



## Measuring SO<sub>2</sub> flow rate emission from ships by means of DOAS Spectrometer

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The ships emissions are considered as a potential source of pollutants in harbour and nearby urban areas. For this reason the development of remote sensing methods for continuous monitoring of flow rate ship emissions is subject of increasing interest.

This work presents a new approach for implementation of off-axis DOAS measurements devoted to this aim. The method, especially developed, was tested in a field campaign for measuring of ships gas emissions. The technique consists of some scanning in a vertical plane normal to ships direction at different line of sight, i.e. 1,2,3,4,5,6,8,10,15,20,30,40° over the horizon. The selected measurements performed before and after the passage of ships are used to retrieve the difference in SO<sub>2</sub> optical depth. This difference is therefore used to retrieve flow rate emission of this gas. This technique was applied in Venice for a period of 5 month.

Detailed description of adopted method and obtained results are presented.