

# Updates on Italian Arctic Activities

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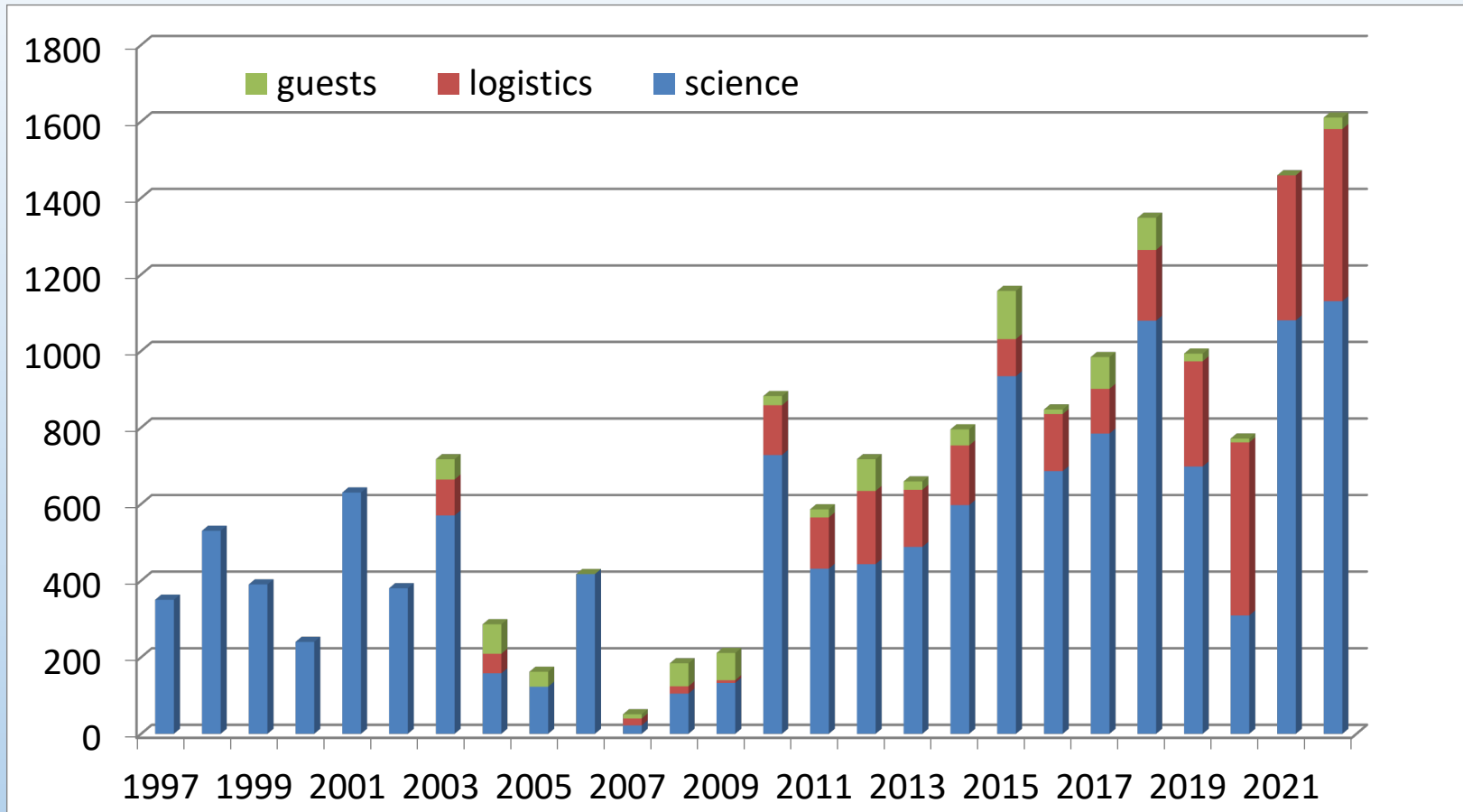
INTERACT 12-14 September 2023

# Arctic Station “Dirigibile Italia”, Ny-Ålesund Research Station (Svalbard)



- Opened in **1997**
- Managed by **CNR-ISP**, but hosts researchers from other institutions and universities
- Surface 330 m<sup>2</sup> with sleeping rooms, offices and laboratories
- Can host up to 7 researchers
- Since 2018 runs **all year round**
- Access through a national call and a peer-review process.
- Participates to **INTERACT** and **SIOS** access programs

# Man-days at Dirigibile Italia



More than 30 projects submitted for 2023, including **INTERACT** and **SIOS access projects**. We expect a similar number of attendances as in 2022. -> **1373 man-days in 2023**

# Large future projects and investments

PRA (Arctic Research Programme) funded by Italian Ministry for University and Research for studies over the Arctic (3 calls for projects up to now), has been renewed for two more years (1 M€/y).



A screenshot of the PRA website's 'index-projects' page. The page features a navigation bar at the top with the PRA logo and menu items: ABOUT, AZIONI PRA, INFRASTRUTTURE, ATTIVITÀ INTERNAZIONALE, IADC, DIVULGAZIONE, NEWS, GALLERIE. Below the navigation bar, there are six project cards arranged in a 2x3 grid. Each card has a title, a brief description, the research institution, and a 'SCOPRI IL PROGETTO' button with a red arrow icon. The projects are: 1. A-PAW: AIR POLLUTION IN THE ARCTIC WINTER (A-PAW): AN ITALIAN CONTRIBUTION TO THE ALPACA FIELD EXPERIMENT (CNR-ISAC). 2. BETHA-NyÅ: BOUNDARY LAYER EVOLUTION THROUGH HARMONIZATION OF AEROSOL MEASUREMENTS AT NY-ÅLESUND RESEARCH STATIONS (ISTITUTO DI SCIENZE POLARI - CNR). 3. ECAPAC: EFFECTS OF CHANGING ALBEDO AND PRECIPITATION ON THE ARCTIC CLIMATE (INEA - DIPARTIMENTO SOSTENIBILITÀ DEI SISTEMI PRODUTTIVI E TERRITORIALI (SSPT)). 4. ICED EARTH: INTERACTIONS BETWEEN THE CRYOSPHERE AND DUST IN THE EARTH SYSTEM (DEPARTMENT OF ENVIRONMENTAL AND EARTH SCIENCES, UNIVERSITY OF MILANO-BICOCCA). 5. PAST-HEAT: PERMAFROST THAWING: WHAT HAPPENED TO THE LARGEST TERRESTRIAL CARBON POOL DURING LAST DEGLACIATION? (ISTITUTO DI SCIENZE POLARI ISP-CNR). 6. SENTINEL: THE IMPACT OF SEA ICE DISAPPEARANCE ON HIGHER NORTH ATLANTIC CLIMATE AND ATMOSPHERIC BROMINE AND MERCURY CYCLES (ISP-CNR).

<https://www.programmaricercartaartico.it/index-projects>



# SENTINEL

## Holthedalfonna ice drilling campaign

### Svalbard

took place in April 2023

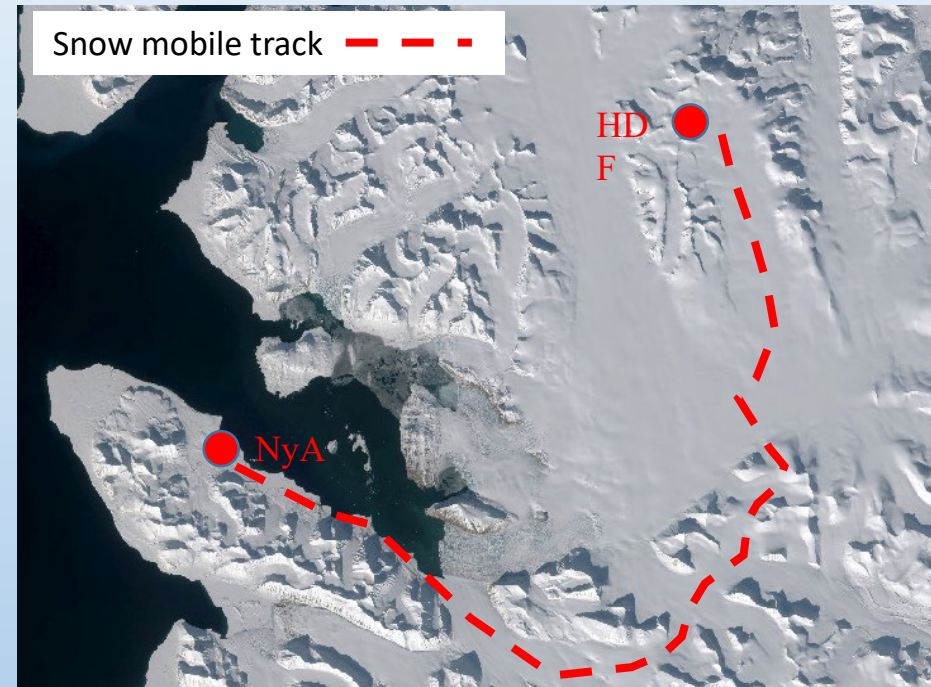


# Logistic planning

- Campaign took place in April 2023
- The headquarter was located in Ny-Alesund with the support of the Italian Arctic Station Dirigibile Italia



- Installation of a remote camp at the summit of Holthedalfonna able to host 8 personnel (5 researchers, 1 driller, 1 drill support, 1 mountain guide)
- Equipment transportation from Ny-Alesund to HDF summit by snow mobile.
- Possibility for personnel and material exchange during the field operation.
- Ice core will be transported back to Ny-Alesund by snow mobile. This approach has already been successfully carried out in previous campaigns.
- Cores will be store in Ny-Alesund in a freezing container until transportation to Europe by IPEV.



## MAIN GOALS

- Collect a deep ice core from Holtedahlfonna (HDF) Glacier summit.
- Reconstruct the atmospheric composition of the last 300 years
- Reconstruct the sea ice change of the last 300 year north of Svalbard
- Investigate the degradation (or not) of the climate signal compared to the 2005 core
- Investigate the role of sea ice dynamics on Svalbard biogeochemical cycles
- Investigate the impact of Arctic amplification on the Svalbard environment
- Reconstruct the history of microbial colonization and evolution in relation to past climate





# Efforts to reduce environmental impacts

From April 2023 the station have an **electric car** for moving people and weights in and around the Ny-Ålesund.





# Availability/opportunities for international infrastructure access in the next 2 years

The **INTERACT** Access program is at its last year (2023), with 3 projects and **2 visits during 2023**

**SIOS** Access program for 2023, we got 3 request of access (<https://sios-svalbard.org>). -> **1 approved**

The station is part of new **access programs** (physical, remote, virtual) in the frame of European initiatives. -> **POLARIN, INPA**

Access is possible through **collaborations with Italian research institutions and universities.**



New version of the  
**Italian Arctic Data Center** is  
 available and slowly populating  
<https://iadc.cnr.it>

Metadata via Geonetwork

Data via ERDDAP

Grid Data	Sub-set	Table	Data	Graph	Make	W	M	S	Source	Access	Title	Summary	FGDC	ISO	Back-ground	Info	RSS	E-mail	Institution	Dataset ID
	set	data	graph						public		"The List of All Active Datasets in this ERDDAP"				background				CNR-ISP	allDatasets
				graphs					public		Climate Change Tower Meteorological Data (D1.5 Quality Assured)				background				CNR - National Re	iadc_d1_meteo_cct
				files					public		Climate Change Tower Meteorological Data (D2)				F I M	background			CNR - National Re	cct_meteo_d2
				files					public		Climate Change Tower Radiation Data				background				CNR - National Re	cct_radiation_0
				graphs					public		Climate Change Tower Radiation Data (D1.5 Quality Assured)				background				CNR - National Re	iadc_d1_radiation_cct
				files					public		Climate Change Tower Radiation Data (D2)				F I M	background			CNR - National Re	cct_radiation_d2
				files					public		CTD data set from mooring M01 @ 35m and 85m (Kongsfjorden)				F I M	background			CNR - National Re	ind_cct_mesures_1
				files					public		CTD data set from mooring S1 @ 1000 m				F I M	background			OGS - National In	s1_cct_mesures_1
				files					public		Equivalent black carbon from aerosol absorption coefficient				F I M	background			CNR-ISP	ebc_2010_2020
				files					public		EXADDER-2020 ozone column at Barentsburg Svalbard station				F I M	background			Institute of Pola	ozone-barentsburg
				files					public		EXADDER-2020 ozone column at Ny-Alesund Svalbard station				F I M	background			Institute of Pola	ozone-ny-alesund
				files					public		EXADDER-2020 surface UV irradiance at Hornsund Svalbard station				F I M	background			Institute of Pola	uv-hornsund
				files					public		EXADDER-2020 surface UV irradiance at Longyearbyen Svalbard station				F I M	background			Institute of Pola	uv-longyearbyen
				files					public		EXADDER-2020 surface UV irradiance at Ny-Alesund Svalbard station				F I M	background			Institute of Pola	uv-ny-alesund
				files					public		Fractional snow-covered area in the Ny-Alesund area in 2020				background				National Research	zenodo_5705593
				files					public		Inter-comparison of UV radiometers at Svalbard				F I M	background			Institute of Pola	data
				files					public		Snow height at the Grønvæddel Snow Research Site in 2020 (NY-Alesund, Svalbard, Norway)				F I M	background			National Research	zenodo_5705618
				files					public		Snow height in 2020 at the Admunsen-Noble Climate Change Tower, Svalbard, Norway				F I M	background			National Research	zenodo_5705614
				files					public		Snow temperature in 2020 at the Admunsen-Noble Climate Change Tower, Svalbard, Norway				F I M	background			National Research	zenodo_5705621
				files					public		Snow temperature in 2020 at the Grønvæddel Snow Research Site (NY-Alesund, Svalbard, Norway)				F I M	background			National Research	zenodo_5705623

**Next Generation EU** -> funds for improving (NRT) availability and sharing of polar data