

# THE NEW WATER DEAL for THE BLUE PLANET

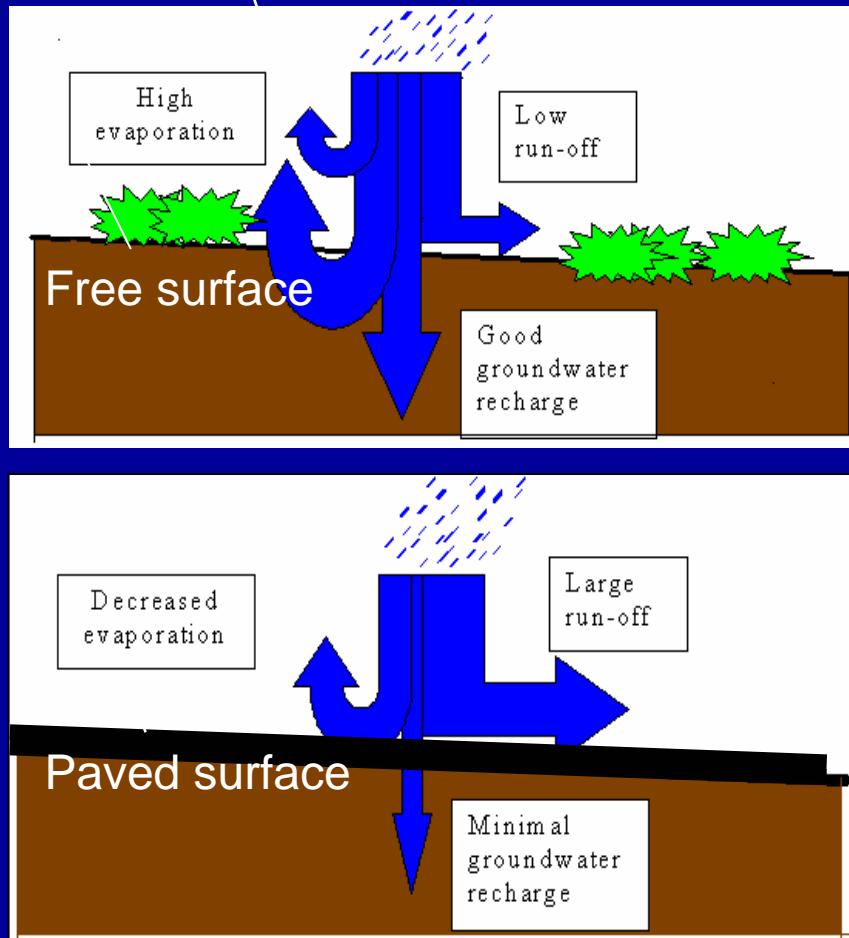
- A program to *harvest*  
*1.000 billion m<sup>3</sup> of rainwater*  
*to small water cycles on the continents*

Michal Kravčík  
People and Water, NGO  
Slovakia



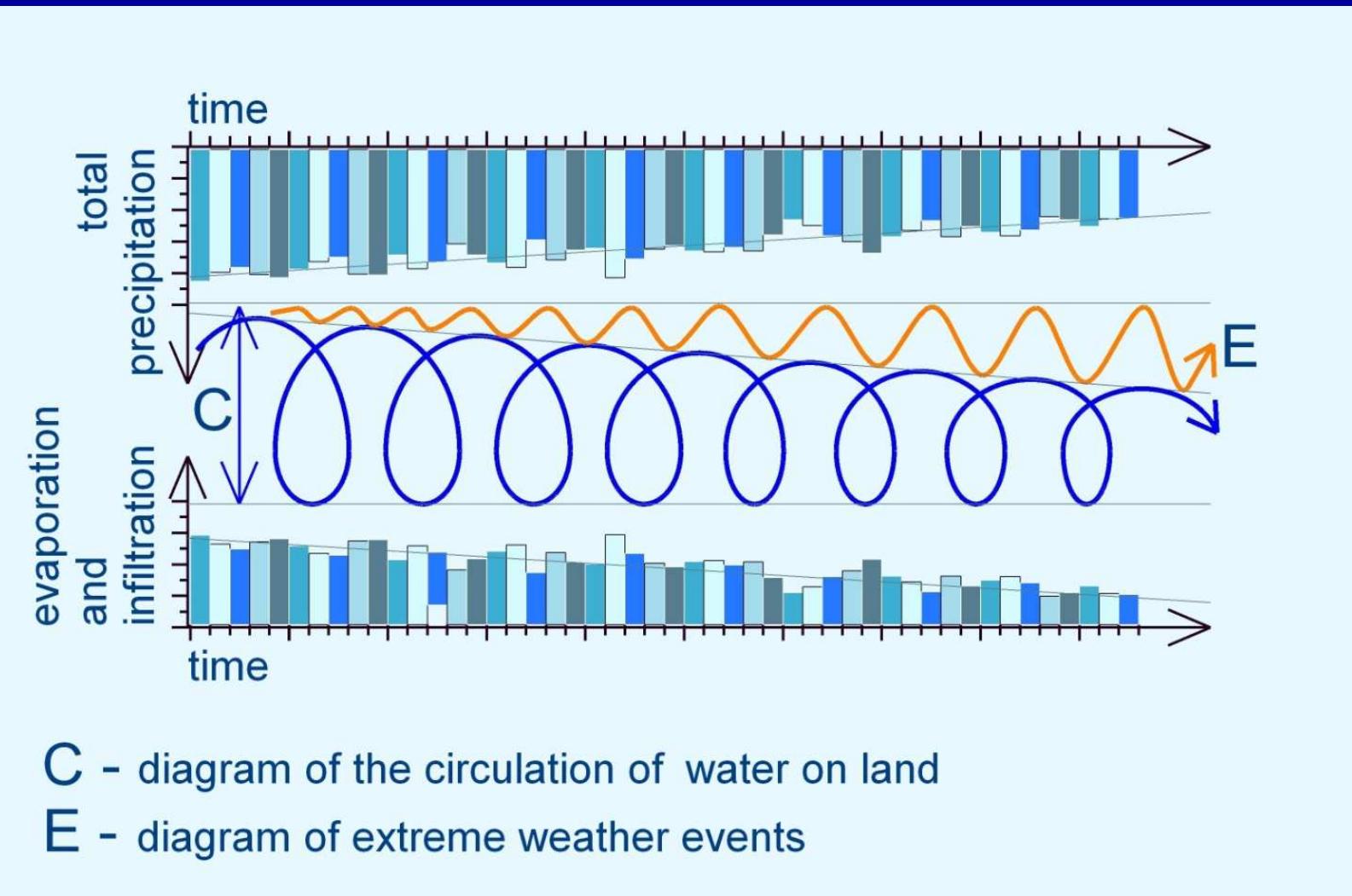
Sacramento, April, 30th 2014

# **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 m<sup>3</sup> of rainwater was lost from landscape of continents over last 70 years**
- **More than 10 cm sea level rise**

# GROWTH OF EXTREME WEATHER WITH DECLINE OF SMALL WATER CYCLES



**Water runoff on forestry road network!**



# DEFORESTATION & AGRICULTURE



Deforestation / some forms of farming cause:

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

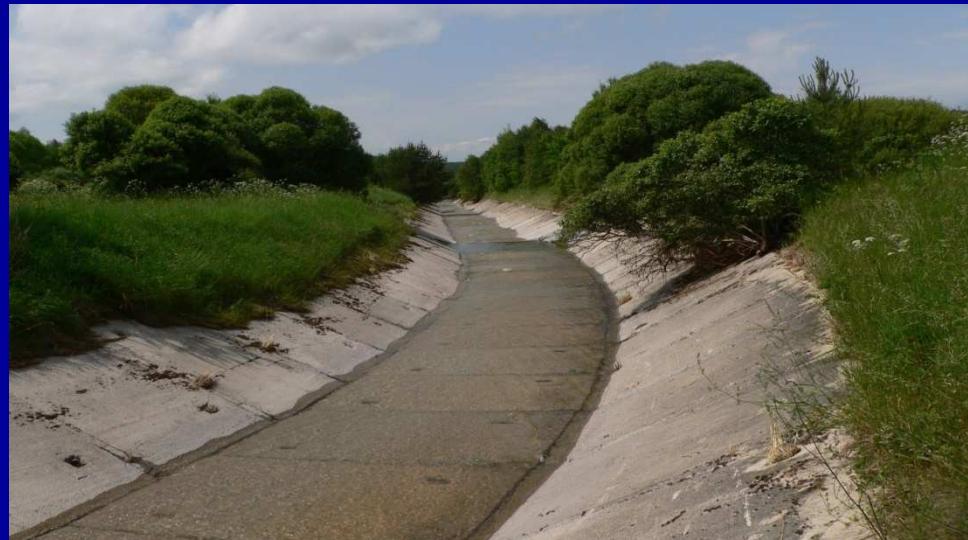
# SOIL SEALING IN CITIES

about 20 billion m<sup>3</sup> of rainwater sluiced from municipalities of Europe annually, and about 760 bil m<sup>3</sup> sluiced from all continents annualy.

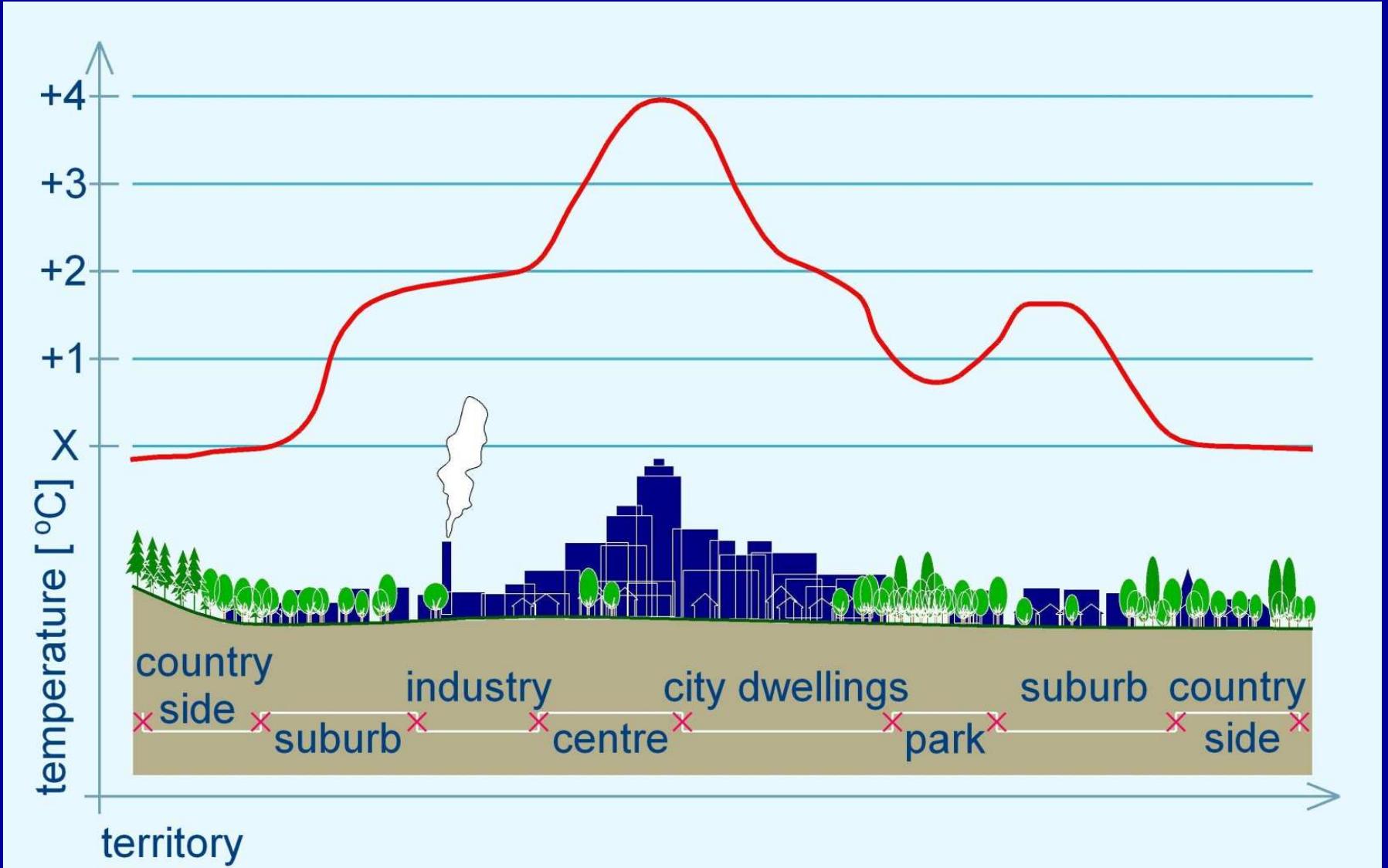


# ALTERATION OF RIVERS

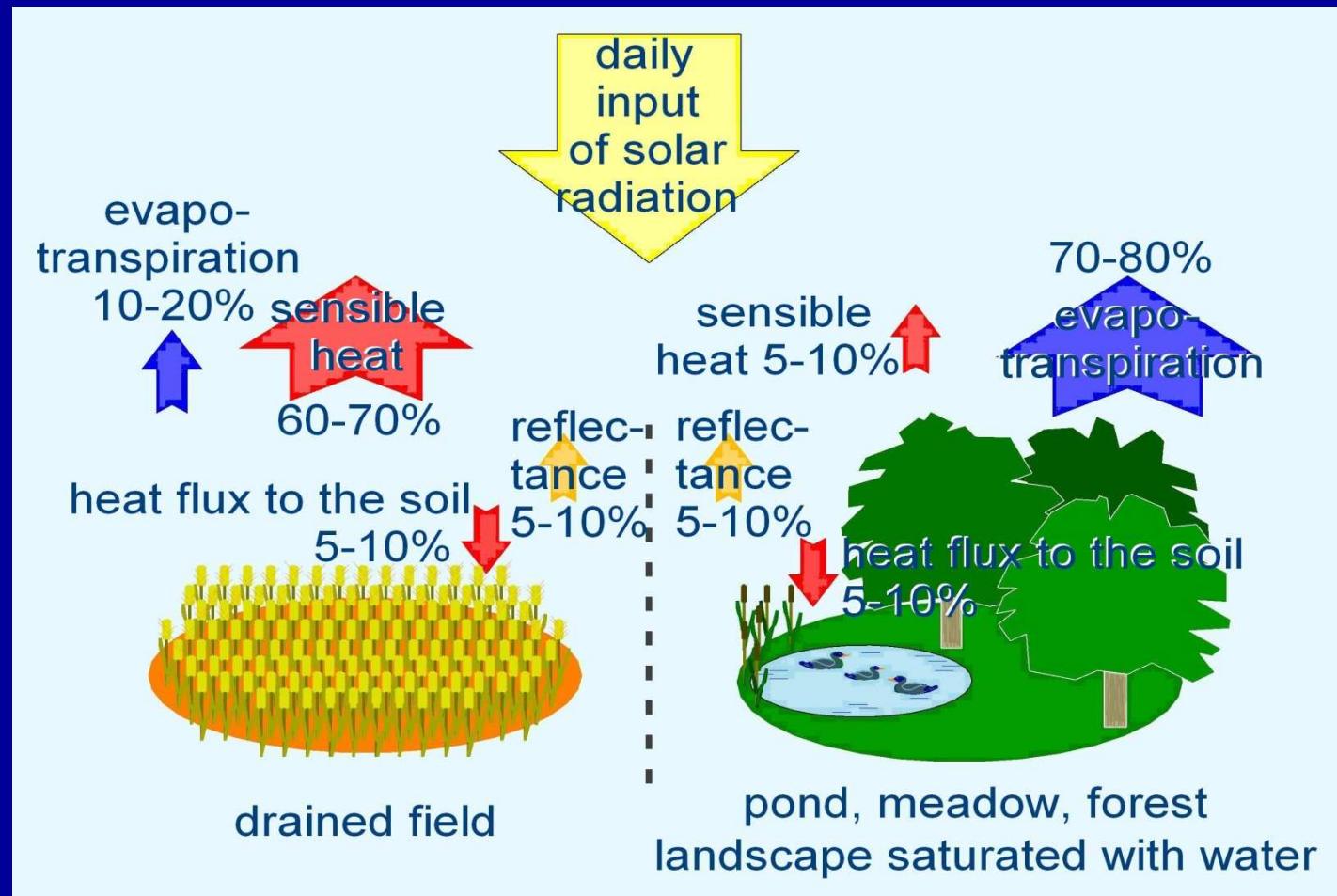
- natural meanders removed
- adjacent swamps drained
- shortening length increases slope
- acceleration of runoff
- lowering land's ability to retain water



# HEAT ISLANDS OVER DRY and HOT LANDSCAPE

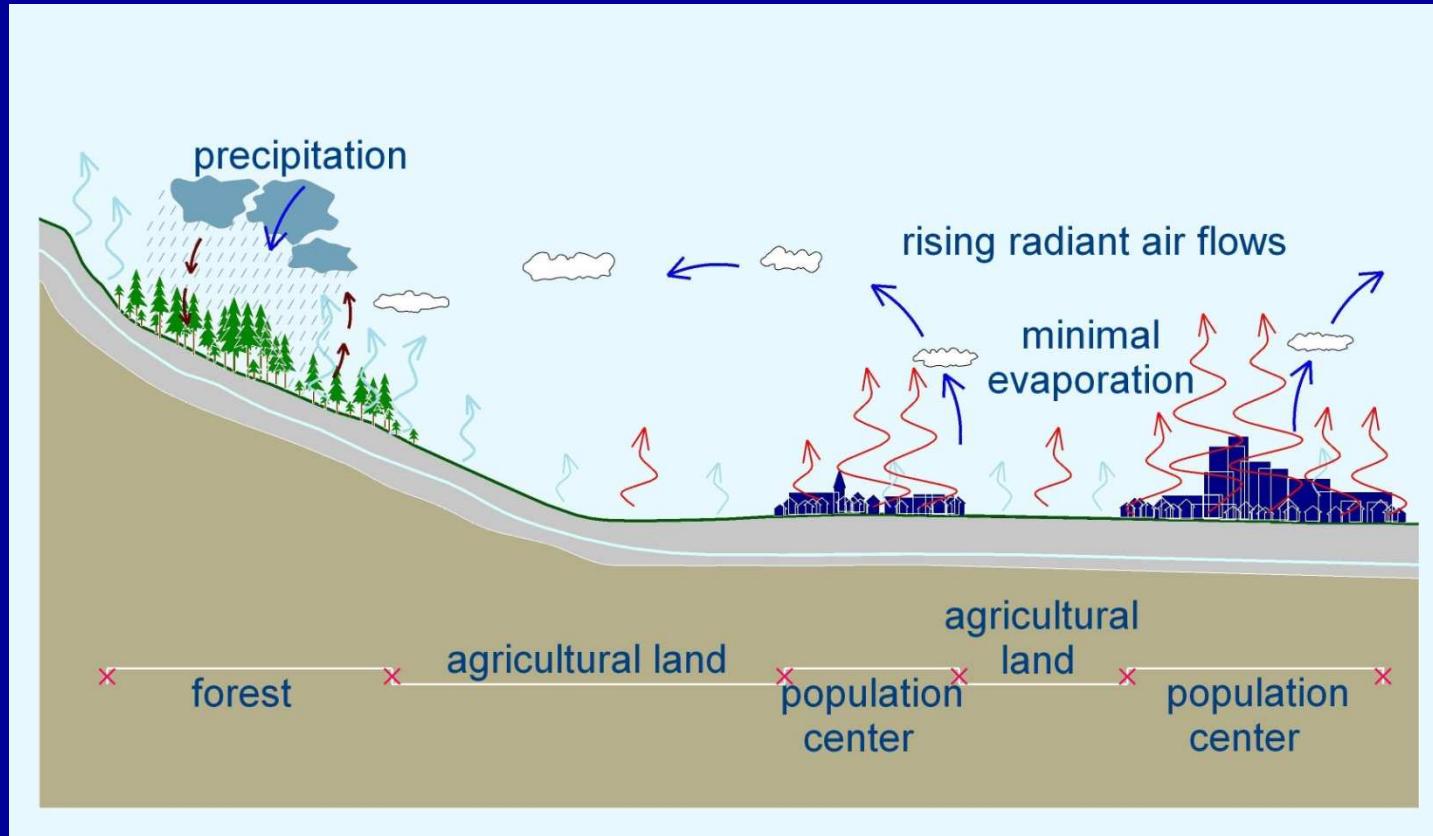


# DISTRIBUTION OF SOLAR ENERGY



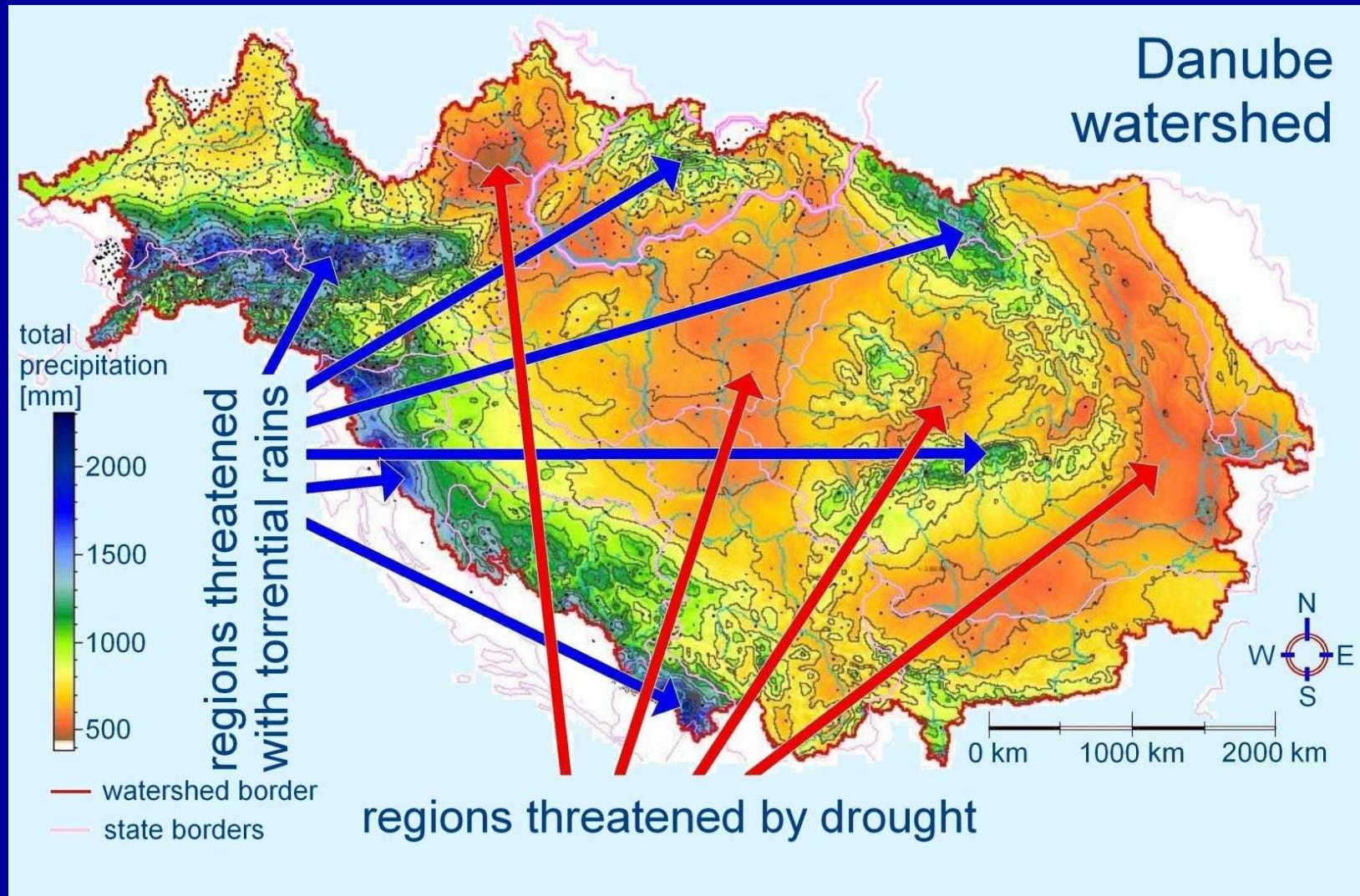
Dry land: Most solar energy is changed into *sensible heat*,  
Wet land: Most solar energy is consumed on vapor water from landscape

# IMPACTS ON WEATHER / CLIMATE



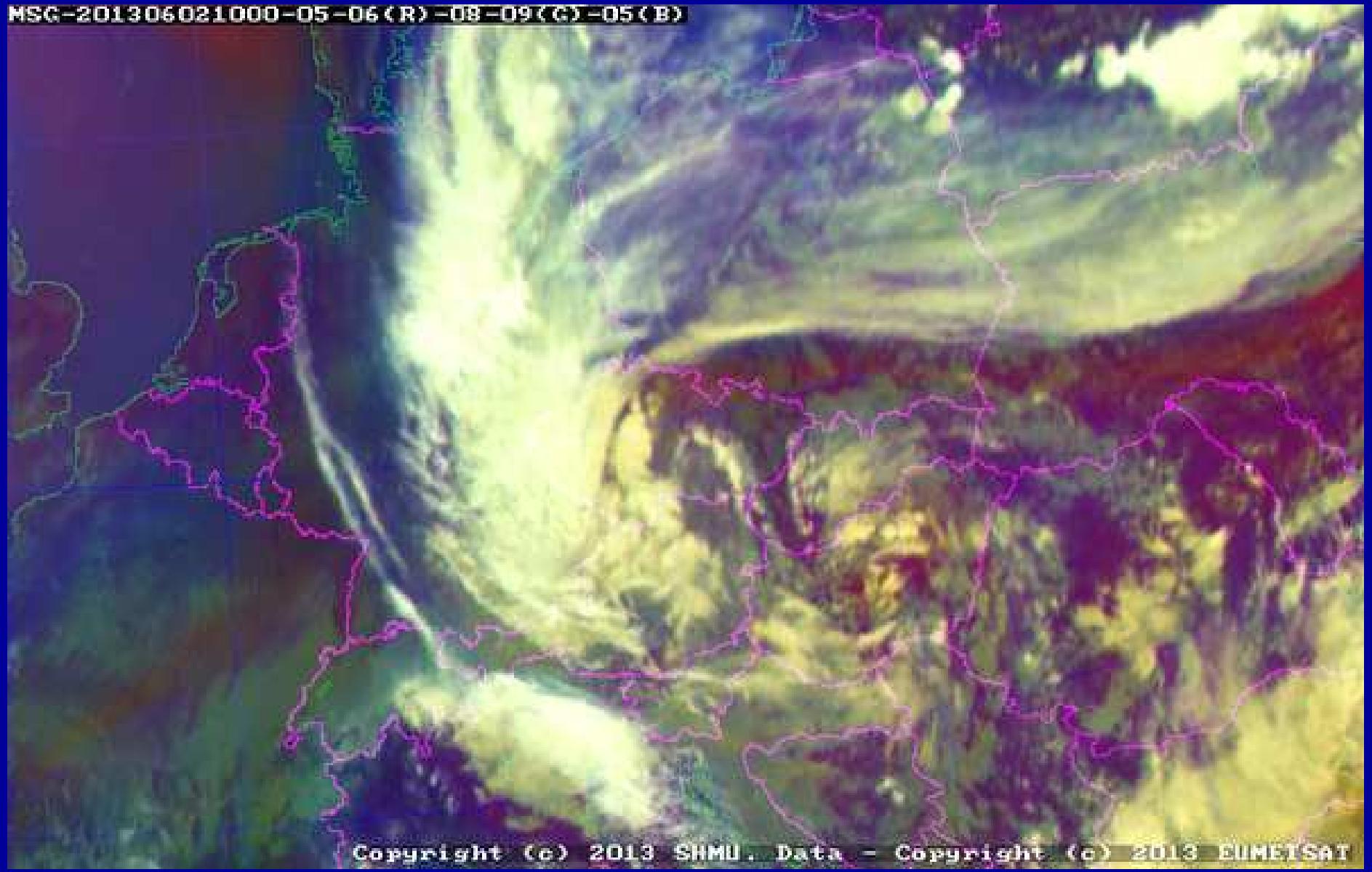
Frequency of droughts and  
floods increasing

# PRECIPITATION IN MOUNTAINS AND LOWLANDS – DANUBE WATERSHED



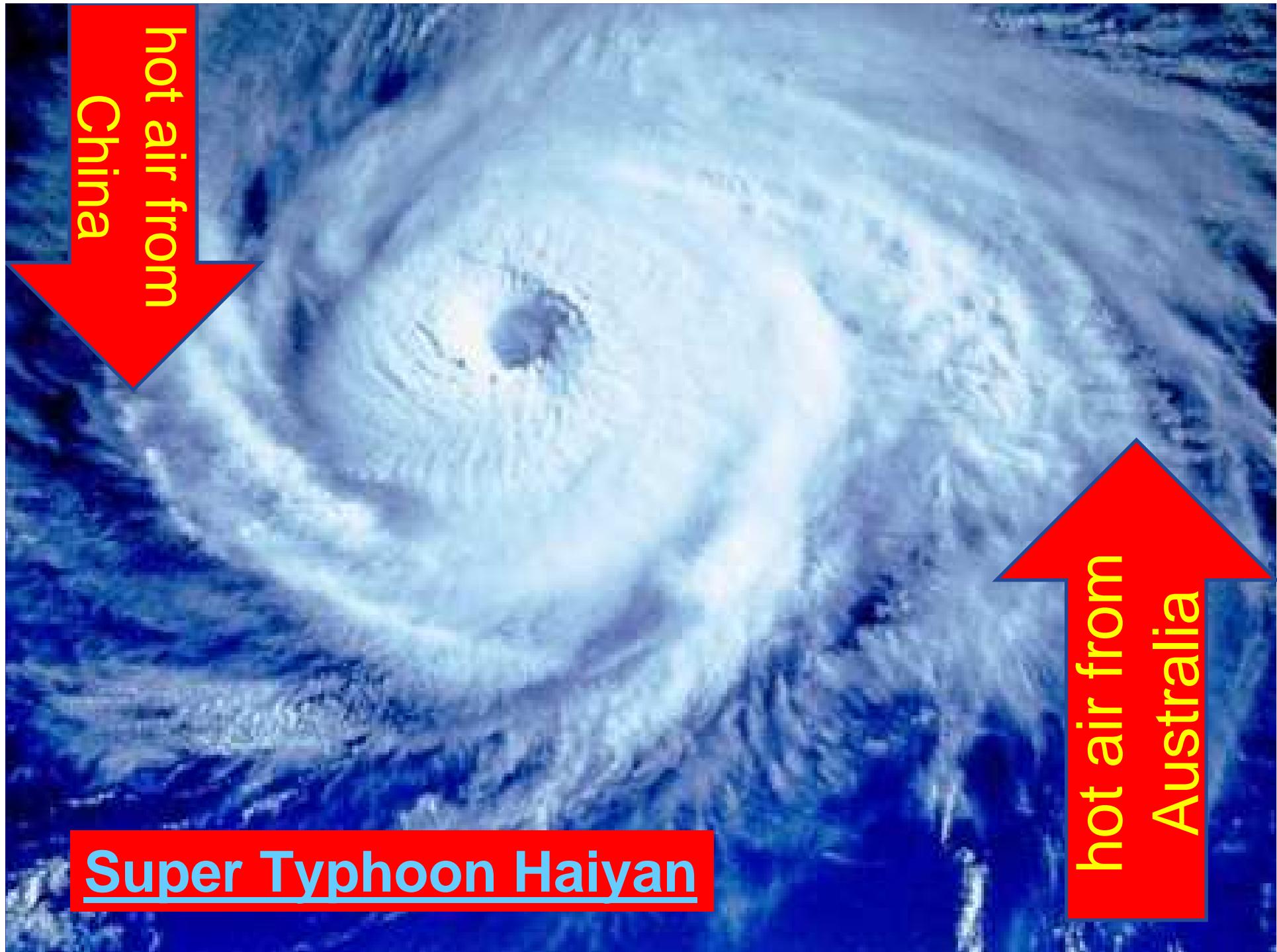
# Central Europe 2012

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



Copyright (c) 2013 SHMU. Data - Copyright (c) 2013 EUMETSAT





Super Typhoon Haiyan

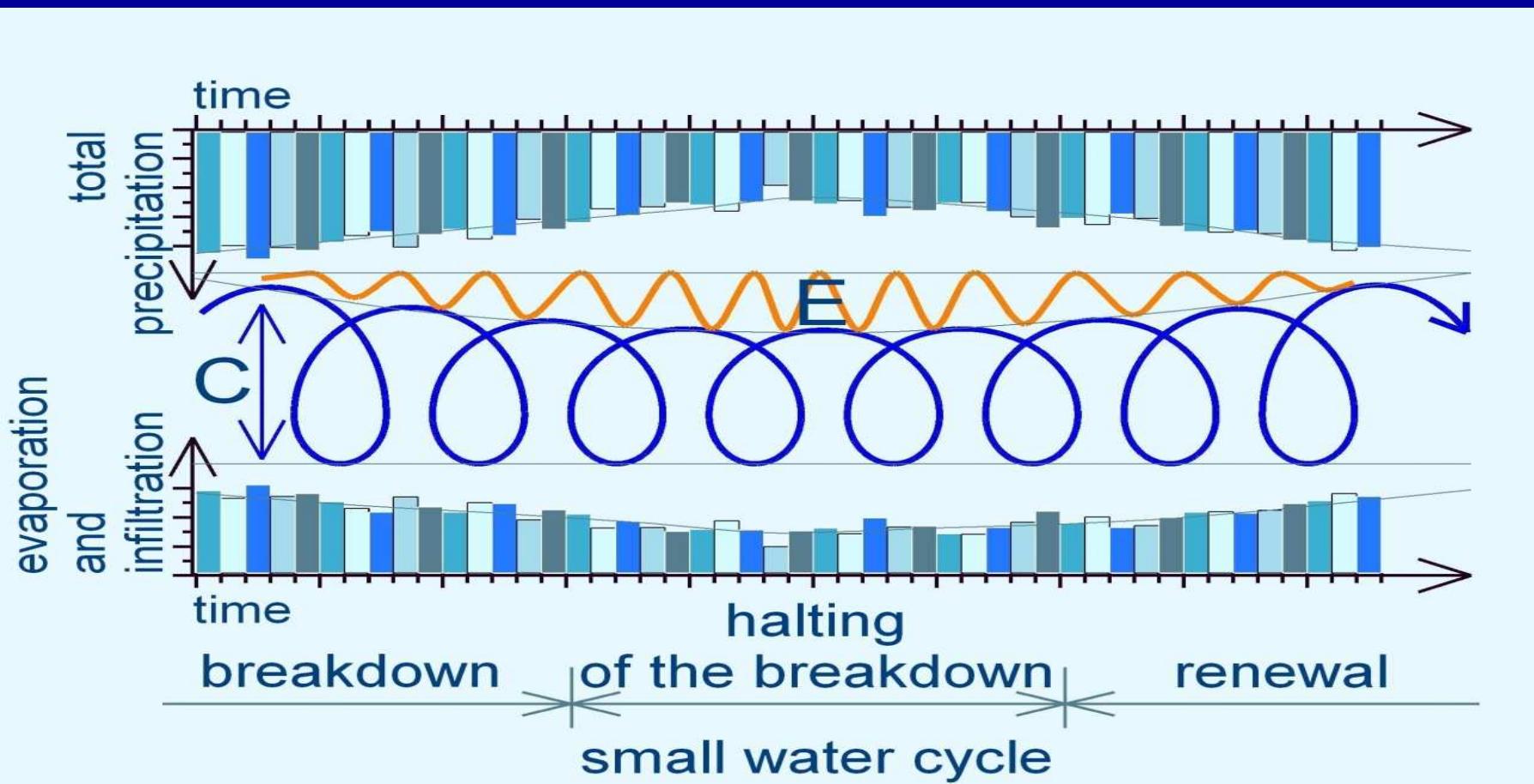
# **South Dakota, July 2012**



An aerial satellite image showing the eye of Hurricane Sandy over the Atlantic Ocean. The eye is a bright white circle, surrounded by a distinct eye wall. The surrounding clouds are textured and swirling, transitioning from light grey to dark blue. The coastline of North America is visible in the bottom left, appearing as a dark green and brown area. The ocean beyond the storm is a deep blue.

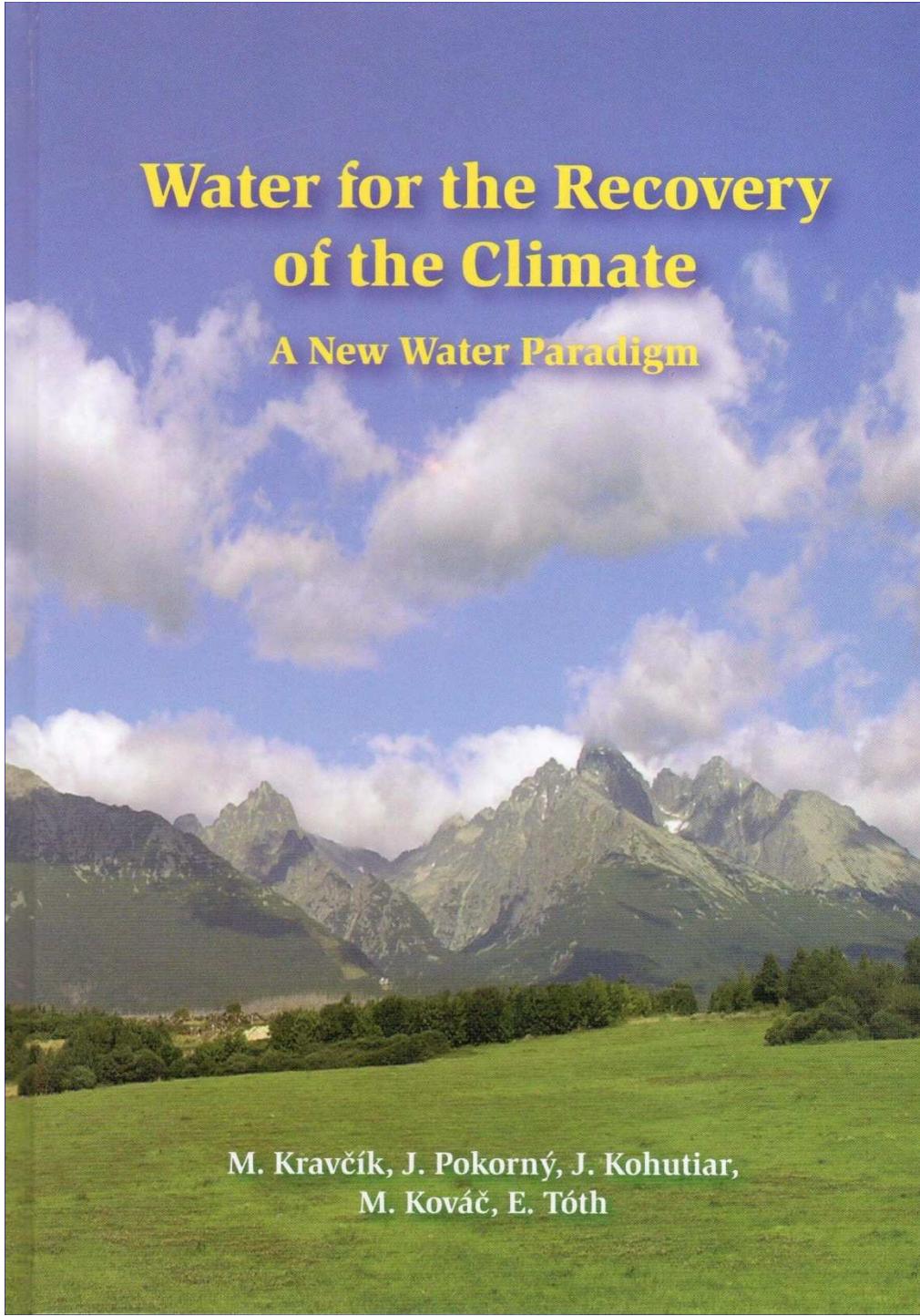
# Superstorm Sandy

# DESTRUCTION AND RENEWAL OF SMALL WATER CYCLE



**C** - diagram of the circulation of water on land

**E** - diagram of extreme weather events



# **Water for the Recovery of the Climate**

**A New Water Paradigm**

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

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

## **OLD WATER PARADIGM**

protects surface water  
as the main source  
and reserve of water

## **NEW WATER PARADIGM**

protects rainwater as in  
ecosystem is the  
main reserve of water

[www.waterparadigm.org](http://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](http://www.waterparadigm.org)

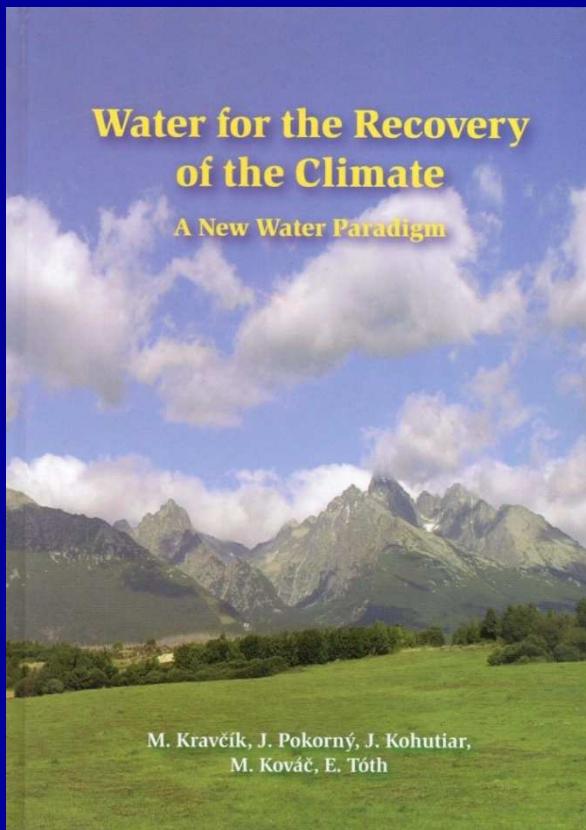
## **OLD WATER PARADIGM**

Water experts are  
responsible for  
catchment  
management

## **NEW WATER PARADIGM**

Communities are  
responsible for  
catchment  
management

# **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](http://www.ourclimate.eu)

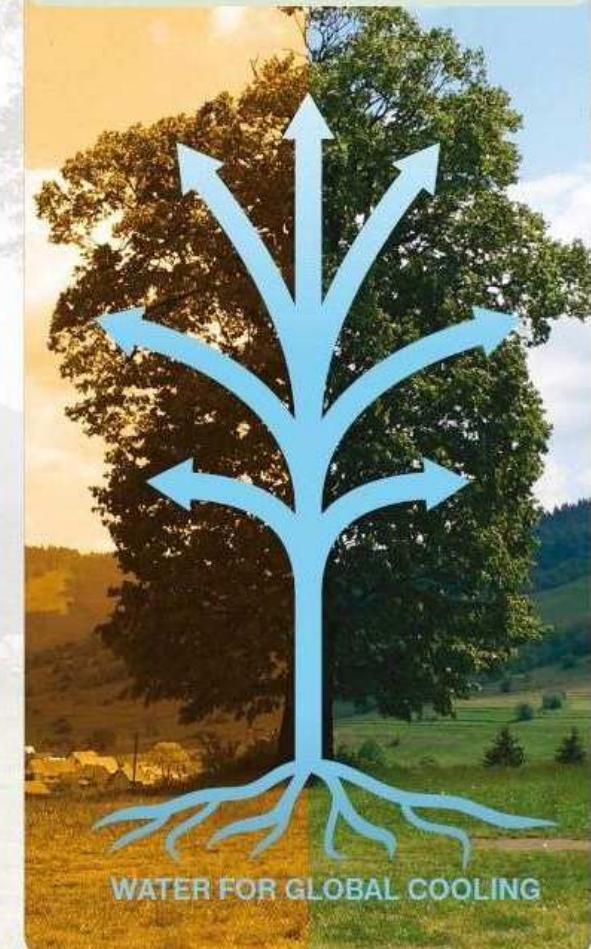
**Contact in Copenhagen:**

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Mobile phone: +421 905 482 099

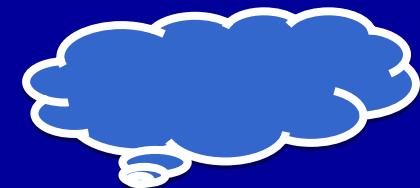
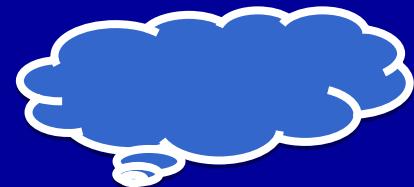
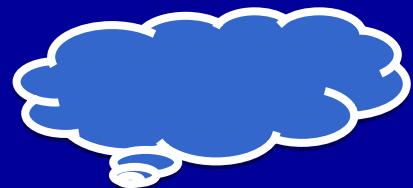
## **WATER, VEGETATION AND CLIMATE CHANGE**

Košice Civic Protocol  
(addressed to COP15 - Copenhagen)



# NEW WATER DEAL

more clouds



more soft rain

higher air humidity



more evaporation from lands

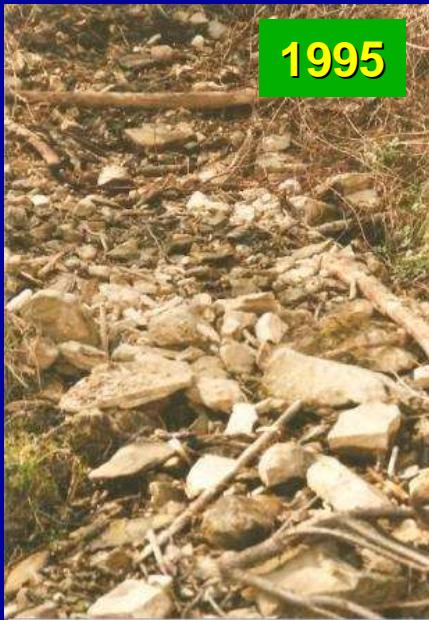
**more vegetation and biodiversity**

more groundwater recharge

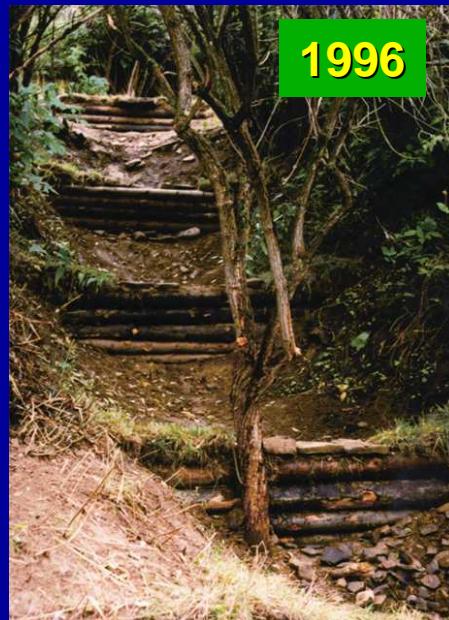
# **THE NEW WATER DEAL for BLUE PLANET**

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

## BLUE ALTERNATIVE



1995



1996



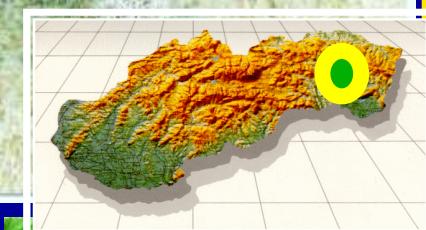
1997



2009



2012



# Flood protection Waterholding, High Tatras, Slovakia



2005



2006



2007



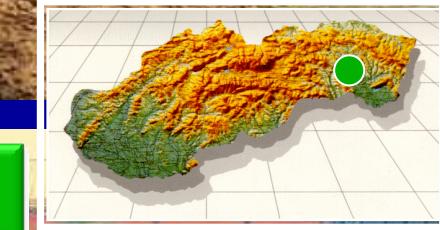
2008



November, 28<sup>th</sup> 2005



June, 6<sup>th</sup> 2006



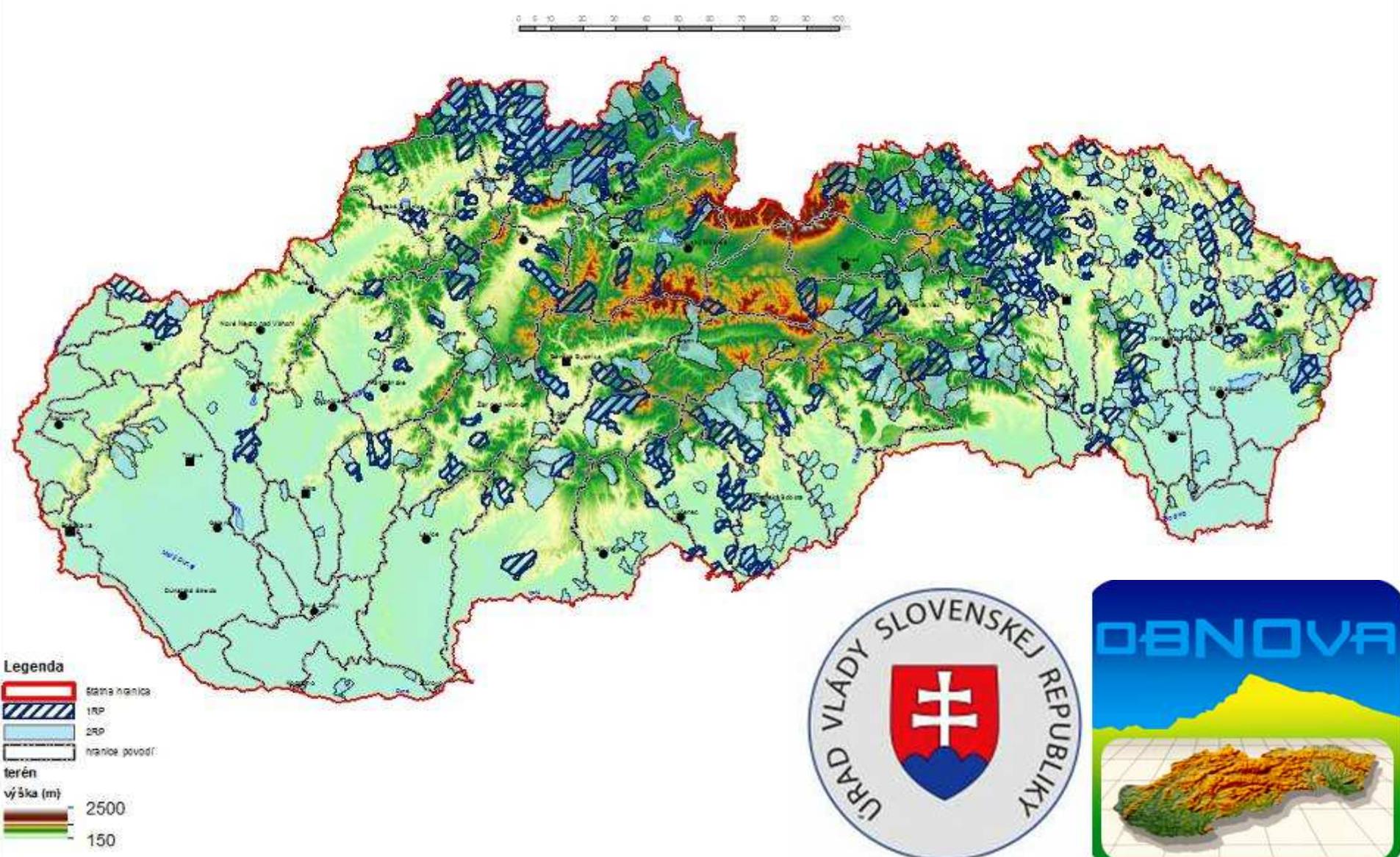
June, 30<sup>th</sup> 2006



September, 16<sup>th</sup> 2006

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

# 488 communities involved in the Government Landscape Restoration Program in 2011



**ŤAHANOVCE**





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. m<sup>3</sup> of waterholdings
3. More than 8.000 jobs for poor people

# Hydro-Climate Recovery

Rainwater Storage in damaged landscape



LIFE11 ENV/SK/1019,



## Legenda

Využitie územia

- TTP a ostatné plochy
- les
- orná pôda

miestna komunikácia  
ostatné komunikácie  
toky  
suché toky

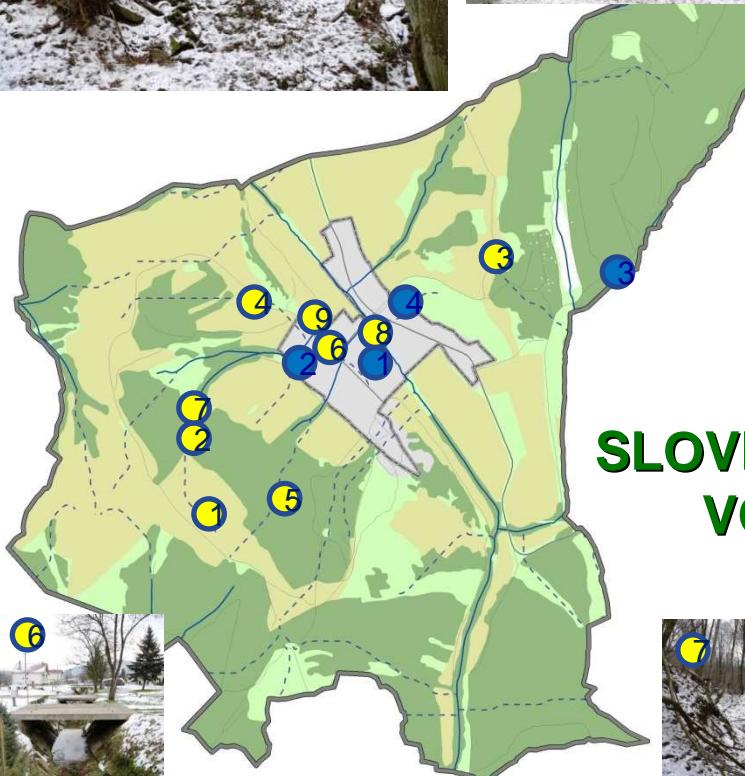
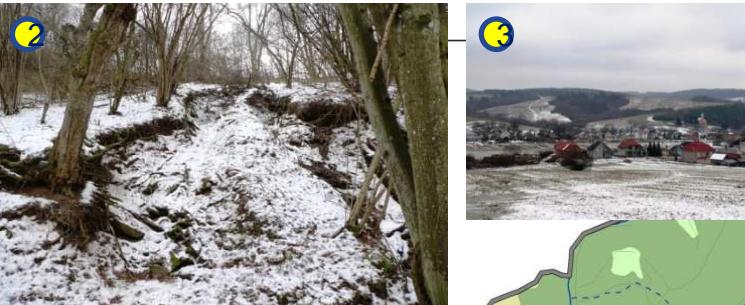
Administratívne hranice

- hranica obce
- zastavané územie obce

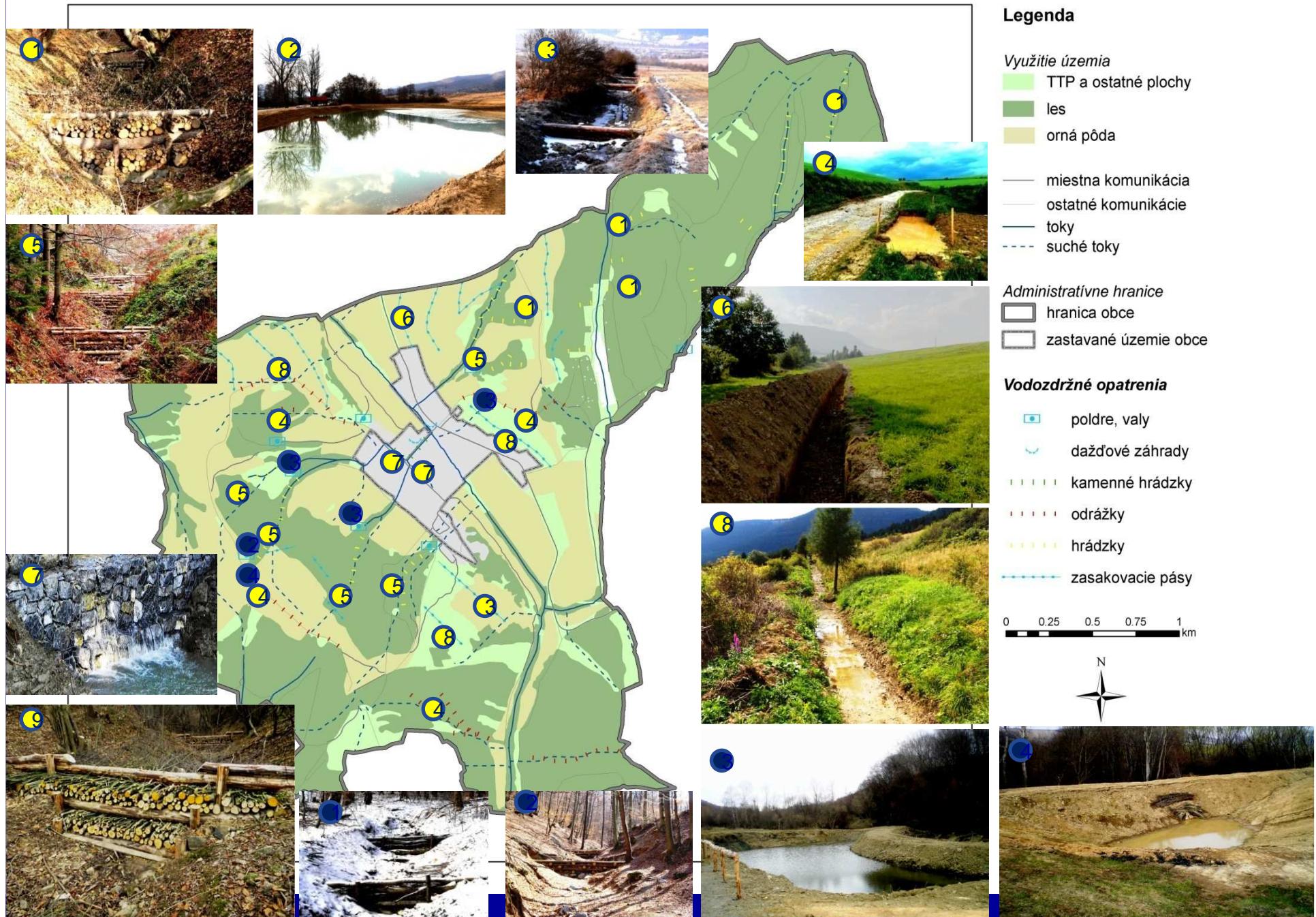
0 0,25 0,5 0,75 1 km



# SLOVENSKÁ VOLOVÁ



## Slovenská Volová



# One village - SLOVENSKÁ VOLOVÁ

- 142 soft measurements
- 8 unemployments
- 5 months

Image © 2014 CNES / Astrium  
© 2014 Google

Google earth

# 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

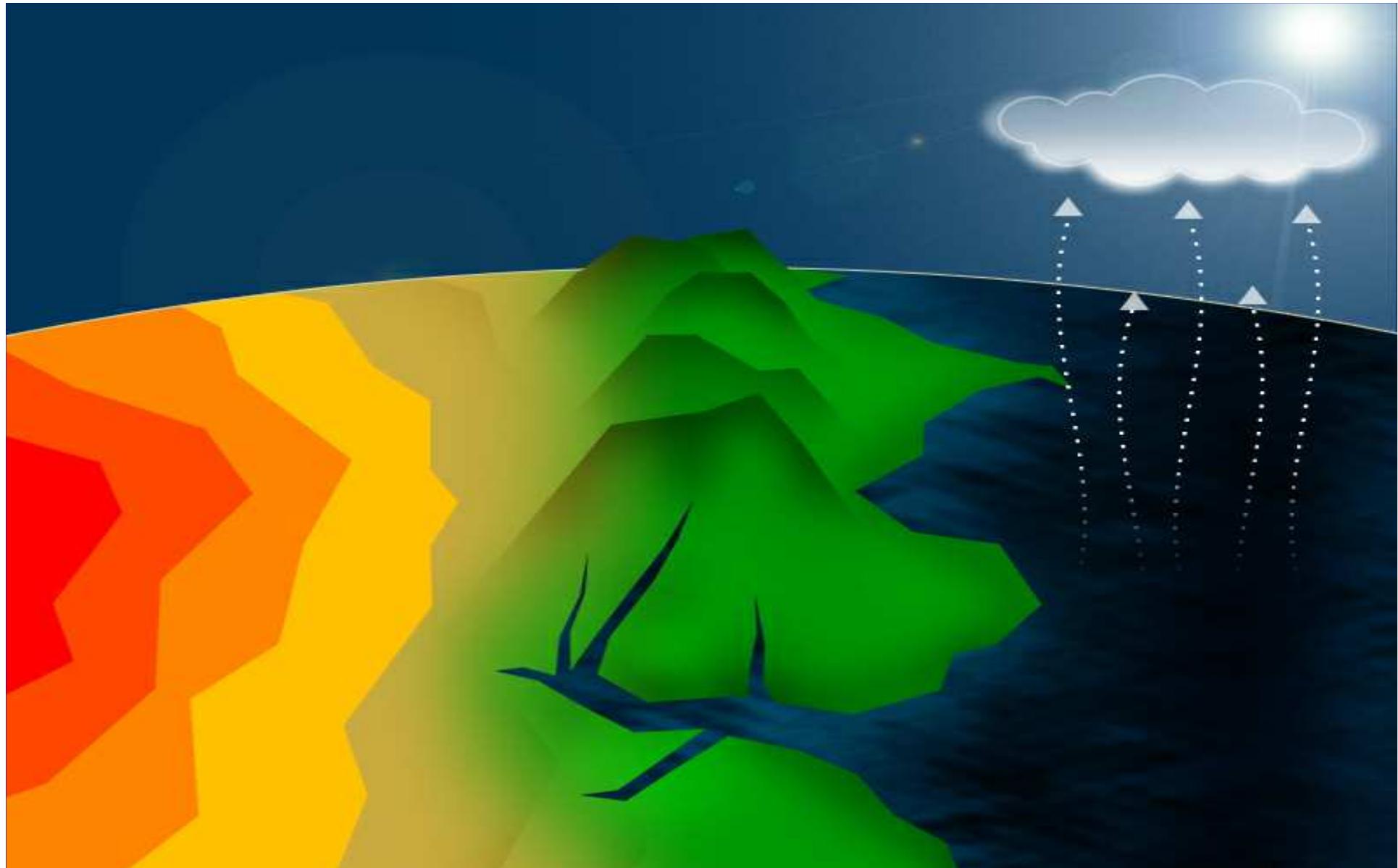


# Solution for urban area



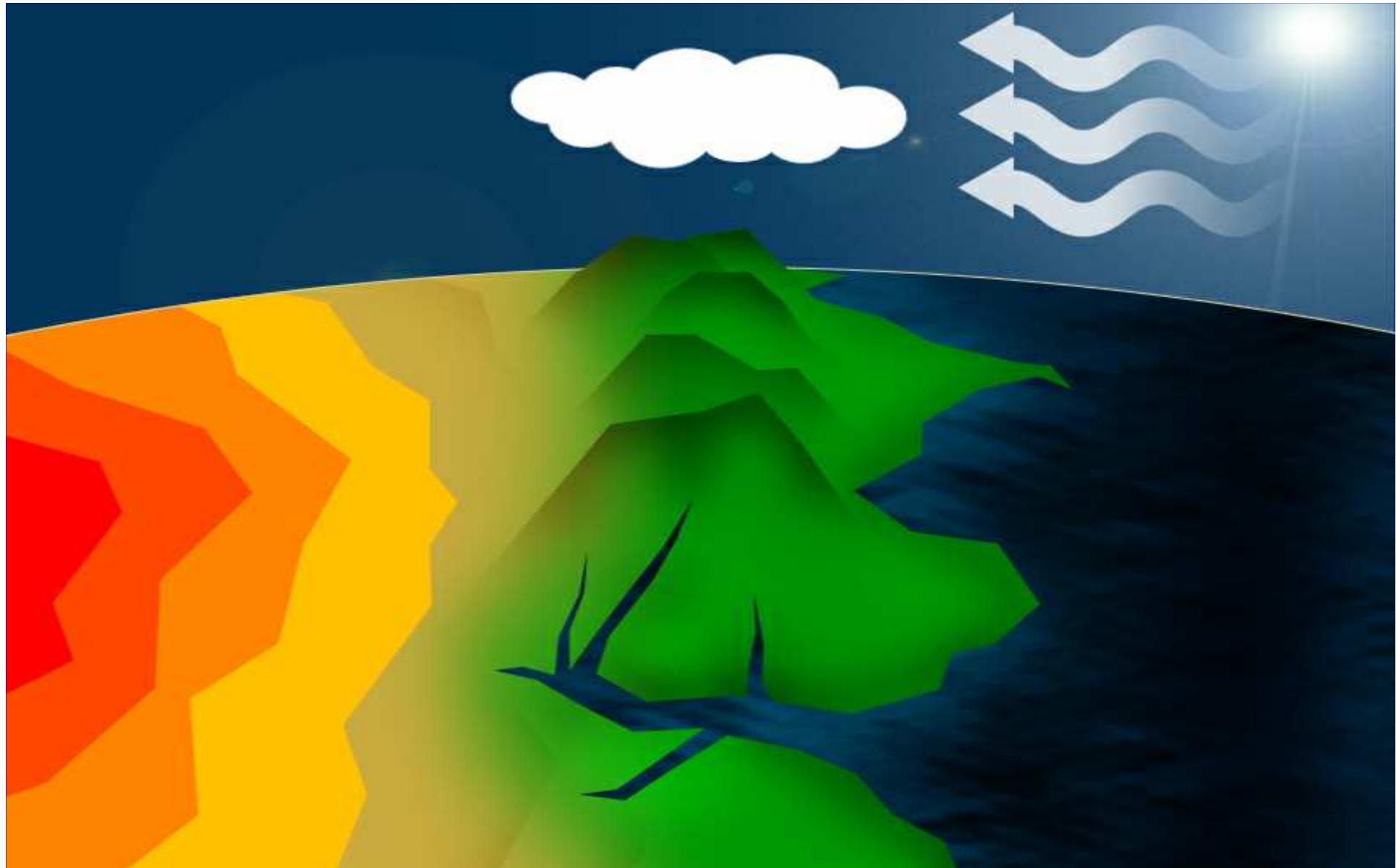
# Rain gardens for urban zones





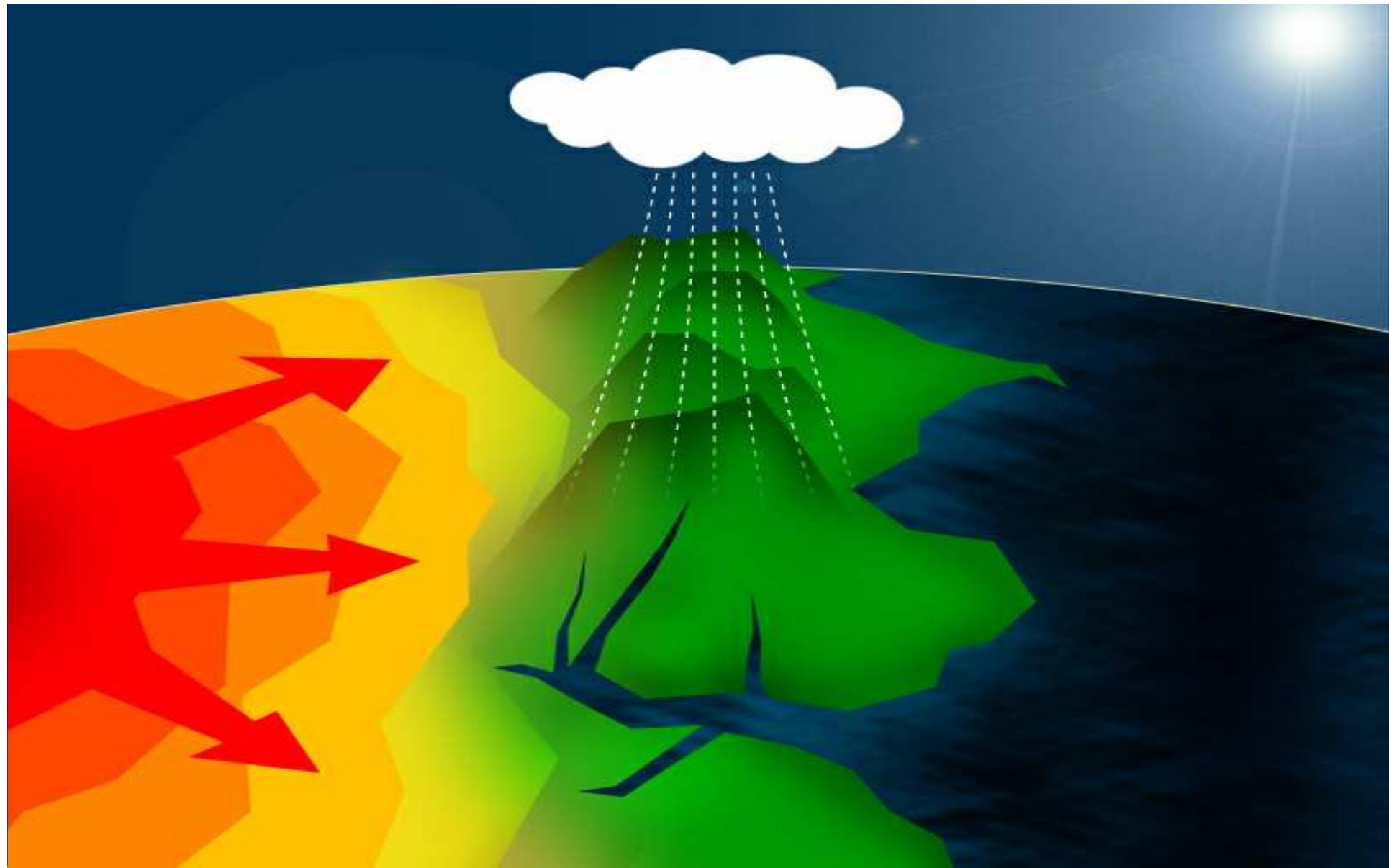
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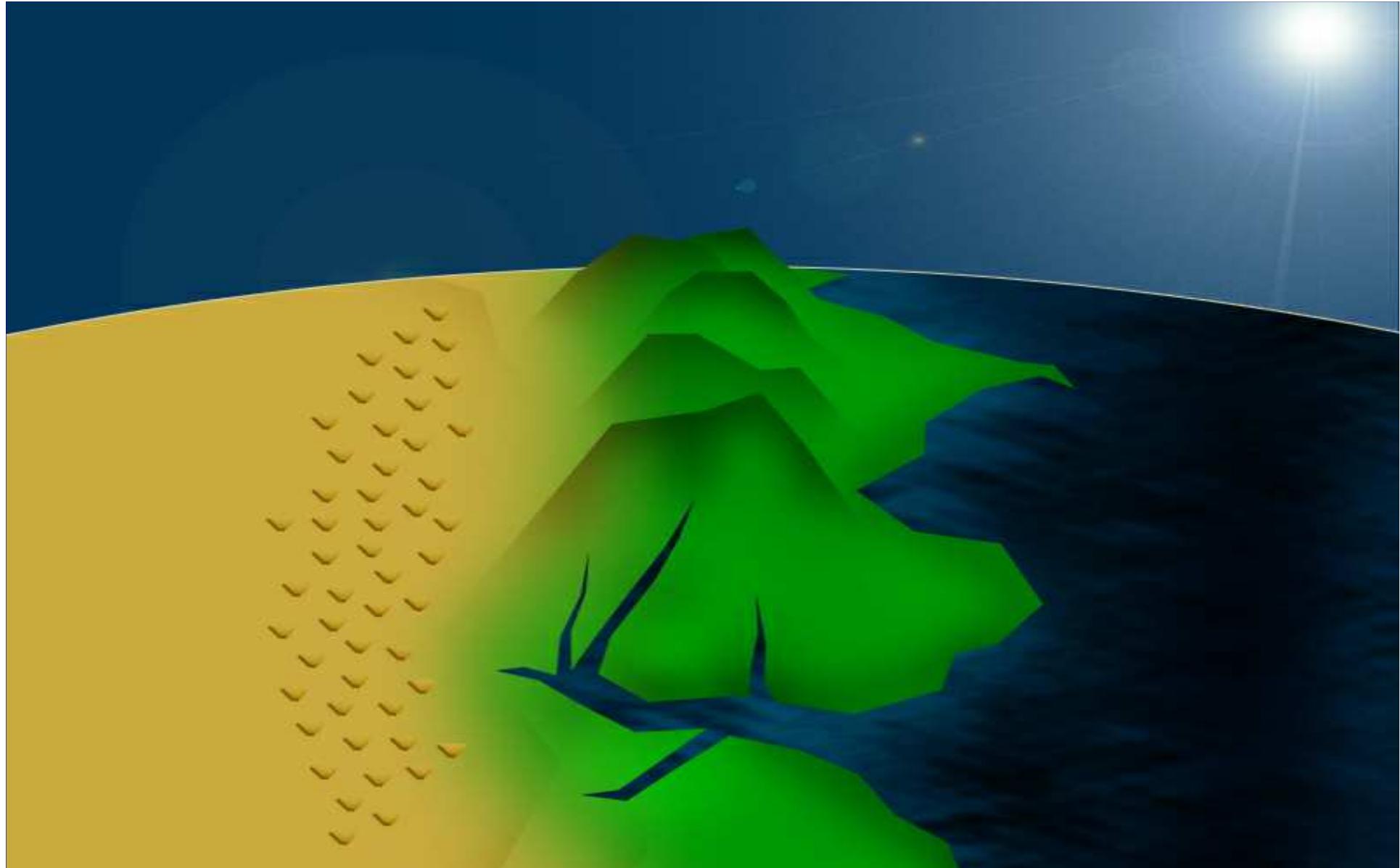
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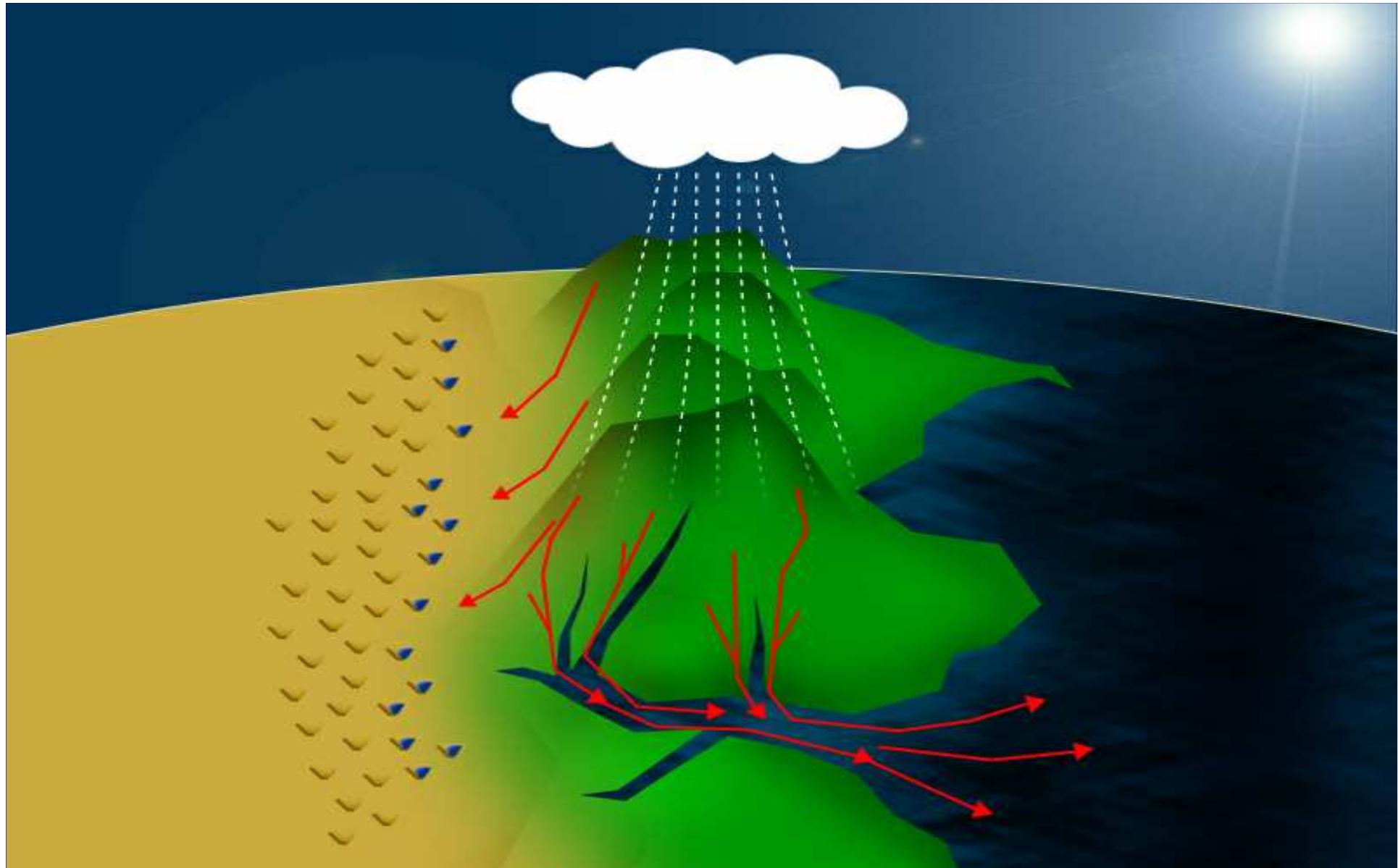
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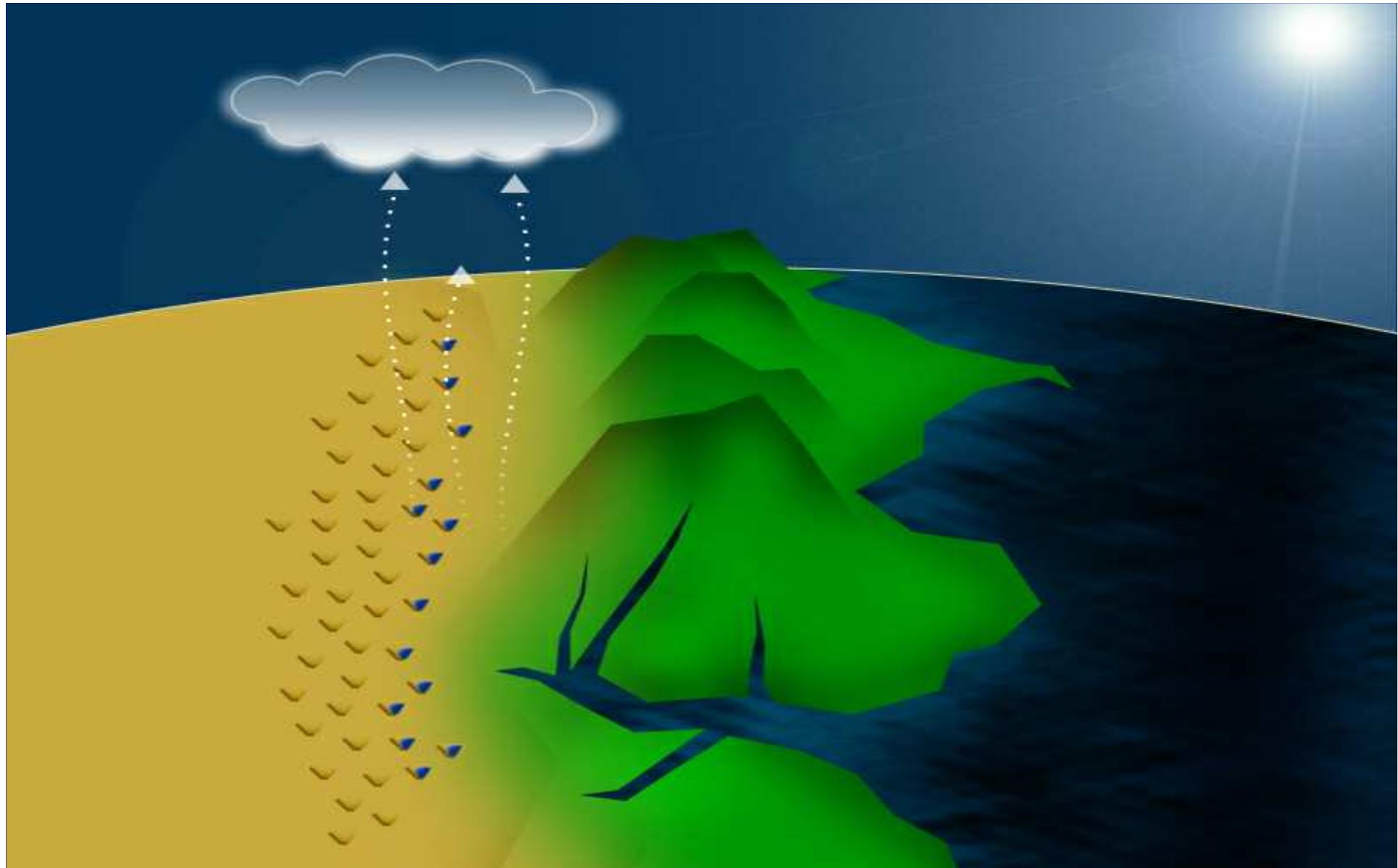
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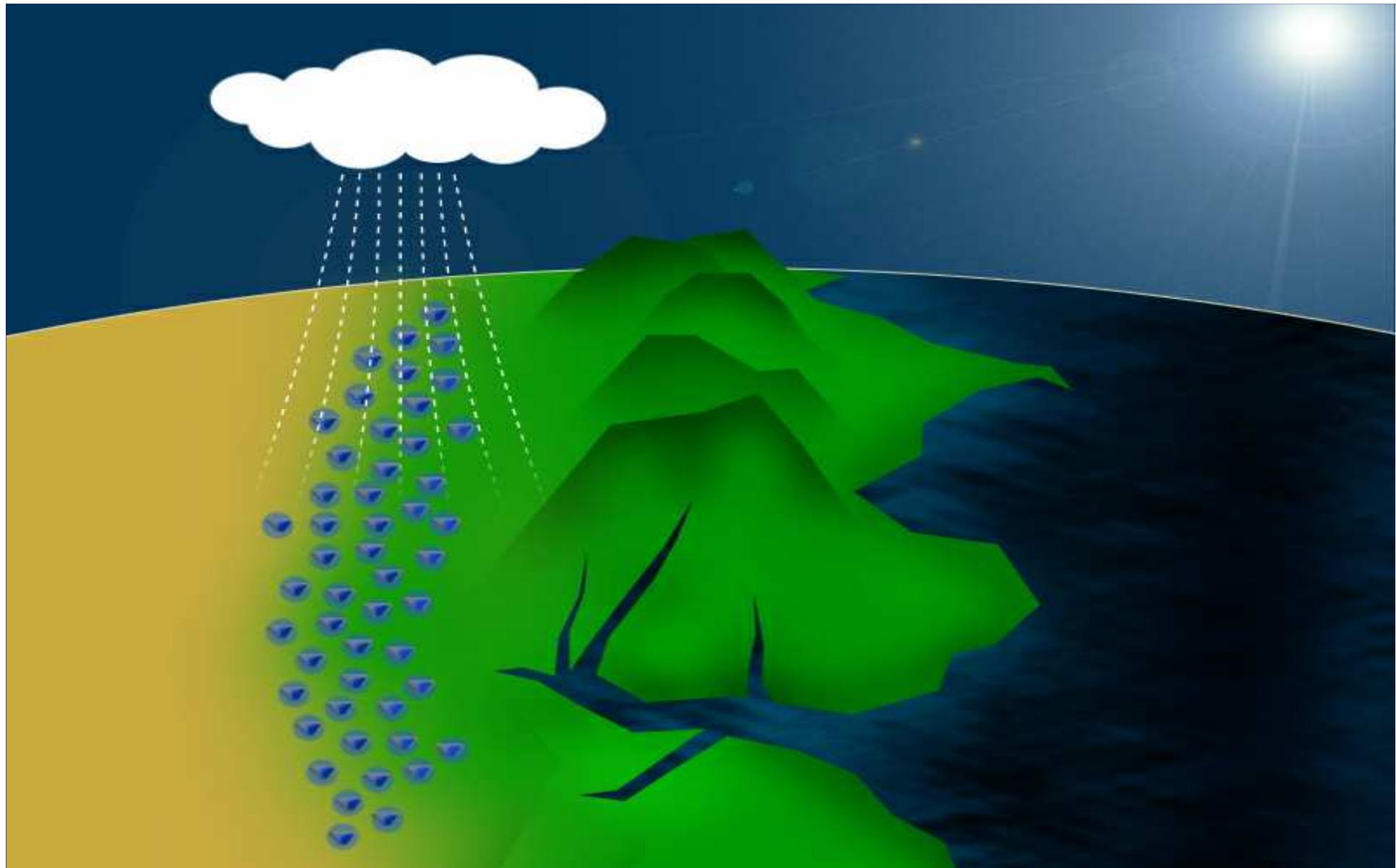
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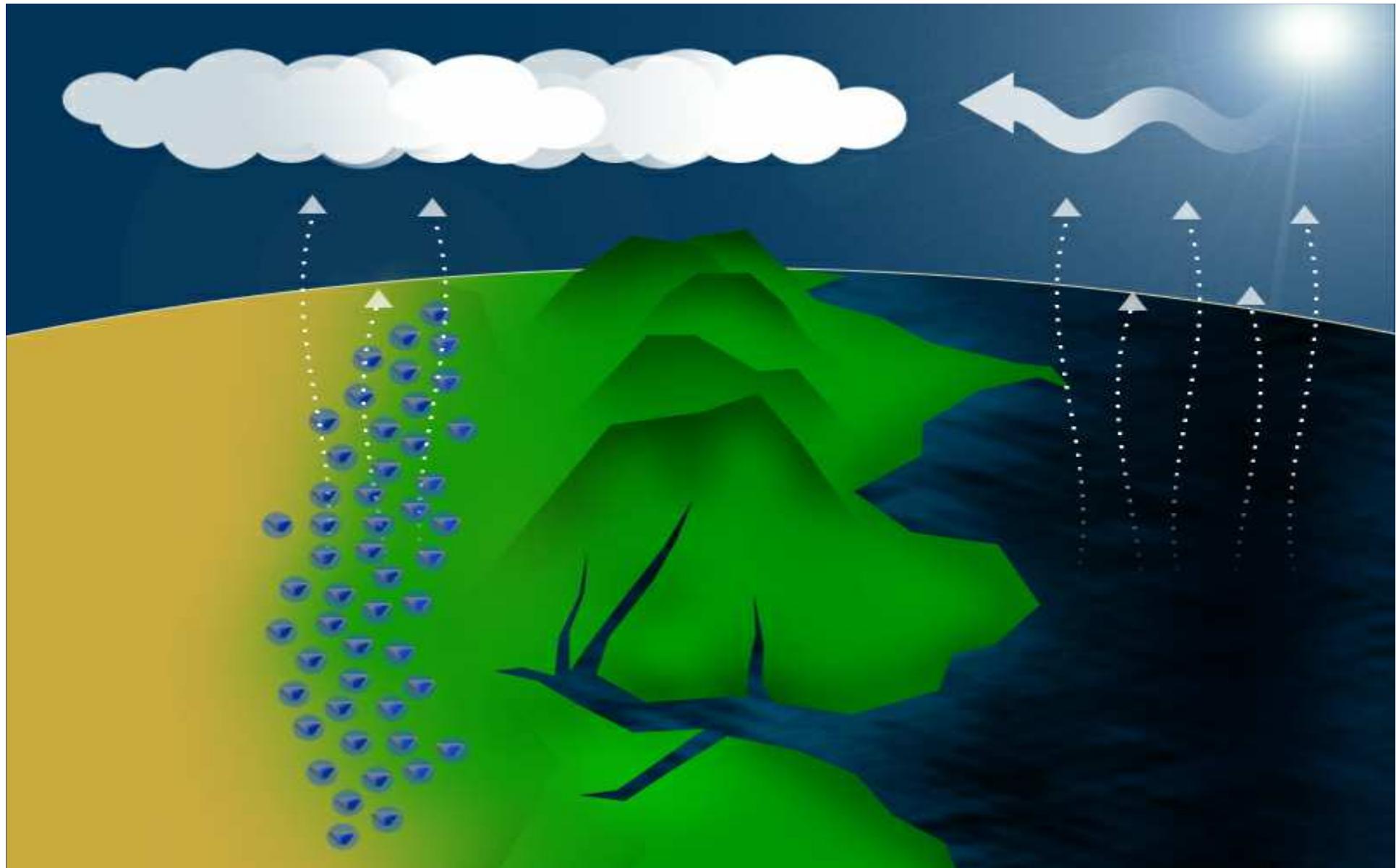
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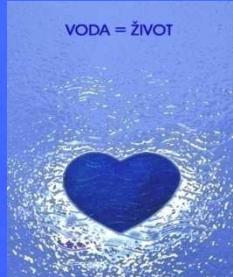
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**THANKS!  
ĎAKUJEM**



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