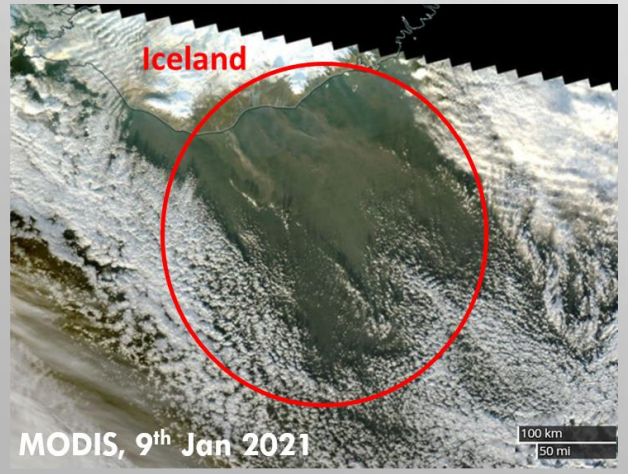
HIGH LATITUDE DUST ACTIVITIES AND NETWORKING 2026

PAVLA DAGSSON-WALDHAUSEROVA, AUI, PAVLA@LBHI.IS

OUTI MEINANDER, VICE-PRESIDENT, FMI

> 125 ICEDUST MEMBERS

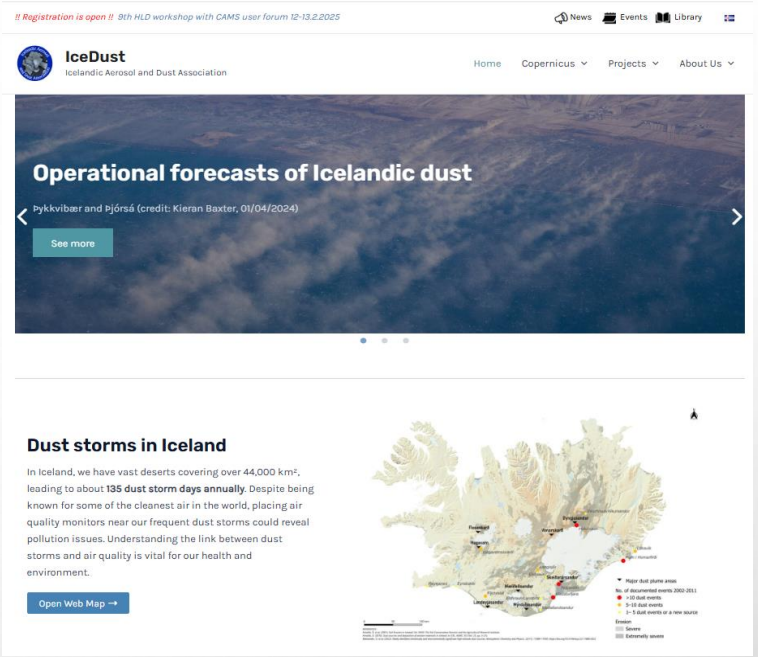


IceDust

Icelandic Aerosol and Dust Association

ICEDUST ASSOCIATION

- 63 research institutions from 22 countries (prev. 57)
- >125 members (prev. 110)
- > 80 scientific papers published
- Member of the European Aerosol Assembly since 2022



ICEDUST ACTIVITIES

- Annual HLD Workshops since 2016
  - Also co-organized with CAMS, NOSA, COST Actions, artists
- New website – **ice-dust.com**
  - Ongoing and new cooperations
  - IceDust publications
- FB group Dust storms in Iceland (>600 members, citizen science)
- Dust Science-Art collaboration
- Education and stakeholder engagement platform
- Session organizers at the major conferences



IceDust
Icelandic Aerosol and Dust A

Nordic Society for Aerosol Research (NOSA) Symposium with the 11th High Latitude Dust (HLD) Workshop

Aerosol Technology, Aerosols & Health, Atmospheric Aerosols, Aerosol Measurements & Instrumentation, Fundamental Aerosol Research, Aerosol-Climate interactions, Polar Air Pollution, Dust, and CAMS in Iceland/Arctic*

The 3rd Dust-Art Exhibition at the venue



The NOSA-HLD Symposium will take place in Reykjavik on **9-12 February 2027**. The main focus in 2027 is in-situ measurements, remote

Abstract deadline extended till 27 October!

Events QR Code

Register here: https://ice-dust.com/en/event/event-hld-2027/

IceDust

Icelandic Aerosol and Dust Association

NORTHERN AFRICA-MIDDLE EAST-EUROPE (NA-ME-E) REGIONAL CENTER

WMO Sand and Dust Storm Warning Advisory and Assessment System (SDS-WAS)

WMO SDS WAS || Asia Regional Center || America Regional Center

ICEDUST COOPERATION

- **WMO** is one of 19 members of the UN coalition combating SDS (**UN SDS Coalition**)
- **IceDust** is part of the Northern Africa, Middle East and Europe node of the **WMO SDS WAS**
- University of the Arctic - **UArctic** Thematic Network on HLD (Arctic Congress, ASSW)
- CAMS National Collaboration Programme Iceland – **CAMS NCP Iceland**
- **IASC** involvement (WG Atmosphere, International Arctic Science Committee)
- **AMAP** reporting involvement (Arctic Monitoring and Assessment Programme)
- Horizon projects + COST Actions involvement
- Dust-Art Exhibitions

Thank you for your attention!

pavla@lbhi.is

Icelandic Aerosol and Dust Association

NOSA

11th HLD Workshop + NOSA Assembly

9-12 Feb 2027





UArctic



Success Story from the Thematic Network on High Latitude Dust:

"The past has shown that safety, climate and environment have revolved around High Latitude Dust"

ICELAND INCLUDED IN THE UN SDS TOOLBOX

United Nations
Convention to Combat Desertification

Land & life | Our work & impact | Science | News & stories | Events | Convention



Home / Land & life / Sand & dust storms

Sand and Dust Storms Toolbox

Overview | Coalition | News & stories | Toolbox | Resources

- Getting started
- Mapping SDS sources
- Observation, monitoring, forecasting & early warning
- Risk and vulnerability assessment
- Source control and management
- Impact mitigation
- About the toolbox

Sand and Dust Storms Toolbox

The SDS Toolbox provides tools, guidance and information which can be used to identify the sources of sand and dust storms, develop and implement management policy, plans and strategies, assess risks and vulnerabilities to SDS, understand how to observe, monitor, forecast and provide warnings of SDS and develop and implement ways to mitigate the impacts of sand and dust storms.

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EXPLORE THE TOOLBOX

MODULE 1
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EXPLORE TOOLS AND GUIDANCE

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Observation, monitoring, forecasting & early warning
EXPLORE TOOLS AND GUIDANCE

MODULE 3
Risk and vulnerability assessment and mapping

MODULE 4
Source control and management

MODULE 5
Impact mitigation

Dust storms and health

Find out more about health risks of windblown dust, particularly its impact on respiratory health and what to do during a dust storm.

Source: *Windblown Dust and Dust storms & your health - Department of Ecology, Washington State, ecology.wa.gov.*

WMO Airborne Dust Bulletins

The World Meteorological Organization publishes anually a report on the incidence and hazards of sand and dust storms, which have a major impact on air quality, health, the environment, agriculture and economies.

The latest Airborne Dust Bulletin can be found here: WMO Airborne Dust Bulletin No. 8 – July 2024.

Operational forecasts of Icelandic dust

Iceland has several SDS source locations with dust storms occurring across all months of the year. Operational forecasts of near surface dust for Iceland are available for a 72 hr. period at three hour increments from dustforecast.lbhi.is. The forecasts can be useful in avoiding dust events while traveling by road and planning visits within the country.

Icelandic Aerosol and Dust Association (IceDust)

Iceland has the largest desert in Europe and experiences an average of 135 dust days per year. The Icelandic Aerosol and Dust Association (IceDust) provides (1) a venue for collaboration on aerosol research in Iceland, (2) a mechanism for communication between researchers focusing on dust events in Iceland and (3) a source of information for the general public on aerosol processes linked to air pollution, atmosphere-cryosphere interactions, volcanic ash resuspension, health and environmental effects of particulate matter.

More information on IceDust can be found at https://ice-dust.com and https://icedustblog.wordpress.com

Thematic Network on High Latitude Dust

The Thematic Network on High Latitude Dust, an activity of the University of the Arctic (UArctic), provides a mechanism for sharing research and networking on dust at high latitudes. Thematic Network encompasses more than 110 scientists working in 53 institutions across 21 countries, holds periodic meetings and, through a link with IceDust, provides access to publications on dust and Iceland.

https://www.unccd.int/land-and-life/sand-and-dust-storms/toolbox/public-information?fbclid=IwY2xjawIgbltleHRuA2FlbQIxMAABHdcRWPIXM8imebhm48e9Dn_SSh2toLMzA31llF1pmWowj7We4K6tMePi-Q_aem_j1zy5ZwKv8oNdX1KBx7dUQ

https://www.unccd.int/land-and-life/sand-and-dust-storms/toolbox/research-information-sources?fbclid=IwY2xjawIgbl5leHRuA2FlbQIxMAABHdcRWPIXM8imebhm48e9Dn_SSh2toLMzA31llF1pmWowj7We4K6tMePi-Q_aem_j1zy5ZwKv8oNdX1KBx7dUQ

United Nations
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Land & life | Our work & impact | Science | News & stories | Events | Convention



Home / Land & life / Sand & dust storms

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MODULE 5
Impact mitigation

Sand and dust storms

WORLD METEOROLOGICAL ORGANIZATION

"*Sand and dust storms (SDS) are common natural hazards occurring when strong winds lift sand and dust from dry soils into the atmosphere, transporting particles over vast distances*"



"*3.8 billion people are affected by sand and dust storms around the world*"

ipcc
INTERGOVERNMENTAL PANEL ON climate change

"*Climate change impacts on dust and sand storm activity remain a critical gap*"

World Health Organization

"*Sand and dust storms contribute to air pollution, posing a significant public health concern, particularly for respiratory and cardiovascular diseases*"

UN environment programme

"*Sand and dust storms are a global environmental problem*"

United Nations Climate Change

"*2025–2034 the Decade on Combating Sand and Dust Storms*"

https://www.unccd.int/land-and-life/sand-and-dust-storms/toolbox/public-information?fbclid=IwY2xjawIgbltleHRuA2FlbQIxMAABHdcRWPIXM8imebhm48e9Dn_SSh2toLMzA31llF1pmWowj7We4K6tMePi-Q_aem_j1zy5ZwKv8oNdX1KBx7dUQ

https://www.unccd.int/land-and-life/sand-and-dust-storms/toolbox/research-information-sources?fbclid=IwY2xjawIgbl5leHRuA2FlbQIxMAABHdcRWPIXM8imebhm48e9Dn_SSh2toLMzA31llF1pmWowj7We4K6tMePi-Q_aem_j1zy5ZwKv8oNdX1KBx7dUQ

Veðurstofa Íslands

Reykjanesskagi | Nýr vefur | ENGLISH | Leitarorð

Forsíða | Veður | Jarðhræringar | Vatnafar | Ofanflóð | Loftslag | Hafís | Mengun | Un

12 July – International Sand/Dust Storm Day

- Um Veðurstofuna
  - Fréttir
  - Útgáfa
  - Skipurit Veðurstofu Íslands
  - Merki Veðurstofu Íslands
  - Hafa samband
  - Laus störf
  - Senda myndir
  - Starfsfólk
  - Þjónusta
  - Lög og reglugerðir
  - Gæðastefna
  - Launastefna
  - Jafnréttisáætlun
  - Um vefinn
  - Saga Veðurstofu Íslands

Hlusta

Jarðvegsfok á Íslandi í alþjóðlegu samhengi

11.7.2026



Rykbylur á Dyngjusandi.

Jarðvegsfok er verulegt umhverfis- og loftgæðavandamál á Íslandi og getur orðið á öllum árstímum. Alþjóðaveðurfræðistofnunin, WMO, vekur nú athygli á víðtækum áhrifum sand- og rykbylja, en slíkir atburðir höfðu mikil áhrif á heilsu, umhverfi, samgöngur og atvinnustarfsemi víða um heim árið 2025.

WMO birtir nýtt yfirlit um jarðvegsfok og ryk í andrúmslofti í tilefni alþjóðadags baráttunnar gegn sand- og rykstormum , sem haldinn er 12. júlí. Í ritinu *WMO Airborne Dust Bulletin* er fjallað um helstu upptakasvæði jarðvegsfoks í heiminum, áhrif sand- og rykbylja og framfarir í rannsóknum, vöktun, spám og viðvörunum.

Á hverju ári berast um tveir milljarðar tonna af ryki út í lofthjúpinn. Rykið getur borist hundruð eða jafnvel þúsundir kílómetra, yfir landamæri, heimsálfur og úthöf.

Stærstu upptakasvæðin eru á þurrum og hálfþurrum landsvæðum, meðal annars í Sahara, Góbí-eyðimörkinni og Arabíueyðimörkinni. Jarðvegsfok er þó ekki bundið við heitar eyðimerkur heldur verður það einnig á köldum svæðum þar sem fínkorna set og ógróið land liggja óvarin fyrir vindi.

Umfangsmikið jarðvegsfok á Íslandi

WEATHER CLIMATE WATER

WORLD METEOROLOGICAL ORGANIZATION | GLOBAL ATMOSPHERE WATCH

No. 10 – JULY 2026

WMO AIRBORNE DUST BULLETIN

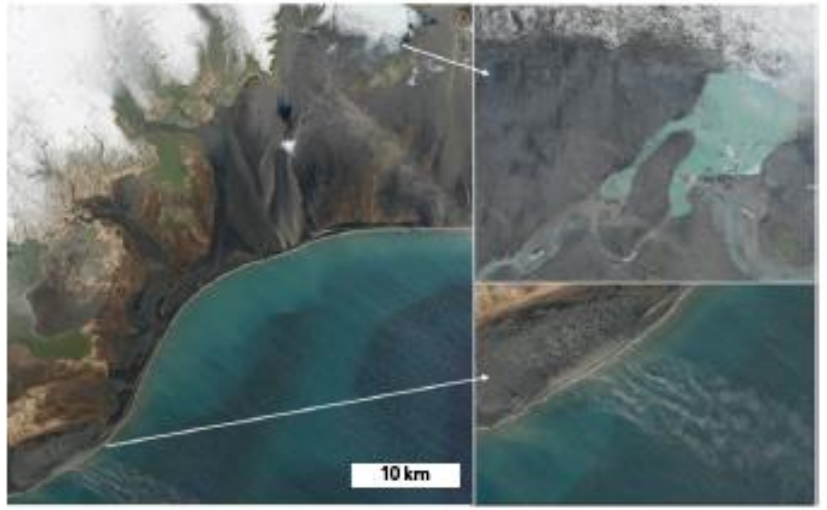


Figure 14. SDSs around Mýrar station in South Iceland on 2 April 2025 (left and lower-right images). The upper-right image shows newly exposed dust sources after glacier melt and small dust plumes from areas on the top of the glacier where dust and ash had been deposited.
Source: Copernicus Data Space Ecosystem

air quality. The workshop highlighted the increasing recognition of HLD as an important component of the global dust cycle and its potential impacts on climate, ecosystems and human activities in polar regions.

New measurements in Iceland further demonstrated the significance of local dust sources (Figure 14). Enhanced monitoring around Iceland's extensive desert areas revealed background particulate matter concentrations comparable to, and at times exceeding, those measured at urban locations. Frequent SDSs produced instantaneous PM_{10} concentrations exceeding 1 000 µg m^{-3}, while newly exposed proglacial areas and dust-rich glacier surfaces were identified as active dust sources. These

Claquin, T.; Schulz, M.; Balkanski, Y. Modeling the Mineralogy of Atmospheric Dust Sources. *Journal of Geophysical Research: Atmospheres* **1999**, *104* (D18), 22243–22256. https://doi.org/10.1029/1999JD900416.

Darvishi Boloorani, A.; Soleimani, M.; Papi, R. et al. Global Map of Characterized Dust Sources Using Multisource Remote Sensing Data. *Scientific Reports* **2025**, *15* (1), 29805. https://doi.org/10.1038/s41598-025-14794-3.

Di Biagio, C.; Formenti, P.; Balkanski, Y. et al. Complex Refractive Indices and Single-scattering Albedo of Global Dust Aerosols in the Shortwave Spectrum and Relationship to Size and Iron Content. *Atmospheric Chemistry and Physics* **2019**, *19* (24), 15503–15531. https://doi.org/10.5194/acp-19-15503-2019.

2023-2028
Air Quality (AQ) hub in Iceland

Copernicus Atmosphere Monitoring Service

https://atmosphere.copernicus.eu/iceland

CAMS National Collaboration Programme – Iceland

Title of Project: Air Quality Monitoring and CAMS Integration in Iceland, Phase 2

Contractor and Subcontractors: Agricultural University of Iceland, Icelandic Environment and Energy Agency, Natural Science Institute of Iceland

WPs:

- WP20 Direct use
- WP50 In situ





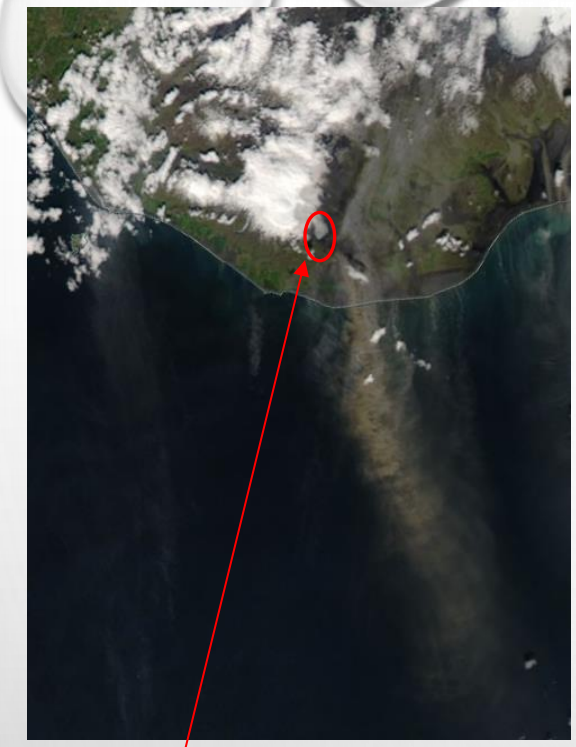


Pavla Dagsson-Waldhauserová[1], Michaela Hrabalíková[2], Hlynur Árnason[3], Slobodan Nickovic[1,4], Bojan Cvetkovic[4], Ana Vukovic[5]

[1] Agricultural University of Iceland, [2] Natural Science Institute of Iceland, [3] Icelandic Environment and Energy Agency
[4] Republic Hydrometeorological Service of Serbia – SEEVCCC, [5] Faculty of Agriculture, University of Belgrade, Serbia

PLANETWATCH BY ENLAPS

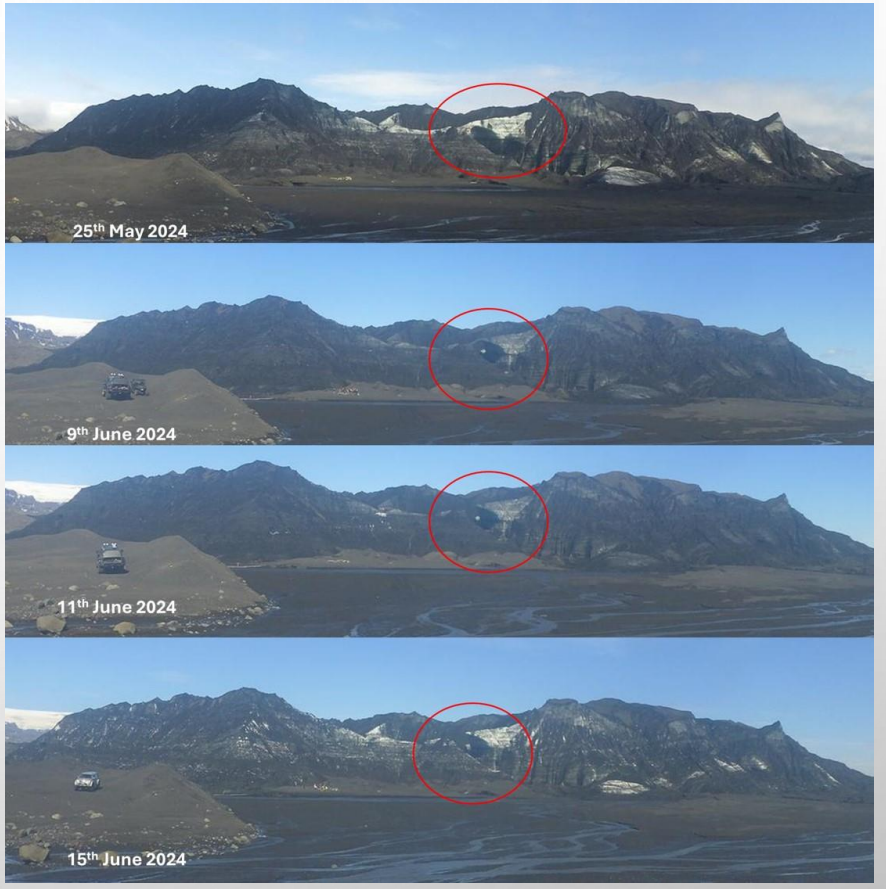
#PlanetWatch by Enlaps
https://enlaps.io/planet-watch



International Year of Glaciers Preservation, initiated by **UNESCO** and the **WMO** (World Meteorological Organization)

Already deployed in over 100 glaciers monitoring projects



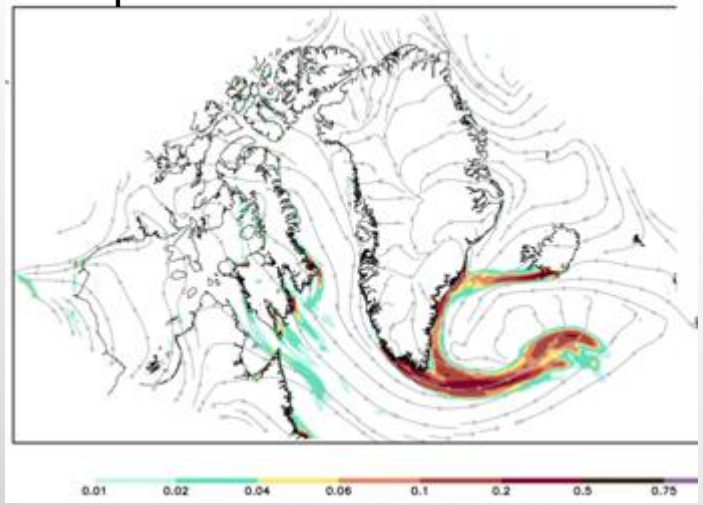


Extreme case study: Collapse of ice cave in Kötlujökull, 10th June 2024

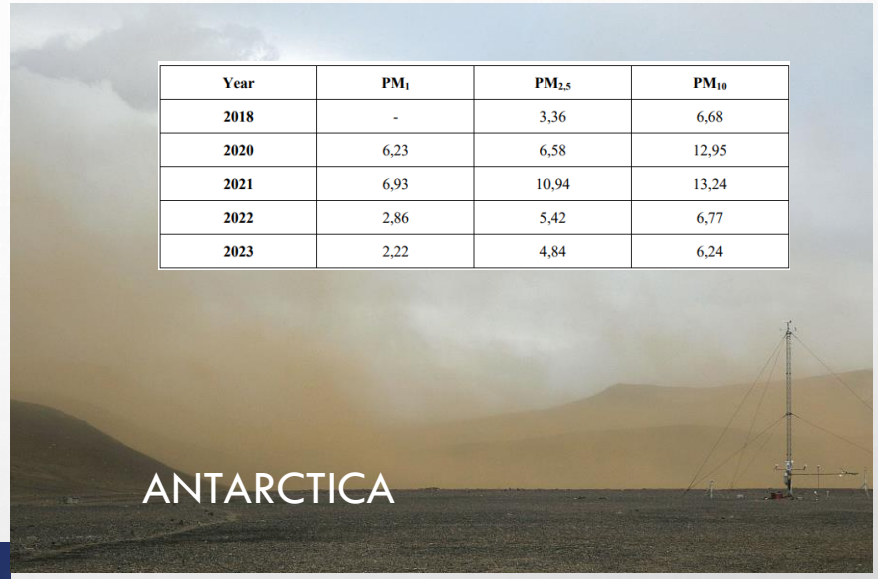
DUSTHILA

DUST CHANGING HIGH LATITUDES 2026-2029

Arctic operational dust forecast



New in-situ dust measurement



Year	PM_1	$PM_{2.5}$	PM_{10}
2018	-	3,36	6,68
2020	6,23	6,58	12,95
2021	6,93	10,94	13,24
2022	2,86	5,42	6,77
2023	2,22	4,84	6,24



Qaanaaq



SVALBARD



ICELAND

How Can Lidar Improve Atmospheric Modelling?

Join EARLICOST and connect with the European atmospheric lidar community. **-> IMO would be appreciated**

EARLICOST
European Atmospheric Research Lidar Cooperation on Science and Technology

ABOUT EARLICOST

EARLICOST is a European network bringing together researchers, infrastructures, industry and end-users to advance atmospheric research, foster innovation, and strengthen collaboration across Europe and beyond. The Action also seeks to **strengthen connections** between advanced lidar observations, atmospheric modelling and emerging user applications.

EARLICOST AT A GLANCE

213
Members

33
Countries

4
Working Groups

October 2025 – September 2028
4 years

EXPLORE OUR FOUR WORKING GROUPS

WG1 Sensing Technology

WG2 Data Treatment and synergies

WG3 Users' and Stakeholders' Engagement

WG4 Dissemination and Outreach

EARLICOST GRANTS & OPPORTUNITIES

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Short-Term Scientific Missions

Inclusiveness Target Countries Conference Grants

Young Researcher & Innovator Conference Grants

Learn more about all our grants and other opportunities

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Data scientists • End-users

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cost EUROPEAN COOPERATION IN SCIENCE & TECHNOLOGY

Funded by the European Union

COST Action EARLICOST CA24135 is funded by the European Cooperation in Science and Technology (COST), European Union (Action CA24135 – COST, ttps://www.cost.eu/actions/CA24135/).

Dyngjusandur, NE Iceland = **Bodele of the North**

Waiting for the HLD

Dust Science-Art collaboration emphasized





Thank you for your attention!

pavla@lbhi.is

➢ **11th HLD Workshop + NOSA Assembly**

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Icelandic Aerosol and Dust Association

NOSA
Nordic Society for Aerosol Research