OBSERVATOIRE Défense & Climat

Report

RUSSIAN CLIMATE OPPORTUNISM: GEOPOLITICAL AND SECURITY IMPLICATIONS

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DGRIS

IRIS INSTITUT DE RELATIONS INTERNATIONALES ET STRATÉGIQUES

The Defence and Climate Observatory, launched in December 2016, aims to study climate-related security and defence issues.

It is coordinated by IRIS as part of the contract carried out on behalf of the French Ministry of Armed Forces's Directorate General for International Relations and Strategy (DGRIS). The Observatory's multi-disciplinary team includes researchers specializing in international relations, security, defence, migration, energy, economics, climatology and health. It is directed by Mathilde Jourde and François Gemenne.

The Observatory has initiated numerous collaborations with European partners (Netherlands, Luxembourg) and international partners (Australia, United States, India), international NGOs and national and international public bodies. These initiatives have strengthened cooperation on climate issues and their security implications.

The Climate and Defence Observatory produces reports and notes, organises restricted seminars and conferences open to the public, and hosts the podcast "On the climate front".

www.defenseclimat.fr/en

The Ministry of Armed Forces regularly calls upon private research institutes for outsourced studies, using a geographical or sectoral approach to complement its internal expertise. These contractual relationships are part of the development of the defence foresight approach, which, as emphasised in the latest White Paper on Defence and National Security, *"must be able to draw on independent, multidisciplinary and original strategic thinking, integrating university research as well as specialised institutes*".

Many of these studies are made public and available on the Ministry of Armed Forces website. In the case of a study published in part, the Directorate General for International Relations and Strategy may be contacted for further information.

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ABOUT THE AUTHORS OF THIS NOTE



Mathilde Jourde / IRIS

Co-director of the Defence & Climate Observatory and head of the Climate, Environment & Security Program at IRIS. She holds a bachelor's degree in international relations and history from the London School of Economics and Political Science (LSE), and a master's degree in Sustainable Development and Social Innovation from HEC Paris.

Smilla Guillaume / IRIS

Second-year master's student in international relations at Sciences Po Lyon. She was a research assistant in the IRIS Climate, Environment & Security Program from January to July 2026.

Arthur Vidal / IRIS

Graduate in international relations from Université Clermont Auvergne. He has been a research assistant in the IRIS Climate, Environment & Security Program since September 2026.

INFOGRAPHICS AND MAPS

Antoine Diacre / Head of Data, Mapping and Infographics at IRIS

Coline Laroche / Deputy for Communication, member of the Data, Mapping and Infographics team, and analyst at IRIS in the Asia-Pacific programme at IRIS

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The consequences of climate change on interstate relations are ambivalent (Wang, 2020). As a global phenomenon, climate change can foster cooperation between states, since it requires coordinated and effective climate policies. Conversely, it can also compound existing tensions and intensify rivalry and competition between actors. This tendency is all the more perceptible in the contemporary context, which is marked by a hardening of interstate relations and a questioning of the multilateral order inherited from the Second World War (Patrick & Romero, 2026). **The current context therefore appears conducive to the instrumentalisation of climate change : some state actors go so far as to exploit it coercively, using it as a strategic lever in the same way as economic, technological or industrial issues** (Mazzucchi, 2013).

States integrate climate issues in a variety of ways, as shown by the Defence and Climate Observatory. This reflects both the different physical effects of climate change on each state's territory and the way those effects are perceived. Some states, like China, treat climate as an instrument of diplomatic influence or economic development (De Guglielmo Weber et al., 2023). Indeed, since the 2010s, China has seen climate change as an opportunity to lead within multilateral climate governance (Maréchal, 2021). It also sees an economic opportunity: its dominance of the value chains for many critical minerals essential to the energy and digital transitions (Jeannin et al., 2025) has earned it the label "electrostate"[1]. Others, such as the **United States**, have historically taken contradictory positions. They have led the fight against climate change to bolster their soft power, while preserving an economy largely built on carbon-based resources (Papon, 2026). The **European Union**, positioning itself as a leading normative power, has integrated climate issues into its policy and encourages ambitious environmental and climate regulation (Levasseur, 2025). The **Gulf monarchies**, for their part, use climate change to diversify their national economies, secure some resources and gain international influence (Duffau et al., 2025).

Analyses of how states integrate climate issues often focus on China, the United States, the European Union or the Gulf monarchies. By contrast, other states remain comparatively understudied. Russia, for example, is poorly documented, both because little data is available and because of its inertia on climate policy (Bo, 2021). Yet Russia does take climate issues into account, albeit differently from other powers. While the majority of states display a willingness to combat the causes and effects of climate change with the aim of being recognized as climate "champions", Russia stands apart by seeking to exploit the opportunities that climate change creates. **This note uses the concept of "climate opportunism" to examine how Russia takes climate issues into account.**

The use of the concept of "climate opportunism" rests on a threefold rationale. First, the concept builds on the Observatory's previous work. The paper "Climate Disinformation and Information Warfare: State Interference and Security Implications" (Duffau et al., 2026) set out a continuum of concepts describing the various discursive strategies used to obstruct action on climate change. These include climate negationism, climate denialism, climate scepticism, climate conspiracism and climate relativism (ibid.). Climate opportunism, for its part, describes actors whose engagement with climate

[1] See definition in the Glossary.

issues varies according to their interests – ranging from the recognition of their existence to the implementation of associated policies. **Second, applying the concept to a state helps to extend existing academic work on climate opportunism.** Indeed, the concept is mainly used in management and economics, where it explains how the private sector and businesses respond to climate change (Klein, 2014; Bonds, 2016; Ferns, 2019). Yet it also offers a relevant analytical framework for understanding other actors, notably states such as Russia (Aubin, 2026; Boulègue, 2026; Vidal, 2026; Taithe, 2026). **Third, some press articles highlight the opportunistic nature of certain rhetoric and measures from the Russian regime** (Marchand, 2020; Temkin, 2025)**. However, their analysis remains incomplete** and the term is little developed conceptually. These articles focus on the biophysical opportunities created by climate change, particularly in the Arctic or the agricultural sector (Lustgarten, 2020). They rarely question whether this framing is scientifically sound. **The concept of climate opportunism therefore helps to address some of these gaps.**

All states integrate climate issues in pursuit of their own interests (Fransen & Meckling, 2026; De Guglielmo Weber et al., 2023; Duffau et al., 2025). Nevertheless, this practice is a **notable feature of Russian climate policy, which can be described as opportunistic.** Indeed, in contemporary Russia, particularly under Putin, the climate question is approached opportunistically. It is viewed through the prism of the regime's political and geopolitical interests, as are other issues, notably economic, technological and diplomatic ones. We argue that this logic can be described as **"climate opportunism". The term refers to Russia's climate strategy, understood as the authorities' capacity to adapt their environmental rhetoric, commitments and policies to the balance of power.** This notion builds on the work of Jean-Robert Raviot (2018) who defines Putinism both as a particular configuration of the ruling elite, structured around a narrow decision-making core, and as a political narrative designed to legitimise the exercise of power. The notion also echoes Marlène Laruelle's analyses (2021, 2025) of the regime's ideological plasticity, whose sovereigntist, conservative or civilisational references shift according to political necessity. **Russian climate opportunism thus rests on an apparent contradiction. The Kremlin's climate rhetoric and policies evolve, yet the objectives they serve remain relatively constant.** Since coming to power in 2000, Vladimir Putin has pursued three main ambitions. The first is to ensure the longevity of his regime and of the elite that supports it. The second is to restore Russia's power on the international stage. The third is to weaken coalitions of states likely to obstruct these ambitions, first and foremost the Western powers (Aubin, 2025). Russian climate policy is embedded within this broader pattern. In the 1990s, it was marked by relatively pragmatic international cooperation. In the late 2000s, it gradually took on a sovereigntist and anti-Western dimension. This trend has intensified since the full-scale invasion of Ukraine in 2022. Moscow can therefore acknowledge the reality of climate change while defending an economic model heavily dependent on hydrocarbons. At the same time, it can portray certain Western environmental policies as new instruments of domination, or even of neo-colonialism**. Climate opportunism in contemporary Russia therefore refers to the subordination of a shifting climate policy to relatively unchanging objectives of domestic power and international standing.** It reflects an approach in which environmental considerations are subordinate to the imperatives of regime survival and Russia's geopolitical ambitions.

Consequently, the integration of climate issues is not uniform. It is marked by a divergence between the international and national levels (Gustafson, 2021). **At the international level,** climate change served as a means of integrating into the liberal world order until the early 2010s. Since then, it has been used to undermine the credibility of Western countries on climate matters, particularly their moral credibility. By taking part in climate multilateralism, Russia can promote certain domestic rhetoric and narratives**. At the national level,** climate change is perceived as both an opportunity and a threat, depending on the groups concerned. These include actors from the hydrocarbon and metallurgical sectors, politicians close to these industries, and President Vladimir Putin himself (Gustafson, 2021). As a result, these divisions have led to the absence of a coordinated national policy to tackle climate change.

This paper lies at the intersection of climate and geopolitical issues. It analyses how Russia incorporates climate change into a logic of "climate opportunism" in pursuit of its strategic objectives. This approach results in a degree of divergence between how climate issues are addressed at the national and international levels. The first part examines the environmental and economic consequences of climate change for Russia. The second part considers how climate issues are addressed at the international level. It illustrates how Russia's position has evolved within climate multilateralism. Finally, the third part analyses the integration of climate change at the national level, particularly through the defence sector.

Methodological framework: limitations of the analysis and primary sources

A first methodological limitation concerns data accessibility. This paper relies solely on open-source data available in, or translatable into, English or French. Data accessibility proved particularly complex for Parts 1 and 3. **Part 1 provides** an overview of the consequences of climate change across Russian territory. Few recent data or local sources are publicly available on this subject. This is due to the full-scale invasion of Ukraine in February 2022, which led to the suspension of scientific cooperation between Russia and several countries. The impact is especially concerning for Arctic data, given that Russia is the largest Arctic state (Arndal et al., 2024). **Part 3 provides** an overview of the consequences of climate change for the Russian defence apparatus. Available data on this subject also appears scarce, or difficult to access. This is partly because military data are often classified. All the data presented below were therefore gathered through open-source research, drawing on a corpus of scientific studies, qualitative interviews and press articles. **These two parts are thus not intended to be exhaustive. Rather, they aim to provide a broad picture of the diverse consequences of climate change for Russia.**

A second limitation stems from gaps in the documentary record. These gaps mean that the paper's conclusions should be regarded as exploratory hypotheses. Academic literature on Russia's stance on climate change remains limited. This paper therefore proposes the concept of "climate opportunism" to formulate hypotheses on the links between climate change and Russia's strategic and geopolitical

objectives. However, state intentionality remains difficult to demonstrate in the field of international relations (Rosato, 2015). The conclusions should therefore be interpreted with caution.

This analysis draws mainly on two types of documents. Together, they show how Russia has harnessed climate issues to serve its foreign and domestic policy. The first type comprises security and foreign policy documents:

- **"The Foreign Policy Concept of the Russian Federation":** these documents have existed since 1993 and are published every three to eight years. The sixth and most recent version was published in 2023. They reflect the national interests of the Russian Federation. They also set out Vladimir Putin's foreign policy for domestic institutions and other countries (Ambassade de la Fédération de Russie en France, 2023; Lancereau, 2023). They can therefore serve as indicators of how climate change is addressed in Russian foreign policy. The term "climate change" only appears from 2008 onwards. This analysis is therefore based on the four most recent versions (2008, 2013, 2016 and 2023).
- **"National Security Strategy of the Russian Federation":** published every six years since 2009, this strategy sets out the threats facing the Russian state and the public policies designed to address them. It also signals Russia's strategic priorities to external actors. This paper focuses solely on the 2015 and 2021 versions (Russian Federation, 2015; Russian Federation, 2021).

This analysis also draws on documents dedicated to climate issues:

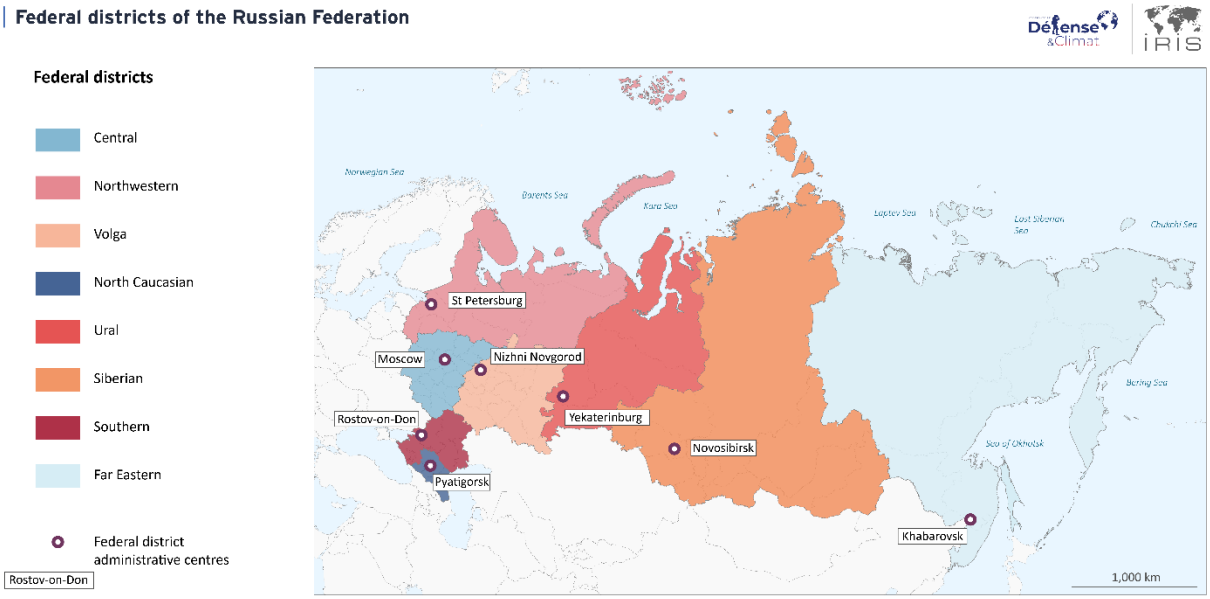
- **"State Strategy of the Russian Federation on protection of the environment and on securing of a sustainable development":** published in 1994, this strategy seeks to reconcile post-Soviet Russia's economic development goals with environmental concerns. It provides a legal and policy framework for Russian institutions (Gouvernement de Russie, 1994).
- **"Prevention of dangerous climate changes and their negative consequences": published in 1996, this document assesses climate-related threats.** It also sets out a range of mitigation and adaptation measures (Inter-Agency Commission of the Russia Federation on Climate Change, 2002).
- **"Climate Doctrine of the Russian Federation":** first published in 2009 and updated in 2023, this doctrine is the most comprehensive document on climate change and Russia's decarbonisation strategy (President of Russia, 2009a; Président de la Russie, 2023).
- **"National Action Plan for the First Stage of Adaptation to Climate Change for the Period up to 2022":** published in 2019, this action plan sets out the policy measures intended to ensure compliance with Russia's commitments under the Paris Agreement on climate change mitigation and adaptation (Climate Change Laws of the World, n.d.).

Finally, the analysis is further informed by selected statements and speeches by Russian government representatives between 1990 and 2026, notably those delivered by Vladimir Putin at international events. It draws on written transcripts of these speeches and on some subtitled video recordings available on the government's website. As these sources are published on official Russian websites, their content may at times have been deliberately altered by the authorities.

PART 1: ENVIRONMENTAL CONSEQUENCES AND CASCADING EFFECTS OF CLIMATE CHANGE IN RUSSIA

Over the past decade, the average air temperature in Russia has risen by 0.47°C compared with the pre-industrial period (Lo, 2021). By 2050, this increase could reach 2.6°C under a low greenhouse gas emissions scenario, and up to 3.9°C under a high-emissions scenario (CMCC, 2021). Siberia is experiencing some of the fastest warming in the world. The Yamal Peninsula, for instance, recorded summer temperature anomalies of up to +2.33°C[2] over the period 2011–2020, compared with 1961–1990 (Hantemirov et al., 2022). These anomalies make the peninsula the fastest-warming region in Russia (ibid.). However, warming varies considerably across the regions of a country covering more than 17 million square kilometres.

Map 1 – Federal districts of the Russian Federation



Source: Universalis

This first part provides an overview of the direct and indirect impacts of climate change in Russia. It begins by examining the environmental consequences, notably rising air and ocean temperatures and the associated intensification of extreme weather events. It then analyses the cascading effects of climate change in Russia. It focuses on the economic, agricultural and social consequences.

A – The environmental consequences of climate change

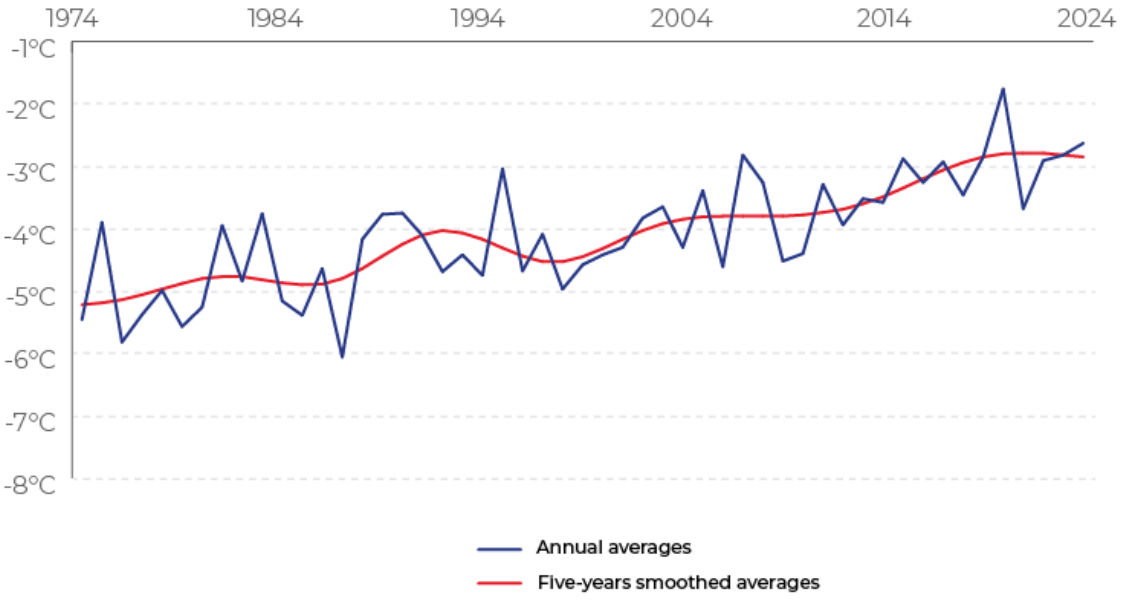
In Russia, climate change manifests itself through both gradual processes, referred to below as "slow-onset" events, and sudden extreme phenomena, referred to below as "sudden-onset" events. Climate trends are visible over the long term, notably rising temperatures and

[2] Mean temperatures recorded in June and July over the last decade (2011–2020), described as anomalies relative to the 1961–1990 reference climate (Hantemirov et al., 2022).

the resulting melting of the cryosphere[3]. They are also visible in the shorter term, through the increasing frequency and intensity of extreme weather and climate events.

1. Slow-onset effects of climate change in Russia: rising air and ocean temperatures

Figure 1 - Observed annual mean surface air temperatures in Russia, 1974–2024



Source: Climate Change Knowledge Portal, World Bank.

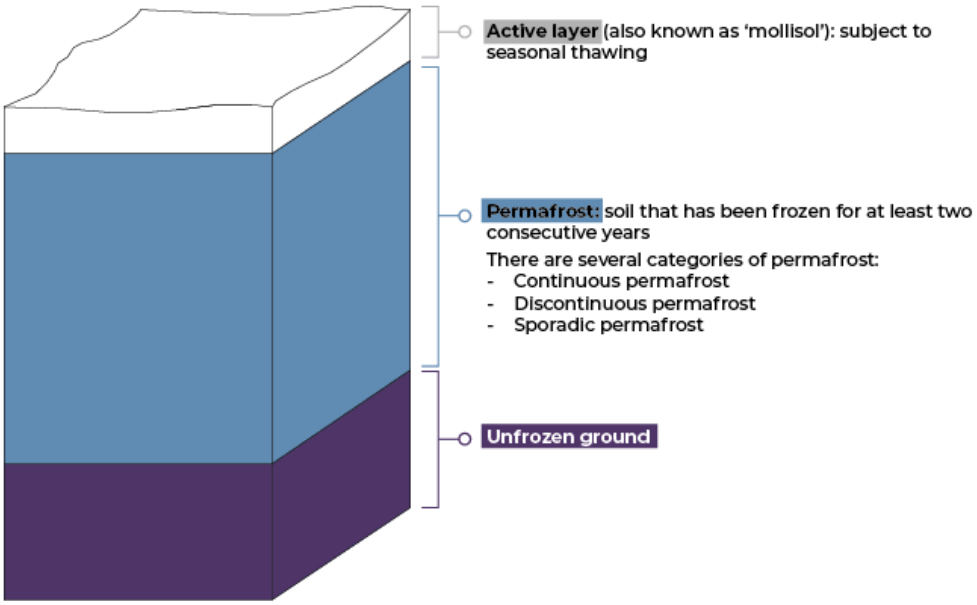
Permafrost[4] covers nearly 65% of Russia's territory. Its thaw is one of the major environmental risks caused by rising air temperatures in the north of the country (Vidal & Saas, 2025). The IPCC defines permafrost as "ground (soil or rock and included ice and organic material) that remains at or below 0°C for at least two consecutive years" (GIEC, 2019). **Two parameters characterise these frozen soils (or cryosols[5]).** First, their areal extent varies. According to the International Permafrost Association (IPA), a standard classification distinguishes continuous permafrost (covering 90–100% of the area), discontinuous permafrost (50–90%) and sporadic permafrost (0–50%) (IPA, n.d.). Second, this type of ground consists of three thermal layers:

- The surface layer, known as the "active layer", extends from the ground surface to a depth of 3 or 4 metres (GIEC, 2019). This layer thaws for part of the year and refreezes in winter.

[3] The Intergovernmental Panel on Climate Change (IPCC) defines the cryosphere as the "frozen components of the Earth system" (glaciers, sea ice, snow, icebergs, permafrost, etc.) (GIEC, 2019). See definition in the Glossary.
[4] See the definition in the glossary.
[5] See the definition in the glossary.

- The underlying layer, “permafros”, remains frozen for at least two years. Its total thickness ranges from less than one metre to more than 1,500 metres (NSIDC[6], n.d.-a). Although the active layer and permafrost are two distinct layers, the former is often mistakenly equated with the latter (Dittmer & Hansmann, 2026).
- Finally, the deepest layers remain unfrozen all year round and are not subject to seasonal variation.

Figure 2 – Permafrost structure



Source: Permos.

Yet seasonal thaw is increasing in Russia, particularly in Central and Western Siberia (CALM[7], 2025). Over the past thirty years, the average thickness of the active layer has increased from 45 to 70 centimetres (SZR[8], 2025). Locally, thaw can be even more pronounced, as in the village of Talnik, in Bashkiria (east of European Russia), where the active layer deepened by 1.02 metres between 1998 and 2022 (CALM, 2025).

Permafrost thaw has considerable environmental consequences. First, it promotes the release of greenhouse gases into the atmosphere. The northern permafrost region is a vast carbon reservoir, holding nearly a third of the world’s soil organic carbon[9] (Bowring et al., 2026). Its thaw could lead to additional emissions of methane (CH_4) and carbon dioxide (CO_2). However, the scale of this process

[6] The National Snow and Ice Data Center (NSIDC) is part of the Cooperative Institute for Research in Environmental Sciences (CIRES) at the University of Colorado Boulder. Founded in 1976, the NSIDC produces analyses and datasets on the world’s frozen regions.
[7] The Circumpolar Active Layer Monitoring (CALM) programme observes and measures the long-term response of the active layer to climate change. Active since 1991, the programme covers 15 countries.
[8] Foreign Intelligence Service of Ukraine (Служба зовнішньої розвідки України).
[9] Organic carbon is the carbon contained in organic compounds.

and the conditions under which it may occur remain uncertain (GIEC, 2019; Krinner, 2025; Vidal & Saas, 2025). **Second, permafrost degradation, which is projected to worsen over the course of the century** (GIEC, 2019)**, is accompanied by a reduction in snow cover** driven by rising temperatures (ibid.). According to Russia's Federal Service for Hydrometeorology and Environmental Monitoring (Roshydromet), the annual duration of snow cover is declining, particularly in Siberia and western Russia (Roshydromet, 2025). In winter 2023–2024, for example, snow cover duration was well below the climate normal, with an anomaly of −6.63 days (ibid.). **Finally, permafrost degradation can cause ground subsidence and alter the topography.** This process, known as thermokarst[10], poses a direct threat to infrastructure built in at-risk areas (see Section B).

In the south of the country, rising air temperatures are contributing to soil degradation, drying and increasing desertification. Around 150 million hectares of land are affected by these processes (Kulik & Vlasenko, 2023). The southernmost regions are particularly exposed, such as the Volgograd, Astrakhan and Rostov regions, Kalmykia, Altai Krai and Tuva (ibid.). Soil degradation causes sandstorms, expands the area of mobile dunes[11] and reduces soil fertility. It thereby threatens the country's food security and agricultural exports. Agricultural practices such as overgrazing further exacerbate these processes.

Russia's coastlines border the Pacific Ocean to the east, the Arctic Ocean and the Baltic Sea to the north, and the Caspian and Black Seas to the south. The country is therefore directly exposed to rising ocean temperatures. Globally, the rate of **ocean warming** has more than doubled since 1993 (GIEC, 2019). Combined with the melting of the cryosphere, rising ocean temperatures contribute to **sea level rise.** By 2100, global mean sea level could rise by 0.43 metres under a low-emissions scenario, and by up to 1 metre under a very high-emissions scenario, relative to 1986–2005 levels (GIEC, 2019). This rise increases the risks of coastal erosion and marine flooding (ibid.). Russia's coastal and urban areas are particularly exposed. Located in a low-lying delta, St Petersburg, for example, is frequently affected by floods of the Neva, compounded by positives surges[12] in the Baltic Sea (NASA, 2021). The Black Sea region, for its part, is vulnerable to coastal erosion. A sea level rise of 0.5 metres could cause 56% of beaches along its coastline to lose half of their maximum width (CMCC, 2021). Nationally, the average shoreline could retreat by up to 18.9 cm (ibid.). The Caspian Sea, meanwhile, is experiencing a rapid fall in water level. Annual declines of up to 30 cm have been recorded since 2020 (Court et al., 2025). Although the sea's level has fluctuated historically, the current decline is directly linked to climate change (ibid.). By 2100, some models project a fall of up to 21 metres under the most pessimistic scenarios (ibid.). This decline threatens both natural ecosystems and the economic sectors that depend on them. Some shipping routes, ports and oil and gas infrastructure could become obsolete or unusable in such circumstances.

[10] See the definition in the glossary.
[11] Mobile dunes are sand formations that shift under the effect of wind and sand accumulation (Réserve naturelle Baie de Saint Brieuc, 2025).
[12] A positive surge is the positive difference between the observed sea level and the predicted tide. Conversely, a negative difference is known as a negative surge (SHOM, 2024).

The Russian Arctic: a strategic territory vulnerable to accelerating climate change

Russia accounts for 53% of the Arctic coastline. Around two and a half million Russians live in the region, more than half of the world's Arctic population (Conseil de l'Arctique, n.d.).

The effects of climate change are intensifying in this region (GIEC, 2019). **Since 1979, the Arctic[13] has been warming four times faster than the global average** (Vidal & Saas, 2025). This phenomenon, known as "Arctic amplification" (Durand, 2026), is marked by the accelerated melting of the cryosphere. Under its most pessimistic scenario, the IPCC projects widespread loss of near-surface permafrost in the Arctic over the course of the century (GIEC, 2019). At the same time, Arctic sea ice extent has declined steadily since 1979, falling by an average of 12.8% per decade between 1979 and 2018 (ibid.). This decline is particularly rapid in the Barents Sea and around the Svalbard archipelago, opening new shipping routes in the region (Eriksen, 2020). As the cryosphere melts ever faster and heat records multiply, extreme cold events have declined sharply since 2000 and have almost disappeared from the region (AMAP, 2021).

Permafrost thaw in the Arctic poses a significant economic risk for Russia, as 20% of its GDP is generated in this area (Vidal, 2021). Indeed, some 18% of Russia's oil and 90% of its natural gas are extracted from its Arctic regions, which are underlain by permafrost (SZR, 2025). Arctic permafrost thaw therefore directly endangers the integrity of Russia's energy infrastructure (see Section B) and threatens its economic interests.

Rising temperatures and the melting of the cryosphere are also having a marked impact on Arctic biodiversity. They are altering the distribution, abundance and survival of species. The distribution of fish in the Arctic, for instance, is changing, as temperate species gradually move into northern seas (GIEC, 2019). These migrations have consequences for the fisheries sector. This process of "borealisation"[14] and "atlantification" of the Arctic, driven by ocean warming, is contributing to the decline of its endemic species (Descamps et al., 2026; Institut de Ciència i Tecnologia Ambientals, 2024).

The main climate change trends observed in Russia are thus felt all the more acutely in the Arctic.

[13] The Arctic is the northernmost region of the Earth, lying within and around the Arctic Circle (Institut polaire français, n.d.).
[14] See the definition in the glossary.

2. Sudden-onset effects of climate change: extreme weather and climate events

Climate change is also manifested in the increasing frequency and intensity of extreme weather and climate events. These include temperature records, floods[15], wildfires[16] and polar cyclones, which affect Russia's territory unevenly.

First, periods of intense heat are becoming more frequent across Russia, as the country is warming around 2.5 times faster than the global average (Conley & Newlin, 2021; Lo, 2021). This trend manifests itself both in isolated events, through new temperature records, and in recurring episodes, through more frequent heatwaves. Heatwaves[17] are characterised by "intense heat over a short period, or by high temperatures that persist over time" (ministère de la Transition écologique et de la Cohésion des territoires, 2024). They are becoming increasingly frequent, with their occurrence rising by 24% between 2023 and 2024 (Roshydromet, 2025). From January to June 2020, for example, Siberia experienced an exceptional heatwave with unprecedented peaks. A temperature of 38°C was recorded in Verkhoyansk on 20 June 2020, the highest ever measured north of the Arctic Circle (Organisation météorologique mondiale, 2021). Climate change made this heatwave around 600 times more likely (Ciavarella et al., 2021). However, these phenomena affect Russia's territory unevenly. Siberia appears to be particularly vulnerable, with air temperatures there projected to rise by between 2.5°C and 7°C by 2050 compared with 1900 (Ciavarella et al., 2021). Extreme heat also contributes to more intense droughts. In major agricultural regions such as Volgograd and Krasnodar, up to a third of harvests are threatened during droughts, which have become more frequent since the 2010s (Vitkine, 2021). Conversely, extreme cold events are tending to decline (see Part 2).

Floods, defined as the temporary inundation of normally dry land (NOAA, n.d.), are also increasing across Russia. This increase results from the melting of the cryosphere (CMCC, 2021), which raises river flows and intensifies flood episodes (GIEC, 2019). In April 2024, for example, historic floods struck the Ural region. A sudden rise in air temperature triggered rapid snowmelt, which swelled the Ural River (Reuters, 2024a). Extreme sea level hazards (storm surges[18], ocean swell[19] and coastal erosion) are also intensifying (GIEC, 2019) and could exacerbate flooding. By 2050, river floods could affect more than 800,000 people under a high-emissions scenario, compared with around 250,000 today (CMCC, 2021).

[15] See the definition in the glossary.
[16] See the definition in the glossary.
[17] See the definition in the glossary.
[18] Storm surges are characterised by "a significant rise in water level along a coast, generally caused by storm winds" (Ifremer, n.d.). See the definition in the glossary.
[19] Swell refers to "the part of the sea state (waves) that is not generated by the local wind" (Ifremer, n.d.). See the definition in the glossary.

Wildfires are a particularly destructive consequence of climate change in Russia. Russian forests cover nearly 50% of the country, an area of more than 800 million hectares (FAO, 2025). Wildfires are defined as "combustion that spreads uncontrolled in time and space" (ONERC, 2018). They are becoming more frequent, more intense and longer lasting, driven by higher air temperatures and more frequent droughts (Javeline et al., 2023; Ponomarev et al., 2023). The number of large wildfires in Russia rose from around a hundred a year between 2013 and 2018 to nearly 400 in 2019, then to around 600 in 2020 (Lo, 2021). In 2020, major fires in Siberia destroyed nearly 21 million hectares of forest, an area comparable to that of Belorussia (Conley & Newlin, 2021). They emitted 245 megatonnes of CO_2[20], almost half of France's annual emissions (Lo, 2021). This trend continues: in 2024, nearly 3.5 million hectares burned in Yakutia (Statista, 2025). Wildfires are projected to become more frequent and more intense by the end of the century (GIEC, 2019). **Russia also faces peat fires[21], also known as "underground fires" or "zombie fires".** Peat consists of dead, partially decomposed plant matter that accumulates in wetlands and can extend several metres below ground (Kuskin et al., 2026). Peatlands are found mainly in the boreal regions of the globe. Russia has vast areas of peatland, particularly in its European and Siberian regions. Yet these ecosystems are increasingly affected by fires that are particularly difficult to control. Fire can persist underground through the winter, reignite in spring and trigger wildfires (ibid.). Although peat is a major carbon sink, it releases its stored carbon when it dries out or burns. These different types of fire thus create feedback loops: they exacerbate climate change by releasing increasing quantities of greenhouse gases into the atmosphere. Emissions from high-intensity fires in 2020 were reportedly more than double those of 2000 (Ponomarev et al., 2023). Siberian wildfires are estimated to account for around 5–20% of Russia's total greenhouse gas emissions. Under some scenarios, they could turn Siberian forests into a carbon source soon (ibid.).

Finally, polar cyclones have also changed in intensity and duration in the past decades because of climate change. Indeed, these weather systems develop in the Arctic and Antarctic, transporting heat and moisture and having complex effects on sea ice and the local climate (Boisvert et al., 2022). Russia's northern coastal regions and the Barents, Kara, Laptev and Chukchi Seas are particularly exposed (Bartsch et al., 2024). This trend is expected to continue, particularly in summer, as temperatures rise. The consequences can be severe. In January 2026, the Russian authorities declared a state of emergency after an Arctic storm brought down power pylons, causing a blackout in Murmansk and Severomorsk and leaving several thousand residents without electricity (La Libre, 2026). However, these phenomena are still not fully understood, and research continues into how climate change is altering cyclone behaviour (Boisvert et al., 2022).

[20] These emissions consist of greenhouse gases released by wildfires. In turn, they contribute to rising global temperatures, as part of a positive feedback loop. Wildfire smoke also releases toxic components into the air (fine particulate matter, nitrogen dioxide, etc.), which worsen local pollution (Organisation Mondiale de la Santé, n.d.).
[21] See the definition in the glossary.

Map 2 – Environmental consequences of climate change in Russia

Russia and climate change

Permafrost extent

- continuous
- discontinuous
- sporadic
- isolated patches
- subsea permafrost

Heatwaves and wildfires (2020-2025)

- Recorded heat records

Recorded temperatures ranged from 32.5°C (Moscow) to 40°C (Rostov, Krasnodar)

- Main regions affected by wildfires

Northern Sea Route (NSR) and main infrastructures

- Northern Sea Route
- Main NSR ports and ports undergoing modernization (Dikson)
- Main military infrastructure along the NSR
- Capital of the Russian Federation
- Federal district administrative centres (Pyatigorsk)



Sources: Center for Research on the Epidemiology of Disasters / UCLouvain; National Snow and Ice Data Center; Izvestia; NORDREGIO

B – Cascading effects: consequences of climate change

The environmental risks posed by climate change in Russia are compounded by a series of cascading effects. This section examines the main agriculture, economic, health and social welfare related risks.

1. Agricultural consequences

In the short term, climate change is having mixed effects on agriculture in Russia, where agricultural land covered 13.2% of the territory in 2023 (Banque mondiale, n.d.). This ambivalence reflects the uneven impact that climate change is expected to have across regions. Areas at middle or high latitudes could see their growing season extended by 5 to 10 days (CMCC, 2021). Climate change could also make new land suitable for cultivation, notably along the border with Kazakhstan and in the northern part of the Black Earth region[22]. Production there would rely on the existing network of agricultural infrastructure and benefit from the local workforce (Gagalyuk et al., 2021). Conversely, southern regions would suffer from a more arid climate, which would adversely affect agricultural production (Kiselev et al., 2013).

In the longer term, as temperatures continue to rise, losses will outweigh the temporary gains brought by climate change (Wegren, 2022). Some impacts will be episodic: changes in precipitation, late frosts[23] and rising temperatures will disrupt production cycles and reduce yields. Between 2023 and 2024, for instance, Russia's grain harvest fell by around 11%. This decline resulted from the combined effects of the war in Ukraine and episodes of frost, drought and excessive rainfall (Le Grand Continent, 2025). Other impacts will be more lasting: climate change is exacerbating droughts and heatwaves in the south of the country, which could lead to a structural shift of agricultural activity towards northern Russia (Wegren, 2022). Yet arable land in the north tends to be less fertile than in the southern regions. It would therefore struggle to offset agricultural losses in the south (Conley & Newlin, 2021) and could even accelerate the decline in yields (Wegren, 2022). Under a high-emissions scenario[24], and despite adaptation by farmers, crop yields could be up to 40% lower by 2100 (Hultgren et al., 2025).

The impact of climate change on agriculture also has cross-border repercussions. Russia is the world's largest wheat exporter, accounting for more than 20% of global exports in 2024, or 40 to 50 million tonnes (Abis et al., 2025). By comparison, the United States exported 22.3 million tonnes that year (U.S. Wheat Association, 2025). Any lasting impact on Russia's agricultural sector could therefore threaten food security both domestically and globally by disrupting global supply chains. This was the

[22] The Black Earth region, or Chernozem belt, is a vast expanse of extremely fertile black soils known as chernozem, located in south-western Russia and along the border with Kazakhstan.
[23] Climate change makes late frosts nearly 60% more likely. These frosts weaken vegetation and make it more vulnerable to frost damage (IPSL, 2024).
[24] RCP8.5 in the IPCC's Fifth Assessment Report, broadly corresponding to SSP5-8.5 in the Sixth Assessment Report.

case in 2010, when a summer drought destroyed 25% of the grain-growing area and left many farmers on the brink of bankruptcy. In August, the authorities banned grain exports until 31 December of that year in order to curb rising domestic inflation (Gagalyuk et al., 2021). Such repercussions would be particularly damaging for countries that rely heavily on Russian imports for their food security, notably in Africa, such as Egypt (Duffau et al., 2026).

2. Economic consequences

Climate change also has economic consequences for Russia. Extreme weather and climate events such as floods, droughts and wildfires impose direct costs on the economy. Economic losses from flood damage, for example, are estimated at between 0.1% and 0.13% of Russia's annual GDP over the period 2003–2022 (Biryukov & Terentyev, 2024). These losses could increase if appropriate adaptation policies are not implemented. Droughts can also have significant economic repercussions, given that agriculture[25] accounted for 3.1% of Russia's GDP in value-added terms in 2015 (Banque mondiale, n.d.). Economists estimated the cost of the 2010 drought at between €5 billion and €11 billion, or 1% of Russian GDP (Le Monde, 2010). This cost is explained by higher energy costs, driven by the additional energy needed for irrigation, pumping and water treatment in water-intensive sectors (Fasolino et al., 2025). Lower agricultural yields can also reduce export revenues, mainly because smaller volumes are available for export. Such export restrictions also have global repercussions, pushing up world food prices (Fellman, 2014). **Slow-onset events also have economic impacts.** Permafrost thaw undermines ground stability and therefore threatens infrastructure in the affected regions. Some 20% of Russia's infrastructure could be at risk by 2050, at an estimated cost of €70 billion (Vidal, 2021). The Russian energy sector is particularly exposed, as 90% of the country's gas production comes from Arctic and sub-Arctic regions (see Box 1 above). In May 2020, the subsidence of the supports of a fuel tank in the Siberian mining city of Norilsk caused a spill of more than 20,000 tonnes of diesel. Some 6,000 tonnes seeped into the soil and 15,000 tonnes into rivers (Mandrillon, 2020; Nefedova et al., 2020). Described as the worst environmental disaster in the Arctic in recent decades, it led Vladimir Putin to declare a state of emergency. Two factors explain the disaster: poor construction and maintenance of the tank, and the subsidence of the concrete platform beneath it, caused by permafrost thaw, which deformed the tank and led to the spill (Petrova et al., 2023). Beyond its environmental cost, the disaster proved particularly expensive. Norilsk Nickel, which owned the diesel tank, incurred clean-up costs of €120 million. Rosprirodnadzor, Russia's federal environmental watchdog, obtained €1.6 billion in compensation from the company to fund restoration projects (Héraud, 2021). Transport networks are also at risk: permafrost thaw could affect 19% of road infrastructure, as well as Russia's railway network (CMCC, 2021). In addition to the costs of direct damage to infrastructure, climate change also disrupts the exploitation of certain resources, particularly fossil fuels.

[25] Agriculture here corresponds to divisions 1–5 of the International Standard Industrial Classification (ISIC) and includes forestry, hunting and fishing, as well as crop cultivation and livestock production.

Climate change can also cause economic losses indirectly, through energy transition policies. Russia is the world's second-largest gas exporter after the United States (IEA, n.d.), and its economic model remains heavily dependent on hydrocarbon exports. Oil and gas accounted for 50% of state revenues in the 2010s, compared with 23% in 2025 (Duffau et al., 2026), while Russian gas exports fell by 27% between 2000 and 2023 (IEA, n.d.). Yet decarbonisation policies could reduce global demand for fossil fuels in the medium and long term, indirectly exposing Russia to "transition risk"[26]. This refers to the risk associated with initiatives that promote the shift to a low-carbon economy (CDP, n.d.).

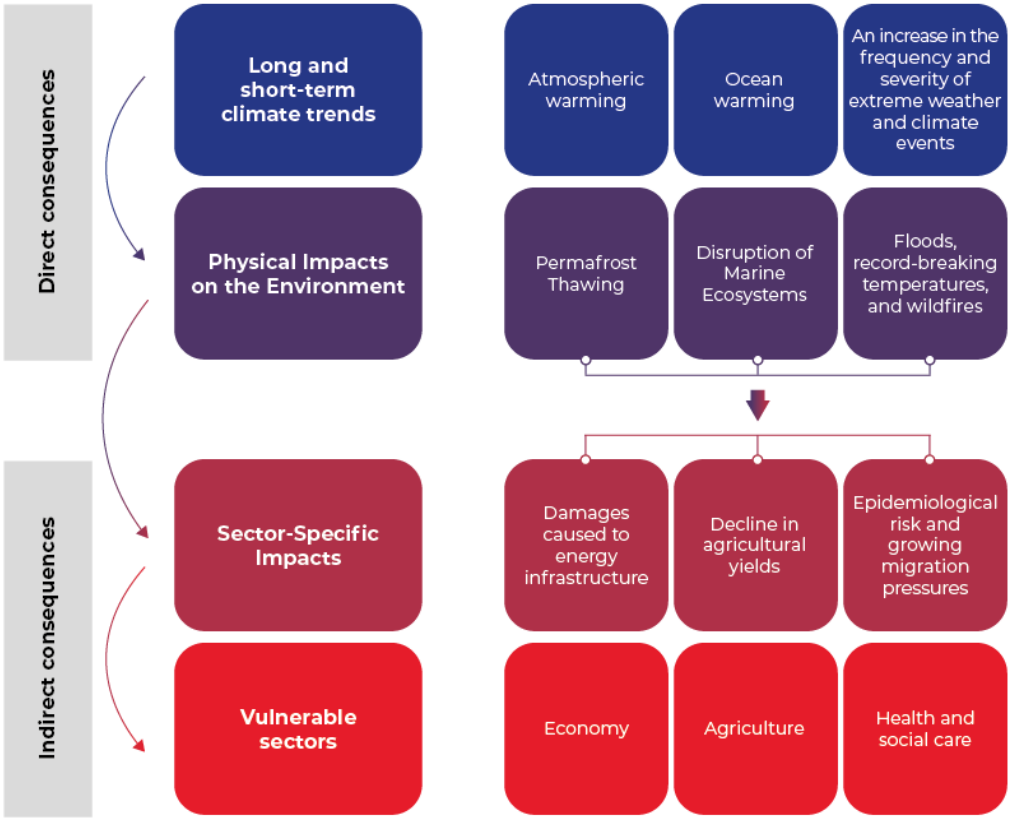
The economic cost of climate change can be estimated, although such estimates vary considerably depending on the emissions scenario, the time horizon, the scope of damage considered and the methodology used. Under a low-emissions scenario, costs could remain at around 1% of GDP through to 2100 (CMCC, 2021). Under a high-emissions scenario, they could reach 3% of annual GDP by 2050 and rise to 9% by 2100 (ibid.).

3. Health and social consequences

Climate change poses growing health and social risks in Russia. From a health perspective, the melting of the cryosphere could release pathogens and contribute to the periodic resurgence of zoonoses[27] (CNRS, 2022). In 2016, for example, an anthrax outbreak on the Yamal Peninsula was attributed to the thawing of an infected reindeer carcass following a heatwave in Western Siberia (Vidal & Saas, 2025). **Climate change also facilitates the transmission and spread of infectious diseases.** Depending on the scenario, 6% to 11.6% of the Russian population could be exposed to malaria by 2050 (CMCC, 2021). In addition to these epidemiological risks, extreme weather events have direct consequences: under a high-emissions scenario, heat-related excess mortality in Russia could rise by 80% by 2050 compared with 2000–2004 (ibid.). **Permafrost thaw has also caused ecological and social disasters.** In 2020, for instance, the Norilsk disaster turned local waters red (Mandrillon, 2020), as 21,000 tonnes of diesel spilled into the Ambarnaya River and its tributaries (Vidal, 2021). **Deteriorating living conditions could also reshape migration patterns.** Within Russia, the number of internally displaced persons could increase as exposure to flooding grows, with the number of vulnerable people rising from 180,000 to 210,000 by 2050 across all scenarios (CMCC, 2021). Cross-border migration could also increase from neighbouring regions vulnerable to climate change, particularly Central Asia (OIM, 2024).

[26] See the definition in the glossary.
[27] The World Health Organization defines a zoonosis as "any disease or infection that is naturally transmissible from vertebrate animals to humans" (Organisation Mondiale de la Santé, 2020). See the definition in the glossary.

Figure 3 – Cascading effects of climate change in Russia



Source : Authors.

PART 2:
CLIMATE OPPORTUNISM AT THE INTERNATIONAL LEVEL: A STRATEGIC ALIGNMENT OF CLIMATE AND FOREIGN POLICY

Russia is affected by climate change in two ways: as a state exposed to its consequences, and a major contributor to it. The country accounts for 7% of global historical greenhouse gas emissions[28], making it the third-largest historical emitter (Zagoruichyk, 2022). **Yet the Russian authorities' engagement with climate issues has fluctuated since the 1990s,** rather than following a gradual, linear path. Although Russia played a role in bringing the Kyoto Protocol into force in the early 2000s (Tynkkynen, 2014), this commitment was not sustained. **These shifts reflect Russian climate opportunism: the integration of climate issues varies according to the country's foreign policy and strategic objectives.**

Since the 1990s, Russia's stance on climate issues appears to have followed the three main phases of the post-Soviet era (Laruelle, 2024; Aubin, 2026): **from the early 1990s to 2012, from 2012 to 2020, and from 2020 to the present[29].** During the first period (1990–2012), Russia sought to integrate into the world order after the collapse of the USSR, while pursuing a modernising, liberal agenda supported jointly by Vladimir Putin and Dmitry Medvedev[30] (ibid.). The second period (2012–2020), described as "late Putinism", saw a hardening of anti-Western foreign policy and an authoritarian, reactionary domestic policy (ibid.). This shift in the 2010s was reflected in growing aggressiveness, notably illustrated by the annexation of Crimea in 2014. Finally, the third period (2020 to the present), known as "wartime Putinism", began with the 2020 constitutional revision. This revision laid the legal and political groundwork that made the invasion of Ukraine possible. The period has cemented the break with the West and revived anti-colonial rhetoric**. Russia's position within climate multilateralism can be interpreted in the light of these periods.** Until the late 2000s, the country appeared to show a degree of proactive engagement on climate issues, linked to its desire for rapprochement with the West. Since then, it seems to have used climate change to divide the West and to secure Russia's return to the forefront of the international stage (Aubin, 2026).

A – A limited climate commitment in pursuit of global integration: performative climate engagement

During the first period (1990–2012), Russia's stance on climate issues appears to have been aligned with its drive for modernisation (President of Russia, 2008; President of Russia, 2009b; Gustafson, 2021) **and its desire for rapprochement with the West** (Vidal, 2026). At the time, Russia displayed a performative form of climate engagement with a strong transactional dimension (Gustafson, 2021).

This engagement, and the willingness to use climate change as a tool for cooperation and integration, are illustrated by the 2008 and 2013 Foreign Policy Concepts. Climate change was not

[28] Historical emissions are the cumulative sum of a country's greenhouse gas emissions since the beginning of the industrial era, here from 1850 onwards (Zagoruichyk, 2022).
[29] Other scholars date these periods differently. Medvedev's presidency (2008–2012), for instance, is sometimes placed in the second phase, or treated as a transitional phase in its own right, depending on the analysis (Tichý, 2014; Laruelle, 2024).
[30] A close associate of Vladimir Putin since the 1990s, he served as First Deputy Prime Minister from 2005 to 2008 and as President of the Russian Federation from 2008 to 2012. Since Vladimir Putin's return to the presidency, he has continued to hold senior positions, first as Prime Minister and then as Deputy Chairman of the Security Council.

mentioned in versions up to 2003, but it appeared in 2008 in an extensive list of threats identified for Russia. In these documents, climate change is viewed through the prism of international cooperation to protect the environment and future generations.

Russia's integration into climate multilateralism dates to the 1990s, a decade marked by the emergence of international climate governance, through the process leading to the adoption of the Kyoto Protocol. This key instrument of the international climate regime aimed to reduce the greenhouse gas emissions of industrialised countries by 5% by 2012 compared with 1990 levels (Tynkkynen, 2014). To enter into force, the protocol required ratification by 55 states accounting for at least 55% of the CO_2 emissions of industrialised countries in 1990 (Prestre, 2011). Russia, which accounted for 17.4% of global emissions in 1990, enabled these conditions to be met. As early as 1997, it had used its strong bargaining position to negotiate certain elements of the protocol in its favour. Together with other states, it pushed for 1990 to be set as the base year (Henry & Sundstrom, 2010), as Russian emissions had peaked that year before falling considerably over the following decade (see below). Following concessions from the various parties, Russia ratified the Kyoto Protocol, adopted in 1997, in 2004.

This engagement should, however, be put into perspective: the targets set for Russia were unambitious, as they had already been met when the country ratified the protocol (Gustafson, 2021). This success is mainly explained by Russia's economic situation at the end of the twentieth century. The dissolution of the USSR led to a sharp economic decline in the 1990s, which significantly reduced the country's greenhouse gas emissions. These reached a historic low in 1998, at around 2,002 million tonnes of CO_2eq, compared with more than 3,055 million tonnes in 1990, a decrease of about 35% (Worldometer, n.d.). Russia was thus able to meet its emission reduction targets without implementing specific climate measures, owing to the economic contraction and fall in GDP that followed the collapse of the USSR (Dutch, 2023).

This performative engagement also had a transactional dimension. Ratification served economic objectives, as the protocol allowed Russia to benefit financially from emissions trading (Taithe, 2026). At the time of ratification, Cambridge Economic Policy Associates estimated that emissions trading could earn Russia between $150 million and $2 billion a year (Henry & Sundstrom, 2010). Ratification also helped Russia secure support for its accession to the World Trade Organization (WTO), as it led certain European Union member states to drop their opposition. **Beyond Kyoto, however, there is little evidence of any further commitment by Vladimir Putin to climate issues** (Gustafson, 2021).

Dmitry Medvedev's accession to the presidency in 2008 continued this pattern, marked by limited engagement, albeit sometimes greater than that of Vladimir Putin (Gustafson, 2021). At the 2008 G8 summit in Japan and at COP15 in Copenhagen in 2009, Medvedev portrayed Russia as an exemplary actor, describing it as a "world leader" in reducing greenhouse gas emissions (President of Russia, 2009b). This rhetoric was also opportunistic (Gustafson, 2021) and largely presentational, as few of the initiatives launched by Medvedev produced tangible results.

This first period thus illustrates Russian climate opportunism: despite a degree of involvement in the Kyoto framework, there is little evidence of commitment beyond public communication. This performative engagement can also be explained by other external and internal factors. In the 2000s, climate diplomacy appears to have been marked by a general slowdown (Beuerle, 2023) and, domestically, by obstruction from certain economic and political interest groups (Gustafson, 2021; Boulègue, 2026). This opportunism is particularly evident in Russia's refusal to take part in the second commitment period of the Kyoto Protocol, which began in 2013. This refusal can be partly explained by the fact that the financial benefits expected from the first commitment period had proved limited (Tynkkynen, 2014). This lack of commitment also reflects a shift in how climate issues were integrated, in line with the strategic objectives of the second and third phases of the post-Soviet era.

B – Hardening of foreign policy: climate as a tool against the West

The second and third periods, from 2012 to the present, have been marked by a hardening of Russian foreign policy and growing anti-Westernism. Climate change is no longer presented solely as a tool for international cooperation, but also as a tool used by adversaries to harm Russia (Vidal, 2026). This shift is particularly apparent in the 2016 and 2023 Foreign Policy Concepts, which describe climate change as a means of constraining states' economic development, and Russia's in particular. The 2021 *National Security Strategy* (Russian Federation, 2021) presents climate policies as a threat to Russia's interests and development: a "pretext to restrict the access of Russian companies to export markets, to curb the development of Russian industry, to establish control over transport routes, to prevent Russia from developing the Arctic" (Russian Federation, 2021, p. 4; Cooper, 2021).

This shift was largely a response to the context of the 2010s, marked by the growing importance attached to tackling climate change, the rapid development of renewable energy and the deterioration of relations between Russia and the West (Gustafson, 2021). Faced with this unfavourable context – fossil fuels accounted for 20% of the country's gross domestic product (GDP) in 2012 – Russia gradually adjusted its rhetoric over the decade. The 2010s thus marked a turning point, with climate change now used offensively in Russia's struggle against the West.

However, despite this apparent change in rhetoric, Russia has remained engaged in climate multilateralism, which illustrates Russian climate opportunism. It ratified the 2015 Paris Agreement in 2019 and included in its 2023 Climate Doctrine the goal of achieving carbon neutrality no later than 2060 (Climate Action Tracker, n.d.). The scope of these commitments should nevertheless be qualified considering how they were ratified and implemented**.**

First, Russia's decision to join the Paris Agreement can be explained by the absence, in the final text, of any binding provision on phasing out fossil fuels or on the energy transition (Taithe, 2026). Moreover, given strong opposition from certain economic and political elites, the Agreement was

ultimately adopted by decree, a less binding route than legislation[31] (Gustafson, 2021). Initiatives to implement the Paris Agreement were also stripped of their substance by the Russian parliament. Oil lobbies, including the Russian Union of Industrialists and Entrepreneurs (RSPP), pressed legislators to hollow out the implementing laws. In 2019, for example, the Ministry of Economic Development's bill to introduce emission caps for companies ("carbon quotas") and fines for exceeding them was watered down and replaced by voluntary quotas (ibid.).

Second, the scientific community has judged Russia's climate commitments to be insufficient. For instance, Russia's approach to achieving carbon neutrality relies on a "Forest First" ("2F") strategy[32], which counts the absorption capacity of carbon sinks to offset insufficient emission reductions in other sectors (Bashmakov, 2024). This approach is even more questionable given that the carbon uptake capacity of Siberian forests declined over 2010–2019 because of droughts and fires (Fan et al., 2023). This methodological weakness, which reflects a lack of ambition, was also evident in Russia's third nationally determined contribution (NDC)[33], submitted in September 2025. It set a target of reducing emissions by around 34% by 2035 compared with 1990 levels (Russian Federation, 2025). This target is, however, far less ambitious than it appears. Owing to the high 1990 baseline, the economic collapse and industrial decline that followed the end of the USSR had already cut emissions by 35% by 1998 (Worldometer, n.d.; 1.5°C National Pathway Explorer, 2021). In 2025, Russia's emissions in 2030 were projected to be 32–34% below 1990 levels (Climate Action Tracker, n.d.). The target will therefore be met without any additional mitigation action. The Climate Action Tracker[34] accordingly rated it "Critically insufficient" (ibid.), since it fails to strengthen Russia's emission reduction targets, contrary to the progression required by the Paris Agreement (ibid.).

Russia's continued presence in global climate forums, despite its failure to implement its climate commitments, **therefore reveals their essentially diplomatic and presentational nature.** This allows Russia to reap political benefits while limiting the scale of the investment and transformation required at home.

[31] The Paris Agreement can be ratified in several ways: through legislation, with parliamentary approval, or by presidential decree. Given domestic opposition in Russia, Vladimir Putin opted to ratify the Agreement by decree. Although ratification by decree does not release the Russian government from its commitments, it affords greater legal and political latitude than if Parliament had ratified the Agreement as a law.

[32] The Forest First (2F) strategy prioritises nature-based decarbonisation solutions in the land use, land-use change and forestry (LULUCF) sector, while allowing for a moderate decline, or even an increase, in emissions in other sectors such as industry and agriculture (Bashmakov, 2024).

[33] The Paris Agreement is based on nationally determined contributions (NDCs), the climate action plans drawn up by states to achieve the Agreement's goals, which must be updated every five years.

[34] The Climate Action Tracker (CAT) is an independent scientific project that assesses the climate action of around thirty countries against the Paris Agreement goal of holding warming below 2°C. The CAT estimated that Russia's NDC is consistent with global warming of around 4°C, incompatible with the 1.5°C goal set by the Paris Agreement.

Russia, the world's fourth-largest greenhouse gas emitter

In 2023, Russia accounted for around 5% of annual global greenhouse gas emissions, making it the world's fourth-largest emitter after China, the United States and India (IEA, n.d.). Its CO_2 emissions from fuel combustion amounted to 1,748 million tonnes in 2024, with natural gas accounting for around 49.3%, coal for 28% and oil for 19.9% (IEA, n.d.). This energy mix mirrors an economy that relies partly on fossil fuel exports. Far from abating, this extractivist model appears to be gaining ground. In 2025, a national decree raised the greenhouse gas emissions ceiling, allowing emissions to rise by up to 20% above 2021 levels by 2035. Industrial development goals and the need to finance the war in Ukraine are driving Russia to increase its oil and gas revenues (Stockholm Institute of Transition Economics, 2025).

The lack of ambitious mitigation policies has significant environmental and climate consequences, as it exacerbates climate change. This is all the more concerning given the specific characteristics of Russia's territory, where forest degradation and permafrost thaw are adding to global greenhouse gas emissions (Brandt et al., 2023). Left unmanaged, these processes pose a major global risk.

However, Russia's participation in climate multilateralism also appears to serve an offensive purpose, particularly towards Western countries. Russia exploits the fight against climate change to deepen divides between Western countries and the Global South (Wagnsson et al., 2026; Jayaprakash & Zakharov, 2026). In 2024, Vladimir Putin claimed that "many of these countries [on the African continent] say that the West is currently practising what is known as climate colonialism. In other words, it is forcing them to buy expensive technologies they cannot afford" (New.ru, 2024). This anti-colonial rhetoric is echoed by influential figures close to the government, such as Dmitry Medvedev, President of the Russian Federation from 2008 to 2012. In 2024, he stated that Russia, with the support of the BRICS, intended to reshape the world order to combat "modern neo-colonial practices" (Medvedev, 2024). He added that "under the guise of protecting the environment and combating climate change, narratives of 'green/climate neo-colonialism' benefiting the 'collective West' are de facto being promoted" (Medvedev, 2024). Such statements exploit certain grievances held by Global South countries towards the West, with the Russian authorities portraying global climate policies as a means of controlling these countries (EUvsDisinfo, 2024; Duffau et al., 2026). **This strategy slows down climate negotiations** and risks widening the gap between Western countries and parties of the Global South at the Conferences of the Parties (COPs) (Alisson et al., 2025). Russia's aim thus appears to be to build a climate coalition that would set "sovereign" climate priorities, independent of the Western agenda (ibid.).

Russian climate information manipulation: an offensive tool against European states

Between 2021 and 2026, the Defence and Climate Observatory identified 120 cases of Russian climate disinformation targeting the European Union and European countries (Duffau et al., 2026). Most of these cases target European energy and climate policies, but they also concern extreme weather events, climate science and climate scientists.

The Observatory's report shows how Russia uses climate disinformation strategically to destabilise European democracies. This "strategy of chaos" polarises public and online spaces, deepens political and social divisions within European societies and erodes trust in institutions and public authorities. Russia's weaponisation of climate information against Europe also extends to other arenas, notably Africa, where it fuels existing grievances and manipulates information to cast Western countries as neo-colonial powers (ibid.). **This use of climate disinformation illustrates how Russia seizes on climate issues to advance its strategic objectives and interest.**

One hypothesis is therefore that, beyond its diplomatic and commmunicational dimension, Russia's participation in these forums serves three objectives: (1) to deny the country's responsibility for climate change while highlighting that of Western countries; (2) to use climate change to deepen certain divides, particularly between the Global North and the Global South (Wagnsson et al., 2026; Jayaprakash & Zakharov, 2026); and (3) to slow down negotiations in order to preserve the hydrocarbon rents on which the Russian economy depends. **This offensive climate agenda shows that Russian climate opportunism since the early 2010s** must be understood in the light of Russia's broader foreign policy agenda (Andreeva, 2026), which is at times entirely disconnected from environmental concerns (Korppoo, 2020).

PART 3:

CLIMATE OPPORTUNISM AT THE NATIONAL LEVEL: PERCEIVED STRATEGIC BENEFITS AND THEIR DEFENCE IMPLICATIONS

Russian rhetoric on climate change varies from one level to another. While climate issues appear to be integrated into Russia's broader foreign policy at the international level, they do not seem to be addressed through a coordinated policy at the national level (Boulègue, 2026). In this context, climate change is perceived as both an opportunity and a threat.

At the domestic level, the place of climate change in official rhetoric and public policy has evolved over time. In the 1990s, under Boris Yeltsin's presidency[35], climate change appears to have received more attention than in subsequent decades. In 1994, the *State Strategy of the Russian Federation on protection of the environment and on securing of a sustainable development* acknowledged the anthropogenic origin of climate change for the first time (Gouvernement de Russie, 1994). Two years later, the document *Prevention of dangerous climate changes and their negative consequences* (Inter-Agency Commission of the Russia Federation on Climate Change, 2002) took stock of the adverse effects facing Russia's territory, such as flooding, sea level rise and permafrost thaw, and set out mitigation and adaptation measures in response (Beuerle, 2023). However, the economic crisis of the late 1990s pushed climate change down the agenda (ibid.). Under the presidencies of Vladimir Putin (2000–2008, then 2012 to the present) and Dmitry Medvedev (2008–2012), climate change has received little attention beyond declarations and public communication (Gustafson, 2021). **Its integration also varies according to the interests of the actors concerned, whether economic (fossil fuels, maritime industry), political, scientific or military.** These divergent interests may explain why Russia lacks a coordinated domestic climate policy (Gustafson, 2021; Boulègue, 2026; Henry & Sundstrom, 2025).

This part examines climate opportunism at the national level, focusing on its implications for defence. The perception of certain strategic opportunities and advantages has led Russia to secure, and even militarise, certain areas, notably in the Arctic, to protect its interests (Conley et al., 2021).

A – Russian climate opportunism at the national level: the perceived benefits of climate change

At the domestic level, climate change features very little in official rhetoric and only to a limited extent in doctrinal documents (Gustavson, 2021). **Russian strategic documents nonetheless describe climate change as both a risk and an opportunity.** The risks identified on national territory relate mainly to permafrost thaw, wildfires and health. The benefits mostly concern the opportunities that climate change is expected to bring in terms of temperatures, agricultural production and the Arctic. **While the negative effects of climate change are mainly cited in security and foreign policy documents, the benefits tend to appear in climate documents,** except for Arctic issues, which run as an underlying

[35] Boris Yeltsin rose through the ranks of the Communist Party of the Soviet Union from the 1960s onwards. In 1991, he led the democratic reformers and gained popularity by opposing the attempted coup in August of that year. He was the first elected President of the Russian Federation, from 1991 to 1999, a period of political and economic instability. He resigned at the end of 1999, handing over to his Prime Minister, Vladimir Putin.

theme through all of them. **The rhetoric of climate opportunities thus appears to be aimed primarily at a domestic audience.**

Strategic documents first framed climate change as a risk in 1994[36], and again in 1996[37], citing its effects on permafrost, the flooding of arable land and coastal areas, and desertification. These risks, however, were largely absent from the texts and doctrines of the 2000s. They resurfaced in the 2010s and 2020s, this time in connection with the vulnerability of critical infrastructure, particularly water and transport infrastructure[38]. In 2015, climate change was even described as a "threat" to public and national security (Russian Federation, 2015). Yet although these risks are clearly identified, the operational consequences of climate change appear to have been insufficiently explored, and no emission mitigation policy seems to be emerging.

Perceptions of climate change as a strategic advantage also date back to the 1990s. As early as 1996[39], certain climate-driven changes to the territory, particularly in the northern regions, were described as potential benefits because of possible agricultural gains. References to such benefits have only grown since then in doctrinal documents. The 2009 and 2023 Climate Doctrines of the Russian Federation[40] also cite other benefits, such as the potential opening of Arctic trade routes, lower energy spending on heating and the availability of new agricultural land. **Framed as opportunities, these changes serve multiple objectives,** notably economic and strategic ones.

This view of climate change may stem from a partial understanding of the phenomenon, which leads to a flawed reading of its impacts on Russia's territory. Warming may be seen as beneficial insofar as it could make Russia's high-latitude regions more hospitable. The growing focus on the Arctic thus risks overshadowing the effects of climate change on the rest of the country. The transformation of the Arctic landscape and the emergence of new economic prospects may therefore appear to give Russia a strategic advantage. However, a more comprehensive approach that accounts for all the consequences, including the less favourable ones, calls this assessment into question. **This view of climate change may also be explained by the political benefits of such rhetoric.** By omitting, whether intentionally or not, the climate risks to which it is exposed, Russia can present itself as a strong state. In this respect, this framing appears to serve one of the central ambitions of Putin's regime: ensuring its longevity and retaining the support of the elites (Lukas, 2025).

Russian rhetoric frequently presents climate change as a strategic asset, focusing on three main issues. The first is the availability of new agricultural land due to temperatures rise, which is regularly cited as evidence of the benefits offered by climate change (see above). **However, expanding agricultural land will not offset the negative impact of droughts on agricultural production** (Wegren,

[36] In the *State Strategy of the Russian Federation on protection of the environment and on securing of a sustainable development* (Gouvernement de Russie, 1994).
[37] In *Prevention of dangerous climate changes and their negative consequences* (Inter-Agency Commission of the Russia Federation on Climate Change, 2002).
[38] In the 2009 and 2023 Climate Doctrines of the Russian Federation (President of Russia, 2009a; Président de la Russie, 2023).
[39] In *Prevention of dangerous climate changes and their negative consequences* (Inter-Agency Commission of the Russia Federation on Climate Change, 2002).
[40] In the 2009 and 2023 *Climate Doctrines of the Russian Federation* (President of Russia, 2009a; Président de la Russie, 2023).

2022), which have already caused significant economic losses in major agricultural regions such as Rostov, Krasnodar, Volgograd and Stavropol (Reuters, 2024b). In 2024, for example, wheat production fell by 16%, maize, barley and sugar beet by around 20%, and potatoes by 10% (The Moscow Times, 2025). More frequent forest and agricultural fires will further limit the supposed benefits for agriculture.

A second perceived benefit stems from rising air temperatures. Extreme cold events are projected to become less frequent and less intense by the end of the century (GIEC, 2021a), and may even disappear altogether (Ribes et al., 2025). This trend could extend to most Russian regions, as is already the case in the Arctic, where cold spells are becoming rarer (see above; Box 1). As early as 2003, Vladimir Putin quipped: "Russia is a northern country. If it was two or three degrees warmer, this would be no big deal. We would spend less money or fur coats and other warm items" (André & Bianco, 2004). Russia's 2023 Climate Doctrine (Russian Federation, 2023) explicitly sets out the positive effects of climate change for the country, presenting rising air and ocean temperatures as a means of reducing heating costs and facilitating access to Arctic resources.

Finally, a third effect of climate change often presented as beneficial is the gradual opening of shipping routes in the Arctic Ocean. As temperatures rise and polar ice melts, some routes are becoming more accessible, particularly along the Russian coast (Baudu & Moncany de Saint-Aignan, 2022). This could lengthen the season during which the Arctic Ocean is open to transoceanic navigation between the Pacific and the Atlantic, currently limited to around two to three months a year without icebreaker support. Two routes are particularly concerned: the Northeast Passage, which runs along the Russian coast, and the Northwest Passage, which crosses the Canadian Arctic Archipelago. The Northeast Passage is often presented as an alternative to traditional routes, offering significantly shorter distances and lower costs: according to estimates, it could cut journey times between Europe and China by around 30–40% (Baudu & Moncany de Saint-Aignan, 2022). Beyond transport, melting ice would also open up access to significant natural resources, notably minerals and energy (ibid.). **Yet the prospect of accessing these routes and resources also reflects a flawed reading of climate realities** (Vidal, 2026). This route primarily benefits trade between ports in northern Europe and northern China (Baudu & Moncany de Saint-Aignan, 2022); for more southerly ports, southern routes generally remain more advantageous. Journey time is not the only criterion: navigational safety must also be considered, and these routes are not necessarily safer. Despite reduced ice cover, the area is subject to rapid wind changes, heavier swell, frequent fog and residual ice. As well as slowing vessels down, ice floes and fog pose significant risks to navigation, driving up shipowners' insurance premiums. Given these multiple constraints (Observatoire de l'Arctique, 2016b), many shipowners, such as CMA CGM, have pledged not to develop commercial routes in the Arctic (Armateurs de France, 2026). Moreover, the lack of infrastructure, particularly ports, and the dilapidated state of facilities along a

heavily eroded northern coastline (see above) limit vessels' ability to refuel or dock. Lastly, the economic viability of the Northern Sea Route, particularly for transit cargo[41], has yet to be established.

Far from being seen solely as a constraint, climate change thus emerges in Russian rhetoric as a potential opportunity (Lo, 2021). These narratives reflect a limited grasp of the systemic nature of climate change (Vidal, 2026). Yet the economic losses it could cause have been estimated at anywhere from $35 billion, or 1.9% of Russian GDP in 2022 (Biryukov et al., 2025), to $700 billion a year (Tynkkynen, 2014). Such a perception therefore reflects a superficial understanding of the phenomenon.

Climate, civil society and government: a shifting relationship from the USSR to Russia

Working within government programmes, Soviet scientists were among the first, alongside their US counterparts, to observe rising atmospheric CO_2 from the late 1950s onwards. The Soviet scientist Mikhail Budyko did pioneer work on the link between rising atmospheric CO_2 and the burning of fossil fuels, and thus on the anthropogenic origin of climate change (Gustavson, 2021). Détente in the 1970s also fostered closer collaboration between Soviet and American scientists. Soviet scientists therefore played a key role in early research on climate change and its human causes. However, the economic downturn drastically reduced science funding, leaving these scientists isolated by the early 1990s (Oldfield, 2018).

Alongside these scientific developments, grassroots environmental movements took shape and multiplied in the 1980s. They opposed major infrastructure projects, such as the diversion of Siberian rivers and cascades of hydroelectric dams in Siberia and campaigned to protect the Aral Sea and Lake Baikal (Yanitsky, 2016). These movements played a formative role during perestroika, the period of economic and political reform launched by Mikhail Gorbachev in 1985, and in Soviet politics in the late 1980s (ibid.). Environmental activism then expanded in the 1990s and 2000s with the support of international environmental movements (Henry, 2010). **However, Vladimir Putin's return to the presidency in 2012 brought in laws designed to restrict the influence of Russian environmental organisations** (Loginova et al., 2025). Repression of environmental organisations and activists has intensified further since 2022 (Loginova et al., 2025). In 2023, organisations such as Greenpeace Russia and the World Wide Fund for Nature (WWF) were forced to close their Russian offices (Loginova et al., 2025). In 2025, 38 entities, 4 individuals and 2 media outlets working on environmental and climate issues were designated as "foreign agents" or "undesirable organisations" (European Union Agency for Asylum, 2025).

[41] "Transit shipping" refers to maritime traffic that crosses the Arctic without calling at any port in the region. "Destinational shipping" refers to maritime traffic whose route includes a call at a port or facility located in the Arctic.

B – Implications of climate opportunism for the defence apparatus: securing in the absence of strategic foresight

Russia's climate-opportunist approach at the national level has implications for defence. The perception of certain opportunities, combined with the growing accessibility of certain areas, notably the Arctic, to other state actors, particularly NATO members (Boulègue, 2026), has led to the securing, and even militarisation, of these areas (Conley et al., 2021).

1 – Increasingly securing: deploying the armed forces to protect Russian interests

The increasing efforts to secure of the region stems from a combination of geopolitical and climate factors. First, it reflects the threats that Russia perceives to its sovereignty in the Arctic, particularly since Finland and Sweden joined NATO in 2023 and 2024 respectively (Boulègue, 2026). This dynamic also extends to the North Atlantic, where intensified military activity and a growing Russian presence are a major concern for NATO member states. **Second, the economic, agricultural and energy opportunities that Russia associates with climate change in its northern territories, particularly the Arctic (see Part 2),** are also driving securitisation and the growing involvement of the armed forces.

Climate opportunism is reflected in Russia's gradual return to the Arctic[42], which has been particularly noticeable since the early 2000s (Laruelle, 2020). In 2001, Vladimir Putin approved a first strategic document on the region, the *Foundations of the State Policy of the Russian Federation in the Arctic*, the final version of which was adopted in 2008 (Governement of Russia, 2008). This strategy was implemented in 2013 and updated in 2020[43] (Government of Russia, 2013; Russian Federation, 2020). **At the heart of these strategies lies a developmentalist vision[44] that seeks to capitalise on the region's opportunities, particularly economic ones.** The exploitation of Arctic oil and gas reserves and access to the Northern Sea Route form part of a broader plan for social, technological and industrial development (Russian Federation, 2020).

This economic development, driven by the melting of the cryosphere, has been accompanied by increased efforts to secure the region through the deployment of the Russian armed forces (Conley et al., 2021), whose primary mission is "safeguarding the national interests of the Russian Federation in the Arctic" (Russian Federation, 2020; Observatoire de l'Arctique, 2016a). The strategic importance attached to the region reflects both a form of opportunism and rising regional tensions, which are fuelling its broader remilitarisation (see below). Tensions in the High North have risen since Russia's

[42] The USSR regarded the High North as a potential zone of military confrontation, but its military and strategic infrastructure in the region was decommissioned in the 1990s (Konyshev & Sergunin, 2015).
[43] Strategy of development of the Arctic Zone of the Russian Federation and the provision of national security for the period to 2035.
[44] Developmentalism can be understood as an approach focused on ends rather than means ("development for development's sake"). By overlooking the levers for action, the role of stakeholders, particularly local residents, and the importance of transparency and local democracy, such a strategy risks failure, or at least very mixed results (Duffau et al., 2025).

full-scale invasion of Ukraine in February 2022. Since March 2022, Russia has been suspended from the Arctic Council, the main forum for international cooperation on the Arctic (Buchanan, 2023). In response, the Russian government has been drafting a new Arctic strategy to 2050 since 2025 (Jones, 2025). Donald Trump's statements in January 2026 about his intention to annex Greenland have further heightened tensions.

The combination of climate and geopolitical factors has thus made Arctic security a priority, leading to a build-up of Russian military capabilities in the region (Laruelle, 2020). Russian forces are gradually being redeployed there (Russian Federation, 2020), and Soviet-era military infrastructure is being restored (Conley & Melino, 2020).

Since the late 2000s, and particularly since the early 2020s, Russia has undertaken a major overhaul of its naval power. This revision of its naval strategy is closely tied to its strategic objectives for the Northern Sea Route and to regional tensions (Russian Federation, 2020). Russia is therefore developing a wide range of capabilities, from vessels and technologies to vehicles, equipment and weapons. Some 27 ships and submarines, for instance, have joined the Russian fleet since 2023 (Monaghan, 2025). The aim is reportedly to field 12 Yasen-M class submarines, split equally between the Northern and Pacific Fleets (TACC, 2026). Further submarines are under construction, including three nuclear-powered ballistic missile submarines (SSBNs) (Nilsen, 2021). Russia is also developing new missile technologies and designing new types of unmanned underwater vehicles (UUVs), such as the Poseidon (ibid.). In August 2025, it carried out its first successful naval drone strike, sinking the Ukrainian navy vessel *Simferopol* (Le Parisien, 2025).

This naval build-up also extends to icebreakers, designed to keep ice-covered waters navigable. Russia's Arctic strategy relies on these vessels as instruments of both economic development and military power in the region. With their dual role, icebreakers guarantee access to the Northern Sea Route and the smooth flow of energy exports, while ensuring the operational readiness of Russian forces in the region. Russia therefore regards them as key components of its power and national security (Sukhankin, 2026). The country also operates the largest icebreaker fleet in the world.

Icebreakers: a strategic rivalry

Methods for counting icebreakers vary depending on how the vessels are defined: some include smaller ships or coastal icebreakers, while others do not (Rybski, 2025). Depending on the criteria used, Russia operates between 42 and 85 icebreakers, 8 of them nuclear-powered, while the United States has between 3 and 16 (Rybski, 2025; Murray, 2026). China, for its part, has no icebreakers in the strict sense, but operates 5 polar research vessels capable of navigating, and projecting influence, in the Arctic (ibid.).

Icebreakers have become a focus of strategic rivalry between states seeking to expand their presence and power in the region. **The United States,** for example, has ordered 11 new icebreakers for its Coast Guard from Finnish and American shipyards, with deliveries not expected until 2028–2032. The ICE Pact, signed in 2024 by the United States, Canada and Finland against the backdrop of NATO's northern enlargement, also provides for cooperation between their national industries on icebreaker development (Edvardsen, 2024). **The rivalry appears particularly intense with China,** which, as part of its Polar Silk Road[45] (Teo, 2026), is also expanding its icebreaking capabilities, including nuclear-powered vessels (Delaney, 2026).

Russia appears to retain its lead in the short term, but maintaining it will require substantial financial and industrial investment. Its icebreaker fleet also faces constraints that have become more apparent since the invasion of Ukraine. European sanctions imposed from 2022 onwards have disrupted supply and value chains for icebreaker construction, driving up production costs. Part of the fleet is also due to be decommissioned in the coming years (Boulègue, 2019). New military and civilian icebreakers are therefore under construction (Conley et al., 2021), several of them nuclear-powered, although some are already behind schedule (ibid.).

Anticipating larger deployments in extreme cold, the Russian armed forces are also testing their capabilities in harsh conditions. Dedicated **training** has been introduced to prepare soldiers and their equipment, including clothing (TACC, 2018), for operations in these environments (Boulègue, 2019). **Many land vehicles adapted** to polar conditions are already in service, including tanks, armoured personnel carriers, buggies, snowmobiles and tracked vehicles (Boulègue, 2019). To improve operability, troops are being integrated into motorised brigades and existing vehicles upgraded (Drost et al., 2023). Aircraft and missiles are also tested continuously, with a high operational tempo throughout the year (Conley et al., 2021). For instance, since the late 2000s, Russia has been developing drones suited to Arctic conditions[46] for a range of missions, such as search and rescue and

[45] The *Polar Silk Road* refers to the Arctic component of China's *Belt and Road Initiative* (BRI). Russian President Vladimir Putin first put forward the idea in 2017 under the name "Silk Road on Ice", as a possible joint project with the BRI. In 2018, China, which had made the BRI a cornerstone of its development, internationalisation and foreign policy, formalised this polar extension in its White Paper on Arctic Policy (Teo, 2026).

[46]

coastal surveillance (Boulègue, 2019). The Northern Fleet is equipped with Gorizont, Forpost and Orlan-10 drones (ibid.), and since 2015 a drone unit has been securing maritime traffic in Anadyr, in the Russian Far East (Carlsson et al., 2016). **Alongside these adaptations, the remilitarisation of the Arctic follows a specific strategy, the "double dual approach", which combines defensive and offensive as well as military and civilian dimensions** (Drost et al., 2023). In practice, military bases often host coastguard and search and rescue units (Conley et al., 2021). This strategy allows Russia to maintain strategic ambiguity towards its regional neighbours and NATO (Boulègue, 2019).

The Russian armed forces are thus developing operational capabilities for polar climates. **Yet climate change itself appears to receive little attention in this adaptation, even though it has significant implications for military requirements.**

2 – A lack of strategic foresight: a climate opportunism approach overlooking the adverse effects of climate change on the defence apparatus

Climate change is a key factor shaping military requirements, at both the operational and capability levels. Yet it appears to be a blind spot in Russian strategic documents. Although some security bodies identify climate change as a risk to infrastructure (Russian Federation, 2020), no document appears to address its impact on the armed forces explicitly (Brzoska, 2012; The Embassy of the Russian Federation to the United Kingdom of Great Britain and Northern Ireland, 2015). Nor are the armed forces mentioned in Russia's Climate Doctrines (Stepanov, 2023). Climate change is nonetheless already affecting infrastructure, equipment and operations, even though data on the subject remain very limited.

Permafrost thaw is among the phenomena with the greatest impact on civilian and military infrastructure and could affect the armed forces both directly and indirectly. Damage to, or the destruction of, energy infrastructure such as storage tanks, pipelines and extraction fields could undermine logistical support and energy supply for the armed forces. Disruption to fossil fuel extraction or exports could also cut the sector's revenues and, in turn, funding for the war effort (Vidal, 2026; Katinas, 2025). Some energy infrastructure is already at risk from methane blowouts in thawing permafrost[47], which can form craters and damage onshore and offshore oil and gas pipelines (Vereykina, 2024). Moreover, the vulnerability of roads, railways, airports, stations and pipelines to permafrost thaw threatens the mobility, access and movement of troops and equipment. Some 13,000 km of roads and around a hundred airports are at risk (Aalto et al., 2018). Permafrost thaw could also directly threaten military infrastructure. Five military sites, namely the Naryan-Mar, Rogachevo, Vorkuta and Anadyr-Ugolny air bases and the Provideniya airfield, lie in areas at medium or high risk of thaw-related instability by 2050[48] (Conley et al., 2021). In addition, the Russian authorities identify

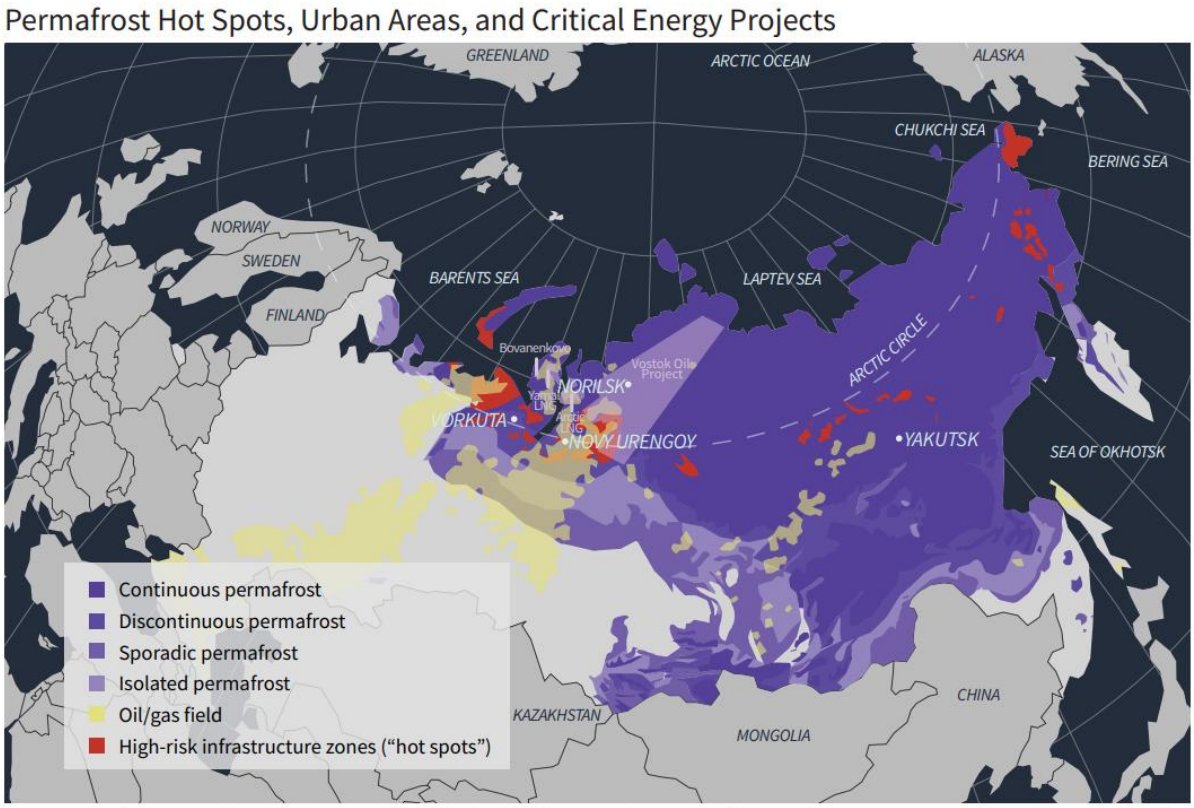
[47] Methane trapped in the upper layers of the ground can accumulate in pockets as permafrost thaws. As thawing progresses, gas pressure builds up and pushes the ground upwards, forming mounds that can eventually explode, creating craters on land and on the seabed.

[48] High-risk areas are those where permafrost temperatures will rise above 0°C by 2050, causing ground subsidence and settlement. Medium-risk areas are those where permafrost will be close to thawing point, between −3°C and 0°C (Aalto et al., 2018).

permafrost thaw as a health risk for civilian populations (see above) (Russian Federation, 2020). A communication system is being developed to respond to disease outbreaks, but it does not include the armed forces (Russian Federation, 2020).

Map 3 – Russian military infrastructure vulnerable to permafrost thaw in the Arctic

This map shows areas vulnerable to permafrost thaw and highlights military infrastructure (bases, airports and ports) located in at-risk zones.



Source: Map data comes from Mia Bennett, "Norilsk oil spill: 'There are rivers of fuel'," Crypolitics, June 22, 2020, https://www.cryopolitics.com/2020/06/22/norilsk-oil-spill/; Jan Hjort et al., "Degrading permafrost puts Arctic infrastructure at risk by mid-century."

The Russian navy is particularly exposed to the effects of climate change. First, **the melting of the cryosphere is breaking up the ice pack,** releasing previously static ice masses that complicate navigation in the Arctic (Uryupova, 2024). Without icebreaker support, vessels are therefore vulnerable to drifting ice floes, particularly in the north-eastern Arctic (Goble, 2024). Northern Fleet vessels have adopted new navigation methods to avoid collisions: during the day, two helicopters carry out reconnaissance, while at night vessels drift with the current, moving in the same direction as the ice (Staalesen, 2024). Second, **growing sea instability,** caused by higher waves and increased sea spray[49], makes Arctic navigation more dangerous (Uryupova, 2024). In 2020, a civilian vessel sank after extreme spray icing (ibid.). Third, **more frequent and intense storms** are affecting defence, particularly in the Black Sea. In November 2023, a storm forced the cancellation of a Russian naval operation against Ukraine (Owens, 2023) and damaged Russia's anti-ship defence system in Sevastopol (Altman,

[49] Sea spray consists of fine droplets of water torn from wave crests by the wind. In the Arctic, these droplets freeze on contact with a vessel and can cause severe damage.

2023). Lastly, although there is no established scientific consensus, **ocean warming** could affect the acoustic detection of submarines by creating acoustic shadow zones or zones of increased transparency (Gilli et al., 2024).

Sea level rise and coastal erosion also have considerable effects on military infrastructure and the defence industry. While Russian military bases appear to be relatively unaffected (House Intelligence, 2019), the Sevmash nuclear submarine shipyard is considered vulnerable (ibid.). Civilian infrastructure used for military purposes is also affected: ten search and rescue centres supporting military personnel in operations are at risk (Conely, 2023).

Finally, extreme weather events affect both military and energy infrastructure. In 2021, **wildfires** in the Russian Far East came dangerously close to a major hydroelectric dam in the region (The Independant, 2021). Wildfires can also directly threaten military facilities. Many intercontinental ballistic missiles are based in Siberia, a region regularly hit by devastating fires, as in 2010 and 2021. There is no evidence that the bases housing these missiles have been threatened by wildfires, and some installations, such as the Irkutsk-45 base, are designed to withstand nuclear strikes. Their vulnerability nonetheless remains an open question. In 2010, wildfires near Russian nuclear sites reportedly raised concerns about a potential risk of explosion or the release of radioactive material (World Nuclear News, 2010), prompting emergency measures to limit these risks (Pasternak, 2010). In 2021, further fires broke out near a nuclear research centre (The Moscow Times, 2021b). There is currently no evidence that **polar cyclones** have had a substantial impact on the defence apparatus. However, their future intensification could cause significant damage to military and energy infrastructure, particularly along the Barents, Kara, Laptev and Chukchi Seas (Bartsch et al., 2024). If left unaddressed, these phenomena could affect the conduct of military operations.

Despite these various impacts, **Russian doctrinal documents do not explicitly link climate change to military operations** (Conley et al., 2021). Yet the armed forces regularly deploy personnel and equipment to assist the Russian population, in support of the Ministry of Emergency Situations (EMERCOM)[50], as part of domestic disaster relief operations[51].

Extreme weather and climate events increasingly require the intervention of the armed forces. First, the army frequently carries out rescue and relief missions after **floods.** This was notably the case during the 2013 floods in the Amur and Khabarovsk regions, the largest since records began in 1895 (BBC, 2013). The Russian government deployed substantial human and material resources for evacuation, infrastructure protection, the delivery of medicines and vaccines, and the construction of shelters and flood barriers (ibid.; Radyuhin, 2013). Although no official figures are available[52], some estimates suggest that 36,000 rescuers, military personnel and volunteers took part (The Hindu, 2013). A wide

[50] The Ministry of Emergency Situations, officially the "Ministry of Civil Defence, Emergencies and Disaster Relief of the Russian Federation", is responsible for crisis management within Russia. It is separate from the Ministry of Internal Affairs.
[51] In these operations, the armed forces provide humanitarian assistance and relief during disasters or emergencies. When such operations assist the population of another state, they are referred to as foreign disaster relief operations (De Guglielmo Weber et al., 2024). See the definition in the glossary.
[52] No official communication specifies the exact number of soldiers and aircraft deployed, as institutional documents remain inaccessible.

range of equipment was also deployed, including amphibious vehicles, armoured personnel carriers and military transport aircraft (BBC, 2013; Radio Free Europe/Radio Liberty, 2013). In 2024, floods along the border with Kazakhstan again required around a hundred military personnel and 18 specialist vehicles (Glushchenkova, 2024). **Wildfires also call for military intervention** (Beer, 2022). In 2019 and again in 2021, fires mobilised military aircraft (Ilyushin Il-76) and helicopters (Mil Mi-8) for fire detection, personnel transport and water-bombing missions (Nechepurenko, 2019; BBC, 2019; DW, 2021; Kutokov, 2021).

However, the war in Ukraine has called into question the armed forces' participation in emergency relief operations, illustrating the risk of overstretch they may face[53] (De Guglielmo Weber et al., 2024). In 2022, unusually early wildfires, starting in April, reportedly required the deployment of military personnel and equipment. Helicopters, notably Mi-8s, were needed for detection and troop transport missions. Yet the commitment of a large share of personnel and equipment to the Ukrainian front (Gerden, 2023; Drury, 2022) reportedly reduced the resources available for firefighting. The consequences were significant: according to Greenpeace, the area burned in April 2022 was roughly twice that of April 2021 (NV, 2022; The Moscow Times, 2021a).

Other phenomena, such as the melting of the cryosphere, also frequently require the Russian armed forces to clean up and decontaminate hundreds of sites containing radioactive or toxic waste (TACC, 2017; Christensen, 2024). Soviet-era military and industrial activities generated large quantities of pollutants, particularly in the Arctic[54]. These include radioactive waste, heavy metals such as arsenic, lead and mercury, forever chemicals[55] and pesticides (Stambler, 2021). As permafrost gradually thaws, this waste is being released, with potentially major health and environmental consequences. Damage caused by **ageing infrastructure**, compounded by unstable permafrost, also requires military intervention. The 2020 Norilsk fuel spill, for instance, called for joint action by the Ministry of Emergency Situations (EMERCOM) and the Ministry of Defence (Cohen, 2020). Such pollution also stems from political choices: although permafrost thaw was partly responsible for the collapse of the fuel tank, the tank had failed to meet standards for two years, having never been upgraded (Conley et al., 2021).

No coordinated policy appears to have been put in place to address the consequences of climate change for the defence apparatus, revealing a lack of anticipation and adaptation on the part of the Russian government. Although some military bases are being renovated, this work is not directly linked to the Arctic climate or to climate change (Conley et al., 2021; Boulègue, 2026). Some infrastructure modernisation and scientific cooperation initiatives are instead being pursued through Sino-Russian cooperation (Vidal, 2026; Alexeeva & Lasserre, 2020). For example, since 2018, around ten Chinese

[53] When forces are overstretched by several simultaneous events or by a single large-scale event, this can lead to a capability shortfall, in which the operational capabilities available are insufficient to meet the needs or requirements of a mission.
[54] The Arctic is particularly polluted because ocean currents carry waste, including toxic waste, discharged into the oceans by other countries. Several countries, notably Russia, also regularly dump industrial or military waste in the Arctic, taking advantage of its vast size and low population density (Christensen, 2024; Dupont, 2010).
[55] Per- and polyfluoroalkyl substances, better known as PFAS, have specific chemical properties and are used in many industrial sectors and everyday products. Because they are extremely persistent in the environment, they are sometimes referred to as "forever chemicals" (ANSES, 2025). See the definition in the glossary.

engineers have been working on a permafrost monitoring system in Yakutia. In May 2026, Chinese and Russian research bodies also signed a bilateral agreement to cooperate on infrastructure construction in permafrost areas (Arctic Russia, 2024; Project Office for Arctic Development, 2026). China's expertise stems from its own geography, which includes large permafrost areas requiring adapted critical infrastructure. Part of Russia's existing adaptation measures thus appears to rely on a form of outsourcing. This growing cooperation is also driving increased Chinese investment in Russia, notably in energy infrastructure (Legarda, 2025). Russia's reliance on Chinese, and more broadly Asian, funding reflects a structural shift dating back to the mid-2000s, when Moscow began to redirect part of its diplomatic efforts towards Asia. This trend has intensified since 2022, as the "pivot to Asia" has enabled new partnerships following the break with many European partners (Balfroid, 2026).

The way the defence apparatus addresses climate change once again illustrates Russian climate opportunism. The armed forces appear to approach climate issues primarily in terms of opportunities, seeing climate change as a driver of new economic, energy and agricultural prospects. The perception of these interests has led Russia to strengthen its presence in the region, notably its military presence, to assert its sovereignty and secure its interests. Conversely, the armed forces appear to give insufficient consideration to the adverse effects of climate change on the Russian defence apparatus, which limits the development of the adaptations needed to maintain operational effectiveness. This lack of anticipation shows how climate issues remain, intentionally or not, a blind spot in Russian military culture (Vidal, 2026).

CONCLUSION

Russia has a dual relationship with climate change: it is both highly exposed to its effects and a major contributor to it. Yet **it has no coordinated climate policy, whether on mitigation or adaptation**. Russia's approach to climate change is thus driven not by environmental objectives, but by the imperatives of regime survival and the country's geopolitical ambitions. This approach can be described as climate opportunism, insofar as Russia harnesses climate issues to serve its strategic interests, both geopolitical and domestic.

At the international level, climate opportunism is reflected in the way Russia's stance on climate issues has shifted in line with its foreign policy objectives. In the 1990s and 2000s, as Russia sought to integrate into the international order, it appeared to favour a performative form of climate engagement. Since the early 2010s, however, it seems to have instrumentalised climate change and the international climate regime in service of a foreign policy marked by growing opposition to the West.

At the national level, Russia views climate change as a lever for economic development and power projection. This is reflected in climate rhetoric centred on the opportunities that climate change is expected to create on national territory. The gradual opening of Arctic shipping routes, rising temperatures and changing agricultural land in certain regions are thus seen as potential drivers of economic growth and national power.

This perception of climate-related opportunities has security implications. First, it has strengthened Russia's investment in certain territories, notably the Arctic, resulting in growing securitisation, and even militarisation. Second, this investment does not appear to be accompanied by policies to adapt the armed forces to climate change. Russian climate opportunism thus appears to be characterised by selective anticipation: while Russia capitalises, directly or indirectly, on the perceived benefits of climate change, it fails to factor its adverse effects into its long-term strategies. This stance reveals a fundamental contradiction. Russia seeks to assert its identity as a "thousand-year-old civilisation" (Aubin, 2026), yet it anticipates climate change, a defining factor of the twenty-first century, only partially and in an uncoordinated manner.

GLOSSARY

Adaptation: In human systems, the process of adjustment to actual or expected climate and its effects, in order to moderate harm or exploit beneficial opportunities. In natural systems, the process of adjustment to actual climate and its effects; human intervention may facilitate adjustment to expected climate and its effects (IPCC, 2023).

Borealisation: the process by which the distribution of species in Arctic and sub-Arctic regions changes as boreal species migrate and expand northwards from more southerly regions (GIEC, 2019).

Cryosphere: The components of the Earth System at and below the land and ocean surface that are frozen, including snow cover, glaciers, ice sheets, ice shelves, icebergs, sea ice, lake ice, river ice, permafrost and seasonally frozen ground (GIEC, 2019).

Cryosol: frozen soil containing permafrost (NSIDC, n.d.-b).

Electrostate: a neologism coined as a counterpart to "petrostate", referring to states whose power is based on electrification, renewable energy and control over supply chains. China and the European Union are often cited as examples (Corbeau & Mitrova, 2025).

Wildfire (forest fire): characterised by "combustion that spreads uncontrolled in time and space" in a forest environment (ONERC, 2018).

Peat fire: a type of forest and vegetation fire. It is a ground fire that burns the organic matter contained in leaf litter, humus or peatlands. Sustained by smouldering combustion, it spreads slowly (Georisques, n.d.).

Ocean swell: "the part of the sea state (waves) that is not generated by the local wind" (Ifremer, n.d.-a).

Flood: the temporary inundation, whether rapid or gradual, of normally dry land (NOAA, n.d.).

Humanitarian assistance and disaster relief (HADR): actions undertaken to provide humanitarian aid and relief during disasters or emergencies. When such actions assist the population of another state, they are referred to as foreign disaster relief operations.

Mitigation: a human intervention to reduce emissions or enhance the sinks of greenhouse gases (IPCC, 2023).

Storm surge: characterised by "a significant rise in water level along a coast, generally caused by storm winds" (Ifremer, n.d.-b).

Permafrost: ground (soil or rock, and included ice and organic material) that remains at or below 0ºC for at least two consecutive years (GIEC, 2019). In a broader sense, the term can refer to an entire layer of frozen ground (see Cryosol).

Forever chemicals: per- and polyfluoroalkyl substances, better known as PFAS, have specific chemical properties and are used in many industrial sectors and everyday products. Because they are extremely

persistent in the environment, they are sometimes referred to as “forever chemicals”, and they now accumulate in living organisms (ANSES, 2025).

Transition risk: the risk associated with initiatives that promote the shift to a low-carbon economy (CDP, n.d.).

Securitization: process by which an issue is framed as an existential threat, requiring exceptional measures.

Thermokarst: the process by which permafrost thaw alters the topography, which can lead, for example, to ground subsidence.

Heatwave: characterised by “intense heat over a short period, or by high temperatures that persist over time” (MTE, 2024).

Zoonosis: any disease or infection that is naturally transmissible from vertebrate animals to humans (Organisation Mondiale de la Santé, 2020).

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