



## Welcome to the space exploration journey!

Previously the idea of landing on the moon had been the stuff of science fiction. But, in a short space of time, we had taken huge strides in technology which enabled the seemingly impossible to become reality. Neil Armstrong, climbing down the ladder of the lunar lander, and taking that very first step, said "It's one small step for man, one giant leap for mankind". The achievement changed our whole perspective of ourselves as a civilisation, a species. That moment, as he stepped away from that ladder, showed us that we can do anything we want, if we work together.

Why should we explore space? Thousands of discoveries have been made in space that we now use in our everyday lives. Space exploration allowed us to innovate in health care, energy and the environment, everyday technology, and many other areas. It helps us to collaborate and protect our planet, and it continues to inspire us to think outside the box. The achievements of space science have shown us that we can make the impossible possible.

Curiosity and exploration are vital to the human spirit, so we invite you to **#stepintospace** and join us on a journey of discovery through this exhibition. We want to share the story of space and your part in it.

Image Credits: NASA (1969) Astronaut Buzz Aldrin Descends Lunar Module Ladder

## Dobrodošli na potovanju v vesolje!

Nekoč je bila ideja o pristanku na Luni stvar znanstvene fantastike. Toda v kratkem času smo dosegli velik tehnološki napredek, ki je omogočil, da je na videz nemogoče postalo resničnost. Ko se je Neil Armstrong spustil po lestvi vesoljskega plovila in naredil prvi korak, je dejal: "To je majhen korak za človeka, a velik skok za človeštvo". Ta dosežek je spremenil naš celoten pogled na našo civilizacijo, na našo človeško vrsto. Tisti trenutek, ko je stopil z lestve, nam je pokazal, da lahko dosežemo karkoli si želimo, če sodelujemo.

Zakaj bi morali raziskovati vesolje? Na tisoče odkritij, ki jih zdaj uporabljamo v vsakdanjem življenju, je nastalo v vesolju. Raziskovanje vesolja nam je omogočilo inovacije na področju zdravstva, energije in okolja, vsakdanje tehnologije in na številnih drugih področjih. Pomaga nam pri sodelovanju in zaščiti našega planeta ter nas še naprej spodbuja k razmišljanju zunaj okvirov. Dosežki vesoljske znanosti so nam pokazali, da lahko nemogoče postane mogoče.

Radovednost in raziskovanje sta ključnega pomena za človeškega duha, zato vas vabimo, da naredite korak v vesolje (**#stepintospace**) in se nam pridružite na poti odkrivanja vseolja skozi razstavo "Korak v vesolje". Z vami želimo deliti zgodbo o vesolju in vašo vlogo v njej.

Slika: NASA (1969) Astronavt Buzz Aldrin se spušča po lestvi lunarnega modula.









# O PROJEKTU SPACE EU



spaceEU is an exciting space outreach and education project which aims to spark the interest of young people in STEAM (Science, Technology, Engineering, Arts and Maths), and to encourage them to consider space-related careers. The project inspires and broadens young minds, develops a sense of European and global citizenship, and through our shared human relationship with space, aims to foster long-term partnerships between people from different countries and cultural backgrounds.

The same exhibitio<sup>n</sup> as presented here will travel to ten different countries from December 2019 to October 2020. Find out more about events, collaborators, and the European connection on the website: [space-eu.org](http://space-eu.org)

SpaceEU je vznemirljiv projekt ozaveščanja in izobraževanja o vesolju, katerega cilj je spodbuditi zanimanje mladih za znanost, tehnologijo, inženirstvo, umetnost in matematiko ter jih spodbuditi k razmišljanju o poklicih, povezanih z vesoljem. Projekt navdihuje in širi obzorja mladih, razvija občutek za evropsko in globalno državljanstvo, z našim skupnim človeškim odnosom do vesolja pa želi spodbuditi dolgoročna partnerstva med ljudmi iz različnih držav in kulturnih okolij. Ista razstava, ki je predstavljena v nadaljevanju, bo od decembra 2019 do oktobra 2020 potovala po desetih različnih državah. Več informacij o dogodkih, sodelavcih in evropski povezavi najdete na spletni strani: [space-eu.org](http://space-eu.org)

## Exhibition Artists

Sarah Petkus (US),  
We Colonised the Moon (DE/ UK),  
Jaqueline Eder, Selina Maurovich, Kilian Mayer,  
Stephanie Stigler (AT),  
Eva Rust (CH)

## Exhibition Partners

Sentinel Hub EO Browser by Sinergise  
and ESA Apps

## Exhibition Crew

The exhibition was developed by Ars  
Electronica in close collaboration with  
Science Gallery Dublin and Leiden University.

## Exhibition Co-design Manager

Laura Welzenbach

## Architecture

Gerald Moser/ Wunderkammer  
and Zirup – Architektur & Design

## Storyline/ Writer

Niamh Shaw

## Dutch Translation

Huib Gelling

## Graphic Designer

Rory McCormick

## Tech Advisor

Bildwerk

## SpaceEU Principal Investigator and Coordinator

Pedro Russo

## With contributions from

Suzana Filipecki Martins,  
Ryan Williamson,  
Grace Darcy,  
João Dias,  
Cristina Paca  
Veronika Liebl.

## SpaceEU Partners

Leiden University  
Ars Electronica  
Ecsite European Network  
for Science Centres Museums  
EUN Partnership AISBL European Schoolnet  
Science Gallery at Trinity College Dublin  
Ellinogermaniki Agogi  
Ciência Viva  
Cité de l'espace  
Parque de las Ciencias  
Universum® Bremen  
SCIENCE IN  
New Space Foundation

## Umetniki na razstavi

Sarah Petkus (ZDA), We Colonised the Moon  
(DE/ UK), Jaqueline Eder, Selina Maurovich,  
Kilian Mayer, Stephanie Stigler (AT), Eva Rust  
(CH)

## Partnerji razstave

Sentinel Hub EO Browser by Sinergise in ESA  
Apps

## Sodelavci

Razstavo je pripravila družba Ars Electronica v  
tesnem sodelovanju s Science Gallery Dublin  
in Univerzo v Leidnu.

## Vodja sooblikovanja razstave

Laura Welzenbach

## Arhitektura

Gerald Moser/ Wunderkammer in Zirup –  
Architektur & Design

## Zgodba/ scenarij

Niamh Shaw

## Prevod v nizozemščino

Huib Gelling

## Grafični oblikovalec

Rory McCormick

## tehnološki svetovalec

Bildwerk

## Glavni raziskovalec in koordinator projekta spaceEU

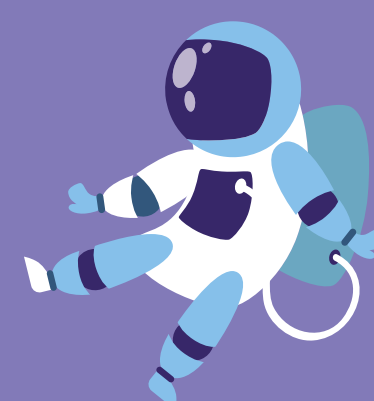
Pedro Russo

## Avtorji prispevkov

Suzana Filipecki Martins,  
Ryan Williamson,  
Grace Darcy,  
João Dias,  
Cristina Paca,  
Veronika Liebl.

## Partnerji projekta spaceEU

Univerza v Leidnu  
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Ellinogermaniki Agogi  
Ciência Viva  
Cité de l'espace  
Parque de las Ciencias  
Universum® Bremen  
SCIENCE IN  
New Space Foundation



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programa Evropske unije za raziskave in inovacije  
Obzorje 2020 v okviru sporazuma o dodelitvi  
sredstev št. 821832.



Prevod je bil pripravljen v okviru projekta  
Scientix 4 (sporazum o nepovratnih sredstvih  
št. 101000063), ki ga koordinira European  
Schoolnet (EUN) in je financiran iz programa  
Evropske unije za raziskave in inovacije  
O2020.

Za vsebino tega dokumenta je odgovoren  
izključno organizator in ne izraža mnenja  
Evropske komisije (EK), ki tudi ni odgovorna  
za kakršno koli uporabo vsebovanih  
informacij.



# KAJ SMO IZZUMILI V VESOLJU?

## How has exploring space affected life on Earth?

Since we began exploring space, engineers and scientists had to think of solutions to overcome difficult situations – how to record data, how to protect astronauts from intense solar rays, how to eat in space, what clothes to wear. Living in an environment with little to no gravity, lacking oxygen, water, and food; and which was built of materials that had to be lightweight, meant that there were many problems that we needed to overcome. We had to invent new materials, new objects, new technologies so that astronauts could live in space safely. And after all that work we realised that these new technologies and materials could be used to solve everyday problems back on Earth.

Here we are going to take a look at some of the everyday objects that were originally developed for space. How long would it take to find your way without using GPS (Global Positioning System) navigation? Could you live without your phone? What about materials that protect us from UV radiation? Space science impacts us every single day, whether we are aware of it or not.

Check out the take booklet to learn more about these objects.

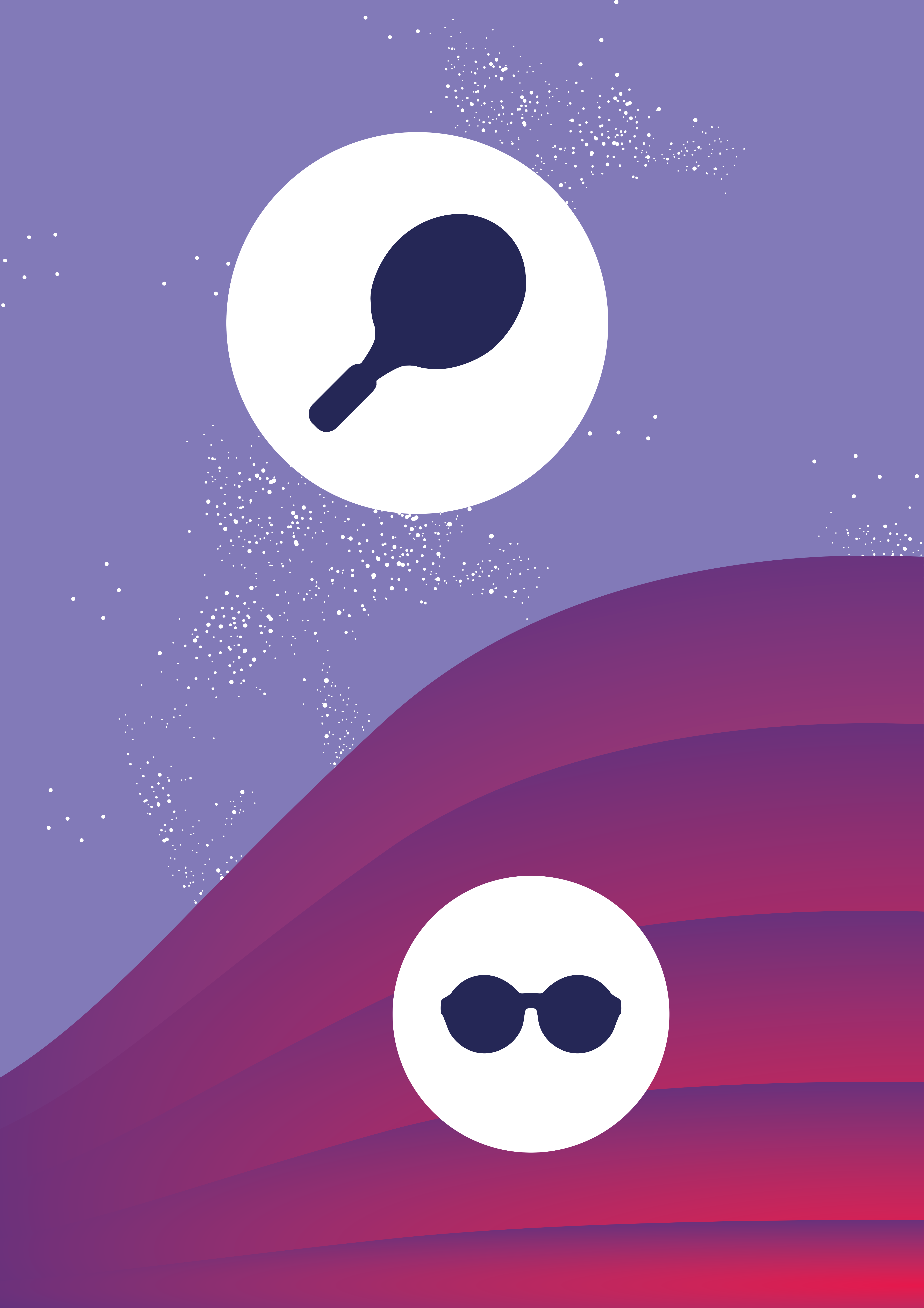
## Kako je raziskovanje vesolja vplivalo na življenje na Zemlji?

Ko smo začeli raziskovati vesolje, so morali inženirji in znanstveniki začeti razmišljati o rešitvah za premagovanje težavnih situacij, npr. kako zapisovati podatke, kako zaščititi astronave pred močnimi sončnimi žarki, kako jesti v vesolju, kakšna oblačila nositi. Življenje v okolju z majhno gravitacijo ali brez nje, v katerem ni kisika, vode in hrane ter materiali, ki morajo biti lahki, je povzročilo veliko težav, ki smo jih morali premagati. Izumiti smo morali nove materiale, nove predmete in nove tehnologije, da bi astronauti lahko varno bivali v vesolju. Po vsem tem pa smo ugotovili, da lahko te nove tehnologije in materiale uporabimo za reševanje vsakodnevnih težav na Zemlji. Ogledali si bomo nekaj vsakdanjih predmetov, ki so bili prvotno namenjeni življenju v vesolju. Koliko časa bi potrebovali, da bi našli pot brez uporabe navigacije GPS? Bi lahko živeli brez telefona? Kaj pa materiali, ki nas ščitijo pred UV-sevanjem? Znanost o vesolju na nas vpliva vsak dan, ne glede na to, ali se tega zavedamo ali ne. Prelistajte knjižico, v kateri boste izvedeli več o teh predmetih.











# SKOZI OBJEKTIV VESOLJSKE KAMERE

## How does space exploration allow us to observe our own planet?

We can use satellite images to see our cities grow, our glaciers melt, and our forests shrink. It is important that we continue to observe Earth's activities so we can reflect on our way of living, and so it can guide our future actions.

Here we will see how satellites allow us to monitor our planet. We learn how to read these satellite images, how to access publicly available information and what we can collectively do to help fight the climate crisis. Together, we can all become part of the solution to this global challenge.

Satellites deliver true colour images of the Earth, but also have sensors that detect wavelengths invisible to the human eye. ESA, the European Space Agency, has made their vast archive of Earth observation images publicly available, so that we can make our own maps and see the changes that are happening for ourselves.

## Kako nam raziskovanje vesolja omogoča opazovanje našega planeta?

Na satelitskih posnetkih lahko vidimo, kako rastejo naša mesta, talijo se ledeniki in krčijo gozdovi. Pomembno je, da še naprej spremljamo dejavnosti na Zemlji, da lahko razmislimo o svojem načinu življenja in da nam to pomaga pri prihodnjih ukrepih.

Na tem mestu si bomo ogledali, kako nam sateliti omogočajo opazovanje našega planeta. Naučili se bomo, kako brati satelitske posnetke, kako dostopati do javno dostopnih informacij in kaj lahko skupaj storimo v boju proti podnebni krizi. Vsi skupaj lahko postanemo del rešitve tega globalnega izziva.

Sateliti zagotavljajo realne barvne slike Zemlje, imajo pa tudi senzorje, ki zaznavajo človeškemu očesu nevidne valovne dolžine. Evropska vesoljska agencija ESA je svoj obsežni arhiv posnetkov opazovanja Zemlje dala na voljo javnosti, tako da lahko sami sestavimo svoje zemljevide in si ogledamo spremembe, ki se dogajajo.



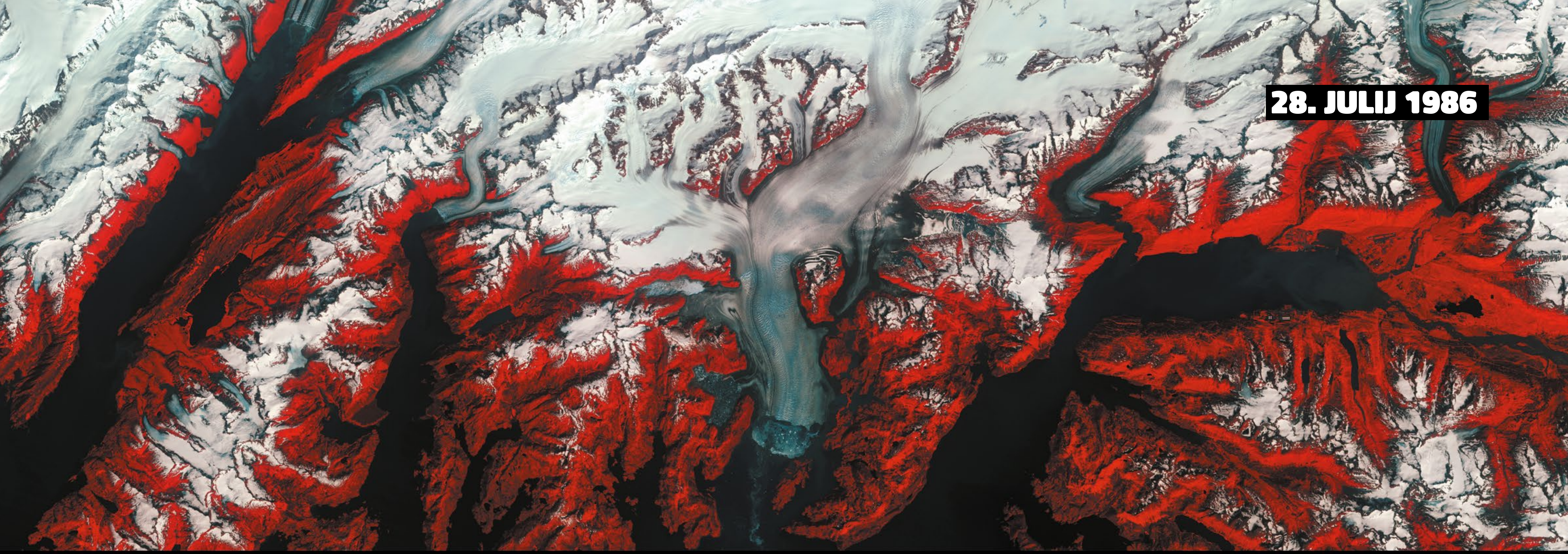
**14. AUGUST 1988**



**2. AUGUST 2018**





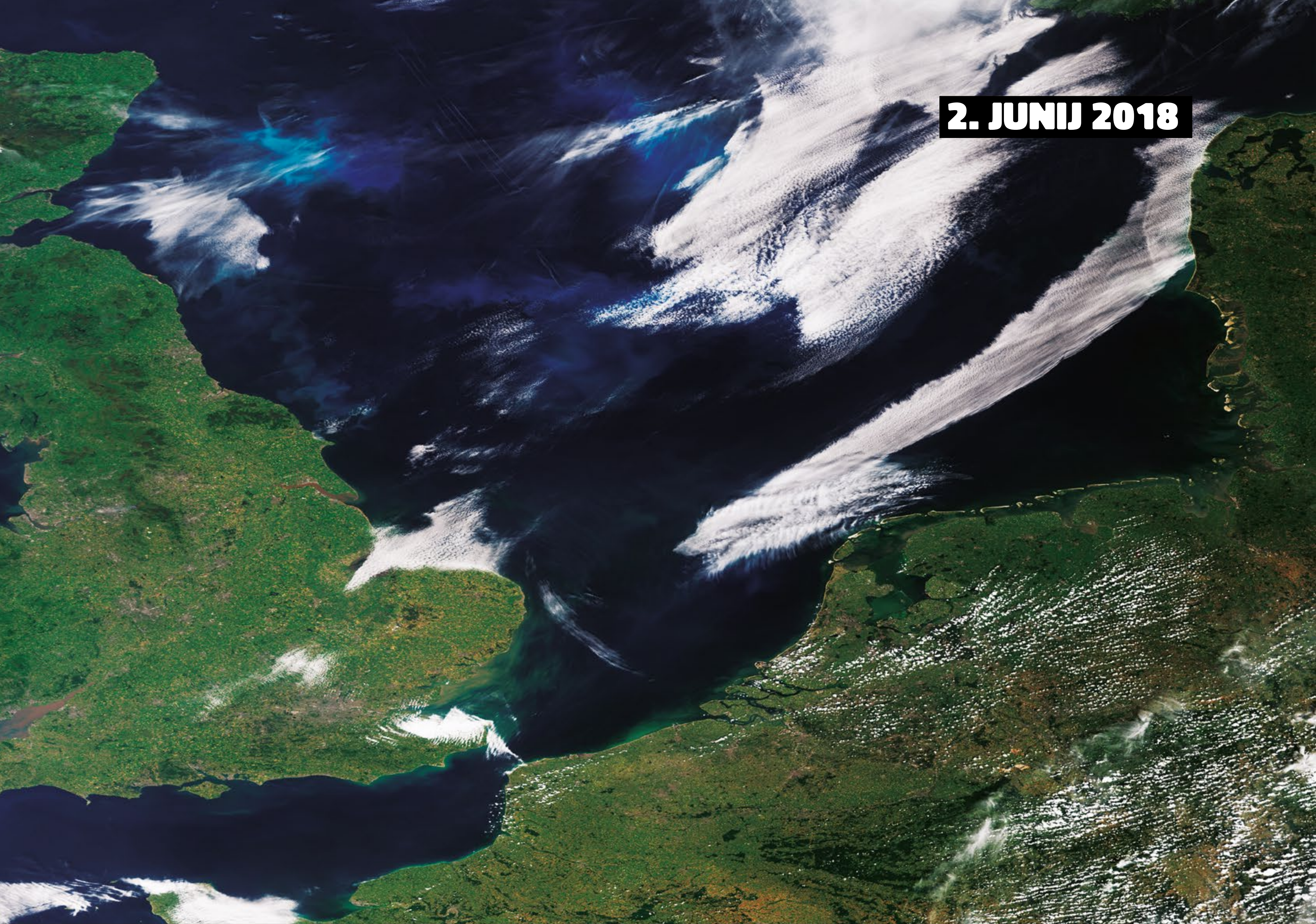


**28. JULIJ 1986**

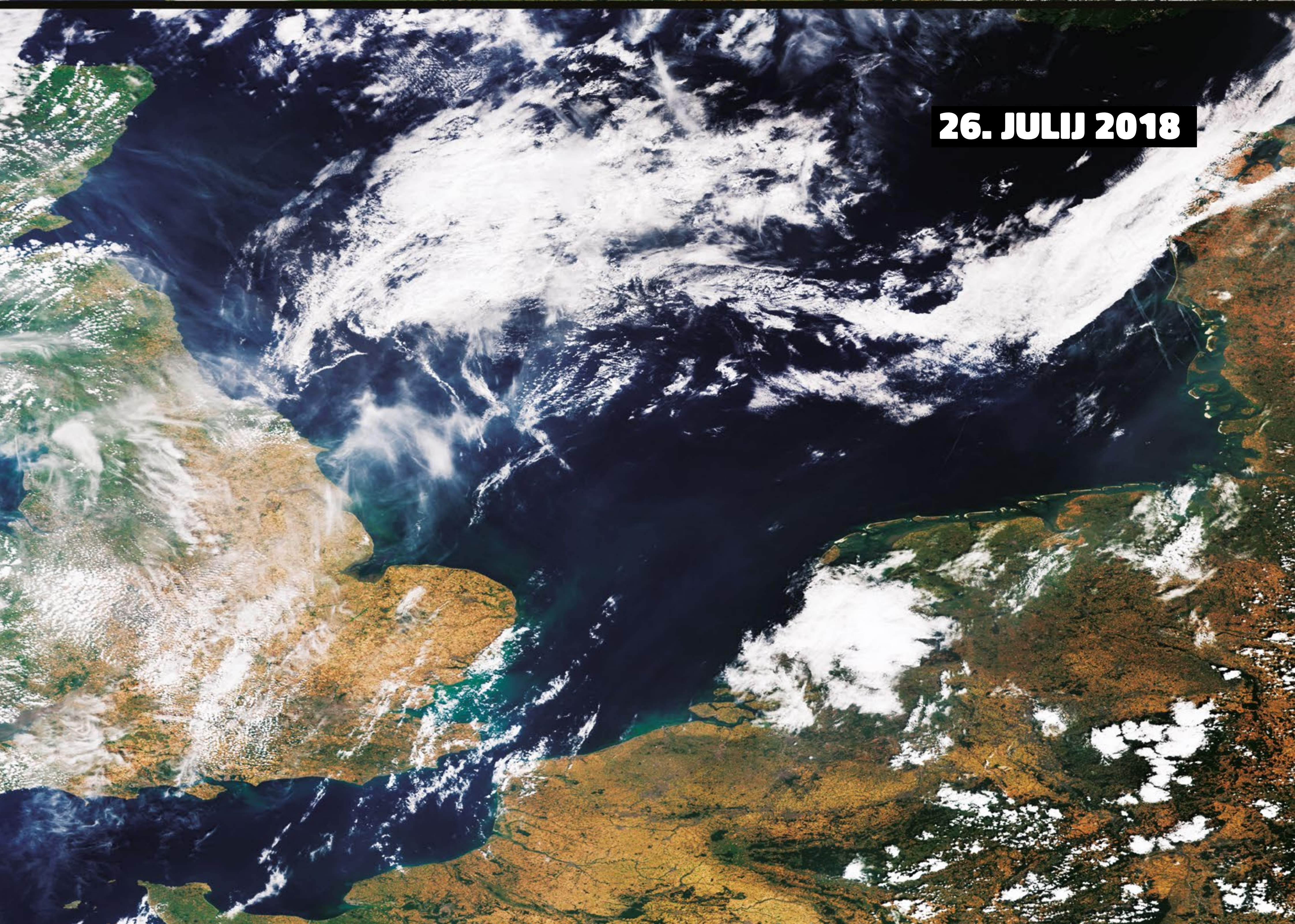


**5. AVGUST 2017**



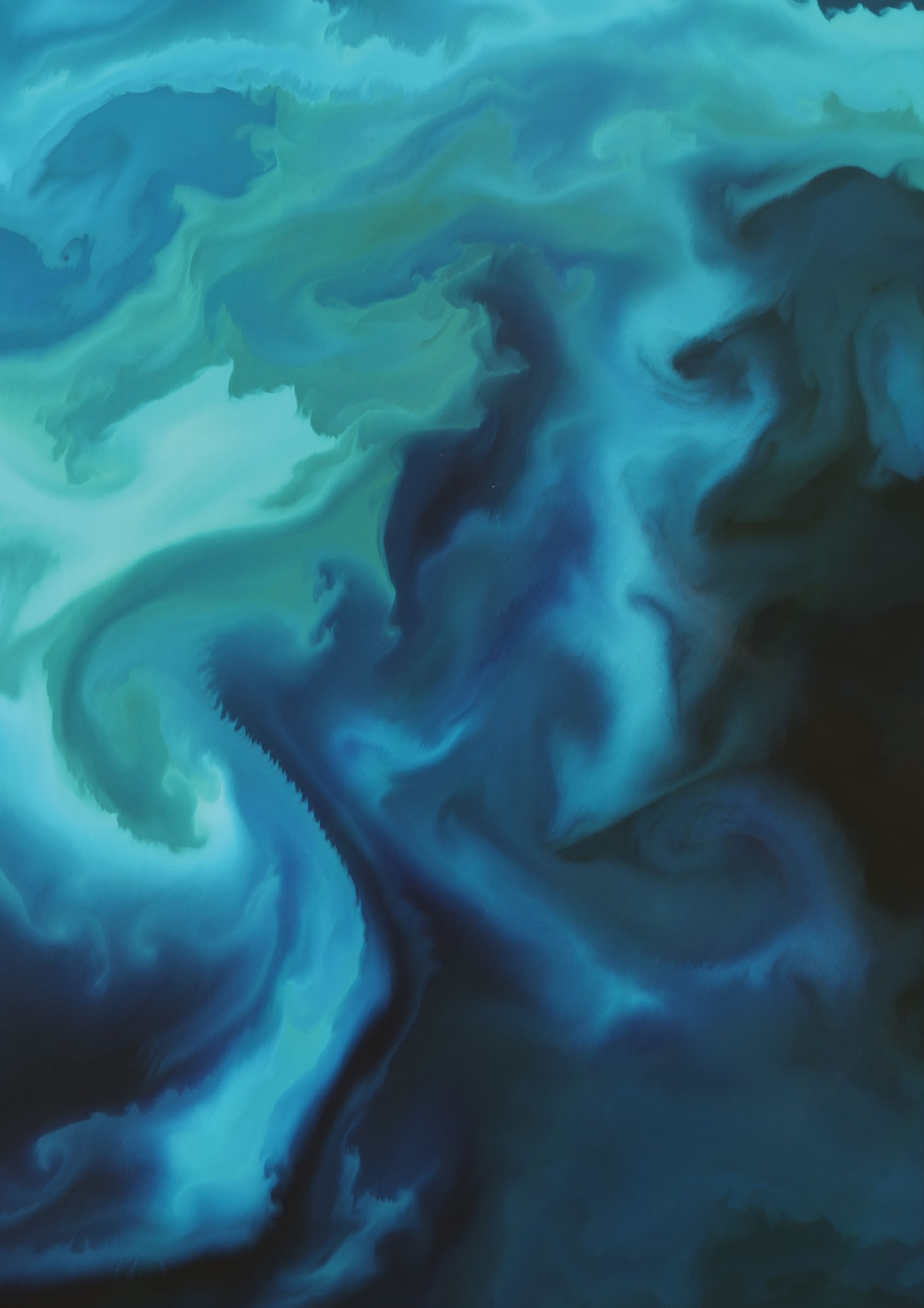


**2. JUNIJ 2018**



**26. JULIJ 2018**











# SKUPAJ LAHKO SPREMENIMO STVARI!

When thinking about how to tackle the climate crisis, it can be difficult to know where to start. How can we play our part? If everyone makes one small change, collectively that can have a huge impact. So what change in your life can you implement that would positively impact our planet?

## 3 Rs: Reduce, Reuse, Recycle

Have you thought about the choices you make everyday? What do you do with your rubbish? Where do you buy your clothes and how do you dispose of them? How can you reduce the amount of waste you generate? Think about your daily habits and consider making some small changes. Collectively they will have a bigger impact on our planet than you realise

## Get involved! Join group activities like Plogging or hosting #trashtag challenges

Plogging is a combination of jogging and picking up litter that began because of increased concern about plastic pollution. It started as an organised activity in Sweden in 2016 and spread to other countries in 2018. As a workout, it provides variation in body movements by adding bending, squatting and stretching to the main action of running, hiking, or walking. Another example is the #trashtag challenge. Check out the hashtag online and see how people, equipped with gloves and some rubbish bags, clean up polluted areas.

*Ko razmišljamo o tem, kako se spopasti s podnebno krizo, je težko vedeti, kje začeti. Kako lahko prispevamo svoj delež? Če vsakdo naredi eno majhno spremembo, ima lahko to ogromen skupni učinek. Kaj lahko spremenite v svojem življenju in s tem pozitivno vplivate na naš planet?*

## Zmanjševanje, ponovna uporaba, recikliranje

*Ali ste že razmišljali o izbira, ki jih sprejemate vsak dan? Kaj počnete s svojimi odpadki? Kje kupujete oblačila in kako se jih znebite? Kako lahko zmanjšate količino odpadkov, ki jih ustvarite? Razmislite o svojih vsakodnevni navadah in razmislite o manjših spremembah. Skupaj bodo imele večji vpliv na naš planet, kot si mislite*

## Sodelujte! Pridružite se skupinskim aktivnostim, kot je Plogging ali gostovanje izzivov #trashtag.

*Plogging je kombinacija teka in pobiranja smeti, ki se je začela izvajati zaradi povečane zaskrbljenosti glede onesnaževanja s plastiko. Kot organizirana dejavnost se je začela na Švedskem leta 2016, leta 2018 pa se je razširila v druge države. Kot vadba zagotavlja raznoliko gibanje telesa, saj teku, pohodništvu ali hoji doda upogibanje, sklanjanje in raztezanje. Drug primer je izziv #trashtag. Na spletu poiščite ta ključnik in si oglejte, kako ljudje, opremljeni z rokavicami in nekaj vrečkami za smeti, čistijo onesnažena območja.*



# PETKI ZA PRIHODNOST

#FridaysForFuture is a movement that began in August 2018, after 15-year-old Greta Thunberg sat in front of the Swedish parliament every school day for three weeks. She started to protest against the lack of action on the climate crisis and posted what she was doing on Instagram and Twitter. Her actions soon went viral. On 8 September 2018 Greta decided to continue striking every Friday until the Swedish policies provided a safe pathway in line with the Paris agreement. The hashtags #FridaysForFuture and #Climatestrike spread and many students and adults began to protest outside of their parliaments and local town halls all over the world.

“Start focusing on what needs to be done, not what is politically feasible!”  
– Greta Thunberg

Image Credits: Fridays for Future Vienna

#FridaysForFuture (#petkizaprihodnost) je gibanje, ki se je začelo avgusta 2018, ko je 15-letna Greta Thunberg tri tedne vsak šolski dan sedela pred švedskim parlamentom. S tem je začela protestirati proti pomanjkanju ukrepov v zvezi s podnebno krizo in svoje dejavnosti objavljala na Instagramu in Twitterju. Njena dejanja so kmalu postala viralna. Greta se je 8. septembra 2018 odločila, da bo stavkala vsak petek, dokler švedska politika ne bo zagotovila varne poti v skladu s Pariškim sporazumom. Ključnika #FridaysForFuture (#petkizaprihodnost) in #Climatestrike (#podnebnistrajk) sta se razširila, številni učenci in odrasli pa so začeli protestirati pred svojimi parlamenti in lokalnimi mestnimi hišami po vsem svetu.

"Začnite se osredotočati na to, kar je treba storiti, ne na to, kaj je politično izvedljivo!"  
– Greta Thunberg

Slika: Fridays for Future Dunaj







