WATER and CLIMATE on THE BLUE PLANET

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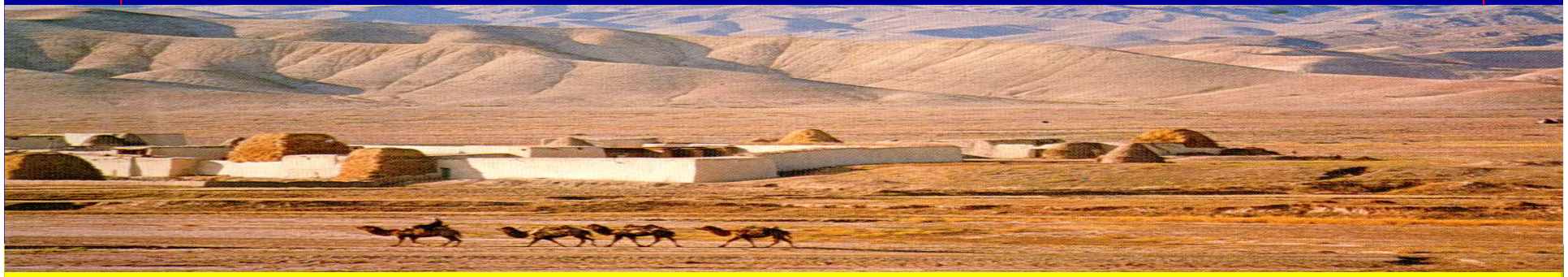
People and Water, NGO
Slovakia

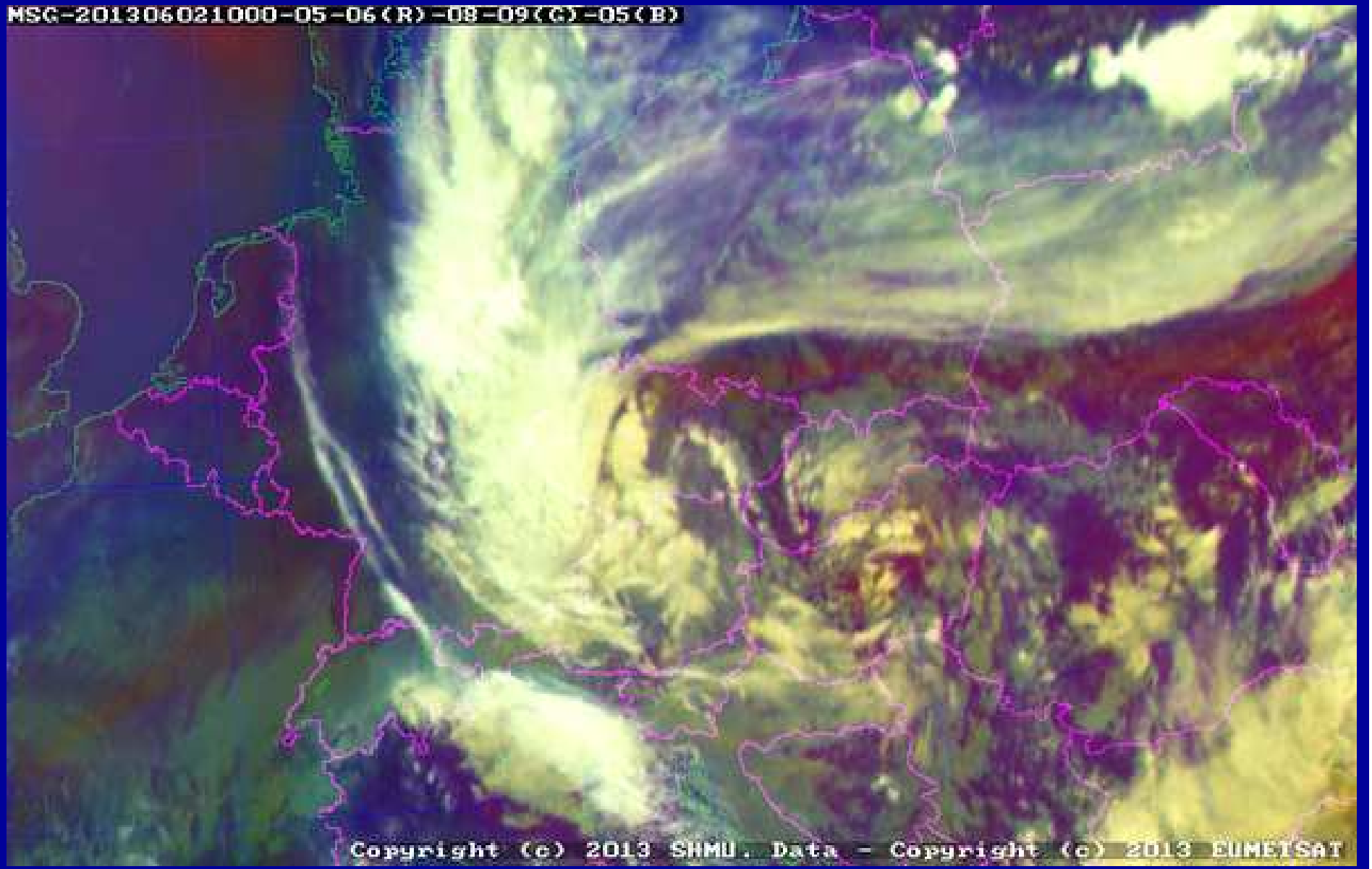
Paris, August, 21th 2014

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

Central Europe 2012



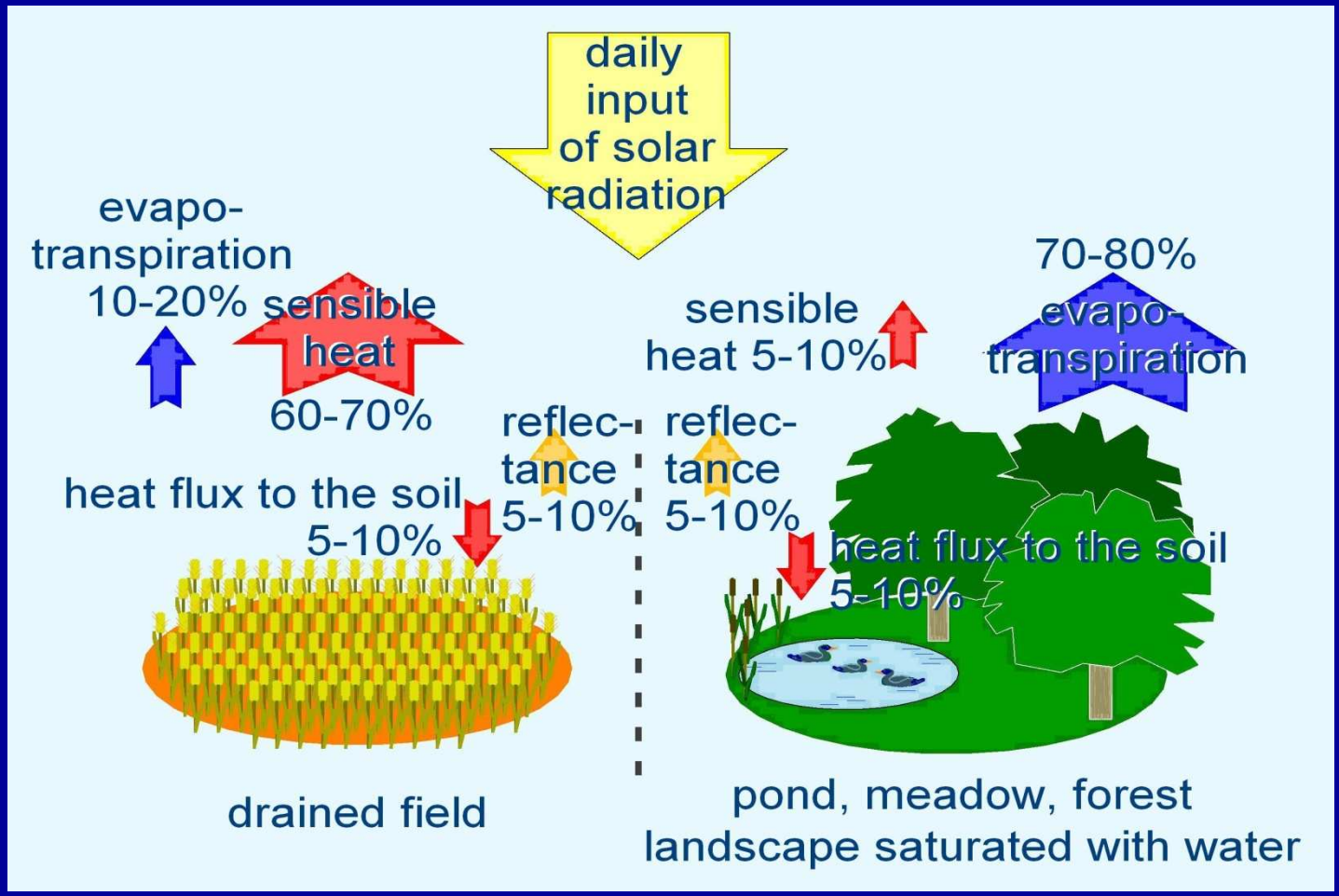

Turkey
Cyprus
Mediterranean Sea
Lebanon
50 km

hot air from China
hot air from Australia
Super Typhoon Haiyan


Superstorm Sandy

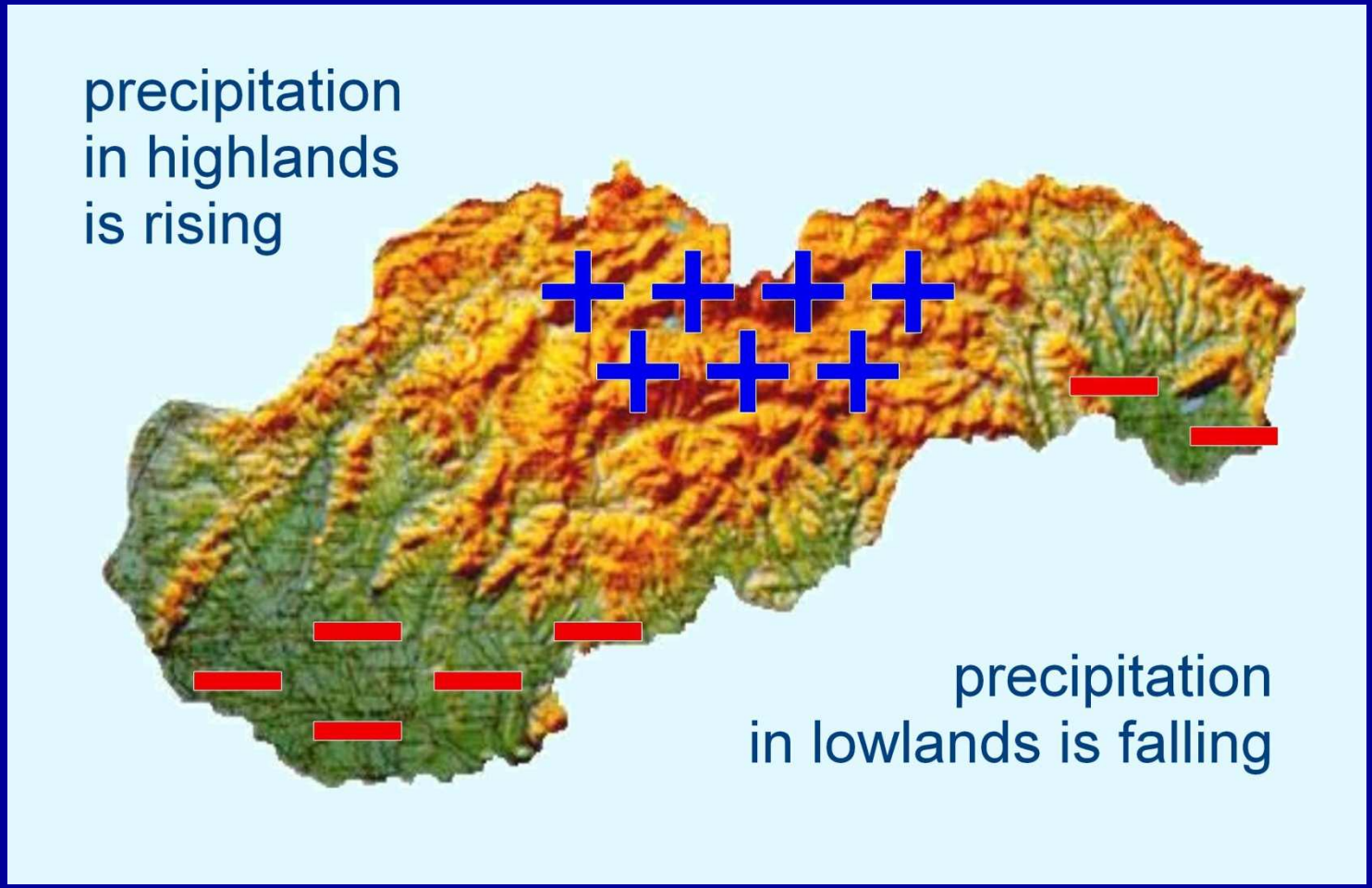

On the end: Global floods

DISTRIBUTION OF SOLAR ENERGY



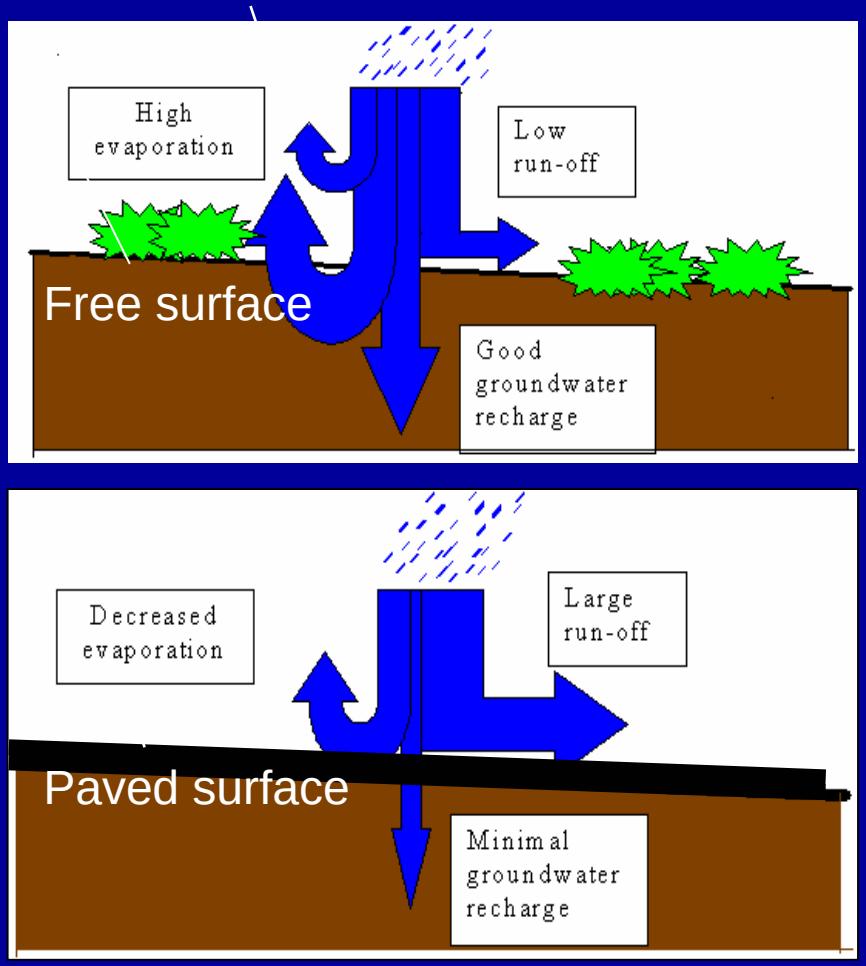
Dry land: Most solar energy is changed into *sensible heat*,
Wet land: Most solar energy is consumed on vapor water from landscape

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



What we inherited ?

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 see level rise


Water runoff on forestry road network!


Water runoff on forestry road network!

Agricultural lands drying by roads !

Agricultural lands drying by bad managemenent !

Forest lands drying by roads !

Drying lands by roads

DEFORESTATION & AGRICULTURE

Deforestation / some forms of farming <u>cause:</u>

- increase of runoff (and erosion)
- lower infiltration (groundwater recharge)
- lower evaporation (change of regional climate)

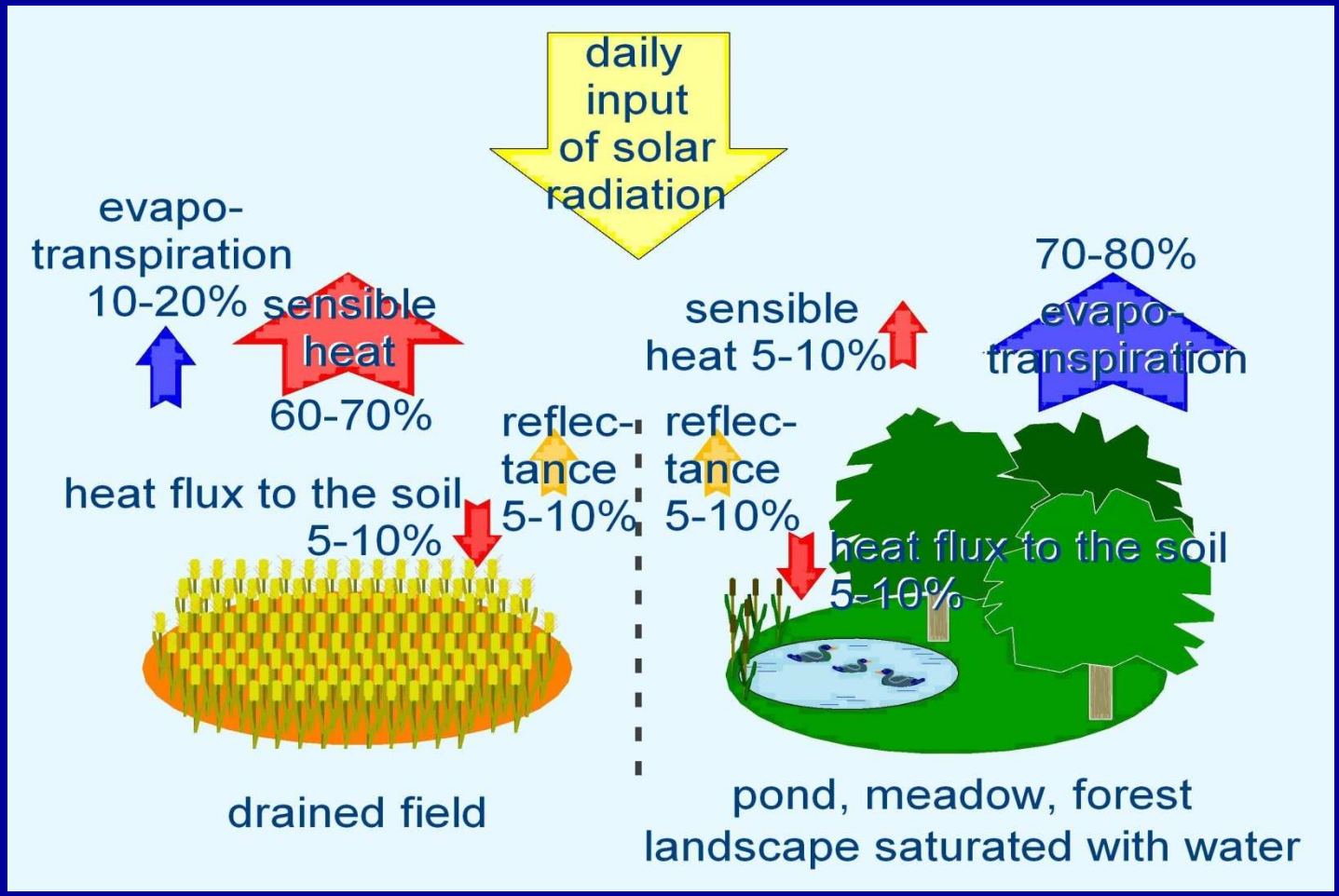
SOIL SEALING IN CITIES

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

ALTERATION OF RIVERS

- natural meanders removed
- adjacent swamps drained
- shortening length increases slope
- acceleration of runoff
- lowering land's ability to retain water

DISTRIBUTION OF SOLAR ENERGY



Dry land: Most solar energy is changed into *sensible heat*,
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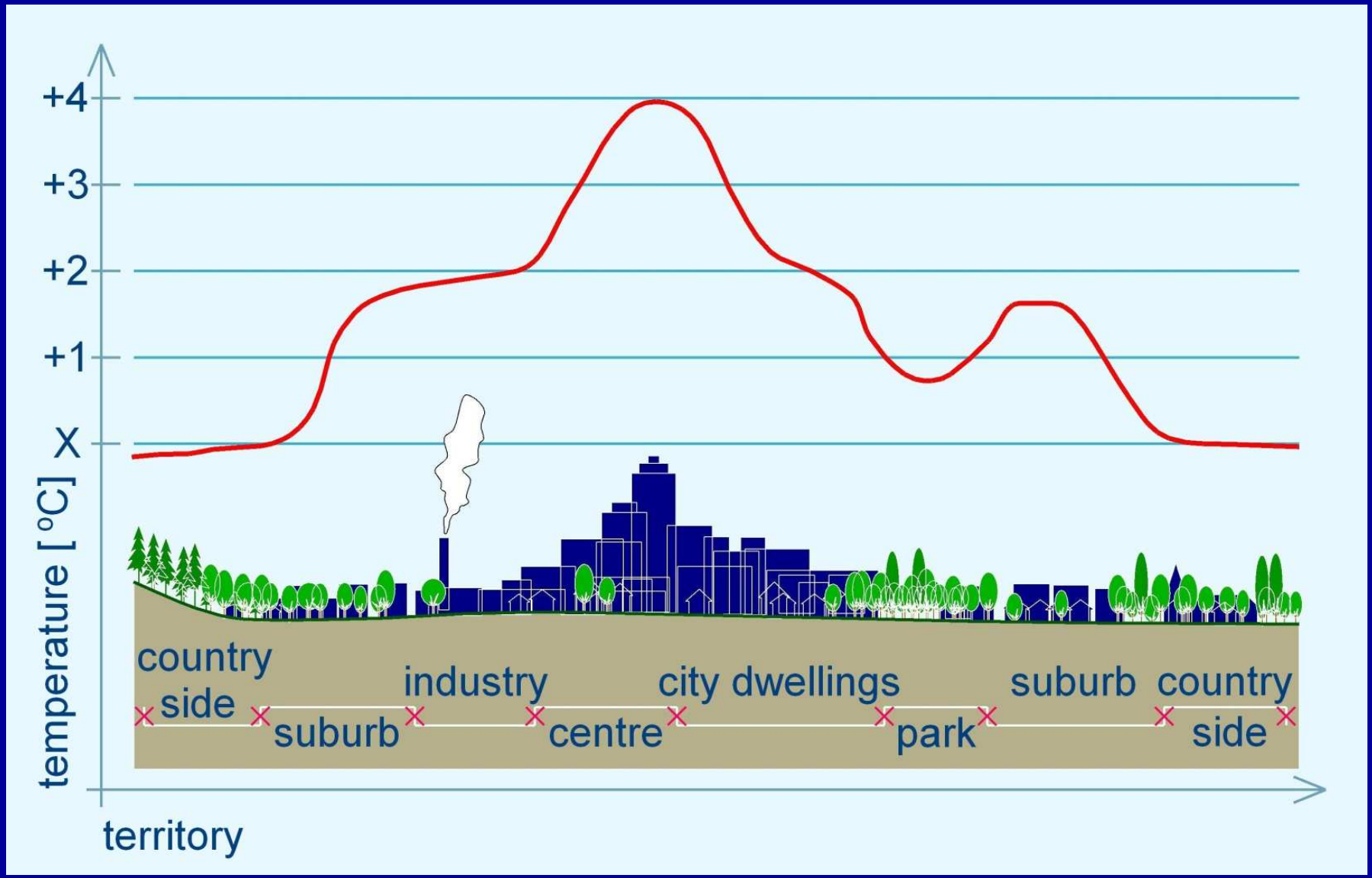
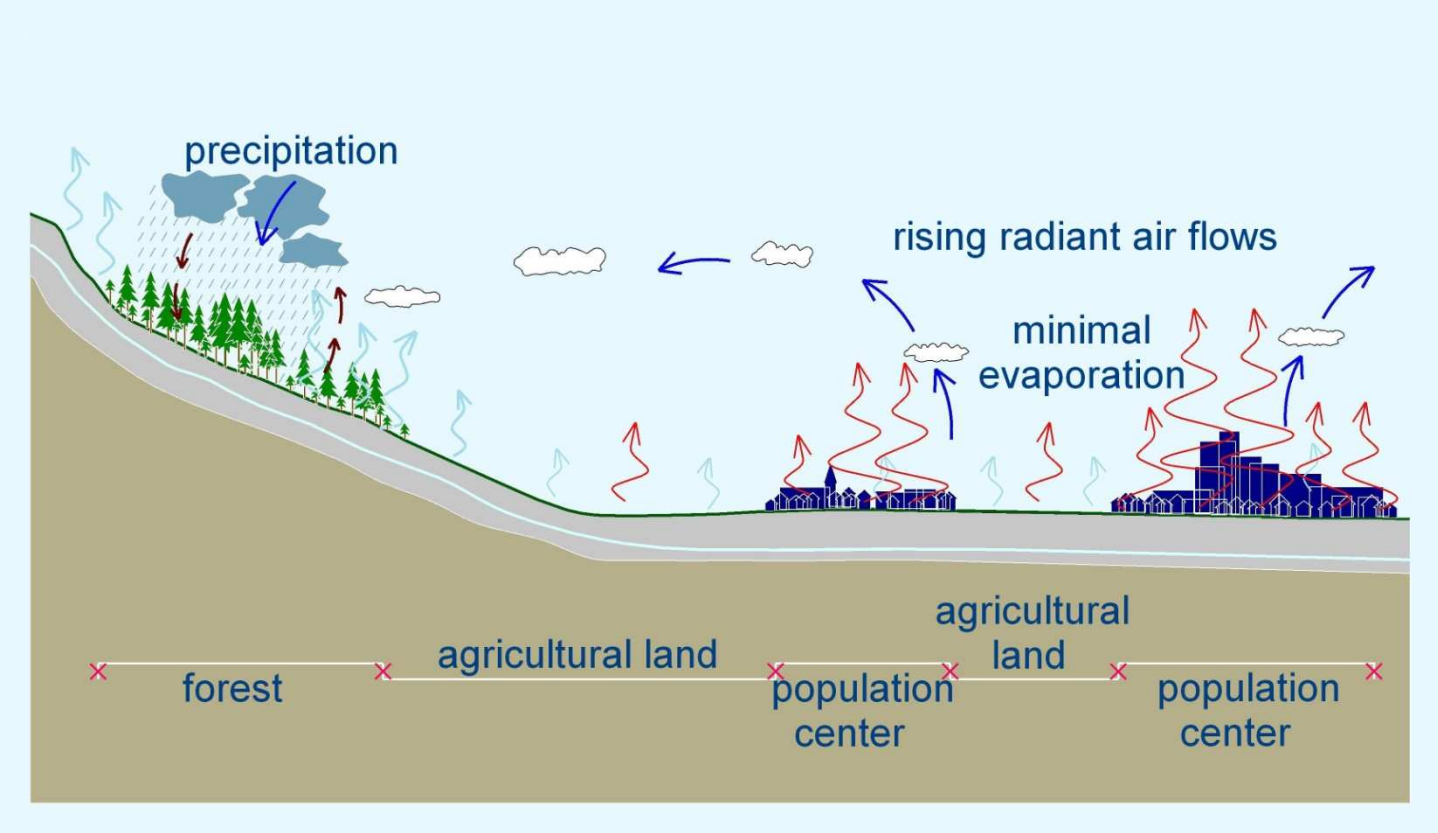
HEAT ISLANDS OVER DRY and HOT LANDSCAPE

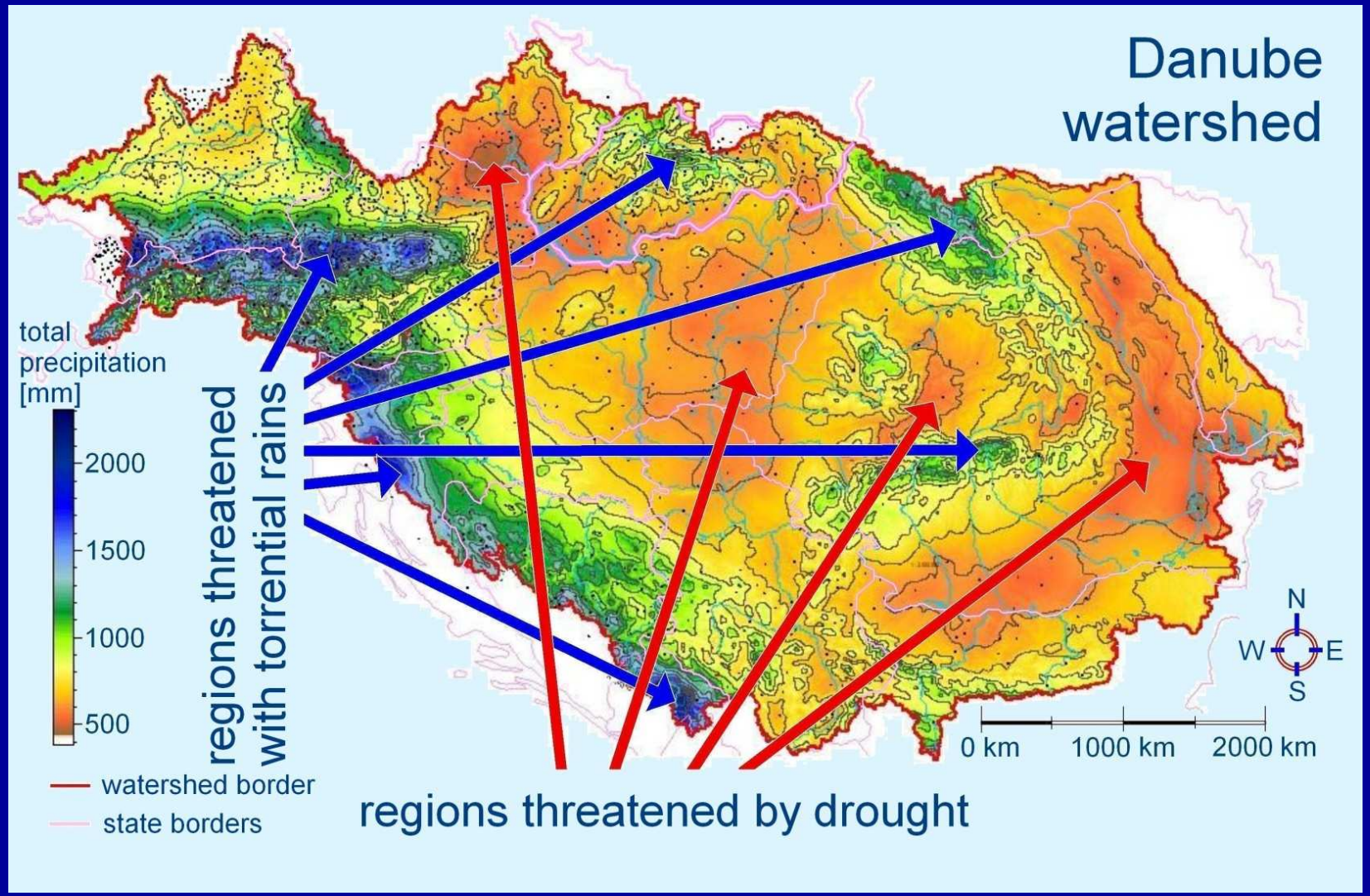


IMPACTS ON WEATHER / CLIMATE

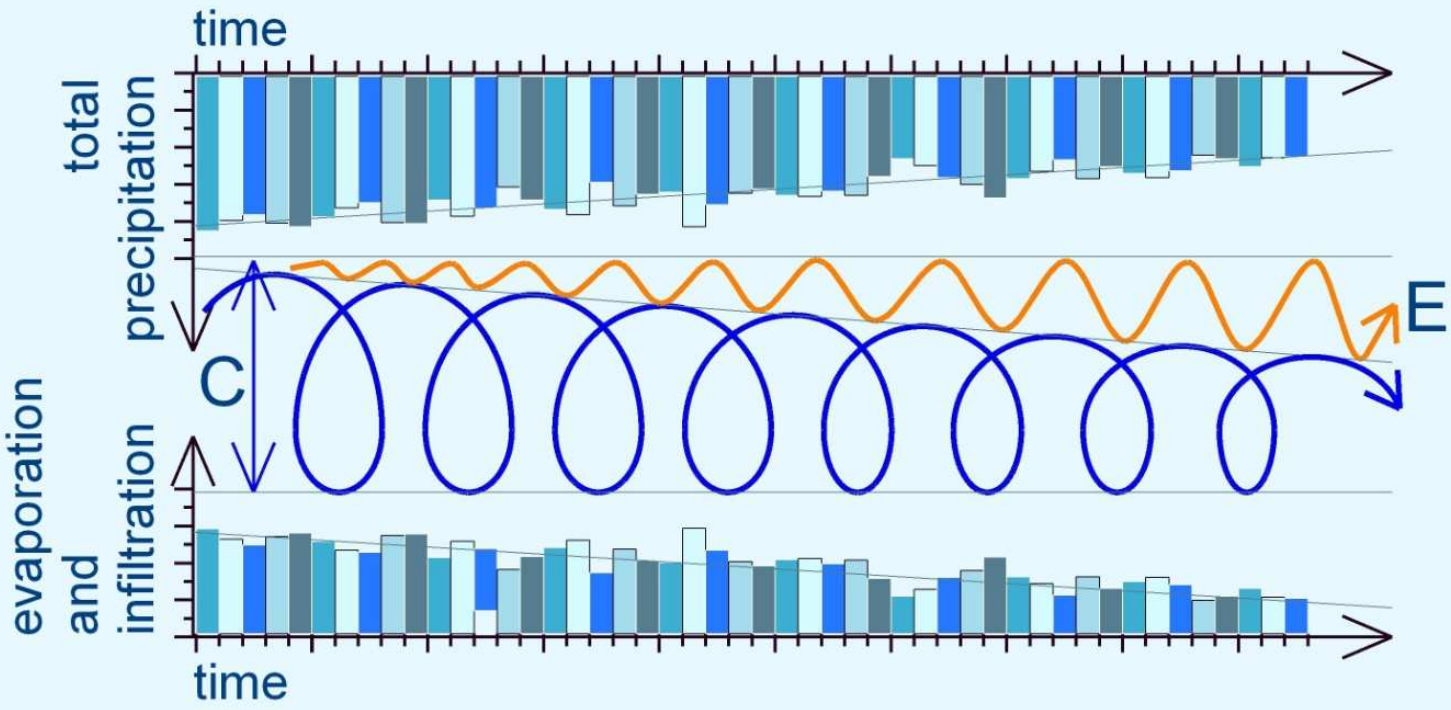


Frequency of droughts and floods increasing

PRECIPITATION IN MOUNTAINS AND LOWLANDS – DANUBE WATERSHED



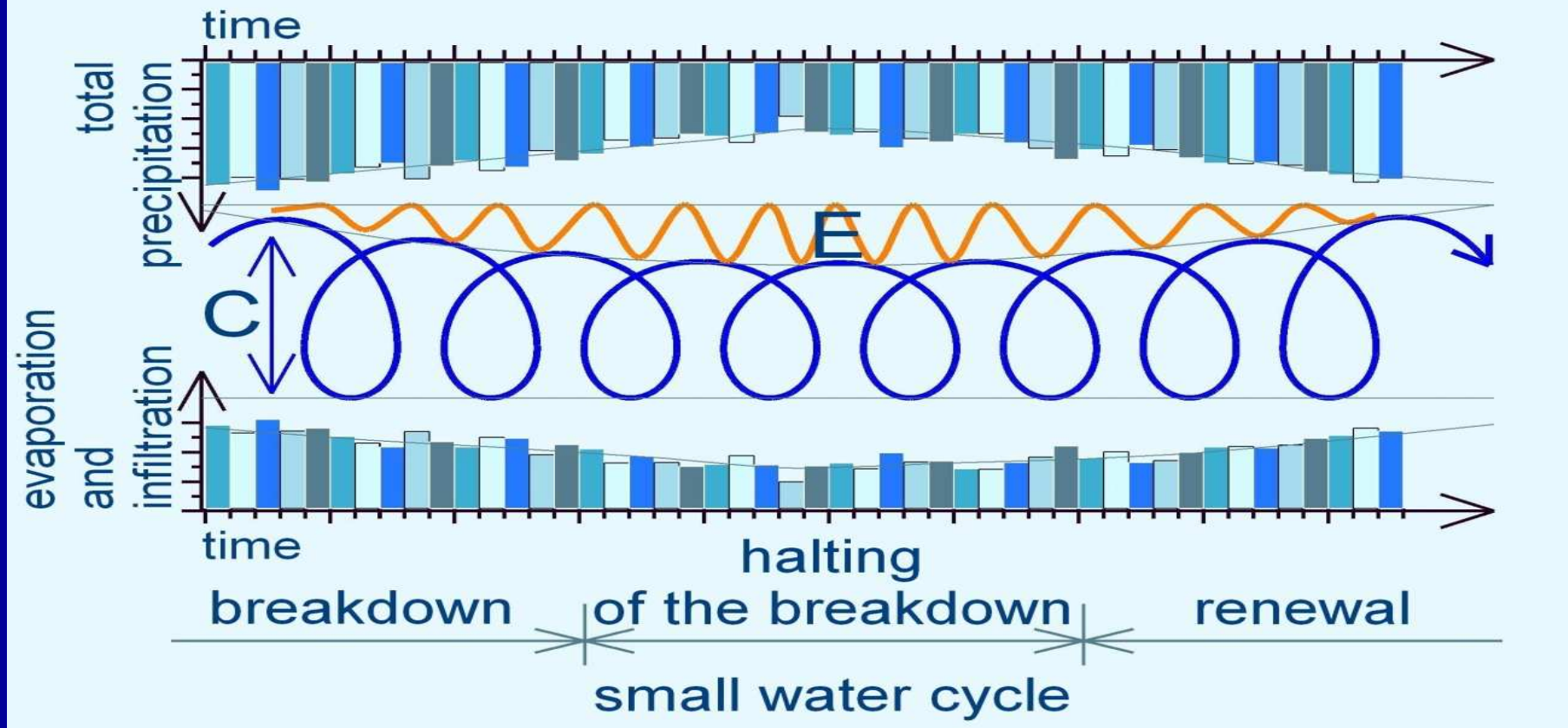
GROWTH OF EXTREME WEATHER WITH DECLINE OF SMALL WATER CYCLES



C - diagram of the circulation of water on land

E - diagram of extreme weather events

DESTRUCTION AND RENEWAL OF SMALL WATER CYCLE



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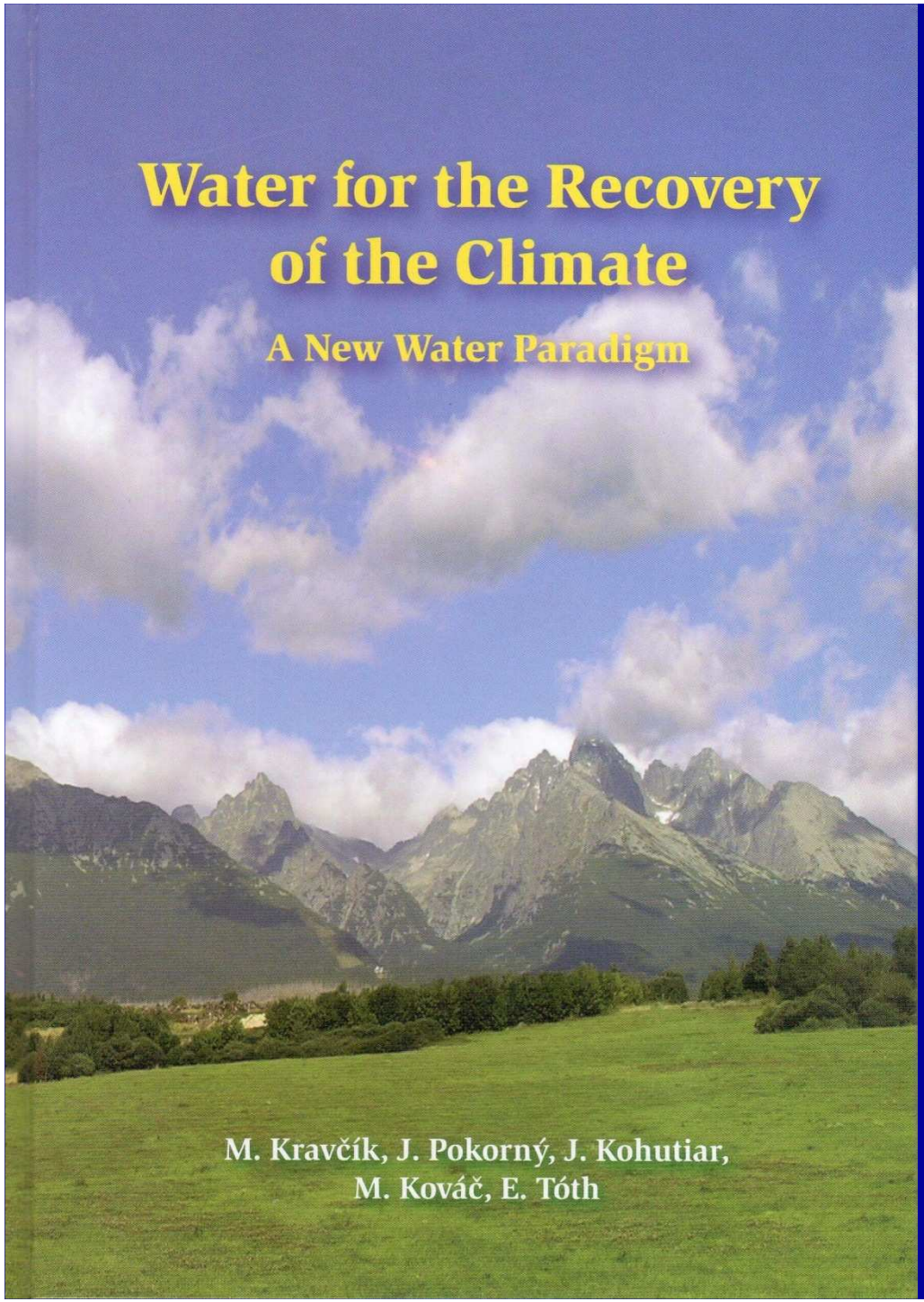


- humanity accelerates the runoff from land
- more solar energy is transformed into sensible heat
- draining of a land can be reversed through comprehensive conservation of rainwater
- renewal of small water cycle over land can temper extreme weather events and ensure a growth in water reserves

- www.waterparadigm.org

Old water paradigm

- protects surface water as the main source and reserve of water

New water paradigm

- protects groundwater and soil water as the main treasure of water

www.waterparadigm.org

Old water paradigm

- rainwater is an inconvenience, needs to be quickly removed

New water paradigm

- rainwater is an asset that needs to be retained (especially in soil/plants)

www.waterparadigm.org

Old water paradigm

- **soil sealing has minimal impact on the water cycle**

New water paradigm

- **soil sealing has a fundamental impact on the water cycle**

www.waterparadigm.org

Old water paradigm

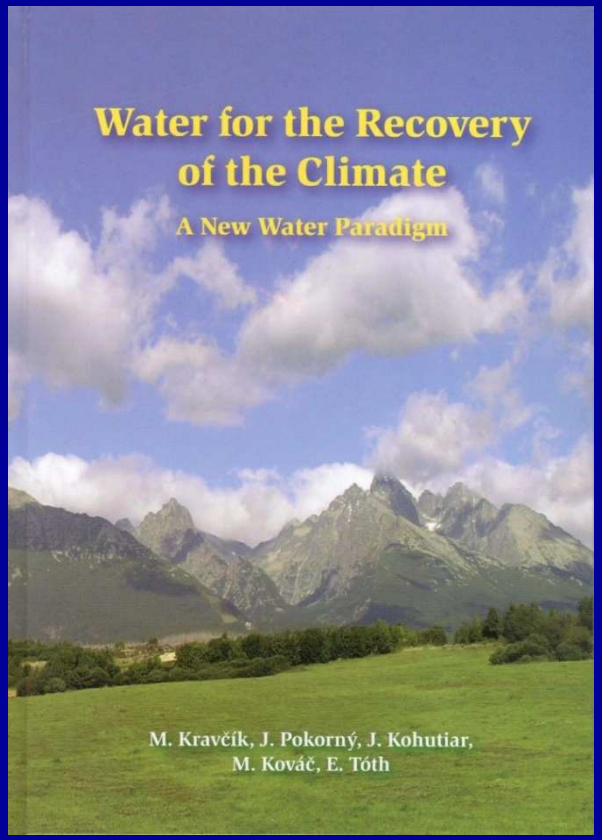
- **soil sealing has minimal influence on global warming**

New water paradigm

- **soil sealing may be important factor in global warming**

www.waterparadigm.org

Initiative by group of Central European Activists



Discussion Contribution

"THE SUBSTANTIAL ROLE OF WATER IN THE CLIMATE SYSTEM OF THE EARTH"

(distributed to more than 7.000 institutions around the globe)

OurClimate.eu

www.ourclimate.eu

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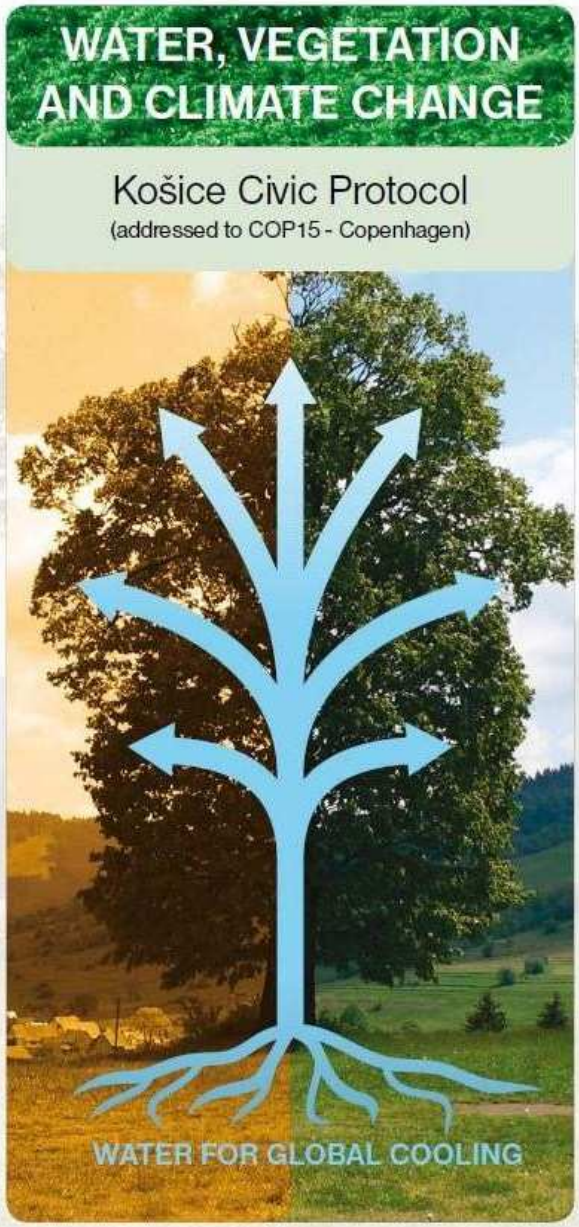


NEW WATER DEAL

more clouds

more soft rain

higher air humidity

more evaporation from lands

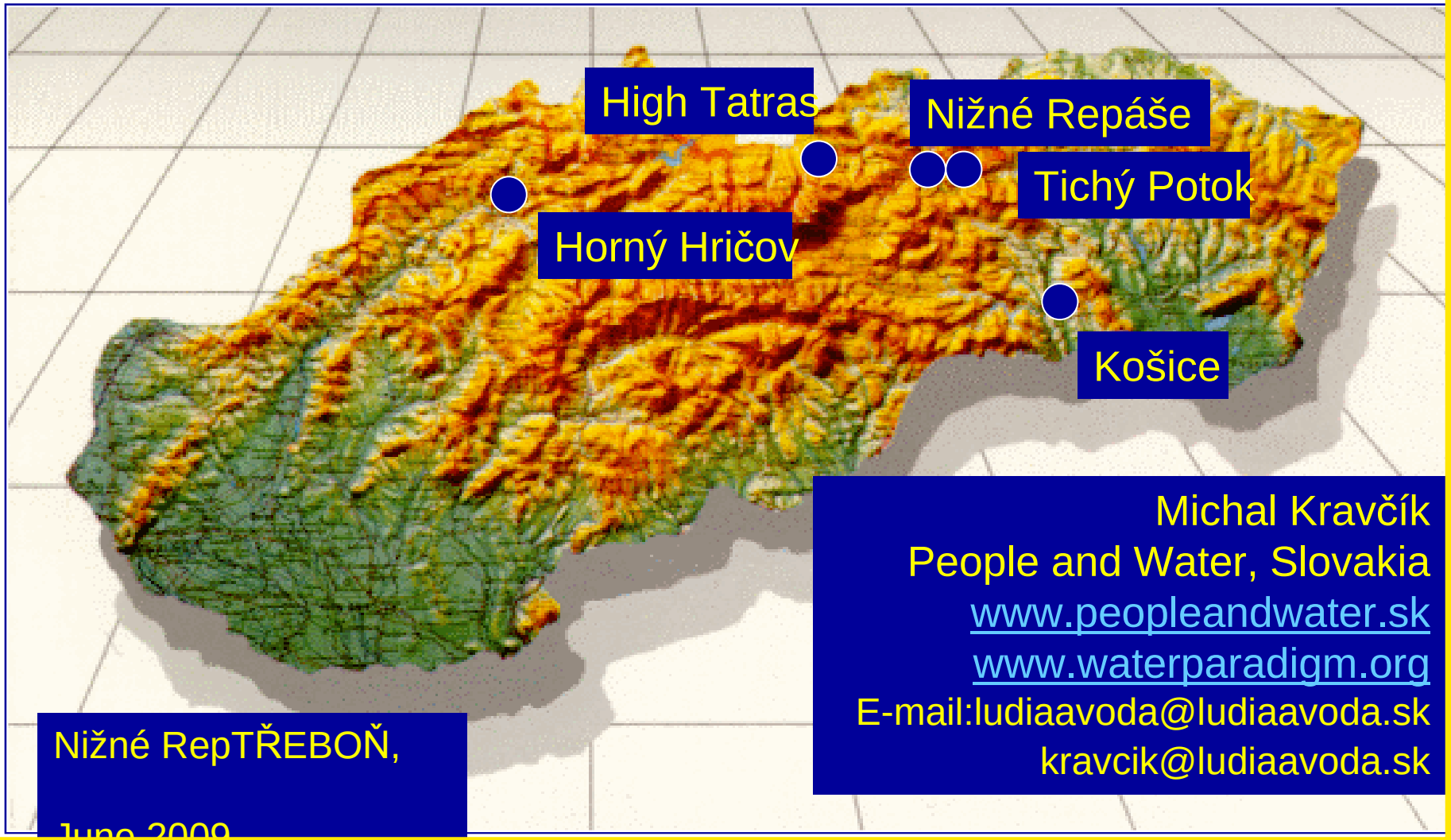
more vegetation and biodiversity

more groundwater recharge

THE NEW WATER DEAL for BLUE PLANET

- Creation more than 50 million jobs for poor people
- waterholding measures can returne 1000 km^3 rainwater a year to small water cycles
- duration ten years
- 0,008 EUR/m^3, while current technologies require cca 0,3 eur/m^3
- costs about 400 billion EUR annually

The cases for rehabilitation of devastated landscape by People and Water



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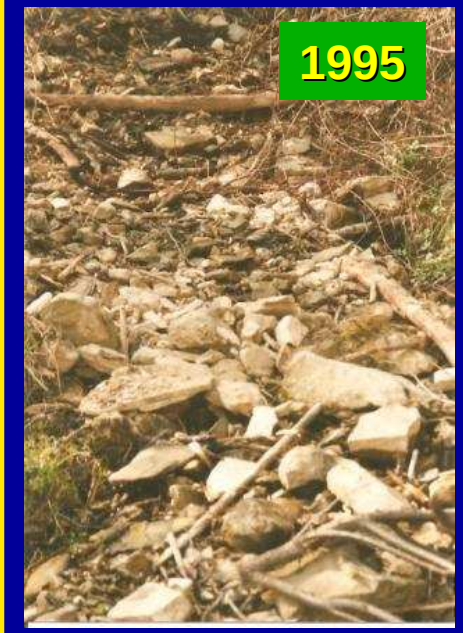
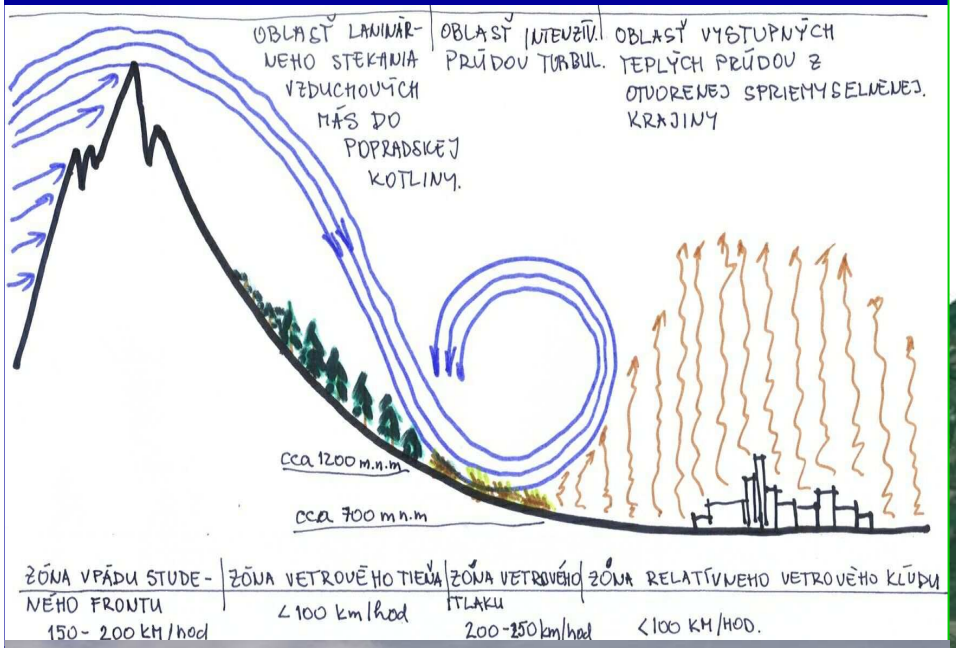
Nižné RepTŘEBOŇ,

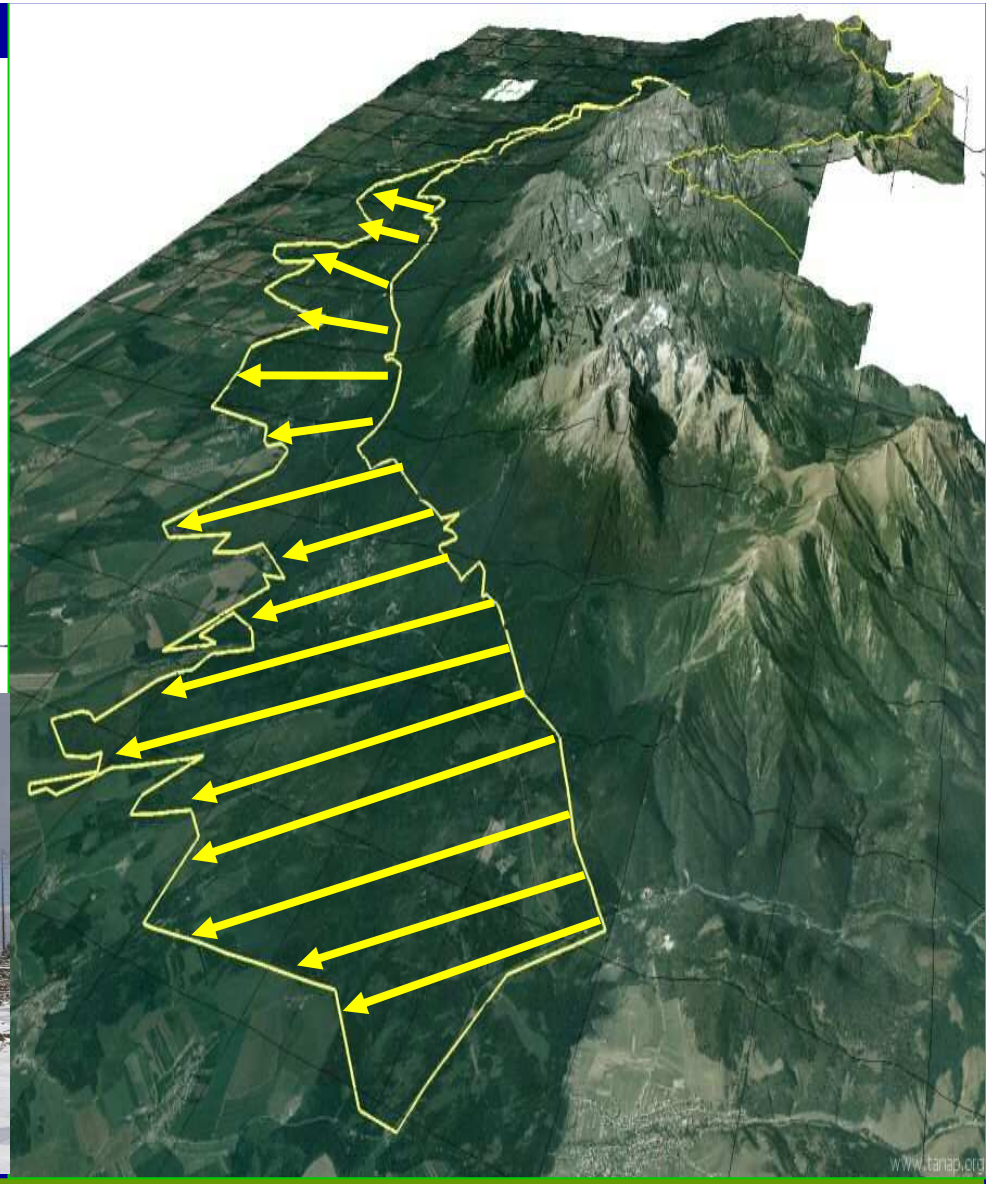
June 2009

BLUE ALTERNATIVE - TICHÝ POTOK, 1996

BLUE ALTERNATIVE







What happened in November, 19th 2004
12.600 hectars of forest was damaged, with risks of drying up, erosion and loss typical climate

2nd Phase:

Building more than 2.000 waterholdings on the 40 ha of Water Forest
(July – September 2005)

3rd Phase:

Building waterholdings on the 12 ha of burned area
(September – October 2005)

4th Phase:

Planting new trees at Water Forest

October 2005 - May 2006

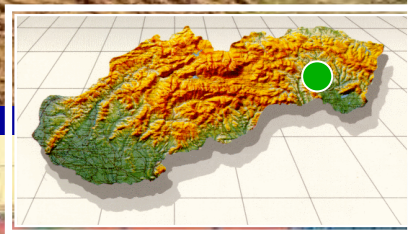
Water Forest in High Tatras after 5 years


Water Forest in High Tatras after 9 years

Flood protection Waterholding, High Tatras, Slovakia

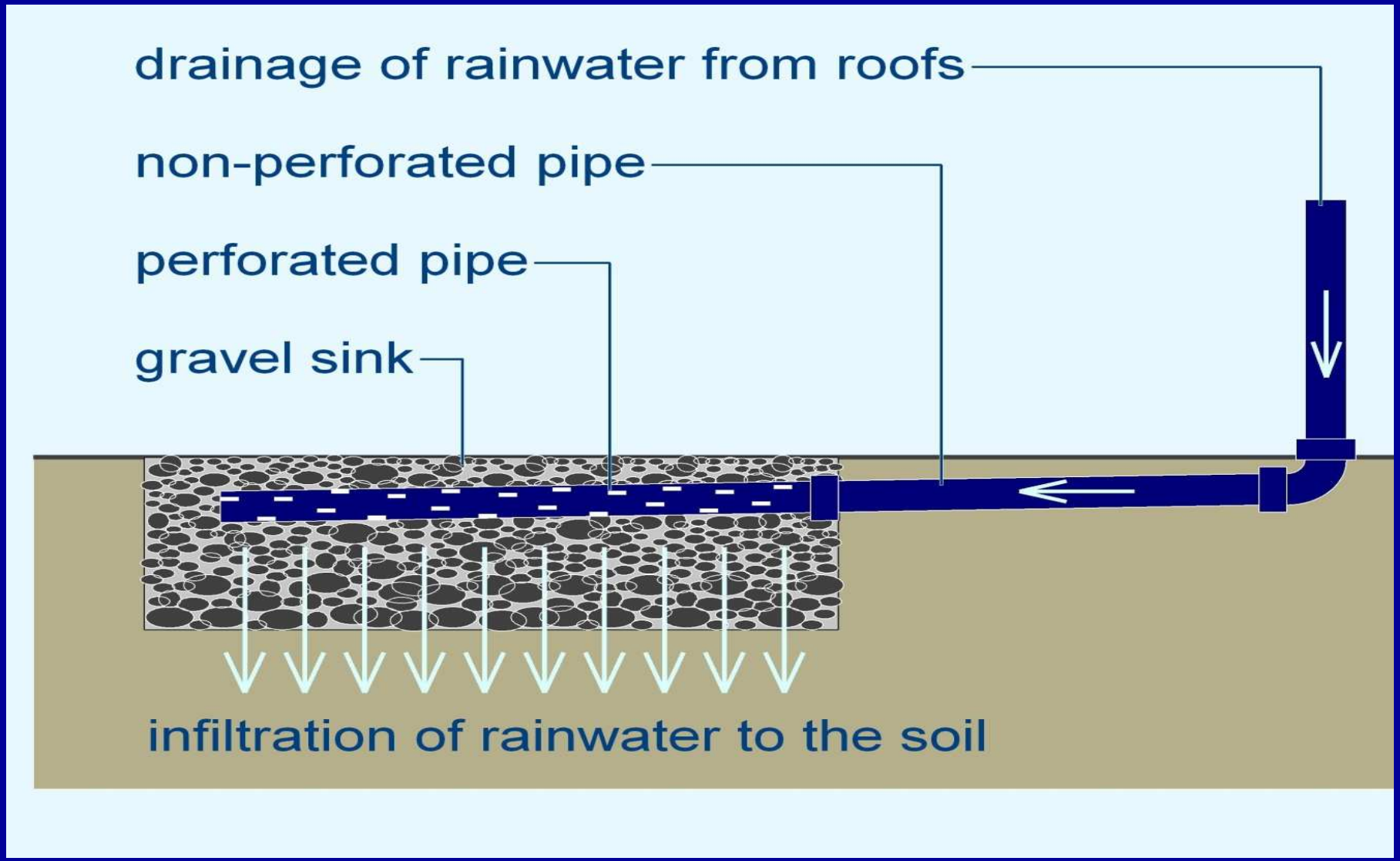
Botanic garden in High Tatras 2006


Horný Hričov, 2009

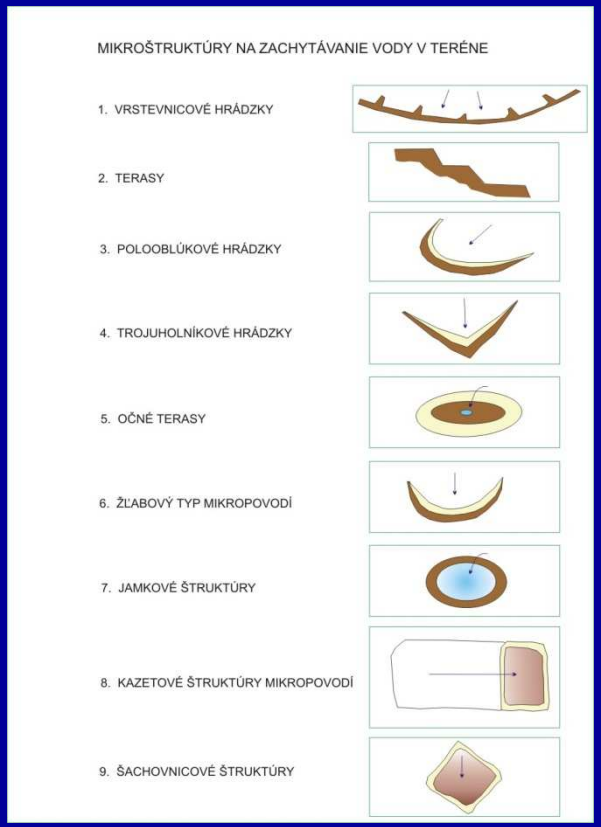


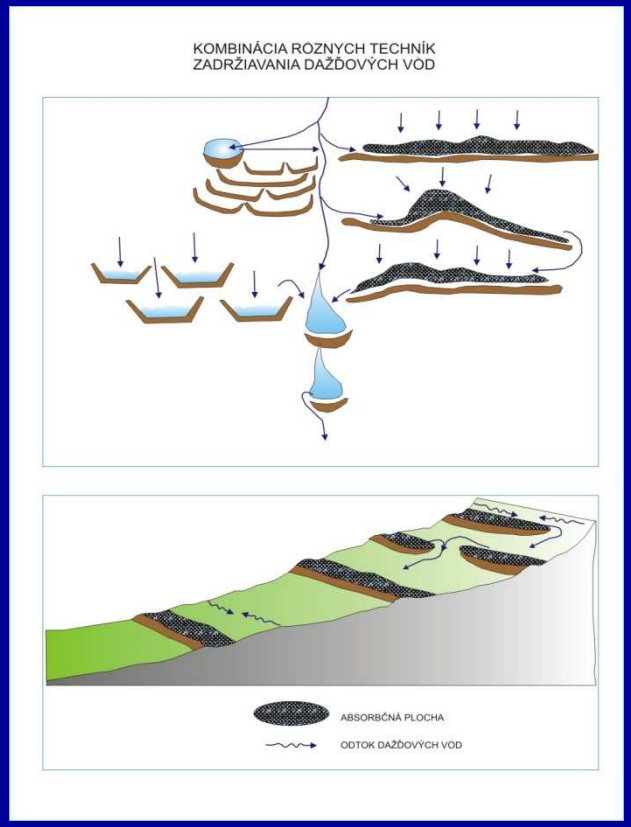
Restoration of water sources in urban zone Košice
People and Water, September 2006

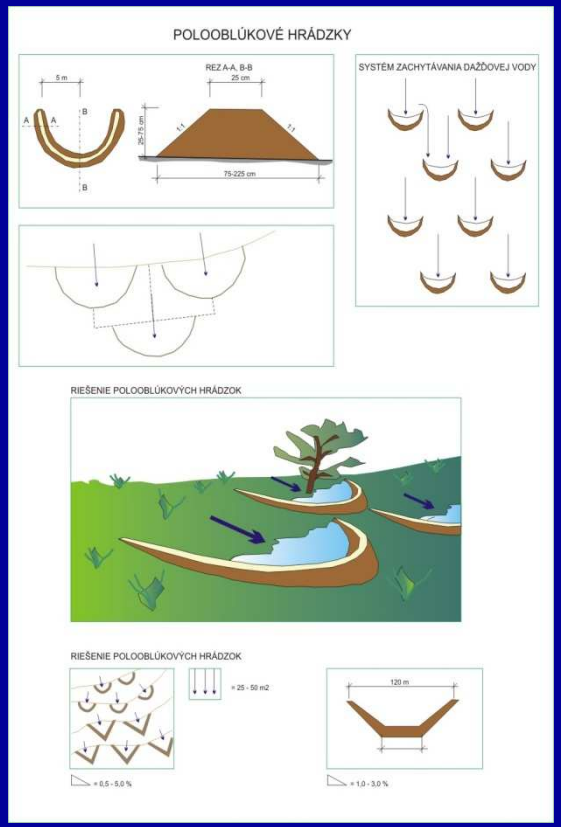
RAINWATER HARVESTING FROM ROOFS IN CITIES



Principle „Keep rainwater on the land“







RAINWATER HARVESTING ON SLOPES

Microstructures for the rainwater harvesting on land

Contoured barrages

Terraces

Eyebrow terraces

Pits

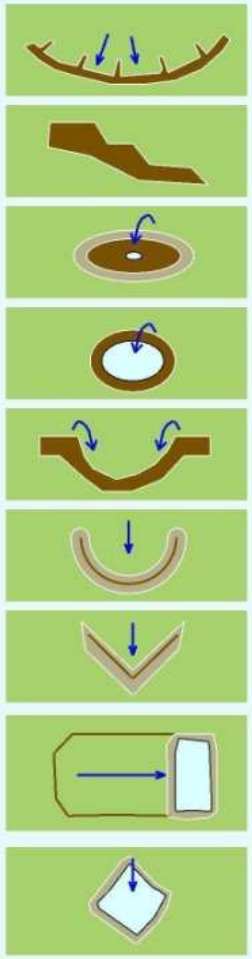
Vallerani-type microcatchments

Semicircular bunds

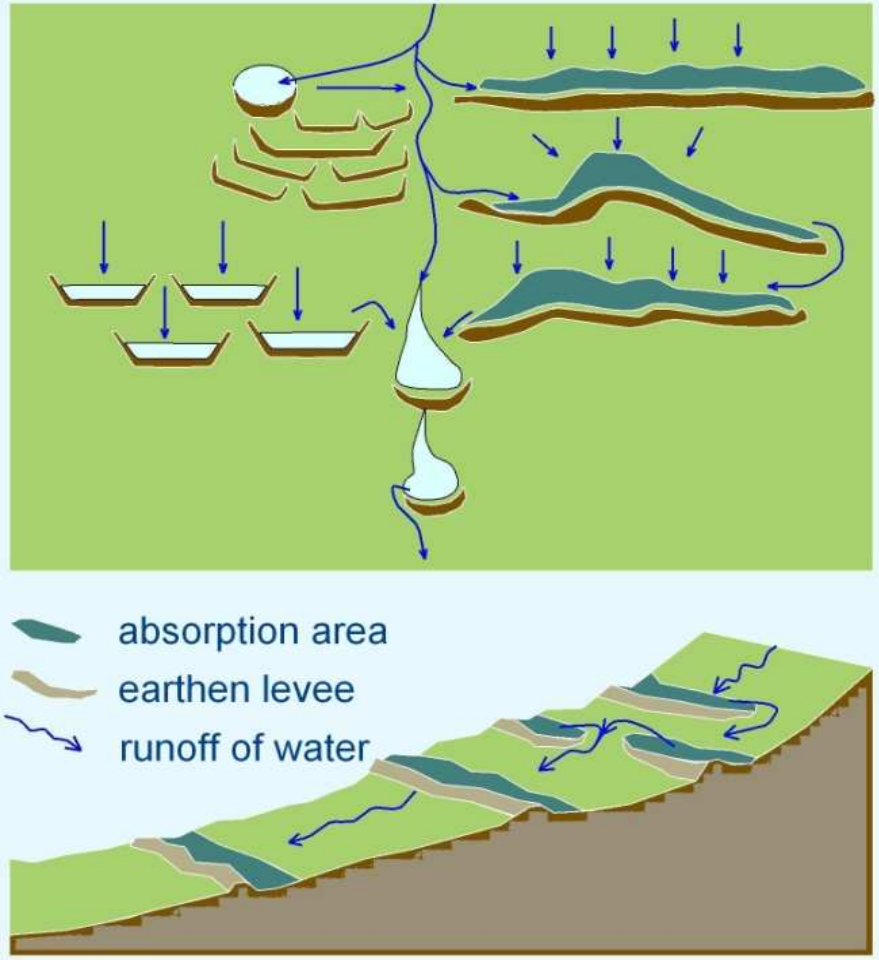
Triangular bunds

Meskat

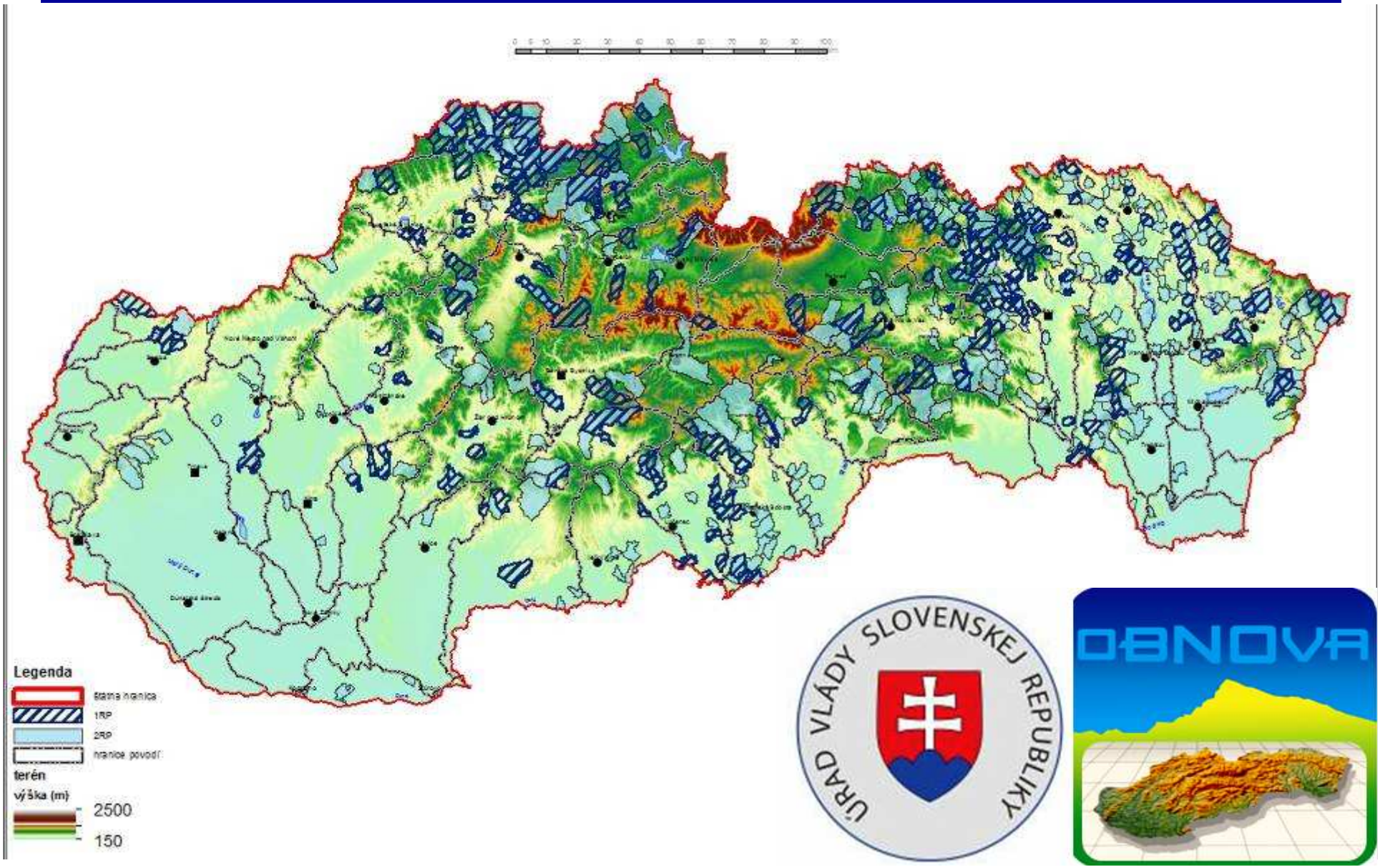
Negarim



Combination of different rainwater harvesting technologies



488 communities involved in the Government Landscape Restoration Program in 2011




ŤAHANOVCE


Snežnica


Hlohovec


Hlohovec

THE SLOVAK NEW WATER DEAL

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

Hydro-Climate Recovery

Rainwater Storage in demaged landscape

LIFE11 ENV/SK/1019,

SLOVENSKÁ VOLOVÁ

Legenda

Využitie územia
- TTP a ostatné plochy
- les
- orná pôda

- miestna komunikácia
- ostatné komunikácie
- toky
- suché toky

Administratívne hranice
- hranica obce
- zastavané územie obce

0 0.25 0.5 0.75 1 km

N

Slovenská Volová

Legenda

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Administratívne hranice

- hranica obce
- zastavané územie obce

Vodozdržné opatrenia

- poldre, valy
- dažďové záhrady
- kamenné hrádzky
- odrážky
- hrádzky
- zasakovacie pásy

0 0.25 0.5 0.75 1 km

N

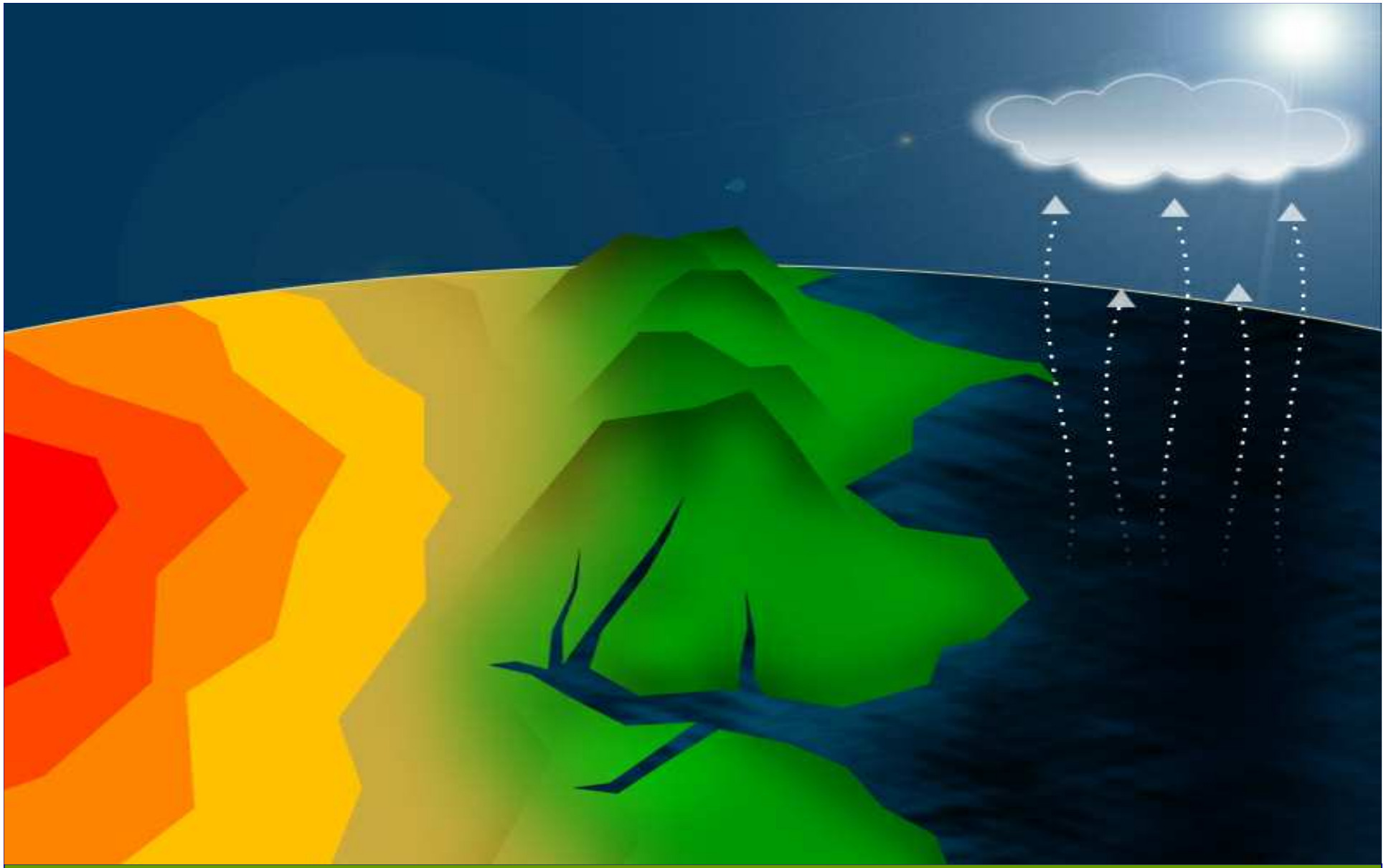
One village - SLOVENSKÁ VOLOVÁ

Types of measurements in landscape


Summary in 2013
1.Implemented 758 measurements,
2.58 jobs for poor people
3.In 8 villages of one catchment area

Solution for urban area

Rain gardens for urban zones



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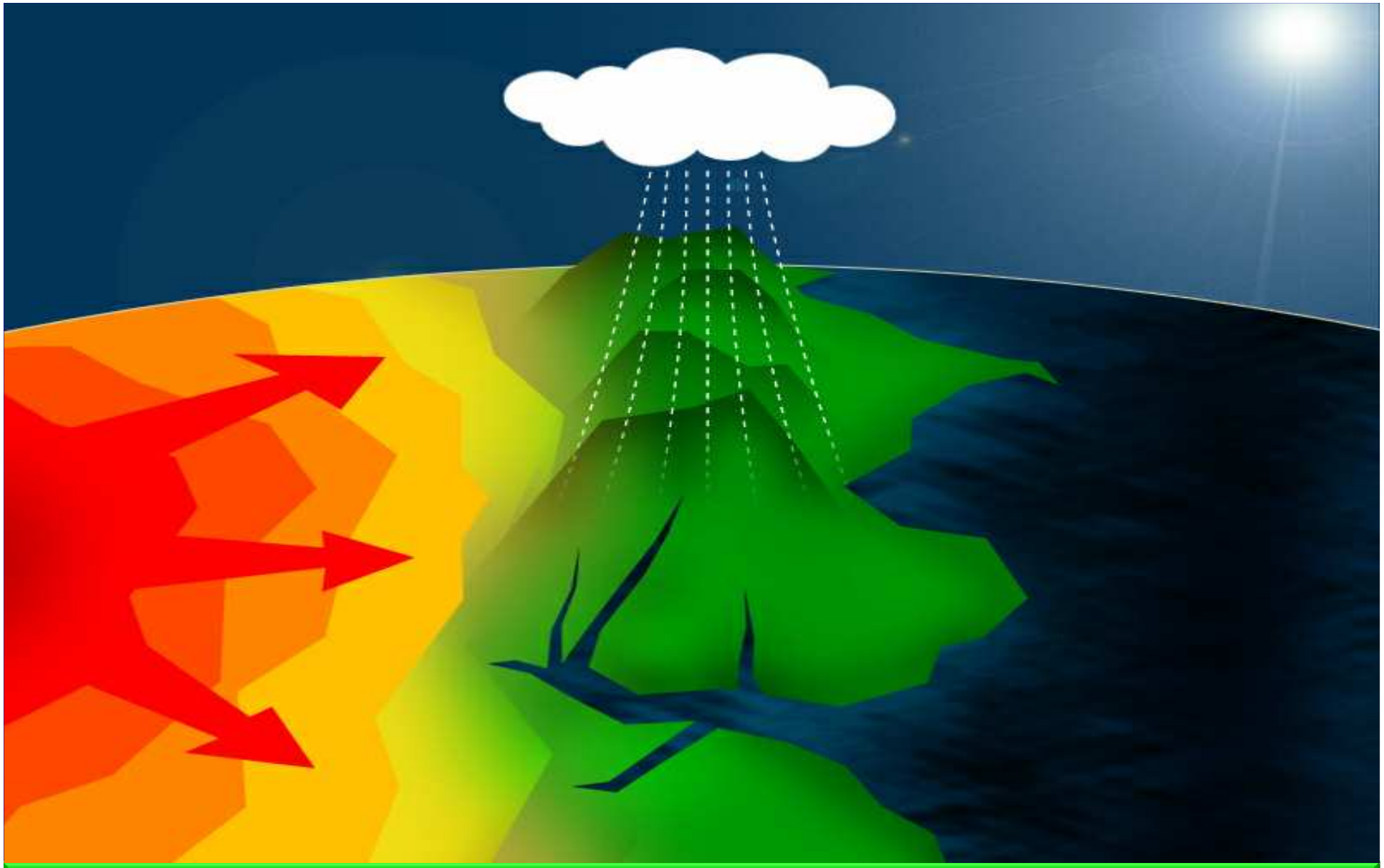

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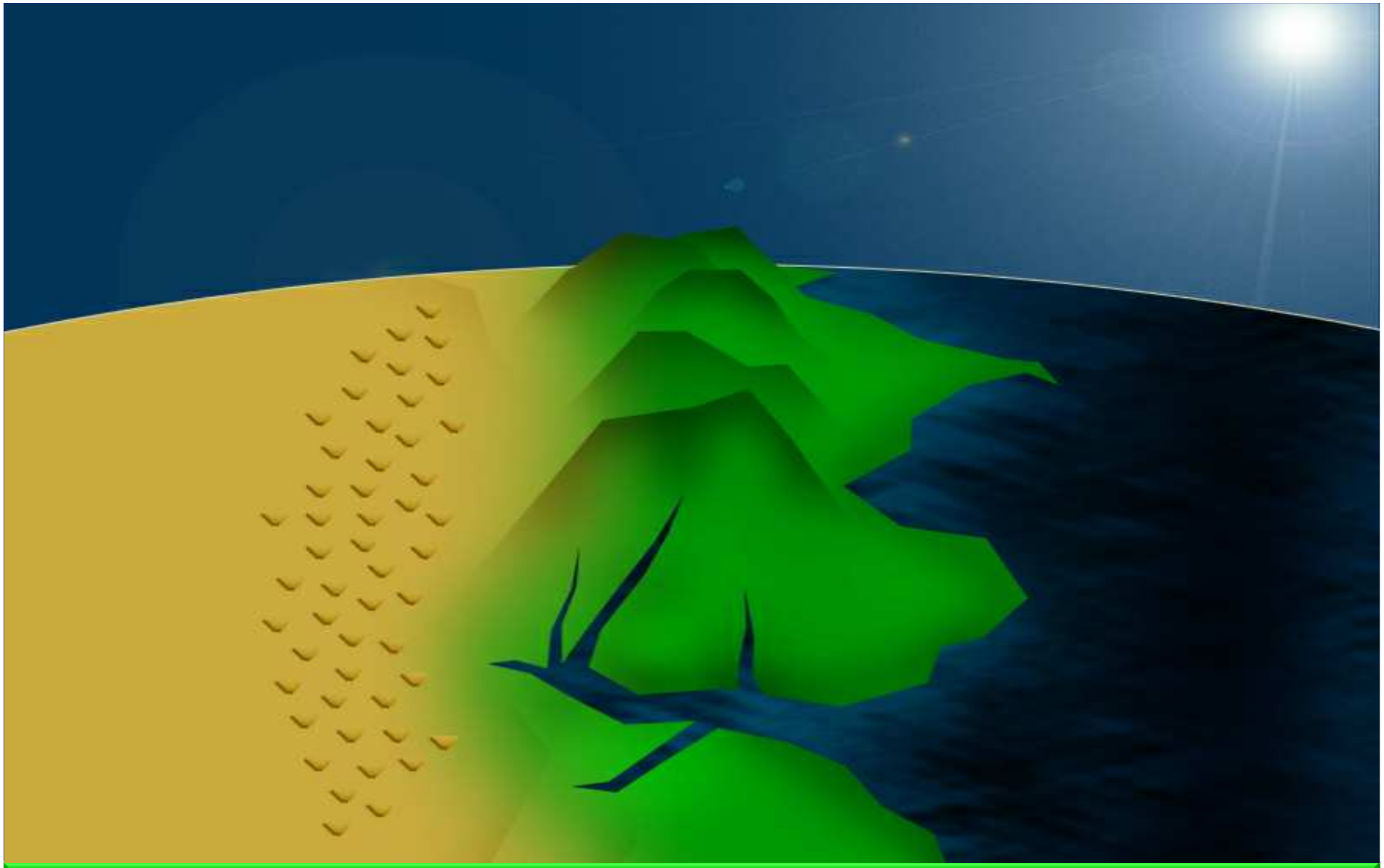

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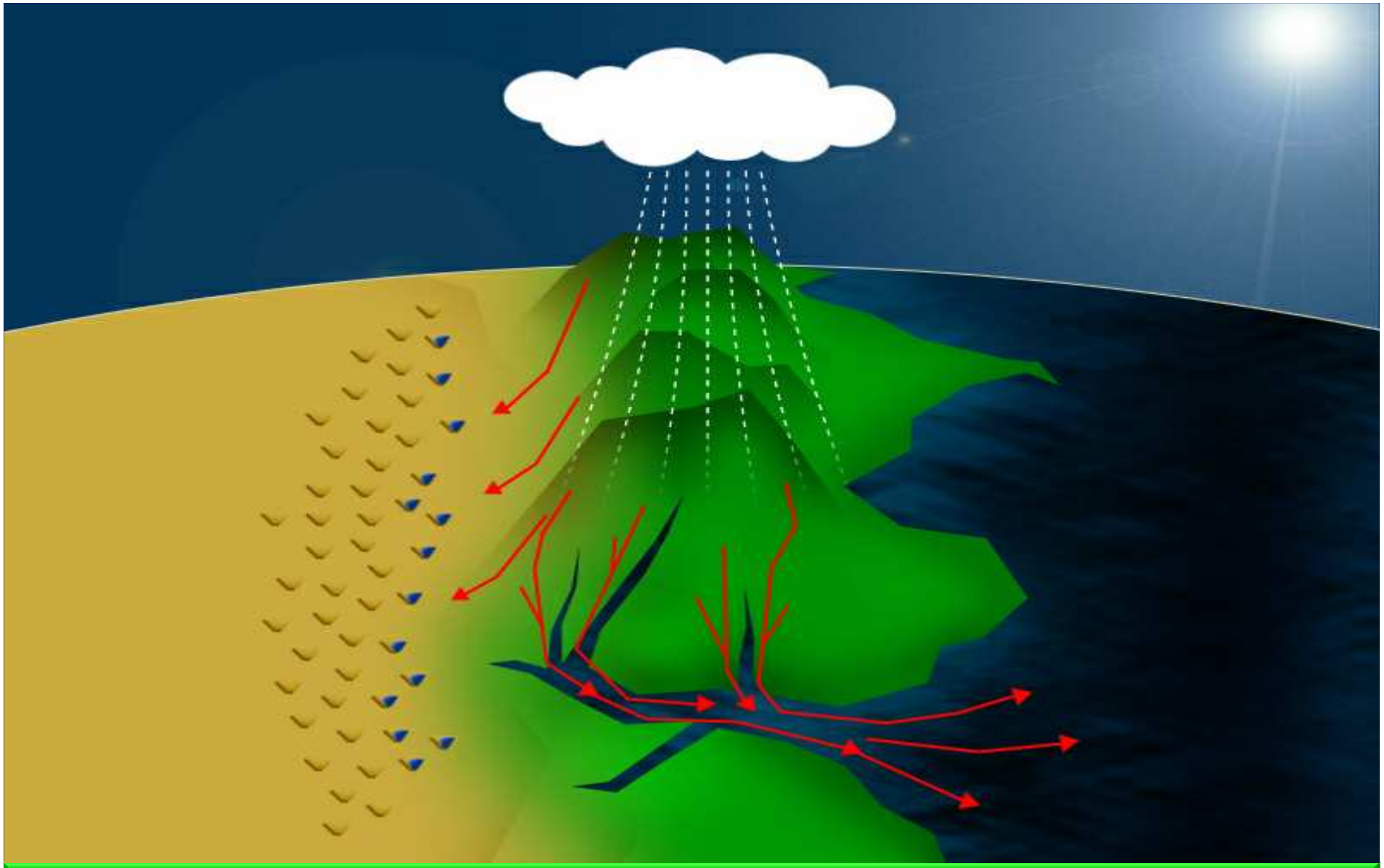

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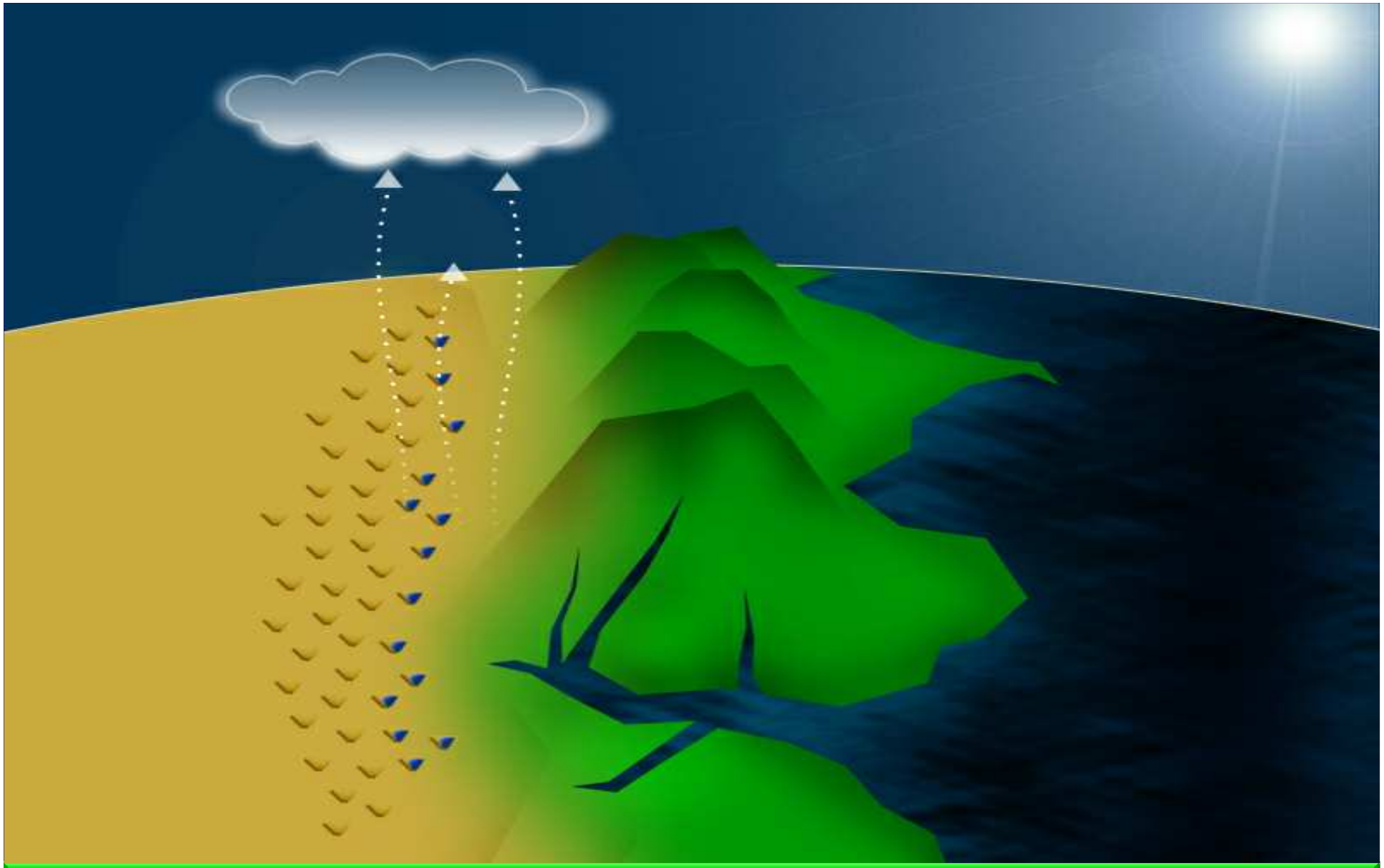

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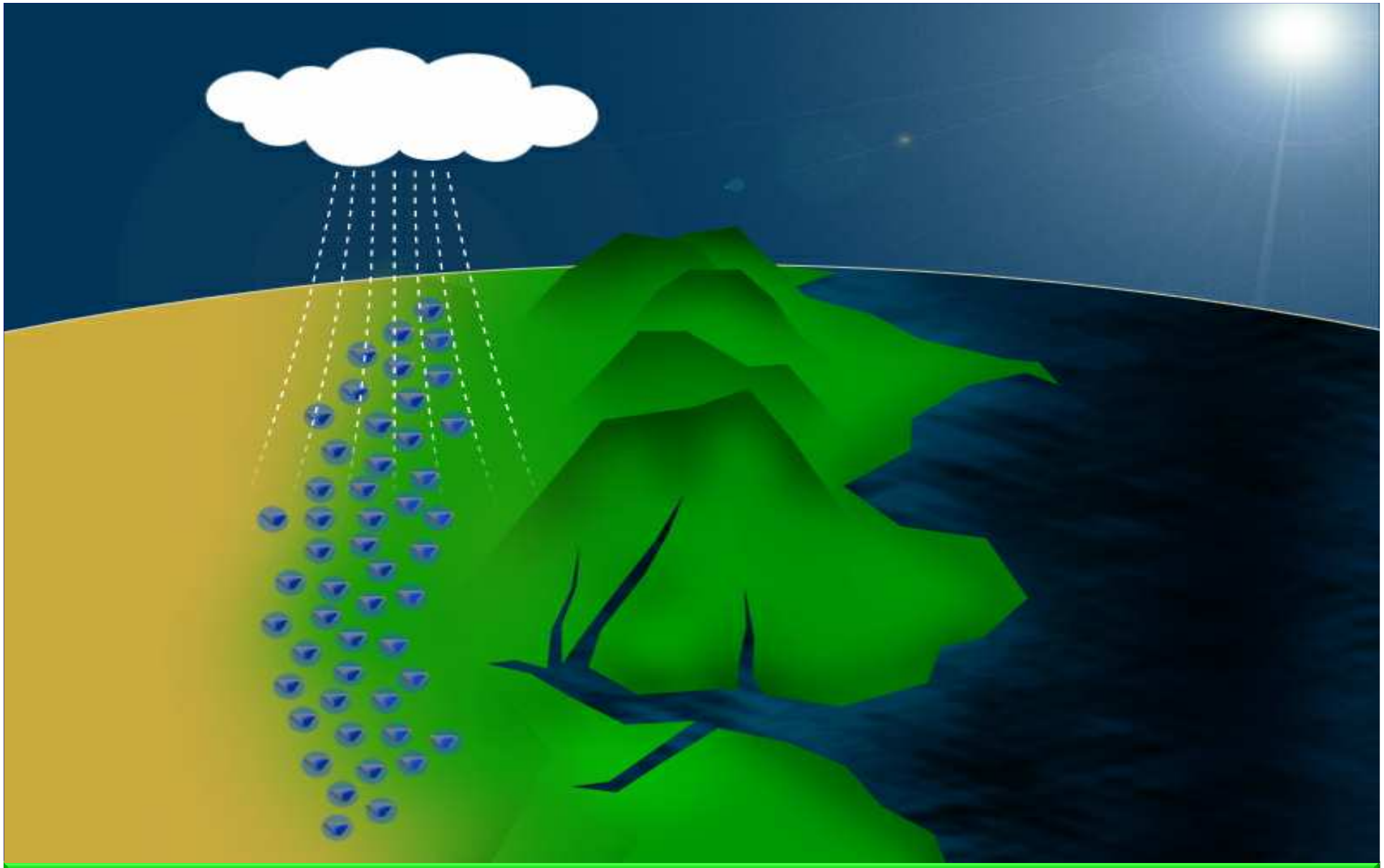

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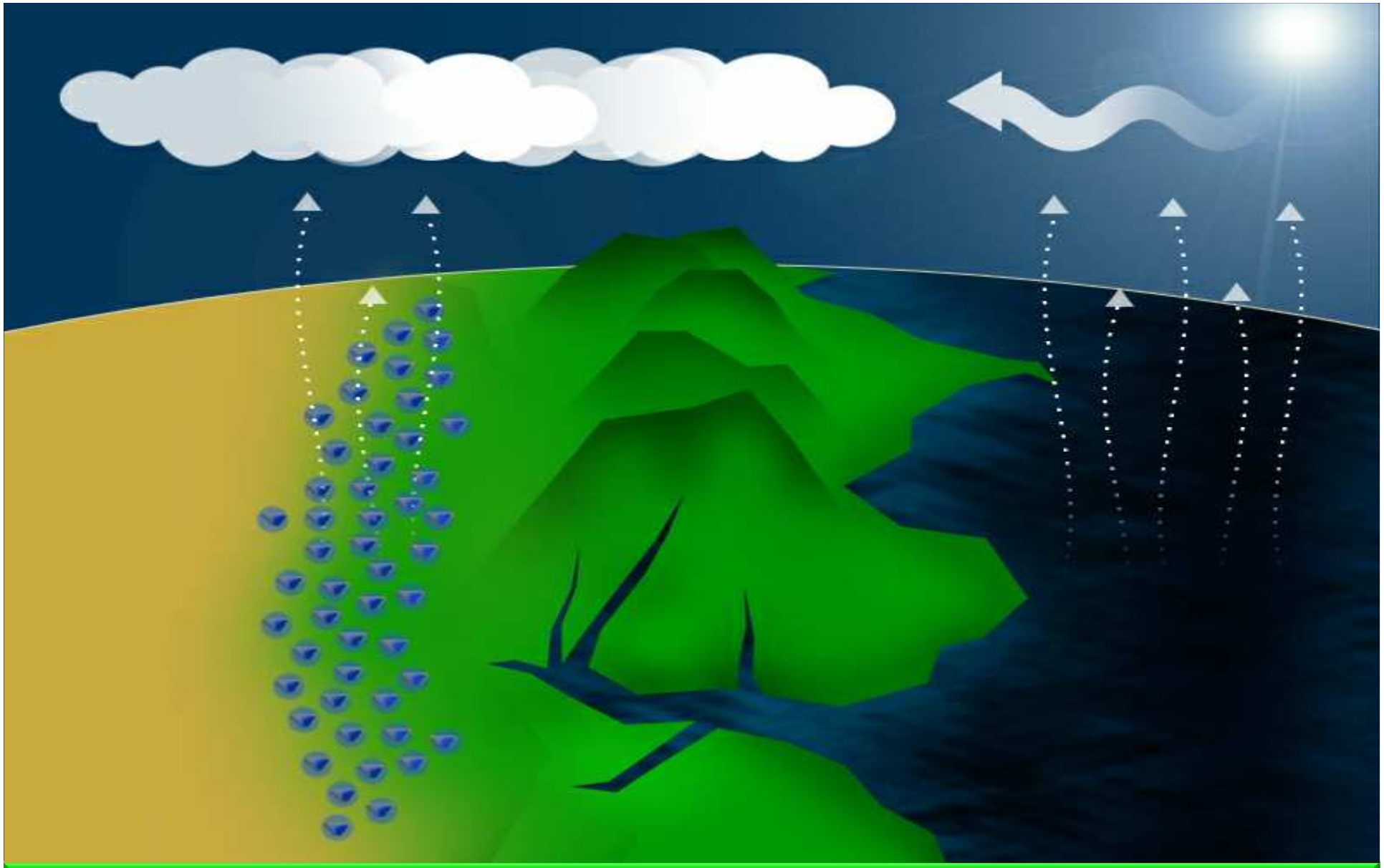

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THANKS!
ĎAKUJEM

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