

ÉVOLUTION DES PRÉCIPITATIONS EXTRÊMES DANS TROIS GRANDS ENSEMBLES DE SIMULATIONS CLIMATIQUES – IMPACT DES RÉOLUTIONS SPATIALES ET TEMPORELLES

JEAN-LUC MARTEL¹, FRANÇOIS BRISSETTE¹, ALAIN MAILHOT², RAUL WOOD³, RALF LUDWIG³, ANNE FRIGON⁴, MARTIN LEDUC⁴, ET RICHARD TURCOTTE⁵.

1: ÉCOLE DE TECHNOLOGIE SUPÉRIEURE, MONTRÉAL, CANADA

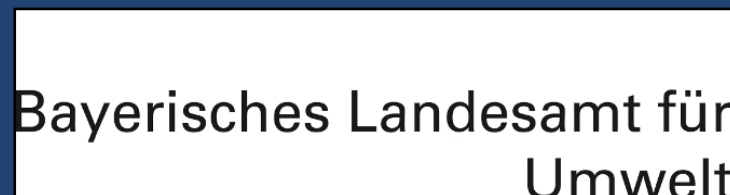
2: INSTITUT NATIONAL DE LA RECHERCHE SCIENTIFIQUE – ETE, QUÉBEC, CANADA

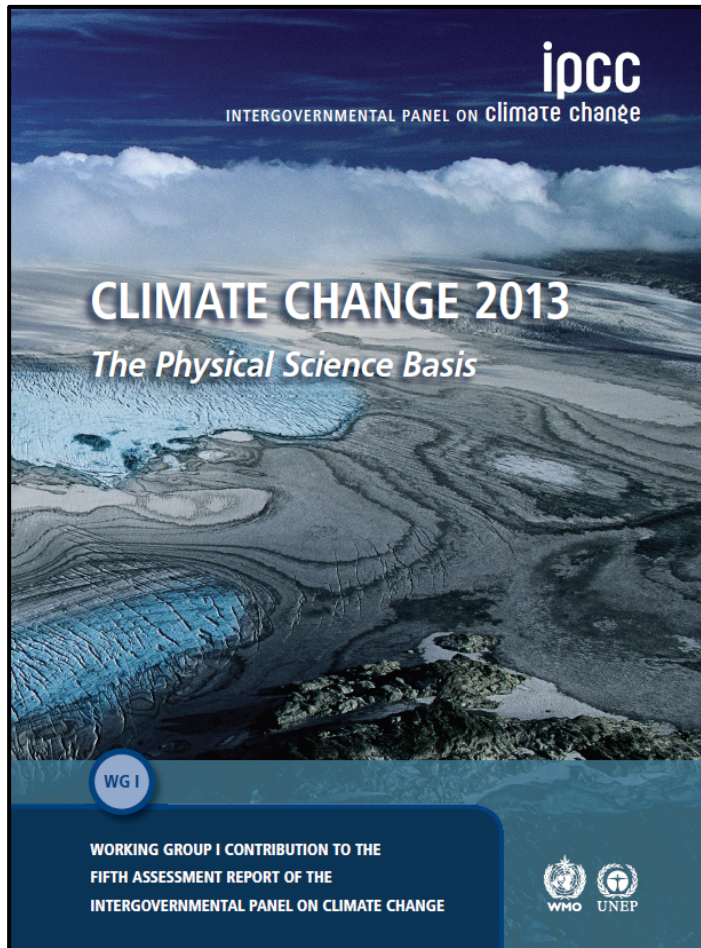
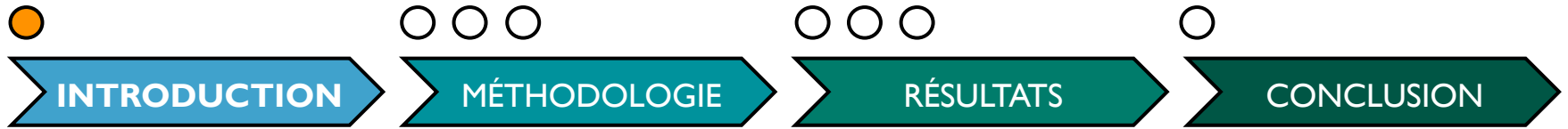
3: UNIVERSITÉ LUDWIG-MAXIMILIAN, MUNICH, ALLEMAGNE

4: CONSORTIUM OURANOS, MONTRÉAL, CANADA

5: DIRECTION DE L'EXPERTISE HYDRIQUE – MDDELCC, QUÉBEC, CANADA

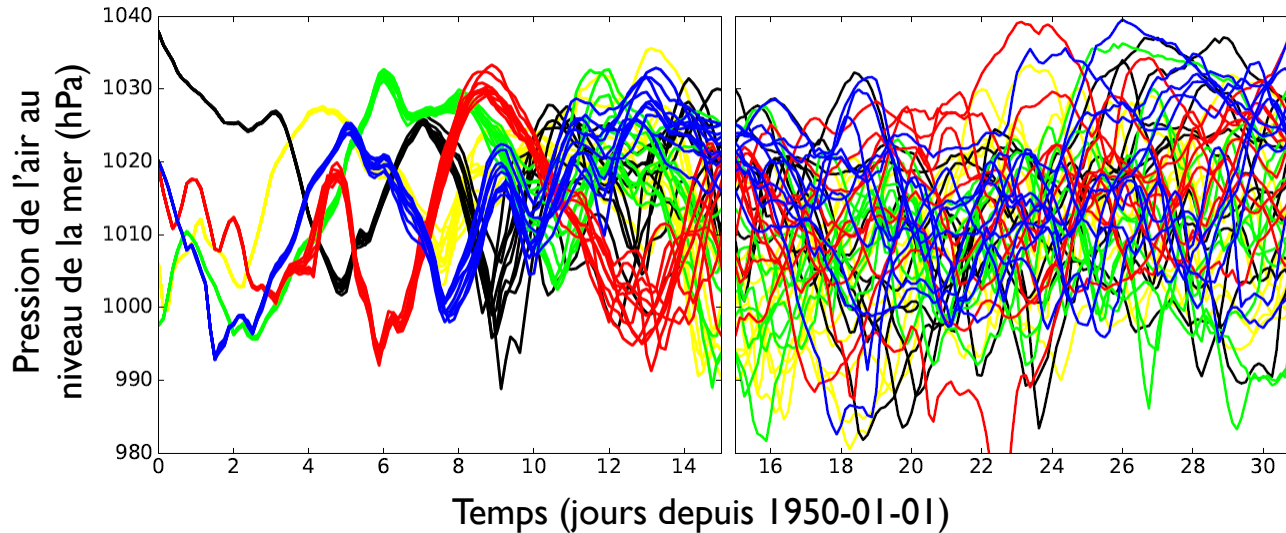
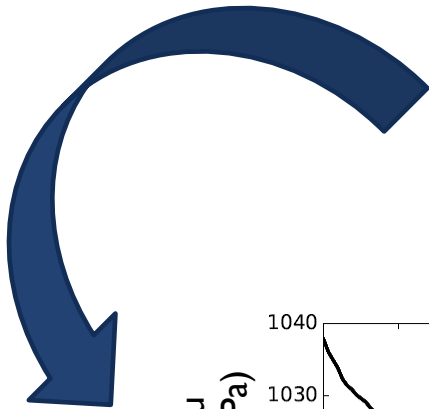
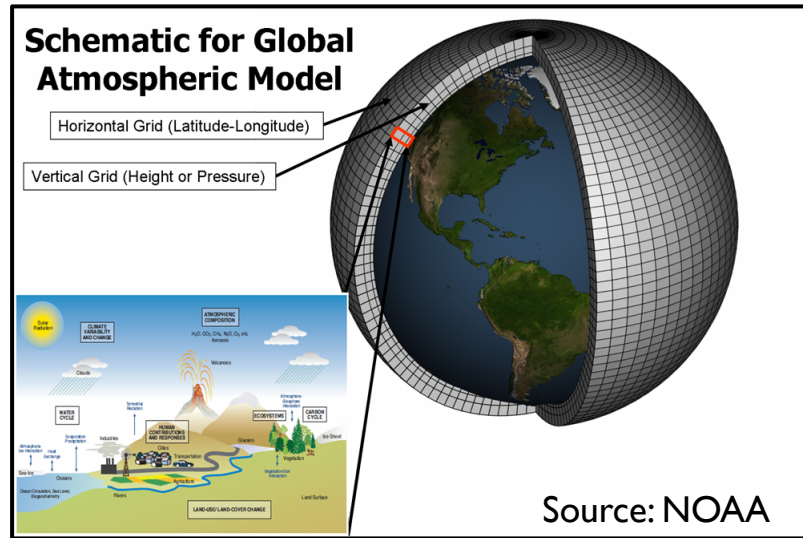
7^E SYMPOSIUM OURANOS – 15 AU 17 NOVEMBRE 2017



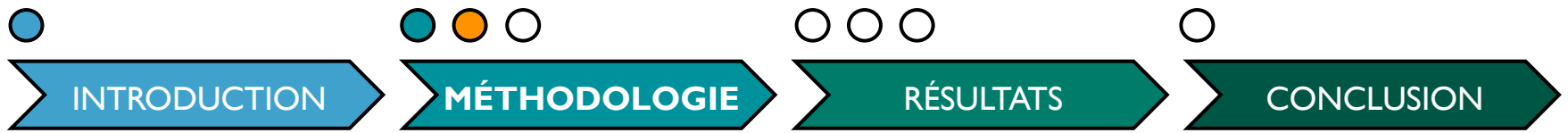


Groupe d'experts intergouvernemental sur l'évolution du climat (GIEC)

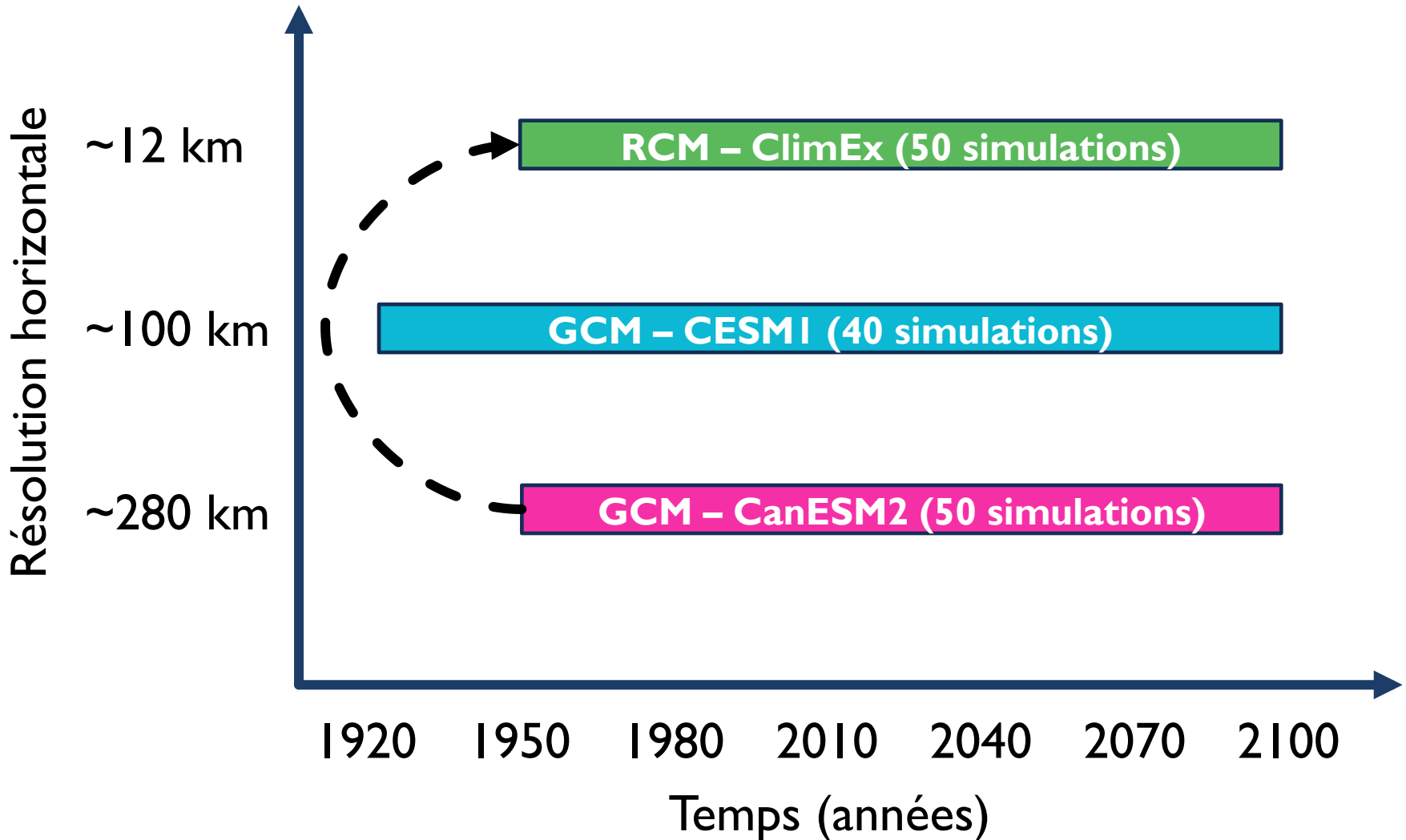
« Over most of the mid-latitude land masses and over wet tropical regions, extreme precipitation will very likely become more intense and more frequent in a warmer world. »
– 5^e rapport du GIEC

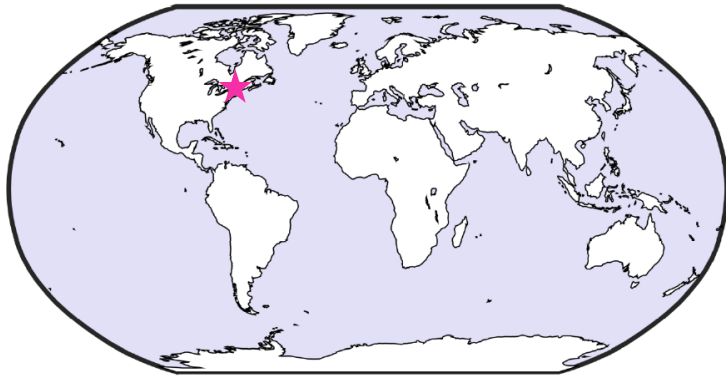
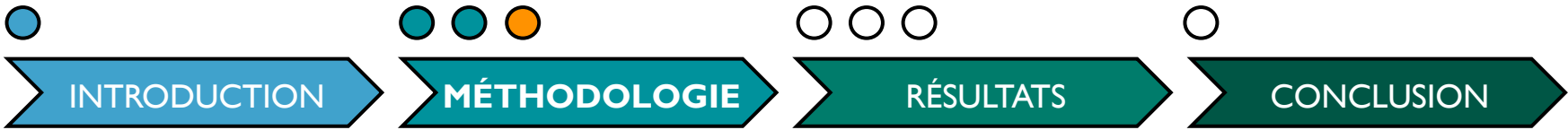


Source: Martin Leduc, 2016

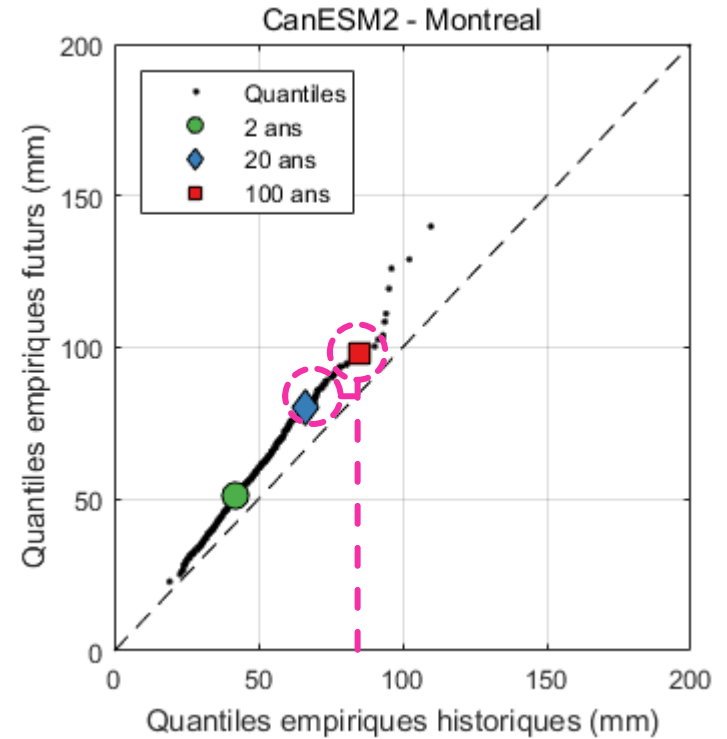
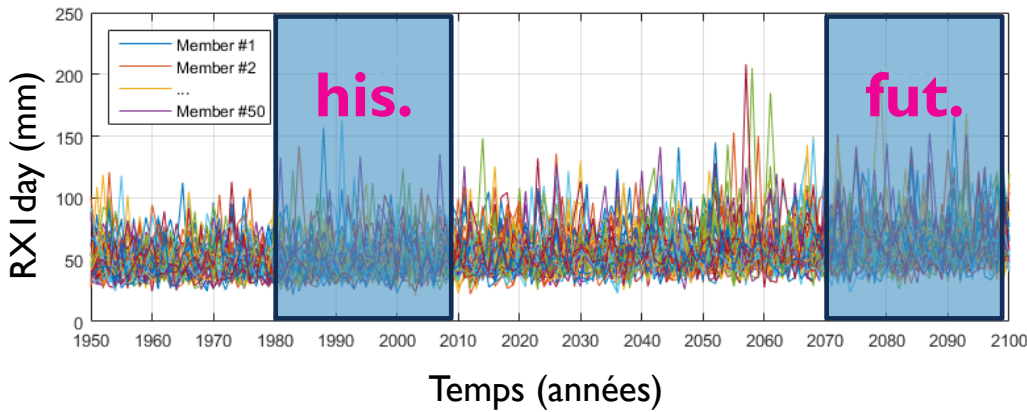


Trois grands ensembles utilisant le **scénario RCP8.5**:





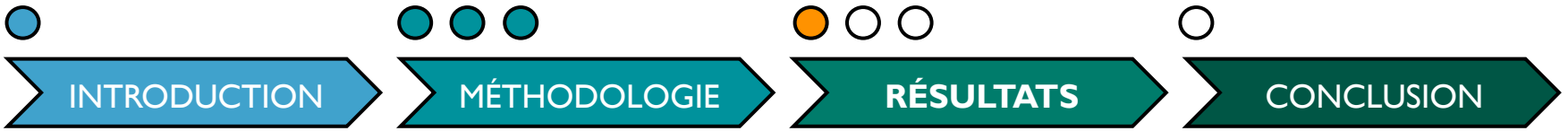
CanESM2



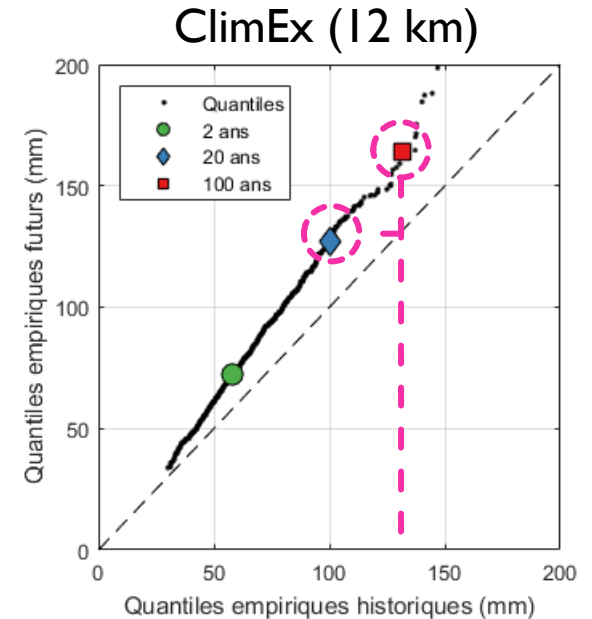
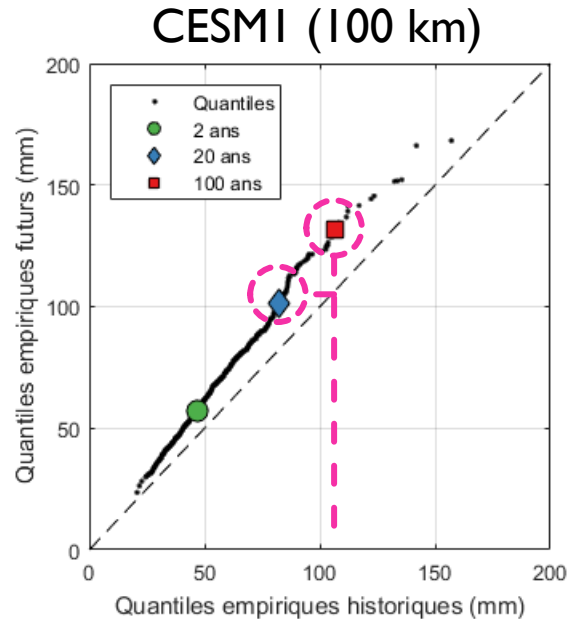
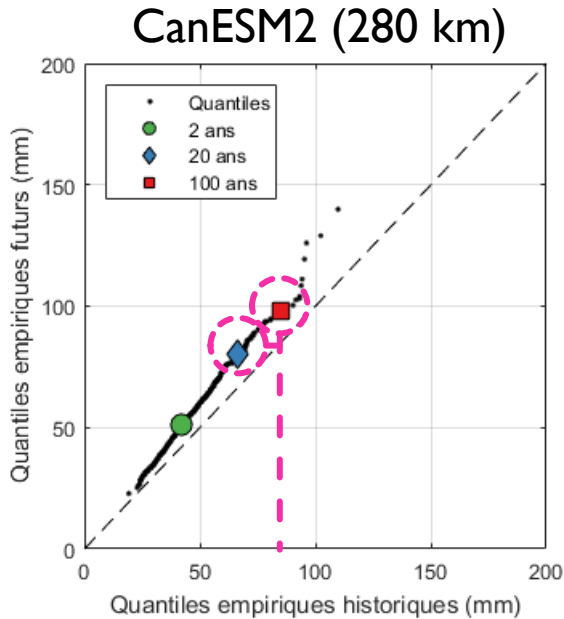
85 mm ➡ 98 mm

100 ans ➡ 29 ans

50 simulations x 30 années = 1500 valeurs



Diagrammes Quantiles-Quantiles (Q-Q) pour Montréal:



85 mm ➡ 98 mm

100 ans ➡ 29 ans

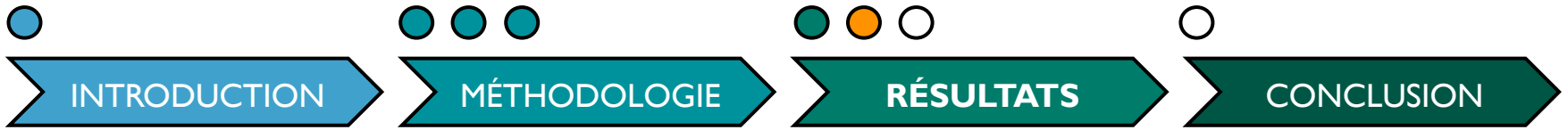
106 mm ➡ 132 mm

100 ans ➡ 26 ans

132 mm ➡ 164 mm

100 ans ➡ 25 ans

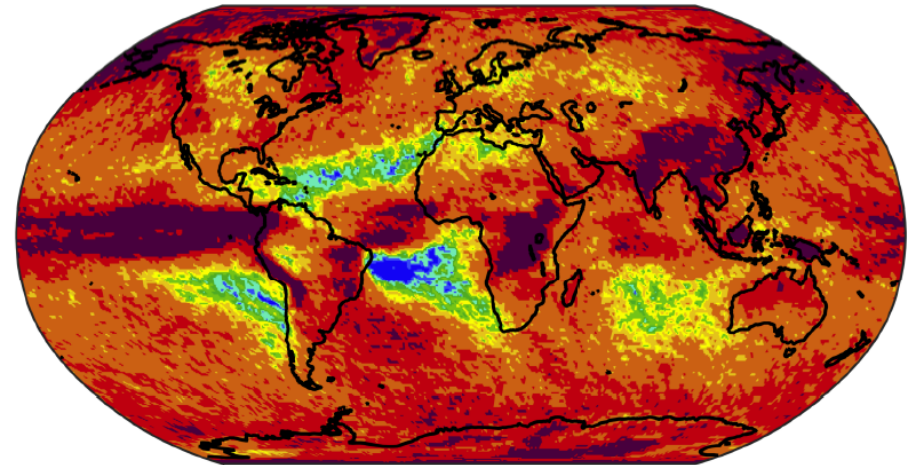
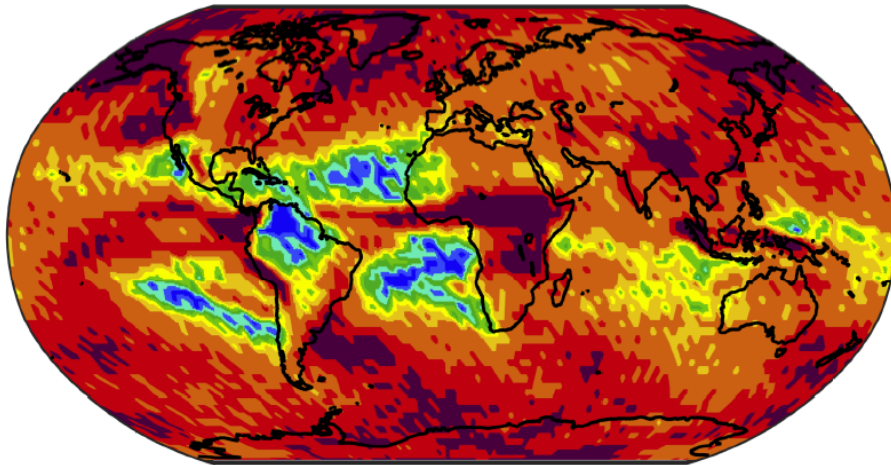
~4 fois plus fréquent pour les trois grands ensembles

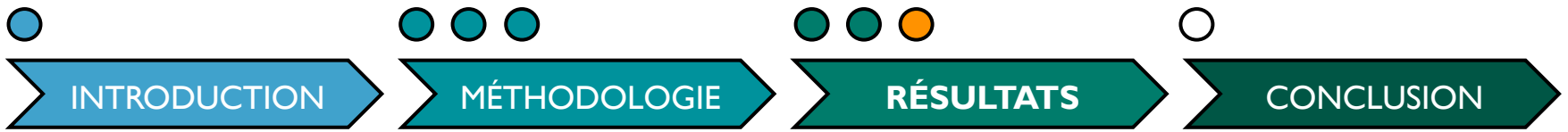


Périodes de retour futures correspondantes à l'intensité historique

CanESM2 – RXI day (2070-2099)

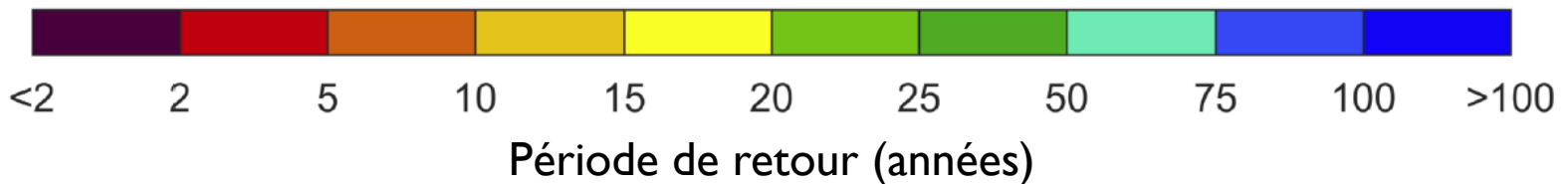
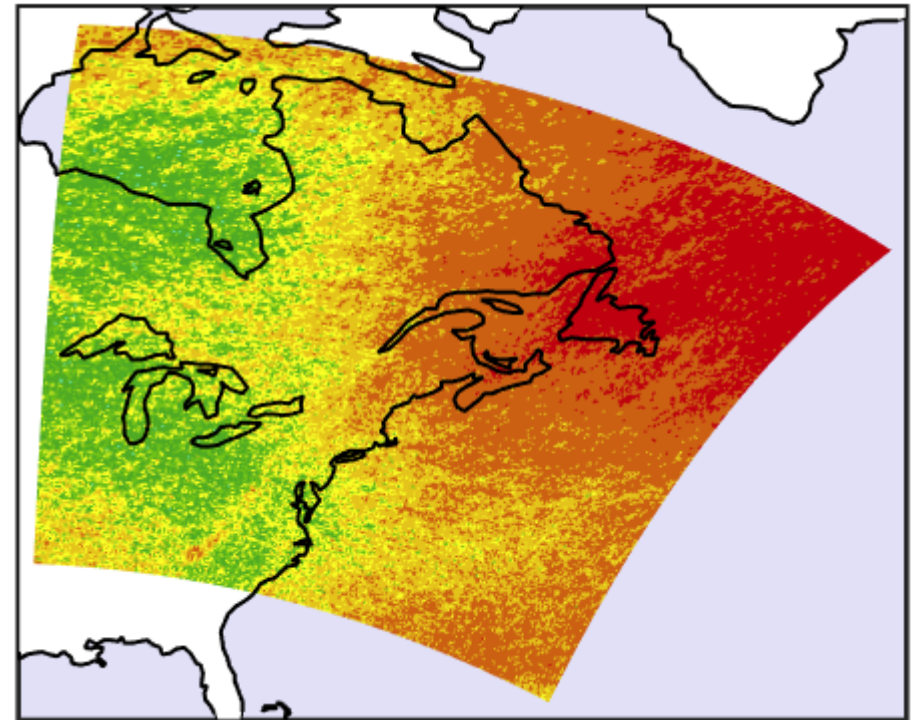
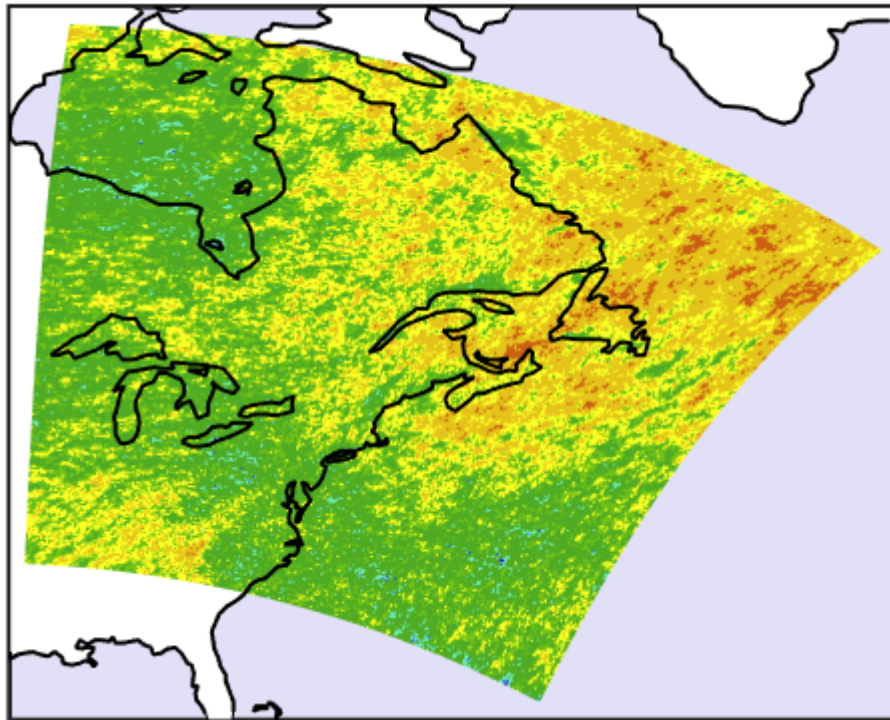
CESM1 – RXI day (2070-2099)

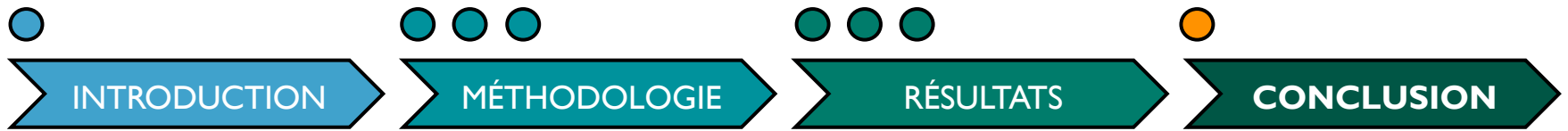




Périodes de retour futures correspondantes à l'intensité historique

ClimEx – RX24hr (2070-2099) ClimEx – RX1hr (2070-2099)





« What's the use of having developed a science well enough to make predictions if, in the end, all we're willing to do is stand around and wait for them to come true? » – Sherwood Rowland

INTRODUCTION

MÉTHODOLOGIE

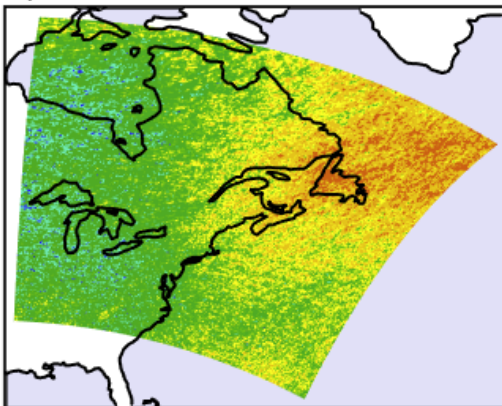
RÉSULTATS

CONCLUSION

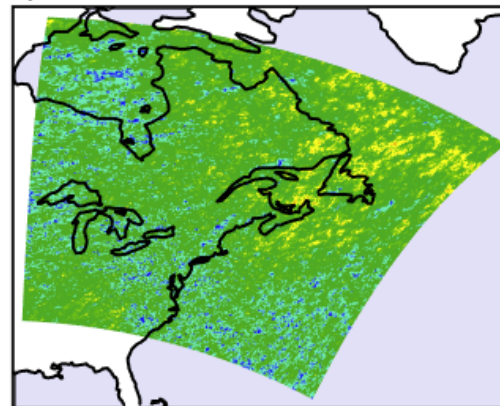
ANNEXES

Périodes de retour futures correspondantes à l'intensité historique

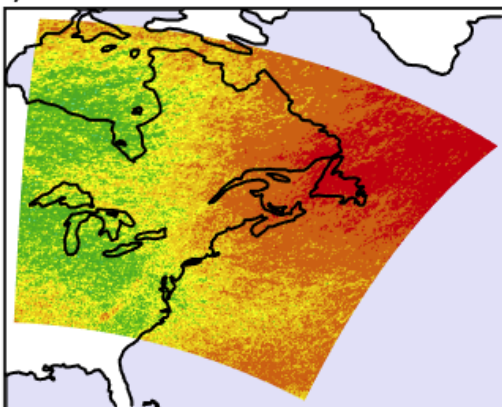
a) RX1hr - 2040-2069



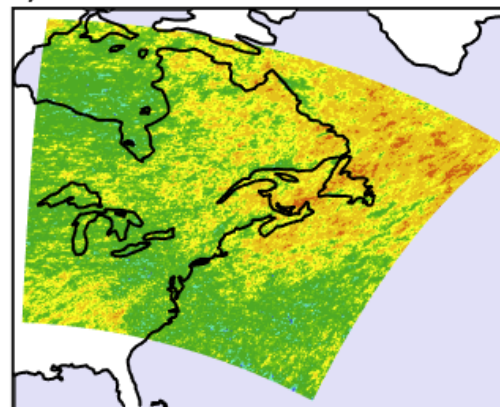
b) RX24hr - 2040-2069



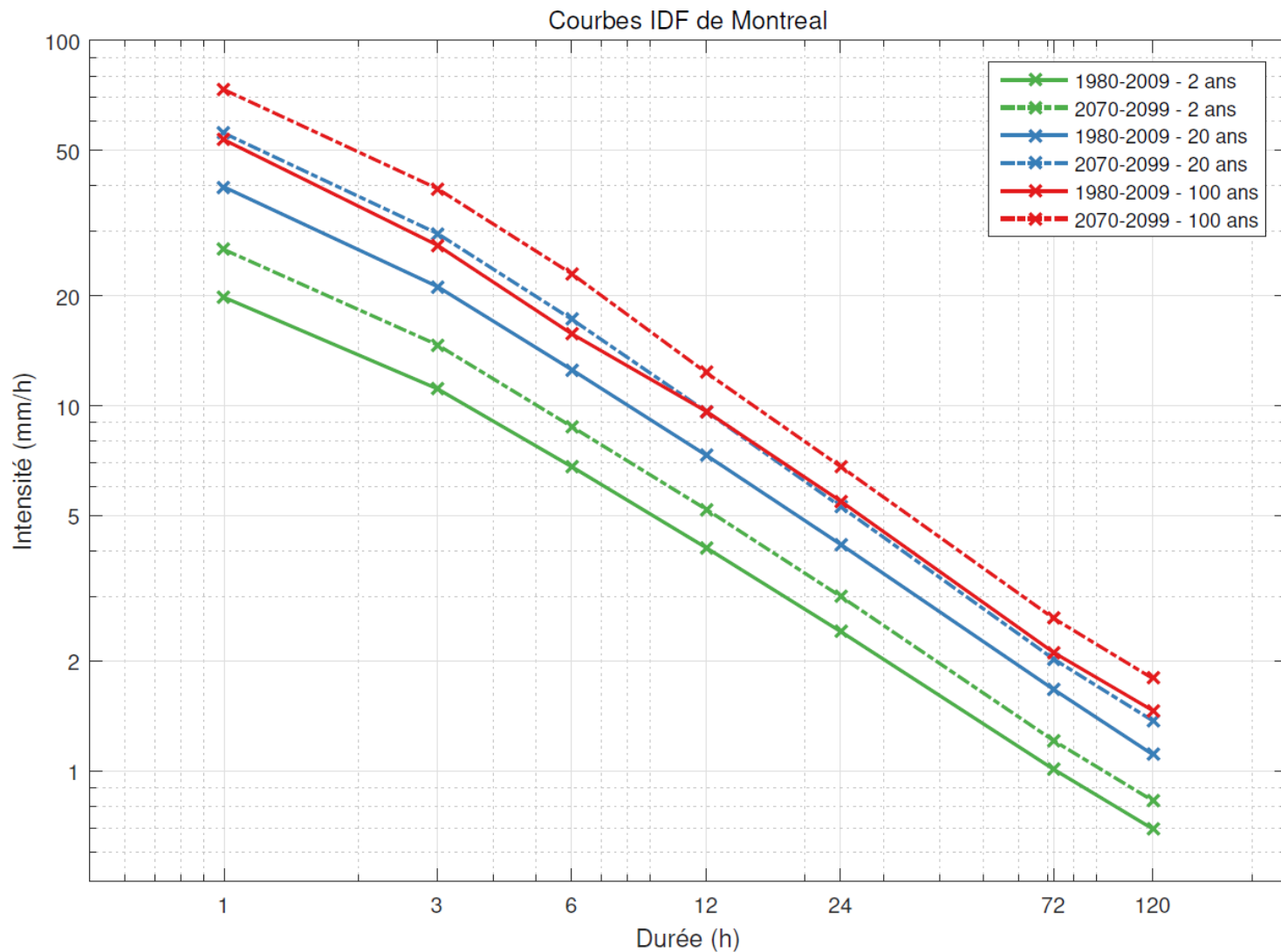
c) RX1hr - 2070-2099



d) RX24hr - 2070-2099



Courbes IDF (1980-2009 vs 2070-2099) pour Montréal



Courbes IDF (1980-2009 vs 2040-2069) pour Montréal

