

# CORDEX: where we are ? Achievements and Challenges

**Grigory Nikulin**

Swedish Meteorological and Hydrological Institute  
(SMHI)

# CORDEX Management and Coordination

- CORDEX (WCRP project) has been running since 2009
- CORDEX Science Advisory Team (SAT), 12 members

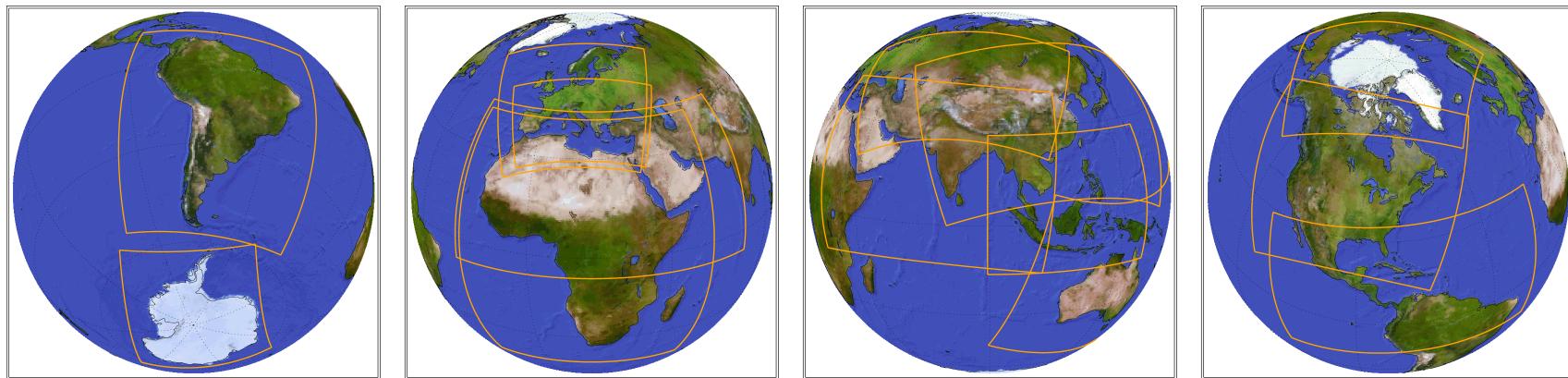


- International Project Office for CORDEX (IPOC) hosted by SMHI (Sweden) since January 2015 (Irene Lake)
- Each CORDEX domain has 2-3 Points of Contacts (POCs)
- CORDEX archiving is coordinated by IS-ENES

# CORDEX Phase I

- focus on downscaling of the CMIP5 results
- both dynamical (RCM) and statistical downscaling (ESD)
- RCM: about 40 groups in the CORDEX RCM list (+ 30 unregistered)
- ESD: 13 groups registered for the 1<sup>st</sup> ESD experiment (+ 30)

14 CORDEX domains



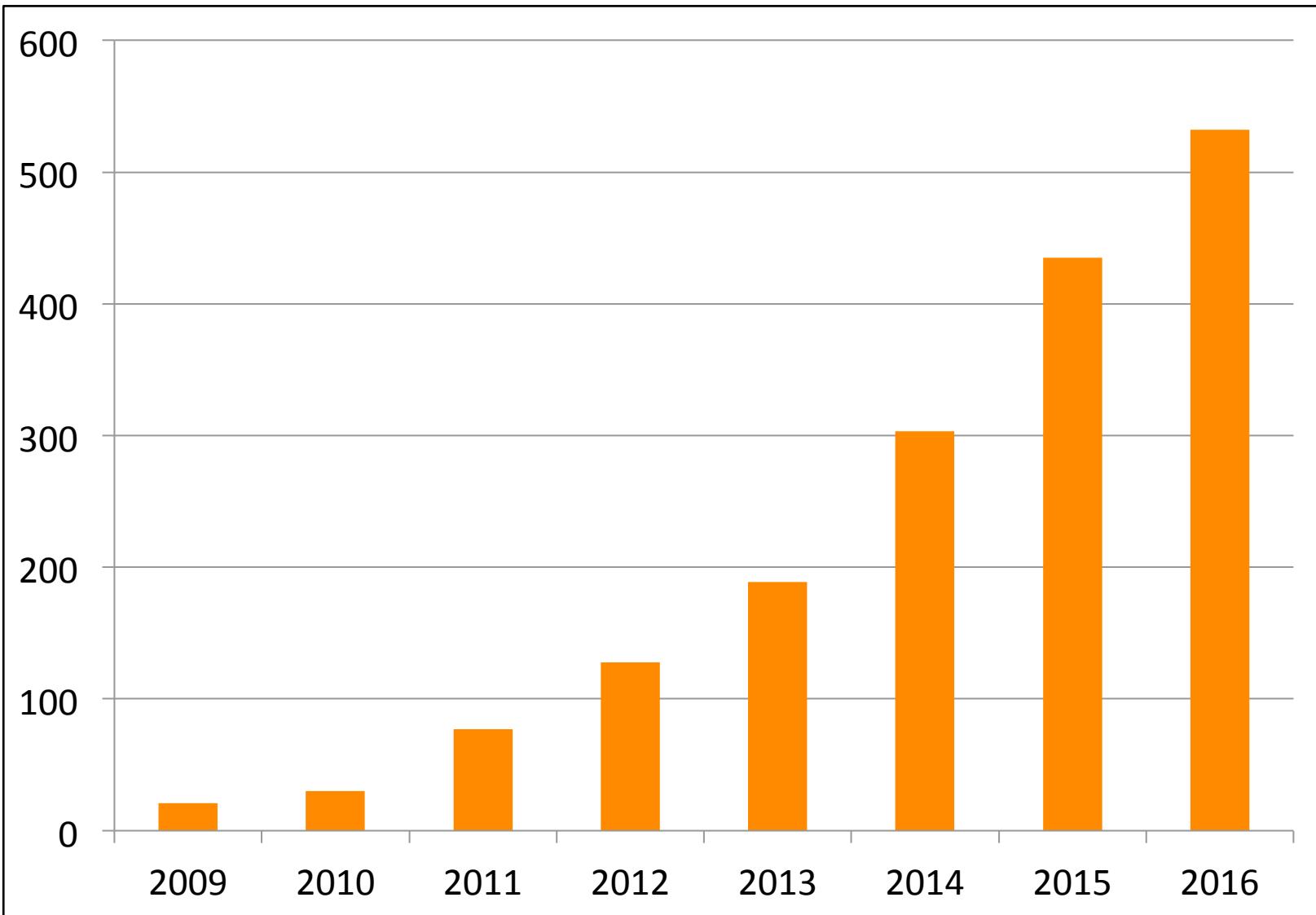
**CORDEX simulations can be accessed using:**

1. Earth system Grid Federation (ESGF)
2. Regional Data Portals (Med-CORDEX, South and East Asia)

- CORDEX-Adjust: bias-adjusted simulations on ESGF (Oct 2016)

# CORDEX-related articles

searching for CORDEX & RCM & climate in Google Scholar



# Pan-CORDEX Conferences and Workshops

## Pan-CORDEX conferences:

- **CORDEX2011**, Trieste, about 150 participants
- **CORDEX2013**, Brussels, about 450 abstracts and more than 500 attendees; also VIA and stakeholders community
- **CORDEX2016**, Stockholm, more than 300 participants

Trieste 2011



Stockholm 2016



- Regular CORDEX session at EGU (usually one full day), AGU
- Many regional workshops for specific CORDEX domains

# CORDEX-data team

**development of the CORDEX archiving infrastructure was an joint effort of a number of European groups with coordination by the IS-ENES2 FP7 project**

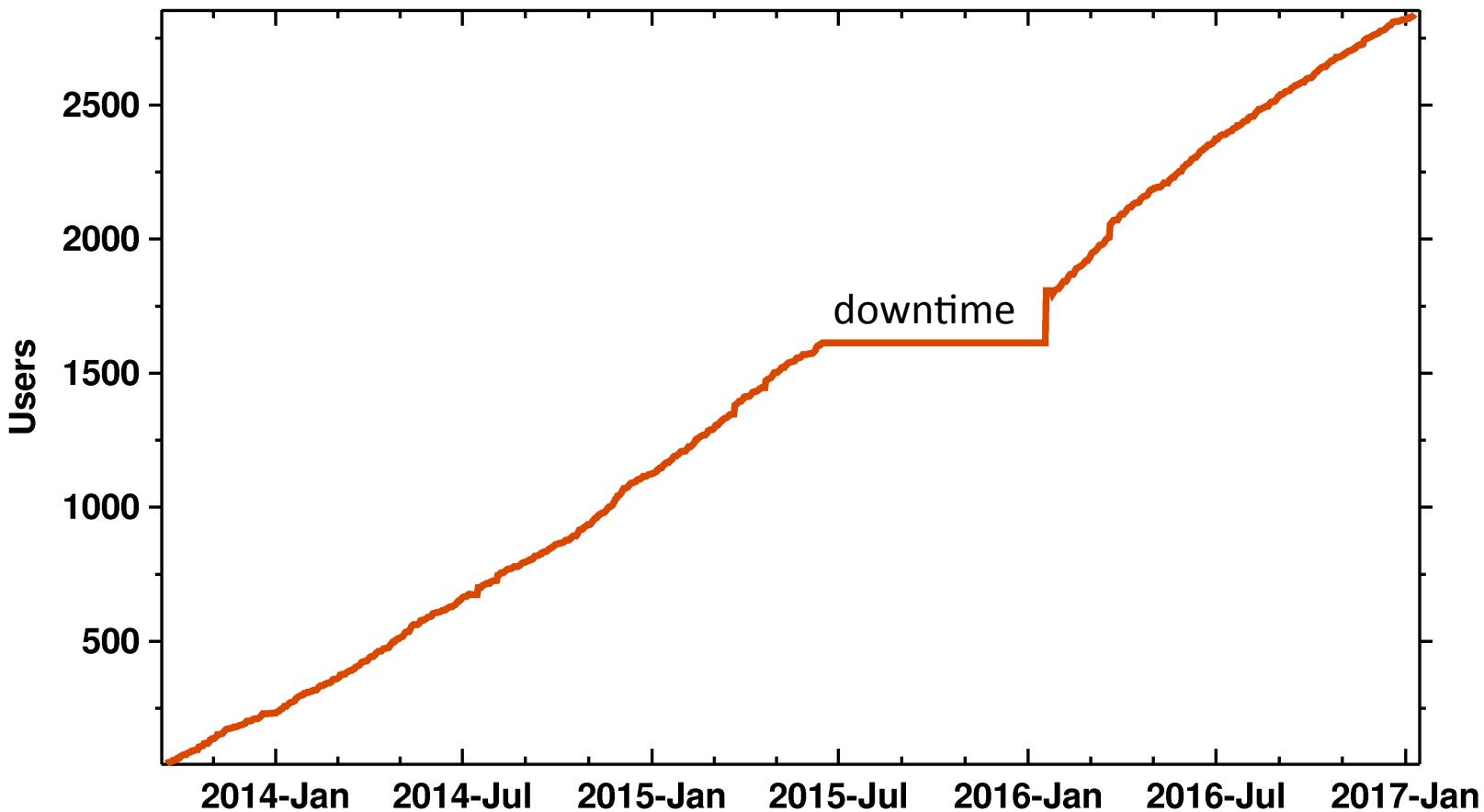
- Martin Juckes and Stephen Pascoe (BADC, UK)
- Ole B. Christensen (DMI, Denmark)
- Stephanie Legutke and Stephan Kindermann (DKRZ, Germany)
- Sebastien Denvil (IPSL, France)
- Grigory Nikulin and Michael Kolax (SMHI, Sweden)
- Prashanth Dwarakanath and Torgny Faxén (NSC-LIU, Sweden)
- and many more ....



# CORDEX-ESGF

- CORDEX-ESGF is in operation since mid September 2013
- Number of users is growing (more and more data available)
- 2843 users in the CORDEX-ESGF group (11 Jan 2017)

Number of users registered in the ESGF-CORDEX group  
2843 users (Jan 11 2017) | Max: 49, 34, 26, 19, 13 users per day



# CORDEX ESGF nodes (January 2016)

3 nodes take data from different RCM groups (support, running QC etc.)

## Datanode

- cordexesg.dmi.dk (11596)
- esg-cccr.tropmet.res.in (815)
- esg-dn1.nsc.liu.se (40244)
- 
- 
- esgf-data1.ceda.ac.uk (2611)
- esgf.extra.cea.fr (686)
- esgf1.dkrz.de (12279)

- Univ. of Cantabria (Spain) and Norstore (Norway)
- New CORDEX ESGF node will be established at the Ramkhamhaeng University (Thailand) serving CORDEX South-East Asia (help form the ESGF trainings and IITM)

# CORDEX documentation

All CORDEX coordination documentation and lists are available from  
<http://is-enes-data.github.io/>

## Public CORDEX documents and lists for reference

**PDF documents concerning ESGF CORDEX quality control, archive design and requested variables**

[ESGF CORDEX quality control information](#)

[CORDEX requested variables](#)

[CORDEX Archive Design document](#)

[DRS for bias-adjusted CORDEX simulations](#)

[CMIP5 GCM list](#)

**Automatically generated lists on available CORDEX RCMs**

- [CORDEX RCM list in csv format](#)
- [CORDEX RCM list in plain text format](#)
- [CORDEX RCM list including full institution names in html format](#)
- [Overview of ESGF published CORDEX RCMs in html format](#)

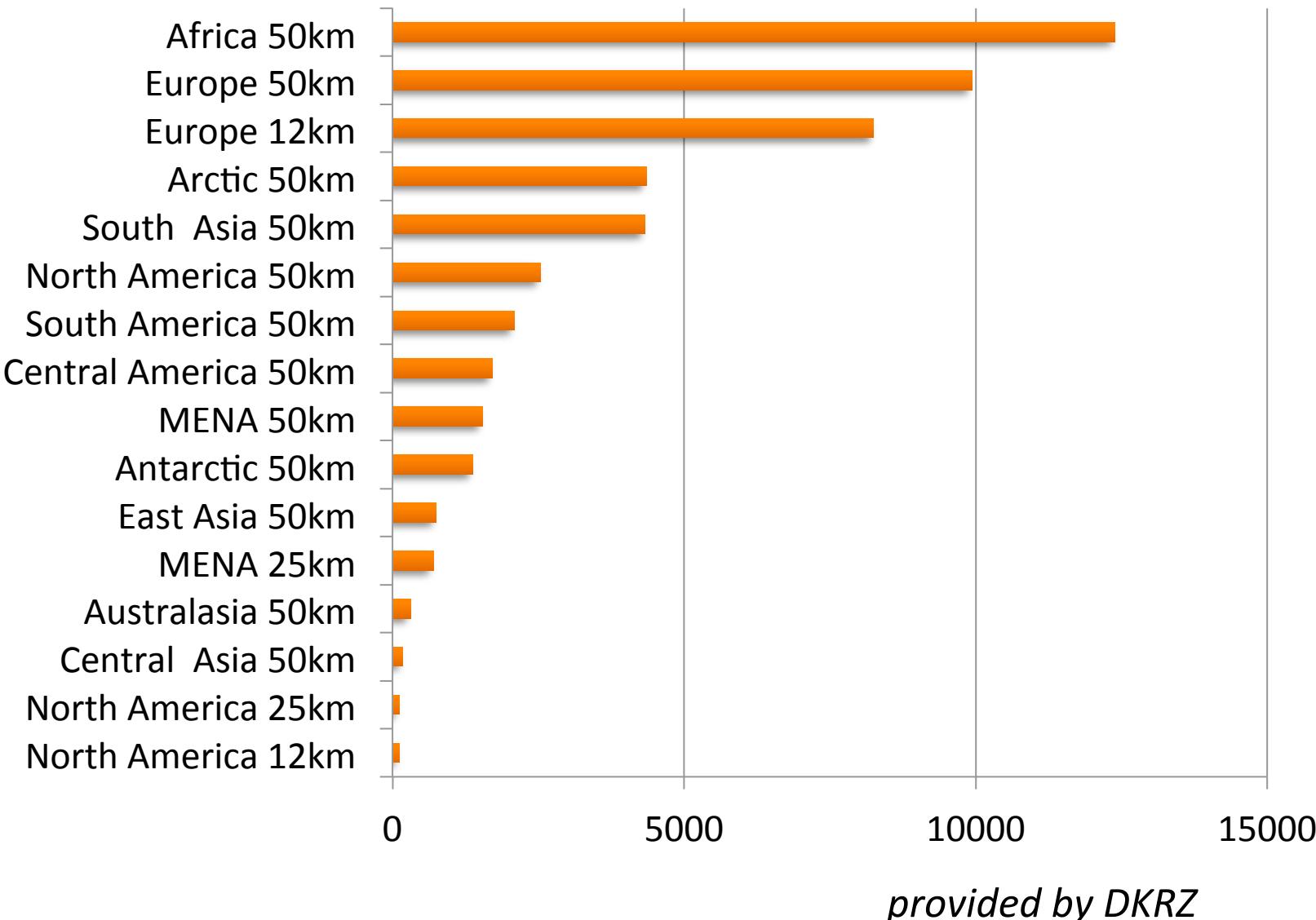
**Automatically generated lists on available CORDEX bias correction methods**

- [Summary of bias adjustment methods applied to CORDEX simulations](#)
- [Additional info on bias adjustment methods](#)
- [Calibration datasets used for bias adjustment of CORDEX simulations](#)

DRS for statistical downscaling is in development, different from RCM  
(Univ. of Cantabria, Univ. of Cape Town, DWD, SMHI)

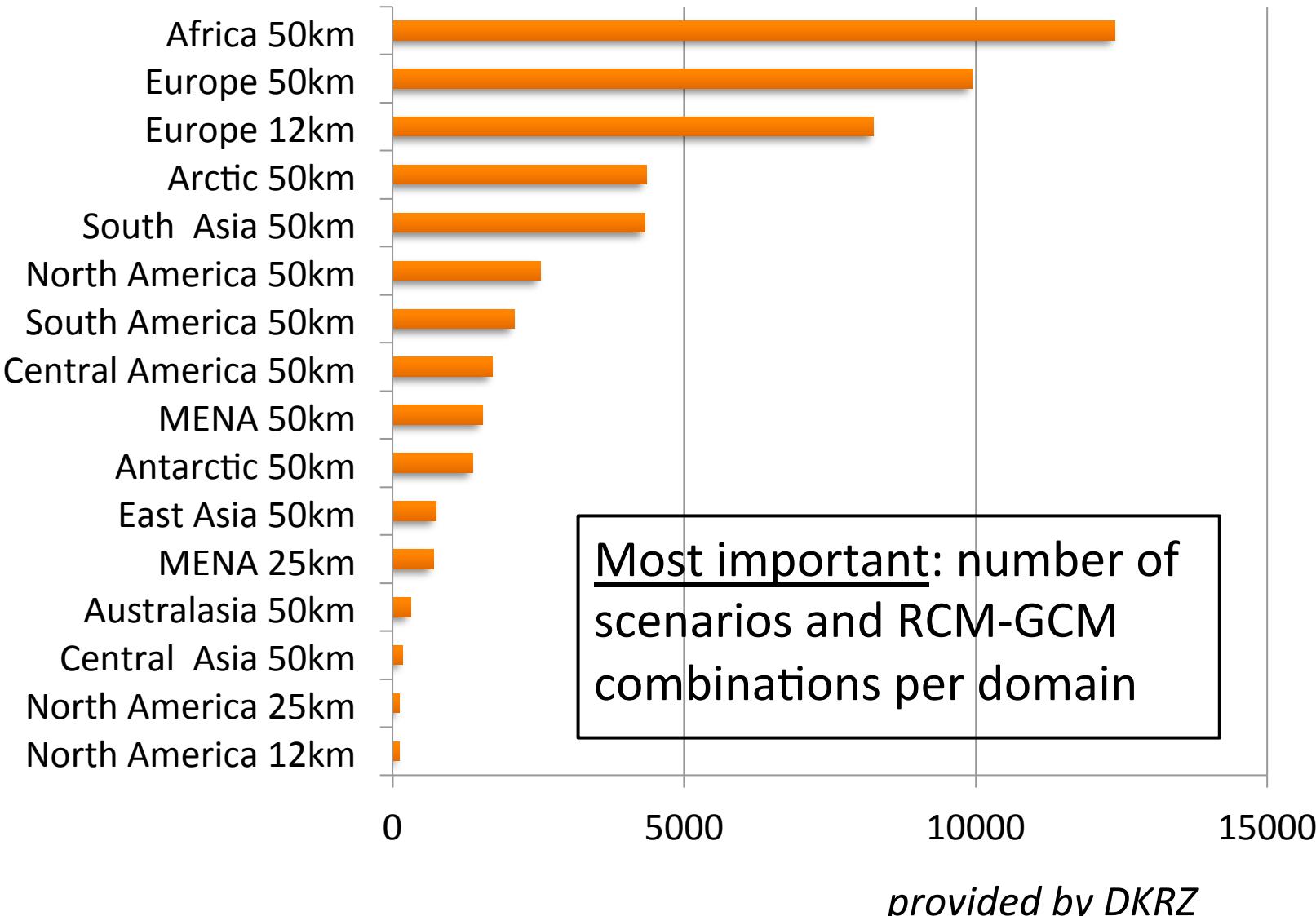
# CORDEX data on ESGF

## Number of files



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

You are here: Accueil > Data access > CORDEX data on ESGF

## CORDEX data on ESGF

To find a table showing the CORDEX data available on the ESGF [click here](#).

- [Data access](#)
- [News & E](#)

How to access the data

- [ESGF](#)
- [Impact Portals](#)
- [Regional Data Portals](#)
- [Individual institutes](#)
- [CORDEX RCM List](#)
- [CORDEX data on ESGF](#)

- automatically generated once a week or when a larger number of new datasets published
- many thanks to DKRZ for providing this service and auto-generated CORDEX lists

# What's available ?

## CORDEX - ESGF data availability overview

### - sorted by domains -

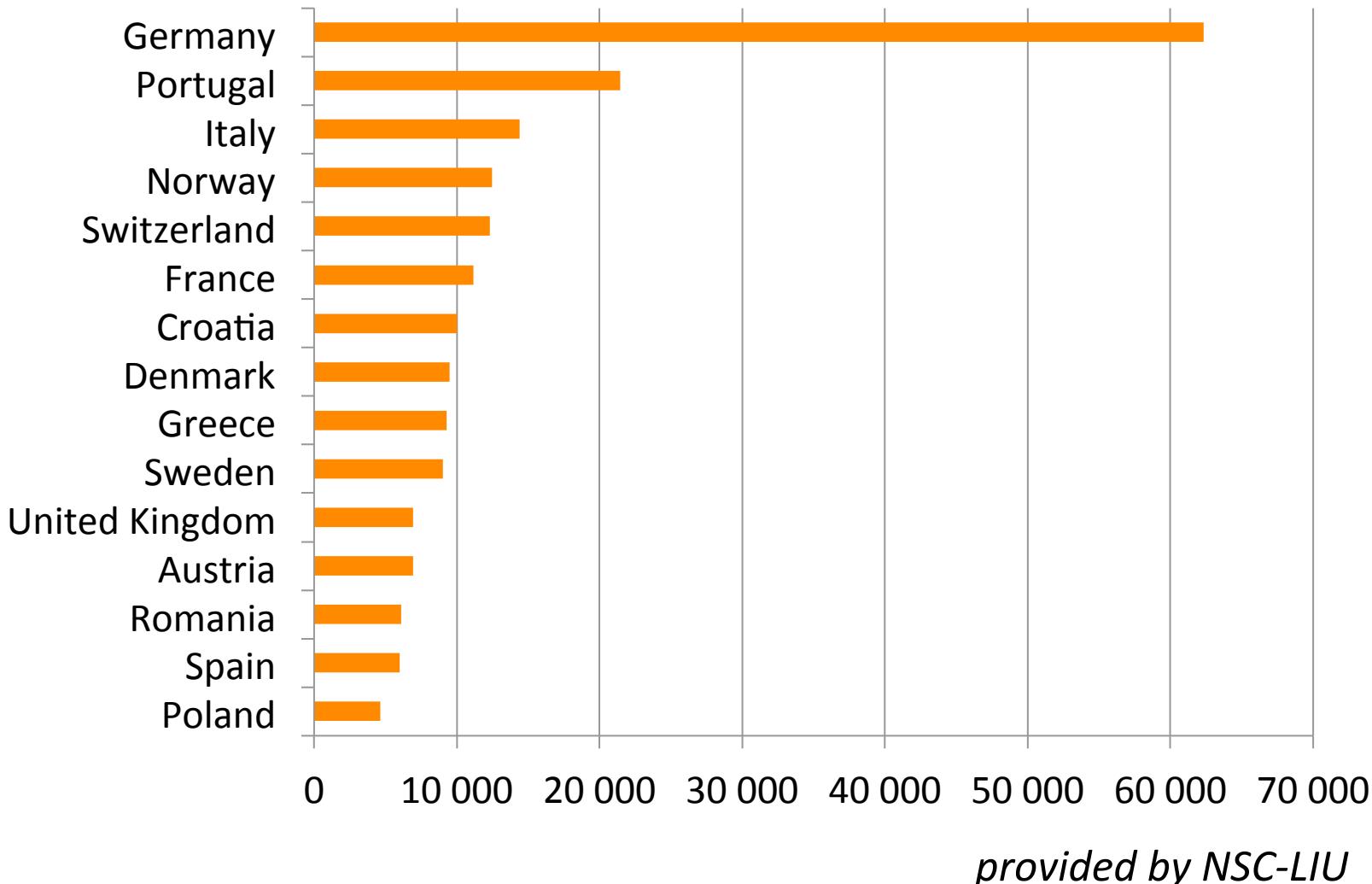
Information retrieved from ESGF index nodes at # 2016-05-04 14:43:21 #

Domain	Model	Driving Model
AFR-44	CCLM4-8-17	CNRM-CERFACS-CNRM-CM5
AFR-44	CCLM4-8-17	ECMWF-ERAINT
AFR-44	CCLM4-8-17	ICHEC-EC-EARTH
AFR-44	CCLM4-8-17	MOHC-HadGEM2-ES
AFR-44	CCLM4-8-17	MPI-M-MPI-ESM-LR
AFR-44	CRCM5	CCCma-CanESM2
AFR-44	CRCM5	ECMWF-ERAINT
AFR-44	CRCM5	MPI-M-MPI-ESM-LR
AFR-44	HIRHAM5	ECMWF-ERAINT
AFR-44	HIRHAM5	ICHEC-EC-EARTH
AFR-44	HIRHAM5	NCC-NorESM1-M
AFR-44	MOHC-HadGEM3-RA	ECMWF-ERAINT
EUR-11	RACMO22E	ICHEC-EC-EARTH
EUR-11	RACMO22E	MOHC-HadGEM2-ES
EUR-11	RCA4	CNRM-CERFACS-CNRM-CM5
EUR-11	RCA4	ECMWF-ERAINT
WAS-44	REMO2009	MPI-M-MPI-ESM-LR
WAS-44i	MOHC-HadRM3P	ECMWF-ERAINT
ARC-44	RRCM	ECMWF-ERAINT
ARC-44i	HIRHAM5	ECMWF-ERAINT
ARC-44i	MAR352	ECMWF-ERAINT

# Euro-CORDEX downloads

EUR-11 & EUR-44: the Swedish ESGF node (esg-dn1.nsc.liu.se)

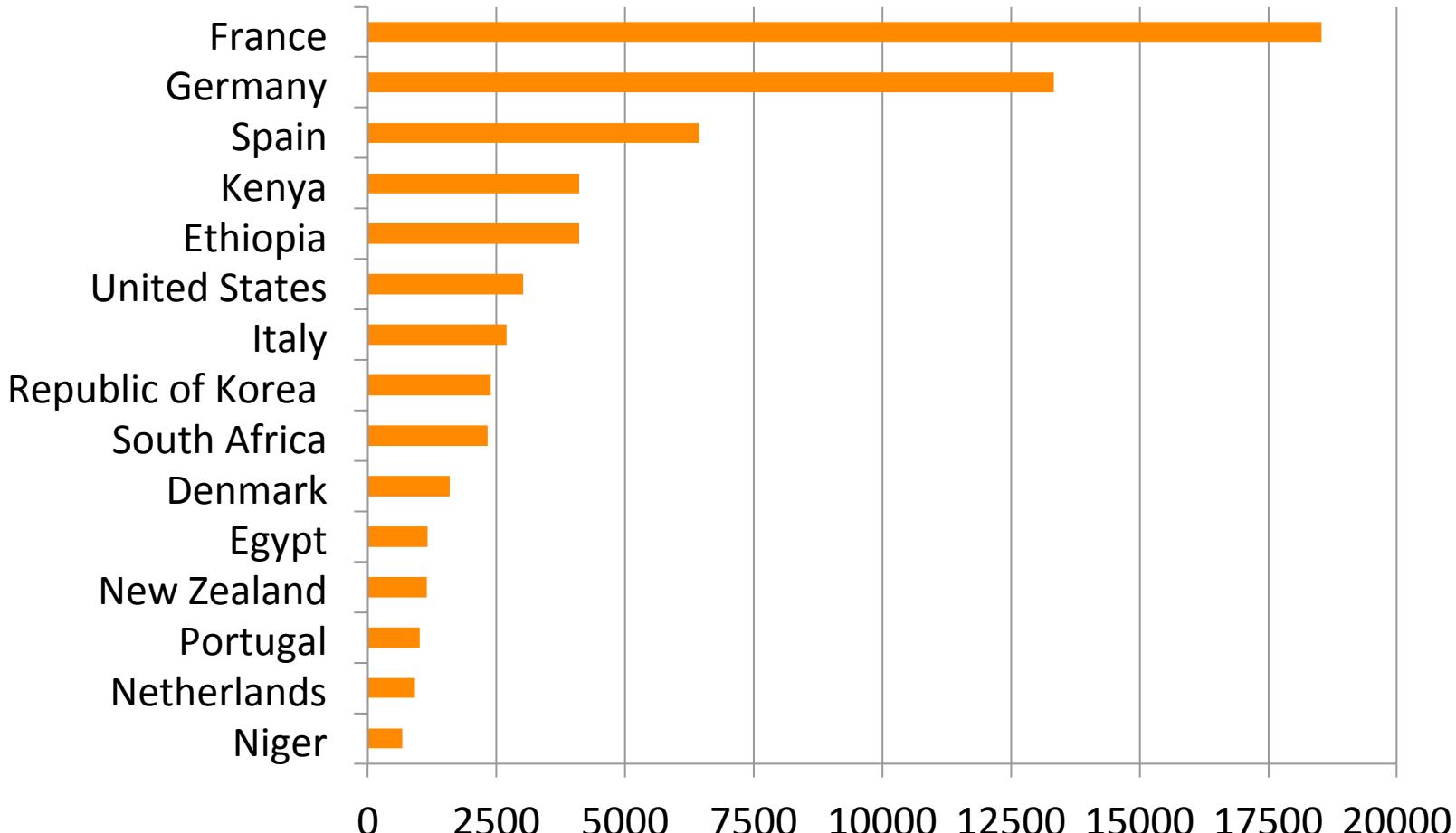
**Number of Files (only SMHI-RCA4, 36 scenarios )**



# CORDEX-Africa downloads

AFR-44: the Swedish ESGF node ([esg-dn1.nsc.liu.se](http://esg-dn1.nsc.liu.se))

**Number of Files (only SMHI-RCA4, 25 scenarios)**



*provided by NSC-LIU*

# ESGF training workshop for CORDEX Asia

Technical workshops: setting up ESGF node, quality control and publication of CORDEX simulations on ESGF

- 2014, WMO Regional Training Centre, Nanjing, China
- 2016, International Convention Center, Jeju, Korea
- both workshops supported by IS-ENES2 including experts from IPSL, NSC-LIU and SMHI

Nanjing, December 2014



Jeju, February 2016



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  - response to IPCC needs
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- Flagship Pilot Studies (FPS):
  - focus on processes and sub-continental scales (e.g. hi-res convection permitting simulations, aerosol, land use changes)
  - 5 FPS are running and 2 are under review
  - 3 deadlines per year for FPS proposals; 15th February, 15th June and 15th October
  - archiving for FPS simulations ????

# CORDEX challenges

- **Sparse GCM-RCM matrices** in many CORDEX domain:
  - difficult to run analysis and select subsets for impact studies
  - CORDEX-CORE: improving GCM-RCM matrices
  - Euro-CORDEX: Copernicus call on regional projections for C3S

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  - multi-member ensembles at individual institutions (ETH, KNMI)
  - may be a focus on SSP3-7.0 in CMIP6 (10 members)

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- **Errata system**:
  - no well established system, mail to the community (not always)
  - mails to individual user who downloaded data ???
  - changing file names for new “corrected” simulations ???

# Thank you for your attention Questions ?

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

[cordex.org](http://cordex.org)

About Domains Experiment Guidelines Data access News & Events Publications



### CORDEX News

- ICRC-CORDEX 2016 Register now! Registration deadline 1st May 2016
- CORDEX ECS May 19th
- EURO-CORDEX General Assembly 2016
- ICRC-CORDEX 2016: Notification of successful abstracts and