

EGU23 Media Tip Sheet: Travel and transport from a geoscience lens

What is the impact of the transport industry on the environment and how does our environment impact transportation? Scientists present the latest in geo-tourism research, which includes climate optimized aircraft design, risk assessment of a popular crater lake in Italy, real-world in-vehicle exposure to NO₂ and PM2.5, and the “port congestion pandemic”, among others.

Model development for climate optimized aircraft design

The aviation sector contributes to anthropogenic climate change through both CO₂ and non-CO₂ emissions (including NO_x and H₂O). Previous work has looked at how to optimize emissions during flights. Here, researchers turn towards modeling emissions in aircraft design and they provide a model for aircraft design optimization that accounts for both carbon and non-carbon dioxide effects.

Mon, 24 April, 08:30–10:15 CEST

Session [CL3.2.5](#)

Hazard assessment for gas emission and flank landslides at Albano crater lake (Rome)

A volcanic crater lake southeast of Rome was frequently subjected to flooding episodes until 398 B.C. The crater lake of Albano is home to numerous dwellings and recreational activities, making the area “potentially high risk” due to sudden injection of warm water and CO₂ which causes the lake to overturn and gas to be released. To understand the likelihood of gas release today, researchers looked at the long-term chemical composition and physico-chemical parameters of waters in and around the lake.

Mon, 24 April, 10:45–12:30 CEST (Virtual Poster)

Session [GMPV9.3](#)

The footprint of ship anchoring on the seafloor

A first-of-its-kind study shines a light on a lesser-known effect of the COVID-19 pandemic: the “port congestion pandemic.” Thousands of ships waiting outside heavily congested ports during the pandemic have been relying on anchoring gear to hold fast, excavating the seabed by up to 80 cm! These impacts are still preserved 4 years later, and global extrapolations estimate that between 6,000 and 20,000 km² of coastal seafloor is adversely affected from anchoring. These results have implications for global maritime traffic in shallow marine environments.

Wed, 26 April, 10:45–12:30 CEST

Session [GM6.3](#)

Microbiological quality of marine bathing waters under extreme environmental and social conditions

The quality of the sea plays a key role for tourists in choosing a coastal holiday destination. Researchers discuss the impact of extreme events such as heavy rainfall, drought, and limited economic activity due to the pandemic COVID -19, on the occurrence of bacteriological contaminants on select beaches of the Liburnian area (Adriatic Sea, Croatia).

Fri, 28 April, 08:30–10:15 CEST

Session [OS3.3](#)

Indicators of changing resilience and potential tipping points in the automotive industry

It's no secret that the automotive industry is rapidly moving from internal combustion engines to low-emission vehicles. While much research has focused on early warning signals of climate and ecological tipping points driving this conversion, there is little to no assessment of the changes that cause a shift in social systems. This talk focuses on the potential for tipping points to occur in the sale of electrical vehicles in various markets including Norway and the UK.

Fri, 28 April, 12:10–12:20 CEST

Session [CL3.2.6](#)

In-vehicle exposure to NO₂ and PM_{2.5}: influences of environmental, vehicle and driving factors

In many developed cities, commuters spend more than 1.5 hours inside their vehicles every day, which may result in elevated exposure to traffic related NO₂ and PM_{2.5}. This exposure can trigger harmful health effects, especially to vulnerable groups. This study measured in-vehicle NO₂ and PM_{2.5} on city streets for 10 vehicles under real-world conditions to identify important controllable factors that can reduce in-vehicle exposure.

Fri, 28 April, 14:55–15:05 CEST

Session [AS3.15](#)