Can we do the warm rain process better with Machine Learning?

Replace traditional GCM bulk rain formation with a detailed model formulation. This is too expensive for climate use. So emulate it with a neural network.

Results:
- We can change the answer in the model with the bin code. Very slow.
- Recover speed and recover results with a neural network emulator (it works)
- Embedded NN in the microphysics: maintains conservation with series of checks

NN Emulator reproduces detailed code

Bin code is Different than original model