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# Abstracts

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Poster presentation

**Impacts of climate change and species distribution modelling: future scenarios to endangered species in South Brazil**

Session: Climate change and plant communities

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Earth climate has changed significantly in the last century and the different models indicate that it will continue to change over the next decades, even if the emission of greenhouse gases stop immediately. These changes have impact on different plant populations, as well as in the actual distribution of several species. As plants, in general, have a smaller capacity of dispersion compared with the animals it is likely that they will suffer the impacts of the climate change more intensively. To evaluate possible impacts of the different climate scenarios expected by the Intergovernmental Panel on Climate Change (IPCC) in the potential distribution of tree species at risk of extinction in South Brazil we modeled the actual potential distribution (baseline) for six species: a pteridophyte (*Dicksonia sellowiana* Hook., Dicksoniaceae), a gymnosperm (*Araucaria angustifolia* (Bertol.) Kuntze, Araucariaceae), three basal angiosperms (*Ocotea catharinensis* Mez, *O. odorifera* Rohwer, and *O. porosa* (Nees & Mart.) Barroso, Lauraceae), and a palm (*Euterpe edulis* Mart.). Additionally, we simulated the impact of five global climate models (GCMs: CCSM4, HadGEM-AO, HadGEM-ES, MIROC5, MRI-CGCM3), and four representative scenarios of greenhouse gases concentration (+2.6, +4.5, +6.0 e +8.5 W/m ) in the potential distribution of these species at the 2050 year using the presence/absence data of the Floristic and Forest Inventory on Santa Catarina State (IFFSC). The adjusted models have discrimination capability between presence/absence higher than expected by random guess (AUC>0.5), ranging from  $0.73 \pm 0.004$  (*O. odorifera*) to  $0.93 \pm 0.002$  (*E. edulis*). The general impact of the climate scenarios in the distribution of the target species is the significant decrease of the potential occurrence area, excepting *D. sellowiana* that showed tendency to expansion of the area of occurrence in the most optimistic greenhouse gases concentration scenario (+2.6 e +4.5 W/m). As these species are listed as endangered in Brazil we suggest the monitoring of these species population in the areas of environmental protection and assess the need for relocating them to new habitats if necessary.