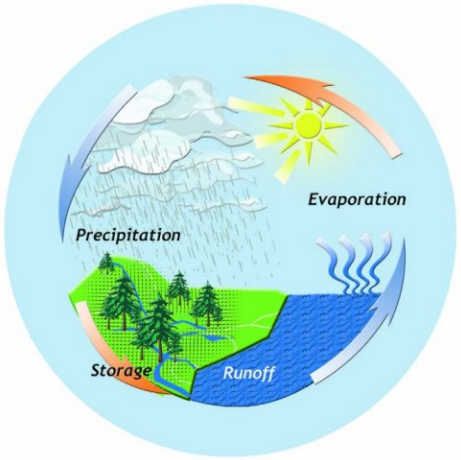


Current status and future plans for CORDEX

Silvina Solman

CIMA (CONICET-UBA)- ARGENTINA
CORDEX SAT Member
solman@cima.fcen.uba.ar

GEWEX Hydroclimatology Panel (GHP) annual Meeting
3-5 October 2016, Gif-sur-Yvette, France

Current status

CORDEX

cordex.org

Coordinated **R**egional **D**ownscaling **Ex**periment

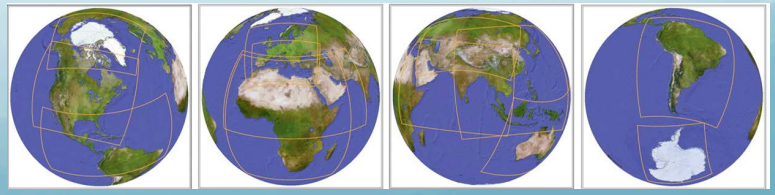
CORDEX Scentific vision

To advance and coordinate the science and application of regional climate downscaling through global partnerships

Goals

1. To better understand relevant regional/local climate phenomena, their variability and changes, through downscaling
2. To evaluate and improve reginal climate downscaling models and techniques
3. To produce cooordinated sets of regional downscaled projections worldwide
4. To foster comunication and knoledge exchange with users of regional climate information

WCRP Major Project



Current status

CORDEX Scientific Challenges

- **Added value**
  - Internal variability and added value as function of scale; Bias correction uncertainties and consistency; user-oriented metrics
- **Human elements**
  - Coupling regional climate and coastal megacities; Bridging with urban parameterization developement; Land use change
- **Coordination of regional coupled modeling**
  - Ocean-ice-atmosphere; Lakes, Dynamic land surface; Natural fires; Atmospheric chemistry; Carbon cycle; Aerosols; marine biogeochemistry
- **Precipitation**
  - Convective systems; Coastal storm systems; MJO/Monsoon
- **Local wind systems**
  - Wind storms; Strong regional winds; Wind energy.

Further discussed during the ICRC2016 (May 17-20, Stokholm)

Current status

CORDEX Flagship Studies

- Coordinate developments in convection permiting climate simulations
- Strong basis on
  - Fine-scale processes important to region's climate (physical basis)
  - Observational basis for verification (analysis basis)
  - User applications (VIA basis)
- Potential connections with orther WCRP Programs (GEWEX)
- Specific FPS to be proposed by regions
- Three deadlines per year for FPS proposals
  - Next deadline: October 15th 2016

Current status

CORDEX Flagship Studies

Already approved by the SAT:

- EUR+MED: Convective phenomena
- EUR: Impact of land use changes
- South America: Extreme precipitation events
- MED: Role of natural and anthropogenic aerosols
- MED: Role of air-sea coupling and small-scale ocean processes

Current status

Connection with CMIP

CORDEX designated as a CMIP6 Diagnostic MIP

- Primary CMIP6 Question Addressed:
  How can we assess future climate changes given climate variability, predictability and uncertainties in scenarios?

- Primary WCRP Grand Challenges Addressed:
  1. Weather and climate extremes
  2. Regional climate information

Coordination: ScenarioMIP, HighResMIP

Future plans

CORDEX 2

- Motivated by WCRP
  - Better integration with other WCRP projects, in particular with WCRP Grand Challenges → revisit CORDEX scientific Challenges
- FPSs
- Motivated by IPCC (Workshop on Regional Climate September 2015-Brazil)
  - Stronger contribution of CORDEX in the IPCC Reports
  - Contribution to the upcoming 1.5° Global Warming Special Report
  - Increased emphasis on low emission scenarios

CORDEX-CORE

The **CO**mmon **R**egional **E**xperiment Framework

Future plans

CORDEX-CORE

- Step 1: Use a core set of RCMs to downscale a core set of GCMs over all (or most) CORDEX regions for a core set of scenarios (Core^3)
- Step 2: Incrementally augment the Core^3 ensemble with further models/ experiments (i.e. open process).

Future plans

CORDEX-CORE: Key issues

- How many RCMs? (~5?)
- How many GCMs? (~5-6?)
  - CMIP5 or CMIP6 GCMs?
  - How to choose GCMs? Common for all regions?
- Resolution? (between 10 to 25 km?)
- Priority scenarios? (RCP2.6,RCP8.5?)
- What data to be stored?
- ESD?
- Resources?
- Timeline?

These issues are in the process of being agreed upon the community to define a coordinated framework