WATER CONVENTION

Climate actions at the La Plata river basin

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CIC Cuenca del Plata

INTERNATIONAL NETWORK OF BASIN ORGANIZATIONS

Ministry of Infrastructure and Water Management

Schweizerische Eidgenossenschaft
Confédération suisse
Confederazione Svizzera
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Bundesamt für Umwelt BAFU
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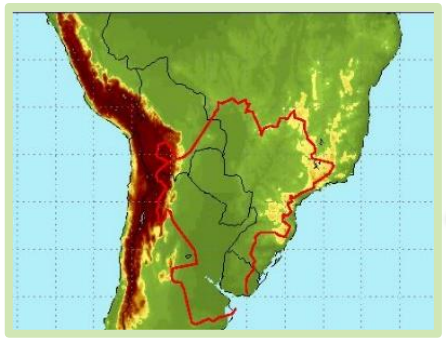
La Plata river basin



In 1969 the governments of the five (5) countries that make up the La Plata Basin signed the La Plata Basin Treaty, the main legal instrument that governs the Basin, whose principle of multiple and equitable use of water seeks to be implemented.

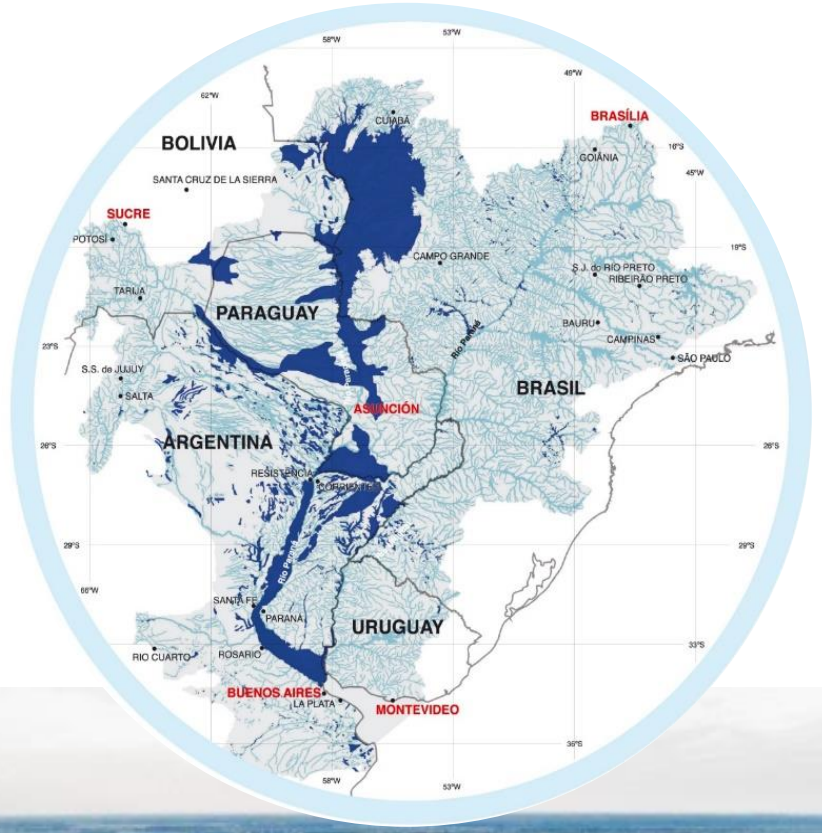
General description

Argentina, Bolivia, Brazil, Paraguay and Uruguay

Surface: 3,100,000 km2
17% of the South American area
5th in the world
2nd in South America

More than 120 million people, more than 300 cities with more than 100 thousand inhabitants

Biggest food exportation basin in the world.
Very diversified economic activity; produces 70% of the GDP of the 5 countries



Estuary and main rivers: among the longest in the world: Paraná 2,570 km, Paraguay and Uruguay

Wetlands South America: 3,500 km2 in area

Aquatic biodiversity: + than 908 species of fish

Sub-basins: Upper Paraguay, Lower Paraguay, Upper Paraná. Lower Paraná, Upper Uruguay, Lower Uruguay, Rio de la Plata

Hydroelectricity: 93,000 MW (80% Br); 66% in use; 150 plants (72 with power greater than 10MW)

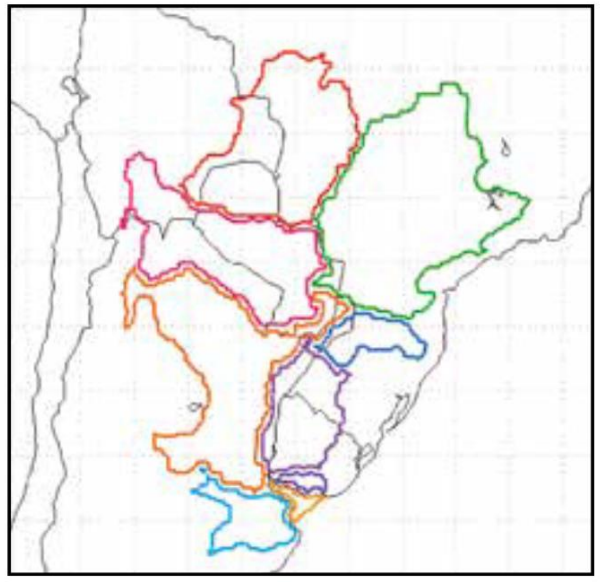
Challenges facing at the basin increased by Climate change and variability

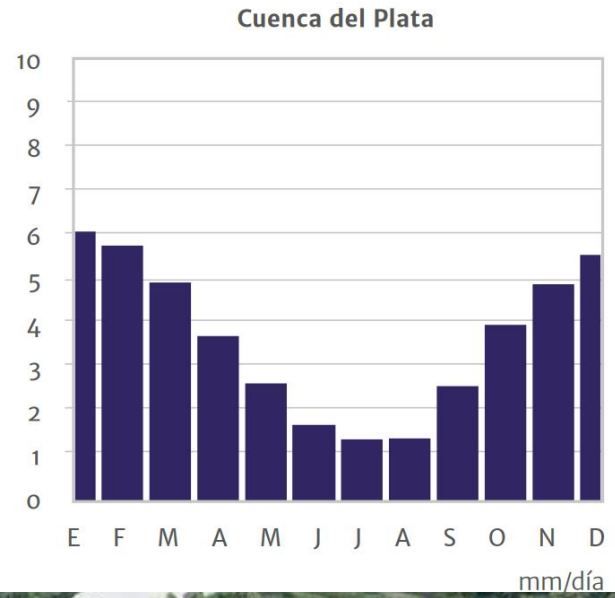
Extreme hydrological events	• Floods and droughts linked to climate variability and change
Navigation and Hydroelectricity	• Limits on the effective utilization
Water quality	• Domestic/industrial water pollution
Sedimentation	• Sediment transport, as a natural component of river geomorphology disrupted by extreme climatic events and human activities, such as land clearance
Biodiversity	• Habitat loss and fragmentation
Aquatic resources	• Unsustainable use of fishery resources
Groundwater	• Unsustainable use of aquifers in critical areas
Socio-political conflicts	• Inter-sectorial water use conflicts
Health	• Unsafe drinking water and deterioration of environmental health

Climate change and variability

The tropical and subtropical part of South America is characterized by the South American Monsoon, a seasonal atmospheric circulation system in South America and adjacent Oceans, conditioned by seasonal solar radiation, which has a marked influence on the hydroclimatic regime of the La Plata Basin. , one of its main characteristics being the well-defined annual cycle of precipitation in most of the Plata Basin, with maximums in summer and minimums in winter. In general, the annual precipitation in the La Plata Basin is heterogeneous, increasing from west to east.

Fuente: *Global Precipitation Climatology Proyect* (GPCP)

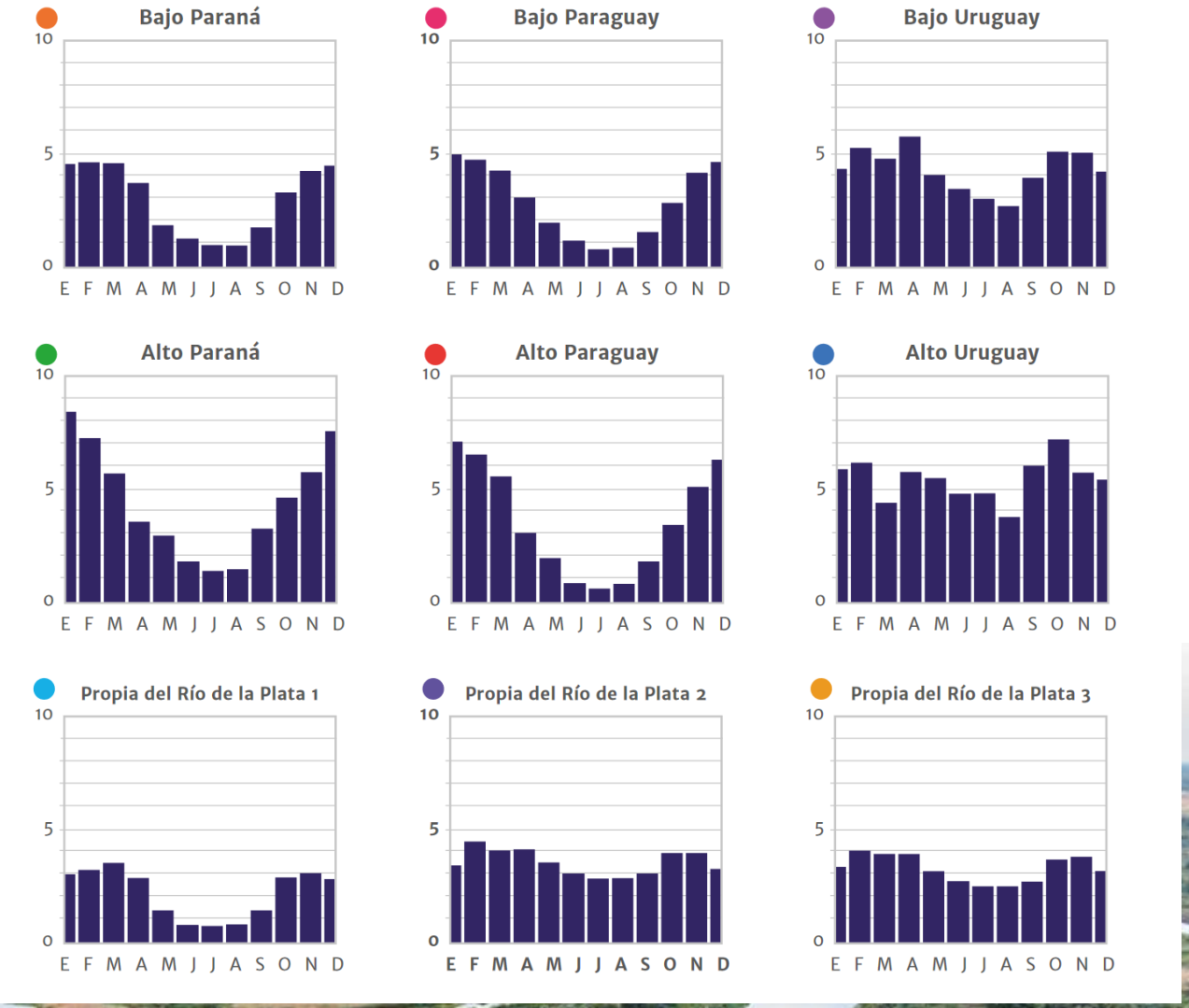


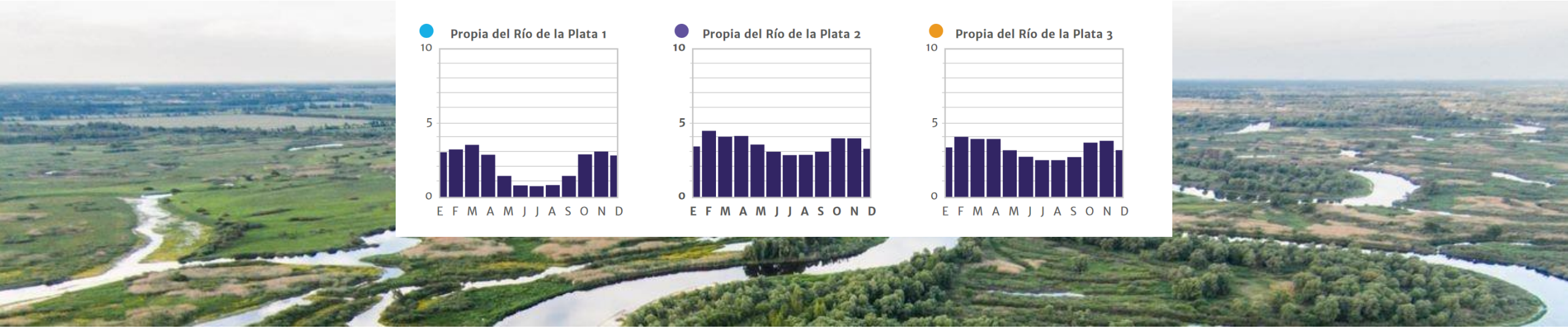


Precipitación climatológica de la Cuenca del Plata (1973-2013)

Climate change and variability

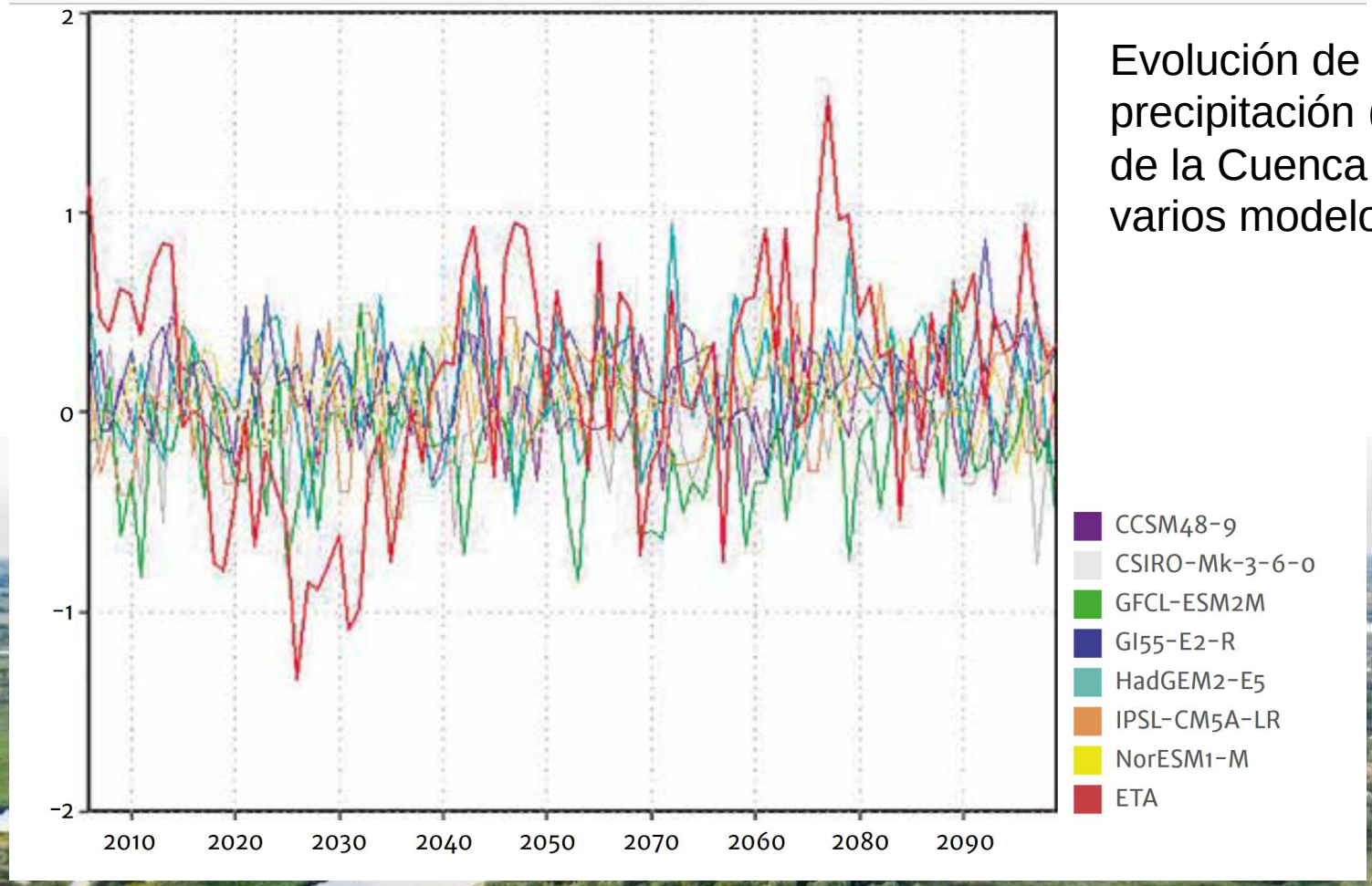
Climatological precipitation of the Plata Basin (1973-2013)





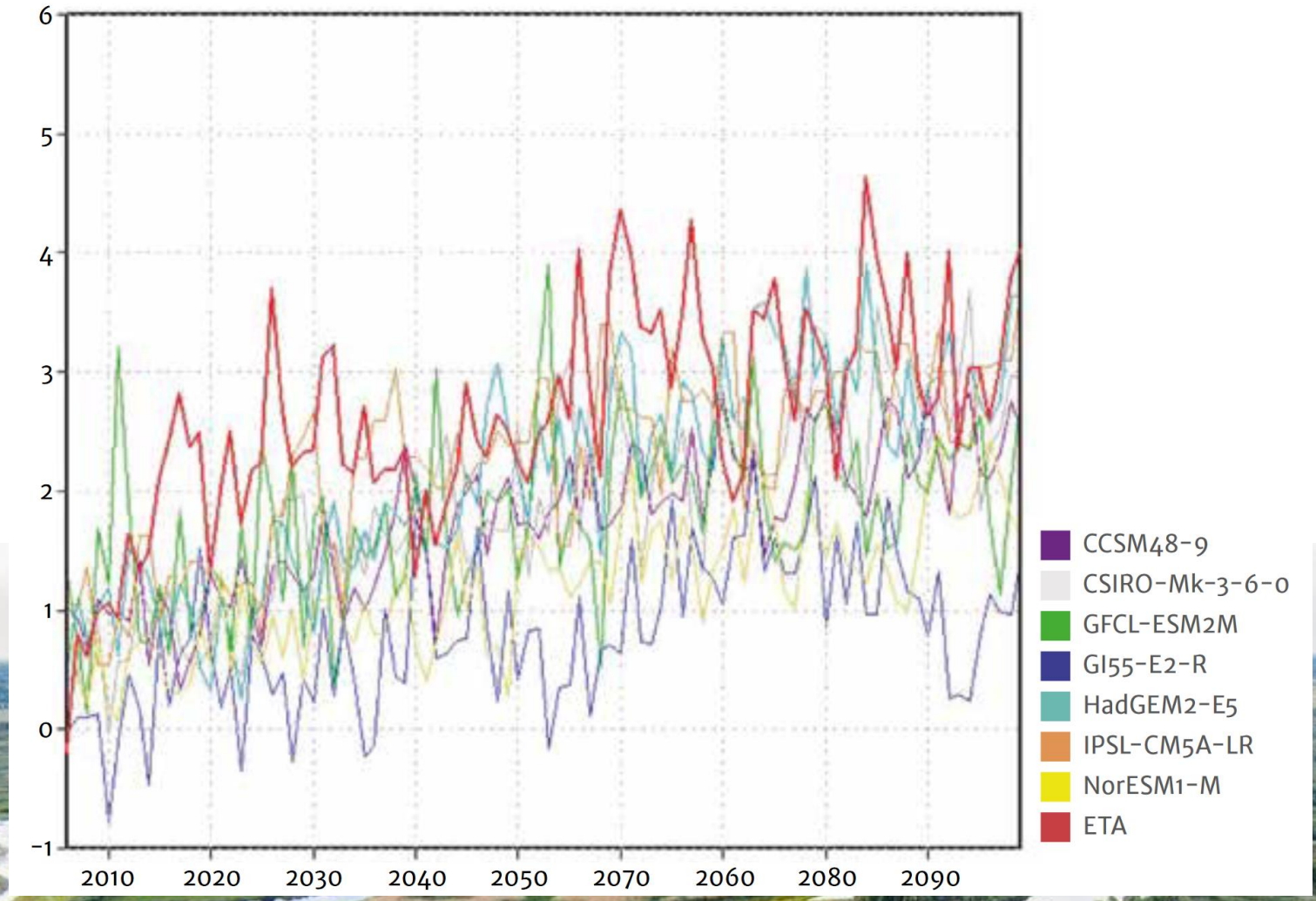
Climate change scenarios

For the region of the Cuenca del Plata, the CP- TEC has performed simulations with the ETA regional climate model, with resolutions of 10 km and 20 km, forced with the HadGEM2-ES model of the IPCC AR5, for the RCP 4.5 scenario (moderate), for the period 1960-2100, with the aim of evaluating situations of possible climate change.



Evolución de la anomalía de la precipitación (mm/d) para el área de la Cuenca del Plata, según varios modelos

Climate change scenarios

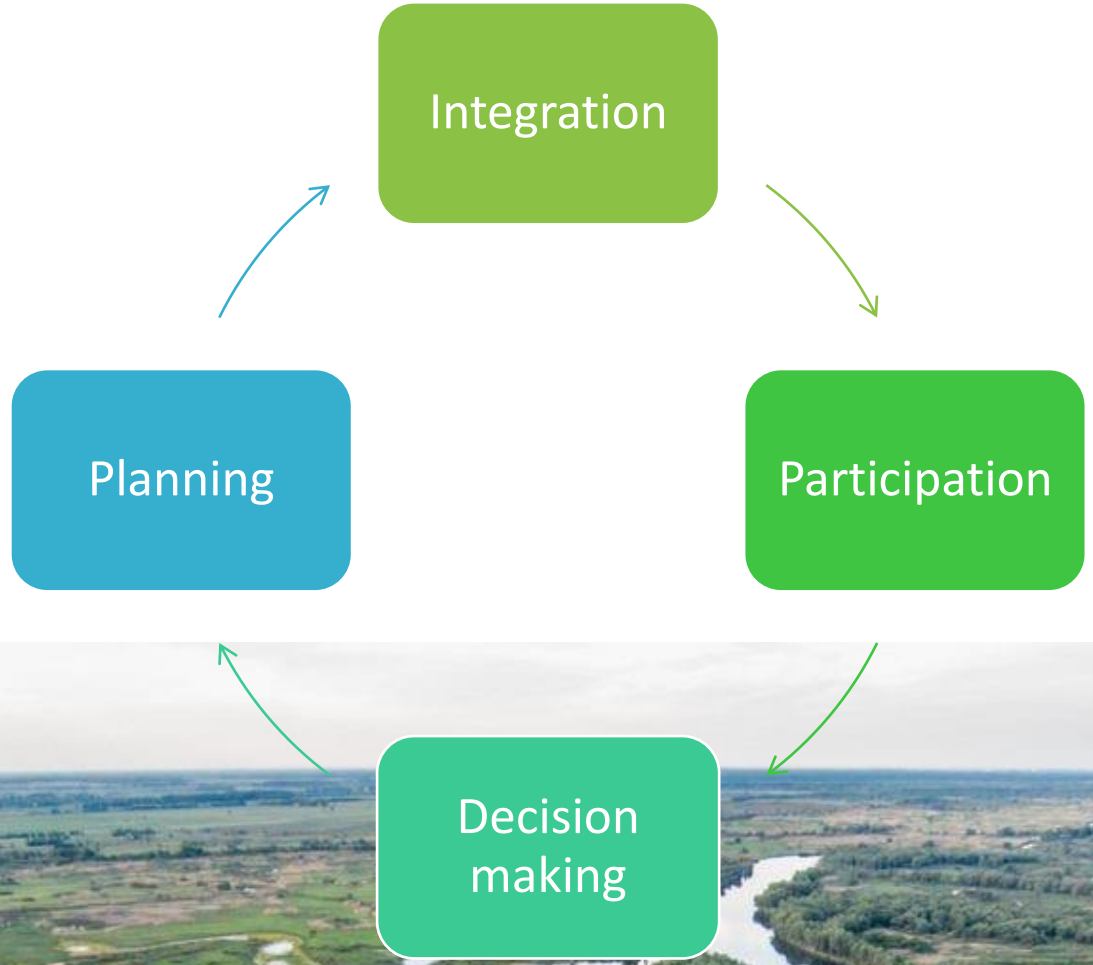


Evolución de la anomalía de la temperatura del aire (°C) para el área de la Cuenca del Plata, según varios modelos

Synthesis of Climate change scenarios

- Considering immediate scenarios in climatic terms, the period 2011-2041 presents situations such as a decrease in precipitation in a large part of the basin and a considerable increase in temperature. This climatic scenario could affect the water resources in the La Plata Basin.
- In a scenario with less precipitation and higher temperature, the regional hydrological balance could lead to medium flows in decline, facilitating the occurrence of extreme events, for example, with greater possibility of droughts and forest fires such. This type of scenario could affect significantly the navigation of the rivers, for example, the Paraguay River. This would bring time, significant economic consequences given that the regional economy depends largely from river transport.
- With a scenario of decreasing soil moisture or permanent deficit, there could be a strong impact on agricultural and livestock production and consequently a socio-economic impact.

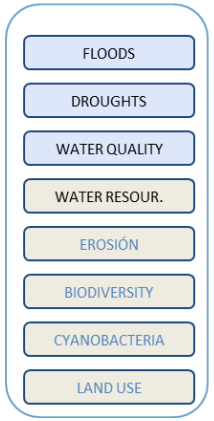
Streghtening resilience

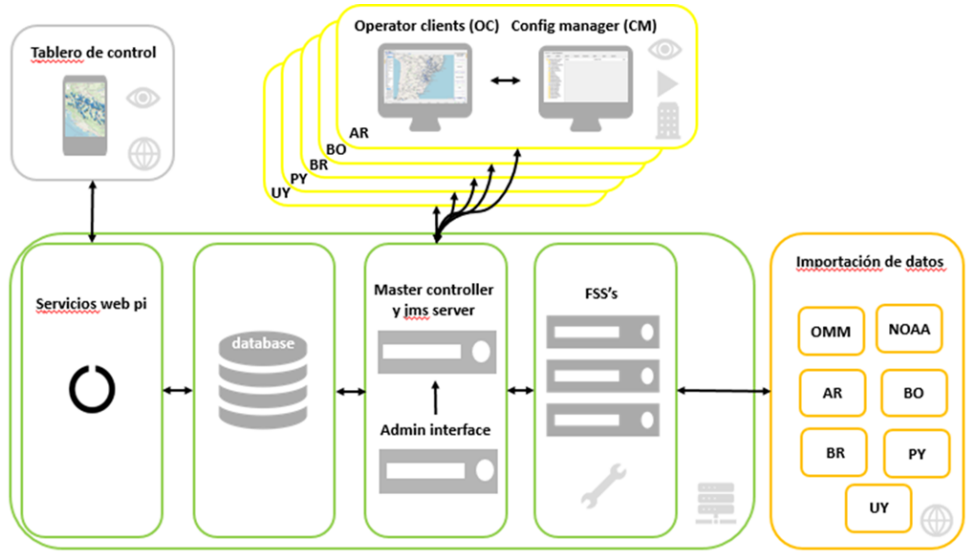


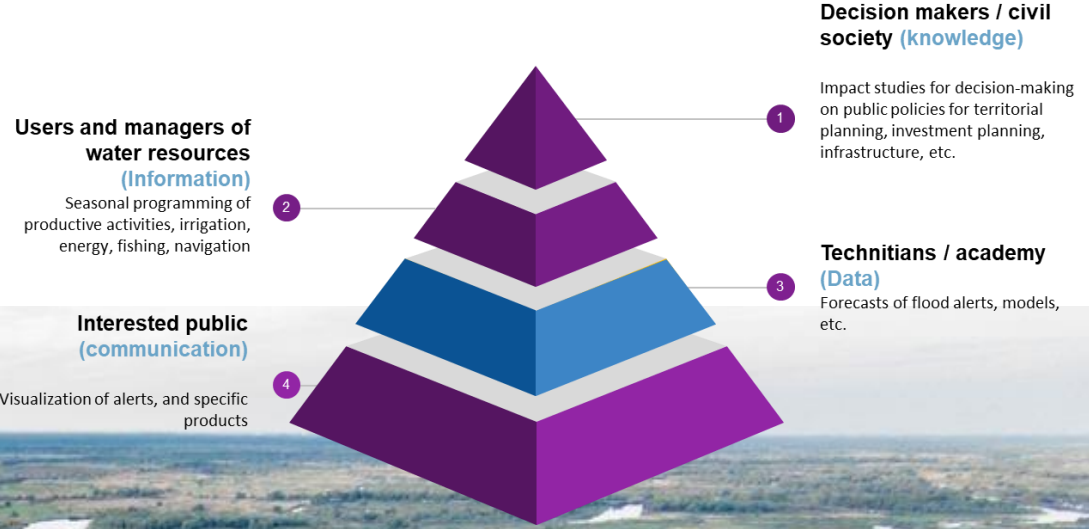
Decision support system

The Decision Support System (DSS) aims to:

- ✓ Contribute to the strengthening of the capacity for integrated water resources management in the region, by providing users with information and tools for planning and decision making.
- ✓ Support the development of all the components of the CIC Strategic Action Plan for its implementation, and particularly the Early Warning Systems, and planning in the context of climate variability and change.
- ✓ Generate knowledge tools for decision-making in the countries, on issues related to floods, droughts, water quality, ecosystems, soils, sediments, among others.







Project planning – strengthening the resiliency of the basin

- ✓ Strengthening of the CIC as a coordination and institutional articulation
- ✓ Sustainability of the Support System for Decision Making (SSTD
- ✓ Conservation and sustainable management of groundwater resources - aquifers of the La Plata basin
- ✓ Sustainable Management of Fishery Resources and Associated Fauna in the La Plata Basin with emphasis on indigenous populations and local communities.
- ✓ Climate change adaptation and mitigation measures, through the implementation of sustainable practices for the use, management and conservation of soils and forests in degraded areas of the La Plata basin.
- ✓ Professional Master in Management and Regulation of Water Resources – climate change
- ✓ Strengthening of the participatory management of Water Resources in the La Plata Basin through a space for articulation of the Basin Management Organizations and their Education, Training, and Communication Programs with a gender and rights approach.

Conclusions

✓ La Plata river basin, includes several ecosystems with different hydrological sub-systems, various kinds of water uses supporting different social and economic activities, different types of actors with different interests related to water and numerous types of 'institutions' – sets of rules, regulations and policies –that requires complex information systems in order to support decision making in an integrated, participatory, informed and adaptive manner to respond to the current challenges of climate change.

✓ Considering immediate scenarios in climatic terms, the period 2011-2041 presents situations such as a decrease in precipitation in a large part of the basin and a considerable increase in temperature. This climatic scenario could affect the water resources in the La Plata Basin.

✓ In a scenario with less precipitation and higher temperature, the regional hydrological balance could lead to medium flows in decline, facilitating the occurrence of extreme events, for example, with greater possibility of droughts and forest fires such. This type of scenario could affect significantly the navigation of the rivers, for example, the Paraguay River. This would bring time, significant economic consequences given that the regional economy depends largely from river transport.

✓ With a scenario of decreasing soil moisture or permanent deficit, there could be a strong impact on agricultural and livestock production and consequently a socio-economic impact.

✓ Under the scenarios proposed for the future, the Rio de la Plata basin must strengthen its information integration and dissemination capacity and generate integration projects with a basin vision

✓ In general, we all need to break the anthropocentric vision and better protect the forest and ecosystems specially at the upper basin, the preservation of wetlands, stop the deforestation, the protection of recharge areas, and thus guarantee the least impact of climate change in the future.

Thank you

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