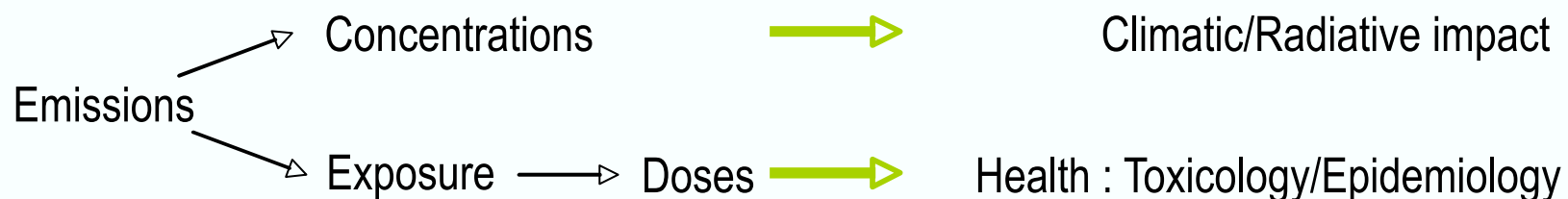


BC/OC ratios : a new metrics to mitigate Emissions, Health and Radiative Impacts. Focus on African megacities.

C. Liousse, Dombia T., Assamoi E., Galy-Lacaux C., Baeza A., Penner J.E., Val S., Cachier H., Xu L., Criqui P., Rosset R.

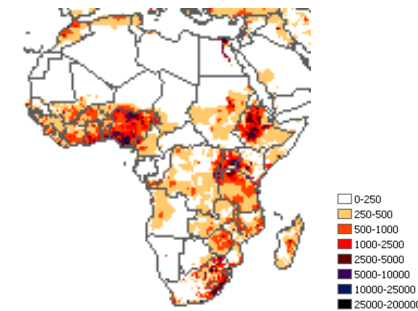
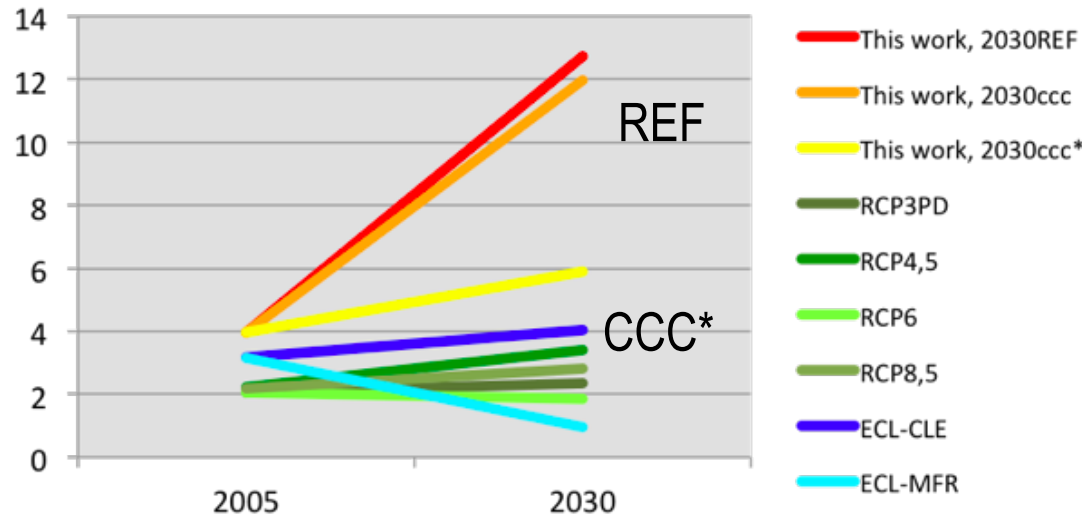
*intense photochemistry
source mixing
unexpected urban air pollution
increase of urban population*



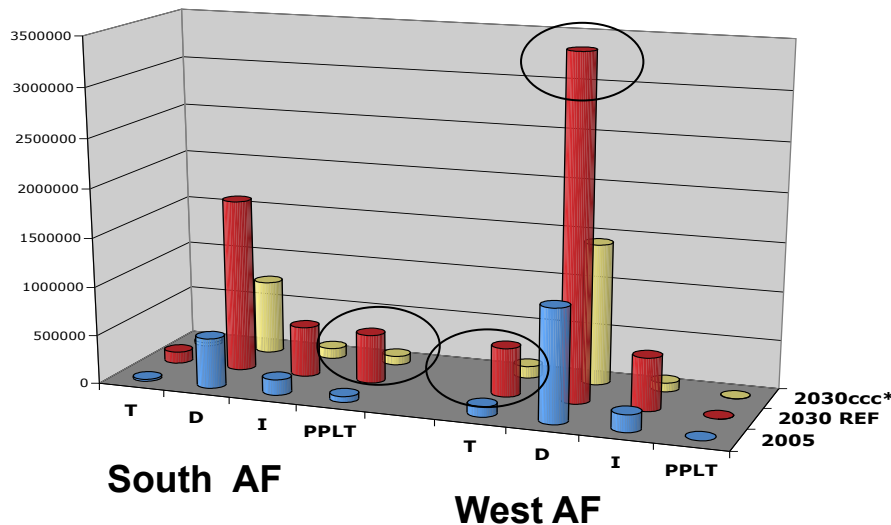
Focus on urban aerosols/Multidisciplinary approach
In situ measurements/modeling/satellite

Specific african emission inventories for the Present and the Future.

Fossil fuel and Biofuel OC emissions

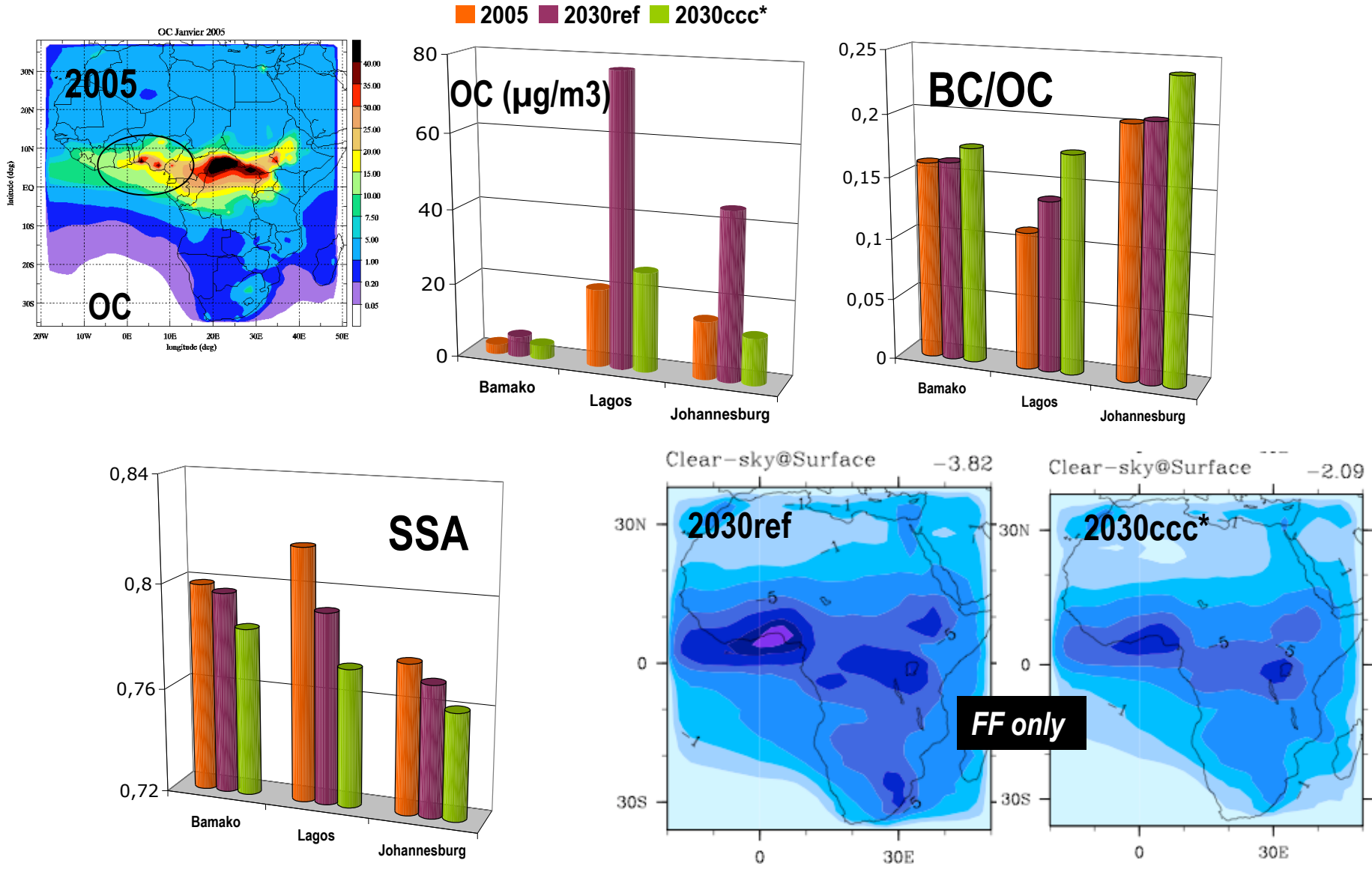


Importance of domestic fires
 West Africa : + traffic
 South Africa : + industries



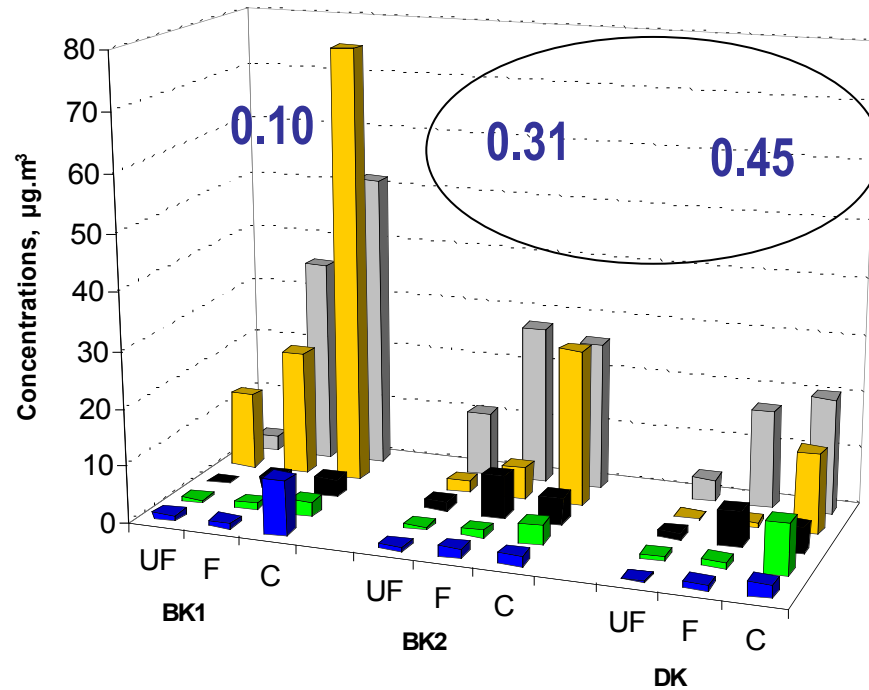
These emissions included in TM5 global model coupled to the radiative off-line model of Wang and Penner (2009)

Concentration fields and radiative impact : focus on carbonaceous aerosols

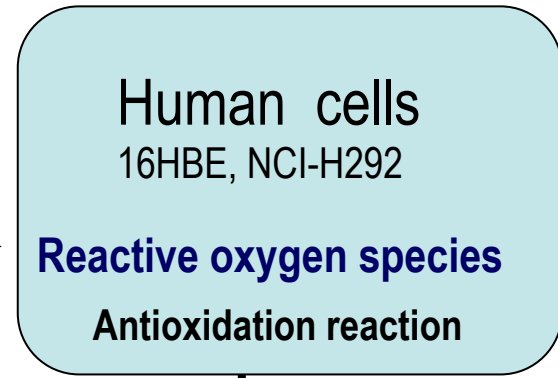
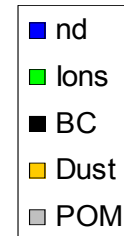


Urban sites : In 2030ccc* : More BC/OC, Less SSA and more Absorption

Focus on traffic sites : Aerosol Toxicological Effects in Bamako/Dakar

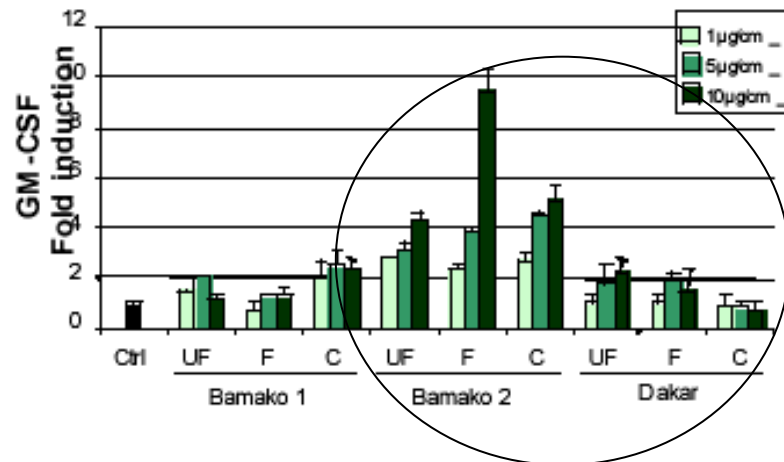


BC/OC



pro-inflammatory response with
Cytokines secretion (GM-CSF, IL-8...)

PROTEIN RELEASE



More inflammatory impacts of aerosol combustion due to domestic fires and traffic in BK than to diesel DK emissions

A tentative coupling between the impacts : Mitigation?

First results :

« the best scenario (2030ccc*) » => OC decrease, BC/OC increase

Recalling what is best scenario = 4 stroke into 2 stroke, EF decrease for domestic fires



for air quality : Less OC% => Less «inflammatory» particles



for climate change : relative increase of heating !!

- ⇒ Importance of combustion emission characterization (present/future)
- ⇒ Multidisciplinary approach (energy/emission/pollution/climate/health)
- ⇒ Need to focus on developing countries (choice of energy for heating, traffic, industries, power plant)
- ⇒ Next : DACCIWA/WP2 program in West Africa