



Convection-Permitting Climate Modeling Workshop

Organized by: CIMA, DCAO & NCAR

Supported by: UBA, CONICET, FONCyT, IPGH, NCAR, GEWEX & IRL 3351 IFAECI

Programme

C. A. Buenos Aires, 7-9th September 2022

<http://www.cima.fcen.uba.ar/cpcmw2022/index.php>, vi.cpcmw@cima.fcen.uba.ar

Schedule at local time (UTC -3)

Wednesday 7th

7:45-8:30 : Bus leaves from Dazzler and Recoleta hotel

8:00-8:30 : Bus leaves from Sarum hotel

08:30-09:00 : welcome / registration

09:00-09:30 : welcome and introduction

09:30-10:30: Discussion Panel 1. How can CPM modeling contribute to climate services in South America?

Chairs: Maria Laura Bettolli

- Lorena Ferreira: *Climate services in Southern South America: the Argentine National Meteorological Service Perspective*

- Matilde Rusticucci: *South America Climate Change Impacts and Risks. Results from IPCC AR6 WG2*

10:30-11:00 : Coffee break

11:00-12:30: Discussion Panel 2. Best practices in constructing regional climate change information

Chairs: Roy Rasmussen

- Elizabeth Kendon: *Providing improved quantitative estimates of future changes in local weather extremes.*

- Alex Hall: *What is the best dynamical downscaling method to project future regional climate change?*

- Lai-yung Ruby Leung: *Storyline simulations for informing decision making*

- Anna Sörensson: *Constructing regional climate information relevant for risk assessments and decision making: Insights from IPCC AR6 WGI*

- Aiguo Dai: *Some issues in constructing large-scale forcing for climate downscaling*

12:30-13:30 : LUNCH

13:30-14:30: Discussion Panel 3. Data archive and access challenges

Chairs: Lluís Fita

- Malcolm Roberts: *PRIMAVERA's use of the JASMIN super-data-cluster for the analysis of high-resolution multi-model climate datasets*

- Philip Kershaw: *ESGF, a Globally Distributed Software Infrastructure to Address the Challenges of Data Management, Access and Analysis for High Volume Climate Model Data*

14:30-15:00: Keynote 4. What can we learn from weather forecasting?

Chairs: *Lluís Fita*

- Linda Schlemmer: *Kilometer-scale NWP: a challenge to glory*

15:00-15:30 : *Coffee break*

15:30-16:30 Session 1. The added value of convection-permitting climate simulations

Chairs: *Andreas Prein*

15:30-15:45 Stefan Sobolowski, Erika Coppola and the FPSCONV team: *Highlight findings from the WCRP CORDEX Flagship Pilot Study on Convection over Europe and Mediterranean (FPSCONV)*

15:45-16:00 Marcia T Zilli and Neil C. G. Hart: *Improvements in simulating tropical-extratropical cloud bands over South America by using convective-permitting models.*

16:00-16:15 Jan Polcher: *Land surface processes on Convection-Permitting Climate Modelling*

16:15-16:30 Ernani de Lima Nascimento: *Cold pools, mesohighs, and severe wind gusts: opportunities to assess the South American climatology of intense convectively-induced surface features with a convection-permitting regional climate simulation.*

16:30-17:30 : *Poster session (in venue hall)*

17:30-18:30 : *Ice breaker (in venue hall)*

18:45-19:30 : *Bus is leaving for hotels*

Thursday 8th

8:00-9:00 : *Bus leaves from Dazzler and Recoleta hotel*

8:30-9:00 : *Bus leaves from Sarum hotel*

09:00-10:30: Discussion Panel 5. What are unique topics that we have to simulate in CPM models that are not relevant in NWP
Chairs: *Stefan P. Sobolowski*

- Bodo Ahrens: *Ocean-Atmosphere Regional Climate Modeling Systems: Pros and Cons*

- Francina Dominguez: *The Importance of Water Below Ground in Convection Permitting Models for Climate Simulations*

- Jhan Carlo Espinoza: *Modeling the impacts of Amazon deforestation on the Andes-Amazonas hydro-climatic connection*

- Wojtek Gabowsky: *Daytime convective development over land: the role of surface forcing*

- Jan Polcher: *Land and water usage: Humans create with their water usage contrasts at the surface which drive atmospheric processes at various scales*

- Mariano Masiokas: *Recent glacier changes and their main climatic forcings across the Andes*

10:30-11:00 : *Coffee break*

11:00-12:30 Session 2. South American high resolution modeling research activities
Chairs: *Alejandro Martínez*

11:00-11:15 Clémentine Junquas, M.B. Heredia, T. Condom, J.C. Ruiz-Hernandez, L. Campozano, J. Dudhia, J.C. Espinoza, M. Menegoz, A. Rabatel and J. E. Sicart: *Regional climate modeling of the diurnal cycle of precipitation over an equatorial Andean glacier region (Antizana, Ecuador)*

11:15-11:30 Sebastián Gómez-Ríos, K. Santiago Hernández, Juan J. Henao, Vanessa Robledo, Alvaro Ramírez, Jimmy Flórez, Sara Lorduy, David Ortega and Angela M. Rendón: *Influence of regional processes in convection over an inter-Andean valley in Colombia*

11:30-11:45 Milagros Alvarez Imaz, Paola Salio, María Eugenia Dillon, Lluís Fita and Diego Saúl Carrió Carrió: *Predictability of a supercell using convection-permitting ensemble simulations in Argentina*

11:45-12:00 Chiara De Falco, Priscilla Mooney and Jerry Tjiputra: *The impact of convective permitting resolution in a coupled regional ocean-atmosphere model of the Eastern Tropical Pacific*

12:00-12:15 Moira Doyle, Gonzalo Díaz, María Laura Bettolli, Silvina A. Solman, Laura Chavez, Rocío Balmaceda Huarte, Josefina Blazquez, Rosmeri Porfirio da Rocha, Marta Llopart and J. Milovac: *Impact of using precipitation from convection permitting models on the simulated Uruguay River streamflow*

12:15-12:30 Lourdes Mendoza Fierro, Christopher L. Castro, Hsin-I Chang, Rodrigo Valdés-Pineda and Christoforus Bayu Risanto: *Evaluating Extreme Precipitation Forecasts using Convective-Permitting Modeling in Tarapacá Region, Chile*

12:30-13:30 : LUNCH

13:30-14:15: Keynote 6. **Kilometer-resolution climate modelling over the tropical and sub-tropical Atlantic**

Chairs: *Roy Rasmussen*

- Christopher Schär: *Kilometer-resolution climate modelling over the tropical and sub-tropical Atlantic*

14:15-15:00 Session 3. Towards global convection-permitting modelling

Chairs: *Ruby L. Leung*

14:15-14:30 Lorenzo Tomassini, Martin Willett, Alistair Sellar, Adrian Lock, David Walters, Claudio Sanchez, Julian Heming, Charmaine Franklin and Catherine Senior: *Towards a convection-permitting global configuration of the Met Office Unified Model*

14:30-14:45 Stefano Ubbiali, Till Ehrenguber, Enrique González Paredes, Nicolai Krieger, Christian Kühnlein, Lukas Papritz, Hannes Vogt and Heini Wernli: *Towards a Python-Based Performance-Portable Finite-Volume Dynamical Core for Numerical Weather Prediction*

14:45-15:00 Hans Segura, Cathy Hohenegger, Christian Wengel and Bjorn Stevens: *Advantages of global storm resolving models in representing seasonal characteristics of tropical precipitation*

15:00-16:00 : Poster session & Coffee break (in venue hall)

16:00-16:45: Discussion Panel 7. **What are some of the unique contributions that the CPM community can make to the next IPCC report?**

Chairs: *Alex Hall*

- Paola A. Arias: *The Sixth Assessment Report of the IPCC: gaps and opportunities for the next cycle*

- Alejandro Di Luca: *Convection-permitting models in IPCC reports: a parallel with Regional Climate Models?*

16:45-17:30 Session 4. Event-based storyline approaches to climate change

Chairs: *Alex Hall*

16:45-17:00 Miguel Lagos-Zúñiga, Deniz Bozkurt and Roberto Rondanelli: *Sensitivity of convective precipitation to warming in the extratropical Andes*

17:00-17:15 Chelsea Parker, Priscilla Mooney, Melinda Webster and Linette Boisvert: *Examining the Effect of Climate Change on Arctic Cyclone Behavior in a Regional Climate Framework*

17:15-17:30 Hiroaki Kawase: *Contributions of CPM to evaluate the impact of historical warming on recent extreme events in Japan*

17:45-18:30 : Bus is leaving for hotels

19:30-20:00 : Appointment for walking to the 'Gala dinner'

20:00-22:00 : 'Gala dinner'

22:30-22:45 : Bus is leaving for hotels

Friday 9th

8:00-9:00 : Bus leaves from Dazzler and Recoleta hotel

8:30-9:00 : Bus leaves from Sarum hotel

9:00-10:00: Discussion Panel 8. **CP and impact studies and policy making**

Chairs: *Anna Sörensson*

- Jason P. Evans: *Performing Convection Permitting simulations to address policy makers questions*

- Silvina A. Solman: *Regional Information for Society (RIfS): a roadmap for policy-relevant climate research*

- Monica Morrisson: *Making Modeling Responsive to Stakeholder Needs: Recommendations for Fruitful Coproduction*

- Chris Lennard: *Developing capacity for southern countries to engage in convection permitting modelling*

10:00-10:30 Session 5. Mechanisms of extreme events by using very high resolution model

Chairs: *Andreas Prein*

10:00-10:15 Erin M. Dougherty, Andreas F. Prein, Ethan D. Gutmann and Andrew J. Newman: *Future Mesoscale Convective System Rainfall Related to Changes in Convective and Stratiform Structure*

10:15-10:30 J. Alejandro Martinez, Paola A. Arias, Francina Dominguez and Andreas F. Prein: *A Mesoscale Convective System over the tropical Andes: role of the Orinoco Low-level Jet and PBL schemes*

10:30-11:00 : *Coffee break*

11:00-12:30 Session 6. South America coordinated scientific efforts

Chairs: *Lluís Fita*

11:00-11:15 Peter J. van Oevelen: *WRCP - GEWEX*

11:15-11:30 Mariano Masiokas: *ANDEX*

11:30-11:45 Roy Rasmussen: *NCAR SAAG*

11:45-12:00 María Laura Bettolli: *CORDEX FPS South America*

12:00-12:15 Kristen Rasmussen: *RELAMPAGO – CACTI*

12:15-12:30 all: *Discussion*

12:30-13:30 : *LUNCH*

13:30-14:30 : *Breakout group*

14:30-15:00 : *Coffee break*

15:00-15:45 : *Report breakout group*

15:45-16:00 : *7th workshop announcement & End of Workshop*

16:15-17:00 : *Bus is leaving for hotels*

End of conference

List of posters

Session 1: The added value of convection-permitting climate simulations

P.1.1 Divyansh Chug, Francina Dominguez, Christopher Taylor, Cornelia Klein and TBD: *Morning Soil Moisture Heterogeneity is Strongly Linked to Daytime Convection over Subtropical South America*

P.1.2 Dave Rowell and Ségolène Berthou: *Fine-scale climate projections: What additional spatial detail is provided by a convection-permitting model?*

P.1.3 Weiran Liu, Paul Ullrich, Jianfeng Li, Colin Zarzycki, Peter Caldwell, Lai-yung Ruby Leung and Yun Qian: *The 2012 North American Derecho: A testbed for evaluating regional and global climate modeling systems at cloud-resolving scales*

P.1.4 Virginia Edith CORTES-HERNANDEZ, Philippe LUCAS-PICHER, Erwan BRISSON, Gilles BELLON, Cécile Caillaud and Antoinette Alias: *Investigating the added value of the Convection Permitting Model CNRM-AROME over the Island of Corsica*

P.1.5 Aude LEMONSU, Cécile Caillaud, Antoinette Alias, Yann SEITY, Sébastien RIETTE, Benjamin LE ROY, Yohanna MICHAU and Philippe LUCAS-PICHER: *What added value of CNRM-AROME convection-permitting regional climate model compared to CNRM-ALADIN regional climate model for urban climate studies ? Evaluation over Paris area (France)*

P.1.6 Michael Haller, Susanne Brienens, Harald

Rybka, Stéphane Haussler, Jennifer Brauch and Barbara Früh: *Analyses of added value for heavy rain fall and strong wind in convection-permitting climate simulations over Germany*

P.1.7 Minh-Truong HA, Sophie Bastin, Philippe Drobinski, Lluís Fita, Olivier Bock and simulations providers: *Precipitation frequency in Med-CORDEX and EURO-CORDEX ensembles from 0.44° to convection-permitting resolution: Impact of model resolution and convection representation*

P.1.8 Silvina A. Solman and Martin Feijoó: *A preliminary assessment of convection-permitting simulations over southeastern South America performed with the WRF model*

P.1.9 Christopher L. Castro, Thang Luong, Christoforus Bayu Risanto, Hsin-I Chang and Ibrahim Hoteit: *Trends of convective event climatology in the Arabian Peninsula and forecast opportunity at S2S time scale*

Session 2: Mechanisms of extreme events by using very high resolution model

P.2.1 Daniel Argüeso, R. Romero, V. Homar and Andreas F. Prein: *Changes in Mediterranean convective storms under climate change conditions*

P.2.2 Cécile Caillaud, Samuel Somot, Hervé Douville, Antoinette Alias and CORDEX FPS Convection team: *Fall Mediterranean Heavy Precipitation Events as seen by a large ensemble of CP-RCM future projections*

P.2.3 K. Santiago Hernández, Sebastián Gómez-Ríos, Juan J. Henao, Vanessa Robledo, Alvaro Ramírez, Jimmy Flórez, Sara Lourdy, David Ortega and Angela M. Rendón: *Mechanisms behind the occurrence of convective systems in Northwestern South America: results from a cloud-resolving simulation*

P.2.4 J.C. Camacho, J. Alejandro Martinez and Paola A. Arias: *Mesoscale Convective Systems in the Colombian Caribbean: Insights from ConvectionPermitting simulations*

P.2.5 Ségolène Berthou, Malcolm Roberts, Benoît Vannière and EUCP data providers: *Convection in future winter storms over Northern Europe*

P.2.6 Douglas Lima de Bem, Franciano Scremin Puhales and Allan Severo Finger: *Analysis of model WRF sensibility on extreme events in the mountains of Rio de Janeiro*

P.2.7 Daiana Martinez, Silvina A. Solman, Rosmeri Porfirio da Rocha, Jesús Fernández and Martin Feijoó: *Characterization of the thermodynamic environment of extreme precipitation events in southeastern South America*

P.2.8 Andreas F. Prein, Ming Ge, Alexandra Ramos Valle, Dié Wang and Scott Giangrande: *The Importance of Grid Spacing in Simulating Organized Convective Storms*

Session 3: Event-based storyline approaches to climate change

P.3.1 Murilo Ruv Lemes, Gilvan Sampaio, Gilberto Fisch and Lincoln M. Alves: *The influence of in the moisture transport from the Amazon Forest to the South America continent*

P.3.2 Isabel C. Correa, Paola A. Arias and Sara C. Vieira: *The climatology of the Orinoco low-level jet in CMIP5/CMIP6 models*

Session 4: South American high resolution modeling research activities

P.4.1 Jose Antonio Mantovani, Jose Antonio Aravequia and Gilberto Fisch: *ASSESSING PBL PARAMETERIZATION SCHEMES PERFORMANCE OVER THE CENTRAL AMAZON BASIN DURING GOAMAZON2014/5*

P.4.2 Kate Halladay, Ron Kahana, Ségolène Berthou and Elizabeth Kendon: *Convection-permitting climate simulations for South America: a land-surface perspective (with insights from Europe and Africa)*

P.4.3 Richard Bassett, Luis Garcia-Carreras, Douglas Lowe, Lincoln M. Alves, Gilberto Fisch, Kate Halladay, Ron Kahana and José Augusto Veiga: *Convective-Scale Impacts of Deforestation on Amazonian Rainfall (CIDAR)*

P.4.4 Luis Eduardo Muñoz, Lenin Campozano, Maylee Iza, Oscar Chimborazo and Luis Maisincho: *Evaluating the impact of WRF-3DVAR assimilation for weather forecasting in the Ander: The case of the Antisana glacier in Ecuador*

P.4.5 Laura Paccini and Bjorn Stevens: *Improved representation of Amazon precipitation by organized convection in storm-resolving simulations*

P.4.6 Alan G. Rosales, Clémentine Junquas, Rosmeri Porfirio da Rocha, Thomas Condom and Jhan Carlo Espinoza: *Effects of the regional-local circulation on precipitation development in the tropical Andes (Rio Santa Basin).*

P.4.7 Josipa Milovac, Kirsten Warrach-Sagi and Jesús Fernández: *New Leaf Area Index data for CORDEX FPS-SESA simulations*

P.4.8 Erin Potter: *An Evaluation of High-Resolution Model Simulation Variations of Orographic Precipitation and Snowpack in the Southern Andes*

P.4.9 Silvina A. Solman, María Laura Bettolli, D. Carneiro-Rodrigues, M. Doyle, Martin Feijoó, Jesús Fernández, M. Llopart, J. Milovac, Rosmeri Porfirio da Rocha and S. Vianna-Cuadra: *The CORDEX FPS-SESA Ensemble convection-permitting simulations: Achievements, challenges and future developments*

P.4.10 Rodrigo Valdés-Pineda, Christopher L. Castro, Hsin-I Chang, Lourdes Mendoza Fierro and Christoforus Bayu Risanto: *Developing a Real-Time Operational Short-range to Sub-seasonal Forecast System to Improve Planning and Mitigation Activities of Extreme Hydroclimatological Events in the Tarapacá Region, Chile*

Session 6: Co-production of climate impact information based on convective permitting models and observations

P.6.1 Morgane Lalonde-Le Pajolec, Alexandre Dulac, Sophie Bastin and Ludovic Oudin: *Impact of urbanization on precipitation: a multi-site observation-modelization analysis over the United States of America.*

P.6.2 Sebastian K. Müller, Emanuela Pichelli, Erika Coppola, Segolene Berthou, Susanne Brienner, Cecile Caillaud, Marie-Estelle Demory, Andreas Dobler, Hendrik Feldmann and Hylke de Vries: *The Climate Response of Heavy Precipitation Events over the Alps and in the Mediterranean*

Session 7: Relation between climate modeling - impact studies - policy makers communities

P.7.1 Lincoln M. Alves, Kate Halladay, Ron Kahana and Robin Chadwick: *The need for Regional Climate Modelling for Brazil*

P.7.2 Lincoln M. Alves, Jose Augusto Veiga, Gilberto Fisch, Richard Bassett, Ron Kahana, Kate Halladay and Luis Garcia-Carreras: *Identifying end-user needs and opportunities provided by convection-permitting simulations in the Amazon Basin*

P.7.3 Moira Doyle, Gonzalo Díaz, María Laura Bettolli, Silvina A. Solman, Rosmeri Porfirio da Rocha, Marta Llopart, J. M. Gutierrez, Rocío Balmaceda Huarte, L Chavez and Josefina Blazquez: *Analysis of extreme hydrological events in the Uruguay River basin*

P.7.4 Daniela Araya-Osses, Celián Román-Figueroa, Donna Cortez, Jorge Soto and Manuel Paneque: *Effects of climate change on drought events on the Salar de Atacama*

Session 8: Benefits of convection-permitting climate modeled data for impacts assessments and policy making

P.8.1 Yohanna MICHAU, Aude LEMONSU, Philippe LUCAS-PICHER and Cécile Caillaud: *Using*

a high-resolution regional climate model for studying urban climate evolution in cities of northwestern Europe

P.8.2 Kwok Pan Chun, Pingyu Fan, Qing He, Omer Yetemen, Emir Toker, Yasemin Ezber and Omer Lutfi Sen: *Convection-Permitting Model Simulation based on Local Climate Zones (LCZs) for winter in Istanbul*

P.8.3 Rosmeri Porfirio da Rocha, M. Llopart, María Laura Bettolli and S. Solman: *First assessment of long-term RegCM4 convection permitting simulations over the center-southeast of South America*