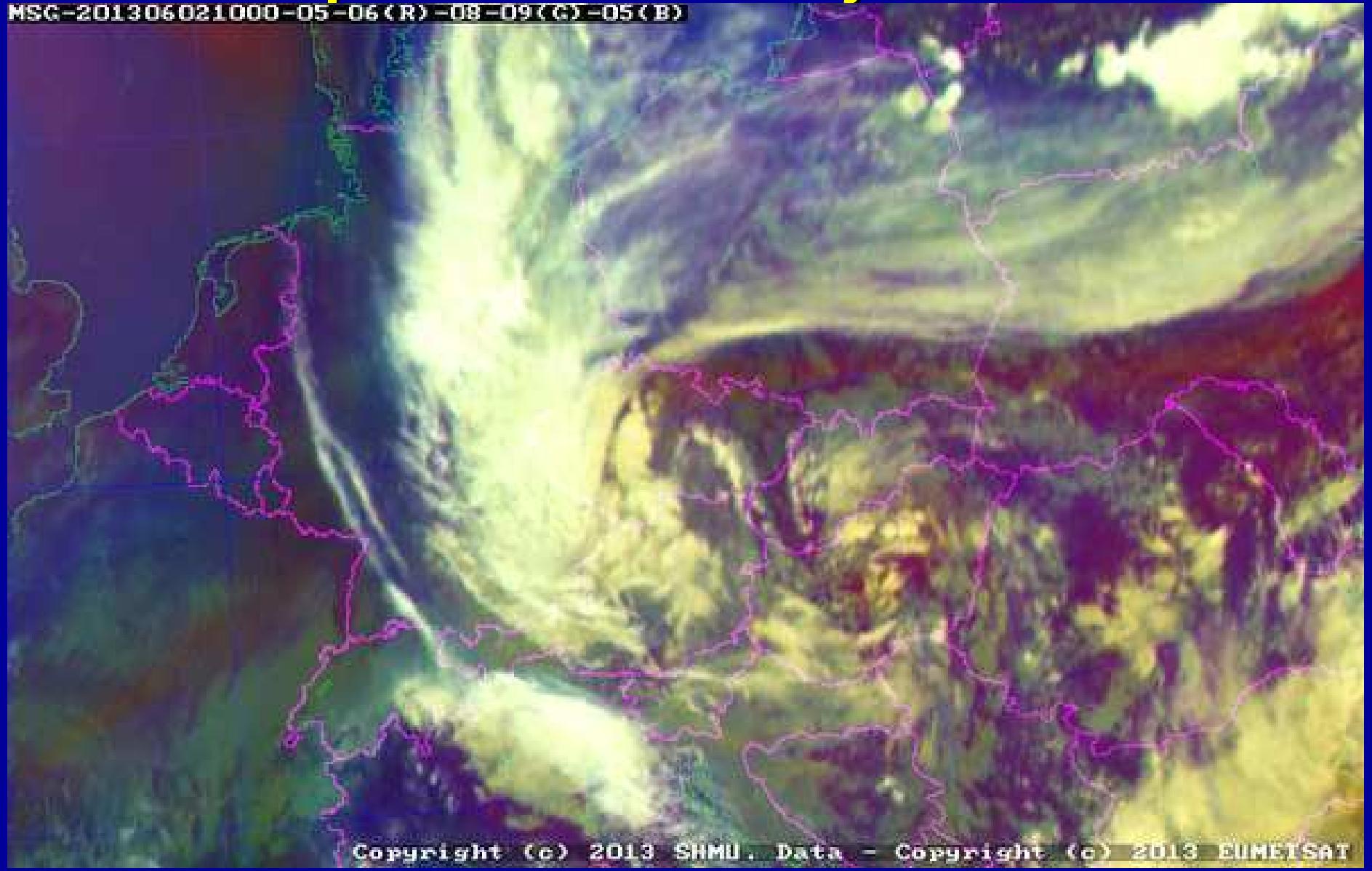


PRECIPITATION IN MOUNTAINS AND LOWLANDS – DANUBE WATERSHED



Ubúdanie vody z malých vodných cyklov Príbeh povodne na Dunaji a Labe 2012

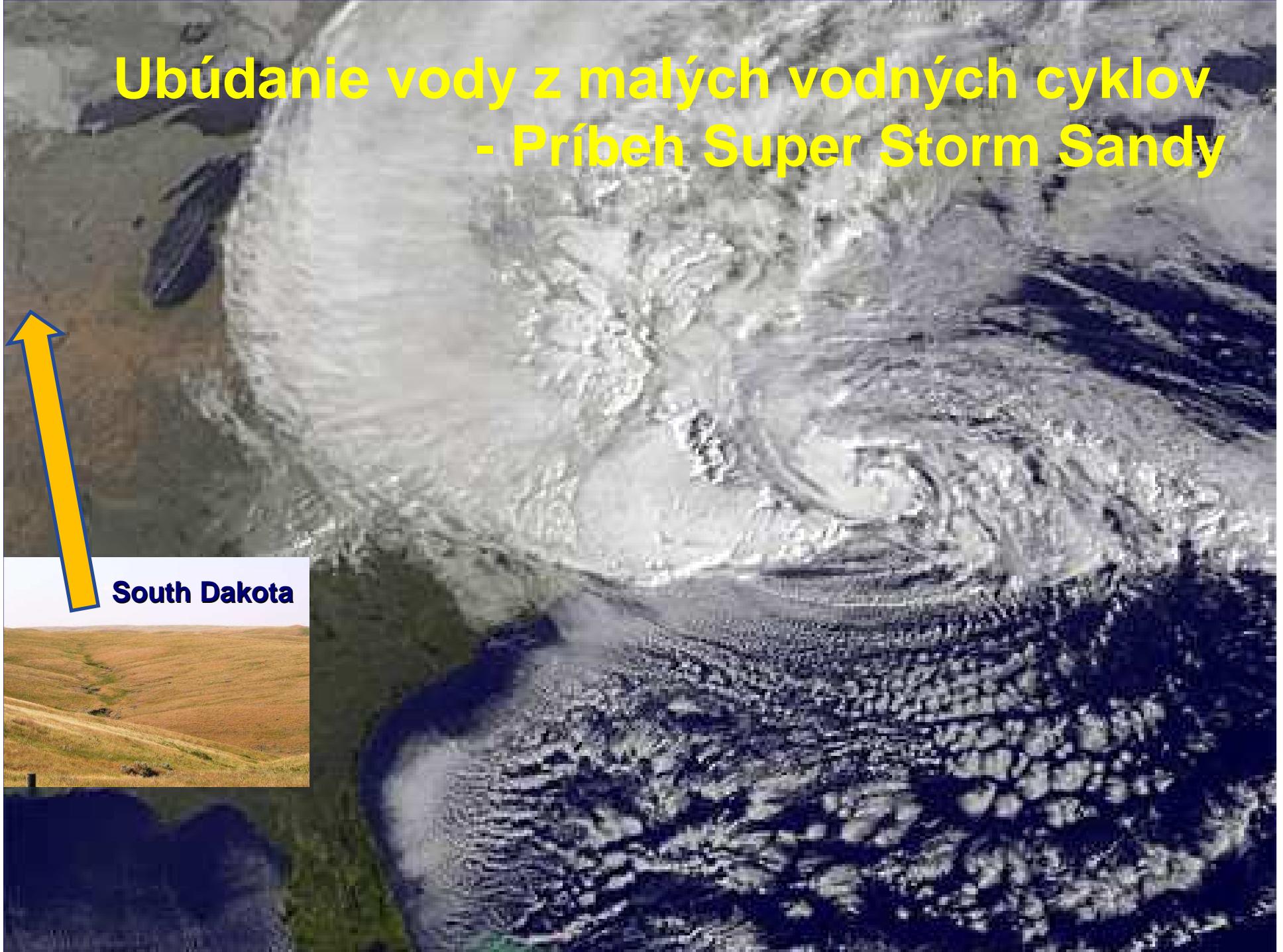
HSG-201306021000-05-06 (R)-08-09 (G)-05 (B)



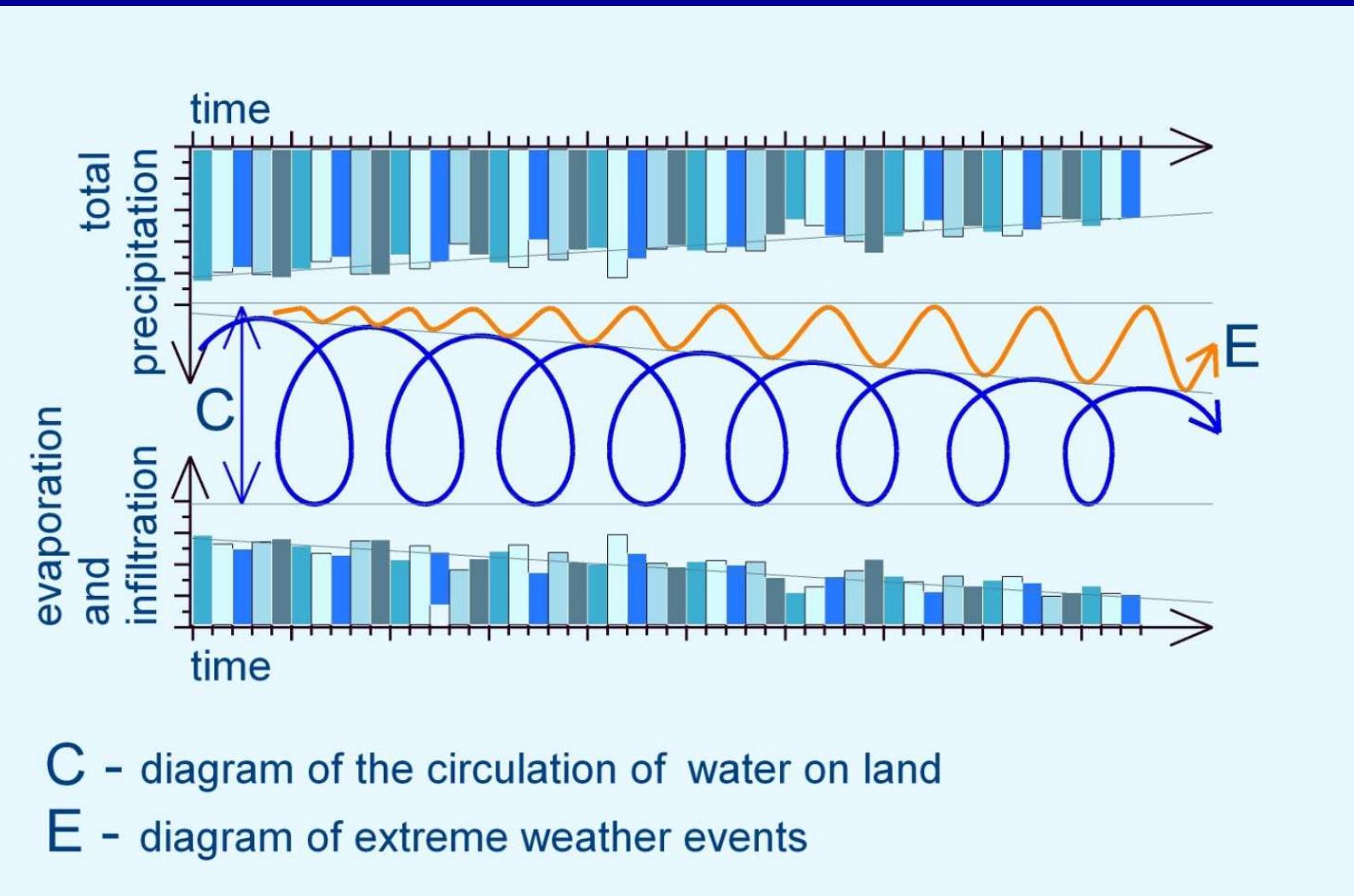


Ubúdanie vody z malých vodných cyklov - Príbeh Super Typhonn Haivan

Ubúdanie vody z malých vodných cyklov - Príbeh Super Storm Sandy

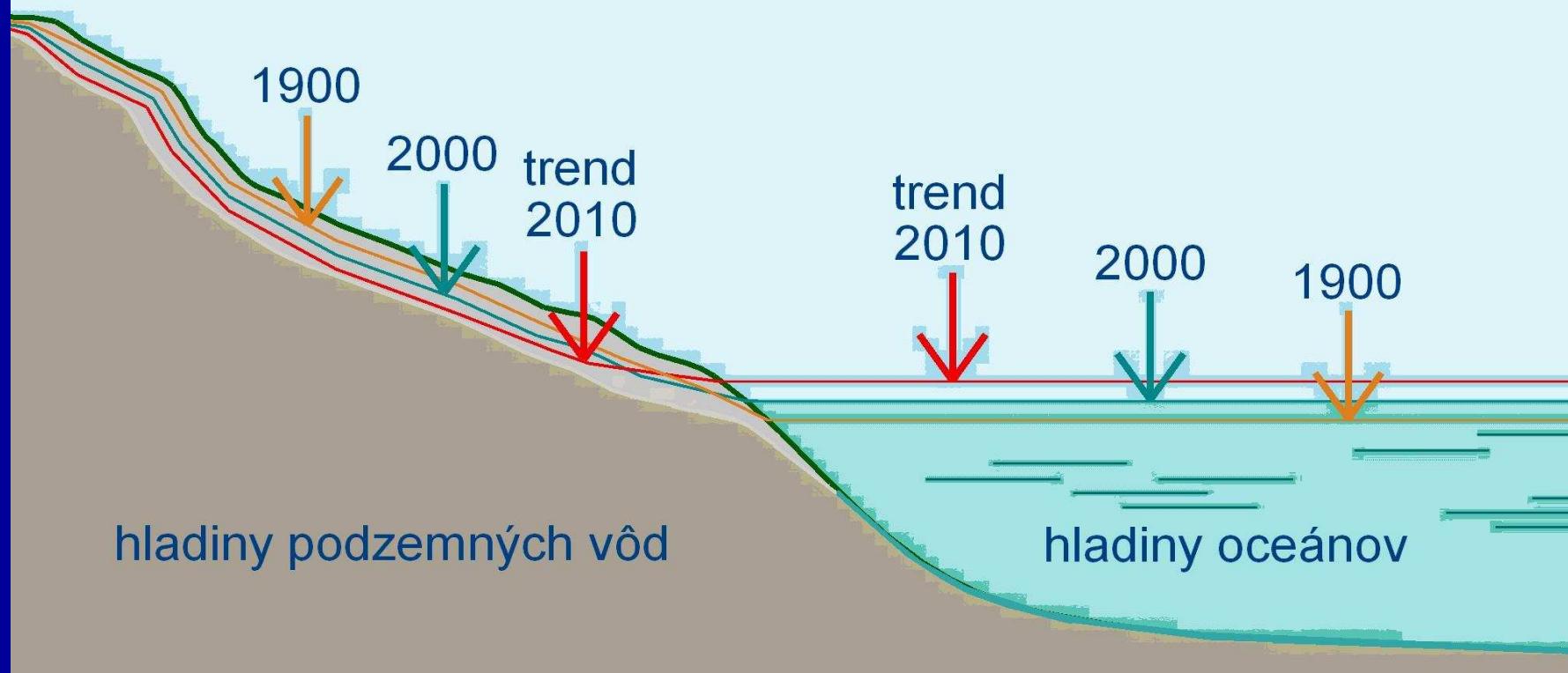


GROWTH OF EXTREME WEATHER WITH DECLINE OF SMALL WATER CYCLES

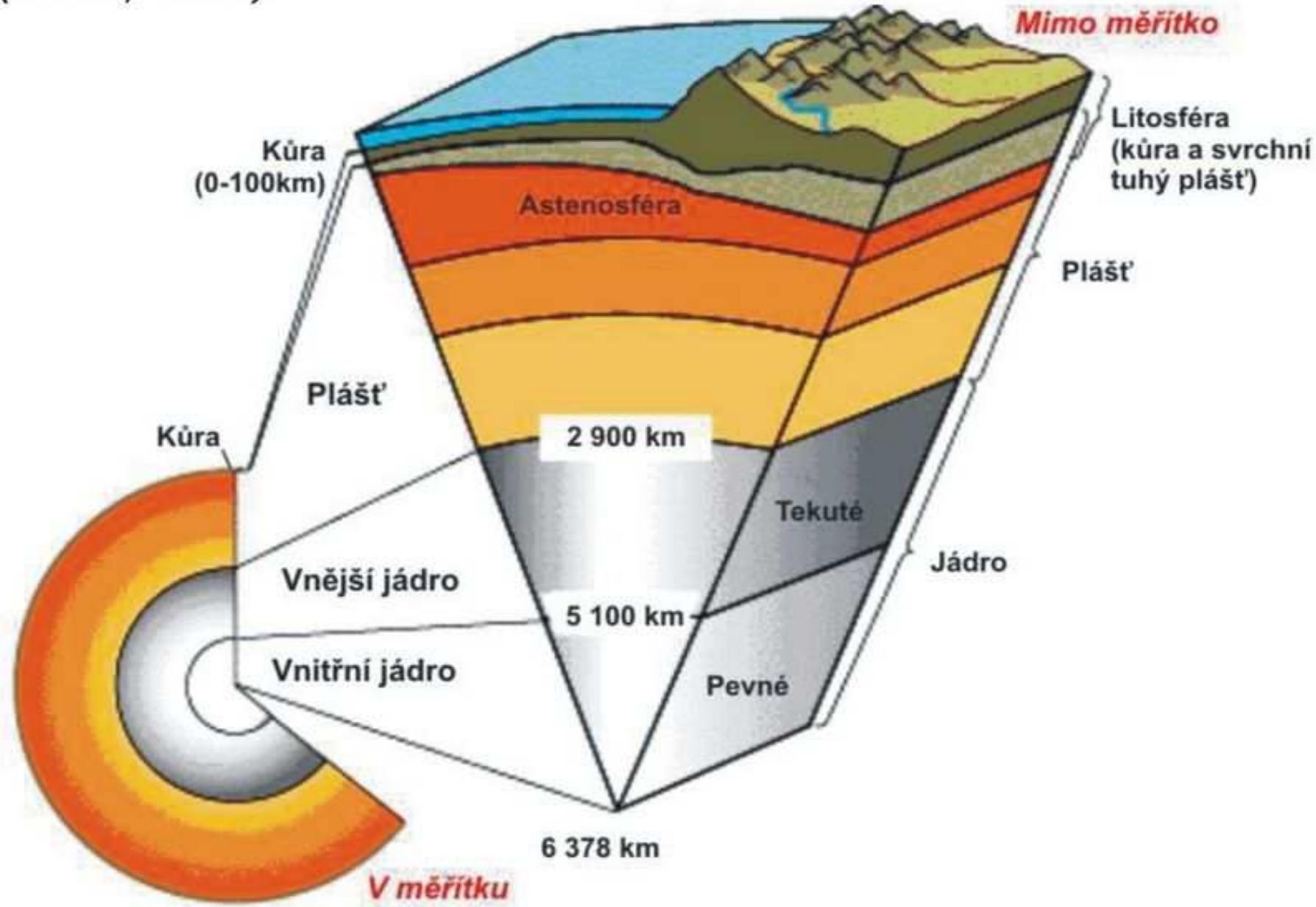


Ubúdanie vody z kontinentov a pribúdanie v oceánoch – zmena zat'aženia zemskej kôry

Stúpanie hladín oceánov
a pokles hladín podzem. vôd
na kontinentoch

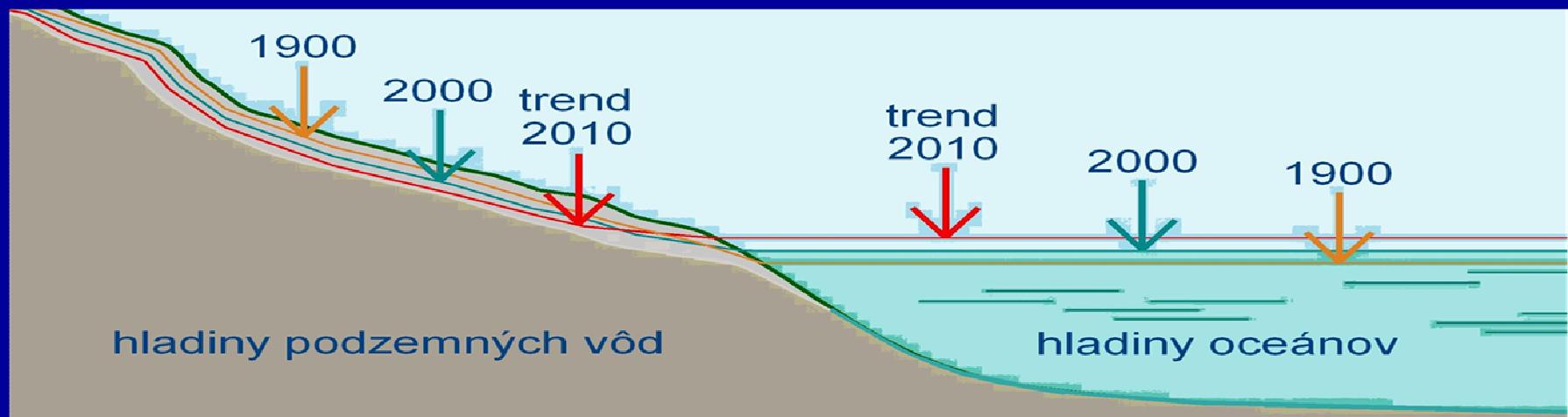


Obr. 2.2.3 Základní sféry Země, jejich vzájemná pozice a mocnost (USGS, 2004).



Affect drainage continents to change pressures in the earth's crust

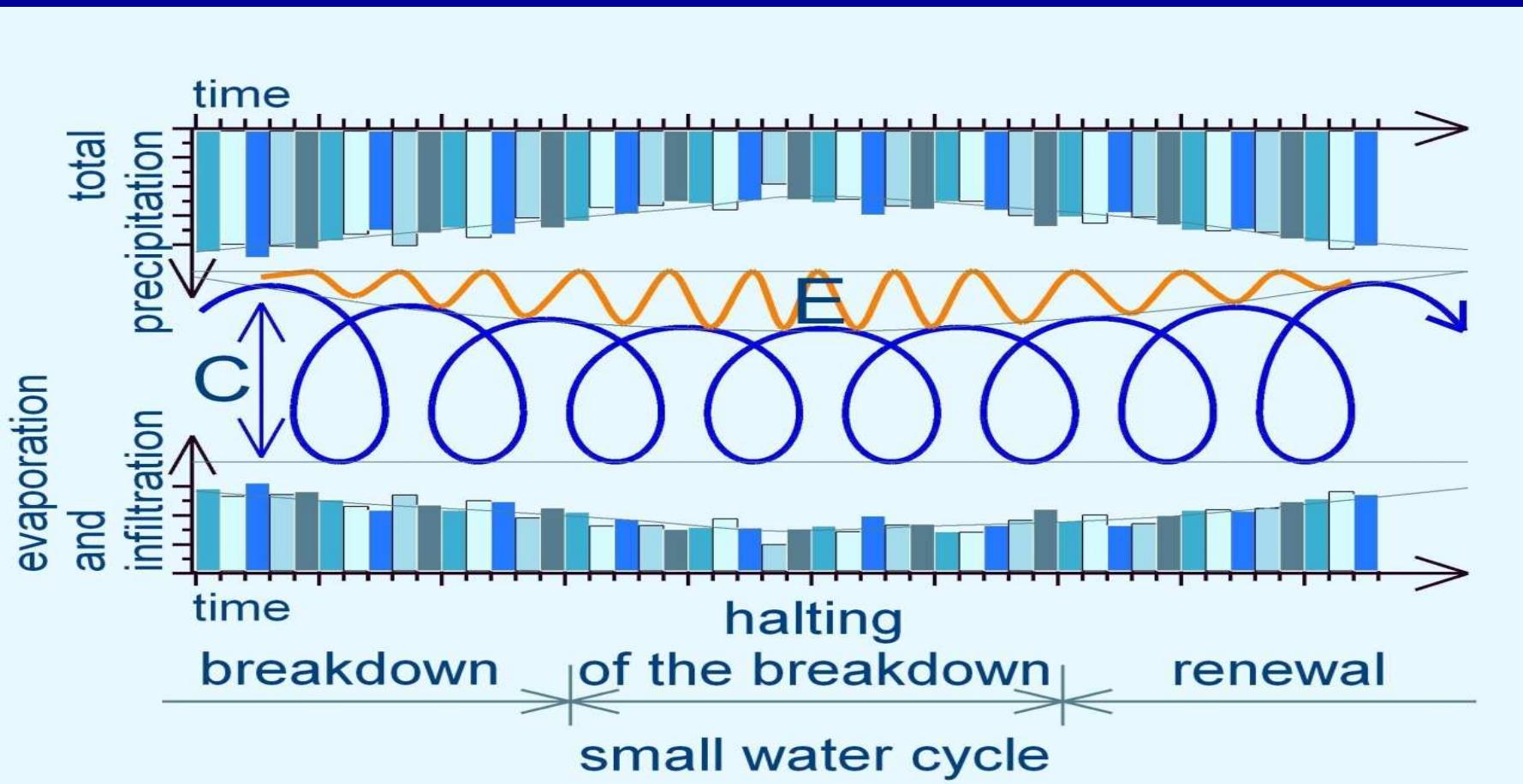
- Odťahčenie zemskej kôry kontinentov o 37.000 mld. ton
- Zaťaženie zemskej kôry oceánov o 37.000 mld. ton



Pressure changes in the earth's crust and potentially movements on geological fractures

- earthquakes formation
- tsunami waves formation and devastating effects on land

DESTRUCTION AND RENEWAL OF SMALL WATER CYCLE

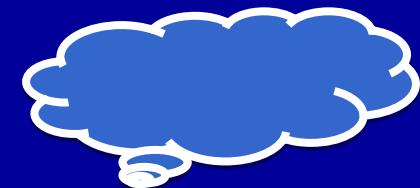
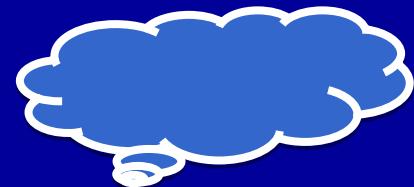
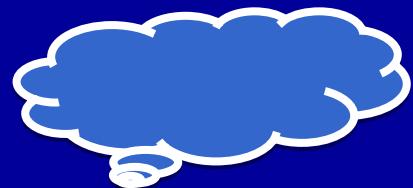


C - diagram of the circulation of water on land

E - diagram of extreme weather events

NEW WATER DEAL

more clouds



more soft rain

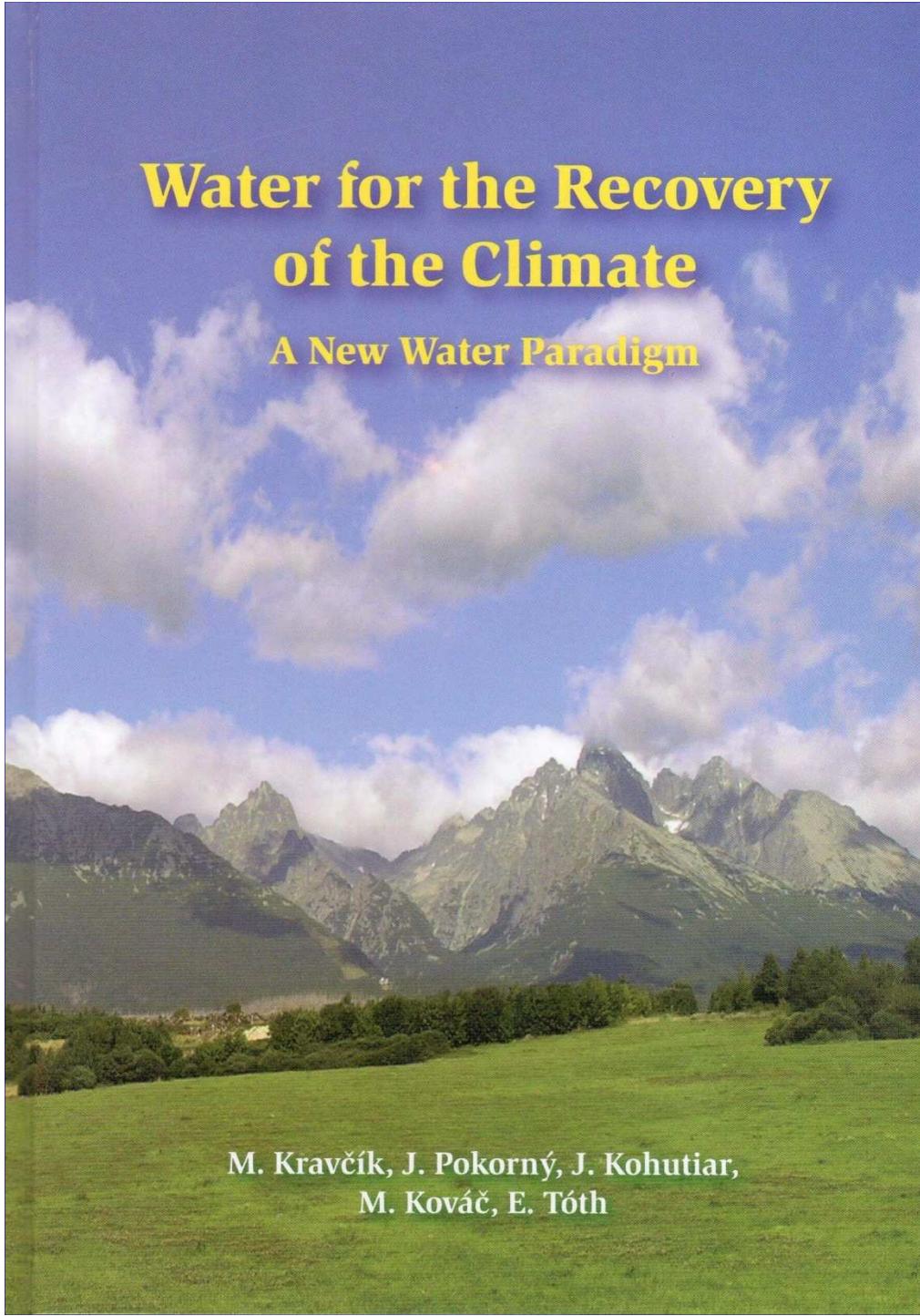
higher air humidity



more evaporation from lands

more vegetation and biodiversity

more groundwater recharge



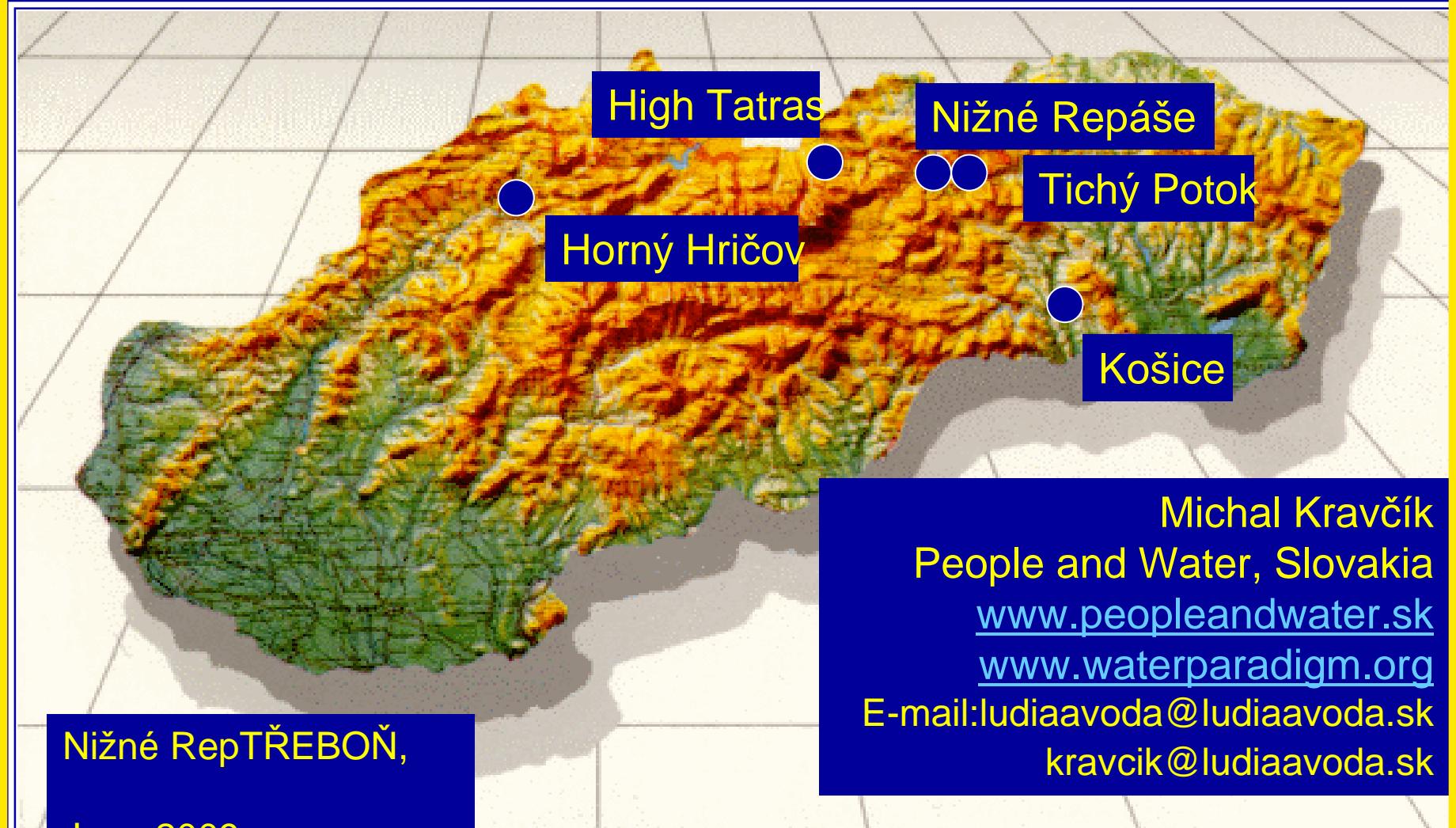
Water for the Recovery of the Climate

A New Water Paradigm

M. Kravčík, J. Pokorný, J. Kohutiar,
M. Kováč, E. Tóth

- **humanity accelerates the runoff from land**
- **more solar energy is transformed into sensible heat**
- **draining of a land can be reversed through comprehensive conservation of rainwater**
- **renewal of small water cycle over land can temper extreme weather events and ensure a growth in water reserves**
- **www.waterparadigm.org**

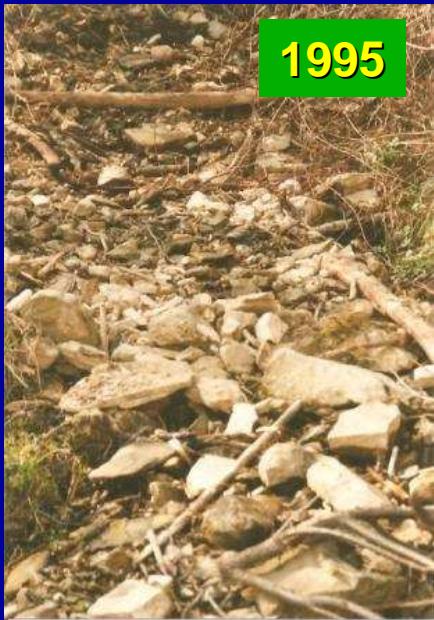
The cases for rehabilitation of devastated landscape by People and Water



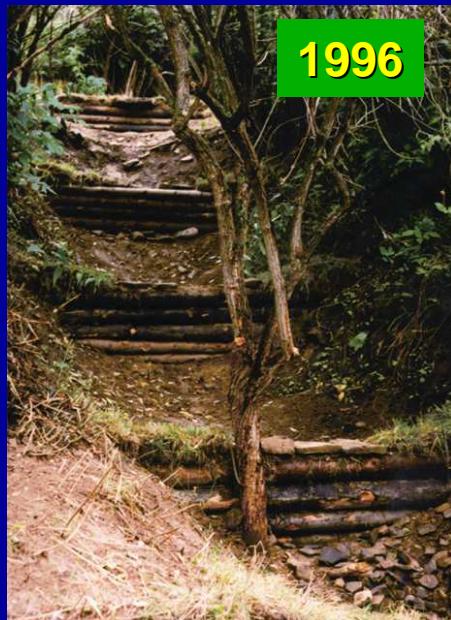
BLUE ALTERNATIVE - TICHÝ POTOK, 1996



BLUE ALTERNATIVE



1995



1996



1997



2009



2012





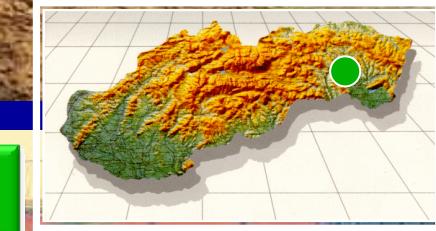
Water Forest in High Tatras after 9 years



November, 28th 2005



June, 6th 2006



June, 30th 2006

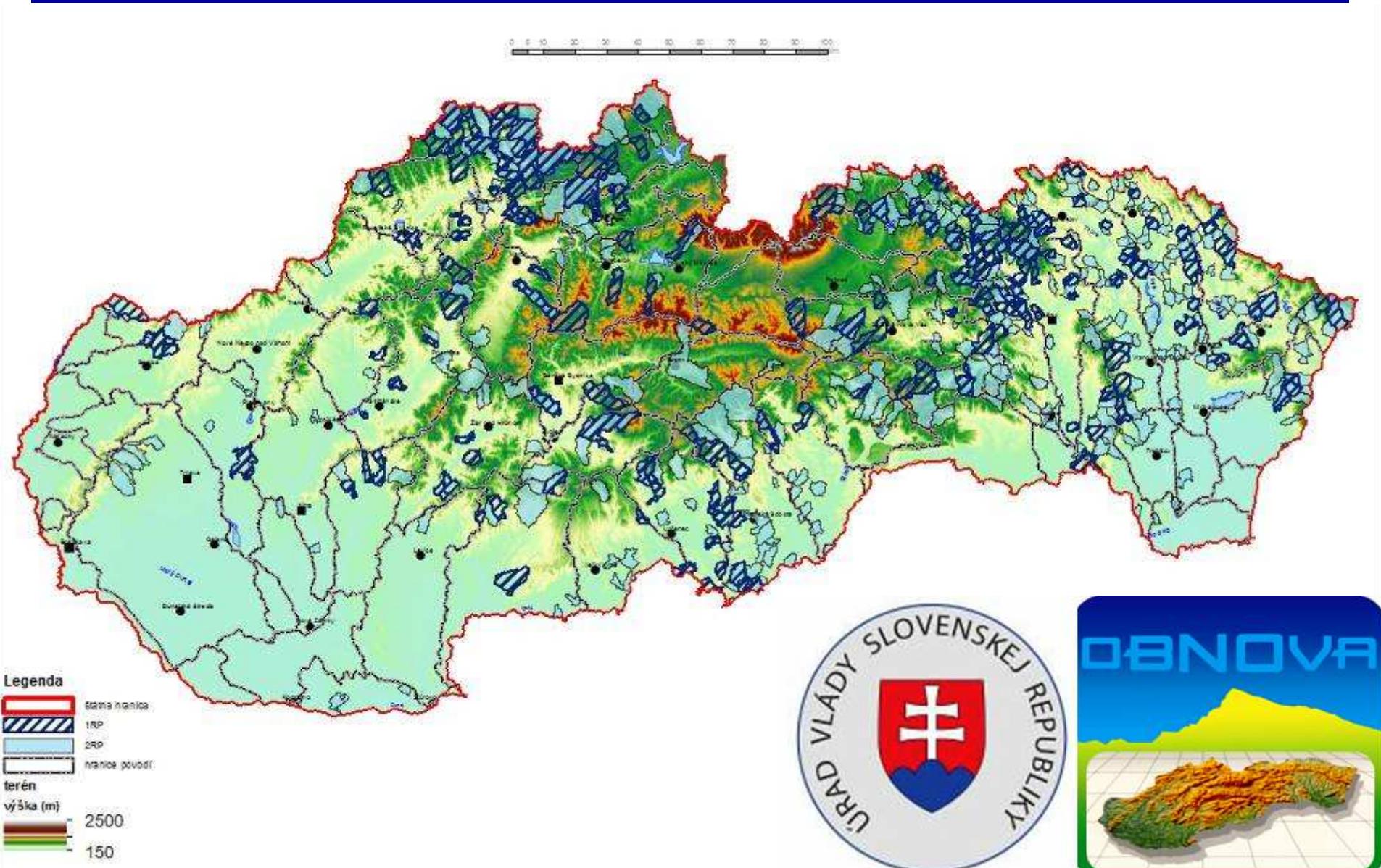


September, 16th 2006

Košice Civic Protocol for Water, Vegetation and Climate change
People and Water, September 2006

Government Landscape Restoration Program

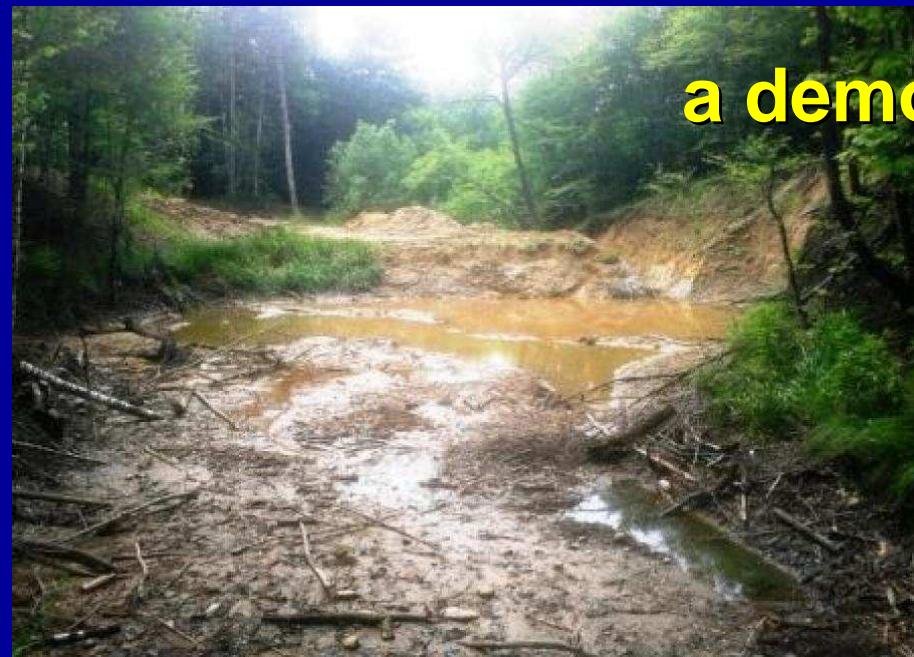
488 communities involved in 2011



Malá Lodina (2011- 2014)

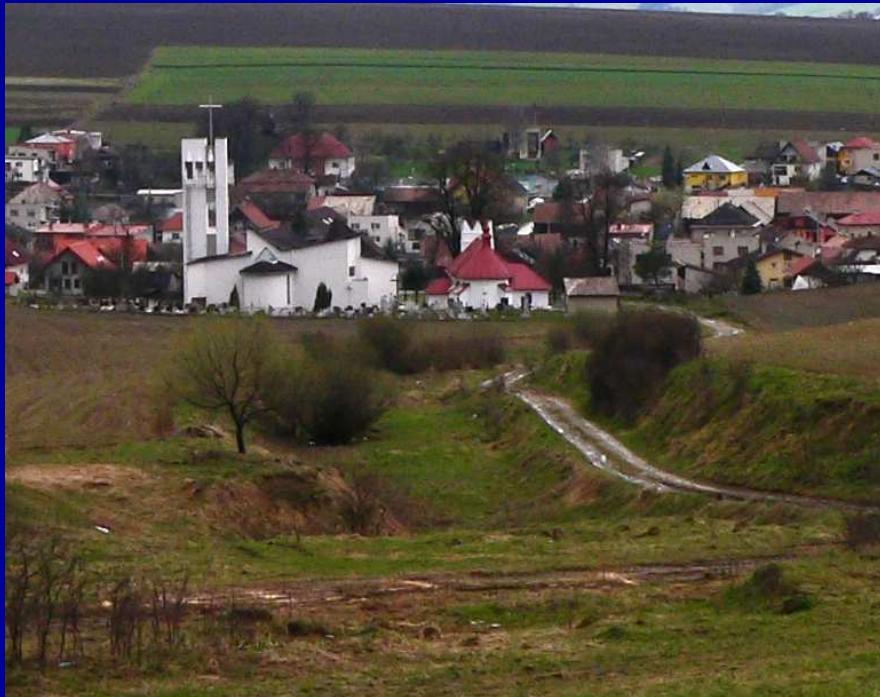


Košice – Ťahanovce - obnova



a demontáž...







Snežnica



Hlobovec



Hlobovec







THE SLOVAK NEW WATER DEAL



MICHAL KRAVČÍK A KOLEKTÍV

Po nás púšť a potopa?

After us, the desert and the deluge?

1. More than 100.000 measures in 488 communities
2. More than 10 mil. m³ of waterholdings
3. More than 8.000 jobs for poor people

Hydro-Climate Recovery

Rainwater Storage in damaged landscape



LIFE11 ENV/SK/1019,



One village - SLOVENSKÁ VOLOVÁ

- 142 soft measurements
- 8 unemployments
- 5 months

Image © 2014 CNES / Astrium
© 2014 Google

Google earth

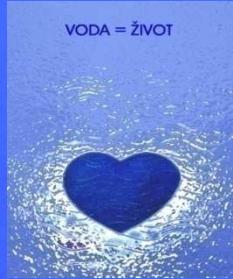
Summary in 2013

1. Implemented 758 measurements,
2. 58 jobs for poor people
3. In 8 villages of one catchment area





Rain Gardens, Ondavka, 2014



**THANKS!
ĎAKUJEM !**



www.waterparadigm.org

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