

Annual report 2020 for Flagship Pilot Study - Southeastern South America (SESA)

Status and progress during the year including scientific highlights, end to end perspective and participants engaged in the project

Status and Progress of work

During 2020 the work was mainly focused on analyzing the results of simulations and publication of results. Two papers were published. In the first paper, the FPS inter-institutional collaborative initiative was introduced, and its aims were presented together with an analysis of the comparative results of daily precipitation from an integrated assessment of multiple sources of observations, available climate simulations and the new set of simulations, that includes RCM experiments from mesoscale resolutions down to convection-permitting and ESD models. A discussion on the synoptic environment associated with the case studies selected and sensitivity of RCMs simulations to resolution and physics was presented in the second paper published during 2020.

Two additional papers were designed during 2020 and the manuscripts are currently under preparation. These are mainly focused on: assessments of the representation of the diurnal cycle of convective precipitation as depicted by simulations at convection permitting grid spacings and coarser resolution/parameterized-convection simulations; and on the evaluation of ESD methods in a long simulation (1979-2010), their sensitivity to dataset choice and predictors choice.

In order to use the data in impact studies, we started to discuss with the participants of the hydrological modelling group how to take advantage of the FPS simulations to analyze the response of the streamflow in the Uruguay Basin. To this end, the variable infiltration capacity (VIC) model will be used and some additional ESD simulations of maximum and minimum temperatures, that are required to calibrate the model, were performed.

FPS website

The FPS website was built and can be accessed at the following link:

<http://cordexfpssesa.at.fcen.uba.ar/index.php>

Summary of each workshop/activity held during the year

Title, date, short description, location, website, links	Responsible person/-s	Funder
Please, see "Additional relevant information"		

Related publications during the year

Title, journal and link to publication	Author/-s	Date
"The CORDEX Flagship Pilot Study in southeastern South America: a comparative study of statistical and dynamical downscaling models in simulating daily extreme precipitation events", <i>Climate Dynamics</i> , 56, pages1589–1608(2021), https://link.springer.com/article/10.1007/s00382-020-05549-z	M. L. Bettolli, S. A. Solman, R. P. da Rocha, M. Llopert, J. M. Gutierrez, J. Fernández, M. E. Olmo, A. Lavin-Gullon, S. C. Chou, D. Carneiro Rodrigues, E. Coppola, R. Balmaceda Huarte, M. Barreiro, J. Blázquez, M. Doyle, M. Feijoó, R. Huth, L. Machado & S. Vianna Cuadra	Published: 04 January 2021
"Synoptic forcing associated with extreme precipitation events over Southeastern South America as depicted by a CORDEX FPS set of convection-permitting RCMs", <i>Climate Dynamics</i> , https://link.springer.com/article/10.1007/s00382-021-05637-8	A. Lavin-Gullon, M. Feijoo, S. Solman, J. Fernandez, R. P. da Rocha & M. L. Bettolli	Published: 26 January 2021

Planned activities for next year

<p>Repository for data and simulations: we are working on the possibility to build a repository for sharing data and simulations.</p> <p>Scientific Stays: In the framework of the I-Coop+2018 CSIC Project, two scientific stays at the Institute of Physics/University of Cantabria (IFCA/UCAN) and two at the University of Buenos Aires that were planned to take place during 2020, were postponed to 2021 and are subject to the pandemic situation.</p> <p>Organizing the FPS-SESA Conference and Capacity building activity in November 2021 in Buenos Aires, Argentina. To be determined by the pandemic situation, to be possibly adapted to online activities.</p>

Additional relevant information

Due to the COVID pandemic, the “Conference on Regional Climate Modeling and Extreme Events over South America: Results from the CORDEX-Flagship Pilot Study” that was going to take place at the University of Buenos Aires, Argentina during 16 Nov 2020 - 20 Nov 2020 <http://indico.ictp.it/event/9025/> was postponed to 2021, depending on the evolution of the pandemic. This conference was already approved as an ICTP activity and got partial financial support from ICTP.

Taking advantage of this meeting, a capacity building activity for CORDEX-SAM and CAM participants was proposed as a side/parallel activity of the 3-day conference. The activity will take place as an in person activity depending on the evolution of the pandemic.

Contact person/-s

Maria Laura Bettolli
bettolli@at.fcen.uba.ar

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The report is due the 15th of February each year and should be sent to ipoc@cordex.org.