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Towards a better representation of ship plume chemistry in a Global Chemistry-Transport Model

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International shipping is an important driver of economic growth because it ensures the carrying of about 90% of the world trade. In order to transport their load from one part of the globe to another one, ships burn bunker fuel resulting in the release of trace gases and particulate matter in the marine boundary layer.

In particular, $NO_x emissions are emitted in large amounts as a result of the propulsion technologies currently available. In addit$
$scale models tend to overestimate the impacts of these emissions because they are not able to reproduce the non-$
$linear character of the NO_x - Ox - HO_x - VOC chemical system occurring at the ship plume scale.$

$In this study, we first modify the ship emission parameterisation from Cariolle et al., 2009 by way of using a simple photochen$
$transport model : MOZART-4. We show that this parameterization reduces, as expected, concentrations of O3 along the sh$