



Vulnerable Mountains from Space

Harald Egerer – UNEP Vienna

Why Mountains?



Mt. Teide ~ Las Canarias

"Mountains are an important source of water, energy, and biological diversity. Furthermore, they are a source of such key resources as minerals, forest products and agricultural products and of recreation. As a major ecosystem representing the complex and interrelated ecology of our planet, mountain environments are essential to the survival of the global ecosystem."

-- *Agenda 21, Chapter 13, Managing Fragile Ecosystems: Sustainable Mountain Development*

.....and they're pretty !!



Mountain watch



environmental change
& sustainable development
in **mountains**



Global Environmental Change in Alpine Regions

RECOGNITION, IMPACT, ADAPTATION
AND MITIGATION



Edited by
Karl W. Steininger
and **Hannelore Weck-Hannemann**

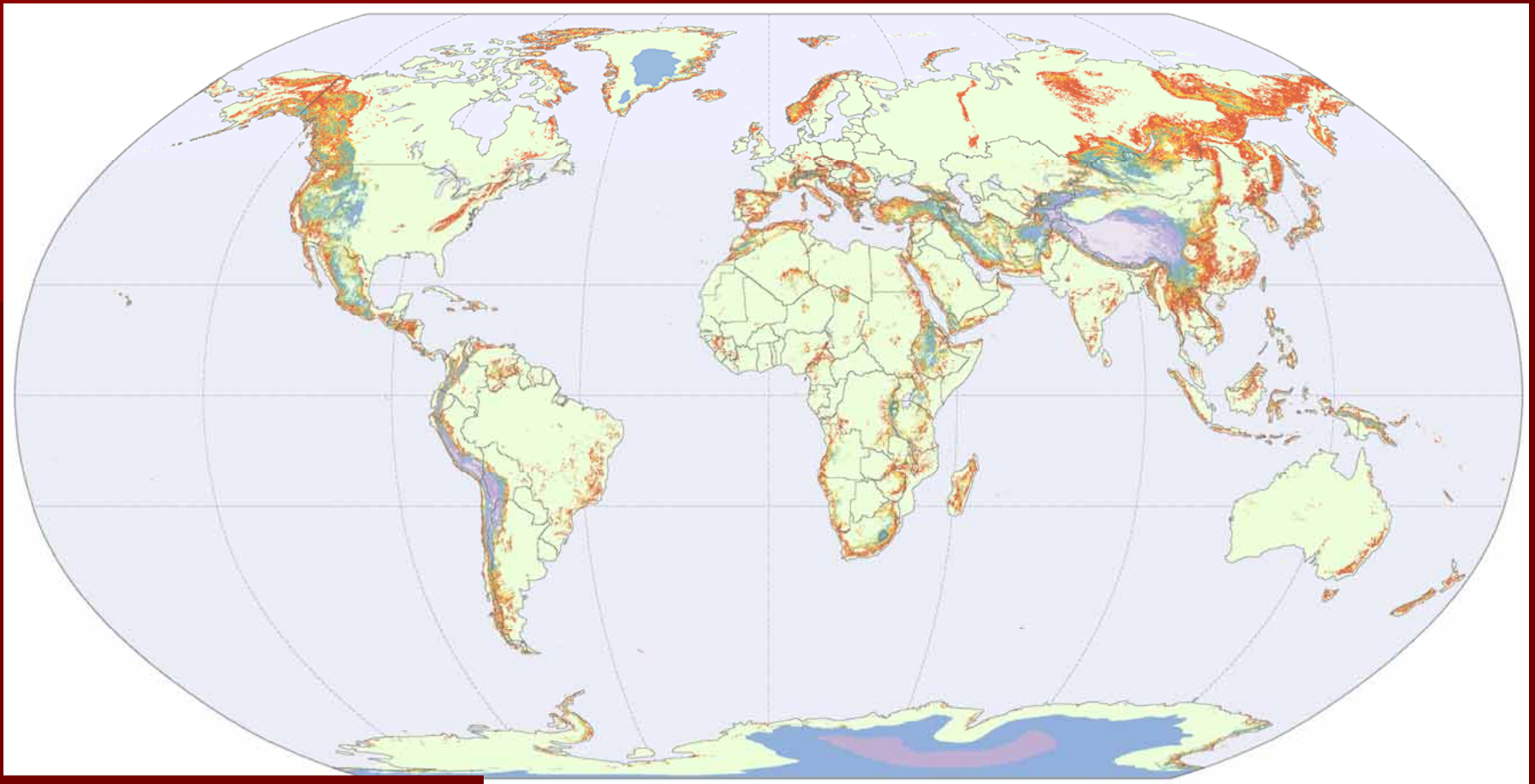
NEW HORIZONS IN
ENVIRONMENTAL
ECONOMICS

Series Editors
WALLACE E. OATES
HENK FOLMER

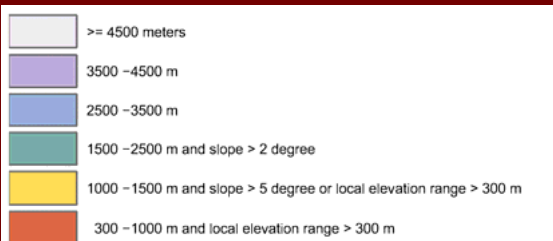
Global Environmental Change in Alpine Regions

Karl W. Steininger
and Hannelore Weck-Hannemann





Categories of mountain terrain



Mountains of the World

Source: Mountain Watch (UNEP-WCMC 2002)



Mountain Watch
The first global assessment of mountain ecosystems



CHAPTER 13

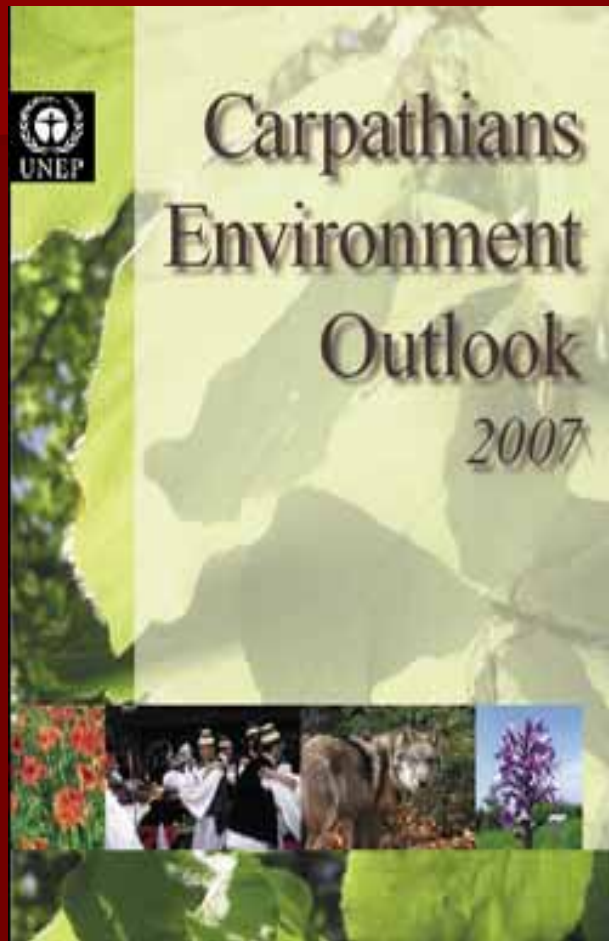
MANAGING FRAGILE ECOSYSTEMS: SUSTAINABLE MOUNTAIN DEVELOPMENT

- <http://www.un.org/esa/sustdev/documents/agenda21/english/agenda21chapter13.htm>
- Generating and strengthening knowledge about the ecology and sustainable development of mountain ecosystems;
- Promoting integrated watershed development and alternative livelihood opportunities.

Commission on Sustainable Development

- 1997 review (5 yrs):major progress in awareness and organizations:
- Mountain islands
- Institutions (meaning?)
- CSD Johannesburg (10 yrs) Any change over last 5 years?

KEO



Global Mountain Partnership

- UNEP is the global Environmental Reference Centre (ERC) of the MPS and it helps ensure adequate attention to environmental concerns in the MPS strategic planning and activities,
- The ERC's role will revolve around facilitating access by initiatives to UNEP's expertise in the issues, constituting UNEP's priorities for the new programming period



A satellite image of a mountain range, likely the Alps, showing a significant glacier retreat. A blue box with the text "Glacier retreat" points to a red rectangular box on the mountain. The red box highlights a specific area of the glacier. The surrounding landscape is a mix of green vegetation and brownish-yellow rocky terrain. The bottom of the image shows a dark blue body of water, possibly a lake or the sea.

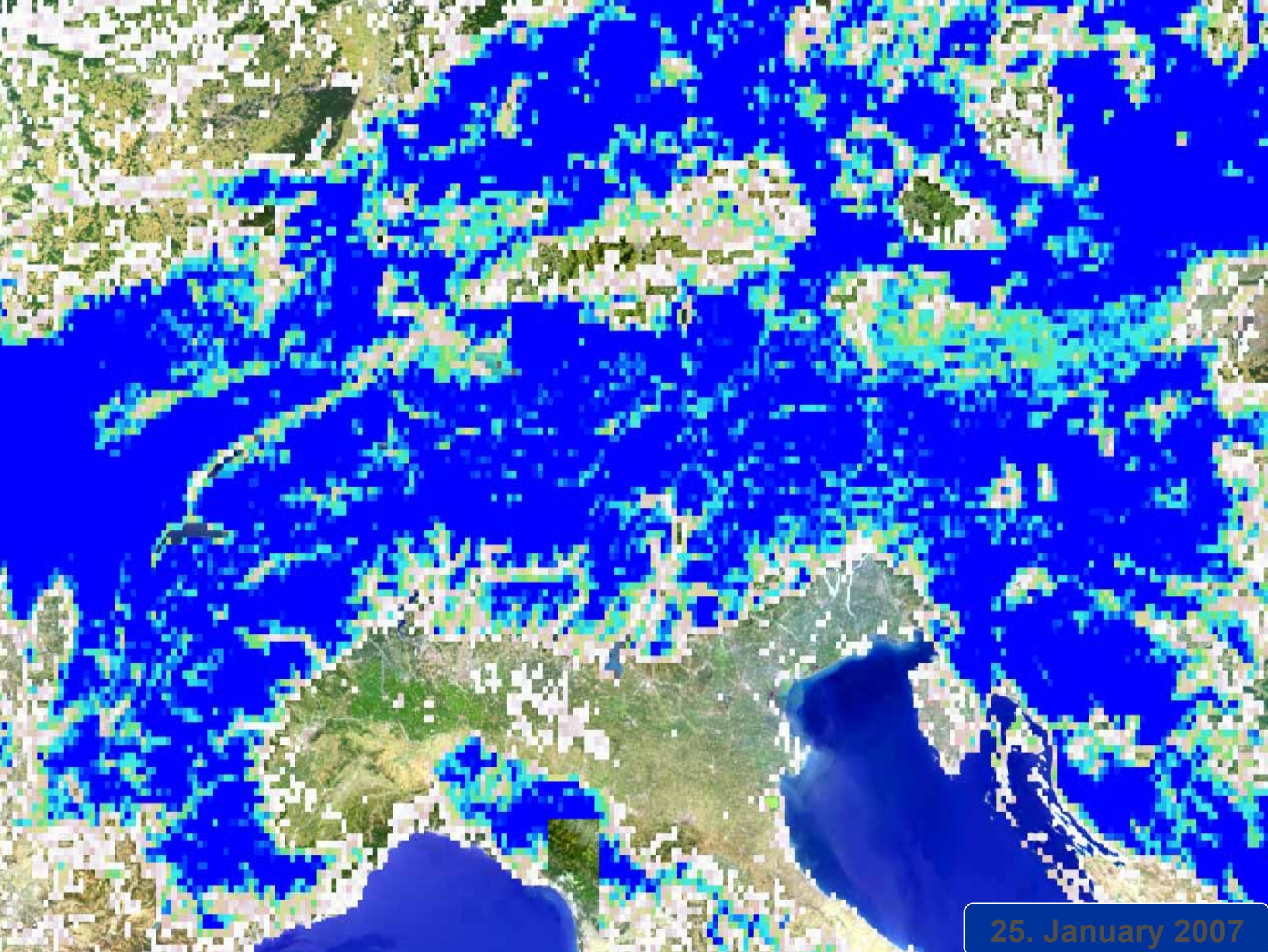
Glacier retreat

Retreat of Hintereisferner Glacier





Snow



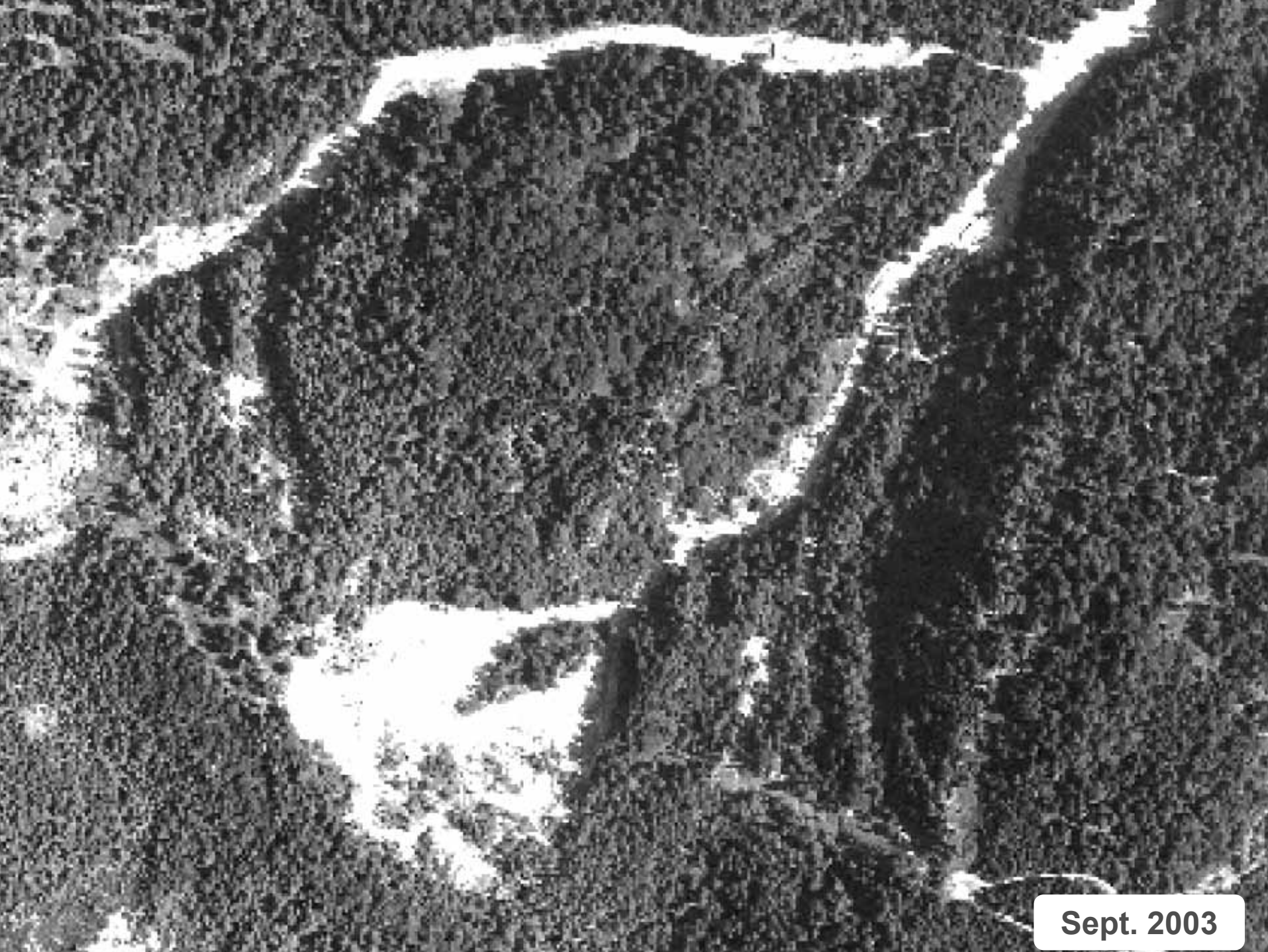
25. January 2007



Landslides



2006



Sept. 2003



Forest fires

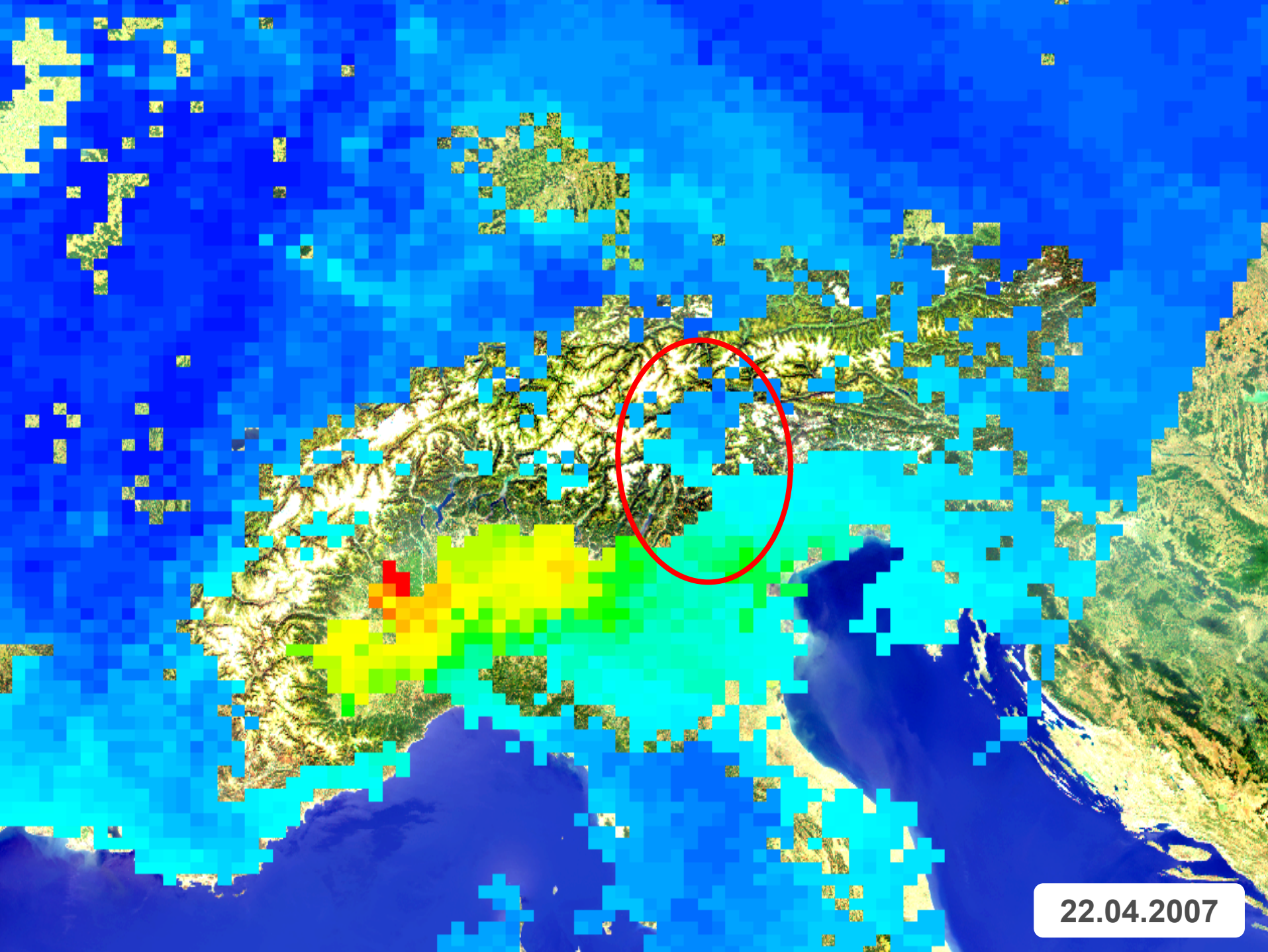
2000



2007



Air Quality



22.04.2007

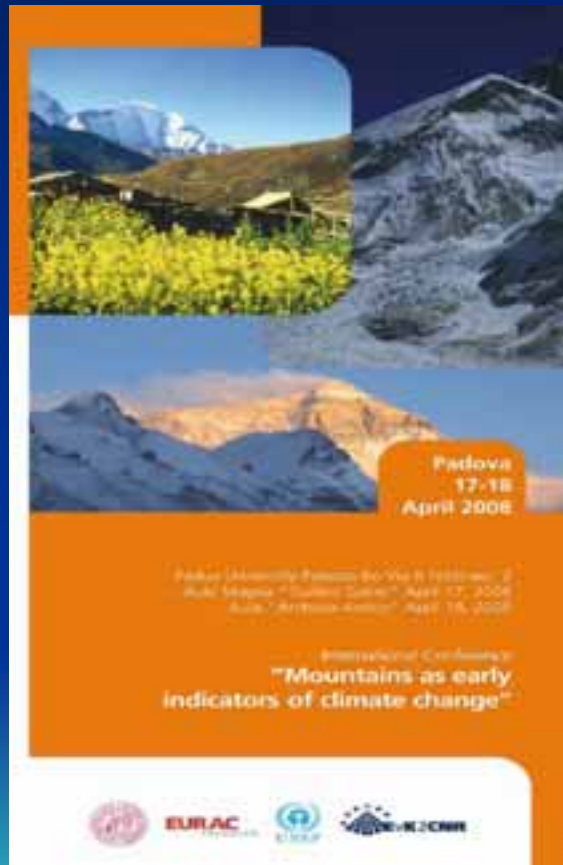


Glacier Lake Outburst

Glacier Retreat

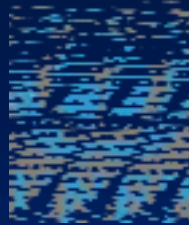
WATER !

“Mountains as Early Indicators of Climate Change”



mountains.unep.ch





Visit our new website
<http://mountains.unep.ch>

Thank you !

UNEP ROE - Vienna

www.carpathianconvention.org

www.carpathianproject.eu