

# GEWEX

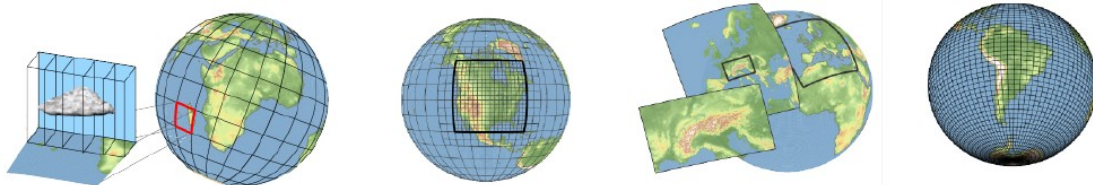
## Convection-Permitting Climate Modeling Workshop

### Workshop Program

**September 6<sup>th</sup> - 8<sup>th</sup> 2016**

NCAR Foothills Lab 2  
3450 Mitchell Ln, Boulder, CO 80301, USA

The **GEWEX Convection-Permitting Climate Modeling Workshop** brings together the international research community that works in the field of high-resolution climate data. The aim is to address scientific and technical challenges related to convection-permitting climate modeling (horizontal grid spacing  $\leq 4$  km). These challenges include the model setup, observational datasets, evaluation techniques, computational resources, model intercomparisons, and the use of convection-permitting simulations in impact research. The 3-day meeting's aim is to foster collaborations and synergies to work on this challenging topic as a community.



## Tuesday September 6<sup>th</sup> 2016

12:00-1:00 <b>Registration</b>
1:00-1:30 <b>Welcome</b> by Roy Rasmussen, Graeme Stephens, and James Hurrell (NCAR Director)
1:30-2:00 <b>Christoph Schaer (Invited) Challenges in Convection-Resolving Climate Modeling</b>
<b>2:00-3:00 Model Evaluation Part 1</b> (Chair: Roy Rasmussen) <ul style="list-style-type: none"> <li>2:00-2:20 Prein: Simulating convective storms: An object based evaluation of a continental-scale convection permitting climate simulation</li> <li>2:20-2:40 Trier: Influences of PBL Parameterizations on Warm-Season Convection-Allowing Simulations</li> <li>2:40-3:00 Chaboureau: Object approaches for exploring high-resolution simulations</li> </ul>
3:00-3:30 <b>Break</b>
<b>3:30-4:30 Model Evaluation Part 2</b> (Chair: Roy Rasmussen) <ul style="list-style-type: none"> <li>3:30-3:50 Cook: Improved Simulation of the Diurnal Cycle of Precipitation with Convection-Permitting Climate Modeling</li> <li>3:50-4:10 Iguchi: Precipitation Variability and Diurnal Cycle of Convection-Permitting Deterministic Simulations versus Mesoscale Multi-Physics Ensemble Simulations</li> <li>4:10-4:30 Mahoney: The role of "gray zone" convective model physics in high-resolution simulations of the 2013 Colorado Front Range Flood</li> </ul>
4:30-5:30 <b>Breakout 1: Value of CPMs</b>
5:30-5:45 <b>Reportout 1</b>
5:45-8:00 <b>Poster Session 1 &amp; Icebreaker</b>

## Wednesday September 7<sup>th</sup> 2016

8:30-9:00 <b>Roy Rasmussen (invited) Changes in the Western U.S. snowpack with a CONUS-scale convection-permitting climate model</b>
<b>9:00-10:00 Climate change assessments Part 1</b> (Chair: Andreas Prein) <ul style="list-style-type: none"> <li>9:00-9:20 Dai: Changes in Precipitation Characteristics over North America by the Late 21st Century Simulated by a Convection-Permitting Model</li> <li>9:20-9:40 Di Luca: Using convection permitting simulations to study the intensity of extreme East Coast Lows</li> <li>9:40-10:00 Hoogewind: The Impact of Climate Change on Severe Convective Storms in the United States: Insight from High-Resolution Dynamical Downscaling</li> </ul>
10:00-10:30 <b>Break</b>
<b>10:30-11:50 Climate change assessments Part 2</b> (Chair: Andreas Prein) <ul style="list-style-type: none"> <li>10:30-10:50 K. Rasmussen: High-resolution regional climate simulations of warm season convection in the United States</li> <li>10:50-11:10 Ban: Scaling and Intensification of Extreme Precipitation in Climate Change Simulations at Kilometer-Scale Resolution</li> <li>11:10-11:30 Kawase: Challenges of convection-permitting regional climate simulations in Japan</li> <li>11:30-11:50 Gutmann: Internal Variability and Convection Permitting Regional Climate Simulations</li> </ul>
11:50-12:50 <b>Lunch</b>
12:50-2:00 <b>Panel Discussion: Approaches to CPCs</b> (Chair: Roy Rasmussen)
<b>2:00-2:40 CPM grid spacing</b> (Chair: Ray Arritt) <ul style="list-style-type: none"> <li>2:00-2:20 Fosser: Impact of different convection permitting resolutions on the representation of heavy rainfall over the UK</li> <li>2:20-2:40 Noda: Resolution dependency of clouds and precipitation derived from 14-kilometre- to sub-kilometer-mesh nonhydrostatic global simulations</li> </ul>

2:40-3:10 <b>Bill Skamarock (invited)</b> Variable-resolution global atmospheric modeling spanning convective to planetary scales
3:10-3:40 <b>Break</b>
<b>3:40-5:00 Land-Atmosphere interactions</b> (Chair: Ray Arritt) <ul style="list-style-type: none"> <li>3:40-4:00 Flores: The Accidental Climate Modeler: The Increasingly Important Role of Land-Atmosphere Models for High Resolution Ecohydrologic Process Study</li> <li>4:00-4:20 Goergen: Added value and land-atmosphere coupling in convection-permitting WRF climate simulations over a Middle European domain</li> <li>4:20-4:40 Letcher: Dynamic and non-local responses to the snow albedo feedback over the Colorado Rocky Mountains</li> <li>4:40-5:00 Minder: Diagnosing and evaluating the snow-albedo feedback over complex terrain in high-resolution regional climate change simulations</li> </ul>
5:00-6:00 <b>Poster Session 2</b>
6:00-8:00 <b>Reception (FL1/ FL2 - Cafe Patio)</b>

## Thursday September 8<sup>th</sup> 2016

8:30-9:00 <b>Graeme Stephens (invited)</b> Satellite observations
<b>9:00-10:00 Observational Datasets and global CPM efforts</b> (chair: Stefan Sobolowski) <ul style="list-style-type: none"> <li>9:00-9:20 Newman: Development of Gridded Ensemble Precipitation and Temperature Datasets over the Entire 50 United States</li> <li>9:20-9:40 Ekstrom: Understanding changes in short-duration rainfall extremes under global warming: The GEWEX cross-cut on sub-daily rainfall extremes (INTENSE)</li> <li>9:40-10:00 Malardel: Is the ECMWF model ready for convection-permitting modeling?</li> </ul>
10:00-10:30 <b>Break</b>
10:30-11:00 <b>Gary M. Lackmann (Invited)</b> High-Resolution Numerical Studies of Tropical Cyclones and Climate Change
<b>11:00-12:00 Tropical Climate Part 1</b> (chair: Graeme Stephens) <ul style="list-style-type: none"> <li>11:00-11:20 Weber: Why Convection-Allowing NWP is Needed: An Evaluation of CFSv2/GFS Tropical Convection on Subseasonal Time Scales</li> <li>11:20-11:40 Nolan: Comparisons of Parameterized versus Explicit Convection in Global-Scale Simulations Using the WRF Model in Aquachannel and Aquapatch Configurations</li> <li>11:40-12:00 Ruppert: Tropical Climate Forcing by the Diurnal Cycle of Convective Clouds</li> </ul>
12:00-1:00 Lunch
<b>1:00-1:40 Tropical Climate Part 2</b> (chair: Graeme Stephens) <ul style="list-style-type: none"> <li>1:00-1:20 Moncrieff: Simulation and Parameterization of Organized Tropical Convection</li> <li>1:20-1:40 Wang: Cloud, microphysics, radiation and dynamics – lessons from cloud-permitting simulations of the DYNAMO MJO events</li> </ul>
1:40-2:10 <b>Stefan Sobolowski (invited)</b> CORDEX Flagship Pilot Study: Convective phenomena at high resolution over Europe and the Mediterranean
2:10-3:10 <b>Breakout 3: community building</b>
3:10-3:40 <b>Break</b>
3:40-4:00 <b>Reportout 3</b>
4:00-5:00 <b>Open discussion and future plans</b> (chair: Roy Rasmussen)

## **ABSTRACTS**

The abstracts will be available from the workshop website (agenda tab):

<https://ral.ucar.edu/events/2016/cpcm>

## **BADGES**

All participants will be issued a name badge at registration. This badge will be the official pass to all sessions, coffee breaks, lunches and conference-related events. All participants are required to wear their name badge at all times.

## **DISCLAIMER**

The speakers mentioned in this program were confirmed at the time of publication. It is possible that due to unforeseen circumstances some speakers will be replaced or will not be able to participate.

## **FINANCIAL SUPPORT**

The participants who are granted financial support must attend the entire conference in order to benefit.

## **INDEMNITY**

Registration fees do not include insurance of any kind. The conference participants must accept personal responsibility for insurance against travel risk and injury. While the organizers will make every effort to observe best safety practices, the organizers encourage all participants to purchase adequate medical and liability insurance.

## **INTERNET FACILITIES**

The venue offers access to WiFi (UCAR Guests wireless network). The password to access the network will be provided at the workshop.

## **RECORDING**

All oral presentations will be recorded (subject to the approval of the speaker) and made available on the workshop website after the workshop.

## **LUNCHES AND BREAKS**

Lunches will be served in the Foothills Lab 2 Cafeteria Atrium. Coffee/tea will be served in connection to the sessions. Participants are not allowed to bring any food or drinks inside the conference rooms.

## **POSTER PRESENTATION GUIDELINES**

Posters should be put up in the morning of the day with the corresponding poster session scheduled and taken off at the very end of the day. Authors should be in attendance during the session and are expected to stand by their poster in order to answer questions. Poster areas will be equipped with poster boards and material to hang your poster. The poster boards have a size of 4' wide by 6' high (122 cm times 183 cm). No local poster printing service will be available during the conference, so please bear in mind to print and bring your poster.

## **ORAL PRESENTATION GUIDELINES**

Please upload your presentation in the meeting room in the break before your session latest and identify yourself to the chair of the session. We strongly recommend oral presenters to use the PCs available in the meeting rooms and to upload their presentation well before the start of the session using a USB key. Please ensure that your file (PowerPoint or PDF titled with session and name of presenter) is being uploaded correctly and that the slides are displayed properly. Oral presentations are 20 minutes long (including 5 minutes of discussion). Invited presentations are 30 minutes long (including 5 minutes of discussion).

## **REGISTRATION**

Registration fees include participation in all workshop sessions, the social events, and transportation between the Holiday Inn Express Boulder and the venue. The Registration desk will be near the main entrance of the Foothills Lab 2, and will be open 12:00-13:00 Tuesday, September 6.

## **VENUE**

Large Auditorium (FL2-1022)

NCAR Foothills Lab 2

3450 Mitchell Ln, Boulder, CO 80301, USA

**Bus schedule from/to Holiday Inn Express to  
NCAR Foothills Lab 2**

*Thursday Sep. 6<sup>th</sup>*

12:00 pm Holiday Inn Express to NCAR

8:00 pm NCAR to Holiday Inn Express

*Wednesday Sep. 7<sup>th</sup>*

8:00 am Holiday Inn Express to NCAR

8:00 pm NCAR to Holiday Inn Express

*Thursday Sep. 8<sup>th</sup>*

8:00 am Holiday Inn Express to NCAR

5:15 pm NCAR to Holiday Inn Express