

**Nomination for European Meteorological Society Media Awards 2020:
Outreach & Communication Award**

Nomination supported by Slovenian Meteorological Society

Project name and acronym:

**“RESCCCUE – REminding Slovenian authorities
Climate Change Crisis requires Urgent Effort”**



Project team:

Žiga Zaplotnik (University of Ljubljana),
Lina Boljka (Colorado State University),
Nina Črnivec (Slovenian Environment Agency),
Aljoša Slameršak (Autonomous University of Barcelona)

Project time period:

August 2019 – ongoing

Project summary:

The project RESCCCUE arised from the recent gathering of four Slovenian young scientists – meteorologists and climatologists Žiga Zaplotnik, Lina Boljka, Nina Črnivec and Aljoša Slameršak. In the autumn of 2019 they brought together over 100 leading Slovenian scientists, comprising meteorologists, climatologists, oceanographers, physicists, biologists, chemists, geographers and others. Together, they wrote an open letter to the Slovenian government: “A request of Slovenian researchers to take immediate action on improving the climate change mitigation and adaptation policy”. Although the letter was written by the core four-member team, the broad multidisciplinary expertise of the other scientists involved significantly improved the quality of the letter. The open letter received extensive media coverage, as well as provoked a reaction from the political authorities and served as a kickoff for various subsequent climate change communication activities. The core team of four young scientists thus continued with multiple and simultaneously diverse media outreach and communication events, both jointly as a team and individually. With well-appreciated media support including national television, radio stations, journals and magazines, they have contributed to the interest and knowledge of the general public on climate change. The plentiful events proceeded for several months, encompassing additional means of communication, such as both scientific and popular-scientific talks as well as social platforms (Twitter, Facebook, Youtube). The four-member team thereby proved that values such as a team spirit, mutual help and collaboration are crucial for far-reaching actions. The project members deserve a special recognition for their dedicated voluntary work. All in all, the project strives to advance climate literacy and science-based policy making in Slovenia. Besides raising knowledge and awareness of climate change, the four scientists additionally promote research in meteorology and climatology to the Slovenian youth. Although the project has already proved successful in igniting nationwide efforts tackling climate change issues, RESCCCUE is a continuing, ongoing project. Several exciting activities are planned for the future. Awarding the EMS Media Outreach & Communication Award Recognition to the four young Slovenian scientists would serve as a role model and encouragement to other young European researchers to step up and actively engage in communicating climate change.

Project description: background, aims, realizations, and future plans

Introduction

Slovenian scientists researching weather, climate and climate change have long been warning about the posing threat of the catastrophic climate change. Recent scientific results prove that climate change is threatening the lives of more than a billion people, causing mass extinction of plant and animal species as well as irreversible economic damage. Despite the clarity of scientific warnings the Slovenian authorities do not show an intent to undertake a determined climate change action. Whereas in some other European countries the climate and environmental issues constitute a major part of political debates, it is clearly pushed aside in Slovenia, proving that the Slovenian politics is not seriously aware of the problem. Under the weight of scientific facts, four young Slovenian scientists Dr. Žiga Zaplotnik, Dr. Lina Boljka, Nina Črnivec and Aljoša Slameršak felt a burden of moral responsibility to warn political decision-makers, businessmen, the trade union and the broader Slovenian public about the consequences of continuing on the path of procrastination and inaction. For these reasons they started the RESCCCUE (“REminding Slovenian authorities Climate Change Crisis requires Urgent Effort”) project.

Project aims

The main aims of the RESCCCUE project are:

1. Alert the Slovenian government about the urgency of tackling the climate change crisis, scientifically explaining the impacts of climate change worldwide and in Slovenia. Further, suggest short- and long-term climate change mitigation and adaptation strategies.
2. Extensively communicate with the media and general public utilizing diverse outreach and communication strategies (television, radio stations, podcasts, newspapers, journals, seminars, talks, panel discussions, social platforms) to raise climate change awareness.
3. Build an online platform (Slovenian climate action tracker) that would further advance climate literacy and science-based policy making in Slovenia.

Results to date

As the Slovenian researchers assessed that the Slovenian politics was not aware of the urgency of the action against climate change, the first step that the four young Slovenian scientists took, was to prepare an open letter to the Slovenian government entitled “A request of Slovenian researchers to take immediate action on improving the climate change mitigation and adaptation policy”. The request was supported and signed by more than 120 Slovenian experts – meteorologists, climatologists, oceanographers, physicists, biologists, chemists, geographers and others – at home and abroad. In addition to alerting public discussion, a set of suggestions and measures for climate change adaptation and mitigation was introduced in this request.

With a similar preface the four young scientists sent an open letter to the Slovenian government and other state institutions on 11th November 2019. Besides generally informing, an important aim of this action was to put additional pressure on policy makers before the Climate Agreement consultation, which took place in the National Assembly a few days later. The other aim was to

have the open letter extensively published in the media, since the media plays a crucial and highly responsible role in educating and raising awareness of the general public.

Since the previous year was marked with global fight against climate change, it is not a surprise that the open letter idea was born while attending one of the Fridays' climate strikes in Ljubljana (Fig. 1). The idea initiator was Dr. Žiga Zaplotnik from the Meteorology group at domestic Faculty of Mathematics and Physics (University of Ljubljana), who was soon accompanied by the other three Slovenian meteorologists, who have continued their studies abroad: Dr. Lina Boljka (Colorado State University), Nina Črnivec (Ludwig Maximilian University of Munich) and Aljoša Slameršak (Autonomous University of Barcelona).



Figure 1. Friday climate strike in Ljubljana (27.9.2019). The researchers of the Meteorology group at domestic Faculty of Mathematics and Physics (appearing in the third row on the photo, from left to right): dr. Katarina Kosovelj, dr. Žiga Zaplotnik and Nina Črnivec, participated in this strike and the open letter idea was born. Photo: Voranc Vogel (Delo).

The open letter gained significant media attention (Fig. 2) as well as scientific and general public interest. The four young scientists were therefore invited to cooperate on White paper on environment protection, where the majority of climate change adaptation and mitigation measures suggested in the open letter were incorporated. Subsequently, they have participated in multiple and diverse climate change outreach activities. They were all invited to the “Radio Študent - Science” discussion: “How shall we mitigate climate change?”, where they outlined the story of their open letter action, which was the first collaboration of the Slovenian scientists tackling climate change in such large scope. Besides joint efforts, they have also participated individually in several outreach events. A few selected activities are highlighted below (Fig. 3).



Figure 2. Symbolic photographs depicting the ubiquitous climate change crisis, which accompanied multiple media coverages of the open letter written by the Slovenian scientific community.

Dr. Žiga Zaplotnik participated in the panel discussion “The responsibility of the society for Planet A”, which was organized by the Slovenian Research Agency (ARRS). Soon afterwards he held a lecture on “Physics of climate change” organised by the Slovenian Meteorological Society at the Slovenian Environment Agency (ARSO), achieving record-breaking attendance. He also participated in “Radio Prvi” discussion: “Green January: climate change - causes and impacts”. Similarly, he has been raising climate change awareness at the “Cultural marathon” event at the Jurij Vega High School.

In the interview for Zarja/Jana magazine, Dr. Lina Boljka explained the problem about humid heat waves and sea level rise, which was very topical at the time due to the severe flooding across the northern parts of the Adriatic Sea in November 2019. In the subsequent Zarja/Jana issue she additionally explained the causes and consequences of the Australian bushfires, which were affected by the drying of Australia, a consequence of climate change. She also held an interesting popular-scientific talk about climate variability and how it differs from global warming in the House of Experiments in Ljubljana.

Nina Črnivec participated in the climate change panel at the 4th Symposium of the Slovenian researchers working abroad, organized by the Association of Slovenes Educated Abroad (VTIS) and the Ministry for education, science and sports. For Metina lista PHoDcast she recorded a scientific interview about her research on radiation and clouds, which represent one of the greatest uncertainty sources in weather and climate models. She has further engaged in an ARSO podcast interview spreading the word for meteorology studies in Slovenia and abroad.

As an expert for climatology and environmental economics, Aljoša Slameršak has received several interview invitations by the national television and radio stations. He has thus presented the open letter story in the Radio Rai Furlanija Julijska Krajina debate. Together with other Slovenian climatologists he has further participated in the episode of Val 202/Frekvenca X on global warming. In a television interview for RTVSLO daily news he pointed out that the limited Slovenian climate fund was not adequately exploited to properly reduce greenhouse gas emissions.



Figure 3: Some of the numerous activities aiming to raise climate change awareness after the open letter has been published. Top left: Cover page of the Žiga Zaplotnik's lecture "Physics of climate change" held at Slovenian Environment Agency (28.11.2019). Top right: Lina Boljka's lecture teaser in the House of Experiments (26.2.2020). Bottom left: Nina Črnivec participating at 4th Symposium of Slovenian researchers abroad (23.12.2019). Bottom right: Aljoša Slameršak performing at Radio Val 202/Frekvenca X (9.1.2020).

Approximately a month after the open letter had been published, they received a response from the Slovenian government. The government acknowledged their initiative and agreed on the urgent need to increase activities and operations to tackle climate and environmental change. They concluded their response with the following words: "In Slovenia we need a determined, stable, ambitious and realizable climate politics with values such as: health, security, safety, willingness, hope, optimism, happiness, success and opportunity for the transition to the sustainable climate and environmentally friendly tomorrow, both for today's generations, especially for the youth, and next generations."

In summary, to date the RESCCCUE project has been successful in communicating climate change with both the decision makers as well as with the general public. This has only been possible with the help of well-acknowledged media support. The Slovenian scientists are extremely grateful and happy about the entire positive feedback, which they received for their efforts during the course of the past months. This is giving them additional will for continuing with further actions for tackling the climate change crisis.

Future plans

Although the RESCCCUE project has already proved valuable at igniting nationwide climate change actions, there are several activities which will be completed in the future. They aim at further advancing climate literacy and science-based policy making in Slovenia.

The most important future plan is to build an online platform, Slovenian climate action tracker, based on extensive voluntary collaboration (“crowdsourcing”), whereby every scientist can contribute with his/her expertise. Collaboration in this direction was already initiated by the founders of Slovenian tracker for ongoing COVID-19 pandemic. People with very diverse background profiles ranging from computer engineers, biologists, biochemists to physicists, mathematicians, programmers, journalists, lawyers and many others are engaged in this project. In a similar way, based on significant media exposure, data excellence, advanced data visualisation and daily publishing on social platforms, a pressure could be put on the Slovenian decision makers, so that they would finally start accepting reasonable, transparent and science-based measures against climate change.

Climate change crisis is an extremely multidisciplinary problem. Only a broad collaborating community can effectively address it. The RESCCCUE team will build this community as expert personnel. Many Slovenian scientists who helped shaping the open letter, would join this community as well. Thus, there is already an established network of experts, who would engage in providing the contents within the Slovenian climate action tracker project. The technical and organizational structure as well as public relations management would be provided by other suggested contributors. With all available data this community will then daily enter the media/public sphere, it will raise awareness and put pressure on decision-makers to accept adequate science-based climate policies, accelerating climate change adaptation and mitigation in Slovenia.

The Slovenian climate action tracker will be a regularly updated platform, with online data sources involving a high-performance data structure for dynamic graph processing. It will include updated projections, encompassing, for example, the latest information and advice from the Integrated National Energy and Climate Plan (NEPN). It will also include the relevant climate literature collection in the Slovenian language. These various topics will gather all the important climate change issues at one place, making it easier to seek information written by the experts. It will furthermore encompass public relations management, which will help communicating non-trivial climate change contents to a broader audience.

A small group easily becomes a target of various lobbies. The presented idea would enlarge the scope of the current scientific collaboration and make climate change fight transparent with easily accessible and freely available public data and information. This would help advance the relevant climate change policies that are absolutely necessary in Slovenia.

Supplements

1. The open letter to the government (in Slovene, including English summary)
2. The response from the Slovenian government (in Slovene)
3. Climate change outreach & communication activities (full list)

Project team members scientific background

The core project team consists of four young Slovenian scientists – Žiga Zaplotnik, Lina Boljka, Nina Črnivec and Aljoša Slameršak. Their scientific background is outlined in the following.



Figure 4. RESCCCUE team members (from left to right): Žiga Zaplotnik, Lina Boljka, Nina Črnivec and Aljoša Slameršak. Photo: Personal archive.

Dr. Žiga Zaplotnik

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Nationality and year of birth: Slovenian, 1989
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Brief Bio: **Dr. Žiga Zaplotnik** obtained a B.Sc. in Meteorology and Geophysics (2011) and M.Sc. in Physics, degree track Computational Physics (2014) from the University of Ljubljana. He completed his Ph.D. in Meteorology (2018) at the University of Ljubljana. Since 2018, he has been a postdoctoral researcher at the same university. His research interest spans from data assimilation, predictability to normal modes of the atmospheric circulation.

Dr. Lina Boljka

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Brief Bio: **Dr. Lina Boljka** obtained a B.Sc. in Meteorology with Geophysics (2012) from the University of Ljubljana and an M.Sc. in Atmosphere, Ocean and Climate (2013) from the University of Reading. She then worked for a year (2013-2014) at the Slovenian Environment Agency on regional climate change before continuing her postgraduate education. She completed her Ph.D. in Atmosphere, Ocean and Climate (2018) at the University of Reading. Since 2018 she has been working as a postdoctoral fellow at the Colorado State University. Her research has mostly focused on large scale atmospheric dynamics and climate variability, specifically on annular modes, storm track dynamics and stratosphere-troposphere coupling.

Nina Črnivec

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Brief Bio: **Nina Črnivec** obtained B.Sc. in Physics (2013) and B.Sc. in Meteorology with Geophysics (2014) from University of Ljubljana, whereby she spent one year abroad at Technical University of Berlin. She further completed M.Sc. in Meteorology at Ludwig Maximilian University of Munich (LMU) in 2015. Within her master thesis project she investigated tropical cyclone intensification, giving her a chance for a short-term research stay at Naval Postgraduate School in Monterey. She continued with doctoral studies at LMU researching cloud-radiation interactions, being simultaneously engaged as teaching assistant lecturing Cloud Microphysics and Convection. While finishing her Ph.D., she is currently employed at Slovenian Environment Agency.

Aljoša Slameršak

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Nationality and year of birth: Slovenian, 1990

Brief Bio: **Aljoša Slameršak** obtained a B.Sc. in Meteorology with Geophysics (2012) from the University of Ljubljana, and M.Sc. in Climate Studies (2014), and M.Sc. in Environmental Sciences (2015) from the Wageningen University. He is currently working as a Ph.D. fellow at the Institute of Environmental Science and Technology (ICTA-UAB), in Barcelona. Prior to his PhD studies at ICTA, he worked as research assistant at the Max Planck Institute for Biogeochemistry in Jena, and as teaching assistant at the Wageningen University. In his ongoing research, Aljoša investigates the feasibility of low-carbon energy transitions.