



## Introduction from the editors

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Until 2019, climate change was largely considered an abstract, marginal and unimportant phenomenon in Russia, and the international community paid little attention to Russia's role in climate change (Poberezhskaya 2016; Poberezhskaya 2021; Stepanov and Makarov 2021; Kokorina and Korppoo 2013)—even though Russia is not only one of the biggest producers and exporters of climate-damaging fossil fuels, its state budget and economy are highly dependent on these exports, and it is the fourth largest direct producer of greenhouse gases (GHGs). At the same time, Russia's vulnerability to climate change and its effects is increasingly evident: yearly wildfires have grown in size and destructiveness (Shvidenko and Schepaschenko 2013; Kharuk et al. 2021; Parker 2021; Novenko et al. 2022), floods have been ascribed to climate change (Zhuravlev et al. 2016; Anisimov and Kokorev 2017), and melting permafrost is endangering the infrastructure of entire cities built on ice (Anisimov and Reneva 2006; Streletsyki and Shiklomanov 2017). Russia is the largest country in the world with a high variety of climatic zones and vegetation, and it has the biggest surface of permafrost and the largest area of boreal forests, both of which store immense amounts of greenhouse gases (GHG)—and are increasingly under threat due to climate change (Rosgidromet 2022; Anisimov and Zimov 2021; Kirillina et al. 2020). Clearly, Russia cannot be ignored when it comes to dealing with climate crisis, and the climate crisis has widespread implications for Russia itself, not only for its economy that is based on revenues from fossil fuel exports but also for its environment (Gustafson 2021; Mitrova and Melnikov 2019). This is not a new insight—as will become clear in this Topical Collection—but it has been largely disregarded in Russian government discourse during much of the Putin era (Beuerle 2023).

The Soviet Union and Russia have had a peculiar relationship with the intrinsically global topic of climate change, both during the Cold War and subsequent tensions and crises. The Soviet Union had a much more prominent role in climate change science and diplomacy than did post-Soviet Russia during most of the Vladimir Putin regime (Doose 2021). It was actively engaged in the global scientific climate change discourse both during and before the Cold War. Russian climatologists led global climate change science for decades, contributing to the most important climate change commissions at the World Meteorological Organization and to international research hubs such as the International Institute for Applied System

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The three authors have contributed equally to this introduction and to editing the Topical Collection.

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Analysis (Oldfield 2018). In the 1970s, Soviet scientists produced about half of all academic publications on climate change worldwide. Between 1972 and 1994, they were involved in large and long-term intergovernmental scientific collaborations with climatologists from the USA and other Western countries, contributing largely to today's understanding of paleoclimatology and cloud formation (Doose 2022). Though this scientific community is still involved internationally (e.g. Russian scientists are actively engaged with the Intergovernmental Panel on Climate Change), its work often goes unnoticed at the national level.

This Topical Collection sheds light on Russian government, society, science and business positions on climate change by looking at them within the historical context to explain continuities, disruptions and changes. A lot has happened since 2019, when the editors of this collection considered the topic for the first time. In 2019, Russia ratified the Paris Agreement and Putin recognised that Russia was amongst the countries most at risk from climate change. Whilst the world was battling the COVID-19 pandemic, Russia saw an unprecedented increase in interest in climate-related issues, policies and business projects. In 2021, Russia's long-term president Vladimir Putin promised climate neutrality by 2060. Additionally, the first federal law on regulating GHG emissions was passed, possibilities of a green hydrogen production and an end to coal were discussed, the Sakhalin Experiment for carbon neutrality by 2025 was launched, and numerous public events were held throughout the country. Drivers for these changes can be identified as international discussions, economic pressure through the Carbon Border Adjustment Measurements and the growing number of disasters like fires and consequences of melting permafrost. However, on 24 February 2022 developments came to a halt when Russia invaded Ukraine. The war has by now killed thousands of Ukrainian civilians, has caused extremely high numbers of military casualties on both sides and forced millions to become refugees whilst it destroyed large areas of civilian infrastructure in Ukraine. At the same time, it has had a devastating impact on first of all Ukraine's but also on Russia's domestic political, social and economic spheres of life, including its progress made in climate-related policies and scientific advances. The questions explored in this collection remain relevant nonetheless: not only because Russia is using the war to change environmental legislation or because oil companies are burning off enormous amounts of excess gas, about 9000 tonnes of CO<sub>2</sub> daily (Reuters 2022), but also because climate change will remain a huge catastrophe even after the war is over. Russia's historic and contemporary approaches to climate change matter because of their global relevance.

## 1 Vision for the Topical Collection

This interdisciplinary volume, *Climate Change in the Soviet Union and Russia: Domestic Actors and Global Contexts*, deals with specific interrelationships embedded in the "Great Acceleration" stage of the Anthropocene.<sup>1</sup> It examines a historical evolution of climate change-related policy approaches and debates in the Soviet Union and Russia within the global socio-political context.

This Topical Collection is based on the workshop "Climate Change in the Soviet Union and Russia: Approaches and Debates in Science, Society, and Politics, 1960s–2010s" that was held at the German Historical Institute Moscow in April 2019, co-organised by the institute and the collaborative research project "Soviet Climate Science and its Intellectual Legacies" (University of Birmingham). Scholars from Russia, the UK, Finland, France,

<sup>1</sup> On the Great Acceleration, see McNeill and Engelke 2016.

Germany, Hungary and the USA discussed various aspects of the Soviet Union's and Russia's past and present relationship to climate change. The event inspired us to bridge the 1991 divide that has often separated epistemic communities between scholars on the Soviet Union and on Putin's Russia. Within the distinct expertise of the three editors of this collection (including climate discourse, the history of climate knowledge, and climate and energy politics in past and present as well as economic development), we all share deep interest in understanding Russia's approach to the climate crisis and how it can benefit the global fight against climate change.

## 1.1 The contributions

This Topical Collection includes a wide range of topics around Russia's involvement in climate change. Three of the contributions explore climate science, government positions and agriculture during the transition from the Soviet to the post-Soviet era. Their analyses thereby raise questions of continuity and change. The other four articles focus on Putin-era Russia's relationship to climate change, notably in the coal industry, national climate policies, international climate diplomacy and climate scepticism.

Katja Doose (2022) looks at the history of climate models in the Soviet Union. Whilst during the Cold War scientists in the West increasingly used general circulation models to make climate projections, their colleagues in the Soviet Union were less well equipped and had to come up with alternative solutions. The article tells how Soviet scientists developed their own climate model based on paleoclimatology records from the deep past to make projections of the climate in the future. Considering the systematic lack of access to high-speed computers that forced Soviet climatologists to use simpler reconstructions as analogues, the article argues that Soviet climate science and interpretations of the climate for the twenty-first century were products of the Cold War.

In their article on the reasons behind the recent boom in Russian grain production, Andrei Kirilenko and Nikolai Dronin (2022) also look at models: weather-yield models that do not seem to correlate with crop yields. By drawing from historical examples of the use of the weather-yield models, they demonstrate that the current high growth in grain production is exceptional. By taking a closer look at the regions experiencing a sharp increase in yield, they argue (contrary to previous conclusions) that it is not climate that lies at the base of this exceptional increase, but agricultural reforms.

Based on a unique set of archival material and government documents, Benjamin Beuerle (2023) digs into the evolution of ministerial government attitudes on climate change from late Soviet times to the Putin era. He discloses a continuity of deep concern in government about anthropogenic climate change and its expected devastating consequences that was interrupted only when Vladimir Putin became president. A decade of government neglect of climate change lasted from 2000 until 2009, when then-president Dmitry Medvedev signed the Russian Climate Doctrine, a doctrine that remains officially valid today. Whilst this document recognised probable anthropogenic causes of climate change and negative consequences for Russia, it has been in both respects considerably less clear than the government positions before 2000.

By using critical discourse analysis, Anna Korppoo (2022) shows how key protagonists in Russia have discussed major international climate treaties and policies through the prism of benefits and threats for Russia, often with arguments running counter to scientific knowledge and fuelled by conspiracy theories. Whilst this makes engaging with Russia on climate change particularly challenging for other countries, Korppoo highlights that the

more recent debate on European Carbon Border Adjustment Measurements has been led in a relatively balanced way and could (have) become an area for international cooperation, pushing modernization of Russian energy-intensive industries that would clearly be in Russia's own interests.

Igor Makarov (2022) further explores Russia's traditional lack of interest in decarbonizing its economy. By using an ideational research methodology, Makarov argues that Russia's move towards a green transition would be different to that of industrialised, energy-importing countries due to Russia's specific economic, political and social contexts. He suggests that decarbonisation should be approached from the point of economic diversification, the promotion of energy efficiency and the increased climate role of forest-related projects. The author also highlights the importance of an ongoing dialogue between energy-exporting and energy-importing countries rather than pursuing a less successful isolated national decarbonisation programme.

Ellie Martus and Stephen Fortescue (2022) deal with climate change in the Russian debate on coal, especially based on official statements by government actors and fourteen private coal companies. They argue that proponents and opponents of increased state support to the coal sector both instrumentalise external climate policies to support their cases, but the proponents clearly have the upper hand. Coal companies depict climate change either as a risk due to increased regulations, financial restraints and competition by renewables, or as an opportunity for introducing "green coal" technologies. In either case, the authors show that no substantial strategy or pressure for reducing the coal production and exports has been discernible. The current war in Ukraine and ensuing European embargo on Russian coal is thus to accelerate a re-orientation to Asian markets.

Teresa Ashe and Marianna Poberezhskaya (2022) bring our attention to an array of factors that shape the presence and form of climate scepticism in Russia. By performing an extensive literature review, the authors highlight the overall low numbers of Russia-related climate change research endeavours in social science academic literature. Based on the collected evidence, they then look at the nature of the present climate scepticism in the country. Ashe and Poberezhskaya's findings demonstrate that climate scepticism in Russia cannot be assessed using the same parameters and approaches as have been applied to the Western countries, particularly the USA. Crucial is to consider the overarching influence of the authoritarian regime as well as the state's current political and economic needs, which are situated within specific environmental vulnerabilities.

## 1.2 Outlook

The articles in the collection cover a diverse range of topics, all of which feed into the following overarching conclusions that can inform interested parties trying to engage with Russia on climate change:

Whilst the attitudes and decisions of President Vladimir Putin, those loyal to him and his advisers on climate change tend to overshadow others', it is important to understand the heterogeneity and multifaceted character of Soviet and Russian stances on climate change in past and present. Neither government, science, business nor society positions on this subject have been unequivocal, and most of them have been subject to change at certain intersections. In short: There is more than one Russia to consider when it comes to climate change. Though the Soviet Union's and Russia's abundance in fossil resources need to be considered to understand certain stances and decisions on climate change, the

heterogeneity and changeability of positions on climate change show that these positions are the result of a multitude of factors, not just a function of Russia's material conditions.

Soviet and Russian scientists have made significant contributions to the international climate change debate. In learning from the past, it becomes apparent that, even amidst high political tensions and economic restrictions when climatologists had to adapt, they were still able to contribute to climate knowledge and international dialogue. Now, climate science finds itself again in a difficult moment. Regardless of whether scientists and other knowledge producers can carry on with their work in Russia, they will find ways to continue their contribution.

In the context of the ongoing war in Ukraine, the short-term prospects for Russia becoming an engaged actor in the fight against anthropogenic climate change look bleaker than they did just before the war started. Though there has not been yet an official abjuration of the carbon neutrality pledge or of the climate policy instruments that have been announced or that came into being in 2021, experts and observers of Russian climate policy predicted in September 2022 that climate policy efforts would successively lose the modest attention and backing they finally had obtained in Russian politics and society prior to the war (Davydova 2022). New GHG accountability duties were effectively abandoned shortly after the start of the war.

Russia represents a unique mixture of being one of the largest GHG emitters in the world due to its enormous reserves of fossil fuels and the host of the second largest terrestrial C sink on Earth. Yet, Russia and its resources continue to experience magnifying climate vulnerability as the globe warms. Given Russia's huge permafrost and forest areas, its own climate system has teleconnections that impact global climate circulation patterns. Hence, it is important to continue engaging with Russia for the success of global efforts in climate mitigation and adaptation. Though it remains a matter of controversy to which extent a constructive dialogue on climate change is possible with a Russia leading a full-scale war against its neighbour state, other states are well advised to be prepared for intense collaboration both with a prospective post-Putin Russia and with those strata of Russian society sincerely concerned with climate change without being involved in the war effort.

The case of Russia allows us to understand how climate politics, science and public discourse evolve in authoritarian states. Whilst countries like Russia cannot claim thousands of active global climate movement supporters, existing climate discussions and debates demonstrate growing national concern.

## References

- Anisimov O/ Reneva S (2006) Permafrost and changing climate: the Russian perspective. *Ambio*, Vol. 35, No. 4, The Royal Colloquium: Arctic under Stress: A Thawing Tundra (Jun., 2006):169–175
- Anisimov O/ Kokorev V (2017) Cities of the Russian North in the context of climate change, in: Orttung R W (ed.), *Sustaining Russia's arctic cities. Resource politics, migration, and climate change*, New York/ Oxford: Berghahn: 141–174
- Anisimov O, Zimov S (2021) Thawing permafrost and methane emission in Siberia: synthesis of observations, reanalysis, and predictive modelling. *Ambio* 50:2050–2059. <https://doi.org/10.1007/s13280-020-01392-y>
- Ashe T, Poberezhskaya M (2022) Russian climate scepticism: an understudied case. *Clim Change* 172:41. <https://doi.org/10.1007/s10584-022-03390-3>
- Beuerle B (2023) From continuity to change: Soviet and Russian Government attitudes on climate change. *Clim Change*. <https://doi.org/10.1007/s10584-023-03488-2>
- Davydova A (2022) Wie der Ukraine-Krieg die Klima- und Umweltpolitik in Russland beeinflusst [How the War in Ukraine is affecting the climate and energy policy in Russia]. *Klimareporter*, July 20, 2022 (=

- Series: Klimapolitik Russland – Teil 1). <https://www.klimareporter.de/international/wie-der-ukraine-krieg-die-klima-und-umweltpolitik-russlands-beinflusst>
- Doose K (2021) A global problem in a divided world: climate change research during the late Cold War, 1972–1991. *Cold War History*. <https://doi.org/10.1080/14682745.2021.1885377>
- Doose K (2022) Modelling the future: climate change research in Russia during the late Cold War and beyond, 1970s–2000. *Clim Change* 171:6. <https://doi.org/10.1007/s10584-022-03315-0>
- Gustafson Th (2021) *Klimat. Russia in the age of climate change*. Harvard University Press, Cambridge
- Kharuk V et al (2021) Wildfires in the Siberian taiga. *Ambio* 50:1953–1974. <https://doi.org/10.1007/s13280-020-01490-x>
- Kirillina K et al (2020) Consideration of anthropogenic factors in boreal forest fire regime changes during rapid socio-economic development: case study of forestry districts with increasing burnt area in the Sakha Republic, Russia. *Environ Res Lett* 15:035009. <https://doi.org/10.1088/1748-9326/ab6c6e>
- Kirolenko A, Nikolai D (2022) Recent grain production boom in Russia in historical context. *Clim Change* 171:22. <https://doi.org/10.1007/s10584-022-03332-z>
- Korppoo, A (2022) Russian discourses on benefits and threats from international climate diplomacy. *Clim Change* 170 (25). <https://doi.org/10.1007/s10584-021-03299-3>
- Kokorin A, Korppoo A (2013) Russia's post-Kyoto Climate Policy Real Action or Merely Window-Dressing? *FNI Clim Policy Perspect* 10(May 2013):1–8
- Makarov, I (2022) Does resource abundance require special approaches to climate policies? The case of Russia 170 (3). <https://doi.org/10.1007/s10584-021-03280-0>
- Martus, E/Fortescue S (2022) Russian coal in a changing climate: risks and opportunities for industry and government 173 (26). <https://doi.org/10.1007/s10584-022-03420-0>
- McNeill JR, Engelke P (2016) *The great acceleration. An environmental history of the Anthropocene since 1945*. Harvard University Press, Cambridge (MA)
- Mitrova T, Melnikov Y (2019) Energy transition in Russia. *Energy Transitions* 3:73–80. <https://doi.org/10.1007/s41825-019-00016-8>
- Novenko E (2022) Evidence that modern fires may be unprecedented during the last 3400 years in permafrost zone of Central Siberia. *Russia Environ Res Lett* 17:025004. <https://doi.org/10.1088/1748-9326/ac4b53>
- Oldfield J (2018) Imagining climates past, present and future: Soviet contributions to the science of anthropogenic climate change, 1953–1991. *J Hist Geogr* 60:41–51. <https://doi.org/10.1016/j.jhg.2017.12.004>
- Parker S (2021) Siberia's wildfires dwarf all others on the globe combined. *HowStuffWorks*, Sept. 14, 2021. <https://science.howstuffworks.com/nature/natural-disasters/siberia-2021-wildfires-news.htm>
- Poberezhskaya M (2021) Russian climate change policy: increasing ambitions. *Russian Analytical Digest* 272, 25 October 2021: 2–5
- Poberezhskaya M (2016) *Communicating climate change in Russia. State and propaganda*, Routledge, Abingdon/ New York
- Reuters (2022). <https://www.reuters.com/business/energy/russia-burns-gas-into-atmosphere-while-cutting-supplies-eu-2022-08-26/> [accessed 6 March 2022]
- Rosgidromet, (2022) *Doklad ob osobennostiakh klimata na territorii Rossiiskoi federatsii za 2021 god* [Report on climate features on the territory of the Russian Federation in 2021]. Rosgidromet, Moscow
- Shvidenko A, Schepaschenko D (2013) Climate change and wild fires in Russia. *Contemp Probl Ecol* 6:683–692. <https://doi.org/10.1134/S199542551307010X>
- Streletskiy D/ Shiklomanov N (2017) Russian arctic cities through the prism of permafrost, in: Orttung R W (ed.), *Sustaining Russia's arctic cities. Resource Politics, Migration, and Climate Change*, New York/Oxford: Berghahn: 201–220
- Stepanov I, Makarov I (2021) Greenhouse gas emissions regulation in fossil fuels exporting countries: opportunities and challenges for Russia. *Post-Communist Econ* 34(7):916–943. <https://doi.org/10.1080/14631377.2021.1943918>
- Zhuravlev IuN et al (2016) *Transgranichnoe ozero Khanka: prichiny povysheniia urovnia vody i ekologicheskie ugrozy*. [Transboundary Lake Khanka: causes of rising water levels and environmental threats] Dalnauka. Vladivostok

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