Programma di ricerche in Artico (PRA) call INFRA 2021

Funded Projects

Acronimo/titolo breve	Scopo/Tema	Nome proponente/ Coordinatore scientifico	Affiliazione del proponente	Altri partecipanti
ITA-CASCADE	A/3	Tommaso Tesi	CNR-ISP	Stockholm University; Tomsk Polytechnic University; Vrije Universiteit Amsterdam; Geological Survey of Canada; UiT - The Arctic University of Norway
Winter-CZ	A/3	Antonello Provenzale	CNR-IGG	Università degli Studi di Napoli "Federico II" - Dipartimento di Biologia; Alfred-Wegener-Institut Helmholtz-Zentrum für Polar- und Meeresforschung; Queen Mary University of London; University of Cologne, Institute of Geology and Mineralogy
PAGINA	A/2	Vincenzo Romano	INGV	UNIVERSITY OF NEW BRUNSWICK; FINNISH METEOROLOGICAL INSTITUTE
TRANSFER	A/2	Andrea Spolaor	CNR-ISP	Dipartimento di Chimica, Biologia e Biotecnologie, Università degli Studi di Perugia; Chemistry Department “Ugo Schiff” (DICUS), University of Florence; Università degli Studi di Torino; Institute of Atmospheric Sciences and Climate (CNR-ISAC)
iSCORE	C/3	Roberto Salzano	CNR-IIA	Istituto Scienze Polari – Consiglio Nazionale delle Ricerche; Scuola Universitaria Superiore IUSS di Pavia; Finnish Meteorological Institute

1. **ITA-CASCADE** – ***Italian participation to the digital infrastructure of the Circum-Arctic Sediment CArbon DatabasE***

   PI: Tommaso Tesi - CNR-Istituto di Scienze Polari

   Partners: Stockholm University; Tomsk Polytechnic University; Vrije Universiteit Amsterdam; Geological Survey of Canada; UiT - The Arctic University of Norway

   Abstract: How the Arctic Carbon Cycle will change in a warming scenario holds the attention of the entire international community. Sea ice loss, permafrost thaw and ocean acidification are some examples of the expected perturbations. To support the community working on the Arctic Carbon complexity, we initiated the open CASCADE digital infrastructure which enables pan-Arctic biogeochemical analyses, supports ecology studies and facilitates a wide array of models. This proposal promotes the next phase of the CASCADE by reinforcing its pan-Arctic dimension and reducing the current gaps.

2. **Winter-CZ** – ***Winter Critical Zone dynamics in the High Arctic: measuring carbon fluxes and geo-biological processes at the Bayelva Critical Zone Observatory during winter.***

   PI: Antonello Provenzale - nstitute of Geoscience and Earth Resources - National Research Council of Italy (CNR-IGG)

   Partners: Università degli Studi di Napoli "Federico II" - Dipartimento di Biologia; Alfred-Wegener-Institut Helmholtz-Zentrum für Polar- und Meeresforschung; Queen Mary University of London; University of Cologne, Institute of Geology and Mineralogy

   Abstract: We propose to integrate the existing field instrumentation of the projects CZO@Bayelva and TMPT@CNR_NYA in Ny Ålesund (NO) to fill the knowledge gap on the properties and drivers of winter CO2 fluxes in the High Arctic. The work will be done in the framework of the international T-MOSAiC program. We shall install new fixed devices for winter monitoring of soil, snow, CO2 fluxes and microbiological activity in the Bayelva basin, developing data services and data-driven and process-based models.

3. **PAGINA** – ***Pan-Arctic GNSS INfrastructure for Atmospheric science***

   PI: Vincenzo Romano - INGV

   Partners: UNIVERSITY OF NEW BRUNSWICK; FINNISH METEOROLOGICAL INSTITUTE

Abstract: Our proposal aims at filling the existing gap of the observing GNSS systems and related ICT platforms over the Arctic region as a whole, by gathering the GNSS information acquired at Svalbard, Finland, Greenland and Canada. The unprecedented effort will represent the unique infrastructure capable of monitoring and investigating the northern polar atmosphere by means of high-rate GNSS data. The novelty stands in the integration of different data sources managed by INGV (Svalbard and Greenland), UNB (Canada) and FMI (Finland) creating a bi-continental infrastructure.

4. **TRANSFER**– ***TRansport and circulation of Anthropogenic and Natural compounds in the Svalbard Fragile EnviRonment: an integrated approach***

   PI: Andrea Spolaor - CNR- CNR-Istituto di Scienze Polari

   Partners: Dipartimento di Chimica, Biologia e Biotecnologie, Università degli Studi di Perugia; Chemistry Department “Ugo Schiff” (DICUS), University of Florence; Università degli Studi di Torino; Institute of Atmospheric Sciences and Climate (CNR-ISAC)

   Abstract: The shrinkage of the Arctic Sea ice cover and glaciers mass, the changes in oceanic circulation and atmospheric transport due to the phenomena of the Arctic amplification can enhance the spread and deposition of particle-bound pollutants, from aerosol to snow/ice to their further release in the marine environment. TRANSFER aims to improve our knowledge on the short and long-term effects of the Arctic amplification on the pollutant dynamics in the Svalbard environment, through an integrated approach.

5. **iSCORE** – ***Infrastructure on Snow COver Reflectance and sEasonality***

   PI: Roberto Salzano - Istituto sull’Inquinamento Atmosferico – Consiglio Nazionale delle Ricerche

   Partners: Istituto Scienze Polari – Consiglio Nazionale delle Ricerche; Scuola Universitaria Superiore IUSS di Pavia; Finnish Meteorological Institute

   Abstract: The snow dynamics detection is a complex task that requires to build a multisource observation infrastructure. The aim of this proposal is to consolidate the already running multi-sensor platform in the Svalbard Archipelago by assimilating the available capabilities into a multi-sensor data infrastructure. Derived products, focused on the spatial distribution and on the spectral properties of the snow cover, will be co-designed to maximize the integration with remote Arctic observing systems.