

## **Research objectives**

The issue of climate change has become one of the most frequently discussed topics in the mass media, political debates, and scientific discussions, especially in the last decade. This multifaceted debate has resulted in different attitudes towards ways of solving specific environmental problems and evaluating them. On the one hand, this allows journalists to present different positions, both in favor of and against the anthropogenic nature of climate change, and on the other hand, it highlights significant differences in the interpretation of the same phenomena. The main objective of the project is to identify and analyze the ways in which climate change is presented in eight national press titles: *Gazeta Wyborcza*, *Rzeczpospolita*, *Gazeta Polska Codziennie*, *Polityka*, *Newsweek*, *Do Rzeczy*, *Sieci*, and *Wprost*, in the period 2015-2025. The study focuses on three areas: (1) identifying heterogeneous patterns of climate change representation depending on the ideological context, (2) analyzing lexical-grammatical connections and dominant linguistic patterns in emerging discourses, and (3) recognizing the discursive strategies used by journalists in reporting on climate issues.

## **Research methodology**

The project involves the use of an innovative, integrated methodology combining quantitative and qualitative approaches in the analysis of climate discourse in the Polish press in 2015-2025. The starting point is the creation of a text corpus comprising approximately 27,000 press articles from eight national daily and weekly newspapers representing diverse ideological orientations.

In the first stage, the data will undergo preliminary linguistic processing using natural language processing (NLP) tools adapted to the specificities of the Polish language. This will be followed by topic modeling using BERTopic, a machine learning tool embedded in a transformer architecture. Large language models (PolBERT, HerBERT) will be used to identify and analyze dominant climate topics in a diachronic and ideological perspective. In parallel, automatic sentiment analysis will be conducted, focusing on six categories of evaluations and emotions, i.e., hope, urgency, responsibility, skepticism, fear, and national interest. These categories were selected based on previous research on climate discourse framing and its significance in media with different ideological profiles. Sentiment indicators will be generated using tuned PolBERT/HerBERT models and GPT models, and then aggregated at the article and press title level.

The next stage of the study involves the use of the Discourse-Historical Approach (DHA) within the framework of Critical Discourse Analysis (CDA). Qualitative analysis will be conducted on a carefully selected sample of press articles and will focus on identifying strategies of nomination, predication, and argumentation. These strategies enable the reconstruction of ways of representing social actors, the characteristics and roles attributed to them, and the mechanisms legitimizing specific ideological and interpretative positions. LLM models (e.g., GPT) and prompt engineering techniques will be used in the process of extracting fragments. The triangulation of methods used will enable the combination of a macrostructural perspective (topics, trends) with linguistic microstructure (discursive strategies), which will not only increase the reliability of the study, but also allow for a better understanding of how climate change is presented, emotionalized, and ideologically framed in Polish media.

## **Expected impact of the research project on the development of science**

This project aims to expand the existing knowledge about climate discourse in the Polish media space. Its main tasks include identifying and describing in detail the mechanisms used by the opinion-forming press to generate debate on the climate crisis. In addition, the project aims to introduce research tools and methods that have not been widely used in Polish discourse research, such as innovative machine learning methods. It is also worth noting that the empirical part of the project will contribute to the creation of a comprehensive corpus of press texts on climate change. This collection will be a valuable contribution to further research in this field.