

# Greenhouse gas emissions from international shipping increasing

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National governments have a much greater responsibility for shipping emissions than previously estimated, finds new UCL-led research.

Published today, the International Maritime Organisation (IMO)'s fourth Green House Gas (GHG) study found that, on average, GHG emissions of global shipping are increasing and are expected to continue to increase under current policy, with emissions hitting an all-time high in 2017.

Split into two key areas—emissions inventory and projecting future emissions—the study highlights the need for significant action to cut emissions by at least 50% by 2050 compared to 2008 levels, as required by the IMO. In 2018, 937 million tonnes (Mt) of [carbon dioxide](#) alone were emitted by the sector—only 0.3% lower than emissions levels a decade earlier.

Leading the work on emissions inventories, the multi-disciplinary team at UCL's UMAS (University Maritime Advisory Services) made a number of advances, most importantly the ability to estimate

the GHG emissions for each ship in the global fleet on every voyage sailed. Satellite observations of shipping activity enabled researchers to discover that an estimated 30% of total shipping emissions fall directly within national government responsibility, which is twice the magnitude previously estimated, with 316Mt of the total 1056Mt of shipping emissions within national emissions responsibilities.

According to international guidelines, only shipping emissions that occur when ships sail on a voyage between two countries are the responsibility of the IMO. When any ship sails between two ports in the same country, the emissions are the responsibility of that country—and should be accounted for and have reductions managed within that country's emissions inventory and commitments, including in its reports to the UNFCCC regarding commitments made in the Paris Agreement (Nationally Determined Contribution). Until now, only a few countries had investigated their shipping emissions at this level of detail.

The study provides further insights into the recent trends in shipping emissions and the drivers of these trends. Methane emissions were found to have increased by 150% over the period due to a lack of regulation allowing for greater methane leakage, caused by an increase in the uptake of poorer quality engines.

The authors suggest that clear policy action must be taken for the sector to urgently transition away from the use of fossil fuels.

Co-author, Dr. Tristan Smith (UCL Energy Institute), said: "You have to start by getting GHG accountancy right and this has proved a perennial problem for the shipping sector. Most countries, including the UK, continue to count shipping emissions inaccurately, for example, on the basis of fuel sold to shipping as opposed to actual voyages and activity. Poor accountancy creates persistent

underestimation of the magnitude of responsibility and role that should be taken nationally to decarbonise shipping. Hopefully this study will encourage countries to look again and bring shipping firmly into their national GHG policy and action."

Co-author Dr. Elena Hauerhof (UMAS), leader of the inventory work, said: "This study represents a significant step forward in estimating emissions inventories, and for the first time uses a fully IPCC-aligned approach to estimate international shipping emissions. The study has also significantly advanced the accuracy of AIS based estimations for any ship, and evidences this by undertaking a detailed validation against fuel consumption and other key parameters reported in EU MRV for over 9,000 ships."

Provided by University College London

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