

Coordinated Regional Downscaling Experiment (CORDEX)



+ Irène Lake
New Director,
International
Project Office
for CORDEX
(IPOC)

JSC 37 - 25 April 2016



CORDEX – Scientific Challenges

✧ Added value

Internal variability & added value as functions of scale; Bias correction uncertainties and consistency; User-oriented metrics

✧ Human element

Coupling of regional climate and coastal megacities; Bridging with urban parameterisation development; Land use change

✧ Coordination of regional coupled modelling

Ocean-ice-atmosphere; Lakes; Dynamic land surface; Natural fires; Atmospheric chemistry; Carbon cycle; Aerosols; Marine biogeochemistry

✧ Precipitation

Convective systems; Coastal storm systems; MJO/Monsoon

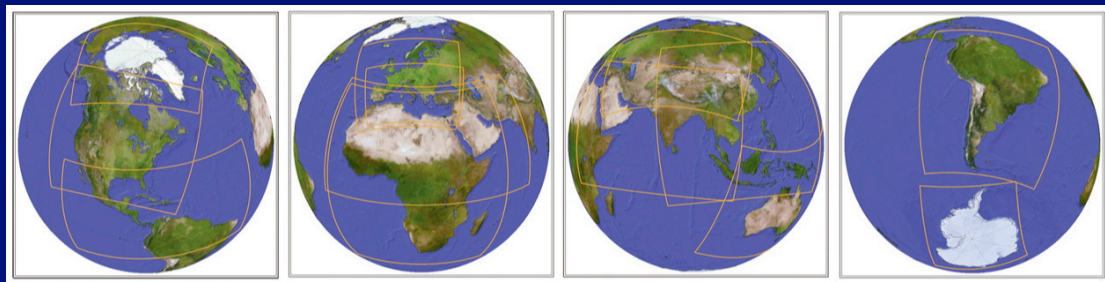
✧ Local wind systems

Wind storms; Strong regional winds; Wind energy

CORDEX – Scientific Challenges

Flagship Pilot Studies (FPS)

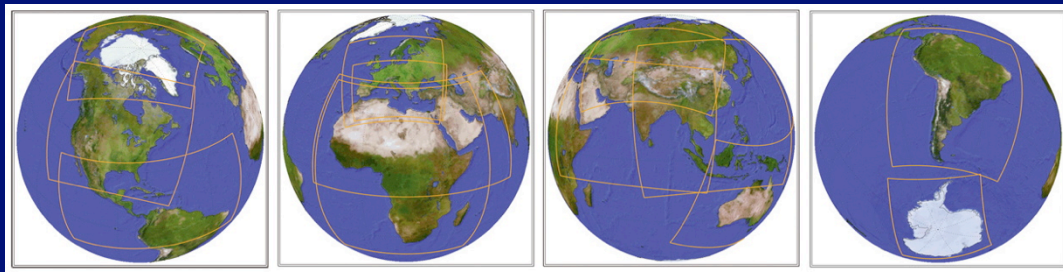
- First FPS call closed 15 Feb. 2016
- 8 proposals (under review) from 6 CORDEX regions
- Coordinate developments in conv.-permitting climate sim.
- Must have
 - ◆ Fine-scale processes important to region's climate (physical basis)
 - ◆ Observational basis for verification (analysis basis)
 - ◆ User applications (VIA basis)
- Potential connection with other WCRP programs, esp. GEWEX
- Details: www.cordex.org



CORDEX – Scientific Challenges

CORDEX Coordinated Output for Regional Evaluations (CORE)

- In development
- Motivated by IPCC Workshop on Reg. Climate (Sept. 2015)
- Elements
 - ◆ Succinct set of downscalings for each region
 - ◆ Provide a core foundation for additional work by others
 - ◆ Span plausible range of climate change => 3 distinct GCMs?
 - ◆ CMIP5? Historical + RCP8.5?
 - ◆ 3-4 RCMs?
 - ◆ ESD methods?
 - ◆ Resolution?



WCRP CORDEX ICRC-CORDEX 2016

17TH-20TH MAY 2016 STOCKHOLM, SWEDEN



WCRP
CORDEX ICRC-CORDEX 2016

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Register Now!

REGISTRATION DEADLINE

1ST MAY 2016

Logos: Bolin Centre for Climate Research, Stockholm University, ECRA (European Climate Research Alliance), EUMETSAT, ESA, Formas (Forskningsrådet Formas), SMHI.

Goal:

Promote the CORDEX vision to advance and coordinate the science and application of regional climate downscaling through global partnerships

Focus:

- Analysis guided by CORDEX Science Goals.
- High resolution climate information
- Applications to VIA community and other end users

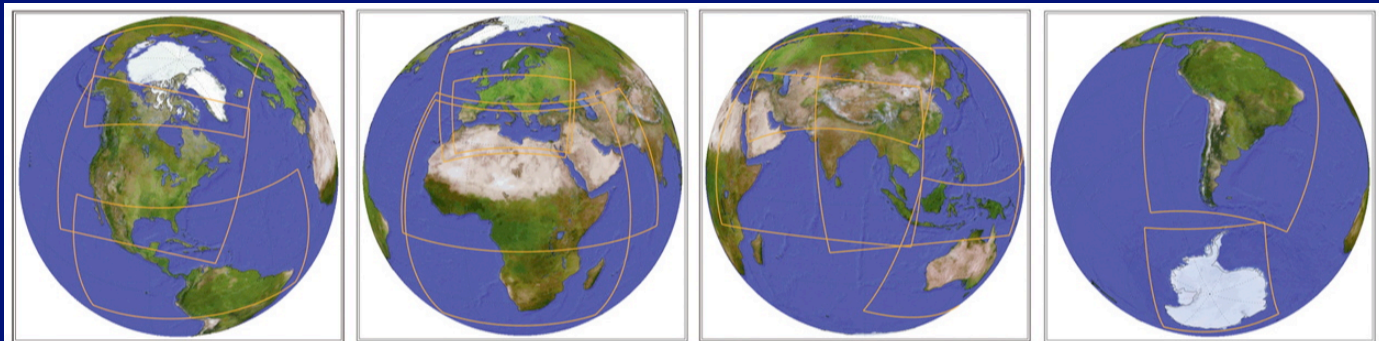
- Over 500 registered
- Special event for Early Career Scientists
- European Climate Research Alliance (ECRA) side event
- Opening presentations by high-level reps. of WCRP, GSFC, SMHI, Swedish Ministry of Energy & Environment



<http://www.icrc-cordex2016.org/>

CORDEX – Other Recent Science

- Review paper in *Ann. Rev. of Environment and Resources*
[DOI: 10.1146/annurev-environ-102014-021217]
- Paper in prep.: Geoscientific Model Development (GMD)
Special Issue on CMIP6
- Dynamical and Statistical Downscaling: Completed workshop series
 - Advancing each for climate information
 - Coordinating comparison of methods: advantages of each?
 - Exploration of hybrid approaches



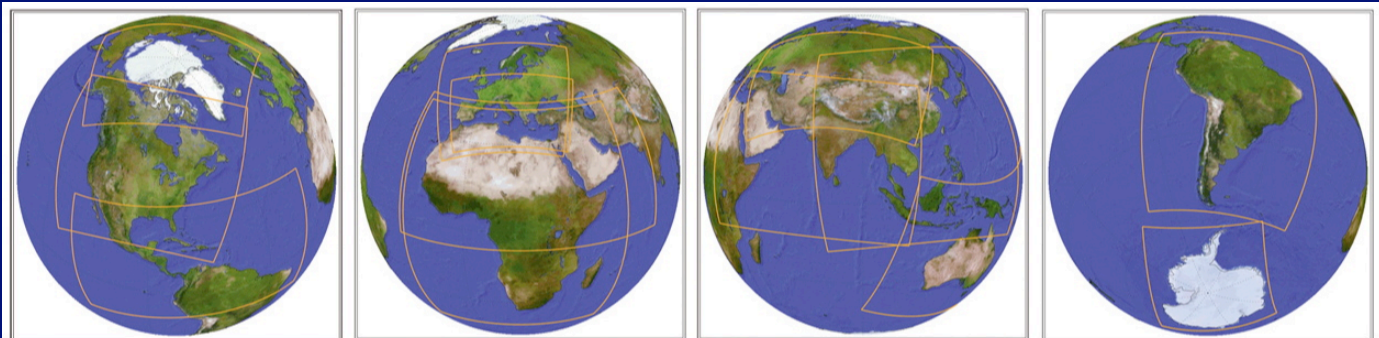
CORDEX – Management & Science Issues

➤ International Project Office for CORDEX (IPOC)

- Turnover in IPOC Director

➤ Funding for a widely dispersed program

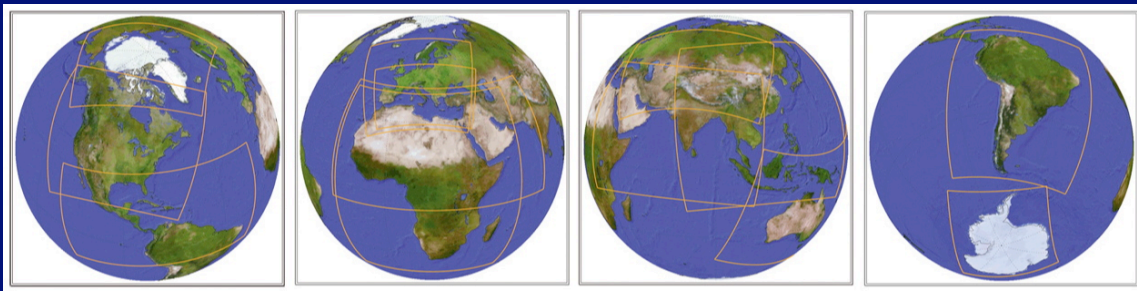
- Connecting with APN, GFCS, EU, World Bank, Asian Dev. Bank . . .



CORDEX – Data Issue

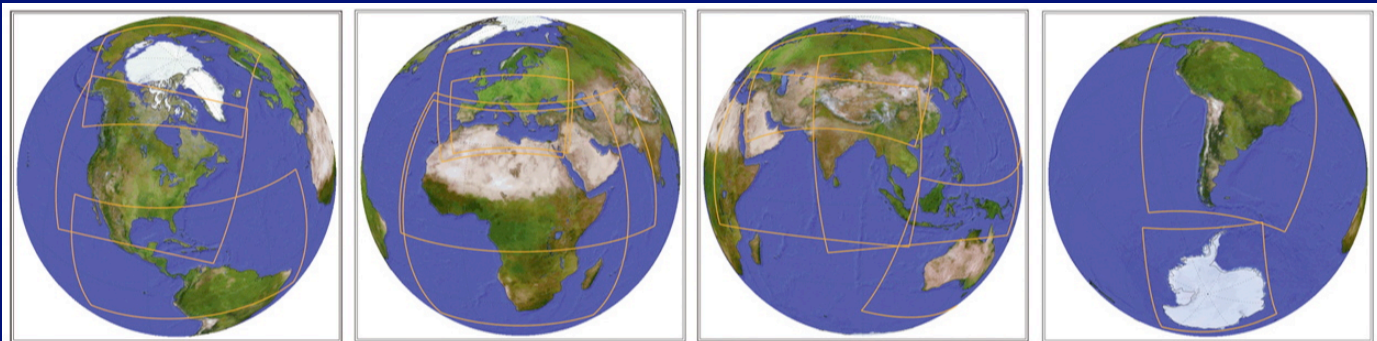
- **Observational deficiency: Climatological observations at spatial/temporal scales of regional phenomena**
 - Processes resolved by dynamical models
 - Targets for statistical downscaling

- **Flagship Pilot Studies are one avenue for overcoming this**



CORDEX – Modeling Issues

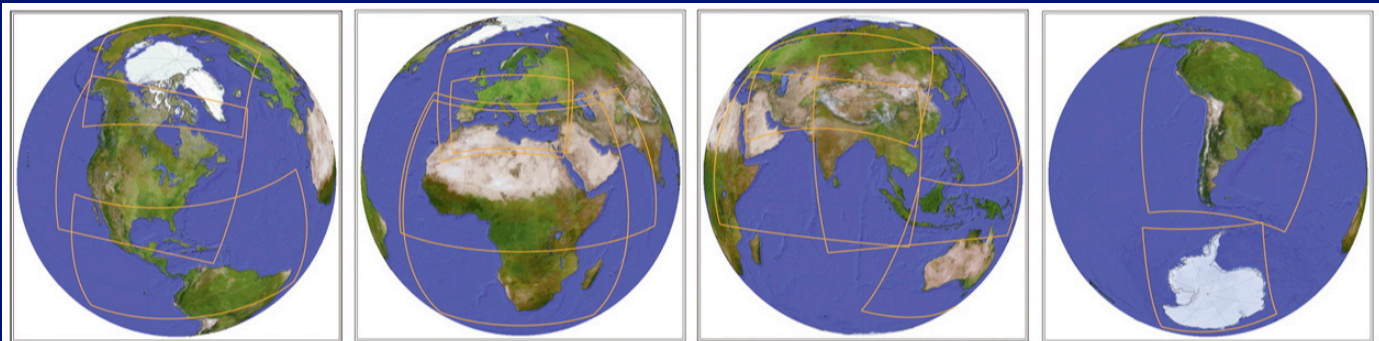
- **Model development: Cloud-resolving climate dynamics**
 - Flagship Pilot Studies
- **Assessing all forms of downscaling**
 - E.g., completed workshop series.
- **Participation in CMIP6**
 - CORDEX is a diagnostic MIP



CORDEX – Regional Issues

➤ Coordination beyond CORDEX:

- WGRC & FOCI Projects
- IS-ENES2 (ESGF & data policy)
- Future Earth (through WCRP and regional office)
- Obs4MIPS, TGICA, GFCS
- Connecting with APN, GFCS, EU, World Bank, Asian Dev. Bank . . .



Thank You

