



**The Abdus Salam
International Centre for Theoretical Physics**



1867-15

College of Soil Physics

22 October - 9 November, 2007

Desertification: research priorities in drylands 2

Donald Gabriels
*Dept. Soil Management
Ghent University
Belgium*

EREMOLOGY

EREMOS= desert

STUDY OF DRYLANDS
International Centre for Eremology

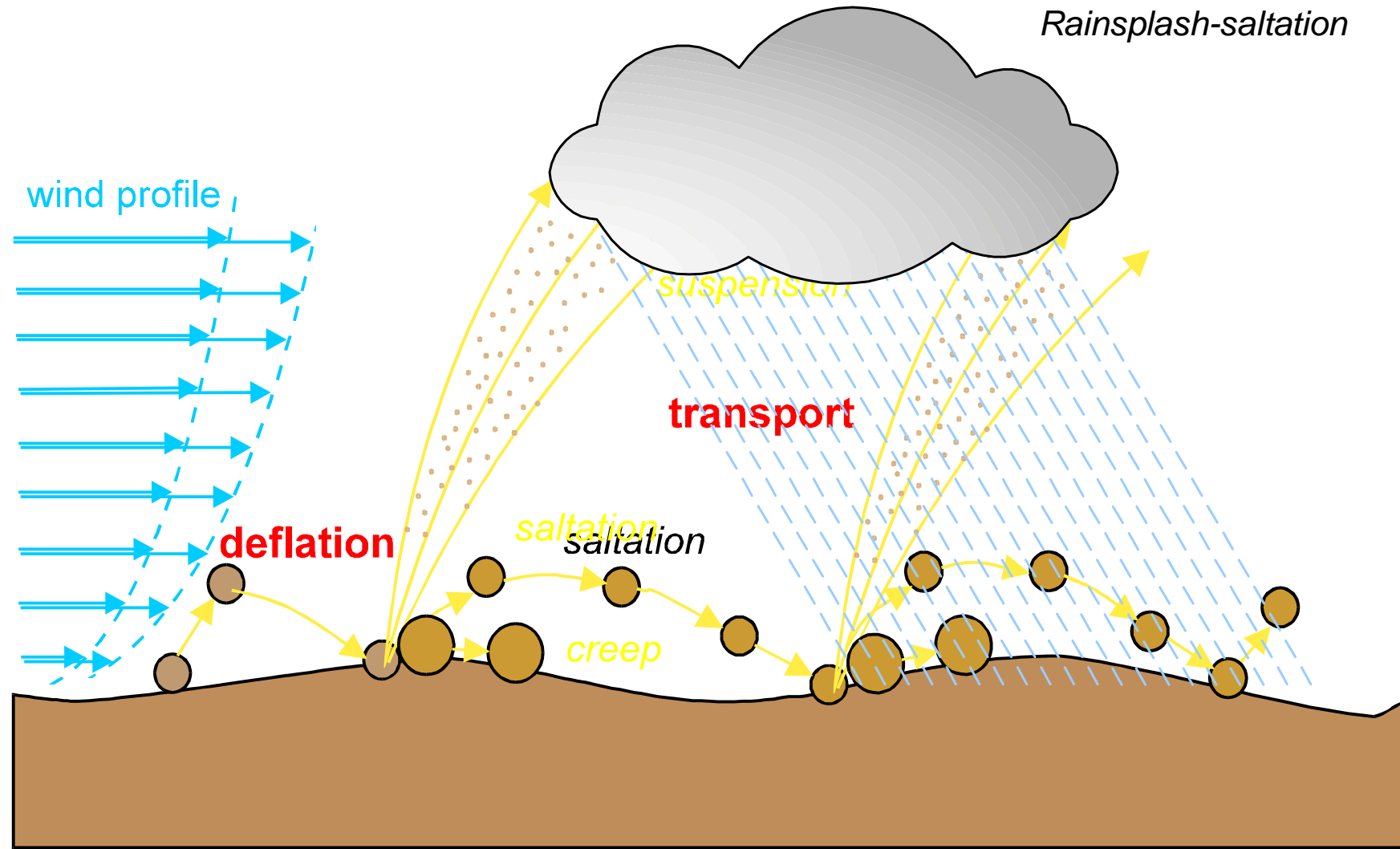
wind tunnel/ rainfall simulation

Donald Gabriels

Research in the wind tunnel of the International Centre for Eremology, UGent, Belgium



Erosion by wind/rain – How?



DESERTIFICATION

The Earth Summit (UN, Rio de Janeiro, 1992) defined
and

The General Assembly of UN (Paris, 1994) approved
the *definition of DESERTIFICATION* :

*‘Desertification is land degradation in arid,
semi-arid and dry sub-humid areas
resulting from climatic variations and
human activities’*



The term "dry lands" has been adopted by the United Nations Convention to Combat Desertification (UNCCD) to describe those areas where soil degradation must be attended to and where methods to achieve sustainable development must be encouraged, considering their ecological fragility.

DRY LANDS

Hyper arid zones,
Arid zones,
Semi-arid zones and
Dry sub-humid
zones



DRYLAND ZONES

Hyper-arid zones (environments)

Arid zones

Semi-arid zones

Dry sub-humid zones

Traditional versus modern technology/ knowledge



Rainfed farming in southern Tunisia using water harvesting techniques

WAHIA-project

Water Harvesting Impact Assessment

in Zeus-Koutine, Tunisia



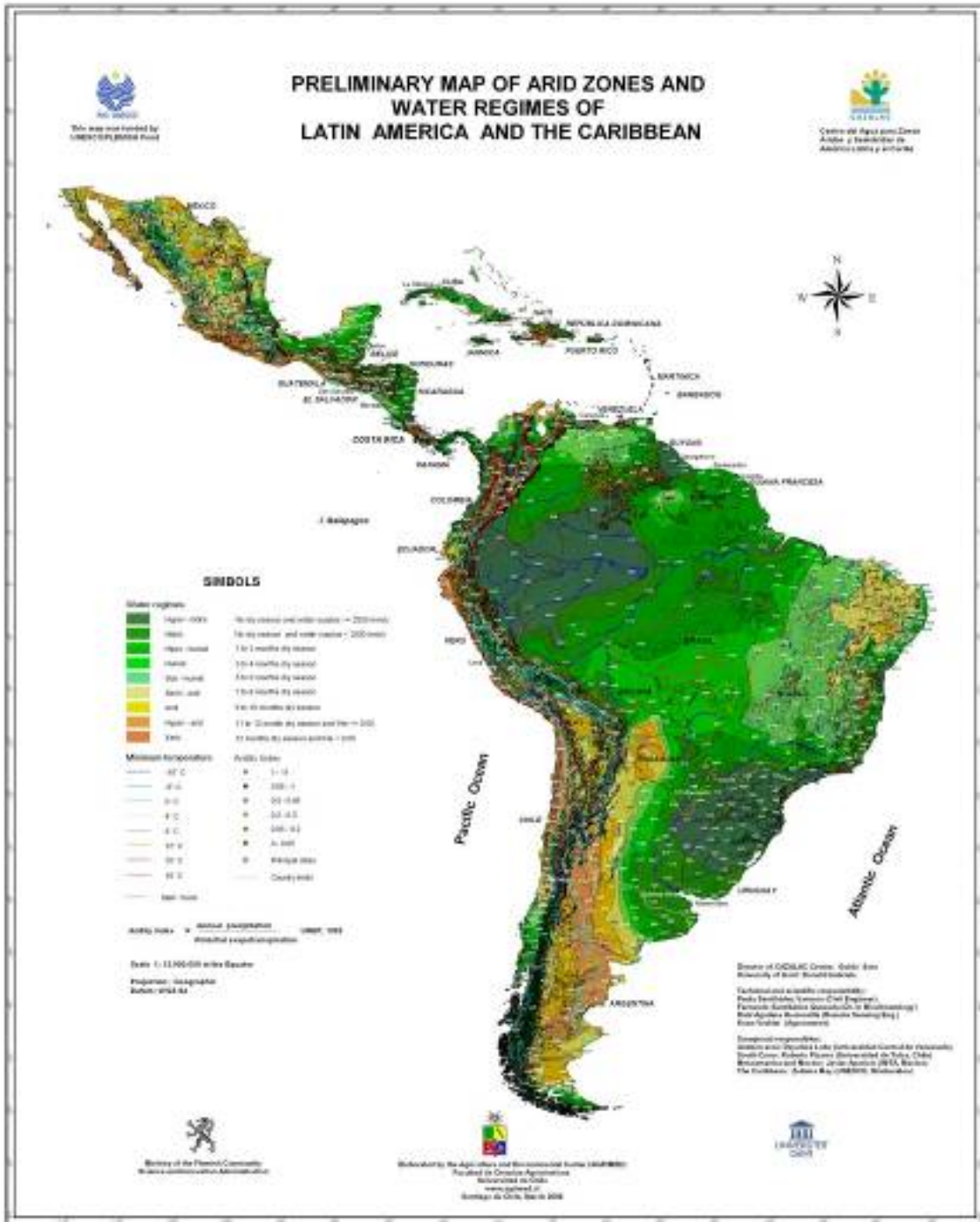
Capacity building of Latin-American and Caribbean centre of excellence for arid zone water management (Central Chile)





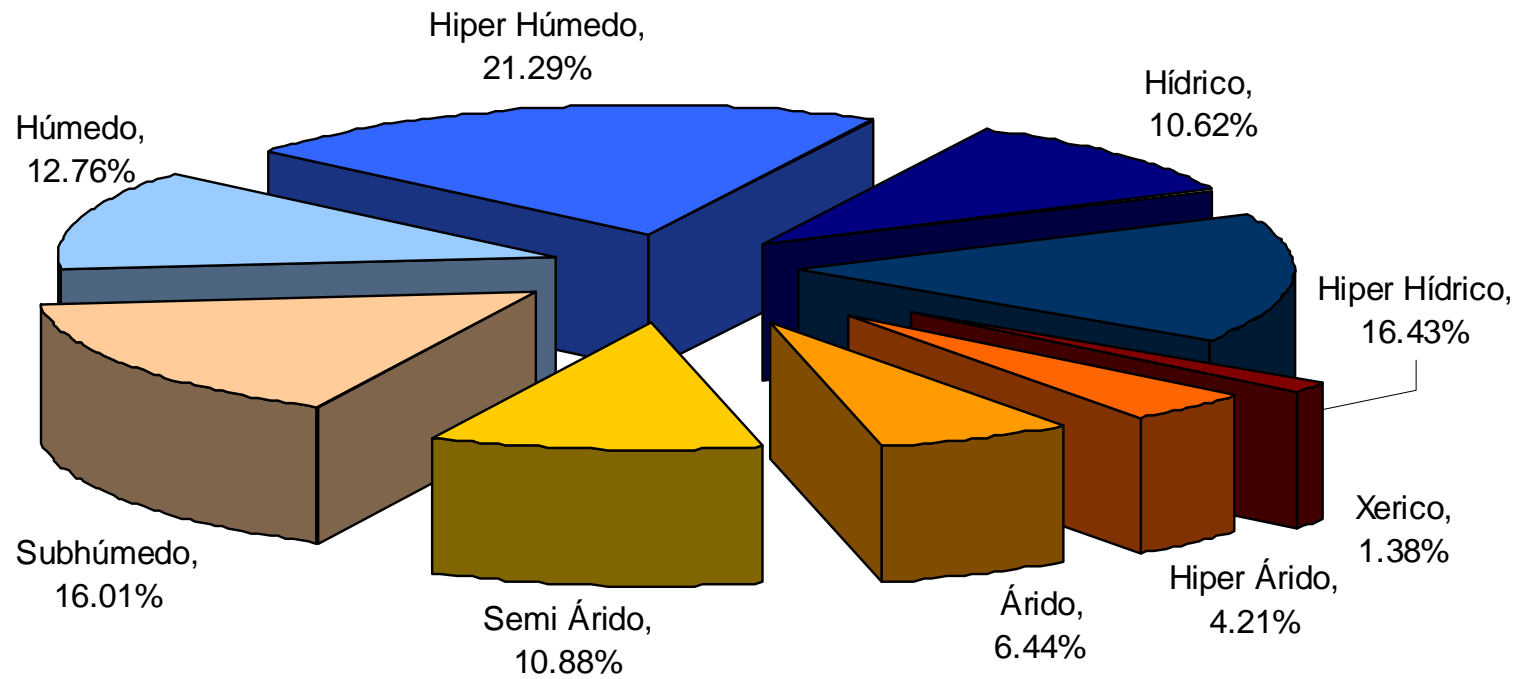
MAP of Aridity Zones in Latin America

Project CAZALAC
(Centro del Agua para Zonas
Áridas y Semiáridas de
América LATina y El Caribe),
La Serena, Chili



Area of Investigation

Project Arid Zones Mappings 8 millions km²



The effect of tillage on the soil moisture balance: a case study on the loess plateau of China



Conservation
tillage

Subsoiling

Two crops

No till

Reducing
tillage