Emissions of biogenic volatile organic compounds
as precursors for secondary organic aerosols

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Interests

- **Interactions between the terrestrial vegetation and climate**

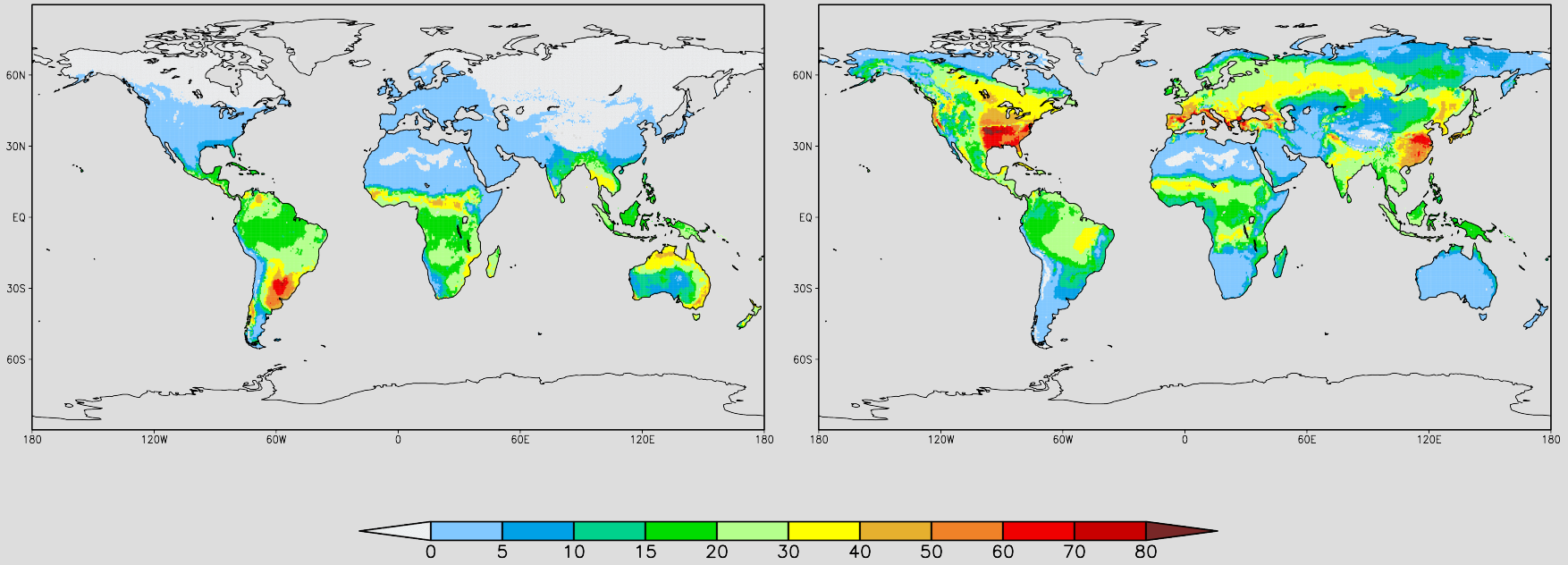
- Emissions of biogenic volatile organic compounds (isoprene, monoterpene)
Process-based simulations on a regional/global scale

- Their impact on climate
Use the simulated emissions to drive atmospheric chemistry models

BVOC emissions

January

July



Simulated monoterpene emissions (mg C m^{-2} $month^{-1}$) for January and July, average for 1981-2000

BVOC emissions

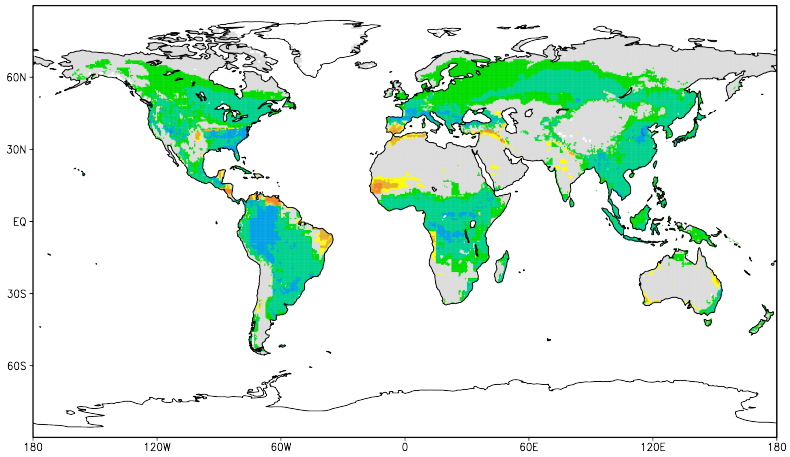
Possible effects of future climate change on BVOC emissions

- change in species distribution → change in emissions (high vs. low emitting species, different types of BVOCs)
- photosythesis increase due to temperature and CO_2 → increase in BVOC production
- direct effect of temperature and CO_2 on terpenoid synthesis → temperature will cause a rise, CO_2 a decrease of emissions

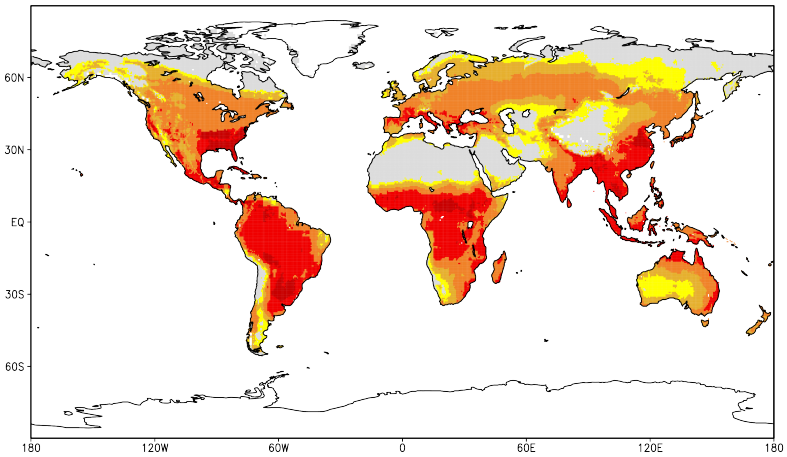
BVOC emissions

Simulated effects on monoterpene production for 2081-2100, A2 scenario (mg C m^{-2} a^{-1}), compared to 1981-2000.

climate change effect



CO_2 inhibition of VOCs



CO_2 photosynthesis effect