

**Seminar on Physics and Chemistry of the Atmosphere
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**Measurements of ship emission using in-situ and LP-DOAS
instruments**

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Ships are an important source of pollutants along busy waterways. Depending on the type of ship, sea going or inland vessel, different key pollutants are emitted. In all cases, ships equipped with combustion engines are strong emitters of NO_x (NO + NO₂) and other pollutants produced by combustion processes. Sea going ships are also strong emitters of SO₂. Generally, NO_x and SO₂ are key parameters of air quality.

In this presentation, we show how in-situ and LP-DOAS instruments can be used to derive NO_x and SO₂ emission rates from individual ship passages. Additionally, we highlight the importance of high-resolution traffic statistics and how they can be used in conjunction with the derived emission rates to set up a realistic high resolution emission register for ship emissions on individual waterways.