

Integrating Activities for Advanced Communities



D7.1 - Outreach film 1

Project No.871120– INTERACT

H2020-INFRAIA-2019-1

Start date of project: 2020/01/01

Duration: 48 months

Due date of deliverable: 2021/12/31

Actual Submission date: 2023/06/02

Lead partner for deliverable: USFD

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Dissemination Level		
PU	Public	X
PP	Restricted to other programme participants (including the Commission Services)	
RE	Restricted to a group specified by the Consortium (including the Commission Services)	
CO	Confidential, only for members of the Consortium (including the Commission Services)	

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Publishable Executive Summary

The scientific awareness of the accelerating changes to the Arctic and what this means to the rest of the world is not matched by public awareness who have various perceptions based on limited access to scientific understanding. It is therefore essential to communicate science understanding of the rapidly changing Arctic and its global implications to the public in general and within education. To have maximum impact, within work package 7, we have worked with a world leading organization to create four short films visualizing four different yet critically important aspects of Arctic change. Deliverable D7.1 described in this report is a film entitled “Arctic Amplification” showing how the changing Arctic affects the rest of the world. The film “Arctic Amplification” includes the albedo effect from changing snow and ice surfaces, emissions of greenhouse gases from wild fires and thawing permafrost and finally changes in the jet stream. The film is presented by international experts with the aid of video clips and graphic animations.

1. Introduction

The scientific awareness of the accelerating changes to the Arctic and what this means to the rest of the world is not matched by public awareness who have various perceptions based on limited access to scientific understanding. With often misconceived perceptions of climate change causes and impacts, actions to reduce human influences on the Arctic will be limited. It is therefore essential to communicate science understanding of the rapidly changing Arctic and its global implications to the public in general and within education. Films that graphically illustrate the Arctic, changes to the environment, impacts on people and the research carried out there are an extremely effective communication tool, particularly if shared on social media. To have maximum impact, films should be professionally developed and the communication with scientists should be accessible to a wide audience. We therefore, within work package 7, worked with a world leading organization to create four short films visualizing four different yet critically important aspects of Arctic change. Deliverables D7.1 – D7.4 are films produced by the BBC Natural History Unit (NHU) and INTERACT researchers, external experts and indigenous peoples. Deliverable D7.1 described in this report is a film entitled “Arctic Amplification”.

2. Production of the film

The start of the process was to negotiate a sub-contract from Sheffield University (Partner 2) to the BBC NHU. The topic of the film was developed by work packages 7 and 1 and communicated to the BBC NHU. Extensive discussions among this production team resulted in the development of a story line that was continuously evolved as participants and various media became available. The INTERACT producers suggested appropriate researchers as well as relevant conferences such as INTERACT Consortium meetings where BBC NHU producers could interview INTERACT partners who could contribute to the film.

A mass of material was accumulated but over time, the story line was focused to a few main messages. These messages were described in interviews, video clips and animations and were accompanied by a carefully crafted script in time with the video sequences. Following this compilation, the whole film was narrated by partner 2 and sub-titles were added. Because the film was developed by the BBC NHU the whole process was highly professional with the same producers, sound engineer, sound recording laboratory as the “Planet Earth” series of films (Figure 1, 2).



Figure 1. The BBC NHU Production team in the sound studio in Bristol.



Figure 2. Recording of the narration (left, in Sir David Attenborough's chair!).

3. Content of the film

The Arctic Amplification film highlighted how the changes in the Arctic extend outside the Arctic and impact planet Earth through positive feedback effects. The mechanisms for the amplifications described in the film include the way a reduction in sea ice and snow on land results in more heat being absorbed by the Arctic surface. This story was told in interviews with Professor Mernild, Head of SDU Climate Cluster, Syddansk Universitet, Denmark. Professor Mernild had previously been a recipient of an INTERACT transnational award to an INTERACT research station in Greenland (Figure 3).



Figure 3. Professor Mernild describing the albedo effect in Arctic amplification.

An important second factor in Arctic amplification is the potential release of carbon as carbon dioxide and methane. Carbon dioxide is being released from unprecedented wild fires in both tundra and boreal forest. Professor Syndonia Bret-Harte from University of Alaska Fairbanks and Station Manager for the INTERACT Toolik Field Station describes how wild fires release “capital” from the “bank” of carbon in northern ecosystems. This adds to the concentration of the greenhouse gas carbon dioxide in our atmosphere (Figure 4).

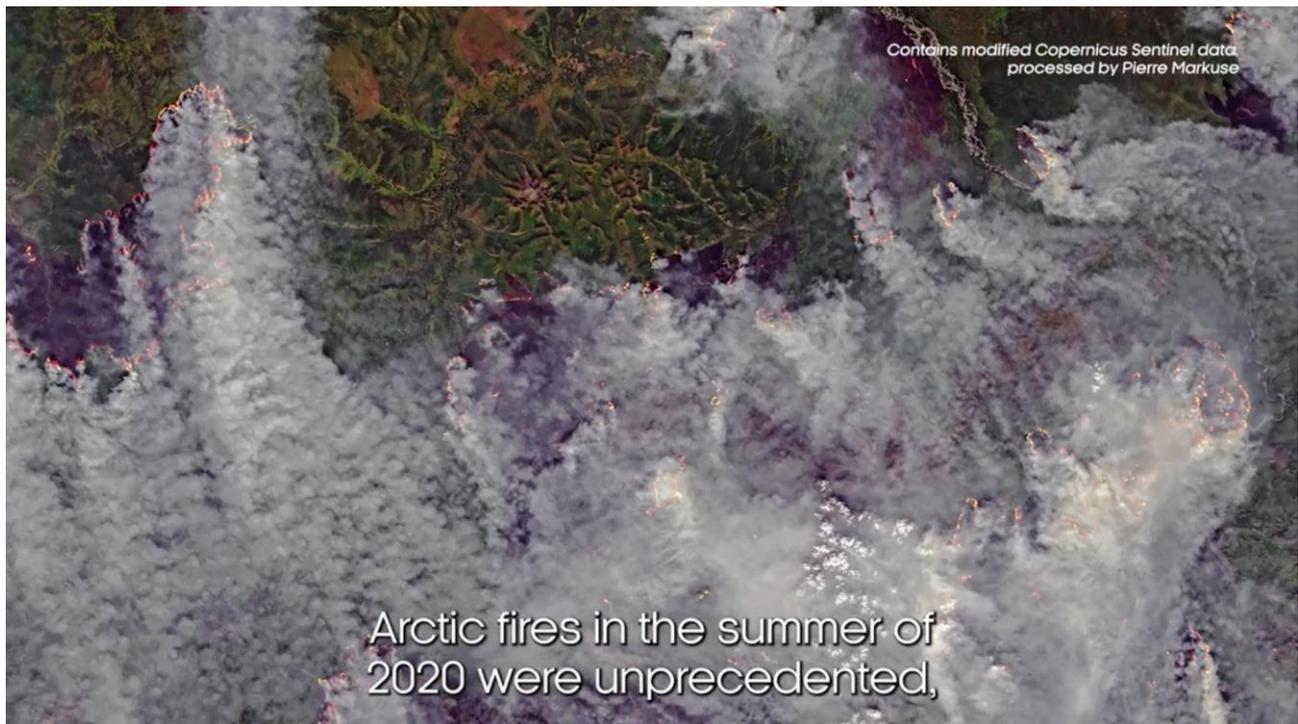


Figure 4. Extensive forest fire and smoke plumes releasing carbon dioxide to the atmosphere.

Thawing permafrost in the Arctic is also an important factor in Arctic amplification because of the potential release of carbon particularly as the powerful greenhouse gas methane. Professor Torben R. Christensen from Aarhus University, Denmark and the Director of the INTERACT Zackenberg station, graphically describes rapidly thawing permafrost in Greenland and the implications for releases of greenhouse gases to our atmosphere (Figure 5). He also describes how researchers measure the balance between release and capture of greenhouse gases from ecosystems in northern Finland near the INTERACT Oulanka Station.



Figure 5. Rapid permafrost thaw in northeast Greenland that could result in greenhouse gas emission to the atmosphere.

The final important impact of a warming Arctic on planet Earth described in the film is the change in the jet stream. Professor Edward Hanna from Lincoln University, United Kingdom, a recipient of INTERACT transnational access and a former member of the INTERACT award review panel, describes with the help of an animation one current theory that the imbalance between the high rate of warming of the Arctic compared with lower rates further south reduces the speed of the jet stream and changes its paths. These changes to the jet stream could be of major importance for mid-latitude extreme weather (Figure 6).

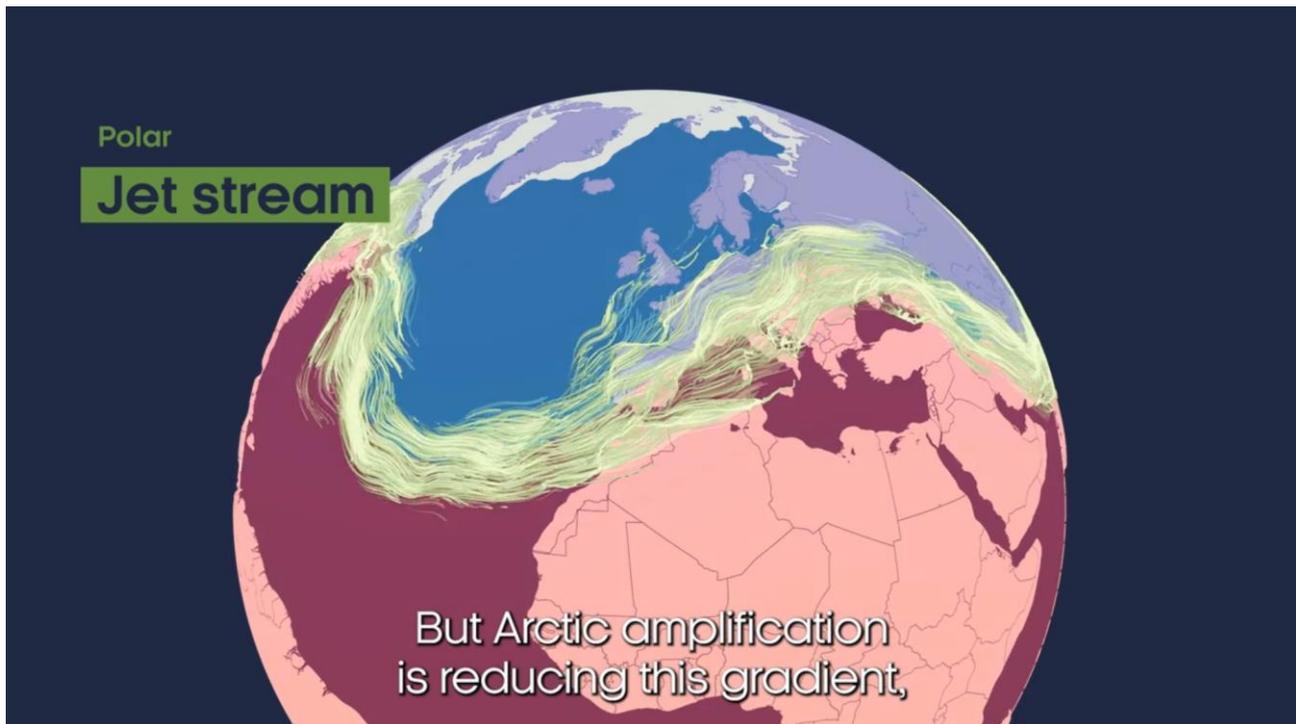


Figure 6. Animation of changes in the jet stream which are thought to affect the climate of the mid-latitudes.

4. Planned distribution of the film

The premiere of the films is planned for the Arctic Circle meeting in Reykjavik, Iceland in October 2023. This is the major Arctic venue that brings together politicians, diplomats, Royalties, business representatives, Indigenous Peoples and scientists. We have applied for a session for a “movie night” to showcase the films and to reach major stakeholders. Following the premiere, the films will be made publicly and freely available on Youtube and will be linked through INTERACT’s web site, Facebook and Instagram accounts as well as the INTERACT twitter account. It is also intended that these films are used for education at school level through the network of schools in over 60 countries operated by partner 17 (IGF-PAS) and at university levels through the University of the Arctic that consists of over 200 universities. The films are produced in English with optional English subtitles which will allow non-English speaking countries to translate the storyline. Because the BBC NHU provided films in different formats for all possible purposes it is our imagination that limits the further distribution of the films but we will explore additional opportunities.

