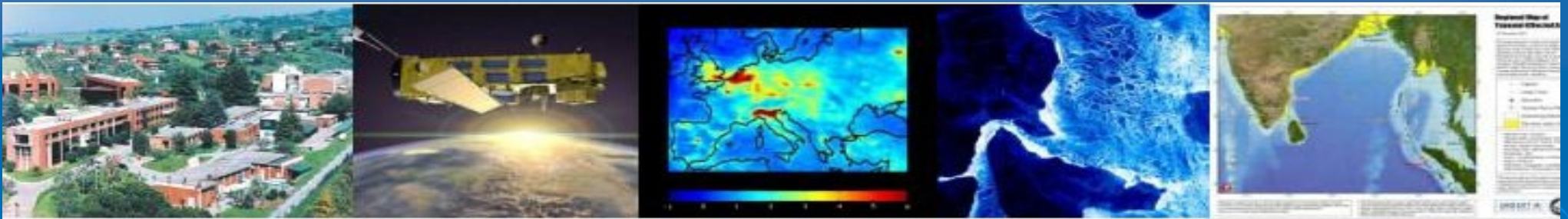




TIGER programme: Towards an African Water Observation System





Africa is one of the most vulnerable regions of the world to climate change. Water is one of the most in danger resources of the continent while at the same time, remains one of the most critical elements for society, development and security.

Water information systems are severely degraded in most countries in the African region and policy and management decisions are based on unreliable and unupdated information.



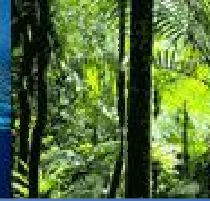
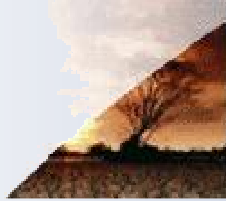


TIGER Initiative: Origin

Launched as a CEOS response to the urgent action expressed at the World Summit on Sustainable Development (2002). ESA is the lead space agency, with strong support from the Canadian Space Agency.

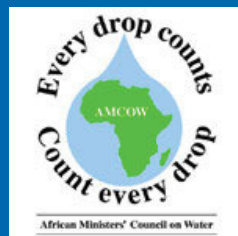
Key partners: Ministerial Council on Water, African Development Bank, African Union Commission, UN-Africa Water Group (UNESCO in the framework of IHP, UNECA) and other stakeholders.

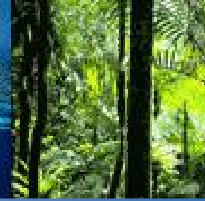
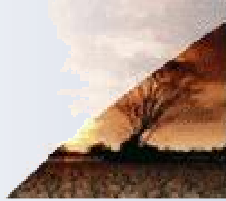




TIGER Initiative: Origin

Objective: *Assist African countries to overcome problems faced in the collection, analysis and dissemination of water related geo-information by exploiting the advantages of Earth Observation technology.*

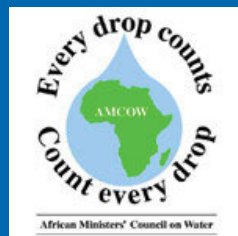




TIGER Initiative: Origin

Long-term strategy pursues three main results:

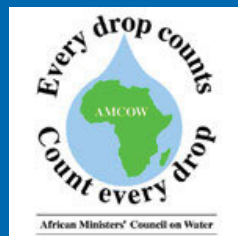
- **Support improved governance and decision-making**
- **Contribute to enhance institutional, human and technical capacity**
- **Foster sustainability**



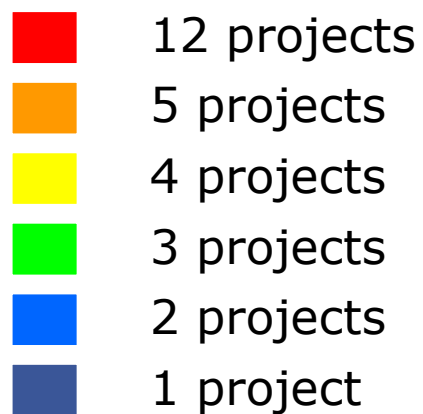


Implementation phase (2005-2007): Involved more than 150 African institutions (water authorities, universities, technical centers) through its projects and training activities.

Earth Observation techniques and methods were adapted to specific user needs and local conditions such as the Lake Chad Basin Commission, Observatoire du Sahara et du Sahel in Tunis, CRTS of Morocco, Zambian Water Authorities and the Regional Centre for Mapping Resources for Development (RCMRD) in Nairobi.

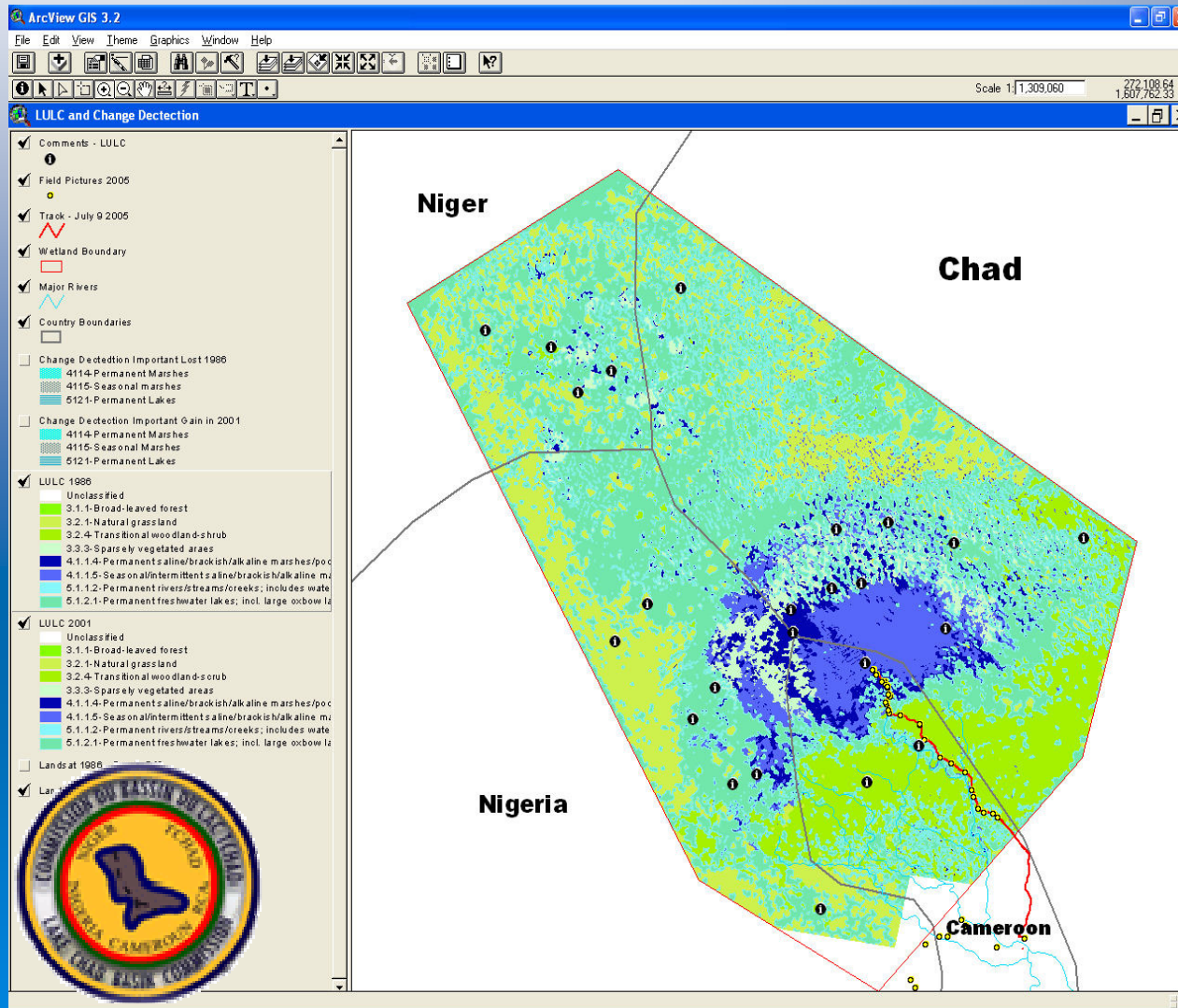


Total: 27 projects



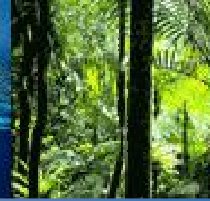
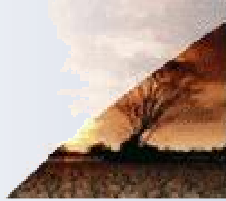


Example of GlobWetland GIS: Lake Chad



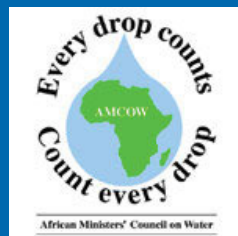
**Training Session
Lake Naivasha,
Kenya**

**Lake Chad
Information System**



Second phase of TIGER

Scientific phase (2009-2012): Support African scientists to develop scientific skills and technical capacity to make the best use of Earth Observation technology for better understanding, assessment and monitoring of the water resources in Africa, as well as the potential impacts of climate change, hence establishing sound scientific bases for developing effective adaptation or mitigation measures at political level in the continent.





Second phase of TIGER (2009-2012)

20 projects in 13 African countries:

Madagascar

Morocco

Senegal

Egypt

Burkina Faso

D.R. of Congo

South Africa

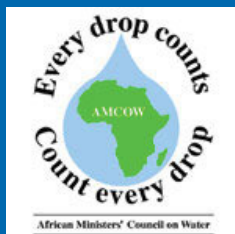
Kenya

Zambia

Nambia

Mali

Chad





- Objectives:
- Improved understanding of hydrological systems and water management needs in arid and semi-arid areas
- Sharing of data and exchange of experience at regional and global scale and strengthening of global networks
- Capacity building of individuals and institutions and dissemination of understanding to users and the public

G-WADI

Water and Development
Information for Arid Lands -
A Global Network



United Nations
Educational Scientific
and Cultural Organization

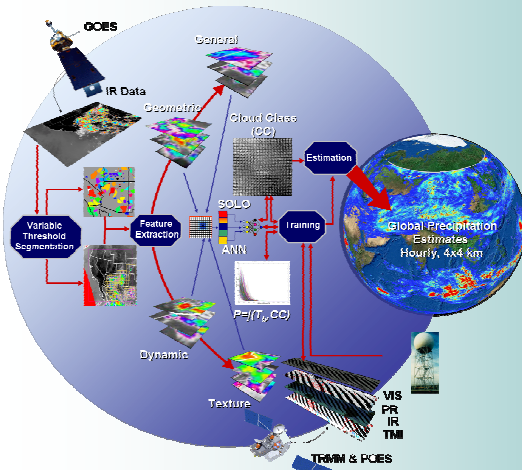
UNESCO Intergovernmental International
Hydrological Programme (IHP)

supported in part by:
Department for International Development (DFID)
leading the British government's fight against world poverty

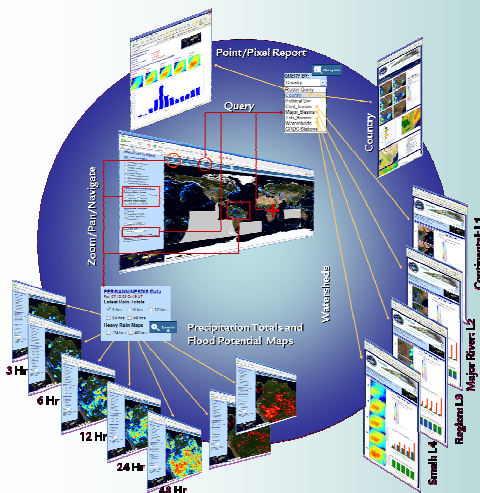
www.g-wadi.org

G-WADI -CHRS Cooperation

Developing state-of-the-art systems to estimate rainfall from satellite observations at global scale and high spatial and temporal resolutions



Utilizing Information Technology to provide world-wide access to real-time global precipitation products:



Satellite Precipitation

Much of the world does not have adequate rainfall observation networks

Radar, has blockage areas, particularly over mountain regions.



Satellites
Global coverage
High temporal resolution (GOES)
New missions (TRMM)

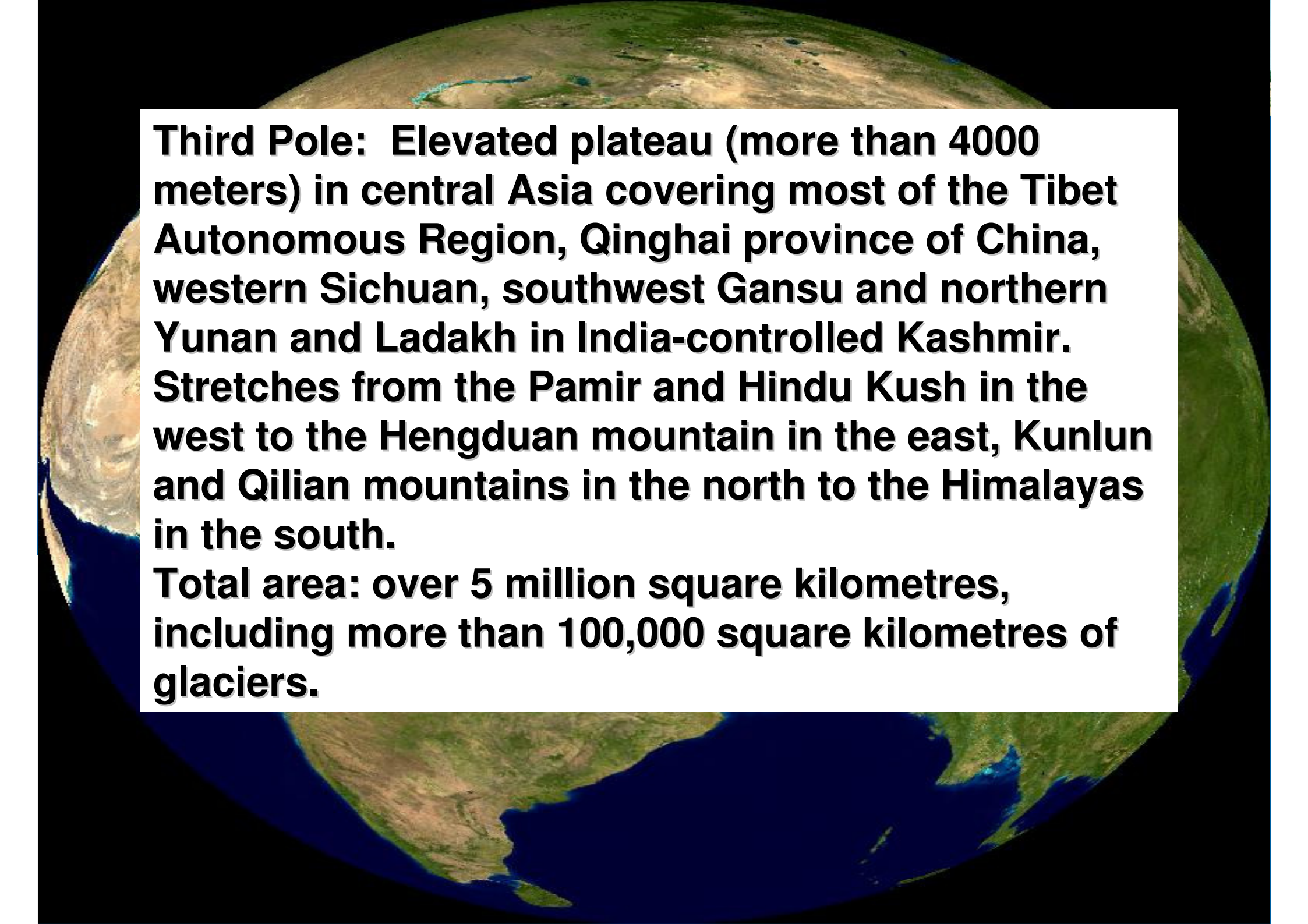
Precipitation Estimation from Satellite Information using Artificial Neural Network And Cloud Classification System (PERSIANN-CCS)

<http://hydis.eng.uci.edu/gwadi/>

An aerial photograph of the Tibetan Plateau, showing a vast, rugged landscape. In the foreground and middle ground, there are several large, dark blue glacial lakes nestled in the valleys and cirques of the mountains. The mountains themselves are covered in patches of snow and ice, with some peaks reaching into a clear blue sky. The overall scene conveys a sense of a high-altitude, cold environment.

THE THIRD POLE

Climate change is coming fast and furious to the Tibetan plateau.

A satellite image of Earth from space, showing a portion of the Asian continent. The image is centered on the Third Pole region, which is a high-altitude plateau in central Asia. The plateau is depicted in shades of brown and tan, indicating its arid and high-altitude nature. It is surrounded by green landmasses and blue oceans. The text is overlaid on a white rectangular box in the center of the image.

Third Pole: Elevated plateau (more than 4000 meters) in central Asia covering most of the Tibet Autonomous Region, Qinghai province of China, western Sichuan, southwest Gansu and northern Yunan and Ladakh in India-controlled Kashmir. Stretches from the Pamir and Hindu Kush in the west to the Hengduan mountain in the east, Kunlun and Qilian mountains in the north to the Himalayas in the south.

Total area: over 5 million square kilometres, including more than 100,000 square kilometres of glaciers.



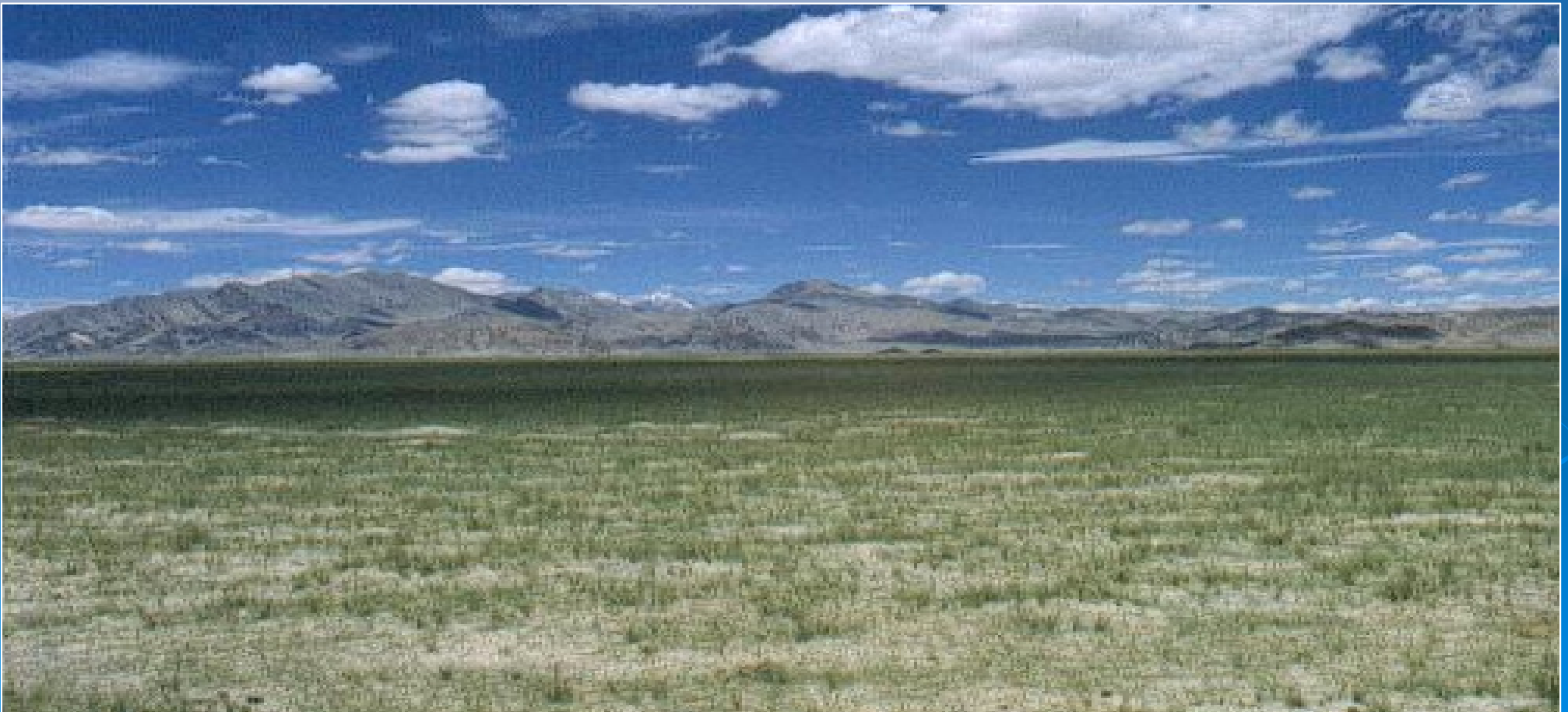
1933



2006

Variation of the Azha Glacier, southeast Tibet

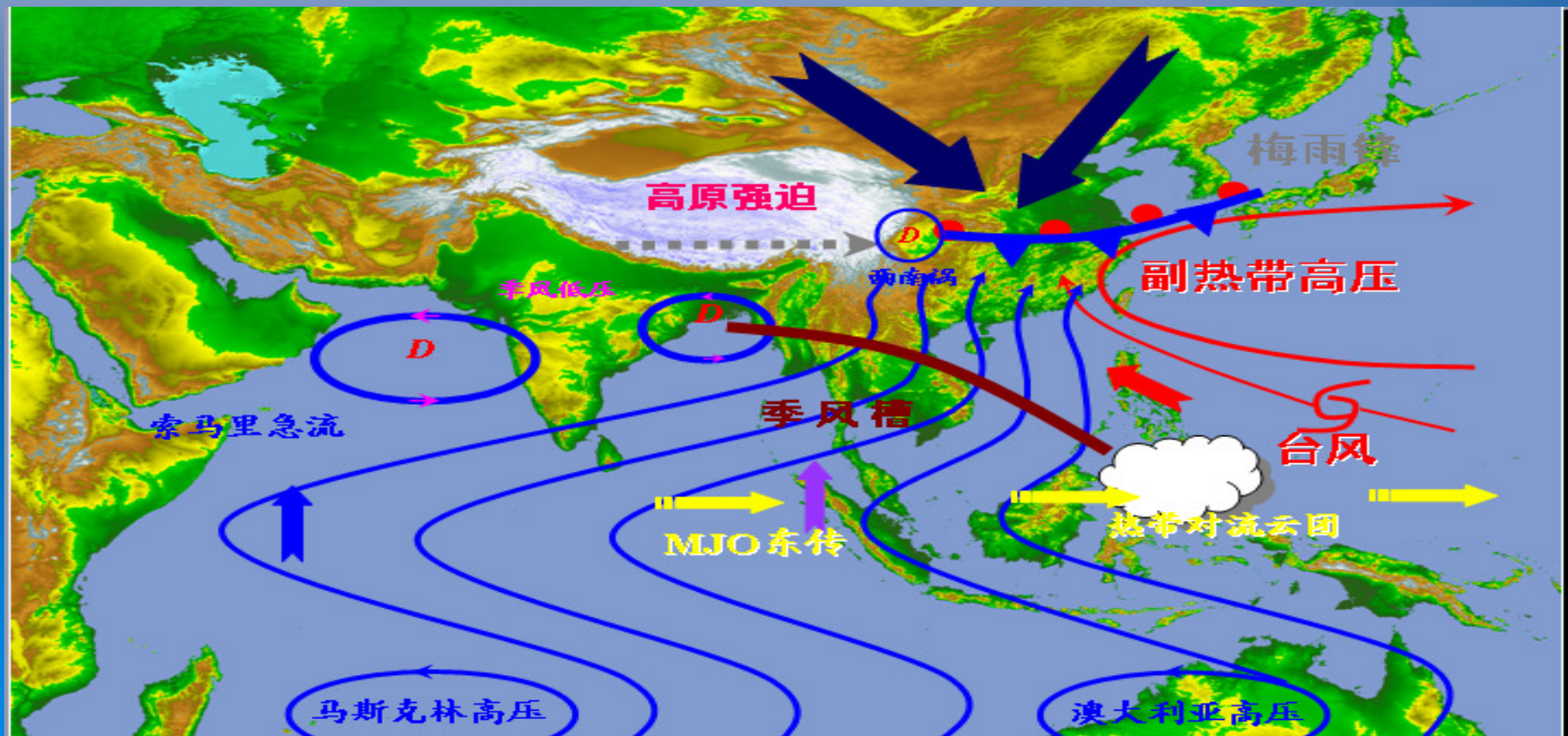
Under the harsh environmental conditions, alpine ecosystem is at the threshold of possible ecosystem breakdown due to even slight environment change.

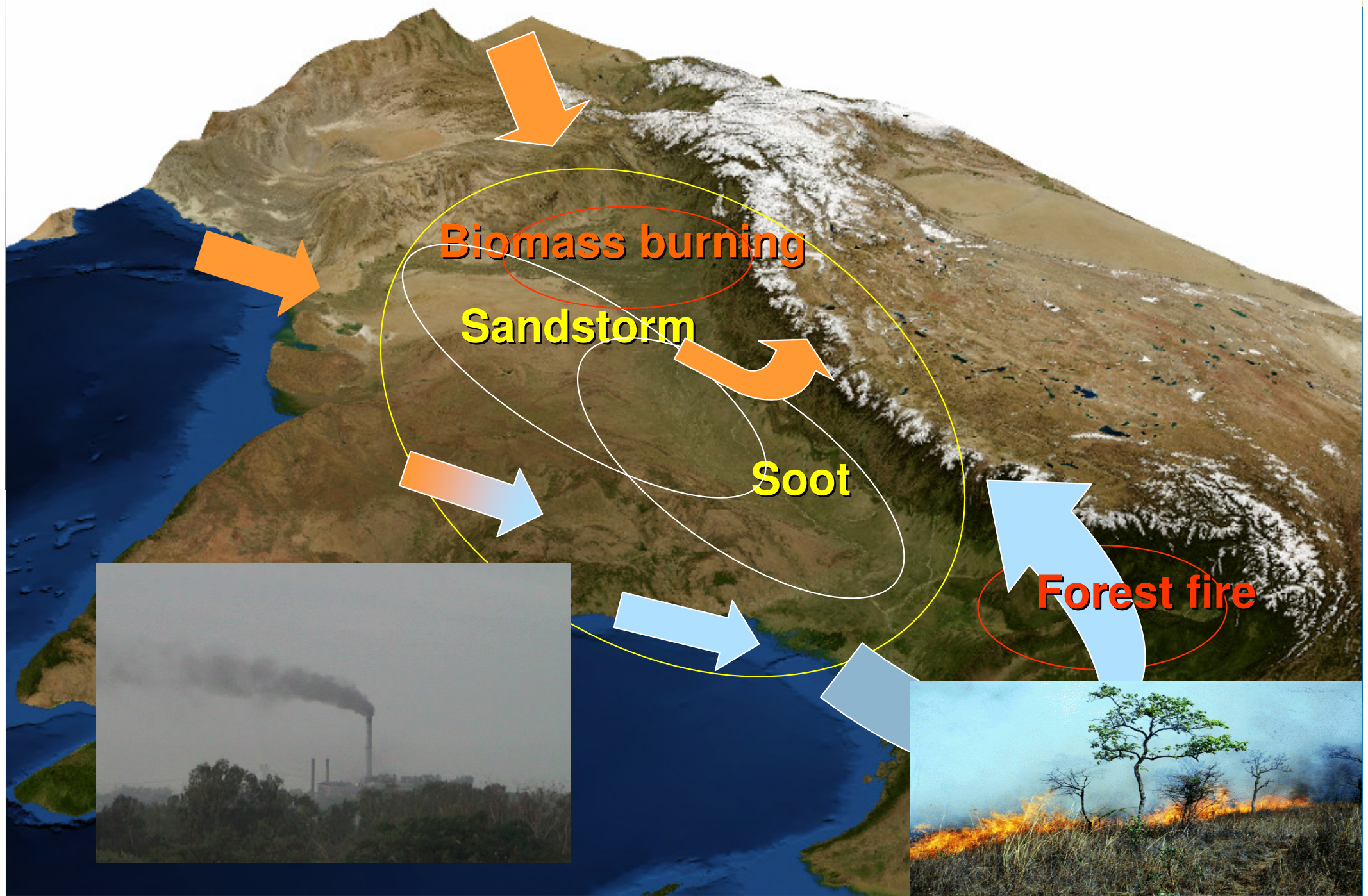




The Third Pole impacts significantly on the climate system in the northern hemisphere and even the entire globe on a long temporal and large spatial scale.

Asian monsoon is the most important and playing key role





More than 1.5 billion people live downstream in the river basins of the region.

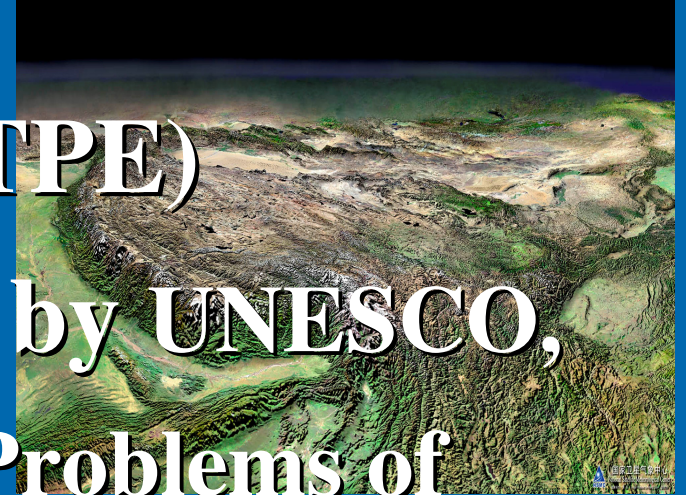


Climate change is coming fast and furious to the Tibetan plateau.

“Third Pole Environment” (TPE)

**Programme will be launched by UNESCO,
the Scientific Committee on the Problems of
Environment (SCOPE) and the Chinese
Academy of Sciences .**

**Objective: Enhance further knowledge on
the environmental changes occurring at
the Third Pole and their ecological, social
and economic impacts for policy
development.**



**Call for regional
cooperation among the
countries in and
surrounding the Third
Pole region.**

